RESOURCE ALLOCATION DECISIONS DURING THE COVID-19 PANDEMIC

A QUALITATIVE STUDY OF RESOURCE ALLOCATION DECISIONS NAVIGATED BY FRONTLINE CRITICAL CARE PROVIDERS DURING THE COVID-19 PANDEMIC: EDUCATIONAL INSIGHTS AND IMPLICATIONS

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Lay Abstract

During the COVID-19 pandemic, Health Care Providers (HCPs) faced difficult choices due to limited resources and evolving infection control rules. HCPs had to decide how to allocate scarce resources and balance competing demands while maintaining high standards of care. This research aimed to understand the types of resource allocation decisions HCPs made and the ethical considerations guiding them. Through twenty-five interviews with HCPs from an Intensive Care Unit in Ontario, we found that such decisions were both frequent and diverse. HCPs considered ethical theories like Utilitarianism and Virtue Ethics, prioritizing patient well-being and HCP safety. They often had to adapt their practices, establish boundaries, and determine priorities. Although these decisions caused stress and frustration, they also fostered team cohesion and personal growth. Overall, this research sheds light on some challenges HCPs faced during the COVID-19 pandemic and underscores the importance of preparing learners to navigate ethical decision-making in clinical practice.

Abstract

Background:

Insufficient resources and dynamic infection control policies during the COVID-19 pandemic created a resource-strained environment which necessitated frontline Health Care Providers (HCPs) to make ethical decisions frequently. Many of these ethical decisions included allocating scarce resources to optimally prioritize patients, resources, and clinician time. The transition from usual patient-centred care to care centred around infection control mandates and rationing resources forced HCPs to balance competing demands while trying to uphold high standards of care. This research aimed to understand the resource allocation decisions HCPs had to navigate during the pandemic and the ethical considerations guiding them.

Methods:

Using a qualitative case study approach, we aimed to document the type of ethical decision, reasoning used, and the action frontline HCPs took during the pandemic. Twenty-five semi-structured interviews were conducted with multi-disciplinary HCPs employed in a single community Intensive Care Unit (ICU) in Ontario. Resource allocation decisions were extracted from the transcripts and were analyzed using conventional content analysis.

Results:

Resource allocation decisions within critical care practice were ubiquitous and diverse. The constraints imposed by the pandemic and multiple provincial and organizational policies formed the context that necessitated these decisions. HCPs drew upon a range of ethical theories, notably Utilitarianism and Virtue Ethics, while prioritizing HCP safety and patient well-being. Resulting actions included prioritizing clinical tasks, establishing boundaries, and adapting practice patterns. Although these situations commonly evoked stress and frustration amongst HCPs, some positive internal responses were also described, including feelings of self-efficacy, resourcefulness, and team cohesion.

Conclusion:

In conclusion, analysis of resource allocation-derived decision-making illuminated a variety of challenges that HCPs faced during the COVID-19 pandemic, driven by institutional policies and pragmatic limitations. Insights from this study underscore how these ethical decisions are an inherent part of clinical practice and have the potential to foster positive professional development amidst adversity.

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List of Abbreviations and Symbols

HCP	Health Care Provider
COVID-19	Coronavirus
PPE	Personal Protective Equipment
ICU	Intensive Care Unit
WHO	World Health Organization
CPA	Context, Principle, Action
AGNP	Aerosol Generating Procedure
PIF	Professional Identity Development

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Declaration of Academic Achievement

This project was a secondary analysis of a larger multi-case study on Moral Distress experienced by critical care providers and primary care providers during the COVID-19 pandemic, conceptualized and led by Dr. Monica Molinaro and Dr. Lawrence Grierson. The secondary analysis, which focused on one of the selected case study sites, was designed by Alison Scholes and Dr. Meredith Vanstone with frequent consultations with Dr. Monica Molinaro, Dr. Deborah Cook, and Dr. Lawrence Grierson. The study was operationalized at the selected case study site by Alison Scholes, Asiana Elma, and Dr. Monica Molinaro. Alison Scholes led the secondary data analysis with assistance from Dr. Meredith Vanstone, Dr. Monica Molinaro, Dr. Deborah Cook, and Dr. Lawrence Grierson. This thesis was written independently by Alison Scholes, with revisions and feedback provided by Dr. Meredith Vanstone, Dr. Lawrence Grierson, Dr. Deborah Cook, and Dr. Monica Molinaro.

Chapter 1: Introduction

Introduction

In response to the many challenges posed by the Coronavirus (COVID-19) pandemic, the Canadian medical community devoted considerable attention to the possibility of triaging access to ventilators and other essential medical care (Downar et al., 2022). However, the need to triage resources with potentially life-endangering consequences did not transpire in most places. Instead, Health Care Providers (HCPs) found themselves navigating a complex landscape of limited resources and infection control policies, forcing them to make an array of small-scale ethical decisions related to resource allocation. For example, when personal protective equipment (PPE) was scarce and visitation policies were enacted, HCPs faced decisions about the timing of entering patient rooms, methods of remote communication with families, coordinating virtual meetings, and other modifications to the standard of care(Cook et al., 2021; Elma et al., 2022; Fiest et al., 2022). These small-scale ethical decisions forced by infection control policies and resource constraints became a daily source of consternation for HCPs during the pandemic, potentially manifesting as moral distress (Cook et al., 2021; Fiest et al., 2022)

The impact of moral distress on HCPs has received considerable media and scientific attention, with some suggesting that it has been a leading factor in burnout and health workforce attrition (Grady et al., 2022; Guttormson et al., 2022; Maunder et al., 2021). When an HCP is equipped with the knowledge to determine what action is morally appropriate in response to a given situation but is unable to take action because of a constraint, moral distress may occur. For example, an HCP may be assigned the task of allocating scarce, life-saving medications to numerous patients. The HCP would want each patient to have equal access to medical treatment, but under the constraints of resource scarcity, this would not be possible and moral distress may occur.

Currently, there is a lack of documentation on the types of resource allocation decisions made in Intensive Care Units (ICUs) during the pandemic. Documenting and prompting HCPs to reflect on these decisions can provide insight into how scarce resources impact daily clinical practice and the emotional toll these decisions place on HCPs. We may also gain insight into how HCPs can prepare themselves for periods when their workloads have significantly increased or navigate situations that lack definitive evidence to guide them toward the most appropriate course of action. Finally, documentation is crucial for improving the provision of critical care within the Canadian health systems, which should prioritize learning from past difficulties encountered to better prepare for future healthcare crises.

Although uncertainties surrounding COVID-19 and the multitude of changes HCPs had to adapt to likely exacerbated difficulties with decision-making, these types of decisions are also simultaneously part of everyday clinical practice. Therefore, beyond the context of the pandemic, the project may shed light on how clinicians' professional identities and values affect their daily clinical decisions and the aspects of patient care they prioritize. Using an educational lens to examine resource allocation decisions may help determine if medical education can be tailored to prepare HCPs to meet the challenges they encounter, and also to recover and learn from those experiences while preserving their identities as thoughtful clinicians and relieving moral distress.

Overview of Study and Key Concepts

Through a qualitative case study approach, we aimed to gain insight into the various resource allocation decisions that occurred within the ICU during the COVID-19 pandemic. Additionally, we intended to understand the impact these ethical decisions had on HCPs while exploring educational opportunities to prepare them better to navigate the medical profession’s everyday ethical terrain. To investigate, we conducted twenty-five semi-structured interviews with HCPs and administrators who all worked in a single community ICU during the pandemic. Subsequently, we analyzed examples of resource allocation decisions using various ethical frameworks to guide our understanding of how the context of the decisions leads to an outcome and response from the participant. While analyzing the decisions, we carefully considered how the decisions may lead to experiences of moral distress and educational concepts that could have positive implications for developing ethical competence in learners.

Overview of Intensive Care & COVID-19 in Canada

The Intensive Care Unit

An intensive care unit is a discrete geographic area of a hospital where an interprofessional group of HCPs provide specialized medical care to the most critically ill patients within the health system (Marshall et al., 2017). The elements that make up an ICU vary internationally as they change in relation to the resource availability and approach to healthcare that exists in a particular health system (Epstein et al., 2016; Marshall et al., 2017). In general, the elements that make up intensive care, as outlined by Marshall et al. (2017), are distinct physical space, continuous support and monitoring technology, specially qualified human resources, the capacity to care for acutely unstable patients, and the ability to contribute to research, education, and quality improvement. In summary, the ICU is more than a discrete area of the hospital; it is an organized system that provides specialized care, enhanced monitoring, and various methods of physiological organ support to sustain patient’s lives during critical situations (Marshall et al., 2017).

The Intensive Care Interdisciplinary Team

Intensive care represents a comprehensive system of care delivered by a specially trained interdisciplinary team of HCPs. In addition to intensive care physicians (intensivists), the ICU is predominately staffed by a team of specially trained nurses who provide continuous care to patients at the highest nurse-to-patient ratio in the hospital (Marshall et al., 2017). Working alongside the physician and nurses is a variety of allied health professionals to create a comprehensive patient care team; each member contributes expertise in different domains. Allied health professionals working within the ICU include respiratory therapists specialized in working with mechanical ventilators, dieticians to manage enteral and parenteral feeding, physiotherapists to assist with mobility and rehabilitation, pharmacists with expertise in drug dosages and interactions, social workers and spiritual care to support families in crisis, and various other professionals to assist in the care of complex patients (Marshall et al., 2017).

Community and Academic Intensive Care Units

Within the Canadian healthcare system, hospitals are considered to be either community or academic facilities. Community hospitals provide a range of healthcare services to meet the needs of their surrounding population, led by HCPs who typically live and work within the same community as their patients. Academic hospitals are those with affiliated universities and medical schools which have additional mandates that focus on education and research as well as providing sub specialized patient services. Despite Canadian healthcare research being facilitated almost entirely in academic centers, 70% of hospital beds are located within a community hospital, representing 84% of hospitals in Ontario (Gehrke et al., 2019). Therefore, conducting research in a location similar to where more Canadians receive healthcare can produce more generalizable results. Additionally, facilitating research in community centers can lead to increased staff engagement, enhanced HCP job satisfaction, and, ultimately, improved patient care within these facilities (Gehrke et al., 2019). As a result of the many benefits of conducting community-based research and the heightened resource challenges that community centers faced during the pandemic, we have decided to conduct the study in a community hospital rather than an academic hospital.

A notable difference between community and academic hospitals is the level of specialized care that can be provided in accordance with the resources and expertise available. In academic centers, extensive and centralized resources are typically available to allow for the treatment of high-acuity patients with specialized needs. For example, academic centers have units able to provide Extracorporeal Membrane Oxygenation (artificial heart-lung machines), continuous dialysis, and heart stenting and bypass procedures, whereas community centres do not. The premise is that when patients are unable to be managed in their community hospital and would benefit from more specialized services, they can be transferred to an academic hospital for more advanced care from regionalized services. As such, academic hospitals are an important resource when patient care needs exceed the ability of community-based hospitals to provide care. The vast majority of patients are generally able to be cared for in their community hospitals and remain the best representative sample of Canadian ICU patients for research purposes.

The Impact of COVID-19 on Intensive Care Units

Coronavirus (COVID-19), caused by the SARS-CoV-2 virus, was declared a pandemic by the World Health Organization (WHO) March 11th, 2020 (Canada", 2023). COVID-19 is an infectious disease that is transmitted through respiratory droplets and small aerosols (World Health Organization, 2020). After being infected with COVID-19, the impact on individuals can vary from asymptomatic to death, depending on a variety of risk factors (Gibney et al., 2022). In some severe cases, COVID-19 can progress to become a viral pneumonia, causing difficulty breathing and dangerously low arterial blood oxygen levels. Viral pneumonia was the most common reason for hospital admission for COVID-19 patients, which may lead to the patient requiring intensive care and mechanical ventilation (Gibney et al., 2022). From March 2020 to June 2021, the Canadian Institute for Health Information reported an additional 14,000 respiratory admissions to ICUs, as compared to a period of time prior to the pandemic (Canadian Institute for Health Information, 2021; Gibney et al., 2022). The peak of ICU admissions for respiratory conditions occurred in Wave 3 (April of 2021), with 87% of these admissions being COVID-19 infections (Canadian Institute for Health Information, 2021). During Wave 3, the need for intensive care and mechanical ventilation among respiratory patients had increased by approximately 400% (Canadian Institute for Health Information, 2021; Gibney et al., 2022). Prior to the pandemic, most Canadian ICUs operated very close to 100 percent occupancy (Gibney et al., 2022). Without any extra capacity to absorb unexpected surges in admissions and one of the lowest numbers of ICU beds per 100,000 population among similar countries, Canadian ICUs became under-staffed, under-resourced, and extremely overwhelmed during the COVID-19 pandemic (Gibney et al., 2022). As Canadian ICUs faced major challenges during the pandemic, causing significant physical, mental and psychological impacts on critical care staff, we have chosen to analyze resource allocation decisions within the ICU selectively.

As a result of the surge of ICU patients during the COVID-19 pandemic, a large group of patients are now experiencing the stark reality of morbidity, disability and mental suffering associated with surviving a chronic (over two week) ICU stay (Herridge & Azoulay, 2023). After ICU discharge, patients typically face lasting effects such as ICU-acquired weakness, procedure-related traumas, cognitive dysfunctions, and various mood disorders, including post-traumatic stress disorder, anxiety, and depressive symptoms (Herridge & Azoulay, 2023). Understanding the sequelae of critical illness and the profound impact of receiving ICU care can lead HCPs into difficult situations where they may question whether providing ICU care is acting in the patient's best interest. Furthermore, due to the limited understanding of the long-term effects and recovery process of COVID-19, the uncertainty regarding prognosis further complicated the decision-making process (van Zuylen et al., 2023). This complexity can make both decision-making regarding patient care and subsequently providing the care challenging for HCPs, potentially resulting in moral distress. Some of the most commonly cited causes of moral distress in ICU clinicians are decision-making regarding the treatment process and patient care, having to provide care they perceive to be futile, or providing care that is perceived to not be in the patient's best interests (Beheshtaeen et al., 2023; Boulton et al., 2023). Due to the long-term morbidity faced by ICU patients and the intricate nature of ICU decisions, it's imperative to recognize the significant burden placed on ICU providers when making ethical decisions and to understand the factors that contribute to heightened levels of moral distress experienced by ICU providers.

Ethics, Moral Distress, & Resource Allocation

This section serves as a comprehensive analysis of relevant literature, providing a foundation for the research project, conceptualizing key terms, and highlighting existing studies in the field. I will begin by discussing morality and ethics in the medical field, as well as how moral distress can arise among HCPs. After this, I will discuss a potential cause of moral distress: resource allocation decisions.

Morality and Ethics

The attribution of the term ‘moral’ is evidence of a subjective evaluation of the extent to which a particular act conforms to our understanding of right or wrong. As a result of the broad applications of morality, there cannot be a single, comprehensive definition of the concept. When we define morality in a normative sense, we are referring to “the behavioural code that all rational persons under specific conditions would endorse” (Gert, 2020). This points to the existence of some universal moral norms, such as that one must not inflict harm on another person and one must help those in need (Varkey, 2021). These normative morals establish common morality.

From a descriptive perspective, the focus of the definition of morality shifts to the codes of conduct either presented by a social group or accepted and upheld by an individual in governing their behaviour (Gert, 2020). This definition establishes particular morality as the moral norms that bind together groups such as religions or professions (Varkey, 2021). For health professionals, we might think of the Hippocratic Oath, Beauchamp and Childress’ four pillars of medical ethics framework, or hospital-specific codes of conduct as some of the policies which help establish accepted moral norms for the profession. Alongside particular morality is the concept of ethics, which is a set of moral principles that are set by the institution, group, or culture, to which an individual belongs. Distinctions that can be made between ethics and morality are limited; the two concepts are strongly interconnected due to the importance of one's sense of right and wrong in the foundation of both terms. Morality is thought to be internal, or a personal compass, whereas ethics are put forth by a social system, and are therefore external. If you act in a particular way because you believe it is the right thing to do, this would be considered moral. If you act in a particular way based on legal or professional guidelines, this would be considered ethical.

The profession of medicine is perceived as both a moral and ethical venture (Timimi, 2012). When we consider medical morality and medical ethics, we contemplate our fundamental belief of which medical action is right and which medical action is wrong (Timimi, 2012). The professional morality of medicine is not distinct from common morality but rather an extension of it, and the essential difference is that common morality applies to all, while particular morality applies to a distinct group (Beauchamp & Childress, 2001; Macklin, 2019). As the medical profession grants humans unique privileges, the profession puts forth specific ethical guidelines, and members are subject to professional morality (Rhodes, 2019). Given the close relationship between common morality, particular morality in medical practice, and medical ethics, I will not distinguish between ethics and morals moving forward. Instead, I will use the term ‘ethical decisions’ to refer to complex choices that involve deliberating one’s sense of right and wrong.

Ethical Theories Overview

Having conversations with HCPs centred around bedside decisions concerning identifiable patients meant that ethical considerations would likely deeply influence or characterize the decisions. As a result, we intended to invoke ethical theories and precepts to better understand how HCPs may be making decisions. Ethical theories are frameworks that provide principles and guidelines for evaluating moral dilemmas and making ethical decisions. There are a variety of ethical theories that may help HCPs structure and navigate ethical complexities to make sound decisions. These ethical theories can be broadly categorized into two categories. The first, deontology, emphasizes following and adhering to moral rules while making decisions. The second, consequentialism, emphasizes the outcomes associated with the decision. These theories can be applied to interpret and categorize the reasoning offered by HCPs for their frontline decisions. It is not anticipated that many (if any) HCPs will explicitly invoke theory as they recount their reasoning about the decisions they face, although we do anticipate that we may be able to identify fragments or principles in this reasoning that resonate with existing theory.

Potentially, the most widely referenced ethical framework in medicine is Principlism. Principlism is a deontological approach based on four principles of professional morality and medical ethics: beneficence, non-maleficence, autonomy and justice (Beauchamp & Childress, 2001). The principle of beneficence is the obligation a physician has to take action that benefits the patient and promotes their welfare. Non-maleficence is the obligation that the physician will not harm the patient. While beneficence is about the positive requirements that a physician must do (e.g. protect and help patients from harm), non-maleficence is about what the physician must not do (e.g. cause pain or suffering). Autonomy is the principle that all patients have the right to self-determination and the power to make decisions about their medical treatment. Lastly, justice is the fair, equitable and appropriate treatment of people. A subcategory of justice, distributive justice, is most applicable to clinical practice.

Distributive justice principles are used in clinical practice to aim for fair, equitable, and appropriate distribution of medical resources. There are a variety of factors that may be used when considering distributive justice, such as need, merit, equality, or contribution (Varkey, 2021).

Principles of distributive justice are those that provide moral guidance on the distribution of benefits and burdens (Lamont & Favor, 2017). Despite there being many valid methods of distributive justice, three highly used frameworks, Utilitarianism, Egalitarianism, and Prioritarianism, are often considered in the distribution of healthcare resources. One of the most debated consequentialist ethical theories, Utilitarianism, is based on the idea that the appropriate course of action is the one that maximizes benefits for the largest number of people and maximizes the aggregate health outcome of a population. This often means forgoing actions to maximize human welfare on every occasion or for every individual (Slote, 2013). The egalitarian approach to distributive justice is the idea that all people are equal and deserving of the same opportunities, meaning that the right course of action is where equal goods are distributed to all members of society. Lastly, Prioritarianism states that the value of improvements in well-being is determined by how worse off they would be without it, meaning the right course of action is the one that gives priority to the members of society who are most disadvantaged. The factors determining who would be the most disadvantaged can vary but are most commonly based on social justice or illness severity.

Virtue and Relational Ethics are alternate theories that leave behind strict pre-existing moral rules to become adaptable to individual situations and, as such, are highly applicable to clinical practice. Virtue Ethics is based on Aristotle's philosophy that the virtuous person can be sensitive to and perceptive about what action is called for in any given situation. Virtuous individuals "are perfect judges of what is right and what is wrong … then seamlessly act on their view of what is noble or right in various situations." (Slote, 2013. p. 328) In clinical practice, Virtue Ethics involves striving for and cultivating virtuous moral character, which results in good clinical practice that promotes the well-being of the patient (Kotzee et al., 2017). Using Virtue Ethics to approach ethical decisions occurs when the HCP considers which action fosters the virtues they consider essential to being a good HCP, such as kindness, good judgement, fairness, leadership, and bravery (Kotzee et al., 2017). Similarly to Virtue Ethics, Relational Ethics assumes that general principles are not sufficient for working through complex circumstances (Moore et al., 2014). Relational Ethics focuses on the relationship between the HCP and the patient in that ethical practice can be achieved by acting in their best interest based on understanding what is important to the patient (Moore et al., 2014). Through a willingness to engage in a relationship with the patient and family, the HCP can understand their values, goals, and wishes to better advocate and make ethical decisions (Moore et al., 2014). Both Virtue and Relational Ethics rely on understanding moral distinctions and nuances, better capturing the complexity of ethical decisions in medical practice.

Consider an example of an elderly male with dementia being looked after by his wife at home who presents to the hospital with severe pneumonia. Despite treatment, he continues to worsen, and his care providers have to decide whether he will be intubated and put on life support. His family believes that their religion values life at all costs and feels that everything should be done to prolong their loved one's life. Complying with this wish would conform to patient autonomy. However, the HCP believes that this will prolong his pain and suffering with futile measures, contradicting their understanding of non-maleficence and beneficence. This exemplifies how Principlism is theoretically helpful, but in real-life situations, it highlights the inability to find agreement and compliance with the four principles it espouses.

Shifting to an approach which is better suited to deal with complex situations, like Virtue or Relational Ethics, can be more appropriate at times. The HCP may take action to exemplify courage and transparency by patiently providing the family with an accurate picture of what the results of aggressive care will look like. They may also value collaboration and call in Social Work or Pastoral Care to join the circle of care and support the family's religious beliefs. The HCP may learn the family values some extra time with the patient, long enough for out-of-town relatives to visit and say goodbye. Through this willingness to engage with and understand the family goals and wishes, HCPs can use their knowledge and work together with families. These approaches allow us to make better solutions that align with patient and family values and allow HCPs to provide the best care.

Moral Distress

As a direct consequence of the ethical nature of the medical profession, HCPs may encounter scenarios and decisions that are inconsistent with their moral and professional identities. This contradiction occurs often as a result of some type of constraint on their actions. Depending on the circumstances, this constraint may be the wishes of the family, the available resources, or the policy of an institution. It is possible that HCPs may experience moral distress as a result of these scenarios.

Nursing scholar Andrew Jameton was the first to define and publish the concept of moral distress. Jameton proposes that moral distress occurs when an individual “knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action” (Jameton, 1984). Jameton’s definition can be framed as two necessary and sufficient conditions for moral distress to occur: 1) a moral judgement occurs and 2) an institutional constraint prevents the moral judgement from being acted upon (Morley et al., 2019). Specifying that a moral judgement must be made requires that the individual is aware of the right action given the situation. Accordingly, Jameton’s definition of moral distress is distinct from moral dilemmas, where the individual is weighing multiple courses of action, unsure of which is right (Epstein & Delgado, 2010). As the phenomenon gains attention and the body of research continues to grow, researchers have both challenged and critiqued these conditions. The result is a complex body of literature exploring moral distress that lacks conceptual clarity (Morley et al., 2019).

Some have suggested that Jameton's definition is too narrow in scope. Fourie (2017) suggests moral distress occurs when an individual's morality is violated, regardless of the violation's source. Correspondingly, Fourie (2017) posits that a definite judgement and constraint are not necessary components but rather compose a specific category of moral distress. According to this idea, situations that pertain to moral uncertainty and moral conflict that result in distress should also be included under the term, instead of restricting it to situations of moral constraints. Fourie (2017) raises the question that if all situations foster stress in a very similar manner, why does Jameton's definition of moral distress require a constraint? Others have followed similar premises and define moral distress as an umbrella term that covers a variety of negative self-directed emotions arising from one's perceived involvement in a situation that is perceived to be morally undesirable (Campbell et al., 2016). The authors intentionally use vague language to include a variety of ways the individual might be related to the moral problem, such as failing to intervene or being connected to someone who is involved.

Epstein et al. (2016) counters the broadening of the definition by claiming that this approach will incorrectly classify "difficult choices, unfortunate outcomes, or inherent risks of health care" as moral problems. For example, a physician may recommend surgery to a patient, such as a joint replacement, to increase mobility and improve their quality of life. However, the patient experiences perioperative complications and does not survive the surgery. The physician is balancing risk-benefit ratios and makes an informed decision to try and benefit the patient, but they succumb to the risk of the treatment. These are examples of unfortunate outcomes because of inherent risks and competing values when making difficult decisions. This may lead to significant psychological stress even if, when looking back at their decision, they feel like they did the right thing, given the circumstances. Campbell et al. (2016) classifies this type of scenario 'bad moral luck' and contends this as moral distress, whereas Epstein et al. (2016) claims this is problematic and should not be considered moral distress.

The debate over whether moral distress manifests in an individual or structural context is an additional source of tension in the literature. On one hand, moral distress is recognized as rooted within an individual's ability to practice ethically (Varcoe et al., 2012). For example, Rushton et al. (2013) understands moral distress as an individual matter that can be mitigated by fostering psychological resilience in clinicians through conceptual frameworks and interventions. On the other hand, moral distress can be perceived as contextual, and as such, attention is placed on the broader structural conditions that precipitate moral distress instead of the individual (Pauly et al., 2012). Research that approaches moral distress as a contextual phenomenon emphasizes social and organizational issues such as workplace conditions and institutional policies (Epstein & Delgado, 2010). This perspective has the potential to illuminate existing structural conditions that incite moral distress (Pauly et al., 2012; Wall et al., 2016).

For the purposes of this case study, I will maintain a narrow definition aligning with Jameton's standard account of moral distress. The intention is to focus on the negative emotions that were a direct result of the strain institutional policies placed on HCPs. Institutional policies that I am likely to encounter in the context of the pandemic, which may constrain health provider action and may lead to morally distressing situations, include provincial triage protocols, vaccine mandates, and PPE distribution policies. Other institutional factors that are commonly cited as constraints producing moral distress that fall within this definition include inappropriate use of resources, inadequate staffing, and employing staff who are not qualified (Epstein & Delgado, 2010). Jameton's definition of moral distress differentiates a constrained moral agency, where the individual is unable to act optimally, from a challenged moral agency, where the individual does not know what is optimal (McCarthy & Monteverde, 2018). This allows the phenomenon of moral distress to be separated from the ethical dilemmas that are an unavoidable aspect of life as an HCP and which are heightened in the midst of a pandemic. Although various situations may lead to the same negative emotions, by employing a narrow definition, the concept becomes more operationalizable, open to empirical research and more likely to be translated into clinical practice (Campbell et al., 2016; McCarthy & Monteverde, 2018) Furthermore, framing moral distress in this manner shifts the setting of moral distress from within an individual to within contexts of practice, opening a window for health leaders and organizations to enact changes for resolution (Wall et al., 2016). In summary, the definition of moral distress that will be utilized for this research going forward is *a situation in which an individual cannot act in a way that aligns with their ethical or moral values due to institutional or other constraints, which ultimately results in negative psychological, emotional, or physiological responses (McCarthy & Monteverde, 2018).*

Allocation, Rationing, Triage

A specific example of when moral distress may occur in the medical profession is during resource allocation, rationing, and triage decisions. It is common to use the terms 'allocation,' 'rationing,' and 'triage' interchangeably to discuss resource distribution in various healthcare contexts (Iserson & Moskop, 2007). However, these terms have distinct meanings. In their work, Iserson and Moskop (2007) differentiate these three terms according to how broad they are. Allocation has the broadest scope of all three terms. Iserson and Moskop (2007) define allocation as the distribution of medical or nonmedical resources without implying scarcity. It might be necessary for a business to allocate portions of its total funds to different departments. It is possible that this allocation may be based on a variety of factors, but it does not indicate that each department does not have sufficient funding. The concept of allocation can be further divided into macro and micro allocations. In macro allocation, resources are allocated at a societal level, including health care, education, and infrastructure (Iserson & Moskop, 2007; Scheunemann & White, 2011). In micro allocations, resource decisions are made regarding an individual or a specific event, such as a car accident.

Rationing differs from allocation in that it implies that the resource being rationed is in short supply or scarce (Iserson & Moskop, 2007). If the government is rationing essential supplies by restricting their purchase during a time of crisis, this implies that the supplies are scarce. Scheunemann and White (2011) observe that rationing is an inherent part of healthcare, particularly in the intensive care unit. Scheunemann and White (2011) discuss how the division of time between multiple critically ill patients is a form of rationing. Another example of rationing in the ICU includes transferring patients out of the ICU who would likely benefit from additional monitoring in order to make way for sicker patients (Scheunemann & White, 2011). In this example, the rationed element is ICU bed space, which is being prioritized for sicker patients.

Triage is the most specific of the three and is most often used in medical contexts. According to Iserson and Moskop (2007), a decision should meet three conditions in order to be classified as triage. First, some kind of scarcity of healthcare resources must exist. This could range from a delay in treatment in a busy hospital to a mass casualty incident. Second, a healthcare worker serves as a triage officer, examining and assessing patients prior to making a decision about their treatment. According to Iserson and Moskop (2007), this is an example of micro allocation, since it takes individual circumstances into consideration. Lastly, there must be a guide or policy that governs the decision-making process. Typically, this takes the form of a triage algorithm. Iserson and Moskop (2007) would not consider a decision triage if the decision was made arbitrarily, or if allocation was made at a macro (e.g. community, class of patients) level that did not include consideration of the circumstances of each individual.

We deliberately chose to focus on any instance featuring resource allocation, regardless of where the decision fell on the spectrum from allocation to triage. We expect that the vast majority of the decisions were regarding resources perceived to be scarce during the pandemic, such as certain medical supplies, human resources, and time. Therefore, most decisions would be considered rationing. Moving forward, we label these decisions as resource allocation, although it is worth noting that many could be termed as rationing and/or triage.

Ontario Surge Triage Policy

One type of resource allocation decision that received a large amount of media attention throughout the COVID-19 pandemic was the triage algorithms that would dictate which patients were eligible to receive an ICU bed and mechanical ventilator in the circumstance that demand for this healthcare resource surpassed the supply. The triage framework developed by the Ontario COVID-19 Bioethics Table, entitled ‘Critical Care Triage during Major Surges in the COVID-19 Pandemic: A Proposed Framework for Ontario', was first released in March of 2020. The policy outlined an approach to allocating critical care resources should the conditions of a major surge in demand for critical care outstrip the province's ability to care for these patients. The policy would have been enacted by the Provincial and Regional Critical Care Command Centers during the COVID-19 pandemic when all other efforts to provide adequate critical care in Ontario had been exhausted. The objective of the policy was to set up a consistent process for prioritizing while protecting human rights and avoiding the perpetuation of pre-existing inequalities in terms of health and social status.

The Critical Care Command Centers had informed hospitals that the major surge was impending, but the threshold of critically ill patients just narrowly fell short of the indicated threshold in January of 2021. The policy was close enough to being declared that all critical care physicians in the province had undergone preparatory training in the algorithm and independent decision committees had been set up to act as adjudicators of critically ill patient assessments. There was an impression of a lack of transparency in Ontario and a lack of consultation with stakeholders that led to significant controversy and media attention regarding the policy. Even though the policy was never enacted as expected, engaging in discussions surrounding the fairness and equity of the triage system, and the effects that these polices have on HCPs was and still is crucial.

Most of the literature surrounding disaster triage during the COVID-19 pandemic acknowledges the detrimental effects such policies may have on HCPs

(Jöbges et al., 2020). Chuang et al. (2020) set out to understand barriers to the implementation of disaster triage protocols based on understanding HCPs' perspectives through focus groups at urban medical centers. The authors found that having an explicit policy may remove the decision-making burden from HCPs but may also be seen as a threat to autonomy. Additionally, even though they would not be responsible for making a decision, the HCPs would still be responsible for carrying out the decision, which may be a significant contributor to feelings of moral distress in HCPs (Chuang et al., 2020).

Maves et al. (2020) addresses the risk of moral distress that may accompany disaster triage policies by suggesting that implementation should always occur with an HCP support plan. Maves et al. (2020) describes this as “a systematic communication plan with the reasons for triage system activation, training on its use, and companion decision support tools to ensure consistent implementation is essential.” Additionally, the authors emphasize the need for support from both hospital ethics and palliative care experts, as well as the implementation of resources such as debriefing sessions, resiliency skills education, and emotional support services prior to triage protocol implementation (Maves et al., 2020). Even though this area of research focuses on a specific type of resource allocation with immediate consequences for patients, it is likely that other types of resource allocation decisions can accumulate to produce a similarly detrimental effect on HCPs.

Resource Allocation Decisions and Moral Distress

Although we are interested in bedside resource allocations occurring at the micro-level regarding an individual patient, ethical tensions in clinical practice are often shaped by macro-level systemic constraints (Durocher et al., 2016). Ethical tensions, which include moral dilemmas, moral distress, and moral uncertainty, were found to be precipitated by various systemic constraints, including institutional policies, external instructions, resource limitations, and lack of services (Durocher et al., 2016). Changes in the clinical environment during the pandemic included a multitude of these factors, forcing HCPs to make resource allocation decisions and alter their daily practice to accommodate these changes. This involved adapting clinical routines to conserve scarce PPE, which impacted the number of HCPs who could enter the room, as well as the frequency and duration of these entries (Cook et al., 2021). Additionally, when taking care of COVID-19 patients, nurses spend more time donning and doffing PPE and less time providing direct patient care (Qureshi et al., 2022). As compared to pre-pandemic conditions, taking care of COVID-19-positive patients resulted in a large increase in the number of tasks missed and a decline in the quality of patient care (Qureshi et al., 2022). Thus, HCPs were forced to decide what aspects of patient care to delegate or deprioritize because increased workloads meant they could not maintain their standards of care. Furthermore, HCPs were forced to make adaptions in response to visitation policies, such as integrating technology into their clinical workflow to facilitate connections between patients and families, which also would retract time away from other important clinical tasks (Elma et al., 2022).

In a recent study by Silverman et al. (2021), common causes of moral distress in nurses practicing through the COVID-19 pandemic were identified. Silverman et al. (2021) reported that increased workload, fear of exposure to the virus, and a broad range of nurse-physician disagreements all contributed to nursing experiences of moral distress during the pandemic. Additionally, systemic institutional policies such as PPE policies, restrictive family visitation policies, crisis standards of care, and allocation of scarce resource policies all acted as major causes of moral distress (Silverman et al., 2021). There is a likely connection between resource allocation decisions and moral distress since both concepts were driven by the same institutional constraints and ethical tensions during the pandemic.

Education Implications

When navigating resource allocation decisions, HCPs are likely to draw upon their expertise, knowledge, and skills that have developed through their education and clinical experience. HCP ethics education varies significantly between professions and specialties (Knight & Papanikitas, 2020). Roberts describes ethics education as typically broad and general, including minimal formal teaching on navigating ethical complexities that HCPs are likely to encounter in daily practice, but rather focusing on highly controversial healthcare issues (Roberts et al., 2005). There is an assumption that providers will gain a significant portion of their ethics training in the ‘apprenticeship’ aspects of their education as they work within clinical environments, learning the daily realities of healthcare work (Knight & Papanikitas, 2020). Training in triage principles offers a platform for understanding ethical theories, such as Utilitarianism, and their application in real-world scenarios, which exposes HCPs to approaches for addressing ethical dilemmas in clinical practice (Wagner & Dahnke, 2015). Lastly, emerging research has highlighted how the development of educational concepts, such as phronesis, may assist HCPs in making difficult ethical decisions and thus provide a direction for educational interventions (Conroy et al., 2021; Kotzee et al., 2017).

Ethical Competence

It is well-established that working in healthcare means you will face ethical problems daily, with a lack of resources being just one of many reasons contributing to these issues (Andersson et al., 2022; Therond et al., 2023). As such, it’s imperative that health professional education provides students with a solid foundation of knowledge and skills for when they are inevitably confronted with ethically difficult decisions. Andersson et al. (2022) refer to this as developing ethical competence, which includes being able to identify ethical problems, have knowledge about ethical and moral aspects of patient care, reflect on your knowledge and actions, make wise choices, and manage ethically challenging situations. Ethics education can vary widely but typically includes theoretical lectures, reading literature and case studies, workshops, writing exercises, reflection, and interacting with others to discuss students' own values and attitudes (Andersson et al., 2022). One of the challenges with teaching ethics is that theoretical knowledge, as developed through lectures, discussions, and readings, does not always translate into improved ethical practice (Andersson et al., 2022). Andersson et al. (2022) notes that the starting point to developing ethically competent students is to shed light on the types of ethical decisions they will encounter. Despite baseline knowledge of ethics likely being helpful for HCPs, it is also likely that the types of ethical dilemmas they discuss in school are different from the ones encountered in everyday practice. Therefore, documenting the types of ethical issues that have resulted from a lack of resources in our health system will help to inform future ethics education to be as relevant and connected to clinical practice as possible.

Training or Preparation for Triage Decisions

Healthcare professionals can acquire valuable insights into resource allocation decisions by receiving education on the principles of triage. Triage is an essential skill that is used daily in the medical field, especially in emergency medicine and disaster situations (Wagner & Dahnke, 2015). Through receiving triage training and understanding the underlying ethical considerations of common triage algorithms, HCPs are exposed to and can understand the application of distributive justice theories, most commonly Utilitarianism (Wagner & Dahnke, 2015). Although triage is taught mostly in the context of disaster and life-or-death decisions, it’s likely that HCPs may apply the same reasoning when making every day resource allocation decisions as well.

The process of triage involves the evaluation of all patient information to make a quick clinical judgment that results in a decision with serious consequences for the patient. As we discuss formal triage education, such as modules, we are referring to declarative knowledge acquired through systematic study (Cioffi, 1999). Declarative knowledge pertains to the facts, concepts, and various relationships that would typically be referred to as ‘textbook’ knowledge in medicine. Formal education provides students with declarative knowledge and procedural skills that can be applied to everyday clinical practice. Learners develop more advanced types of knowledge as they practice in real-life situations. As an example, ‘skilled clinical knowledge’’ describes the unwritten practical knowledge of clinical practice or ‘rules of thumb’ that constitute a significant part of the knowledge base and reasoning abilities required of healthcare professionals (Cioffi, 1999). According to Cioffi (1999), declarative knowledge is the process of knowledge acquisition, while skilled clinical knowledge is the process of skill acquisition. Cioffi (1999) provides an analogy that knowledge of the principles of riding a bicycle is not sufficient for someone to be able to ride a bicycle. The learner must gain actual cycling experience to acquire the skill.

The provision of triage education may assist HCPs in preparing to respond to challenging medical situations that require quick and effective decision-making, communication, and time management. In addition to improving triage knowledge and competency, other fundamental skills, such as clinical reasoning, have also been shown to improve through triage simulations and other educational interventions (Hu et al., 2021). Since new triage policies were developed to respond to the public health emergency, triage education became particularly relevant during the pandemic. The implementation of disaster triage policies would have a significant impact on clinical practice and would force HCPs to depart from their previous training, experience, moral and legal obligations (Mastoras et al., 2022). As a result, the development of educational resources and training for HCPs becomes an urgent necessity. According to Mastoras et al. (2022), through virtual simulations, debriefings, and modules, HCPs can become more confident and comfortable with using triage protocol and communicating triage decisions to patients and their families.

Phronesis

Closely related to Virtue Ethics, phronesis is also an applicable cognitive concept when considering resource allocation and ethical decision-making. A philosophical virtue originally recognized by Aristotle, phronesis is characterized as practical wisdom or knowledge (Kinsella & Pitman, 2012a). Whereas Virtue Ethics is a broad approach to ethics based on emulating good moral character and cultivating virtuous character traits, phronesis concentrates on applying these values and being capable of balancing competing virtues in a specific circumstance (Boudreau et al., 2024; Conroy et al., 2021). Kinsella and Pitman (2012a) expand on this concept of moral decision-making to define phronesis as "deliberation that is based on values, concerned with practical judgement, and informed by reflection. It is pragmatic, variable, context-dependent, and oriented toward action" (Kinsella & Pitman, 2012a). 'Practical wisdom' is often used as a shorthand phrase for phronesis, encompassing both the ability to think critically and practically, martialling one's training, knowledge, and morals to make good professional decisions. Phronesis encompasses clinical judgment and components of clinical practice that are not scientific but rather interpretative. In other words, phronesis refers to the moral force that guides health care providers to follow a specific course of action (Kinsella & Pitman, 2012b). Putting into words the concept of phronesis as professional knowledge can be exceptionally challenging. When observing a clinical decision being made, phronesis is usually easy to identify, but if you were to ask someone to explain their thought process, they would often respond with something along the lines of 'it is just the way we do things.'

In conclusion, education is likely to play a significant role in the way that HCPs make resource allocation decisions. In the study by Rivera et al. (2023) more than 50% of physicians across medical specialties felt unprepared to allocate resources during the pandemic. Although this was specific to ICU beds and ventilator allocation, representing the most extreme instances, it is likely that we may see similar thoughts when discussing daily resource allocation during the pandemic. HCPs may need to develop advanced cognitive skills, such as phronesis, to make resource allocation decisions. Considering HCPs' past education regarding ethical decision-making and triage may also offer room for interventions to improve decision-making or mitigate the burden on HCPs imposed by these decisions.

Significance

Currently, there exists an unmet need in terms of documenting the intricacies of everyday ethical decisions, specifically concerning the allocation of resources. The existing COVID-19 literature tends to focus on major, life-or-death triage decisions that did not occur in Ontario or address ethical dilemmas in a more generalized manner. The intense pressure front-line ICU workers have been subjected to from the current staffing crisis and the multitude of ever-evolving pandemic policies have resulted in the ICU being a rich source of information regarding resource allocation. Through interviews with HCPs to describe how the pandemic affected their clinical practice daily and, specifically, how they made decisions to adapt to pandemic-related constraints, we can better understand the ways in which resource allocation unfolded and the resulting moral distress that may have accompanied this. Given the profound impact on HCPs and the ongoing HCP retention challenges across Canada, documenting these challenges offers a crucial step forward in addressing the aftermath of the pandemic and extracting valuable lessons from the challenges encountered.

Study Rationale

The purpose of this research will be to document the resource allocation decisions that occurred daily during the pandemic. Secondly, I intend to explore the impacts on HCPs of encountering resource allocation decisions, with a specific focus on experiences of moral distress. Lastly, I hope to understand and provide insight into educational opportunities to prepare HCPs for these decisions in the future.

Research Questions

1. What types of ethical decisions about distributing resources did healthcare providers in the Intensive Care Unit have to make during the pandemic?
2. How could healthcare provider education be altered to better prepare healthcare providers to respond and react to these scenarios?

Chapter 2: Methods and Methodology

The purpose of this chapter is to provide a comprehensive description of the methodology and methods utilized to investigate the stated research questions. To conduct this study, I will use a qualitative case study methodology based on a constructivist epistemological foundation to examine HCP resource allocation decision-making within the ICU. I will begin by discussing the theoretical underpinnings of the research project, followed by an overview of the case study methodology. In addition to establishing that Merriam (1998) case study methodology will be used, I will discuss my responsibilities as a researcher and how Merriam's methodology aligns with the project. In the following sections, I will describe the recruitment and sampling of the case and participants, data collection, and data analysis. I will first summarize Merriam's approach to each case study component, followed by how I will implement the approach in my study. I conclude by describing the implications of this study for healthcare providers and medical education.

Setting

The current study is a within-case analysis of a single case in a more extensive multi-case study of the experiences of frontline ICU and primary care clinicians during the COVID-19 pandemic. The multi-site case study set out to understand how clinical context and institutional policies relate to moral distress and moral injury while looking to refine the conceptualization and theoretical understandings of both terms. The multi-site case study included two critical care cases and two family medicine cases, with one of each type being from Alberta and Ontario.

This larger study provided a fruitful opportunity to investigate decision-making by frontline HCPs because witnessing or navigating ethical dilemmas is a potential catalyst for experiencing moral distress. My thesis work specifically examines the experience of resource allocation decision-making by ICU providers in Ontario, one of the four cases included in the larger multi-site case study.

I collaborated with the larger research team to ensure the interview guide queried specifically about clinician experiences of recognizing and responding to ethical decision-making. During the data collection phase, I closely collaborated with the researchers to conduct interviews at the Ontario ICU specifically and actively engaged in bi-weekly analysis meetings to ensure alignment with interview objectives. Following the completion of data collection for the Ontario ICU case, I conducted independent data analysis, transitioning away from involvement in the broader case study.

Theoretical Foundations

This project is based on an idealist ontology, meaning my analysis of the case study will be subjective and dependent on my interpretations. According to Giacomini (2010), idealism in qualitative research assumes we can only access our subjective experiences and ideas. As a result, the data collected represents the researchers' perceptions and does not correspond to reality directly (Giacomini, 2010). Furthermore, from this ontological perspective, there is no ultimate truth, and reality is subjective and ever-changing (Bunniss & Kelly, 2010). Emerging from an idealist ontology is an interpretive epistemology and, more specifically, a constructivist approach to qualitative research. An interpretive approach to research holds that there is no overarching truth to discover but rather a variety of diverse interpretations of reality that may be condensed to explain how a particular phenomenon may be understood through the perspective of those who have experienced it (Bunniss & Kelly, 2010).

Constructivism

Congruent with our methodology, we used a constructivist perspective in this research. This approach was chosen because the phenomenon of study, ethical decision-making by individual HCPs, does not entail a single objective truth and is rooted in each individual's mosaic of past experiences, clinical knowledge, personal beliefs, and moral code. As a result of the phenomenon being constructed by each participant, the constructivist approach is most congruent. Additionally, constructivism is most appropriate as I am interested in understanding ethical decisions from the perspective of those with first-hand clinical practice experience. This case study lends itself best to constructivism since the approach values individual narratives for their unique characteristics and idiosyncrasies while examining the context in which individuals encountered the circumstances that necessitated and informed their decision-making (Bunniss & Kelly, 2010).

The interpretative constructivist approach to research assumes that insights and meaning will never be free of bias because they are co-constructed by the participant and the researcher through conversation (Bunniss & Kelly, 2010). Therefore, instead of attempting to control this bias, I will acknowledge and account for how my experiences and feelings influence my data analysis through a reflexive process. As a result, my conclusions will be open to additional interpretation and context-dependent (Giacomini, 2010). My assumptions reinforce the need for my methods and recruitment process to result in diverse data sets that capture multiple interpretations of the phenomenon.

Case Study Methodology

Overview of Case Study Methodology

The proposed research questions will be investigated using a qualitative case study methodology. Robert Yin (2009) defines a case study as an "empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context" (2009, p. 18). Qualitative research is chosen when the objective is to gain insight, discover, and interpret a phenomenon rather than test a hypothesis or existing theory (Merriam, 1998). The case study approach is most appropriate when fully grasping the phenomenon requires understanding the contextual elements, and the boundaries between the phenomenon and the context are vague (Yin, 2009).

Choosing a case study approach requires consideration of three factors. The first consideration is the type of research question posed. Typically, case study research focuses on ‘how’ and ‘why’ a phenomenon occurs within an authentic context. These questions are likely explanatory in nature (Yin, 2009). As a second consideration, the investigator should recognize the extent to which they have control over the event or phenomenon being studied. The final consideration is the emphasis placed on contemporary events rather than historical ones in the research. Researchers often use case study methodology when studying contemporary events but cannot control relevant behaviours (Yin, 2009). For example, a researcher may investigate the factors that led to a student completing their degree versus a student who did not. A case study would be appropriate since this is a present-day event, and the researcher cannot control the participants' behaviour, responses, or circumstances.

In this study, case study methodology was chosen in response to the research questions pertaining to ‘how’ and ‘why’ resource allocation decisions are made within the context of the ICU during COVID-19. Since I do not have control over the contemporary events I intend to study, a case study is the most appropriate approach. Considering that these decisions are entangled within the context of the pandemic, the case study methodology will be most effective at painting a comprehensive picture of the phenomenon.

Merriam’s Case Study Methodology

Multiple authors have detailed different versions of case study methodology. Among the most popular approaches are those of Robert K. Yin, Robert E. Stake, and Sharan Merriam (Yazan & Vasconcelos, 2016). Case studies differ in their epistemological approaches, definition of cases, and specific methods of collecting, analyzing, and validating data (Yazan & Vasconcelos, 2016). Merriam's case study methodology was chosen to investigate the stated research questions in this study. This chapter will explore several core elements of Merriam's methodology, including defining a case, employing two-layer sampling, conducting effective interviews, and employing various strategies to enhance the study's validity. Overall, Merriam-style case studies enable considerable flexibility throughout the research process. From how the study is designed to how the data is analyzed, there is no rigid structure or strict protocol to be followed. One example of the flexibility of this methodology can be found in how data is collected (Sinha, 2017). Due to the simultaneous collection and analysis of data in a case study, future data collection can be adjusted based on the results of previous analyses. It is possible to begin research in an exploratory manner, allowing ambiguity regarding outcomes and interests to be accommodated.

Based on the study's unique qualities, Merriam further categorizes case studies as descriptive, heuristic, or particularistic. In descriptive case studies, various viewpoints are represented, various opinions or personalities are demonstrated, vivid material is presented, and hindsight is used while the case remains relevant to the present (Merriam, 1998). Consequently, this study is descriptive by nature, providing a comprehensive and rich description of the phenomenon.

The Role of The Researcher

A component that is not unique to case studies but relatively common across all forms of qualitative research is that the researcher acts as the primary instrument for data collection and analysis (Merriam, 1998). By responding appropriately to situations throughout the research process, the researcher can maximize data collection opportunities and generate meaningful insights. Considering the large impact the researcher has on all aspects of the study, Merriam details the abilities and qualities required of qualitative researchers. To conduct research successfully, the researcher must first accept ambiguity. There is no set algorithm or structure in this research type, which means patience is required throughout the process. An adaptable researcher who works well without rigid boundaries will thrive with case study methodology. Furthermore, the researcher must be highly intuitive and sensitive to the physical setting, the obvious and hidden agendas, and the non-verbal behaviour. This becomes especially relevant when collecting data and conducting interviews in which the researcher should know when to change directions and where to probe deeper. In addition, this pertains to recognizing the researcher's epistemological approach and being sensitive to biases inherent in this type of study, which was discussed in a previous section. Lastly, according to Merriam (1998), the researcher must have strong communication skills, the ability to build rapport with participants through empathy, be an attentive listener, and write consistently throughout the research process.

Recruitment and Sampling

Layer One: The Case

In case study research, cases rather than individual participants are the first unit of sampling. According to Merriam (1998), the delineation of the case is the most critical characteristic of case study methodology. Merriam defines a case as "something, a single entity, a unit with boundaries," which could be a person, a program, a policy, and so forth (Merriam, 1998, p. 27). Merriam's definition of a case focuses on its boundaries since a phenomenon cannot be considered a case unless it can be intrinsically bound. It is important to note that when assessing the boundaries of a case, if there are no theoretical or actual limits to the number of people who can be interviewed or observations that can be made, then the data collection is not finite, and the phenomenon does not constitute a case (Merriam, 1998). The scope of a case study may include multiple individual cases, referred to as cross-case studies or comparative case studies, in order to enhance external validity and generalizability (Merriam, 1998; Yazan & Vasconcelos, 2016)

The most common method of qualitative research sampling is nonprobability sampling, of which purposeful sampling is the most popular (Merriam, 1998). Purposeful sampling entails choosing a case that provides sufficient information regarding the issues central to the project's objectives (Merriam, 1998). If one wishes to gain insight into the decision-making process and institutional policies, selecting a case with expertise, experience, and competence in this field is logical.

To investigate my research questions, a case was defined as a single hospital-affiliated intensive care unit (ICU). In the larger study, we sampled two such cases to demonstrate maximum variation based on geography, patient population served, size, acuity, and unit resources. The current study presents a within-case analysis of one of these units, a Southern Ontario community hospital with high staff turnover and low resources, serving a small community and receiving transfer patients from nearby urban academic institutions. A more detailed case description will be provided in Chapter 3.

Layer Two: The Participants

The second layer of sampling involves identifying participants among those eligible for the selected case. In this instance, all clinicians, patient-facing staff, and administrators who worked within the selected ICU case were eligible for participation, including physicians, nurses, respiratory therapists, social workers, administrators, managers, or directors in this unit during the period of

2020 – 2022. By virtue of their employment in these roles, participants were able to provide consent and participate in an interview in English. Recruitment occurred through e-mails written by the research team and sent by the practice lead. Recruitment also occurred through digital and hardcopy posters circulated through the practice's existing communication channels. The recruitment materials instructed potential participants to contact the research team directly, so the practice lead was unaware of who did or did not participate. We sought diverse professional roles, levels of experience, and durations of work during the pandemic. Sampling evolved as preliminary data were analyzed, and we recognized specific types of participants as having valuable information to contribute to our initial understanding of the case. For example, desiring to sample participants who no longer worked within the unit, we used snowball sampling from existing participants to reach out to individuals who had quit, retired or otherwise left the ICU. Additionally, snowball sampling was used to increase recruitment of specific individuals to ensure a diverse sample of participants when a gap was recognized (e.g. a lack of physicians who were men).

Data Collection

Merriam's methodology includes three forms of data collection: interviews, observations and data mining from documents. The objective of a case study is to gain a holistic understanding of the case and generate a comprehensive description and analysis of it. Hence, both the depth and breadth of data collection are essential (Merriam, 1998). Although all three data types are commonly used, most case studies use only one or two out of three (Merriam, 1998). For the purposes of this case, interviews were the only form of data collected. However, we also reviewed internal and external policies to help understand the context of the interview data.

Merriam states that interviews are the most common data collection system in qualitative research and, as such, dedicates significant discussion to conducting effective interviews. Essentially, an interview is a conversation to unveil what we cannot see (Merriam, 1998). Through interviewing, the researcher is able to see the participants' perspectives through a discussion of their feelings, intentions, previous events, and where they attach meaning to the world (Merriam, 1998).

Data were gathered through semi-structured one-on-one interviews with eligible participants. The interview guide (see Appendix 1 and 2) consisted of open-ended questions, allowing the interviewer to respond to the participant's responses and adapt to new ideas that emerged throughout the interview. The interview guide was developed by an interdisciplinary team of researchers and clinicians and refined after piloting with one individual who had relevant experiences but did not fall within the boundaries of the defined case.

Interviews were conducted by two interviewers trained in qualitative research who were unknown to the participants (AS and AE). A shared file was created to record field notes and analytic memos to ensure consistency, with two interviewers facilitating the data collection. The field note file included a brief interview summary and tags to record common themes. The summary text included the role of the participant within the ICU and one to two paragraphs that recapped the central points of discussion. The tags included the policies discussed, the interview's emotional tone, and the scenarios recurrently discussed within the case. In addition to this file, the data collection team (AS, AE, and MM) held meetings scheduled at intervals of three to four interviews. The meetings were to debrief our personal emotions surrounding the interviews and to review analytic memos. Additionally, the regular meetings were used to refine the interview guide according to preliminary data.

Data Sufficiency

One challenge in qualitative research is determining when enough data has been collected for a study. As described by Merriam, there are both practical and theoretical factors that guide a researcher’s decision on when data collection is complete. In terms of practical concerns, allocated time and money to the project may pose limits on data collection, but ideally, the decision is made based on theoretical concerns. One central theoretical concern indicating data sufficiency is that further data collection produces tiny increments of new information or that the new information is no longer contributing usefully (Merriam, 1998). In this study, data sufficiency was determined by considering Merriam's previously stated theoretical concerns. We expected to enroll 20-25 participants to reach data sufficiency. Saturation was achieved when the interview scenarios and discussion points started to repeat rather than introduce new information. Furthermore, data collection was deemed complete once we had recruited a balanced and diverse range of participants, reflective of the interdisciplinary nature of critical care.

Data Analysis

Merriam defines data analysis as the process of making sense of and meaning from the data. Merriam's primary emphasis regarding data analysis is that it must occur simultaneously with data collection. Merriam advocates for an emerging design in qualitative research and states that “analysis becomes more intensive as the study progresses” (1998, p. 155). Through a concurrent and interactive process, preliminary analysis of data can inform alterations to subsequent data collection and develop emerging research outcomes (Yazan & Vasconcelos, 2016).

To help guide researchers through the data analysis process, Merriam discusses various strategies that can be employed, including my selected technique: content analysis. Merriam discusses content analysis as looking for insights through simultaneously coding raw data and constructing categories to capture the key characteristics of the data. More specifically, I chose to carry out analysis using conventional, or inductive, content analysis. This analysis is useful when there are no theories or little information about the phenomenon. Using the technique, the codes and categories arise from the data rather than the researchers' pre-existing knowledge and pre-conceived ideas (Hsieh & Shannon, 2005).

The outcome of data analysis is the findings of a study. Merriam states that “findings can be in the form of organized descriptive accounts, themes, or categories that cut across the data, or in the form of models and theories that explain the data” (1998, p. 178). A descriptive account is the most fundamental level of analysis and a crucial part of all qualitative research, where the researcher compresses the data into a narrative that conveys the meaning they have found within the data. However, most researchers typically move beyond description to category and theme construction, where units of data are sorted into groups based on sharing a common element. To assist the researcher while looking for reoccurring regularities within the data set, Merriam sets multiple guidelines for category construction: the categories should 1) reflect the purpose of the research, 2) be exhaustive, 3) be mutually exclusive, 4) be sensitizing, 5) be conceptually congruent. The third and final level of analysis includes making inferences, creating models, and developing theory. Merriam discusses how the researcher may feel this is called for when the categories themselves do not tell the whole story. The researcher then looks for links between the categories, which often involves visualizing how the categories fit together. This process is congruent with conventional content analysis, where researchers identify relationships between categories based on concurrence, antecedents, or consequences (Hsieh & Shannon, 2005).

Data analysis commenced after the first participant interview, and analytic memos were drafted following each interview. As discussed in the previous section, analytic memos were used to guide discussions in data analysis meetings that occurred every three to four interviews. The analytic memos were used to begin looking for recurring scenarios and descriptions within the interviews that were clear examples of resource allocation decisions. Subsequent interviews then included specific questions to gather more information or new perspectives on recurring examples and open-ended questions to probe for new examples. This process continued until we reached data sufficiency.

Once data collection was completed, open coding of the transcripts began to identify and extract examples of resource allocation decisions within the ICU. As open coding occurred, analytic memos were created to reflect on the elements that were common or not common across a multitude of examples. Based on these memos, a focused coding schema was created to sort examples based on factors such as the level of decision (micro, meso, macro), the scarcity of the resource (usual scarcity, pandemic-related scarcity, not scarce), the guidance for the decision (policy, ad-hoc), the perception of control over the resource, and if the decision was distressing or not.

After examining the elements of each decision and creating analytic memos to identify broad-level themes, examples were categorized into higher-level categories that served as a typology of decisions encountered. When scrutinizing the categories, it was evident that they were not mutually exclusive, as one example could fit into multiple categories. Additionally, the categories were not conceptually congruent as some were based on the circumstances (e.g. specific policies, type of scarce resources), some were based on the ethical reasoning described (e.g. prioritizing HCP safety, using Virtue Ethics), and others were based on the outcome of the decision (e.g. creating boundaries, adaptive practice). Accordingly, we organized the categories temporally into three overarching categories, starting with contexts, followed by principles, and finally, actions. The resulting model was a three-step framework describing each decision's central aspects (context, principle, action). After recognizing the relationship between the categories, a new coding schema was created to reflect this finding. The schema was then applied to each example, evolving as new sub-categories emerged and others merged to create a comprehensive model. Each category and sub-category were summarized into analytic memos to capture the key components and create the research findings.

Role & Reflexivity

This research explores the experiences and decision-making of HCPs during the COVID-19 pandemic. As a researcher, I acknowledge that my past experiences and positionality impact my research approach, interactions with participants, and findings. As the daughter of two HCPs, I have witnessed the challenges and impacts that providing healthcare during the pandemic has had. Additionally, before beginning this research, I spent time during my undergraduate studies volunteering in an ICU, where I learned about providing compassionate healthcare and began to recognize the complexity of critical care. These past experiences have shaped how I perceive my participants and understand their stories regarding ICU care. Lastly, my motivation to study ethical decisions in clinical practice arose from a desire to understand clinical practice as a student who wishes to pursue a healthcare career. My connections to healthcare and the ICU may lead to stories resonating with me on a personal level, resulting in thoughtful, critical analysis influenced by my motivations and past experiences. In response, I ensured that I was committed to reflexivity and consistently consulted with research team members with different perspectives and experiences.

The analytic team consisted of a small group of researchers with expertise in various domains, including qualitative research, medical education, and critical care. AS led the analysis through coding transcripts, designing coding schemas, writing analytic memos, and developing findings. Preliminary data analysis was conducted in collaboration with AE and MM, who provided feedback on interviews and shaped emerging findings. MV played a crucial role in developing coding schemas, constructing categories, and designing the framework. Additionally, LG, DC, MM, and MV provided thorough feedback and revisions of interpretations and analytic findings.

Rigour, Reliability, & Validity

According to Merriam, achieving the desired impact of a study can only occur when the study is rigorously conducted, which in qualitative research entails ensuring reliability and validity. Assessing reliability and validity involves examining the components of the study, and researchers can employ strategies to enhance internal validity, reliability, and external validity. The strategies proposed by Merriam provided valuable guidance in directing my efforts to establish a rigorous study.

Internal validity refers to the extent to which the findings of a study capture what was found in the data and the extent to which they reflect reality. Throughout the research process, I used multiple of Merriam's strategies to enhance internal validity, including triangulation, adapted member checks, and peer examination. A form of triangulation was used during data collection to cross-reference and verify instances that were being discussed during the participant interviews. As we collected and analyzed data simultaneously, we could address emerging concepts or topics of interest that had emerged from previous interviews in subsequent ones. This triangulated approach to data collection provided us with a comprehensive understanding and alternative perspectives on the data collected. Additionally, concurrent collection and analysis methods enabled us to employ an adapted form of member checks. Merriam describes member checks as showing participants tentative interpretations and findings that were derived and asking if the results are plausible. Although we did not do this in a traditional sense, we asked new participants about their thoughts on previously emerging themes to acquire feedback and more information, which served the same purpose as the member checks described by Merriam. Lastly, peer examinations were a crucial part of the entire research project, as I received frequent feedback from a group of highly skilled researchers with expertise in various domains relevant to this work. All emerging findings were presented and discussed with a team of researchers, and their comments were integrated into the analysis.

Reliability refers to the extent to which the findings could be replicated if the study was conducted again. Merriam discusses how reliability in this sense is “not only fanciful, but impossible” (1998, p. 206) as human behaviour is variable, and the results are highly contextual. Instead, the true question of reliability in qualitative research is whether the results are consistent with the data collected. As the researcher is the data collection instrument in qualitative research, the researcher's training and experience are essential when considering reliability. Part of improving the reliability of data collection was learning and improving my interviewing skills. To do this, I had two researchers work closely with me during data collection, taking time to observe their interviews and having them observe mine as well. By receiving feedback and observing others, I became a better instrument for collecting data throughout the research, thus improving reliability. Additionally, Merriam suggests maintaining an audit trail throughout data collection and analysis. I kept an organized account of material such as research memos, field notes, meeting notes, and journals to describe in detail my decision-making process and how I arrived at my results. Lastly, Merriam recommends that the investigator incorporate key information about their role and the study context, including the assumptions and theory behind the study, their position relative to the case study, the basis for selecting informants, and the social context from which data was collected.

Lastly, external validity refers to how generalizable a study is or the extent to which the study can be applied to other situations. Merriam presents her view on generalizability by saying that in "qualitative research, a single case or small non-random sample is selected precisely because the researcher wishes to understand the particular in-depth, not to find out what is generally true of the many" (1998, p. 208). Although generalizability may not be the point of qualitative research, other factors, such as user generalization, may be something to strive for. Merriam describes user generalization as being in the hands of the researcher who wishes to apply your results. However, creating a rich and thick description can help facilitate this and help other researchers understand if the findings may be transferable to their area of interest. Conducting multi-site case studies can help generalizability, which leads to a cross-case analysis where differences and similarities can be described. Although this was not done in this research, it may be possible to use the Alberta ICU as part of the more extensive case study to conduct this type of analysis and enhance external validity.

Ethical Considerations

This study received approval as part of the larger multi-case study from the Hamilton Integrated Research Ethics Board (#14646) and the selected ICU case site's Hospital Research Ethics Board. All participants provided both written and verbal informed consent. Before the interview, the participant received a REDcap link via email to access the consent documents. REDcap is an electronic data capture tool that is highly secure, password protected, and hosted at McMaster University. Only members of the research team had access to REDcap. Participants could fill out the REDcap form before or at the beginning of their interview. Once completed, participants were emailed a confirmation of their e-signature and REDcap data. Before the interview, AS and AE informed the participants of the purpose of the study, encouraged questions, and reminded them that they could take a break or withdraw from the study at any time. The data storage plan was informed by the McMaster REB Data Storage and Security Tools document. Interview audio recordings were immediately uploaded to a secure institutional drive (MacDrive) that only research team members could access. The audio files were then deleted from the computer's hard drive. The recordings were then sent to a professional transcription service (Transcript

Heroes) to be converted into text and de-identified. The de-identified transcripts were then stored on MacDrive.

It is possible that collecting data in the form of interviews may present ethical challenges. Merriam discusses how participants “may feel their privacy has been invaded, they may be embarrassed by certain questions, and they may tell things they had never intended to reveal” (1998, p. 214). We expected that participants may become emotional when discussing their experiences and may find the interview therapeutic. Merriam advises researchers to be receptive to the pain and suffering that may arise and to ensure that the research teams are equipped with resources for assisting participants with problems that surface during an interview. Before data collection, the research team assembled a list of resources for participants local to their area. When participants became emotional during an interview, the facilitator would pause the interview, acknowledge that the topic was challenging to discuss, ask the participant if they would like to stop the interview and continue with the interview only if the participant wanted and was able to. Finally, the research team conducted regular analysis meetings, allowing facilitators to debrief after emotionally taxing interviews. These measures were taken to acknowledge and address the potential impact on both the participants and the research team.

Chapter 3: Results

Case Description

The selected case site for this project was a community ICU located in Ontario which serves a diverse community and faced various challenges during the COVID-19 pandemic. Previously a 15 bed ICU, the unit was forced to surge to 20 beds during the pandemic and received transfer patients from larger urban hospitals nearby. The unit is supported by a team of intensivist physicians (D), approximately 50 full-time and part-time registered nurses (N), and 20 respiratory therapists (RT), a physiotherapist (PT), a registered dietician (RD), and a pharmacist (D). Additionally, the unit frequently receives support from social workers (SW), nurse educators, administrative staff (A), speech language pathologist, and palliative care physicians.

We conducted interviews from December 2022 to April 2023 with twenty-five HCPs and staff who worked in a single community ICU. These twenty-five participants represented a range of professions and experience levels; details are presented in Table 1. They were primarily (22) women and (13) nurses, which was reflective of the gender and professional composition of the unit.

Quotes from participants are labelled according to their role followed by a number assigned by REDcap. For example, the second registered nurse to participate was labelled as N02, while the first respiratory therapist to participate was labelled RT01. The pharmacist and physician participants were labelled as D01 through D04.

Table 1 *- Patient Demographics*

Category	Variable	Number
Gender		
	Men	3
	Women	22
Years of Clinical Experience		
	0-5	4
	6-10	3
	11-15	4
	16-20	2
	21-25	6
	26+	6
Professional Role		
	Nurse	13
	Physician	3
	Respiratory Therapist	3
	Administrator	2
	Physiotherapist	1
	Dietician	1
	Social Worker	1

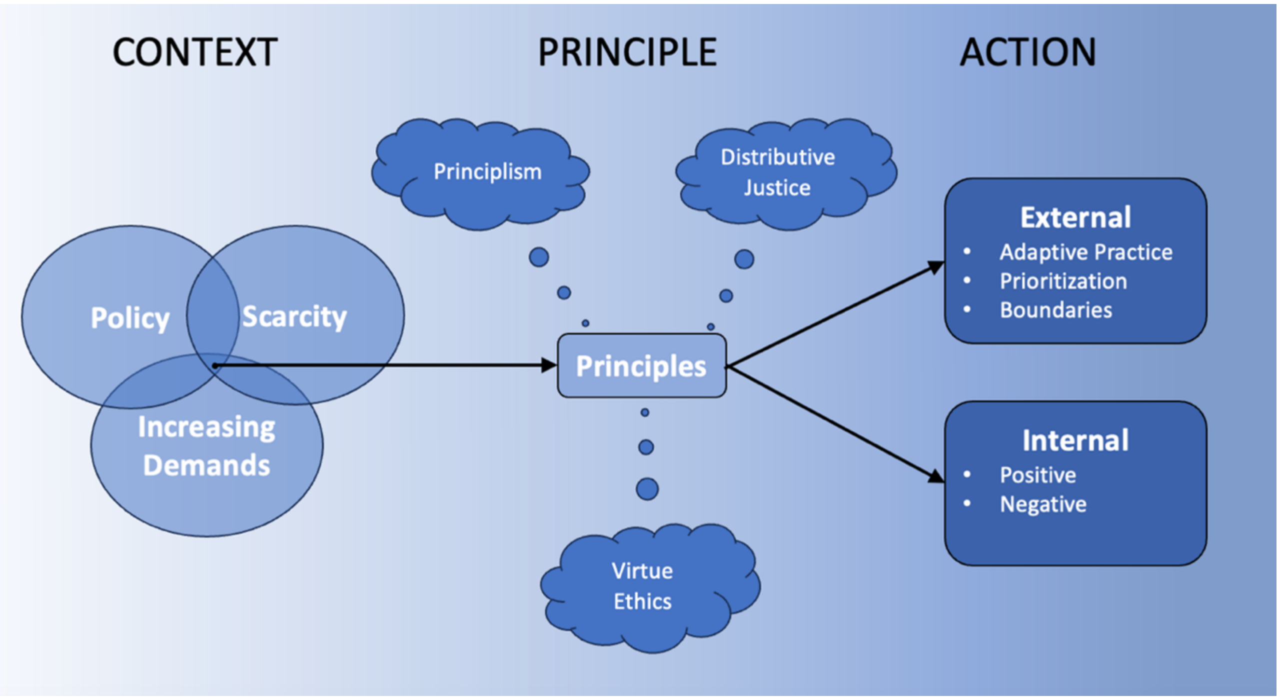
	Pharmacist	1
Age in Years		
	20-29	5
	30-39	3
	40-49	9
	50+	8

Overview to Findings

Resource allocation decisions within frontline clinical practice were ubiquitous, described by all participants regardless of clinical role or tenure. We have originated a framework, the Context, Principle, Action (CPA) framework, to describe how HCPs navigated these decisions (see Figure 1). Context refers to conditions existing outside the institution as well as within the organization and the ICU. As expected, COVID-19 circumstances were a frequently mentioned contextual factor for the resource allocation decisions described, alongside many mentions of pre-existing ongoing issues. Additional contextual influences included policies operating at both macro (federal, provincial, public health unit) and meso (hospital, critical care unit) levels. Principle refers to the values, precepts, or guidelines that HCPs drew on to navigate the decisions they must make. In identifying and interpreting these principles, we drew on recognized ethical theories or moral precepts. However, participants seldom explicitly invoked ethical theories and precepts. Finally, decisions typically resulted in some form of

Action - which included actions relating to adapting practice, articulating priorities or setting boundaries alongside internal reactions such as positive or negative emotions, stress, or distress. Action also encompassed the decision to do nothing, follow directions, or adhere to the status quo. The following results are organized to describe decisions that HCPs worked through using the CPA framework, including both typical and atypical examples, and concluding with a worked example corresponding to each element of the framework.

Figure 1 - *The CPA Framework*



Excerpts were considered to be reflective of resource allocation decisions if a choice was being made regarding the distribution of a physical resource, such as personal protective equipment (PPE), or a non-physical resource, such as time. In some instances, the resources were perceived by participants to be scarce, such as hospital space (ICU beds, negative pressure rooms), specific medications (Tocilizumab, Propofol), and medical equipment (IV tubing, N95 masks). In other instances, the resource being allocated was not perceived to be scarce, but rather, the participant decided to delay or withhold the resources in accordance with views of what is most important, organizational policies, and COVID-19 infection control directives. This included instances of choosing to withhold or delay the use of Bilevel Positive Airway Pressure (BiPAP) machines, perform tracheostomies, initiate transfers to academic centers, and utilize human resources to offer hospital approaches to care, such as spiritual care and social work consultations. In conjunction with decisions made to ration physical resources, other forms of rationing were observed, where holistic care was sacrificed to prioritize biomedical interventions and specific aspects of treatment.

Context

Context is an overarching factor which creates the need to make resource allocation decisions, shapes the resources and needs that exist, and determines the available options and their desirability. Context includes external factors as well as macro (governmental, municipal) and meso (institutional, professional, organizational) policies which shape and constrain HCP action. Participants most frequently mentioned three contextual elements shaping their resource allocation decisions, which resulted in three sub-categories: scarcity, policy, and increasing demands. The resource allocation decisions often included contextual elements from two or more sub-categories, often including an element of all three.

Scarcity

Across the dataset, resource allocation decisions were predominantly driven by resource scarcity, meaning that the available supply of resources fell short of meeting the number of resources that were required. The predominant resource affecting HCP decisions was limited time. More specifically, not having enough time in a shift to complete all tasks meant prioritizing some tasks at the expense of others. Additionally, the lack of PPE was a significant driving force in resource allocation decisions. Participants appeared aware of many opportunities to ration PPE, often deliberating when entering patient rooms was necessary: "*Now is this worth using PPE for? … So, you're less likely to go in the room for some things*" (D01). Other scarce resources that generated allocation decisions included hospital beds, IV tubing, and specific medications. Moreover, a lack of human resources often contributed to these decisions in circumstances where the participant described how they did not physically have enough staff to complete certain tasks (e.g. turning a patient in their bed), or they delayed human resource-heavy tasks to avoid exposing more staff to COVID-19 positive patients.

Policy

Decisions formulated at both macro and meso levels fundamentally shape clinical practices and participants' daily experiences. Consequently, many decisions originating from higher policy levels permeate down to lower tiers, precipitating micro-level (e.g. about allocating one's own time, what to do for a specific patient) decisions for HCPs. Data in this category emphasized the 'trickle down' impact of overarching policy decisions on the nuanced choices made by frontline HCPs about individual patients. The most frequently discussed policies were the various effects of the dynamic PPE and infection control guidelines circulated throughout the ICU. For example, the PPE policies resulted in numerous tensions between frontline staff and administrators, fostering group conflicts and a climate of mistrust within the hospital. Moreover, the ever-changing policies induced anxiety among participants regarding the possibility of depleting the PPE supply, prompting participants to adjust their daily routines and workflow in efforts to ration the existing supply.

Other notable policies influencing micro-level decisions included prohibiting aerosol-generating procedures (AGNP), various criteria to prescribe specific medications, and 'protected code blue' guidelines. One recurring discussion was regarding the hospital's visitation policies and how this resulted in HCPs having to deliberately allocate time to receiving and making calls to families.

"*Because of the restricted visiting policy, their families weren't allowed into the hospital … so they couldn't see what was happening with their loved ones. And so, we would get just never-ending phone calls …you know, we tried to do Zoom phone calls with families and show them on our iPad that we had, show* *them their family member and what was going on. … But that was really, really draining, having to just answer multiple, multiple calls and questions, which usually, like in our normal practice - it does happen - but it's not as frequent or as intense because people are able to come in. And then we can talk at the bedside, they can see – like it's just so much easier.*" (D03)

Increasing Demands

HCP decision-making was significantly influenced by increasing demands within the ICU, including physical challenges and more mentally taxing clinical environments. Physical challenges within this category included the surge of patients, altered patient-to-nurse ratios, and increased workloads as the unit was "*mandated to increase capacity to 200 percent*" (A02). These interconnected factors contributed to many difficult allocation decisions, as tasks dependent on human resources were often deprioritized as the unit was "*short-staffed and … full of patients*" (N06). As the community center received transfer patients from overwhelmed urban centers, participants described how this increased their daily workloads.

"*We started getting patients from [city], which was something I've never been part of before. We were just getting like sick after sick patient. And we were just completely full of all these sick COVID patients … these patients weren't just like your typical ventilated patients. They were very much like, very laborious and* *physically - to do the work that they needed was physically hard on your body.*" (N07)

Along with the increase in physical demands, the unfamiliarity, learning curves, and uncertainty that COVID-19 brought created a new demanding cognitive strain on HCPs. In the absence of concrete scientific evidence and research on COVID-19 patient care, participants reflected that these "*were new situations that you didn't have experience in, and you didn't know whether you were doing the right thing or the wrong thing*" (D03). The time and energy needed to adjust and orient themselves to the new virus conclusively added to the increased demands within the ICU.

In critical care, understanding patient acuity can help HCPs appropriately allocate resources to patients needing the most intensive and specialized care. As the unit "*didn't always have the resources to send patients out to a different center for more advanced care*" (D03) because of scarce ICU beds and various transfer policies during the pandemic, the community ICU was expected to care for more complex patients than staff were familiar with. Additionally, the government's decision to close healthcare services, decreasing access to family physicians and specialists, was described within the ICU as a "*system-inflicted dangerous delay in treatment*" (D01). The combination of both factors resulted in a unit with more acute patients than typically cared for within a community ICU, presenting additional challenges for staff and further uncertainty, which ultimately affected resource allocation.

Principle

The second category, principle, describes the beliefs, codes, tenets, or guidelines that participants drew upon to help them make decisions about the best course of action. These were seldom presented explicitly, and so we have interpretatively organized them within existing ethical theories. The subcategories include the theories of distributive justice (Utilitarianism, Egalitarianism, Prioritarianism), Principlism (beneficence, non-maleficence, autonomy, justice), and Virtue Ethics. Participants typically described their decision-making process as informed by values or principles that exist across multiple theories.

Distributive Justice

In many resource allocation decisions, reasoning aligned with Utilitarianism, Egalitarianism, and Prioritarianism could be identified. These are all examples of theories of distributive justice: moral guidance for the distribution of benefits and burdens (Lamont & Favor, 2017). Utilitarianism takes the approach that the right action is the one that maximizes benefit for the maximum number of people (Slote, 2013). As Utilitarianism is often used as an explicit theory to inform emergency triage policies and education, it was expected that HCPs would be familiar with and draw upon this reasoning. In some situations, Utilitarianism can be seen overtly, such as a discussion about who would receive ICU beds and who would not. In one example, a physician drew upon the principle of maximizing utility when discussing how ICU beds were allocated.

"*You'd get a lot of phone calls from the wards or the emerge about patients that were old and had a lot of other conditions, and we would know as physicians that they were extremely unlikely to survive COVID, so we often just had to make decisions like that, and to tell people, like, the families and the other doctors involved that it's not appropriate for them to come here*." (D01)

When HCPs conserved their PPE for emergency situations or divided their time to favour the most relatively valuable tasks, they followed Utilitarianism principles more covertly. Even if the HCP is not explicitly thinking about the principle, anytime an HCP chooses to forgo tasks to assist with a task that will produce a greater benefit, individuals are intuitively applying Utilitarianism as they seek to maximize positive outcomes. For example, many HCPs discuss how turning patients side-to-side in bed can be a low-priority task as it is time-consuming and requires numerous human resources. Although this task was recognized to benefit the patient, unstable patients or more valuable tasks were prioritized to maximize the aggregate health outcome of the unit.

"*[Turning patients is] still very important because you don't want like their skin to break down or anything like that, but it definitely comes last when you're looking after a patient that has breathing issues or heart issues or that needs like very important treatment*." (N06)

One contested application of Utilitarianism principles is the notion that healthcare workers should be given priority because they have the skills to save other people, therefore maximizing utility at the community level. Within our interviews, we observed a recurring trend where decisions prioritized HCP safety over patient care, justifying this choice with language that evoked utilitarian principles. This approach was evident in the implementation of the newly introduced protected code blue policy: "*You have put [PPE] on before you go in there…it became your safety is above the patient's safety. If that patient dies because you have to take that much more time to get things on, well, that's the way it is*" (N11).

Discerning a perfect alignment with a single ethical theory wasn't always feasible; at times, the boundaries between the theories became ambiguous. Sometimes, tasks that maximize overall utility (Utilitarianism) also prioritize the worse off, which aligns with prioritarian reasoning, where the right action prioritizes those who are the most disadvantaged. Building on the example above, HCPs frequently discussed attending to the sickest patients first, prioritizing clinical interventions and deprioritizing turning or washing patients.

"*You're stuck in a situation where you're like, OK, well, this [patient] actually might be the most sick. So, I'm going to try and see that one first, while kind of looking through the window and the door at the other one, to make sure that things are OK, you know … And so you sort of prioritize vitals monitoring, assessment and meds. And then if you have time for somebody to kind of keep an eye on your other guy who's in the other room, you might try and do a wash … We had people developing horrible wounds so fast, you know and getting so bad* *because we just didn't have the capacity to make that a priority. Because our priority was making sure that they didn't die.*” (N05)

Similarly to the overlapping of Utilitarianism and Prioritarianism, sometimes distinguishing between Utilitarianism and Egalitarianism was not possible. Egalitarianism is the approach where all individuals receive equal treatment and resources. For instance, when HCPs opt to ration a resource for future use, it remains uncertain whether they believe someone in the future will require it more, aligning with Utilitarianism, or if their rationale is the equal distribution of resources between current and future patients, reflecting egalitarian principles.

Principlism

Principlism, an approach to medical ethics based on four pillars (autonomy, beneficence, non-maleficence and justice), was helpful in considering what participants perceived to be their core duties as HCPs. Participants demonstrate beneficence by advocating for a patient to receive scarce medication, learning new skills to improve care, or going the extra mile to facilitate connections with family. Maleficence was interspersed within the data as HCPs actively sought to do good and contribute to the patient’s well-being. Almost all patient-centred decisions revolve around beneficence, but non-maleficence was only evident in a small group of decisions, specifically regarding end-of-life conversations with families during the pandemic.

“*You know that [Ontario] triage protocol, in some ways, I think highlighted or supported to me that yes, like a person who has more than 80 percent chance of mortality, probably we will cause actually more harm and more suffering putting them through all the life support measures. Which are fairly invasive and can be painful, to very little possible benefit in terms of their survival and their return to their previous quality of life. And so quality of life are very big topics that I address with patients and families to see if it align – you know to see what their goals are and what their expectations are. And oftentimes when you explain things properly to patients and families, they actually do opt for non-ICU care in my experience*.” (D04)

Since the principle of justice is centred around the fair and equitable distribution of resources and medical care, all resource allocation decisions include a glimpse into what the participant believed to be just, although this was never explicitly discussed. Participant stories would briefly mention obtaining family consent when making decisions, specifically around palliating patients. Otherwise, autonomy was never discussed as a factor during resource allocation decision-making.

Virtue Ethics

The last subcategory, Virtue Ethics, emphasizes developing moral character and taking actions that are in accordance with those traits, rather than following rigid moral rules derived from Principlism or distributive justice theories.

Reasoning that aligned with this category was found within instances where HCPs made decisions to cultivate the traits that they believe define a morally good HCP, which is shaped by their education, mentors, and personal experiences. Various examples can be seen throughout where HCPs act in accordance with traits they value, such as fairness, courage, responsibility, and compassion. In an example of an HCP cultivating these traits, in response to the visitation policies, one participant discussed using her personal phone to call a patient's wife during an emergency transfer when the unit phone was being used by another patient: "*I thought, I have to, this woman has to talk to him. He's not well. There's a chance he would not make it. I really thought he was going to make it there. But he didn't. And in the end, she got that opportunity*" (N11).

Furthermore, we observed a shift where certain virtues, which may have held significance to participants before the pandemic, became less prioritized because of limited time or other constraints. These virtues encompassed aspects like mentorship, a holistic approach to patient care, and engagement in shared decision-making with both the patient and their family.

"*And I felt that I wasn't a great preceptor at that point, because there was a lot that I could teach her, but I just did not have the time. I haven't actually taken a student since because I just, … I felt myself that I didn't provide, you know, the precept, like what a preceptor should be providing, because I really didn't have the time.*" (D02)

As holistic patient care tasks were deprioritized, it became evident that these tasks played a significant role in nurturing the traits that some nurses considered crucial to embody the ideal HCP they were taught to be or the HCP they envision themselves as.

“*So, where normally it would be an every shift type of thing where we would change people’s sheets and give them a fresh gown and brush their hair and give them a shave, those things were limited because, again, our time in the room was very limited and had to be purposeful…I think that’s stressful, more so for the more senior nurses. Because that really was a big part of their nursing education was based on that. Now that our patients have become more acute, I think younger nurses don’t prioritize that as much. And I’m not saying either way is right or wrong, but for a more seasoned nurse that was used to – that was a big part of her day. And when she had to stop doing that, it would really make you feel like you’ve changed the way you’re delivering your nursing care*.” (N12)

Action

The last category used to describe resource allocation decisions was the ‘action’ that followed the decision. Actions could include any decision or outcome described by the participant, including the decision to do nothing, and the emotions or internal resolutions experienced. Two main types of actions were described: external reactions and internal reactions. External reactions include the change in behaviour that results from the decisions, while internal reactions include the emotional responses and changes to belief, attitude, and perspectives that arise from the decisions HCPs made.

External Responses

Participants took three types of external actions. They adapted their practice, set and/or followed priorities and established and/or enforced boundaries. Adaptations to practice included any action that wasn't codified in existing standards, scopes, or organizational norms. Setting and following priorities also entailed a deviation from typical priorities about what tasks or allocation of resources should take precedence over others, or a reaffirmation of existing priorities. In some scenarios, adaptive clinical practice involved creating updated routines based on re-evaluating priorities. Therefore, while the categories were distinct, participant anecdotes sometimes included elements of both. Establishing and enforcing boundaries was the most specific category, with examples of HCPs establishing limits and parameters for ICU care during the pandemic.

Adaptive Practice

This category included new or changed practices during the pandemic in response to the new circumstances, challenges, and job requirements. These are the choices made to modify clinical practices and patient care approaches in light of the pandemic's unforeseen circumstances. This was the most diverse category, including a wide range of examples and changes. This included unit-wide changes such as using extension IV tubing to keep equipment outside patient rooms, rolling patients from lying on their backs to their stomachs for better ventilation (proning patients), re-using single-use N95 masks, and becoming familiar with new patient ratios during surge conditions. One prominent example among nursing staff was a new practice described as clustering of care:

"*So normally, we want to be physically turning and moving our patients every two hours; that kind of went the wayside. Normally, I'd be going into a room every single hour to do a quick assessment, get my vital signs, look at urine output, suction the patient, mouth care, that sort of thing. And because we had to conserve our PPE, and this was before the vaccine. So, we were just going in the rooms every four hours to do a physical assessment; trying to get everything done. We call it clustering our care. So, I feel like sometimes the patients weren't getting as good care because we were hesitant and trying not to keep exposing ourselves*." (N01)

Prioritization

Prioritizing occurs when HCPs arrange tasks in the order of urgency and/or significance. These are choices about what tasks should be done first; these decisions stem from the need to ration time, primarily, but also PPE and other resources. Discussions around prioritization encompassed a wide range of subjects, spanning from how HCPs prioritize family connections for ICU patients to the way they structure their daily to-do lists. One of the most frequently occurring descriptions of re-prioritization centred on the importance of identifying the most pressing issues so that the most critical patients receive the necessary medical care. This came at the expense of their other responsibilities that had been long accepted as standards of good ICU care for their other patients, such as upkeeping hygiene, updating their families, and interacting with their patients. This also came at the expense of completing their required charting and documentation during their clinical practice, which based on the frequency of discussion, appeared as a significant concern for HCPs.

"*It was like the basic prevention of skin ulcers and having actual time interacting with your patients if they weren't intubated, like those sort of things were kind of missing… Like it felt like the basics kind of got put on the back burner and it was more of like the absolutely acutely necessary things that got done.*" (N02)

Boundaries

Decisions were subcategorized as relating to the establishment and enforcement of boundaries when the participant set limits based on their professional opinion, previous education, or past experiences. This category was used exclusively for two recurring topics. The first theme was regarding admitting patients and engaging in "*very blunt*" (N02) conversations about the chances of survival in the ICU amidst the pandemic, which meant prioritizing ICU beds for people who were truly critically ill: "*We had to push harder during the pandemic to help others make the appropriate decisions, whereas when there's not a crunch for beds sometimes you kind of let some things slip by and – you know, you let* *people in that you probably think are inappropriate*” (D01). The second theme delved into instances of "*digging in our heels*" (N11) when hospital administration asserted that N95s were unnecessary for staff. Participants recounted being labelled the "*Expensive Care Unit by one of the head surgeons*" (N05) as they sought to secure the necessary equipment to protect themselves from infection: "*It doesn't matter what the hospital says in the end. You're the one going in the room. So, it's your assessment*" (N01).

Internal Responses

Throughout the interviews, a diverse range of internal responses were discussed, both as direct and indirect implications to resource allocation decisions. The overwhelming majority of reflections immediately following an example of these decisions consisted of negative emotions, most frequently frustration, anger, stress, anxiety, and feeling neglectful toward patients. Notably, in relation to these decisions, as well as a culmination of personal and professional circumstances, some participants discussed their decisions to change from a full-time practice, decreasing to a casual status as an ICU nurse, transfer units within the hospital, or quit bedside nursing entirely. In opposition to this, when reflecting on the pandemic more generally, most participants shared anecdotes of positive emotions that were indirectly associated with these decisions.

Negatives

As a direct result of the complex ethical nature of these situations, many of the resource allocation decisions evoked negative emotions within the participants. Many examples were described by participants as difficult, unsafe, and overwhelming, portraying a significant level of stress and discomfort with the decisions that were being made. Many situations evoked general feelings of distress, with some participants describing moral distress when they weren't able to do what they felt was right. For instance, after describing a decision, the participant reflects, "*it was the first time in my career that I was faced with a patient that I knew exactly what I needed to do for, and I could not care for him*" (N03).

When seeking instances of moral distress, we took note of the decisions that involved a challenged moral agency (e.g. having multiple options and not knowing which is best) as compared to a constrained moral agency (e.g. you know what is best but can't act on it). In the case that the example demonstrated a constrained moral agency and produced a negative reaction, the instance was identified to be moral distress. Most of the moral distress we identified revolved around a recurring dialogue of not being able to practice as the kind of HCP they aspire to be, or imagine themselves to be, due to various constraints on their decision-making and actions. The constraints found included organizational policies (e.g. visitation policies, PPE guidelines, AGNP policies), lack of resources (e.g. transfers to academic centers, human resources, PPE, medical supplies, ICU beds, negative pressure rooms), orders from the physicians, family wishes, and heightened workloads that result in a lack of time.

A common aspect of the adverse internal reactions was their close relationship to feelings of empathy for the patients and their families. A pattern can be seen as situations that are described as being "*traumatic*" for the patients and families also were described as adversely affecting the emotions of staff, or "*definitely affect(ing) the mentality of a nurse going home*" (A01). For example, when HCPs deprioritized tasks, they often felt poorly about the tasks being missed and described how "*you felt like you weren't fully doing your job properly or that you were neglecting them*" (N06).

The other highly prevalent source of negative reactions arose from tensions within the interdisciplinary team or between frontline workers and administrative staff. When the IV poles were moved out of the room to ration PPE, participants described "*heated discussions*" (N08) about the safety of using extension tubing due to concerns about the mixing of medications and the changing fluid dynamics messing with the patient's infusions. Also commonly mentioned was growing mistrust in administrative decisions felt by frontline staff: "*I think we all kind of felt there was an arbitrariness to policies from the government and the hospital, and I feel like it was more based on the availability of resources than any sort of changing medical information or changing evidence*" (D01).

Positives

Throughout the interviews, various positive internal reactions were mentioned, mainly concerning the actions that resulted from resource allocation decisions. Particularly in response to the necessary adaptations to practice due to lack of time, many participants reflected on how the pandemic cemented or altered their values and beliefs. These values pertained to their understanding of what constituted good clinical practice or how they understood themselves as clinicians. For example, one participant shared how the absence of family at the bedside altered their perspective and prompted changes in their intubation and sedation routine to better emphasize their values.

"*I would sort of have a whole different mantra, a whole different conversation with them. It used to be sort of technical… It's turned into: I made everyone be quiet, and as we did things, I would just say to the patient, OK, we're going to do this, it's going to be OK. Your family loves you. We're going to talk to them every day; we're going to do everything we can. You know, just a lot of reassurances… which I never used to do before. I'm way more aware of how scared patients are when you get them onto life support and how important it is in case things don't go well that it's a calm and comforting experience where they feel safe that you're looking after them. … It just turned the whole going onto life support into a much more dire situation, and like this could be the last time that they talk to somebody.*" (D01)

Although the pandemic undoubtedly presented HCPs with stressful situations, it was recognized that the stress and circumstances which necessitated adaptive practice precipitated professional growth and interdisciplinary cohesion, with many participants speaking about the pride they have in themselves and their team for overcoming these difficult circumstances. In particular, this community ICU has been used to transferring very ill patients to tertiary care centres. During the pandemic, no tertiary centers were accepting transfer patients and so the site was required to care for patients with a higher than typical level of acuity. Participants reflected on this as a "*very empowering time*" (N05) as they worked as a team to learn new skills: "*I remember the first time we proned a patient, we had the doctor and RT support there. It was more of a team approach to those new skills that we had*." (N09). When reflecting on their ability to facilitate family visits through shared ICU iPads, one participant notes, "*we were really, really proud of that period of time. … We were one of the leading hospitals to do that*." (A02). Arising from the complex ethical scenarios, the daily challenges, and the many constraints of the pandemic was a sense of resourcefulness, accomplishment, resilience, and personal growth in many of our participants.

"*We're doing stuff we never imagined we'd be able to do in [city], and we're doing it well despite all the challenges. And that's really important; it's easy to go down the track of just pointing out what's wrong and what's broken and what's hard, but sometimes we've got to celebrate what we're doing well and how we* *are stepping up to some pretty amazing things and doing well at it. It's not the same place that I started working 15 years ago; by any means, the care that we provide is different. We're not able to provide some of the TLC stuff that we did when it was lower acuity and less numbers, but we're still doing an incredible job*." (N03)

Applying The CPA Framework: An Example

One common example of resource allocation decisions discussed by many participants results from the need to ration PPE. Without an adequate supply of PPE, the physician on the unit decided not to enter patient rooms during daily rounds: "*I couldn't go in 15 rooms, put PPE on and examine a patient, come out, do the next patient. So, I only went in when I needed to... which I think was substandard and less than ideal but necessary*" (D01). A nurse participant explained that "*the physicians were trying to protect themselves … But you [nurses] kind of felt a little bit sacrificial, because you were expected to go in that room"* (N11). The decision that multiple physicians made to not to enter rooms led to changes in the standard of care, interdisciplinary conflicts, and stress within the unit.

In terms of context, this example contains elements from all three subcategories. First, the lack of PPE was cited as the fundamental reason for the change in practice. Although not explicitly stated, the decision was likely informed by the various PPE policies and memos circulated hospital-wide, which gave

HCPs the sense that PPE was scarce. Finally, patient acuity and evolving information about COVID-19 transmission also contributed to this decision. In terms of principles, participants discussing this decision primarily drew on utilitarian concepts. For example, participants contended that if the physician only entered the room when deemed medically necessary, that would conserve PPE for future patients who require medical attention and in emergency situations. The external resulting action from this decision was a form of adaptive practice, as the unit altered its standard of care throughout the pandemic. This adaptive practice lingered after the pandemic, with one physician noting that "*we probably still go in the room less than we did because we've gotten probably out of the habit of going into the room*" (D01).

This decision evoked a spectrum of internal reactions. Multiple nurses explained that because the physician was not entering the rooms as often, "*at times, a lot of the care was directed on what [nurses] were hearing, seeing, and assessing*" (N05). In response to the decision, some nursing staff saw this as an indicator of confidence and group cohesion: "*My perception is they trust the nurses. They know that our nurses are smart; they are intelligent; ... And maybe it's – like some of [the physician's] experience that their assessment is the same as the nurse, ... They don't have to go in and second-guess it*" (N12). In opposition, other nurses perceive the physicians not entering the rooms to be negative. Some participants describe the reliance on their assessment of the patient and the concurrent increase in responsibility as "*scary*" (N05), "*really* *frustrating*" (N04), and "*a burden*" (N04). One participant explains, "*we have a lot of autonomy in our unit, more than nurses probably should. It's one of the reasons why nurses leave our hospital, our ICU, often, because we take on way too much*" (N04). Through the repetition of similar scenarios across numerous interviews, we were able to explore how the perspectives regarding specific resource allocation decisions differed between participants.

Conclusion

Based on interviews conducted with twenty-five HCPs, we created the CPA framework to understand the types of resource allocation decisions made by HCPs during COVID-19. Every participant rported resource allocation decisions, underscoring the prevalence of these decisions across all roles within the ICU. The CPA framework enabled us to examine each decision based on three overarching categories (Context, Principle, and Action) which each contained specific sub-categories to demonstrate the common themes and variation within each category. The sub-categories under Context depicted the factors that precipitated resource allocation decisions, while the sub-categories under Principle developed our understanding of common reasoning and priorities when making resource allocation decisions. Lastly, the Action sub-category provided valuable insights into the outcomes of these decisions and the emotional impact they had on healthcare providers, capturing both positive and negative aspects of the experiences.

Chapter 4: Discussion

Summary of Findings

Using a qualitative case study approach, we interviewed a diverse group of twenty-five HCPs who worked in the ICU of a community hospital in Ontario during the COVID-19 pandemic. The objective of this project was to better understand resource allocation decisions that were made during the pandemic and elucidate any opportunities to better educate and prepare HCPs to make these types of ethical decisions. We found that resource allocation decisions were commonly encountered and recognized as such by all HCPs, regardless of their tenure or role within the ICU. We described the core elements of how HCPs navigated these decisions (context, principle, actions) through the development of the CPA framework. *Context* referred to the circumstances and conditions HCPs considered relevant to the decision, including various institutional policies, resource scarcity, and increasing demands. *Principle* referred to the ethical theories and moral precepts that implicitly or explicitly informed these decisions, including distributive justice theories, Principlism, and Virtue Ethics. Lastly, *Action* referred to the outcome of the decision, where we identified any internal and external actions experienced or taken. Internal reactions were particularly interesting due to the wide range of responses observed. This included both positive reactions, such as feelings of resourcefulness, resilience, pride, and team cohesion, and negative reactions, including frustration, sadness, fear and moral distress.

In this chapter, I will discuss my findings in relation to similar studies and frameworks to highlight alignment with existing literature. Implications are addressed in three categories: ethics and education, moral distress, and Canadian health systems. Additionally, I will highlight how challenges seen in our findings present an opportunity for ongoing professional identity formation as HCPs understanding of their roles in patient care and within the interdisplinary team change throughout the pandemic. Finally, I will discuss the significance of my research, what I predict to be the next steps, and the strengths and limitations of the study.

In a similar study conducted within French ICUs, Therond et al. (2023) examined the ethical challenges that HCPs faced during the initial outbreak of COVID-19. Although this study did not focus specifically on resource allocation, they identified numerous ethical issues that were either forms of resource allocation or directly related to resource scarcity. For example, 72.3% of HCPs reported experiencing risk of contamination of themselves and their family, and 50.8% reported degraded care of patients (Therond et al., 2023). Moreover, 34.9% of participants reported experiencing difficult triage, although the contents of this category were not further explained (Therond et al., 2023). Additionally, Therond et al. (2023) established that HCPs may want or need more ethics training, and the first step to providing better ethics education is being able to identify the ethical issues that HCPs encounter during daily practice. Similar to our study, they found a mismatch between the guidelines that were created and the ethical situations that HCPs actually encountered. As in Ontario, most guidelines on ethical decisions addressed the decision-making related to triaging scarce life-saving healthcare resources (e.g. ventilators). In reality, these triage scenarios did not come to pass. Instead, HCPs had to address other ethical issues for which ethical guidance didn't exist, including making decisions that balanced patient care vs HCP safety or adjudicating rules preventing the presence of families in the ICU.

In Therond et al. (2023)'s study, several discussion points resonated with our findings. For instance, both studies highlighted the challenges that arose when families were not allowed within the ICU, which hindered communication and understanding of the objectives of care and contributed to a sense of dehumanization of patients. Inconsistencies in policies about who could be present, and when, exacerbated the ethical dilemmas around family presence experienced by HCPs (Cook et al., 2021). All three studies noted some benefits to family absence, including infection prevention and control and time-saving for HCPs who faced an increased patient load (Cook et al., 2021; Therond et al., 2023). Additionally, Therond et al. (2023) reported that the primary factor contributing to ethical issues was the lack of knowledge regarding COVID-19, causing uncertainty among HCPs. This sentiment was reflected in our framework within the context category, where a state of uncertainty was evident when HCPs discussed not knowing what was best or not knowing if a task was safe to do.

Realist Inquiry

Nearing the end of data analysis, we recognized that the framework we developed closely resembled a methodological framework commonly used in medical education research: realist inquiry. Realist inquiry is a commonly used methodology within a critical realism paradigm. In realist inquiry, the relationship between the context (the setting of the intervention), the mechanism (the psychological link between contexts and outcomes), and the outcome (the change or impact) merge to form context, mechanism, and outcome (CMO) configurations. The methodology utilizes the CMO configurations as a framework to understand how interventions function across multiple contexts (Ellaway et al., 2020). Realist inquiry is useful in that it allows researchers to understand beyond what the outcome was, but also why the outcome occurred (Ellaway et al., 2020). The result of analyzing the CMO configurations of an intervention is an explanation of what works, how it works, and in what contexts (Ellaway et al., 2020). The result of my analysis, the CPA framework, closely resembles the CMO configurations in terms of context and action/outcome. A distinction exists between the middle categories of each framework. In CPA, the ‘principle’ stage refers to the reasoning or invocation of ethical theories and moral precepts. In contrast, the middle category of the CMO configuration includes anything that explains the link between the context and outcome.

To my knowledge, realist inquiry and realist evaluations have only been applied to examine and understand interventions in the medical education space, and I was not aware of this framework when beginning data analysis. Given the parallels between the CPA framework and the CMO configuration, it's possible that CMO configurations could aid researchers in understanding how HCPs undergo a similar process when making clinical decisions. Specifically, HCPs consider the context (the relevant factors and their options) to reach an outcome (an external action and internal reaction), which can be linked together via one or multiple mechanisms (education, past experiences, ethics).

Implications

The implications of this research will be explored through three distinct contexts. The first will be the implications for the integration of ethical theories or reasoning into health professional education, specifically the benefits of shifting from deontological to alternate approaches when teaching HCPs to navigate ethical complexities. The second will be a discussion about moral distress and how my findings contribute to a detailed understanding of some of the conditions that precipitate moral distress in HCPs. The final area will be a broad discussion on the health systems in Canada as I include some key recommendations for improvements within Canadian ICUs in response to the challenges that my findings highlight.

Ethics and Education: Shifting Away from Deontological Approaches in Medical Education

Throughout data analysis, we noticed the thought process surrounding resource allocation decisions rarely reflected one single ethical framework, but rather involved HCPs considering their past experiences, previous education, their colleagues, and most significantly, their professional virtues. The approach to clinical decision-making in this study appears to be less aligned with deontological approaches (the strict following of guidelines and rules, regardless of the consequences) and more aligned with alternative approaches that are flexible and interpretive in nature. This shift is reflected in medical education literature, where multiple researchers suggest moving away from deontological perspectives to alternative approaches, such as Virtue Ethics, phronesis, and Relational Ethics, that leave room to consider the context, nuances, and complexity of any given situation (Conroy et al., 2021; Malik et al., 2020).

In many ways, ethical frameworks for ethical decision-making are equivalent to clinical guidelines for patient treatment decisions. Although thousands of clinical guidelines are produced annually, they are not universally adopted by practicing HCPs. There are many potential explanations for this, including the creation of guidelines by clinicians and researchers who are interested in one singular disease, with limited consideration for co-morbidities, personal preferences, or other relevant factors (Ross, 2014). In a similar fashion, ethical frameworks and codes of ethical conduct may be helpful in some situations, but fail to capture the heterogeneity and the complexity of ethical issues in clinical practice (Durocher & Kinsella, 2021). Our study helped to demonstrate how the “ever-closer codification of medicine,”(Conroy et al., 2021) specifically in the forms of deontological guidelines or principle-based approaches to ethical decision-making, may not be the most effective or intuitive approach to assist HCPs in practice – especially in times of crisis and emergency situations.

As an example, consider the ethical decisions regarding the allocation and timing of tracheostomies during the pandemic. A tracheostomy is one of the most common procedures in the ICU, where a surgeon creates an opening in the neck to insert a tracheostomy tube into the trachea and into the patient’s lower airways (Bittner & Schmidt, 2012). Tracheostomies allow for a stable airway in patients who require prolonged mechanical ventilation while preventing upper airway damage, improving patient comfort, reducing the need for sedation, and allowing for easier airway care (Bittner & Schmidt, 2012; Cheung & Napolitano, 2014). According to medical literature, performing a tracheostomy approximately 10 days following the initiation of mechanical ventilation or shortly thereafter is considered best practice (Cheung & Napolitano, 2014). Now, within the context of a pandemic, it was unclear whether performing a tracheostomy this early was safe because it is an AGNP and performing one while the patient's viral load is high may put HCPs at increased risk of contracting COVID-19. The result of the virus is a considerable amount of uncertainty, and the HCP may be considering the following questions:

- Will this procedure put my colleagues and me at risk of COVID-19 infection?
- If I delay the procedure, is my patient going to suffer from complications?
- What would happen if my colleague contracts COVID-19 during this procedure?
- How would this impact other patients if we were even more short-staffed?
- Is delaying this procedure protecting the best interests of my other patients?

Given these considerations, as new contextual factors emerge and decisions grow increasingly complex, adhering strictly to clinical guidelines may not be the most effective approach. Instead, adopting a more adaptable strategy for clinical decision-making that incorporates numerous factors, including clinical guidelines on best practices, the transmission of COVID-19, and the safety of HCPs and other patients, allows for a more comprehensive decision-making process.

Virtue Ethics

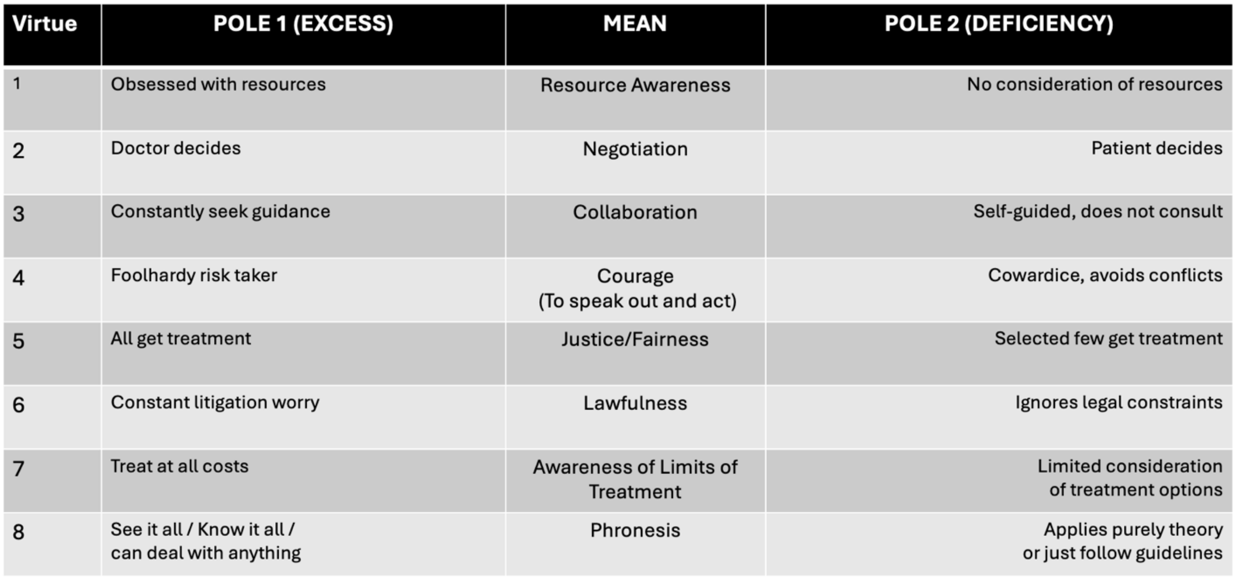
An alternative approach to address the limitations of principle-based ethical frameworks is exploring new ethical frameworks that allow for the incorporation of context and uncertainty, such as those rooted in Virtue Ethics and phronesis (Conroy et al., 2021; Kaldjian, 2010; Malik et al., 2020). Although our analysis was not centered around Virtue Ethics, this was a commonly identified principle within our participants' dialogue and thus was a highly populated sub-category in our findings.

One model that resonated well with our Virtue Ethics data is Conroy et al. (2021)'s depiction of the virtue continua. Based on 131 interviews with physicians, the researchers produced a table of fifteen virtues that shows a spectrum of actions spanning from deficiency to mean to excess (see Table 1). This model was very helpful in identifying the presence of different conceptions of virtue in our data, especially when our participant made comparisons from pre-pandemic to the pandemic to show how ethical decision-making changed. For example, the results section includes multiple anecdotes of physicians discussing instances when they were hesitant to admit certain patients to the ICU based on their likelihood of surviving and the invasive nature of critical care. Our participants discussed how, prior to the pandemic, they were more lenient in admitting patients whom they felt were quite unlikely to derive long-term benefit from their ICU admission. However, in the context of the pandemic, the unit began enforcing stricter boundaries about admission criteria. If we identify virtues using the Conroy et al. (2021) model, negotiation, justice/fairness, lawfulness, collaboration (e.g. with palliative care or other hospital wards), awareness of limits of treatment, courage (to speak out and act), and resource awareness would be the virtues guiding the decision to admit the patient or not admit the patient.

Prior to the pandemic, when beds were more available for all patients, some virtues would move towards the deficiency pole (resource awareness, negotiation, collaboration, courage), while other virtues would move toward the excess pole (justice/fairness, lawfulness, awareness of limits of treatment). During the pandemic, when beds and human resources were scarce, HCPs experienced a shift in how virtues were used, with some previous in excess moving towards the deficiency pole (justice/fairness, lawfulness, awareness of limits to treatment), while other virtues sometimes previously in deficiency were seen in increasing amounts, sometimes trending toward the excess pole (resource awareness, negotiation, collaboration, courage).

Although this was not something Conroy et al. (2021) explicitly discussed, the model could help with accessing how virtues can change day to day and how constraints, such as resource scarcity, can alter virtues in clinical practice. As an educational tool, the combination of a model and relevant examples could provide students with prompts for dialogue where they identify the relevant virtues and how they change when environmental pressures, policies, and other constraints on their actions arise. This exercise may help learners develop ethical competence and phronesis before entering the field, acting as a new and improved way to build on the ethical training that already exists. This model may also help learners navigate complexity by providing a concrete way to understand trade-offs and the need to juggle conflicting priorities.

Table 2 - *Adapted Version of Virtue Continuum (Conroy et al., 2021)*



Virtue	POLE 1 (EXCESS)	MEAN	POLE 2 (DEFICIENCY)
1	Obsessed with resources	Resource Awareness	No consideration of resources
2	Doctor decides	Negotiation	Patient decides
3	Constantly seek guidance	Collaboration	Self-guided, does not consult
4	Foolhardy risk taker	Courage (To speak out and act)	Cowardice, avoids conflicts
5	All get treatment	Justice/Fairness	Selected few get treatment
6	Constant litigation worry	Lawfulness	Ignores legal constraints
7	Treat at all costs	Awareness of Limits of Treatment	Limited consideration of treatment options
8	See it all / Know it all / can deal with anything	Phronesis	Applies purely theory or just follow guidelines

Phronesis

The final virtue in Table 1, phronesis, also referred to as practical wisdom, is an intellectual virtue that refers to one's ability to make wise judgements and ethically good decisions. We specifically examined the data for instances where HCPs demonstrated phronesis, as we predicted it could serve as a guiding principle in navigating difficult ethical decisions. Phronesis is included within the virtue continuum as the ability of the HCP to prioritize other virtues depending on the context to make an ethically sound decision (Conroy et al., 2021). When an HCP makes clinical judgements through deliberation of not only scientific facts and clinical knowledge but also considers contexts, pragmatics, and other ethical virtues, they are demonstrating phronesis (Kaldjian, 2010; Kinsella & Pitman, 2012a; Malik et al., 2020).

We observed that phronesis was applicable in some instances – especially under the sub-category of Virtue Ethics, where phronesis played a role in prioritizing certain virtues over others, as discussed in the previous section (Conroy et al., 2021). The interconnectedness between Virtue Ethics and phronesis is most visible when the virtues that guide a decision are contradictory. For example, valuing compassion or a holistic approach to patient care may urge an HCP to prioritize getting to know the family and understanding the whole picture. Conversely, resource awareness of time and PPE may urge the HCP to deprioritize virtual family meetings and not enter the patient room until medically necessary. Alternatively, justice, equity, and fairness may urge the HCP to complete a clinical task for another patient, perhaps perceived to be more fundamental, pressing, or necessary. Approaching the decision from a phronetic perspective involves the HCP prioritizing one virtue over the other to make an ethically sound decision in a complex situation.

While we were able to identify successful instances of phronesis at times, we also identified situations where HCPs appeared to be trying to take a phronetic approach but were constrained by other factors. For example, not being able to know the patient well enough to understand their values, beliefs, and goals because of contextual factors such as lack of time, PPE rationing, and visitation policies limited the HCPs’ ability to consider these factors in their decision-making. In other instances, phronesis was limited by the perception of the ICU being protocol-oriented and resistant to change, thus limiting HCPs' ability to make individualized decisions for patients. For example, when IV tubing was extended, and the pumps were moved outside of the patient's room under the rationale that this would conserve scarce PPE, participants expressed noticing that this system led to boluses of medication getting caught in the tubing instead of being administered to the patient. The result was a mixing of medications that they were unsure were safe and unexpected changes in the patients' level of sedation and blood pressure due to the medications not reaching the patient as expected. In this case, participants discussed how, despite being able to see the right course of action, they lacked the courage to challenge an established decision or the authority to lead change themselves and exhibit phronesis.

To help better understand phronesis in clinical practice, Kaldjian (2010) identified five core elements of phronesis, which Malik et al. (2020) later adapted into a working model based on the findings of narrative interviews with physicians. In their description of phronesis, significant emphasis is placed on holistic approaches to patient care and understanding patient goals, which is deemed as one of the core elements of phronesis. As described by the above example, this primary element was significantly compromised during the pandemic, which likely decreased the prevalence of phronesis within our data.

The second core element, 'concrete circumstances,' encompasses clinical facts, social circumstances, and other relevant contexts to the decision. Our data suggests that there may be circumstances where phronetic decision-making may not be feasible, which is an important consideration that seems to be currently overlooked within the literature. To add to the current literature, future research should study what types of ‘concrete circumstances’ are needed to facilitate phronetic decisions and to answer the question of whether taking a phronetic approach to decision-making rests on the capacity an HCP has to get to know the patients on a deeper more holistic level.

Similar to Virtue Ethics, we can incorporate the concept of phronesis in medical education as a means of shifting focus from strict compliance with codes of conduct and following routines to embracing complex and interpretive judgments as opportunities for learning and an inherent part of the medical profession. When clinical practice and medical education are viewed with an orientation towards phronesis, the unknown and uncertainties of clinical practice can be embraced (Kinsella & Pitman, 2012b).

The identification in our data of widespread struggles to make decisions in a phronetic way highlights a need for more empirical research that can help determine what sort of contexts (e.g. time, psychological safety, teamwork, flexibility) enable phronesis and to continue building on contextual frameworks such as Kaldjian’s and Malik’s adaptions, that can help novice HCPs integrate this approach into their decision-making. The integration of phronesis in medical education may assist HCPs to recognize and embrace complexity and uncertainty in an early way, preparing them for a career in which they will feel prepared to make optimized patient care decisions even in difficult circumstances.

Relational Ethics

Similar to Virtue Ethics, Relational Ethics is an approach that is not deontological but rather interpretive in nature. Within our analysis of ethical theories, we anticipated identifying Relational Ethics, particularly among our nursing participants, who often have the closest interactions with their patients compared to physicians and allied health professionals. Relational Ethics is a framework based on six central tenets (mutual respect, engagement, embodied knowledge, environment and uncertainty) that focus on the relationship between the HCP and the patient (Pollard, 2015). Relational Ethics approaches patients as ‘concrete others’ rather than ‘generalized others,’ emphasizing that ethically sound clinical decisions can only be made when the HCP understands the patient’s identity, experiences, goals, and values (Moore et al., 2014; Pollard, 2015). Relational Ethics was extremely challenging to identify within our data, and no apparent examples were found. The ICU clinical context may affect this, as many patients are not conscious and so HCP may be challenged to build relationships, particularly when physical presence is limited by scarce PPE. Visitation policies and the challenges with connecting to the family during the pandemic may have further disrupted relationship-building (Cook et al., 2021; Elma et al., 2022). Although HCPs may still consider it to be important, during periods of increased workload and crisis, getting to know the patient and fostering a relationship may have been too low of a priority to be able to identify instances of Relational Ethics. An alternate explanation is that when participants discussed particular instances with a patient, they may have been omitting details about patient decisions to maintain confidentiality or they have forgotten the specifics. Both of these would have made Relational Ethics challenging to identify with the scenarios.

Educational Conclusions

Although considering alternative approaches is a worthwhile avenue to explore, the most important factor in improving ethical education about resource allocation is initiating open discussions and addressing this specific type of ethical challenge during HCP education. Generally, there is little focus given to the everyday ethical decisions that HCPs make during clinical practice, with more focus given to large-scale or highly controversial issues that occur infrequently in clinical practice. If learners are made aware of these everyday decisions early in their education and have opportunities to discuss their ethical implications, they will likely be better prepared to navigate them and consciously reflect on them during their future clinical practice. Moving forward, more attention must be paid to the hidden curriculum of HCP education and the negative perceptions or attitudes HCPs may develop regarding the use of resource allocation and, more specifically, rationing in healthcare. Additionally, a deeper examination of the competencies involved in resource allocation could help integrate this topic into education. For example, the CanMEDS framework, which outlines the required competencies for physicians in Canada, includes competencies such as resource stewardship, time management, and setting priorities (Frank et al., 2015). These already recognized crucial competencies could be further developed in learners in relation to resource allocation decisions, specifically. As this study emphasizes the frequency and importance of everyday ethical decisions, it is essential for educational systems to tailor ethical education to these tasks, better preparing clinicians to manage this aspect of their role in clinical practice.

Moral Distress and Resource Allocation Decisions

As described in the findings, when exploring HCPs' internal reactions to a resource allocation decision, we identified a variety of positive reactions and negative reactions. A specific negative reaction that we expected to find was instances of moral distress: when the HCP knows the right thing to do but cannot act on this because of a constraint. Based on our findings, we can conclude that a link between resource allocation decisions and experiences of moral distress does exist within the context of the ICU, as moral distress was identified in numerous examples across the majority of participants. From our data, it was clear that resource allocation decisions put HCPs at risk of experiencing moral distress. However, the HCP indicating if they did experience moral distress was variable and depended on a multitude of complex, personal factors. This phenomenon will be explored further in future cross-case analyses in the larger project. Additionally, the data showed many examples of moral distress that were completely unrelated to resource availability and distribution, which will be explored in the larger multi-site case study.

One unanticipated challenge we faced when identifying moral distress was differentiating a constrained moral agency from a challenged moral agency. Clustering of care, referring to HCPs combining all patient tasks into a single entry to the patient room to minimize the use of PPE, was a common example here. When discussing ‘clustering of care’ within the ICU, it was common for HCPs to cite this as a source of negative emotions and feeling as if this was not the right approach to care. Although the general rationale was to conserve PPE and limit the spread of COVID-19, it was difficult to elucidate exactly why an individual HCP accepted this. Some participants gave the impression that despite it being emotionally challenging, they did ultimately agree with the decision, representing a challenged moral agency. With other participants, it appeared that they felt they didn’t have the authority to make their own choice, the courage to go against the status quo, or a person in authority had given them orders. These are all examples of a constrained moral agency. Despite the theoretical differentiation making sense, in practice, this distinction was more ambiguous than expected.

One participant discusses how, without the time and energy to sit down and have in-depth conversations with patients and/or their families about their values and goals, ethical decisions are much more difficult and distressing for HCPs. Essentially, even with all the clinical knowledge and scientific facts of a case, decision-making is easier when you know you are aligned with the patient, reflecting a phronetic approach to decision-making and a desire to make decisions in a relational way. It was through these examples that a connection between phronetic decision-making and moral distress became apparent. That is, the same conditions that inhibit phronetic decision-making are the same constraints that act as sources of moral distress (e.g. lacking courage to act, physical resources, and time).

In one study that suggests promoting phronesis in nursing staff to counteract moral distress (Ko et al., 2019), the authors suggest that moral distress only occurs when the nurse disagrees or misunderstands the patient, which we know from the larger case study only encapsulates a small subset of moral distress instances. This brings up an important point when considering strategies to combat moral distress in that the onus should not be placed entirely on HCPs to be more compliant or more emotionally resilient, but rather, our first line of defence should be fixing the organizational contexts that put HCPs into positions where they are at risk of moral distress. As a next step, removing organizational barriers in conjunction with promoting phronetic decision-making could lower the prevalence of moral distress in the ICU.

The Canadian Healthcare System

At the conclusion of the COVID-19 pandemic, it is imperative that our health systems in Canada are committed to learning from our past challenges and improving the provision of critical care to be better prepared in the face of other healthcare emergencies. Over the past several years, the Canadian health systems have strived to make acute care as efficient as possible by reducing acute care hospital beds and increasing long-term care capacity in the community (Gibney et al., 2022). However, Canada's "excessively lean acute care hospital capacity" has placed our hospitals in a precarious situation both during the COVID-19 pandemic and presently (Gibney et al., 2022). In alignment with this concept, our participants discussed that if our healthcare systems are always operating at 100%, there is no buffer room to alleviate the impacts of an unexpected pandemic. While climate change increases the risk of novel interactions with animal pathogens as habitats are destroyed, factors such as urbanization and global connectivity create faster means of transmission, all of which contribute to the likelihood of future pandemics (Baker et al., 2022). With an increasing chance we will experience another pandemic and possibly other epidemics, there are numerous changes that need to be made so we are better prepared to cope (Baker et al., 2022).

Perhaps the most acute limiting factor in expanding ICU capacity is the ability to recruit and retain highly trained nurses, physicians, and allied health professionals who provide critical care services. The majority of resource allocation decisions involve some context from the increased demands categories, including factors such as increased workloads, surges of patients, and lower nurse-to-patient ratios, which all could be mitigated with more human resources. Due to the myriad of trickle-down effects of under-staffing observed in our study, we underscore the crucial role of adequate staffing in the effective functioning of the ICU. Arabi et al. (2021) suggests developing an educational course for non-ICU HCPs to be trained in ICU care. Thus, in an emergency, this pool of non-ICU HCPs can safely reinforce ICU staffing during emergencies. Additionally, it’s clear that more ICU HCPs need to be recruited and retained to ensure that staffing schedules allow for HCPs to rest and have time to focus on their well-being. Clear communication from hospital leadership, setting protocols and procedures for COVID-19, frequent team debriefs, and expressions of gratitude from administrative leadership were expressed by Canadian ICU HCPs as initiatives that would make them feel more supported (Mehta et al., 2022). As HCPs are a finite and essential resource, staffing is a vital consideration in critical care planning and preparation for future emergencies (Mer et al., 2022).

Although human resources proved to be a significant barrier throughout the pandemic, our study highlights the large variety of resources that are vital to the provision of critical care and the impact they have when scarce. Moving forward, ensuring the Canadian healthcare system has an adequate supply of PPE and other ICU supplies will be crucial in preparing for future emergencies. Both the lack of transparency and the inability to accurately track supply chain movement are important factors that contribute to PPE shortages in critical care units (Mer et al., 2022). The Canadian Government has recognized this need and responded by creating Essential Services Contingency Reserves, which include

KN95 masks, nitrile gloves, face shields, and more. In accordance with this, producing clear guidelines for PPE usage and patient isolation that are rooted in scientific information could help HCPs feel more comfortable in the workplace and enable optimal resource stewardship. Additionally, having a plan in place to limit staff exposure during times of emergency and minimize non-direct patient care entry (e.g. a protocol for moving equipment outside patient rooms) would decrease uncertainty while keeping HCPs safe and limiting PPE use (Arabi et al., 2021). Lastly, increasing the number of ICU beds and ensuring ICUs have the capacity and infrastructure to safely surge during emergencies would be invaluable.

Professional Identity Formation

In addition to identifying moral distress and other negative reactions from HCPs, we also identified many positive reactions and space for learning within resource allocation decisions. As discussed in our findings, HCPs expressed that the process of navigating difficult pandemic circumstances led to feelings of resourcefulness, pride, resilience, and teamwork. One notable aspect of this category included instances where it was evident that professional identity formation (PIF) was occurring. PIF is the process that every HCP undergoes, beginning during their education, where HCPs socialize into the profession and accept the established competencies and norms (Kim et al., 2023; Sawatsky et al., 2020). Specifically in medical education, PIF refers to the transition from doing the work of a physician to embodying the role of a physician, although this concept is transferrable to other professions (Jarvis-Selinger et al., 2012).

One way to conceptualize PIF in clinical practice is to consider it as a shift that happens during a crisis that challenges previously established perspectives, values, or understandings. Each time an HCP experiences a situation that presents a discrepancy between their current understanding of their role and a current lived experience, the HCP then undergoes PIF and their understanding and embodiment of their role changes (Jarvis-Selinger et al., 2012). Our findings show that the COVID-19 pandemic presented a multitude of these crises of professional identity, offering an opportunity for PIF to occur. For example, prior to the pandemic, some HCPs believed accounting for resources should not be a factor in bedside decision-making and that rationing supplies was not ethical on an individual patient basis. Many participants portrayed that attempting low-yield strategies was commonplace in a culture of trying everything possible. During the pandemic, HCPs were challenged with being more purposeful with resource allocation. This was accompanied by an upheaval of previous values and beliefs visible as an increased awareness of their professional boundaries, specifically, more in tune with what efforts are futile and the expected limits of treatment options. Another instance where PIF was catalyzed alongside resource allocation decisions amid the pandemic was seen when circumstances of resource scarcity shifted HCP's roles and responsibilities. For example, in the worked example presented in our findings, physicians entered the patient rooms infrequently and heavily relied on nursing assessments to make decisions in an attempt to ration PPE. The dialogue surrounding these situations made it apparent that this shaped how participants understood their role as not just an individual but as a member of the ICU team, representing PIF.

There are many factors that affect PIF (e.g. education, experiences, mentors), which are recognized to be important during training. What may be even more important in ensuring PIF continues throughout clinical practice for an entire career is the extent to which physicians have internalized aspirations to be good doctors and develop the moral agency to keep striving toward their aspirations (Kim et al., 2023). Our study demonstrates that when HCPs encounter challenging situations, they are presented with an opportunity to reflect on their values and adapt their personal understanding of what it means to be a good doctor. The most fundamental factor that motivates individuals to make a good decision is their commitment to becoming a better physician. Concurring with the ideas presented by Kim et al. (2023) internalizing moral agency and aspiration to be a good doctor are crucial in promoting continuous PIF and ethical decision-making. Although the context of the study specifically discusses physicians, we argue that it can also apply to members of an interdisciplinary healthcare team. After seeing the intricate connection between ethical decision-making and PIF, we highlight how challenging periods of time have the potential to precipitate improvements and constant learning that ultimately makes them better HCPs and more capable of making ethically challenging decisions in clinical practice.

Significance

Despite the inclusion of resource stewardship in the CanMEDS framework, bedside resource allocation decisions and instances of rationing for individual patients can feel extremely uncomfortable. Rivera et al. (2023) response to the unpreparedness felt by physicians in Ontario to allocate scarce resources during the pandemic was to develop triage teams with support from clinical ethics professionals to relieve some of the burden from HCPs. Additionally, the authors voice support for increased physician awareness of local and international resource allocation policies to alleviate ethical concerns, fears, and moral injury. While helpful in some situations, our study highlights the importance of focusing on resource allocation beyond the issue of ventilators and ICU beds. It emphasizes the significance of everyday decisions made by HCPs in practicing resource stewardship, a crucial virtue whose importance is heightened in the middle of a pandemic. Moving forward, there is a need to understand the context in which HCPs perceive the consideration of resource availability in decision-making to be ethical or unethical. Additionally, ethical frameworks rooted in Virtue Ethics and phronesis may be excellent tools in reframing how HCPs navigate ethical decisions and acknowledge when resource availability should be a factor in decision-making and when it should not. Regardless of the process followed, it is clear that resource allocation is a task for all HCPs alike and therefore, the topic of resource stewardship should be breeched more in clinical practice and medical education.

This project illustrates many examples in which HCPs are doing their best, and yet patient safety is being jeopardized because of a lack of human and physical resources. The large piece of the puzzle that is missing in the analysis is patient perspectives, and an understanding of the effects these decisions had on the patients cared for during the pandemic. Emerging studies illustrate patient and family perspectives on critical care during the pandemic, such as research on family experiences with end-of-life care with restricted visitation (Dennis et al., 2022) and research on patient’s experiences and feelings about receiving ICU care during the pandemic (Kürtüncü et al., 2023). However, there is a crucial need to understand the effect that resource allocation decisions had specifically. Based on our participant's descriptions, we anticipate that patients would report experiencing an increased prevalence of bed sores, more ICU delirium, high rates of PICS, and potentially other issues, all of which stem from the reprioritization and the abandonment of standards of care that resulted from the resource scarcity that critical care areas were experiencing.

Strengths and Limitations

In terms of participant recruitment, we were able to achieve a sample that spanned a large continuum of diversity in roles, experience, and education.

Additionally, we were able to access and recruit HCPs who no longer worked in the unit for various reasons, which gave us insight into a variety of perspectives. The variability in participants allowed for the inclusion of various instances of related experiences or scenarios that enhanced the depth and breadth of our data, contributing to the information power of our study (Malterud et al., 2015).

As a whole, the recruitment process was highly successful in establishing a sample that was reflective of the case site, as we experienced great interest and enthusiasm from the unit. This may have been in part because the site was located in a community center, where participating in research is not as common as in academic sites, and this translated into highly invested participants who were dedicated and thorough when participating in the interviews.

Subsequently, data collection was also extremely successful as we were able to gather high quality information from participants. Having two experienced interviewers working with and overseeing the interview process and having participants who were very willing to trust the interviewer(s), led to high-quality dialogue and increased the information power of our study (Malterud et al., 2015). Study participants reported experiencing relief at the opportunity to discuss their challenges and experiences during the pandemic. Thus, we were able to obtain rich data, showcasing multiple perspectives, ultimately developing a holistic view on the topics of interest.

A primary limitation of qualitative research is that the findings are deeply rooted in the specific context in which they are collected. As a result, this context dependency may restrict the transferability of our findings to different settings or cases. Additionally, including only one form of data may have posed a limit on this study. Including other forms of data collection, such as mining documents or observations of the ICU, may have strengthened the study. Lastly, interviewing participants about events that had occurred months or even years ago, creates some challenges. Participants may be forgetting details or relevant factors that played a role in the decisions. Additionally, when using highlights to reflect on decisions, participants' feelings or descriptions of the decisions can be altered as they are aware of the outcomes. Lastly, as previously discussed, this research project was conducted as a secondary analysis of data collected as a component of a larger multi-site case study of moral distress in HCPs. Consequently, data collected may not perfectly align with the research questions that are posed by the researcher. In this study, the diversity of participants' backgrounds in ethical education and the absence of detailed data on their prior ethical education limited the specificity of the educational insights provided.

Conclusions

This study of how HCPs responded to the daily challenges of bedside resource allocation decisions has helped us to recognize and identify how these were viewed and experienced by many. Our data demonstrate that small-scale everyday ethical decisions were prevalent and larger-scale dilemmas were less commonly encountered by HCP in this community-based ICU in Ontario. We have analyzed the relationship between these decisions and the moral distress to caregivers, along with discussing ethical concepts that could help better educate HCPs and prepare them for these decisions in the future. Our findings clearly describe the heightened role of resource stewardship by HCP, felt especially during the pandemic. More guidance and strategies can be integrated into their education and training with a movement away from deontological or strict principle based approaches towards decisions approached with phronetic and virtue based ethics frameworks. These strategies are flexible enough to consider the context, and variety of patients, each with their own stories, values, and life experiences. Additionally, ensuring a stable supply of all necessities, continuing to work on staff retention and recruitment, and supporting HCPs with resource allocation are all invaluable aspects of improving our health systems. Despite all the difficulties around critically ill patient care, we were able to highlight the potential for cultivating positive outcomes and instances of positive professional identity development on the heels of adversity.

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Appendix 1 - Critical Care Clinicians Interview Guide

Thank you for agreeing to participate in this study. As you know, the purpose of this study is to understand the effects of moral distress and injury on interprofessional teams of healthcare providers working in critical care and family medicine environments in Ontario and Alberta. To do this, I will ask you some open-ended questions and you are welcome to answer any way you like. I will let you know when we start recording. As you answer, I will be taking notes of things you mention that I may want to probe further. There are no right or wrong answer, and you are free to refuse to answer any questions that you don't feel comfortable with. You decide how much you want to share. I would also like to remind you that everything that is said during this interview must be kept confidential. The transcripts of this interview will be de-identified for confidentiality purposes. Please also know that you can take a break or stop the interview at any time.

Do you have any questions before we begin?

I am now going to start recording and begin the interview.

General Questions

1. Generally, how have you felt about your work during the pandemic?
2. Can you tell me about one of the most frustrating days you've had at work during the pandemic?
    a. Overall, what has been the most frustrating aspect(s) of your job during the pandemic?
3. Can you tell me about one of the best days you've had at work during the pandemic?
    a. Overall, what has been the most rewarding aspect(s) of your job during the pandemic?

Situational Questions

Now I'm going to ask you some situational questions, so if you need some time to think of examples that's no problem.

1. Can you tell me about a time during the pandemic where you had to make a hard decision? Maybe you had to weigh a few different options before making the decision, or all the factors were "good", but one outweighed the other? If you have a few examples you want to talk about that's okay too.
    a. What did that look like?
    b. How did it feel to make these decisions? Can you walk me through how that felt for you?
    c. How were these decisions made before the pandemic?

            i. After the pandemic (or currently)?
2. Can you tell me about a time where you were unable to care for a patient, or do your work in the way that you wanted to do during the pandemic?
    a. What did that look like?
    b. How did it *feel* to not be able to care for your patient the way you wanted to?
    c. How did you usually care for your patient before the pandemic?
        i. How has this changed after the pandemic (or currently)?
3. Can you tell me about a time where you were unsure of how to care for a patient, or do your work in a way that made sense during the pandemic?
    a. What did that look like?
    b. How did this uncertainty feel when caring for your patient?
4. Can you tell me about a time where the hospital policy, or public health policy, conflicted with what you thought was best for you or your patients?
    a. Which policies were those?
    b. When were these policies enacted?
5. Can you tell me about a time where you couldn't help a colleague in a way that you wanted to, or would be meaningful?
    a. How was this different before the pandemic?

We're going to switch directions a little bit again – these questions are still situational, but I'm going to ask you about triage – so not just sorting and prioritizing patients, but also resources, your time, or other things you may have had to make decisions about and triage in some way.

6. Did you find that the emerging constraints throughout the pandemic created difficult scenarios regarding triage? For example, with limited accessibility to PPE, how did you decide what situations to use it in?
    a. How did the way you prioritize your time at work change during the pandemic? For example, while working a long shift in an understaffed unit, how did you prioritize your time?
    b. What would have made those decision easier on you?
    c. Do you feel properly equipped to be making these decisions?
    d. Are these types of decisions you expected to face during the pandemic?
    e. Have you ever received training on how to handle this type of situation?

Questions Regarding Changes on Unit:

We're going to shift gears again and now talk about changes in your work or on your unit that happened during the pandemic and may still be different now.

1. What differences in your unit have you noticed since the pandemic began?
    a. With your colleagues? (e.g., Staff shortages, changes in attitude/morale)
    b. With the way that you provide care? (e.g., drug shortages)

   c. With how you feel about your work?
   d. Can you tell me more about…?
2. Can you tell me about a time where a new policy, guideline, or strategy related to COVID-19 was implemented on your unit that caused a lot of change on the unit?
   a. This could include how the clinicians practiced
   b. Morale on the unit
3. When it comes to all of the different policies and guidelines that have been implemented by your unit, are there:
   a. policies and guidelines that you have appreciated?
      i. What did you appreciate about them?
   b. policies and guidelines that you have not appreciated?
      i. What did you not appreciate about them?
   c. lessons you have learned for future pandemics, or potential disasters?

(Physicians Only) Next, I want to ask specifically about the Ontario triage policy in the ICU. You most likely remember the training sessions you received on the protocol at the beginning of 2021. It's called the 'Clinical Triage Protocol for Major Surge in COVID Pandemic'.

4. How did you feel at the time when Ontario was on the edge of enacting this?
   a. What was that training session like for you?
   b. Despite the protocol not being used, did you ever apply any of that triage training to your practice during the pandemic?

(All other staff) Next, I want to ask specifically about the Ontario triage policy in the ICU. You might remember hearing or reading the protocol at the beginning of 2021. It's called the 'Clinical Triage Protocol for Major Surge in COVID Pandemic'.

5. How did you feel at the time when Ontario was on the edge of enacting this?
   a. Physicians received training on the protocol during the pandemic, do you feel as if more staff should have been included in this training?
   b. Despite the protocol never being enacted, do you feel as if this type of triage training would have been useful to you during the pandemic?

<u>Closing Questions</u>

1. What do you wish the general public knew or understood about your work during the pandemic?
2. What do you wish had been done differently on your unit throughout the pandemic?
3. What was it like for you to take part in this study?
4. What are you hoping will come from this research?
5. Is there anything else that we maybe didn't discuss today that you would like to discuss?

Appendix 2 – Administrators/Managers Interview Guide

Thank you for agreeing to participate in this study. As you know, the purpose of this study is to understand the effects of moral distress and injury on interprofessional teams of healthcare providers working in critical care and family medicine environments in Ontario and Alberta. To do this, I will ask you some open-ended questions and you are welcome to answer any way you like. I will let you know when we start recording. As you answer, I will be taking notes of things you mention that I may want to probe further. There are no right or wrong answer and you are free to refuse to answer any questions that you don't feel comfortable with. You decide how much you want to share. I would also like to remind you that everything that is said during this interview must be kept confidential. The transcripts of this interview will be de-identified for confidentiality purposes. Please also know that you can take a break, or stop the interview at any time.

Do you have any questions before we begin?

I am now going to start recording and begin the interview.

<u>General Questions</u>

1. Generally, how have you felt about your work during the pandemic?
2. Can you tell me about one of the most frustrating days you've had at work during the pandemic?
    a. Overall, what has been the most frustrating aspect(s) of your job during the pandemic?
3. Can you tell me about one of the best days you've had at work during the pandemic?
    a. Overall, what has been the most rewarding aspect(s) of your job during the pandemic?

<u>Situational Questions</u>

1. Can you tell me about a time during the pandemic where you had to make a hard decision? Maybe you had to weigh a few different options before making the decision, or all the factors were "good", but one outweighed the other? If you have a few examples you want to talk about that's okay too.
2. Can you tell me about a time where you were unable to care for a patient, or do your work in the way that you wanted to do during the pandemic? What did that look like?
3. Can you tell me about a time where you were unsure of how to care for a patient, or do your work in a way that made sense during the pandemic? What did that look like?
4. Can you tell me about a time where the hospital policy, or public health policy, conflicted with what you thought was best for you or your patients?

5. Can you tell me about a time where you couldn't help a colleague in a way that you wanted to, or would be meaningful?

<u>Questions Regarding Changes on Unit:</u>

4. What differences in your unit have you noticed since the pandemic began?
    a. With your colleagues?
    b. With how you feel about your work?
5. What metrics in your practice have changed during the pandemic? If you could give us specific numbers, that would be great.
    a. Patient roster?
    b. Appointment frequencies?
    c. Appointment codes or descriptors?
    d. In-person, phone, and/or virtual appointments?
    e. Staffing and schedule changes?
    f. Any other metrics that you believe are important to highlight?
6. Do you have any copies of different emails that were sent out to communicate policy changes, or any other documents that highlight how your practice has had to adapt during the pandemic?
7. Can you tell me about a time where a new policy, guideline, or strategy related to COVID-19 was implemented on your unit that caused a lot of change on the unit? This could include how the clinicians practiced, or morale on the unit, as examples.
8. When it comes to all of the different policies and guidelines that have been implemented by your unit, are there:
    a. policies and guidelines that you have appreciated?
    b. policies and guidelines that you have not appreciated?
    c. lessons you have learned for future pandemics, or potential disasters?

<u>Closing Questions</u>

1. What do you wish the general public knew or understood about your work during the pandemic?
2. What do you wish had been done differently on your unit throughout the pandemic?
3. What was it like for you to take part in this study?
4. What are you hoping will come from this research?
5. Is there anything else that we maybe didn't discuss today that you would like to discuss?