

EPIDEMICS WITHOUT BORDERS: DIVIDED GERMANY, THE FIGHT AGAINST
POLIOMYELITIS, AND COLD WAR INTERNATIONAL RELATIONS, 1945-1965

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POLIOMYELITIS, AND COLD WAR INTERNATIONAL RELATIONS, 1945-1965

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Lay Abstract

This thesis outlines the ways in which an infectious disease, poliomyelitis, was treated and prevented in divided Germany between 1945 and 1965, contextualizing medical history with the political context of the Cold War. The first two chapters examine the period from 1945 to 1953, when no vaccines against polio were available and Germany was occupied by the Allied powers. The German healthcare system was reconstructed differently in the Soviet and American zones. The political beliefs of each occupying power shaped the resulting systems: socialized and centralized medicine was a hallmark of the Soviet zone's healthcare, while the American zone pursued a free market approach. Chapters three and four explain the introduction of two different vaccines, both developed in the United States: an injected vaccine created by Jonas Salk, and an oral vaccine developed by Albert Sabin. The United States championed the Salk vaccine, while the USSR was an early adopter of the Sabin vaccine. These chapters explain how a vaccine created in the US became known as a Soviet vaccine, and how this reputation affected western countries' adoption of the medical innovation. The thesis concludes that doctors are not separate from the political contexts in which they live and shows how political ideology and cross-border rivalry affect healthcare provision.

Abstract

On the first day of August in 1961, the Health Ministry of the German Democratic Republic (GDR) announced the closure of the German-German border permanently, accusing the Federal Republic of Germany (FRG) of neglecting its citizens and failing to properly administer vaccinations against poliomyelitis.¹ This accusation sparked the ire of the West German and United States media, and the Federal Republic denied that there were outbreaks. The episode raises questions about common perceptions of healthcare in East Germany. The thought that East Germany might have an epidemic disease under control, which still caused problems in West Germany, contradicts the perception that East Germany lagged behind its western neighbor in every realm.

While recent histories of international relations and healthcare emphasize collaboration between the US and the USSR, and their Cold War allies in this period, this dissertation presents a less constructive relationship. Despite the shared goal of polio control and eradication, East and West Germany used epidemic control as evidence of the successes of one system of healthcare governance, or the faults of the opponent's system. The Berlin Wall announcement was the culmination of almost 15 years of government competition, speckled with individual collaboration, in the field of healthcare.

This dissertation contributes to literature on healthcare in divided Germany, narratives which present the history of polio as an “American story,” and scholarship on healthcare and international relations. It shows how two separate healthcare systems were

¹ “East Germany Curbs Travel: Blames Polio,” *Chicago Tribune*, 1 August 1961, 11.

constructed by Soviet and American occupiers with German collaborators between 1945 and 1947. These separate systems, established before the official division of Germany, laid the foundation for two separate states. During the first postwar polio epidemic in 1947, the United States showed its affluence and experience with polio through a robust response centered on technological solutions. The USSR, conversely, could not match the United States' response due to inexperience with polio and lack of economic resources, garnering criticism from German citizens and US occupiers. In 1955, the introduction of Jonas Salk's injected polio vaccine gave doctors and civilians in the US hope that polio would soon be a memory, but European responses were much more ambiguous. Albert Sabin's forthcoming oral polio vaccine appeared to be a much more promising option to many physicians due to its ease of administration and cost-effectiveness. When Sabin chose to field test his vaccine in the USSR, his decision to collaborate with the US's Cold War opponent demonstrated significant potential for collaboration. Nonetheless, the Soviet connections of Sabin OPV led to a crisis in divided Berlin.

The history of polio is not an American story and recognizing the ways in which the fight against this disease went beyond the national, complicated by political boundaries but involving recognizable collaboration across those boundaries, helps expand the historical narrative of poliomyelitis. While vaccine diplomacy was indeed a form of soft power used in the context of the Cold War, promises of vaccines were not always received without question, and incorporating a deeper examination of recipient countries' discourses helps complicate our understandings of diplomacy and hesitancy.

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Abbreviations

AFEB	Armed Forces Epidemiological Board
AMA	American Medical Association
DDT	Dichlorodiphenyltrichloroethane
<i>DVKB</i>	<i>Deutsche Vereinigung zur Bekämpfung der Kinderlähmung</i>
FRG	Federal Republic of Germany (<i>Bundesrepublik Deutschland</i> or BRD)
GDR	German Democratic Republic (<i>Deutsche Demokratische Republik</i> or DDR)
<i>GMM</i>	<i>German Medical Monthly</i>
HICOG	High Commission for Occupied Germany
IPV	Inactivated Polio Vaccine
<i>JAMA</i>	<i>Journal of the American Medical Association</i>
NFIP	National Foundation for Infantile Paralysis
<i>NSDAP</i>	<i>Nationalsozialistische Deutsche Arbeiterpartei</i> (Nazi Party)
OMGUS	Office of Military Government, United States
OPV	Oral Polio Vaccine
<i>SED</i>	<i>Sozialistische Einheitspartei Deutschlands</i>
SHAEF	Supreme Headquarters, Allied Expeditionary Force
SV40	Simian Vacuolating Virus 40
UN	The United Nations
UNRRA	The United Nations Relief and Rehabilitation Administration
NATO	The North Atlantic Treaty Organization
VAPP	Vaccine-Associated Paralytic Poliomyelitis
WHO	The World Health Organization

Declaration of Academic Achievement

Samantha Clarke is the sole author of this dissertation.

Introduction: The Politics of Poliomyelitis

On the first day of August in 1961, the Health Ministry of the German Democratic Republic (GDR) announced the closure of the German-German border permanently, accusing the Federal Republic of Germany (FRG) of neglecting its citizens and failing to properly administer polio vaccinations.² This accusation sparked the ire of the West German and United States media, and the Federal Republic denied any such outbreaks. The thought that East Germany might have an epidemic disease under control, which still caused problems in West Germany, contradicts the widespread perception that East Germany was always lagging behind its western neighbor. In the words of historian Ned Richardson-Little, memories of East Germany portray it as “a state thrown onto the trash heap of history,” having “lost” to West Germany in every way.³ Similarly, the now-defunct Union of Soviet Socialist Republics (USSR) has also widely been considered a “loser” of the Cold War. Polio, however, attests otherwise. The introduction of a Soviet-manufactured, cost-effective, and easily administered vaccine in 1959-1960 allowed East Germany to implement a successful vaccination campaign before West Germany. Though the oral vaccine was easier to administer and less costly, the United States (US) refused to allow it to be licensed and West Germany refused to purchase vaccines from the Eastern bloc, resulting in the west falling behind the east in polio vaccinations.

² “East Germany Curbs Travel: Blames Polio,” *Chicago Tribune*, 1 August 1961, 11.

³ Ned Richardson-Little, *The Human Rights Dictatorship: Socialism, Global Solidarity and Revolution in East Germany* (Cambridge: Cambridge University Press, 2020), 1.

This dissertation explores the history of poliomyelitis in divided Germany, focusing on the American and Soviet occupation zones. It explores how medical knowledge about poliomyelitis travelled across national and political borders during the Cold War. The study traces policies and actions pertaining to polio from the immediate post-World War II occupation period through the establishment of two separate Germanies, to the cementing of the divide with the erection of the Berlin Wall in 1961. The serendipity of polio outbreaks and the introduction of vaccines coinciding so neatly with political division in Germany makes for a complex case study of how disease shapes, and is shaped by, national borders and the politics of national identity. The use of contagious disease control as a motive for implementing stronger border policing, however, was not a new concept in 1961, nor was it a new development in the relationship between the divided Germanies.

From the first serious post-World War II polio outbreak in 1947 through the Berlin Blockade and Airlift, to the end of formal occupation in 1955, Germany became a microcosm of the broader Cold War conflict. One major area of contention was public health: which system, liberal capitalism or communism, was better able to care for its citizens, and was best equipped to support their quality of life? Since health is a fundamental aspect of human experience, proving citizens were well cared for and healthy became a key component of the Cold War between East and West Germany, and the USSR and the US. Polio thus became a site of tension between East and West Germany, and the occupation zones that preceded them, but it also provided opportunity for collaboration across Cold War boundaries. In 1947, the first major postwar outbreak

of polio struck the occupied territories, which had just declared belated victories over “wartime” diseases like typhus, cholera, and dysentery. Without any proven methods for treating or preventing the spread of polio, the occupying powers struggled to maintain the appearance of control and preparedness.

The announcement of Jonas Salk’s inactivated vaccine in 1955 should have provided a path toward control and eradication of polio in Germany, but both East and West German citizens were more hesitant to vaccinate than US citizens, as chapters three and four show. Doctors and healthcare policymakers also expressed hesitance to fully commit to large-scale vaccination campaigns with Salk IPV and instead held out hope for an alternative: the oral polio vaccine being developed by Albert B. Sabin. Many physicians believed this vaccine, which Sabin announced was ready for testing in 1956, would provide better immunity in addition to being less expensive and easier to administer. Nonetheless, American medical policymakers did not provide large-scale field-testing opportunities for the Sabin vaccine, despite funding its development. Instead, Sabin utilized pre-existing relationships with scientists in the Soviet Union, arranging a mass field trial in the USSR and satellite states. The adoption of OPV by eastern bloc nations from 1957 through 1959 raised alarm in the US and West Germany about whether the success of Sabin OPV would be used as evidence of the superiority of socialized healthcare. The Soviet Union provided free vaccine as part of its socialised healthcare system, in sharp contrast with the resistance to subsidized vaccination in the US.

The severe outbreaks of poliomyelitis in the immediate postwar period and through the 1950s provided opportunities for occupiers and Germans to collaborate across borders, though these opportunities became less frequent over the course of the 1950s and 1960s. Nonetheless, the outbreaks also provided opportunities for criticism and solidification of the division between the two Germanies that emerged at the end of 1949. Both east and west used polio outbreaks as evidence that their opponent had “failed”. They may each have thought they had the better system, however, neither capitalism nor communism was sufficient to protect citizens from harm. The ways in which disease, and later vaccinations against disease, became embroiled in the political rivalry between East and West Germany, and between the Soviet Union and the United States, demonstrate that disease and healthcare provision are not neutral. During the Cold War, heightened political anxiety meant that these medical innovations were subject to increased skepticism about whether information provided was “trustworthy” – increasing vaccine hesitancy particularly in West Germany. Thus, historians cannot separate the study of medicine from the study of politics without losing an understanding of why citizens might not trust information even if it was provided by medical doctors.

What is polio?

This dissertation specifically traces efforts to combat poliomyelitis, a disease caused by the poliovirus. The name “poliomyelitis” was derived from “polios” and “myelos” which mean “gray” and “marrow” in Greek, coupled with “-itis,” the Latin

suffix long used to denote “inflammation” in medical terminology.⁴ The poliovirus has three types: Type I, Type II, and Type III. The poliovirus is transmitted person-to-person through nasopharyngeal secretions (oral-oral route) or fecal matter (fecal-oral route), carried to food by flies for example. It can be transmitted for up to six weeks after an individual is infected, even if they are asymptomatic.⁵ The disease is easily transmitted, with a seroconversion rate of over 90 percent in susceptible household contacts.⁶ Poliomyelitis can cause a variety of symptoms depending on whether it remains in the digestive tract or travels through the bloodstream to the nervous system. In its mildest form, abortive poliomyelitis, individuals can exhibit cold-like symptoms, mild flu-like symptoms, or no symptoms at all. Roughly 70 percent of those infected are considered to have the abortive variant of the disease. If the virus enters the spinal cord, it can cause viral meningitis, marked by high fever, nausea, headaches, neck ache, and pain in the arms and legs – this condition occurs in approximately 29.5 percent of polio sufferers. In the final 0.5 percent, flaccid paralysis occurs.⁷ This is classified in three types: spinal paralytic poliomyelitis involving paralysis of extremities, generally legs (79 percent of paralytic cases), bulbar paralytic polio causing facial, oropharyngeal, and respiratory muscle weakness (2 percent), and bulbospinal paralytic poliomyelitis combining the two preceding types (19 percent).⁸ In children, paralytic polio causes death in 2-5 percent of

⁴ David M. Oshinsky, *Polio: An American Story* (Oxford: Oxford University Press, 2005), 8.

⁵ The virus is strongest close to the onset of symptoms. Concepcion F. Estivariz, Ruth Link-Gelles, and Tom Shimabukuro, “Chapter 18: Poliomyelitis,” in *Epidemiology and Prevention of Vaccine-Preventable Diseases*, ed. Jennifer Hamborsky, Andrew Kroger, and Charles Wolfe, 13th ed. (Washington, D.C.: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2020), 299.

⁶ Estivariz, Link-Gelles, and Shimabukuro, 300.

⁷ Estivariz, Link-Gelles, and Shimabukuro, “Chapter 18: Poliomyelitis,” 298.

⁸ Estivariz, Link-Gelles, and Shimabukuro, 298.

cases, while in adults fatality rates increase to 15-30 percent. When bulbar paralysis occurs, 25-75 percent of patients die. Individuals who survive paralytic paralysis have a 25-40 percent chance of experiencing post-polio syndrome 15-40 years after their recovery from the initial disease. Symptoms include weakness, tiredness, pain in muscles and joints, breathing issues, sleep disorders, and difficulty swallowing.⁹

Epidemics occurred seasonally in the Global North since the 1890s, beginning in spring and peaking in the warm summer months. Some scholars believe depictions from ancient Egypt show polio sufferers, suggesting individual cases have occurred since 1500 B.C, though this assertion lacks evidence.¹⁰ Others argue that 1789 constitutes the first recorded case of polio, when physician Michael Underwood described “debility of the lower extremities” in a patient.¹¹ From 1750 on, pediatricians in Western Europe and the United States began to report small clusters of paralysis cases in remote villages.

Poliomyelitis is considered a “democratic disease” because, pre-vaccine, it first afflicted countries in the Global North, and it seemed to strike communities regardless of socioeconomic status.¹² Polio emerged as an epidemic disease much later than many other diseases, with epidemics first recorded in the Americas in the 1890s. But it had existed in endemic form well before the advent of recorded epidemics and was often contracted by infants, while maternal antibodies still protected them from serious illness. After this

⁹ Lauro S. Halstead, “Post-Polio Syndrome,” *Scientific American* 278, no. 4 (1998): 42–47.

¹⁰ Oshinsky, *Polio: An American Story*, 10.

¹¹ John R. Paul, *A History of Poliomyelitis* (New Haven: Yale University Press, 1971), 18.

¹² Treatment of the disease, in contrast, was not democratic, and many historians have examined inequities in medical care for polio victims in the American context. See, for example: Naomi Rogers, “Race and the Politics of Polio,” *American Journal of Public Health* 97, no. 5 (2007): 784–95; Stephen E. Mawdsley, “‘Dancing on Eggs’: Charles H. Bynum, Racial Politics, and the National Foundation for Infantile Paralysis, 1938–1954,” *Bulletin of the History of Medicine* 84, no. 2 (2010): 217–47.

infection, individuals have lifelong immunity, reducing the number of cases of infection in older individuals who tend to suffer more severely.

In the mid-1800s, several discoveries prompted increased attention to sanitation. In 1854, British physician John Snow discovered that cholera was spread through water, challenging the dominant theory of miasmatic disease transmission. Though his theory was not immediately accepted, it gained popularity over time, particularly after Louis Pasteur and Robert Koch introduced research on the germ theory of disease transmission. Governments began to pay more attention to the separation of raw sewage from drinking water and to the filtration of drinking water. The United States introduced sand filtration systems for drinking water, and began adding disinfecting chemicals like chlorine, calcium hypochlorite and ferric chloride. Though these improvements aided in the control of water-borne illnesses like cholera and typhoid, they also eliminated poliovirus from water supplies, resulting in its transition from endemic to epidemic disease.

Major polio outbreaks were first recorded in Europe in the late 19th century. It also struck the US severely at that time. The first epidemic of polio recorded in the US began in Vermont in 1894. In Germany, polio struck hardest in the post-World War II era though epidemics had occurred since 1913. The first medical text to provide a clinical summary of poliomyelitis and classify it as a unique condition was published in 1840 by German medical researcher Jakob Heine. He called the condition “paralysis of the lower extremities” but did not label it a contagious disease.¹³ Swedish researcher Karl Oskar

¹³ Jakob Heine, *Lähmungszustände der untern Extremitäten und deren Nachbehandlung* (Stuttgart: Franz Heinrich Köhler, 1840).

Medin was the first to study an epidemic of polio, demonstrating that it was a contagious disease affecting communities.¹⁴ From this point, it was known as “Heine-Medin disease.”

Heine’s discovery would earn him the preeminent position on the wall of busts in the Polio Hall of Fame, followed by three more European researchers and thirteen Americans. Much like the wall, histories of polio mention Heine before shifting focus to the United States. Most historians agree that the US was responsible for providing many of the important scientific discoveries pertaining to polio – from epidemiological data to the first functional vaccines. Partially, American expertise was a result of having worse polio epidemics earlier than most other countries. American prosperity meant that medical expertise grew across the twentieth century. American scientific research and technology were responsible for the smallpox vaccine, malaria prevention procedures, cyclosporine for organ transplants, both successful polio vaccines, and mass production of penicillin, as well as many more important discoveries. More specific to polio, President Franklin Delano Roosevelt, himself a polio survivor, founded the National Foundation for Infantile Paralysis (NFIP) in 1938, which, with Basil O’Connor at the helm, raised millions of dollars through public charity fundraisers in the following decades. The NFIP was thus able to provide large research grants, attracting a disproportionate number of American researchers to the study of polio. Polio was formally declared to be eradicated from the Americas in 1994 and Europe in 2002.

¹⁴ Oskar Medin, “Über eine Epidemie von spinaler Kinderlähmung,” *Verhandlungsbericht der 10. Internationalen medizinische Kongress* 2.6 (1890): 37-47.

Historiography

The development of the history of medicine as a subfield and its place within social history has been explored in-depth by Alfons Labisch and Reinhard Spree, among others.¹⁵ It will thus be recounted here in less depth. Though as Labisch described, the funding available from the Wellcome Institute turned Great Britain into a “mecca” for historians of medicine, Germany has also had a long tradition of medical history.¹⁶ Initially, histories of medical topics were written by practicing medical doctors, without training in historiographic theory or method. As Labisch and Spree indicate, this led to histories which were disconnected from the broader academic discipline of history. The 1960s and 1970s brought in a new era of doctors who had multiple degrees, trained in both medical disciplines and historical or humanities disciplines.¹⁷ By 1970, medical history became increasingly divorced from medical practitioners, and became the domain of non-physicians and academic historians. According to medical historian Paul J. Weindling, the influence of the “second wave” of *Annales* histories in the 1960s and 1970s, spearheaded by Fernand Braudel was visible in early social histories of medicine in Germany, which tended to emphasize long-term continuous processes of

¹⁵ Paul Weindling, “Medicine and Modernization: The Social History of German Health and Medicine,” *History of Science* 24 (1986): 277–301; Florian Bruns, “The Historiography of Medicine in Postwar Germany,” *Medizinhistorisches Journal* 49, no. 1–2 (2014): 1–9; Alfons Labisch and Reinhard Spree, “Neuere Entwicklungen und aktuelle Trends in der Sozialgeschichte der Medizin in Deutschland — rückschau und ausblick (Teil 1),” *VSWG: Vierteljahrschrift Für Sozial- Und Wirtschaftsgeschichte* 84, no. 2 (1997): 171–210.

¹⁶ Labisch and Spree, “Neuere Entwicklungen und aktuelle Trends in der Sozialgeschichte der Medizin in Deutschland — rückschau und ausblick (Teil 1).”

¹⁷ Labisch and Spree, 190.

professionalization, emphasizing structures of governance and power, and slow change over time. These early histories presented a clear narrative and a wealth of demographic and statistical evidence, which led to their dismissal by cultural historians who accused these new social historians of medicine of “reducing individuals to structures” and history to linear progress.¹⁸

The “second wave” of the *Annales* school coincided with two other key developments in the history of medicine and scientific knowledge. In 1962, Thomas Kuhn published *The Structure of Scientific Revolutions*, which posited that scientific innovation did not progress in a linear fashion, and instead developed through “paradigm shifts.” These shifts could only be accomplished when a consensus of scientists in a community, whether it be a regional, national, or international community, agreed with evidence which contradicted previous medical knowledge.¹⁹ It therefore has been used by postmodernist sociologists and historians to demonstrate that there are no objective scientific “truths” but rather that need for consensus among scientific experts showed how scientific knowledge was socially constructed. Though not questioning the veracity of the scientific conclusions altogether, these scholars centre human participants’ roles in advancing knowledge they believe in, rather than any innate linear progression to scientific enlightenment.²⁰ Kuhn’s interpretation of scientific knowledge has remained influential in scholarly studies of scientific knowledge, though it is not without its critics.

¹⁸ Weindling, “Medicine and Modernization: The Social History of German Health and Medicine,” 281.

¹⁹ Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962).

²⁰ Kuhn, *The Structure of Scientific Revolutions*.; S. Barry Barnes, *Scientific Knowledge and Sociological Theory* (London: Routledge, 1974).; Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump*:

Kuhn's assertions about the need for scientific consensus and the constructed qualities of scientific knowledge were expanded upon in the 1970s and 1980s by a group of sociologists who established the sociology of scientific knowledge.²¹ This school challenged the work of Robert K. Merton, founder of the sociology of science, seeking to expand his focus on individual scientists to the broader sociological causes of the ideas created by those scientists. Merton's thesis described four ideals which bound scientists: communism, universalism, disinterestedness, and organized scepticism.²² However, Merton also insisted that a scientist's individual beliefs shaped their interpretation of evidence and their observations in laboratory experiments. Thus, scientists were not objective. The sociology of scientific knowledge pushed one step further, positing that knowledge itself was not objective, and instead was situated in the sociological context of the society in which it was created – rather than just the individual scientist's beliefs.

In the 1990s, the “linguistic turn” cast increasing doubt on the stability of knowledge and instead led to investigations of how medical knowledge was developed in communities – national, or transnational, and how such knowledge was transmitted into different cultures and communities of practice. These theories of knowledge transmission challenged the concept of a unified epistemic community with a natural language of

Hobbes, Boyle, and the Experimental Life (New Jersey: Princeton University Press, 1985).; Steven Shapin, *The Scientific Revolution* (Chicago: University of Chicago Press, 1996).

²¹ David Bloor, “Two Paradigms for Scientific Knowledge?” *Science Studies* 1 (1971): 101-115.; David Bloor and Barry Barnes, “Relativism, Rationalism, and the Sociology of Knowledge,” *Studies in the History and Philosophy of Science* 13.4 (1982): 267-297.; G.N. Gilbert and M. Mulkay, *Opening Pandora's Box: A Sociological Analysis of Scientists' Discourse* (Cambridge: Cambridge University Press, 1984).; Karin Knorr-Cetina, *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science* (Oxford: Pergamon Press, 1981).

²² Robert K. Merton, *The Sociology of Science: Theoretical and Empirical Investigations* (Chicago: University of Chicago Press, 1942).

medicine and ethics. In the introduction to their edited collection, Susan Gross Solomon, Lion Murard, and Patrick Zylberman asked “Can knowledge in the field of public health be transnational, that is, placeless?... To what extent does public health knowledge display the tension between generic (placeless) knowledge and local knowledge (rooted in place)?”²³ Historians continue to wrestle with this tension between placeless or transnational knowledge and knowledge limited in applicability according to its place of production. In this dissertation, knowledge about polio and the Salk and Sabin vaccines had potential to become transnational and placeless, but it was subject to a variety of assessments to ensure it was trustworthy, especially when its place of production was across an ideological border.

The linguistic turn coincided with the “Science Wars” in academic histories of medicine, sparked by the 1994 monograph *Higher Superstition: The Academic Left and its Quarrels with Science*, written by biologist Paul R. Gross and mathematician Norman Levitt. The “Science Wars” had roots in Kuhn’s 1962 theory about scientific paradigms and the ensuing integration of postmodernist approaches and sociology of scientific knowledge into reconstructions of historical developments in science. These developments sparked the ire of scientific realists, who accused the “academic left,” meaning postmodernists, of “anti-intellectualism” due to their assertions that scientific knowledge was a social construct rather than objectively true and something which developed in a linear way. Though many adherents to Kuhn’s theory do not fully reject

²³ Susan Gross Solomon, Lion Murard, and Patrick Zylberman, eds., *Shifting Boundaries of Public Health: Europe in the Twentieth Century* (Rochester: University of Rochester Press, 2008), 6–7.

objective scientific knowledge, they place more emphasis on the human element of its creation, based on societal priorities and beliefs, rather than the pursuit of truth and pure knowledge.

The study of physicians' actions in Nazi Germany is one key area where the sociology of scientific knowledge has influenced German medical history. Michel Foucault's theory of biopower and sociologists' assertion that knowledge is a social construct have helped historians struggling to understand how doctors were able to justify medical murder. Social histories of German medicine written in the 1980s and 1990s focused heavily on the Third Reich, contrasting it with the "golden age" of scientific medicine in Germany, when Rudolf Virchow and Robert Koch, among others, made German medicine internationally renowned. Historian Robert Jay Lifton used the concept of "doubling" to explain how physicians were able to separate themselves from their role in genocide.²⁴ In 1988, historian Robert Proctor identified some positive aspects of Nazi science, and in grappling with how to explain their existence, proposed the malleability of ethics, and the existence of a particular "Nazi ethics." Doctors, he argued, truly believed their actions were for the betterment of humankind, and therefore ethical.²⁵ As historian Geoffrey Cocks stated, Nazi Germany "is a black hole in German history," toward which historians of Germany are pulled.²⁶ Since it is the most highly saturated field for scholarly research in German history, studies of the Nazi period tend to better reflect the state of

²⁴ Robert Jay Lifton, *The Nazi Doctors* (New York: Basic Books, 1986).

²⁵ Robert N. Proctor, *Racial Hygiene: Medicine under the Nazis* (Cambridge: Harvard University Press, 1988).

²⁶ M. Berg and G. Cocks, *Medicine and Modernity: Public Health and Medical Care in Nineteenth and Twentieth Century Germany* (Cambridge: Cambridge University Press, 1997), 1.

the historical field.²⁷ Studies of postwar health would benefit from more in-depth analysis of scientific knowledge and its reconstruction after World War II and Nazi-era medical education.

Since the early 21st century, historians have begun to redress historians' lack of interest in the political and diplomatic dimensions of medicine. While realist and structural realist (neorealist) historians of international relations believe that the nation-state is the dominant actor in international affairs, approaches in the 1990s began to demonstrate how actors in non-political roles shaped relations between nation-states. Theorists like Peter M. Haas have posited that doctors in different nation-states should be able to communicate with few barriers. As "experts" they will recognize other experts. Haas has termed these groups "epistemic communities."²⁸ In the "epistemic communities" approach to international relations, the factors and mechanisms of change are "knowledge, causal and principled beliefs" as well as "diffusion of information and learning." The primary actors are epistemic communities and the states they inform.²⁹ This differs from realist approaches focused on war-making capabilities and the nation-state as well as neorealist approaches, emphasizing "distribution of capabilities" and the role of the nation-state, where changes in power resources and goals effect change.³⁰ It

²⁷ Jörg Bagen and Andrea Wagner. "Autarchy, Market Disintegration, and Health: The Mortality and Nutritional Crisis in Nazi Germany, 1933-1937." *Center for Economic Studies and Ifo Institute Working Paper Series* 800 (November 14, 2002): 3.; David Brydan, "Axis Internationalism: Spanish Health Experts and the Nazi 'New Europe', 1939-1945." *Contemporary European History* 25, no. 2 (May 2016): 291-311. <https://doi.org/10.1017/S0960777316000084>.

²⁸ Peter M. Haas, "Introduction: Epistemic Communities and International Policy Coordination," *International Organization, Knowledge, Power, and International Policy coordination*, 46, no. 1 (Winter 1992): 1-35.

²⁹ Haas, 6.

³⁰ Haas, 7.

also differs from dependency theory which emphasizes economic resources and the “global division of labor.”³¹ This dissertation shows how political boundaries impeded communication between doctors, challenging Haas’ assertion that knowledge is “fact” and can be divorced from the place and socio-political context in which it was created.

Erez Manela has applied this concept of “epistemic communities” to the development of the smallpox eradication plan (SEP) in the World Health Organization. He asserts that the reason collaboration between the USSR and the US was possible in the 1950s and 1960s was due to the actors involved. In the US context, instead of individuals from the State Department, the White House, or even Congress, these decisions were being made by “mid-level technocrats” including the doctors themselves. He concludes: “The very existence of the WHO both reflected and shaped the notion of disease as a global problem that called for a global solution... It also served as a neutral space for collaboration across the Cold War divides...”³² The “epistemic communities” theory as applied to physicians does not quite accommodate the flexibility of “knowledge” in medicine, particularly for the case of polio, which focuses on innovations in disease treatments. Medical researchers do not know everything, and the epistemic communities theory assumes the veracity of their claims. They are also products of the social, economic, national and cultural backgrounds from which they arise, as well from as the medical training they receive. Medical researchers also operate within national and regional medical cultures. Manela’s work nonetheless intersects with a newer direction of international relations

³¹ Haas, 7.

³² Erez Manela, “A Pox on Your Narrative: Writing Disease Control into Cold War History,” *Diplomatic History* 34, no. 2 (April 2010): 300.

history, which focuses on soft power in the diplomacy between nation-states. In divided Germany, where “hard power” approaches remained diplomatically, and before rearmament in 1955, militarily untenable, soft power became the dominant approach to international relations. Though in this case study, epistemic communities did not function as smoothly across political boundaries as Haas posited, medical professionals nonetheless were encouraged by political leaders to communicate with peers for two purposes: information collection and intimidation or posturing. Doctors in the Soviet and American zones, and later the GDR and FRG, were able to share information which cast their side in good light and collect information which supported the health of their citizens.

Similarly, microbiologist-turned-historian Peter J. Hotez has posited that vaccines presented a promising avenue for international diplomacy during the Cold War. His article briefly summarized the relationship between Albert B. Sabin and two Soviet researchers, Mikhail Chumakov and Anatoli Smorodintsev, which was key to international acceptance of the oral polio vaccine. It also describes the work of Soviet virologist Viktor Zhdanov in implementing the SEP with American epidemiologist Donald Henderson as crucial to the control of smallpox. These two historical examples, he concludes, demonstrates that “Vaccine science diplomacy is not a panacea for heightened tensions between the US and Russia, but the approach has been valuable for promoting joint humanitarian efforts.”³³ Unfortunately, Hotez does not adequately

³³ Peter J. Hotez, “Russian–United States Vaccine Science Diplomacy: Preserving the Legacy,” *PLoS Neglected Tropical Diseases* 11, no. 5 (May 25, 2017), <https://doi.org/10.1371/journal.pntd.0005320>.

explore the tensions in this relationship, demonstrated in chapter four of this dissertation. While Albert B. Sabin was able to collaborate with the Soviet medical community, this relationship soured in 1967 when the Soviet leadership attempted to revise history and remove Sabin's role as the creator of the OPV. Instead, by 1968, textbooks and media coverage in the USSR gave full credit to Smorodintsev.³⁴ Furthermore, the controversy in divided Berlin about whether the East German vaccination campaign with OPV posed a public health risk to under-vaccinated West Germans, and the Berlin Wall announcement which followed, demonstrated that tensions about vaccines remained clear. Nonetheless, the concept of medical or science diplomacy was a source of hope for many during the Cold War.

Medical internationalism, the study of how politicians, medical practitioners and public health officers, worked across borders to improve health conditions, has become increasingly popular as an approach. Historians have studied international organizations like the World Health Organization and the International Committee of the Red Cross through the lens of medical internationalism to show how health is a concern which does not respect national or political boundaries.³⁵ These narratives intersect with those from the fields of cultural diplomacy and cultural relations. According to theorists, cultural

³⁴ Saul Benison, "International Medical Cooperation: Dr. Albert Sabin, Live Poliovirus Vaccine and the Soviets," *Bulletin of the History of Medicine* 56.4 (Winter 1982): 482.

³⁵ David Brydan, "Axis Internationalism: Spanish Health Experts and the Nazi 'New Europe', 1939–1945," *Contemporary European History* 25, no. 2 (May 2016): 291–311.; Katharina Kreuder-Sonnen, "From Transnationalism to Olympic Internationalism: Polish Medical Experts and International Scientific Exchange, 1885–1939," *Contemporary European History* 25, no. 2 (May 2016): 207–31.

diplomacy is defined as “essentially interest-driven governmental practice,” whereas cultural relations “is ideals-driven and practiced largely by non-state actors.”³⁶

Cultural diplomacy and cultural relations have become entwined with what international relations scholars term “soft power” in diplomatic relations.³⁷ In the post-World War II German context, soft power and cultural diplomacy became more important, as hard power approaches were not possible for either side of Germany, first due to the occupation by the Allied powers, and then due to the complex issue of diplomatic recognition of two different Germanies. Scholars studying medical internationalism as a form of Cold War soft power tend to focus on areas such as epidemic disease, medical knowledge transmission, and relief organizations, which are foreign to the political scientists and international relations scholars studying the same topic from the “hard power” perspective.³⁸

These forms of cultural diplomacy and relations have also intersected with borderlands histories of divided Germany. Edith Sheffer’s *Burned Bridge* is one of the most important recent books in this field, but its origins stem from the turn to the East that Tara Zahra and others have identified in the historiography of Germany more

³⁶ Ien Ang, Yudhishtir Raj Isar, and Phillip Mar, “Cultural Diplomacy: Beyond the National Interest?,” *International Journal of Cultural Policy* 21, no. 4 (August 8, 2015): 365–81.

³⁷ Soft power is a term coined by Joseph S. Nye Jr., who differentiated between tangible “hard power” and intangible “soft power” drawn from “indirect or co-optive power” which relies on the ability to attract others rather than coercing others through threats or violence. Since Nye Jr.’s theorization, historians and political scientists have continued to interrogate new channels of soft power, including transnational medical initiatives during the Cold War. Joseph S. Nye Jr., *Bound to Lead: The Changing Nature of American Power* (New York: Basic Books, 1990), 31.

³⁸ Warwick Anderson, “Nowhere to Run, Rabbit: The Cold-War Calculus of Disease Ecology,” *History and Philosophy of the Life Sciences* 39, no. 2 (2017): 1–18; Manela, “A Pox on Your Narrative: Writing Disease Control into Cold War History”; John Farley, *Brock Chisholm, the World Health Organization, and the Cold War* (Vancouver: UBC Press, 2008).

broadly.³⁹ Since the publication of *Burned Bridge*, more works on the German-German border from a variety of historical perspectives have been published.⁴⁰ The ways in which ordinary Germans helped to create the German-German border and the ways in which this physical border manifested psychologically as what Germans call the “wall in the head” play out in the fields of medicine and medical research as well.⁴¹ Nonetheless, these new approaches have not yet been applied to medical history in Germany, and this dissertation begins to fill that void.

Historical research on poliomyelitis in Germany has predominantly focused on vaccine development without tracing the contours of polio as a disease. Since the late 1990s, historians have begun to study the approaches of other countries, including the UK, Sweden, the Netherlands, the USSR, and Hungary, to combating polio.⁴² German polio history remains elusive – the most comprehensive history of healthcare systems in occupied Germany, Jessica Reinisch’s *The Perils of Peace*, devotes over 50 pages to epidemics but does not mention polio at all.⁴³ Ulrike Lindner and Stuart Blume are

³⁹ Edith Sheffer, *Burned Bridge: How East and West Germans Made the Iron Curtain* (Oxford: Oxford University Press, 2011); Tara Zahra, “Looking East: East Central European ‘Borderlands’ in German History and Historiography,” *History Compass* 3, no. 1 (2007): 1–23.

⁴⁰ Jason B. Johnson, *Divided Village: The Cold War in the German Borderlands*, Routledge Studies in Modern European History 44 (London ; New York: Routledge Taylor & Francis Group, 2017); Astrid M. Eckert, *West Germany and the Iron Curtain: Environment, Economy, and Culture in the Borderlands*, Oxford Scholarship Online (New York, NY: Oxford University Press, 2019).

⁴¹ Sheffer, *Burned Bridge: How East and West Germans Made the Iron Curtain*, 4.

⁴² Ulrike Lindner and Stuart S. Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands, and West Germany 1955-1965,” *Medical History* 50 (2006): 425-446.; Dóra Vargha, “Between East and West: Polio Vaccination Across the Iron Curtain in Cold War Hungary,” *The Bulletin of the History of Medicine* 72 (1998): 1-42.; John B. West, “The Physiological Challenges of the 1952 Copenhagen Poliomyelitis Epidemic and a Renaissance in Clinical Respiratory Physiology,” *Journal of Applied Physiology* 99.2 (August 2005): 424-432.; Benison, “International Medical Cooperation”: 482.

⁴³ Jessica Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany* (Oxford: Oxford University Press, 2013).

currently the only historians who have examined West German responses to polio separately from other diseases. In 2006, the pair produced an article, “Vaccine Innovation and Adoption,” and in 2010 Lindner contributed the chapter “Changing Regulations and Risk Assessments” to *Evaluating and Standardizing Therapeutic Agents, 1890-1950*.⁴⁴ In both cases the authors provide a comparison between West Germany and at least one other country, focusing on the introduction of vaccines and shifting conceptions of what constitutes risk. While Lindner and Blume provide a good starting point for further study, they neglect the Cold War context of polio in West Germany and settle for a one-dimensional comparative analysis rather than embracing the interconnected nature of medical research into epidemic disease.

The concepts of vaccine and medical diplomacy as they apply to soft power in Cold War international relations at the nexus of German-German and Soviet-American relations have not yet been well explored by historians. This dissertation seeks to redress that gap in the scholarly literature, using polio as its subject. While Malte Thießen examines relations between East and West Germany in his brief discussion of polio vaccines, his broad focus on the history of vaccinations for a variety of diseases in Germany, and his broad chronological study precludes intensive investigation of how the development of a border in Germany shaped vaccination campaigns against polio.⁴⁵ The

⁴⁴ Lindner and Blume, “Vaccine Innovation”.; Ulrike Lindner, “Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany,” in *Evaluating and Standardizing Therapeutic Agents, 1890-1950*, ed. C. Gradmann and J. Simon (London: Palgrave Macmillan, 2010).

⁴⁵ Malte Thießen, *Immunisierte Gesellschaft: impfen in Deutschland im 19. und 20. Jahrhundert* (Göttingen: Vadenhoeck & Ruprecht, 2017); Malte Thießen, *Infiziertes Europa. Seuchen im langen 20. Jahrhundert* (Berlin: DeGruyter, 2014).

focus on one disease allows more in-depth exploration of these themes. In this way, it follows the course taken by Dóra Vargha, whose work on polio vaccinations in Hungary is more narrowly focused.⁴⁶

Methods and Limitations

This thesis discusses borders and the ways in which information travels across borders. It engages with theories of entanglement in international relations, the possibilities for transnationalism in medical innovation, and the barriers to collaboration in knowledge exchange. Entangled history is an offshoot of transnational history, which considers the formation of ideas and concepts as inherently transnational. Whereas transnational history focuses on the ways in which ideas circulate once they are formed, entangled history focuses on the origins of those ideas and how they are created not in a single nation-state but through collaboration and sharing of ideas, concepts, and information between groups differentiated by nationality, political affiliations, and geography.⁴⁷ The development of medical innovations in the US was not isolated, though

⁴⁶ Dóra Vargha, “Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary,” *Bulletin of the History of Medicine* 88 (2014): 319–43; Dóra Vargha, “Iron Curtain, Iron Lungs: Governing Polio in Cold War Hungary 1952-1963” (PhD Dissertation, New Brunswick, Rutgers University, 2013); Dóra Vargha, “Vaccination and the Communist State: Polio in Eastern Europe,” in *The Politics of Vaccination: A Global History*, ed. Christine Holmberg, Stuart Blume, and Paul Greenough (Manchester: Manchester University Press, 2017), 77–98; Dóra Vargha, *Polio Across the Iron Curtain: Hungary’s Cold War with an Epidemic* (Cambridge: Cambridge University Press, 2018).

⁴⁷ For more on entanglement in European history, see Justin Hart, *Empire of Ideas: The Origins of Public Diplomacy and the Transformation of U.S. Foreign Policy* (New York: Oxford University Press, 2013).; Michael David-Fox, Peter Holquist, and Alexander M. Martin, eds., *Fascination and Enmity: Russia and Germany as Entangled Histories, 1914-1945* (Pittsburgh: University of Pittsburgh Press, 2012).; Heinz-Gerhard Haupt and Jürgen Kocka, *Comparative and Transnational History: Central European Approaches and New Perspectives* (New York: Berghahn Books, 2009).; Patryk Babiracki and Kenyon Zimmer, eds., *Cold War Crossings: International Travel and Exchange Across the Soviet Bloc, 1940s-1960s* (Texas: University of Texas Press, 2014).

much of the scholarly literature on polio claims the development of vaccines to be an “American story”.⁴⁸ The Sabin oral vaccine was created in the US, tested in the USSR, travelled through the Soviet bloc, and arrived in East Berlin, where it fomented tensions between East and West Germany. Each step in the vaccine’s progression altered how it was perceived by leaders and physicians in different nation-states, and this dissertation explores that complexity of identity in the context of Cold War loyalties and the creation of two Germanies.

As other researchers, including Malte Thießen and Ulrike Lindner in the German context, have identified, the act of vaccination involves calculations of what constitutes acceptable levels of risk. This assessment occurs first at a national level, which involves weighing other nations’ decision-making and the validity of their risk assessment processes. Then, in the West German context, risk assessment was made at the state level due to the decentralization of healthcare decision-making. Finally, risk assessment occurs at the individual level, where in the case of polio, parents had to decide whether to vaccinate their children or not.⁴⁹ The complexity of medical risk assessment, I argue, was further compounded by the atmosphere of uncertainty in Cold War divided Germany. Though Thießen acknowledges the Cold War in a much more explicit way than Lindner, I seek to further integrate the political context into my discussion of how historical actors

⁴⁸ Oshinsky, *Polio: An American Story*.

⁴⁹ Malte Thießen, “Risk as a Resource: On the Interplay between Risks, Vaccinations and Welfare States in Nineteenth and Twentieth-Century Germany,” *Historical Social Research/Historische Sozialforschung* 41, no. 1 (2016): 70–90; Ulrike Lindner, “Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany,” in *Evaluating and Standardizing Therapeutic Agents, 1890-1950*, ed. C. Gradmann and J. Simon (London: Palgrave Macmillan, 2010).

perceived risk and interpreted information pertaining to risk assessment in vaccination. The levels of trust among Germans in physicians were declining in the 1950s and 1960s, and this was compounded by popular perceptions that nation-states, particularly the US and the USSR, had a vested interest in ensuring their systems appeared successful.⁵⁰ Thus, there was a corresponding increase in questions about the accuracy and trustworthiness of information about medical innovations, including vaccines, particularly when they were travelling across political borders.

Notions of “acceptable risk” do not remain static, especially in vaccine research which inevitably involves testing on children. Instead, they shift according to the indigenous morality, technological capabilities and economic and political realities of a country, population, or individual. As Sydney A. Halpern has argued, “Individuals are rarely unilateral moral actors,” and instead are “embedded in communities that frame moral issues,” which Christian Bonah termed “contextual networks.”⁵¹ Tracing the movement of information and misinformation about polio epidemics to and within the Germanies often privileges the American-West German relationship but the moments when the conflict plays out on both sides of the Iron Curtain demonstrate the political stakes of the disease. In the two decades following World War II, doctors, medical

⁵⁰ The loss of trust in physicians was a result of multiple factors, including the spread of knowledge about doctors’ participation in medical murders and unethical medical testing during the Third Reich, and broader trends of secularization and depersonalization in medical care. Jonathan B. Imber, *Trusting Doctors: The Decline of Moral Authority in American Medicine* (Princeton, NJ: Princeton University Press, 2008).

⁵¹ Sydney Halpern, *Lesser Harms: The Morality of Risk in Medical Research* (Chicago: University of Chicago Press, 2004), 9; Christian Bonah, “‘As Safe as Milk or Sugar Water’: Perceptions of the Risks and Benefits of the BCG Vaccine,” in *The Risks of Medical Innovation: Risk Perception and Assessment in Historical Context*, ed. Thomas Schlich and Ulrich Tröhler (London: Routledge, 2006), 71.

researchers, patients, parents, and leaders of the occupying nations struggled to make informed decisions within a tense political climate.

This dissertation focuses on the American and Soviet zones in the initial occupation period. The American and Soviet occupiers provide the best contrast between capitalism and socialism in Germany. As the three western zones merged, the dissertation treats West Germany as one unit, while continuing to be mindful of state-level discrepancies in policies pertaining to polio.

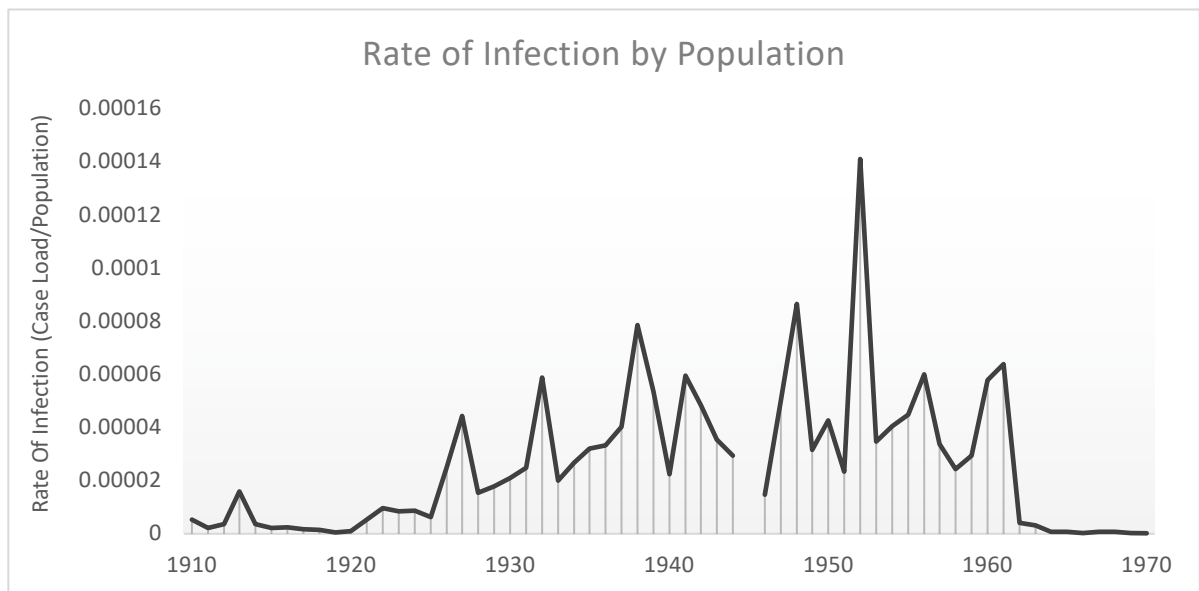


Figure 1: Poliomyelitis Infections in Germany by Population, 1910-1970.⁵²

⁵² The statistics used in this chart were collected centrally by each state in Germany and would be communicated to the central health authorities at the time. No data is available for 1945 due to the conclusion of World War II. The statistics represent the boundaries of Germany at the time in which they were collected, so data used is rate of infection (case load/population) instead of pure case load. Population data taken from Destatis.de, database of the Staatliches Bundesamt Germany <https://www-genesis.destatis.de/genesis/online?operation=abruftabelleBearbeiten&levelindex=2&levelid=1625581775217&auswahloperation=abruftabelleAuspraegungAuswaehlen&auswahlverzeichnis=ordnungsstruktur&auswahlziel=werteabruf&code=12411-0001&auswahltext=&auspraegungen%24%24%244=Zeit+ausw%C3%A4hlen#abreadcrumb>; polio data taken from the RKI.

The dissertation incorporates statistical data pertaining to poliomyelitis throughout. Statistical information is a subject of contention among medical historians and particularly among polio historians. Since polio can so often be asymptomatic or mistaken for other illnesses like the common cold, many historians question the validity, accuracy, or usefulness of statistical evidence. In the East German case, there is a double burden of proof: was the East German government manipulating statistical evidence, and is that evidence useful even if it is accurate, given the large number of asymptomatic cases left untallied? Though the Western powers were accused of doing the same by the USSR, the distrust of their statistical evidence is less prevalent in scholarship. On the first point, in-depth analysis of East German statistical evidence for the 1953 epidemic in Leipzig in chapter two shows that the data collection itself was sound. The problem lay not in the data collection but instead the use to which it was put. East German politicians ignored statistical data when claiming there was no epidemic, or that the epidemic was under control. The statistical evidence incorporated here may not constitute an accurate representation of all cases of poliomyelitis, but upon examination, methods for counting cases were consistent enough across nations to allow for comparison of case rates over time, and between nation-states. Thus, this data is used to measure change over time as well as the effectiveness of control techniques, including vaccinations, in different nation-states.

As much as possible, this dissertation makes use of the original statistical reports held in the National Archives and Records Association College Park and the Bundesarchiv-Koblenz. Past historians have provided differing statistical evidence, and

the Robert Koch Institute's numbers before 1961 often do not match these historical accounts, as demonstrated in Figure 2. The comparison of statistics from the Robert Koch Institute's data (Pöhn, Rausch, and Koch), data from Lindner and Blume's article on West Germany, and contemporary reports from the *German Medical Monthly* show many discrepancies. By returning to official reports from the occupation health branches and the West German health ministry, I have sought to include the data as these officials would have understood it, since their interpretations of medical data are key to understanding their choices and actions. Thus, some discrepancies may exist between statistics in this dissertation and statistics cited elsewhere, but the purpose is to analyze the data as it would have been viewed at the time, in order to better explain the actions taken.

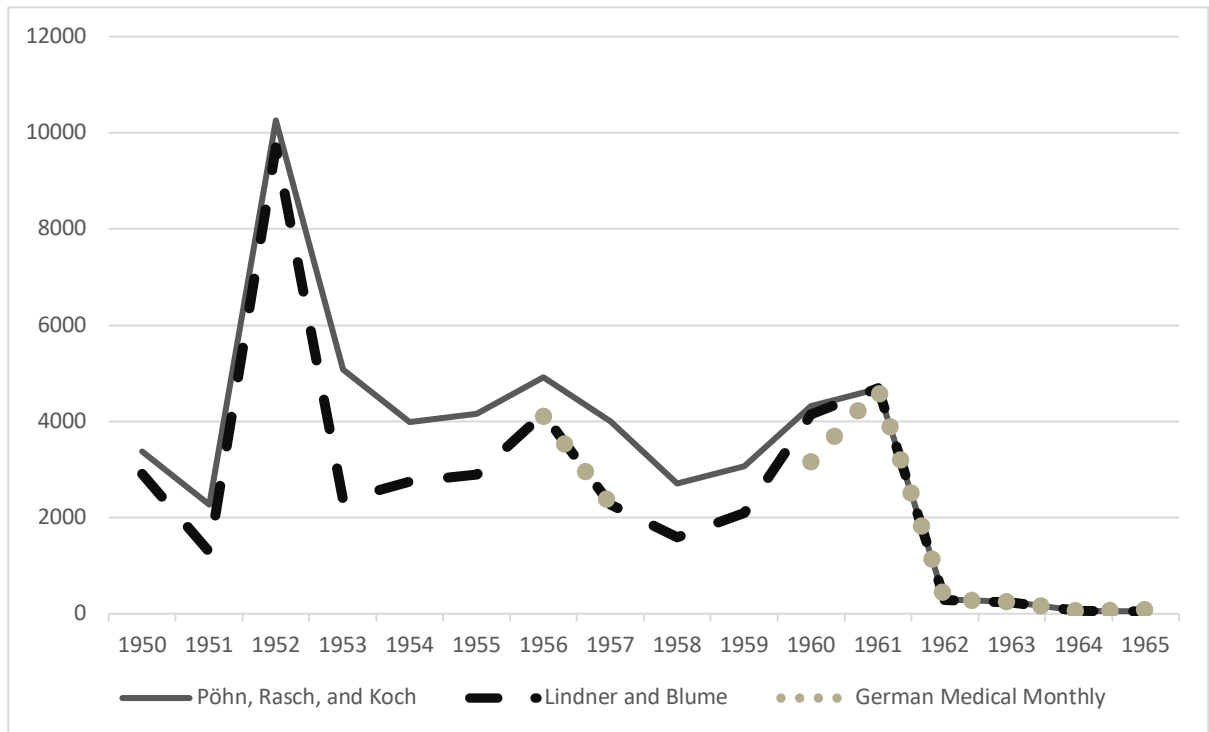


Figure 2: West German polio statistics in three different publications.⁵³

Polio in the Crosshairs of the Cold War

This dissertation is divided into four chapters, arranged chronologically. Chapter one establishes the broader context of healthcare in occupied Germany in the period immediately following World War II. The key historical debate about healthcare in this era focuses on the level of contagious disease, and whether or not epidemic conditions were present during this period. Statistical evidence and some exploration of the definition of “epidemic” demonstrates that outbreaks of disease and epidemics of

⁵³ Hans Philipp Pöhn and Gernot Rasch, “Statistik meldepflichtiger übertragbarer Krankheiten,” report (Robert Koch-Institut, January 1, 1993), <http://dx.doi.org/10.25646/86>; Ulrike Lindner and Stuart S. Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965,” *Medical History* 50 (2006): 425–46.; *German Medical Monthly*.

tuberculosis, cholera, and other wartime diseases, were present, though quickly controlled. The chapter also explores how denazification mandates competed with attempts to maintain base levels of health to avoid more unrest and protect occupation forces' health. As well, the chapter describes the plans and actual reconstruction of healthcare systems in divided Germany, setting up discussions in the following chapter about the deepening divide between the eastern zone and the western zones before the first post-World War II polio epidemic in 1947.

In 1948, the United Nations (UN) founded the World Health Organization (WHO) to facilitate global responses to disease. In the announcement, the UN declared that “the accidental boundaries of race, religion, nationality, or language do not limit the spread of disease” and that “no such boundaries must hinder the work of the men and women... who would fight this worldwide enemy.”⁵⁴ Between 1947 and 1967, however, poliomyelitis lay at the intersection of Cold War relations between East and West Germany, and their respective occupiers. Chapter two opens with the onset of the first major postwar outbreak of poliomyelitis, which began in divided Berlin. From 1947, it explores how the outbreak coincided with increased tensions between the Soviet occupiers and their American counterparts, and how each occupier sought to appear proactive against poliomyelitis to ensure baseline support from the Germans in their zones. The introduction of experts and innovative technologies gave the American zone a clear advantage in treatment and control over the outbreak, which they used to critique

⁵⁴ Charles Richard Drew, “World Health and the United Nations,” *The Journal of the National Medical Association* 40.3 (May 1948): 100-101.

the Soviet response. The epidemic continued through the First Berlin Crisis and became caught up in its politics. The chapter also explores the 1953 outbreak in Leipzig, and how its coincidence with the 1953 Leipzig Trade Fair led to further disagreement between East and West Germany.

Polio was unique in its entanglement with the political stakes of the Cold War. Outbreaks of the disease increased in severity during the 20th century, as other diseases were being controlled through improvements in sanitation and, in some cases, the introduction of vaccines. Large outbreaks and scientific breakthroughs often occurred at critical junctures in the Cold War, as this dissertation shows. Two competing models of development and “modernity,” to use Odd Arne Westad’s theoretical framework, were tested in the two Germanies after World War II, and polio was constructed to reinforce the occupiers’ and eventually Germans’ conceptualization of these models as two diametrically opposite entities.⁵⁵ Polio did not devastate Germany – there were relatively few victims compared to other contagious diseases – but ordinary Germans believed it to be a major threat and it featured heavily in the consciousness of Germans and occupiers. Pre-1955, with no proven vaccine and little understanding of polio’s epidemiology, the US and the USSR struggled to appear proactive in combatting the first large polio epidemic in Germany. After 1955, two different vaccines emerged: Salk’s injected, inactivated polio vaccine (IPV) and Albert B. Sabin’s oral, attenuated polio. As East

⁵⁵ Rather than positioning the West as “modern” and the East as anti-modern, Westad posits that both the Soviet Union and the US offered differing forms of modernity to the other nations they sought to sway or influence. Odd Arne Westad, *The Global Cold War: Third World Interventions and the Making of Our Times* (Cambridge: Cambridge University Press, 2005).

Germany adopted Sabin oral polio vaccine (OPV) in 1960, West Germany faced a series of setbacks which further damaged the confidence of the public and medical professionals in the safety of vaccination. Within the climate of physical and ideological division, medical researchers in the US, the USSR, and Germany accepted a surprising degree of entanglement in their research.⁵⁶ West Germany received international support and pressure from the US, the WHO, and Europe to select the “right” approach to preventing polio. Sometimes, external influence could be overwhelming, especially when researchers and experts expressing diverse opinions claimed the moral and intellectual high ground. Doctors and patients struggled to identify the “correct” course of action to maintain health.

Chapters three and four explore the introduction of two vaccines against polio: one travelling to Germany from the US, and one travelling to Germany from the Soviet Union. As historians Peter Baldwin, Kendall Hoyt and others argue, vaccination is a controversial and political act. Baldwin posits that, as medical interventions like vaccination illuminate “the contradiction between individual rights and the claims of society,” they “go beyond the epidemiological to become political.”⁵⁷ As well, he

⁵⁶ Entangled history seeks to recognize the constructed nature of the nation-state and identify how ideas, individuals, and objects flowed through permeable state membranes rather than accepting hard state boundaries and comparing the approaches of nations as if they had been created in isolation. For more on entanglement in European history, see Michael David-Fox, Peter Holquist, and Alexander M. Martin, eds., *Fascination and Enmity: Russia and Germany as Entangled Histories, 1914-1945* (Pittsburgh: University of Pittsburgh Press, 2012).; Heinz-Gerhard Haupt and Jürgen Kocka, *Comparative and Transnational History: Central European Approaches and New Perspectives* (New York: Berghahn Books, 2009).; Patryk Babiracki and Kenyon Zimmer, eds., *Cold War Crossings: International Travel and Exchange Across the Soviet Bloc, 1940s-1960s* (Texas: University of Texas Press, 2014).

⁵⁷ Peter Baldwin, *Contagion and the State in Europe, 1830-1930* (Cambridge: Cambridge University Press, 1999), 133.

contends that, without non-epidemiological or scientific interference, there would be no divergence in treatment or prevention methods and instead all nations would follow similar trajectories in treatment of disease. While such a line of thinking ignores divergent epidemiologies of disease in different geographic and climatic regions, his attention to the role of debates about personal choice and community health is apt.

Chapter three explores the ambiguous responses to Salk IPV in both East and West Germany, demonstrating that while the United States viewed the vaccine as the clear path to control of polio its expense and the need for multiple injections from hypodermic needles made it less appealing economically. The scientific community's belief that inactivation made it less effective than an attenuated vaccine made it less appealing scientifically. The United States continued to promote the vaccine even after the Cutter Incident (1955) proved there were significant safety issues in its manufacturing processes. West Germany attempted to market its own vaccine, but similarly discovered many individuals had "adverse reactions" to the injections and was forced to discontinue its efforts. Thus, even after a safer vaccine was imported, public confidence in it lagged. In East Germany, Salk-type IPV was implemented late in the 1950s, using vaccine produced in the Soviet Union. Though medical decisionmakers in the GDR were pro-Salk IPV, they struggled to afford the high costs before the Soviet Union stepped in to provide low-cost mass-produced vaccine fluid. Nonetheless, this vaccine was administered ineffectively and left many inadequately protected from polio.

Chapter four demonstrates how the introduction of another vaccine, the Sabin OPV developed in the US but manufactured and field tested in the Soviet Union,

contributed to increased tensions between East and West Germany. Polio vaccinations became an issue of contention, as West Germany continued to remain under-vaccinated while East Germany achieved higher levels of immunity due to the ease with which the drinkable Sabin vaccine could be administered. After the announcement that East Berlin would begin vaccinating its citizens in 1960, West German officials demonstrated significant concern that such actions could lead to transmission of the live virus from East Berlin vaccinees to West Berlin citizens via shared waterways. After a failed vaccination campaign with another American-developed oral vaccine, the Cox OPV, which had not been tested in the Soviet bloc, between twenty-three and twenty-five West Berliners became ill with polio and vaccinations were halted. East German press took this as an opportunity to critique West German “inaction” once again. These critiques accelerated over the early summer and culminated in the inclusion of “stopping the spread of polio” as a motive for the final closure of the Berlin-Berlin border in August of 1961.

The political boundaries of the Cold War meant that researchers were hesitant to accept the scientific research produced by another nation without first conducting their own tests. Both the US and the USSR strove to demonstrate that their system was best equipped to “correctly” combat polio, and, when possible, to construct the disease as a problem of the opponent, which they must restrict contact to avoid catching. Polio thus became a stand-in – a metaphorical embodiment of the disease of capitalism or communism threatening its opponent with paralysis or death. The case of Germany is particularly informative because the country itself was bifurcated and the two new nations each developed a different path. As Edith Sheffer and Patrick Thaddeus Jackson

have demonstrated, Germany's division into East and West was slowly constructed through the actions of the occupiers and the Germans themselves well before the physical construction of the Berlin Wall in 1961.⁵⁸ The creation of difference between East and West Germany is a thread connecting the two periods discussed in this study, pre- and post-vaccine as well as pre- and post-occupation.

Although indigenous morality provides a useful framework for distinguishing how economic, political, and historical factors influenced the ways in which medical researchers in Germany approached vaccination, it could shift very quickly – leaving medical researchers to appear unnecessarily cautious. When German researchers insisted on performing multiple tests to ensure the safety of new medical procedures created in other countries, they were accused of not responding quickly enough to pressing epidemics. When innovative techniques for combating epidemic disease were pushed through despite legitimate concerns, researchers were accused of not having done their due diligence to ensure the safety of the public.

Though West German citizens' resistance to Salk IPV has been labelled uninformed by historian Ulrike Lindner, this dissertation contends that confusion, distrust, and legitimate concerns about vaccine safety were at the root of West German vaccine hesitancy.⁵⁹ In this context, the general populace faced difficult decisions. Furthermore, for polio, in most cases parents were making these decisions for their

⁵⁸ Edith Sheffer, *Burned Bridge: How East and West Germans Made the Iron Curtain* (Oxford: Oxford University Press, 2011).; Patrick Thaddeus Jackson, *Civilizing the Enemy: German Reconstruction and the Invention of the West* (Ann Arbor: University of Michigan Press, 2006).

⁵⁹ Lindner, "Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany."

children, further compounding risk aversion. Conflicting opinions from media and medical practitioners about its safety and efficacy, shortages and changing courses of where vaccines would be produced or imported from, led to a culture of uncertainty surrounding the Salk IPV in particular. The Sabin OPV, due to its easy administration and lower cost, seemed much more appealing to many, but the Americans maintained that Salk IPV was the only vaccine necessary for far longer than either the World Health Organization or other nations. For contemporaries, this was an incredibly daunting choice. The interplay between international relations and indigenous moralities contextualized in material conditions provides a much more complex picture of the relationship between vaccine hesitancy and the broader political, social and economic context in West Germany during the 1950s.

Conclusion

This dissertation does not provide a straightforward narrative of east-west unity in the face of communicable disease, despite Cold War tensions. Nor does it claim that east-west relations were always hostile when it came to public health initiatives. History is never quite that simple. Instead, the dissertation traces the ways in which responses to polio and attempts to collaborate in the efforts to control polio were caught up in the Cold War. Initial attempts at collaboration during the immediate postwar were abortive, but during the First Berlin Crisis, East Berliners continued to receive medical supplies from depots on West Berlin territory. President Eisenhower's declaration that the United States would provide the vaccine to any nation-state that wanted it, regardless of politics, rang hollow when the US could not manufacture enough vaccine. Instead, the Soviet Union, a

vaccine-manufacturing powerhouse, provided vaccine to East Germany. While Albert Sabin was able to build a collaborative partnership with Soviet researchers, their field trials were rejected by American authorities as “untrustworthy”. Thus, West Germany sought alternatives to Sabin OPV, despite East German offers, resulting in further vaccine chaos with the introduction of the Cox OPV. Public-facing propaganda tended to be more critical of the opposing side’s policies than the internal opinions expressed by medical professionals in East or West Germany.

National boundaries do not function as a good indication of individual beliefs and actions, particularly in the case of divided Germany. The establishment of East and West Germany as two separate entities in 1949 was at once real and imagined. While many Germans participated in constructing the “wall in the head,” family ties, shared history and language prevented complete division. Disease, of course, does not respect borders, and health is a global concern particularly in the case of contagious diseases. Instead, ideological differences provide a much more useful conceptualization for the divide at this time though they too are not infallible. Political borders are not inherently national and divides between national leaders do not necessarily hold true at the individual level where choices may be more pragmatic or based on personal adherence (or lack thereof) to political structures.

Albert B. Sabin’s decision to participate in exchanges with Soviet physicians and collaborate with the USSR on a field trial of his OPV demonstrates his lack of adherence to the political stance of the country he lived in, the US. Nonetheless, he did not face negative consequences for his actions, suggesting a level of freedom that complicates

historian Jane Brickman's conclusions about "medical McCarthyism."⁶⁰ While Brickman's study of the 1930s and 1940s suggests American scientists faced intense scrutiny from the United States government, by the late 1950s, the climate had changed, and the United States sought to increase medical exchange with the Soviet Union. This change in the US's approach to soft power and diplomacy made the field trial possible, but Sabin's actions and individual belief that Soviet physicians were trustworthy established the relationship and initiated the process. Nonetheless, Sabin's decision to collaborate did not mean that his peers trusted the results of the test, or even the WHO report completed by Dr. Dorothy Horstmann on the efficacy of his vaccine.

The lack of unity in medical practitioners' opinions on the Salk, Sabin, and Cox vaccines also demonstrates that medical knowledge is not stagnant and is shaped by the social and political contexts in which it is created. Material conditions and economic contexts shape the availability of medical innovations. In East Germany, the economic disadvantages were connected to political contexts and the need to avoid showing weakness to West Germany and the US. The United States, though economically superior, also refused to change course from Salk IPV to Sabin OPV, resisting acknowledging the Soviet Union's correctness in this case. Thus, medical knowledge and advancements were not stable "fact" and were frequently challenged even when supported with evidence of their functions, based on political ideology and distrust of those on the other side.

⁶⁰ Jane Pacht Brickman, "Medical McCarthyism and the Punishment of Internationalist Physicians in the United States," in *Comrades in Health: U.S. Health Internationalists Abroad and at Home*, ed. Anne-Emanuelle Birn and Theodore M. Brown (New Brunswick: Rutgers University Press, 2013).

The final challenge to understanding historical vaccine hesitancy and the ways in which medical knowledge does, or does not, travel across national and political borders, is the individual aspect of medical decision-making. Though medical knowledge may travel between physicians in different countries, it must also be relayed to potential vaccinees, addressing potential risks and benefits without sparking hesitancy in the general public. In both East and West Germany, citizens had a choice about whether or not to receive polio vaccines – neither country mandated vaccinations with Salk IPV or Sabin OPV in this period. Popular media coverage of the Cutter Incident in the United States, where an improperly manufactured Salk IPV resulted in hundreds of polio cases and deaths, damaged public confidence in the vaccine in divided Germany. It arguably caused more hesitancy there than in the United States itself, and this can be attributed to the US National Foundation for Infantile Paralysis's (NFIP) media and fundraising campaigns, which sparked public engagement years before Salk announced his vaccine was ready for field trial. Garnering public confidence in a vaccine requires clear and sustained communication of how that vaccine will improve society, and how the risks far outweigh the gains for the population itself.

The persistence of vaccine hesitancy, specifically pertaining to one form of vaccine against a disease, continues to cause problems with the COVID-19 vaccines presently. Public responses to Astra-Zeneca's vaccine and its small but potentially fatal risk of non-life-threatening blood clotting continue unabated, with pharmacies reporting patients refusing vaccination with this non-replicating viral vector vaccine. Instead, patients seek mRNA vaccines, though they also carry risks. Similarly, in divided

Germany, the Salk IPV was treated with suspicion by German citizens, though the Sabin OPV proved it carried risks as well. As well, the debates over which vaccines will be recognized internationally add a new dimension to the conversation about vaccine choice. The European Union has revealed that individuals vaccinated with certain vaccines used in North America will not be eligible for its Digital COVID Certificate and will therefore not be able to travel to Europe unless they are revaccinated with an approved vaccine. Alongside continued issues with vaccine hesitancy, the coverage of “vaccine diplomacy” and a renewed vaccine race between Russia, China, and the US demonstrates continued use of soft power diplomacy in the form of vaccines to gain political favour in neutral countries. The continued relevance of this topic was unexpected when I began researching this thesis, but today’s debates clearly add weight to the importance of understanding historical medical diplomacy as a form of soft power and vaccine hesitancy as a socio-cultural phenomenon.

Chapter 1: Epidemics and Occupation in Post-World War II Germany

At the end of World War II, Germany suffered a total defeat at the hands of the Allied forces. Germany was truncated along the Oder-Neisse Line according to agreements made at the Potsdam Conference, reducing the country's landmass by approximately 25 percent compared to its 1919 borders.⁶¹ What remained was divided by the Allied occupiers into four occupation zones, as was Berlin. Initial planning at the Potsdam conference set up a four-power Allied Control Council (ACC) which was supposed to ensure uniformity in political, economic, and social life in the four zones. This arrangement quickly gave way to individualistic policies, although the three western powers, France, Great Britain, and the United States, maintained more contact with each other than with the Soviet zone. The initial task of officials in each zone was to rebuild basic infrastructure to prevent a war-torn country from transitioning into an infectious country, spreading infectious disease to surrounding nations. Then, once the first winter passed, the occupiers placed more emphasis on denazification.

Health was a fundamental problem for occupying powers in Germany. According to historian Alison Bashford, having a functioning public health system became a “standard of civilization” after World War I, while Jessica Reinisch noted that nations in

⁶¹ Andrew Demshuk, *The Lost German East: Forced Migration and the Politics of Memory, 1945-1970*. (Cambridge: Cambridge University Press, 2012), 52.

Europe “did expect maintenance of a certain level of health in the postwar [period].”⁶²

Contemporary actors were also aware of the importance of maintaining health and hygiene in their occupation zones. In November 1945, the Chief of the Preventive Medicine section of the Occupational Military Government, US [OMGUS], Lt. Colonel Edward J. Dehne, reflected on the instability in Germany, writing “There is no function of government that is not related to the health function.”⁶³ The Allied powers feared Europe would experience outbreaks of epidemic disease due to the destruction of sanitation infrastructure and widespread malnourishment, which could foment sociopolitical instability. Since Germany was at the centre of the continent, its public health had to be maintained to prevent epidemics of contagious disease across Europe more broadly.

Despite health’s clear importance to German recovery, historians have paid little attention to the evidence and have assumed that German healthcare after World War II mirrored high post-World War I levels of epidemic disease, famine, and mortality. The first study specifically on healthcare in post-World War II Germany was Hans-Ulrich Sons’ 1983 monograph, *Gesundheitspolitik Während der Besatzungszeit*, which provided an overview of the challenges faced by Germans and occupiers in North Rhine-Westphalia. He asserted that North Rhine-Westphalia was one of the less-damaged areas after World War II, but still suffered from a housing shortage and rat infestations, which

⁶² Alison Bashford, ed., *Medicine at the Border: Disease, Globalization and Security, 1850 to the Present* (New York: Palgrave Macmillan, 2006), 21; Jessica Reinisch, “Internationalism in Relief: The Birth (and Death) of UNRRA,” *Past & Present* 210 (2011): 276.

⁶³ NARA RG 260/332, Folder 1. OMGUS, “Report on U.S. Occupation of Germany, Public Health,” 20 November 1945.

compounded tuberculosis, typhus, paratyphoid, flu, and scabies epidemics.⁶⁴ The scholar Atina Grossmann asserted in 1995 that healthcare systems in Germany were still functional in the immediate postwar era, particularly in major cities.⁶⁵ When Jessica Reinisch wrote her 2013 study of healthcare reconstruction in the four occupation zones of Germany, she went a step further, claiming that postwar Germany did not experience any epidemics of communicable disease – a clear reversal of the claims made by almost all historians preceding her.⁶⁶

This chapter first lays out the previous scholarship on the postwar era and the Allied occupation of Germany, where it discusses healthcare. Although historians have constructed various interpretations of the severity of the public health crisis in postwar Germany, the statistical evidence in this chapter shows a rise in disease prevalence toward the end of World War II. The outbreaks of “wartime” diseases such as typhoid and influenza continued into the postwar and occupiers could not control them until 1947. Furthermore, the evidence shows that, even if Reinisch were correct that there were no disease outbreaks, medical decision-makers in post-World War II Germany operated without the benefit of reliable statistics and without any idea of how quickly epidemics might develop. They were concerned about the potential for public health crises to impede their denazification processes in Germany by fomenting public unrest. In the

⁶⁴ H.-U. Sons, *Gesundheitspolitik während der besatzungszeit. das öffentliche Gesundheitswesen in Nordrhein-Westfalen, 1945-1949* (Wuppertal: Wuppertal Hammer, 1983).

⁶⁵ Atina Grossmann, *Reforming Sex: The German Movement for Birth Control and Abortion Reform, 1920-1950* (New York: Oxford University Press, 1995).

⁶⁶ Jessica Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany* (Oxford: Oxford University Press, 2013).

context of National Socialist propaganda criticizing the post-World War I peace and Treaty of Versailles, occupiers wanted to avoid further tensions which could lead to accusations that the German citizens were being punished by occupiers, and reinforcing Germans' beliefs that the *Nationalsozialistische Deutsche Arbeiterpartei* (NSDAP) had been correct in viewing Germany as a victim.

The transition from occupiers' concerns about wartime diseases to peacetime outbreaks of polio took place between 1945 and 1947. This period also brought changes to the structures of healthcare systems in the two occupation zones, which also made reunification less likely by creating more differentiation between the two populations of German civilians. Denazification was also a key priority for both occupiers, but doctors were both invaluable to the postwar project and one of the most nazified professional groups in Germany. While many German physicians were early adherents of Nazism, their services were required for the maintenance of health in Germany. Furthermore, when diplomatic relations between the western occupiers and the Soviet Union worsened at the end of the 1940s, public health became a measure of the success of each occupier's policies, and by proxy, a measure of the efficacy of capitalism versus communism. Public health became a key area of conflict in the ideological battle over Germany. This question is of fundamental importance to a historical understanding of the experience of the reconstruction of Germany over the following decades. This chapter constructs the context for the subsequent three chapters.

Early Social Histories Pertaining to Health in Postwar Germany

Though many works touch on the subject either implicitly or explicitly, postwar health in Germany has received surprisingly little focused study from historians, particularly in English-language literature where there is only one survey of healthcare in postwar divided Germany. Histories of the aftermath of World War II in Germany focus on the military, economic, or political reconstruction of Germany. In early histories of the post-World War II period (1950-1970), historians mentioned health most frequently in examinations of the liberated concentration camps and displaced persons camps but did not investigate the status of German health more broadly, or its healthcare systems.⁶⁷ This first generation of scholars was more intent on explaining the “rapid” transformation of the western zones of Germany from a land of rubble to an affluent capitalist democracy by the 1950s and the failure of the Soviet zone to keep pace.⁶⁸ Health tied into this story of progress but it was not the main focus of these works. Health was also implicated in studies of reparations and removals from Germany in the postwar period, as both Soviets and Americans sought to export German medical research and researchers to benefit their own countries, as informal restitution for losses accrued during the War.⁶⁹ Some

⁶⁷ Günter Granicky and Müller Georg, “Die Flüchtlinge in Westdeutschland,” in *Das deutsche Flüchtlingsproblem, sonderheft der Zeitschrift für Raumforschung* (Bielefeld: Eilers, 1950), 4–10; Werner Abelshauser, *Wirtschaft in Westdeutschland 1945-1948: rekonstruktion und Wachstumsbedingungen in der amerikanischen und britischen Zone* (Stuttgart: Deutsche Verlaganstalt, 1975).

⁶⁸ Douglas Botting, *In the Ruins of the Reich* (London: George Allen & Unwin, 1985); Mark Wyman, *DPs: Europe’s Displaced Persons, 1945-1951* (Ithaca: Cornell University Press, 1989); Volker R. Berghahn, *The Americanisation of West German Industry, 1945-1973* (Leamington Spa: Berg, 1985); Rolf H. Dumke, “Reassessing the Wirtschaftswunder: Reconstruction and Postwar Growth in West Germany in an International Context,” *Oxford Bulletin of Economics and Statistics* 52, no. 2 (1990): 451–91; John Gimbel, *The Origins of the Marshall Plan* (Stanford: California University Press, 1976); Rainer Klump, *Wirtschaftsgeschichte der Bundesrepublik Deutschland. Zur kritik neuer wirtschaftshistorischen Interpretationen aus Ordnungspolitischer Sicht* (Stuttgart: Steiner, 1985).

⁶⁹ Frank Biess and Daniel M. Gross, eds., *Science and Emotions after 1945: A Transatlantic Perspective* (Chicago: University of Chicago Press, 2014); Charlie Hall, “Pushed Into Pragmatism: British Approaches

exceptions existed to the overall picture of neglect of health as a subject by historians.

Military historians for example, assessed the reasons for the end of the war in 1945 and the effect of total defeat on German psychology.⁷⁰ Although these works did not explicitly focus on health and medicine, they have mostly suggested that the state of health in postwar Germany was very poor.

Since the 1980s, historians have become increasingly interested in social and cultural reconstruction in the postwar era, by challenging generalizations about the postwar experience. Newer histories have incorporated the lived experiences of everyday Germans and culture into their analyses of economic and political recovery, and questioning the interpretation that the postwar recovery in the western zones was a linear process.⁷¹ These histories recognize the importance of geographical location and the

to Science in Post-War Occupied Germany,” *The International History Review*, n.d.; John Gimbel, *Science, Technology, and Reparations: Exploitation and Plunder in Postwar Germany* (Stanford: Stanford University Press, 1990); John Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe* (Cambridge: MIT Press, 2006); John Krige, *Sharing Knowledge, Shaping Europe: US Technological Collaboration and Nonproliferation* (Cambridge: MIT Press, 2016); Paul Maddrell, *Spying on Science: Western Intelligence in Divided Germany, 1945-1961* (Oxford: Oxford University Press, 2006); Douglas M. O’Reagan, *Taking Nazi Technology: Allied Exploitation of German Science after the Second World War* (Baltimore: Johns Hopkins University Press, 2019).

⁷⁰ Ben Shephard, *The Long Road Home: The Aftermath of the Second World War* (New York: Knopf Doubleday Publishing, 2011).

⁷¹ Nils Havemann, “Soziale Marktwirtschaft und „Wirtschaftswunder“ im bundesdeutschen Berufsfußball der 1950er und 1960er Jahre?,” *Historical Social Research / Historische Sozialforschung* 40, no. 4 (154) (2015): 209–20; Raymond G. Stokes, “Technology and the West German Wirtschaftswunder,” *Technology and Culture* 32, no. 1 (1991): 1–22; Andrew S. Weiner, “Memory under Reconstruction: Politics and Event in ‘Wirtschaftswunder’ West Germany,” *Grey Room*, no. 37 (2009): 94–124; Mark E. Spicka, *Selling the Economic Miracle: Reconstruction and Politics in West Germany, 1949-1957*, Monographs in German History, v. 18 (New York: Berghahn Books, 2007); Tamás Vonyó, “Post-War Reconstruction and the Golden Age of Economic Growth,” *European Review of Economic History* 12, no. 2 (2008): 221–41; David Meskill, *Optimizing the German Workforce: Labor Administration from Bismarck to the Economic Miracle*, 1st ed, Monographs in German History, v. 31 (New York: Berghahn Books, 2010); Hann Schissler, ed., *The Miracle Years: A Cultural History of West Germany, 1949-1968* (Princeton: Princeton University Press, 2001); Tamás Vonyó, *The Economic Consequences of the War: West Germany’s Growth Miracle after 1945* (Cambridge: Cambridge University Press, 2018).

uneven experience of war in Germany by acknowledging the variations in experience of country from city, north from south, and socioeconomic disparities. Denazification and its failures have also become an important component of newer studies of the psychological reconstruction of German cultural identities and national identity.⁷² These accounts introduce complexity to our understanding of the relationships between occupiers, less straightforward paths to recovery, and struggles over what German identity should be.

Health often comes into this new generation of studies through references to the destroyed landscape or to housing and food shortages and riots. The focus on “rubble” and famine imply that Germany was absolutely ruined, without acknowledging the regional variances in the level of damage. As the historian Gary L. Baker has argued, “rubble” became a metaphor for the destruction of Germany and the degradation of living conditions in the postwar period.⁷³ Housing shortages and conflicts over occupiers taking the best houses for themselves also implied severe devastation.⁷⁴ Alice Weinreb and

⁷² Perry Biddiscombe, *The Denazification of Germany: A History 1945-1950* (Chalford: Tempus, 2007); Frederick Taylor, *Exorcising Hitler: The Occupation and Denazification of Germany* (London: Bloomsbury, 2011); James F. Tent, *Mission on the Rhine: Reeducation and Denazification in American-Occupied Germany* (Chicago: University of Chicago Press, 1982).

⁷³ Gary L. Baker, “‘Als wäre eine decke weggerissen’: Figurative Language in Rubble Literature,” *Colloquia Germanica* 36.3 (2003): 269–85. Frank Biess and Robert Moeller, eds., *Histories of the Aftermath: The Legacies of the Second World War in Europe* (New York: Berghahn Books, 2010); Patrick Major, *The Death of the KPD: Communism and Anti-Communism in West Germany, 1945-1956* (Oxford: Oxford University Press, 1997), 176.

⁷⁴ Thomas Hafner, *Sozialer Wohnungsbau in Westdeutschland, 1945-1970: mit einer Betrachtung des Zeitraums 1848-1945 und ausgewählten Beispielen aus Baden-Württemberg* (Stuttgart: Städtebauliches Institute Universität Stuttgart, 1994); Margarete Myers Feinstein, “All Under One Roof: Persecutees, DPs, Expellees, and the Housing Shortage in Occupied Germany,” *Holocaust and Genocide Studies* 32, no. 1 (2018): 29–48; Holger Lüning, *Das Eigenheim-Land: Der öffentlich geförderte soziale Wohnungsbau in Niedersachsen während der 1950er Jahre* (Hannover: Hahnsche, 2005); Jeffrey M. Diefendorf, “The Housing Problem,” in *In the Wake of War: The Reconstruction of German Cities after World War II* (Oxford: Oxford University Press, 1993), 108–50.

Atina Grossmann, among others, have looked specifically at the role of hunger and epidemic dystrophy in postwar Germany.⁷⁵ Histories which have focused on housing crises, destroyed cities, and pervasive hunger tend to construct an image of public health which ranged from poor to horrible. They often do not discuss broader fears of epidemics, the comparative prevalence of communicable diseases, or rural areas.

Nonetheless, historians retained some of the assumptions made by earlier generations of historians when it comes to their assessments of the status of postwar healthcare, demonstrated by some of the more explicit references to contagious illnesses in the general literature. Historian Mark Allinson described health in his 2000 monograph about the Soviet zone, emphasizing shortages of housing, food, and cleaning products and describing epidemics of communicable diseases such as tuberculosis, typhus, typhoid, and diphtheria. These epidemics, coupled with shortages of medical supplies, resulted in more deaths among German citizens and soldiers, and Allinson particularly notes a sharp rise in infant mortality. Finally, he concludes that “denazification removed many badly needed but politically unacceptable doctors.”⁷⁶ Allinson’s reference to multiple epidemics, heightened infant mortality, and immunization campaigns to stave off “war diseases” in the eastern zone has been supported by research on the western zones.

⁷⁵ Nutritional dystrophy is a medical condition caused by deficiencies in selenium and vitamin E, causing oxidization of muscle tissue. Atina Grossmann, “Grams, Calories, and Food: Languages of Victimization, Entitlement, and Human Rights in Occupied Germany, 1945–1949,” *Central European History* 44, no. 1 (2011): 118–48; Alice Weinreb, “‘For the Hungry Have No Past nor Do They Belong to a Political Party’: Debates over German Hunger after World War II,” *Central European History* 45, no. 1 (2012): 50–78.

⁷⁶ Mark Allinson, *Politics and Popular Opinion in East Germany 1945-68* (Manchester: Manchester University Press, 2000).; Rebecca Manley, “Nutritional Dystrophy: The Science and Semantics of Starvation in World War II,” in *Hunger and War: Food Provisioning in the Soviet Union during World War II*

Assessments of postwar Germany are typically overdramatic from Odd Arne Westad's assessment that in 1945, "all of Germany was a bombed-out disaster zone," to Gary L. Baker's claim that "In all of western history no industrialized nation had experienced such a level of devastation."⁷⁷ Many works on venereal disease, particularly those that emphasize how the nonfraternization policies of the occupying powers failed, further reinforce claims that epidemics of communicable diseases were out of control.⁷⁸ Other topics which have received concerted study include the poor health of displaced persons, rape at the hands of occupiers, abortion, and suicide.⁷⁹ The consensus among historians who do not specialize in medical history has been, and continues to be, that German health was incredibly poor after World War II, with the exceptions of Grossmann and Reinisch, who have challenged these assertions.

Histories of Public Health in Postwar Germany

⁷⁷ Odd Arne Westad, *The Cold War: A World History* (New York: Basic Books, 2017), 211; Lara Feigel, *The Bitter Taste of Victory: In the Ruins of the Reich* (Bloomsbury Publishing, 2016); Shephard, *The Long Road Home: The Aftermath of the Second World War*, 7; Baker, "'Als Wäre Eine Decke Weggerissen': Figurative Language in Rubble Literature," 269.

⁷⁸ Susan L. Carruthers, *The Good Occupation: American Soldiers and the Hazards of Peace* (Cambridge: Harvard University Press, 2016), 111–16; Carruthers, 160; John Willoughby, "The Sexual Behavior of American GIs during the Early Years of the Occupation of Germany," *The Journal of Military History* 62, no. 1 (1998): 155–74; Dagmar Ellerbrock, "Die restaurativen Modernisierer. Frauen als gesundheitspolitische Zielgruppe der amerikanischen Besatzungsmacht zwischen 1945 und 1949," in *Ärztinnen-Patientinnen: Frauen im deutschen und britischen Gesundheitswesen Des 20. Jahrhunderts*, ed. Ulrike Lindner and Merith Niehuss (Köln: Böhlau Verlag, 2002), 243–66.

⁷⁹ Samuel Moyn, "In the Aftermath of Camps," in *Histories of the Aftermath: The Legacies of the Second World War in Europe*, ed. Frank Biess and Robert G. Moeller (New York: Berghahn Books, 2010); Werner Sollors, *The Temptation of Despair* (Cambridge: Belknap Press, 2014), 7–8; Grossmann, *Reforming Sex: The German Movement for Birth Control and Abortion Reform, 1920-1950*, 193; Norman M. Naimark, *The Russians in Germany: A History of the Soviet Zone of Occupation, 1945-1949* (Harvard: Harvard University Press, 1995), 69–140; Atina Grossmann, "A Question of Silence: The Rape of German Women by Occupation Soldiers," *October* 72 (1995): 43–63.

With the exception of Hans-Ulrich Sons' 1983 monograph, *Gesundheitspolitik Während der Besatzungszeit*, the bulk of scholarship specifically on postwar public health was written in the last three decades. Scholars writing in the 1990s and early 2000s presented a similar argument to the literature created by historians who are not medical historians: epidemics of contagious diseases, particularly the common wartime diseases like tuberculosis, typhus, typhoid and paratyphoid fevers, influenza, and dysentery, spread widely. Scholar Andreas Dinter, for example, has discussed the failures of the Berlin public health administration between 1945 and 1946, when German medical practitioners blamed occupiers for the deterioration in public health conditions. He also emphasized that the Allies' first task was the containment of epidemics that were already spreading in Germany when the Allies took control of the country in April 1945.⁸⁰ The historian Gabriele Moser has described 1945 and 1946 as "crisis years" in the eastern zone.⁸¹ The scholar Dagmar Ellerbrock argues that initial American assessments of German health indicated that World War II had had a less deleterious effect on German health than World War I. By November 1944, these estimates had been revised as occupiers prepared for the "tremendous task" of curtailing disease and civil unrest in the face of famine and epidemics.⁸² Historian Joseph Orlopp noted that from June to

⁸⁰ Andreas Dinter, *Berlin in Trümmern: ernährungslage und medizinische Versorgung der Bevölkerung berlins nach dem II. Weltkrieg* (Berlin: Wünsche, 1999), 137.

⁸¹ Gabriele Moser, *Im interesse der Volksgesundheit: Sozialhygiene und öffentliches Gesundheitswesen in der Weimarer Republik und der frühen SBZ/DDR: ein Beitrag zur Sozialgeschichte des deutschen Gesundheitswesens im 20. Jahrhundert* (Frankfurt am Main: Verlag Für Akademische Schriften, 2002), 155.

⁸² D. Ellerbrock, "Healing Democracy" *Demokratie als heilmittel: Gesundheit, Krankheit und Politik in der amerikanischen Besatzungszone* (Bonn: Institut für Sozialgeschichte, 2004), 65; 75.

December 1945, the death rate from all causes in Berlin was 53.5 per 1000, compared to a 1935 rate of 13.5 per 1000.⁸³

One recent work on postwar public health in Germany, however, has presented a dissenting interpretation. Jessica Reinisch concluded her 2013 study of healthcare reconstruction by stating that “there were no epidemics in post-war Germany, and the few local outbreaks of infectious disease were successfully contained.”⁸⁴ Reinisch, who draws much of her evidence from the same archives as her predecessors, thus reaches a strikingly different conclusion about the state of health in postwar Germany.

Along with considering the actual incidence of epidemic disease in the postwar period, historians of healthcare have also studied how healthcare systems were restructured by Germany’s occupiers. According to historian Robert Moeller, many authors, particularly those studying the Soviet occupation zone, are focused on the reconstruction of health systems, abstracting individual experience with a focus on systematic changes and continuities. Health systems, according to historian Mark Field, are “the totality of efforts and activities (broadly conceived) a society devotes to, or invests in, the health of its people.”⁸⁵ Thus, health systems encompass physical structures such as hospitals, private doctors’ offices, dental offices, pharmacies, mental health facilities, and in the case of Weimar and East Germany, polyclinics. They also include the individuals who work in healthcare, including doctors, nurses, dentists, pharmacists, personal support workers, psychiatrists, health insurers, and health policymakers. Finally,

⁸³ Josef Orlopp, *Zusammenbruch und aufbau berlins 1945/1946* (Berlin: Dietz Verlag, 1947), 26.

⁸⁴ Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany*, 296.

⁸⁵ Mark G. Field, *Soviet Socialized Medicine: An Introduction* (New York: The Free Press, 1967), IX.

they include structures such as health governance and health insurance. Accounts by Reinisch and Grossmann adopted a narrower definition of health systems than Field by focusing on disease reporting and treatment facilities in government offices, hospitals, sanatoria, and clinics. Both authors also addressed the movement of refugees and displaced persons from the east into German cities, occupiers' violence against Germans. They also discuss how returning soldiers increased burdens on health care systems that lacked supplies, infrastructure, and personnel.

Many scholars have assumed that Germans were not involved in the redesign of their healthcare systems in either the American or the Soviet zones of occupation. According to Westad, the American decision to allow the pre-World War II system of social welfare and health insurance to remain in the western zones was predominantly motivated by the political context of the Cold War.⁸⁶ Very few historians trace the development of healthcare systems from the separation of Germany after the war through to the 1960s. The two exceptions, both written by scholar Gabriele Moser, focus on East Germany and its connection to Weimar healthcare concepts. There appears to be no analysis of important postwar debates among German physicians about the future of the healthcare systems in each zone – these debates shaped the trajectory of healthcare systems in each zone. As this chapter will show, German physicians were not resistant to change but wanted to maintain control of their own healthcare systems – both for educating new physicians and delivering healthcare to the population – and voiced those

⁸⁶ Westad, *The Cold War: A World History*, 219.

opinions to occupiers. They were fundamental in shaping the future of healthcare provision in East and West Germany.

American and Soviet Planning for Victory over Germany

The European Advisory Commission (EAC) was established by governments at the Moscow Conference on 30 October 1943 to help guide the Allies in establishing policies for postwar Europe. On 14 November 1944, the EAC recommended creating an Allied Control Council (ACC), which was to coordinate the occupation of Germany by four countries: the United States, the Soviet Union, the United Kingdom, and France. Despite the nominal goal of having a healthcare plan devised through collaboration between the four occupiers facilitated by the creation of the ACC, the American and Soviet zones of occupation each devised their own plans and approaches for reconstructing, denazifying, and altering Germany's health systems.

Long before World War II was won, American military personnel were preparing for the occupation of Germany. U.S. policymakers recognized how the U.S. army's attempt at establishing a military government in Germany after World War I had created difficulties and distrust in the German-American relationship throughout the interwar era. Reluctance to repeat this failed occupation shaped training and preparations for the post-World War II occupation.⁸⁷ On 2 April 1942, the Secretary of War, Henry L. Stimson, established a School of Military Government at the University of Virginia and the

⁸⁷ Earl Frederick Ziemke, *The U.S. Army in the Occupation of Germany, 1944-1946* (Washington, D.C.: Center of Military History, United States Army, 1975), 3.

following year, another training institute was established at Fort Oglethorpe in Georgia.⁸⁸

The heightened focus on training military personnel for civil affairs positions reflected American desires to avoid the mistakes made after World War I.

Although healthcare systems in Europe generally still functioned after the First World War, outbreaks of epidemic disease, particularly influenza, typhus, cholera, dysentery, and typhoid, eventually overwhelmed them. By 1945, no major international outbreaks of communicable disease had occurred, but medical officials were still cautious. The Chief of the Epidemiological Information Service of the United Nations Relief and Rehabilitation Administration (UNRRA) warned that “caution against over-optimism is dictated by the disastrous aftermath of World War I.”⁸⁹ The most well-known of the post-World War I epidemics was the 1918 epidemic of the H1N1 influenza virus A, which became a global pandemic and led to an estimated 20 to 50 million deaths. Though recent scholarship has demonstrated that the 1918 strain of flu may have originated in American military camps in Kansas, in 1945 American researchers still believed the virus had originated in either Europe or China and was carried back to the United States by soldiers returning from the front lines in Europe.⁹⁰ In addition to influenza, Italy suffered a serious outbreak of malaria, eastern Europe experienced

⁸⁸ Ziemke, 7; 18.

⁸⁹ Knud Stowman, “The Epidemic Outlook In Europe,” *The British Medical Journal* 1, no. 4403 (1945): 742–44.

⁹⁰ Alfred W. Crosby, *America’s Forgotten Pandemic: The Influenza of 1918* (Cambridge University Press, 2003); John S. Oxford and Douglas Gill, “A Possible European Origin of the Spanish Influenza and the First Attempts to Reduce Mortality to Combat Superinfecting Bacteria: An Opinion from a Virologist and a Military Historian,” *Human Vaccines & Immunotherapeutics* 15, no. 9 (May 23, 2019): 2009–12; Mark Osborne Humphries, *The Last Plague: Spanish Influenza and the Politics of Public Health in Canada* (University of Toronto Press, 2013).

outbreaks of typhus which claimed millions of lives in Russia alone, and Germany suffered typhoid and paratyphoid epidemics from infected drinking water.⁹¹ Health experts in the 1940s blamed the lack of control of wartime typhus and influenza in Europe for the introduction of the diseases to the United States, resulting in millions of casualties, cautioning against repeating such mistakes.⁹²

Initial American plans for healthcare in the postwar period were forged by military planners in May 1944 in a document titled “Guide to Initial Functions of CA Detachments Operating with Combat Units.”⁹³ The relevant goals were:

1. Re-establish local public health organizations.
2. Secure care for civilian sick and wounded.
3. Report incidence of communicable diseases.
4. Correct serious hazards in environmental sanitation, particularly in water supply and sewage disposal systems.
5. Establish strict control over medical supplies.

These goals were summarized in the “Handbook for the German Country Unit,” compiled by the Combined Chiefs of Staff (British and American) throughout 1944.⁹⁴ In the Handbook draft of July 1944, occupation officials were advised: “Your main and immediate task is to get things running, to pick up the pieces, to restore as quickly as

⁹¹ Frank M. Snowden, “The First World War and Epidemic Disease,” in *The Conquest of Malaria*, Italy, 1900-1962 (Yale: Yale University Press, 2006), 115–41; “Danger of a Typhus Epidemic in Europe,” *Social Service Review* 16, no. 2 (1942): 337–39; Hayo Bruns and Abel Wolman, “Typhoid Fever Epidemics from Water Supply in Germany,” *Journal (American Water Works Association)* 25, no. 1 (1933): 1–18.

⁹² Clara E. Councell, “War and Infectious Disease,” *Public Health Reports (1896-1970)* 56, no. 12 (1941): 547–73; “Health of the United States at War,” *Public Health Reports (1896-1970)* 58, no. 34 (1943): 1281–82.

⁹³ Hqs., First U.S. Army, Office of CA Officer. “Guide to Initial Functions of CA Detachments Operating with Combat Units,” 27 May 1944. SHAEF G-5 17.16. qtd. In Ziemke, *The U.S. Army in the Occupation of Germany*, 70.

⁹⁴ Ellerbrock, “Healing Democracy” *Demokratie als heilmittel: Gesundheit, Krankheit und Politik in der amerikanischen Besatzungszone*, 59–60.

possible the official functioning of the German civilian government in the area for which you are responsible.”⁹⁵ These instructions, which were designed to facilitate the rapid improvement of German infrastructure and to heal the sick, permitted active American involvement in the reconstruction of Germany. In August 1944, Secretary of the Treasury Henry Morgenthau Jr. complained to President Franklin D. Roosevelt that the Handbook was too lenient in its treatment of defeated Germany. In response, Roosevelt asked Secretary of War Henry Stimson to revise the Handbook subject to his approval. Roosevelt sought a compromise between those who feared that a “punitive peace” like after World War I would foster another “stab-in-the-back” myth among Germans and those who wanted to make the Germans pay for their atrocities during the Third Reich. He declared: “The German people as a whole must have it driven home to them that the whole nation has been engaged in a lawless conspiracy against the decencies of modern civilization.” While he did not want the Germans to starve, he thought that they should be given only the bare minimum necessary for survival. Hence the Handbook should avoid giving the impression that “Germany is to be restored just as much as the Netherlands or Belgium.”⁹⁶

The following month, Morgenthau revealed his plan for the occupation of Germany while hosting a dinner party attended by Assistant Secretary of State John J.

⁹⁵ *Foreign Relations of the United States: Diplomatic Papers*, 1944, General, Volume 1, “Consideration of the Application of “Unconditional Surrender” Terms to Germany,” eds. E. Ralph Perkins and S. Everett Gleason (Washington: United States Government Printing Office, 1966), Document 311.

⁹⁶ Roosevelt, qtd. in John Morton Blum, *From the Morgenthau Diaries: Years of War, 1941-1945* (Boston: Houghton Mifflin, 1967), 359.

McCloy, Morgenthau's advisor Harry White, and Henry Stimson.⁹⁷ Morgenthau's plan included destroying any industry in Germany that contributed to military strength, creating an agrarian Germany which would also be economically crippled. Morgenthau's adamant anti-German attitude and the support he received from FDR meant that the lenient tone of the guide was no longer politically palatable. The military redrafted the Handbook to read "No relief supplies are to be imported or distributed beyond the minimum necessary to prevent disease and such disorder as might endanger or impede military operations in occupation."⁹⁸ The changed language was aimed at preventing any outbreak of disease in occupied Germany that would have adverse effects on occupation forces. This more pragmatic approach made it clear that maintaining American health, not German health, was the priority.

The debate over whether to follow the Morgenthau Plan's hard line or the relatively gentler policies of the Handbook led to the "Directive to Commander-in-Chief of the U.S. Occupation Zone" (JCS 1067) which instructed "You are authorized to direct the German authorities to maintain or re-establish such health services and facilities as may be available to them."⁹⁹ Theoretically, the onus fell on Germans to maintain their own health, in contrast to Americans' retention of decision-making and responsibility for the German economy, military, education, and many other areas. One of the first

⁹⁷ Blum, 359.

⁹⁸ Blum, 364.

⁹⁹ "Part II: Labour, Health, and Social Insurance, #26." In "Directive to Commander-in-Chief of United States Forces of Occupation Regarding the Military Government of Germany, April 1945 (JCS 1067)," *The Avalon Project*, Lillian Goldman Law Library, Yale Law School, URL: <https://avalon.law.yale.edu/wwii/ger02.asp>, Accessed 19 November 2019.

information bulletins published by OMGUS in October 1945 contained a full page spread titled “Public Health: A German Responsibility” that highlighted one of the four major unified policies developed at Potsdam: “German control and operation of their own health services in such a way that success or failure will be their own direct responsibility.”¹⁰⁰

Maintaining a basic level of health, controlling epidemics, and introducing “the best public health practices” to Germans would remain a responsibility of the military government throughout the occupation period. In July 1945, the military placed public health under the jurisdiction of the United States Forces, European Theater G-5 Civil Affairs Office – a transfer from Supreme Headquarters Allied Expeditionary Force [SHAEF] Unit G-5. In September 1945, the Public Health Branch transferred to OMGUS and it began to place more emphasis on transferring operations to civilians as opposed to military commanders.¹⁰¹ The two Public Health Branch headquarters were established in the states of Hessen and Bavaria in southern Germany. Hessen had three sub-headquarters dedicated to Hessen-Nassau, Hessen, and Württemberg-West Baden, as well as a medical supply team and 32 public health teams. Bavaria had five sub-headquarters for Franconia, Upper and Central Franconia, Lower Bavaria and the Upper Palatinate, Swabia, and Upper Swabia as well as a medical team and 26 public health teams. In total, the Public Health Branch had 150 officers and 478 enlisted individuals at its peak, though

¹⁰⁰ UWDC-GURC. “Public Health: A German Responsibility,” *OMGUS Weekly Information Bulletin* No. 11 (August 1945): 11. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=turn&id=History.omg1945n011&entity=History.omg1945n011.p0010&q1=typhoid%20fever>, Accessed 11 November 2019.

¹⁰¹ Ziemke, *The U.S. Army in the Occupation of Germany, 1944-1946*, 402.

initial plans suggested 233 officers and 569 enlisted staff would be required.¹⁰² Thus, the Public Health Branch was plagued by shortages of staff and overwork, resulting in high turnover of personnel due to dissatisfaction with the work.

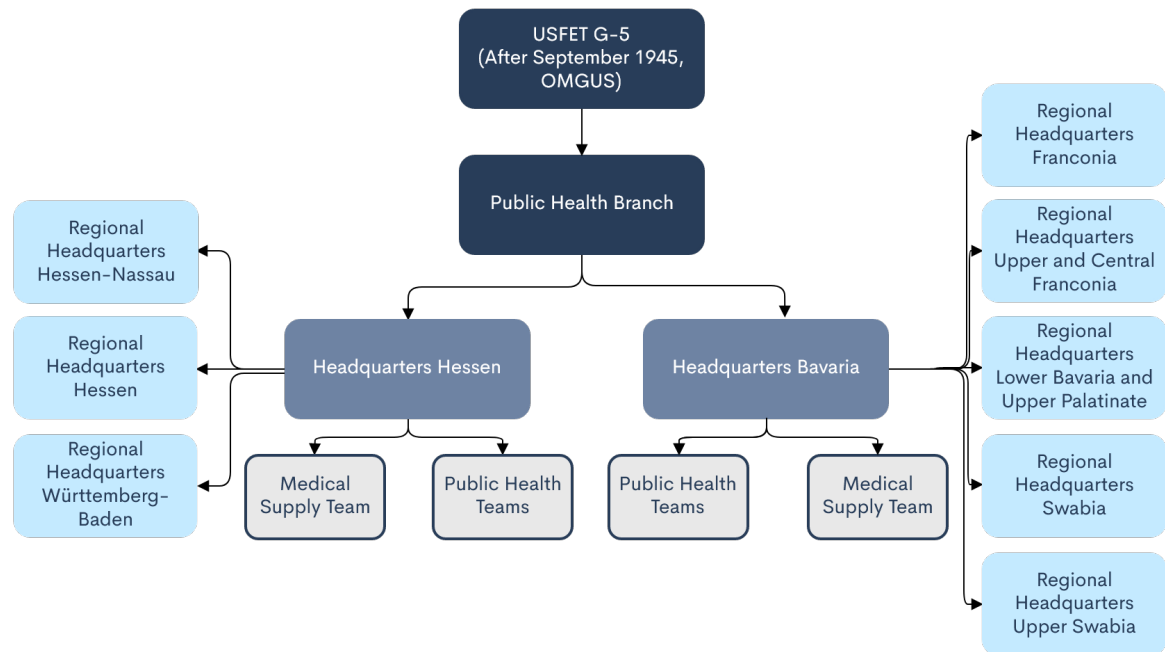


Figure 3: The Structure of the Public Health Branch of the U.S. Occupation Zone

The priority was to control epidemics and to keep outbreaks from happening.

Public health planning in the American zone became the responsibility of the Public Health Branch under the Internal Affairs and Communications Division of OMGUS. This branch was led by a chief who was supported by a deputy and several specialist consultants in Preventive Medicine, Venereal Disease Control, Environmental Sanitation, Nutrition, Nursing Affairs, Veterinary Affairs, and Biostatistics.¹⁰³ Each state office of

¹⁰² Stanhope Bayne-Jones and Edward J. Dehne, "The European Theater of Operations (1944-45)," in *Civil Affairs/Military Government Public Health Activities* (Washington, D.C.: Office of the Surgeon General, Department of the Army, 1976), 499–500.

¹⁰³ UWDC-GURC. "Public Health," *OMGUS Weekly Information Bulletin* No. 80 (February 1947): 29. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History->

OMGUS had its own public health section, comprised of a public health officer, deputy, and administrative personnel. These public health sections reported to the central Public Health Branch and were tasked with observing and reviewing the activities of the German public health agencies, with support from the central branch's technical consultants.¹⁰⁴

Healthcare policy in the Soviet zone has not received as much scholarly attention as the western zones, and often historians argue that the Soviets did not have a plan for the occupation of Germany.¹⁰⁵ Historian J. P. Nettl wrote in 1951 that the Soviet occupation zone of Germany, while “not the permanent focus of Soviet policy,” was also “not a mere backwater.”¹⁰⁶ Tensions between the Soviets and Germans were also higher than tensions between the US and Germany, as Operation Barbarossa was fresh in the minds of the Soviets and a desire for retribution was common. That said, the Soviet leadership recognized the occupation of Germany as an important component of its foreign policy, especially as tensions with the US rose in 1947 and 1948. Though Klaus-Dieter Müller agreed that healthcare planning played a minor role, it was not entirely absent from Soviet planning, nor was Soviet planning based entirely in the desire to punish Germans. Instead, Soviets used émigrés: German communists who had fled Germany during the early National Socialist era, when communists were being sent to concentration camps.

idx?type=turn&id=History.omg1947n080&entity=History.omg1947n080.p0031&q1=health, Accessed 19 November 2019.

¹⁰⁴ “Public Health,” 30.

¹⁰⁵ “Public Health,” 30.

¹⁰⁶ J.P. Nettl, *The Eastern Zone and Soviet Policy in Germany, 1945-1950* (London: Oxford University Press, 1951).

Soviet zone healthcare policy began with the “Ackermann Group,” which was headed by exiled German communist Anton Ackermann.¹⁰⁷ It was one of three teams flown into the future Soviet occupation zone late in the war with instructions to develop a proposal for future occupation plans.¹⁰⁸ The economic policy section of the resulting plan sought to improve health through insurance, lowering child mortality and extending children’s and maternal care, providing aid for victims of bombing, preventing the spread of venereal disease, and continuing free choice of physicians.¹⁰⁹ Importantly, this early proposal was made by the German émigrés themselves, rather than by the Soviet government, which demonstrates that the Soviets trusted Germans who exhibited loyalty to communism to return Germany to the public healthcare traditions established during the Weimar era. The early Soviet decision to consult with a group of politically palatable German émigrés demonstrates that the Soviets were interested in healthcare planning and took initiative to start this planning before World War II ended. Very little evidence about Soviet responses to this plan is available and Soviet military administrators did not seem aware of the plan, which illustrates that it was not prioritized or clearly communicated to those in positions of power. Both Commander of the Soviet Occupation Zone Georgy Zhukov and director of the Propaganda Administration of the Soviet Occupation Zone

¹⁰⁷ Klaus-Dieter Müller, “Die Ärzteschaft im staatlichen Gesundheitswesen der SBZ und DDR 1945-1989,” in *Geschichte der deutschen Ärzteschaft: organisierte Berufs- und Gesundheitspolitik Im 19. Und 20. Jahrhundert*, ed. Robert Jütte (Köln: Deutscher Ärzte-Verlag, 1997), 247.

¹⁰⁸ The other two groups were the Ulbricht Group in Berlin, and the Sobottka Group in Mecklenburg. Martin McCauley, *Marxism-Leninism in the German Democratic Republic* (New York: Springer, 1979), 1.

¹⁰⁹ Müller, “Die Ärzteschaft im staatlichen Gesundheitswesen der SBZ und DDR 1945-1989,” 247.

Sergey Tiulpanov complained that they were unprepared and lacking clear instructions.¹¹⁰

They were not aware of the plans made by German émigrés.

The Soviet leadership's decision to send émigrés to Germany to develop a plan for the postwar showed a desire to integrate Germans into their planning process, so long as they were ideologically committed to the communist project. Thus, ideology was more important than nationality in this calculus. Nonetheless, general Soviet policy in postwar Germany was, at the very least, inconsistent due to shifting Soviet perspectives on whether collaboration with the Western Allies would continue to be possible. These inconsistencies, compounded by the lack of Soviet Military Administration personnel earmarked for healthcare duties indicates that the Soviet Union did not consider health care a prime responsibility of the occupiers and instead expected Germans to do much of the work to maintain health in the zone. This stance parallels the American policy laid out in JCS 1067, though the occupiers did not consult each other while developing their policies and procedures.

The use of German communist émigrés also did not mean that the Soviet leadership was willing to compromise German health for political goals, as they would so often be accused of doing. The decision to retain prominent German physicians like Franz Sauerbruch, who had provided medical care and political support for the National Socialist leadership, and endorsed unethical medical testing, demonstrated sacrifice of denazification principles for pragmatic purposes.¹¹¹ Though denazification provided

¹¹⁰ Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany*, 223.

¹¹¹ Jessica Reinisch, "A New Beginning? German Medical and Political Traditions in the Aftermath of the Second World War," *Minerva* 45, no. 3 (2007): 245–46.

ample opportunity to punish former members of the NSDAP, and to eliminate individuals with far-right political affiliations from public life and high-status positions in the Soviet zone, the occupiers chose instead to allow most physicians to continue practicing medicine, regardless of their wartime activities. Instead, the Soviets initially supported what Ackermann described as “a special German road to socialism” in a 1946 essay, whereby Germany would pursue socialist goals in a way specifically tailored to postwar German contexts.¹¹² In the field of healthcare, this largely meant a return to the socialized medical systems favoured by leftist politicians in Weimar Germany, with minor variations.¹¹³

The Weimar healthcare system was based on collectivism and a focus on the health of the nation rather than the health of individual patients. It built upon the Health Insurance Bill of 1883, the Accident Insurance Bill of 1884, and the Old Age and Disability Insurance Bill of 1889, legislated by Otto von Bismarck. The 1883 National Health Insurance Law made participation in an insurance plan mandatory, with employers paying one third of insurance dues. In 1914, the Berlin Agreement concluded that physicians had to opt into a sickness fund which set prices for procedures in order to

¹¹² Anton Ackermann, “Gibt es einen besonderen deutschen Weg zum Sozialismus?,” in *der deutsche Weg zum Sozialismus: selbstzeugnisse und Dokumente eines Patrioten*, ed. Frank Schumann (Berlin: Eulenspiegel Verlag, 2005), 105–8.

¹¹³ For a detailed discussion of the differences between the Communist Party of Germany (KPD) and the Socialist Party of Germany (SPD) healthcare policies in the interwar era, see: Carsten Timmermann, “Weimar Medical Culture: Doctors, Healers, and the Crisis of Medicine in Interwar Germany, 1918-1933” (Doctoral Thesis, Manchester, University of Manchester, 1999); Carsten Timmermann, “Constitutional Medicine, Neoromanticism, and the Politics of Antimechanism in Interwar Germany,” *Bulletin of the History of Medicine* 75, no. 4 (2001): 717–39; M. Michael Thaler, “Medicine and the Rise and Fall of the Weimar Republic: Health Care, Professional Politics, and Social Reform,” *German Politics & Society* 14 (1996): 74–79.

serve patients covered by insurance, thus curtailing private fee-for-service practice.¹¹⁴

These sickness funds operated out of ambulatory clinics, commonly referred to as polyclinics, which provided outpatient care in a group setting where fees were set by the group.¹¹⁵ A clear divide emerged between socialist physicians who participated in sickness funds and served patients through health insurance for lower fees, and private physicians who chose to continue setting their own, generally much higher, fees and served individuals who could afford to pay those fees outside of insurance plans. After World War I, the public healthcare system in Weimar Germany expanded rapidly, and the government oversaw insurance organizations.¹¹⁶ Tensions about who could set fees continued, as doctors continued to negotiate fees with insurance providers on an individual basis, creating competition and driving prices up. Between 1923 and 1931, the German state organized physicians into regional associations known as *Ärztekammern* or Doctors' Associations that negotiated contracts with health insurance providers for the group. The system placed emphasis on illness prevention, and maternal and child health.

Between 1933 and 1939, many physicians who disagreed with NSDAP policies fled Germany. This divide between physicians who wished to continue private practice, and those who sought to support socialized healthcare in the form of compulsory health insurance and expansion of the polyclinic system, continued in the post-World War II

¹¹⁴ Thaler, "Medicine and the Rise and Fall of the Weimar Republic: Health Care, Professional Politics, and Social Reform," 76; Donald W. Light, "Values and Structure in the German Health Care Systems," *The Milbank Memorial Fund Quarterly. Health and Society* 63, no. 4 (1985): 620.

¹¹⁵ Light, "Values and Structure in the German Health Care Systems," 620.

¹¹⁶ In 1930, Chancellor Heinrich Brüning began to undo many of the measures which defined the Weimar healthcare system in response to economic pressure from the Great Depression.

period. Some fled to the US, but a group of socialist physicians fled to the Soviet Union. These physicians became known as émigrés in the scholarly literature as Soviet authorities used these émigrés because they were politically reliable.¹¹⁷ The existence of polyclinics, which often catered to the hours of working-class citizens, was particularly contentious.¹¹⁸ Private practicing doctors viewed these outpatient clinics as impediments to patients receiving quality care and threats to their livelihoods.

¹¹⁷ Udi Greenberg, *The Weimar Century: German Émigrés and the ideological Foundations of the Cold War* (Princeton: Princeton University Press, 2014).; Alexander Clarkson, “Old Allies in a New World: The Relationship between Émigrés and the German Political Establishment,” in *Fragmented Fatherland: Immigration and Cold War Conflict in the Federal Republic of Germany, 1945-1948* (New York: Berghahn Books, 2013), 33-56. Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany* (New York: Oxford University Press, 2013). Daniel Snowman, *The Hitler Émigrés: The Cultural Impact on Britain of Refugees from Nazism* (London: Chatto & Windus, 2002).

¹¹⁸ Polyclinics are healthcare centres which house both primary care (i.e. family doctors) and secondary care (i.e. specialists such as cardiologists). Though they provide convenient access to secondary care and more sharing between primary and secondary carers, some detractors claim they negate the primary physician’s ability to control the level of patient access to specialists, leading to more work for specialists. As well, the ease of access to specialists can lead patients to assume primary care physicians are less capable and advocate more loudly for referrals to the specialists, causing more work for specialists. See Lawrence D. Weiss and Shelley A. Theno. “Perestroika and Health Care in the USSR: Innovations in State Financing,” *Journal of Public Health Policy* 12.2 (1991): 229–40.

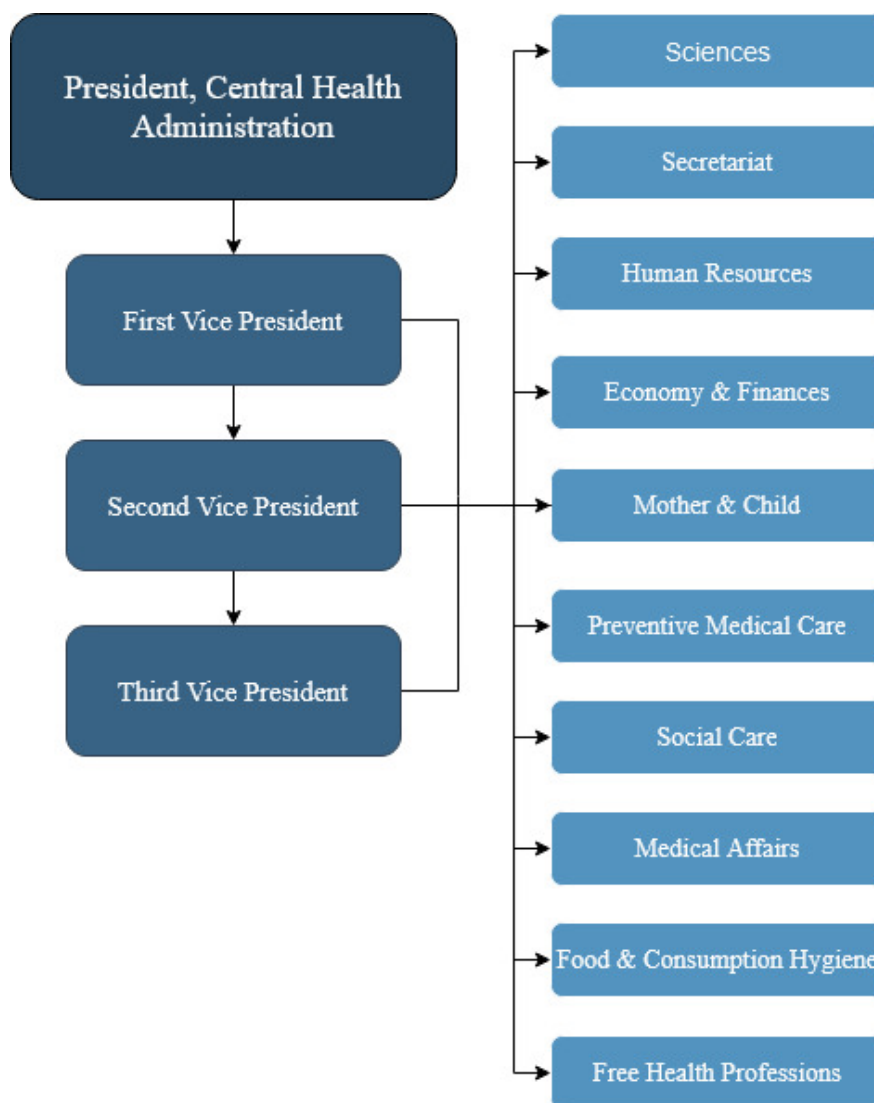


Figure 4: The Central Health Administration of the Soviet Occupation Zone

On 9 July 1945, Proclamation No. 5 of the Soviet Military Administration in Germany [SMAD] established five colonel-generals under Commander-in-Chief of the Soviet Occupation Zone Marshal Georgy Zhukov, to lead the Soviet Military Government. One officer headed each of the five states in the Soviet Occupation Zone.¹¹⁹ The order also established a Soviet Military Administration Health Department which

¹¹⁹ Nettl, *The Eastern Zone and Soviet Policy in Germany, 1945-1950*, 59..

was led by Major-General A.Y. Kuznetsov and deputy Colonel Andrei J. Sokolov. Its numbers fluctuated from 96 members in the summer of 1945 to a high of 110 members in 1946, to 41 members in 1949.¹²⁰ The Doctors' Associations from the Weimar era were disbanded in 1945, and in 1946 a new doctors' organization was incorporated into the Free German Trade Union Federation.¹²¹ On July 27, 1945, the Central Health Administration of the Soviet Occupation Zone, run by Germans, was established by Soviet Order No. 17.¹²² It consisted of a president, Dr. Paul Konitzer (SPD), three vice-presidents, and ten General Departments, each with its own head and administrative staff. This step solidified the separation between healthcare in the Soviet Zone and in the Western Zones.

1945-1946: The Battle of the Winter

Once the German Instrument of Surrender was signed by General Alfred Jodl and the Allied leaders on 8 May 1945, American and Soviet troops shifted their focus from defeating German military and paramilitary forces to restoring order. This *Stunde Null*, or zero hour, led many Germans to eschew their pasts under the NSDAP and focus instead on the real and perceived hardships they faced during the occupation.¹²³ However, the prevalence of poor health was not so easily brushed aside or overcome. The first winter after Allies declared victory was thus earmarked as another battle, this time against

¹²⁰ In 1946, the population in the Soviet zone of Germany was 17.1 million people, so this is a very small staff. Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany*, 232.

¹²¹ NARA RG 260/167, Folder: "Ärzttekammer Question in Berlin." Memo, Richmond S. Paine to Chief, Decartelization Commission HICOG, "Ärzttekammer Question in Berlin." 26 April 1949. Pages 1-2.

¹²³ Richard Bessel, *Germany 1945: From War to Peace* (New York: HarperCollins, 2009), 339.

epidemic diseases. According to a review compiled in September 1950 by Lt. Col. Walter R. De Forest, who was Chief of the Public Health Section, reports of diphtheria, tuberculosis, and typhoid increased in 1945 and 1946 but they were not “completely out of control.”¹²⁴ The American occupation zone’s border with the eastern zone was “protected” with frequent spraying of DDT, which proved ineffective against diseases which did not travel through insect vectors. Inoculations against diseases were implemented where possible.¹²⁵ De Forest reported that not until mid-1948 were the Germans’ public health departments functioning at a satisfactory level to reduce OMGUS public health personnel to supervisory roles, as mandated by JCS 1067.¹²⁶ Already in August 1945, officials within OMGUS were urging SHAEF to provide rations to Germans so that nutrition levels could be improved and a potential influenza epidemic could be prevented.¹²⁷ This recommendation conflicted with the JCS policy that Germany should supply its own food unless there were “extreme emergencies in areas where indigenous supplies are not available in sufficient quantities.”¹²⁸ According to this policy, potential for an epidemic did not constitute an actual emergency, as it was still only potential. In the British zone, by November 1945, Field Marshal Montgomery had begun to prepare for “The Battle of the Winter” against epidemic disease and starvation.¹²⁹

¹²⁴ Walter R. De Forest, “Public Health Practices in Germany Under U.S. Occupation (1945-1949),” *American Journal of Public Health* 40 (September 1950): 1075.

¹²⁵ De Forest, “Public Health Practices in Germany,” 1077.

¹²⁶ De Forest, 1074.

¹²⁷ UWDC-GURC. “Diet Overbalanced,” *OMGUS Weekly Information Bulletin* No. 5 (August 1945): 5. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=turn&id=History.omg1945n005&entity=History.omg1945n005.p0007&q1=epidemic>, Accessed 12 November, 2019.

¹²⁸ “Diet Overbalanced,” 5.

¹²⁹ UWDC-GURC. Field Marshal Montgomery, qtd. In “The Battle of the Winter,” *OMGUS Weekly Information Bulletin* No. 17 (November 1945): 7. URL: <http://digicoll.library.wisc.edu/cgi->

Similarly, American rations supplied to Germany increased during the fall and winter spanning the years of 1945 and 1946.

Such a discrepancy between interpretations comes down to different understandings of what constitutes an epidemic. The term is heavily reliant on context. The definition of an “epidemic” depends on disease contexts and a comparison of statistical data across time to assess what is “normal expectancy” and what is in excess. Medical historians, unfortunately, sometimes fail to provide context for their statistical evidence. For example, while historian Donna Harsch notes that there were 32,000 deaths from tuberculosis in the Soviet Occupation Zone in 1947, she does not give figures for any other years.¹³⁰ From an epidemiological standpoint, the decision to use number of deaths for a given time period rather than incidence rate makes the historical statistics difficult to compare.

Like Harsch, Reinisch based her assessment on documents from the occupation forces as well as German civilians’ accounts in newspapers. She does not, however, cite the statistics on which she bases her assessment. Evidence from occupiers’ weekly disease reports, as well as from analyses of specific diseases by historians and other experts demonstrate that rates of many communicable diseases, especially those associated with wartime conditions, were elevated from 1941 on, and remained high through mid-1946. From 1941 through to 1947, diphtheria rates hovered around 350 per

bin/History/History-idx?type=turn&id=History.omg1945n017&entity=History.omg1945n017.p0009&q1=epidemic, Accessed 19 November 2019.

¹³⁰ Donna Harsch, “Medicalized Social Hygiene? Tuberculosis Policy in the German Democratic Republic,” *Bulletin of the History of Medicine* 86, no. 3 (2012): 394–423.

100,000 inhabitants, while in 1920 they were under 150 per 100,000 inhabitants.¹³¹

Tuberculosis, one of the major concerns for occupiers, increased from 160 to 240 percent in the postwar period.¹³² The week ending 31 August 1945 had 17.8 cases of typhoid fever per 10,000, while in 1942, an average of 1.8 cases occurred per 10,000 people.¹³³ These statistics demonstrate that, while Reinisch and Grossmann are correct to temper previous representations of catastrophic illness, or rubble and hunger as stand-ins for analysis of the prevalence of epidemic disease, they have perhaps gone too far. Statistical evidence does show postwar increases in contagious illnesses that are well within the definition of “epidemic” and further illustrates that epidemics had been occurring since 1941 and did not abate with the arrival of the Allies.

Contemporary healthcare workers also considered 1945 through 1947 as a period of epidemics. An OMGUS official in Frankfurt referred to the 1947 poliomyelitis outbreak as “the post-war epidemic of polio-myelitis [sic]” in a telegram to the central OMGUS health branch from 20 September 1949.¹³⁴ In an October 1945 weekly information bulletin, OMGUS officials reported that typhoid fever “occurred in epidemic proportions” owing to interrupted and damaged water delivery systems.¹³⁵ The report blamed heightened tuberculosis rates on patients’ leaving sanatoria during the acute

¹³¹ Jörg Bagen and Andrea Wagner, “Autarchy, Market Disintegration, and Health: The Mortality and Nutritional Crisis in Nazi Germany, 1933-1937,” *Center for Economic Studies and Ifo Institute Working Paper Series* 800 (November 14, 2002): 3.

¹³² R. Loddenkemper and N. Konietzko, “Tuberculosis in Germany Before, During, and After World War II,” in *Tuberculosis and War: Lessons Learned from World War II*, ed. J.F. Murray and R. Loddenkemper (Basel: Karger, 2018), 71.

¹³³ “Public Health: A German Responsibility, 8.

¹³⁴ NARA RG 260/141, Folder 720.70: Poliomyelitis. Telegram, PIO OMGUS Frankfurt to OMGUS PIO/209/49/120. 20 September 1949.

¹³⁵ “Public Health: A German Responsibility,” 10.

labour shortage at the end of the war, sidestepping the effect of food shortages.¹³⁶ These accounts also contradict the claim that postwar Germany did not experience epidemic levels of disease.

On 30 October 1945, the Public Health Committee of the Internal Affairs and Communications Directorate of the ACC held a meeting to discuss the potential for communicable diseases to reach epidemic proportions during the coming winter. The aftermath of World War I, when an influenza pandemic caused up to 50 million casualties globally, weighed heavily on planners' minds.¹³⁷ The committee created a weekly reporting system, in which the secretary in each Health Committee delegation had to compile disease statistics for each zone.¹³⁸ Each occupying power, not the German agencies nominally responsible, would track epidemic disease data and share their data with the other zones. Committee members also agreed "mutually to assist each other in all circumstances" to prevent the spread of epidemic disease.¹³⁹ In practical terms, this system amounted to an agreement to share medications, technologies, and information pertaining to health between the occupation zones. These promises, initially a sign of hope for the continuation of good relations between the United States and the Soviet

¹³⁶ "Public Health: A German Responsibility," 10.

¹³⁷ UWDC-GURC. "The Battle for Health," *OMGUS Weekly Information Bulletin* No. 8 (September 1945): 13. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=turn&id=History.omg1945n008&entity=History.omg1945n008.p0015&q1=epidemic>, Accessed 12 November 2019.

¹³⁸ NARA 260/370, Folder 'Control of Communicable Diseases.' "Minutes of Meeting, 30 October 1945." DIAC/HEALTH/WP/M(45)3, 31 October 1945. Page 2.

¹³⁹ NARA 260/370, Folder 'Control of Communicable Diseases.' "Minutes of Meeting, 30 October 1945." DIAC/HEALTH/WP/M(45)3, 31 October 1945. Page 3.

Union, soon broke down owing to disagreements over reparations and increasing tensions on the border between the eastern zone and the western zones.

American Zone, 1945-1947: Building Occupier-Occupied Relationships and Denazification

Both the American and the Soviet occupation authorities worked to restore health systems, particularly by increasing the numbers of physicians available to treat Germans. The medical school at the University of Heidelberg in Baden-Württemberg was reopened on 15 August 1945 to administer a ten-week “refresher course” for 300 physicians from the German Army who were set to return to civilian practice.¹⁴⁰ Chief of the Public Health Branch Maj. Gen. M.C. Stayer mandated that all reopened medical schools use entrance requirements from the Weimar period, and that all teaching staff and curriculums used in schools pass a thorough inspection for ideological failings. The occupiers appointed Dr. Karl Heinrich Bauer, who had never joined the Nazi party, and whose work was banned by the National Socialists, to act as Dean under American military supervision.¹⁴¹ Bauer made clear his willingness to work with occupiers, when he advised fellow Germans that “we must aim to achieve the respect of our conquerors,” and that Germany “can purify herself of her past only by constructive achievement.”¹⁴²

¹⁴⁰ UWDC-GURC. “Medical School at Heidelberg Re-opens,” *OMGUS Weekly Information Bulletin No. 4* (August 1945): 11. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=turn&id=History.omg1945n004&entity=History.omg1945n004.p0013&q1=medical%20school%20at%20heidelberg>, Accessed 11 November 2019.

¹⁴¹ . “Medical School at Heidelberg Re-opens,” 11.

¹⁴² “Medical School at Heidelberg Re-opens,” 11.

The doctor shortage in the American zone was worsened by a lack of American physicians on staff. American physicians were prohibited from treating Germans due to occupiers' nonfraternization policies. Additionally, American physicians did not have enough time to treat American military personnel, and as the occupiers brought their families over, the issue was exacerbated. Reports emerged in late 1946 of American military personnel seeking out German physicians for treatment in order to avoid delays in waiting for military doctors. One such case involved a child with a fever of 104 degrees, whose father contacted a German doctor instead of waiting to see an American doctor at the 279th St. Hospital. The father proposed to the Office of the Adjutant General that some German doctors be certified by OMGUS to provide "emergency preliminary treatment" to Americans and their families.¹⁴³ Although the father's letter was sent on 18 November 1946, the report from OMG-Berlin was not issued to the Adjutant General until 26 March 1948, who maintained that the Berlin Command Medical Department was sufficient.¹⁴⁴ This incident hints at larger OMGUS personnel problems and dissatisfaction with provisions for military families, as well as continued attempts to avoid fraternization even after official policies prohibiting such interactions were loosened. It also demonstrated a lack of resources available to investigate the incident, as it was not fully addressed by OMGUS officials until 18 months after the letter had been submitted.

¹⁴³ NARA RG 260/321, Folder AG 701: "Medical Attendance." Brief, "Utilization of German Doctors of Medicine and Doctors of Dentistry for the Treatment of American Personnel," 26 March 1948.

¹⁴⁴ "Utilization of German Doctors of Medicine."

The tension between maintaining a hands-off approach to healthcare in Germany, as dictated by U.S. policy, and working to prevent a continent-wide epidemic in Europe was immediately apparent. The official OMGUS historian noted that while the German civil administration had not dissolved as much as had been feared by military and political officials planning for the postwar occupation, this did not necessarily make the military government's task easier.¹⁴⁵ Both American and Soviet occupiers reported that German public health systems were not functioning adequately. Both occupiers also reported a sense of apathy among Germans in their zones, which Richard Bessel depicted as an "overwhelming feeling of exhaustion".¹⁴⁶ Dinter similarly described doctors' "self-satisfied resignation and attempts to apologise for any deterioration in conditions as a consequence of the occupation."¹⁴⁷ He noted that doctors acted helpless despite "perfectly adequate existing German legislation" pertaining to healthcare insurance, patient care, and hospital funding.¹⁴⁸ Reflecting on a 1947 visit to Berlin, American doctor Thomas Gucker recalled feeling "appalled by both the lack of facilities and the postwar fatalism of the German people – "their feeling that it was useless to exert a lot of effort to save just one life."¹⁴⁹ Returning to Grossmann's point, the problem with taking such a narrow understanding of "health systems" is that doctors are an integral part of the health systems and their inability, or what American occupiers perceived as their failure, to

¹⁴⁵ Ziemke, *The U.S. Army in the Occupation of Germany, 1944-1946*, 425.

¹⁴⁶ Bessel, *Germany 1945: From War to Peace*, 147.

¹⁴⁷ Dinter, *Berlin in trümmern: ernährungslage und medizinische versorgung der Bevölkerung berlins nach dem II. Weltkrieg*, 139.

¹⁴⁸ Dinter, 139.

¹⁴⁹ Thomas Gucker at a Georgia Warm Springs Foundation staff meeting (9 March 1949), qtd. in Tony Gould, *A Summer Plague: Polio and Its Survivors* (New Haven: Yale University Press, 1995), 161.

perform their duties brought the other nominally functional elements of the system to a standstill. Further compounding the shortage of “adequate” physicians was the dictate to remove National Socialists from positions of authority. According to JCS 1067, American military medical staff were restricted to denazifying German medical personnel and tending to non-Germans. With so few medical personnel, sometimes even tending to their own occupation staff proved impossible and German doctors were enlisted to care for OMGUS personnel.¹⁵⁰ This created quite the stir as the Doctors’ Trial (*USA vs. Karl Brandt et al.*) at the Nuremberg Trials and other examples demonstrated that doctors were complicit in some of the most horrific atrocities of the Nazi regime. Many U.S. medical groups, including the American Medical Association, were critical of German physicians’ participation in the Nazi genocidal project, especially after details of hypothermia and twin experiments emerged.¹⁵¹

German doctors and medical researchers were required by Allied occupiers to complete the *Fragebogen*, a six-page questionnaire which contained 131 questions designed to group respondents into five categories: major offender, offender, lesser offender, follower, or exonerated individual. Those who fell into the first two categories

¹⁵⁰ By 1947, JAMA reported that many universities in the American and Soviet zones of Germany were still not admitting first year medical students. UWDC-GURC. “Medical School at Heidelberg Re-opens.” *OMGUS Weekly Information Bulletin* No. 4 (August 1945): 11. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=turn&id=History.omg1945n004&entity=History.omg1945n004.p0013&q1=Medical%20School%20at%20Heidelberg>, Accessed 5 March 2016.; “Medical Education in Germany,” *JAMA* 135.7 (18 October 1947): 448.

¹⁵¹ “Heil Hunger! Health Under Hitler,” *JAMA* 114, no. 26 (June 29, 1940): 2589–90; “Psychiatric Problems of a German Concentration Camp,” *JAMA* 124, no. 6 (February 5, 1944): 363–64; “The Health of Children in Occupied Europe,” *JAMA* 124, no. 7 (February 12, 1944): 470–470; Robert W. Buck, “Brutalities of Nazi Physicians,” *JAMA* 132, no. 17 (December 28, 1946): 1104–1104; “The Brutalities of Nazi Physicians,” *JAMA* 132, no. 12 (November 23, 1946): 714–15; Frederic Wertham, “Ethical Responsibilities of the German Medical Profession,” *JAMA* 133, no. 9 (March 1, 1947): 645–645.

were removed from positions of authority. Many doctors, including physicians who were members of the National Socialist Party before 1 May 1937, fell into mandatory removal categories.¹⁵² A U.S. Civil Affairs Guide for military occupation officials titled *Denazification of the Health Services and Medical Profession of Germany* complained that “the health services of Germany and the practice of medicine have become instruments of fascist policy.” The Guide recommended removal of medical leaders in government, education, and professional organizations, as well as doctors and nurses in hospitals implicated in T4 Program murders of the mentally and physically disabled and elderly.¹⁵³ The Doctors’ Associations in the western zones were disbanded and would not be replaced with new regional medical associations until 1947.¹⁵⁴

The removal of physicians from practice in such large numbers impeded the requirement in JCS 1067 that Germans provide their own healthcare. By October 1945, a monthly information bulletin published by OMGUS noted that the American occupiers were “forced in many circumstances to improvise by using unqualified personnel” since “most of the qualified public health specialists... arbitrarily fall in the mandatory removal category.”¹⁵⁵ Historian Thomas Schwarz has criticized the occupiers for a “deplorable

¹⁵² “Unpublished German Medical Research,” *JAMA* 133.6 (8 February 1947): 416.; Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany*, 189; Franz Kurowski, *Alliierte jagd auf deutsche Wissenschaftler: das Unternehmen paperclip* (München: Kristall bei Langen Müller, 1982); Linda Hunt, *Secret Agenda: The United States Government, Nazi Scientists, and Project Paperclip, 1945 to 1990* (New York: St Martins Press, 1991); Gimbel, *Science, Technology, and Reparations: Exploitation and Plunder in Postwar Germany*.

¹⁵³ “Denazification of the Health Services and Medical Profession of Germany,” in *War Department Pamphlet No. 31-156* (Washington: United States Government Printing Office, 1945), III, <https://archive.org/details/PAM31-158-nsia/page/n3/mode/2up>.

¹⁵⁴ NARA RG 260/167, Folder: “Ärztchammer – 1947.” Memo, Richmond S. Paine to Chief, Decartelization Commission HICOG, “Ärztchammer Question in Berlin,” 26 April 1949. Pages 1-2.

¹⁵⁵ “Highlights of Policy,” (October 1945): 5-13.

series of compromises” to the denazification mandate, designed to secure German allegiance as the Cold War intensified.¹⁵⁶ Others credited doctors’ importance to society as the reason for the failure of denazification, a more plausible explanation than that proffered by Schwarz. Regardless of their disagreement over the ethics of the compromises, individual doctors from the Third Reich largely continued practicing medicine, excepting those found guilty in the Doctors’ Trial.

Reflecting on the process in 1949, a denazification summary report asserted that after the “Military Government used its powers and organization to isolate the germ carriers of the recent epidemic disease called Nazism, the next step was to let the German people decide who was ready to come out of quarantine and who must remain quarantined.” Employing a medical analogy, the author stated that “the problem might be compared to the case of a surgeon who has completed his act of major surgery and ministrations to the patient after which the patient must follow certain directions of the doctor and employ his own recuperative powers to get well.”¹⁵⁷

This report overstated the successes of denazification and indicated the occupiers’ intention to return control of the process to Germans. The Americans turned denazification over to Germans on 5 March 1946 when the German Minister Presidents signed Law 104 for Liberation from National Socialism and Militarism. This law

¹⁵⁶ Thomas Alan Schwartz, *America’s Germany: John J. McCloy and the Federal Republic of Germany* (Cambridge: Harvard University Press, 1991), 308.

¹⁵⁷ UWDC-GURC. “Denazification Summary,” *OMGUS Monthly Information Bulletin* No. 169 (September 1949): 18. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=turn&id=History.omg1949n169&entity=History.omg1949n169.p0020&q1=denazification%20summary>, Accessed 19 November 2019.

introduced a shortened *Fragebogen* known as a *Meldebogen* and created *Spruchkammer*, or tribunals of non-Nazi Germans, to adjudicate individual cases flagged by the *Meldebogen*.¹⁵⁸ Historians writing on the denazification of medical professionals differentiate between private practicing doctors and those who were employed as researchers by pharmaceutical corporations such as Hoechst, Bayer, and Behringwerke. Tobias Freimüller has argued that family doctors were unconcerned with self-reflection about their personal guilt and believed only “medical elites” in research positions at universities and corporations were implicated in the National Socialist genocide, yet neither one of these groups suffered legal consequences in the postwar years.¹⁵⁹ When occupiers meted out punishments to doctors, they did not necessarily correspond with the degree of criminal involvement. The historian James Tent recounts the case of a Munich family physician who lost his job for SS membership, despite never attending a meeting and being removed from the SS in 1944 for his inactivity.¹⁶⁰ Conversely, medical researcher Richard Haas of Marburg was implicated in unethical typhus testing on prisoners at Buchenwald concentration camp, and continued to practice in the postwar.¹⁶¹ He rose to prominence as one of the leading researchers at the Behringwerke Pharmaceutical Company after World War II and would develop a polio vaccine in the 1950s.

¹⁵⁸ Ziemke, *The U.S. Army in the Occupation of Germany, 1944-1946*, 429–30.

¹⁵⁹ Tobias Freimüller, “Mediziner: Operation Volkskörper,” in *Karrieren im Zweilicht: Hitlers Eliten nach 1945*, ed. N. Frei (Berlin: Campus Sachbuch, 2002), 14.

¹⁶⁰ Tent, *Mission on the Rhine: Reeducation and Denazification in American-Occupied Germany*, 89.

¹⁶¹ Paul Weindling, *Epidemics and Genocide in Eastern Europe, 1890-1945* (Oxford: Oxford University Press, 2000), 327–28.

According to a 1947 OMGUS internal report, the Germans under American military occupation were expected to ensure a minimum standard of health by ensuring health systems including local health governance, reporting of communicable diseases, supply of sanitary and medical items, and maintaining of laboratories for testing and development of cures. They were additionally tasked with maintaining the health of additional displaced persons and refugees. Finally, Germans were instructed that preventing the spread of communicable diseases, and responding to any epidemics that occurred, would be the sole responsibility of German health providers.¹⁶² Nonetheless, OMGUS officials feared that epidemics would cause unrest and hamper the democratization process. According to one report, occupiers believed “a reasonably healthy German population will react much more favorably to democratic forms of living and government than would one suffering from disease and unrest.”¹⁶³

American occupiers were reluctant to close medical research laboratories and pharmaceutical corporations implicated in unethical medical testing on concentration camp prisoners. This was a by-product of the fear of epidemic outbreaks in postwar Germany and the need to avoid connecting these companies and the personnel who worked at them, which also produced medicines like antibiotics, to the Nazi genocide. It also stemmed from the need to restore Germany economically, both to prevent German revanchism and to pacify U.S. corporate interests, which wished to resume trading with

¹⁶² Weindling, 30.

¹⁶³ UWDC-GURC. “Highlights of Policy,” *OMGUS Weekly Information Bulletin* No. 8 (September 1945): 13. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=turn&entity=History.omg1945n008.p0016&id=History.omg1945n008&isize=M&q1=epidemic>, Accessed 19 November 2019.

Germany in the future. U.S. officials also wanted to avoid a repeat of the punitive reparations and war debt cycle, which economic experts argued had created the conditions for the National Socialist party to come to power in Germany in the 1930s.¹⁶⁴ Larger pharmaceutical corporations, including Hoechst, Bayer, and the Behringwerke, were initially earmarked by occupiers for liquidation, but enforcement was repeatedly delayed because they were needed for producing vaccines, antibiotics, and aspirin. They were also a major part of German industry and would play a role in the *Wirtschaftswunder*, the German economic recovery.¹⁶⁵ By the early 1950s, these corporations had resumed their full operations without any government supervision.¹⁶⁶

Because denazification appeared to be impossible without forcing Germany into a healthcare crisis, OMGUS concentrated on the dissemination of American medical knowledge and systems to West German practitioners. Higher-ranking American officers viewed Nazism as anti-intellectualism and blamed the ideology for German doctors' lack of knowledge about new medical developments which occurred in other nations.¹⁶⁷ In the American zone, occupiers focused on dissemination of American medical knowledge and

¹⁶⁴ Volker R. Berghahn, *American Big Business in Britain and Germany: A Comparative History of Two "Special Relationships" in the 20th Century* (Princeton: Princeton University Press, 2014), 284; Weindling, *Epidemics and Genocide in Eastern Europe, 1890-1945*; Leonard Gomes, *German Reparations, 1919-1932: A Historical Survey* (Houndsmills: Palgrave Macmillan, 2010); Margot Louria, *Triumph and Downfall: America's Pursuit of Peace and Prosperity, 1921-1933* (Westport: Greenwood Press, 2001); William C McNeil, *American Money and the Weimar Republic: Economics and Politics on the Eve of the Great Depression* (New York: Columbia University Press, 1986).

¹⁶⁵ Vonyò, *The Economic Consequences of the War: West Germany's Growth Miracle after 1945*, 27.

¹⁶⁶ Malte Thießen, *Immunisierte Gesellschaft: impfen in Deutschland im 19. und 20. Jahrhundert* (Göttingen: Vadenhoeck & Ruprecht, 2017), 205.

¹⁶⁷ UWDC-GURC. Richmond S. Paine, "Berlin Medical Academy," *OMGUS Weekly Information Bulletin* 149 (November 1948): 23. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=article&id=History.omg1948n149&did=History.omg1948n149.PaineBerlin&q1=Richmond%20S.%20Paine>, Accessed 2 July 2016.

systems to West German practitioners. U.S. officials critiqued the inferiority of German medical knowledge and the German doctors' need for retraining in an American-style education system. Re-education was a way to avoid harsher denazification processes which could include imprisonment and other "disruptive" punishments while making clear attempts to prevent resurgence of Nazi ideals in the medical profession. The tensions stemming from American medical officers' and physicians' sense of superiority over German physicians, were clear in the re-education plan.

Even though doctors' education under the National Socialist regime was nazified and ideological, not all medical research stagnated or was pointless brutality masquerading as scientific inquiry.¹⁶⁸ Nonetheless, American occupiers lambasted German doctors for their lack of knowledge about new medical developments. Major Richmond S. Paine, Chief of the Public Health Branch in West Berlin, declared that the education system of the medical profession was the most severely damaged by Nazism.¹⁶⁹ Beginning in 1935, all German doctors had to be Nazi party members, so occupiers assumed that medical students who graduated from 1933 to 1945 were ideologically committed to National Socialism, which was interpreted by the occupiers as evidence that they were poorly trained.¹⁷⁰ Paine declared that "penicillin and streptomycin were only

¹⁶⁸ Robert N. Proctor, *The Nazi War on Cancer* (Princeton: Princeton University Press, 1999); Robert N. Proctor, *Racial Hygiene: Medicine under the Nazis* (Cambridge: Harvard University Press, 1988); Robert N. Proctor, "The Nazi Campaign Against Tobacco: Science in a Totalitarian State," in *Medicine and Medical Ethics in Nazi Germany*, ed. Francis R. Nicosia and Jonathan Huener (New York: Berghahn Books, 2002), 40–58.

¹⁶⁹ Paine, "Berlin Medical Academy," 23.

¹⁷⁰ Paine, 23.; Alessandra Colaianni, "A Long Shadow: Nazi Doctors, Moral Vulnerability and Contemporary Medical Culture," *Journal of Medical Ethics* 38, no. 7 (July 2012): 436.

strange names” to German doctors due to what he termed “the Hitler blackout.”¹⁷¹



Figure 5: Two American doctors observe as a West German doctor examines the spine of a child afflicted with polio.¹⁷²

American occupiers assumed that German physicians would be eager to learn about the latest medical practices. For example, an article in the 1948 edition of *JAMA* boasted that “Europeans are pathetically eager to obtain British and American books and

¹⁷¹ The USA was the first country to mass produce penicillin, though Alexander Fleming discovered it in Great Britain. Germans resisted large-scale use of penicillin and, ironically, when America began to face “superbugs” Germany did not. Lynn Payer, “West Germany: The Lingering Influences of Romanticism,” in *Medicine and Culture: Varieties of Treatment in the United States, England, West Germany, and France* (New York: Henry Holt and Company, 1988), 100; Kevin Brown, *Penicillin Man: Alexander Fleming and the Antibiotic Revolution* (Thrupp: Sutton Publishing Limited, 2004), 111; 144.; Paine, “Berlin Medical Academy”: 23.; See also UWDC-GURC. “Health and Welfare,” *OMGUS Weekly Information Bulletin* (January 1950): 38. URL: <http://digioll.library.wisc.edu/cgi-bin/History/History-idx?type=article&id=History.omg1950JanSpec&did=History.omg1950JanSpec.i0010&q1=Health%20and%20Welfare>, Accessed 14 April 2016.; Irving S. Wright, “Medical Education in Germany and Austria,” *JAMA* 137.1 (1 May 1948): 8.

¹⁷² UWDC-GURC. Henry S. Matteo, “Medical Mission in Germany.” *OMGUS Monthly Information Bulletin* 141 (August 1948): 12-16.

journals.”¹⁷³ The next year, the American Medical Association (AMA) created *Medical Service*, a journal distributed by the Department of State to physicians and healthcare providers outside of the United States to give “the benefit of the latest US medical... developments.”¹⁷⁴ OMGUS also created a periodical specifically for West Germans that reprinted translated American medical articles to “acquaint them with American medical procedures... which were largely unknown in Germany until introduced by Allied forces.”¹⁷⁵

OMGUS arranged for American and British medical journals to be shipped to Germany for circulation, brought in “experts” to teach new treatment methods, and sponsored German physicians’ trips to the US for “training.” One physician who visited West Germany recalled that he was “there to encourage them to come to higher levels and to bring medicine above the political structure.”¹⁷⁶ The High Commissioner of Germany (HICOG) sent Americans with German backgrounds whenever possible.¹⁷⁷ HICOG also sent “deserving” students from West Germany to study abroad.¹⁷⁸

¹⁷³ “Russians Refuse Foreign Medical Journals,” *JAMA* 137.15 (7 August 1948): 1331.

¹⁷⁴ UWDC-GURC. Charles P. Arnot, “Amerika Dienst (US Information Service),” *OMGUS Weekly Information Bulletin* No. 168 (August 1949): 5. URL: <http://digioll.library.wisc.edu/cgi-bin/History/History-idx?type=article&id=History.omg1949n168&did=History.omg1949n168.ArnotAmerika&q1=Amerika%20Dienst>, Accessed 25 May 2016.

¹⁷⁵ “American Articles for German Physicians,” *JAMA* 132.6 (12 October 1946): 338.

¹⁷⁶ “Observations of Medical Conditions in Europe,” *JAMA* 140.3 (21 May 1949): 352.

¹⁷⁷ UWDC-GURC. Office of the Military Government, Civil Administration Division, “Visits of Public Health Officials,” *The Governmental Affairs Cultural Exchange Program, Civil Administration Division, as of 20 December 1948 for Period 1 July 1948 to 30 June 1949* (1949), 60. URL: <http://digioll.library.wisc.edu/cgi-bin/History/History-idx?type=article&id=History.CultExchange&did=History.CultExchange.i0035&q1=Visits%20of%20Public%20Health%20Officials>, Accessed 17 March 2016.; Matteo, “Medical Mission to Germany”: 14.

¹⁷⁸ UWDC-GURC. “German Girl Wins Scholarship,” *OMGUS Weekly Information Bulletin* No. 114 (October 1947): 10. URL: <http://digioll.library.wisc.edu/cgi-bin/History/History->

As late as 1949, OMGUS officials were still trying to introduce “the American democratic ideal for medicine,” which “stress[ed] the importance of the individual... uniformly and without discrimination because of political conviction, race or religion.”¹⁷⁹ The re-education process was supposed to eliminate the elitism and fascism which the OMGUS government believed had undermined the Weimar model.¹⁸⁰ Aside from bringing experts to Germany and sending German trainees to the United States, they also circulated films and printed materials to explain what they meant by a “democratic” model of medicine. It was not to be confused with socialized medicine, or universal healthcare. Instead, films such as “The Doctor,” made in the US and circulated throughout West Germany – especially in the countryside – emphasized the need for doctors to accept all patients who came to them regardless of sex, race, or gender.¹⁸¹

The result of the American attempt at re-education was mixed and shows the limits of American influence on the West German medical system. Reform of both basic and upper-level German education systems had “been undertaken only very hesitantly,” a far cry from earlier officials’ declarations that the education system would be reformed “completely.”¹⁸² Furthermore, German physicians were not convinced by American

idx?type=article&id=History.omg1947n114&did=History.omg1947n114.i0009&q1=German%20Girl%20Wins%20Scholarship, Accessed 10 March 2016.

¹⁷⁹ This quote is more reflective of American rhetoric and self-image than the opinion of the rest of the world. UWDC-GURC. James R. Newman, “School Reform in Hesse,” *OMGUS Weekly Information Bulletin* No. 163 (June 1949): 4. URL: <http://digicoll.library.wisc.edu/cgi-bin/History/History-idx?type=article&id=History.omg1949n163&did=History.omg1949n163.NewmanSchool&q1=School%20Reform%20in%20Hesse>, Accessed 5 April 2016.

¹⁸⁰ “Medical School at Heidelberg Re-opens”: 11.

¹⁸¹ UWDC-GURC. Lucien Agniel, “Midway With ERP,” *OMGUS Weekly Information Bulletin* (April 1950): 25.

¹⁸² K. Holldack, “Medical Education in Germany,” *GMM* 1.10 (October 1956): 316.

occupiers' insistence that the American medical system was superior to the German one, and refused to use it as a model for the German medical education system. An October 1956 article by German physician K. Holldack argued that the American medical education system restricted academic freedom, particularly the right of German medical students to transfer between universities at any point during their education.¹⁸³ Holldack concluded that "the constant repression of personal decision and responsibility... would be too high a price to pay for providing better "schooling" for the coming generation of doctors."¹⁸⁴ The West Germans were aware that their medical education system could benefit from revitalization, but the American system was not necessarily considered a superior alternative.

Soviet Zone, 1945-1947: Building Occupier-Occupied Relationships and Denazification

As many historians have discussed, Soviet-German relations were incredibly poor in the early occupation period. The brutality of the fighting on the eastern front, the retaliatory violence of Soviet troops entering Germany, and especially the mass rape of German women fomented intense hatred. Using émigrés as go-betweens helped to reduce tension and restore order to healthcare systems in the zone.¹⁸⁵ The leaders of each section of the Central Health Administration were divided by political affiliation. In December

¹⁸³ German medical students might choose to transfer universities if their specific interests meshed better with another university's specializations, if they wished to gain a more well-rounded understanding of regional differences by completing half of the education in a big city like Berlin and half in a smaller city like Marburg, or if they encountered a personal conflict with a supervisor. Holldack, "Medical Education," 316.

¹⁸⁴ Holldack, 316.

¹⁸⁵ Jan Foitzik, *Sowjetische Militäradministration in Deutschland (SMAD), 1945-1949* (Berlin: Akademie Verlag, 1999), 52–55.

1945, President Dr. Paul Konitzer and Second Vice President Dr. Ignatz Zadek were listed as members of the Social Democratic Party (SDP), while First Vice President Dr. Maxim Zetkin was a member of the German Communist Party (KPD) and Third Vice President Dr. Bruno Harms was a member of the German Democratic and Liberal Parties (DDP/LPD).¹⁸⁶ Of the ten General Department Leaders, only five had party affiliations, four SDP and one KPD. In total, the Central Health Administration had 170 employees. Those medical professionals who had suffered negative consequences during the National Socialist Gleichschaltung in 1933 and throughout the Third Reich were preferred.¹⁸⁷ Reinisch identifies three groups: social democrats, who formed the majority of leadership in the immediate postwar; communist émigrés; and “politically blank slates” who did not have political party affiliations.¹⁸⁸

While the Soviet leadership agreed with the central tenets of denazification, its interpretation of the causes of Nazism differed from that of its former allies. Whether correct or not, Soviet officials blamed Nazism on monopoly capitalism, which drove Prussian *Junkers* to perpetuate genocide and war to improve their social and economic standing.¹⁸⁹ The Soviet occupiers thus sought to empower working-class individuals who had a history of involvement in antifascist organizations especially before the NSDAP came to power in 1933.¹⁹⁰ From the beginning, SMAD placed greater emphasis on

¹⁸⁶ Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany*, 119.

¹⁸⁷ Reinisch, 119.

¹⁸⁸ Maxim Zetkin, qtd. in Reinisch, 119.

¹⁸⁹ Reinisch, 220.

¹⁹⁰ Kommunistische Partei Deutschlands, “Richtlinien für die Arbeit der deutschen Antifaschisten in dem von der Sowjet Armee besetzten deutschen Gebieten, 5 April 1945,” in *Gruppe Ulbricht in Berlin, April bis Juni 1945: von den vorbereitungen im Sommer 1944 bis zur wiedergründung der KPD im Juni 1945: Eine Dokumentation*, ed. Gerhard Keiderling (Berlin: Verlag A. Spitz, 1993), 260–65.

political re-education and rewarding politically like-minded physicians due to the lack of personnel and resources. The Soviet occupiers used the *Fragebogen* questionnaire to identify compromised physicians and remove any former NSDAP members from positions of authority.¹⁹¹ Much like the American zone, denazification was haphazard and was often motivated more by “score-settling rather than by systematic denazification.”¹⁹²

The denazification of family physicians proved to be impossible in both zones without forcing Germany into a healthcare crisis, which the Allies feared would affect military personnel and the rest of Europe, so the occupiers placed much more emphasis on “re-education.” In the Soviet zone, this took the form of political and ideological re-education along communist lines. Doctors’ re-education in the Soviet zone came in 1946, when the healthcare system was restructured by politicians along socialist lines and private practice was largely replaced with the polyclinic system. The polyclinics were designed to replace outpatient facilities and services, which varied in size depending on the population they served. Each one was equipped with a wide variety of specialists, as well as general practitioners who were referred to as “physician therapists” and did not undertake surgeries or any sort of specialized treatment.¹⁹³ Because the Soviet authorities did not encourage German medical researchers to return to their labs, the eastern zone became dependent on the Soviet Union for medical research and development. This policy was tied to the Soviet Union’s lack of available funds to support non-essential

¹⁹¹ Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany*, 237.

¹⁹² Reinisch, 239.

¹⁹³ R. S. Saxton, “Soviet General Practitioners and Polyclinics,” *The British Medical Journal* 2, no. 5041 (1957): 1.

elements of the healthcare system. The issue would be compounded by the political stance of the zonal authorities and the legacies of National Socialism which prevented German researchers from applying for grants, and prevented selection committees from funding applications that were submitted. Since many of the major research grants were furnished by organizations like the Rockefeller Foundation and the Wellcome Trust, support for researchers in communist countries was sparse.¹⁹⁴

Systemic Revisions in West Germany, 1947-1949

The medical Cold War can be traced to the interwar years, when commentators from the United States and the Soviet Union observed and critiqued each other's system.¹⁹⁵ In 1945, the German medical infrastructure was decimated but memories of the interwar Weimar healthcare system and the hygienic emphases of the Nazi Party remained. The interwar system in Germany was closer to the socialist system of the USSR than the individualistic, laissez-faire American system. In 1946, the U.S. Congress debated the Wagner-Murray-Dingell Bill S. 1606, which proposed the creation of a national healthcare program. Many critics claimed that the "failed" social healthcare

¹⁹⁴ Paul Weindling, "'Out of the Ghetto': The Rockefeller Foundation and German Medicine after the Second World War," in *Rockefeller Philanthropy and Modern Biomedicine: International Initiatives from World War I to the Cold War*, ed. William H. Schneider (Indiana: Indiana University Press, 2002), 208–22.

¹⁹⁵ "The Wagner-Murray-Dingell Bill: Hearings on S. 1606 – to Provide for a National Health Program," *JAMA* 131.14 (3 August 1946), 1149–1160.; "Socialized Medicine in Russia," *JAMA* 148.7 (16 February 1952): 569–570.; Jane Pacht Brickman, "Medical McCarthyism and the Punishment of Internationalist Physicians in the United States," in *Comrades in Health: U.S. Health Internationalists Abroad and at Home*, ed. Anne-Emanuelle Birn and Theodore M. Brown (New Brunswick: Rutgers University Press, 2013); Sir Arthur Newsholme and John Adams Kingsbury, *Red Medicine: Socialized Health in Soviet Russia* (New York: Doubleday, Doran & Company, Inc., 1933); Forrest A. Walker, "Americanism versus Sovietism: A Study of the Reaction to the Committee on the Costs of Medical Care," *Bulletin of the History of Medicine* 53, no. 1 (1979): 489–504.

systems in Germany and the Soviet Union were inferior to the American system.¹⁹⁶ As one historian has observed, state-funded health insurance was “pioneered” by Germany, so its opponents in the US “branded it a German idea.”¹⁹⁷ Positioning health insurance as a foreign idea, particularly with the recent revelations about the Nazi genocide, was designed to discredit it. Soviet policy was designed to mitigate reliance on charity in favour of government intervention, while the American occupation government attempted to implement public charity-based health initiatives, such as the March of Dimes.¹⁹⁸ In the Soviet system, doctors did not have much prestige, nor did they earn high wages. Many worked multiple jobs to ensure an adequate living, while workers were assured of fair treatment without facing destitution.¹⁹⁹ In the United States, doctors could be assured of a comfortable living while working-class patients struggled to afford treatments.²⁰⁰

While the Soviet zone wrested more control from German medical policymakers after 1946, the American occupiers did the opposite. By the end of 1946, Berlin once again had a doctors’ organization. The mandate of the Chamber of Doctors, which replaced the doctors’ associations was “to foster among the members of the profession

¹⁹⁶ “The Wagner-Murray-Dingell Bill: Hearing on S. 1606 – to Provide for a National Health Program,” *JAMA* 131.3 (18 May 1946): 236-237.; “The Wagner-Murray-Dingell Bill,” *JAMA* 131.14 (3 August 1946): 1149.

¹⁹⁷ Walker, “Americanism versus Sovietism: A Study of the Reaction to the Committee on the Costs of Medical Care,” 490.

¹⁹⁸ Newsholme and Kingsbury, *Red Medicine: Socialized Health in Soviet Russia*, 194.

¹⁹⁹ Brody reports that in 1962, a doctor earned \$90 per month with a potential top salary (involving research) of \$500. A starting journalist in the USSR earned roughly \$180 per month. 148. HCASA Correspondence – Individual Box 3 Folder 14: Brody, Jacob, 1962-1966. Jacob A. Brody, “Report No. 4” (19 February 1962). See also Newsholme and Kingsbury, *Red Medicine*.

²⁰⁰ “Socialized Medicine in Russia,” *JAMA*: 569-570.

the idea of collaborating... for the benefits of the aims of Public Health and the social welfare work in the democratic and social sense.”²⁰¹ The organization would advise ministries and authorities on “all sanitary questions.”²⁰² The major push for decentralization began with the American decision to allow doctors in Berlin to practice without membership in Berlin social insurance companies (*Versicherungs-Anstalt Berlin*), since 25 percent of the membership (600 doctors out of a total 2,400) had not agreed to the terms of membership.²⁰³ The Public Health Branch in Berlin announced that those doctors not consulted should be allowed to withdraw from the corporations because the decision to force doctors to be members to practice medicine was “against democratic principles.”²⁰⁴ Decentralization was a key component of American “democratization” since military planners asserted that centralization was a hallmark of dictatorships and socialism.

Another example of the American quest to denazify and “democratize” healthcare was the form of healthcare insurance West Germans would choose. The U.S. congress debated the merits of socialized healthcare in the 1930s and 1940s, but after the war the tide of political opinion turned against implementing universal health insurance.²⁰⁵ By contrast, the western zones of Germany were able to retain many of the hallmarks of the Weimar healthcare system while expunging the polyclinics. Historian Melanie Arndt

²⁰¹ NARA RG 260/167, Folder: “Ärztekammer.” “Memo to the Public Health Committee Allied Kommandatura Berlin-Dahlem,” 25 September 1946.

²⁰² “Memo to the Public Health Committee, 25 September 1946.”

²⁰³ “Memo to the Public Health Committee, 25 September 1946.”

²⁰⁴ “Memo to the Public Health Committee, 25 September 1946.”

²⁰⁵ “Memo to the Public Health Committee, 25 September 1946.”

described West German healthcare as a “mixed type” system combining elements of “centralized, state funded healthcare institutions” with “highly decentralized, market funded and organized elements of care.”²⁰⁶ By 1949, OMGUS reported that 96 percent of the population in Berlin held health insurance through the *Versicherungs-Anstalt Berlin* and the other 4 percent were covered by private insurance or by social insurance.²⁰⁷

Sovietization, 1947-1949: Systemic Revisions in East Germany

In East Germany, the Soviet occupiers appointed several proponents of social hygiene to high-ranking positions in the East German healthcare system. Social hygiene, which had been a hallmark of the interwar welfare system in Germany, posited that the German state was obligated to ensure the health and well-being of all citizens. The guarantee of health was enshrined in the Weimar constitution as well.²⁰⁸ To attain this goal, the sickness insurance that had been established under Otto von Bismarck in 1884 was significantly expanded to include preventive care.²⁰⁹ The SMAD appointments were in a strong position to shape the debate about the future path of German healthcare in the eastern zone.²¹⁰ Debate centered on the polyclinics. Proponents of the polyclinic model during the Weimar era embraced a centralized form of health provision in contrast to the diffuse network of private practitioners, who wanted to keep their individual offices.

²⁰⁶ Arndt, *Gesundheitspolitik im geteilten Berlin 1948 bis 1961*, 163.; “Memo to the Public Health Committee, 25 September 1946.”

²⁰⁷ NARA RG 260/1186, Folder: “Maternal And Child Welfare November 1948.” Memo, Richmond S. Paine, Chief, Public Health Branch, to Dr. Martha Eliot, Assistant Chief, Maternal and Child Health US Children’s Bureau, Federal Security Agency, “Survey of Existing Maternal and Child Health Services in Berlin, Germany,” 9 February 1949.

²⁰⁸ Weimarer Reichsverfassung. Art. CLXI.

²⁰⁹ John A. Moses, “German Social Policy (Sozialpolitik) in the Weimar Republic 1919-1933,” *Labour History*, no. 42 (1982): 86.

²¹⁰ Müller, “Die Ärzteschaft im staatlichen Gesundheitswesen der SBZ und DDR 1945-1989,” 247.

During the 1920s and 1930s, many doctors feared the “proletarianization” of physicians, and the loss of income and prestige that would go along with it.²¹¹ In the western zones, anti-polyclinic physicians aligned with the American desire to avoid socialized medicine. In the eastern zone, the minority of physicians who supported the polyclinics, many of whom were members of the KPD or SPD during Weimar, aligned with Soviet policy and the goals of socializing the eastern zone.

Historians studying healthcare in the East German zone have diverged in their assessments of Soviet healthcare systems. Many, including Jessica Reinisch and Gabriele Moser, argue that 1948 marked a “turning point” after which East German healthcare fell in line with the Soviet Semashko model of healthcare, defined by centralization, government control of healthcare institutions, government funding for health care for citizens, and lack of free choice in treatment facilities and physicians.²¹² These historians tend to link the healthcare system of East Germany with that of the Weimar Republic. They also downplay commonalities between East and West Germany, emphasizing the decentralization of the West German model and the Sovietization of the East German healthcare system.

This school, however, ignores continued peculiarities in the East German model of healthcare provision. Historians who have examined the broader Soviet healthcare

²¹¹ Timmermann, “Weimar Medical Culture: Doctors, Healers, and the Crisis of Medicine in Interwar Germany, 1918-1933,” 23.

²¹² Moser, *Im Interesse der Volksgesundheit: Sozialhygiene und öffentliches Gesundheitswesen in der Weimarer Republik und der frühen SBZ/DDR: ein Beitrag zur Sozialgeschichte des deutschen Gesundheitswesens im 20. Jahrhundert*, 155; Reinisch, *The Perils of Peace: The Public Health Crisis in Occupied Germany*, 140.

context and published in edited collections about healthcare in eastern Europe reach a different conclusion about the extent of Sovietization of the East German healthcare system. Michael Kaser and William C. Cockerham argue that East Germany did not fully adopt the Semashko model because citizens were either covered by *Sozialversicherungsanstalt* (social insurance) funds through employment, or the German national insurance corporation (*Deutsche Versicherungsanstalt*) for civil servants, the self-employed, and farmers as well as their dependants.²¹³ The *Sozialversicherungsanstalt* was funded through employee contributions, roughly 10 percent of their wages, and was supplemented by state funds where employer-employee contributions were insufficient.²¹⁴ This hybrid model was in line with historians of socialism's assertion that Germany would follow a different path toward socialism, rather than being abruptly Sovietized.

Physicians continued operating private practices in the 1940s and 1950s and East German citizens could choose which doctors they visited.²¹⁵ By the time the GDR collapsed, several hundred private practicing doctors still existed, complicating historians' insistence on 1948 as a radical "Sovietization" of the Soviet zone's healthcare along Semashko lines.²¹⁶ While a certain amount of coercion from government was present to encourage German citizens in the eastern zone to receive treatment in polyclinics rather than private practices, these doctors were still able to make a living.

²¹³ Michael Kaser, "German Democratic Republic," in *Health Care in the Soviet Union and Eastern Europe* (Boulder: Westview Press, 1976); William C. Cockerham, "East Germany," in *Health and Social Change in Russia and Eastern Europe* (New York: Routledge, 1999).

²¹⁴ Cockerham, "East Germany," 235–36.

²¹⁵ Cockerham, 236.

²¹⁶ "Eastern German Polyclinics in Agony," *BMJ* 304, no. 6820 (1992): 137–38.

Partially, this policy was a result of the persistent shortage of physicians in the eastern zone and the need to rely on doctors from the western zones and also from Bulgaria.²¹⁷

Often, physicians would work in both private practice and institutional settings. East German physicians retained higher wages than their counterparts in other areas of the Eastern Bloc but their pay rates were much lower than doctors in capitalist countries. Physicians in the eastern zone and later in East Germany retained a greater amount of freedom and privatization than physicians in other Sovietized countries.

Nonetheless, low wages, material shortages, and political pressure combined with the proximity of the West meant that the risk of flight for East German physicians was high. According to historian Patrick Major, despite keeping many professional privileges, doctors were the most likely to flee the eastern zone throughout the period from 1945 through to the establishment of the Berlin Wall in 1961 due to fears of de-privatization, wage cuts, and resentment about promotion of “comrade doctors” over more senior non-party doctors.²¹⁸ The flight of many doctors exacerbated already low numbers of doctors in the Soviet zone and led to a reliance on western German doctors to fill in gaps. Due to the overabundance of doctors in West Germany and the shortage in East Germany, physicians from the western zones and later the FRG frequently crossed the border to treat patients in East Germany. The Soviet and German communists did not discourage

²¹⁷ Bulgarian and German physicians had a much longer history of exchanges between the two countries, including research networks, and physicians received similar training in the two countries. So when East Germany was short on physicians, it turned to Bulgaria. Kaser, “German Democratic Republic,” 155; Georgeta Nazarska, “Transferring Knowledge: Bulgarian Female Scientists in Bulgarian-German Scientific Networks (1920s–1950s),” *Zeitschrift Für Balkanologie* 50, no. 1 (2014): 22.

²¹⁸ Patrick Major, *Behind the Berlin Wall: East Germany and the Frontiers of Power* (Oxford: Oxford University Press, 2010), 71.

such practice since they needed to account for shortages of doctors, only requiring physicians to take a test at Humboldt University before practicing in the eastern zone.²¹⁹ These cross-border relations continued until the Berlin Wall was constructed in 1961, demonstrating that pragmatism sometimes led the Soviet and German policymakers in the eastern zone and later East Germany to compromise, even when official pronouncements about the west, and western healthcare, were predominantly negative.

The other defining feature of the East German healthcare system that historians have highlighted was the importance of prophylaxis, measures taken to prevent the spread of disease. East German bureaucrats designed the healthcare systems to encourage citizens to schedule regular appointments for checkups with dentists, optometrists, and doctors in polyclinics. The East German focus on prevention of disease through regular medical care was essential to the promotion of an egalitarian healthcare system in which all citizens had access to free healthcare regardless of socioeconomic status. It also served as propaganda to convince East German citizens that the socialist system was a positive development, surpassing the capitalist system. The emphasis on prophylaxis, however, reflected the poor quality of treatment in the GDR, which was exacerbated by Soviet appropriations and shortages of hospital beds, stainless steel medical instruments, and hard currency to purchase medications and medical supplies from other nations.²²⁰ Historians disagree about how much prophylaxis was relevant in the West German system. Thomas Elkeles has argued that both East and West Germany focused on

²¹⁹ Major, 71–72.

²²⁰ Major, 71–72.

prevention rather than cures while Melanie Arendt suggested that prophylaxis barely played a role in West Germany.²²¹ Others, like Malte Thießen, point to widespread vaccination campaigns as evidence that the western zones emphasized certain forms of prophylaxis.²²² The western zones did not encourage maintenance routines like yearly physicals or dental check-ups, but they were proponents of low-cost initiatives like vaccinations.

The hemorrhage of doctors to West Germany persisted through the 1950s, while shortages of surgical steel worsened throughout. According to André Steiner, the Soviet zone of occupation was not initially at a disadvantage with regards to industry and agriculture. Despite the devastation of the war, Soviet reparations, and what Steiner called the “economic warfare” of the capitalist west, the main cause of the worsening

²²¹ Though this distinction may seem insignificant, it has been central in the historical literature on socialist and capitalist healthcare systems due to its clear and continued relevance to the question of which populations are prioritized in contexts with limited resources. Socialized healthcare systems, and systems of social insurance provide more leeway for individuals without financial security to maintain their health and avoid deterioration. They also reduce the burden during emergencies. The debate has connections with the Foucaultian concept of biopolitics – the ways in which social and political power have been used by those who wield them to make decisions for the broader population. Foucault explained this concept as a mechanism for protection, which could prioritize certain population groups over others, to the detriment of some. Achille Mbembe expanded Foucault’s original conception of biopolitics, introducing necropolitics to describe power-wielders’ decisions which disadvantage and indirectly harm groups deemed less worthy of health or life by decision-makers. The US healthcare system is often cited as an example of necropolitical power in action: individuals who cannot afford often overwhelming costs for medical care, especially in emergencies, are faced with choices between crippling debt or ill health and death. The wealthy, who can afford the costs of medical care, are able to seek care more rapidly due to less burden on the system. The difference between prophylaxis, and access to frequent medical appointments for prophylactic care, and the focus on curing diseases after individuals have become ill lays bare the priorities of healthcare planners as far as who can access care, and how much burden is placed on the healthcare system causing delays. Thomas Elkeles et al., “Foreword,” in *Prävention und Prophylaxe: Theorie und praxis eines gesundheitspolitischen Grundmotivs in zwei deutschen Staaten 1949-1950* (Berlin: Edition Sigma, 1991), 7–12; Melanie Arndt, *Gesundheitspolitik im geteilten Berlin 1948 bis 1961* (Köln: Böhlau Verlag, 2009), 107.

²²² Thießen, *Immunisierte Gesellschaft: impfen in Deutschland im 19. und 20. Jahrhundert*; Malte Thießen, *Infiziertes Europa. Seuchen im langen 20. Jahrhundert* (Berlin: DeGruyter, 2014).

economy in Germany was the failure of the planned economy.²²³ Historian Jonathan R. Zatlin has differentiated between the GDR and the other planned economies in the Soviet bloc, citing the presence of the “hostile capitalist state [West Germany] in the same national space [Germany as a whole].”²²⁴ While none of the countries in the Eastern Bloc were particularly prosperous relative to western capitalist countries like the United States, Switzerland, France, or the United Kingdom, East Germany maintained slight economic advantages over other countries in the Eastern Bloc. East German policymakers also knew that they needed to take action to ensure public opinion did not become overtly antagonistic to the government.²²⁵ East Germany sought to pacify its population as individual Germans had a clear escape route to the West, where they already spoke the language and where many had family members. Thus, the Soviet Union and GDR had a vested interest in maintaining adequate levels of health and keeping citizens from fleeing to the West, so medicines, which were easier to purchase than surgical steel due to the Soviet Union’s medical manufacturing programs, were prioritized over less essential items like coffee.

The Soviet occupation zone and GDR would never challenge the West’s technological superiority in the field of healthcare. Doctors in the East continuously complained about shortages. Nonetheless, the Soviet Union’s ability to produce large

²²³ André Steiner, *The Plans That Failed: An Economic History of the GDR* (New York: Berghahn Books, 2010), 20.

²²⁴ Jonathan R. Zatlin, *The Currency of Socialism: Money and Political Culture in East Germany* (Cambridge: Cambridge University Press, 2007), 3.

²²⁵ Paul Betts, *Within Walls: Private Life in the German Democratic Republic* (Oxford: Oxford University Press, 2010); Andrew I. Port, *Conflict and Stability in the German Democratic Republic* (Cambridge: Cambridge University Press, 2007).

quantities of medicines and vaccines did help reduce costs and keep important antibiotics and prophylactic vaccines circulating in the GDR. Penicillin was first synthesized in the USSR by “Madame Penicillin” Zinaida Ermolyeva in 1943 from mould growing in an air raid shelter.²²⁶ Ermolyeva would later synthesize streptomycin as well. The Soviet Union became a major manufacturer of vaccines, providing the bulk of the vaccine used during the global Smallpox Eradication Plan in the 1960s, for example.²²⁷ Since the Soviet Union was able to manufacture large quantities of vaccines, they were less expensive for East Germany to purchase, especially after its entry into the Council for Mutual Economic Assistance (Comecon) in September 1950. Much work remains to be done on how periods of East German economic decline in the 1960s and 1980s, as well as poor-quality medical equipment and the shortage of physicians due to *Republikflucht* affected healthcare provision in the country.

In both zones, the debate about polyclinics showed continuity with Weimar-era healthcare discussions, and showed how doctors’ groups used the political affiliations of occupiers to influence the debate. Polyclinics, officially adopted by the Soviet Military Administration in 1947, housed general practitioners as well as specialized physicians and dentists.²²⁸ Often associated with Soviet healthcare systems, polyclinics exist today in many socialized healthcare systems, like the National Health Service in England. In the

²²⁶ Brian J. Ford, “Crisis Point: The Rise and Fall of Penicillin,” *The Microscope* 62, no. 3 (2014): 128.

²²⁷ The Soviet Union also developed vaccines for the smallpox eradication plan. Erez Manela, “A Pox on Your Narrative: Writing Disease Control into Cold War History,” *Diplomatic History* 34, no. 2 (April 2010): 300.

²²⁸ Though polyclinics were eliminated upon reunification, more recent debate about the legacies of East German healthcare have suggested that an altered form might be a useful addition to German healthcare. R. Hyde, “Controversy Accompanies Polyclinic Revival in Germany,” *The Lancet* 368, no. 9537 (August 26, 2006): 721–22.

western zones in the 1940s, polyclinics were abandoned in the immediate postwar despite protests from the SPD, but in the East they thrived. The polyclinic system was a leftover from the social hygiene thrust of Weimar healthcare systems. Its rejection in the western zones was every bit the choice of a vocal group of German physicians, who saw a chance to settle the debate in their favour since the American occupying powers were adjudicating.²²⁹ The period from 1946 to 1948 demonstrated divergence in the healthcare systems of the American and Soviet zones, tied to the broader breakdown in relations between the two powers.

Conclusion

The early occupation period was a time of contradictions, confusion, and compromise. The United States and the Soviet Union both created plans for postwar healthcare in Germany, but lacked sufficient teams of medical professionals and military personnel to support the transition from wartime to peacetime while also transforming the healthcare systems themselves. Political planners and medical experts had warned against a punitive peace like the one forced on Germany after World War I, which led to the outbreaks and rapid spread of influenza, cholera, typhus, and typhoid fever in Europe.

As it turned out, epidemics of communicable disease did erupt in postwar Germany, but they were not as severe as post-World War I epidemics. The reduced severity was attributable to more diligence among occupiers due to lessons learned from the post-World War I occupation. By 1947 most of the “wartime diseases” ebbed as

²²⁹ Arndt, *Gesundheitspolitik im geteilten Berlin 1948 bis 1961*, 163.

sanitation and caloric intake improved. Although the Allied Control Commission was designed by the Allies to ensure that responses to epidemics were collaborative and information about disease prevalence was shared transparently between the zones, by late 1947 these lines of communication had largely broken down. Authorities worked separately to control epidemic disease in their respective zones.

Both occupying powers recognized that German healthcare under the Nazis had been compromised by doctors' participation in genocidal policies including the T4 program and unethical medical tests on prisoners of war and concentration camp prisoners, but they differed in their approaches to denazification of medical systems.²³⁰ While Soviet occupiers sought to return Germans to their socialized healthcare and welfare system roots, American occupiers sought to “re-educate” Germans, as they believed that the key to restoring the German physicianship to its former glory was reinforcing the importance of equality and respect for individual patients regardless of their race, gender, or religion.²³¹

²³⁰ The Nazis introduced the T4 program in 1939, which relied on doctors to identify individuals with “incurable ailments” including mental and physical disabilities. Victims were either already in care homes, or were identified by doctors during visits to clinics. The doctors then submitted forms to the program identifying these individuals for transfer to T4 program homes, where they were murdered by nurses and physicians through lethal injections, exposure to gas, and neglect. The program claimed between 270,000 and 300,000 lives between 1939 and 1945.

²³¹ Though this assertion does not mesh with the reality of American inequities, the rhetoric of American occupiers demonstrated that they truly believed they were a more egalitarian society than the National Socialist regime, and sought to encourage Germans to emulate their systems, problematic as this may be. American inequities have been explored in much depth by other historians. For more information on the issues in American healthcare in this era, see Barbara Bair and Susan E. Cayleff, eds., *Wings of Gauze: Women of Color and the Experience of Health and Illness* (Detroit: Wayne State University Press, 1993); Ingrid Waldron, *There's Something in the Water: Environmental Racism in Indigenous and Black Communities* (Winnipeg; Black Point, Nova Scotia: Fernwood Publishing, 2018); Barbara Anne Gurr, *Reproductive Justice: The Politics of Health Care for Native American Women* (New Brunswick, New Jersey: Rutgers University Press, 2015); Naomi Rogers, “Race and the Politics of Polio,” *American Journal of Public Health* 97, no. 5 (2007): 784–95; Zachary Gussow, *Leprosy, Racism, and Public Health: Social*

Just as epidemics of wartime diseases began to settle down, and occupiers began to settle into their roles in Germany, a major epidemic of poliomyelitis struck Berlin. The 1947 epidemic was the largest outbreak of polio in Germany since 1936 and caught the occupiers largely unprepared. The United States used its economic strength and long history of poliomyelitis research to respond actively, while the Soviet Union did not have either of those experiences to draw upon, as poliovirus remained endemic in most of Russia. As the United States and the Soviet Union moved further apart in their management of a divided Germany, provocative actions like the western zones' currency reform sparked the first major Cold War crisis in Berlin in the form of a blockade and airlift. The following chapter explores how the first major polio epidemic unfolded in the context of the breakdown of international relations between the US and the USSR.

Policy in Chronic Disease Control (Boulder: Westview Press, 1989); Gabriel N. Mendes, *Under the Strain of Color: Harlem's Lafargue Clinic and the Promise of an Antiracist Psychiatry*, Cornell Studies in the History of Psychiatry (Ithaca: Cornell University Press, 2015); Brian D. Smedley et al., eds., *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Washington, D.C: National Academy Press, 2003).

Chapter 2: Polio Epidemics and Border Construction, 1947-1953

Introduction

As a field of research, Cold War international relations has become more expansive in the past two decades. The history of the Cold War, according to Jeremi Suri, has moved past questions about origins, guilt, and who won to a discussion about whether the era should be “characterized by more conflict or co-operation.”²³² Newer studies have examined the “unofficial diplomacy” of non-state actors, shifting away from the focus on diplomats, high-ranking politicians, state departments, and military officials. The addition of “history from below” perspectives has also placed increased emphasis on how the international politics of the era shaped the lived experiences of individuals, and vice-versa. Studies of scientific diplomacy have drawn particular attention to the importance of nuclear technology and the relative power nuclear scientists held as participants in state-building projects.²³³ Given the focus on nuclear technology, other forms of scientific diplomacy, including medical diplomacy have garnered less attention from historians.

²³² Jeremi Suri, “Conflict and Co-Operation in the Cold War: New Directions in Contemporary Historical Research,” *Journal of Contemporary History* 46, no. 1 (2011): 7.

²³³ Gabrielle Hecht, *Entangled Geographies: Empire and Technopolitics in the Global Cold War* (Cambridge: MIT Press, 2011); Jessica Wang, *American Science in an Age of Anxiety. Scientists, Anticommunism and the Cold War* (Chapel Hill: University of North Carolina Press, 1999); Zuoyue Wang, “Transnational Science During the Cold War: The Case of Chinese/American Scientists,” *Isis* 101, no. 2 (June 2010): 367–77; Greta Jones, *Science, Politics, and the Cold War* (London: Routledge, 1988); David A. Hounshell, “Epilogue: Rethinking the Cold War: Rethinking Science and Technology in the Cold War: Rethinking the Social Study of Science and Technology,” *Social Studies of Science* 31, no. 2 (April 2001): 289–97; John Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe* (Cambridge: MIT Press, 2006); John Krige, *Sharing Knowledge, Shaping Europe: US Technological Collaboration and Nonproliferation* (Cambridge: MIT Press, 2016); Paul Maddrell, *Spying on Science: Western Intelligence in Divided Germany, 1945-1961* (Oxford: Oxford University Press, 2006); Mark Solovey, “Introduction: Science and the State during the Cold War: Blurred Boundaries and a Contested Legacy,” *Social Studies of Science* 31, no. 2 (April 2001): 165–70.

Nonetheless, research on the World Health Organization and “health internationalism” has begun to grow in recent decades. Historians have taken the era’s rhetoric, such as Harvard physiologist Walter E. Cannon’s 1947 proclamation that medicine was “the world’s greatest fraternity,” in which a doctor could travel across borders and still be “welcomed by his fellow doctors,” as evidence that the goal of global health and the international language of medicine transcended national and political boundaries.²³⁴ In 1992, political scientist Peter Haas introduced the concept of the epistemic community, a “transnational group of ‘believers’ with shared values, causal models, and validation criteria, as well as a common policy project.”²³⁵ Historians adopted the term to conceptualize the relationships between physicians and medical scientists across borders, assuming, much like Cannon, shared ethics, language, priorities, and knowledge that facilitated the rapid, transnational transfer of medical knowledge and technology.²³⁶ Historians, including Dóra Vargha and Erez Manela, discussed the internationalism of medical concerns in the context of the growing number of

²³⁴ Cannon, qtd. in Sigerist, Henry E. “On American-Soviet Medical Relations,” *American Review of Soviet Medicine* Nr. 5.1(December 1947): 5-8.; Erez Manela, “A Pox on Your Narrative: Writing Disease Control into Cold War History,” *Diplomatic History* 34, no. 2 (April 2010): 299–323; John Farley, *Brock Chisholm, the World Health Organization, and the Cold War* (Vancouver: UBC Press, 2008); Dóra Vargha, “Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary,” *Bulletin of the History of Medicine* 88 (2014): 319–43; Dóra Vargha, *Polio Across the Iron Curtain: Hungary’s Cold War with an Epidemic* (Cambridge: Cambridge University Press, 2018).

²³⁵ Peter M. Haas, “Introduction: Epistemic Communities and International Policy Coordination,” *International Organization, Knowledge, Power, and International Policy coordination*, 46, no. 1 (Winter 1992): nn. 4–5.

²³⁶ Christian J. Emden, “Epistemic Publics: On the Trading Zones of Knowledge,” in *Beyond Habermas: Democracy, Knowledge, and the Public Sphere*, ed. Christian J. Emden and David Midgley (New York: Berghahn Books, 2012); Anne Hardy, “The Public in Public Health,” in *Beyond Habermas: Democracy, Knowledge, and the Public Sphere*, ed. Christian J. Emden and David Midgley (New York: Berghahn Books, 2012), 87–98; Farley, *Brock Chisholm, the World Health Organization, and the Cold War*.

international healthcare organizations during the postwar period, notably the WHO.²³⁷

They argued that the threat of epidemic disease drew nations closer politically and facilitated international relations on matters of healthcare, regardless of Cold War allegiance. The term “health internationalism” has been used by historians to describe the rhetoric of collaboration across borders for the benefit of human health broadly.

Historians of imperialism and colonialism in the Global South have problematized this representation of the WHO and health internationalism as driven by paternalism and racist attempts to control the movement of colonial subjects.²³⁸ The historian Sunil S. Amrith has called health internationalisation “a study in paradox” where collaboration between nations was marked by “profound entanglement... with nationalism and imperialism.”²³⁹ Similarly, medical historian Alison Bashford argued the “geopolitics of disease prevention has often operated through, and linked, nationalism and the policing of

²³⁷ Vargha, “Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary”; Manela, “A Pox on Your Narrative: Writing Disease Control into Cold War History”; Saul Benison, “International Medical Cooperation: Dr. Albert Sabin, Live Poliovirus Vaccine and the Soviets,” *Bulletin of the History of Medicine* 56, no. 4 (Winter 1982): 460–83; Young-sun Hong, ““The Benefits of Health Must Spread Among All”: International Solidarity, Health, and Race in the East German Encounter with the Third World,” in *In Socialist Modern: East German Everyday Culture and Politics*, ed. Katherine Pence and Paul Betts (Ann Arbor: University of Michigan Press, 2008); William H. Schneider, *Rockefeller Philanthropy and Modern Biomedicine: International Initiatives from World War I to the Cold War* (Bloomington: Indiana University Press, 2002); Paul Weindling, ““Out of the Ghetto”: The Rockefeller Foundation and German Medicine after the Second World War,” in *Rockefeller Philanthropy and Modern Biomedicine: International Initiatives from World War I to the Cold War*, ed. William H. Schneider (Indiana: Indiana University Press, 2002), 208–22.

²³⁸ Neel Ahuja, *Bioinsecurities: Disease Interventions, Empire, and the Government of Species* (Durham: Duke University Press, 2016); Sunil S. Amrith, ““Internationalising Health in the Twentieth Century,”” in *Internationalisms: A Twentieth-Century History*, ed. Glenda Sluga and Patricia Clavin (Cambridge: Cambridge University Press, 2017), 245–64; Alison Bashford, *Imperial Hygiene: A Critical History of Colonialism, Nationalism and Public Health* (New York: Palgrave Macmillan, 2004); Alison Bashford, ed., *Medicine at the Border: Disease, Globalization and Security, 1850 to the Present* (New York: Palgrave Macmillan, 2006); Patrick E. Carroll, “Medical Police and the History of Public Health,” *Medical History* 46 (2002): 461–94.

²³⁹ Sunil S. Amrith, ““Internationalising Health in the Twentieth Century,”” in *Internationalisms: A Twentieth-Century History*, ed. Glenda Sluga and Patricia Clavin (Cambridge: Cambridge University Press, 2017), 245.

sovereign territory.”²⁴⁰ Control of diseases across borders was difficult, if not impossible, but the act of establishing boundaries, monitoring health, and denying passage based on threats of epidemic disease legitimized border lines. These observations have only begun to influence studies that focus on the Global North. Recent histories of health internationalism and Cold War politics have celebrated collaboration without acknowledging the paternalism, xenophobia, political grandstanding, and exploitation that accompanied medical relations across borders.²⁴¹

While health internationalism may have been a key rhetorical device in the 1940s and 1950s, it often did not reflect the lived experiences of healthcare actors, and the history of poliomyelitis in divided postwar Germany makes sense only within the context of the fluctuations in diplomatic relations between the eastern and western blocs that shaped access to healthcare information, technologies, and personnel. This chapter contextualizes the first outbreaks of poliomyelitis within the developments in post-World War II healthcare and politics. It argues that political considerations shaped the available options for halting the spread of disease and treating patients. From the first major postwar outbreak of polio in 1947, the occupiers did not follow the ACC mandate to collaborate on disease control. Instead, polio became embroiled in the politics of the emerging Cold War, as outbreaks became grounds for further conflict and accusations that the other side was “failing” its German population and allowing the disease to spread

²⁴⁰ Alison Bashford, ed., *Medicine at the Border: Disease, Globalization and Security, 1850 to the Present* (New York: Palgrave Macmillan, 2006), 6.

²⁴¹ Manela, “A Pox on Your Narrative: Writing Disease Control into Cold War History”; Vargha, *Polio Across the Iron Curtain: Hungary’s Cold War with an Epidemic*; Vargha, “Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary.”

into neighbouring zones and countries. At the same time, research into polio prevention, treatment, and especially vaccines, provided fertile grounds for collaboration between scientists and medical researchers in the east and west. Beginning in 1947, with the first major postwar epidemic, this chapter traces these moments of conflict and collaboration over the postwar occupation period.

The 1947 Polio Epidemic in Divided Berlin

When the first postwar polio epidemic broke out in Germany in 1947, it occurred amid complex and changing international currents. The creation of the WHO, the advent of international and regional conferences on epidemic diseases, and a focus on international exchanges of medical professionals all demonstrate that medicine was a field with unique potential for international collaboration, despite developing Cold War animosity. Even during the Berlin Blockade in 1948 and 1949, physicians and medical personnel on both sides of the standoff were pragmatic in their continued cooperation to maintain public health.²⁴²

Nonetheless, cooperation was only half of the story. Occupiers' intentions were twofold. On the one hand, they were designed to secure support or at least passivity from the German population. On the other hand, they were designed to show the superiority of their system at a national and international level. The policies of the occupiers and Germans were also not stagnant and altered according to the ebb and flow of Cold War international relations. The deterioration of political relations between the United States

²⁴² Melanie Arndt, *Gesundheitspolitik im Geteilten Berlin 1948 bis 1961* (Köln: Böhlau Verlag, 2009), 16–17.

and the Soviet Union shaped the medical interventions available to Germans during poliomyelitis epidemics from 1947 to 1953. After the launch of Bizonia in 1947, the different approaches of the American and Soviet occupiers led to divergent treatment methods for poliomyelitis and the creation of separate medical cultures.²⁴³ Both zones followed quarantine procedures. As the relations between the two occupiers worsened, these quarantine methods increasingly strengthened the border between the Soviet the American occupation zones, rather than the boundaries of the identified regions of epidemic rates of infection. The occupying powers used epidemic disease, and particularly the novel poliomyelitis with its unknown etiology, to deepen the separation between the eastern occupation zone and its western counterparts. Throughout the 1940s and 1950s, the available treatment methods became increasingly bound up in Cold War politics and the fight to prove the superiority of capitalism over communism, and vice-versa.

Medical policing – the use of physicians and health regulations to control individuals' behavior – was combined with medical support to promote the adoption of the respective occupiers' political-ideological systems. The American occupiers were in a much better position to woo (and care for) German citizens than the Soviets due to their greater financial resources. The first postwar epidemic began in the Soviet zone in 1947. Despite proactive establishment of a working group to study the prevention and treatment of polio the previous year, the response to the outbreak was lethargic due to Soviet

²⁴³ Bizonia was the name used for the British and American occupation zones after their merger on 1 January 1947.

inexperience, the breakdown of infrastructure, and the economic disorder following World War II. The Soviets and the German medical practitioners in their zone recommended hand washing, avoiding swimming and strenuous exercise, and quarantine for those exposed. The Soviets were publicly criticized by the other Allies, because even though these methods were known to be effective preventive measures, they did not stop the spread of the disease.²⁴⁴

While Soviet officials also faced criticism from Germans under their care in *Neues Deutschland* for what was perceived to be inadequate efforts to combat the disease, U.S. occupation officials dispatched to its zones medical experts who had years of experience treating polio. American authorities seized on this opportunity to show off their new role as the world's scientific leaders, as well as their generosity. While American occupiers in the Western zones had not created a specific governmental committee to address poliomyelitis such as the *Fachausschuß für Poliomyelitis und deren Nachbehandlung* (Expert Committee for Poliomyelitis and its Aftercare, FPdN) in the Soviet zone, they were able to send medical technologies and medical professionals with expertise in polio research and development to the Western zones.

In January 1947, seven months before the first postwar epidemic of polio in Berlin, an editorial in the *Tägliche Rundschau*, a newspaper established by SMAD in conjunction with Germans, claimed that “a significant medical victory had been gained in the Soviet zone,” owing to plummeting rates of dysentery and typhoid as well as new

²⁴⁴ “Mehr Brot für die Kinder!” *Neues Deutschland*, 2 November 1947. Archiv der Ausgaben von 1946-1990, Neues Deutschland Archiv. URL: <https://www.nd-archiv.de/artikel/1518688..html?sstr=kinderl%C3%A4rmung>, Accessed 1 June 2016.

tuberculosis sanatoria.²⁴⁵ Soviet officials credited these successes to their decision to replace the national *Deutsche Ärzte-Verein* (German Medical Association) with individual Health Centres in the East German states. According to the article, Germans and Soviets worked together “to jointly develop the best method of maintaining the health of the public and rapidly and successfully restoring the health of patients living in the capital.”²⁴⁶

Aside from restructuring the provision of healthcare, the Soviets also established special committees to address specific health concerns. The FPdN was established with permission from Soviet authorities in 1946 to make recommendations for policy about polio prevention, treatment, and aftercare. The committee was composed of German medical researchers and maintained significant power to shape healthcare policy pertaining to poliomyelitis throughout East Germany’s history. The existence of specific committees like the FPdN has led historians such as Melanie Arndt and Hans-Ulrich Sons to praise the East German healthcare system because it sought to prevent disease and keep healthcare costs low. Nonetheless, prevention is only successful when a disease has a known route of transmission. The lack of epidemiological information about polio left the Expert Committee in a bind during the early postwar polio epidemics. At its first meeting on 14 October 1946, the committee discussed previous epidemics in Köln in 1938 and 1939, the efficacy of convalescent serum as a prophylactic, and Australian

²⁴⁵ NARA RG 260/167 “How Important Medical Problems are Solved in the Soviet Zone: Translation from ‘Tagliche Rundschau’ No. 7.” Folder: Aertzammer – 1947, 9 January 1947.

²⁴⁶ “How Important Medical Problems are Solved in the Soviet Zone.”

nurse Sister Elizabeth Kenny's novel hot pack treatments for paralytic polio cases.²⁴⁷

Nonetheless, it made no attempt to implement preventive measures against the disease due to lack of knowledge about modes of transmission and hopes that there would be no large-scale epidemics of the disease.

The Expert Committee's records also show that the Soviet Zone and East Germany remained dependent on outside discoveries. The East Germans were not encouraged to conduct their own research, and the Soviet occupiers made no attempt to support the reconstruction of German medical research and development in their zone, in contrast to the Americans. Instead, East Germans relied on medical information from the Soviet Union, which maintained a strong microbiology community despite political interference.²⁴⁸ Their reproductions of important medicines, particularly antibiotics and vaccines, supported the health of the Soviet bloc throughout the period. As well, East Germany relied on imports of medicines from Czechoslovakia and, when desperate, some western countries, including Switzerland and Canada. For information on treatment methods, East German doctors imported medical journals from many different countries, including the United States, brought experts in from politically like-minded countries,

²⁴⁷ For more information on the Kenny method, see: Naomi Rogers, *Polio Wars: Sister Kenny and the Golden Age of American Medicine* (New York: Oxford University Press, 2014); Victor Cohn, *Sister Kenny: The Woman Who Challenged the Doctors* (Minneapolis: The University of Minnesota Press, 1975); Naomi Rogers, "'Silence Has Its Own Stories': Elizabeth Kenny, Polio and the Culture of Medicine," *Social History of Medicine* 21, no. 1 (April 2008): 145–61.

²⁴⁸ Throughout the Cold War, medical exchanges between the USA and the USSR continued, decreasing during the 1940s and 1950s, and increasing again in the 1960s and 1970s. Those physicians who travelled to labs in the field of microbiology reported favourably on the state of research. See HCASA Correspondence – Individual Box 3 Folder 14: Brody, Jacob, 1962-1966. "Report No. 1 – Moscow, USSR," 4 January 1962.; Fred R. Cagle, "A Biologist Visits Russia: Report of A. I. B. S. Representative to U. S. S. R.," *AIBS Bulletin* 9, no. 1 (1959): 16–20.

including Czechoslovakia, and sought advice from physicians outside of the GDR.²⁴⁹ As a result, medical innovations were often implemented later in the eastern zone than the western zone.

Despite the attempts to prevent the spread of epidemic diseases, and prepare for polio outbreaks in divided Germany, the summer of 1947 marked the beginning of an epidemic in Berlin. In the first two weeks of July 1947, the Friedrichshain borough of Soviet-occupied Berlin reported 33 cases of polio, a significant outbreak considering Berlin had only 89 cases total in 1946. 28 cases were traced to children who had taken respite from a hot day in the pool at Boxhagener Platz.²⁵⁰ The water was most likely infected with polio-ridden fecal matter, which, combined with temperature changes and physical exertion, made the children particularly susceptible to the virus. By August 26, 213 Berliners showed symptoms of polio and 27 had died. Through September, as many as 125 new cases were reported each week.²⁵¹ The epidemic peaked on 17 September, when 850 cases were reported in the city.²⁵² The 1947 epidemic struck at an unfortunate time. As Soviets and Americans became more and more distrustful of each other, the eruption of an epidemic of a novel disease without a clear cause or any proven prophylaxis challenged the occupying forces of both German zones.

Without any new strategies, the Soviet occupiers and German medical professionals relied on research conducted by doctors in the Third Reich and the Weimar

²⁴⁹ Dóra Vargha, "Iron Curtain, Iron Lungs: Governing Polio in Cold War Hungary 1952-1963" (PhD Dissertation, New Brunswick, Rutgers University, 2013), 11.

²⁵⁰ NARA RG 260/546 Folder: Poliomyelitis. Memo, "Poliomyelitis, Attn: Allied Kommandatura Public Health Branch," 8 August 1947.

²⁵¹ UWDC-GURC. "Public Health." *OMGUS Monthly Information Bulletin* 118 (November 1947): 16.

²⁵² "2 Weeks' Steady Cold Needed to Curb Polio," *The Globe and Mail*, September 17, 1947, 8.

Republic as well as international sources during the 1947 epidemic. Convalescent serum, made from the blood of a person who had recovered from polio, was one method which showed promise to prevent polio and also to lessen the severity of symptoms in those already affected. First introduced in 1910, by 1943, the Behringwerke pharmaceutical company in Marburg was manufacturing mass quantities of the serum to supply the German armed forces and planned to expand production for German civilians.²⁵³

Throughout the 1940s, however, the evidence for the efficacy of convalescent serum came into question. At a meeting on 11 November 1946, Dr. Gerhard Joppich, director of the Kaiserin-Auguste-Viktoria-Hause in Berlin and former head of the *Reichsarbeitsgemeinschaft Mutter und Kind* (Reich Working Group on Mother and Child) during the Third Reich, noted that statistically, the serum did not work as a preventive measure or as a treatment for polio.²⁵⁴ Austrian statistician Professor Wilhelm Winkler, who attended the same meeting, blamed the Americans for misleading the international medical community about the serum's efficacy.²⁵⁵ As contemporary researchers believed that poliovirus spread through the soft tissue in the body rather than through the blood, a blood serum did not even make theoretical sense as a preventive measure. Nonetheless, as Yale epidemiologist John R. Paul explained in an interview, when parents heard that the serum was potentially useful in stopping the disease, it was

²⁵³ BArchK R86/4132. "Präsident des Reichsgesundheitsamts to Robert Koch Institut, Reichsanstalt zur bekämpfung der übertragbaren Krankheiten," 29 October 1943.

²⁵⁴ BArchB DQ 1/935. "Wörtlichen Protokoll der Tagung der zentralstellen für Hygiene in der Deutsche Zentralverwaltung für das Gesundheitswesen in der sowjetischen Besatzungszone, Berlin," 11 November 1946.

²⁵⁵ BArchB DQ 1/935. "Wörtlichen Protokoll der Tagung der zentralstellen für Hygiene."

difficult to deny their pleas to administer the serum to their children.²⁵⁶ Doctors in the Soviet zone continued to dispense the serum to Germans during the 1947 epidemic. Though there was no evidence that the serum helped, it also did not cause demonstrable harm, and it was better than nothing, if only as a placebo.

The East German Technical Committee also recommended balneology treatment for polio sufferers who showed signs of paralysis. Balneology, or therapeutic bathing in hot springs, was touted as a way to relax the stiff muscles of paralyzed polio sufferers. A visit to hot springs was also recommended to improve the mental state of polio victims by removing them from dreary hospitals and bringing them to more picturesque locations. Many East German polio sufferers were sent to Bad Wiesenbad in Saxony near the Czechoslovak border.²⁵⁷ German hot bath treatments may appear to copy the treatment Franklin Delano Roosevelt sought at Warm Springs, Georgia, but balneology had a much longer history in Germany. In the second century AD, Romans established the first thermal bathing site at Baden-Baden.²⁵⁸ The German tradition of travelling to a spa town in order to “take the waters” as treatment for a variety of illnesses, called the *Kur*, dated back to the 17th century.²⁵⁹

²⁵⁶ Rogers, *Polio Wars: Sister Kenny and the Golden Age of American Medicine*, 86.

²⁵⁷ BAArchB DQ 1/6301. “Protokoll für III. Sitzung den Fachausschusses für Poliomyelitis und deren nachbehandlung,” 11 October 1955.

²⁵⁸ Manfred Söhner, “Die Bäder- und kurverwaltung Baden-Baden: Porträt eines gemischtöffentlichen Unternehmens,” *Zeitschrift Für Öffentliche und Gemeinwirtschaftliche Unternehmen: ZögU / Journal for Public and Nonprofit Services* 9, no. 4 (1986): 453.

²⁵⁹ Thomas W. Maretzki, “Cultural Variation in Biomedicine: The Kur in West Germany,” *Medical Anthropology Quarterly* 3, no. 1 (1989): 25. For more information on the Kur and thermal bathing as medical treatment in Germany, see Maretzki, “Cultural Variation in Biomedicine”; Heikki Lempa, “The Spa: Emotional Economy and Social Classes in Nineteenth-Century Pyrmont,” *Central European History* 35, no. 1 (2002): 37–73; Söhner, “Die Bäder- Und Kurverwaltung Baden-Baden.”

Soviet and eastern German medical staff also demonstrated an openness to learning about the methods of Australian bush nurse Sister Elizabeth Kenny, as they were inexpensive treatments and provided hope of more recovery from paralytic polio. While previously doctors had recommended immobilization of the afflicted limbs using splints, Kenny instead used a combination of hot compresses, gentle massage, and physiotherapy. Her success led her to visit the United States in 1940 to spread her message.²⁶⁰ Kenny's methods became controversial owing to her lack of medical accreditation in an era when the professional American medical community questioned female lay medical practitioners.²⁶¹ For example, President of the National Foundation for Infantile Paralysis (NFIP) Basil O'Connor denigrated her as an "Amazon" due to her height and what he perceived to be a lack of femininity.²⁶² In April 1947, Kenny toured 14 European countries, including the Soviet Union. She arrived in Berlin as the polio epidemic erupted. One member of the Polio Committee in the eastern zone, who insisted that Kenny's method had been proven efficacious in the United Kingdom, recommended adopting it as a standard procedure in East German hospitals.²⁶³ Since the treatment did not require expensive technology or equipment, East German physicians were happy to add it to their polio treatment repertoire.

The three main methods used by East German physicians to treat polio were insulin injections, heaped lumbar punctures, and injections of homoseran (placental

²⁶⁰ Rogers, *Polio Wars: Sister Kenny and the Golden Age of American Medicine*, 213.

²⁶¹ Rogers, "Silence Has Its Own Stories": Elizabeth Kenny, Polio and the Culture of Medicine."

²⁶² Rogers, *Polio Wars: Sister Kenny and the Golden Age of American Medicine*, 323.

²⁶³ BArch DQ1/935. "Wörtlichen Protokoll der Tagung der zentralstellen für Hygiene in der Deutsche zentralverwaltung für das Gesundheitswesen in der sowjetischen Besatzungszone, Berlin," 11 November 1946.

blood).²⁶⁴ Insulin, a peptide hormone produced in the pancreas, was not effective against polio and its use as a treatment by eastern German physicians was critiqued in English-language medical literature.²⁶⁵ Because the symptoms of polio overlapped with many other diseases, lumbar puncture was necessary to confirm polio in the spinal fluid.²⁶⁶

Homoseran was another by-product of research under the Third Reich. Homoseran was supposed to work much as convalescent serum did by transferring antibodies to others. The treatment, which first emerged in the early 1940s, was used to treat Adolf Hitler's tremors, but was not successful in curing communicable diseases.²⁶⁷

The Soviet authorities faced criticism from the public in East Germany for failing to prevent the spread of polio. For example, one article in *Neues Deutschland* demanded

²⁶⁴ A heaped lumbar puncture is also known as a spinal tap. Medicines are injected into the lower lumbar area, around the spinal column. BArch R86/4132. "Protokoll der Sitzung des Sachverständigenbeirats der Abteilung VIII," 23 September 1947.

²⁶⁵ Though insulin is most frequently associated with treatment of diabetes, throughout the 1940s and 1950s, insulin was applied to non-diabetic illnesses, including an insulin shock therapy used to treat mental health conditions. In the case of polio, the use of a peptide hormone effective at blood sugar management to treat a viral disease does not appear logical, and has not been adequately accounted for in historical accounts. Insulin is sometimes abused by athletes in a misguided attempt to promote muscle growth, and its use in East Germany was intended to help individuals whose muscles were destroyed during acute paralysis. Its effectiveness for muscle development is still a subject of debate, and the lack of widespread adoption of insulin to treat polio outside of East Germany indicates any benefits were negligible. Stetten DeWitt, "Metabolic Effects of Insulin," *Bull. N.Y. Acad. Med.*, 29.6 (June 1953): 466-476.; BArchB DQ 1/5424. Direktive zum Volkswirtschaftenplan 1955. 25.5.1955.; BArchB DQ 1/20115. Memo, Dr. Schiele-Farber to Herrn Prof. Redetzky. 7.1.1955.; BArchB DQ 1/20115. Report, "Bericht über die Poliomyelitis-Nachbehandlungszentren," Prof. Dr. Marcusson to Herrn Minister Steidle, Frau Staatssekretär Matern, Herrn Stelly, Minister, Prof. Dr. Redetzky. 16.3.1955. The Minnesota Poliomyelitis Research Commission, "Bulbar Form of Poliomyelitis: II. Therapeutic Measures Based on Pathologic and Physiologic Findings," *Journal of the American Medical Association* 135, no. 7 (October 18, 1947): 425-28.

²⁶⁶ Even today, some medical researchers are not convinced Franklin Delano Roosevelt really had polio and instead suggest he was suffering from Guillain-Barré syndrome. Armond S Goldman et al., "Franklin Delano Roosevelt's (FDR's) (1882-1945) 1921 Neurological Disease Revisited; the Most Likely Diagnosis Remains Guillain-Barré Syndrome," *Journal of Medical Biography* 24, no. 4 (November 1, 2016): 452-59,

²⁶⁷ Ellen Gibbels, "Hitlers Nervenkrankheit: Eine Neurologisch-Psychiatrische Studie," *Vierteljahrshefte Für Zeitgeschichte* 42, no. 2 (1994): 174.; H. Kirchmair, "Ist eine Masern- Oder Scharlachprophylaxe mit Homoseran möglich?," *Deutsche Medizinische Wochenschrift* 69, no. 35 (1943): 631-32.

more bread and milk to strengthen children so they could fend off the virus.²⁶⁸ The existence of such news reports can be considered examples of “Grumble Gesellschaft,” a society in which criticism of the government remained focused on daily life concerns.²⁶⁹

American Zone

The American zone had no established working group of doctors specifically preparing for polio outbreaks, as the Soviet zone did, which has led some historians to conclude that the United States was ill-prepared.²⁷⁰ But this apparent neglect can be explained by the American intention not to become too involved in Germany’s medical system. The OMGUS directive JCS 1067 assumed Germans would be responsible for running their own healthcare system. This is not surprising, given that the American medical model emphasized government non-intervention, commercial research and development, and funding from charitable and university sources. Though the American occupation forces were instructed through JCS 1067 to be noninterventionist, there was also a vested interest among American policymakers to support the western zones’ transition to stable democracy which was popular among Germans if only as an alternative to becoming a Soviet satellite state.

²⁶⁸ “Mehr Brot für die Kinder!” Neues Deutschland, 2 November 1947. Archiv der Ausgaben von 1946-1990, Neues Deutschland Archiv. URL: <https://www.nd-archiv.de/artikel/1518688..html?sstr=kinderl%C3%A4hmung>, Accessed 1 June 2016.

²⁶⁹ Andrew I. Port, *Conflict and Stability in the German Democratic Republic* (Cambridge: Cambridge University Press, 2007), 115.

²⁷⁰ H.-U. Sons, *Gesundheitspolitik während der Besatzungszeit. Das öffentliche gesundheitswesen in Nordrhein-Westfalen, 1945-1949* (Wuppertal: Wuppertal Hammer, 1983), 173.; Arndt, *Gesundheitspolitik im geteilten Berlin 1948 bis 1961*, 107.; Donna Harsch, “Socialism Fights the Proletarian Disease,” in *Becoming East German: Socialist Structures and Sensibilities after Hitler*, ed. Mary Fulbrook and Andrew I. Port (New York: Berghahn Books, 2013), 141–57.

The 1947 polio epidemic alarmed American officials in Germany, who were preoccupied with controlling diseases more commonly associated with lowered living standards, especially typhus and typhoid fever, cholera, dysentery, and tuberculosis. Chief of the OMGUS Public Health Branch Lieutenant Colonel Adam J. Rapalski noted that polio was only the fifth cause of death, thus of “minor importance.”²⁷¹ Nonetheless, OMGUS health officials were concerned with the “psychological factors, the primitive fears aroused” by this unfamiliar infectious disease. Rapalski believed that providing a robust response “was important to Military Government because [the epidemic] could have caused civil unrest.” Two contemporary German doctors, R. Wilsch and E. Maier, argued that since the epidemiology of polio was so complicated and much was unknown in the 1940s, the public suffered from “iatrogenic panic,” which meant an irrational belief that nearly anything could be the cause of polio.²⁷² Since polio predominantly afflicted children, US occupation authorities worried that parents’ fears and any perception of lack of effort on the part of the occupiers would taint the German-American relationship. Thus, the Americans’ actions were primarily a political response designed to win the support of the community and avoid negative perceptions of democracy, and secondarily a public health response.

Rapalski also reported that during the 1947 epidemic, such “primitive fears” were “not limited to the German population but [were] evident... among the members of the

²⁷¹ The other four diseases were tuberculosis, cholera, dysentery, and typhus. UWDC-GURC. Adam J. Rapalski, “Fighting Poliomyelitis in Berlin.” *OMGUS Monthly Information Bulletin* 129 (February 1948): 6-8, 18-26.

²⁷² R. Wilsch and E. Maier, “Zur Poliomyelitis-Epidemie 1952 und 1953 in Hanover,” *Medizinische Klinik* (16 July 1954): 1141.

occupying community.”²⁷³ OMGUS leadership had begun encouraging its servicepeople to bring their families to Germany in 1946 to reduce fraternization of American soldiers with German women.²⁷⁴ The attrition rate of OMGUS personnel was already rising and even high-ranking personnel expressed frustrations. For example, in December 1947, chief of the Public Health Branch, OMGUS Berlin, Dr. Eugene Schwarz wrote to Albert B. Sabin that the occupation was such “a mess” that “sometimes I feel like packing up and run[ning] like hell to the furthest corner of the earth.”²⁷⁵ In order to persuade occupiers to stay in Germany, the American military brought their families over and set them up in pleasant accommodations with staff to help with cleaning, cooking, and childcare. By the end of 1946, there were 72 OMGUS communities, including over 1000 families each in Berlin, Munich, Frankfurt, and Wiesbaden.²⁷⁶ Since American soldiers’ children were at risk for contracting polio, this decision created greater urgency to stop the spread of disease.

The 1947 polio outbreak sparked fear among the population as it was not a disease that thrived in unsanitary conditions – it attacked children irrespective of socioeconomic status or living conditions. Physicians and public health officers in the western zones of Germany faced widespread pressure from German citizens to contain

²⁷³ UWDC-GURC. Rapalski, Adam J. “Fighting Poliomyelitis in Berlin.” *OMGUS Monthly Information Bulletin* 129 (February 1948): 6-8, 18-26.

²⁷⁴ For in-depth information about fraternization and American fears about it, consult Petra Goedde, *GIs and Germans: Culture, Gender, and Foreign Relations, 1945-1949* (New Haven: Yale University Press, 2002).

²⁷⁵ HCASA Correspondence – Individual Box 12 File 2. Letter, Eugene E. Schwarz, Berlin-Steglitz to Albert B. Sabin, 20 December 1947.

²⁷⁶ U.S. Forces European Theater, *An Introduction to Germany for Occupation Families* (Stuttgart: Headquarters, United States Forces European Theater, 1947).

outbreaks of poliomyelitis and avoid infection of their children, as well as pressure from American occupiers to protect American children in Germany. In 1948, a single case of polio in the son of an American serviceman stationed in Regensburg, Germany was reported in the *New York Times*, indicating that the disease was being closely monitored by the press.²⁷⁷ The following week, OMGUS headquarters noted cases among dependents of occupation forces in Regensburg and Munich.²⁷⁸ Such cases drew media attention as examples of the heroic sacrifices that Americans were making to rebuild Germany.²⁷⁹

Under JCS 1067 the onus was on German authorities “to maintain or re-establish such health services and facilities as may be available to them.” But the directive also allowed Americans to engage in activities deemed necessary to protect public health, which included laboratory research.²⁸⁰ To sustain American health required maintaining a satisfactory level of German health, since close contact between the populations was unavoidable. On 3 August, the *New York Times* reported that a British soldier had died from polio. Consequently, more than 100 British soldiers were denied leave and placed

²⁷⁷ The poster child for the Armed Services March of Dimes 1951 campaign was the son of a serviceman stationed in Wiesbaden but did not contract polio in Germany. “Polio Flares in U.S. Zone,” *New York Times*, 22 July 1948, 8.; UWDC-GURC “Polio Poster-Boy.” *OMGUS Monthly Information Bulletin* (February 1951): 28.

²⁷⁸ NARA RG 260/236. Folder: Communicable Diseases 1948-1949. Office of Military Government for Bavaria, Report: “Poliomyelitis in Land Bavaria,” 28 July 1948.

²⁷⁹ “Boy Here from Germany for Treatment of Polio,” *New York Herald Tribune*, 27 August 1949, 9.; “British Helicopter and Tug Pick Polio Victim from Ship,” *The Washington Post and Times Herald*, 1 October 1954, 33.; Navy Team to Dance Again as Wife Triumphs over Polio, *The Globe and Mail*, 1 February 1946, 4.

²⁸⁰ Joint Chiefs of Staff, “Labor, Health, and Social Insurance,” In *Directive to Commander-in-Chief of United States Forces of Occupation Regarding the Military Government of Germany*. 1945. Paragraph 26-30.; “Zone Briton Contracts ‘Polio,’” *New York Times*, 3 August 1947, 5.; “Tot Loses in Polio Battle,” *The Chicago Defender*, 8 September 1951, 4.; “Air Force Flying in 2 Polio Victims,” *New York Herald Tribune*, 24 August 1954, 17.; “English Channel Drama: Ship, Helicopter, Tug Fight to Save Polio Boy,” *The Globe and Mail*, 1 October 1954, 11.

under quarantine.²⁸¹ By the end of the epidemic, in early October, an American serviceman had also died of the disease.²⁸²

On 6 September 1947, O'Connor offered OMGUS the NFIP's resources to help stem the polio epidemic.²⁸³ Consequently a team of three polio specialists, four iron lung respirators, two hot pack machines, and associated materials was sent by the US government to Berlin.²⁸⁴ The team of specialists came from the Boston Children's Hospital, including Dr. Thomas Gucker, an orthopaedic surgeon who had been trained by polio experts at Warm Springs in Georgia.²⁸⁵ The team stayed for three weeks, touring hospitals, giving lectures on new treatment techniques, and demonstrating how to use the iron lungs. Gucker later reported that he had been "appalled by both the lack of facilities and the postwar fatalism of the German people." He was particularly disturbed by "their feeling that it was useless to exert a lot of effort to save just one life."²⁸⁶ As the historian Monica Black has observed, mourning and treatment of dead "is not innate or instinctive – it is a matter of culture at its most profound level."²⁸⁷ Gucker's perception of fatalism could easily have been attributable to material shortages and weariness among physicians in a war-torn country. Indeed, according to Black, Berliners were not apathetic about death but at times seem obsessed by it.²⁸⁸ Since western Germany faced a shortage of

²⁸¹ "Zone Briton Contracts 'Polio'." *New York Times*, August 3, 1947, 5.

²⁸² "Polio Expert Returns to U.S. From Germany." *Daily Boston Globe*, 6 October 1947, 21.

²⁸³ NARA RG 260/321 Folder: AG 711 Epidemics. Cable, No. V-22414.

²⁸⁴ NARA RG 260/321 Folder: AG 711 Epidemics. Cable, No. V-22414.

²⁸⁵ NARA RG 260/321 Folder: AG 711 Epidemics. Lucius D. Clay, Letter to Mr. Basil O'Connor, President, NFIP, 29 September 1947.

²⁸⁶ Thomas Gucker at a Georgia Warm Springs Foundation staff meeting (9 March 1949), qtd. in Tony Gould, *A Summer Plague: Polio and Its Survivors* (New Haven: Yale University Press, 1995), 161.

²⁸⁷ Monica Black, *Death in Berlin: From Weimar to Divided Germany* (Cambridge: Cambridge University Press, 2010), 2.

²⁸⁸ Black, 8.

physicians, medicines, medical equipment, and funds, it could not provide the same level of healthcare that Americans were used to seeing in their own country.²⁸⁹

The real problem was not callous German attitudes about death, but skepticism about immunization. In November 1950, several American doctors complained that because German medical professionals were so unmoved by the prevailing evidence showing the efficacy of vaccines, the “immunization program in Germany is at a very low ebb and a great many cases develop with many needless deaths.”²⁹⁰ OMGUS officials interpreted this resistance as a desire to remain in the past. Although OMGUS officials had perhaps overstated the pervasiveness of the “Hitler blackout,” Germany had begun to fall behind the United States in medical advancements beginning in the 1920s and 1930s.²⁹¹

The 1930 Lübeck disaster in Lübeck, Germany, where 77 babies died after being inoculated with an improperly manufactured oral tuberculosis vaccine, had greatly damaged German confidence in the safety of vaccines.²⁹² The Lübeck disaster was the result of the BCG vaccine for tuberculosis, created in France, and reproduced by E.

²⁸⁹ Black, 244–45.

²⁹⁰ UWDC-GURC. W.R. deForest and V.K. Volk, “Need for Immunization,” *OMGUS Weekly Information Bulletin* (November 1950): 19.

²⁹¹ Germans were still actively researching medical issues during the Third Reich. While doctors were complicit in Holocaust atrocities and inexcusable behaviours, the NSDAP was also interested in maintaining the health of their “Aryan” population and thus promoted research into diet, disease prevention, and particularly into causes of cancer. See Robert N. Proctor, “The Nazi Campaign Against Tobacco: Science in a Totalitarian State,” in *Medicine and Medical Ethics in Nazi Germany*, ed. Francis R. Nicosia and Jonathan Huener (New York: Berghahn Books, 2002), 40–58.

²⁹² The legacy of this tragedy will be discussed further in chapters 3 and 4. Paul A. Offit, *The Cutter Incident: How America’s First Polio Vaccine Led to the Growing Vaccine Crisis* (New Haven: Yale University Press, 2005), 123.

Alstaedt and Georg Deycke in Germany in 1930.²⁹³ The two physicians had advertised the vaccine using a German-language reproduction of the “yellow flyer” circulated by Calmette and his collaborators in France. When the vaccine caused between 72 and 77 deaths in a vaccinee population of 252, the two physicians were accused of misleading the public and brought before a court on murder charges.²⁹⁴ German doctors did not necessarily object to immunization, but they had concerns about the safety of the vaccines themselves and the possibility of legal culpability for any damage caused by vaccines.²⁹⁵ Reference to the Lübeck disaster was common in medical literature, imparting a conservative taint to German medical practice evident in the adoption of extensive testing of vaccines, especially when the vaccine’s composition was developed outside of national borders. Germany did not use the BCG vaccine again until after World War II.²⁹⁶

On 17 September 1947, the U.S. military government requested an epidemiologist to help instruct German doctors on the best polio treatments.²⁹⁷ The NFIP sent Dr. Albert B. Sabin of Yale Medical School, who travelled across the western zones, collecting

²⁹³ Some American doctors still will not use BCG vaccinations. Harsch, “Socialism Fights the Proletarian Disease,” 147; Christian Bonah, ““As Safe as Milk or Sugar Water”: Perceptions of the Risks and Benefits of the BCG Vaccine,” in *The Risks of Medical Innovation: Risk Perception and Assessment in Historical Context*, ed. Thomas Schlich and Ulrich Tröhler (London: Routledge, 2006), 86–87.

²⁹⁴ Harsch indicates 72 patients died, Bonah cites 76, and Moseley gives the figure of 77. Harsch, “Socialism Fights the Proletarian Disease,” 147; Bonah, ““As Safe as Milk or Sugar Water”: Perceptions of the Risks and Benefits of the BCG Vaccine,” 88–89.; UWDC-GURC. Charles H. Moseley, “Battle Against TB – Work of Danish Red Cross,” *OMGUS Weekly information Bulletin* 158 (April 1949): 5.

²⁹⁵ Germany, for example, made vaccination against smallpox mandatory almost a century before France did. Fraser Brockington, *World Health* (Harmondsworth: Penguin Books Ltd., 1958), 169.

²⁹⁶ Ironically, American doctors currently remain wary of BCG despite WHO endorsement. Moseley, “Battle Against TB”: 5.; Harsch, “Socialism Fights the Proletarian Disease,” 148.

²⁹⁷ “Infantile Paralysis Sends Dr. Sabin to Germany to Study Polio Outbreak.” *JAMA* 135 No. 6 (11 October 1947): 357.

samples of poliovirus and giving lectures. He also recommended that the Soviet Medical Section in Berlin invite two Russian virologists, Dr. Mikhail Chumakov and Dr. M.K. Voroshilova, to Berlin. The two Russians arrived from Moscow too late to meet Sabin when he was in Berlin but were given a tour of the Poliomyelitis Treatment Centers and attended conferences alongside physicians from both the American and Soviet occupation zones.²⁹⁸ The inclusion of Soviet medical professionals shows that collaboration continued despite worsening tensions between the two countries. Sabin was accompanied by a team of medical experts from the Boston Children's Hospital and a set of iron lungs, medical technologies which were not yet available in Germany.

Once the Boston Children's Hospital team had set up the iron lungs in September 1947, they realized that importing American technology was not as straightforward as expected and had to overcome certain local impediments to using the machines. They found that Germany operated on a current of 220 volts while the iron lungs were made for 110 volts.²⁹⁹ Such problems demonstrate the fallacy of assuming technologies will spread quickly and easily across borders and oceans. Worse, of the 50 cases of breathing paralysis treated in the iron lungs between 17 September and 15 October, 31 patients died.³⁰⁰ Dr. Eugene E. Schwarz reported that "the Germans are not too much impressed with the iron lung."³⁰¹ Here, it is likely that Schwarz was referring to German physicians

²⁹⁸ HCASA Correspondence – Poliomyelitis, International Cooperation. Box 12 File 2. Letter, W.R. Deforest to Albert B. Sabin, 28 February 1948.

²⁹⁹ "Polio Experts Return to U.S. From Germany," *Daily Boston Globe*, 6 October 1947, 21.

³⁰⁰ NARA RG 260/546 Folder: Poliomyelitis. Letter, Dr. Hoffman to Military Administration, 15 October 1947.

³⁰¹ HCASA Correspondence – Individual. Box 12 File 2. Letter, Eugene E. Schwarz, Berlin-Steglitz to Albert B. Sabin, 20 December 1947.

rather than the larger German public. The use of the iron lungs was also hampered by the frequent malfunction of rubber parts, which then needed to be imported from the US. Despite these hurdles, the iron lungs became a sign of affluence to the German public in the western zones since they were costly medical technologies that the east could not afford, and a hope and comfort for parents of children with paralytic polio. The iron lung was an imperfect technology, imperfectly administered – but the American occupiers and Germans were happy to have it during the crises. The eastern zone would not have an iron lung until 1950.³⁰²

On 29 September, General Clay's office requested two additional iron lungs. During the 1947 epidemic, the NFIP sent six respirators. In October of the following year, Dr. Eugene E. Schwarz of the Public Health Branch of OMGUS suggested using \$150,000 USD raised from the exhibition of German paintings in the US to purchase six additional iron lungs, two for each *Land*.³⁰³ The suggestion to purchase the iron lungs from the US was questioned by others in the military government, who suggested that the iron lungs should be purchased from one of three German companies which had started producing the machines the previous year. On 14 October, the Baptist World Alliance Relief Company purchased one of the locally produced breathing chambers as a gift for Württemberg-Baden.³⁰⁴ The drive to purchase more iron lungs also received support from

³⁰² UWDC-GURC. "Polio Victims Aided," *OMGUS Monthly Information Bulletin* (December 1949): 60-61.; BArchB DQ 1/2248. Memo, "Behebung von festgestellten Mängeln der Eisernen Lunge Typ C/2 S., 9 July 1953.

³⁰³ NARA RG 260/1008 Folder: Poliomyelitis. Letter, W.R. De Forest to Director, Office of Military Government for Hesse. 25 October 1948.

³⁰⁴ NARA RG 260/1008 Folder: Poliomyelitis. "Report on Iron Lung for Wuerttemberg-Baden," 27 September 1948.

American Relief for Germany, Milwaukee, and other American charitable organizations. The suggestion to purchase the devices from German firms was logical considering the desire to rebuild German manufacturing capacity as well as avoiding the need to find dollars. Nonetheless, requests for iron lungs and spare parts from OMGUS and, after 1949, West German health officials, continued.

Along with the team from Boston and their iron lungs, Sister Kenny also travelled from the US to Germany during the 1947 epidemic. Though Sister Kenny failed to popularize her treatment methods in the US, she was able to visit the American occupation zone of Germany. She made contact with the German-American Men's Club and took part in a 1947 Pfennig Parade charity drive.³⁰⁵ While in Bavaria, she shared her training videos and aided with treatment of polio cases at hospitals in Augsburg. She came away with positive feelings about how her methods were received, but the doctors she interacted with did not feel the same way.³⁰⁶ Though they paid lip-service to her method's efficacy while she was present, they did not adopt the method and it faded once she left the country. One of the major problems was that Germans were already familiar with parts of Kenny's treatment methods in other guises. Hot cloth strips and physiotherapy were already used as treatments for polio patients.³⁰⁷ Thus, many German physicians did not see much new in Kenny's treatment.

³⁰⁵ Rogers, *Polio Wars: Sister Kenny and the Golden Age of American Medicine*, 357–58.

³⁰⁶ "Europe Medics Now Support her Polio Theory, Sister Kenny Tells," *The Milwaukee Sentinel*, 14 July 1950, 1, 7.

³⁰⁷ USIS. *Welt im Film* 123 (3 October 1947). Federal Republic of Germany. Film Collection, *Bundesarchiv-Online*. URL: <https://www.filmothek.bundesarchiv.de/video/583555?q=polio>, Accessed 3 July 2016.

In the early 1950s, Kenny decided to settle in Czechoslovakia to open a European polio research centre. Kenny, though resistant to the communist political system – she recalls telling a Czech doctor that “I don’t have any politics... but I don’t like yours” – found these countries more open to her methods.³⁰⁸ According to her memoir, a Czechoslovak official told her “Sister, we will always leave a crack for you in the Iron Curtain.”³⁰⁹ Partially, this was because the Kenny method for treating polio was fairly inexpensive and required only hot strips of wool and gentle movement of afflicted muscles, and because she was willing to work in the region when most Westerners would not. Her tumultuous relationship with O’Connor and her adventurous nature made her an ideal ally for the Soviet bloc.

In 1951, Kenny invited German physicians in the American zone to visit her Czech training centre. This invitation was followed two months later with an official request from the Czech government to establish a reciprocal agreement with the state of Bavaria “that would enable physicians, veterinary surgeons and midwives residing in the boundary zone area to carry on the activities of their professions in the border zone of the other country in case of utmost necessity and urgency.”³¹⁰ The permeability of borders for medical professionals parallels the fluidity of borders for disease. Many West German doctors would continue to work in East Germany right up to the construction of the Berlin Wall in 1961. Kenny’s popularity in Czechoslovakia would lead to greater success

³⁰⁸ Cohn, *Sister Kenny: The Woman Who Challenged the Doctors*, 216.

³⁰⁹ Cohn, 228.

³¹⁰ This agreement was largely the same as one proposed 15 years earlier, in 1932, but not adopted for reasons not clarified in the documents. NARA RG 260/541. Folder: Infectious Diseases (Case Studies). G.B. McKibbin, Director, “Czechoslovak Request for Agreement to Provide for Exchange of Reports on Infectious Diseases,” 3 September 1947.

in East Germany than she found in West Germany, demonstrating how economic and political contexts shaped reception of new medical techniques.

The Americans, however, were much less interested in Czechoslovakia's doctors helping with Bavarian medical crises. They vetoed a number of provisions from the original agreement, including any that allowed physicians to cross into Bavaria to assist in a medical crisis.³¹¹ This decision showed American discomfort with the movement of medical personnel across borders shared with communist countries. Nonetheless, Americans were willing to provide aid, share information, and present what they felt was a positive example of a democratic physician – willing to treat all patients equally, without interference from a central government – in Czechoslovakia. Czech physicians would need to apply for permission to cross into US-occupied Germany regardless of their purposes.

On 12 November, the American Military Government lifted all internal travel restrictions imposed during the 1947 Berlin polio epidemic.³¹² By December 1947, Berlin medical personnel were only reporting sporadic cases.³¹³ In the wake of the Berlin epidemic, funding to re-establish medical research programs in the American zone grew rapidly. Though the Director of Medical Sciences for the Rockefeller Foundation refused to set foot in Germany after World War II, and even in 1949 was “disgusted” by “unrepentant attitudes” among German medical researchers, the Rockefeller medical

³¹¹ NARA RG 260/541, G.B. McKibbin, Director, “Czechoslovak Request for Agreement to Provide for Exchange of Reports on Infectious Diseases,” 3 September 1947.

³¹² “Berlin.” *JAMA* 136 No. 3 (17 January 1948): 201.

³¹³ HCASA Correspondence – Individual. Box 12 File 2. Letter, Eugene E. Schwarz, Berlin-Steglitz to Albert B. Sabin, 20 December 1947.

sciences division increased its grants to West German researchers from \$62,500 in 1947 to \$455,311 in 1948.³¹⁴ The funding was a response to the continued threat of epidemic diseases, particularly after the polio outbreak, and to combat “the omnipresence of Russia” and promote democracy among medical researchers.³¹⁵ The Rockefeller Foundation also funded a visiting expert, Dr. F. Goldmann, who traveled to Germany in June of 1949 to assess German public health organizations, including health insurance structures, and recommend improvements.

The Berlin Blockade and Health

As Norman M. Naimark argues, 1948 may not have been the turning point toward complete Sovietization of the eastern zone, but it was a year of significant change in the international and German healthcare systems, as well as for the status of scientific research in the western zones of Germany.³¹⁶ On 3 April 1948, United States President Harry S. Truman signed the European Recovery Plan (ERP) into law. The ERP allocated \$12 billion USD for the economic reconstruction of Europe. As OMGUS Colonel Rapalski noted, “The United States is playing the role of a doctor administering an economically sick Europe. The latest treatment prescribed by the doctor is known as the ‘Marshall Plan.’”³¹⁷ Vannevar Bush, Chair of the Research and Development Board overseeing military-sponsored research, pushed for “the rehabilitation of European

³¹⁴ Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe*, 54–55; Weindling, “‘Out of the Ghetto’: The Rockefeller Foundation and German Medicine after the Second World War,” 215.

³¹⁵ Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe*, 55.

³¹⁶ Norman M. Naimark, *Stalin and the Fate of Europe: The Postwar Struggle for Sovereignty* (Cambridge: Harvard University Press, 2019).

³¹⁷ UWDC-GURC. Rapalski, Adam J. “Fighting Poliomyelitis in Berlin.” *OMGUS Monthly Information Bulletin* 129 (February 1948): 6-8, 18-26.

Science” to be among the Marshall Plan’s priorities, which, according to John Krige, made science a “component of foreign policy” in the State Department’s worldview.³¹⁸ In fact, science had already been a foreign policy concern, as had been apparent in the postwar Operation Paperclip, which brought approximately 1600 German scientists with strategic importance to the US. Bush merely highlighted an opportunity to use ERP funding to further existing State Department diplomacy.

The Soviet response to the announcement of the ERP, following the creation of Bizonia on 1 January 1947, led to the final Allied Control Council meeting on 20 March 1948. Five days later, head of the Soviet Military Administration in Germany Marshal Vasily Sokolovsky issued orders restricting transport of cargo and later passengers out of Berlin by train. The United States responded by delivering supplies via airplane, what historians have called the “little lift.”³¹⁹ By 10 April, the Soviets had again eased travel restrictions. The day after the western allies announced their plan to introduce the Deutsche Mark on 18 June 1948, Soviet soldiers stopped passenger trains, detained freight shipments, and tightened restrictions on water transit. On 22 June, a last-ditch effort to bring together economic experts from the four zones failed to negotiate a currency agreement. As a result, on 24 June, SMAD completely cut off the western Allies’ access to Berlin via land and water.³²⁰ The blockade, which began on 24 June 1948, lasted until 12 May 1949, ending official cooperation between the eastern zone and the three western zones on medical matters.

³¹⁸ Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe*, 35.

³¹⁹ Roger G. Miller, *To Save a City: The Berlin Airlift, 1948-1949* (Texas: Texas A&M University Press, 2000), 11.

³²⁰ Miller, *To Save a City*, 19.

For victims of the 1947 Berlin polio epidemic and their caretakers, electricity was a major concern during the blockade. While many in the western zones of Berlin were without power in the early stages of the blockade, the Auguste Viktoria Hospital in Schöneberg and the Westend Hospital in Charlottenburg-Wilmersdorf received constant power to support the iron lungs keeping paralytic polio cases breathing.³²¹ In a meeting on 25 June 1948, Chief of the Public Health Branch of OMGUS Richmond S. Paine estimated that the UK and US could continue supplying western Berlin with medical supplies for up to six weeks before resources became scarce. More importantly, he pointed out the need to restore power, since electricity was needed to maintain water pressure and sewage systems – key infrastructure in the fight against epidemics that thrived in poor hygienic conditions. The purpose of American actions was to demonstrate to Germans in western Berlin that they had not been abandoned by the west. After transporting doctors from the US into western Berlin in September 1948, for example, an article in the *Journal of the American Medical Association* claimed: “The mission not only has benefited German medical science but has also contributed to the lifting of the morale of the German medical profession by demonstrating that the United States is eager to resume normal professional and cultural relations with Germany.”³²²

Parts for the respirators were airlifted along with food and medical supplies. Paine noted that “this sort of gesture from the United States makes the best possible impression

³²¹ Andreas Dinter, *Seuchenalarm in Berlin: seuchengeschehen und seuchenbekämpfung in Berlin nach dem II. Weltkrieg* (Berlin: Wünsche, 1999), 140.

³²² “Medical Mission to Germany,” *JAMA* 138 No. 4 (25 September 1948): 309.

on the population of this blockaded city, which is cut off from aid in so many ways.”³²³

Though the incidence of poliomyelitis was much lower in 1948, at 15.8 individuals per 10,000 afflicted compared to 76 in 1947, the 1948 rate was still higher than in 1945 or 1946. Parents looked for ways to protect their children and the main hope was convalescent serum. In the western zones, one pharmaceutical company, Behringwerke in Marburg, produced the bulk of medical supplies. A shipment of 8.5 tons from the Behringwerke, including polio serums and tuberculosis vaccines, valued at 150,000 RM, was stopped at the Soviet border at Helmstedt and returned to the pharmaceutical manufacturer in Hesse.³²⁴ Instead, it was airlifted to the western zones. The epidemic season in Berlin was milder than in the rest of western Germany due to immunity established from the previous year’s epidemic, and so iron lungs were flown from west Berlin to Straubing and Nuremberg.³²⁵

Despite the efforts of the Berlin Airlift and OMGUS claims that the Germans in western Berlin received more medical supplies during the blockade than before the blockade, the West Berlin health administration reported increased rates of tuberculosis and diseases related to poor hygiene and malnutrition including lethargy and scurvy during the airlift.³²⁶ In the face of panicked German civilians, OMGUS debated stationing extra police at the US Civilian Medical Depot. Commandant of the American Sector of

³²³ NARA RG 260/167 Folder: Poliomyelitis, 1949. Letter, Richmond S. Paine, Chief, Public Health Branch to Mr. Lee Schmid, Director of Technical Equipment for the NFIP, 2 March 1949.

³²⁴ NARA RG 260/514 Folder: AG 721.6 Health Reports OMGUS 1948. “Medical Situation in Berlin as Effected by Recent Soviet Action on Shutting-Off Incoming Medical Supplies and Electric Current Interruption,” 25 June 1948.

³²⁵ NARA RG 260/1324 Folder: 720 Health and Prevention of Disease. Memo, “Report on “cases of poliomyelitis” at Hof.” Robert T. Gallagher, I/Lt MC Chief of Surgical Service, 21 July 1948.

³²⁶ Arndt, *Gesundheitspolitik im geteilten Berlin 1948 Bis 1961*, 71.

Berlin Colonel Frank L. Howley decreed that no critical medical supplies be sent to the eastern sector as a “conservation measure”. American occupiers worried that the most critical item would be ether for anesthesia in major surgeries, as the only manufacturer was Schering in the district of Mitte, in the Soviet sector. The State Health Office (*Landesgesundheitsamt*, LGA) was in the eastern zone, and initially during the blockade, the Soviets had decreed that only eastern zone hospitals would be allowed to request medications from public health stocks, with written permission from Soviet officials. On 24 June, they stationed armed guards at the Schering factory.³²⁷

Demonstrating the rapidly changing context on the ground, the following day, the Soviets had withdrawn their guards from the factory and reconsidered the decision not to share pharmaceuticals with the western zone hospitals. OMGUS officials noted that this was probably an attempt to maintain relations with the Americans to ensure supplies of medical preparations that were unavailable in the east, specifically insulin, liver extract, and penicillin.³²⁸ Despite Commandant Howley’s orders, penicillin and insulin continued to be supplied to the Soviet sector. Rather than a step toward reconciliation, the decision was justified as a necessity to avoid an outbreak of venereal diseases. While the Behringwerke shipment was turned away, medicine remained an area where cooperation between east and west continued.

³²⁷ NARA RG 260/514 Folder: AG 721.6 Health Reports OMGUS 1948. “Medical Situation in Berlin as Effected by Recent Soviet Action on Shutting-Off Incoming Medical Supplies and Electric Current Interruption,” 25 June 1948.

³²⁸ NARA RG 260/514 Folder: AG 721.6 Health Reports OMGUS 1948. “Medical Situation in Berlin as Effected by Recent Soviet Action on Shutting-Off Incoming Medical Supplies and Electric Current Interruption,” 25 June 1948.

Though Germans in the western zones and the occupying forces fretted about the damaging effect of the blockade on zonal health, Germans in the Soviet zone had a much more difficult time after the formal division of Germany. All medical files were located on Invalidenstrasse, which was in the British sector.³²⁹ Without the medical records of patients and hospitals, or information about physicians' accreditation, East Germany's capital was forced to start from scratch in its medical recordkeeping. The zone contained only 45 hospitals compared to the west's 129 and faced a chronic shortage of beds.³³⁰ In 1948, West Berlin had 3201 physicians, or 15.4 per 10,000 inhabitants. East Berlin had 1308 physicians or 10.2 per 10,000 inhabitants.³³¹ The east also experienced shortages of key drugs, despite the continued assistance of the western zones, but these were mainly caused by logistical issues and were often the fault of the Soviet occupiers' inconsistent enforcement of border policing.³³²

The blockade also had a negative effect on the staffing of the OMGUS Berlin Public Health and Public Welfare branches. On 13 May 1949, Dr. Eugene E. Schwarz informed Dr. Albert B. Sabin that he had resigned from his position as chief of the Public Health Branch and was returning to the US. Schwarz said "I still am and will always be a physician first, and I don't want to become involved in the political currencies and controversies of this city." He continued to say that he had "always been a severe critic of [American] occupation policies" and would have preferred policies more focused on

³²⁹ Andreas Dinter, *Berlin in trümmern: ernährungslage und medizinische versorgung der Bevölkerung berlins nach dem II. Weltkrieg* (Berlin: Wünsche, 1999), 140.

³³⁰ Arndt, *Gesundheitspolitik im geteilten Berlin 1948 bis 1961*, 130-131.

³³¹ Arndt, *Gesundheitspolitik im geteilten Berlin 1948 Bis 1961*, 102-3.

³³² Arndt, 102-3.

ensuring health and less on ideological goals.³³³ Schwarz's exit was preceded by the departure of Dr. Rapalski. A quarterly report on public health for the period from 1 October to 31 December reported "Effect of reduction of the staff... which occurred during the second quarter, has become more fully manifest in decreased liaison with the German health authorities and in the greatly reduced flow of information from those sources."³³⁴ These reductions in staff led to more limited communication between Germans and Americans.

Toward the end of the blockade doctors themselves attempted to re-open the channels of communication. In late September 1949, Kurt Winter, now Vice President of the (East) German Central Administration for Healthcare (*Deutschen Zentralverwaltung für Gesundheitswesen*, DZVG), contacted the West Berlin Health Administration to arrange a meeting between representatives of the health authorities in the western zone and the East Berlin Health Administration to discuss the ongoing fight against polio.³³⁵ West Germany was initially open to these conversations, with the condition that the meeting should occur in West Berlin. In addition, all three institutions had to be "completely unanimous" about any actionable items discussed, and exchanges of information should be "purely factual medical information." Western LGA officials were critical of East German press reports which they claimed were "unobjective" and used

³³³ NARA RG 260/546 Folder: Poliomyelitis. Letter, Dr. Eugene E. Schwarz to Dr. Albert B. Sabin. 13 May 1948.

³³⁴ NARA RG 260/236 Folder: Communicable Diseases 1948-1949. Public Health Adviser, Office of Military Government for Württemberg-Baden, "Quarterly History Report (III Quarter 1948: 1 July – 30 September)."

³³⁵ NARA RG 260/167 Folder: Poliomyelitis – 1949 (US Sector). Memo, D.G. Cheyne, Principal Health Officer, French Military Government. 26 September 1949.

East Berlin physicians' testimony as support.³³⁶ The LGA East was unwilling to acknowledge any guilt in the matter and instead blamed such reporting on Soviet officials and sensationalist journalists.³³⁷ Though this meeting did not take place for undisclosed reasons, it is evidence of continued communications and the potential for collaboration between East and West Germans. The following year, 60 pediatricians from West Germany travelled to Leipzig for a two-day meeting in mid-April. Polio and the 1947 epidemic were popular subjects of discussion.³³⁸

The continued efforts of physicians to arrange meetings and exchanges of information are logical in the case of contagious disease. The poliovirus cannot be taught to respect boundaries, so policies on sanitation and quarantine relied on information about epidemics in bordering areas. In 1948, a newspaper in the eastern zone, *Thüringer Volk*, reported that the border between East and West Germany was filled with "various forms of pestilence from the west, such as polio."³³⁹ Although medical information permeated the Iron Curtain throughout the Cold War, between 1947 and 1952 political relations between East and West Germany deteriorated.

Medical Internationalism

³³⁶ NARA RG 260/167 Folder: Poliomyelitis, 1949. Letter from Richmond S. Paine to Adam J. Rapalski, 4 March 1949.

³³⁷ NARA RG 260/142 Folder: Poliomyelitis – 1949 (US Sector). Memo, D.G. Cheyne, Principal Health Officer, French Military Government, 26 September 1949.

³³⁸ BArch DQ 1/26426. Bericht über die Kinderärztsstatung in Leipzig vom 13. Bis 15. April 1950. Berlin, 8 Juni 1950.

³³⁹ Edith Sheffer, *Burned Bridge: How East and West Germans Made the Iron Curtain* (Oxford: Oxford University Press, 2011), 45.

Conversely, the international medical community sought to increase interconnectivity and medical internationalism – at least for politically desirable nations. On 7 April 1948, the World Health Organization was founded. American physician Dr. Charles R. Drew stated: “The accidental boundaries of race, religion, nationality, or language do not limit the spread of disease. No such boundaries must hinder the work of the men and women anywhere in the world who would fight this worldwide enemy, disease.”³⁴⁰ Drew’s statement was mirrored in much of the American and Western European coverage of the WHO’s founding. Although historians have described the WHO as an “internationalist” and “intergovernmental” organization, matching the prevailing mindset of the 1940s and 1950s, more recently scholars have pointed out those excluded from the organization.³⁴¹ Once the division of Germany became official in 1949, both new states remained outcasts in the international medical community. On 15 September 1950, the Chambers of Physicians submitted a recommendation to the federal government after the 53rd Congress of German Physicians in Bad Neuheim, that “amends be made for the wrong inflicted upon Jewish physicians during the Nazi era” by restoring to Jewish physicians “their old professional rights.”³⁴² The WHO, which had refused to admit Germany “until organized medicine in Germany condemned past criminal acts of

³⁴⁰ Charles Richard Drew, “World Health and the United Nations,” *The Journal of the National Medical Association* 40, no. 3 (May 1948): 100–101.

³⁴¹ Bashford, *Medicine at the Border: Disease, Globalization and Security, 1850 to the Present*, 81.; Theodore M. Brown, Marcos Cueto, and Elizabeth Fee, “The World Health Organization and the Transition from ‘International’ to ‘Global’ Public Health,” *American Journal of Public Health* 91, no. 1 (January 2006): 62–72.

³⁴² NARA RG 466/7Folder: Press Abstracts, Welfare Branch. “Congress of Physicians Intercedes in Favor of Jewish Colleagues,” 15 September 1950.

German physicians,” announced its acceptance of West Germany on 29 May 1951.³⁴³

This statement appeased the international medical committee but also excluded any acknowledgement of physicians’ participation in genocide and evaded the fact that many Jewish physicians had emigrated or died in concentration camps and could not return to these professional positions. The German Medical Association did not apologise for these atrocities until 2012.³⁴⁴

The USSR and several of its satellite states were admitted to the WHO at its creation. Some months later, on 21 February 1949, the Soviet Union, Byelorussia, and Ukraine all sent telegrams resigning from the organization.³⁴⁵ The identical telegrams cited high costs for member states and poor results for international health, as well as the organization’s failure to remain true to its inaugural mandate.³⁴⁶ The Soviet Union rejoined in 1955, citing a desire to participate in discussions about global health initiatives.³⁴⁷ Thus, for much of the period covered in this chapter, the Soviet Union and divided Germany did not participate in the WHO.

Information sharing and internationalism in polio research developed further in July 1948 with the NFIP’s decision to hold the First International Polio Conference in Rome. According to a report received by OMGUS, O’Connor told participants that the

³⁴³ “The World Medical Association – Meeting of the Council in Geneva,” *JAMA* 135.8 (25 October 1947): 516.; “West Germany Denounces the Actions of Nazi Doctors,” *JAMA* 146.7 (16 June 1951): 656.

³⁴⁴ “Doctors Apologise for Holocaust: The German Medical Association Has Issued an Unconditional Apology for the Role It Played during the Holocaust in the Mass Murder, Sterilization and Medical Experimentation Done on Jewish People and Others,” *The Lamp*, July 2012.

³⁴⁵ Javed Siddiqi, *World Health and World Politics: The World Health Organization and the UN System* (Chapel Hill: University of South Carolina Press, 1995), 113.

³⁴⁶ Telegram qtd. in Siddiqi, 105.

³⁴⁷ WHO EB 17/32. “Notification by the Union of Soviet Socialist Republics Concerning Participation in the World Health Organization,” 15 December 1955.

“Global Congress would serve as a clearing house in which knowledge concerning poliomyelitis would be pooled and then channelled to every country engaged in the task of freeing mankind from threat of this disaster.”³⁴⁸ Germans were not participants at the conference, though some German representatives attended as observers. While Ulrike Lindner has argued the decision to exclude Germans from the proceedings was a sign of the Americans’ lack of confidence in German science, OMGUS documents show that this was not a straightforward exclusion but a consequence of 1948 being a year of change-over from Army control to State Department control.³⁴⁹ Chief of the Public Health Section of OMGUS Lt. Col. Walter R. De Forest questioned whether a Military Government representative would even be able to go to the Congress. Nonetheless, he discussed using OMGUS democratization funds to send Germans to observe, as they had done for the Geneva Conference on venereal diseases earlier in 1948.³⁵⁰

In the end Germans did attend the conference, and a paper on the 1947 Berlin epidemic was delivered by Sabin. In his report, Sabin criticized the excessive publicity the 1947 Berlin epidemic received, criticized the poor response of American military hospitals, and lambasted Americans for overly harsh control measures including quarantines.³⁵¹ The series of international polio conferences held between 1948 and 1965

³⁴⁸ NARA RG 260/546 Folder: Poliomyelitis. Memo from Dept. of the Army from CSCAD to OMGUS for ODIC for Lewis Boerner, OMG Berlin Sector for Radio and Press Control. “Newsfile material: Poliomyelitis New York,” 19 July 1948.

³⁴⁹ Ulrike Lindner, “Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany,” in *Evaluating and Standardizing Therapeutic Agents, 1890-1950*, ed. C. Gradmann and J. Simon (London: Palgrave Macmillan, 2010), 237.

³⁵⁰ NARA RG 260/167 Folder: Poliomyelitis, 1949. Letter from W.R. De Forest to Brigadier W. Strelley Martin, 15 May 1949.

³⁵¹ Albert B. Sabin, “Epidemiological Patterns of Poliomyelitis in Different Parts of the World,” in *Poliomyelitis: Papers and Discussions Presented at the First International Poliomyelitis Conference* (Philadelphia: J.B. Lippincott Company, 1949), 16.

showed that the NFIP was not just a national organization but rather an internationalist organization, where “the word *International* was a coded Cold War term, indicating American allegiances with other “free” nations.”³⁵² This codified language underlay American motivation to include western Germans in the polio conference.

On 23 May 1949, the three western zones approved the Basic Law to create the Federal Republic of Germany (FRG) and on 7 October 1949, the eastern zone became the German Democratic Republic (GDR). In the FRG, the Military Governor was replaced by the first American High Commissioner of Germany (HICOG), John J. McCloy, who prioritized reducing the number of American occupational personnel in West Germany and increasing contact between German professionals and “democratic” professionals in other nations.³⁵³ This impulse was part of the broader Cultural Exchange Program during the Cold War, which Nye discusses as a form of soft power.³⁵⁴ American officials in the Federal Republic remained concerned that local physicians were particularly afflicted with “undemocratic” ideologies and prone to ideological extremism.³⁵⁵ McCloy’s solution was to “educate” doctors through more exchanges and more exposure to elements of American medical culture, including charity.

The OMGUS exchange program discussed in Chapter 1 continued under HICOG, and in 1950 it was expanded to promote broader “cultural exchange” and “to teach

³⁵² Rogers, *Polio Wars: Sister Kenny and the Golden Age of American Medicine*, 316.

³⁵³ UWDC-GURC. Office of Military Government. Civil Administration Division, *The Governmental Affairs Cultural Exchange Program*. (Frankfurt: Institute of Public Affairs, 1949), 2-3.

³⁵⁴ Nye, *Soft Power*, 45.

³⁵⁵ Weindling, ““Out of the Ghetto”: The Rockefeller Foundation and German Medicine after the Second World War,” 217.

democracy by example.”³⁵⁶ One physician who visited West Germany recalled that he was “there to encourage them to come to higher levels and to bring medicine above the political structure.”³⁵⁷ HICOG sent Americans with German backgrounds whenever possible, such as German-American physician Dr. Otto Kraymer who was selected to chair a medical mission to Germany because “he has the German point of view and tradition, and also has the American viewpoint.”³⁵⁸ Kraymer had received his medical degree from the University of Freiburg, and was appointed as professor of pharmacology at the Düsseldorf Medical Academy after a Jewish doctor was removed during the National Socialist *Gleichschaltung*.³⁵⁹ Kraymer refused the appointment on the grounds that “the removal of Jewish scientists was an injustice... based on reasons outside of the sphere of science.”³⁶⁰ With this background, Kraymer became the natural choice to head the mission.

The American visitors to Germany were labelled “experts” by American media and OMGUS and gave lectures or demonstrated new techniques. Conversely, German visitors to the US were to receive “training” under American tutelage. HICOG selected medical students from West Germany to study abroad based on their status during the Third Reich. One student, Benigna Goerdeler, was the daughter of former mayor of Leipzig Carl Goerdeler, who had been executed by the Nazis in 1944 for his involvement

³⁵⁶ NARA RG 466/7 Folder: Press Abstracts, Welfare Branch. “HICOG Exchange Program for Physicians to Be Intensified,” 22 December 1950.

³⁵⁷ “Observations of Medical Conditions in Europe,” *JAMA* 140 No. 3 (21 May 1949): 351-352.

³⁵⁸ UWDC-GURC. Matteo, Henry S. “Medical Mission in Germany,” *OMGUS Monthly Information Bulletin* 141 (August 1948): 12-16.

³⁵⁹ The *Gleichschaltung*, or “coming into line” is a term used to describe a wave of National Socialist policies targeting individuals Nazis deemed “undesirables” and removing them from positions of power or authority.

³⁶⁰ Letter, Kraymer, Otto to Ministerialrat Dr. Achelie, Preussischen Ministerium für Wissenschaft, Kunst und Volksbildung. 15 June 1933. Qtd. in Klaus Starke, *Die Geschichte des Pharmakologischen Instituts der Universität Freiburg* (Berlin: Springer, 2007), 86.

in the July 20 plot to assassinate Adolf Hitler.³⁶¹ Sending politically desirable physicians to America supported denazification efforts and avoided potential backlash from American-German physicians. For instance, in 1951, Sabin received a letter from Dr. Ernst Müller, protesting Sabin's decision to support Dr. Heinrich Pette's application for a Rockefeller scholarship to visit Sabin's laboratory in Cincinnati. Müller, who had studied for a year at the University of Chicago in the Weimar era and moved to the US permanently after the NSDAP came to power in 1933, accused Pette of becoming "the most ardent Nazi in 1933" and falsifying his denazification questionnaire in 1945.³⁶² Upon investigation, the Chief of the Public Safety Branch in the British occupation zone, Theo E. Hall, wrote that Pette had falsified his questionnaire by neglecting to include membership in the National Socialist Teachers' Association, but that since he had included membership in the Nazi Party and several other party organizations, the omitted membership was unlikely to affect his legal denazification status.³⁶³ Pette was able to complete his visit to Sabin's lab despite his former Nazi associations.

East Germans did not have access to a similar medical exchange program with the USSR. Soviet physicians were more likely to travel to the US on exchange than to the GDR, and these exchanges placed Soviets in the role of "learner" and Americans in the role of "experts" similar to American-German exchanges.³⁶⁴ Medical journals also continued to circulate across the Iron Curtain. In August 1948, the *Journal of the*

³⁶¹ UWDC-GURC. "German Girl Wins Scholarship." *OMGUS Monthly Information Bulletin* 114 (October 1947): 10.

³⁶² HCASA General Files Box 1 File 11. Letter, Dr. Peyton Rous to Dr. Albert Sabin, 16 August 1951.

³⁶³ HCASA General Files Box 1 File 6. Letter, Theo E. Hall to Albert B. Sabin, 7 May 1948.

³⁶⁴ "Visiting Scientist Returns to Moscow," *JAMA* 133.9 (1 March 1947): 638.

American Medical Association published an article claiming that Soviet refusal to accept western medical journals was “another attempt to keep Russian physicians in ignorance of the achievements of a decadent bourgeoisie.”³⁶⁵ Nonetheless, an American visiting physician, Dr. Jacob A. Brody, who was sponsored by the American Armed Forces Epidemiological Boards to work with Soviet virologists Dr. Chumakov and Dr. Voroshilova at their Poliomyelitis Institute in Moscow, reported in 1962 that the library at the Moscow institute was well stocked with American medical journals, including *JAMA*, *Virology*, and *Science*.³⁶⁶

As relations between east and west deteriorated, the international medical community gained more confidence in West German doctors. In 1951, the same year West Germany was accepted into the WHO, *JAMA* began to summarize and republish articles from German medical journals.³⁶⁷ The first German-origin article on polio was published in October 1951 and summarized the events of the 1947 epidemic in Hamburg.³⁶⁸ The summaries were complimentary – the journal would not have taken the time to translate and summarize the articles if they were not quality scholarship. Garfield G. Duncan, consultant in medicine to the Surgeon General of the United States Army,

³⁶⁵ “Russians Refuse Foreign Medical Journals.” *JAMA* 137.15 (7 August 1948): 1331.

³⁶⁶ HCASA Correspondence – Individual Box 3 Folder 14: Brody, Jacob, 1962-1966. “Report No. 1 – Moscow, USSR,” 4 January 1962, 4-5.

³⁶⁷ “Rural Epidemic of Poliomyelitis,” *JAMA* 152.12 (18 July 1953): 1177. Originally published as A. Klaila, “Course of and Observations in Rural Epidemic of Poliomyelitis,” *Archiv für Hygiene und Bakteriologie* 137.1 (1953): 43.; “1952 Epidemic of Poliomyelitis in Essen,” *JAMA* 153.11 (14 November 1953): 1058-1059. Originally published as O. Hartmann, “Experiences of Practical Importance in 1952 Epidemic of Poliomyelitis in Essen,” *Deutsche Medizinische Wochenschrift* 78 (3 July 1953): 962.

³⁶⁸ “Epidemic of Poliomyelitis,” *JAMA* 147.8 (20 October 1951): 788. *JAMA* lists the original publication as: R.C. Behrend and K. Hansen, “Clinical Epidemiological Studies on 1947 Epidemic of Poliomyelitis in Hamburg: Significance of Predispositional and Exogenic Factors for the Clinical Course,” *Deutsche Zeitschrift für Nervenheilkunde* 165.6 (1951): 596.

remarked in 1952 on the speedy recovery of German medical research, citing the West Germans' ability to manufacture their own penicillin.³⁶⁹ The WHO's announcement influenced the AMA, and OMGUS, which began to give more credit to West German research, at least when it did not directly contradict their own knowledge. Despite this increased respect, West Germans chafed against the continued presence of OMGUS in Germany. By 1950, 36 percent of West Germans felt that the Office of Military Government, United States (OMGUS) was trying to "keep West Germans in a dependent state."³⁷⁰

Charity and the American Zone

In 1949, polio struck Berlin again. The Americans and their German counterparts did not identify the epicenter of the epidemic, even shying away from terming the outbreak an "epidemic," qualifying it as an "endemic outbreak".³⁷¹ East German media blamed the Britzer gravel pits, used as a garbage dump during the blockade, for the emergence of polio in Berlin's western district of Neukölln.³⁷² West Germans did not disagree that the garbage pile-up was unacceptable but insisted that they were not forsaking public health for politics.³⁷³ The American authorities, despite Sabin's recent critiques, responded by enforcing strict quarantines, closing public swimming pools and

³⁶⁹ Garfield G. Duncan, "Army Medicine in Europe," *JAMA* 150.2 (13 September 1952): 153.

³⁷⁰ Anna J. Merritt and Richard L. Merritt, "Report 103: 12 October 1951," in *Public Opinion in Occupied Germany: The OMGUS Surveys, 1945-1949* (Urbana: University of Illinois Press, 1970), 128..

³⁷¹ NARA RG 260/167 Folder: Poliomyelitis – 1949 (US Sector). Memo, James J. Gibson, Jr. to Brig. D.G. Chayne, "Preventive Measures being Taken in the Bezirk Neukoelln," 2 September 1949.

³⁷² NARA RG 260/167. Memo, Gibson to Chayne.

³⁷³ Dinter, *Seuchenalarm in Berlin: seuchengeschehen und seuchenbekämpfung in Berlin nach dem II. Weltkrieg*, 214.

schools, prohibiting bathing in open water, and even evacuating an undisclosed number of German and American children alike from Neukölln other parts of the Western Zone.³⁷⁴

In addition to practical quarantine and control measures, the American High Commission in Germany sought to encourage what they viewed as a particularly American form of charity in the western zones of Germany. This “American” style of charity was secular, apolitical, and democratic – all citizens were encouraged to contribute regardless of means. Thus, in the minds of the occupiers, it differed from church or political party charities already present in Germany. In the US, the fight against polio was tied very closely to the NFIP, whose major fundraiser was the March of Dimes. As historian Aaron E. Klein argued in 1972, “Giving money to conquer polio was the thing to do; it was part of the mother-and-the-flag national mystique, and not to give was considered somewhat ‘unpatriotic.’”³⁷⁵ The attempt to bring this style of fundraising to Germany began in the late 1940s with the American Women’s Club of Berlin, organized by the wife of American military governor Lucius D. Clay.³⁷⁶ In 1947, the women used Armed Forces radio networks to broadcast a call for charitable donations from American families stationed in Berlin. As well, they organized fundraising events including horse shows and concerts with Germans acting in benefit performances of plays such as “Hansel and Gretel.” Throughout the 1940s and 1950s, American troops continued to provide charitable donations to the Germans. In 1955, for example, the Pfennig Parade

³⁷⁴ NARA RG 260/167. Memo, Gibson to Chayne.

³⁷⁵ Aaron E. Klein, *Trial by Fury: The Polio Vaccine Controversy* (New York: Scribner, 1972), 45.

³⁷⁶ Bessie Hackett, “Mrs. Clay Tells of Aid for German Children.” *The Washington Post, Times Herald*, October 12, 1947, S2.

benefitted from a contest between an engineer company and an anti-aircraft battalion, in which the engineers paid \$419 USD for the Armed Forces Network to play “Shake, Rattle and Roll” but the anti-aircraft battalion paid \$500 USD to stop the song from airing.³⁷⁷ Such anecdotes were publicized by the Allied High Commission and American newspapers to show American support for Germans, and also the power of charity.

OMGUS also encouraged regular German citizens to get involved in the fight against polio through fundraising initiatives. During the 1947-1948 epidemic, O’Connor contacted Clay to discuss the American approach to funding polio aid and research: The March of Dimes.³⁷⁸ Clay was enticed by the idea, and in 1950 the American occupying forces dropped two million flyers advertising what became known as the Pfennig Parade to West Germans as a method for them to contribute to the fight against polio.³⁷⁹ The event began in Munich in 1950, where participants raised DM 55 000, and was soon copied in Wiesbaden, Nuremberg, and elsewhere in the American occupation zone.³⁸⁰

OMGUS perspectives on German society were often ill-informed. United States actors believed their form of charity was novel to Germany due to its focus on helping all

³⁷⁷ “Musical Discord Aids Polio Fund,” *The Hartford Courant*, 11 February 1955, 30.

³⁷⁸ The March of Dimes began as a charitable fundraiser for poliomyelitis. Its origins and history have been examined in-depth by a plethora of historians. See Richard Carter, *Breakthrough: The Saga of Jonas Salk* (New York: Trident Press, 1966); Charlotte DeCroes Jacobs, *Jonas Salk: A Life* (Oxford: Oxford University Press, 2015); Jeffrey Kluger, *Splendid Solution: Jonas Salk and the Conquest of Polio* (New York: G.P. Putnam’s Sons, 2004); John R. Paul, *A History of Poliomyelitis* (New Haven: Yale University Press, 1971); Bernard Seytre, *The Death of a Disease: A History of the Eradication of Poliomyelitis*, trans. Mary Shaffer (New Brunswick: Rutgers University Press, 2004); Jane S. Smith, *Patenting the Sun: Polio and the Salk Vaccine* (New York: W. Morrow, 1990).; “Musical Discord,” 6.

³⁷⁹ UWDC-GURC. “The Pfennig Parade,” *OMGUS Weekly Information Bulletin* (June 1950): 26.

³⁸⁰ Lindner erroneously states that the event did not begin until 1952. Lindner, “Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany,” 240.; UWDC-GURC. “Anti-Polio Drive Spreads,” *OMGUS Weekly Information Bulletin* (August 1950): 18.; UWDC-GURC. “In and Around Germany,” *OMGUS Weekly Information Bulletin* (May 1952): 24.

elements of society without prejudice. Though this assertion does not hold up to historical scrutiny, the number of OMGUS sources discussing German “selfishness” in contrast to American generosity demonstrates that this belief was pervasive.³⁸¹ The recent actions of many German charities, including the German Red Cross, in supporting the Third Reich either explicitly or implicitly, left a poor impression on American observers. While this impression may not have been historically accurate, it nonetheless shaped Americans’ understandings of German inclinations toward charity. The NFIP’s model of non-governmental fundraising to support healthcare and related research stood in direct contrast to the USSR and Germany’s previous system, in which the government funded the research labs of researchers such as Robert Koch and Paul Ehrlich.³⁸²

The US military government and later the West German government paid specific attention to mobilizing youth clubs in Germany to join the Pfennig Parade. Efforts to indoctrinate German youth had been a hallmark of the Nazi regime, but the tactic was adopted by both the US and the USSR in the post-war period to strengthen their respective ideologies in Germany.³⁸³ As Thomas A. Schwartz has argued, OMGUS and

³⁸¹ UWDC-GURC. Hall, Robert C. “The Army’s Role in GYA.” OMGUS Monthly Information Bulletin 117 (November 1947): 2-5. OMGUS Information Bulletins, Germany Under Reconstruction Collection, University of Wisconsin Digital Collections.; UWDC-GURC. Paine, Richmond S. “Berlin Medical Academy.” OMGUS Monthly Information Bulletin 149 (November 1948): 23-24. OMGUS Information Bulletins, Germany Under Reconstruction Collection, University of Wisconsin Digital Collections.; UWDC-GURC. “Health and Welfare.” OMGUS Monthly Information Bulletin (January 1950): 38-39, 73. OMGUS Information Bulletins, Germany Under Reconstruction Collection, University of Wisconsin Digital Collections.; UWDC-GURC. “Berlin Women’s Club.” OMGUS Monthly Information Bulletin (April 1950): 39-40. OMGUS Information Bulletins, Germany Under Reconstruction Collection, University of Wisconsin Digital Collections.

³⁸² Oshinsky, *Polio*, 12-13.

³⁸³ Karl-Heinz Füssl, *Die umerziehung Der Deutschen: Jugend und Schule unter den Siegermächten des zweiten Weltkriegs, 1945-1955* (Paderborn: Ferdinand Schöningh, 1994)..

later HICOG, believed that “more than any other group... the West German youth remains sunk in political apathy, and the West seemed to be falling behind the East in reaching this group.”³⁸⁴ In this aspect, the parade differed from its American counterpart, where housewives were the focus of NFIP propaganda.³⁸⁵ Targeting the youth was celebrated as a successful strategy by OMGUS personnel. An unnamed bulletin writer noted that by 1948 the West German youth seemed to take “a special responsibility for solving the problem” of polio in West Germany.³⁸⁶ For the Americans, the involvement of West German youth served the dual purposes of sharing the costs of combatting polio and giving young people a chance to become active participants in the democratic society they would one day inherit.

Encouraging youth participation in charitable fundraising for polio victims was part of the larger goal to re-educate Germans and encourage qualities that OMGUS associated with democracy. An article from November 1947 written by Robert C. Hall and published in the *OMGUS Weekly Information Bulletin* summarized the re-education of German youth as “attempting to develop a community consciousness which says, “I, too, am responsible for my neighbor’s child,” not “Let my neighbor and his child look after themselves.”³⁸⁷ These qualities, according to American occupiers, formed the solution to “the Nazi idea of stamping out the sick and weak for the benefit of the

³⁸⁴ Thomas Schwartz, “Reeducation and Democracy: The Policies of the United States High Commission in Germany,” in *America and the Shaping of German Society, 1945-1955*, ed. Ermath Michael (Oxford: Berg, 1993), 42.

³⁸⁵ Oshinsky, *Polio: An American Story*, 86–89.

³⁸⁶ UWDC-GURC. The Office of the Military Government, Education and Cultural Relations Division, “Berlin” in *German Youth Between Yesterday and Tomorrow* (1 April 1948), 26.

³⁸⁷ UWDC-GURC. Robert C. Hall, “The Army’s Role in GYA,” *Weekly Information Bulletin* 117 (November 1947): 2-5.

strong.”³⁸⁸ Hall urged OMGUS to turn away from wooing children with gifts and instead focusing on encouraging participation in democratic endeavours which would build community. He even highlighted the recent example of youth clubs in Bremen, which donated the proceeds from a talent show to Berlin in aid of polio victims.

The Pfennig Parade did not have the lasting influence of the NFIP and March of Dimes in the US, where it became a cultural phenomenon which transcended polio research and remains influential decades later. The Pfennig Parade remained restricted to the American zone of occupation, and it did not provide the astronomical sums to researchers that the NFIP did. By 1954, another organization, the *Deutsche Vereinigung zur Bekämpfung der Kinderlähmung* (DVKB) emerged to oversee the battle against polio, and West Germans lost interest in the Pfennig Parade.³⁸⁹ The West German state funded the DVKB and the organization did not fundraise – it was designed to facilitate easier participation in international polio conferences for West German scientists.³⁹⁰ West German corporations made donations to the aftercare of polio victims, which also alleviated the need for community fundraising.³⁹¹

³⁸⁸ Hall, “The Army’s Role in GYA,” 5.

³⁸⁹ Hall, “The Army’s Role in GYA,” 5.

³⁹⁰ Hall, “The Army’s Role in GYA,” 5.; Ulrike Lindner, *Gesundheitspolitik in Der Nachkriegszeit: Großbritannien Und Die Bundesrepublik Deutschland Im Vergleich* (München: R. Oldenbourg Verlag, 2004), 239.

³⁹¹ Horst Schlesiger, “Spende der Firma Troullier für den an Kinderlähmung erkrankten Herbert Werk,” Photograph (2 January 1951). *Bildarchiv Schlesinger*, Stadtarchive Karlsruhe. URL: http://www.stadtarchiv-karlsruhe.findbuch.net/php/main.php?ar_id=3747&be_kurz=382F4241205363686C65736967657220313934392D31393532#382F4241205363686C65736967657220313934392D31393532, Accessed 13 June 2016.; Horst Schlesiger, “Spendenaktion der “Badischen Neuesten Nachrichten” zur Hilfe an Kinderlähmung erkrankten junge Menschen,” Photograph (29 November 1952). *Bildarchiv Schlesinger*, Stadtarchive Karlsruhe. URL: http://www.stadtarchiv-karlsruhe.findbuch.net/php/main.php?ar_id=3747&be_kurz=382F4241205363686C65736967657220313934392D31393532#382F4241205363686C65736967657220313934392D31393532, Accessed 13 June 2016.;

On 15 May 1950, the *Stiftung zur Erforschung und Heilung der spinalen Kinderlähmung* opened in West Germany – it was a non-governmental organization to aid polio victims. Countess Eleonore Matuschka-Greifflenclau acted as president of the organization, in recognition of her early involvement in the Pfennig Parade and her financial contributions.³⁹² The foundation operated out of her property, Schloss Vollrads on the Rhine, famous for its vineyard. The organization dedicated a third of its 1950 operating budget, 170 000 DM, to the establishment of a research institute in Hamburg, run by Dr. Pette and requested a further 230 000 DM from the US occupiers. The organization also planned to spend 170 000 DM each on sanatoria and care for individual cases of polio.

This preparation was timely, as 1952 was the most severe epidemic year across Europe, including in Germany.³⁹³ That year, 19.6 per 100 000 citizens became ill with polio. In 1947, the figure was 11.7.³⁹⁴ The World Health Organization reported that West Germany was one of the most severely afflicted countries, along with Canada, Denmark, and the US. The WHO source, published on 11 June 1952, very early in the epidemic

Horst Schlesiger, "Nikolausbescherung für an Kinderlähmung erkrankte Kinder des "Wernerheims Wildbad" durch die Flußpionierkompanie 736 der Bundeswehr." Photograph (19 December 1960). *Bildarchiv Schlesiger*, Stadtarchiv Karlsruhe. URL: http://www.stadtarchiv-karlsruhe.findbuch.net/php/main.php?ar_id=3747&be_kurz=382F4241205363686C6573696765722031393630#382F4241205363686C6573696765722031393630, Accessed 13 June 2016.

³⁹² UWDC-GURC. "Anti-Polio Drive Spreads." *OMGUS Monthly Information Bulletin* (August 1950): 18.

³⁹³ John B. West, "The Physiological Challenges of the 1952 Copenhagen Poliomyelitis Epidemic and a Renaissance in Clinical Respiratory Physiology," *Journal of Applied Physiology* 99.2 (August 2005): 424-432.

³⁹⁴ These statistics are for the full year, which dilutes the number as most cases occur in four months, from roughly June to September. BArchK 128/3427. "Die Kinderlähmungsepidemie 1952 im Bundesgebiet," 19 Mai 1953.

season, reported 9,517 cases, with 4,419 cases in North Rhine-Westphalia.³⁹⁵ While the East German press organ AND reported 3,000 cases in North Rhine-Westphalia in mid-August, American newspapers reported 2,000 to 2,300 cases between 13 August and 21 August.³⁹⁶ Throughout this epidemic, both sides of Germany continued to implement the same forms of prevention and treatment as they had done in 1952.

The 1952 Epidemic in West Germany

In September 1951, the West German government declared East Germany was suffering from a polio outbreak and therefore refused travel passes for soccer players in Neustadt to travel to Sonneberg in East Germany for a planned soccer game. September was late for a new polio outbreak and even Mayor Weppler of Neustadt said the allegation was not “remotely believable” given that the nearest case of polio was 160 kilometers away.³⁹⁷ Statistics for West Germany show that reported polio cases in 1951 were the lowest they had been since 1946, and these case rates were the lowest they would be until the Sabin vaccine took effect in 1962. West German reticence to allow the game to proceed might stem from discomfort about their lack of control over the border. Using citizens’ fears of polio was a convenient way to ensure that ordinary Germans supported this decision. According to Edith Sheffer, the Soviets had organized a similar east-west soccer game between Neustadt and Sonneberg in 1949 “as a propagandistic

³⁹⁵ BArchK 128/3574. The World Health Organization, Press Release WHO/28, “World incidence of Poliomyelitis in 1952,” 11 June 1952, 1-4.

³⁹⁶ BArchB DQ 1/20794. Newspaper clipping, “3000 X Kinderlähmung,” *Neuen Zeit*, 14 August 1952.; “West Germany Lists 160 Polio Deaths,” *Reading Eagle*, 13 August 1952, 5.; “Polio Kills 140,” *Reading Eagle*, 21 August 1952, 21.

³⁹⁷ Weppler to District Government of Upper Franconia, qtd. in Sheffer, *Burned Bridge: How East and West Germans Made the Iron Curtain*, n. 146.

demonstration” just before elections in West Germany. Sonneberg, in East Germany, won 2-0, and the SED opened the border between the two cities for the day, resulting in thousands of East Germans travelling to the west. The West German officials were not consulted before this decision was made and found the security breach unsettling.

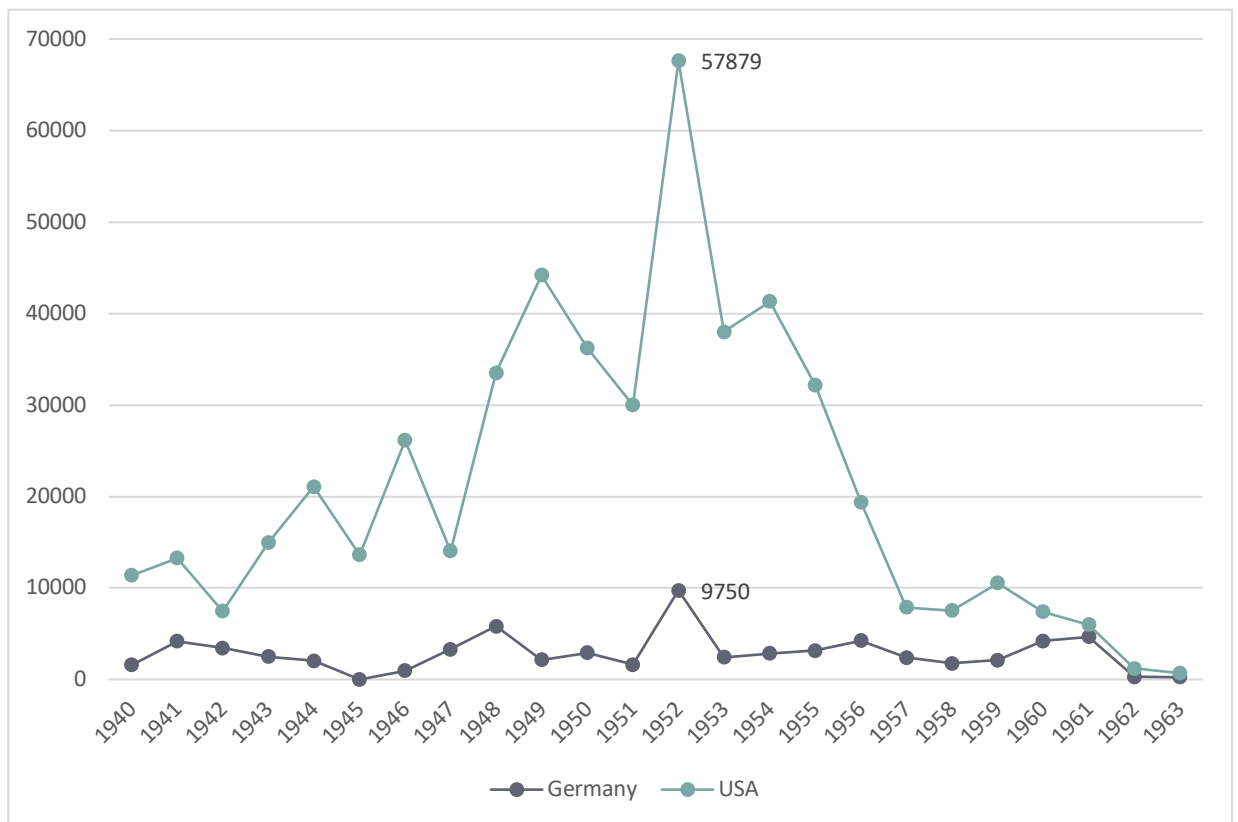


Figure 6: Reported Polio Cases in the US and Germany, 1940-1963.³⁹⁸

Although the 1952 epidemic was the largest in German history, it has not received much attention. Since historians have tended to focus on the immediate postwar outbreak in 1947 or the creation and implementation of vaccines after 1954, the 1952 epidemic has

³⁹⁸ German figures taken from Hans P. Pöhn and Gernot Rasch “Incidence Rates of Poliomyelitis in Germany” Robert Koch Institute, Berlin, National Reference Center for Poliomyelitis and Enteroviruses. URL: <http://www.post-polio.org/ir-ger.html>. American figures compiled from *Public Health Reports* 60 No. 1 to 79 No. 11(1945-1964).

been neglected. In divided Germany in 1952, 9750 cases of polio were reported, with 778 deaths, compared to 1603 cases and 185 deaths the previous year.³⁹⁹ Most of the cases occurred in West Germany, which the WHO listed alongside Canada, Denmark, and the United States as the worst-hit countries.⁴⁰⁰ The epidemic began in the city of Aachen in North Rhine-Westphalia, which bordered Belgium and the Netherlands. North Rhine-Westphalia accounted for 4,419 cases.⁴⁰¹ German public health officials followed a similar routine to the first postwar epidemic by seeking serum from recovered patients to give to newly afflicted patients. They also closed schools and public spaces and discouraged heavy exercise.⁴⁰²

The East German press organ, the General German News Service (*Allgemeiner Deutscher Nachrichtendienst*, ADN), reported in August that poliomyelitis was again out of control in West Germany. The onset of a true epidemic in West Germany was used as one rationale by the SED for Operation Vermin (*Aktion Ungeziefer*).⁴⁰³ In the spring of 1952, East Germany retaliated against West German “lies” and the rejection of the 1952 Stalin Note by closing its border with West Germany and expelling “unreliable” citizens

³⁹⁹ BArchK 128/3574. The World Health Organization, Press Release WHO/28, “World incidence of Poliomyelitis in 1952,” 11 June 1952, 1-4.

⁴⁰⁰ BArchK 128/3574. The World Health Organization, Press Release WHO/28, “World incidence of Poliomyelitis in 1952,” 11 June 1952, 2.

⁴⁰¹ BArchK 128/3574. The World Health Organization, Press Release WHO/28, “World incidence of Poliomyelitis in 1952,” 11 June 1952, 3.

⁴⁰² BArchK 128/3427. “Die Kinderlähmungsepidemie 1952 im Bundesgebiet,” 19 Mai 1953.

⁴⁰³ Operation Vermin was a Soviet and SED operation in which individuals who were not ideologically committed to the regime were forced to resettled away from border regions by the East German police. Despite the guise of preventing the spread of disease, this action stemmed from a meeting with Stalin and Soviet leaders, in which Stalin impressed upon the SED leadership the importance of increasing border security. Memorandum of Conversation between Joseph Stalin and SED Leadership, April 1952. Library of Congress, Dmitri Volkogonov Collection, Published online by the Cold War International History Project, URL: <https://digitalarchive.wilsoncenter.org/document/111035>, Accessed 13 January 2022.

from towns along the border.⁴⁰⁴ The justification that it was protecting its citizens from both capitalist influences and epidemic disease was reinforced by claims in GDR media that West Germans were infectious and therefore dangerous to East Germans' health.⁴⁰⁵

Growing Discontent in the East: the Buildup to 1953

Throughout the late 1940s and 1950s, doctors in East Germany expressed displeasure with working conditions in many ways. A petition submitted to the government in late 1949 argued that the state must do more to support doctors, as they could not rely on independent organizations for funding. The petition's authors asked for wage increases to prevent "brain drain."⁴⁰⁶ The protesting physicians argued that science was lucrative and could help restore the economic power of the small German state.⁴⁰⁷ No official response to this petition was recorded. Another petition, submitted by the *Kreisgewerkschaftsgruppe Ärzte* (district doctors' union) in July 1953 on behalf of the medical profession in the district of Meissen, protested "unsustainable conditions in the health sector" caused by economic and political mismanagement.⁴⁰⁸

Although these petitions were supported only by a small percentage of East Germany's physicians, others expressed their displeasure through flight. Physicians were the professional group most likely to flee to West Germany.⁴⁰⁹ Some would write letters

⁴⁰⁴ Sheffer, *Burned Bridge: How East and West Germans Made the Iron Curtain*, 97.

⁴⁰⁵ BArchB DQ 1/20794. Newspaper clipping, "3000 X Kinderlähmung," *Neuen Zeit*, 14 August 1952.

⁴⁰⁶ BArchB DD 1/4255. Hans Eberhard Kuhnt et al. "Aufruf: Arbeit durch Wissenschaft," N.D., 1-11.

⁴⁰⁷ BArchB DD 1/4255. Aufruf, "Arbeit durch Wissenschaft," 2.

⁴⁰⁸ Kreisgewerkschaftsgruppe Ärzte, "Resolution" Meissen. 3 July 1953. In Gerhard Naser, *Hausärzte in der DDR: Relikte des Kapitalismus oder konkurrenz für die Polikliniken?* (Bergatrete: Eppe, 2000), 361.

⁴⁰⁹ van Melis and Bispinck, 3.

from their new homes, explaining the reasons for their flight to the East German government. Dr. Wolfgang Eckhardt fled to Lübeck at the end of August in 1958 and wrote to the Kreisarzt of Sangerhausen in Saxony-Anhalt that he was overworked and could not mentally cope with the number of patients he was required to see in a day. Furthermore, he cited the lack of opportunities for his son and daughter to receive quality university educations in East Germany.⁴¹⁰ Damian Melis and Henrik Bispinck have pinpointed 1958 as the height of doctors' *Republikflucht* – as the numbers of East Germans fleeing dropped from 351,668 in 1957 to 215,530 in 1958 due to increased travel restrictions, the number of doctors fleeing to West Germany jumped from 600 to 1357 because their privileged status meant they were still able to travel.⁴¹¹ The number of doctors leaving East Germany declined after 1958, but began to rise again in the early 1960s due to dissention about the Berlin Wall and stringent travel restrictions.⁴¹²

In 1953, polio rates across Germany dropped, except in Leipzig (GDR). That year, cases in the city, which had been spared the worst of the 1952 epidemic, reached a high of 800. Leipzig was the site of an important forum for “informal diplomacy” for East and West German industry. The city had held Germany's best known trade fair since the Middle Ages, drawing merchants from across the continent.⁴¹³ As historian Katherine Pence has argued, the purpose of the Leipzig Trade Fair in the 1950s was to act as a

⁴¹⁰ Letter, Wolfgang Eckhardt to Walter Möller. 31 August 1958. In Naser, *Hausärzte*, 381.

⁴¹¹ Damian van Melis and Henrik Bispinck, “*Republikflucht*”: *Flucht und abwanderung aus der SBZ/DDR 1945 bis 1961* (München: Oldenbourg, 2006), 40.

⁴¹² Van Melis and Bispinck, 40.

⁴¹³ Robert Beachy, “Reforming Interregional Commerce: The Leipzig Trade Fairs and Saxony's Recovery from the Thirty Years' War,” *Central European History* 32, no. 4 (1999): 432.

“bridge” between the Comecon countries and their western counterparts, as well as to demonstrate continuity with German tradition.⁴¹⁴ Though East Germany was not acknowledged by western nations as a sovereign nation, it drew industrialists from West Germany, as well as other western countries. Stefan Berger and Norman LaPorte have argued that frequent visits to the fair from British delegations of the Labour Party and associated groups would influence their later campaigns for official recognition of the German Democratic Republic.⁴¹⁵

In mid-August 1953, less than two weeks before the Leipzig Fair was scheduled to open on August 30th, Western newspapers began to report a large outbreak of polio in the city and warned Westerners against crossing the border to attend.⁴¹⁶ East Germans were officially insulted, but other evidence demonstrates that health officials were concerned about the outbreak in Leipzig. They had already been following an epidemic occurrence of the disease in the city, though confusion existed about the accuracy of the collected data and what constituted an epidemic level of cases. An East German physician, Dr. Friedrich Sartorius, wrote on 20 August:

We physicians and scientists must sharply criticize this method of a certain western press, to make capital out of a normal illness and to cause trouble... In this view we are in agreement with all the serious doctors and scientists in West Germany. They say Leipzig has only normal late summer cases and West Germans are using these as a crutch.⁴¹⁷

⁴¹⁴ Katherine Pence, “‘A World in Miniature’: The Leipzig Trade Fairs in the 1950s and East German Consumer Citizenship,” in *Consuming Germany in the Cold War*, ed. David F. Crew (Oxford: Berg, 2003), 28–30.

⁴¹⁵ Stefan Berger and Norman LaPorte, *Friendly Enemies: Britain and the GDR, 1949-1990* (New York: Berghahn Books, 2010), 104.

⁴¹⁶ “East Germany Hit by Polio Epidemic,” *The Globe and Mail*, 19 August 1953, 2.; “Polio in Germany May Delay Start of Leipzig Fair,” *The Hartford Courant*, 19 August 1953, 17A.

⁴¹⁷ While Sartorius cites West German scientists and doctors who do not believe Leipzig was experiencing an outbreak, no evidence of these doctors exists in archival documents. Since the definition of what constitutes an epidemic is malleable, and since the evidence available in the midst of August was

Leipzig physician Dr. Theodor Kima argued that the peak of the epidemic in the city had passed already on the third of August.⁴¹⁸ On that day, weekly disease reports compiled by the East German Ministry for Health show 382 cases of polio.⁴¹⁹ Even Walter Ulbricht was monitoring the situation. He reported to the Secretary of State at the Ministry of Health, Jenny Matern, that there were 397 cases of polio in Leipzig as of August 6.⁴²⁰ That same day, a memo from Dr. Kima reported 140 ill from polio, while the official statistical report listed 513.⁴²¹ On the 19th of August, when American press reports were quoting West German reports of 800 cases, East Germans were reporting between 706 and 722 cases.⁴²² The day the fair was set to start, August 30th, 808 cases of polio were reported in Leipzig.⁴²³ Minister for Health Luitpold Steidle asked all committees for sport to avoid high levels of activity during polio season and ensured that three iron lungs, produced in Leipzig, were also stationed in the city.⁴²⁴

contradictory, the possibility of such opinions cannot be discounted, though it also cannot be proven with available source materials. BArchB DQ 1/2247. Letter, Prof. Dr. Sartorius to Dr. Brekenfeld. 20 August 1953.

⁴¹⁸ BArchB DQ 1/3155. Memo, Büro Staatssekretär Matern to Herrn Prof. Brekenfeld. "Anruf von Dr. Kima aus Leipzig," 3 August 1953.

⁴¹⁹ BArchB DQ 1/2247. Memo, HA-Hygiene-Inspektion to Herrn Minister Steidle, 3 August 1953.

⁴²⁰ BArchB DQ 1/3155. Memo, W. Ulbricht to Genossin Jenny Matern, Staatssekretär im Ministerium für Gesundheitswesen, 6 August 1953.

⁴²¹ BArchB DQ 1/2247. Bericht über die Dienstreise nach Leipzig u. Zwickau am 3.u.4.8.53. 6 August 1953.; BArch DQB 1/2247. Memo, HA-Hygiene-Inspektion to Herrn Minister Steidle, 6 August 1953.

⁴²² "Polio in Germany May Delay Start of Leipzig Fair," *The Hartford Courant*, 19 August 1953, 17A.; BArchB DQ 1/2247. Memo, HA-Hygiene-Inspektion to Herrn Minister Steidle, 19 August 1953.

⁴²³ BArchB DQ 1/2247. Memo, HA-Hygiene-Inspektion to Herrn Minister Steidle, 30 August 1953.

⁴²⁴ BArchB DQ 1/2247. Letter, Prof. Dr. Brekenfeld to Minister Steidle, 17 August 1953.; BArchB DQ 1/3155. Memo, HA heilwesen to Frau Staatssekretär Matern, 12 August 1953.

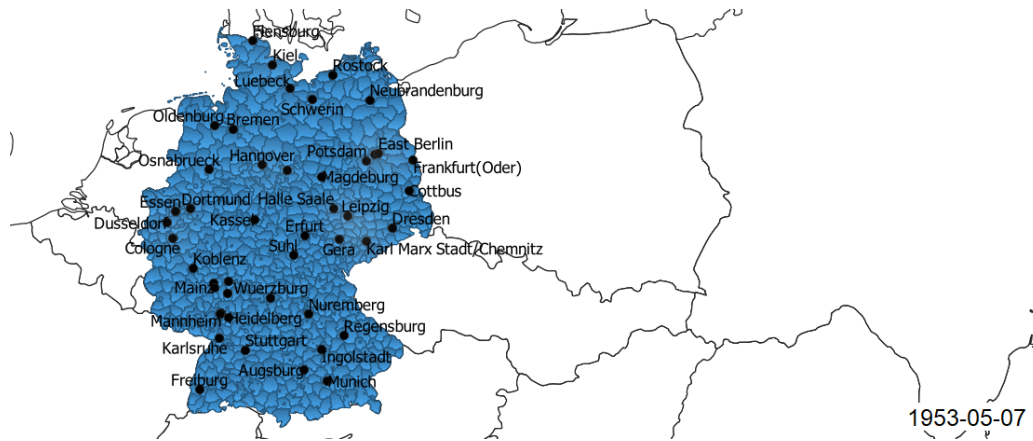


Figure 7: The outbreak of polio in Germany in the summer of 1953 (7 May 1953 to 10 October 1953). The “clouds” which emerge represent increasing cases of polio, with the large red dot representing the peak of the outbreak in Leipzig.⁴²⁵ Though with the benefit of hindsight, this visualization clearly shows Leipzig has more cases of polio than anywhere else in Germany, the malleability of the term “epidemic” once again created confusion.

⁴²⁵ Map made using QGIS 3.6, historical shapefile of Germany, 1953 from the Max Planck Institute for Demographic Research, based on maps from the German Federal Bureau for Cartography and Geography. Statistical data on polio cases taken from East German daily disease reports, DQ 1/2247, DQ 1/3155, DQ 1/5415.

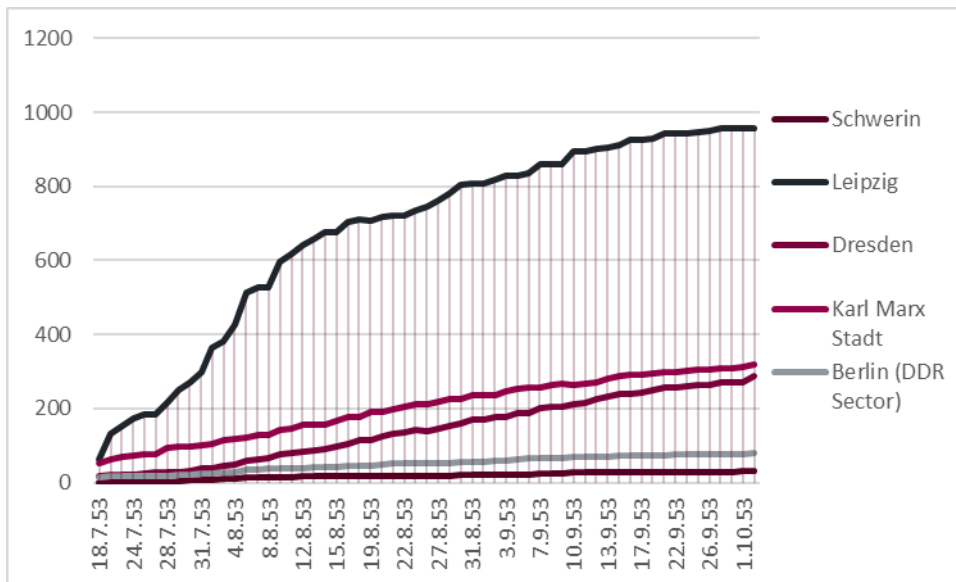


Figure 8: A comparison of reported polio rates from 18 July to 1 October in five different East German cities.⁴²⁶

East German media continued to protest the West German and American press's attempts to dissuade visitors. An East German press release claimed that only 0.01 percent of the population was infected, and of those, only 2.8 percent died, compared to the 7.1 percent fatality rate in West Germany.⁴²⁷ These statistics are deliberately misleading. Giving a percentage of the infected for the entire population of East Germany was not the normal way to deliver polio statistics, which was normally represented as a percentage or number per 10,000 or 100,000 in a specific region or "hotspot". Polio was not as prevalent as other diseases such as tuberculosis and using the percentage of afflicted out of the total population was a way to make the overall threat of polio appear far less. As well, giving the number of dead as a percentage without using whole numbers

⁴²⁶ Statistical data on polio cases taken from East German daily disease reports, DQ 1/2247, DQ 1/3155, DQ 1/5415.

⁴²⁷ BArchB DQ 1/2247. Newspaper clipping, "Westliche Hetze gegen Leipziger Messe," August 1953.

is misleading. The percentage of polio fatalities dropped as the number of cases rose, so a lower percentage of deaths usually indicates higher overall affliction rates, and therefore an epidemic occurrence. The presentation of information in these unusual ways was likely meant to obscure understandings of what was occurring in Leipzig, to reassure western observers that it would still be safe to attend the Leipzig Fair.

Despite Ulbricht's admission to Matern that there had been 36 deaths from polio in Leipzig by 6 August, and that 70 to 80 more would be reported by the end of the day, a report from a general practitioner in Leipzig called for the suppression of "rumours" that 60 were dead.⁴²⁸ A memo from Matern to Prof. Dr. Walther Steidle also warned against rumours that did not correspond to reality and suggested steps be taken to improve cleanliness and hygiene in Leipzig, such as posting a sign that read "handwashing costs nothing!"⁴²⁹ The East Germans also attempted to blame West Germany for the epidemic, with a letter from Prof. Dr. Walther to Steidle on August 19th claiming that border districts of West Germany, particularly Coburg, Duldau, and Hildesheim, were also suffering epidemics and the approximately 250 West Germans travelling daily to East Germany from these districts should be quarantined by the People's Police for three weeks before being allowed to return.⁴³⁰

⁴²⁸ BArchB DQ 1/3155. Memo, W. Ulbricht to Genossin Jenny Matern, Staatssekretär im Ministerium für Gesundheitswesen, 6 August 1953.; BArchB DQ 1/2247. Bericht über die Dienstreise nach Leipzig u. Zwickau am 3.u.4.8.53., 6 August 1953.

⁴²⁹ Steidle was a former Wehrmacht Colonel. UWDC-GURC. *Documents on Germany, 1944-1959 : background documents on Germany, 1944-1959, and a chronology of political developments affecting Berlin, 1945-1956 (1959)*, Appendix I: "Analysis by the Department of State of the Soviet Note on Berlin," 7 January 1959, 427.; BArchB DQ 1/2247. Memo, Büro Staatssekretär Matern to Herrn Minister Steidle. "Vorschläge betreffend Poliomyelitis, Stadt Leipzig, 7 August 1953.

⁴³⁰ BArchB DQ 1/2247. Letter, Prof. Dr. Walther to Herrn Minister Steidle, 19 August 1953.

The East Germans' reticence to recognize the substantial increase in cases of polio was likely also tied to the events of the first half of 1953. The first Five-Year Plan to collectivize and socialize East German industry, introduced in 1951, had begun to take its toll. The plan increased production quotas and lowered net wages for workers, who, along with other citizens, were also affected by shortages of consumer goods and foodstuffs due to collectivization.⁴³¹ In July 1952, Ulbricht made matters much worse with the introduction of his Building of Socialism (*Aufbau des Sozialismus*) program which sought to accelerate collectivization while furthering discrimination against enemies of socialism including intelligentsia, religious officials, and those engaged in private business or business in West Germany.⁴³² The East German and Soviet leadership became alarmed in 1953, when, by June, 185,000 East Germans had fled to West Germany. This number was higher than the total for all of 1952, which was 165,000.⁴³³ East Germans accused West Germans of using propaganda to lure its citizens across the border. West German chancellor Konrad Adenauer, conversely, accused the SED and the Soviet Union of purposely forcing East German citizens to leave to add economic pressure onto the West German government and create space for East Germany to be repopulated with non-Germans.⁴³⁴

⁴³¹ Jeffrey Kopstein, "Chipping Away at the State: Workers' Resistance and the Demise of East Germany," *World Politics* 48, no. 3 (1996): 397.

⁴³² Hope M. Harrison, "1953: Soviet–East German Relations and Power Struggles in Moscow and Berlin," in *Driving the Soviets up the Wall*, Soviet-East German Relations, 1953–1961 (Princeton: Princeton University Press, 2003), 22–23.

⁴³³ Valur Ingimundarson, "The Eisenhower Administration, the Adenauer Government, and the Political Uses of the East German Uprising in 1953," *Diplomatic History* 20, no. 3 (1996): 463.

⁴³⁴ Ingimundarson, 466.

After the death of Soviet leader Joseph Stalin on 5 March 1953, the Soviet leadership connected the refugee problem in the GDR to the too-rapid implementation of socialist policies. Nonetheless, East Germans were shocked by the announcement on 11 June of a “new course” which relaxed some of the pressure on workers to staunch the flow of refugees to West Germany. On the same day, *Neues Deutschland* published an article which claimed the targets of the *Aufbau des Sozialismus* had been met.⁴³⁵ The upheaval began with a strike action in East Berlin on 16 June consisting of several hundred workers and spread to a general protest the following day. On 17 June, Soviet military authorities were forced to declare a state of emergency in East Berlin, after rioters destroyed statues and propaganda posters, while gathering in front of the House of Ministries. Soviet armoured vehicles and soldiers were required to quell the protests, resulting in more accusations from the west that the SED was a dummy government controlled by the Soviets. Outside of East Berlin, an estimated additional 500,000 citizens were involved in protests.⁴³⁶ American and West German politicians seized upon the 1953 protests as a demonstration that East Germans were not happy under communism and exerted more pressure for German reunification.⁴³⁷

Conclusion

⁴³⁵ “Kommuniqué des Politbüros des Zentralkomitees der SED vom 9. Juni 1953,” *Neues Deutschland*, 11 June 1953, 1.

⁴³⁶ Christian F. Ostermann, “‘Keeping the Pot Simmering’: The United States and the East German Uprising of 1953,” *German Studies Review* 19, no. 1 (1996): 64.

⁴³⁷ Ingimundarson, “The Eisenhower Administration, the Adenauer Government, and the Political Uses of the East German Uprising in 1953”; Ostermann, “Keeping the Pot Simmering.”

The period of polio epidemics from 1947 to 1953 coincided with and contributed to the slow process of boundary legitimization between east and west. Despite initial promises to share medical information through official channels, the Soviet Union withdrew from the newly established World Health Organization and ceased sharing medical statistics with the other occupiers. The Berlin Blockade challenged doctors in both occupation zones, as West Berlin hospitals struggled to continue providing for polio patients dependent on iron lungs and East German physicians lost access to medical records in the western zone. Official pronouncements condemning the other side for failing to control epidemics contradicted the broader atmosphere of internationalism being championed by politicians, particularly those from the US.

The breakdown of communication between East and West during these epidemics demonstrates the ways in which outbreaks of polio intertwined with declining trust and communications between East and West Germany. The Leipzig epidemic, coinciding with the Leipzig Fair and preceding the 1953 protests in the GDR, demonstrated how the flexibility of what constituted an epidemic outbreak was used by politicians and physicians alike to downplay public health threats for the sake of political agendas. Physicians participated in this conversation by supporting government accusations, adding the weight of their education, as well as their perceived status as apolitical scientific observers. The actions of physicians in this period demonstrate that they were not apolitical or neutral, but rather held a spectrum of political beliefs. Some East German physicians “voted with their feet” by fleeing. Others were more ideologically committed, and defended their country from western accusations. High-ranking OMGUS

medical personnel complained that they were being turned into politicians and would prefer to remain doctors. Some grew weary of the rivalry between the Soviet and American occupiers and expressed their displeasure by returning to the US. Both the US and the USSR sought to keep doctors on their side, pragmatically to ensure provision of proper healthcare and avoid shortages of medical personnel, but also acknowledging their power as experts and as legitimizers of broader political projects.

In the following years, as East and West Germany stabilized as separate nation-states, they continued to struggle with outbreaks of poliomyelitis. News in 1956 of a new vaccine being field tested in the United States was met with excitement and uncertainty by doctors in both countries. While any potential prophylaxis meant fewer citizens afflicted by the paralyzing disease, both sides faced major issues when they attempted to implement the vaccine. East Germany's issues were largely economic – with little hard currency, it was unlikely it could afford to purchase enough of the expensive injected polio vaccine (IPV) from western sources. West Germany, conversely, could afford the vaccine, but many of its doctors and citizens were reticent to partake. West Germany did not follow its American allies and instead took its lead from Swedish and British vaccine experts who warned against implementing the Salk IPV due to its tendency to revert to neurovirulence and cause full-blown cases of polio in its recipients. The following chapter will explore how international debates over the safety and efficacy of the Salk IPV became a matter of Cold War prestige for the US, and how the National Foundation for Infantile Paralysis worked with American politicians to ensure the success of the Salk IPV.

Chapter 3: Salk IPV and the World

On May 5, 1955, the Bonn-Paris Conventions, or General Treaty (*Deutschlandvertrag*) took effect, formally ending the Allied military occupation of Germany and dissolving the Allied High Commission. The USA admitted West Germany into NATO shortly thereafter. On 20 September 1955, the German Democratic Republic gained sovereignty when the Soviet High Commission was abolished and replaced with an ambassador, according to the Treaty on Relations between the USSR and GDR. The Soviet-East German treaty stipulated that the Red Army would retain a presence in the GDR, and that the GDR would become a founding member in the Warsaw Treaty Organization. Thus, both West and East Germany became, at least theoretically, wholly responsible for their own governance including their healthcare, though both still operated under pressure from their former occupiers.

Despite these steps toward self-determination and the establishment of a basis for normal diplomatic relations, tensions remained. Both sides began rearmament in the early 1950s, while also accusing the other of violating the terms of the Paris Peace Treaties by rearming. In July 1955, the Soviet Union invited West German Chancellor Konrad Adenauer to Moscow to discuss diplomatic relations between the two nations. Adenauer travelled to the Soviet capital on 8 September, and established an agreement for diplomatic relations, in exchange for the return of German prisoners of war. He emphasized that the eastern border was a matter of contention and announced the Hallstein Doctrine, which denied the German Democratic Republic's existence, warning of diplomatic repercussions for other countries which formally recognized the GDR as a

nation. Nevertheless, the USSR was not included in the Hallstein Doctrine, making it far less effective.⁴³⁸

The same year that the United States and the Soviet Union withdrew from Germany, the first polio vaccine was licensed by the United States Surgeon General. American medical researcher Jonas Salk's inactivated polio vaccine (IPV) was approved for mass production in April 1955. While it was lauded as the end of polio by the American public and the NFIP, outside the United States policymakers and physicians were less certain about its safety and efficacy. Instead, they held out hope that Albert B. Sabin would soon provide a working oral attenuated polio vaccine (OPV), as scientific consensus in the 1950s placed more faith in the attenuation method of producing a vaccine, as opposed to the inactivation method used to create the Salk IPV.⁴³⁹ Although much of the historical writing on the fight against poliomyelitis focuses on the Salk IPV, the Sabin OPV was more important internationally.

The United States showed no hesitation, implementing large-scale vaccination campaigns with the Salk IPV as soon as it was licensed, but the rest of the world was less willing to trust American licensing procedures.⁴⁴⁰ East German medical officials were proponents of the IPV – seemingly contrary to Cold War boundaries – but they struggled

⁴³⁸ Pertti Ahonen, *Death at the Berlin Wall* (Oxford: Oxford University Press, 2011), 10.

⁴³⁹ The inactivated polio vaccine was created using viruses that had been killed, using techniques including formaldehyde bathing and ultraviolet light. The oral polio vaccine was made through attenuation, where a virus was passed through tissues many times, until it was weakened enough to avoid provoking a full immune response, though still alive. Many researchers theorized that the human immune system would not adequately recognize killed viruses, leaving those who were vaccinated this way without sufficient immunity from the pathogens.

⁴⁴⁰ HCASA Correspondence – Individual. Box 12 Folder 9: Hennessen, Walter A – 1952-60. Letter, W.A. Hennessen, Hygiene Institut d. Medizin. Akademie, Düsseldorf, Germany, to Albert B. Sabin, 9 March 1954.; “Kinderlähmung – impfen oder nicht?” *Der Spiegel*, 24 April 1957, 28-32.

to obtain enough vaccine and syringes for their population due to shortages. Their decision was made with both national and international opinion in mind. The East German government was careful not to legislate mandatory vaccination, despite historical precedents, mindful that it would be accused of authoritarian impulses in healthcare which was a sensitive issue considering the competition with West Germany. Conversely, West German physicians and officials remained cautious about implementing vaccination campaigns with Salk IPV. Concerns about the safety of the vaccines – particularly Type I vaccine manufactured with the Mahoney strain of poliovirus – resulted in significant debate about whether the vaccine was worthwhile. This cost-benefit analysis considered both the level of protection a vaccine might offer, as well as the level of risk, or perceived risk, the vaccine posed. The Behringwerke pharmaceutical company in Marburg began manufacturing Salk-type IPV in 1955, but state governments' concerns about its safety and the maintenance of proper protocols at the company led to halting vaccination campaigns. The inconsistent approach to vaccination in the FRG confused the general population, and uptake was poor.

The competition between the Salk and Sabin polio vaccines presents an opportunity for analysis of Cold War medical internationalism. Their licensing in 1955 and 1961, respectively, corresponded with two of the tensest moments in the American and Soviet fight over divided Germany: the withdrawal of Allied military forces and the entry of West Germany and East Germany into NATO and the Warsaw Treaty Organization; and the deterioration of relations leading up to the closure of the border in

August 1961.⁴⁴¹ Despite these political and physical roadblocks, historians who study the introduction of the polio vaccines to Europe in the context of Cold War relations tend to emphasize collaboration across the Iron Curtain.⁴⁴² In the case of Germany, however, collaboration was thin on the ground. Instead, East Germany and West Germany, and especially East and West Berlin, reflexively considered the other when responding to these innovations.⁴⁴³

The next two chapters work in tandem to demonstrate the political stakes of a new American vaccine and its “Soviet” competitor in divided Germany. Chapter 3 explains how Salk IPV was developed and introduced into divided Germany with an emphasis on the West. Chapter 4 focuses on the East and explores how Sabin OPV became the more palatable alternative vaccine, despite resistance from US onlookers to a vaccine field tested in the USSR. The purpose of this chapter is to assess how medical information about the Salk IPV travelled across national borders, and how the political animosity of the Cold War shaped vaccine implementation. The two chapters together address the following questions: how did national boundaries alter the ways in which medical knowledge from the United States travelled? Was the resistance in Europe to Salk IPV indicative of resistance to emerging American medical preponderance and to Europe’s loss of status, as historian Ulrike Lindner argues, or was it caused by Cold War animosity

⁴⁴¹ Despite the official end to military occupation, both the USA and the USSR maintained military presence in divided Germany.

⁴⁴² Dóra Vargha, “Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary,” *Bulletin of the History of Medicine* 88 (2014): 319–43; Saul Benison, “International Medical Cooperation: Dr. Albert Sabin, Live Poliovirus Vaccine and the Soviets,” *Bulletin of the History of Medicine* 56, no. 4 (Winter 1982): 460–83.

⁴⁴³ Arndt, *Gesundheitspolitik im geteilten Berlin 1948 bis 1961*, 2009, 14.

and an atmosphere of distrust and aversity to risk as Malte Thießen argues, or was medical knowledge immune to Cold War rhetoric as international relations scholars such as Erez Manela suggest?

The arguments presented by Lindner and Manela do not fit with the German context. While Thießen was correct to identify aversion to risk-taking as a key component of Germans' resistance to the Salk IPV, his focus on vaccination more broadly leads to overgeneralization and failure to consider the American origins of the Salk vaccine. Nations were already reticent to accept the findings of physicians in other countries without question, contradicting historians' perceptions that medical knowledge was considered "fact" and transcended political and physical borders.⁴⁴⁴ The Cold War exacerbated this reticence, as politicians and researchers in both the US and the USSR demonstrated they were willing to disregard some ethical and safety measures, notably peer review, during the vaccine trials.⁴⁴⁵ The US proved this point with the lack of oversight in the Salk trials, the failure to slow down the process to ensure that Salk's results were replicable, and the unwillingness to investigate concerns about Salk's inactivation calculations. Partially, this reticence was due to the over-publicization of the

⁴⁴⁴ Dóra Vargha, "Vaccination and the Communist State: Polio in Eastern Europe," in *The Politics of Vaccination: A Global History*, ed. Christine Holmberg, Stuart Blume, and Paul Greenough (Manchester: Manchester University Press, 2017), 77–98; Dóra Vargha, *Polio Across the Iron Curtain: Hungary's Cold War with an Epidemic* (Cambridge: Cambridge University Press, 2018); Ulrike Lindner, "Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany," in *Evaluating and Standardizing Therapeutic Agents, 1890-1950*, ed. C. Grdmann and J. Simon (London: Palgrave Macmillan, 2010); Ulrike Lindner, *Gesundheitspolitik in der Nachkriegszeit: Großbritannien und die Bundesrepublik Deutschland im Vergleich* (München: R. Oldenbourg Verlag, 2004).

⁴⁴⁵ Both the United States and the Soviet Union proceeded with field trials of Salk and Sabin vaccines, respectively, before allowing the development processes to pass through peer review in medical journals. The Soviet case will be discussed in Chapter 4.

Salk vaccine's development by the NFIP, which felt pressured to show results from public fundraising. In addition, the Dwight D. Eisenhower administration treated the vaccine as evidence of US dominance in the field of medicine – one aspect of the broader scientific Cold War often overshadowed by the nuclear arms race.

Historiography

Medical histories of the development of a polio vaccine emphasize a narrative of linear progress, with Jonas E. Salk working tirelessly and sacrificing his personal life to save millions. Historians downplay the problems with the Salk vaccine, blaming them on the laboratories producing the vaccine, not on Salk himself. The vaccine became a “silver bullet,” and Salk became the first American-born celebrity scientist. The NFIP was as responsible through its fundraising as the American public for this portrait of Salk, and the collective effort to eradicate polio was labelled uniquely American.⁴⁴⁶ Overall, these historical narratives presented a story about the United States' rise to dominant world power, usurping Europe as scientific center of the world. According to Lindner, Germans resented this change in roles. As well, the functioning vaccine provided another example of the global benefit of capitalism, when the Cold War pitted it against communism. These historians foreground Eisenhower's statement to Salk on 22 April 1955, that the vaccine would be shared with “every country that welcomed the knowledge, including

⁴⁴⁶ Richard Carter, *Breakthrough: The Saga of Jonas Salk* (New York: Trident Press, 1966); Charlotte DeCroes Jacobs, *Jonas Salk: A Life* (Oxford: Oxford University Press, 2015); Jeffrey Kluger, *Splendid Solution: Jonas Salk and the Conquest of Polio* (New York: G.P. Putnam's Sons, 2004); John R. Paul, *A History of Poliomyelitis* (New Haven: Yale University Press, 1971); Bernard Seytre, *The Death of a Disease: A History of the Eradication of Poliomyelitis*, trans. Mary Shaffer (New Brunswick: Rutgers University Press, 2004); Jane S. Smith, *Patenting the Sun: Polio and the Salk Vaccine* (New York: W. Morrow, 1990).

the Soviet Union.”⁴⁴⁷ American scientific prowess and benevolent world leadership are hallmarks of the early monographs about Jonas Salk and his vaccine.

Beginning in the 1960s and 1970s and continuing into the 2000s, scholars began to question the motives of the NFIP and Salk. They linked the speed with which the Salk IPV was field tested and licensed to the Cutter Incident, where children in California received an improperly manufactured vaccine which gave them polio. Salk and the NFIP were criticized by physicians and medical researchers for their hubris in rushing the vaccine into mass use, pressuring the licensing board to reach a decision by enlisting the public.⁴⁴⁸ By engaging media so heavily in the lead-up to Dr. Thomas Francis Jr.’s announcement of the Salk IPV field tests’ success on 12 April 1955, the NFIP had put itself in a difficult position. The US was very close to the spring onset of seasonal polio outbreaks, and the American public was hopeful that Salk IPV would protect their children, allowing them to resume normalcy during summer vacation. Thus, the licensing of Salk IPV was premature. Other scientists had not been able to test Salk’s procedures and ensure his results were replicable. As a result, these historians lay the blame for the Cutter Incident on the haste of Salk and the NFIP to get the vaccine out to the public.

Furthermore, some historians have questioned the NFIP’s decision to draw so much funding to the cause of developing a polio vaccine when it was not the most

⁴⁴⁷ David M. Oshinsky, *Polio: An American Story* (Oxford: Oxford University Press, 2005), 216.

⁴⁴⁸ Sir Graham S. Wilson, *The Hazards of Immunization* (London: The Athlone Press, 1967).; Aaron E. Klein, *Trial by Fury: The Polio Vaccine Controversy* (New York: Scribner, 1972); J.K. Colgrove, *The State of Immunity: The Politics of Vaccination in Twentieth-Century America* (Berkeley: University of California Press, 2006); Elena Conis, *Vaccine Nation: America’s Changing Relationship with Immunization* (Chicago: University of Chicago Press, 2015); Paul A. Offit, *The Cutter Incident: How America’s First Polio Vaccine Led to the Growing Vaccine Crisis* (New Haven: Yale University Press, 2005).

pressing issue in American healthcare. Aaron E. Klein, writing in 1972, argued that the excitement about the vaccine in the United States “was due to the foundation’s publicists, who had built up the image of polio as a massive plague.”⁴⁴⁹ He indicates that the NFIP’s advertisements and use of propaganda misled the American public into thinking polio was a much more common affliction than it really was. A Gallup Poll, taken on 12 April 1955, showed that 96 percent of respondents had heard of the vaccine and the Francis announcement. That is a higher percentage than almost any other poll asking about awareness of a news event in Gallup history.⁴⁵⁰ According to Klein and others, such attention to polio research and development was overblown and led to less research funding for greater health issues like tuberculosis. It also privileged research on technological solutions to healthcare issues, such as vaccines, rather than systemic responses like ensuring access to quality affordable healthcare.⁴⁵¹

The historians who criticize Salk and the NFIP are kinder to Sabin, who, along with European medical researchers such as Sven Gard, had questioned Salk’s calculations and requested more time to perform peer-review experiments and ensure the vaccine was truly safe and effective. Some historians also argue that the original formulation of the vaccine was neither safe nor effective, citing how many patients who received the full course of three Salk injections still succumbed to polio. They are critical of Salk’s claim

⁴⁴⁹ Klein, *Trial by Fury: The Polio Vaccine Controversy*, 110.

⁴⁵⁰ Thomas D. Dublin, “1954 Poliomyelitis Vaccine Field Trial: Plan, Field Operations, and Follow-Up Observations,” *Journal of the American Medical Association* 158, no. 14 (August 6, 1955): 1258–65.

⁴⁵¹ Klein, *Trial by Fury: The Polio Vaccine Controversy*; Stephen E. Mawdsley, “Balancing Risks: Childhood Inoculations and America’s Response to the Provocation of Paralytic Polio,” *Social History of Medicine* 26, no. 4 (August 13, 2013): 759–78; Oshinsky, *Polio: An American Story*; Marc Shell, *Polio and Its Aftermath: The Paralysis of Culture* (Cambridge: Harvard University Press, 2005).

in April 1955 that, with a few tweaks, the vaccine could become 100 percent effective at preventing polio given that the field test had shown it was only 60-70 percent effective at preventing Type I polio and 90 percent effective at preventing Type II and Type III polio.⁴⁵² These historians also blame the US government for treating the vaccine as a moment of victory in its Cold War conflict rather than a medical innovation to save lives.⁴⁵³ The government therefore refused to admit that the vaccine was not as functional as Salk claimed it would be in 1955 and hesitated to switch to Sabin OPV since its leaders cared so deeply about America's international reputation.

With so much research on the polio vaccine as an American story, historians have been slow to consider the vaccine's reception abroad. Since the 2000s, more research has been conducted on European responses to poliovirus and to the Salk IPV. In 1980, Saul Benison first wrote about Albert Sabin's collaboration with the Soviet Union to field test his OPV but did not fully investigate the Soviet side, relying on Sabin's recollections to create his narrative.⁴⁵⁴ Sabin himself wrote a similar article in 1987.⁴⁵⁵ In 2012, Per Axelsson began investigating the Swedish polio vaccine, manufactured by Sven Gard.⁴⁵⁶ This article drew scholarly attention to the multiple European variants of IPV vaccines. Salk's vaccine was not the only one available, and Sweden was one of the few countries

⁴⁵² Klein, *Trial by Fury: The Polio Vaccine Controversy*, 110.

⁴⁵³ Colgrove, *The State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 139.

⁴⁵⁴ Benison, "International Medical Cooperation: Dr. Albert Sabin, Live Poliovirus Vaccine and the Soviets."

⁴⁵⁵ Albert B. Sabin, "Role of My Cooperation with Soviet Scientists in the Elimination of Polio: Possible Lessons for Relations between the USA and the USSR," *Perspectives in Biology and Medicine* 31, no. 1 (Autumn 1987): 57–64.

⁴⁵⁶ Per Axelsson, "The Cutter Incident and the Development of a Swedish Polio Vaccine, 1952-1957," *Dynamis* 32, no. 2 (2012): 311–28.

which did not switch to Sabin OPV after the success of the Soviet field trials. These historians' work has expanded understandings of polio beyond the American story identified by Oshinsky.

Melanie Arndt, Dagmar Ellerbrock, Hans-Ulrich Sons, and Ulrike Lindner all include polio in their studies of epidemics in postwar Germany, but do not examine the introduction of a vaccine.⁴⁵⁷ Lindner's book chapter "Changing Regulations and Risk Assessments" and her article with Stuart S. Blume, "Vaccine Innovation and Adoption," compare West German responses to the Salk IPV with the United Kingdom. This comparison is unhelpful, as Lindner does not acknowledge the different histories and contexts of postwar divided Germany and the United Kingdom, and is content to lambast West Germans for refusing the vaccine due to pride and anti-American sentiment mixed with limited medical knowledge following the "Nazi blackout".⁴⁵⁸ Malte Thiessen's 2017 monograph *Immunisierte Gesellschaft* provides a more nuanced understanding of vaccine hesitancy in Germany from the smallpox vaccine to the polio and measles vaccines of the 1950s and 1960s, examining the interplay between the welfare state, individual rights, and the management of information about vaccination risks.⁴⁵⁹ While research on polio

⁴⁵⁷ Arndt, *Gesundheitspolitik im geteilten Berlin 1948 bis 1961*, 2009; Ellerbrock, "Healing Democracy" *Demokratie als heilmittel: Gesundheit, Krankheit und Politik in der amerikanischen Besatzungszone*; Sons, *Gesundheitspolitik während der Vessatzungszeit. Das öffentliche Gesundheitswesen in Nordrhein-Westfalen, 1945-1949*, 1983; Lindner, *Gesundheitspolitik in der Nachkriegszeit: Großbritannien und die Bundesrepublik Deutschland im vergleich*.

⁴⁵⁸ Lindner, "Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany"; Ulrike Lindner and Stuart S. Blume, "Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965," *Medical History* 50 (2006): 425–46.

⁴⁵⁹ Malte Thießen, *Immunisierte Gesellschaft: impfen in Deutschland Im 19. und 20. jahrhundert* (Göttingen: Vadenhoeck & Ruprecht, 2017).

vaccines in the US is ample, research on the adoption and implementation of the vaccine in divided Germany is less well-rounded. Chapters three and four redress this gap in the scholarly literature.

Though more research has become transnational, and though Manela called for more attention to Cold War international politics when studying epidemic disease, few historians have answered his call with regard to polio. Thiessen does consider the Cold War and distrust between the governments of East and West Germany, but it is not his focus. The only historian to explicitly answer Manela's call for more discussion between international relations scholars is Dóra Vargha. Her findings on polio vaccines in Hungary mirror Manela's: collaboration across borders for the sake of international health.⁴⁶⁰ She provides personal accounts from Hungarian polio survivors, as well as stories about deliveries of American-manufactured iron lungs to Hungary, and West German pilots flying across the Iron Curtain to bring Canadian-manufactured IPV to Hungary.⁴⁶¹ Vargha positions these stories as examples of how medical humanitarianism transcended Cold War boundaries, but the German example is much less clear-cut, and Cold War boundaries did affect medical care and communication between physicians. She also provides a somewhat teleological narrative, explaining that the Salk IPV "spread widely throughout Europe" after it was licensed, which does not reflect resistance in

⁴⁶⁰ Erez Manela, "A Pox on Your Narrative: Writing Disease Control into Cold War History," *Diplomatic History* 34, no. 2 (April 2010): 299–323; Vargha, "Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary."

⁴⁶¹ Dóra Vargha, "Iron Curtain, Iron Lungs: Governing Polio in Cold War Hungary 1952-1963" (PhD Dissertation, New Brunswick, Rutgers University, 2013), 111.

Germany.⁴⁶² The evidence on the ground in divided Germany shows much more confusion, resistance to Salk IPV, and conflict between the communist east and the capitalist west.

Salk IPV: Development and Spread



Figure 9: Salk holding containers of IPV in 1955.⁴⁶³

The inactivated poliomyelitis vaccine (IPV), developed by Salk and a team of researchers at the University of Pittsburgh School of Medicine, was the first vaccine licensed to prevent polio. Salk was a virologist from New York, and still relatively early in his career when he began researching poliomyelitis under Thomas Francis Jr. at the University of Michigan. According to Charlotte Jacobs, Salk “moved quickly, found

⁴⁶² Vargha, “Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary,” 325.

⁴⁶³ “Jonas Salk in 1955 holds two bottles of a culture used to grow polio vaccines,” from Wikimedia Commons, licensed under the Creative Commons Attribution-Share Alike 4.0 International. URL: <https://commons.wikimedia.org/wiki/File:SalkatPitt.jpg>, Accessed 13 August 2020.

shortcuts, and did not adhere to the written rules of academic research.”⁴⁶⁴ Although Jacobs presents Salk’s reckless behaviour as admirable, many other researchers at the time and since have disagreed. According to historian John Paul, if the ethical guidelines established by the Nuremberg Code in 1947 had been respected, the Salk IPV field trials would not have occurred.⁴⁶⁵ Nonetheless, Salk was helped along by the vaccine research of Isabel Morgan, who had created a working inactivated vaccine in the late 1940s.⁴⁶⁶ She was hesitant to take the risky step into vaccine trials, and once she started a family, she ceased medical research, leaving the project unfinished. Salk was a newcomer. Before the 1954 announcement of the field trial, he had not published any of his research, nor had he presented any papers at polio conferences.

The field trial, the biggest in American history, had been funded by the NFIP, using donations from their March of Dimes campaign. Over 1 million children across the US received either the Salk vaccine or a placebo. This field trial was criticized by the American Medical Association (AMA), which argued that it was “un-American” and was a by-product of “Communist thinking.”⁴⁶⁷ Though the AMA was not against vaccination itself, it was resistant to free vaccinations delivered by public health workers rather than private-practicing physicians. The fear of socialized medicine stemmed back to the debate over President Franklin Delano Roosevelt’s New Deal in the 1930s. The *Journal of the American Medical Association* featured several articles from physicians concerned

⁴⁶⁴ Jacobs, *Jonas Salk: A Life*, 91.

⁴⁶⁵ Paul, *A History of Poliomyelitis*, 409.

⁴⁶⁶ Kluger, *Splendid Solution: Jonas Salk and the Conquest of Polio*, 124.

⁴⁶⁷ Vargha, “Iron Curtain, Iron Lungs: Governing Polio in Cold War Hungary 1952-1963,” 116.

that socialized medicine would be inferior medicine. When physicians felt their role as “expert” in the realm of medicine could be challenged by government involvement, they viewed this as a threat to the quality of medicine more broadly. In a 1932 response to the Report of the Committee on the Costs of Medical Care, the AMA stated that American physicians were “the only group with the knowledge, training and experience necessary” to make decisions on American medical care.⁴⁶⁸ Many physicians were uncomfortable with the bureaucratization of healthcare, whether by business interests or the American government. They feared the loss of control would result in groups with less knowledge, meaning politicians rather than medical doctors, making poor choices. They particularly worried that an empowered government bureaucracy would try to control the types of eligible treatments and physicians’ pay, limiting physicians’ autonomy in treatment and eroding their prestigious position in society. The challenge to the autonomy and wages of doctors led AMA physicians to predict that medical schools would “cease to attract to it men of energy, ability and ambition.”⁴⁶⁹

Salk had been investigated by the FBI in the 1940s, which had compiled a file over 300 pages long about his support of socialized medicine and “subversive” activities during his time at New York University Medical School.⁴⁷⁰ By the mid-1950s however, the government was keen to encourage Salk’s research, given its leaders’ fears that the United States was no longer outpacing the Soviet Union in scientific research. The 1949 Soviet atomic bomb test had shocked western onlookers and shaken United States

⁴⁶⁸ “The Report of the Committee on the Costs of Medical Care,” *JAMA* 99.24 (10 December 1932): 2035

⁴⁶⁹ James A. Gardner, “Socialistic Tendencies in Medicine,” *JAMA* 79.7 (August 12, 1932): 513.

⁴⁷⁰ Oshinsky, *Polio: An American Story*, 146–47.

confidence in its nuclear advantage. Therefore, pressure from the public and media led the American government to support Salk's field trial as an example of American ingenuity and scientific prowess. According to Oshinsky, "Salk's propaganda value was immense."⁴⁷¹

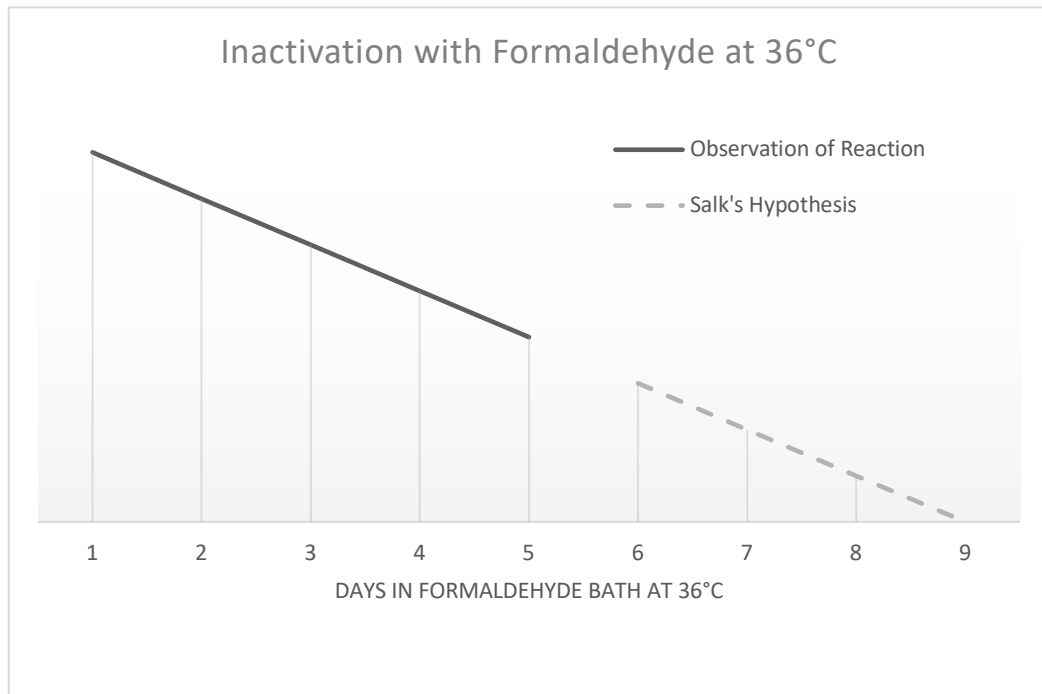


Figure 10: Salk's Hypothesis: Inactivation of Poliovirus using Formaldehyde was a First-Order Reaction.⁴⁷²

Leading up to the field trial, several physicians reported potential safety issues with Salk's virus inactivation process. In November 1953, medical researcher Albert Milzer from the Michael Reese Hospital in Chicago provided evidence at the American Public Health Association's yearly meeting that live virus was still present in vaccine

⁴⁷¹ Oshinsky, 215.

⁴⁷² Source created by author based on information in Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis*, 42.

fluid inactivated using Salk's formaldehyde process, and the fluid caused paralysis in monkeys.⁴⁷³ Salk called such accusations "irresponsible" and "opinion", charging that they "impugned experiments that were carefully conducted and... aroused fear and doubt by their irresponsible remarks."⁴⁷⁴ A 1957 study by German Dr. Richard Haas would later show that formaldehyde's ability to kill viruses was hampered when a protein was present, and use of formalin did not follow a clear first-order reaction due to mitigating factors in the process.⁴⁷⁵ Thus, the amount of time required for inactivation differed too much to be reliable, depending on the exact variables in a laboratory setting.

Laboratories at American pharmaceutical companies reported exactly this problem. In a meeting on 29-30 April 1954 at University of California Berkeley, pharmaceutical representatives stated that the procedures Salk provided did not work with larger batches of the vaccine and asked for clearer procedural instructions for inactivation. Due to time constraints, Salk did not investigate the underlying issue, but instead provided more detailed procedural instructions to the companies, which did not request any further assistance.⁴⁷⁶ In early 1954, the bacteriologist responsible for testing sample lots of vaccine from pharmaceutical companies at the Laboratory of Biologics Control, Bernice Eddy, reported evidence of live virus present in vaccine manufactured at Cutter Laboratories to her boss, William Workman. Workman sent Salk a letter on 22 March 1954 – just weeks before the field trials were set to start. Salk did not respond to

⁴⁷³ Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis*, 42.

⁴⁷⁴ Offit, 43.

⁴⁷⁵ R. Haas et al., "The Inactivation of Poliomyelitis Viruses with Formaldehyde.," *Zeitschrift für Hygiene und Infektionskrankheiten* 143, no. 5 (1957): 490–512.

⁴⁷⁶ Klein, *Trial by Fury: The Polio Vaccine Controversy*, 93.

this letter.⁴⁷⁷ Another polio researcher, Julius S. Youngner, reported to Salk disconcerting information after visiting the Cutter Labs: poor safety procedures, vats with live virus in the same room as inactivated virus, poor recordkeeping, and evidence that inactivation was not following Salk's calculations.⁴⁷⁸ No evidence available shows that Salk took such concerns seriously.

Despite clear unease from the medical community about the safety of the vaccine and lack of time for others to conduct crucial peer-review replications of the study, the Salk field trials were deemed a success by the NFIP and US government. On the tenth anniversary of Franklin Delano Roosevelt's death, 12 April 1955, the positive results of the 1954 Salk polio vaccine field trial were announced at the University of Michigan by Salk's former postgraduate supervisor, Thomas Francis.⁴⁷⁹ American media celebrated the creation of the vaccine which would save children and pacify their worried parents. The US government licensed the vaccine for production just under three hours later, helped along by O'Connor's decision to exclude any scientist with a negative opinion of IPVs from the licensing committee.⁴⁸⁰

Salk famously declared that he refused to patent his invention, stating that to do so would be equivalent to "patenting the sun." As historian Charlotte Decroes Jacobs demonstrated, Salk's claim that he refused to patent the vaccine on humanitarian or

⁴⁷⁷ Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis*, 48.

⁴⁷⁸ Offit, 65.

⁴⁷⁹ The Salk IPV required three injections of "killed virus" vaccine. The vaccine was grown in monkey kidney and inactivated through a chemical process. Salk chose the "Mahoney" strain of poliovirus, which was the most virulent, because he felt it would provide the best, longest lasting immunity against the disease.

⁴⁸⁰ Klein, *Trial by Fury: The Polio Vaccine Controversy*, 93.

ethical grounds was propaganda, though many at the time and to this day still believe it is true. Firstly, the NFIP was funded through donations and was concerned that the public backlash from Salk making money from a charitably-funded research project would harm its reputation. Secondly, a team of NFIP lawyers had already investigated the potential for patenting the vaccine and found that it was not a novel enough process to patent.⁴⁸¹ The vaccine Salk created drew heavily on the innovations of Isabel Morgan and others. Nonetheless, Salk was already well on his way to celebrity status, as his progress had been diligently publicized by the NFIP. His announcement of a working vaccine was hailed as the “V-day against polio” by *The New York Times* and the American public celebrated him as a hero.⁴⁸²

Despite President Eisenhower’s promise to provide the vaccine regardless of Cold War political boundaries, the Salk IPV did not immediately flood world markets. By 14 April, the Department of Commerce had implemented export controls on the vaccine to prioritize the inoculation of American children, including the 45,000 children living with their military parents in France and Germany.⁴⁸³ Experts predicted the export restrictions would not ease until 1957, leaving many countries to seek other avenues.⁴⁸⁴

Even within the United States, access to the Salk IPV was not guaranteed to all citizens because a national healthcare system had not been successfully implemented, even though attempts had been made by politicians as recently as 1948 under President

⁴⁸¹ Jacobs, *Jonas Salk: A Life*, 131.

⁴⁸² “Man vs. Polio,” *The New York Times*, 17 April 1955, E1.

⁴⁸³ U.S. to Control Vaccine Export.” *The Globe and Mail*, 14 April 1955, 1.

⁴⁸⁴ BArch B DQ 1/20407. Memo, HA Heilwesen to Steidle, 20 April 1955.

Truman.⁴⁸⁵ In the context of the Cold War, government interference in the administration of the vaccine remained hotly contested. In the U.S. Congress, Democrats proposed federal funding for vaccinations of children under 19 years of age. President Eisenhower, elected in 1952 on a Republican platform that explicitly denounced socialized medicine, nonetheless signed the Poliomyelitis Vaccination Assistance Act the same year the vaccine was licensed.⁴⁸⁶ The Act provided states with federal funding for the implementation of campaigns which provided free vaccination for individuals under 20 and pregnant women.⁴⁸⁷ Secretary of Health, Education and Welfare Oveta Culp Hobby declared the Act to be “socialized medicine by the back door.”⁴⁸⁸ The plan also faced pushback from the AMA, which vehemently opposed anything resembling socialized healthcare. The AMA was also concerned about any steps that were perceived to blur the line between “medicine” – the domain of physicians – and public health – a government-organized enterprise.⁴⁸⁹ The potential that vaccines might be administered in schools instead of in private practices meant a loss of income for physicians, as well as a loss of control over a process deemed “medical” and a perceived loss of prestige.

Pharmaceutical companies had already begun manufacturing vaccine in anticipation that the vaccine would be licensed, and the public would expect it to be available immediately. Over the following two weeks, 400,000 individuals,

⁴⁸⁵ Jane Pacht Brickman, “Medical McCarthyism and the Punishment of Internationalist Physicians in the United States,” in *Comrades in Health: U.S. Health Internationalists Abroad and at Home*, ed. Anne-Emanuelle Birn and Theodore M. Brown (New Brunswick: Rutgers University Press, 2013), 89.

⁴⁸⁶ Conis, *Vaccine Nation: America’s Changing Relationship with Immunization*, 5.

⁴⁸⁷ Otis L. Anderson, “The Polio Vaccine Assistance Act of 1955,” *American Journal of Public Health and the Nations Health* 45, no. 10 (October 1955): 1349.

⁴⁸⁸ Colgrove, *The State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 122.

⁴⁸⁹ Dublin, “1954 Poliomyelitis Vaccine Field Trial.”

predominantly school-aged children, received injections of vaccine manufactured by Cutter Laboratories in California. On 25 April, a young child was admitted to hospital in Chicago due to paralysis. The following day, health authorities in California reported an additional 5 cases of paralytic polio associated with the vaccine from Cutter.⁴⁹⁰ The most telling symptom was paralysis in the arm that had received the inoculation.⁴⁹¹ Altogether, there were 94 cases of vaccine-associated polio, with 59 suffering paralytic symptoms. A further 166 community contacts were infected, of which 133 experienced paralysis. Ten people died – five vaccine recipients and five community contacts.⁴⁹²

Several lots of vaccine made by Wyeth Laboratories in Philadelphia were also contaminated with live vaccine, resulting in an undisclosed number of polio cases. These cases were investigated by the Epidemic Intelligence Services (EIS). The EIS was a subsection of the Centers for Disease Control and Prevention created in 1951 to investigate and prevent biological warfare attacks on the US, as well as to investigate outbreaks of novel diseases deemed suspicious or noteworthy. Alexander Langmuir, the head of EIS, chose not to inform the public out of concern about damaging public confidence in the vaccine further by suggesting this issue was not specific to one lab.⁴⁹³

Media coverage of the vaccine disaster in the US was widespread but faded quickly. After a brief halt to vaccinations while government agencies investigated,

⁴⁹⁰ Klein, *Trial by Fury: The Polio Vaccine Controversy*, 119.

⁴⁹¹ Neal Nathanson and Alexander D. Langmuir, "The Cutter Incident: Poliomyelitis Following Formaldehyde-Inactivated Poliovirus Vaccination in the United States During the Spring of 1955," *American Journal of Epidemiology* 78, no. 1 (July 1, 1963): 16.

⁴⁹² Wilson, *The Hazards of Immunization*, 45.

⁴⁹³ Mark Pendergrast, *Inside the Outbreaks: The Elite Medical Detectives of the Epidemic Intelligence Service* (Boston: Houghton Mifflin, 2010), 25.

vaccinations with Salk IPV resumed in late May. The official investigation found that only two lots of vaccine contained live virus and dismissed this event as negligence on the part of Cutter Labs, which failed to implement proper safety testing procedures. Larger issues with the inactivation process were not discussed, and the problems with Wyeth vaccine were not publicized. These events did not ultimately factor into most Americans' decisions about whether to vaccinate their children, and case rates of polio fell from 1954 through 1957.⁴⁹⁴ Even a vaccine disaster could not dampen the public fervour for the vaccine in the United States. While not surprising with the benefit of hindsight, the American public did not yet know how effective the vaccine would be, so the level of uptake suggests fears of polio were higher than fears of the risks associated with vaccines.

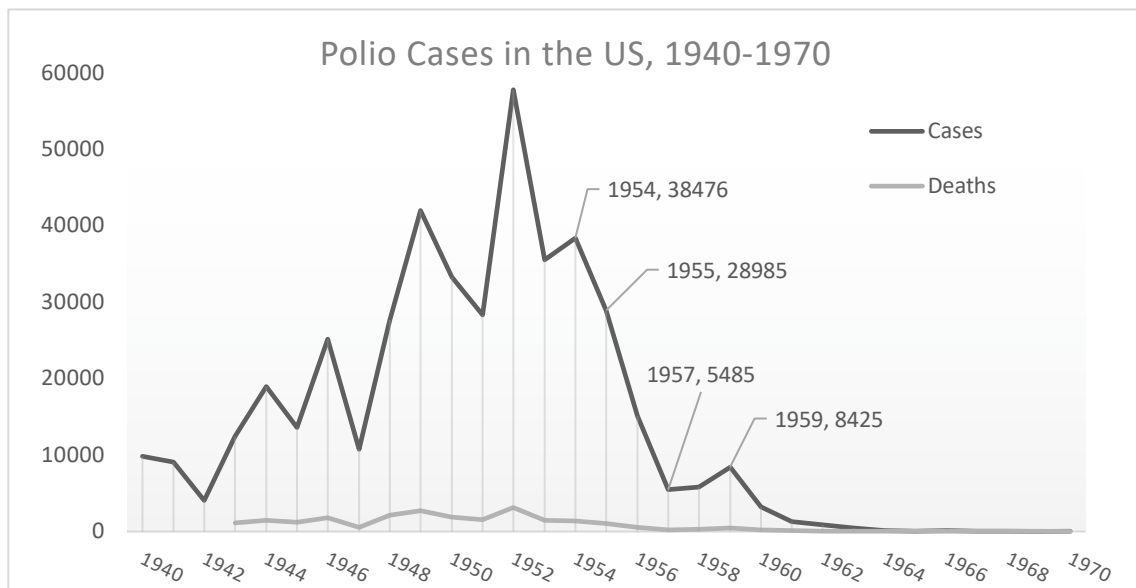


Figure 11: Polio Cases in the US.⁴⁹⁵

⁴⁹⁴ Colgrove, *The State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 129–30.

⁴⁹⁵ Sources for data: “Poliomyelitis in the United States, 1910 and 1911,” *Public Health Reports* 27.16 (1912): 547-550.; “The Notifiable Diseases: Their Prevalence by States during 1913,” *Public Health*

European Reactions

Once the Salk IPV was licensed in the US, other nations had to decide whether they would immediately seek vaccine to implement their own inoculation campaigns, or whether they would adopt a “wait-and-see” approach to ensure that no long-term side effects would develop from its use. Public health officials faced numerous conflicting sources of opinion and pressure. Some medical researchers saw the Salk IPV as the answer to polio epidemics; others felt it was a stopgap measure until a better vaccine was created; and still others worried that the difficulty of manufacturing safe vaccine would result in more infections. Even if scientific opinion had been unified, as historian Anne Hardy explains, decisions about risk-taking and vaccination have historically been individualistic. She writes: “There was no decay of a once unified public sphere of rational discussion and opinion formation: the individuality of the human body, personal assessments of health and well-being, and the evaluation of particular risks to community and individual have always divided opinion on health issues.”⁴⁹⁶ In the case of the Salk polio vaccine, parents with young children were divided. Some were anxious to do

Reports 29.28 (1914): 1832-33.; “Prevalence of Poliomyelitis in the United States in 1938,” *Public Health Reports* 54.21 (1938): 857-862.; “Notifiable Diseases in the United States, 1939: Morbidity and Mortality Summaries for Certain Important Communicable Diseases,” *Public Health Reports* 56.7 (1941): 293-299.; “Notifiable Diseases in the United States, 1940: Morbidity and Mortality Summaries for Certain Important Communicable Diseases,” *Public Health Reports* 57.7 (1942): 233-239.; “Incidence of Poliomyelitis in 1947,” *Public Health Reports* 63.13 (1948): 393-396.; “Prevalence of Poliomyelitis in 1948,” *Public Health Reports* 64.23 (1949): 733-740.; “Poliomyelitis in the United States, 1951,” *Public Health Reports* 67.6 (1952): 524-526.; US Department of Health, Education, and Welfare, “Morbidity and Mortality Weekly Report Annual Supplement” 9.53 (1959): 4. CDC Archives URL: <https://stacks.cdc.gov/view/cdc/1160>, Accessed 13 January 2022.; US Department of Health, Education, and Welfare, “Public Health Service Morbidity and Mortality Weekly Report,” 19.53 (1970): 1. CDC Archives, URL: <https://stacks.cdc.gov/view/cdc/835>, Accessed 13 January 2022.

⁴⁹⁶ Anne Hardy, “The Public in Public Health,” in *Beyond Habermas: Democracy, Knowledge, and the Public Sphere*, ed. Christian J. Emden and David Midgley (New York: Berghahn Books, 2012), 95.

whatever they could to protect their children from lifelong disability. Others worried about the potential for a repeat of the Cutter Incident. Parents' assessments about vaccine safety hinged on their level of trust in the information being provided by scientific experts, both physicians in their communities and international sources like the WHO. These sources indicated that children were more at risk of catching poliomyelitis and not fully recovering, than being harmed by side effects of the Salk IPV.

Scientific support for the vaccine was a crucial part of ensuring its public support. Physicians and regulatory boards in each nation provided one source of scientific opinion on vaccines. The World Health Organization, now a fixture in the international medical community, provided another source of scientific opinion on the efficacy and safety of vaccines. The rapid licensing of the vaccine did not indicate a scientific consensus in the United States, and especially not abroad, that the vaccine was safe and effective, even though it may have appeared so to parents. Many scientists questioned Salk's use of the Mahoney strain of poliovirus Type I. The Mahoney strain was especially virulent. Salk made this choice because the virulence meant that vaccinated individuals would create a stronger imprint of the virus and stronger immune responses as a result. The Cutter Incident demonstrated the downside of this choice vividly. When the virus was not properly inactivated, the Mahoney strain was much more likely to cause paralysis and respiratory failure in vaccinees.

The WHO had founded its Expert Committee on Biological Standardization (ECBS) in 1947 to "establish detailed recommendations and guidelines for the manufacturing, licensing, and control of blood products, cell regulators, vaccines, and

related in vitro diagnostics tests.”⁴⁹⁷ In other words, the committee was created for the exact sort of international debate about vaccine development that occurred after 1954. In its Seventh Report published in 1954, it first delineated the potential for a polio vaccine.⁴⁹⁸ The following year, in July 1955 the ECBS announced that it was still unprepared to rule on a standard vaccine recommendation, pending further research.⁴⁹⁹ By 1956, the Committee asked the *Statens Seruminstitut* in Copenhagen to compare vaccine from the National Institute for Medical Research in London with the Salk IPV from the National Institutes of Health in Bethesda. The major hurdle to overcome was creating a vaccine that could be dried but retain its stability, so that it could be preserved. Not until 1959 was progress made on this task, when the Moscow Institute for Poliomyelitis Prophylactics in the Soviet Union informed the committee that its attempts to make a stable dried trivalent vaccine appeared successful, pending further tests. Their offer to send some of this preparation for standardization purposes was readily accepted by the ECBS. Frozen trivalent vaccine from the National Institutes of Health in the US was also sent to the Committee.⁵⁰⁰ The Committee published international requirements for the

⁴⁹⁷ WHO-DC. WHO Expert Committee on Biological Standardization, “Expert Committee on Biological Standardization: Seventh Report,” *World Health Organization Technical Report Series No. 86* (Geneva: World Health Organization, June 1954): 10. URL: http://who.int/biologicals/expert_committee/en/, accessed 17 April 2020.

⁴⁹⁸ WHO-DC. “Expert Committee on Biological Standardization: Seventh Report”: 10.

⁴⁹⁹ WHO-DC. WHO Expert Committee on Biological Standardization, “Expert Committee on Biological Standardization: Eighth Report,” *World Health Organization Technical Report Series No. 96* (Geneva: World Health Organization, July 1955): 9. URL: https://apps.who.int/iris/bitstream/handle/10665/40248/WHO_TRS_86.pdf?sequence=1, Accessed 11 November 2020.

⁵⁰⁰ WHO-DC. WHO Expert Committee on Biological Standardization, “Expert Committee on Biological Standardization: Twelfth Report,” *World Health Organization Technical Report Series No. 172* (Geneva: World Health Organization, 1959): 11. URL: https://apps.who.int/iris/bitstream/handle/10665/40248/WHO_TRS_86.pdf?sequence=1, Accessed 11 November 2020.

production of inactivated polio vaccine in 1961, and by this time Sabin OPV had already gained popularity in many nations.⁵⁰¹

Medical researchers and policymakers in both East and West Germany paid close attention to news of the Salk IPV and the Cutter Incident. Vaccines themselves were not new inventions in postwar Germany, and the Cutter Incident raised memories of the Lübeck disaster in 1930, involving an improperly manufactured smallpox vaccine. Smallpox vaccines had been available since the early 1800s. The Vaccination Act introduced in Germany in 1874 made vaccination against smallpox mandatory in the Reich.⁵⁰² Though the smallpox vaccine proved instrumental in reducing deaths from the disease, some individuals resented government interference. As well, the history of vaccines was not always positive in Germany. A document circulated on 19 April 1955 by the West German Federal Health Ministry compared the Cutter Incident to the Lübeck disaster.⁵⁰³ Well before many German physicians' support for the National Socialist genocide, vaccine hesitancy was endemic in German society and appears in government documents on polio vaccines.

Salk IPV in Germany: West German Resistance

⁵⁰¹ WHO-DC. WHO Expert Committee on Biological Standardization, "Expert Committee on Biological Standardization: Fourteenth Report," *World Health Organization Technical Report Series No. 222* (Geneva: World Health Organization, 1961): 13. URL: https://apps.who.int/iris/bitstream/handle/10665/40248/WHO_TRS_86.pdf?sequence=1, Accessed 11 November 2020.

⁵⁰² Claudia Huerkamp notes that several German states enforced mandatory vaccination before German unification, but that this had little influence on parents' decisions about whether or not to vaccinate their children and Prussia's use of information and pro-vaccine propaganda was just as effective as laws. Claudia Huerkamp, *Der aufstieg der Ärzte im 19. Jahrhundert: vom gelehrten stand zum professionellen Experten : das Beispiel preussens* (Göttingen: Vandenhoeck & Ruprecht, 1985).

⁵⁰³ BAArchB 142/47 "Unnoetige Sorgen," 19 April 1955.

Although the Salk vaccine was greeted with widespread enthusiasm in the US, Europe in general was less convinced of its efficacy. Nonetheless, this distrust was not, as Lindner argued, a result of Europe's reticence to admit that the US was the new centre of scientific innovation.⁵⁰⁴ Instead, resistance from physicians in European countries west of the Iron Curtain stemmed from two main concerns: the use of the Mahoney strain for type I vaccine and the inconsistency of inactivation processes. This bias was also a judgement about Salk's lack of experience in vaccine research – his lack of publications, connections with European medical practitioners, and overstatement of the vaccine's efficacy. Medical professionals in Great Britain initially refused to allow Salk's IPV and instead favoured John F. Enders' research, using his Brunhilde Type I poliovirus in their own IPV in 1956.⁵⁰⁵ British researchers also seemed more interested in the potential of an OPV, arguing it would be easier to administer and provide longer-lasting immunity.⁵⁰⁶ Swedish researchers created their own IPV, never switching to OPV.⁵⁰⁷ German scientists and medical experts, working with Soviet and American "supervisors" had a variety of options to choose from, knowing that a wrong choice in vaccine could lead to international criticism.

⁵⁰⁴ Lindner, "Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany," 229.

⁵⁰⁵ Lindner, 236; Tony Gould, *A Summer Plague: Polio and Its Survivors* (New Haven: Yale University Press, 1995), 160–61.

⁵⁰⁶ Oral poliovirus vaccine was created by "attenuating," or reducing the virulence of a strain of each type of poliovirus to the point that it would not cause visible symptoms but would still confer immunity. "British Medic Papers Urge Caution on Salk's Vaccine," *Chicago Daily Tribune*, 22 April 1955, 5.

⁵⁰⁷ Axelsson, "The Cutter Incident and the Development of a Swedish Polio Vaccine, 1952-1957," 328.

West German health authorities decided in April 1955 that they would not order Salk vaccine until West German doctors were able to study it further.⁵⁰⁸ The challenge of properly inactivating the virus had already caused concern, especially after the Cutter Incident in the US. Hence European countries were hesitant to trust the American vaccine without conducting their own tests. However, documents from the Federal Health Ministry noted the difficulty of negotiations with American pharmaceutical companies about acquiring samples of the vaccine for study and permission to make their own version of the Salk vaccine.⁵⁰⁹

By the 1950s, the medical community in the FRG had adequate facilities and funding to begin their own experiments with wild poliovirus to facilitate better understanding of its epidemiology. In 1950, a West German physician, Dr. Wilhelm von Brehmer, reported that he had discovered a microbe which might be responsible for causing polio. Between 1952 and 1955, German medical researchers performed a similar polio typing experiment to the one Salk had performed between 1949 and 1951.⁵¹⁰ Rapalski made clear in 1948 that such an experiment was “not practicable in Berlin” due to a lack of “supplies... expensive monkeys in particular.”⁵¹¹ The West German

⁵⁰⁸ “News of Polio Triumph Stirs European Capitals,” *Daily Boston Globe*, 13 April 1955, 4.

⁵⁰⁹ BArchB B 142/48 Letter, Professor Dr. med .J.D. Achelis, Verbandsmitglied der C.P. Boehringer & Soehne GMBH, to Herrn Ministerialdirektor Dr. Buurmann Bundesministerium des Innern, 18 October 1954.; BArchB B 142/48: Memo, Präsident des Bundesgesundheitsamtes to Herrn Minister des Innern, “Poliomyelitis-Vaccine,” 25 October 1954.

⁵¹⁰ “Typing” is a short form commonly used in the literature of vaccine development. It refers to a process whereby researchers assess how many different strains of a virus exist. Summary of L. Lennartz and W. Klöne, “Types of Poliomyelitis Virus in Western Germany,” *JAMA* 159.9 (29 October 1955): 975, originally published in *Deutsche Medizinische Wochenschrift* 80 (22 July 1955): 1081-1083.; Oshinsky, *Polio: An American Story*, 115–21.

⁵¹¹ Rapalski, “Fighting Poliomyelitis in Berlin”: 19.

“economic miracle” that arrived in the 1950s facilitated West Germans’ ability to conduct research into polio. The researchers aimed to check Salk’s findings on the number of strains of poliovirus that existed. Typing experiments were one step along the way to finding a working vaccine for the disease, as researchers first needed to establish how many strains and how many types of polio existed to see if a vaccine would be feasible. Immunity against one of the types of polio did not provide immunity against the others, so if several dozen types existed simultaneously, the vaccine would not be practicable.⁵¹² The summary in *JAMA* concluded that the experiment in West Germany did not add any new information to the findings of Salk and his team.⁵¹³

The fact that West German doctors were carrying out an experiment that had already been completed in the US was interpreted by US military occupiers and even historians Lindner and Blume as a symptom of one of two broader issues. Germans were either ignorant of American medical research, or they did not trust American medical research. In reality, Germans were taking normal scientific precautions to protect their citizens. In November 1950 a report on immunization in Germany by American Chief of Medical Affairs Lt. Col. W.R. de Forest and Public Health Adviser, Education and Cultural Relations Division Dr. V.K. Volk, described German resistance to all immunization programs. They argued that, though statistics left “no doubt” that

⁵¹² Strains are smaller subgroups of types caused by genetic variation – poliovirus from Berlin could contain genetic variation when compared to poliovirus in Chicago. Researchers gathered as many samples as possible from different epidemics and checked each individual strain to see what its core genetic components were. If those components were similar enough, the strains were allocated to the same “type” group against which only one inoculation would be required. Lennartz and Klöne, “Types of Poliomyelitis”: 975.

⁵¹³ Lennartz and Klöne, “Types of Poliomyelitis”: 975.

vaccination was “a new day in the art of preventive medical science,” German physicians and researchers were reticent to trust research in English-language sources. They lamented that “Unfortunately every doctor here seems to trust only his own figures.” As a result, physicians and the general public demonstrated vaccine hesitancy resulting in “many needless deaths.”⁵¹⁴

The reluctance of Germans to trust immunization, “a new day” in medicine, was interpreted as resistance to the future of medicine and a desire to remain part of the past. According to Lindner and Blume’s narrative, West German medical professionals were “quite distrustful” of American medical advice until the first implementation of the Salk vaccine in 1958, when they were convinced of the efficacy of American medical technology.⁵¹⁵ These interpretations of German medical practitioners’ motives, however, do not acknowledge broader medical culture. Scientists and medical researchers practice peer-review to ensure others’ findings are replicable, so the decision to recheck the safety of new vaccines is typical and not exceptional, particularly when information was travelling across borders into a nation which may have differing safety standards and may mandate retesting. The representation of German medical practitioners as medical luddites instead suggests that American occupiers were unaware of peer review processes

⁵¹⁴ UWDC-GURC, W.R. deForest and V.K. Volk, “Need for Immunization,” *OMGUS Weekly Information Bulletin* (November 1950): 19.

⁵¹⁵ The first large-scale vaccinations began in 1957, not 1958. Lindner and Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965,” 431. Lindner adopts a similar argument in her subsequent chapter on polio in *Gesundheitspolitik in der Nachkriegszeit*. Lindner, *Gesundheitspolitik in der Nachkriegszeit: Großbritannien und die Bundesrepublik Deutschland im Vergleich*.

or differing national safety standards – unlikely since Volk was an MD – or they believed that scientific information from the US should not be scrutinized.

Although OMGUS officials had perhaps overstated the pervasiveness of the “Hitler blackout,” West Germany did lag behind the US in medical advances.⁵¹⁶ The tests allowed German physicians to check their own findings against those of the United States in order to assess the accuracy of US and West German scientific techniques. The West Germans could rely on American findings without reproducing the steps taken to solve the problem, but if they did not understand the processes underpinning vaccine development, they could not proceed to creating their own vaccines. West Germans were not alone in duplicating American experiments – researchers operated in this fashion worldwide. Great Britain retested all of the Salk vaccine it received from the US, and the US performed its own field trials for the Sabin vaccine. West German behaviour was not directed solely at the US – it did not accept the findings of another country instead – nor was it an outlier among nations equipped with the technology to perform such experiments.

⁵¹⁶ Germans were still actively researching medical issues during the Third Reich. While some doctors were complicit in Holocaust atrocities and inexcusable behaviours, the regime’s racism also meant that policy to improve the health of the “Aryan” population was prioritized, and thus the state promoted research into diet, disease prevention, and particularly into causes of cancer. See Robert N. Proctor, *The Nazi War on Cancer* (Princeton: Princeton University Press, 1999).



Figure 12: Richard Haas (left) stands with Nazi officials, including Hans Frank (third from right) at the opening ceremony for the Lemberg Institute in 1942.⁵¹⁷

German scientists initially attempted to manufacture their own vaccine based on Salk's formula instead of purchasing it from the United States. In 1955, *Deutsche Medizinische Wochenschrift* announced that Professor Richard Haas of Behringwerke, Marburg, had created a successful trivalent vaccine against polio, which would require only two injections.⁵¹⁸ Haas had a lengthy career researching infectious diseases during World War II, which he sought to downplay in the postwar years. In 1937, he began work at the Behringwerke Institute, a subsidiary of IG Farben, and a year later he became head

⁵¹⁷ Paul Weindling, *Epidemics and Genocide in Eastern Europe, 1890-1945* (Oxford: Oxford University Press, 2000), 402.; Image, 1942. "Prof. Dr. Richard Haas, 1941-1953." Fonds 310, Gliederung: 2 Personal, "Professoren und Dozenten" Folder 4 "Medizinische Fakultät," No. 6195. Archiv der Philipps-Universität Marburg.

⁵¹⁸ R. Haas, W. Keller, and W. Kikuth, "Grundsätzliches zur aktiven schutzimpfung gegen Poliomyelitis," *DMW* 80.8 (1955): 273-280.

of the department for diagnostic investigation.⁵¹⁹ It is unclear what happened to the previous department head, though it is possible he was deemed unfit during the National Socialist *Gleichschaltung*. In 1942, Haas was put in charge of the Behringwerke's newly constructed Institute for Typhus Research in Lemburg (present-day Lviv) in occupied Ukraine.⁵²⁰ This institute was charged with developing and testing a typhus vaccine created using ticks. The ticks were grown on concentration camp prisoners, with historian Paul Weindling estimating that roughly a thousand prisoners were involved in this feeding and later became the subjects on which the vaccines were tested.⁵²¹ There are no records of how many lives were lost but no functional vaccine was developed.

Haas was a member of the Waffen-SS, and the Lemburg typhus institute was formally opened by General Governor of Nazi-occupied Poland Hans Frank. As Weindling has demonstrated, the typhus vaccine research was celebrated as a vital tool in realizing National Socialist policy. Deputy Reich Health Leader Kurt Blome commented that vaccines "would defend Western civilization against Eastern barbarism."⁵²² After the war Haas's assistants portrayed him as a kind man. They also attested that he sheltered three Jewish researchers from arrest and tried to free staff from the Lemburg ghetto when they were arrested.⁵²³ By 1944, with the Red Army reconquering the Ukraine, Haas returned to the Behringwerke, which was investigated by a Combined Intelligence

⁵¹⁹ Weindling, *Epidemics and Genocide in Eastern Europe, 1890-1945*, 327–28.

⁵²⁰ Ulrich Schneider and Harry Stein, *IG-Farben AG, Abt. Behringwerke Marburg – KZ Buchenwald menschenversuche: ein dokumentarischer Bericht* (Kassel: Brüder-Grimm-Verlag, 1986), 45.

⁵²¹ Weindling, *Epidemics and Genocide in Eastern Europe, 1890-1945*, 351; Schneider and Stein, *IG-Farben AG, Abt. Behringwerke Marburg – KZ Buchenwald menschenversuche: ein dokumentarischer Bericht*, 46.

⁵²² Weindling, *Epidemics and Genocide in Eastern Europe, 1890-1945*, 347–48.

⁵²³ Weindling, 351–52.

Objectives Subcommittee at the end of the war.⁵²⁴ The subcommittee considered liquidating the company, but instead allowed it to continue producing vaccines to supply the German population and prevent further outbreaks of vaccine-preventable diseases. The American occupiers did find Haas unsuitable to remain in his post due to his ties to the SS, but he later found a position as a professor at Freiburg University.⁵²⁵ By 1955, he was again working at the Behringwerke, where he had begun research on a Salk-type vaccine in 1954.

In June 1955, a commission formed by the Federal Health Ministry established research protocols, efficacy tests, and other requirements for vaccine production, including prohibiting use of the Mahoney strain to manufacture vaccines.⁵²⁶ Haas claimed his inactivating procedure was “tested according to the minimum requirement of the United States Department of Health, Education, and Welfare” so it should have easily passed the West German safety standards.⁵²⁷ In 1955, another German, Professor Karl Winnecker, director of the *Farbwerke Hoechst*, announced he had created a vaccine based on Salk’s method of inactivation. An April 1955 piece in *The New York Times* noted that the Germans had begun to sell Haas’s vaccine to Cuba.⁵²⁸ The article demonstrated that the West German company was selling vaccine to other countries

⁵²⁴ Weindling, 401–2.

⁵²⁵ Weindling, 402.

⁵²⁶ BArchB B 142/48. “Protokoll über die Sitzung des wissenschaftlichen Beirates zur Ausarbeitung eines Gutachtens über die Poliomyelitis-Schutzimpfung in Bundesgesundheitsamt Koblenz, am 15 und 16 Juni 1955.”

⁵²⁷ “Poliomyelitis Vaccine,” *JAMA* 158.2 (14 May 1955): 138.

⁵²⁸ “Germans’ [sic] Marketing Own Polio Vaccine,” *The New York Times*, 22 April 1955, 15.; “Foreign Lands Ready to use Polio Vaccine,” *Chicago Daily Tribune*, 13 April 1955, 3.; “Anti-Polio Vaccine on Sale in Germany,” *Daily Boston Globe*, 17 May 1955, 4.; “Germans offer Polio Vaccine,” *The New York Times*, 27 April 1955, 25.

almost 10 months before Haas announced that he had not received approval for his vaccine. West Germany may have been using Cuba to field test its vaccine.

Unfortunately, it is unclear from the current source base what the purpose of West Germany's vaccine sale to Cuba was: whether it was a form of field trial or a profitable response to the shortage of American Salk vaccine.

In addition to the vaccine sales to other countries, the Haas vaccine was implemented in several West German states, though the choice about if, when, and how to implement the vaccine was made at the state level.⁵²⁹ Initial small-scale vaccination campaigns were set to begin in Hesse and North Rhine-Westphalia in early 1955.⁵³⁰ *The New York Times* reported on 27 November 1955 that 100,000 vaccinations had been given in West Germany, though the report does not specify whether these 100,000 vaccinations consisted of Haas trivalent vaccine or Salk monovalent vaccine.⁵³¹ In May, the Hesse government postponed vaccinations until the “dangerous summer season” had passed.⁵³² Perhaps the decision was also influenced by the fact that, in North Rhine-Westphalia, the vaccine had caused polio in test animals and the Behringwerke did not immediately report these deaths, refusing to allow the Federal Health Ministry to see their lab or their lab journals.⁵³³

⁵²⁹ Lindner and Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965,” 433.

⁵³⁰ “Polio Vaccine Seen Successful Abroad” *Spokane Daily Chronicle*, May 25, 1955, 24.

⁵³¹ “8 nations Report on Polio Studies,” *The New York Times*, 27 November 1955, 35.

⁵³² “Polio Vaccine Seen Successful Abroad”: 24.

⁵³³ “Polio Vaccine Seen Successful Abroad”: 24.; Lindner, “Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany,” 238.

By 1956, *Der Spiegel* reported that only 7.8 percent of West German infants, the target demographic, had received the vaccine.⁵³⁴ The same year, a report by the Federal Health Ministry denounced IPV vaccinations altogether and prohibited the importation of vaccine made with the Mahoney strain.⁵³⁵ Seven West German doctors voiced concerns that American and German children who had received the Salk vaccine could actually be spreading polio, a statement which was seized by East Germans for its propaganda value against the West.⁵³⁶ In 1956, Haas mourned that German health authorities would not allow him to market his vaccine despite “the successes achieved in the United States and a “100 per cent successful” test involving the inoculation of 100,000 children in the spring of 1955.⁵³⁷ The Behringwerke’s failure to meet the Federal Health Ministry’s safety standards further shook confidence in the safety of polio vaccination, and left West Germany to decide whether to import vaccines, and where to import them from.

After the first inoculation campaigns, West German medical practitioners debated whether or not to implement the Salk vaccine at all. The most remarkable theory which physicians used to demonstrate that the Salk vaccine was unnecessary in Germany was called “natural immunity”.⁵³⁸ Though it is difficult to assess how widespread this theory was, there were several articles published in medical journals in 1955 and 1956

⁵³⁴ “Kinderlähmung: Später Sieg,” *Der Spiegel* 7 (1964): 83.

⁵³⁵ Lindner, “Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany,” 238.

⁵³⁶ Such concerns were, of course, unfounded. Since the vaccine did not cause those children to develop polio, the poliovirus was properly inactivated and could not have spread to others. “Spreading of Polio Charged to Vaccine,” *New York Times*, 14 April 1956, 3.

⁵³⁷ “Delay on Polio Vaccine Laid to West Germany,” *The New York Times*, 26 January 1956, 3.

⁵³⁸ Lindner and Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965,” 433.

suggesting that not only was the theory present but that it was deemed sufficiently plausible by editorial staff and peer reviewers. The theory, unique to West Germany in these years, was based on the belief that certain people exposed to the polio virus could be asymptomatic and that immunity against one strand of polio translated into immunity against the other two types.⁵³⁹ While many people who contracted polio had very mild symptoms and did not know they were ill, the idea that immunity could be transferred between different strains had been condemned by Sabin at the First International Poliomyelitis Conference in 1949.⁵⁴⁰ In 1963, an epidemic in South Baden demonstrated this lesson vividly. Roughly 20 percent of the cases had received at least one dose of the Salk vaccine and almost two thirds had been vaccinated with OPV Type I in 1962. The incident in South Baden also demonstrated one major problem with IPV. Many people did not receive the multiple injections needed for immunity against each of the three types of polio.⁵⁴¹ Professor Georg Henneberg, the head of the Robert Koch Institute in Berlin, stated in 1956 that West Germany should not launch mass vaccination campaigns but wait for this “natural immunity” to develop.⁵⁴² In the March 1956 edition of *German Medical Monthly*, Hitl Lennartz and Ferdinand Müller proposed that children should only receive the vaccine once blood neutralization tests demonstrated they did not have a pre-existing immunity.⁵⁴³

⁵³⁹ H. Lennartz and Ferdinand Müller, “Latent Immunity Against Poliomyelitis in Childhood: Serological Investigations in Hamburg Children,” *GMM* 1.3 (March 1956).

⁵⁴⁰ Sabin, “Epidemiological Patterns of Poliomyelitis,” 31.

⁵⁴¹ Luthardt, Vivell, Gaedeke, Sanders and Schumacher, “Polio Type III Epidemic in South Baden in 1963” *GMM* 10.9 (September, 1965): 355.

⁵⁴² Lindner and Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965,” 433.

⁵⁴³ Lennartz and Müller, “Latent Immunity.”

The prominence of the “natural immunity” theory in the German medical community reflects the uncertainty of German medical doctors about the safety of vaccination after the Lübeck disaster in 1930 and the Cutter Incident in 1955. The more recent 1955 Cutter Incident, had shaken medical communities in the United States and Europe.⁵⁴⁴ Two German physicians contributed an article to the *Zeitschrift Fur Immunitätsforschung* in which they argued that batches of the Salk vaccine could never be established to be “absolutely sterile,” and the vaccine would always pose a threat to children.⁵⁴⁵ Another West German physician endorsed vaccination but advocated “stricter criteria of production and testing” to prevent another Cutter Incident.⁵⁴⁶

The lack of scientific consensus about the safety, effectiveness, and even necessity of vaccination with Salk IPV in the West German scientific community overflowed into popular media coverage as well. *Der Spiegel* ran a series of articles between 1955 and 1957 which covered the benefits and risks associated with vaccines. The coverage reflected scientific opinion, therefore providing little clear consensus on whether the vaccine was safe or effective. An article on 18 May 1955 concluded that the Behringwerke vaccine was harmless, and the only major impediment to large-scale

⁵⁴⁴ Klein, *Trial by Fury: The Polio Vaccine Controversy*, 119.

⁵⁴⁵ P. Ihm, “Probleme des inaktivitätsnachweises und der wertbemesung von Poliomyelitis-Impfstoffen,” *Zeitschrift Fur Immunitätsforschung* 114 (1957): 423.

⁵⁴⁶ “Die große Prüfung,” *Der Spiegel* 21 (18 May 1955). URL: <http://www.spiegel.de/spiegel/print/d-31970336.html>, Accessed 15 April 2016.; “Das tödliche Gebräu: Viren rutschten durch die Prüfung,” *Der Spiegel* 27 (29 June 1955). URL: <http://www.spiegel.de/spiegel/print/d-31970616.html>, Accessed 10 April 2016. “Kinderlähmung – impfen oder nicht?” *Der Spiegel* 17 (24 April, 1957). URL: <http://www.spiegel.de/spiegel/print/d-41757287.html>, Accessed 10 April 2016.; S. Koller, “A Critical Analysis of the Results of the 1954 and 1955 Poliomyelitis Vaccinations in the USA,” *GMM* 2.10 (October 1957): 322.

vaccination campaigns was adequate supply.⁵⁴⁷ On 29 June, another article argued that there was no absolute guarantee that any lot of Salk IPV was completely free of live vaccine, meaning those who chose to vaccinate were taking a risk.⁵⁴⁸

By 1957, the debate had not been settled. A *Spiegel* article published on 24 April quoted German health authorities, who stated that they were willing to import vaccine from Belgium and the US without retesting it because they had confidence in Belgian and American safety procedures.⁵⁴⁹ An article published in July of the same year quoted Dr. Richard Prigge, head of the Paul Ehrlich Institute, the West German regulatory body for vaccines, who stated that while the Mahoney strain of poliovirus was too dangerous to use in a vaccine, the less-virulent Brunhilde poliovirus used in many European vaccines was not powerful enough to confer strong immunity. Thus, it was less dangerous but less effective.⁵⁵⁰ The popular media coverage of scientific debate about the safety and efficacy of different Salk-type polio vaccines must have confused German citizens, as its summary of medical discourse was disjointed and contradictory due to lack of scientific consensus.

Letters to the editor in German medical journals included doctors reporting uncertainty about IPV in the public. These letters explained that doctors themselves were confused and sought more information to help them explain choices to their patients. In

⁵⁴⁷ “Die große Prüfung.” *Der Spiegel* 18 Mai 1955, 35-37.

⁵⁴⁸ “Das tödliche Gebräu.” *Der Spiegel* 29 June 1955, p.37-38.

⁵⁴⁹ “Kinderlähmung – impfen oder nicht?” *Der Spiegel* 24 April 1957: 28-32.

⁵⁵⁰ “Ohne Brunhilde.” *Der Spiegel* 30 (24 July 1957). Url: <http://www.spiegel.de/spiegel/print/d-41758094.html>, accessed 13 august 2016.

particular, doctors expressed uncertainty about whether to encourage parents to vaccinate children, how frequently allergic reactions to the vaccines occurred, and whether the use of monkey kidney in the vaccine was safe.⁵⁵¹ An editorial in a leading medical publication in 1956 summarized physicians' uncertainty over whether to recommend the Salk IPV or wait for Sabin OPV.⁵⁵² These medical debates and questions were replicated in popular media. *Der Spiegel* published several articles about the Salk vaccine, including one which ended with a quote from Prigge which stated that the vaccine was ineffective.⁵⁵³ These articles summarized scientific debates about the effectiveness and safety of the Salk vaccine, and whether citizens would be better off waiting for the Sabin OPV, already anticipated by scientists in 1956 to be superior to IPV.

Pro-vaccine physicians in West Germany eventually won out and medical journal *German Medical Monthly* recorded that the first large-scale vaccination campaign commenced in West Germany in the spring of 1957.⁵⁵⁴ By the following September, 500 000 people had received a single vaccination and 200 000 had received two doses.⁵⁵⁵ Between 1957 and 1960, West German health authorities inoculated children and pregnant women with the Salk polio vaccine without any dramatic negative side-effects

⁵⁵¹ "Zum stand der Poliomyelitisimpfung," *Med. Klin.* 50.27 (1955): 1155-1156.; "Brief Notices," *German Medical Monthly* 1.11 (November 1956): 356.; Fragen und Antworten: Dr. med. H. B./F. to A. Windorfer, "Zur immunologie der Poliomyelitis epid." *Med. Klin.* 50.38 (1955): 1625-1626.; Rudolf, Werner. "Noch ist nichts versäumt!" *Med. Klin.* 51.11 (1956): 442-443.; Henneberg, G. "Berliner medizinische Gesellschaft, sitzung vom 21.4.1956." *Med. Klin.* 51.44 (1956): 1886-1187.

⁵⁵² "Sabin Live Polio Vaccine," *German Medical Monthly* 1.11 (November 1956): 356.

⁵⁵³ "Das Tödliche Gebräu," *Der Spiegel* 27 (1955): 37-38.; "Die Große Prüfung," *Der Spiegel* 21 (1955): 35-37.

⁵⁵⁴ "Back Matter," *GMM* 2.9 (September 1957).

⁵⁵⁵ "Back Matter," *GMM* 2.9 (September 1957).

or positive results. Although the number of cases reported dipped briefly in 1958, it remained higher than 1951, and the figures rose again in 1959 and 1960.

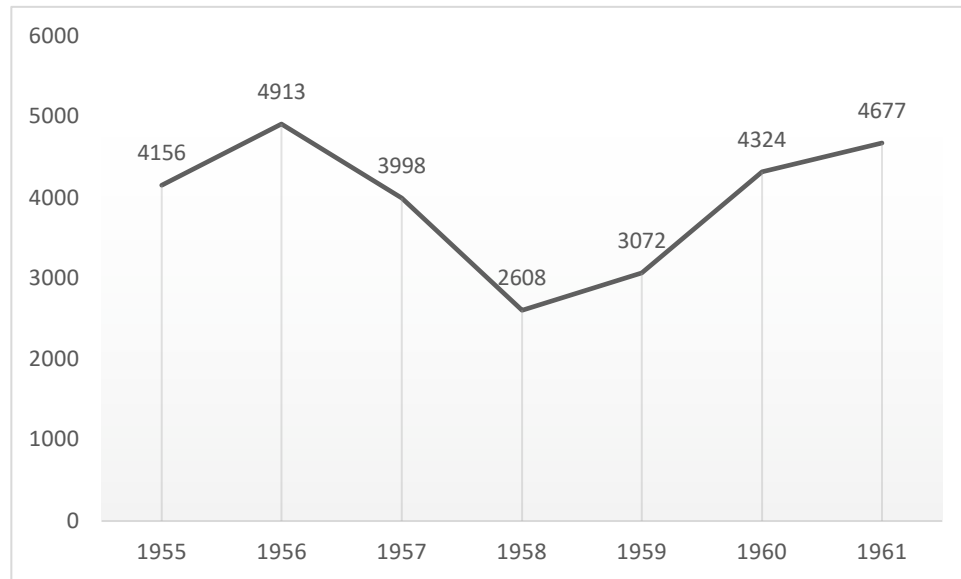


Figure 13: Polio Case Rates in West Germany, 1955-1961.⁵⁵⁶

GMM emphasized the success of the vaccinations, often reporting statistics in increments of months, rather than full years. Although Erich A. Hein, a German doctor, noted in his 1957 article “Die Poliomyelitis in Bayern” that polio was at its height in late summer, most coverage in the *GMM* focused on the period from January to June, when case numbers would not have been so high.⁵⁵⁷ Perhaps the editors of *GMM* were attempting to bolster their peers’ faith in vaccination. Although virologists would likely

⁵⁵⁶ “Back Matter,” *GMM* 3.6 (June 1958); H. Wiesener, H. Lennartz, and G. Enders-Ruckle, “Poliomyelitis Vaccination with Attenuated Viruses,” *GMM* 6.12 (December 1961): 392.; “Back Matter,” *GMM* 10.6 (June 1965). “Back Matter,” *GMM* 3.6 (June 1958).

“Back Matter,” *GMM* 10.6 (June 1965).

⁵⁵⁷ E.A. Hein, “Die Poliomyelitis in Bayern,” *Deutsche Medizinische Wochenschrift* 82.12 (March 1957): 416. See “Back Matter,” *GMM* 3.6 (June 1958); “Back Matter,” *GMM* 6.12 (December 1961); “Back Matter,” *GMM* 10.6 (June 1965).

be familiar with the seasonality of polio, other medical researchers may not have been as informed. As well, *German Medical Monthly* was published in English and aimed at an international audience. According to its mission statement, “the German medical profession, after almost two decades of partial isolation for other reasons,” published in the “natural common language” of English to ensure that international audiences could engage with German research developments.

Even after the first large-scale implementation of the Salk vaccine, however, the German medical community remained confused and uncertain. The number of questions in medical journals about whether to vaccinate a certain age group, or pregnant women, and whether it would be best to wait for an attenuated live virus vaccine instead of beginning to vaccinate with Salk IPV, and the answers which were sometimes similarly uncertain, demonstrates lack of consensus among German physicians.⁵⁵⁸ Medical researchers continued to express hope that an oral polio vaccine developed from live attenuated poliovirus would soon be licensed, viewing Salk IPV as a less-effective stopgap measure until that moment. Though Salk IPV was able to control polio outbreaks and though it could be considered successful in reducing the number of polio cases in Germany from 1957 to 1959, after 1959 case rates began to rise again. Not until 1961, with the implementation of the Sabin OPV, did West Germany gain enough vaccination coverage to significantly reduce the levels of polio within its boundaries.

⁵⁵⁸ “Back Matter,” *GMM* 2.9 (September 1957).; “Questions And Answers.” *GMM* 3.8 (August 1958): 263.

Salk IPV in Germany: East German Financing and following the Soviet lead

East of the Iron Curtain, the vaccine was viewed with distrust due to concerns about safety and efficacy, compounded by the context of the Cold War and fears of biological warfare. Though the Geneva Protocol of 17 June 1925 was still in effect, prohibiting “the use of bacteriological methods of warfare” in addition to chemical warfare, the US had not ratified it.⁵⁵⁹ In 1945, the Allied powers drafted the Nuremberg Charter to define what constituted a “war crime,” which included “inhumane acts committed against any civilian population” and “wanton destruction of cities, towns, or villages or devastation not justified by military necessity.”⁵⁶⁰ Though these stipulations could apply to biological warfare, the Charter did not mention it explicitly. Roosevelt had condemned rumoured use of biological weapons, but by 1947, President Truman had withdrawn the 1925 Geneva Protocol from the Senate.⁵⁶¹ Subsequently, the USSR introduced a motion in the UN Security Council for the full ratification of the Geneva Protocol, which the US refused. Throughout the 1950s, the US and USSR devoted significant resources to research in biological weaponry, including the weaponization of communicable diseases.

⁵⁵⁹ John Cookson and Judith Nottingham, “International Declarations and National Policy,” in *A Survey of Chemical and Biological Warfare*, vol. 5 (NYU Press, 1969), 141.

⁵⁶⁰ United Kingdom of Great Britain and Northern Ireland, United States of America, France, Union of Soviet Socialist Republics. “Agreement for the Prosecution and Punishment of the Major War Criminals of the European Axis (Charter of the International Military Tribunal (Nuremberg)).” London, 8 August 1945. United Nations Treaty Series No. 251. Article 6, sections (c) and (b), pp. 286-288.

⁵⁶¹ Cookson and Nottingham, “International Declarations and National Policy,” 144.

During the Korean War (1950-1953), allegations surfaced that the US had deliberately infected North Korean civilians and soldiers with smallpox, cholera, plague, and meningitis.⁵⁶² While the WHO regarded these claims as unfounded, the World Peace Council [WPC] created the “International Scientific Commission for the Facts Concerning Bacterial Warfare in China and Korea,” which involved physicians and medical researchers from the UK, Sweden, France, and Italy among others. Their report found links between the outbreaks and Unit 731 – the infamous wartime biological warfare section of the Japanese army.⁵⁶³ Unsurprisingly, the US called the WPC a communist front organization of the Soviet Union, and the USSR made similar allegations that the WHO was under American control.⁵⁶⁴ The WPC was created by the Communist Information Bureau, controlled by the Soviet Union, in 1948, in response to the creation of the United Nations, and its meetings drew communist supporters from many countries.⁵⁶⁵ Though it was under Soviet influence, that does not necessarily mean its conclusions about bacterial warfare were incorrect, just as the United States’ influence in the United Nations did not mean the WHO’s conclusions were incorrect. Warsaw treaty countries’ physicians could thus be expected to exhibit increased caution in response to American offers of free vaccine. They were critical of the United States’

⁵⁶² Hickey, Doug, Scarlet Sijia Li, Celia Morrison, Richard Schulz, Michelle Thiry, and Kelly Sorensen. “Unit 731 and Moral Repair.” *Journal of Medical Ethics* 43, no. 4 (2017): 270–76.; Baader, Gerhard, Susan E. Lederer, Morris Low, Florian Schmaltz, and Alexander V. Schwerin. “Pathways to Human Experimentation, 1933-1945: Germany, Japan, and the United States.” *Osiris* 20 (2005): 216–31.

⁵⁶³ World Peace Council. *Report of the international scientific commission for the investigation of the facts concerning bacterial warfare in Korea and China* (1952). W. E. B. Du Bois Papers (MS 312). Special Collections and University Archives, University of Massachusetts Amherst Libraries

⁵⁶⁴ Harris, Sheldon L. *Factories of Death: Japanese biological warfare 1932-45 and the American cover-up* (London: Routledge, 1994), 231.

⁵⁶⁵ World Peace Council, *Report of the International Scientific Commission*, 4-10.

licensing process and the Cutter Incident was treated as evidence that capitalist societies emphasized economics and innovation over individual health. A Hungarian newspaper, *Szabad Nép*, claimed in May 1955 that the US was guilty of “making children guinea pigs of the free market economy,” failing to adequately ensure the safety of the vaccine and rushing the field trials.⁵⁶⁶

In 1953, the new Soviet leadership realized cases of poliomyelitis were rising at an alarming rate. Up to this point, the Soviet Union had had relatively low case rates, so this outbreak was an indication that sanitation systems, including improved water treatment processes, and waste disposal, were reducing the amount of wild poliovirus in Soviet territories and thus reducing the amount of natural immunity in the Soviet population. As a result, research on poliovirus and vaccines became more of a priority in the Soviet Union.⁵⁶⁷ In 1952, Mikhail Chumakov, one of the leading researchers on polio in the USSR, lost his position as Director of the Ivanovsky Institute of Virology in Moscow for refusing to obey orders and fire Jewish colleagues.⁵⁶⁸ In 1955, however, he became Director of the newly-established Institute for the Study of Poliomyelitis, reflecting both the regime change in the Soviet Union and the search for stability and health.

⁵⁶⁶ Transl. by and Qtd. In Vargha, “Iron Curtain, Iron Lungs: Governing Polio in Cold War Hungary 1952-1963,” 88.

⁵⁶⁷ “Salk-Type Serum Rushed by Soviet: Scientist Says Need is Urgent, but Vaccine Will Be Made Experimentally at First Headed Mission to U.S.,” *New York Times*, 7 May 1956: 29.

⁵⁶⁸ Harry Schwartz, “Moscow Betrays an Inner Struggle for Power: Repudiation of ‘Doctors’ Plot’ Throws Light on Shifts Within New Regime,” *New York Times*, 5 April 1953: E3.

Despite ongoing tensions between the two nations, in autumn 1955, the USSR requested approval for a group of medical researchers to tour laboratories of American researchers conducting work on poliomyelitis vaccines.⁵⁶⁹ In 1956, a group of Soviet physicians including Chumakov, his wife Marina Konstantinovna Voroshilova, Anatoli Aleksandrovitch Smorodintsev, and Lev Ivanovich Lukin received U.S. government permission to visit the laboratories of both Salk and Sabin.⁵⁷⁰ They returned to the Soviet Union determined to begin with the vaccine that was already functional: Salk IPV.⁵⁷¹ Nonetheless, they maintained communication with Sabin as he developed his OPV.

The USSR implemented a short-lived inoculation campaign using IPV in 1956 but eventually switched to Sabin's OPV when it became available to them during the field trials in 1957.⁵⁷² This vaccination campaign used a Salk-type IPV which was manufactured at the Moscow Polio Institute. The Soviets could produce large amounts of vaccine due to a long-standing prioritization of vaccine research and development by the Soviet state. Since it had a robust biological warfare program, state leaders were also concerned about potential biological warfare attacks on Soviet populations and had been steadily expanding the nation's vaccine production capabilities since well before World War II. In 1933, the Vaccine Serum Laboratory was established by the Soviet

⁵⁶⁹ Benison, "International Medical Cooperation: Dr. Albert Sabin, Live Poliovirus Vaccine and the Soviets," 462.

⁵⁷⁰ Victor Rosenberg, *Soviet-American Relations, 1953-1960: Diplomacy and Cultural Exchange During the Eisenhower Presidency* (New York: McFarland, 2015), 135.; Peter J. Hotez, "Russian-United States Vaccine Science Diplomacy: Preserving the Legacy," *PLoS Neglected Tropical Diseases* 11, no. 5 (May 25, 2017).

⁵⁷¹ "Soviet to Make Salk Vaccine," *New York Times*, 6 May 1956: 20.

⁵⁷² HCASA Correspondence, Individual. Box 3, File 14: Brody, Jacob – 1962-66. Jacob A. Brody, "Report No. 17 – Moscow, USSR, 27 July 1962." (14-17 June 1962): 2.

government in Vlasikha, near Moscow, to develop vaccines against common communicable diseases.⁵⁷³ In fact, the WHO's smallpox eradication plan (SEP) relied on the Soviet Union for its vaccine supply.⁵⁷⁴ After 1953, Soviet scientists recognized the rise in polio cases and applied their experience with other vaccines against diseases like typhus and scarlet fever to developing a polio vaccine. The Soviet Union's role as vaccine powerhouse also benefitted East Germany, providing a cheaper alternative to imports from western countries.

East German responses

The debate in East Germany was more muted than in its western counterpart. Publicly, East German press coverage of the Salk licensing was almost nonexistent, until the Cutter Incident gave the state-run press fodder to attack the *laissez-faire* governance in the US. Despite public criticism, similar themes of uncertainty about the Salk IPV were clear in the meetings of the East German Expert Committee for Poliomyelitis and its Aftercare (*Fachausschuß für Poliomyelitis und deren Nachbehandlung*, FPdN). They did not simply follow the direction of the Soviet Union, and instead the Expert Committee discussed the decisions of many other European countries, including Czechoslovakia.⁵⁷⁵ The FPdN was also interested in Sabin's OPV – partially because the cost of Salk IPV proved prohibitive for any large-scale national vaccination campaigns.

⁵⁷³ Milton Leitenberg, Raymond A. Zilinskas, and Jens H. Kuhn, "The Soviet Union's Biological Warfare Program, 1918–1972," in *The Soviet Biological Weapons Program* (Harvard University Press, 2012), 18.

⁵⁷⁴ Manela, "A Pox on Your Narrative: Writing Disease Control into Cold War History," 300.

⁵⁷⁵ BArchB DQ 1/1966. "Protokoll über die XVII Sitzung des Polioausschusses am 10.2.1960."

Media coverage of polio in East Germany was critical of Salk IPV and silent about the East German decision in 1957 to implement a vaccination campaign with the injected vaccine. *Neues Deutschland*, the SED's official newspaper, did not announce the licensing of Salk IPV, but in 1956, it announced Sabin had successfully created another vaccine.⁵⁷⁶ The only references to Salk's vaccine were negative. After the Cutter Incident, a series of articles in April and May of 1955 accused the US of gambling with children's lives and described the heartbreak of mothers who sought to protect their children, and instead watched them suffer and die.⁵⁷⁷ These articles framed the Salk field trials as a rushed experiment due to the sway of big business: the lack of government involvement in the funding of vaccine research left Salk open to pressure from pharmaceutical corporations to license the vaccine and let them begin profiting from their initial investments in vaccine production.⁵⁷⁸ An article in May 1955 reported that 17 children who had received the Salk vaccine still succumbed to polio, suggesting that the vaccine was far less effective than Salk claimed in his speech at the University of Michigan.⁵⁷⁹ These criticisms were followed by near silence about the vaccine in 1956 and most of 1957.

Neues Deutschland's overt criticism of the US's handling of the Salk field trial, and silence about the East German government's decisions about whether or not to use an

⁵⁷⁶ "Kurz gemeldet," *Neues Deutschland*, 10 October 1956, 5.

⁵⁷⁷ "Gemeiner Serumschwindel," *Neues Deutschland*, 29 April 1955, 5.; "Vabanquespiel mit Kinderleben," *Neues Deutschland*, 5 May 1955, 1.; "Amerikanische Mütter fragen: warum?," *Neues Deutschland* 21 May 1955, 4.

⁵⁷⁸ "Vabanquespiel mit Kinderleben," 1.; "Gemeiner Serumschwindel," 5.

⁵⁷⁹ "Vabanquespiel mit Kinderleben," 1.

IPV to protect German citizens belied more intense discussions going on below the surface. On 3 March 1955, the FPdN met to discuss its plans for the upcoming polio season. The committee members acknowledged the Salk vaccine announcement. The Committee concluded that the Salk vaccine was in line with their prophylactic approach to healthcare and seemed relatively safe if manufactured properly. Since there were no alternatives, they sought to introduce it, if only as a stopgap measure until Sabin's OPV was ready. Rather than spending precious funds importing the vaccine, the East Germans first sought to create their own. Initial start-up costs could be offset by selling excess vaccine to other countries. They decided that two institutes in the GDR should be dedicated to research on the IPV vaccine and petitioned for funding to create facilities to house rhesus monkeys – a key necessity for vaccine development and safety testing.⁵⁸⁰ No evidence exists that these plans ever came to fruition, most likely because rhesus monkeys were too expensive to import from Africa.

Along with planning for the development of an East German vaccine, the committee also recognized the importance of international connections for the fight against polio. These international connections did not include the US or West Germany. At the 3 March meeting, the FPdN expressed interest in renewing or developing international ties “because of the need to cooperate with foreign countries in the field of poliomyelitis.”⁵⁸¹ It advised the East German Ministry of Health to join the WHO and

⁵⁸⁰ BArchB DQ 1/1945. “Protokoll der 1. Sitzung des Fachausschusses für Poliomyelitis und deren Nachbehandlung am 16.3.1955.”

⁵⁸¹ BArchB DQ 1/1945. “Protokoll der 1. Sitzung des Fachausschusses für Poliomyelitis und deren Nachbehandlung am 16.3.1955.”

participate in its European polio conferences. As well, it sought permission to send delegates to the Pasteur Institute in Paris, France, where medical researcher Pierre L  pine had successfully created an injected polio vaccine similar to Salk’s IPV. This research trip would help East German scientists learn more about the IPV manufacturing process and improve German scientists’ relations with French researchers.

By the end of April, however, the plans for an East German vaccine had been abandoned, and East German correspondence turned to discussion of how to import vaccines. The US Department of Commerce’s restrictions on exporting Salk IPV made concerns about its safety, propagandistic or real, a moot point. Eisenhower’s guarantee that all nations would be able to benefit from US vaccine never came to fruition. European nations had several options. They could appeal to the International Red Cross or WHO for vaccine samples to try to manufacture a domestic supply, or they could wait for another nation to make its own IPV vaccine and hope to import from countries such as the United Kingdom and Switzerland. They could also use the Swedish IPV manufactured by Sven Gard, which was more potent than Salk’s IPV, but slightly more costly.⁵⁸²

East Germany could import the Behringwerke vaccine from West Germany. At first, the FPdN seemed convinced that the West German option was the most appealing one. On 11 October 1955, a member of the committee reported that the Behringwerke

⁵⁸² BArchB DQ 1/20437. Memo, Prof. Dr. Marcusson, Hauptabteilungsleiter to Herrn Minister Steidle, Herrn Stellvertreter des Ministers Prof. Dr. Redetzky, Frau Staatssekret  r Matern, and Herrn Prof. Dr. Brekenfeld. “Impfstoff gegen Poliomyelitis von Dr. Jonas Salk.” 20 April 1955.

had provided him with 100 doses of its IPV free of charge.⁵⁸³ He asked whether the West German vaccine might provide a safer alternative to the American vaccine in the interim, while the East Germans worked on manufacturing their own. Another committee member wondered whether the virus was safely inactivated in the vaccine fluid. He suggested that the virus fluid should be treated with a higher dose of formalin, the formaldehyde-containing solution used to kill living viruses.⁵⁸⁴ The issue with this proposition, unacknowledged during the meeting, was that too much formalin would turn the virus to mush, destroying the shape of the virus. Without a clear shape, the human immune system could not adequately prepare an immune defense against the virus. The committee concluded that the free vaccines should be used in Berlin, Jena, and Leipzig on a first-come, first-serve basis but made no concrete plans to purchase any vaccine from the Behringwerke.

Two months later, an East German report on the Salk vaccine and the West German IPV created in Salk style, again raised the question of its safety. The report reiterated many of the criticisms of the Salk field trial and rapid licensing, which resulted in the Cutter Incident and the deaths of American children. It linked that tragedy to the Behringwerke's vaccine, which, it said, was also brought to market by "premature propaganda" without proper safety testing.⁵⁸⁵ A researcher demonstrated that there was still live virus which caused paralysis in monkeys in batches of the vaccine created for

⁵⁸³ BArchB DQ 1/6301. "Protokoll für III. Sitzung den Fachausschusses für Poliomyelitis und deren Nachbehandlung," 11 October 1955.

⁵⁸⁴ BArchB DQ 1/6301. "Protokoll für III. Sitzung den Fachausschusses für Poliomyelitis und deren Nachbehandlung."

⁵⁸⁵ BArchB DQ 1/20795. "Betri. Poliomyelitis-Impfstoff," 30 December 1955.

vaccination campaigns in West Germany and several other nations. Although no cases of polio were linked to the vaccine, the report noted that Finland had returned 35 000 of the 45 000 ampoules delivered from Behringwerke because of a lack of faith in its safety.⁵⁸⁶ As well, at the Third International Symposium on Poliomyelitis, held in Zurich on 29-30 September 1955, Swiss scientists left the room as soon as Haas began his presentation on his vaccine, in a display of protest. A report from the Federal Health Ministry indicated that 34 percent of individuals vaccinated in 1955 with this initial batch of vaccine experienced “reactions,” though it is unclear what these reactions entailed.⁵⁸⁷

By 1957, correspondence showed that East German officials were more confident in the safety of the West German vaccine but were concerned about its cost. That year, *Neues Deutschland* published a lengthy article on IG Farben’s profiteering on vaccines and insulin for individuals with diabetes. The use of “IG Farben” in the article, in lieu of the actual corporation name, Hoechst AG, held deeper meaning. IG Farben had been placed into liquidation after World War II, due to its support for and engagement with the Third Reich. Though the Allied powers agreed in 1945 to its dismantling, and though the IG Farben trial at the Nuremberg trials convicted 13 of the directors of IG Farben of war crimes, these initial punitive actions belied the soft approach taken by American and British occupiers toward the company.⁵⁸⁸ The umbrella company of IG Farben was decartelized, but the six corporations under that umbrella continued operating in the

⁵⁸⁶ BArchB DQ 1/20795. “Betri. Poliomyelitis-Impfstoff.”

⁵⁸⁷ BArchK B 142/2.3. Report, 23/3-12. “Symposium der Europäische Vereinigung gegen die Poliomyelitis in Madrid über Spinale Kinderlähmung,” 4 October 1958.

⁵⁸⁸ A. Lacroix-Riz, “La Dénazification Économique de La Zone d’Occupation Américaine : La Perception Française Du Phénomène,” *Revue Historique* 283, no. 2 (1990): 306.

western zones, one of which was Hoechst AG. It did not complete liquidation until 2011 due to lawsuits and disputes over potential foreign assets.⁵⁸⁹ The slow pace of liquidation and the decision to let subsidiaries continue functioning, as well as American High Commissioner John J. McCloy's decision to pardon those convicted during the Nuremberg Trials led to criticism from the east, as well as from France.⁵⁹⁰

The article in *Neues Deutschland* began by reiterating IG Farben's role in the Third Reich: both its use of prisoners of war and concentration camp prisoners as cheap labour and test subjects; and its supply of the chemicals used to murder individuals in the National Socialist death camp gas chambers.⁵⁹¹ It connected these ethical failures to the high costs of vaccines in the FRG, accusing IG Farben of creating a vaccine cartel which purposely drove up the costs of diphtheria and polio vaccines in spite of their life-saving potentials. This monopoly was a clear result of the capitalist system and lack of government coordination of big business. The article concluded by criticizing the West German Behringwerke, under the IG Farben umbrella, for charging 12 Deutschmark (DM) per polio vaccine. The per capita income of 1957 West Germany was 1414 DM.⁵⁹² A course of the recommended 4 vaccinations cost 48 DM, 3 percent of their yearly wage. A 1958 order form from the Behringwerke indicated a single dose of IPV cost 22.25 DM,

⁵⁸⁹ Gerhard Schneibel, "Stock of Former Nazi Chemicals Giant to be Delisted," *Deutsche Welle*, 19 August 2011. URL: <https://p.dw.com/p/12JGW>, Accessed 2 December 2020.

⁵⁹⁰ Thomas Schwartz, "John J. McCloy and the Landsberg Cases," in *American Policy and the Reconstruction of Germany, 1945–1955*, ed. Jeffry M. Diefendorf, Axel Frohn, and Hermann-Josef Rupieper (Cambridge: Cambridge University Press, 2001), 447; Lacroix-Riz, "La Dénazification Économique de La Zone d'Occupation Américaine : La Perception Française Du Phénomène."

⁵⁹¹ "Geschäft mit gesundheit und leben," *Neues Deutschland*, 4 November 1957, 2.

⁵⁹² Wolfgang F. Stolper and Karl W. Roskamp, "Planning a Free Economy: Germany 1945-1960," *Zeitschrift für die gesamte Staatswissenschaft / Journal of Institutional and Theoretical Economics* 135, no. 3 (1979): 375.

showing the price had almost doubled.⁵⁹³ Per capita income had only increased by 28 DM.⁵⁹⁴ Though not insurmountable for households with one child and two incomes, single-parent households with multiple children might struggle to vaccinate all children.

Not until 1958, when the Soviet Union was already field-testing Sabin OPV, did East Germany implement a comprehensive vaccination campaign with IPV. A report indicated that it was still impossible to find IPV from a “non-capitalist country.”⁵⁹⁵ Instead of the American Salk IPV or Behringwerke vaccine, they used “Berna” IPV – vaccine created via the Salk method in Bern, Switzerland, at the Swiss Serum and Vaccine Institute.⁵⁹⁶ East Germany did not legislate compulsory vaccinations, as many onlookers expected. According to Thießen, the approach taken in the GDR was to use pressure from local party authorities to convince East Germans to vaccinate their children. East German citizens were encouraged by the government and its representatives at the *Bezirk* level to vaccinate their children, but many still opted out of vaccinating their children. By 2 July 1958, only 170 000 children had received one dose of IPV, and 120 000 had received two doses, out of a total population of 17.3 million – with an estimated 3.5 million under the age of 18.⁵⁹⁷ Vaccination rates with Salk IPV remained low due to problems of supply and demand.

⁵⁹³ BArchB DQ 1/6506. Import Notification Form 16-45/o1928/4000/0, 25 September 1958.

⁵⁹⁴ Stolper and Roskamp, “Planning a Free Economy,” 375.

⁵⁹⁵ BArchB DQ 1/6506. Letter, Prof. Dr. Sartorius to Ministerium für Gesundheitswesen. 8 April 1959.

⁵⁹⁶ BArchB DQ 1/6506. Memo, Staatliche Hygiene-Inspektion, Brekenfeld. To DIA Chemie Pharmazie Koll. Gräf. 9 September, 1958.

⁵⁹⁷ BArchB DQ 1/21511. “Protokoll über die XII. Sitzung des poliomyelitis-Ausschusses,” 2 July 1958.

Although the initial supply of vaccine came from Switzerland, the East Germans hoped that by early 1959, the Soviet Union would be able to provide larger quantities of vaccine for a much lower price. The GDR received 650 litres of polio vaccine from the Soviet Union in early 1959, as promised, and over a million children received vaccinations.⁵⁹⁸ While the East Germans paid \$550 USD for each litre of the Swiss vaccine, the Soviet vaccine cost only \$25.31 USD per litre.⁵⁹⁹

When injected vaccines were used in East Germany, they were administered ineffectively, leaving many who received a “full” course of inoculations still unprotected or partially protected. As Vargha explained in her study of Hungarian vaccination campaigns against polio, one of the major differences between vaccination in communist and capitalist nations was the injection method. East Germany experimented with intradermal injections. While information about injection technique was not available for the 1959 vaccination campaign with USSR IPV, correspondence between physicians in the GDR shows that the Berna vaccine used in 1958 was administered intradermally.⁶⁰⁰ The purpose of this form of injection was to stretch out the supply of vaccines to protect more people, as intradermal injections required less fluid. Intramuscular injections required more of the vaccine material and longer syringes, raising the costs of inoculating each individual. The problem was that intradermal injections did not provide the same

⁵⁹⁸ BArchB DQ 1/6506. Memo, Staatliche Hygiene-Inspektion, Brekenfeld. To DIA Chemie Pharmazie Koll. Gräf, 9 September, 1958.

⁵⁹⁹ BArchB DQ 1/1966. “Protokoll über die XIV. Sitzung des Poliomyelitisausschusses im Ministerium für Gesundheitswesen,” 4 March 1959.

⁶⁰⁰ BArchB DQ 1/21510. Memo, Dr. Erler, HA Heilwesen Abt. Allg. Gesundheitsschutz, to Herrn Staatssekretär Jahnke, 16 July 1959.

strength of immunity as intramuscular injections because so little fluid was administered into the dermis, which has less blood flow. Intramuscular injections resulted in faster and more robust immunity as more vaccine could be administered and muscles are well-connected to the vascular system. Presently, vaccines are administered intramuscularly and only allergy tests, tuberculosis tests, and local anesthetics are administered intradermally.⁶⁰¹

Conclusion

Although the Salk vaccine was initially very successful and celebrated as a “silver bullet” in the US, European nations were less willing to trust American testing and implement vaccination campaigns. Many medical researchers voiced concerns that the Cold War was impeding the flow of medical knowledge and that the United States had exaggerated the vaccine’s effectiveness. The Cutter Incident further damaged confidence in the safety of the Salk IPV. As well, pragmatic concerns including shortages of vaccines due to supply issues and, in the case of East Germany, shortages of funds with which to purchase vaccines, hindered any plans for vaccination campaigns with approved vaccines.

Both East and West Germany were relatively slow to implement vaccinations with the Salk IPV. Part of the hesitation was the lack of available vaccines. Although the US had promised to share vaccines with the world, it initially had few to spare. Countries like Switzerland picked up the slack. Nonetheless, the requirement of three injections led

⁶⁰¹ *Principles of Injection Technique* (New Jersey: Becton, Dickson and Company, 2017), 23.

to slow uptake by the German citizens on each side of the border. Even as supply restrictions eased, Salk IPV was unpopular in West Germany, especially in 1960, when doctors and the public became aware that a live virus, simian vacuolating virus 40 (SV40), had been discovered in the vaccine.⁶⁰² The failure to vaccinate against polio led to continued outbreaks of polio throughout the late 1950s.

Even more concerning, by the end of the 1950s, cases of polio were again on the rise in the United States. Studies blamed a lack of education, citing statistics that lower-income populations with less education were more likely to resist vaccination.⁶⁰³ Partially, this was true. At the same time, the vaccine was not subsidized, and families were required to meet the costs to protect their children and themselves. It also required three to four visits to a general practitioner, further compounding the economic burden and disadvantaging poor families with multiple children. As well, evidence emerged that the Salk vaccine was not always effective, even when all three doses were administered at the correct intervals. Media reports of polio sufferers who had received all of their doses raised public doubts about the efficacy of the vaccine, and these doubts were heightened by civilians' concerns about government secrecy in the context of the Cold War.

The transmission of information about the Salk IPV was hindered by national and political borders. Many Europeans perceived that American politicians had a vested

⁶⁰² "Die Große Prüfung," *Der Spiegel* 21 (1955): 35-37.

⁶⁰³ Rosenstock, Irwin M., Mayhew Derryberry, and Barbara K. Carriger. "Why People Fail to Seek Poliomyelitis Vaccination." *Public Health Reports (1896-1970)* 74, no. 2 (1959): 98-103.; Burney, Leroy E. "Poliomyelitis Vaccination." *Public Health Reports (1896-1970)* 74, no. 2 (1959): 95-97.; "Paralytic Polio Soars." *The Science News-Letter* 75, no. 22 (1959): 339-339.

interest in portraying the Salk vaccine as successful, since it was a source of prestige for the nation. The Cutter Incident, discovery of SV40, and word of polio cases among Salk vaccinees in the United States filtered to West Germany. Coupled with excitement about the potential for an oral attenuated vaccine, spread often by Sabin himself through a robust correspondence with international researchers, problems with the Salk vaccine led to doubts about whether the expense of importing or producing vaccine similar to Salk's would be worth the effort, or whether waiting for Sabin OPV was the safer choice.

For East Germany, the political boundary between the capitalist and socialist worlds made acquisition of vaccines from the West problematic. The political problem was compounded by economic concerns. East German currency was relatively weak and purchases from countries like the US, where the dollar was stronger, would be too costly. The GDR instead sought to purchase vaccines developed using the Salk method from more neutral Switzerland, until the USSR developed its own several years after the Salk vaccine first became available from the United States.

By 1958, the American military had convened its Armed Forces Epidemiology Board (AFEB) to discuss concerns about whether their members were adequately protected by the Salk IPV. In 1958, before the United States had even licensed Sabin OPV, the military recommended all servicemembers receive Sabin OPV, regardless of whether they had received a full course of Salk IPV or not. Here, the military was far ahead of the rest of the United States, which would deny Sabin permission to field test his vaccine because they did not want to interrupt the Salk vaccine's progress, and they did not want to admit that the Soviet Union may have been correct to change course in 1957.

Neither East nor West Germany was able to facilitate a comprehensive vaccination campaign with Salk IPV. Despite pursuing alternative sources for the vaccine when American shortages became apparent, both sides struggled to convince physicians and their patients that the vaccine was safe. The Cutter Incident reminded many in West Germany of the Lübeck Disaster in 1930, and parents feared that their children would be harmed by the vaccine. Doctors feared legal consequences for developing and administering unsafe vaccines, as Lübeck resulted in a legal precedent whereby physicians could be held accountable for their work. In East Germany, concern about the safety of US and West German vaccines, as well as their prohibitive costs were compounded by the lack of hard currency to purchase vaccines. Moreover, when vaccines were available, they were administered intradermally to preserve supplies, resulting in a lack of immune response and protection against polio.

Many physicians still thought of IPV as a stopgap measure which was safe and effective enough to administer until an oral polio vaccine was available. Just two years after Salk's IPV was licensed in the US, Sabin announced that he was ready to test his OPV and proceed with licensing it for public use. Many physicians responded favourably to this announcement, as scientific thought in the 1950s still maintained that oral vaccines provided stronger, faster, and longer-lasting immunity than injected vaccines. As well, from both administrative and economic perspectives, oral vaccines were preferable. The oral vaccines did not require syringes or injections to be administered by a licensed physician. Because each patient needed to consume less of the vaccine fluid, supplies could be stretched further. For socialist countries, having the option to administer vaccine

free of charge during school or daycare alleviated pressure on parents who might otherwise have to make several more trips to polyclinics to have their children vaccinated. The following chapter explores how the Sabin OPV made its way to Europe, and to divided Germany.

Chapter 4: Sabin OPV and the Politics of Poliomyelitis

In 1957, virologist Albert B. Sabin announced that he had developed an oral attenuated vaccine against polio that had proved safe and effective in small-scale trials and was now ready for large-scale field testing. Two other oral attenuated vaccines, one developed at Lederle Laboratories by Herald Cox, and one created by virologist Hilary Koprowski of the Wistar Institute, soon followed. The introduction of new oral vaccines presented a problem for the US vaccination campaign with the Salk IPV. Basil O'Connor and the NFIP did not want to abandon the Salk IPV and switch to Sabin OPV, or one of the two alternatives, because this would cloud long-term studies of the Salk IPV's effectiveness.⁶⁰⁴ The Salk IPV began to suffer a public relations crisis in the late 1950s, as vaccination rates flagged, and cases of polio began to rise. The decision to continue with Salk IPV instead of switching to an OPV led to anxiety among American politicians about "losing" the vaccine war to the Soviet Union.⁶⁰⁵ This chapter traces how a vaccine created by Albert Sabin, an American in the United States, became known as a communist vaccine, and how divided Berlin became a testing ground for two duelling oral polio vaccines.

The decision to pursue vaccination with an attenuated OPV was relatively simple for nations which had not yet deployed the Salk IPV. The oral polio vaccines had many

⁶⁰⁴ Since OPV can cause latent immunity as it is shed in fecal matter which can then spread to water systems, proceeding with vaccination campaigns with both vaccines would require much more complex tracking of vaccinations and case rates. As well, if individuals with two doses of Salk IPV decided to switch to Sabin OPV, that would further impede the assessment of the efficacy of both vaccines.

⁶⁰⁵ Richard Carter, *Breakthrough: The Saga of Jonas Salk* (New York: Trident Press, 1966), 366–67.; United States of America, "Rebuttal of Soviet Claims," Congressional Record: Proceedings and Debates of the 86th Congress, First Session (Chicago: U.S. Government Publishing Office, 1959), 9971.

advantages. Doses were smaller than Salk IPV, so the vaccine was easier to make in larger quantities. As a result, the vaccine was significantly less expensive to purchase than IPV. The oral vaccine also did not require an injection, so hypodermic needles were not required. Aside from keeping the liquid sterile, there were fewer concerns about infection from improperly sterilized needles or bacteria on top of the skin pushed into the puncture wound. Instead, the vaccine was administered in juice or on sugar cubes, which children much preferred to the pain of injection. Many vaccine experts also believed that an oral attenuated vaccine would provide stronger immunity against poliomyelitis because it would more closely mimic natural immunity.

The difficult decision was which OPV to purchase, particularly as experts were providing conflicting opinions. Medical researcher Thomas M. Rivers, in his 1960 article, concluded that Sabin's vaccine was consistently less virulent than the Cox vaccine, in addition to being much more widely tested.⁶⁰⁶ Joseph L. Melnick, known as a "founder of modern virology," argued that the poliovirus strain used in the Sabin vaccine was less likely to harm the nervous system than comparable viruses, making the Sabin oral vaccine safer than its competitors.⁶⁰⁷ In 1959, a Swiss study insisted that the Koprowski OPV was safest, followed by Sabin, with Cox last.⁶⁰⁸ Not only did researchers have to choose between OPV and IPV, they also had to select the most effective form of OPV when no consensus existed. As well, all three researchers were denied permission by the

⁶⁰⁶ Rivers, "Killed-Virus Vs. Live Virus Vaccines": 450. Rivers lists the locations of Sabin's tests outside of the USSR: Czechoslovakia, Mexico, Singapore, Chile, Japan, and Holland.

⁶⁰⁷ Joseph L. Melnick, quoted in Rivers, "Killed-Virus Vs. Live-Virus Vaccines": 450.

⁶⁰⁸ F. Buser, "Gegenwärtiger Stand der oralen Poliomyelitis-Schutzimpfung," *Bulletin der Schweizerischen Akademie der Medizinischen Wissenschaften* 15 (1959): 443-450.

US government to conduct large-scale field trials of their vaccines in the US. Sabin, along with other oral polio vaccine creators, was thus forced to test abroad. Due to his Russian ancestry and networking skills he partnered with the USSR, which U.S. officials later lamented when his vaccine turned out to be more practical and more popular than Salk IPV. By 1960, the Sabin OPV was used widely in countries behind the Iron Curtain. The vaccine became known as a communist success even though it originated in the United States.

In East Germany, the cost of the Salk IPV and the need for hypodermic needles administered by trained healthcare professionals were obstacles to large-scale vaccination campaigns, so the new Sabin OPV from the USSR was economically appealing. Observers in Western countries assumed East Germany had been forced or coerced into adopting Sabin OPV by the Soviet Union, however, there was a robust discussion within East German medical circles about OPV even though the decision to import the vaccine from the Soviet Union was reached quite quickly. This vaccine was much less expensive to purchase and less expensive to administer as it did not require multiple injections, and therefore multiple hypodermic needles. Stainless steel was in short supply in the Soviet and satellite nations during the 1950s. The vaccine could be administered to children at school and in nurseries, which were often attached to the factories in which the children's parents worked. Vaccination was also easy to achieve given that it did not require trained medical professionals to administer.

West Germany struggled to implement Salk IPV in an effective way and had not vaccinated enough citizens to reach the threshold for herd immunity. Its medical

researchers also expressed interest in switching to Sabin's oral attenuated vaccine once it was available for purchase. The US did not have any Sabin OPV to offer, so West Germany had to wait for an alternative vaccine from a western nation. Purchasing the vaccine directly from the USSR would imply recognition that the Sabin OPV field trial in the Soviet Union had been successful. Even when East Germany offered Sabin OPV from the USSR to West Germany free of charge, West German politicians dismissed the offer as a propaganda ploy. Sweden, another major vaccine producer, stuck to its own national IPV so did not produce OPV. Switzerland and Canada also continued to use and manufacture IPV throughout the late 1950s.

The Sabin OPV quickly became a badge of honour in East Germany, especially when the Salk IPV began to suffer a public image crisis. Due to the difficulty of properly and consistently inactivating large quantities of vaccine, reports emerged from Dade County, Florida, that even individuals who had received a full course of three doses of Salk IPV were still succumbing to polio. In 1958 the American Armed Forces Epidemiological Board began discussing the potential for switching to OPV when it became available – despite Sabin not receiving permission to test his vaccine in the US.⁶⁰⁹ East Germany and the Soviet Union portrayed these reports, as well as reports of poliomyelitis epidemics in West Germany due to under-vaccination, as evidence that they had succeeded in better protecting their citizens, thus gaining a key Cold War victory. Even American onlookers expressed concerns about the “vaccine race” – in 1959 the

⁶⁰⁹ HCASA Correspondence, Military Service AEB/NVC Box 4 File 2: Commission on Viral Infections Correspondence, General – 1958, “Agenda Spring Meeting of Viral Infections Commission Armed Forces Epidemiological Board March 10-12 1958.”

Surgeon General of the US compared the rates of vaccination in the Soviet bloc with capitalist states, claiming that this was the new arms race. Whispers of a new type of race with the Soviet Union, this time for polio eradication, spread in the general populace.⁶¹⁰

The period from 1958 to 1961 was marked by increasing tensions between East and West Germany, and the USSR and US, beginning with the Second Berlin Crisis at the end of 1958 and culminating in the Berlin Wall announcement in 1961.⁶¹¹ West Germany continued to experience outbreaks of polio through 1960, and East Germany used these epidemics as justification to restrict travel between the two Germanies. Although the more substantive motive for increased border policing was the growing flight of East German citizens to the FRG, the continued prevalence of polio was used by media and politicians to portray these restrictions as protective measures to ensure the safety of the GDR's children.

The introduction of the Sabin OPV in East Berlin in 1960 precipitated another crisis between the two Germanies. The lack of vaccine coverage in the FRG caused anxiety among West German physicians and politicians, as the oral vaccine could regain neurovirulence in vaccinees' intestines, resulting in live virus being shed into water systems through fecal matter. This live virus could then infect unvaccinated individuals. Thus, the proximity of the East German vaccination campaign, particularly with shared

⁶¹⁰ Carter, *Breakthrough: The Saga of Jonas Salk*, 366–67.

⁶¹¹ In 1958, Soviet leader Nikita Khrushchev issued an ultimatum demanding the USA, UK, and France withdraw any military forces from Berlin. This sparked a period of heightened tensions between the east and west, with meetings in Geneva, Camp David, and Paris. Talks ended abruptly when an American spy plane was shot down over Soviet airspace in May of 1960, and Khrushchev withdrew from the Paris four-power summit in retaliation. The status of Berlin was uncertain in this period and western zone were uncertain about whether the Soviet Union and East Germany would attempt another blockade.

waterways, sparked concerns about vaccine-associated epidemics of polio among West Berlin citizens. While the West voiced these concerns, East Germany criticized the West German government for failing to properly protect its citizens from polio.

East Germany responded by offering vaccine to West Germany in 1960, which was derided by the government in the FRG. The East Germans denied having any issues with polio vaccines, despite the obvious contradiction between their refusal of vaccines and their concerns about vaccine-associated poliomyelitis.⁶¹² Both the United States and West Germany expressed doubt about the transparency and scientific rigour of the Sabin OPV field trials in the USSR. Implicit in these statements were accusations that Soviet leadership was less concerned about the health and safety of its citizens, and more preoccupied with winning a vaccine race. Hoping to demonstrate that it was developing a superior vaccine, West Germany authorized Herald Cox of Lederle Laboratories to trial his OPV for free in West Berlin. When the OPV trial had to be canceled because of cases of vaccine-associated polio, East Germany pointed to the outbreaks of polio in West Germany to justify the construction of the Berlin Wall in August 1961.

The Second Berlin Crisis from 1958 to 1961 coincided with the introduction of oral polio vaccines in East and West Berlin, contributing to the further deterioration of relations between East and West Germany. This chapter demonstrates how Salk IPV and Sabin OPV became entangled in the broader Cold War competition, with Sabin's vaccine becoming known as the "red" vaccine or the "communist" vaccine despite Sabin's

⁶¹² "IG-Farben sabotiert Poliobekämpfung," *Neues Deutschland*, 7 October 1961.; "Keine Panik! Weiter Sterben," *Neues Deutschland*, 24 July 1961.; "Bonn sucht Ausflüchte, während Kinder sterben," *Neues Deutschland*, 21 July 1961. "Adenauer schweigt noch immer," *Neues Deutschland*, 3 July 1961.

American nationality. The East Germans claimed victory in the fight against polio as evidence for the superiority of their socialized system of healthcare. The American and West German switch to Sabin OPV in 1961 was akin to admitting the Soviet Bloc had been correct to abandon Salk IPV for Sabin OPV.

Albert B. Sabin: A Polarizing Historical Subject



Figure 14: Albert B. Sabin⁶¹³

Albert B. Sabin was an American virologist, born in 1906 in Bialystok, Russia.⁶¹⁴ He and his parents immigrated to New York City in 1921, where Sabin attended medical school. He spent most of his career working at the University of Cincinnati Children's Hospital, starting in 1939.⁶¹⁵ That same year, however, Sabin joined the US Army

⁶¹³ "Albert B. Sabin," image from Wikimedia Commons, licensed under the Creative Commons Attribution-Share Alike 4.0 International. URL: https://commons.wikimedia.org/wiki/File:Albert_Sabin.jpg, accessed 13 August 2020.

⁶¹⁴ Bialystok is in present-day Poland, which was Russian territory in 1906.

⁶¹⁵ Margaret L. Grimshaw, "Scientific Specialization and the Poliovirus Controversy in the Years before World War II," *Bulletin of the History of Medicine* 69, no. 1 (Spring 1995): 64.

Medical Corps, travelling to Europe and East Asia and conducting research on a variety of diseases. He developed a vaccine to prevent Japanese encephalitis, which plagued the American military during its Pacific operations.⁶¹⁶ Post-war, he returned to University of Cincinnati's Children's Hospital as Head of Pediatric Research. Throughout the 1940s and 1950s, Sabin continued to research vaccines, maintaining a belief that oral vaccines held more power to protect humans than injected vaccines, though he had developed both.

By most accounts, Sabin was not a pleasant man, but he was a brilliant scientist. As historian Charlotte DeCroes Jacobs explained, "leading scientists may have admired Sabin, but they didn't necessarily like him."⁶¹⁷ Historian Jeffrey Kluger stated that Sabin's "displays of disdain would be intolerable if it weren't for the fact that he was right so much of the time."⁶¹⁸ Bioethicist Edmund Pellegrino said "He often told us what we needed to know but were not always willing to hear."⁶¹⁹ Sabin's peer, virologist Hilary Koprowski said: "He was a fine scientist, much better than Salk, but human nature is not nice."⁶²⁰ For example, in 1951, Koprowski announced in a meeting that he held a small oral polio vaccine trial on 20 child patients at Letchworth Village Institution for mentally and physically disabled individuals.⁶²¹ Sabin broke into a furious tirade,

⁶¹⁶ David M. Oshinsky, *Polio: An American Story* (Oxford: Oxford University Press, 2005), 143.

⁶¹⁷ Charlotte DeCroes Jacobs, *Jonas Salk: A Life* (Oxford: Oxford University Press, 2015), 78.

⁶¹⁸ Jeffrey Kluger, *Splendid Solution: Jonas Salk and the Conquest of Polio* (New York: G.P. Putnam's Sons, 2004), 98.

⁶¹⁹ J. L. Melnick and F. Hauraud, "Albert B. Sabin," *Biologicals: Journal of the International Association of Biological Standardization* 21, no. 4 (December 1993): 302.

⁶²⁰ Koprowski, qtd. in Allen M. Hornblum, *Against Their Will: The Secret History of Medical Experimentation on Children in Cold War America* (New York: Palgrave Macmillan, 2013), 91.

⁶²¹ Oshinsky, *Polio: An American Story*, 136.

accusing Koprowski of unethical testing on institutionalized children.⁶²² Although he did not express himself politely, scientists respected his blunt opinions as they were supported by years of experience.

Historian John R. Paul declared that Sabin was “singularly well qualified to take an overall view of the vaccination field as it concerned viral infections in general,” since he had conducted work on both inactivated and attenuated vaccines for a variety of viruses including Japanese encephalitis and influenza B.⁶²³ Even as Salk IPV was field-tested and licensed, scientists in many nations outside of the US were hopeful that Sabin OPV would become the most widely-used vaccine. Aside from the practical and economic advantages of a vaccine that did not require injection and required a smaller dose, scientists believed oral vaccines would create a stronger and longer-lasting immunity since it more closely mimicked natural transmission of the virus.⁶²⁴

Sabin began developing an oral polio vaccine in the early 1940s. He received funding from the NFIP – though not as much as Salk received. Sabin performed his first small-scale clinical trials in 1954, at Chillicothe Reformatory in Ohio. By 1957, he was convinced of the vaccine’s safety and wished to proceed to vaccinating children in large numbers. He did not find a warm reception. According to him, “the dean of American

⁶²² Stephen E. Mawdsley, *Selling Science: Polio and the Promise of Gamma Globulin* (New Brunswick: Rutgers University Press, 2016), 35.

⁶²³ John R. Paul, *A History of Poliomyelitis* (New Haven: Yale University Press, 1971), 449.

⁶²⁴ “Live Polio Vaccine May Protect Longer, *The Globe and Mail*, 28 September 1959, 4.; “Debate Polio Virus Vaccine.” *The Science News-Letter* 76.2 (1959): 23.; “Oral Poliomyelitis Vaccine.” *The British Medical Journal* 2.5259 (1961): 1072–73.; Dick, G. W. A., and D. S. Dane. “Vaccination Against Poliomyelitis With Live Virus Vaccines: 4. A Review Of The Present Position.” *The British Medical Journal* 2.5106 (1958): 1184–86.; “Live Attenuated Poliomyelitis Vaccine.” *The American Journal of Nursing* 59.8 (1959): 1147.

medical virologists, who at that time was the chief scientific advisor of the National Foundation for Infantile Paralysis... told me to throw my vaccine in the nearest sewer and not to proceed.”⁶²⁵ Nonetheless, Sabin persisted out of concern that the Salk IPV was not reliable enough to provide a final cure to poliomyelitis and because other scientists and physicians expressed interest. From 1955 through 1959, researchers from around the world wrote to Sabin to ask when an oral attenuated vaccine would become available.⁶²⁶

The bulk of historical research on polio vaccine development follows the trajectory of Jonas Salk. There is still no monograph focusing exclusively on Sabin’s life and career despite his voluminous personal and scientific papers which were donated to the University of Cincinnati after his death. Albert B. Sabin’s OPV does not fit comfortably with historical narratives of the development and licensing of Salk IPV, so it is often excluded, or Sabin is made out to be a jealous narcissist intent on preventing Salk’s success at any cost. Even though there are biographies of Hilary Koprowski and Sister Elizabeth Kenny, Sabin continues to be largely ignored.⁶²⁷

When Sabin does appear in early histories of polio research, he generally plays the role of Salk’s antagonist, constantly questioning the safety and efficacy of IPV

⁶²⁵ Albert B. Sabin, “Role of My Cooperation with Soviet Scientists in the Elimination of Polio: Possible Lessons for Relations between the USA and the USSR,” *Perspectives in Biology and Medicine* 31, no. 1 (Autumn 1987): 57–64.

⁶²⁶ HCASA. Letter, Prof. Dr. E. Pette, to A. Sabin, 13 September 1957. HCASA. Letter, Dr. R. Wigand, Institut für Hygiene und Mikrobiologie, Homburg, to Dr. Albert B. Sabin, 22 November 1959.; Russel, W. Ritchie, *Poliomyelitis* (London: Edward Arnold, Ltd., 1956).; HCASA. Letter, H.C.A Lassen, Professor at Blegdamshospitalet to Albert Sabin, 16 February 1959.

⁶²⁷ Roger Vaughan, *Listen to the Music: The Life of Hilary Koprowski* (Berlin: Springer, 2000); Victor Cohn, *Sister Kenny: The Woman Who Challenged the Doctors* (Minneapolis: The University of Minnesota Press, 1975); Naomi Rogers, *Polio Wars: Sister Kenny and the Golden Age of American Medicine* (New York: Oxford University Press, 2014); Naomi Rogers, “Silence Has Its Own Stories’: Elizabeth Kenny, Polio and the Culture of Medicine.,” *Social History of Medicine* 21, no. 1 (April 2008): 145–61.

vaccines, then challenging the Salk IPV's progress with another potential path through his OPV. Some accounts present Sabin as a crotchety old man who resisted Salk's newer method of inactivating viruses. These celebratory accounts do not often explore the emergence of Sabin OPV in detail. Instead, they present a heroic story in which Salk triumphs over a killer virus. Some of the early histories appear bitter toward Sabin and his OPV, as if he had interfered in Salk's glorious conquest.⁶²⁸ These histories of polio vaccine development do not pay enough attention to the merits of Sabin's role in the fight against poliomyelitis, and present a skewed, overly positive image of Jonas Salk.

Revisionist historians, incorporating the constructivism of the "Science Wars" fought by historians in the 1990s, complicated the linear narrative of Salk's success by considering the scientific culture of the 1950s and 1960s.⁶²⁹ Rather than seeing Sabin as an outlier, these historians widened their gaze to discuss experts' opinions on live versus killed virus vaccines rather than assuming the first functional vaccine should be the only vaccine, or was the end of the narrative.⁶³⁰ The caricature of Sabin created by early Salk

⁶²⁸ Carter, *Breakthrough: The Saga of Jonas Salk*; Kluger, *Splendid Solution: Jonas Salk and the Conquest of Polio*; Paul, *A History of Poliomyelitis*; Bernard Seytre, *The Death of a Disease: A History of the Eradication of Poliomyelitis*, trans. Mary Shaffer (New Brunswick: Rutgers University Press, 2004); Jane S. Smith, *Patenting the Sun: Polio and the Salk Vaccine* (New York: W. Morrow, 1990).

⁶²⁹ The "Science Wars" began when individuals from scientific disciplines issued harsh critiques of social scientists' work on the history of science, and on their incorporation of relativism when considering scientific knowledge. In response, historians devoted more effort to solidifying and expanding the use of sociological frameworks for explaining how scientific knowledge is developed in its context and, while not objecting to the notion of "truth," exploring how interpretations of what is true and acceptance of "fact" are developed in economic, political, ideological, and social context. Philip S. Baringer, "Introduction: The 'Science Wars,'" in *After the Science Wars: Science and the Study of Science*, ed. Keith Ashman and Philip S. Baringer (New York: Routledge, 2005), 1–12.; Paul R. Gross and Norman Levitt, *Higher Superstition: The Academic Left and its Quarrels with Science* (Baltimore: Johns Hopkins University Press, 1994).; Keith Parsons, ed., *The Science Wars: Debating Scientific Knowledge and Technology* (New York: Prometheus Books, 2003).; James R. Brown, *Who Rules in Science? An Opinionated Guide to the Wars* (Cambridge: Harvard University Press, 2001).

⁶³⁰ Oshinsky, *Polio: An American Story*; Jacobs, *Jonas Salk: A Life*.

enthusiasts downplays the very real debate in the virology community about whether killed viruses could confer the same powerful immunity as live viruses. Sabin did not decide in a vacuum to create an oral poliovirus vaccine using live attenuated virus and public enthusiasm for the Salk inactivated virus vaccine belied expert opinion that it should be used only as a stopgap measure until Sabin's was ready.

Although many of these historians mention the Cold War when it seems relevant to their analyses, they do not provide a thorough exploration of the topic. In the German context, Lindner does not acknowledge the effects of either the postwar or the Cold War political contexts on polio vaccine implementation in Germany – instead, she follows a scientific realist line, harkening back to earlier histories of the Salk IPV and exploring the motives for resistance to vaccination in a vacuum.⁶³¹ Dóra Vargha centers the Cold War and political boundaries in her studies of polio vaccinations in Hungary, foregrounding collaboration between capitalist and communist countries.⁶³² The German case demonstrates much more dissent and much greater politicization of polio epidemics. It also shows how the competition between the Salk vaccine and oral vaccines, as well as between Sabin's OPV and those of Hilary Koprowski and Herald Cox, became caught up

⁶³¹ Ulrike Lindner, "Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany," in *Evaluating and Standardizing Therapeutic Agents, 1890-1950*, ed. C. Gradmann and J. Simon (London: Palgrave Macmillan, 2010); Ulrike Lindner and Stuart S. Blume, "Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965," *Medical History* 50 (2006): 425-46.

⁶³² Dóra Vargha, "Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary," *Bulletin of the History of Medicine* 88 (2014): 319-43; Dóra Vargha, "Iron Curtain, Iron Lungs: Governing Polio in Cold War Hungary 1952-1963" (PhD Dissertation, New Brunswick, Rutgers University, 2013); Dóra Vargha, *Polio Across the Iron Curtain: Hungary's Cold War with an Epidemic* (Cambridge: Cambridge University Press, 2018).

in the Cold War competition between the United States and the USSR, as well between as East and West Germany.

The Salk-Sabin rivalry is well-trodden historiographical ground, but Sabin's incredible networking abilities have not received enough attention. Assessments that Sabin was not a pleasant individual have clouded some of his positive personality traits. He maintained much better relationships with scientists outside of the US. The Sabin archive contains copious boxes of correspondence, in which Sabin and his administrative staff cultivated relationships with scientists and politicians world-wide. In a 1987 article on his decision to conduct field trials in the USSR despite Cold War animosity, Sabin explained that he had hoped the collaboration would end the "dangerous impasse of justifiable, mutual distrust."⁶³³ He travelled to Cuba in 1967 in an attempt to build relationships between the National Academies of Science in the two countries that would create grounds for collaboration across Cold War boundaries.⁶³⁴ This passion for using scientific collaboration to challenge Cold War division is key to understanding Sabin's decision to hold vaccine trials in the USSR.

By contrast, Salk was a relative newcomer to the field of virology. He did not have the international reputation that Sabin enjoyed, and this came into play when the Salk IPV was announced. Instead of trusting Salk's research and trials, scientists wrote to Sabin asking for his advice about whether to implement the Salk IPV. Salk was not as

⁶³³ Sabin, "Role of My Cooperation with Soviet Scientists in the Elimination of Polio: Possible Lessons for Relations between the USA and the USSR," 59.

⁶³⁴ Marguerite Jiménez, "Epidemics and Opportunities for U.S.-Cuba Collaboration," *Science & Diplomacy* 3, no. 2 (September 6, 2014), <http://www.sciencediplomacy.org/article/2014/epidemics-and-opportunities-for-us-cuba-collaboration>.

well-traveled or well-connected as Sabin, and he showed no desire to improve in these areas. NFIP leadership had to pressure Salk to travel for international polio conferences.⁶³⁵ In the mid-1950s, he was invited to travel to the Soviet Union to meet with other polio researchers. He refused the invitation.⁶³⁶ Salk did not build the same level of international correspondence as Sabin, instead focusing his attention on cultivating a relationship with the NFIP and its associated American physicians.

Sabin had been one of the first researchers brought in to help the Western zones of Germany during the 1947 polio outbreak. When he toured the afflicted areas and delivered lectures, he met with researchers and developed relationships. Throughout the 1940s and 1950s, he exchanged letters with them, updating them on his own research and asking for statistical data on epidemics of polio in Germany. Frequently, he traded samples and data about outbreaks of polio with these German researchers. They contacted him with theories about polio's spread and severity, with questions about new treatment methods and his recommendations about whether to implement Salk IPV, and with requests for samples of poliovirus to study in their laboratories. Sabin's (and his secretary's) ability to maintain correspondence with so many other researchers in dozens of countries solidified his role as the global expert on polio.

Salk's slowness or reticence – which one is not clear – to publish his research findings hurt the international appeal of his IPV. He had published a paper in 1953 which claimed that the inactivation of poliovirus was a linear process rather than an exponential

⁶³⁵ Kluger, *Splendid Solution: Jonas Salk and the Conquest of Polio*, 259.

⁶³⁶ Oshinsky, *Polio: An American Story*, 251.

one. Less than a year later, researchers reported difficulties reproducing Salk's experiment and its outcome, and questioned whether his extrapolation about the course of the inactivation process was accurate.⁶³⁷ In 1954, at the Third International Poliomyelitis Congress in Rome, Swedish researcher Sven Gard again questioned Salk's assumption that the inactivation of polio virus using formaldehyde formed a linear reaction. Other researchers supported Gard's findings.⁶³⁸ Another article published by British researchers suggested the danger of formaldehyde fully destroying virus tissues, resulting in a lack of immunity against polio.⁶³⁹ Unfortunately Salk did not heed these warnings. The Cutter Incident was caused by Salk's assumption that the inactivation reaction was linear without sufficient evidence to support the claim. This incident provides one example of how peer-review of methods and findings could have helped detect deadly errors. By 1957, researchers in Europe had published many articles questioning Salk's calculations and the efficacy of formalin or formaldehyde for inactivating poliovirus, but Salk

⁶³⁷ Paul A. Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis* (New Haven: Yale University Press, 2005), 42–43.

⁶³⁸ W. Auerswald, "The question of the safety and effectiveness of trivalent formalin-inactivated poliomyelitis vaccine," *Neue Österreichische Zeitschrift Fur Kinderheilkunde* 2, no. 2 (1957): 90–93.; S. Gard, "Inactivation of Poliovirus by Formaldehyde: Theoretical and Practical Aspects," *Bulletin of the World Health Organization* 17, no. 6 (1957): 979–89.; S. Gard and E. Lycke, "Inactivation of Poliovirus by Formaldehyde; Analysis of Inactivation Curves," *Archiv Fur Die Gesamte Virusforschung* 7, no. 5 (1957): 471–82.; S. Gard et al., "Inactivation of Poliomyelitis Virus by Formaldehyde," *Archiv Fur Die Gesamte Virusforschung* 7, no. 2 (1957): 125–35.; R. Haas et al., "Inactivation of poliomyelitis virus with formaldehyde," *Zeitschrift Fur Hygiene Und Infektionskrankheiten; Medizinische Mikrobiologie, Immunologie Und Virologie* 143, no. 5 (1957): 490–512.; A. E. Hook et al., "The Nature of the Formalin Inactivation of Poliomyelitis Virus," *Journal of Immunology (Baltimore, Md.: 1950)* 77, no. 6 (December 1956): 444–52.

⁶³⁹ H. A. Howe, "Studies of Active Immunogenesis in Poliomyelitis. II. Lack of Immunity in Chimpanzees Receiving Formol-Inactivated Vaccines of Marginal Antigenic Potency," *American Journal of Hygiene* 60, no. 3 (November 1954): 392–98.

dismissed the validity of these claims. He argued that his calculations were correct and that individuals who challenged him were attempting to delay his progress.⁶⁴⁰

When Sabin was ready to test his vaccine, his international ties became extremely important. The Soviet Union had begun vaccinating with Salk IPV in 1956 but was dissatisfied with the results. Though Sabin was able to conduct a small-scale test of the OPV on 180,000 residents of Cincinnati, the Salk vaccine trials had raised the burden of proof for a vaccine to be considered safe, so a larger field trial would be necessary. Sabin was denied permission by the US government to conduct large-scale testing in the US due to the NFIP's focus on the Salk IPV tests, which swayed the medical decisionmakers in the Surgeon General's office, so he turned to contacts he had in the Soviet Union to provide a large, and largely unvaccinated, pool of children who would partake in a vaccine field trial. The Soviet field trial surpassed the Salk IPV field trial as the largest in history by successfully vaccinating roughly 10 million children during 1959 with little to no adverse effects.⁶⁴¹ The introduction of another type of working vaccine created even more confusion for western nations, as it coincided with declining faith in Salk IPV.

Crisis of Confidence in Salk

Public opinion on the Salk vaccine in the United States and abroad had begun to cool as evidence emerged that even with a full course of vaccines some individuals were not immune to polio.⁶⁴² A two-year study in Illinois concluded that 50 percent of children

⁶⁴⁰ See Chapter 3, p.16.

⁶⁴¹ Oshinsky, *Polio: An American Story*, 252.

⁶⁴² Johnson, Albert L., C. David Jenkins, Ralph Patric, and Travis J. Northcutt, Jr. *Epidemiology of Polio Vaccine Acceptance*. Miami: Florida State Board of Health, 1962.

who had 3 or more Salk vaccinations were not immune to Types I and III, and 20 percent were not immune to Type II. The authors concluded that “much of the Salk vaccine [they] have been using is useless.”⁶⁴³ Studies later revealed that in their attempts to avoid another Cutter Incident, some pharmaceutical companies were over-treating their virus fluid. Too much formaldehyde, or too lengthy an inactivation procedure was turning the virus to mush, thus hampering its ability to spark an immune response.⁶⁴⁴ The vaccine was not harmful, but it was not helpful either.

Although the Salk polio vaccine successfully reduced the number of severe cases of polio, its effectiveness was not necessarily as apparent to contemporaries as it is to historians with the benefit of hindsight. Since the number of cases of polio fluctuated annually, a few years of decline in the rates of polio outbreaks did not necessarily demonstrate the vaccine was effective. Polio case rates naturally fluctuated because the epidemics left survivors with lifelong immunity to the strain with which they were infected. Thus, after a major epidemic, a region would often experience lower case rates for several years. By year four of the reduction in polio rates, the trend would be more easily tied to the vaccine’s efficacy, as opposed to fluctuations in level of disease due to immunity from natural infection. In 1958 and 1959, however, US polio case rates rose again, clouding the clarity of the vaccine’s effectiveness. The case reduction from the high of 57,879 in 1952 was clear, but all post-vaccine rates remained higher than the

⁶⁴³ “The Present Status of Polio Vaccines,” *Illinois Medical Journal* (1960): 84-93, 160-168.

⁶⁴⁴ BArchK. B 142/2.2, Folder 50: Schutzimpfung gegen Kinderlähmung.- Bereitstellung und Prüfung von Impfstoff. Band 4, 1956. Bericht des Präsidenten des Bundesgesundheitsamtes für die Konferenz der für das Gesundheitswesen zuständigen Minister und Senatoren. “Probleme der Schutzimpfung gegen Poliomyelitis,” 23 November 1956. 505.

1942 low of 4,033. Thus, for those viewing the data at the time, the trends and, by extension the effectiveness of the vaccine, were much more ambiguous than they are today.

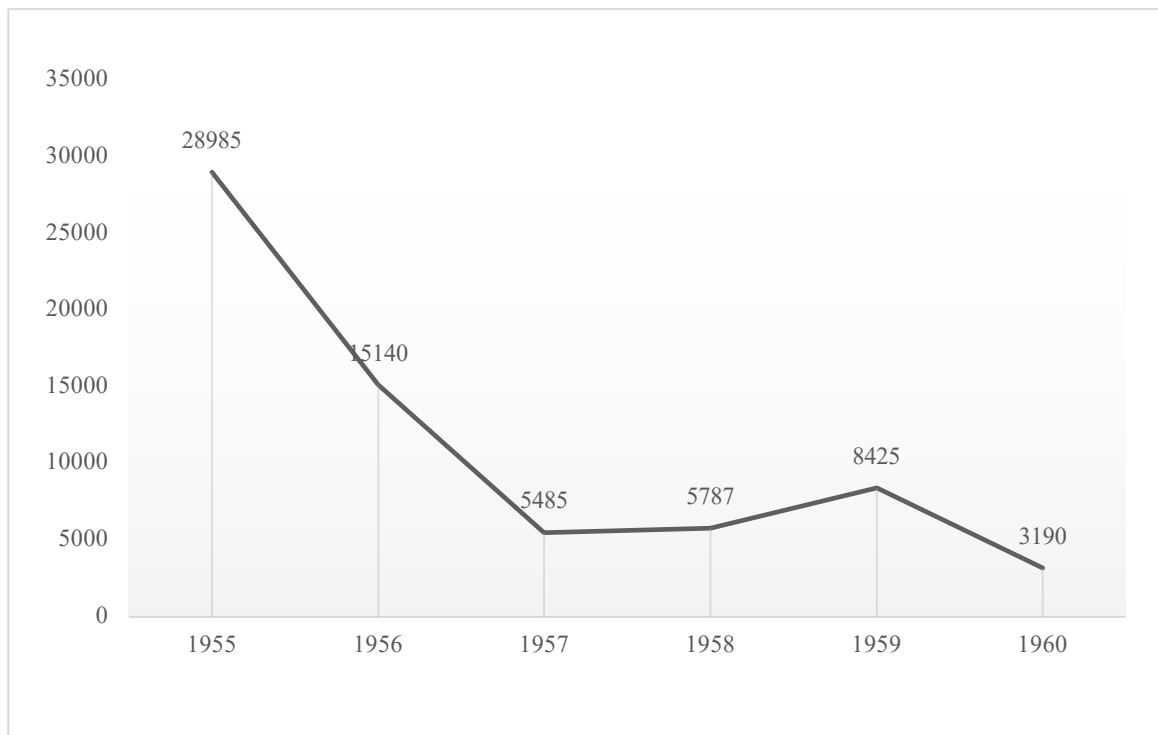


Figure 15: Case Rates in the US, 1955 to 1960.

Between 1958 and 1961, when the US finally tested and licensed Sabin OPV, the Salk vaccine received increasingly negative coverage in domestic American and international media. Newspapers in the United Kingdom reported shortages of Salk IPV and difficulty securing shipments of the vaccine from pharmaceutical companies in the US.⁶⁴⁵ Similar shortages were reported in the US beginning in 1959. Partially, these

⁶⁴⁵ “Blow to Polio Vaccine Plan: Big U.S. Hold-Up,” *The Manchester Guardian*, 17 April 1958, 1.; “Shortage of Vaccine at Polio Emergency Clinic,” *The Manchester Guardian*, 21 April 1959, 14.; “Complaint on Polio Vaccine Shortage,” *The Guardian*, 8 November 1961, 5.; “Stocks of Polio Vaccine Running Low,” *The Guardian*, 1 November 1961, 1.; “Polio Vaccine Shortage,” *The Observer*, 10

American shortages were a result of production stoppages. Eli Lilly reported economic losses from 1957 to 1958, which it blamed on the lack of market demand for the Salk polio vaccine. The company halted production of the vaccine in May 1958.⁶⁴⁶ Other reports of pharmaceutical companies slowing, or halting production of the vaccine emphasized the lack of demand. Childhood vaccines have never been particularly lucrative to manufacture, as individuals generally only require one course of three to four vaccinations.⁶⁴⁷ Conversely, medications which must be taken daily or weekly provide much more opportunity to profit.

Globally, vaccinations with Salk IPV lagged and reports of individuals who were afflicted with polio despite receiving a full course of Salk vaccinations became more common. A case in Liverpool where a 13-year-old was hospitalized for paralytic polio after receiving her third and final vaccination in 1959 prompted the Liverpool Medical Officer of Health, Dr. E.H. Moore, to comment that “it was not uncommon for a person to contract poliomyelitis after vaccination,” a disturbing revelation from a medical professional.⁶⁴⁸ A 1960 report in *The Lancet* reported that 242 children who received all three Salk injections became ill with polio – over half with paralytic polio. Four of these

September 1961, 9.; “Salk Vaccine Runs Low, Polio Rate Rises in Many States,” *Wall Street Journal*, 5 August 1959, 7.

⁶⁴⁶ “Eli Lilly to Halt Polio Vaccine Output; Slow Demand Cited,” *Wall Street Journal*, 26 May 1958, 9.; “Eli Lilly & Co.: Sales and Profits Off Sharply – Polio Vaccine Dip Cited,” *New York Times*, 18 October 1958, 29.

⁶⁴⁷ “The Annual Meeting of the Commission on Viral Infections AFEB,” 28 March 1956. Hauck Center for the Albert B. Sabin Archives, online sources.; “Salk Vaccine Shortage Delays Program Here,” *The Globe and Mail*, 9 May 1956, 5.; “Salk Vaccine Shortage is ‘Serious,’” *New York Herald Tribune*, 22 March 1957, 1.; “City Facing Lack of Salk Vaccine,” *New York Times*, 12 March 1957, 36.; “Salk Vaccine Runs Low,” *Wall Street Journal*, 5 August 1959, 7.; “Polio Vaccine Temporarily Running Low,” *The Washington Post and Times Herald*, 14 March 1957, A1.

⁶⁴⁸ “Polio Case After Vaccination,” *The Manchester Guardian*, 20 June 1959: 16.

children died. The report's authors concluded that while fewer of the study's vaccinated subjects contracted polio than would have been the case without vaccinations, those who did were more likely to become seriously ill.⁶⁴⁹ Similar examples of vaccinated children becoming severely ill or dying also occurred in the United States.⁶⁵⁰ By 1959, the United States had begun recommending children receive a fourth booster, adding an additional doctor's appointment and cost for parents.⁶⁵¹ A journalist for the *Washington Post Times Herald* added nothing to contradict a statement by a Soviet researcher who insisted that the Salk IPV was "expensive and insufficiently effective... costly to produce on a large scale... involving additional scarring of children because of the repeated injections required."⁶⁵²

Both the Surgeon General of the US, Leonard Scheele, and the Vice President of Medical Affairs for the NFIP, Thomas M. Rivers, felt obligated to defend the Salk vaccine, protesting that it was only ever expected to be between 70 and 90 per cent effective.⁶⁵³ These protests were hampered by Salk's overselling of the vaccine's effectiveness. Salk claimed at the 1955 press conference announcing the field trials' success that, after improvements he had made to the inactivation process, the vaccine was

⁶⁴⁹ The percentage of individuals who contracted polio after being fully vaccinated was small, but the public perception that Salk IPV was not as effective as Salk himself had claimed hindered vaccination campaigns. Parents, worried that the vaccine was ineffective and heightened the risk of paralysis and serious illness, became less likely to have their children vaccinated. "Polio Contracted Even After Vaccination," *The Guardian*, 8 July 1960, 1.

⁶⁵⁰ "Inoculated Boy Dead," *New York Times*, 29 August 1959: 12.

⁶⁵¹ "Fourth Dose of Polio Vaccine: U.S. Recommendation," *The Manchester Guardian*, 29 June 1959, 9.

⁶⁵² Nate Hazeltine, "Salk Polio Vaccine Blasted by Red Researchers Here," *The Washington Post Times Herald*, 9 June 1960: B8.

⁶⁵³ Leonard A. Scheele, "The Distribution of Poliomyelitis Vaccine and its Efficacy in 1955," *The Journal of the National Medical Association* 48.5 (September 1956): 363.; Thomas M. Rivers, "Killed-Virus Vs. Live-Virus Vaccines Against Polio," *The Journal of the National Medical Association* 52.6 (November 1960): 451.

almost 100 percent effective.⁶⁵⁴ While Scheele admitted that “no batch can ever be proved to be 100 per cent safe before it is given to children,” he maintained that the vaccine was better than no vaccine and its formulation would improve as time went on.⁶⁵⁵ The testimonies of these two officials demonstrated the principle that risk is part of what historian Christopher Bonah calls the “contextual network for... development of therapeutic or preventive remedies.”⁶⁵⁶ Risk is not a fixed notion and certain individuals will place more value in taking certain risks than others. The medical researchers in charge of the Salk vaccine implementation appeared more willing to take a small risk with Salk than the general population in the US, particularly when an alternative vaccine became available. Vaccination rates in the US reached a plateau in 1957 and 1958 resulting in an increase in polio cases in 1959 and public health officials voiced concerns about lack of vaccine coverage.⁶⁵⁷

The calculus of risk-taking involved in vaccinating children with Salk IPV was complicated by another discovery. The Salk vaccine produced in West Germany and the United States between 1955 and 1963 was found by Dr. Bernice Eddy, an American researcher at the National Institutes For Health Division of Biologics Standards, to contain Simian Vacuolating Virus 40 (SV40), which came from the monkey kidneys used

⁶⁵⁴ Tony Gould, *A Summer Plague: Polio and Its Survivors* (New Haven: Yale University Press, 1995), 151.

⁶⁵⁵ Robert K. Plumb, “Vaccine is Difficult to Make, Scheele tells A.M.A. Some Risk Found in all Polio Shots,” *The New York Times*, 8 June 1955, 1.

⁶⁵⁶ Christian Bonah, ““As Safe as Milk or Sugar Water”: Perceptions of the Risks and Benefits of the BCG Vaccine,” in *The Risks of Medical Innovation: Risk Perception and Assessment in Historical Context*, ed. Thomas Schlich and Ulrich Tröhler (London: Routledge, 2006), 71.

⁶⁵⁷ “Number of Cases of Paralytic Polio is Double 1958’s,” *New York Times*, 30 July 1959, 29.

to create the vaccine.⁶⁵⁸ Eddy was something of a modern Cassandra: in 1954, she had warned her supervisor that the vaccines produced at the Cutter Laboratories were causing polio in laboratory monkeys.⁶⁵⁹ *Der Spiegel* reported in 1955 that Eddy blamed her superiors for not listening.⁶⁶⁰ In 1957, Eddy had more success when she explained that SV40 was linked to tumor development in hamsters.⁶⁶¹ The American government passed a federal law that prevented the production of further vaccines containing the virus, even though they allowed the continued use of vaccines containing SV40 that had already been produced.⁶⁶² Sabin was required by the Communicable Disease Center, the predecessor to the Centres for Disease Control, to prove that his vaccine did not contain any SV40.⁶⁶³ Until 1963 the Salk polio vaccine still legally contained SV40.⁶⁶⁴

The United States armed forces also shifted their policies on polio vaccination due to concerns about the effectiveness of Salk IPV and the presence of SV40. In 1956, the Surgeon General of the United States Army European Command advocated the use of

⁶⁵⁸ Bernice E. Eddy, Gerald S. Borman, George E. Grubbs, Ralph D. Young, "Identification of the Oncogenic Substance in Rhesus Monkey Kidney Cell Cultures as Simian Virus 40," *Virology* 17.1 (May 1962): 65-75.

⁶⁵⁹ Edward Shorter, *The Health Century* (New York: Doubleday, 1987), 69.

⁶⁶⁰ "Die Große Prüfung," *Der Spiegel* 21 (18 May 1955).

⁶⁶¹ Bernice E. Eddy et al. "Identification of the oncogenic substance in rhesus monkey kidney cell": 65-75. The risks to humans from SV40 continue to be debated by researchers. See SG Fisher, L. Weber, and M. Carbone, "Cancer Risk Associated with Simian Virus 40 Contaminated Polio Vaccine," *Anticancer Research* 19.3 (May-June 1999): 2173-2180.; Regis A. Vilchez and Janet S. Butel, "Emergent Human Pathogen Simian Virus 40 and Its Role in Cancer," *Clinical Microbiology Review* 17.3 (July 2004): 495-508.

⁶⁶² Michael E. Horwin, "Simian Virus 40 (SV40): A Cancer Causing Monkey Virus from FDA-Approved Vaccines," *The Albany Law Journal of Science & Technology* 13.3 (2003): 721-750.

⁶⁶³ Both Salk and Sabin failed on this front: reports from 1967 identified the virus's presence in both vaccines. Sir Graham S. Wilson argued that "though its presence is undesirable, there is no evidence as yet to show that it is harmful to human beings." Sir Graham S. Wilson, *The Hazards of Immunization* (London: The Athlone Press, 1967), 55.

⁶⁶⁴ A 1967 report identified the virus in both Sabin and Salk vaccine, even though its presence in Sabin OPV was not initially publicized.

Salk vaccine for military personnel and their children “with no reservations.”⁶⁶⁵ By the late 1950s, however, military units overseas were reporting that the Salk vaccine was not providing “adequate protection,” particularly against paralytic polio.⁶⁶⁶ In 1959, the Armed Forces Epidemiological Board (AFEB) reported that of seven cases of polio in the Navy, four had received three inoculations of the Salk vaccine, one had two inoculations, and the remaining two had one inoculation.⁶⁶⁷ The Board advocated rapid assessment of the validity of Soviet field trials with Sabin OPV, which would be completed by January 1960.⁶⁶⁸ By 1961, the board mandated Sabin OPV vaccinations for service personnel and their families traveling overseas, regardless of whether or not they had received a full course of Salk vaccine.⁶⁶⁹ A report on vaccinations in 1967 demonstrated that cases of polio in children immunized with the Salk vaccine had continued to occur in small numbers throughout the 1950s and 1960s.⁶⁷⁰

Between the lack of reliable immunity conferred by vaccines, the slow uptake on vaccination, and vaccine shortages, in 1959 the United States experienced its largest outbreak of polio since 1954.⁶⁷¹ Other countries, including Canada, the UK, and West

⁶⁶⁵ “Spreading of Polio Charged to Vaccine”: 3.

⁶⁶⁶ HCASA Correspondence, Military Service AEB/NVC Box 4 File 5: Commission on Viral Infections Correspondence, General – 1959, “Report of the Annual Meeting of the Commission on Viral Infections, 5 April 1959,” 8.

⁶⁶⁷ HCASA Correspondence, Military Service AEB/NVC Box 4 File 8: Commission on Viral Infections Correspondence, General – 1961, “Report of the Annual Meeting of the Commission on Viral Infections, 9 March 1961,” 3-4.

⁶⁶⁸ HCASA Correspondence, Military Service AEB/NVC Box 4 File 5: Commission on Viral Infections Correspondence, General – 1959, “Report of the Annual Meeting, 5 April 1959,” 8.

⁶⁶⁹ HCASA Correspondence, Military Service AEB/NVC Box 4 File 2: Commission on Viral Infections Correspondence, General -- 1958, “Report of the Annual Meeting of the Commission on Viral Infections, 26-27 October 1961,” 4.

⁶⁷⁰ Wilson, *The Hazards of Immunization*, 46.

⁶⁷¹ “Polio on Rise, Fear Worst Year Since Vaccine,” *New York Herald Tribune*, 23 July 1959, 3.; Jonathan Spivak, “First Polio Epidemic Since 1959 Points up Resurgence of Disease,” *Wall Street Journal*, 12

Germany reported outbreaks of the disease in the late 1950s and early 1960s too.⁶⁷²

Despite these outbreaks, and despite healthcare officials, including some at the NFIP, protesting that Sabin OPV was not demonstrably safe, American newspapers reported the vaccine's successes in Eastern Europe.⁶⁷³ The negative press about Salk IPV and the positive coverage of the new Sabin or "red" OPV left Americans wondering why their government was so hesitant to license the oral vaccine.

The OPV Race

In 1957, three oral attenuated vaccines were ready for field trials. The most successful and well-known is Sabin's oral vaccine which is still used presently. He was not the first researcher to embark on the quest to attenuate poliovirus. Sabin's biggest competition came from researchers Hilary Koprowski and Herald Cox. Cox and Koprowski both worked at Lederle Laboratories when they began research on polio. Cox was Koprowski's senior, and their relationship faltered over tension about acceptable

August 1960: 1.; "Polio Outbreak in W. Germany: 136 Cases in a Week," *The Guardian*, 2 August 1961: 9.; "Polio Expert Warns on Epidemic Danger," *New York Times*, 18 March 1959: 32.; "U.S. Reports Polio is Still Increasing," *New York Times*, 7 August 1959: 12.; "Paralytic Polio Worst Since '56," *New York Times*, 15 August 1959: 19.; Jonathan Spivak, "First Polio Epidemic Since 1959 Points up Resurgence of Disease," *Wall Street Journal*, 12 August 1960: 1.; "Live Vaccine Needed to End Polio: Russian," *The Globe and Mail*, 28 August, 1959, 3.; "Czechs Credit Polio Vaccines," *New York Times*, 4 September 1960, 15.; Robert C. Toth, "New Polio Vaccine Rated Above Salk's," *New York Herald Tribune*, 13 July 1960, 17.; "Hail Oral Anti-Polio Vaccine as Successful," *Daily Defender*, 26 May 1958, 5.; "Soviet Aide Lauds Live Polio Vaccine," *New York Times*, 10 August 1958, 24.; Nate Hazeltine, "Salk Polio Vaccine Blasted by Red Researchers Here," *The Washington Post Times Herald*, 9 June 1960: B8.

⁶⁷² "How Polio Came Back," *Maclean's* 73.3 (30 January 1960): 3.

⁶⁷³ "National Foundation Urges More Testing of Sabin Oral Polio Vaccine: Questions Production Controls," *Wall Street Journal*, 9 July 1959, 5.; John Hillaby, "Polio Safety Seen in Live Vaccines: Dr. Sabin, in British Journal, Casts Doubt on Length of Protection in Salk Shots," *New York Times*, 13 March 1959: 7.; Bess Furman, "U.S. Bars License for Live Vaccine: Burney Says Polio Findings are Not Complete Yet – Urges Salk Shots," *New York Times*, 1 July 1959: 21.; "Polio Vaccine Given in Candy Soviet Says," *New York Times*, 26 November 1959: 14.; "Oral Polio Vaccine Said to Give About Same Amount of Protection as Salk-Type," *Wall Street Journal*, 22 June 1959, 9.

risk-taking and authorship on published work. Koprowski left in 1957 after an unsuccessful field trial of his vaccine in Belfast, Ireland.⁶⁷⁴ His vaccine had reverted to neurovirulence in the digestive tracts of vaccine recipients and had paralyzed test monkeys. Koprowski argued that this was an acceptable risk for the sake of protecting so many other children, stating “protection of man against disease is obtained at a price.” He argued that his attenuated strains were “as good as they probably ever will be.”⁶⁷⁵ Nonetheless, the virologist in Ireland who had invited Koprowski to test his vaccine, George Dick, disagreed and called off the field trial. Lederle Laboratories also disagreed and refused to push forward with the licensing process for Koprowski’s strains unless they were altered.⁶⁷⁶ Koprowski left Lederle that year, moving to the Wistar Institute in Philadelphia and sparking heated discussions about ownership of scientific developments. Though Koprowski was the researcher, Lederle had spent millions funding his research and were displeased that he had left with research notes and convinced several of the lab’s scientists to leave with him.⁶⁷⁷ After his partner left, Herald Cox continued developing his own version of OPV. Since it was largely based on the same process and research as the Koprowski version, it faced many of the same problems due to its tendency to revert to neurovirulence in the digestive tracts of vaccinees.

The NFIP and the American government supported the rapid field trials and licensing of Salk IPV but were less willing to do the same for Sabin, or any of his competitors. Given the scientific consensus that an oral attenuated vaccine had many

⁶⁷⁴ Gould, *A Summer Plague: Polio and Its Survivors*, 159–87.

⁶⁷⁵ Oshinsky, *Polio: An American Story*, 249.

⁶⁷⁶ Gould, *A Summer Plague: Polio and Its Survivors*, 180.

⁶⁷⁷ Oshinsky, *Polio: An American Story*, 249.

benefits that the injected inactivated vaccine did not, this decision seems difficult to understand. While the NFIP advocated bending rules for Salk, it created new ones for Sabin. The NFIP had supported the research of both men, and many American scientists put more stock in the oral vaccine. Sabin himself had opposed the Salk field trials, arguing that they were premature. When a reporter asked Sabin in 1955 if he would allow his children to receive Salk vaccination, he said that he would not.⁶⁷⁸ Nonetheless, when Sabin appeared close to producing a safe oral vaccine, he faced a good deal of resistance from the very same parties who had defended Salk throughout the Cutter Incident. The Sabin vaccine was subjected to rigorous standards to prove its workability. Sabin, for example, had to submit to the Communicable Disease Center in writing a report of the number of animals he inoculated and the outcome of each procedure.⁶⁷⁹ This level of granularity was not adopted with Salk's testing, even after the Cutter Incident. Sabin was required to prove the efficacy of his vaccine in widespread field trials, even though the NFIP and the United States government refused to provide permission or funding for those field trials to take place in the US.

Historians of the American polio vaccine "war" have provided various theories to explain the NFIP's reluctance to allow Sabin, Cox, or Koprowski to field test their vaccines in the US or US overseas possessions. Sabin himself questioned the "mental processes" behind the NFIP's refusals to run OPV field trials despite pressure from the UN. The historian Marc Shell has denigrated the NFIP's decision to "simply declare 'a

⁶⁷⁸ Gould, *A Summer Plague: Polio and Its Survivors*, 144–45.

⁶⁷⁹ Sydney Halpern, *Lesser Harms: The Morality of Risk in Medical Research* (Chicago: University of Chicago Press, 2004), 79.

complete victory' over polio... instead of supporting worldwide eradication" with the Sabin vaccine.⁶⁸⁰ Sydney Halpern has suggested that Lederle Laboratories was more willing to take risks with vaccination in order to recoup money spent on developing the Cox vaccine, while the NFIP was more hesitant, wishing to avoid a repeat of the 1955 Cutter Incident.⁶⁸¹ The NFIP worried that if they allowed Sabin to rush his vaccine into field trials and into mass production, it might also lead to a vaccine disaster.

Print media in the Soviet Union claimed that American capitalism was behind the unwillingness to abandon Salk IPV. *Izvestia* alleged that American medical decision makers had privileged pharmaceutical companies' profits from the more expensive Salk IPV over the Sabin OPV.⁶⁸² Oshinsky perhaps oversimplified when he concluded "Where Sabin had been a favourite of the academy, Salk was a favourite of the people."⁶⁸³ There was a great deal of public pressure for Sabin OPV, especially by 1960. Sabin also alleged in a 1978 interview with historian Saul Benison that the NFIP received pressure from Lederle Laboratories, which did not want competition from the Sabin OPV and therefore sought to prevent him from testing it in the US.⁶⁸⁴ In the same interview, Sabin also mentioned the NFIP's resistance to abandoning the Salk IPV before its efficacy and

⁶⁸⁰ HCASA Speaking Engagements Box 1 File 12: "Panel Discussion, Live Oral Poliovirus Vaccine – 1960," Albert B. Sabin, Speech, "Statement of Albert B. Sabin During Panel Discussion on Wednesday Afternoon," 27 July 1960.; "U.N. Urges Wide Trials of a Live-Virus Polio Vaccine," *The New York Times*, 20 July 1957, 1.; Marc Shell, *Polio and Its Aftermath: The Paralysis of Culture* (Cambridge: Harvard University Press, 2005), 185.

⁶⁸¹ Halpern, *Lesser Harms: The Morality of Risk in Medical Research*, 131.

⁶⁸² "Discussion of 'What's Delaying the New Polio Vaccine? - and What Should You do to Protect Your Family this Year?'" United States Congress, Congressional Record: Proceedings and Debates of Congress (Washington, D.C.: U.S. Government Printing Office, 1961), 5295.

⁶⁸³ Oshinsky, *Polio: An American Story*, 275.

⁶⁸⁴ HCASA Interviews – Benison, Saul, "Transcription of Interview of Albert B. Sabin Conducted by Saul Benison," 19 February 1978.

uptake could be properly assessed. Basil O'Connor remained pro-Salk, and in February 1961 he attended a meeting of the Public Health Service in Atlanta to protest that the Salk IPV vaccination campaign should continue for several more years to collect clear data about its effectiveness.⁶⁸⁵ Three years is not a long time when assessing the merits of a vaccine designed to provide life-long immunity. The support Salk received from O'Connor and the NFIP was likely influential, as Lederle Laboratories also did not receive permission to test within the US until 1960.

Alternatively, historians Aaron E. Klein and Tony Gould have asserted that since Sabin was linked to the communist USSR through his choice to allow his vaccine to be field trialled there, the American government did not want to appear to support a “communist” vaccine or appear to admit the superiority of Soviet approaches to polio prevention.⁶⁸⁶ Though Sabin was born in Bialystok, Salk’s parents were Russian immigrants. In 1950 Salk was accused by the FBI of having ties to communist groups. Salk’s Russian ancestry is very seldom mentioned in contemporary or historical narratives, likely because he did not have direct ties to the Soviet Union in the 1950s and 1960s, unlike Sabin.⁶⁸⁷ In the US more of the population received the Salk vaccine, resulting in a drop from almost 60,000 cases in 1952 to less than 3500 in 1960.⁶⁸⁸ Salk supporters in the US were therefore not as easily discounted as they were in West

⁶⁸⁵ Paul, *A History of Poliomyelitis*, 463.

⁶⁸⁶ Aaron E. Klein, *Trial by Fury: The Polio Vaccine Controversy* (New York: Scribner, 1972), 139; Gould, *A Summer Plague: Polio and Its Survivors*, 177–78.

⁶⁸⁷ Oshinsky, *Polio: An American Story*, 147.

⁶⁸⁸ Elena Conis, *Vaccine Nation: America’s Changing Relationship with Immunization* (Chicago: University of Chicago Press, 2015), 6.

Germany, where IPV did not clearly alter yearly case rates. Most probably, Sabin's Russian ancestry and the comparatively better American vaccination rates allowed O'Connor, who preferred Salk and his vaccine, to justify ignoring Sabin.⁶⁸⁹ Indeed, O'Connor remained reluctant to admit the success of Sabin's oral vaccine even after field trials.⁶⁹⁰

As Oshinsky observes, the ancestry of each polio researcher helped to shape where they tested vaccines. More importantly, finances and available populations of unvaccinated or under-vaccinated citizens dictated which countries were available for field trials. Sabin and Koprowski both had Eastern European Jewish heritage. Koprowski was born and raised in Warsaw. He and his wife, biologist Irena Koprowski, fled in 1939 after the Germans invaded Poland. After the first failed field trials in Ireland, Koprowski moved on to conduct field trials of his OPV in the Belgian Congo and Poland. Cox also received permission to run trials in Nicaragua, Colombia, Uruguay, and Costa Rica.⁶⁹¹ Because he had the financial support of a pharmaceutical company he could offer vaccines for free without needing government financial support to test them in field trials. In 1960, Sabin and Cox finally received permission from the US government to test their vaccines in Cincinnati and Florida. Cox also supplied free vaccine to West Berlin in 1960.

The Soviet Field Trials

⁶⁸⁹ Gould, *A Summer Plague: Polio and Its Survivors*, 129–30, 143, 173.

⁶⁹⁰ Gould, 184.

⁶⁹¹ Gould, *A Summer Plague: Polio and Its Survivors*, 159; Paul, *A History of Poliomyelitis*, 452.

In 1957, Sabin was invited by the Soviet government to test his vaccine in the USSR.⁶⁹² The invitation arose from the intercession of First Deputy Chairman of the Council of Ministers of the Soviet Union Anastas Mikoyan, who decided it was wise to support a strong research program for poliomyelitis in order to compete with the US on prophylactic healthcare.⁶⁹³ After Stalin's death in 1953, the Soviets had begun research on the Salk IPV, and scientists had visited the laboratories of American polio researchers, including Sabin. After their visit, Sabin maintained connections with researchers, who appealed to Mikoyan that Sabin OPV would be much more convenient to manufacture and implement than Salk IPV. Between 1958 and 1959, more than six million children and adults received the Sabin oral vaccine in the USSR, administered as a candy, leading the USSR to license the vaccine for general use. A.A. Smorodintsev, the doctor in charge of the Soviet immunization campaigns, remarked during a visit to the US in 1964, "Our inoculation program was a public-health measure, not a field trial."⁶⁹⁴

In 1958, the Soviet Union announced that its trials with Sabin OPV had been successful because it had vaccinated 15.2 million people in Russia proper and 23 million people in other Eastern European countries. Unsurprisingly, the United States raised questions about the rigor of the Soviet field trial during the Second International Conference on Live Poliovirus Vaccines in 1958. At the conference, which took place in Washington, D.C., a presentation by an American polio researcher made subtle

⁶⁹² HCASA Correspondence, Individual. Box 6, File 24: "The Decalogue Society of Lawyers – 1966-69," Letter from Benjamin Weintraub to Albert B. Sabin, 28 June 1966.; "Decalogue 1965 Merit Award," The Decalogue Journal (June-July 1966).

⁶⁹³ Seytre, *The Death of a Disease: A History of the Eradication of Poliomyelitis*, 83–85.

⁶⁹⁴ Carter, *Breakthrough: The Saga of Jonas Salk*, 359. Italics are off here.

accusations that the Soviets were lying about the success of their field trials with Sabin OPV. According to a firsthand account, a Soviet researcher declared “I would like to assure [you] of one thing, that we in the Soviet Union love our children and are as concerned for their well-being as much as people in the United States, or any other part of the world are for their children.”⁶⁹⁵

The accusation that the Soviet Union would deliberately oversell the success of their vaccine was treated very seriously by the Soviet Union and the international medical community. In 1959, the World Health Organization sent Dr. Dorothy Horstmann to the USSR to investigate the field trials’ procedures, methods, and data collection to assess whether Soviet claims that millions had been vaccinated without any serious side effects could be considered trustworthy. The Soviet government did not protest the decision to send an American physician and did not restrict her movement within the USSR. Horstmann, a member of the Yale Poliomyelitis Study Unit, was the researcher who discovered that poliovirus travelled through the bloodstream to the nervous system, where it attacked and caused paralysis.⁶⁹⁶ She concluded that the field trial had produced evidence that the vaccine was safe and effective, though she expressed concern about the lack of control groups.⁶⁹⁷

That same year, Czechoslovakia and Hungary introduced vaccination campaigns with Sabin OPV manufactured in the Soviet Union. In the first six months of 1960, over 77 million people, all under the age of 21, received the vaccine in the USSR,

⁶⁹⁵ Qtd. in Oshinsky, *Polio: An American Story*, 254.; Sabin article, 62.

⁶⁹⁶ Seytre, *The Death of a Disease: A History of the Eradication of Poliomyelitis*, 49.

⁶⁹⁷ Paul, *A History of Poliomyelitis*, 455.

Czechoslovakia, Hungary, and East Germany. The field trials were deemed successful by the Soviets and by Sabin himself. Even a West German observer reported in 1961 that areas in the USSR vaccinated with Sabin OPV saw a significant reduction in polio casualties, while those vaccinated with Salk did not.⁶⁹⁸ Medical professionals in the USSR were appreciative of the ease with which the oral vaccine could be administered and declared the field trials to be successful.⁶⁹⁹

OPV in East Germany



Figure 16: Left: Oral polio vaccine is administered in a kindergarten attached to a textile factory in Zittau, East Germany, March 1960. Right: “Class teacher Marja

⁶⁹⁸ “Über erfahrung mit Massenimpfungen zur bekämpfung der Poliomyelitis in der Sowjetunion 1960,” *Medizinische Wochenschrift* 103 (1961): 1632.

⁶⁹⁹ HCASA Correspondence, Military Service AEB/NVC Box 4 File 10: Commission on Viral Infections Correspondence, General – 1962, United States Armed Forces Epidemiological Board, “The Spring Meeting of the Commission on Viral Infections A.F.E.B, 8-9 March 1962.

Kopke hands the valuable drops to the pupils in the 2nd class.” Berlin-Friedrichshain, 9 February 1961.⁷⁰⁰

Between March and June 1960, 5 million doses of Type I OPV vaccine and 4 million doses of Types II and III OPV vaccines were taken by East Berliners. The vaccine was manufactured by the Institute for Poliomyelitis Research at the Academy of Medical Sciences of the USSR under the guidance of Mikhail Chumakov.⁷⁰¹ The vaccine was dispensed by the healthcare system free of charge and regardless of whether the individual in question had already received the Salk vaccine.⁷⁰²

The proximity of the tests to West Berlin caused alarm in the West German population which feared that, because the vaccine contained live poliovirus, the West Berlin population would be more susceptible to polio.⁷⁰³ These fears were shared by observers in the US. West German polio cases had been on the rise since 1958-1959, when other countries had witnessed sharp declines. The West German health department

⁷⁰⁰ BArch Bild 183/FA 5, Bild 183-80085-0002. Image, Erwin Schneider, “Anti-Polio-Aktion beginnt,” 8 February 1961. <https://www.bild.bundesarchiv.de/dba/de/search/?query=Bild+183-71807-0001>. Licensed for use under the Creative Commons Attribution-Share Alike 3.0 Germany license.; BArch Bild 183/FA 5, Bild 183-71807-0001. Image, Giso Löwe, “Neue Impfmethode gegen Kinderlähmung erstmalig im Kreis Zittau,” 26 March 1960. URL: <https://www.bild.bundesarchiv.de/dba/de/search/?query=Bild+183-71807-0001>, Accessed 13 August 2020. Licensed for use under the Creative Commons Attribution-Share Alike 3.0 Germany license.

⁷⁰¹ W. Belian and I. Rademacher, “Vaccination with Live Poliovirus Vaccine in the German Democratic Republic,” in *The Control of Poliomyelitis by Live Poliovirus Vaccine*, ed. J. Weissfeiler, 53-56 (Budapest: Akadémiai Kiadó, 1961), 53.

⁷⁰² “Anordnung zur bekämpfung der Kinderlähmung vom 6 April 1960 (GBI. I S. 240),” in *Verfügungen und Mitteilungen des Ministeriums für Volksbildung* (Berlin: VEB Deutscher Zentralverlag, 1960), 126. Bibliothek für Bildungsgeschichtliche Forschung des Deutschen Instituts für Internationale Pädagogische Forschung. URL: <http://goobiweb.bbf.dipf.de/viewer/resolver?urn=urn:nbn:de:0111-bbf-spo-11327744>, Accessed 13 June 2016.

⁷⁰³ Lindner and Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955-1965,” 439-40.

argued that they needed “to build up a wall against the vaccine virus by generating immunity in West Berlin.”⁷⁰⁴

The United States had also experienced a rise in polio cases at the end of the 1950s and, though not acknowledging the shortcomings of Salk IPV, several figures expressed concerns over the spread of polio. The U.S. Surgeon General stated that protecting western nations from polio “had become a matter of cold war prestige, like bombs”, while Gould has argued that the public had begun to “talk of the “polio gap” or “vaccine gap” between Russia and the United States – like the “missile gap.”⁷⁰⁵ The missile gap had been explained away by one Senator as a result of America’s differing scientific priorities: “ours is the science of life, while the Soviets’ is the science of death. While they have forged ahead in developing missiles... we have developed the Salk vaccine to eliminate the dread scourge of polio.”⁷⁰⁶ Suddenly, however, the Soviets appeared to be achieving superiority in public health. In 1966, historian Richard Carter asserted that, “If West Berliners got polio...the free nations of the world would suffer a setback in their struggle for the hearts and minds of men [and women].”⁷⁰⁷ The concern that West Berlin was susceptible to the spread of vaccine-associated polio heightened American fears, particularly in the context of Soviet Premier Nikita Khrushchev’s 1958 ultimatum to the US, France, and the UK to remove their military presence from Berlin.

⁷⁰⁴ Quoted in Lindner and Blume, 440.

⁷⁰⁵ Gould, *A Summer Plague: Polio and Its Survivors*, 177.

⁷⁰⁶ “Sen. Javits’ Proposal,” *New York Herald Tribune*, 18 January 1958, 7.

⁷⁰⁷ Carter, *Breakthrough: The Saga of Jonas Salk*, 365.

Despite military tensions and the classification of Sabin OPV as a Soviet-associated vaccine, many West German researchers were interested in the potential of an oral attenuated vaccine. Sabin had continued to collaborate with East and West German polio researchers after his tour of West Germany in 1948 and the West German medical community reacted to the news in 1956 that the Sabin OPV was ready for testing with great enthusiasm. By 1956, *GMM* heralded the Sabin vaccine as the turning point in the battle against polio. A notice placed by the editors argued that the Sabin vaccine would pave the way to global eradication of polio, which “Salk’s prophylactic vaccine could never achieve,” due to its cost and the need to administer it with a syringe.⁷⁰⁸ The West German Salk vaccination campaigns stagnated as medical researchers suggested the vaccine was not providing the necessary coverage to prevent outbreaks of polio and anxiously awaited the licensing of Sabin’s OPV for sale from the US or another non-communist country.

Cox OPV in West Berlin

Given the reluctance to import vaccine from the USSR, and the US’s lack of interest in producing its own OPV, West Germany sought an alternative source. Luckily, two other oral attenuated vaccines were available. Both Cox and Koprowski entered the testing stage at the same time as Sabin, although their results have received less attention from historians. They were both unsuccessful, but it is important to acknowledge these options. Lederle Laboratories supplied the Cox vaccine to West Germany free of cost.

⁷⁰⁸ “Sabin Live Polio Vaccine,” *German Medical Monthly* 1.11 (November 1956), 356.

Between May 11th and 20th 1960, 280 000 doses of Cox vaccine were given to children and adults.⁷⁰⁹ Initial West German reports on the Cox vaccination campaign were positive.⁷¹⁰ In the four weeks following vaccination, however, between 23 and 25 cases of paralytic poliomyelitis occurred, which researchers in both West Germany and the US linked to the Cox vaccine.

During the subsequent summer months, 1,000 West Germans were stricken with polio and 77 died.⁷¹¹ Melnick was named as principal investigator by the US.⁷¹² His study of the 1960 summer epidemic in West Germany eliminated any other possible explanation than vaccine-associated paralytic poliomyelitis (VAPP). Melnick assured *The Washington Post*'s readers in 1961 that the vaccine was "experimental" and "has failed to meet U.S. Public Health Service standards for licensing and use in this country [the US]."⁷¹³ The article does not mention that the vaccine was of US origin, nor does it explain that Cox and Lederle had also tested their vaccine in Florida as part of the process of getting a vaccine licensed. The Cox vaccination trials were deemed a failure and both Cox and Koprowski were denied a license in the US and abroad.⁷¹⁴ Bacteriologist Sir Graham S. Wilson concluded in 1967 that this vaccination campaign was worse than not vaccinating at all, a clear setback for the West.⁷¹⁵

⁷⁰⁹ Wilson, *The Hazards of Immunization*, 49–51.

⁷¹⁰ E. Weesmann, "Resultate der oralen Poliomyelitischutzimpfung in der Nord-Ostschweiz," *Medizinische Wochenschrift* 91 (1960): 11.

⁷¹¹ "Polio Kills 77 in Germany," *The Hartford Courant*, 27 August 1960, 17.

⁷¹² Lawrence K. Altman, "Joseph Melnick, Polio Pioneer, Dies at 86," *The New York Times*, 21 January 2001, 36.

⁷¹³ Nate Haseltine, "23 Crippled by Polio after Live Virus Use," *The Washington Post and Times Herald*, 15 November 1961, A2.

⁷¹⁴ Wilson, *The Hazards of Immunization*, 123.

⁷¹⁵ Wilson, 123.

The failure of the Cox vaccine in West Berlin and the US refusal to license Koprowski's OPV left West Berlin doctors with only a choice between the Salk IPV and the Sabin OPV. Some, such as W. Rudolf and Richard Haas, the creator of the Behringwerke IPV, advocated a return to Salk vaccine. Rudolf admitted he advocated Salk only because he felt threatened by the countries around him implementing Sabin OPV and raising the amount of live poliovirus present in Europe's waterways.⁷¹⁶ Statistically, Haas suggested that OPV appeared safe and successful, but wanted more testing to demonstrate that issues with de-attenuation, SV40, and levels of immunity developed had been adequately addressed.⁷¹⁷ Other researchers expressed support for Haas's opinion that more testing of OPV was desirable.⁷¹⁸ The opinions of West German researchers demonstrated their uncertainty, a far cry from the 1956 *GMM* article which had heralded Sabin as the first step toward global eradication.

While other nations were celebrating declining polio rates, West German medical researchers still referred to polio as "the most feared infectious disease."⁷¹⁹ By the beginning of the polio season in 1961, news agencies and other sources began reporting outbreaks in West Germany. As of July 15, 1254 cases had been reported, with 86

⁷¹⁶ W. Rudolf, "Theorie, Praxis, und der entscheidende Erfolg," *Medizinische Klinik* 56.7 (17 February 1961): 285.; R. Haas, "Der gegenwärtige Stand der Poliomyelitisschutzimpfung," *Medizinische Klinik* 56.22 (2 June 1961): 950-954.

⁷¹⁷ *Ibid.*, 953.

⁷¹⁸ W. Auerswald, "Anforderungen hinsichtlich Unschädlichkeit und Wirksamkeit," *Medizinische Klinik* 56.47 (24 November 1961): 2020.

⁷¹⁹ Dr. Friedrich Eckardt, "Über Poliomyelitis-Impfungen: Bericht über die auffassungen von Experten zur frage Spritz-Impfung nach Salk oder Schluck-Impfung nach Sabin mit Tot- oder Lebend-Vakzine," *Die Medizinische Welt* 10 (11 March 1961): 459.; E. Gerfeldt, "Seuchenzüge und gestaltwandel wichtiger Infektionskrankheiten in ihrer bedeutung für die gegenwart," *Die Medizinische Welt* 50 (16 December 1961): 2639.

deaths.⁷²⁰ For comparison, the US reported only 161 cases in the entire year, despite having a much larger population than West Germany.⁷²¹ A report on August 1, 1959 in the *Chicago Daily Tribune* demonstrated that West Germany and France were the only two countries out of “nine west European countries” that reported an increase in polio during 1958.⁷²² Sabin, at an AFEB meeting in 1962, blamed the outbreaks in West Germany on “a poor Salk vaccine program.”⁷²³ In a letter to Dr. Alberto Bertolini of Uruguay, Sabin argued that a proper vaccination campaign in West Germany was “unfortunately complicated by political considerations but government is making plans for use of oral vaccine next winter.”⁷²⁴ Sabin evidently believed that his vaccine had been labelled a “communist” vaccine.

⁷²⁰ “W. Germany Reports 1,254 Cases of Polio,” *Chicago Daily Tribune*, 23 July 1961, J39.

⁷²¹ A. Hinman, “Landmark Perspective: Mass Vaccination Against Polio,” *JAMA* 251.22 (8 June 1984): 2995.

⁷²² “West Europe Polio Cases Show Decline,” *Chicago Daily Tribune*, 1 August 1959, S13.

⁷²³ United States Armed Forces Epidemiological Board, “Report,” (8-9 March 1962): 7.

⁷²⁴ Albert B. Sabin to Alberto Bertolini (18 July 1961), 1. Hauck Center for the Albert B. Sabin Archives, University of Cincinnati. URL:

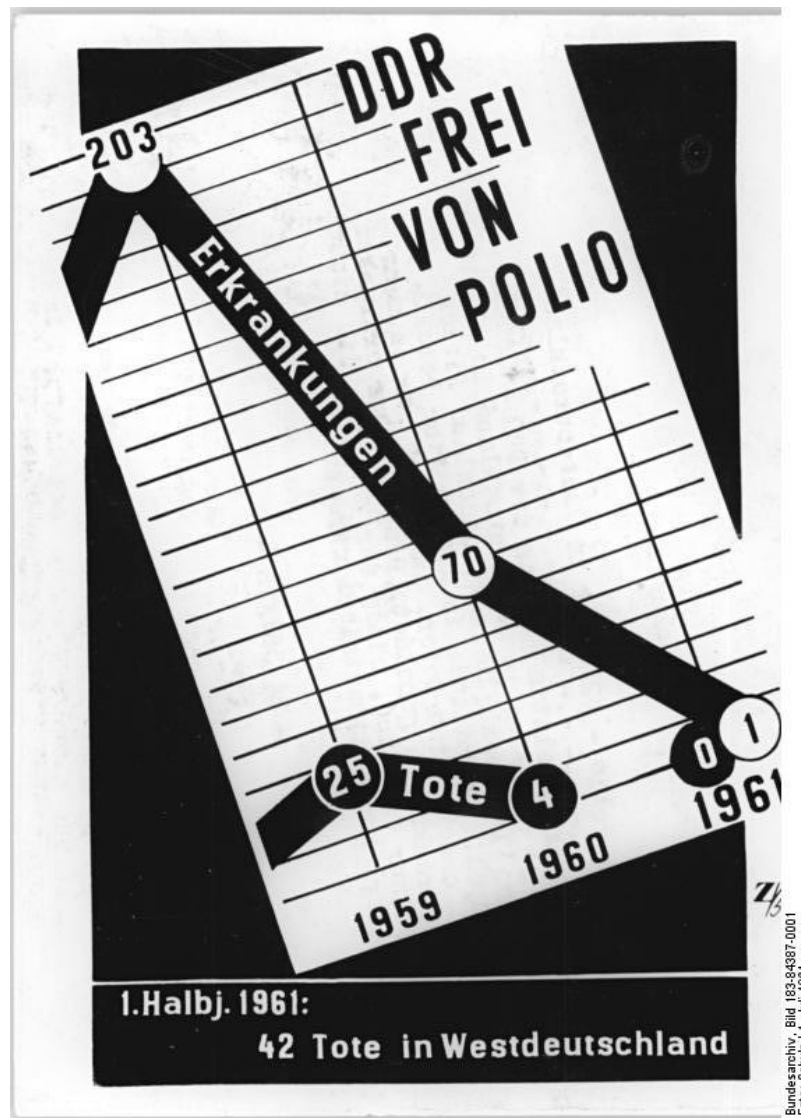


Figure 17: An East German propaganda poster, proclaiming the eradication of polio in East Germany. At the bottom, the caption reads "42 dead in West Germany." From AND, 1 July 1961.⁷²⁵

⁷²⁵ BArch Bild 183/FA 5, Bild 183-80085-0002. Image, Schulz, "DDR frei von Polio," 1 July 1961. URL: <https://www.bild.bundesarchiv.de/dba/de/search/?query=Bild+183-84387-0001>, Accessed 13 August 2020. Licensed for use under the Creative Commons Attribution-Share Alike 3.0 Germany license.

The East German state newspaper, *Neues Deutschland*, seized upon the failure of West German vaccination campaigns and began a month-long slander campaign in July 1961. The newspaper constantly reported on new polio victims in the FRG, even when the number was less than ten.⁷²⁶ Articles blamed “big business,” notably IG Farben, as well as West German Chancellor Konrad Adenauer, and West German national health organizations for refusing offers of oral vaccine from East Germany and “sentence[ing] children to die.”⁷²⁷ The reference to IG Farben was again designed to link West Germans with their National Socialist predecessors. The newspaper celebrated the willingness of other countries, particularly Japan, India, and Sri Lanka to accept Sabin-Chumakov vaccine from the USSR.⁷²⁸ Articles emphasized the helplessness of West German mothers, West German doctors’ desire for Sabin OPV, and the “inhumanity” of the FRG.⁷²⁹ They also stressed the role of for-profit healthcare systems in causing death.⁷³⁰ One article in particular claimed that the Adenauer government had spent only 130 000

⁷²⁶ “Neue Opfer der Polio,” *Neues Deutschland*, 22 July 1961.; “Kein “Polioepidemie?,”” *Neues Deutschland*, 3 August 1961.; “Elf neue Poliofälle an der Saar,” *Neues Deutschland*, 27 July 1961.; “Zehntes Polio-Opfer in Düsseldorf,” *Neues Deutschland*, 16 July 1961.; “Lügen, die den Tod bedeuten,” *Neues Deutschland*, 13 July 1961.; “Tod durch Polio in Bremerhaven,” *Neues Deutschland*, 12 July 1961.

⁷²⁷ “IG-Farben sabotiert Poliobekämpfung,” *Neues Deutschland*, 7 October 1961.; “Keine Panik! Weiter Sterben,” *Neues Deutschland*, 24 July 1961.; “Bonn sucht Ausflüchte, während Kinder sterben,” *Neues Deutschland*, 21 July 1961. “Adenauer schweigt noch immer,” *Neues Deutschland*, 3 July 1961.

⁷²⁸ “Geschenk für Indien,” *Neues Deutschland*, 7 July 1961. “Tokio klüger als Bonn,” *Neues Deutschland*, 11 July 1961. “Sowjetischer Polio-Impfstoff nach Japan,” *Neues Deutschland*, 12 July 1961.; “Sojetischer Impfstoff in Japan eingetroffen,” *Neues Deutschland*, 13 July 1961. “Polio-Vakzine für Ceylon,” *Neues Deutschland*, 16 July 1961.

⁷²⁹ “Das ist der Bonner Staat der Unmenschlichkeit,” *Neues Deutschland*, 9 July 1961.; “Eltern von Furcht vor Polio ergriffen,” *Neues Deutschland*, 19 July 1961.; “Mütter appellieren an Adenauer,” *Neues Deutschland*, 18 July 1961.; “Verzweifelte Mutter Klagt an,” *Neues Deutschland*, 14 July 1961.; “Sollen noch mehr Kinder sterben?,” *Neues Deutschland*, 9 July 1961.; “Kinder zum Sterben verurteilt,” *Neues Deutschland*, 8 July 1961.; “Westdeutsche Ärzte fordern: Hilfe der DDR annehmen!,” *Neues Deutschland*, 2 July 1961.; “DDR-Hilfsangebot sofort annehmen,” *Neues Deutschland*, 1 July 1961.

⁷³⁰ “Tod und Profit,” *Neues Deutschland*, 12 August 1961.; “Wer arm ist, muß früher sterben,” *Neues Deutschland*, 26 June 1961.

DM to fight polio.⁷³¹ *Neues Deutschland* was not widely read outside of the GDR, but its July 1961 contents provide context for the East German declaration that polio was being spread to East Germans by West German tourists.

On 1 August 1961, the East German health ministry announced its intention to close the border between East and West Germany permanently, accusing the FRG of “failing to take measures against polio and [refusing] an East German offer of vaccine.”⁷³² The news made the front page of many North American newspapers, including *The New York Times* and *The Globe and Mail*.⁷³³ The West German government immediately denied that it was suffering from a polio outbreak, which was not necessarily true.⁷³⁴ Though the size of the FRG’s polio outbreak was exaggerated by East Germany, West Germany was still struggling to control the disease. Nonetheless, American editorial content in the coming weeks derided the East Germans. One colourful editorial made a revealing association: “the paralysis threat in East Germany is real enough, but it is adult rather than infantile... and the cure for it is... freedom.”⁷³⁵ Of

⁷³¹ “Kein Geld für Kampf gegen Polio,” *Neues Deutschland*, 17 July 1961.

⁷³² “East Germany Curbs Travel: Blames Polio,” *Chicago Tribune*, 1 August 1961, 11.

⁷³³ Loyal Gould, “East Germany Threatens Restrictions on Traveling: Polio Carried Over Border, Reds Charge,” *The Free Lance Star*, 1 August 1961, 1.; “East Germany Moves to Slap Travel Ban,” *Daytona Beach Morning Journal*, 1 August 1961, 1.; “East Germany to Curb Travel, Blames Polio Spread: Reds’ Action Tied to Flow of Refugees. Regime Also is Taking Over ‘Control’ of Berlin Air Lanes,” *The Sun*, 1 August 1961, 1.; “Reds Act to Curb Germans’ Travel: East Accuses West Zone of Spreading Polio – Flow of Refugees Near Peak,” *New York Times*, 1 August 1961, 1.; “Polio Used as Excuse, Reds Curb Traveling,” *The Globe and Mail*, 1 August 1961, 28.; “German Reds Curb Travel, Cite ‘Polio’,” *Newsday*, 1 August 1961, 2.

⁷³⁴ The WHO defines an outbreak as “the occurrence of cases of disease in excess of what would normally be expected in a defined community, geographical area or season.” Since the definition of an outbreak is dependent on what is considered “normal,” it is a floating term which might mean different things to nations with different indigenous moralities. WHO, “Disease Outbreaks.” URL: http://www.who.int/topics/disease_outbreaks/en/, Accessed 26 July 2016.

⁷³⁵ “Ever Try Freedom?” *The Washington Post Times Herald*, 2 August 1961, A16.

course, the real logic for the construction of the Berlin Wall, which began 12 days later, was not a fear of what might be coming into the GDR but rather what was leaving for the FRG. The Wall was designed to stem the flow of East Germans leaving to begin new lives in West Germany or abroad. Ironically, according to SED reports, the wall aggravated East German doctors used to “privileged travel arrangements” and sparked an “open, provocative attitude” from some medical personnel.⁷³⁶

The same year, Cuba also experienced a polio outbreak. Upon request from the Cuban Red Cross to American Red Cross field director Dorothy Duval at Guantanamo Base, over 100 doses of Salk IPV were provided by the American Navy from its stocks on 9 March. This action was celebrated by President John F. Kennedy at a press conference as a sign of American benevolence. The following day, however, the Public Health Ministry in Cuba accused Kennedy of having “imperialistic objectives” and seeking to sway Cubans to the capitalist project using “bad faith” announcements about aid to Cuba. The Cuban health ministry also asserted that the polio vaccines provided by the American Red Cross and Navy were expired. The Navy responded that “although outdated, [the vaccine] was effective and came from stocks still in use at the Guantanamo naval base.”⁷³⁷ On 24 March, newspapers in Cuba announced the arrival of 360,000 newly manufactured oral polio vaccines from the Soviet Union.⁷³⁸

⁷³⁶ Mark Allinson, *Politics and Popular Opinion in East Germany 1945-68* (Manchester: Manchester University Press, 2000), 124.

⁷³⁷ “Navy Says Cubans Got Still-Potent Vaccine,” *The Washington Post, Times Herald*, 11 March 1961, A4.

⁷³⁸ “Cuban Press Hails Red Polio Vaccine,” *The Washington Post, Times Herald*, 25 March 1961, A6.

In 1961, the American Medical Association announced its support for the use of Sabin OPV in the US, before the Surgeon General licensed it. The association had never previously endorsed a vaccine, so this decision was a clear sign that the United States had admitted Salk IPV's defeat.⁷³⁹ Two months after the AMA's statement, in September 1961, Sabin's OPV Type I was licensed in the United States, followed by Type II and Type III the following year. Soon after, vaccine manufacturers began to market American-produced OPV.⁷⁴⁰ The implementation of a less expensive and easier to administer vaccine reduced the number of cases in the US even further.

Having exhausted other avenues and facing another polio crisis, West Germany finally implemented the Sabin oral vaccine in 1961. Richard Haas, the developer of the German IPV discussed in the previous chapter, travelled to the US in early 1961 to visit polio researchers' laboratories. He met with both Salk and Sabin to discuss the problem of vaccination in West Germany and ask for their advice. Each made a proposal to implement a vaccination program in the FRG.⁷⁴¹ Haas took these proposals back to West Germany and suggested that the Sabin OPV should be introduced in West Germany.

By 1962, over 22 million West German citizens had received the oral vaccine – almost 40 percent of the population.⁷⁴² The vaccine was administered through candy or

⁷³⁹ Gould, *A Summer Plague: Polio and Its Survivors*, 183.

⁷⁴⁰ Congress, *Congressional Record*.

⁷⁴¹ BArchK B 142/55, Professor Dr. Med. Richard Haas, Report, "Bericht über eine Reise nach USA, 11-12 October 1961." 2 November 1961.

⁷⁴² "Die Schluckimpfung gegen die Kinderlähmung: Rückblick und Vorschau," *Die Medizinische Welt* 50 (15 December 1962): 2647.

juice.⁷⁴³ That year, West Germany reported only 291 cases of polio, and Health Minister Elisabeth Schwarzhaupt heralded the role of “anti-polio capsules” in ending the epidemics in West Germany.⁷⁴⁴ West German physicians deemed the Sabin oral vaccine more successful than Salk, if only because the West German population found the drinkable, cheaper vaccine to be more accessible. In West Berlin, 12 times as many people took the oral vaccine in 1961 than had received Salk in the previous year.⁷⁴⁵

West German medical journals demonstrated that researchers still expressed concern about the vaccine’s safety. In an answer to another doctor’s question about whether Salk or Sabin was better, Dr. H. Kleinschmidt wrote that Sabin was easier to administer but that it posed a risk to unvaccinated members of the community who used a shared restroom with the vaccinated.⁷⁴⁶ Researchers also explored the possible links between the oral vaccine and nephrotic syndrome, duodenitis, pancreatitis, hepatitis, serous meningitis, and allergic reactions causing death.⁷⁴⁷ Most of these links were impossible to prove. More pressing was the rare but real risk of vaccine-associated paralytic polio (VAPP).⁷⁴⁸ The number of proven VAPP cases was small. By 1964, out of

⁷⁴³ G. Henneberg and H.P. Pöhn, “Die Bedeutung der Nachschau bei aktiven Schutzimpfungen,” *Medizinische Klinik* 22 (31 May 1963): 921.

⁷⁴⁴ “W. Germany Virtually Freed of Polio in 2 Years: Mass Campaign Pays Off,” *The Washington Post, Times Herald*, 26 November 1963, C3.

⁷⁴⁵ “Polio-Impfung,” *Die Medizinische Welt* 5 (3 February 1962): 285.

⁷⁴⁶ “Polio-Impfung,” 285.

⁷⁴⁷ P.V. Dittrich, “Praktische fragen an die Nephrologie: Das nephrotische Syndrom,” *Medizinische Klinik* 33 (16 August 1963): 1348.; H.J. Diesfeld, “Zur frage der intestinalen Komplikationen nach Poliomyelitis-Schluck-Impfung nach Sabin,” *Medizinische Klinik* 57.33 (17 August 1962): 1421-1422.; G. Bodechtel, R. Haas, G. Joppich, H. Lennartz, H. Pette, and R. Siegert, “Harmful Effects of Oral Polio Vaccination (Sabin Type I),” *GMM* 9.1 (January 1964): 1.; “Parallergische erscheinungen nach Polio-Schluckimpfung,” *Medizinische Welt* 40 (6 October 1962): 2123.

⁷⁴⁸ The American Academy of Physicians estimates that VAPP currently affects roughly one in 750 thousand recipients of the first dose of OPV. Richard Kent Zimmerman and Stephen J. Spann, “Poliovirus Vaccine Options,” *American Family Physician* 59.1 (January 1999): 113-118.

22 million West German citizens who had received the vaccine, researchs had identified 52 where the victim's Type III polio could be linked directly to the vaccine.⁷⁴⁹ Multiple reports indicated that the Sabin oral vaccine was not as effective as Sabin himself had claimed.⁷⁵⁰ Nevertheless, most West German doctors were willing to defend the Sabin vaccine despite the risks associated with it.

Several researchers in West Germany wrote articles explaining that the small percentage of cases of polio caused by the Sabin vaccine were insignificant. In April 1964, the *German Medical Monthly* published an article about an immunization campaign in Erlangen in 1961. The study concluded that although 74 citizens developed polio out of the 59 000 vaccinated, "this level of reaction is acceptable in view of the prevalence of poliomyelitis before the immunization programme."⁷⁵¹ In many cases, researchers found it difficult to prove the connection between Sabin and cases of polio. Between 1963 and 1964, *German Medical Monthly* featured several similar articles, where authors concluded that the benefits were worth the risk.⁷⁵² West German medical researchers were beginning to defend their choice of vaccine, as the risks associated with the OPV vaccine seemed less dangerous than those associated with IPV.

⁷⁴⁹ Bodechtel et al., "Harmful Effects of Oral Polio Vaccination": 1.

⁷⁵⁰ G. Henneberg and H.P. Pöhn, "Die dedeutung der nachschau bei aktiven Schutzimpfungen," *Medizinische Klinik* 22 (31 May 1963): 921.; Dr. Carl Alexander Primavesi, "Über die bildung neutralisierender Antikörper nach Poliomyelitis Schluckvakzinierung," *Medizinische Welt* 5 (2 February 1963): 241.

⁷⁵¹ F.C. Sitzmann, "Complications of Oral Poliomyelitis Immunization," *GMM* 9.4 (April 1964): 175.

⁷⁵² H. Wiesener, et al., "Poliomyelitis Vaccination": 390.; Th. Luthardt, et al., "Polio Type III Epidemic": 356.; F.C. Sitzmann and A Windorfer, "Complications after Immunization with Sabin Type II and III Oral Vaccine," *GMM* 9.9 (September 1964): 390-391.

Although medical professionals in West Germany continued to defend Sabin and began to advocate for mass vaccination in ways they had not done before, West German vaccination rates remained lower than those in the East. Health Minister Schwarzhaupt maintained in 1963 that West Germany would not implement compulsory vaccinations to avoid “encroach[ing] needlessly on the freedom and decision of the individual.”⁷⁵³ While Schwarzhaupt’s comments demonstrate West German conformity with the Americans’ prioritization of personal choice, some contemporaries disagreed. Günter Sollberg, a physician from Mainz, published an article in *Medizinische Welt* in which he suggested the country develop a vaccination plan enforced by law.⁷⁵⁴

Conclusion

The Cold War shaped the responses of Eastern and Western countries to polio. Sabin’s vaccine became closely associated with Eastern Europe. The West attempted to find a way to resist following the path of the USSR, due to American insecurity about admitting Sabin OPV tested in the Soviet Union might be more effective than Salk IPV. Though initially, East Germans were envious of West Germans’ affluence and access to treatments for polio, by 1960 West Germans were convinced that Sabin OPV was the best vaccine option for eradicating polio. The researchers on both sides were inundated with conflicting views of the “correct” path to ending polio epidemics.

⁷⁵³ Quoted in “W. Germany Virtually Freed of Polio in 2 Years”: C3.

⁷⁵⁴ Günter Sollberg, “Zur Problematik in der beurteilung neurologischer Komplikationen nach der Poliomyelitis-Schluckimpfung,” *Medizinische Welt* 35 (31 August 1963): 1701.

Not until the proximity of Sabin vaccinations became a direct threat to West German citizens in Berlin did the West German government seek to boost lagging vaccination rates. The Cold War division of Germany, and the decision to maintain the western zone through the Berlin Airlift during the First Berlin Crisis, led to an under-vaccinated population of West Berliners in the middle of an East German nation that was rapidly approaching herd immunity through the distribution of Sabin OPV in daycares, polyclinics, and factory nurseries. East Germany accused the West German government of failing to protect its citizens and proceeded with oral vaccinations. It also announced the closure of the Berlin Wall, claiming, among other motives, the need to protect its citizens from the polio-ridden West Germans across the border.

Although there were German precedents to compulsory vaccination laws and West German vaccination rates lagged, West Germany chose not to adopt such a law, much as East Germany elected not to do so when it introduced the Salk IPV. The fear of appearing too “authoritarian” was rooted in both the legacies of the National Socialist physicians’ excesses, and the East-West conflict, where the East Germans were deemed authoritarian by the west. East Germans’ assertion that Konrad Adenauer refused the offer of free OPV because he did not care about citizens was a condemnation of the shortcomings of capitalism. The GDR’s healthcare system, in the minds of East German politicians, had become more egalitarian and more attentive to the needs of its citizens than the West German counterpart. West German politicians’ decision to deny citizens access to vaccines that would protect them was therefore a denial of freedom of choice about whether to vaccinate. The failure of the Cox vaccine and resulting cases of vaccine-

derived polio were further evidence to East German propagandists that West Germany would rather use its citizens as test subjects than accept vetted vaccines from a political opponent.

East Germany provided the vaccine to its citizens much more rapidly, and uptake was very good despite lack of legislation mandating vaccinations. The simplicity of the OPV's administration meant that it could be provided to children at school, with little discomfort. The Salk IPV was treated as such a triumph by the United States, and particularly by the NFIP, that it was difficult to admit that, in many cases, Sabin OPV resulted in higher uptake and more rapid introduction of herd immunity.⁷⁵⁵ By 1962, however, the US had implemented a large-scale immunization campaign with Sabin OPV. Though frequently historians have dismissed East Germany as a failed state, and as a loser of the Cold War, this is one case where East Germans provided a medical intervention to improve the lives of their citizens more rapidly than West Germany.

In 1962, the US concluded an "Exchange Agreement" with the USSR, which formalized the visits from delegations of scientists which had occurred so many times over the past years. In October 1962, the first delegation of scientists from the United States travelled to the USSR – its purpose was "to observe and study the preparation and use of immunizing agents, including multiple antigens."⁷⁵⁶ This willingness to establish

⁷⁵⁵ Robert C. Toth, "New Polio Vaccine Rated Above Salk's," *New York Herald Tribune*, 13 July 1960, 17.; Robert C. Toth, "U.S. is Still Doubtful on Red Polio Vaccine," *New York Herald Tribune*, 17 May 1960, 28.; "Report Millions Skip Salk Vaccine Polio Shot," *Daily Defender*, 28 August 1958, 9.; "Live Polio Vaccine May Protect Longer," *The Globe and Mail*, 28 September 1959, 4.

⁷⁵⁶ *Report of Immunology Delegation: Visit to the USSR Under US-USSR Exchange Agreement 1962-1963* (U.S. Department of Health, Education, and Welfare, Public Health Service, Division of International Health, 1963), 1.

formal diplomatic ties for the purpose of scientific exchange, and the fact that the first visit was designed to improve American knowledge of vaccine research indicated that Americans were gaining confidence in the merit of Soviet science. It also further emphasized to onlookers that the resistance to admitting the Soviet OPV field trials were valid was based more in ego and ideological resistance to admitting a Soviet success.

The Berlin Wall announcement and the introduction of Sabin OPV in East and West Germany was a key moment in both the entangled Cold War political relationship between the FRG and GDR, and the fight against polio in Germany. The Berlin Wall increased separation and further cemented the development of two separate medical systems, halting the travel of West German doctors to the East, and exacerbating existing doctor shortages in East Germany, as more sought to flee West. The vaccinations against polio, however, lowered case rates throughout the 1960s and ensured that polio became a distant memory. East German politicians' decision to offer vaccines in places convenient for parents, including schools, polyclinics, and daycares attached to factories, led to higher uptake in vaccinations and provides a lesson to emulate in future vaccination campaigns. Though reunification led to the end of the East German experiment in healthcare, as the West German medical system was adopted wholesale, upon re-examination, the East German vaccination campaign against polio was a rare success.

Conclusion

The erection of the Berlin Wall in 1961 cemented the divide between physicians in East and West Germany. West German doctors were no longer able to travel across the border to treat patients, and what little communication there was between the two groups of physicians ended. Yet the fight against polio did not stop, as polio persisted in Germany longer than the Berlin Wall would stand. The last case of indigenous polio occurred in reunified Germany in 1990. Although the introduction of Sabin OPV in West Germany in 1961 rapidly reduced the number of cases in Germany from 4,673 in 1961 to only 48 in 1965, expectations of what constituted “success” in the fight against polio continued shifting. By 1967, an American newspaper reported that West Germany had only reduced its number of polio cases by four since 1966.⁷⁵⁷ The number had dropped from 19 to just 15 cases, all among unvaccinated citizens.⁷⁵⁸ Whereas in the early 1960s, German authorities considered yearly case rates under a thousand an improvement, by 1966 even a dozen cases were considered unacceptable. By the time wild poliovirus was eradicated from Germany in 1990, there was no cause for celebration.⁷⁵⁹ Although the disease faded from German consciousness, it was still present in the Global South.

The history of poliomyelitis in Germany has implications for our understanding of German history and knowledge transfer. Occupiers’ plans for reconstruction and the

⁷⁵⁷ “Polio Cases,” *Temple Daily Telegram*, 6 June 1967, 12B. Historic Newspapers, *Baylor Digital Collections*. URL: <http://digitalcollections.baylor.edu/cdm/fullbrowser/collection/el-histnsp/id/1494/rv/compoundobject/cpd/1527/rec/1>, Accessed 6 July 2016.

⁷⁵⁸ Ibid.

⁷⁵⁹ M. Eichner and K. Dietz, “Eradication of Poliomyelitis: When can one be sure that polio virus transmission has been terminated?” *American Journal of Epidemiology* 143.8 (April 15, 1996). URL: pubmed.ncbi.nlm.nih.gov/8610692/, accessed 3 July 2021.

metrics by which “success” was measured in postwar divided Germany were developed reflexively. Occupiers compared their approaches and results to each other, and later East German and West German politicians would do the same. Though initial plans for occupied Germany stressed collaboration in the realm of healthcare, the collaboration between the Soviets and their western counterparts quickly broke down. Each occupier pursued reconstruction of the German healthcare system in different ways. The Soviet zone brought back German socialist émigrés who had fled the Third Reich and held favourable views of socialized healthcare system.⁷⁶⁰ These physicians protected the polyclinic system. German doctors in the American zone, who were not uniformly political opponents of the NSDAP, sought to reduce the longstanding power of social insurance funds and decentralize the healthcare system. Both sides, however, took a pragmatic approach to the denazification of physicians in their zones due to the fear of epidemic disease and its potential to spread across Europe. Epidemics of disease did occur in postwar Germany, but they were relatively quickly eradicated through improved sanitation and nutrition. Polio was not so readily controlled.

The first postwar polio epidemic in 1947 presented an opportunity to put collaborative impulses into practice, as it was a relatively unfamiliar disease and resources to treat it, such as iron lungs, were uncommon in Germany. Such collaboration largely took the form of sharing medical supplies and medicines, conferences and meetings, as well as some abortive discussion about a collaborative medical journal. The

⁷⁶⁰ Klaus-Dieter Müller, “Die Ärzteschaft Im Staatlichen Gesundheitswesen Der SBZ Und DDR 1945-1989,” in *Geschichte Der Deutschen Ärzteschaft: Organisierte Berufs- Und Gesundheitspolitik Im 19. Und 20. Jahrhundert*, ed. Robert Jütte (Köln: Deutscher Ärzte-Verlag, 1997), 247.

American occupiers mounted a large-scale effort to control the epidemic by flying in experts and expensive iron lungs from the US, while the Soviet Union faced accusations from German citizens that the government could not even provide basic foodstuffs like milk.⁷⁶¹ The First Berlin Crisis in 1948, when Soviets barred land travel to Berlin, halted official collaboration. Both occupiers announced they would not support the other's medical needs. While western Berlin ensured that polio patients attached to iron lungs received emergency power, eastern Berlin had to smuggle patients across the border because it still lacked iron lungs.⁷⁶² Subsequent pandemics in the early 1950s became vehicles for accusations that neither the United States nor the Soviet Union were adequately protecting Germans. If an epistemic community of medical professionals existed before the advent of the Cold War, it certainly did not exist after 1948, as this dissertation has shown.

The introduction of vaccines in the 1950s brought some relief from polio especially in the US. When Jonas Salk announced his inactivated polio vaccine was ready for field trials in 1954, American newspapers became enthralled by the prospect of eradicating polio altogether.⁷⁶³ Nonetheless, as Thomas Kuhn has theorized, the path of scientific progress is not linear. Unfortunately, the Cutter Incident had a global impact on confidence in vaccines, particularly outside the US where the efforts of the NFIP to build

⁷⁶¹ "Mehr Brot für die Kinder!" Neues Deutschland, 2 November 1947. Archiv der Ausgaben von 1946-1990, Neues Deutschland Archiv. URL: <https://www.nd-archiv.de/artikel/1518688..html?sstr=kinderl%C3%A4rmung>, Accessed 1 June 2016.

⁷⁶² UWDC-GURC. "Polio Victims Aided," *OMGUS Monthly Information Bulletin* (December 1949): 60-61.; BArchB DQ 1/2248. Memo, "Behebung von festgestellten Mängeln der Eisernen Lunge Typ C/2 S., 9 July 1953.

⁷⁶³ Thomas D. Dublin, "1954 Poliomyelitis Vaccine Field Trial: Plan, Field Operations, and Follow-Up Observations," *Journal of the American Medical Association* 158, no. 14 (August 6, 1955): 1258-65.

excitement for the vaccine minimized the damage of this incident. In West Germany, such hesitancy began among medical practitioners nervous about potential vaccine crises and malpractice lawsuits and filtered into popular media such as *Der Spiegel* where it was transmitted to the general population.⁷⁶⁴ For East German medical officials, the Salk vaccine was considered too expensive to produce and administer.⁷⁶⁵ In both East and West Germany, researchers were also more ambivalent about the vaccine's effectiveness and safety, owing to the legacy of the Lübeck incident.

While the West German pharmaceutical company Behringwerke attempted to manufacture its own Salk-type IPV, it struggled to prove that the vaccine met the safety requirements of the West German government.⁷⁶⁶ The general population in both East and West Germany was hesitant, and vaccination rates flagged. Even though ostensibly medical practitioners in the US and West Germany were politically like-minded, and there was more trust between the two groups than between physicians in the Soviet sphere and those in the American sphere, they still did not reach consensus on the Salk IPV. East German and West German politicians shared doubts about the safety and efficacy of the Salk IPV and physicians in both countries expressed more excitement

⁷⁶⁴ "Die große Prüfung," *Der Spiegel* 21 (18 May 1955). URL: <http://www.spiegel.de/spiegel/print/d-31970336.html>, Accessed 15 April 2016.; "Das tödliche Gebräu: Viren rutschten durch die Prüfung," *Der Spiegel* 27 (29 June 1955). URL: <http://www.spiegel.de/spiegel/print/d-31970616.html>, Accessed 10 April 2016. "Kinderlähmung – impfen oder nicht?" *Der Spiegel* 17 (24 April, 1957). URL: <http://www.spiegel.de/spiegel/print/d-41757287.html>, Accessed 10 April 2016.; S. Koller, "A Critical Analysis of the Results of the 1954 and 1955 Poliomyelitis Vaccinations in the USA," *GMM* 2.10 (October 1957): 322.

⁷⁶⁵ Patrick Major, *The Death of the KPD: Communism and Anti-Communism in West Germany, 1945-1956* (Oxford: Oxford University Press, 1997), 71–72.

⁷⁶⁶ "Polio Vaccine Seen Successful Abroad": 24.; Ulrike Lindner, "Changing Regulations and Risk Assessments: National Responses to the Introduction of Inactivated Polio Vaccine in the UK and West Germany," in *Evaluating and Standardizing Therapeutic Agents, 1890-1950*, ed. C. Gradmann and J. Simon (London: Palgrave Macmillan, 2010), 238.

about Sabin's forthcoming OPV. This example shows the limitations of assuming historical actors are governed wholly by their political beliefs. It also challenges the notion of an epistemic community of democratic doctors versus a community of socialist or communist doctors in the Eastern Bloc. Thus, while doctors were aware of and shaped by the political and social influences of the nation-state, they were also capable of challenging such boundaries by working beyond them.

The news of Sabin OPV in 1956 made decision-making even more contested since many researchers expected it to be much more successful at developing strong immunity in vaccinees. Thus, East and West Germans remained predominantly under-vaccinated with the available Salk-type vaccines. Medical groups in the United States, however, did not see the need to deviate from their decision to implement Salk IPV, resulting in Sabin's decision to test his vaccine in the USSR.⁷⁶⁷ In a field trial which eclipsed the Salk field trial in the US, Soviet scientists and Sabin found the vaccine safe, effective, and easy to administer. US politicians and the NFIP, however, were quick to challenge these results, claiming that they were not trustworthy even after the American physician Dr. Dorothy Horstmann verified the results at the request of the WHO.⁷⁶⁸ East Berliners were able to receive Sabin OPV in 1961, but West Berliners remained under-vaccinated. West German Chancellor Konrad Adenauer rejected East German officials' offers of Russian

⁷⁶⁷ Richard Carter, *Breakthrough: The Saga of Jonas Salk* (New York: Trident Press, 1966), 366–67.; United States of America, "Rebuttal of Soviet Claims," Congressional Record: Proceedings and Debates of the 86th Congress, First Session (Chicago: U.S. Government Publishing Office, 1959), 9971.

⁷⁶⁸ Bernard Seytre, *The Death of a Disease: A History of the Eradication of Poliomyelitis*, trans. Mary Shaffer (New Brunswick: Rutgers University Press, 2004), 49.

manufactured Sabin OPV and instead began testing the Cox OPV.⁷⁶⁹ The failure of Cox OPV left West Berliners concerned about the presence of live poliovirus in their waterways that had been shed from vaccinated East Berliners. The East German media trumpeted West German failures and pointed to the polio epidemics in West Germany as one of the rationales for the construction of the Berlin Wall.

The case of Sabin's collaboration with physicians in the Soviet Union speaks to several important and often overlooked factors in knowledge transfer and transmission. Firstly, Sabin was able to field test his vaccine in the USSR due to his internationalist network evinced by his voluminous correspondence with individuals in many different nations, and in several different languages. The American focus of much of the historical research on the polio vaccine race has ignored these relationships. Secondly, knowledge transfer works far better when the individual providing the knowledge is trusted by the recipients. In the case of the polio vaccines, German medical researchers and physicians contacted Sabin to get his opinion on different vaccines and expressed the hope that his vaccine would be ready soon. The relationships Sabin held with key researchers in both East and West Germany was a contributing factor in the adoption of vaccinations with Sabin OPV on both sides of divided Germany. Thirdly, the collaboration opened doors for Soviet and American exchanges and the codification of knowledge exchange across Cold War borders in the 1962 Exchange Agreement. Vaccine diplomacy became a more

⁷⁶⁹ "Das ist der Bonner Staadt der Unmenschlichkeit," *Neues Deutschland*, 9 July 1961.; "Eltern von Furcht vor Polio ergriffen," *Neues Deutschland*, 19 July 1961.; "Mütter appellieren an Adenauer," *Neues Deutschland*, 18 July 1961.; "Verzweifelte Mutter Klagt an," *Neues Deutschland*, 14 July 1961.; "Sollen noch mehr Kinder sterben?," *Neues Deutschland*, 9 July 1961.; "Kinder zum Sterben verurteilt," *Neues Deutschland*, 8 July 1961.; "Westdeutsche Ärzte fordern: Hilfe der DDR annehmen!," *Neues Deutschland*, 2 July 1961.; "DDR-Hilfsangebot sofort annehmen," *Neues Deutschland*, 1 July 1961.

trusted form of “soft diplomacy” and the legacies of this experiment can still be seen today in reports of Chinese, Russian, and American vaccine diplomacy, and the *New York Times*’ declaration that “The era of vaccine diplomacy is here.”⁷⁷⁰

The fight against polio in Germany is an excellent case study for understanding precisely how medical knowledge can be shaped, impeded, and expanded by the political priorities of governments. Adding complexity was the coming and then maturation of the Cold War. This dissertation has shown how two competing models of “modernity” faced off in the realm of healthcare, with no clear winner. Many factors beyond the control of East German policymakers brought the Sabin OPV to the USSR, which meant that Soviet satellites had a viable polio vaccine before many western states did. East Germans were initially envious of the medical care West Germans could get for polio, but by 1960 West German citizens were under-vaccinated in the face of the East Germans’ pending vaccination campaign with Sabin OPV. The ways in which the politics of the Cold War intersected with the fight against poliomyelitis allow for clearer exploration of how the fight against epidemic disease was shaped by the deterioration of relations between the US and the USSR.

When use of “hard power” became untenable due to demobilization, proximity, familiarity, and the threat of nuclear weapons, West and East German leaders turned to soft power in international relations. While previous studies of medicine as a form of

⁷⁷⁰ Editorial Board, “The Era of Vaccine Diplomacy is Here,” 28 February 2021, The New York Times. URL: <https://www.nytimes.com/2021/02/28/opinion/covid-vaccine-global.html?>, accessed 22 October 2021. Alexander Smith, “Russia and China are beating the U.S. at vaccine diplomacy, experts say,” 2 April 2021, NBC News. URL: <https://www.nbcnews.com/news/world/russia-china-are-beating-u-s-vaccine-diplomacy-experts-say-n1262742>, accessed 22 October 2021.

diplomacy have emphasized good will and collaboration in pursuit of better health for all, the conclusions of this dissertation present a different picture. Collaboration and communication across political boundaries did occur, but they were often undermined or hindered by tensions between the two blocs. East and West Germany both sought to prove the superiority of their system, and healthcare was part of the competition during the Cold War. Collaboration occurred when it was mutually beneficial, such as in the field trial of Sabin's OPV in the Soviet Union. In other cases, offers of help were rejected, as when East Germany offered West Berlin free OPV in 1961. Perceived failures to ensure the health of citizens were leveraged by the opposing power. The use of healthcare as a form of soft power challenges previous historians' focus on either a complete lack of communication, or on collaboration to improve global health. Instead, the politics of polio show how health internationalism could be exclusionary, marred by the boundaries of the Cold War.

Even after the conclusion of the Cold War, and the reunification of the two Germanies in 1990, tensions between physicians from the former East and West continued. The unified German government dismantled the East German healthcare system and expanded its West German counterpart. The government also privatized the former GDR's healthcare institutions over the course of two years.⁷⁷¹ East German physicians' medical licenses were recognized after 1990 as equal to West German medical licenses, meaning that no physicians had to complete additional training or

⁷⁷¹ Song Soo-Youn, "German Reunification in Healthcare took 2 Years," *Korea Biomedical Review*, 2 May 2018. URL: koreabiomed.com/news/articleView.html?idxno=3154, accessed 3 July 2021.

certification processes. This decision indicated admission that the quality of East German medical education was at least acceptable enough to allow doctors to continue practicing, even with a glut of doctors in West Germany available to support East German citizens. Nonetheless, when East German hospitals were absorbed by the new system, West German physicians were placed in positions of power, either as executives or “experts,” to ensure quality of care and help mitigate confusion during the transition.⁷⁷² Furthermore, East German and West German physicians were divided by class and social status in 1990. East German physicians were overwhelmingly middle class with middle class incomes. West German physicians were far wealthier.⁷⁷³ Tensions between the two groups of physicians were rampant, as West German physicians complained about the inadequacy of East German physicians’ medical knowledge and East German physicians accused their counterparts of greed, claiming they valued money over patient care.⁷⁷⁴

Recently, medical researchers have expressed interest in re-examining the East German healthcare system to assess whether beneficial elements of the past can improve the German system at present.⁷⁷⁵ There are even debates about reintroducing the polyclinic system, which provided outpatient care in a group setting.⁷⁷⁶ In addition, vaccination rates in the former East Germany remain higher than those in the former

⁷⁷² Gun-Chun Ryu, “Lessons from Unified Germany and Their Implications for Healthcare in the Unification of the Korea Peninsula,” *Journal of Preventive Medicine and Public Health* 46.3 (May 2013): 128.

⁷⁷³ Ryu, “Lessons from Unified Germany,” 130.

⁷⁷⁴ Ryu, 132.

⁷⁷⁵ Dirk Meusel, Ulf Maywald, Isabel Hach, Wilhelm Kirch, “A tale of two Germanys: East Germany’s health system provides lessons 14 years on,” *BMJ* 331. 234 (21 July 2005). URL: <http://www.bmj.com/content/331/7510/234.3>, Accessed 16 March 2016.

⁷⁷⁶ Meusel, Maywald, Hach, and Kirch, “A tale of two Germanys,” URL: <http://www.bmj.com/content/331/7510/234.3>, Accessed 16 March 2016.

West, particularly for elective vaccines like the influenza vaccine.⁷⁷⁷ The difference has led some medical historians to question whether it may have been a mistake for East Germany to adopt the West German healthcare system wholesale during reunification, or whether the strengths and weaknesses of each system should have been assessed objectively in order to create a stronger model.⁷⁷⁸ Historian Ned Richardson's observations about historians, politicians, and society throwing the entire GDR "onto the trash heap of history" are not limited to healthcare.⁷⁷⁹

By 1965, polio was largely under control on both sides of the German border. The Sabin vaccine, due to its relatively low cost and ease of administration, became the favoured vaccine in both East and West Germany. With few exceptions, the Sabin OPV also became the standard vaccine used internationally. Its effect was dramatic, reducing case rates more significantly than the Salk IPV. Unfortunately, polio did not end just because the large epidemics in the Global North ended.⁷⁸⁰ As the Global North developed herd immunity and case rates dropped, the prevalence of polio in the Global South began to rise as sanitation improved. The Sabin OPV has been instrumental in global eradication efforts, and currently the only countries with cases of wild polio infections are Pakistan and Afghanistan. The continued resistance to vaccination in these two countries

⁷⁷⁷ Thorsten Rieck, Marcel Feig, Tim Eckmanns, Justus Benzler, Anette Siedler, and Ole Wichmann, "Vaccination Coverage Among Children in Germany Estimated by Analysis of Health Insurance Claims Data," *Human Vaccines and Immunotherapeutics* 10.2 (9 February 2014): 4.

⁷⁷⁸ Rieck, Feig, Eckmanns, Benzler, Siedler, and Wichmann, "Vaccination Coverage Among Children in Germany Estimated by Analysis of Health Insurance Claims Data," 7.

⁷⁷⁹ Ned Richardson-Little, *The Human Rights Dictatorship: Socialism, Global Solidarity and Revolution in East Germany* (Cambridge: Cambridge University Press, 2020), 1.

⁷⁸⁰ Marc Shell, *Polio and Its Aftermath: The Paralysis of Culture* (Cambridge: Harvard University Press, 2005).

has been further compounded by lack of trust in WHO and nongovernmental organizations like the Global Polio Eradication Initiative. The CIA’s use of a fake polio vaccination campaign to track down Osama Bin Laden was particularly harmful because it severely undermined trust in internationally sponsored vaccination programs.⁷⁸¹

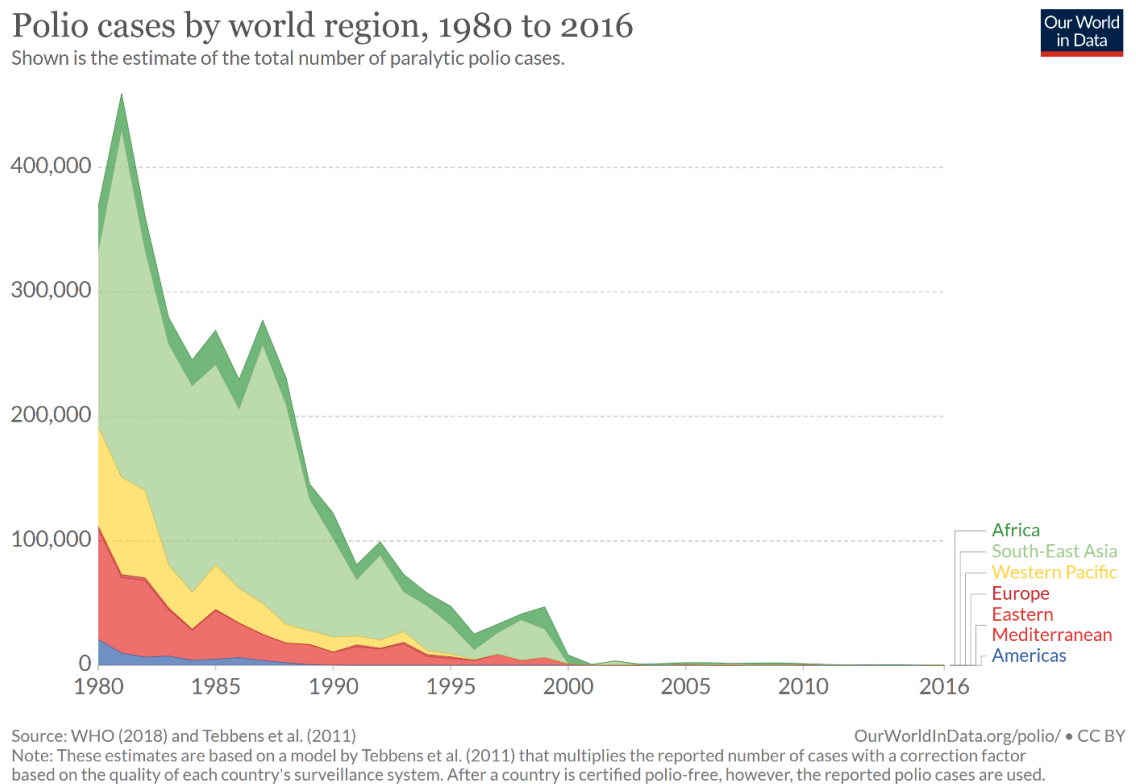


Figure 18: Polio Statistics by Region, 1980-2016

The final challenge to eradication efforts came from the vaccines themselves. In the early 1970s, the first epidemiological surveys of the safety and efficacy of the Sabin OPV campaign in the United States emerged in medical journals. These studies found cases of

⁷⁸¹ Jonathan Kennedy, “How Drone Strikes and a Fake Vaccination Program Have Inhibited Polio Eradication in Pakistan: An Analysis of National Level Data,” *International Journal of Health Services: Planning, Administration, Evaluation* 47, no. 4 (October 2017): 807–25.

polio arising from the poliovirus contained in the Sabin OPV.⁷⁸² Through serotyping, these cases were differentiated from the cases caused by wild poliovirus. Though initially these cases were grouped as vaccine-associated poliomyelitis, they now are treated as two separate conditions. The first, called vaccine-associated paralytic poliomyelitis (VAPP), affected the vaccinee and any unvaccinated individuals around them. First observed in the early 1970s, VAPP caused paralysis in one or more of the vaccinee's limbs. Patients also could experience other symptoms. The second, vaccine-derived poliovirus (VDPV) is similar, but does not cause polio in the vaccinee. This form of live, virulent poliovirus occurs when a poliovirus excreted in a vaccinee's feces finds unvaccinated hosts to replicate in, and over the course of a year to a year and a half, reverts to neurovirulence through prolonged mutation. Less than 1000 cases of VDPV have been reported in the world since 2010, out of millions of vaccine doses administered by medical professionals. Nonetheless, VAPP and VDPV present a challenge to full eradication as they reintroduce poliovirus into the environment. By 2016, the WHO reported that more cases of polio were being caused by VDPV than wild poliovirus, as illustrated in Figure 19.

⁷⁸² G. Driesel et al., "Vaccine-Associated Cases of Poliomyelitis over a 30 Year Period in East Germany," *European Journal of Epidemiology* 11, no. 6 (December 1995): 647–54.

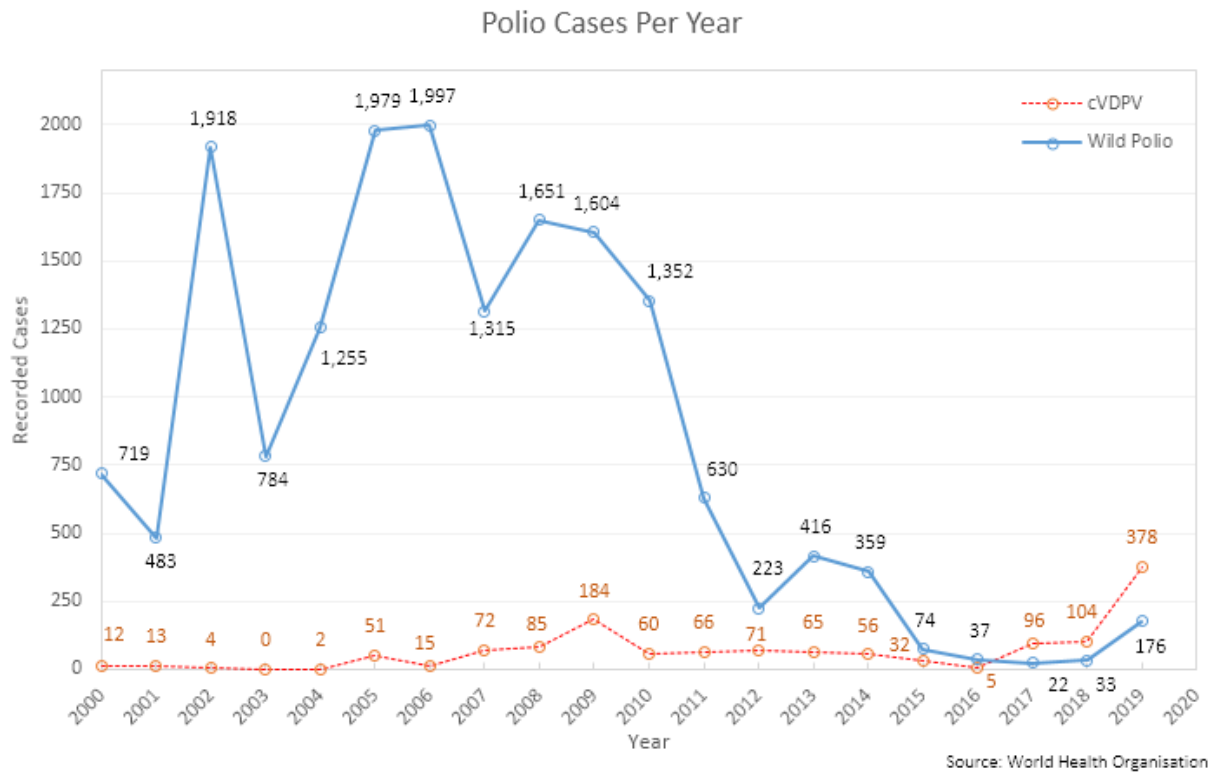


Figure 19: Chart of Wild Polio vs. VDPV cases internationally by year.⁷⁸³

For the final move from control to eradication, the Global Polio Eradication Initiative advocates the cessation of vaccinations using Sabin OPV, and a return to Salk IPV. The challenge in the Global South, where the remaining groups of polio cases are situated, is that injected vaccines are less accessible than the oral vaccine. Thus, while the WHO and other bodies have declared several times that eradication is in reach, vaccine-associated polio case rates are rising. Eradication also will not help individuals who have already overcome the acute stage of polio infection and will still develop progressive muscle weakness as they age. The discovery of post-polio syndrome, in which symptoms

⁷⁸³ Data from the WHO, graph from <https://commons.wikimedia.org/w/index.php?curid=73411266>

like progressive muscle weakness or shrinkage, fatigue, joint pain, and breathing problems afflict some polio survivors 10-70 years after they first contracted polio, is a stark reminder of the potential for epidemic disease to result in lifelong or returning conditions.

The history of polio vaccine implementation in Germany is, of course, relevant to current debates about whether vaccination should be mandated by law, or whether parents should have the right to choose. The debate about mandatory vaccination is also a debate about who bears the blame if something goes wrong: with mandatory vaccination, the weight of the decision rests less with the parents and more with the institutions creating and administering vaccine. The multitude of conflicting opinions on the “correct” approach to protecting individuals and communities can cause even the most educated individuals to become uncertain of their choices. Healthcare is a risky space, and the media often fixates on moments when innocuous procedures result in death. Although it is easy to deride individuals who choose not to vaccinate their children as unintelligent or ignorant, such an approach often results in defensive behaviour from the parents. In a survey of parents by researchers at The American Academy of Physicians, many respondents said they felt that their doctors did not provide them with adequate information and instead they felt pressured to vaccinate.⁷⁸⁴

The current COVID-19 pandemic has renewed interest in historical epidemics and the introduction of novel vaccines. The lessons that develop from this dissertation are that

⁷⁸⁴ Richard Kent Zimmerman and Stephen J. Spann, “Poliovirus Vaccine Options,” *American Family Physician* 59.1 (January 1999): 113-118.

individuals can only feel comfortable vaccinating their children, or themselves, if they can afford to do so, and if they have clear information that they perceive as “trustworthy” on which to base that decision. As well, the dissertation shows how medical information can be challenged when it crosses borders, especially if the source nation is considered “untrustworthy” or if the vaccine becomes politicized. Presently, reports are emerging of major concerns about the safety of the Russian Sputnik V coronavirus vaccine.

Allegations that the vaccine trials have been rushed, or are not rigorous, have been published in several popular science magazines, in addition to scientific reports and medical journals. Articles about the vaccine make sure to note that the vaccine manufacturer in Russia is “state-run,” in contrast to the Pfizer pharmaceutical company and the Oxford University vaccines.⁷⁸⁵ Though Pfizer and the Oxford development team received federal subsidies, the difference is the perceived level of control exerted by governments over the development process. The perceptions in North American and Europe that the Russian government has played a larger role in the development of the Sputnik V vaccine, and that Russia is unconcerned about the safety of its citizens is reminiscent of scientific debates in the 1950s, which charged that the Soviets were so blinded by the need to prove their scientific success that they were willing to risk children’s health. The Putin government has not improved the trustworthiness of Russian

⁷⁸⁵ Enrico Bucci et al., “Safety and Efficacy of the Russian COVID-19 Vaccine: More Information Needed,” *The Lancet* 396, no. 10256 (October 3, 2020): E53; Amanda Heidt, “Scientists Voice Concerns over Russian COVID-19 Vaccine Study,” *The Scientist*, September 11, 2020; “Russia Says Sputnik V Coronavirus Vaccine 95 per Cent Effective,” *CTV News*, November 24, 2020, <https://www.ctvnews.ca/health/coronavirus/russia-says-sputnik-v-coronavirus-vaccine-95-per-cent-effective-1.5202264>.

science, and the recognition that it is still controlled by an authoritarian state has arguably created more doubt.

Nonetheless, other reports from the United Kingdom show that individual citizens have varying levels of concerns about each of the available vaccines. There are, of course, major issues with supply and storage. Aside from those logistical struggles, however, there have been reports about vaccine nationalism. In particular, reports from the UK show that citizens may prefer to wait for the “home-grown” Oxford University vaccine rather than being vaccinated with the Pfizer vaccine from the United States.⁷⁸⁶ An NHS doctor, commenting on his own patients refusing vaccines, noted that “Nationalism has consequences.”⁷⁸⁷ Other doctors reported similar comments from patients in other areas of the UK.⁷⁸⁸ The field of medicine is not immune from the effects of nationalism and xenophobia, and medical knowledge and innovations are not “above” ideology.

Over the past few months, several different vaccines against COVID-19 have been released, all of which are mRNA vaccines – the first ones licensed for use in human populations. Unlike attenuated or inactivated vaccines, the mRNA vaccine does not contain any “real” virus but instead uses synthetic fragments from the virus’s RNA sequence, which are interpreted by immune cells that create the antigens. The antigens, the parts of a pathogen that the immune system targets, are targeted by the body’s own

⁷⁸⁶ Zoe Tidman, “Patients Reject Pfizer Vaccine to Wait for ‘English’ Jab, Says Doctor,” *The Independent*, January 7, 2021, <https://www.independent.co.uk/news/health/coronavirus-vaccine-pfizer-oxford-b1784086.html>.

⁷⁸⁷ Dr. Paul Williams, Twitter post, 7 January 2021, 4:19 A.M., <https://twitter.com/PaulWilliamsLAB/status/1347110494881116160>.

⁷⁸⁸ Laura E. Webster, “Covid-19: Doctor Says Patients Rejected Pfizer Vaccine to ‘Wait for English One,’” *The National*, January 8, 2021.

antibodies against the virus. Since there is no real virus in the vaccine, they pose fewer potential risks related to improper manufacturing. No “live” or virulent virus can remain in vaccine fluid because none was present in the first place. These vaccines are also much easier and quicker to produce: Moderna’s COVID-19 vaccine was produced in two days.⁷⁸⁹

Unfortunately, the rapidity with which the vaccines were released, coupled with their being the first mRNA vaccines available on the market, has created concern about their safety among the general public. A news article from 18 June 2021 reported that 1 in 10 Canadians outright refused vaccination with mRNA vaccines.⁷⁹⁰ Some of this concern derives from what might be termed “vaccine anxiety” while for others vaccine hesitancy is at work. Already, conspiracy theories and misinformation about mRNA vaccines altering human DNA, or otherwise changing humans’ “wiring” so they become “genetic mutants” have begun to emerge.⁷⁹¹ The perception that mRNA vaccines may cause more severe adverse reactions has also raised questions about whether pregnant women should be vaccinated. Due to the long-lasting legacy of the thalidomide trials in the 1950s and 1960s, there is currently no information about the mRNA vaccine’s safety for pregnant or breastfeeding women. With several unknowns, including the long-term effects of the vaccines, many are unsure about which vaccine to select, and when to get vaccinated.

⁷⁸⁹ Susie Neilson, Andrew Dunn, and Aria Bendix, “Moderna’s Groundbreaking Coronavirus Vaccine Was Designed in Just 2 Days,” *Business Insider*, December 19, 2020.

⁷⁹⁰ “Nearly 20% of Canadians Still Hesitant or Refusing to Get COVID-19 Vaccine: Poll,” Global News, accessed July 6, 2021, <https://globalnews.ca/news/7960345/covid-canada-vaccine-hesitancy-poll/>.

⁷⁹¹ Joe Schwarcz, “The Vaccine Is Here but So Is The Fear,” Office for Science and Society, accessed January 17, 2021, <https://www.mcgill.ca/oss/article/covid-19-health/have-no-fear-vaccine-here>.

Our present pandemic provides a lesson in historical empathy. The balance between enough information for informed consent and so much information about multiple vaccines which are so similar but manufactured by different types of organizations and in different nations has created confusion and uncertainty. Though often vaccine hesitancy is reduced to the “anti-vaxxer” movement, in both the historical events studied here, and in our present context, it is much more difficult to assess risks and make decisions confidently when the information being provided is divergent. Thus, the major lesson from this dissertation is that clear information, delivered by sources perceived as “trustworthy” is integral to assuring sufficient vaccinations to provide herd immunity. Nonetheless, regardless of when this pandemic is finally brought under control, scars will remain. Questions about “long COVID” have their parallels in post-polio syndrome. The economic impact of stay-at-home measures, and the anxiety of having to enter into spaces deemed “high risk” will take time to overcome. The emotional toll of losing loved ones, sometimes without being able to properly say goodbye: these traumas do not end when the pandemic does.

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DQ 1 Ministerium für Gesundheitswesen

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B 128 Statistisches Bundesamt

R 86 Reichsgesundheitsamt

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RG 260 Office of Military Government for Germany (U.S. Zone) (OMGUS)

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EB 17 Executive Board

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