

Appendices

Appendix 1: Background and methods for preparing the evidence brief

Addressing the Global Health Human Resources Crisis

6 July 2023

This evidence brief mobilizes global and local research evidence about a problem, three approach elements for addressing the problem, and key implementation considerations. It also draws on the experiences from a purposive sample of jurisdictions, which were gathered through reviews of government documents and websites, as well as through key-informant interviews. Whenever possible, the evidence brief summarizes research evidence drawn from evidence syntheses and occasionally from single research studies. An evidence synthesis is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies and to synthesize data from the included studies. The evidence brief does not contain recommendations, which would have required the authors of the brief to make judgments based on their personal values and preferences, and which could pre-empt important deliberations about whose values and preferences matter in making such judgments.

The preparation of this evidence brief involved five steps:

- 1) regularly convening the project Steering Committee comprised of representatives from the partner organizations, key stakeholder groups, and the McMaster Health Forum to help inform the framing of the evidence brief
- 2) conducting key informant interviews
- 3) identifying, selecting, appraising and synthesizing relevant research evidence for each section of the brief
- 4) conducting additional jurisdictional scans to identify initiatives related to the three proposed elements
- 5) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence, and insights from the jurisdictional scan.

The three approach elements for addressing the problem were not designed to be mutually exclusive and could be pursued in a number of ways. The goal of the dialogue is to spark insights and generate action by participants and by those who review the dialogue summary.

Mobilizing research evidence about approach elements for addressing the problem

To identify the best-available research evidence about the approach elements, we primarily searched Health Systems Evidence (www.healthsystemsevidence.org), which is a continuously updated database containing more than 9,400 evidence syntheses and more than 2,800 economic evaluations of delivery, financial and governance arrangements within health systems. We also complemented this with searches in PubMed, and hand searches of the McMaster Health Forum's recently prepared evidence syntheses if there was overlap in the issues addressed or the elements considered. The authors' conclusions were extracted from the syntheses whenever possible. Some syntheses may have contained no studies despite an exhaustive search (i.e., they were 'empty' syntheses), while others may have concluded that there was substantial uncertainty about the approach elements based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the syntheses' quality, the local applicability of the syntheses' findings, equity considerations and relevance to the issue.

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty synthesis, substantial uncertainty or concerns about quality and local applicability or lack of attention to equity considerations, primary research could be commissioned, or an approach element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a synthesis that was published many years ago, an updating of the synthesis could be commissioned if time allows. No additional

research evidence was sought beyond what was included in the evidence syntheses. Those interested in pursuing a particular element may want to search for a more detailed description of the element or for additional research evidence about the element.

Appendices 3-5 provides detailed information about the evidence syntheses identified that relate to the three elements. In the first column we list the sub-elements, and provide hyperlinks to the search strategies used, as well as the breakdown of number of identified syntheses for each sub-element according to their quality. In the second column, we provide a hyperlinked 'declarative title' that captures the key findings from each synthesis. Columns 3-6 list data related to the criteria that can be used to determine which reviews are 'best' for a single category (i.e., living status, quality, last year literature searched and availability of a GRADE profile, which provides insights about the strength of the evidence included in a particular synthesis), and column 7 highlights the type of questions addressed by each synthesis.

As noted above, the fourth column presents a rating of the overall quality of the review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to evidence syntheses pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered 'high scores.' A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1): S8.)

Appendix 2: Jurisdictional scan of efforts at the global, regional and country level to recruit ethically, make workplaces ‘excellent’ and share more and better HHR data

Jurisdiction	Recruit ethically	Make workplaces ‘excellent’ for health workers and hold employers accountable	Sharing more and better HHR data, and use it in robust HHR planning processes
Global	<p>World Health Organization (WHO) Code of Practice on International Recruitment of Health Personnel</p> <ul style="list-style-type: none"> Provides guidelines for the ethical recruitment of health personnel globally Emphasizes the principles of fairness, transparency, sustainability and collaboration Sets a global standard for ethical recruitment practices and ensures a fair and sustainable approach to health worker recruitment <p>User’s guide to the WHO Global Code of Practice on the International Recruitment of Health Personnel</p> <ul style="list-style-type: none"> Provides guidance on implementing the Global Code of Practice, emphasizing the importance of ethical recruitment, retention and fair treatment of health workers to address global health workforce challenges <p>The global strategy on human resources for health: Workforce 2030</p> <ul style="list-style-type: none"> The primary target audience for the WHO’s Global Strategy on Human Resources for Health: Workforce 2030 is the planners and policymakers of Member States However, the contents of the strategy hold value for all stakeholders involved in the health workforce domain, including employers in the public and private sectors, professional associations, education and training institutions, labour unions, bilateral and multilateral development partners, international organizations and civil society <p>World Health Report 2006 – Working together for health</p> <ul style="list-style-type: none"> Focuses on the global health workforce crisis and proposes strategies to address challenges, including ethical recruitment, equitable distribution and retention of health workers <p>Recover to rebuild: Investing in the nursing workforce for health system effectiveness</p>	<p>Framework on integrated, people-centred health services</p> <ul style="list-style-type: none"> The WHO Framework on Integrated People-Centred Health Services provides a strategic approach to delivering comprehensive and responsive health services It discusses strategic approaches, policy options, and potential interventions that can help in creating better workplaces for healthcare workers <p>Occupational safety and health in public health emergencies</p> <ul style="list-style-type: none"> This WHO manual provides guidance on managing occupational safety and health risks for emergency responders during disease outbreaks and other emergencies, offering strategies to reduce exposures, injuries, and stress, and promote the well-being of response workers, particularly in low-resource settings <p>Positive practice environments: Quality workplaces = quality patient care (information and action tool kit)</p> <ul style="list-style-type: none"> This 2007 ICN report highlights that positive practice environments are characterized by innovative policy frameworks focused on recruitment and retention, strategies for continuing education and upgrading, adequate employee compensation, recognition programmes, sufficient equipment and supplies, and a safe working environment 	<p>Global strategy on digital health 2020-2025</p> <ul style="list-style-type: none"> The global strategy seeks to enhance health systems worldwide by leveraging digital health technologies Its goals include empowering patients, improving health outcomes, safeguarding data privacy and security, promoting collaboration among Member States, and supporting universal health coverage (UHC) and the Sustainable Development Goals (SDGs) The strategy offers guidance and support for the digital transformation of healthcare at national and subnational levels <p>Strengthening the collection, analysis and use of health workforce data and information: A handbook</p> <ul style="list-style-type: none"> This handbook focuses on strengthening health workforce data and evidence to improve health service delivery and achieve UHC It provides insights into key advancements, challenges and lessons learned, aiming to inform evidence-based policies and decision-making in health workforce governance and management <p>National Health Workforce Accounts Data Portal</p> <ul style="list-style-type: none"> The WHO National Health Workforce Accounts Data Portal is a system designed to enhance the collection and utilization of health workforce data, enabling countries to monitor key indicators and make informed decisions regarding UHC and other health goals It addresses data challenges, promotes evidence-based policymaking, and aligns with global strategies and resolutions

Jurisdiction	Recruit ethically	Make workplaces ‘excellent’ for health workers and hold employers accountable	Sharing more and better HHR data, and use it in robust HHR planning processes
	<ul style="list-style-type: none"> This 2023 report by the International Council of Nurses (ICN) calls for co-ordinated policy responses, both within countries and internationally, to protect and support the global nursing workforce in their vital roles in rebuilding health systems that were damaged by the pandemic ICN’s Charter for Change This 2023 report published by the ICN calls for urgently addressing and improving support for nurses’ health and well-being by ensuring safe and healthy working conditions and respecting their rights 		<ul style="list-style-type: none"> This portal contributes data for the country profiles presented in the State of the World’s Nursing Report 2020
African region (AFRO)	<p>The Kampala Declaration and Agenda for Global Action</p> <ul style="list-style-type: none"> Establishes commitments and actions to address health workforce challenges in Africa, including ethical recruitment, retention and equitable access to health workers Framework for the implementation of the Ouagadougou Declaration on Primary Health Care and Health Systems in Africa Commits to strengthening primary healthcare and health systems in Africa, including the ethical recruitment and retention of health workers to ensure universal health coverage Road map for scaling up the human resources for health for improved health service delivery in the African Region 2012-2025 Presents a roadmap for scaling up the health workforce in Africa, addressing ethical recruitment, retention, training and leadership development to ensure a sufficient and competent health workforce 	<p>Africa Health Strategy 2016-2030</p> <ul style="list-style-type: none"> The African Union offers strategic direction to Africa’s Member States in their endeavours to establish more effective health sectors It acknowledges the existing commitments at the continental level and addresses the key challenges that hinder efforts to reduce the burden of disease in the region By drawing on lessons learned and capitalizing on existing opportunities, the report provides valuable insights and guidance The recommended strategic directions emphasize the need for multi-sectoral collaboration, sufficient allocation of resources and strong leadership to champion implementation and ensure effective accountability for achieving desired results Southern African Development Community (SADC) Health Workforce Strategic Plan 2020-2030 The report focuses on the progress made by SADC Member States in achieving key health indicators, highlighting the persistent challenge of ensuring equitable access to healthcare due to shortages of skilled health and social care workers and inefficient utilization of the existing workforce 	<p>National Digital Health Strategy 2018-2023 [The Republic of Sierra Leone]</p> <ul style="list-style-type: none"> This regional strategy for Sierra Leone focuses on improving national health outcomes, particularly addressing high maternal and infant death rates, through the application of digital technology and the development of a national digital health strategy, aiming to save costs, enhance health outcomes and strengthen the digital-health-enabling environment in the country

Jurisdiction	Recruit ethically	Make workplaces ‘excellent’ for health workers and hold employers accountable	Sharing more and better HHR data, and use it in robust HHR planning processes
		<ul style="list-style-type: none"> • The report emphasizes the need to address workforce gaps, strengthen primary healthcare capacity and enhance occupational health and safety, particularly in light of the COVID-19 pandemic • It calls for a comprehensive regional strategy that includes investment in health worker jobs, harmonized education and training, effective leadership and management, improved governance and regulation and reliable data systems for monitoring and evaluation <p>The African regional framework for the implementation of the global strategy on human resources for health: Workforce 2030</p> <ul style="list-style-type: none"> • This report highlights the ongoing human resources for health (HRH) crisis in the African Region despite previous efforts to address the shortage of health workers • Many Member States still fall below the recommended minimum threshold of health workers per population • The report emphasizes the need for a multi-sectoral response, including strong governance, effective resource utilization, innovative education strategies and improved deployment of health workers • The Global Strategy on Human Resources for Health: Workforce 2030 is introduced as a framework to optimize health workforce performance, align investment with population needs, strengthen institutional capacity and enhance data systems for monitoring and accountability 	
<ul style="list-style-type: none"> • Nigeria 	<p>National Human Resources for Health Policy 2006</p> <ul style="list-style-type: none"> • Discusses Human Resource for Health principles, policies and strategies for Nigeria 	None identified	None identified
Americas region (AMRO / PAHO)	<p>Strategic Plan of the Pan American Health Organization (PAHO) 2014-2019</p> <ul style="list-style-type: none"> • Outlines the strategic direction for PAHO, including efforts to strengthen the health workforce in the 	Strengthening Human Resources for Health (HRH) to respond to COVID-19 and other emerging pandemics in the Caribbean	None identified

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	<p>Americas region, promote ethical recruitment and retention of health workers, and address health inequities</p> <p>Strategy on Human Resources for Universal Access to Health and Universal Health Coverage</p> <ul style="list-style-type: none"> • Presents a strategy to strengthen HRH in the Americas, emphasizing the importance of ethical recruitment, training, retention and equitable distribution of health workers to achieve universal access to health and UHC <p>Plan of Action on Human Resources for Universal Access to Health and Universal Health Coverage</p> <ul style="list-style-type: none"> • Provides a plan of action to implement the strategy on HRH in the Americas, focusing on ethical recruitment and retention, interprofessional education and collaboration to strengthen the health workforce and achieve universal health coverage 	<ul style="list-style-type: none"> • This policy brief focuses on strengthening HRH within Caribbean Community (CARICOM) member states to effectively respond to the evolving COVID-19 pandemic and other emerging pandemics • By addressing HRH challenges such as staff shortages, uneven distribution and skill gaps, this initiative aims to enhance the region's ability to respond to public health crises • The policy brief also suggests prioritizing the well-being of health workers by taking into account their mental health, personal and family needs, and implementing monitoring systems to prevent burnout and track their overall health and stress levels <p>Caribbean Roadmap on Human Resources for Universal Health, 2018-2022</p> <ul style="list-style-type: none"> • This report by PAHO outlines the Caribbean Roadmap on Human Resources for Universal Health (2018-2022), which offers a strategic approach to address HRH challenges and improve healthcare systems in the Caribbean • It identifies seven priority areas and provides guidelines, objectives and cost estimates for implementing the roadmap in the sub-region 	
<ul style="list-style-type: none"> • Canada 	<p>The Ethical Recruitment of Internationally Educated Health Professionals: Lessons from Abroad and Options for Canada</p> <ul style="list-style-type: none"> • Discusses a framework for the ethical recruitment of internationally educated health professional to Canada, including relevant policy options <p>Alberta Health Workforce Action Plan – 2007-2016</p> <ul style="list-style-type: none"> • Outlines a provincial action plan to address workforce challenges and ensure a sustainable health workforce in Alberta, including strategies for recruitment, retention and ethical practices in workforce planning <p>B.C.’s Health Human Resources Strategy</p> <ul style="list-style-type: none"> • Presents a strategy to address health human resources challenges in British Columbia, focusing on 	<p>Canada’s health workforce: Pathways forward</p> <ul style="list-style-type: none"> • This 2023 report published by the Canadian Academy of Health Sciences addresses how to create healthy, safe, just and equitable work environments <p>Addressing Canada’s Health Workforce Crisis</p> <ul style="list-style-type: none"> • This report presents the findings of the House of Commons Standing Committee on Health’s study on Canada’s health workforce crisis, exacerbated by the COVID-19 pandemic, and provides recommendations for addressing the challenges of staffing shortages, burnout and mental-health issues among healthcare professionals 	<p>Better data and planning through a proposed centre of excellence</p> <ul style="list-style-type: none"> • In 2023, the Government of Canada announced \$505 million over five years to the Canadian Institute for Health Information, Canada Health Infoway and federal data partners to work with provinces and territories on developing new health data indicators, and to support the creation of a Centre of Excellence on health workforce data and underpin efforts to use data to improve healthcare <p>Investing in Canada’s Nursing Workforce Post-Pandemic: A Call to Action</p>

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	recruitment, retention, education and ethical considerations to support a sustainable healthcare workforce	<ul style="list-style-type: none"> The recommendations include initiatives such as increasing residency positions, improving pathways for international medical graduates, implementing pan-Canadian licensure, developing a national health data strategy, and establishing a mental-health strategy for healthcare workers Strategic practices for hiring, integrating and retaining internationally educated nurses <ul style="list-style-type: none"> This manual provides strategic practices for healthcare leaders to hire, integrate, and retain internationally educated nurses (IENs) based on evidence-informed approaches, aiming to meet the needs of a diverse patient population It highlights the benefits of hiring IENs, successful practices from exemplary organizations, and the ongoing Partnering with Employers project focused on increasing IEN employment in healthcare organizations Summary Report of the Health Human Resources Symposium <ul style="list-style-type: none"> Health Canada’s HHR Symposium brought together stakeholders to address Canada’s HHR crisis and explore pan-Canadian solutions, emphasizing the need for equitable, sustainable conditions for healthcare workers and collaboration among key stakeholders for long-term change 	<ul style="list-style-type: none"> This 2022 report published by the Royal Society of Canada highlights the need for accessible nursing workforce data to support evidence-informed HRH planning and decision-making Pan-Canadian Health Data Strategy: Toward a world-class health data system <ul style="list-style-type: none"> This report discusses the importance of collaboration and collective action to establish a strong foundation for a health data system in Canada The Pan-Canadian Health Data Strategy highlights the need for addressing fragmented data, promoting equitable health programs and delivering quality health outcomes for Canadians It also recommends establishing a policy framework for data stewardship that mandates appropriate data exchange
• United States	None identified	None identified	CDC Global Digital Health Strategy <ul style="list-style-type: none"> The CDC’s Global Digital Health Strategy aims to bolster public health systems worldwide It prioritizes enhancing data availability and utilization, improving digital capabilities of the global health workforce and promoting effective disease surveillance and response for global health security
• Bermuda	None identified	None identified	None identified

Jurisdiction	Recruit ethically	Make workplaces 'excellent' for health workers and hold employers accountable	Sharing more and better HHR data, and use it in robust HHR planning processes
Eastern Mediterranean region (EMRO)	Framework for action for health workforce development in the Eastern Mediterranean Region – 2017-2030 <ul style="list-style-type: none"> Discusses the goals, principles and strategic objectives for the region. 	None identified	Regional strategy for fostering digital health in the Eastern Mediterranean Region (2023-2027) <ul style="list-style-type: none"> The Eastern Mediterranean Region of the WHO has developed a regional strategy that acknowledges the opportunities and challenges of digital health, particularly in response to the COVID-19 pandemic The strategy outlines four main objectives: strengthening digital health governance, advocating for people-centred systems, advancing national strategies and promoting collaboration among stakeholders These objectives aim to fully leverage the potential of digital health in the region
• Egypt	None identified	None identified	None identified
• Saudia Arabia	None identified	None identified	None identified
European region (EURO)	Code of practice for the international recruitment of health and social care personnel in England <ul style="list-style-type: none"> Discusses guiding principles, best practice benchmarks and an ethical recruiter list 	None identified	Regulation of the European Parliament and of the Council on the European Health Data Space <ul style="list-style-type: none"> This explanatory memorandum discusses the regulations pertaining to the European Health Data Space (EHDS), which is a common data space specific to Europe The EHDS aims to address challenges related to accessing and sharing electronic health data It allows individuals to have control over their data while enabling secure utilization by researchers, innovators and policymakers The objectives include improving healthcare, fostering innovation, informing policymaking and promoting harmonization and interoperability within the digital health sector of the European Union
South-East Asia region	None identified	Regional strategy on strengthening health workforce education and training in South-East Asia region (2014-2019)	None identified

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		<ul style="list-style-type: none"> The regional strategy on strengthening health workforce education and training in the South-East Asia region aims to address challenges in health workforce development, such as low investment, supply-demand discrepancies and inadequate planning, by guiding WHO and Member States in implementing priority activities and improving access to health services 	
Western Pacific region (WPRO)	None identified	<p>National Medical Workforce Strategy 2021-2031 [Australian Government]</p> <ul style="list-style-type: none"> The National Medical Workforce Strategy 2021-2031 outlines practical actions to establish a sustainable and well-trained medical workforce, addressing issues such as changing models of care, workforce distribution, mental health and well-being, representation of Indigenous practitioners, training numbers, access to healthcare in regional areas, career pathways and data coordination The strategy focuses on collaborating on planning, rebalancing supply and distribution, reforming training pathways, building generalist capability and fostering flexibility and responsiveness, while also prioritizing the growth of the Indigenous workforce, adapting to new care models and enhancing doctor well-being 	<p>Australia’s National Digital Health Strategy</p> <ul style="list-style-type: none"> The strategy aims to improve health and care in Australia by leveraging digital information It focuses on areas such as preventing adverse events, improving care coordination, increasing efficiency, enhancing the patient experience, expanding healthcare availability in remote areas and ensuring data security

Appendix 3: Evidence syntheses relevant to element 1 – Recruit ethically

Sub-element (and search strategy used)	'Best'* available evidence syntheses to inform decision-making about the components	Living status	Quality	Last year literature searched	Availability of GRADE profile	Type of policy question addressed
(Search 1, Search 2, Search 3, Search 4, Search 5, Search 6) <i>Total syntheses: 13 (of which six are high quality and four are medium quality)</i>	<ul style="list-style-type: none"> • There is weak evidence that supports recruitment and retention schemes for rural primary-care doctors such as financial incentives, international recruitment, postgraduate and undergraduate placements in underserved areas and recruiting rural students [review of low-quality studies] (20) 	No	9/10	2021	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • There is very limited evidence available regarding interventions for equalizing the geographic distribution of dental professionals [review of three studies conducted in Asia] (21) 	No	8/9	2018	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • This systematic review identifies five important themes related to the recruitment and retention of rural pharmacists: geographic and family-related factors, economic and resource factors, scope of practice and skill development factors, practice environment factors and community and practice support factors (22) 	No	7/10	2021	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem • Identifying implementation considerations
	<ul style="list-style-type: none"> • This meta-analysis finds that clinical rotations in rural areas as well as recruiting students with rural backgrounds significantly increase dental graduates' intention to practise in rural areas (23) 	No	7/10	2017	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • A systematic review found that students who complete clinical medical education in rural and underserved areas are more likely to return to practise in these areas and are more likely to practise primary care [limited external validity as only studies from the United States were included] (24) 	No	7/11	2018	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • The global literature regarding rural generalist medicine generally originates from Australia/New Zealand and North America and addresses the following themes: defining rural generalist medicine, pathways and programs, scope of practice and service models, enablers and barriers to recruitment and retention and reform recommendations [scoping review] (25) 	No	5/9	2020	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem • Identifying implementation considerations
	<ul style="list-style-type: none"> • A systematic review identified four important themes relating nursing curriculum to student attrition: pre-enrollment criteria for recruiting students, curriculum content and workload, clinical placement policies and student support services (26) 	No	5/9	2019	No	<ul style="list-style-type: none"> • Understanding a problem and its causes
	<ul style="list-style-type: none"> • Migrant health workers who return to their home country do so for a range of reasons, their returns have impacts on home country health systems, and they face a variety of challenges and opportunities upon their return [scoping review] (27) 	No	5/9	2019	No	<ul style="list-style-type: none"> • Understanding a problem and its causes

Sub-element (and search strategy used)	'Best'* available evidence syntheses to inform decision-making about the components	Living status	Quality	Last year literature searched	Availability of GRADE profile	Type of policy question addressed
	<ul style="list-style-type: none"> • Defining characteristics of competence-based human resource management in nursing consist of recruitment and selection, training and development, performance appraisal, reward system, and career planning; its adoption affects employee, organizational and financial outcomes (28) 	No	5/10	2018	No	<ul style="list-style-type: none"> • Understanding a problem and its causes
	<ul style="list-style-type: none"> • There is evidence to support the use of educational, policy, financial incentives and multidimensional strategies for improving the recruitment and retention of rural and remote physicians; rural student recruitment, rural exposure and comprehensive medical school programs are the most commonly studied interventions [scoping review] (29) 	No	4/9	2022	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • Practising rural primary-care medicine is influenced by five types of characteristics and experiences: individual characteristics, medical school, residency, placement and retention; a theoretical model for how these factors interact is presented (30) 	No	4/9	2021	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • There is a dearth of evidence regarding the supports that may enable greater participation of rural, mature-aged nursing and allied health students (31) 	No	4/9	2021	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • The literature regarding social determinants of rural health-workforce retention points to the importance of the following place-based social processes: rural familiarity and/or interest, social connection and place integration, community participation and satisfaction and fulfillment of life aspirations [scoping review] (32) 	No	4/9	2019	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem • Identifying implementation considerations

Appendix 4: Evidence syntheses relevant to element 2 – Make workplaces ‘excellent’ for nurses and other types of health workers, and hold employers accountable

Sub-element (and search strategy used)	‘Best’* available evidence syntheses to inform decision-making about the components	Living status	Quality	Last year literature searched	Availability of GRADE profile	Type of policy question addressed
(Search 1, Search 2, Search 3, Search 4, Search 5, Search 6) <i>Total syntheses: 16 (of which seven are high quality and seven are medium quality)</i>	<ul style="list-style-type: none"> • Evidence shows that organizational interventions during the pre-event and event phases may decrease overall aggression caused by patients and patient advocates to healthcare workers [review of studies of very-low to low quality] (33) 	No	10/10	2019	Yes	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • Evidence suggests that psychological empowerment and employment satisfaction are highly correlated among nurses [review of studies of medium quality] (34) 	No	8/11	2017	No	<ul style="list-style-type: none"> • Understanding a problem and its causes
	<ul style="list-style-type: none"> • This scoping review of healthcare providers’ experience and perspectives regarding telemedicine points to the importance of expected improvements in performance and job effort, social/organizational influence, and facilitating conditions when addressing telemedicine utilization concerns in this setting (35) 	No	7/9	2021	No	<ul style="list-style-type: none"> • Identifying implementation considerations
	<ul style="list-style-type: none"> • This systematic review finds that patients and caregivers are generally satisfied with telehealth approaches for managing patients’ health; the included studies point to the importance of considering system experience, information sharing and consumer focus (36) 	No	7/9	2017	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem • Identifying implementation considerations
	<ul style="list-style-type: none"> • Evidence suggests that relational leadership styles are able to facilitate positive outcomes among the workplace and for nurses, such as increased job satisfaction, retention, environment and productivity (37) 	No	7/9	2017	No	<ul style="list-style-type: none"> • Understanding a problem and its causes
	<ul style="list-style-type: none"> • Promising interventions for reducing turnover and increasing the retention of early-career nurses tend to address both individual- and organization-level factors; the most promising options include some combination of mentorship, preceptorship, internship programs and orientation to practice programs (38) 	No	7/10	2020	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • Features of interventions that are able to minimize nursing turnover rates and help retain more staff include internship and residency programs, with a teaching, preceptor and mentorship component, and a duration of 27-52 weeks (38) 	No	7/10	2018	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • A subset of 13 enablers that promote psychological safety within healthcare teams were identified, all of which can be encompassed within the following five themes: patient safety; improvement or learning orientation; support; colleague familiarity; and status, hierarchy, inclusiveness and individual differences (39) 	No	6/9	2019	No	<ul style="list-style-type: none"> • Identifying implementation considerations

Sub-element (and search strategy used)	'Best'* available evidence syntheses to inform decision-making about the components	Living status	Quality	Last year literature searched	Availability of GRADE profile	Type of policy question addressed
	<ul style="list-style-type: none"> • Evidence shows that interventions focused on peer support and individual meditation can improve resident physicians' well-being; successful interventions had educational theory guide their program development and utilized surveys in their curriculum design [review of studies of low quality] (40) 	No	6/9	2019	Yes	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • Nurses transitioning into new clinical areas of practice face several challenges (including a significant emotional impact); they can be assisted through formal and informal supports as well as professional development opportunities (41) 	No	6/10	2018	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem • Identifying implementation considerations
	<ul style="list-style-type: none"> • Migrant health workers who return to their home country do so for a range of reasons, their returns have impacts on home country health systems, and they face a variety of challenges and opportunities upon their return [scoping review] (27) 	No	5/9	2019	No	<ul style="list-style-type: none"> • Understanding a problem and its causes
	<ul style="list-style-type: none"> • Competence-based human resource management in nursing involves aligning individual competencies with organizational goals through recruitment and selection, training and development, performance appraisal, reward systems and career planning (28) 	No	5/10	2018	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • Defining characteristics of competence-based human resource management in nursing consist of recruitment and selection, training and development, performance appraisal, reward system and career planning; its adoption affects employee, organizational and financial outcomes (28) 	No	5/10	2018	No	<ul style="list-style-type: none"> • Understanding a problem and its causes
	<ul style="list-style-type: none"> • Evidence shows that magnet hospitals have better nursing work environments and are associated with better outcomes for nurses, patients and organizations than non-magnet hospitals (42) 	No	5/10	2018	No	<ul style="list-style-type: none"> • Selecting an option for addressing the problem
	<ul style="list-style-type: none"> • Evidence shows that organization-directed interventions can have a moderate effect on reducing burnout, as compared to physician-directed interventions, which can have a small effect; organization-directed strategies can help view burnout from issues rooted in the workplace environment and organizational culture (43) 	No	5/11	2018	No	<ul style="list-style-type: none"> • Monitoring and evaluating the impacts
	<ul style="list-style-type: none"> • Enablers of advanced practice roles in nursing and midwifery include factors that are intrinsic and external to the practitioner as well as the broader health system context; these roles are constrained by a lack of management and professional development support, unclear roles duties and prevailing institutional cultures (44) 	No	4/9	2016	No	<ul style="list-style-type: none"> • Identifying implementation considerations

Appendix 5: Evidence syntheses relevant to element 3 – Sharing more and better HHR data, and use it in robust HHR planning processes

Sub-element (and search strategy used)	'Best'* available evidence syntheses to inform decision-making about the components	Living status	Quality	Last year literature searched	Availability of GRADE profile	Type of policy question addressed
(Search 1, Search 2, Search 3, Search 4, Search 5, Search 6) <i>Total syntheses: six (of which three are medium quality and three are of low quality)</i>	<ul style="list-style-type: none"> Big data have the potential to advance and improve medical education, but the integration of big data into medical education has been limited to date [integrative literature review] (45) 	No	5/9	2021	No	<ul style="list-style-type: none"> Selecting an option for addressing the problem
	<ul style="list-style-type: none"> This systematic review of outcome-measurement instruments for evaluating collaborative practice of community-based healthcare and social-care teams found that existing outcome measurement instruments have very little evidence supporting their content validity and internal structure; of the instruments that exist, the Assessment of Interprofessional Team Collaboration Scale (ATICS-II) had the most evidence supporting its use (46) 	No	5/9	2020	Yes	<ul style="list-style-type: none"> Monitoring and evaluating the impacts
	<ul style="list-style-type: none"> Twenty-nine instruments for measuring interprofessional collaboration were identified in this scoping review, most of which measure collaboration between physicians and nurses; these instruments focus on areas such as teamwork, communication, collaboration and supportive factors (47) 	No	5/9	2018	No	<ul style="list-style-type: none"> Monitoring and evaluating the impacts
	<ul style="list-style-type: none"> Predictive models for health human resource planning generally use stock-flow estimates supplemented by a demand component that reflects population health needs; there is a trade-off between the comprehensiveness of models and their accuracy [rapid synthesis with key informant interviews] (48) 	No	4/9	2019	No	<ul style="list-style-type: none"> Understanding a problem and its causes
	<ul style="list-style-type: none"> High-fidelity simulations in nursing education can be effective for improving a range of learning outcomes, but more research is needed regarding the transference of learning to clinical practice in the long-term (49) 	No	4/9	2018	No	<ul style="list-style-type: none"> Selecting an option for addressing the problem Identifying implementation considerations

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