

# Conceptual Model for Interhospital Transferred Patients: Caring and Quality Outcomes

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**Abstract:** Phlebotomy collection is one of the most frequently experienced phenomena for patients in the hospital setting universally. Patients transferred from smaller hospitals to tertiary care hospitals are likely to experience repeat laboratory testing at the receiving facility. Unnecessary laboratory blood work can lead to several adverse events. The purpose of this hermeneutic phenomenological study was to discover and understand the lived experience of transferred patients who received repeat laboratory testing. Five essential themes were found through the process of selective thematic analysis. The Conceptual Model of Transferred Patients was designed and offers valuable insight from the patient perspective.

**Keywords:** quality improvement; repeat laboratory testing; transferred patients; interhospital transfer; patient care

## Introduction

Interhospital transfers (IHT), patients transferred between hospitals, is a common phenomenon in modern healthcare (Mueller et al., 2018). Patients who are transferred from smaller hospitals to tertiary care hospitals are exposed to risks associated with an interruption in their plan of care, including undergoing repeat phlebotomy testing on the same day, regardless of what information is communicated from the transferring hospital (Bertand et al., 2019; Mueller et al., 2018; Rogg et al., 2013;

Samal et al., 2016). In addition, when compared to smaller hospitals, tertiary care hospitals can provide specialized services, including complex medical procedures and treatments (Flegel, 2015).

Blood work is initially obtained at the transferring hospital and then repeated at the receiving hospital with or without review of medical records of laboratory test results (Samal et al., 2016). The repeated laboratory blood testing at the receiving hospital is a potentially unnecessary procedure, with increased risk to patients and healthcare costs

(Cavill, 2020). Despite the important role laboratory blood work plays, excessive phlebotomy has been seen to induce transient anxiety and pain, promote iatrogenic anemia, further causing delayed wound healing, infections, increase the length of hospital stay, and increased healthcare costs (Mulloy et al., 2018; Procop et al., 2014). Laboratory tests are also associated with a probability of resulting falsely positive, leading to additional downstream testing and procedures (Procop et al., 2014; Zhi et al., 2013).

Approximately 65 billion dollars per year is spent on clinical laboratory testing in the United States (Compton et al., 2018). Clinical laboratory tests are an essential component to providing comprehensive and thorough medical care and influence approximately 60 to 70 percent of all medical decision-making (Eaton et al., 2017; Jalbert et al., 2019). Unfortunately, unnecessary laboratory testing is prevalent in today's healthcare industry, of which 20 to 30 percent of all testing is considered repetitive and unwarranted (Compton et al., 2018; Eaton et al., 2017). In an era with increased focus on value-based healthcare spending and rising healthcare costs, redundant and wasteful laboratory testing and the effects on patient care should be a concern for all healthcare organizations (Lofthus et al., 2015). Reducing unnecessary laboratory testing would not only provide patient satisfaction but would improve quality of care, proficiency, and can be safely done without any adverse events (Eamranond et al., 2017). Given the adverse side effects and emotional distress related to multiple blood draws and limited knowledge of the transfer process, it is essential to uncover the patient experience of this phenomenon. Developing an understanding of the patients' perspectives will help to identify vulnerability during the care transition process while improving the quality and safety of patient care to improve healthcare outcomes.

### Literature Review

The following literature review includes peer-reviewed journals, research-based scholarly journal articles, research reports, and theoretical articles in the discipline of nursing, psychology, biochemistry, clinical pathology, technology, and healthcare sciences. The Boolean phrase (*fear* OR *anxiety* OR *emotional distress* OR *pain*) AND (*blood work* OR *phlebotomy* OR *needles* OR *venipuncture*) was used to yield search results regarding emotional distress and laboratory testing. The Boolean

phrase (*inappropriate testing* OR *unnecessary testing* OR *duplicate testing* OR *repeat testing*) was used to yield results regarding repeat laboratory testing. All search results were reviewed for relevancy as related to the investigational study. Furthermore, a repeat literature review was performed after the end of the study to identify any new findings.

### Emotional Distress and Laboratory Testing

The research consistently speculates that phlebotomy can cause emotional and psychological-emotional distress (Deacon & Abramowitz, 2006; Kivrak et al., 2016; McLenon & Rogers, 2019). When encountering a needle insertion, individuals can experience a range of physical and emotional reactions, including excessive sweating, nausea, irregular heart rate, fear, anxiety, elevated blood pressure, shock, dizziness, fainting, and increased sensitivity to pain (Andrews, 2011). As a result of both physical and emotional responses to laboratory blood work, individuals may avoid receiving healthcare altogether or partially by refusing procedures involving needle insertion (Andrews, 2011; Deacon & Abramowitz, 2006; Kivrak et al., 2016; McLenon & Rogers, 2019). Refusing procedures can potentially lead to detrimental health outcomes if underlying health problems continue to go unnoticed or untreated (Andrews, 2011).

Venipuncture or phlebotomy is one of the most frequently used invasive diagnostic procedures in healthcare as it plays an essential role in guiding clinical decision making (Kivrak et al., 2016; Mulloy et al., 2018). The extent of anxiety related to needles is often acknowledged in clinical practice, but the scope of this phenomenon has not been thoroughly investigated (McLenon & Rogers, 2019). A better understanding of this phenomenon may assist in developing interventions to reduce excessive phlebotomy in transferred patients and potentially relieve anxiety.

### Transferred Patients and Repeat Laboratory Testing

Patients are frequently transferred to tertiary care facilities for specialty services or a higher level of care (Bertrand et al., 2019; Mueller et al., 2018; Rogg et al., 2013). The receiving hospital can potentially repeat diagnostic testing, despite receiving information in the transfer, therefore contributing to unnecessary healthcare costs (Bertrand et al., 2019; Rogg et al., 2013). Unnecessary duplicate laboratory testing continues to persist in today's

healthcare organizations, whether interoperability or lack of interoperability, meaning information unable to be sent or received electronically, among electronic health records, is present (Hakim et al., 2017; Rogg et al., 2013; Stewart et al., 2010).

Interhospital transfers represent a critical period in the quality and coordination of patient care (Bertrand et al., 2019; Mueller et al., 2018). Discontinuity of care or an interruption in a patient's care plan can potentially expose patients to negative consequences due to incomplete hand-offs or lack of review of medical records (Bertrand et al., 2019; Mueller et al., 2018). Bertrand et al. (2019) found that out of 432 patients transferred to a tertiary care emergency department, over half had repeat laboratory tests, radiological procedures, or both. Calculated costs for redundant testing were estimated to be 20,000 Swiss Franc equals or over 20,000 United States dollars for one year, not including costs of equipment and labor services (Bertrand et al., 2019). Due to disrupted care transitions, including the inadequate transfer of medical data, patients transferred among facilities are at a higher risk of receiving duplicate testing on the same day of transfer (Bertrand et al., 2019; Rogg et al., 2013; Samal et al., 2016). Few studies have investigated the influence of duplicate testing on the patient experience, therefore, warranting the research study.

### **Theoretical Framework**

The theoretical framework that helps to deliver this phenomenon is Marilyn Ray's theory of Bureaucratic Caring. Ray's (1989) theory of Bureaucratic Caring was developed by performing a qualitative study through interviews and observations on the meaning of caring within the corporate culture of a healthcare system. Ray aimed to explore the concept of caring as it applies to different contexts within a hospital environment. The hospital setting revealed two primary contexts, including a "cultural and bureaucratic context" (p. 32). This then led to the discovery of both a substantive theory and a formal theory of caring in a corporation (Ray, 1989).

The formal theory of Bureaucratic Caring introduced by Ray (1989) was created from abstract knowledge integration and comprises both the thesis and anti-thesis of caring. The thesis of caring comprises humanism and caring elements, including the notion of caring as humanistic, social, educational, ethical, and religious/spiritual. Whereas the anti-thesis of caring, which are the elements of

bureaucracy, include economics, political, legal, and technological elements. The elements of both the thesis and anti-thesis of caring should be combined to support caring within a bureaucracy (Ray, 1989).

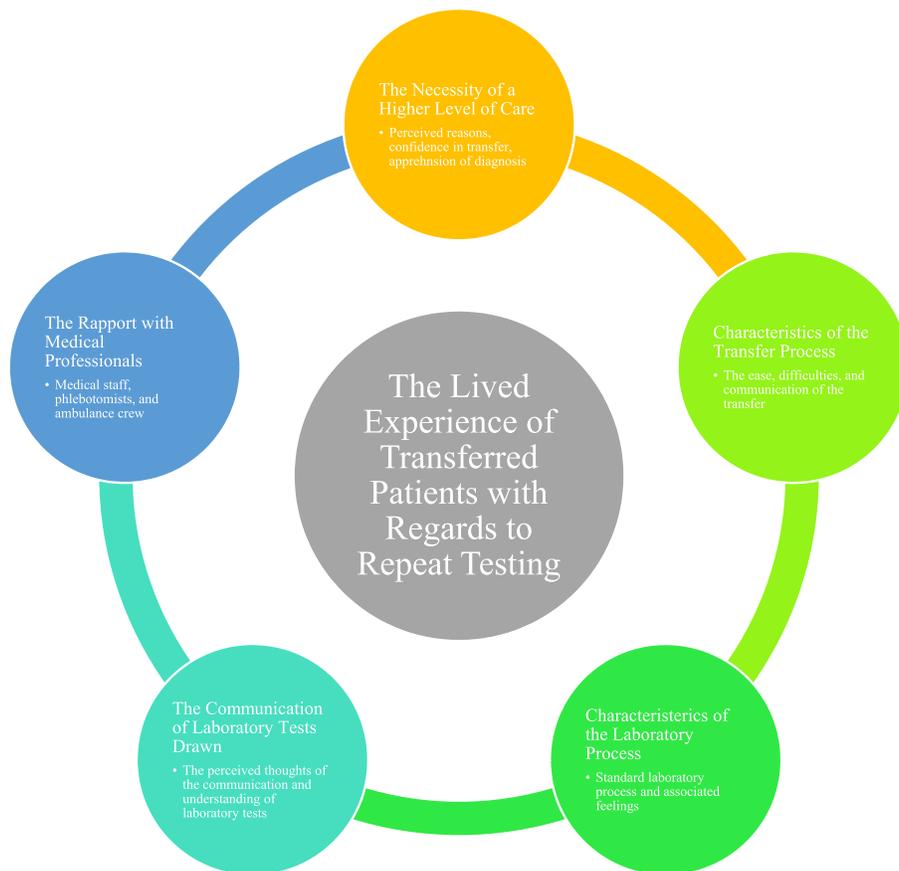
In the setting of continuously developing healthcare organizations, it is easy to see how nurses and healthcare workers become more focused on meeting the growing corporate needs of an institution, than on considering patients' individual issues (Ray, 1989; Ray & Turkel, 2012). This produces a significant obstacle to nursing's philosophical and theoretical foundations as well as its' managerial and clinical practices (Ray, 1989). Unnecessary duplicate tests can affect the quality of care provided, the nurse-patient relationship, and the financial status of the healthcare organization and patient (Brown et al., 2016; Compton et al., 2018; Eaton et al., 2017; Rogg et al., 2013). It is, therefore, crucial to the discipline of nursing to obtain better insight into the lived experience of transferred patients who receive repeat testing.

### **The Conceptual Model of Transferred Patients**

The academic dissertation by Cavill (2020) led to a conceptual model of the lived experience of transferred patients concerning with regard to repeat laboratory testing. The model reveals the essential categories that frame the lived experiences of transferred patients. The circle is nondirectional because all stages, tasks, and events contribute and impact the whole experience.

First, patients arrive at an emergency department due to an acute illness, unaware of where their care trajectory will lead them. After initial diagnostic tests, including laboratory tests drawn and potential imaging, they find out that the hospital cannot handle their acute condition. They are informed that it is necessary to transfer them to another hospital to receive greater care. Patients experience both easy and challenging aspects of the transfer process and form judgments regarding the communication between the two facilities.

After transfer and upon arrival at the receiving tertiary-care hospital, the patient repeats the process of diagnostic workup, including laboratory testing and potential imaging. There are several reasons why patients undergo repeat diagnostic workup, but in the setting of a lack of nationwide interoperability among electronic health records, medical data is generally printed out and given to medical personal. This can consequently lead to the improper placement of information and



AQ5 **Figure 1.** Conceptual model of transferred patients.

inconsistent transfer of appropriate medical data contributing to a higher risk of repeat diagnostic testing. In addition, patient perceptions of the communication between hospitals regarding laboratory tests, and their knowledge and understanding of these tests, impact their experience and how they view the care they receive. Finally, their rapport with medical professionals also influences their experiences either negatively or positively. Based on the interview and data collection process, five overarching themes and corresponding subthemes were found to represent the lived experience of patients who received repeat laboratory testing when transferred to a tertiary care hospital.

## Methods

### Study Design

A qualitative hermeneutic phenomenological study guided by van Manen's (2016) approach to human science research was used to understand the lived experience of patients who underwent repeat laboratory testing during the interhospital transfer process. van Manen's approach was chosen to help accurately depict the essence of the

phenomenon by using patients' experiences and reflections to understand the human phenomenon (Cavill, 2020).

One major characteristic associated with the transfer of patients among healthcare facilities is the duplication of unnecessary laboratory tests (Bertrand et al., 2019; Rogg et al., 2013; Stewart et al., 2010). The phenomenon of duplicate laboratory testing among patients who have been transferred between healthcare facilities is complex (Cavill, 2020). There are several reasons as to why repeat diagnostic testing occurs, including incomplete transfer of medical health information among providers, inadequate information of phlebotomy costs, fear of lawsuit, hesitation in diagnosis, lack of response on testing practices, and differing levels of clinician training (Eaton et al., 2017; Samal et al., 2016). Though the literature hypothesizes several adverse consequences of duplicate testing, there are no studies that quantitatively measure patient response. Given the multitude of factors contributing to repeat diagnostic testing and the lack of information regarding the patient response, a qualitative research approach was chosen to gain a greater perspective of those who are experiencing this phenomenon (Cavill, 2020).

## Data Collection

The data collection approach that most aligned with this hermeneutic phenomenological research study was semi-structured interviews. A total of 19 interviews were completed during this qualitative research study. Four interviews were discarded because they were fewer than 10 minutes in length and not sufficient sources of data (Cavill, 2020). The interviews were audio recorded and manually transcribed verbatim by the researcher. Interviews ranged from 17 minutes to a maximum of 43 minutes in length. All interviews took place at one receiving hospital located in Northeastern, Pennsylvania. The interviewer and participant wore level one facemasks and practiced social distancing during the interview process for safety, given the ongoing coronavirus pandemic.

The target population included male and female transferred patients to a tertiary care hospital in the Northeastern Pennsylvanian region. Random criterion sampling of transferred patients was implemented to represent the range of people who have experienced the same phenomenon (Gray et al., 2017). Participants were greater than 18 years of age. They also had to be awake, alert, and oriented in addition to a stable medical condition on the day of transfer. Participants who experienced any acute changes in their medical status, including but not limited to fever, change in mental status, unstable vital signs, fall, etc., during the transfer were excluded. Patients transferred to the intensive care unit, or the progressive care unit were also excluded.

## Ethical Considerations

Approval from the acute care hospital's Institutional Review Board was obtained, and human subject protection training in accordance with the hospital's requirements was completed. Informed consents were created following the hospital's Institutional Review Board policies. All participants fulfilled consent forms and received a copy of their signed consent form. All data has been stored on a private password-protected computer, and only the researcher has access to the data.

The subject's right to self-determination was honored during the research process. Since hospitalized patients are considered to have diminished autonomy, careful attention was made to the consent process and to prevent feelings of coercion or harm (Gray et al., 2017). Participants were assured that all questions were voluntary and could

withdraw from the interview or study at any time. Confidentiality was maintained throughout the research process.

## Data Analysis

The process of selective thematic analysis was performed to uncover the essential themes that were exemplified in the data. During the process of data collection, data immersion simultaneously occurred. This involved becoming familiar with the data by reading and rereading notes, transcripts, and recalling experiences (Gray et al., 2017). After data collection was completed, the transcripts were reexamined in their entirety several times to get a sense of the whole before breaking it up into thematic structures and codes. Statements or phrases that were essential to the phenomenon were highlighted.

The next step was to interpret the data. Interpretation of data required the researcher to determine and articulate what was meaningful in the highlighted statements or phrases (Cavill, 2020). A deconstructive stance was taken if texts failed to make sense. The list of thematic statements or phrases was combined to produce five overarching themes used to write the narrative. An audit trail was used as a strategy to document thinking processes, how connections were made, and how meanings were interpreted (Cavill, 2020).

Maintaining rigor throughout the research process was important as data can be easily misinterpreted through our own opinions, thoughts, knowledge, and experiences (Williams, 2016). Techniques such as credibility, dependability, confirmability, and transferability were used to maintain trustworthiness and rigor (Streubert & Carpenter, 2011). To ensure credibility, standard hermeneutic phenomenological qualitative procedures were maintained throughout the entire research process (Cavill, 2020). van Manen's (2016) phenomenological approach was thoroughly followed to guide the research design.

To ensure dependability, all activities that occurred during the study, including decisions on whom to interview and what to observe, were logged, showing accountable changes over time. An audit trail was established to document confirmability. Consistent use of technique was utilized to ensure unmixed description of data (Cavill, 2020). Final descriptions were prepared, so thought processes and interpretations are clear and accurate to the data.

## Results

The five essential themes and corresponding sub-themes were drawn from the analysis of 15 face-to-face interviews conducted regarding the lived experience of patients transferred to a tertiary care hospital, where they received repeat laboratory testing. The five themes found were the necessity of a higher level of care, characteristics of the transfer process, characteristics of the laboratory process, the communication about laboratory tests and results, and the rapport with medical professionals.

### The Necessity of a Higher Level of Care

The necessity of a higher level of care reflects the assumptions and underlying reasons why participants were transferred to the tertiary care hospital. Each individual has a unique history and worldview that influences their perspective of being transferred and receiving multiple laboratory tests in one day. Being transferred to a tertiary care hospital means that a patient needed a higher level of care or specialty service. Knowing that they needed this type of attention said that being transferred was necessary to them. Participants felt that the healthcare providers were doing what was in their best interests to ensure safe, quality care. For example:

And so I felt reassured and confident that, hey, you know they're doing what's in my best interest and as part of the course because I feel that's what they've always done with all my care, in the past and all that so. Ahh, I felt comfortable. (Participant 5)

Despite an overall confidence in the decision to be transferred, participants expressed how they still felt apprehensive about their current condition. Participant 10 stating "I guess it was a little nerve-racking because it meant there was another level of care that was going to happen and another level of concern umm for my health." Similarly, Participant 4 explaining "Well, I'm sort of apprehensive because I don't know what they're going to do to me today. I know I am going to have a procedure, but I'm not sure."

### The Characteristics of the Transfer Process

The second overarching theme is the characteristics of the transfer process, encompassing three subthemes: The ease of transfer, the difficulties of transfer, and the perceived communication between facilities. Most of the participants felt the transfer process was well coordinated and effortless. Participants did not have to do anything to organize or arrange the transfer itself. Participants described the characteristics of the transfer process as smooth, orderly, pleasant, and there was communication between the two facilities. However, there were also some perceived difficulties in the transfer process. A long ambulance wait time contributed to nervousness. The ambulance ride was described as bumpy and uncomfortable, and there were some concerns regarding the lack of integration between the healthcare facilities.

"The transfer went smooth, like I said, as far as I'm concerned, you're dealing with two highly professional organizations" (Participant 16).

TABLE 1. Themes and Sub-themes

Themes	Subthemes
The necessity of a higher level of care	<ul style="list-style-type: none"><li>• The perceived reasons for being transferred</li><li>• Confidence in the transfer decision</li><li>• The apprehension of diagnosis and potential procedure required</li></ul>
Characteristics of the transfer process	<ul style="list-style-type: none"><li>• The ease of the transfer process</li><li>• The difficulties of the transfer process</li><li>• The perceived communication between facilities</li></ul>
Characteristics of the laboratory testing process	<ul style="list-style-type: none"><li>• The standard laboratory testing process</li><li>• Feelings associated with laboratory testing and drawing repeat tests</li></ul>
Communication regarding laboratory tests	<ul style="list-style-type: none"><li>• Perceptions of the communication of laboratory tests and results</li><li>• Knowledge and understanding of laboratory tests</li></ul>
Rapport with medical professionals	<ul style="list-style-type: none"><li>• Medical staff</li><li>• Phlebotomists</li><li>• Ambulance crew</li></ul>

One participant mentioned how waiting for transportation affected the timing of his medications. Participant 4 explained, “the difficulties for not knowing when I was going. We’re going to transfer you. Well, when? Probably in an hour. An hour goes by, and lots of time, it interferes with my medication.”

One participant explains how his paperwork with information, including blood tests and images, was not sent during the transfer process.

Certainly, for some reason, I spoke to the Neurologist, I had those three CAT scans and blood work, but for some reason, the information did not come over here. So, you know they were kind of in the blind, so they had to do their own things too. You know they did a chest x-ray and three CAT scans of the pelvic area, the center part, and the brain. But from what the neurologist said that the results weren’t sent over. (Participant 2)

### **Characteristics of the Laboratory Process**

The third overarching theme is the laboratory process encompassing the two subthemes of the standard laboratory testing process and feelings with laboratory testing and repeated draws. All participants described laboratory testing as a standard process. The phlebotomists came into the room, explained they were there to draw blood, and adequately identified the patient. Primarily participants referred to blood work as the number of vials or tubes of blood. Participant 9 explaining “well, all I know is um, they may have taken five or six vials, and that’s all I can tell you about that.”

### **The Communication of Laboratory Tests Drawn**

The fourth overarching theme is communication related to laboratory tests and results, which includes two subthemes: The perceptions regarding the communication of laboratory tests drawn and knowledge and understanding of laboratory testing. Many participants did not receive information regarding what laboratory tests were drawn on the day of transfer or the corresponding results.

“All they did was told that they’re just taking blood is all. That’s all they said, you know. I didn’t think nothing of it, that was it” (Participant 14).

“Umm, I don’t think they necessarily communicated what they were for. They just said that they, they just took vials of blood for whatever” (Participant 10). Participant 10 further explained, “everybody told me what they were doing, umm it would probably would have been of interest to me to know more about why and what the outcome of it could be. Because I just like to know.”

Many participants did not feel it was significant to know their results and thought they wouldn’t have understood if they were aware. Participant 9 explaining “the average person doesn’t know what they would be talking about anyway.”

Few participants were able to identify relevant abnormal test results. However, several participants felt that repeat laboratory testing was necessary and viewed it as getting a second opinion from the receiving tertiary care hospital. Despite some participants finding repeat laboratory tests frustrating or annoying, they still believed that it was necessary.

Well, I can say I am not happy about all the puncture holes, but at the same time, I have to say that it’s encouraging because it only backs up what they did and by repeating them here the same results. (Participant 13)

### **Rapport with Medical Professionals**

The last overarching theme is the rapport with the medical professionals, encompassing medical staff, phlebotomists, and ambulance crew. The excellent rapport with healthcare professionals contributed to a pleasant experience during hospitalization and the transfer process. Participants felt that medical personnel were professional and communicated well.

The medical staff were approachable, nice, and compassionate. Participant 13 said “I got nothing but high praise for the people here.” While participant 17 said, “couldn’t ask for better people.”

### **Discussion**

Patients transferred among healthcare facilities may experience repeat laboratory testing, with or without a review of their paper medical records by a healthcare provider in the setting of asynchronization of care between transferring facilities. One of the themes revealed from this study is the necessity of a higher level of care, reflecting the assumptions and underlying reasons why participants were transferred to the tertiary care hospital. Many participants were transferred from rural

community hospitals that do not provide tertiary care services. Participants understood that their acute illness needed a higher level of care, prompting transfer to a hospital with specialty services; however, they could not express the meaning or the extent of their disease process. They were also not fully aware of the standard diagnostic procedures they would undergo at the receiving hospital. The participants' level of health awareness is unknown, but studies have found the level of health awareness of rural residents relatively low (Yuan et al., 2015). Therefore, this should warrant more time and educational resources to be provided to transferred patients to ensure comprehension of their care despite where they are being transferred from.

Moreover, the lack of communication regarding laboratory tests is a consistent finding found in this study. The communication of test orders and associated results were not frequently conveyed to patients. Care coordination gaps can transpire due to the lack of communication regarding ordered tests and their results. Improving communication between the healthcare provider and patient and among healthcare facilities is one intervention to ensure high quality of care (Burgener, 2017; Samal et al., 2016). Focusing on efficient and effective communication will improve clinical outcomes, patient safety, and patient experience (Burgener, 2017). To enhance communication and patient education during the transfer process, patients should be provided with discharge medical information by the interprofessional healthcare team explaining their disease, the reason for transfer, and their related medical workup. This would help provide patients with the information they could refer to understand the transfer process better.

Ethical issues will always arise in clinical practice, and therefore decisions made by nurses and the interprofessional healthcare team are ethical in context. When looking at the risks versus benefits of repeat laboratory blood work in transferred patients, it would be useful for the healthcare team to take an ethical approach to the dilemma. For example, a consequentialist approach can help provide a more precise answer by determining if repeat blood work will maximize happiness and further determine if the consequences of the action will be good or bad (Hughes & Ward, 2015). If repeat blood work does not provide any new or valuable information and can potentially contribute to adverse events while making the patient unhappy, the outcome may be harmful. Patients should benefit from the necessary treatment and

receive education to ensure they can make a fully informed decision about their treatment.

Choosing Wisely (2018) initiatives stress the importance of avoiding laboratory blood work unless medically warranted or required to diagnosis or treatment a disease. To improve care and guide practice, it would be essential for researchers to investigate the rate of repeat or unnecessary testing in transferred patients and the associated adverse events to find ways to improve overall outcomes (Eaton et al., 2017; Rogg et al., 2013; Samal et al., 2016; Stewart et al., 2010).

Additionally, if repeat laboratory testing on transfer is hypothetically deemed unnecessary, it would also be within the healthcare facility's best interest to investigate associated costs as unnecessary testing would lead to a revenue loss. Finally, from a technological standpoint, electronic health records have been seen to increase the probability of repeat testing in transferred patients due to the lack of integration nationwide (Adams et al., 2017; Hakim et al., 2017; Rogg et al., 2013; Samal et al., 2016). Therefore, technology needs to be shifted in ways to generate better outcomes, including ensuring interoperability among electronic health records nationwide.

Overall, more time should be spent educating and providing knowledge to patients. Patients should not feel they do not understand the medical terminology associated with their disease process (Cavill, 2020). Instead, the providers and nurses should provide in-depth and thorough information regarding their disease process and care plan. In addition, patients can be provided outside resources, including learning how to access their medical health records from home and referred to specialty societies to ensure further education. Finally, patients have a right to access their medical health data and should be encouraged to understand their health's distinctive aspects.

The study's findings can help form a new approach to caring in the contemporary world when guided by Marilyn Ray's (1989) theory of Bureaucratic Caring. Turkel (2007) explains organizational and cultural values influence the nursing practice and caring within an organization. Nurses' and healthcare professionals' actions must reflect moral values to ensure that the philosophy of caring remains at the forefront of the hospital (Turkel, 2007). When reflecting on the moral values of the care transition process, both the elements of the thesis of caring and the anti-thesis should be combined to improve care. This will help enhance patient health awareness, patient

experience, reduce unnecessary laboratory testing to prevent adverse events, reduce associated costs, and improve technological advancements.

### Limitations

There are several limitations to this research. First, this study was conducted during one concentrated time period, which does not reflect all the various patients who could be transferred over a longer time. Secondly, a larger sample size could also potentially yield more complaints of distress, pain, anxiety, or needle stick injuries related to repeat laboratory blood work. Finally, a larger sample size may also yield a richer, more diverse description of the experience.

The current ongoing coronavirus pandemic was an unforeseen limitation. This pandemic may have limited the amount of time providers spent in a patient's room. Therefore, less time would have been spent with the patient discussing and informing them of their care plan and reviewing tests. Also, level one face masks, which are standard procedural masks, may have affected the communication between healthcare professionals and patients. One patient admitted that he had a difficult time hearing due to muffled voices in the presence of facemasks.

### Conclusion

This study's findings are unique because they provide better insight into the transferred patients' experience to a tertiary care hospital regarding repeat laboratory testing. Prior studies have focused on laboratory blood tests as a cause of psychological distress, adverse events, repeat laboratory testing in transferred patients, and associated costs. These factors have never been integrated to understand transferred patients' whole experience regarding repeat laboratory testing. This study delineated five essential themes of the transfer process. The interprofessional healthcare team must first understand and recognize that repeat testing occurs when patients are transferred among healthcare facilities. One strategy to reinforce is becoming more mindful of this phenomenon and determine if repeat diagnostic testing is truly indicated. Eliminating unnecessary repeat laboratory blood tests could improve the quality of patient care while reducing unnecessary labor, time, and costs.

Nursing practice can improve communication of laboratory tests and results more effectively to enhance patient awareness. Enhancing awareness

could lead to further reassurance in the care that is being provided. Proactively communicating laboratory tests will also boost patient and provider interaction leading to improved patient satisfaction and quality of care. The transfer experience can be confusing to the patient, especially those with little or no medical background. The future of nursing should focus on improved communication while eliminating unnecessary practices to reduce human error and improve the quality of care.

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