Perceptions of Emergency Department Team Members on the Implementation of Clinical Decision Units

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Abstract

Objectives: CDUs have been implemented to address ED wait times. The objectives of this study were to investigate ED team members’ perceptions on the implementation of CDUs as well as the impact of CDUs on the delivery of emergency care.

Methods: A case study design and change theories found in the literature were used to investigate the implementation of CDUs in four hospitals. Semi-structured interviews with ED team members led to the creation of themes for analysis.

Results: Analysis demonstrated that patient flow, work processes and communication contribute to the type of CDU set-up, whether it is a co-located or virtual CDU. The sustainability of CDUs relies on communication and a common vision in the fulfillment of purposes and goals.

Conclusions: This study contributes to the understanding of the implementation of CDUs. The application of change frameworks assists with the identification of key success factors for implementing and sustaining change.
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<th>Description</th>
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<tr>
<td>CDU</td>
<td>Clinical Decision Unit</td>
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<tr>
<td>ED</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>GTA</td>
<td>Greater Toronto Area</td>
</tr>
<tr>
<td>ICES</td>
<td>Institute for Clinical Evaluative Sciences</td>
</tr>
<tr>
<td>IPC</td>
<td>Interprofessional Collaboration</td>
</tr>
<tr>
<td>OHA</td>
<td>Ontario Hospital Association</td>
</tr>
<tr>
<td>OMA</td>
<td>Ontario Medical Association</td>
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<tr>
<td>MOHLTC</td>
<td>Ministry of Health and Long-Term Care</td>
</tr>
<tr>
<td>P4R</td>
<td>Pay for Results</td>
</tr>
<tr>
<td>PIP</td>
<td>Process Improvement Program</td>
</tr>
<tr>
<td>PSC</td>
<td>Physician Services Committee</td>
</tr>
<tr>
<td>RAZ</td>
<td>Rapid Assessment Zone</td>
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<tr>
<td>UCA</td>
<td>Unit Coordinate Associate</td>
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Chapter 1
Introduction

Overcrowding in Ontario emergency departments (EDs) is a growing issue, calling out for attention. ED overcrowding causes inadequate access to care. It occurs as a result of a system-wide problem with respect to patients having access to “the right care at the right time in the right setting” (Bell et al., 2006, p. 13).

As Bell et al. (2006) observe, ED overcrowding blocks access to care and creates inefficient patient flow through the system. These consequences have a chain effect with other issues, such as decreased patient satisfaction, lack of quality of care, poor patient outcomes, decreased physician and nursing productivity, negative work environments, negative effects on teaching and research, increased risk of medical error and deteriorating levels of service (Bell et al.). Bell et al. claim that it is possible to address ED overcrowding and eliminate the problems that may arise from it by applying changes through the appropriate implementation of interventions. One example of such an intervention is the introduction of clinical decision units (CDUs) to EDs.

In Ontario, many organizations have implemented changes to improve ED wait times. As Bell et al. outline, implementing a CDU in an ED incorporates goals of improving access to emergency care. Achieving successful wait time reduction requires improving ED efficiency and having hospitals incorporate some form of a CDU. Hassan (2003) agrees with Bell et al. that CDUs can be a potential solution to overcrowding in EDs; vital for the success of CDUs are clear objectives and the need for constant refinement.

The implementation of CDUs in EDs assists the management of hospital systems by targeting certain patients who can take some of the pressures off ED wait times and improve discharge rates. Bell et al. (2006) also recommend that solely setting targets is not enough to achieve meaningful change, and that change must be associated with positive incentives and investments that support necessary infrastructure. Furthermore, in order to succeed with change, it is necessary to have the support and close involvement of senior management.

In January 2008, the Ontario Ministry of Health and Long-Term Care (MOHLTC) introduced a pilot study on CDUs. The objectives of CDUs are to provide care, treatment and monitoring of
patients who can be discharged within 24 hours, by addressing any medical, surgical and/or psychosocial needs (Hassan, 2003). By creating a CDU in an ED, the MOHLTC’s pilot program assists in meeting patient demand on ED and inpatient services. As well, there is a financial component for the hospitals selected to participate in the pilot study, in the form of financial incentives for the physician group. Details surrounding the financial component are provided in the latter part of this paper, in the discussion on the implementation of the CDUs and the policy context.

ED patients can be admitted into either a co-located CDU or a virtual CDU, if deemed suitable. A co-located CDU is characterized by a separate physical space dedicated to CDU patients, whereas a virtual CDU is characterized by beds within an ED designated specifically for CDU patients. A virtual CDU entails designating the status of the patient as a CDU patient; however, these patients are scattered throughout the ED. Furthermore, virtual CDUs have a maximum number of CDU designations that can occur at once. When comparing the two types of set-up for CDUs, a co-located CDU may or may not have separate designated staff for the unit. A virtual CDU will not have separate designated staff, but will have ED team members assigned to a group of ED patients that may or may not include CDU patients, and this is based on their designation as made by physicians. Further description of these two types of set-up for CDUs is provided in the latter parts of this paper.

Additionally, Hassan (2003) notes that there is a call for further research on better defining the effect CDUs can have on the overall emergency care processes. The need for further research within this area is addressed in this study by investigating the impacts of the type of CDU, whether co-located or virtual, and whether the perceptions of ED team members are altered based on the type of set-up. For those team members working in each of the types of CDU, there may be varying perceptions as to what aspects contribute to the successes of delivering efficient and effective emergency care; these factors are investigated in this study as well.
1 Research Objectives

This research study examined ED team members’ perceptions of the implementation of CDUs. More specifically, this study compared staff perceptions of the differences between virtual and co-located CDUs. It investigated the impacts of change on staff through an exploratory case study and explored their perceptions of how the intervention of a CDU affects the processes and outcomes of emergency care.

Specifically, this study aimed to accomplish the following:

- Represent ED team members’ perceptions regarding change through the implementation of a CDU
- Explore whether CDUs have affected the manner in which emergency care is delivered
- Determine whether the type of healthcare profession influences opinions and perspectives on CDUs
- Compare the two types of set-up for a CDU: virtual and co-located
- Review the literature about change theories in order to provide information on future implementation of CDUs and what needs to be in place to achieve success when undertaking changes

The main objective of this study was to better understand the contribution of CDUs to emergency care. Research also addressed the lack of qualitative methods found in the literature on CDUs. ED team members’ views on their CDUs and the process of introducing a new intervention can provide important insights into implementing and achieving successful change.
Chapter 2
Background

The majority of research conducted on CDUs has revolved around the description of these units, their purpose and how effective they are at reducing emergency wait times. As well, within the literature, the term CDU is often used interchangeably with the term observation unit.

Throughout the literature, many studies evaluate CDUs; for example, a study by Roberts, Baird, Kerr and O’Reilly (2010) considered CDUs that were designed to apply alternatives to emergency hospitalization. Roberts et al. conducted a retrospective cohort study in a United Kingdom (UK) National Health Service (NHS) acute-care hospital. They described how CDUs are used as an alternative and reflect a model of care designed to strengthen the gatekeeper role of EDs. CDUs have been linked to statistically and clinically significant reductions in hospital admissions, and this study by Roberts et al. established the effects of a CDU on the combination of hospital admission rates and unplanned revisits to the ED. Findings indicated that CDUs enforce a gatekeeper role by addressing issues faced by hospital admission rates. The study results showed that CDUs are likely to impact hospital admission numbers through identifying a greater proportion of ED patients who are more appropriate for alternatives to admission.

The results of the Roberts et al. (2010) study seem plausible and reasonable: by targeting a specific group of patients requiring emergency care services, CDUs can ease the pressure on an ED. By identifying a particular group of ED patients who require care and can be discharged within 24 hours, CDUs can divert these types of pressures away from an ED and, ultimately, affect hospital admission rates.

Another study also focused on the reduction of hospital admissions from observation units (Martinez, Reilly, Evans & Roberts, 2001). This study examined observation units where chest pain accounted for a majority of patients’ presenting clinical syndromes. Patients with diverse clinical presentations could now be addressed through the observation unit, thereby resulting in a reduction in inpatient admissions. According to Martinez et al., observation units were created explicitly to reduce inpatient admissions in a busy hospital, and to reduce hospital admissions from the ED for adult patients requiring inpatient care who might be eligible for discharge after one day or less.
These two studies demonstrated the ability of CDUs to reduce hospital admissions, and they shed light on the enforcement of the goals and purposes of providing care and treatment within a 24-hour period. Designating patients to a CDU resulted in a decrease in hospital admissions and created the ability to look after more patients waiting for care. These two studies are strongly supportive of Hassan’s (2003) and Bell et al.’s (2006) recommendations for implementing CDUs to achieve wait time reductions in EDs.

There is limited existing literature that provides a qualitative examination of CDUs, and the perceptions of those affected by the introduction of these units have yet to be explored. There is limited exploration around the implementation process for CDUs and how the implementation contributes to the varying perspectives about the CDUs. For this reason, this study sought to add to the literature on CDUs through a qualitative approach to examine the perceptions of ED team members on the implementation of CDUs. Further information regarding CDUs and their description will be provided in the latter parts of this paper.

2 Related Work

2.1 Emergency Departments

“Hospitals are complex organisations where inefficiency in one area can have a significant impact on another” (Hassan, 2003, p.123). By providing efficient, around-the-clock care, an ED is an integral part of a hospital.

Asplin et al. (2003) theorize that overcrowding in EDs depends on the input, throughput and output of patient flow, noting as well the importance of the throughput of an ED and its relationship to overcrowding. The throughput of an ED consists of the internal care processes that greatly impact the length of stay and resource use within an ED, and these internal processes include triage, room placement, initial provider evaluation, diagnostic testing and ED treatment.

When describing EDs that have incorporated a CDU, Hassan explains how CDUs within EDs have created a beneficial impact for certain patient groups, for example, those who are there for chest pain evaluations. This is because chest pain is a common condition that can be benign or represent a serious illness. Incorrect evaluation of chest pain can lead to potentially disastrous consequences from inappropriate discharges (Hassan, 2003, p.124). The introduction of CDUs
that apply the use of diagnostic care pathways demonstrates that CDUs can be more cost effective than referring patients that present low- to moderate-risk chest pain to an in-hospital bed. Furthermore, three randomized studies conducted in the United States all described lower costs associated with the use of CDUs in EDs (Farkouh et al., 1998; Gomez, Jeffrey, Karagounis, Muhlestein & Mooers, 1996; Roberts et al., 1997).

Understanding the model of an ED is vital for the existence of CDUs. As mentioned earlier, the ED is described as an input–throughput–output model that applies concepts of operations management to patient flow within the acute care system (Asplin et al., 2003). The following section examines the three components of an ED model.

2.1.1 Input

Asplin et al. (2003) explain the input component of the ED model, stating that the input of an ED consists of three categories of care delivered: emergency care, unscheduled care, and safety net care. Emergency care in an ED includes patients referred by other providers and provides treatment to seriously ill and injured patients. Seeing that EDs are known as referral sites, this speaks to the purposes of a CDU, where the type of ED patients referred to a CDU is based on the onset of symptoms being presented. Many patients who are referred to an ED present with symptoms that determine the kind of necessary care provided to them, and having a CDU creates organization by pinpointing and delivering care to patients with certain clinical characteristics that are deemed appropriate for a CDU.

Due to frequently limited access in other parts of the acute care system, unscheduled urgent care is a continuous demand that EDs face. The availability of after-hours care provided by an ED creates a convenient solution for patients who have conflicts with work, school and family responsibilities, thereby increasing the number of users for unscheduled ED care. Part of these unscheduled care visits is addressed by CDUs, which ease patient flow by unburdening EDs and hospital bed use through attending to patients with symptoms that allow discharge within 24 hours.

The ED is also referred to as a safety net of care, which arises out of the notion that patients are faced with barriers (e.g., lack of a family physician) in accessing unscheduled care (Asplin et al., 2003). The ED acts as a safety net also for those with family physicians, because sometimes
other medical care options are exhausted, leaving the ED as the only option where one can seek care. The group of patients who consider the ED as a safety net of care due to the lack of a family physician would, in most cases, receive care and be discharged within 24 hours. Therefore, introducing an alternative such as CDUs for medical care within the ED can help ease the pressures exerted by patients who consider the ED as a safety net.

2.1.2 Throughput

In describing the throughput of an ED, Asplin et al. (2003) identify two primary phases. The first is triage, room placement and initial provider evaluation, and the second, diagnostic testing and ED treatment. There are many different ways to organize the first phase of throughput in an ED; in one method, the CDU would target particular patients during the initial stages of an ED visit.

The second throughput phase of diagnostic testing and ED treatment is affected by several factors. These include team cohesiveness, the physical layout of the ED, staffing ratios of nurses and physicians, the efficiency and use of diagnostic testing such as labs and radiology, the accessibility of medical information, the quality of documentation and communications systems and the availability of timely specialty consultation (Asplin et al., 2003). These factors that affect the throughput stage highlight several important factors that could improve efficiency in an ED, and each factor was examined and reported on in this study when determining CDUs’ impact on EDs’ throughput.

2.1.3 Output

Issues that arise with discharge revolve around the time spent by the ED in arranging appropriate follow-up procedures, and result in undermining the efficiency of care and prolonging ED length of stay (Asplin et al., 2003). With the implementation of CDUs, the aim is for ED staff to work together to ensure that appropriate follow-up procedures are outlined and to maintain the patient’s ED length of stay at a minimum, by efficiently delivering care. The cohesiveness of staff members on patient follow-up procedures relies heavily on the level and kind of communication amongst staff. The following are healthcare providers who contribute to discharge planning: Community Care Access Centre (CCAC) case managers, geriatric emergency management (GEM) nurses, social workers and triage nurses.
In relation to the CDU, the above healthcare providers are key players who assist with the discharge planning process, and were frequently referred to by ED team members throughout the interviews about their roles and relationship to the CDU. CCAC case managers are often referred to when it comes to discharging patients who require proper arrangements for either home care or placement within long-term care homes. GEM nurses are often consulted regarding elderly patients to ensure that the appropriate types of care paths are properly mapped out for patients. Social workers get involved when other services are required to provide further care (e.g., child services) for a patient. Lastly, triage nurses assist with paperwork and caring for patients until they exit the CDU, whether they are being admitted to the hospital or discharged.

2.2 Clinical Decision Units

According to Mace (2004), the overarching goal of a CDU is to alleviate pressures on the ED by managing stable and low-risk patients such as chest pain patients. Mace goes on to describe how CDUs improve ED flow, allow for the implementation of clinical protocols/pathways, and allow for better use of services at a lower cost. Bell et al. (2006) explain that the result achieved by a CDU is twofold: it can improve the functioning and throughput of an ED, and it can decrease admission rates to the hospital. As well, there are many factors that contribute to the implementation of a CDU. Factors that determine whether it is appropriate to establish a CDU include ED volume, availability of ancillary services (e.g., diagnostic services) and patient population being served (Bell et al., 2006).

Several essential factors contribute to the success of a CDU: a clear vision shared amongst all team members, as well as a “tight structural organisation, processes of delivery and well-defined outcome measures to evaluate performance” (Hassan, 2003, p. 124). Hassan also notes that the implementation of a CDU in an ED requires a clear strategy, operational policies and designated clinical care pathways for individual groups of patients.

The purpose of critical care pathways is to optimize production processes, minimize variability in care delivery and improve the quality of production, resulting in cost savings. Fulmer, Foreman and Walker (2001) describe the benefits of critical care pathways. Critical care pathways are used to guide clinical practice and promote quality care, and may differ from ED to ED; this may be due to a hospital’s ability and capacity to provide care, the various types of leadership style and the patient demographics within a community. Critical care pathways
include the type and frequency of monitoring, treatments, diets, medications, activity, and patient and family education. By having a clear vision, strategy and operational policies, critical care pathways provide staff members with a common understanding of the CDU objectives and purposes.

Furthermore, CDUs can be set up as co-located or virtual units. According to Brillman et al. (1995), the size of a CDU depends on a variety of factors, including the goals and objectives set out for the unit, the hospital and ED capability, the size of the ED and the ED’s census such as the length of stay and admission rate data. The number of beds for a CDU usually ranges from four to 20, or approximately 10% to 40% of the ED’s bed capacity.

### 2.2.1 Co-located CDUs

Runy (2006) describes the purposes of co-located CDUs and their benefits. Co-located CDUs take three separate physical forms: a CDU within the ED, a CDU adjacent to the ED and a separate physical CDU that is located away from the ED. A CDU located within the ED has a certain number of designated beds that are set aside for observation care. Those responsible for overseeing patient care for these beds are usually emergency nurses or dedicated nurses in the unit. The emergency physician on shift oversees the care of the CDU patients, and specialists are called in for consultation when necessary. The advantages of having a CDU within the ED are that it allows for 24-hour physician coverage, patients can stay in one place without being constantly moved and staff pay more attention to the rules and purposes of observational care if patients are more visible.

The placement of a CDU adjacent to the ED is the most common set-up. It allows for easy patient transfers to the CDU, freeing up needed space in the ED, and allowing for oversight by ED physicians. Just like the set-up of a CDU within an ED, patients are looked after by dedicated nurses or the nurses from the ED. As well, emergency physicians provide care to CDU patients, and they can also work in consultation with a specialist when necessary. One difference between having a CDU adjacent to the ED and one that is within the ED is that other physician groups, such as internists or hospitalists, can also contribute to the care of CDU patients.

Lastly, Runy (2006) explains the issues and approaches associated with space constraints. When there is limited space, the set-up of a separate, physical CDU can be located on patient floors
away from the ED. Generally, there are dedicated CDU nurses who would care for these patients; however, floor or unit nurses may also manage their care. Care may be provided to CDU patients by other physician groups, internists or hospitalists. An example of a benefit of this type of CDU set-up is when treating patients with a specific symptom such as chest pain. If the CDU is set up and located near the cardiology department, then cardiologists can be easily accessible and can contribute to the effectiveness and efficiency of care provided. It is hoped that this set-up can help expedite the care if the patient requires more advanced services; however, this all depends on the specific location of the CDU and the types of CDU patients who may require specialized care.

2.2.2 Virtual CDUs

Alternatively, CDUs can be virtual. Runy (2006) explains how this type of set-up allows hospitals with space constraints to have a CDU without creating a separate physical location for it. Patients are given the designation of CDU patient after assessment by a physician, and, depending on their diagnosis, they are placed anywhere in the ED, or remain in the same ED stretcher they were in when first evaluated. CDU patients can be placed in any available ED bed, and their care is usually managed by ED nurses who follow CDU care protocols.

The description of a virtual CDU is quite brief and straightforward. A co-located CDU has a designated physical space for CDU patients, whereas a virtual CDU does not. Rather, in a virtual CDU, patients are scattered throughout the ED and are labelled CDU patients. For example, in a virtual CDU, a patient can be located in any of the rooms in the ED, but in a co-located CDU, patients can be located only in the CDU itself.

2.2.3 Advantages of a CDU

Drawing on Brillman et al. (1995), this section discusses the benefits of having a CDU in an ED. CDUs allow additional time for those patients who require extensive ED care before discharge. They can also broaden emergency physicians’ scope of practice, reduce the workload for ED staff, improve patient flow and provide longer periods of time to observe the effects of ED treatments and changes in patients’ health status. As well, CDUs can add to the educational experience for medical students and residents by providing opportunities that are not readily available in traditional outpatient settings. CDUs can reduce hospitalization for ED patients,
reduce healthcare costs for some patients while providing a more comfortable area for patient care and can reduce physicians’ liability risks by allowing more time to make difficult disposition decisions and creating more certainty in diagnosis. CDUs also avoid hospital admissions by allowing for prolonged treatment of patients with known diagnoses.

2.2.4 Disadvantages of a CDU

Brillman et al. (1995) also opine on the disadvantages associated with CDUs. These shortcomings typically arise when a CDU is not or cannot be operated properly, or if there is a lack of clearly defined admission criteria, policies and procedures. Individuals in authoritative positions can also interrupt and prolong the decision-making process and disposition of patients. Furthermore, if a CDU is improperly regulated, it may eventually become a “dumping area” for patients who should have been discharged or admitted to the hospital. If there is a human resources shortage, ED staff can become overloaded; and, if CDUs are carelessly organized and equipped, they will become an unacceptable place for patients because they are vulnerable to commotion and lack of privacy. Lastly, if emergency physicians do not follow sign-out procedures as they change from one shift to the next, there may be a lack of continuity of care, and patients may suffer.

2.3 Policy Context

2.3.1 CDU Pilot Study

Being aware of the challenges Ontario hospitals face due to overcrowding, and the ability of CDUs to address wait times and overcrowding within EDs, the decision to implement and pilot CDUs in Ontario was initiated by the MOHLTC. This decision was made to determine whether CDUs are as effective as the published evidence indicated. The pilot study offered room for decision-making concerning the existence of CDUs in delivering future emergency care.

The CDU pilot study was initiated by the MOHLTC (Salkeld et al., 2011), and the Institute for Clinical Evaluative Sciences (ICES) was asked to conduct a study evaluating the effectiveness of the program through a descriptive and observational evaluation framework. Of the 24 Ontario hospitals that applied to be part of the pilot program, seven were selected by the MOHLTC to serve as pilot sites that would operate for a 12-month period beginning in fall 2008. The funding for the CDU pilot study was determined in 2004, and the MOHLTC provided only physician
funding to the pilot sites. Further description of the funding agreement is given in the following section.

Even though the hospitals selected as pilot sites were to operate for a 12-month period, as of the date of completion of this thesis they continued to operate with CDUs and were still receiving funding for them. These hospitals were originally designated as pilot sites; however, they are no longer considered pilot sites because the evaluation on the CDU pilot project ended in July 2009. It should be noted that, throughout this study, the hospitals that were part of the pilot project are referred to as pilot sites. This is done in order to draw a distinction between these hospitals and one that was included in this study but was not part of the MOHLTC-funded pilot project.

Each of the seven Ontario hospitals participating in the pilot project had a CDU within or adjacent to its ED, and these CDUs were set up in either a virtual or co-located manner. Generally speaking, the factors that contribute to the decision to create a co-located CDU as opposed to a virtual CDU, and vice versa, are availability of space, staffing and the types of patients to be cared for in the CDU (Runy, 2006).

It should also be noted that the pilot sites involved in the study all had various clinical care pathways for their CDUs, and this enabled exploration of leadership styles, patient flow and team processes in dealing with various patient groups. The hospitals in this study had different clinical care pathways, tailored to their ED patient demographics and were compatible with the hospitals’ capabilities and resources. Those that determined the types of clinical pathways put in place for the CDU were mainly physicians, as well as other members of the ED team such as managers, clinical educators, directors and chiefs of emergency.

The CDU entrance process employed in this pilot project employed criteria for designating ED patients as CDU patients. Figure 1 displays the process for being assigned to a CDU after being assessed by ED staff. Once patients entered an ED, they checked in and registered with a triage nurse. After admittance to the ED and consultation with a physician, patients were then designated as CDU patients, usually through a referral from the ED physician. In this study, Hospital #4 was the exception: nurses could also designate patients to the CDU.
Once patients were classified as CDU patients, there were a series of stages – CDU processes – to go through prior to discharge. As mentioned earlier, one of the goals of a CDU is to admit patients who can be discharged within 24 hours. Discharge may entail being discharged home or to nursing or residential care, or, for patients who require immediate attention and hospital admittance, removal of CDU patient classification.

2.3.2 Intentions behind the Implementation of CDUs

The implementation of CDUs allows hospitals to achieve their ED wait times, and hospitals appreciate and embrace any assistance with the funding in achieving positive results with ED wait times. As previously mentioned, the sites selected as pilot sites all received funding for physician services in the CDU. The physician-funding component came through the Ontario Medical Association (OMA) Ministry Agreement.

The agreement between the MOHLTC and the OMA states that there is a mutual interest on behalf of both parties to investigate the use of CDUs to manage the rising demand on hospitals by decreasing unnecessary hospital admissions (OMA & MOHLTC, 2004). Indicated in the
agreement, for the purpose of piloting and evaluating the CDUs, on January 1, 2008, $3 million was invested for physician services (OMA & MOHLTC). Other components of this agreement included that, in specific circumstances, CDUs would be deemed appropriate with defined criteria for admission; exemptions would be made for ED alternate funding agreement (EDAF) contracts, to allow physicians under the EDAFA to participate in CDU pilots; and EDs with a minimum of 35,000 visits per year would become eligible for consideration for pilot funding (OMA & MOHLTC). Lastly, the agreement incorporates an evaluation of the pilots in order to identify potential cost savings with a view to reinvest an appropriate amount (OMA & MOHLTC).

Physician groups participating in the pilot study determined how the money received through the implementation of a CDU would be distributed. They could also decide to operate on a fee-for-service basis, a session-to-session basis or any other method to distribute the funds.

It should be noted that other hospitals currently have CDUs within their EDs; however, because they were not part of the pilot project, they are not subject to the terms of the OMA agreement for physician reimbursement. These hospitals receive funds through other alternatives, such as the Pay for Results (P4R) program.

The P4R program is a strategy by the MOHLTC to help hospitals achieve specific ED wait time reduction targets (Local Health Integration Network [LHIN], 2011). It supports hospitals at the end of each quarter for each patient treated within target above the previous year’s baseline data (LHIN, 2011). The targets for ED wait times are set by the MOHLTC, and each LHIN is responsible for monitoring each hospital’s progress. A 10% improvement each year should be achieved by the hospitals and witnessed by their corresponding LHIN. Here is an example to demonstrate how the P4R program works for hospitals: if Hospital X saw 100 patients within target during the first quarter of 2009, but, in 2010, it managed to see 110 patients (10 more patients within target), Hospital X would receive a per-patient investment for each of the 10 additional patients it saw within target (LHIN). The funds received by the P4R program can be used to increase numbers in staffing, or toward any other resources required for the ED.

The study conducted by ICES (2009) on the CDU pilot sites examined whether the CDUs are actually achieving efficient emergency care, and whether CDUs improve ED wait times. In order to avoid any overlap between the study conducted by ICES and this thesis research, the focus
here is on the differences between virtual CDUs and co-located CDUs, and on exploring various healthcare professionals’ perspectives on the implementation of the CDUs.

2.3.3 MOHLTC’s Wait Time Strategy

The MOHLTC’s (2009a) wait time strategy is an initiative that sets clear targets for reducing the total amount of time patients spend in EDs. Incorporated into this initiative is the public posting of data on local EDs online. According to the MOHLTC (2009a), the total time spent in an ED starts when a patient registers, and continues while the patient receives treatment and until the patient is either discharged or admitted to a hospital bed.

In order to attain these targets, the MOHLTC proposed a three-pronged strategy: 1. Providing citizens of Ontario with appropriate alternatives to ED care; this means providing more options where individuals can seek care, such as local family health teams and nurse practitioners, and making it easier for Ontarians to access information about urgent care centres, walk-in clinics and after-hours clinics; 2. Increasing the capacity of and improving processes within the EDs; this involves programs such as the Hospital P4R program, where hospitals with high ED volumes receive financial incentives to lower their times; and 3. Speeding patient flow from EDs, ensuring that acute care beds are available for those who need them, and discharging more swiftly patients occupying hospital beds who are better suited to alternative levels of care such as home care or long-term care (MOHLTC, 2009a). Ontario is currently working on these objectives, and one method of addressing them is implementing initiatives such as CDUs in hopes of providing better emergency care.

2.3.4 Financial Components

As previously mentioned, the MOHLTC offers financial incentives to hospitals to decrease their ED wait times, and one such program is the P4R program (LHIN, 2011). The MOHLTC outlines how this program rewards hospitals for meeting specific ED wait time reduction targets, and it provides hospitals with opportunities and funding to meet the targets set out. The money hospitals receive from the P4R program is used in a variety of ways, such as to increase staffing as part of ED teams, reorganize how these teams interact in order to encourage more collaboration, or renovate the ED to improve patient flow.
During the 2009/10 fiscal year, hospitals that were faced with significant ED challenges received $55 million to help improve ED access and reduce wait times (MOHLTC, 2009c). Additionally, Ontario is investing $7.5 million (MOHLTC, 2009c) toward process improvement programs (PIP), in order to assist hospitals to better manage patient access in EDs. According to the MOHLTC (2009c), PIP offers specialized coaching teams and toolkits to help hospitals quickly identify ways they can improve the operation of their ED. Additionally, the PIP initiative allows hospitals to focus on issues around shortening the amount of time patients spend waiting in the ED, finding quicker ways to admit patients to a hospital bed and reducing the delays from ambulance offloads.

2.4 Change and Healthcare

Bell et al. (2006) make several recommendations for changes aimed at improving access to emergency care. They also emphasize the importance of collaborative and cooperative action in attaining success from the implementation of those changes. In order to acquire improved access to emergency care and patient flow, it is necessary to have collaboration between government and healthcare providers. According to Bell et al., having a clear and timely plan for implementing the government and stakeholder recommendations allows change to occur immediately. The following section discusses various theories of change and their potential applications.

2.4.1 Types of Change

Iles and Sutherland (2001) reviewed a variety of management practices associated with change, and they provide a helpful synthesis of the literature on change management regarding the evidence available for different approaches to change. Their review was initiated for policymakers, managers, researchers and professionals for the UK’s NHS that were involved with change management issues; however, the information provided in the review is useful for anyone interested in change management.

In the review, Iles and Sutherland (2001) caution that there are problems associated with analyzing change programs. These problems include the multidimensionality of change. In this regard, measuring the effectiveness of any change intervention must cover all these dimensions; otherwise, it will depict an incomplete picture. Another problem is with the analysis revolving
around the introduction of the change program and the path it takes from being implemented to being evaluated; this entails the creation of a sensitive set of measures to identify the differences between the outcomes of the different stages. Lastly, there are different people involved with the change, entailing various perceptions on change and measuring impacts from change quite differently. Therefore, it is advisable to consider whose opinions should be used when it comes to analyzing change programs.

Throughout the change management literature, different terminology used to describe the types of changes organizations experience. Change has been described by Iles and Sutherland (2001) as *planned* or *emergent*, *episodic* or *continuous*. It can also be described in relation to its extent and scope by being *developmental*, *transitional* and *transformational*. Planned change is where the change is deliberate and creates conscious reasoning and actions, whereas emergent change is when change occurs in a spontaneous or unplanned manner.

The implementation of CDUs at the hospitals involved in this study is most representative of planned change, which involved significant thought and consideration. The planning revolved around guidelines put in place in order to have a CDU in the ED, whether that was applying to be part of the CDU pilot project or the P4R program on behalf of the MOHLTC.

Another type of change described by Iles and Sutherland (2001) is episodic change. Episodic change replaces one strategy or program with another, and it is considered to be second-order change: radical, infrequent, intentional and discontinuous. On the other hand, continuous change is known to be first order change and incremental, where people are continuously adapting ideas from different sources.

In relation to the implementation of CDUs, change is more likely to be continuous. Those exposed to the implementation of a CDU experience the change by learning about things as they go, and this requires refinement as well as evolution with regard to how the change is being integrated into work practices.

Finally, in the literature, change is also described as either developmental, transitional or transformational. Ackerman (1997) makes distinctions among these three types. As time passes by in developmental change, the existing situation improves and performance increases. Transitional change involves the implementation of a known new state where, over a controlled
period of time, the transition state is being managed. Lastly, transformational change entails having the emergence of a new state out of the death of an old state; it is a type of change that is unknown until it takes shape, and its time period is not easily controlled.

The implementation of a CDU in an ED to address overcrowding seems to be representative of transitional change, according to which the CDU is a new way of organizing work processes. Additionally, outcomes from transitional change can provide uncertainty and, in this examination of the pilot study sites, the CDU-related outcomes are unknown.

2.4.2 Theories of Change

Within the change management literature, there are many models and theories on how change can be successfully implemented into organizations. Furthermore, each of the models found in the change management literature builds on the others, either adding more factors that contribute to the success of implementing change, or using different words to represent these factors. However, the many similarities within these models demonstrate the importance of the fundamental basics necessary to carry out successful change within an organization.

The following section speaks to the many models found in the change management literature and the overlap amongst those models. Similarities rest upon the strategy or what is referred to in other models as the purpose, why organizations want to change, structure, nature of work or goals. Models have components of rewards, promotion criteria or incentives, and people factors such as staff or relationships between individuals that contribute to the success of change. Other factors in change models include new technologies or helpful mechanisms, skills or information systems, and culture or shared values. As well, the incorporation of leadership, key people leading change and managerial pressures are items that can be found in models to help others implement successful change.

Nadler and Tushman (1989) identify various types of organizational change and the differences between these changes. When thinking about change and organizations, Nadler and Tushman developed a model that consists of a strategy and the organization. The strategy represents the input toward the organization to address environmental opportunities and threats that the organization’s environment, resources and history create. The organization in the change model represents the mechanism used to convert the strategy into output. The organization is made up
of four core components: work, people, formal structure and processes, and informal structure and processes. Effectiveness is achieved when the organization’s strategy aligns with environmental conditions, and when internal consistency with the four core components of an organization has been achieved.

Champagne (2002) summarizes the many change theories described in the literature, and discusses many important factors for the implementation of change in organizations. He describes change as something quite complex and unpredictable, and argues for the importance of incorporating a broad range of agents and pilots of change in order to achieve variation over time in both roles and involvement.

According to Champagne’s (2002) synthesis of literature on change theories, and similar to Nadler and Tushman’s (1989) organizational change model of strategy and organization, there are three major phases in which change occurs within organizations: the process of the decision to change, the implementation of the decision in the short and long term and, possibly, the abandonment with or without replacement of the change. Planned changes can fail at any time during the first two major phases, making it necessary to discuss and explore the differences between decision failures and implementation failures.

Champagne (2002) describes decision failures as occurring when assessments for change do not actually create a decision to make a change or adopt a practice that would occur from the change. Decisions fail when the decision-making process stops without a choice being made. Change also fails during the implementation stage, when the decision is made but the change is not implemented or has been misjudged. Failure of intervention theory or planning is often used to describe Canada’s healthcare organizations and their experiences with failure in implementing change. The failure of intervention theory or planning occurs when “effective implementation does not produce the expected outcomes” (Champagne, p.5).

Champagne (2002) identifies many models and theories of change and the hierarchical, rational model is one example where change is effective if well-planned processes are followed. The implementation of change in the rational model relies predominantly on the earlier stages in the planning process. Key roles are assigned to managers in positions of authority, who then decide on changes and use hierarchical control to play a supervisory role throughout the process of change.
The organizational development (Elmore, 1978) approach is another perspective on change, where the promotion of values of participation and consensus by managers leads to the success of implementing change. Managers play a crucial role in the communication process of explaining the change, guiding those affected by the change, and making adjustments with reward and performance systems. With managers’ efforts on promoting the implementation of change, it is hoped to avoid any negative reactions, ambiguities and confusion that may occur in those affected by the change.

The psychological model (Coch & French, 1947) achieves successful implementation of change by examining individual reactions to change, and whether the natural resistance by individuals affected by change can be overcome. People’s beliefs and attitudes have an impact on their inclination toward accepting planned change within their organization.

The structural model (Lawrence & Lorsch, 1967) attains the success of implementing change from characteristics influenced by organizational attributes such as size, the organizational context such as environmental uncertainty, and managerial attributes such as the attention to innovation.

Another perspective on change is the political model, which regards the “adoption and implementation of change as organizational power games that result in adjustment to internal and external pressures” (Champagne, 2002, p.14). Continuous negotiation occurs between various stakeholders’ interests throughout the change process, and attempts to satisfy the personal interests of influential actors creates problems during the implementation of change process.

The models described above are just a few of the perspectives on change that can be found in the literature and relate to the change experienced by organizations implementing CDUs. Overall, Champagne (2002) notes how the success of implementing change requires learning and collective leadership processes. Kerr (1995) discusses how incentive systems can impact the availability of resources and become an important factor to the dynamics of change. The process of the CDU implementation at the hospitals in this study is investigated and discussed, and the results and opinions about the implementation process are explored. The experiences with the CDU implementation also include a financial component, where it has already been established throughout the literature that this impact may alter the way change is accepted. The impact of the
financial incentive on the implementation of CDUs is further explored in the latter parts of this paper.

Incorporating work from organizational theorists such as Nadler & Tushman (1989) and Kotter (1996), Golden (2006) developed the star model, which summarizes change concepts. Golden’s star model is a synthesis of what one thinks about change and what can be expected by healthcare organizations when experiencing change. The points on the star model are factors that contribute to an organization and require attention when implementing change. These points are also representative of many key issues addressed in change theory in order to achieve successful implementation of change.

According to Drucker (1993), healthcare organizations are unique because they are one of the most complex forms of human organization we have ever attempted to manage. Contributing to the complexity of healthcare organizations are factors such as the multidisciplinarity of professions, and stakeholders such as patients and government, who can all have various interests, perspectives and time horizons (Golden, 2006). Due to the complexity surrounding the management of change in a healthcare setting, Golden presents four stages for change leaders, and these stages describe the processes used to implement change within their organization. Golden’s four stages were derived from works on change management, such as those described above by Nadler and Tushman (1989); the four stages are: (1) determine the desired end state, (2) assess the readiness for change, (3) broaden support and organizational redesign and (4) reinforce and sustain change.

The star model used by Golden (2006) represents goals and tasks, structure, people and human resource management, rewards, information and decision support, and culture and values (see Figure 2). It also has five important ideas engrained within these points or factors for implementing change.
Figure 2. Star Model

According to the star model, organizational redesign plays a role when resistance to change happens because individuals do not see the benefit of changing or the successful outcome from changing. The process of change is situational and depends on many things; that is why inquiries regarding the right reward system, the right human resource mix, or the right things necessary to achieve change should be avoided. The third idea embedded in the star model is that the need to alter other systems in order to regain alignment is created by the notion of change to any one of the points on the star. The fourth idea ingrained in the star model is that the culture and values in a system can only be changed indirectly, and only through the decisions made about the points on the star. This is the case especially for healthcare leaders who do not have any available levers to pull in order to have a direct influence on the system’s culture and values. Lastly, the fifth idea addresses the role of culture and values in either impeding or supporting change.

The star model and its related steps for implementing change are concepts that have been explained in the works of Nadler and Tushman (1989), along with many other researchers (Glabraith, 2001; Lawler, 1996; Kotter, 1996; Tushman & O’Reilly, 1997; Shortell, 2006; and Shamian-Ellen & Leatt, 2002) on organizational change. It will be seen that the concepts and principles are commonalities found in change management literature, where the foundation of implementing change rests on the three basic acts of planning, initiating or executing and evaluating change within organizations. This foundation will later be applied to the implementation of CDUs at the hospitals that participated in this study, making distinctions between the similarities and differences faced by the hospitals when change has been introduced.
2.4.3 Barriers to Change

Ferlie et al. (2005) describe how strong boundaries between multiprofessional groups slow down the spread of an innovation. Complex organizations such as those in healthcare are made up of many different professional groups, where each group “may operate in a distinct community of practice” (Ferlie et al., p.117). The development of social and cognitive boundaries between different professions is said to slow down the spread of innovations.

Prior research conducted by Ferlie et al. (2005) on implementing change in multidisciplinary organizations demonstrated that there are distinctive features of change in the healthcare sector. In the healthcare sector, professionals have the ability to block change; therefore, engagement in the change process is necessary for its success. Another distinctive characteristic of the healthcare sector that Ferlie et al. describe is the role of collective leadership rather than individual leadership in change.

According to Ferlie et al. (2005), a *boundary* is “a relatively impermeable frontier between different professional groups that inhibits the spread of new work practices.” Their research examined the creation of social and cognitive boundaries as a part of a profession in relation to other professions, and how these boundaries slow down the process of spreading innovations within organizations. Furthermore, their study discovered that these barriers are more problematic when a variety of professions are co-located within multiprofessional organizations.

Ferlie et al. found that there are strong social boundaries between healthcare workers from different professions, and that these boundaries are contributed by well-developed professional roles, identities and traditional work practices. Due to the presence of multiple professions in one organization, the development of uniprofessional communities within these multidisciplinary groups are formed where, for example, a physician may not be able to apply significantly changed practices until discussion and consent have been acquired from colleagues from the same specialty. Emerging from this is the concept of a community of practice within large multiprofessional organizations.

Ferlie et al. (2005) explain how the diffusion of innovations is inhibited by important knowledge boundaries and social or identity boundaries. Professions have many different research cultures, agendas and questions, all of which contribute to the presence of cognitive boundaries. There can
be social and cognitive boundaries amongst individuals within the same profession, such as ED nurses and patient care nurses, and these barriers can also exist between professions, such as physicians and nurses.

Lastly, Ferlie et al. (2005) suggest that, in order to prevail over social and cognitive boundaries, it is crucial to have social interaction, trust and motivation; however, a history of distrust makes it very difficult to overcome those boundaries. Yet interprofessional collaboration (IPC) can help address the relationships amongst different healthcare professions. (This concept is explored and explained in the following section.)

2.5 Interprofessional Collaboration

Zwarenstein, Goldman and Reeves (2009) offer an explanation and information on IPC. They refer to IPC as a process whereby different professional groups work together to have a positive influence on healthcare. It entails a negotiated agreement between healthcare professionals, and the expertise and contributions to patient care by various healthcare professionals are valued throughout this negotiation process.

Zwarenstein et al. (2009) also discuss how poor-quality IPC can have a negative impact on the delivery of health services and patient care. The following is a list of IPC issues that can be caused from different professionals working together: problematic power dynamics, poor communication patterns, lack of understanding toward one’s own and others’ roles and responsibilities, and conflicts due to varied approaches to patient care. Some of these issues will become evident amongst ED team members with their experiences of implementing and assessing the CDU.

A study by Atwal and Caldwell (2002) investigated the impact of multidisciplinary integrated care pathways on IPC as a method of addressing any of the above potential issues of IPC. Interviews conducted in this study with healthcare professionals working in the acute care sector revealed concerns regarding discharge planning and multidisciplinary teamwork. Evaluation was performed on the implementation of an integrated care pathway on an orthopaedic ward, to determine whether IPC improves through allowing effective information access and flow across professions and the organization. Results of the study indicated that the implementation of care pathways allowed healthcare professionals to understand why discharge delays occurred, and
assisted with time management, but it did not improve interprofessional relationships or communication amongst healthcare professionals.

The lack of attention on goal setting as a priority by healthcare professionals hinders the success of IPC. Furthermore, IPC requires great efforts from all those involved, and implementing change requires time and development. Therefore, improvement in discharge planning relies on the skills and expertise provided by the integrated care pathways. The results of the research by Atwal and Caldwell (2002) underscored how crucial collaboration is amongst healthcare professionals, as well as the important role played by cohesiveness amongst the relationships between healthcare professionals in determining the success of initiatives put in place for improvement.

With regard to EDs, IPC demonstrates the importance of goal setting, especially when it comes to introducing change, such as the implementation of CDUs. Outlining the goals and expectations associated with implementing a CDU allows ED team members to enhance their understanding of the CDU intervention and the benefits it has to offer. Creating a strong foundation with open communication on expectations and goals increases the chances for successful acceptence of change. The importance of goal setting has been identified throughout change theories and resonates with the premise of change models described by Tushman, 1989; Ferlie, 2005; Kerr, 1995; Kotter, 1996; and Champagne, 2002; and these models and theories are applied to the findings of this study.
Chapter 3
Design and Methods

3 Research Strategy

A researcher’s methodology acts as a foundation for her research strategy. The purpose and importance of a methodology indicates how to apply techniques from data collection methods, and illustrates the types of phenomena and relationships to look for in a research strategy (Bowers, 1993). This research project took an exploratory case study approach.

This study investigated whether introducing and implementing a CDU actually makes a difference in the delivery of care within an ED, and an exploratory case study approach was appropriate because, as Yin (1989) observes, it allowed an in-depth understanding of contextual conditions about the implementation of change. The analyses of the case studies and the comparisons made amongst the cases are further explained in the data reporting section of Chapter 4.

This study also speaks to the added qualitative methods that are lacking in the literature on CDUs. A qualitative study offers the ability to gather an in-depth understanding regarding the opinions and experiences on the implementation of changes. The existing literature on CDUs has limited qualitative components that this study covers through an exploratory case study approach that examines various perceptions of ED team members on the implementation of change. Additionally, the use of change theories has been applied to understand the implementation of CDUs. The association of change theories to the implementation of CDUs has yet to be explored, and this study makes the connection between the two.

3.1 Methods

3.1.1 Ethics

The University of Toronto Health Sciences Research Ethics Board granted approval for this study. Ethics approval was also obtained from the research ethics boards of the four participating hospitals. Informed consent was obtained from all participants interviewed.
3.1.2 Sampling

For this study, the sampling procedure was carried out through a convenience sample. The selection of a convenience sample was achieved by including three pilot sites out of the seven pilot sites funded by the MOHLTC. Limited time and resources dictated the use of only three sites rather than all seven. Of the three sample sites, one hospital had a co-located CDU in its ED, and the other two had virtual CDUs in their EDs. Furthermore, all three of these sites are community based hospitals located in southeastern Ontario and the Greater Toronto Area (GTA).

An additional community based hospital located in the GTA was also included in the study. This hospital had already incorporated a CDU within its ED eight years prior to this study, and was not part of the pilot program. This additional hospital was used for comparative purposes.

Having three out of the four hospitals as pilot sites in the sample has some implications. Majority of the perspectives are influenced by the physician funding structure put in place at these three pilot sites. As well, the motivation to implement a CDU at the three pilot sites was different than the motivation to implement a CDU at the non-pilot site. The challenge here was the foundation in which structured the CDU implementation process, and in order to achieve greater comparisons, the sample size needs to incorporate more hospitals with CDUs in future studies.

The study was proposed to ED managers from each site. The ED managers agreed to the organization’s participation in the study, and assisted with strategies used to recruit participants for interviews. Within each ED, a number of individuals were interviewed. Those included in the study consisted of members who worked in the ED or who had a role that contributed to the processes of the ED. Such individuals included ED directors, CDU directors, chiefs of EDs, nurses, physicians and administrative staff.

Participant recruitment was accomplished with the assistance from a key contact at each site. The key contact at each site was usually the manager of the ED. The ED manager would assist with the organization and coordination of site visits for interviews and observations. Prior to site visits, the ED manager was informed about a list of a variety of healthcare professionals to be interviewed. During site visits, ED managers would assist in scheduling participants based on their recommendation, and the participants’ availability and interest to partake in the study. Due
to the availability of participants at the sites, the response rates for this study was limited and restricted.

At some sites, there were some healthcare professionals that were not interviewed, and these included: physicians, consults, CCAC workers, social workers, lab technicians, and GEM nurses. Rarely was there an opportunity to speak with members from other departments in the hospital on their opinions about the implementation of CDUs, and this was because the scheduling of participants was done with the assistance of ED managers. There were a few participants that chose not to participate because they were just too busy in the department to sit down for an interview. The list of potential participants would have added a greater depth and understanding on the various perspectives on the implementation of CDUs. Improved organization with the ED managers from each site would have allowed for better scheduling of participants in order to have created a greater response rate. As well, scheduling of participants could have been accomplished before or after shifts, or even during break times if participants were interested. Furthermore, generating greater knowledge and awareness about the study prior to visits for data collection could have created greater interest, and reflect the variety of healthcare professionals in the sample.

3.1.3 Data Collection

Data were gathered through a combination of methods; information was gathered from informal observations within the CDUs and from interviews with team members representing various health professions.

Informal observations were used for the collection of non-participant observation data. These observations led to the development of field notes that provided descriptions of the environment, insight into the processes that can be mapped out, and information regarding the interaction and communication amongst team members. Additionally, observations create the “opportunity to see things that may routinely escape awareness among the people in the setting” (Patton, 2002, p. 262), and this was important for understanding the CDUs as a whole, because they enabled the witnessing of interactions and events that could not be expressed in interviews.

Observing ED team members working in a virtual CDU was achieved through direct monitoring of the interactions of staff members within the EDs, specifically paying attention to the beds that
had been allocated and designated as CDU beds. Observing ED team members working in a co-located CDU was achieved by observing the processes that took place within the separate, physical locations of the CDUs.

The non-participant observations conducted in this study were usually accomplished during the day, either in the morning or afternoon hours. The range of an hour to two hours was the average amount of time for the informal observations. Additionally, observations at each site were sometimes conducted in-between interviews while waiting for the next available participant.

The data collected through interviews were gathered with the use of a semi-structured interview guide. This approach permitted the creation of an outline concerning topics and issues to be discussed prior to the interview, and allowed for flexibility in terms of question sequencing and wording (Patton, 2002, p. 349). Interviews at each site took place on a face-to-face basis, and with various healthcare professionals, such as ED director, nurses, nursing administrator, physicians and managers. A sample of 8 to 10 participants from each site was interviewed. The number of participants selected for this study was determined by having just enough to attain a variety of perspectives, and to avoid redundancy but also to have consistency with their perspectives. This sample was also determined by the amount of time and resources available to complete this study.

Interviews provide team members’ perspectives and opinions on the system, help determine the facilitators and barriers toward the functioning success of the system, and can provide information about things that cannot be directly observed (Patton, 2002, p. 340). The presence of a researcher who, perforce, brings an outsider perspective, can be a challenge to data gathering. Not being a member of a team under scrutiny limits and restricts the observations; however, interviews can provide information that is lacking from observations. Furthermore, by conducting observations as method of data collection, there is always the possibility of a Hawthorne effect, where the behaviours of those being observed may alter (Adair, 1984). However, for this study, this reaction was not experienced. Rather, just the opposite occurred, whereby the observations did not affect the manner in which ED team members went about doing their work. There were times when the ED seemed a bit too busy for ED team members to notice that observations were even being conducted.
Lastly, a recording device was used to capture data during the interview. A series of transcripts was processed upon completion of the interviews. Common themes and terms were identified amongst the transcripts, and this process is discussed in the latter parts of this paper.

3.1.4 Data Analysis

The CDU pilot project began in early fall 2008. The research study described in this thesis addressed three out of the seven pilot project sites and an additional site located in the GTA. With a total of four hospitals participating in the study, three had a co-located CDU and one had a virtual CDU.

Data collected from the four hospitals were analyzed through case analyses. Analysis of the transcripts from the interviews was reported through describing and explaining the common themes and patterns that emerged. Burnard (1991) discussed the steps to analyze interview transcripts, and these steps were applied to the analysis of the data collected from the interview transcripts created for this study.

3.1.4.1 Theme Identification Process

The process of identifying themes and patterns throughout the transcripts was accomplished by going through and labelling the passages in the transcript that were representative of an overall theme or category. The labelled passages were then assigned definitions to represent a theme. This was a continual process; as more transcripts were labelled, the list of themes became refined to ensure the absence of duplication and redundancy. The process of ensuring the validity in analyzing the interview transcripts through theme labelling was accomplished by providing the list of theme definitions to the thesis supervisor along with the transcripts. The thesis supervisor then independently went through the transcripts and labelled the quotes in accordance with the list of themes. The results from the theme labelling by the thesis supervisor were then compared, to achieve reliability with the list of definitions. A total of four rounds with the thesis supervisor took place in order to get the final list of theme definitions found in Appendix 3 on page 106. The list initially began with 26 different themes; after each round of revisions, the list was cut down, first to 19 themes, then to 15, 14 and finally to a total of 11 themes.

Furthermore, based on each round or iteration of the theme labelling process, it was ensured that different sections of the transcripts were being examined in order to ensure further reliability and
consistency with the definitions. Similarity or agreement with the labelling of themes eliminates the risk of researcher bias (Burnard, 1991).

The process of identifying and labelling appropriate themes in order to be representative of what the participant was trying to convey during the interviews required a number of rounds to refine the labels and their corresponding definitions. The original list of themes was eventually pared down, some themes were collapsed, some new themes emerged and others were eliminated. Following are examples of how some theme definitions were problematic, along with explanations of how the definitions were worked through and refined.

An example of where two themes were merged to form one involves the “staffing” theme and the “availability and adequacy of resources” theme. Initially, the staffing theme provided a description of the availability of various health professionals required for the care of CDU patients; this theme also incorporated the scheduling of staff, the number of staff scheduled, and their corresponding hours of operation. The definition for the “availability and adequacy of resources” theme concerned the access to diagnostic and lab services required by CDU guidelines, and the funding and structure redevelopment necessary to manage the CDU. The theme “availability and adequacy of resources” was best represented by incorporating staffing, seeing that the requirement of health professionals for an ED is also considered to be a resource.

Another example that illustrates the back and forth discussion with the thesis supervisor regarding the themes was with the “CDU effectiveness” theme. This theme had incorporated the level of satisfaction from staff members regarding the CDU; however, it was more appropriate to create a separate theme labelled “staff satisfaction.” The best approach was to create a new theme regarding CDU satisfaction levels on behalf of health professionals because staff satisfaction plays a significant role in the acceptance and understanding of the change or intervention being introduced.

Lastly, themes identified as “workload” and “efficiency” were combined into one theme: “patient flow.” The workload theme described the amount of work dictated by the volume and types of patients assigned to the CDU, and the efficiency theme described patient length of stay. Patient flow encompassed components of workload and efficiency, where patient flow was representative of the path a patient takes from entering to exiting the CDU, along with the factors that may affect or interrupt the fluidity of that patient’s movement through the system.
Overall, creating the list of themes from the interview transcripts was a long process (approximately two months), that required constant refinement of the labels and definitions. However, this process was crucial in depicting the perceptions of staff members affected by the change, and the purpose of the theme identification process was to ensure consistency in the analysis.

3.1.4.2 Case Analysis

According to Yin (1989), a case study is “an empirical inquiry that . . . investigates a contemporary phenomenon within its real life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (p. 50).”

Additionally, an important element to case study research is the application of various methods of data collection in order to capture the complexity of a case (DePoy & Gitlin, 1998). The present study involved observations and interviews.

Each hospital in this study had a separate case study describing and analyzing the characteristics of its case. The case study provided the basis for analyses that explored the intervention of CDUs and how they were conceived, the implementation of the CDUs within each case, the perceptions of team members interviewed at each hospital, and the implications due to the implementation of the CDUs. Furthermore, each case study explored the participants’ perceptions on the use of CDUs and their impact and contribution to the efficiency and effectiveness of emergency care.
Chapter 4
Results Part I

4 Data Reporting

4.1 Participant Information

The ideal location for those participating in the interviews was a quiet room away from the EDs that allowed for privacy and limited the number of potential distractions or interruptions. The following section provides greater detail on where the interviews took place for each case, and discusses any impacts the locations might have had on data collection.

Table 1 gives descriptive statistics that indicate the number of interviews that took place at each site, how long the interviews lasted, and the breakdown of the staff members with whom the interviews were conducted.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Total # of Participants</th>
<th>Average Length of an Interview (in minutes)</th>
<th>Median (in minutes)</th>
<th>Range of Interview Length (in minutes)</th>
<th>Breakdown of Participant Sample</th>
</tr>
</thead>
</table>
| #1       | 8                       | 25                                         | 26                 | 11–39                                 | • 1 Manager
          |                         |                                            |                    |                                       | • 1 Team Leader
          |                         |                                            |                    |                                       | • 6 Nurses |
| #2       | 10                      | 16                                         | 15                 | 6–33                                  | • 2 Physicians
          |                         |                                            |                    |                                       | • 1 Manager
          |                         |                                            |                    |                                       | • 1 Chief of Emergency
          |                         |                                            |                    |                                       | • 1 Team Leader
          |                         |                                            |                    |                                       | • 5 Nurses |
| #3       | 10                      | 16                                         | 14                 | 9–24                                  | • 1 Manager
          |                         |                                            |                    |                                       | • 1 Physician
          |                         |                                            |                    |                                       | • 8 Nurses |
| #4       | 8                       | 20                                         | 19                 | 9–38                                  | • 2 Managers
          |                         |                                            |                    |                                       | • 1 Physician
          |                         |                                            |                    |                                       | • 1 Clinical Educator
          |                         |                                            |                    |                                       | • 1 Senior Advisor
          |                         |                                            |                    |                                       | • 1 Unit Coordinate Associate (UCA)
          |                         |                                            |                    |                                       | • 2 Nurses |

Table 1. Description of Hospital Interviews
On the first day of data collection at Hospital #1, only three of the eight interviews were conducted, due to the availability of participants. Furthermore, the three interviews completed on the first day, along with one more interview conducted on a second visit, were all conducted at the nurses’ station. This created many interruptions from the fax machine, the telephone and other employees, resulting in many breaks during the interview. The remaining four interviews were conducted in a quiet, private room located away from the hustle bustle of the ED. The private room used to conduct the interviews was used as and referred to as a “family room.”

At Hospital #2, a private room located away from the ED was used to conduct the interviews. Out of the 10 interviews conducted at Hospital #2, eight were conducted in the private room, and the remaining two were conducted in the ED. The latter was not an ideal location due to the susceptibility to interruptions and distractions that resulted in an unsteady flow of discussion. The two interviews conducted in the ED took place at the CDU nurse’s desk, due to the availability of participants for the study. These two interviews encountered many distractions from the paging system, other staff members asking questions, and phones ringing, which often resulted in having to pause the recording. The shortest interview (6 minutes), took place at the CDU nurse’s desk, and the longest interview (33 minutes) took place in the private room.

All the interviews at Hospital #3 were conducted in a quiet and spacious private room – referred to and used as a staff “classroom” – located just outside the ED. Ten interviews were completed at this site.

Eight interviews were conducted at Hospital #4. Three out of the eight interviews were conducted in the private offices of the participants themselves, and five were conducted in a quiet, private room away from the ED.

A case methodology approach was used to describe each CDU within the EDs at all four hospitals. A unit analysis was conducted on each hospital, followed by a cross comparison analysis amongst all hospitals participating in the study, making distinctions between virtual CDUs and co-located CDUs.
## 4.2 Cross Case Comparisons

Table 2 provides a summary of the similarities and differences amongst the four CDUs in this study. Categories from the star model referred to in Chapter 2, which includes structure, goals and tasks, people and human resources, rewards, and information and decision support, are used for comparison purposes. It is also understood from the literature on change that these categories from the star model need to be in place in order to achieve targeted outcomes and be successful.

<table>
<thead>
<tr>
<th></th>
<th>Hospital #1</th>
<th>Hospital #2</th>
<th>Hospital #3</th>
<th>Hospital #4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure</strong></td>
<td>Originally a co-located CDU, then became a virtual CDU</td>
<td>Originally a co-located CDU located on a separate floor, now a co-located CDU located in the ED</td>
<td>Originally a co-located CDU, then became a virtual CDU</td>
<td>Originally a co-located CDU, then became a virtual CDU</td>
</tr>
<tr>
<td><strong>Goals &amp; Tasks</strong></td>
<td>Maximum of four CDU patients at a time</td>
<td>Maximum of five CDU patients at a time</td>
<td>Maximum of seven CDU patients at a time</td>
<td>Maximum of 10–15 CDU patients in a 24-hour period</td>
</tr>
<tr>
<td><strong>Human Resources</strong></td>
<td>ED staff assigned to patients designated as CDU patients, as well as ED patients</td>
<td>Physician referral for CDU designation</td>
<td>Physician referral for CDU designation</td>
<td>Physician referral for CDU designation</td>
</tr>
<tr>
<td></td>
<td>Physician referral for CDU designation</td>
<td>ED staff assigned to patients designated as CDU patients, as well as ED patients</td>
<td>ED staff assigned to patients designated as CDU patients, as well as ED patients</td>
<td>Physicians and nurses can designate to CDU</td>
</tr>
<tr>
<td><strong>Rewards</strong></td>
<td>Physician reimbursement for CDU patients</td>
<td>Physician reimbursement for CDU patients</td>
<td>Physician reimbursement for CDU patients</td>
<td>P4R</td>
</tr>
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<td></td>
<td>P4R</td>
<td>P4R</td>
<td>P4R</td>
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</tr>
<tr>
<td><strong>Information &amp; Decision Support</strong></td>
<td>Tracker on a computer located on desk at nurses’ station, and a dry erase whiteboard up on the wall</td>
<td>Tracker on a monitor at nurse’s desk located across from the CDU</td>
<td>Tracker on monitor screens that are up on the wall in the central nurses’ station</td>
<td>Whiteboard tracker located at central nurses’ station, up on the wall, visible to everyone, with status alerts built in</td>
</tr>
</tbody>
</table>

Table 2. Similarities and Differences in CDU Characteristics among the Four Hospitals
The categories from the star model found in Table 2 have been used as a method to organize this paper. Mapping of the themes that was formulated from the transcripts with the star model was not the purpose of this study and did not occur, however, this could be something that can be done for future studies.

Additionally, the category of culture and values found in the star model was something that was not measured in this study because this study examined the perceptions of ED team members on the implementation of the CDU, and not the culture and values of the CDU. However, culture and values of an organization can play a role, and this is also something that can be further investigated in future studies.
Chapter 5
Results Part II: Case Reporting

5 Site Descriptions

5.1 Hospital #1

Hospital #1 is located in southeastern Ontario, and is not part of the P4R program. This hospital has been around since the late 1800s, and has gone through many redevelopments. Throughout the 1990s, the hospital went through many expansions, and in 1998 it amalgamated with three other hospitals in the area. The hospital’s history impinges on its ability deliver emergency care to the public because, having being around for such a long time, the building is older and has limited space and resources.

One individual commented on the challenges that this hospital’s ED faces due to the availability of resources and the issues faced from the amalgamation of the four hospitals:

For me, one of the things that seems to complicate the situation would . . . we have bed pressures within the hospital, so we’ve mentioned it to the surgical unit, we’ve mentioned it to the medical unit, we’ve mentioned it to the psychiatric unit, and they also have no beds. They either have no beds or they don’t have the resources to get patients out, so the backup plan is to have patients stay in emerg, and that occupies our beds. The other process that has recently occurred within the corporation is that this site has become the site for consultations for internal medicine. This means that the other three sites send their patients to the emergency department for internal medicine consultation, and so you could have beds tied up for admitted patients and beds tied up for consultation.

Furthermore, this hospital’s ED was dealing with issues surrounding the availability and adequacy of resources, especially with staffing challenges. One participant described the limited amount of staff at Hospital #1’s ED and the consequences faced by the insufficient numbers of staff:

They’re getting the minimal care; we don’t have enough staff to keep up with the demands of the market. Yup, workload, workload, workload, and management won’t accept the fact that we have a full department; it is recognized by the union, but it’s not recognized by the college. But if there were to be an incident, for example, last night where they have two vital sign absent patients in the department at the same time, then you’ll only have four staff members to care for 21 patients; and all the staff are required for these vital sign absent patients; those
other patients aren’t getting any kind of care. So, we don’t have enough staff to do what needs to be done.

Another participant further expressed concern about the lack of staffing for the ED:

> No, it hasn’t changed; our staffing has not gone up in the last number of years. I don’t think our staffing has changed for five years at least. As a matter of fact, staffing has gone down; the number of staff has reduced. At one point within the last five years, a second nurse would come in and work from 10:00 to 6:00 to provide coverage in that area for meal breaks, and during that time, we’re finding that the nurses now at night are not getting any breaks at all. No breaks whatsoever.

However, despite the challenges faced because of the availability and adequacy of resources, Hospital #1 was engaged in addressing ED shortfalls by being involved with a process improvement program (PIP). They were still in the preliminary stages of PIP, but they are progressing to change for the better: “Well, through PIP we’re just in the process of identifying what the changes are, how we can make those changes, and run a solutions base.”

Additionally, the ED team and, more specifically, the nursing team, was referred to as a very “cohesive” nursing team and, despite the hardships, staff still were able to keep it together: “I have an excellent team here; they work well together, they work well under stress, and they participate in everything that’s going on.” The collaboration of staff at Hospital #1 seems to also be reflective of a strong bond:

> Yes, well, I feel that we have a good team. There are always certain things but on overall, we have a good team. To be able to keep it together the way we do in this time right now and these months that have gone by, and it just seems to be spiralling downhill, and we’re still keeping it together. I think we have a very good team to be able to do that, I just wish that things would get better, like everybody else in this department.

Hospitals are constantly faced with issues of staffing and workload; however, despite these challenges, things were worked through in order to ensure that patients received the care they required.

The technology infrastructure at Hospital #1 was not as sophisticated as at some of the others. The tracker was used to allow staff to communicate about which patients were in the ED, their location, and their assessed diagnosis. Additionally, a dry-erase whiteboard located at the nurses’ station within the ED had the patients’ names and locations written in, and acted as another staff
communication tool. However, the sophistication of technology at Hospital #1 dictated the use and incorporation of technology in delivering care; some participants interviewed described the use of the tracker for identifying CDU patients as something “that does often get missed.” There was awareness that the tracker was used to communicate the status of ED patients: “Yup, we’re supposed to have that up there. Like if there’s a patient admitted to ER with no bed, it says, ‘patient admitted to ER,’ so there’s under CDU, the tracker should say CDU patient”; however, despite this awareness, it really came down to “individual nursing practice” in taking the appropriate steps to update the tracker.

Lastly, one unique feature to Hospital #1 compared to the other sites involved in this study was that the manager of the ED was not part of the initial implementation process for the planning and introduction of the CDU. Therefore, the manager sought other avenues to aid in her understanding of the CDU, such as receiving insight from one of the team leaders: “I rely heavily on her for quite a few things because she’s been in the department for years, whereas I’ve only been in this department since April.” Due to the limited knowledge surrounding the change of CDU implementation, communication was essential for demonstrating an understanding of this change and ensuring that others were on board as well.

## 5.1.1 CDU Implementation

The implementation of the CDU at Hospital #1 occurred during the fall of 2008. It was initiated because Hospital #1 was part of the pilot project. However, some participants described a lack of awareness and orientation around the implementation of the CDU. Only a limited group of individuals was involved in the orientation process around the implementation of the CDU: “It was more involving with physicians when it first came out. It was a learning practice for them. I was part of it because I sit in on the doctor’s meetings.” The majority of the orientation around the implementation of the CDU revolved around a “word of mouth” basis; however, some feel that it may be necessary to have a more formal introduction and orientation on the CDUs: “Yes, definitely, yeah that would be beneficial because we all put our own slant on it as it gets to the next person, to the next person, to the next person.” This way it eliminates the possibility of “broken telephone,” in distorting the overall message of the CDU implementation.

With the implementation of the CDU at Hospital #1, there were clinical pathways put in place to assist with the designation of ED patients as CDU patients. The decision revolving around
clinical pathways was greatly physician oriented at this site, seeing that physicians were greatly involved in the implementation process, the physicians were also greatly involved in the development of clinical pathways for this site.

The initial implementation of the CDU at Hospital #1 was supposed to be a co-located CDU. The CDU was initially co-located and geographically placed where the clinic is located. However, experiencing the changes and having to designate the beds in the clinic for “CDU patients only” created many issues, causing staff members to voice their opinions and concerns over the change:

Well our CDU is virtual here. We had originally tried having a CDU when it first came out, and it didn’t work for this department because we have very limited monitors and sometimes when the patients that were admitted to CDU and then the diagnostics or whatever would need a monitor, so we had to become a virtual CDU so we can move the patients around to accommodate them.

Converting to a virtual CDU was viewed by staff as an optimal choice that allowed ED team members to use their resources more efficiently. Even though Hospital #1 had a virtual CDU implemented within its ED, only a limited number of patients could be classified as CDU patients (maximum of four patients at a time). This limited number of patients that could be classified as CDU patients was determined by designating 10% of the ED beds for CDU patients, and this is something set out by the MOHLTC.

The interviews conducted at Hospital #1 mainly involved nursing staff and the ED manager. Their comments on the CDU’s implementation focused on ramifications on workload, increase in paperwork and lack of understanding of the overall goals of the CDU. These unfavourable issues surrounding the CDU’s implementation were seen as factors inhibiting the ability to deploy the CDU to its full potential, and this negative impact was explored and explained further in depth in the latter part of reporting the results.

5.1.2 Hospital #1’s CDU Impact on the Efficiency and Effectiveness of Emergency Care

This section explores ED team members’ perceptions of the CDU’s contribution toward efficient and effective emergency care. ED team members’ responses are provided to demonstrate
whether CDUs are regarded as a method to affect the efficiency and effectiveness of emergency care.

Overall, the opinions expressed at Hospital #1 regarding the impact by CDUs on the efficiency and effectiveness of emergency care were characterized by uncertainty. For example, the following quote represents one nurse’s thoughts about the CDU:

I mean, certainly lessening the number of patients that we have sitting in the department for lengthy periods of time is always going to ultimately improve the patient flow. Whether it’s realistic or not for us, I don’t know. I’ve never seen our numbers.

Lack of knowledge surrounding the performance of workers can reflect the communication efforts made by senior management. If results are not being shared and discussed by senior management, then front-line workers are not aware of the results achieved by their efforts. The lack of communication between senior management and front-line workers can create a more uninviting environment for improvement, where lack of acknowledgement makes staff members feel their work is unappreciated. Furthermore, staff members described the culture of their hospital as a place where “voicing your opinion virtually goes nowhere.” This speaks to how valued ED team members felt when they express their opinions, and how senior management dealt with staff involvement.

One nurse described how CDUs contribute to delivering efficient and effective emergency care through the tailored paperwork associated with and designed specifically for the CDU:

To some degree, it makes sure that every area is covered because they do have three sheets of paper for orders, so they make sure that we know their code status, how often to conduct vitals or certain things, and this is because doctors have written orders. The paperwork is unnecessary, but it has to get done.

This thought demonstrates a benefit associated with the CDU on improving patient flow; however, there was a negative association with the CDU due to the amount of necessary paperwork. Throughout the majority of the interviews, when discussing the CDU, participants continually referred to the amount of associated paperwork. Many said that the amount of paperwork could potentially lead to medical errors due to the lapsed time when they could actually be filled out as well as the readability of the orders. Furthermore, the loose sheets of
paper for CDU order forms could easily be misplaced, as they were not stapled together, further adding to an increased risk for errors to occur.

To determine whether the CDU at Hospital #1 had an impact on delivering efficient and effective emergency care, some of the interviews explored how often the CDU was put to use. According to the manager at Hospital #1 and their reported experience, CDU patients were not an everyday occurrence and the same couple of physicians designated patients to the CDU. One possible reason why only certain physicians designated patients as CDU patients could be the lack of awareness or integration of the CDU into daily work practice, or the highly motivating financial incentive attached to the use of the CDU for physicians.

One nurse described the experience on the use of the CDU with regard to understanding the purpose of the CDU:

> I’m not even sure what the goals of the CDU are here. I honestly don’t even realize or know what the CDU is as far as how fast patients are supposed to be out. What I find is that the CDU is just another way to say that we’re keeping this patient overnight.

If a CDU’s goals and purposes are not fully understood by staff members, then the CDU does not create an impact on delivering efficient and effective emergency care. Nurses at Hospital #1 identified and defined the CDU as a means of financial incentives for physicians, and interpreted and made associations with financial incentives to determine the efficiency and effectiveness in emergency care. CDU patients at Hospital #1 were often compared to “keepers”; that is, emergency patients who are kept overnight for emergency care. Because of this association and lack of distinction between a patient that is a keeper and a CDU patient, the ability to see the impact on effective and efficient emergency care was impossible.

Lastly, one nurse did not believe that the CDU contributes to delivering efficient and effective emergency care; the following quote explains the nurse’s reasoning:

> The CDU doesn’t ease pressures off of the emerg department. It may ease pressures off of beds being tied up in other units, but CDU patients just blocks beds in the emerg. CDU patients stay here longer, blocking a bed when we’re already so cramped for beds in the emerg, and to me that is not effective or efficient.
The ability to witness a change or difference when it comes to evaluating the contribution of efficient and effective emergency care from CDUs was hindered by the lack of understanding of the CDU’s purposes and goals. When discussing the CDU’s impact on emergency care, staff members’ responses revolved around what was considered to work or function properly in the ED and what was not. Discussion concerning the impact on efficient and effective emergency care was minimal, whereas the majority of the interviews revolved around the heavy paperwork associated with the CDU, the financial incentives for physicians and the lack of communication and shared understanding of the purposes and goals of the CDU.

5.2 Hospital #2

Hospital #2 is located in the GTA, and is part of the P4R program. Being located in the GTA means the hospital serves a fast-growing, ethnically diverse community. The range of potential patients is equally broad and varied.

At the time of this study, Hospital #2 had a co-located CDU that allowed a maximum of five CDU patients; however, only four beds could fit in the designated space. There were two options for the placement of the fifth bed. Option 1 had the fifth CDU bed located just outside of the unit itself and across from the CDU nurse’s desk. Option 2 had the fifth CDU bed located around the corner in the hallway at the side of the unit. Prior to the implementation of the CDU, the physical space being occupied by the CDU used to be a mental health area.

Being faced with many ED visits, issues consistent with other hospitals, such as the availability of staffing, had become a growing concern at Hospital #2: “But the only trouble is that we don’t have enough staff, and that is our only challenge.” Many possible reasons contributing to the availability of staffing were advanced: “Some days, we don’t have enough staff because people are taking vacation, you can’t find anybody, and you get tired and have to double up.” Doubling up and increasing the workload of ED team members, was felt to be quite overwhelming: “It is a big challenge for the team because there is a lot of pressure on the team if there is not enough staff.”

The lack of staffing had taken a toll on workload for ED team members, and even when efforts were made to address that shortfall, sometimes it entailed added work:
But if you get a nurse, sometimes they can’t find any emerg nurses, so then you know it’s more work for us because they don’t take IV, they don’t usually care for emerg patients, they can only take care of fully admitted patients and things like that.

Discussion about the use of technology with regard to communication and work processes of ED team members revolved around the tracker located in the ED used to indicate the status of patients:

Basically, I come in the morning, if I have patients in the CDU area, I take a look at the tracker, see whoever’s been there the longest, see what tests have been done on those patients already and . . . take a look at all of the orders and see . . . what kind of tests they’re waiting to be done.

Furthermore, physicians working on call were able to be aware of patient status and were still interconnected through technology:

The way I organize my work is that I make at least two visits to the CDU to do rounds, sometimes three, but typically two . . . I have access from home; I have computer access from home through Meditech.

Additionally, physicians working on call for the CDU were easily accessible through phones and pagers; if there were ever an emergency with a patient, nurses could call the physicians, and as is said, the physicians were “pretty responsive” and “pretty fast” in calling them back. There had been no issues reported with the response times of on-call physicians.

In addition to the implementation of the CDU at Hospital #2 being a change in itself, there were also changes in how the CDU was implemented. An example of the evolution of change that occurred at Hospital #2 was with the location of the CDU. Furthermore, one nurse stressed the importance and necessity of awareness and knowledge about the unit:

The biggest thing is if it is to stay in emerg, the biggest thing is education, both the doctors and the nurses have to know the rules of CDU, and that probably includes myself, because I don’t know. I’ve never been updated with any information.

This indicates that greater communication and education on CDUs were required to support the success of these units at Hospital #2. The orientation process pertaining to the CDU, and the levels of acceptance of the CDU, are also further discussed in the next section.
5.2.1 CDU Implementation

The CDU implementation at Hospital #2 (part of the MOHLTC pilot study) began in fall 2008. This CDU did not exist prior to the pilot study. The decisions regarding the CDU, such as clinical pathways, were items that were determined by physicians, the ED manager and the chief of emergency. As briefly touched upon already, the CDU at Hospital #2 had experienced some changes since its implementation. It was initially located on a separate floor away from the ED. However, that location limited the ease of access by ED team members, and eventually the CDU was moved into the ED.

There were various opinions about the location of the CDU, where some felt the current location of the CDU better served ED patients:

I prefer this model again because a lot of these patients are kind of, they are still kind of like emerg patients, and it is nice to have emerg nurses managing them as opposed to floor nurses, which used to be there [when the CDU was located on another floor].

Some felt the opposite, however; for instance, one nurse noted that the CDU was “better served away from the emergency department rather than down in the emergency department.” This nurse’s opinion was based on the use of beds:

If your goal is to solve waiting times in emergency departments with this implementation of the CDU, I mean let’s face it, that’s supposed to be the overall goal, right? If there are empty beds because in the emergency department, because CDU is not being used properly, in all reality, if those beds were used for emerg; they would be filled without a doubt. So you’re actually having empty beds in the emergency department, whether they’re funded or not, they’re empty beds that would otherwise be used, so that’s why I do not think that a CDU should be located within an emergency department.

Additionally, when the CDU was located on a separate floor away from the ED, there was a mentality of “out of sight, out of mind”; by having the CDU closer to the ED, some said that “it does improve flow and improve the utilization, and the transportation is better taken care of.” The benefits of having a co-located CDU in the ED explain why the unit currently remains within the department.

However, the new location of the CDU and the fact that the CDU was a co-located unit seemed to be strongly welcomed by ED team members. There were ED team members assigned to work
in the CDU, where the scheduling of shifts for nurses and physicians was on a rotational basis. Furthermore, the overall feeling on behalf of nurses being assigned to the CDU was positive: “Yes, most nurses definitely enjoy working in that area . . . and the assignment is a much lighter assignment, too, so you can work with them with more of a time frame.”

Seeing that Hospital #2 had a co-located CDU, there was a maximum of five patients that could be assigned to the CDU, and again this number for CDU patients was determined based on the MOHLTC’s guidelines on using 10% of the ED beds for CDU patients. The fifth CDU patient was located outside of the designated space for the CDU. By having a co-located CDU and staff specifically assigned to the CDU for their shifts, ED team members found their work processes to be relatively easy:

The proximity where you are with the patient is really good because you can sit there doing your documentation and if something is to happen you can still monitor them; you can still help them. You’re like right there in with the patient; it’s very effective.

This was yet another reason why many ED team members were enthusiastic when assigned to and working in the CDU. However, despite the lighter workload associated with the CDU, there were times when the CDU was full, and one nurse expressed the feeling of being “overwhelmed” because “it can be so fast sometimes. It’s an area where there are always people in the department to move there”; patients were constantly coming in and out, and “it never stops, but sometimes it’s not like that at all. It just depends on the flow from the emerg.”

Lastly, even with the implementation of a co-located CDU, there were times when ED team members witnessed the inappropriate use of the CDU involving the placement of patients into the unit who otherwise would be more appropriate elsewhere. One nurse commented on such misallocations:

In CDU, when it’s not used properly, you’ll see it become very stagnant. You’ll see CDU patients in there for well over 24 hours, and then you’ll hear someone say oh get them out, get the person back into emerg, and that’s not the way it’s supposed to be . . . and unfortunately, that’s what happens because there hasn’t been clear communication . . . the whole ER team has to obey the rules of the CDU and how it should be used.

According to the chief of emergency at Hospital #2:
Medicine itself is a collaboration; if you were to work in a silo, the medicine falls apart. All of the issues we have or some of the issues that we have of the healthcare system are related because collaboration is not there.

In relation to the initial CDU implementation stages, a few bumps were encountered during the first three to six months. More meetings with the staff took place, enhancing the communication around the implementation of CDUs and increasing the awareness about CDUs.

The interviews conducted at Hospital #2 showed that implementation of the CDU began a bit rough, and, by the time this study had concluded, was still considered an ongoing process requiring further improvement. However, there was great gratitude toward the set-up of a co-located CDU and the advantages arising from its location. Yet, a downfall with having a designated physical space for a CDU is the potential for misuse of the beds available; this outcome was experienced at Hospital #2.

5.2.2 Hospital #2’s CDU Impact on the Efficiency and Effectiveness of Emergency Care

Discussions around the CDU’s contribution to efficient and effective emergency care at Hospital #2 revolved around the ease in organizing work in a co-located CDU. Having a separate physical space for the CDU allowed ED team members to focus on patient care for only those designated to the CDU and to visualize patient flow in the ED. As one nurse remarked, “I think what we set out for has been accomplished, truly. In my opinion, the CDU was to help facilitate movement within the department. It’s really a part of the whole emerg.” The identification of the CDU as part of the ED demonstrates how well integrated and accepted the CDU had become in ED team members’ daily work routines. The following quote is from another nurse who described an experience with and opinion about the CDU:

Overall, I think the CDU is a very effective department because you don’t have a whole volume of heavy admitted orders, and you can put more care into the patients because your work is a bit lighter in that area.

The separate physical space specifically used for CDU patients established a better understanding of the CDU’s purposes and goals. As one physician noted, “So, I mean the whole idea of the CDU is to get the patients, and make a decision to either admit or discharge within the 24-hour period.” There was a shared understanding on the CDU’s goals and purposes amongst ED team members, and this was partly due to having a co-located CDU, which allowed for
visualization of the unit’s presence. It also arose out of communication efforts made by senior management, including monthly meetings to discuss the progress of the CDU. At the monthly meetings, there were also discussions about the efficiency of the CDU in terms of occupancy rates, factors that contribute to achieving target rates for CDU occupancy and what inhibits the unit from achieving its target goals.

The chief of emergency at Hospital #2 observed that, during the monthly meetings, efficiency had been characterized as “excellent; however, there are challenges with efficiency and they are mostly ones that are related to diagnostic imaging access.” Access to diagnostic imaging was a recurring issue across all sites participating in this study, and this was partly due to the availability of the service.

Another issue of efficiency that the chief of emergency described deals with the physician payment structure:

At the present time the physician payment structure is very minimal; it does not allow the physician to stay in the CDU physically all the time, so physicians have to do rounds and deal with the issues as they arrive. If we had such payment structure where you could have assigned physicians in the department all of the time, the efficiency would certainly improve.

The chief of emergency made a link between the proposed payment structure and increased efficiency of the CDU. The funding structure linked with the CDU was also, however, considered to hinder improvement, especially for those who did not directly benefit from the structure.

A co-located CDU provides benefits for all staff members. This view was consistently expressed by a strong majority of ED team members who said they enjoyed working in a less chaotic area, and having the ability to focus all their attention on patients who were specifically designated to the CDU. The relationship between having a co-located CDU and the impact on efficient and effective emergency care was identified by ED team members. Based on the interviews at Hospital #2, the type of set-up for a CDU has a direct impact on the quality of emergency care.
5.3 Hospital #3

Hospital #3 is located in the GTA and is involved in the P4R program. ED team members described it as the only acute-care hospital located within their community, which they characterized as “definitely a senior area.”

At the time of this study, Hospital #3 had a virtual CDU. Hospital #3 was formerly a co-located CDU and occupied a room referred to as the CDU. However, this space currently houses admitted inpatients and is still referred to as a CDU; yet, the space does not fulfill any purposes for the CDU.

Community demographics play a role in ED and CDU use, and, based on the observations at this site, there seemed to have been only one CDU patient or no CDU patients at all during each visit. When asked if the aging population was a possible reason for the limited number of CDU patients, ED team members seemed to think it was: “The problem is . . . and I think particularly is the growing population, and the aging population.” Staff reported that elderly patients usually required extensive care and attention that normally exceeded the 24-hour goal and expectation of the CDU. However, a physician did say that one of the care protocols was created specifically for the elderly, “especially when they come here with weakness, confusion, delirium. So, we have a specific CDU for them.” The care protocol created for the elderly was designed to address the aging population within the community in order to use the CDU as efficiently as possible.

Even though elderly patients were not necessarily be classified as CDU patients, many still required the services offered by the ED, often tying up resources: “Everybody’s full, or no space for them and that’s sad and scary. Like you’ve got 29 patients right now and only one is a CDU patient.” Not only was the hospital’s community made up of a sizeable older population, but the hospital building itself was aging, and “not expanding, at least not in the near future.” A nurse expressed her opinions about the operations of the ED at Hospital #3:

So you know in terms of the care that patients get, and the efficiency and just the overall effectiveness of the CDU, I’d think that it’d work better if we didn’t have as many admitted people down here, and then you’d have more space to actually run a department.
However, just as in any other hospital that deals with limited resources and a greying population, ED team members continued to work with what they had. Throughout an interview, a nurse discussed the staff collaboration in providing patient care:

I would say that there were a lot of years that I have gone through, and a lot of different styles, and I’m really quite pleased with the team efforts here. Because I find that you can speak with the different departments and get those needed tests done. Some are better than others but that happens with any field.

ED team members were described as “friendly” and “approachable”; “you can always talk to and approach them.” Having ED team members who are receptive toward others allows for open communication, thereby spreading awareness and knowledge on many issues, including the implementation of change.

5.3.1 CDU Implementation

Hospital #3 was also part of the MOHLTC pilot study. The implementation of its CDU occurred during fall 2008; therefore, a CDU did not exist at Hospital #3 prior to the start of the pilot study. Similar to Hospital #2, Hospital #3 had experienced changes with the implementation of its CDU. When the CDU was initially implemented at Hospital #3, it was a co-located CDU. However, due to the aging population within the community and the number of admitted patients being housed in the ED, the CDU was eventually converted to a virtual CDU.

It should be noted, that the physical space originally intended for the use of a co-located CDU is still referred to as a CDU by ED team members, despite its conversion to a virtual CDU. To avoid confusion and to differentiate the identification of ED patients, “Some components of visual management with the CDU patients are with their orders being on different coloured paper.” Yet, the process by which the co-located CDU was converted to a virtual CDU was described as the “overtaking” by admitted patients in the CDU-designated physical space. The process was described as follows: “It just kept creeping over; you start off with the CDU unit, and then you’d get a few more admitted, and then a few more,” ultimately resulting in the forfeit of the space and classifying patients as CDU patients wherever their location may be within the ED. Additionally, when asked whether the CDU could be put to use based on the patient demographics encountered by ED team members at Hospital #3, a nurse responded by saying, “No, not as much as it should be.” However, as discussed in the previous section, a CDU
protocol had been created for the elderly, yet this protocol was not always followed because sometimes caring for the elderly required more than 24 hours.

The virtual CDU still had a maximum number of patients that could be classified as CDU patients, even though CDU patients could be located throughout the ED. A total of seven CDU patients at a time was the maximum, even if there were two physicians present in the ED. The maximum of seven CDU patients for Hospital #3 fulfills the MOHLTC’s guidelines on having 10% of ED stretcher capacity for CDU patients. Furthermore, Hospital #3 created CDU protocols for 14 different diagnoses; as one physician explained, “So, we can put the patient on the CDU and they are all specific, which we define them, and not to be really general so that not anyone can go in.” These CDU protocols further demonstrated the purpose of the CDU in dictating the types of diagnoses that usually take less than 24 hours to treat, thereby allowing patients to be discharged.

The various CDU protocols or clinical pathways for Hospital #3 were determined by physicians. The entire CDU initiative and implementation process was very physician oriented. Throughout the interviews, it was evident by nurses and the manager of the ED that the CDU implementation process and any decisions regarding the CDU only involved physicians, and required very little input from members of other health professions.

When it came to orientation around the process of CDU implementation, not much discussion occurred throughout the interviews about this topic. This relative silence may be due to the informal process of introducing the purpose and goals of the CDU to ED team members: “It was more depending on the area, if you just happened to have a CDU patient in your area . . . that was the way I got my orientation [around the CDU].” Furthermore, another ED team said, “It’s just that it’s a different way of documenting it,” whereas others felt that, with the CDU protocols, “It does make it a little clearer as to what you’re doing with that patient . . . gives you insight to what the doc wants for an outcome . . . and it gives us direction more so than if you don’t have any.”

The implementation of the CDU at Hospital #3 underwent many changes; for example, the conversion of a co-located CDU to a virtual CDU. Throughout the interviews, there was a bit of confusion surrounding the implementation of the CDU. Despite having a virtual CDU at Hospital #3, confusion revolved around the fact that the physical space initially meant for a co-located
CDU was still being referred to as a CDU. However, after clarification, there seemed to be a consensus amongst ED team members on understanding the purposes of the CDU. Yet, despite understanding the use of the CDU, due to the uncontrollable factor of the surrounding community demographics that dictates the use of ED services and the CDU, this makes one question how beneficial and useful a CDU really is at Hospital #3.

5.3.2 Hospital #3’s CDU Impact on the Efficiency and Effectiveness of Emergency Care

When discussing the quality of emergency care affected by CDUs, respondents at Hospital #3 either kept their remarks brief or said they just did not know how to respond to the question. For example, one nurse wrestled with how to respond to a question about the value of the CDU: “So, the question is, do you scrap the program or do you just deal with the people that are suitable for it? So, I don’t know if I can provide an answer to that.”

When participants were able to provide a response as to how they assessed the CDU, they said that there had not been much of a change since its introduction. One nurse expressed this opinion about the changes associated with the CDU:

I don’t know if the designation for the CDU really changes the care of the patient. The old ways was that we used to have them as stay-overs because they were ones that weren’t going to be admitted. But these patients are required to wait for testing. The only nice thing with the CDU is that you have orders for these patients, whereas before you’d have to go to a doctor to get those kinds of orders, and now with the standard orders it decreases the frequency of communication with the physician.

According to this nurse, the only acknowledged difference with the CDU revolved around the separate CDU order forms that provide more instructions on patient care. This aspect was felt to create efficiency by allowing nurses to be more informed and aware of a patient’s care path without having to spend time tracking down a physician for further instruction.

If the association with tailored paperwork is the only advantage, then ED team members’ awareness of the overall goals and purposes of the CDU needs to be explored. In that regard, here is another nurse’s perspective on the CDU:
I think the CDU is . . . and I don’t pretend to know all of the ins and outs of funding and the logistics involved with the CDU, to me, it just seems like a more formal way, from my perception, of physician hand-off.

This response did not address the goals of the CDU, but was more of an interpretation and description of the CDU in that nurse’s opinion. The CDU was referred to in this remark only as something that formalizes the physician hand-off process. The absence of reference to the goals of the CDU most likely links to what is being communicated to ED team members about the CDU and how that message is being communicated. It is possible that greater efforts to communicate the purposes and goals of the CDU are necessary in order to create a shared understanding amongst all ED team members. From the participants interviewed, one nurse expressed the issues in efficiency with regard to the CDU and its order forms:

It’s the process that’s the issue and the length of stay that you see in the ED. The issues are not with the orders that are written or what orders should be written and how it should be done; it just creates a delay.

Overall, the coloured forms used specifically for the CDU were felt to assist in making a distinction between CDU patients and regular ED patients, especially because the CDU at Hospital #3 was a virtual unit. However, the overall goals and purposes of the CDU were still lost or at least blurred by the notion of a formal physician hand-off process and by the separate coloured order forms for CDU patients.

5.4 Hospital #4

Hospital #4 is also located in the GTA, and is participating in the P4R program. Hospital #4 has the largest ED in Canada; involvement in the P4R program helped to supply the resources and funding necessary in delivering care for such a large ED. At the time of this study, Hospital #4 had a virtual CDU. Yet before that, Hospital #4 had a co-located CDU and the physical space for the Rapid Assessment Zone in Hospital #4’s ED was formerly the location for the co-located CDU.

The availability of staffing is a constant issue many hospitals face; however, benefits from the P4R program provide funding for acquiring more staff. As mentioned in the interviews, Hospital #4 was experiencing an increase in staffing at the time of this research study. As one participant explained, it is
because we’ve been meeting a lot more of our targets and . . . we have a better budget now. And it’s also staff satisfaction, because you have to look at, it’s not only the patient satisfaction, you really do have to keep your staff happy.

Understanding and acknowledging the importance of keeping staff satisfied and happy contribute significantly to the success of accepting change, and positive associations with hiring more staff to lessen the workload can make individuals more receptive to change.

The technology used at Hospital #4 was far more sophisticated than the trackers and communication tools at the other three hospitals involved in this study. The ED at Hospital #4 was equipped with a communication tool called the whiteboard. This whiteboard was not just a board written on with dry-erase markers; it was an advanced version of the tracker that indicates patient status in “real time view” and much more. Unique to this advanced technology were the patient status indicators:

So we’ve got status indicators that become apparent for when the patients are reaching the occupancy targets when they start flashing away. You can tell as you’re entering orders on the patient, how long and depending on what their statuses are you’d know if they’re going to be here for a blood transfusion, you’d know if they’re waiting to see CT, or if they’re in detox . . . how much further their treatment is going to take . . .

The various patient-status indicators made it easier for reassessment and to improve patient flow.

ED team members discussed improving patient flow and meeting wait time targets at length; however, knowing that efforts were put into education and that “All of the blitzes have been done,” Hospital #4 focused on the sustainability of ensuring that what staff were being educated to do was being executed:

The only way to sustain it is to continuously provide them, like giving them the numbers if they didn’t meet it [targets] and why, more messaging, or just an FYI here’s a patient that could have been CDU; did you consider it? And if not, why not?

Continuous communication and education created awareness about CDUs, while learning opportunities supported development of ways to achieve wait time targets. Communication and education contributed to the success of implementing CDUs at Hospital #4; so too did the call for collaboration from ED team members:
We needed to get everyone on board. When I say everyone, I mean the clerical staff, registration staff, and inside clerks... it was an issue just to make sure that everybody was aware of it and it was education, and it had to come from a manager, really, because we’ve had a lot of non-compliance, and our data quality was poor...

Furthermore, the identification of an individual representing more leadership qualities was necessary for this task to be successful. The case of Hospital #4 demonstrated many ways that a large organization can support the implementation of change and shed light on how such change may be perceived by those affected.

5.4.1 CDU Implementation

The implementation of the CDU at Hospital #4 has quite a different history from that of the other sites. As Hospital #4 was not part of the CDU pilot study, it actually had a CDU implemented for a much longer period of time and experienced many changes. This process entailed an eight-year experience with the CDU; for six of those years, Hospital #4 had a co-located CDU. Despite having a longer history with a CDU when compared to the other three hospitals, Hospital #4’s CDU was used as a holding unit for admitted patients and, just as at the other hospitals, it was still being referred to as a CDU. Only two years prior to this study, Hospital #4 was using the CDU for its intended purposes, and this coincided with the introduction of the P4R program. Over time, and given the lack of physical space, the CDU at Hospital #4 was converted into a virtual CDU.

At the time this study was carried out, the CDU at Hospital #4 was a virtual unit, with a goal of 10-15 CDU patients in a 24-hour period:

The ministry set out the guidelines, where it could only be up to 10% of your stretcher bay, so right now we have 52 designated spots in our ED, so we usually designate up to anywhere between 10 to 15 patients per day.

Despite outlining the targeted number of CDU patients per day, it was understood that only certain patients can be classified as CDU patients: “We can’t just CDU anybody... we can only CDU patients who are CDU-able, so they have to fit the criteria as well. It can’t be just because to keep our numbers right.” This understanding arises directly from the education around the CDU’s purposes. With regards to the criteria set out for the CDU at Hospital #4, the criteria was something determined by physicians, managers, and clinical educators. Since Hospital #4 was
not part of the pilot project and did not have any physician funding, the CDU was not regarded as a physician initiative, rather there was a greater collective involvement from ED team members regarding the decisions about the CDU.

However, the initial conversion to a virtual CDU was described as a “nightmare,” “because it took a little while for everybody to get their head around.” The CDU started off as a co-located CDU with 10 beds; however, similar to the experience at Hospital #3, it was soon overtaken: “It was basically the holding area for admitted patients and for our chest pain unit . . . so it took a little while for people to get used to the fact that the CDU didn’t exist anymore.” Confusion surrounding the change arose with the re-location of patients on Meditech: “It was a lot of education that we didn’t relocate to CDU, that our CDU is actually virtual location.” It took a long time to clarify the confusion and, once the name of the physical space had been changed to the “rapid assessment zone” (RAZ), “finally, everyone kind of caught on,” realizing that “CDU patients don’t necessarily have to be in that area; they can be located anywhere in the ED.”

A clinical educator at Hospital #4 explained the education and orientation process as follows:

> We would tell them what CDU means, and what that designation means, and what they can follow, and the patients will have a regular order set like the emerg patients, so it’s not much different . . . the chest pain for CDU patient, we do go over that in length, we do set meetings for that.

However, despite the education and communication efforts, a manager expressed uncertainty regarding ED team members’ perceptions of the change:

> I don’t know that the staff really feels a difference. They know that it stops the clock on those patients; we don’t really have a control over their lengths of stay, like who needs an intervention and is going to take hours, but I don’t think that there’s truly any feeling one way or the other.

It may also be that ED team members saw the CDU as a method to stop the clock so that wait times would decrease; it remains questionable as to whether the education and communication efforts had the impact on staff that the senior executive team at Hospital #4 was hoping for. When discussing the use of the CDU with one nurse, it seems that either all the communication and educational efforts voiced by senior executives had little impact, or that more work was needed to address areas for improvement: “I think nurses don’t understand, not all of them. I think that a lot of nurses don’t know that they can designate to put somebody in CDU.”
A member of the senior executive team expressed the following opinion regarding the CDU’s implementation from a front-line worker’s perspective as well as from the individual’s own perspective on what was expected from the implementation:

Well, the CDU designation is something that the ministry has put out to address wait times, so for those patients that require the longer length of stay in emerg, the emergency shouldn’t be penalized for looking after those patients and giving them what care they require. That does take a long time, so you know in terms of the actual CDU designation, we’re just told what we have to do and we do it. But in terms of how we implement it and how we monitor it, by all means, this is what we do.

The identification and association of the CDU with the MOHLTC’s wait time strategy can influence how ED team members react to the implementation of a CDU because these staff members might believe that the purpose of the CDU is to stop the clock in order to achieve wait time targets, and that it may just be a “numbers game” to demonstrate that wait times are being improved. The interviews conducted for this study elucidated various opinions on this perception, a sub-topic that this is further explored in the latter part of this thesis, where comparisons are made between different healthcare professionals affected by this change.

Hospital #4 had an advanced technology system, organized communication and educational efforts to support the change in its ED and the process of implementing a CDU. Issues surrounding sustainability and ensuring that ED team members were on board with the changes provided encouragement and motivation for ED team members in successfully implementing their CDU.

Lastly, the general impression toward the CDU at Hospital #4 is expressed in the following quote:

It gives you a real focus in a different way, like you’re looking at a goal, so you’re looking at a disposition. So your regular emergency patients, they’re going home but there’s no target or our indicators are the target, but do nurses really focus on saying eight hours, gotta get them home. If you see a CDU patient, you know that that patient has a designation, it clearly means that you must do something at the certain status changes . . . so I think it’s more of an awareness, the collaboration is different because there is that time frame that more people are aware of . . . and I think that’s the purposes of work that we’re doing, so get them seen sooner, get them from triage to registration, from registration to physician, so we’re doing it, but when you call it something [a CDU], people seem to respond to it quickly, so it’s got a formal structure to it.
ED team members demonstrated their receptiveness to the CDU by understanding the goals and purposes of the CDU. Knowing that CDU patients would normally be discharged 24 hours after entering the CDU better equipped ED team members to adjust to the changes that the CDU implementation could offer. Additionally, despite a longer history with having a CDU at Hospital #4, it was recognized that the CDU implementation was an ongoing change that required attention and reworking from time to time.

5.4.2 Hospital #4’s CDU Impact on the Efficiency and Effectiveness of Emergency Care

Hospital #4’s organizational and communication efforts translated into the generally positive opinions formulated by ED team members. One manager stated the following opinion about the CDU and its contribution to efficient and effective emergency care:

I would say that there’s no real difference; the CDU is quite efficient in certain things such as the emphasis on wait times and the length of stay data. So there’s more awareness with that on part of the physicians and the nurses, where we’re all trying to get those patients moving along and not let them remain in the ED.

Being conscious of the CDU’s impact on wait times allowed ED team members to understand its purposes and goals. Additionally, senior management’s educational initiatives created greater awareness and knowledge of the CDU.

Despite the role that greater knowledge played in enhancing patient flow, the type of CDU set-up did to some extent hinder the steadiness of patient flow. One manager commented thus on the loss of continuity in the flow of CDU patients:

I don’t know whether the care is as driven as it could be, like for instance the patient with chest pain, but no change in blood work and EKG. They can be monitored overnight and then go to stress test in the morning. If they were in the CDU, the driver would be to get them out of the department by 10:00, but there’s no impetus to get them out because these patients are scattered throughout the department, and because there isn’t one person keeping track of it all.

Having someone specifically to monitor the progress of CDU patients is necessary to ensure that patients flow steadily in and out of the ED and that target occupancy rates are achieved. Hospital #4 looked into different avenues to address this issue and came up with a new staff position that would be responsible for tracking and monitoring CDU patients.
However, despite the efforts that focused on the CDU, one physician said the following with regard to its contribution to efficient and effective emergency care:

A CDU designation has an overall goal to improve the wait times, but again in terms of the wait times reduction, it’s just a matter of manipulating the numbers through re-classifying part of the patient’s stay, and indicating that they have been designated and admitted to the CDU. In reality, these patients are still down in the department whether they’re in a separate physical area or in a virtual unit, so it’s not reducing their wait time. CDUs have become a way to play a numbers game with the data, because everyone wants to improve their wait times, and using the CDU designation results in a wait time reduction. Ultimately, funding is increased because of the P4R program and also because our funding is partially tied to our wait times.

Although this physician indirectly spoke to the added efforts that senior management made by having designated ED team members focus attention on patient flow, the wait time for individual patients was unaffected by whether patients were CDU patients or not, because they still remained in the ED. This was all just a matter of how the numbers in the wait time data were reorganized to represent an overall reduction in wait times. Essentially, according to this physician, the value of the CDU is in the ability to manipulate wait time numbers to provide a twist on representing the overall journey of a patient in the ED, and also to acquire further funding from the P4R program. For that physician, the addition of a designated ED team member to monitor CDU patients’ flow and progress was to ensure that numbers reflected target goals and, thereby, to obtain more funding.

Lastly, one nurse commented on the CDU and its impact on the efficiency and effectiveness of delivering emergency care:

A CDU patient is just like any other patient. I mean, I don’t really think that the designation makes a difference. I also think that a lot of people need to recognize that a patient could be put as a CDU patient, and really a lot of nurses don’t know that, they wait for a doctor to order it. Meanwhile the patient has been here for like seven hours already, where if you knew that they were going to be here for longer periods of time because they require testing, then you could have automatically, as a nurse, designated that patient as a CDU patient.

Members of a senior executive team may seek different options to enhance a CDU’s impact on the efficiency and effectiveness of emergency care. However, senior managers may need to revisit the foundations of their CDU, its goals and its purposes, to ensure that all ED team members are aware of their roles and responsibilities associated with the CDU and with ensuring
it is used to its full capacity. By creating awareness amongst the nursing team and their ability to designate patients to the CDU, staff can witness and appreciate a greater impact by the CDU on efficient and effective emergency care.

Hospital #4 was quite organized and committed to involving and informing ED team members about the purpose the CDU can serve. However, this case reveals that some things can get missed. For example, it might be automatically assumed that certain issues, such as nurses’ ability to designate to the CDU, do not require readdressing. Revisiting issues, the CDU’s purposes and goals, and ED team members’ associated roles and responsibilities can create standardization and consistency, and promote greater integration of the CDU processes into daily work routines.

To recap, all four hospitals participating in this study faced many challenges. They encountered changes with the type of CDU set-up, where Hospitals #1, #3 and #4 each had a co-located CDU that eventually were converted to a virtual CDU, and where Hospital #3 had its co-located CDU situated on a separate floor away from the ED (eventually moved into the ED). The experiences gathered from the implementation of these changes essentially became learning processes for the introduction of CDUs, and these processes assisted in determining what the various EDs’ capabilities were in order to support having a CDU in the ED.

Overall, a large proportion of participants did not perceive a difference between the types of set-up for their CDUs in terms of their ability to deliver efficient and effective emergency care. The findings of this study have demonstrated that the type of set-up for a CDU depends on an ED’s capacities in terms of having enough physical space to accommodate a co-located CDU. Some participants that worked in an ED with a virtual CDU noted the potential benefits of having a co-located CDU to efficient and effective emergency care. However, these participants also explained that the differences between the two types are minimal because patients receive appropriate treatment and care regardless of where they are located in an ED.
Chapter 6
Results Part III: Impact of Healthcare Profession on the Perspectives of CDUs

6 Varying Perceptions of the CDU’s Contribution to Efficient and Effective Emergency Care

Due to the differing exposure, awareness and knowledge about the implementation and use of the CDUs, it was likely that there would be differing perceptions of the overall impact CDUs have on efficient and effective emergency care. It was also likely that these perceptions would vary according to healthcare profession. The following section focuses specifically on the various groups of healthcare professionals and their opinions on aspects of CDUs’ contributions to efficient and effective emergency care.

The perceptions of members of three groups of professions are discussed here: the senior executive team, the physician team and the nursing team. The physician team at one of the hospitals is not represented due to the non-availability of staff during the scheduling of interviews. However, members from the senior executive team and the nursing team from all four hospitals were interviewed.

6.1 Senior Executive Team

The senior executive team consists of ED managers, ED chiefs, senior advisors, clinical educators and unit coordinate associates (UCAs). This section sheds light on the opinions and perceptions expressed by these individuals on the CDUs’ impact on delivering efficient and effective emergency care. There are various levels of involvement with the CDUs by members of the senior executive team, and this may influence their views on the quality of CDUs; these factors are discussed in further detail when discussing individual hospitals.

Recalling the history of Hospital #1, the manager of the ED was fairly new to that particular position, and was slowly becoming more aware and informed about the CDU at the time the interview took place. The manager’s opinion toward the CDU was expressed straight to the point, by identifying the overarching purpose of the CDU: “So, I just see, personally I see the CDU patients as just another patient who occupies that bed for up to 24 hours.” Due to this new
role at Hospital #1 and the manager not having been part of the CDU implementation process, it was more difficult to identify with the purposes and goals, it created a further disconnect with the CDU, and it essentially became a continuous learning process for the manager. Furthermore, due to the manager’s possible disconnect with the CDU, any initiatives to support the intervention may have been lacking, and this could also have influenced the ED team members’ level of interest associated with the CDU. The ability to experience any impact CDUs may have on delivering efficient and effective emergency care was limited by the manager’s knowledge about the CDU, and efforts on becoming more engaged with the processes of the CDU.

At Hospital #2, the overall experience with the CDU was quite different from that of Hospital #1. The senior executive team members interviewed at Hospital #2 were part of the CDU implementation process and were able to identify, evaluate and discuss the impact of the change on those affected:

> I know not everyone’s happy with . . . you know, when they implemented it, because they look at it as taking emerg beds away. And some people aren’t ever going to change, you know, they’re always going to have that mentality, but I think that it’s working with the ones that can see the benefit of it, and I think you’ll have more success in bringing those people on.

ED team members’ ability to understand the various perspectives on the CDU implementation enabled members from the senior executive team to target areas to achieve greater compliance with the change. Additionally, ED team members’ ability to identify with those individuals on the senior executive team demonstrated the supportive context provided to staff and the effectiveness in communication strategies for introducing change.

The following quote expresses one manager’s opinion on the impact from the CDU implementation at Hospital #3:

> I don’t find that it has helped with regards to increasing the efficiency of the department at all . . . now the only good thing about the CDU pilot project is that these patients come out of ED length of stay in the data collection piece, but as for efficiency, it just seems that most of them stay at least 20 hours.

The benefit of having a CDU implemented at Hospital #3 was witnessed with the data collection piece and how it was representative of the hospital’s performance. According to the manager,
despite improving the numbers from the ED length of stay, the implementation of the CDU played no role toward increasing the efficiency in the ED.

Furthermore, it was discussed throughout the interview that there was a lack of involvement during the initial creation of CDU orders when it was first being implemented, and therefore, this is what resulted: “. . . makes it difficult to understand what they really think, and if the project is successful from a patient point of view.” Initially, the CDU orders had to acquire approval by the physicians; however, it was mentioned that there were “. . . errors in the order sets.” “The wrong people were writing the orders from the beginning,” and “It wasn’t until we became near the end of it as a pilot phase where the system started changing for the better.” The system of creating patient orders had improved because an approved committee was appointed to address issues on the CDU, and this committee had “. . . really fine-tuned the order sets, which was really helpful.”

The bumps along the way during the implementation of the CDU created a learning opportunity, such as addressing the issue surrounding the creation of patient orders. Despite mentioning that Hospital #3 “. . . is still missing the physician engagement piece from ER physicians,” the appointed committee assisted with avoiding further issues, such as the one described here: “I would bring it to the physician saying you know this is not approved . . . they would be, well, it doesn’t matter.” And because of the committee it now “did matter,” and there was a sense of satisfaction because the order sets were being approved and looked at by more people than just the physicians.

Lastly, the above example about having physicians approve order sets for patients speaks to how the processes of a CDU are physician oriented. If the implementation of a CDU entailed only involvement and attention from physicians, this would make it difficult for other ED team members affected by the change to experience the benefits associated with the CDU.

Even though Hospital #4 has a longer history with a CDU, the effects of having a CDU seem to be consistent with the other hospitals in terms of the CDU’s impact on patients’ length of stay data:

I think that the CDU is a great idea, purely because it does stop the length of stay on those patients which need intervention but I can’t speed the process along, and I always use blood transfusion as an example of a process that can’t be expedited.
Another benefit described by individuals at Hospital #4 is a CDU’s impact on units: “What they’re getting are the people that really, truly should be there rather than the ones that we don’t have any way space or place to put them.”

The impact of having a CDU was described as quite transparent, and having a CDU was said to be “well integrated into daily work practice” by ED team members. It was also mentioned how “The staff are doing what they’re supposed to be doing; they’re buying into the process and they know that there’s that form of giving and taking information.” What is meant by the exchange of information is that senior executive members at Hospital #4 ensured that all ED team members affected by the change knew that all inquiries regarding the CDU would be answered. It was remarked that “There’s a real good two-way communication,” and it was recognized that more efforts could be made; however, the current impression with the CDU was described as “better than it was when a co-located CDU existed.” As mentioned previously, Hospital #4 put great efforts in education and awareness around the CDU, and this was all in hopes of sparking greater interest and contribution by those affected by the change.

Overall, it was witnessed at all four hospitals and their experiences with the implementation of a CDU that a collective effort on behalf of everyone affected by the change is crucial in order to really have an impact. The perspectives from those on a senior executive team spoke to the possible issues that can occur from the implementation of a CDU, as well as the benefits witnessed from the impact of having a CDU for any hospital interested in going through such a change within its own organization.

### 6.2 Physician Team

Overall, the physicians from two of the four hospitals in which we had the opportunity to interview physicians shared the same opinion on CDUs’ ability to prevent patient admissions. The following quote is an example:

> I think that it is very efficient in terms of decreasing the length of stay of certain patients who would otherwise be admitted because the period of observation in an emerg is limited . . . so we do prevent, I think that we prevent admission, and so in many cases I think that it is a very efficient unit.

Another physician at a different hospital provided a list of benefits associated with the CDU:
Yeah, the disposition of the patient home is faster than admitting to the hospital, the effective treatment of the patient, so the patient benefits from the treatment, responding to the treatment and feels better. The other thing that it does, it minimizes the admission of the hospital.

Again, this physician pinpointed the role of having a CDU on lowering hospital admission rates by ED patients.

A physician at a hospital that was part of the pilot project described this overall impression and perspective about the CDU’s impact on patients:

It’s been a positive experience, in my opinion. We do manage to see a lot of patients, and on most days like today, it’s full. We do avoid a lot of admissions, that used to be referred or admitted, and I think that as the time goes by we’ve learned to tailor to the types of patients, and I’m hoping it helps to alleviate all of the pressures.

A CDU’s contribution to efficient and effective emergency care is witnessed through its impact on patients. Having to focus on the types of patients who are appropriate for the CDU enhances patient flow and, ultimately, affects wait times in the ED.

Lastly, when asked what factors contribute to the success of the CDU, one physician responded by saying, “The fact that the reassessment, if it’s done early enough in the morning, they can be reassessed immediately.” In this person’s view, the assessment of CDU patients ensures that patient flow is consistent; reassessment can also be informative about whether a patient requires further testing.

The discussion around CDUs’ impact on efficient and effective emergency care with a physician from Hospital #4, a hospital not part of the pilot project, led to the following response:

I don’t think it impacts efficiency at all . . . it’s a manipulation of the length of stay data, . . . for the individual patient that’s going through the system, it’s not improving their wait time in the emergency department at all . . . it’s just manipulating how you’re chopping up, classifying their length of stay. I don’t think that it’s improving their efficiency at all.

This physician further said that the implementation of the CDU was another method of manipulating the numbers in determining length of stay times:

So the length of stay for people, when emerg department is not allowed to use CDU designation, everyone still tracks that. You see, that’s what the true wait
time is for the patient; they’re still in the hospital . . . so what you see in a lot of institutions is that their length of stay for a patient when they’re not using the CDU designation is getting worse, but when you use the CDU designation, it looks like they’re improving . . . so everyone feels good and that’s great. The problem is that, for that individual patient, they’re not waiting any less; they’re still there, so in my experience, there’s not an efficiency gain with using the CDU designation, whether it’s a physical location or a virtual CDU.

One possible reason for the positive association with the CDU for physicians from the hospitals that were part of the pilot study could be the financial component involved. It is unclear whether the elimination of physician reimbursement associated with the CDU would alter the opinions of physicians from the hospitals that were part of the pilot project. Financial incentives create a drive and involvement from targeted groups, and the opinions on the CDU’s contribution to efficient and effective emergency care can be misrepresented by this financial backing. The financial incentive for the physicians that are part of the pilot study makes it difficult to determine whether their opinions on the value of CDUs are genuine, or whether there is compliance and favouritism with the unit because of the financial incentives involved. In contrast, the physician from the hospital that was not part of the pilot study, and who does not receive any financial incentives to possibly sway opinion on the CDU, felt that CDUs create an inefficient way of delivering care.

6.3 Nursing Team

The majority of interviews conducted in this study were with nurses, with the exception of Hospital #4, where the majority of interviews were with members of the senior executive team. At Hospital #1, the nurses said that, with the changes they witnessed on the impact from the implementation of a CDU, there had not been much of a difference: “For us it’s not any different since they introduced the CDU; it’s just that now it has a name to it and a piece of paper.” Another nurse’s reaction to the CDU was as follows:

I think we’ve done this all along. It’s not that, it was there before where we were holding people over, we were holding them as keepers . . . and there’s a space on the orders that makes sure to remind us to do all of those little details when they do look at the CDU. It’s just now this has been suggested and the ministry has come up with this idea and now we’ve got a piece of paper that justifies it.

The nursing team was not greatly involved with the CDU beyond their responsibilities and roles associated with the ED. Members of the nursing team were limited in the amount of
communication and knowledge about the CDU when compared to members on the senior executive and physician teams. Members from the nursing team demonstrated their limited knowledge on the CDU by referring to the purpose of the CDU as a piece of paper or CDU form that justifies its existence. Because nurses are not deeply involved with setting the goals and purposes of the CDU, their understanding of and association with the CDU is achieved only through the amount of paperwork necessary for CDU patients. Additionally, nurses did not feel that much had changed besides the added paperwork associated with the CDU and, because of this, the CDU’s impact on efficient and effective emergency care was non-existent.

With regard to the CDU order forms, there was a general consensus from the nurses at Hospital #1 that the CDU introduced a lot of paperwork, and one nurse described the impact from the overload in paperwork:

They just blend in with the charts, and there’s so much paper everywhere, they can get lost. That’s what I think is the nurse’s biggest concern . . . there’s a potential for things being missed because there’s so many papers to go through.

Not only did nurses associate the CDU with an increase in paperwork and workload, but they recognized and referred to the implementation of the CDU as something the doctors initiated, and explained how “. . . it was all about politics; it was all about the money; that’s why the doctors initiated the CDU.” And when it came to the introduction of the CDU, one nurse described the orientation to the change thus: “No, I don’t think I ever remember being educated on it; it’s just a CDU thing. We were told it’s just something to get the docs more money and it’s more paperwork.” The experience described by this nurse was a reflection and essentially a summary of the nurses’ overall impression toward the CDU at Hospital #1.

Some nurses did not know whether they saw a real benefit to the CDU, and whether it was effective or not, because these patients remain in the department and still required treatment. Nurses noted that “It doesn’t change our care with them.” According to the nurses, care was provided the same way to ED patients, whether they were CDU patients or not. The following quote indicates one nurse’s assessment of the influence that CDUs may have:

I’m not the only person in the department that feels that the CDU is not beneficial, really. In the long run, we know what we have to do, we know that the patient’s going to be there, we know that the test is going to be tomorrow morning. You
know it’s just going to be the paper that reinforces it and the documentation to say okay this is what I did, and this is how the patient is going to do.

The nurses’ examples demonstrate a lack of awareness about the CDU; however, one nurse did mention that they “really don’t have a big picture of what CDU is for.” This demonstrates a crucial contrast in the level of knowledge and experience with the CDU when compared to members on the physician and senior executive teams. Despite being front-line workers, there were several examples of the nursing team’s level of knowledge about the CDU that reflect their overall opinion and assessment of CDUs. Because so many nurses remarked that the CDU is a physician initiative, there is a call for more work and attention on educating ED team members, specifically those members on the nursing team, on the purposes and goals of the CDU and its importance as a component in delivering emergency care.

Lastly, some nurses discussed how some physicians would “back track” the length of time patients stay in the CDU. This would occur when CDU orders are not written until the end of a physician’s shift, and nurses are unaware that certain patients are actually CDU patients. Even without the orders indicating that the patient was a CDU patient, there was also no verbal communication between physicians and nurses, leaving nurses in the dark about these patients (who had already been in the department for several hours). This issue also speaks to the data collection and analysis piece, as to whether CDU patients are actually being discharged within the 24-hour time period. This creates a challenge in data analysis, making it difficult to decipher whether Hospital #1 was achieving its targets, as well as demonstrating the effectiveness of the CDU.

Hospital #2 was the only hospital with a co-located CDU, and this set-up led to that hospital’s nurses’ having different opinions. Additionally, having nurses scheduled and designated to the CDU played a role in their receptiveness toward having a CDU. It was reported that the “nurse–patient ratio is appropriate,” and that there had been no difference to emergency care. “The assignment is patient care, and the only difference is that it’s a lighter assignment.” Many said how working in the CDU was a “good assignment,” and continued to describe their experience as “almost like a restful assignment compared to some of the other areas where you’ve got three heart monitors and it’s just in and out all day long.” Additionally, there was a sense of eagerness on behalf of nurses to get assigned to the CDU, along with the “sense of accomplishment, and
satisfaction” described by a nurse in having done all one’s work on the unit and allowing one to do “extra things like make them a cup of tea.”

One nurse described the effectiveness of the CDU by its impact on other units in the ED: “It is effective, in the fact that it’s helping the ozone to move faster.” The CDU played a role in patient flow in different areas of the ED, and the co-located CDU allowed staff to physically see patients’ progress and movement in the unit. On the other hand, one nurse had a differing opinion, noting that the CDU was “not being very well managed” at the hospital. This response came after being asked whether nurses’ opinions about the CDU have been addressed by members of the senior executive team. This nurse’s opinion resulted from a previous experience with approaching management about an issue regarding the CDU. During the observation component of this study, it was witnessed that this nurse had asked the manager to remind all ED team members how to use the CDU appropriately, and to not abuse it by putting inappropriate patients in the unit.

Lastly, a nurse described the CDU as having “a lot of politics,” and this pertained to how physicians select patients for the CDU based on the financial incentives involved. The nurse described how one physician organizes work with regard to the CDU: “He shows up and there’s only one person there. I think that he goes around looking for patients to put in there”; the nurse’s explanation for this physician’s actions could possibly be the financial incentive of creating more use for the CDU.

Through having clinical care pathways and order sets put in place for CDU patients at Hospital #3, a nurse described the ease of caring for CDU patients: “I think that the strength is the fact that it’s straight-forward paperwork and that it has to be followed. . . . and so it’s a lot more organized. . . . and easier to follow the care plan.” From a clinical perspective, this hospital exhibited the ease in adaptability for staff to the change of having a CDU in the ED, by incorporating instructional and comprehensive order sets.

Alternatively, another nurse explained how the “bottom line is that every patient is managed pretty much the same from the RN’s point of view,” and that designating patients as CDU patients requires one to write up a whole set of orders, and this is considered to be “a waste of time.” Despite having to fill out further paperwork, the CDU order sets have exhibited their
usefulness in guiding staff in CDU patient care plans, further making the distinction between CDU patients and regular ED patients.

As well, at Hospital #3, nurses expressed that the CDU implementation “. . . seems to be all physician-based initiative, physician-based orders . . . and the types of patients going into there, they have made that decision as a physician group.” Nurses felt that nursing staff lacked input on issues revolving around CDU patients, and one nurse noted, “I don’t know if there’s a role there for us, so it’s really a physician-based issue.” The opinions expressed by the nursing team at Hospital #3 demonstrate the lack of a shared vision for the CDU on behalf of all ED team members. It is the responsibility of members of the senior executive team to address this issue in order to ensure a mutual level of comprehension and acceptance of the CDU from all ED team members affected by this change.

Another nurse’s perception of the impact from the CDU implementation was split, where the CDU was not considered to be a “tremendous success,” nor would the nurse consider to “scrap it or anything.” This nurse continued to express the belief that, at times, the CDU is being abused, and at other times it works very well:

I think there are financial incentives, I think, for some of the physicians to deal with people on a CDU basis, I think there are more patients admitted to CDU protocol then necessary sometimes . . . and I think that at other times, patients might be ideal for the CDU who otherwise get referred to medicine or things like that.

The nurses at Hospital #3 shared the same opinions as those from Hospitals #1 and #2 with regard to the inappropriate uses of the CDU due to financial incentives put in place for physicians. Additionally, there was a consensus from nurses on the added workload due to the paperwork involved in designating patients CDU patients.

At Hospital #4, when inquiring whether the education around the CDU’s purposes and goals had an impact on how these patients were treated, nurses’ responses did not seem to correlate with what was described by senior executive team members, who had organized initiatives around CDU awareness. When asked whether CDU patients were put on the back burner because there is a lack of understanding about the CDU, one nurse replied, “Yes, I think that a lot of the time, well, just because there are so many different aspects of a CDU patient.” Yet it was mentioned
that a lot of the communication that did occur with ED team members was done through email; and, according to a nurse at Hospital #4,

That’s more or less relying on staff to check their Outlook to sort of get familiarized with the whole CDU thing, and I don’t think that a lot of staff check their Outlook. And if they do, they just skim over it so there isn’t any sort of formal meeting.

If this was the case, then maybe members of the senior executive team should take other approaches in educational initiatives on the CDU. Furthermore, according to a nurse at Hospital #4, “it’s almost like each person kind of has to advocate for the role of the CDU”; that nurse also said it is the responsibility of that nurse to inform and educate others on when to designate a patient as a CDU patient.

Overall, nurses’ involvement with the care of ED patients allows them to become more engaged in any initiatives to increase the efficiency and effectiveness of emergency care. However, a crucial component is ensuring that they are aware of and educated on any changes; thereby, nurses will not feel alone in taking on any new changes. Investing efforts by senior management to focus attention on the nursing team can also assist in creating a common shared vision about the CDU. Lastly, the hospitals’ part of the pilot study that has a financial component for physicians only allows the nurses to witness more issues toward the use of the CDU, and ultimately alters their opinions and acceptance toward the CDU.
Chapter 7
Results Part IV: Virtual CDU Versus Co-located CDU

7 Perceptions of the Advantages and Disadvantages of Implementing a CDU

Each hospital that participated in the study experienced a change with its CDU, whether it was a conversion from a co-located CDU to a virtual CDU, or a change in location for a co-located CDU. However, each of the changes to the set-up of the CDUs was suggested by ED team members affected by the changes, and was brought to the attention of senior executive members. This section investigates whether having the opposite CDU set-up to the one that already existed would make any difference to and provide any benefits for the delivery of emergency care. Additionally, the experiences with the set-up of the CDUs differed from site to site, and each case revealed various perspectives on what was most suitable for each hospital.

A nurse at Hospital #1 discussed the lack of benefit in having a co-located CDU:

I mean, for us, because we don’t have the housing area, I guess you could move them all to the clinic, but then if there’s surgical patients you’re tying up a monitored bed, because we have monitored beds in the clinic, and quite often we have those monitors all in use for cardiac patients . . . and putting a surgical patient on a cardiac bed doesn’t make sense. So, virtually I think it’s more. It makes more sense for us to keep them virtual beds.

This assessment was based on the availability of space in the ED at Hospital #1. Furthermore, dealing with only 21 beds in the ED makes it difficult to allocate a specific space targeted solely to CDU patients. On the other hand, Hospital #2 created the space for a co-located CDU. A physician listed the benefits associated with a co-located CDU when asked whether there would be an impact on the delivery of emergency care if the CDU were set up virtually:

That’s a good question; I’m not sure. I’m an emerg doc as well. Yeah, would it be better? I mean the pros are the fact that it is kind of separate, when I am covering the CDU it is nice, nicer I think to come to an area that has been set aside for the CDU . . . in front of me, and can deal with one at a time in a calm manner. Because the emerg typically tends to be much more chaotic . . . I suspect here because there’s a nurse here, it’s you and her, and you’re not trying to find her in the midst of the chaos that typically occurs in the emerg. I mean, I would lean toward preferring this model.
The physician went on to say that if the choice came down to having no CDU at all or having a virtual CDU, the preference would be to keep the CDU. Yet, the ultimate preference was to have a co-located set-up: “I like the idea of the CDU, but I guess I prefer this model, just from a work environment point of view. The work environment here would be much more pleasant than doing this in the emerg.” Having that designated physician for the CDU at Hospital #2 generally allowed physicians to have a sense of what was expected by patients in the CDU, as opposed to the ED, where patients’ conditions are highly unpredictable.

A manager at Hospital #2, who reflected on converting over to a virtual CDU, recognized the advantage of being able to accommodate a few more isolation patients because the physical space of a co-located CDU does not provide the opportunity for isolation for all patients. However, the manager discussed further benefits of having a co-located CDU:

There’s also a different, I think a mindset into the assignment . . . so I think in terms of that 24-hour mark, had it been virtual, I don’t think the nurses assigned to the CDU can be as cognizant of that . . . in the mix of everyone else, where minus the physical space you’re more focused on that part of it. In terms of physician rounding, it’s nice because the physician is there, you’re in one spot when they round, you know they can see people, they’re not pulled here and there.

Again, the benefit of having a co-located CDU with designated staff is that it allows greater fluidity in patient flow and the ability to demonstrate that targets are being achieved. This preference in set-up was strongly favoured by many ED team members at Hospital #2. Converting to a virtual CDU may not seem as accommodating for staff, and may possibly reduce acceptance to the change.

When asked about converting to a co-located unit at Hospital #3, the immediate response addressed efficiency. The manager described how to acquire efficiency associated with the CDU at Hospital #3:

I think in my opinion is that the, I don’t think putting them together in one specific area is going to be the thing that makes it more efficient. What will make it more efficient is if the physicians themselves had more accountability to the process, so that might mean staffing the physicians differently, because right now, you know they might at the end of one physician’s shift, he hasn’t made a decision to admit or discharge yet, so he then puts them in the limbo of CDU, so then for another up to 20 hours, that person can sit in limbo.
This issue with physicians’ decisions regarding the CDU has an impact on the overall efficiency; however, it can be addressed. The financial component for physicians associated with the CDU at the pilot sites contributed to the potential success of the CDU in delivering emergency care. Financial incentives can motivate staff, but they can also have negative influences, such as the misuse of a CDU. Furthermore, if certain members of the team are receiving financial incentives and others are not, staff cohesiveness deteriorates, and there is a greater difficulty in achieving collaboration toward delivering efficient and effective emergency care.

The experience with a co-located CDU and with a virtual CDU at Hospital #4 was much longer than that of the other hospitals involved in the study. They had an initial set-up for their CDU; however, immediately upon discovering that it did not work, the CDU was converted. Hospital #4 actually had a co-located CDU for several years; eventually the ED evolved, and it was more fitting to have a virtual CDU. One manager at Hospital #4 described how well a virtual CDU worked for their department, and how it was determined to be “more efficient” if the CDU were kept virtual, seeing that the implementation of RAZ assisted with targeting another demographic of patients that don’t necessarily require a hospital bed for observation and for their delivery of emergency care. Furthermore, a “better geography” and a “flow that worked better,” were being provided when RAZ took over the physical space of what used to be the co-located CDU.

The conversion to a virtual CDU was the decision of the ED team members at Hospital #4; however, this hospital is facing a re-evaluation component driven by the MOHLTC and its guidelines. The manager described the results of this re-evaluation component:

I believe that it’s mandatory that we have a co-located . . . I think we are approaching our two-year grace period, for creating . . . we had to create the virtual CDU, which we did and then we could only have 10% of our stretchers designated, and we can only have 30% of the patients designated as CDU become an admission.

The option to have a virtual CDU has been in effect for two years only, and seeing that the CDU at Hospital #4 has been operating as a virtual unit for almost two years now, they are faced with the decision to re-convert back into a co-located CDU.

Lastly, there seems to be a “quality of care” argument associated with the implementation of the CDUs; however, there is a lack when it comes to “efficiency gains from the CDU,” whether it is a co-located or virtual CDU. A physician described the reasoning behind the possibility of
improving quality of care for CDU patients when asked about the benefits around having different set-ups for a CDU:

It’s thought to help with, you know, maybe improve quality of care because you’re not, you can keep people around a little longer to finish off or to provide a little more comprehensive care, without it negatively impacting your tracked wait times. The patient is still down in the department but that would be the other goal is that you can argue that it is providing some level of increased care; people aren’t being discharged as rapidly . . . because you feel like they’re off the clock, the wait-time clock.

In relation to converting back to a co-located CDU, the physician explained that, based on the eight-year experience, there was no benefit to having the CDU set up in a co-located manner. There were no impacts on patient flow or efficiency from the implementation of a co-located CDU: “You know, we kind of gave it an eight- or nine-year trial and did not have a good experience with it, so we don’t really have a lot of motivation to readdress having a physical CDU.” The reasoning behind the existence of a virtual CDU at Hospital #4 was that there were benefits associated with using the CDU designation. It is unknown what ED team members’ reactions would be if they were faced with a re-conversion back to a co-located CDU.

The set-ups of the CDU at the four hospitals each involved their own journeys of how they came to be. Justifiable reasoning about any changes from the initial implementation of the CDU has been described, and, based on the hospital’s capacity to deliver emergency care, it is understandable why certain changes occurred.
Chapter 8
Discussion

8 Linking the Literature on Change Theories to the Implementation of CDUs

Linking to the literature on change theories and the background information on the implementation of change within organizations, the experiences of the hospitals described earlier demonstrated the similarities and differences amongst CDU characteristics. This section compares the hospitals, and discusses what was learned about change through the experiences of each. The application of change theories to the four hospitals has also been conducted, and distinctions have been drawn to define what makes each hospital unique in its experience in implementing change.

8.1 Structure

When discussing structure in relation to the implementation of CDUs at the hospitals involved in this study, I examined the set-up of these CDUs, whether in a virtual or co-located manner. The similarities and differences were explored between the hospitals and their experiences as to how a CDU was implemented in their ED.

8.1.1 Similarities in Structure

All three hospitals with a virtual CDU used to have a co-located one. Hospitals #1, #3 and #4, all display the transition from having a designated physical space for a CDU to having a virtual CDU. As discussed earlier, with the implementation of their CDUs, these three hospitals were faced with challenges around organizing work with a co-located CDU. Based on patient demographics, space constraints and ease of transition to the changes associated with having a CDU, it was more fitting to convert to a virtual CDU. The front-line workers at all three hospitals were the ones who voiced their opinions and expressed concerns about how the co-located set-up was not working. ED team members are constantly working in the CDU; they understand and can see what works well and what does not work as well. Therefore, their suggestions to change the structure of the CDU are made to those who can make a difference in the way work is conducted.
The conversion to a virtual CDU from a co-located one had to be addressed by senior executive team members, the individuals who initiated the changes and introduced them to ED team members. The modification of the CDUs seems to resonate with the structural model, where, as stated in the contingency theory of Lawrence and Lorsch (1967), the capacity for an organization to change relies on the adaptability of its design. As well, in the structural model, it is said that identifying the appropriate and effective structure that demonstrates enough flexibility to adjust to changes as they occur in the environment is crucial (Champagne, 2002). The structural model found in change theory is exactly what members of the senior executive teams executed; they recognized the challenges faced by their ED teams and modified the set-up of the CDUs to accommodate front-line workers’ concerns and achieve greater patient flow.

8.1.2 Differences in Structure

Hospital #2 was the only hospital involved in this study that had a different structure for its CDU. The layout of the co-located CDU at Hospital #2 went through a change in location. Despite relocating the CDU from a separate floor to the ED, the CDU remained co-located.

Having a CDU located on a separate floor made it difficult for ED team members to function. Staff members were constantly going back and forth from the CDU to the ED, ultimately decreasing the unit’s effectiveness. It was then decided to move the CDU to make it part of the ED, and, because space was made available for a co-located CDU, the set-up remained the same.

In accordance with the structural model and the experiences of hospitals with implementing a CDU, whether virtual or co-located, the set-up of the units themselves did not matter. Work was accomplished in accordance with the goals and purposes of each CDU regardless of the set-up. It was just a matter of accommodating other factors and issues faced by the EDs to determine the type of set-up for the CDUs, including limited resources, space and patient demographics.

The change in set-up for the CDUs offered flexibility for ED team members to adjust to the changes being made. The adaptability to the design and structure of the CDUs demonstrated the flaws in the set-up in accordance with each hospital’s capabilities. Despite altering the set-up of CDUs, these hospitals were (as of the termination of this study) still operating CDUs in conformity with the guidelines and policies originally put in place. The structure of the change being implemented demonstrated that the set-up of a CDU is greatly influenced and bounded by
an ED’s capacity to provide care. As well, the target populations were still being cared for in an efficient and appropriate manner.

8.2 Goals and Tasks

The goals and tasks associated with a CDU are directly associated with an organization’s change-implementation expectations. They describe achievements that the change has to offer and may result in new behaviours for staff to perform in order to appreciate the benefits that come with change. The goals and tasks also assist in creating an environment that supports change.

8.2.1 Similarities in Goals and Tasks

The staff at each hospital felt that patients are treated the same way whether they are CDU patients or not; the CDU designation did not change the manner in which care was delivered, and work processes were carried out in the same fashion regardless.

Despite being aware that CDU patients do not require much attention because they are usually waiting for test results, ED team members reported that CDU patients still receive the same level of care and attention as every other patient. The implementation of a CDU was regarded as a change to target a certain demographic of patients in order to influence wait times in the ED; yet, there was minimal impact on work processes for staff affected by the change.

Policies and procedures for CDUs allow hospitals to achieve the goals and tasks of CDUs, and they assist with outlining the expected achievements of implementing CDUs. Hospitals #1, #2 and #3 had restrictions on the number of patients that could be designated CDU patients. Table 2 on page 35 outlines the maximum number of patients for each hospital, ranging from a total of four to a maximum of seven CDU patients at a time in the ED. New behaviours associated with implementing a CDU require staff to become familiarized with the purposes of the CDU, its protocols and procedures and the added paperwork to document patients’ progress.

Staff members did not appreciate the added paperwork for CDU patients. ED team members voiced concerns that the implementation of the CDU had increased workload, and they could not see the benefits in having to do more paperwork. This issue can be addressed by revisiting the
goals of the CDU, and by explaining the necessary behaviours and actions expected by ED team members.

8.2.2 Differences in Goals and Tasks

Hospital #4 also put restrictions in place for the number of CDU patients in its ED. However, that number was referred to as a goal or a target to achieve – specifically, for 10–15 CDU patients every 24 hours. This goal speaks to the efforts to achieve wait time targets, thereby gaining more funding from the P4R program. Greater effort and attention were directed toward the CDU and this goal. The lesson learned here is that education and building awareness of this target creates greater acceptance of change and ensures that ED team members understand and see the benefits from the change.

Many of the interviews that took place at Hospital #4 included discussions that revolved around the attention paid to achieving P4R targets, and it can be said that because of these targets and the incentives it has to offer, P4R has become the driving force behind improving the care for CDU patients.

8.3 Human Resources

Staffing represents ED team members’ availability or designation to a CDU, and it encompasses their roles and responsibilities. More particularly, in this case it deals with having designated staff for the operations of a CDU, and making adjustments and accommodations in staffing to address the change being implemented.

8.3.1 Similarities in Human Resources

Hospitals #1, #3 and #4 all had ED team members looking after CDU patients, based on whether these patients were located within their assigned areas for the duration of their shifts. Hospitals #1, #3 and #4 also all had a virtual CDU, meaning that CDU patients were not housed in one separate physical location; rather, they were scattered throughout the ED. The designation of ED patients as CDU patients at Hospitals #1, #2 and #3 could only be achieved through a referral from the physician.

Additionally, a common concern in the healthcare industry is the availability of resources, and this was mentioned with regard to the amount of staffing available for the care of ED patients.
Hospitals are faced with challenges in acquiring enough staff to keep up with the demands of the ED, and this was voiced at Hospitals #1 and #2.

8.3.2 Differences in Human Resources

Hospital #2 had a co-located CDU, and this organization had designated staff that tended only to patients in the CDU on a shift-by-shift basis. There were also designated physicians specifically for the CDU; however, due to limited resources, these physicians were not always on site and are on call for part of their shift.

Another difference is that Hospital #4 was the only facility where both physicians and nurses could make the designation to CDU for ED patients. Based on the patient information displayed on the whiteboard at Hospital #4, physicians and nurses could designate patients to the CDU and make the appropriate changes to the whiteboard so that other ED team members would be aware of updated patient status.

The models and theories presented in the Iles and Sutherland (2001) review make note of the impact that staff have on leading and accepting change. It is important to address the concerns of the people affected by change, seeing that they can be the drivers or enablers for change, or resist change. Iles and Sutherland also note the work that needs to go into managing the relationships amongst staff, and ensuring that any conflicts are resolved, to achieve successful implementation of change.

Furthermore, Champagne (2002) describes a psychological model with regard to change. According to this model, change can be implemented if people’s natural resistance is conquered. The psychological model includes descriptions from Coch and French (1947) on how there are individual negative and defensive reactions to change, and, according to Argyris, Putnam and McLain-Smith (1985), a managerial role facilitates the development of a learning framework to allow individuals to take responsibility and initiative on issues being faced by change. Champagne explains how identifying individual problems with change opens up the opportunity for group cohesiveness by creating paths for experimentation and problem resolution. Members of the senior executive team at Hospital #4 increased their efforts on education and awareness around the CDUs. They reviewed the data and would revisit cases where patients could have been designated to CDU but weren’t. This turned the situation into a learning opportunity for ED
team members, reminding them of the goals of the CDU and ensuring that everyone understands the purposes of the CDU.

At Hospital #2, ED team members expressed an appreciation toward the change. The appreciation toward the CDU revolved around the rotational scheduling of shift work assigned specifically to the CDU, and this is because the CDU was regarded as having a lighter workload in comparison with the ED. With regard to Hospitals #1, #3 and #4 having virtual CDUs, staff reported that they did not observe much of an effect from the change being implemented. Some staff saw the added paperwork associated with the CDU as a way to justify the purpose of implementing a CDU, and because of this negative association, there was minimal acceptance of the change.

8.4 Rewards

As previously mentioned, Kerr (1995) describes how incentive systems are an important factor in the type of change that occurs within organizations. The incentive system or rewards that have been associated with the CDU entailed two components for the hospitals involved in this study: the physician financial incentive structure for hospitals involved in the pilot study, and the MOHLTC’s P4R program. It has been discussed in the change literature that payment mechanisms plays a role in how care is delivered. The involvement of a financial component can create a drive for those affected by the reward system to perform in a manner to acquire benefits entitled to them.

With respect to reward systems put in place in association with CDUs, the pilot sites involved in this study incorporated a financial incentive for physicians only. This type of reward system exhibited effects on individuals not involved with the reward system, such as members of the nursing team. In comparison with the nurses, there is a greater acceptance of the CDU by members of the physician team from hospitals that took part in the pilot study. However, the nurses from the pilot sites demonstrated more difficulty with coming to terms with the CDU and understanding the purposes it had to serve. The distinction of those receiving some sort of reward associated with the implementation of change creates a divide between ED team members, and causes nurses to focus on negative aspects of the CDU, such as the misuse of the CDU by physicians driven by financial incentives. The thoughts and opinions about the CDU by the nurses who took part in the pilot study focused on unfavourable issues, rather than on whether
the CDUs were achieving their goals and purpose. Not being involved in any reward system associated with the CDU makes it difficult for ED team members to determine whether CDUs are actually contributing to efficient and effective emergency care.

8.4.1 Similarities in Rewards System

Hospitals #2, #3 and #4 are part of the MOHLTC’s P4R program, an incentive to achieve target wait times in order to receive more funding.

As well, Hospitals #1, #2 and #3 were from the MOHLTC’s pilot project, and this entailed the incorporation of physician reimbursement with the implementation of a CDU. Opinions on the change and the incentive that is made available only to physicians on the ED team varied from profession to profession. The general consensus amongst the physicians was a lack of concern with or objection to either the financial incentive or the implementation of a CDU. Other ED team members affected by the change and not part of the financial incentive, such as nurses, did not, however, share similar opinions on the change. Nurses from all three pilot hospitals expressed concerns about the implementation of a CDU, such as the misuse of the CDU by designating inappropriate patients to the unit, and it is thought that this difference in opinion was due to the financial incentive structure for physicians.

8.4.2 Differences in Rewards System

Hospital #1 was the only hospital in this study that was not part of the P4R program. Hospital #4 was the only hospital in this study not included in the pilot project, and did not have any physician reimbursement structures in place with regard to the implementation of the CDU. Hospitals #2 and #3 were both part of the P4R program and the pilot project.

In general, when making comparisons between the sites that have two different financial incentives and the ones with only one type of financial incentive, Hospital #4 speaks to the many benefits brought by the P4R program, which encourages use of the CDU. Many of the interview discussions at Hospital #1 focused on staffing shortages and the lack of appropriate nurse-to-patient ratios for providing care. As well, Hospital #1 interviewees had similar thoughts to those at Hospitals #2 and #3 about inappropriate use of the CDU because of financial incentive for physicians only. However, Hospital #2 was organized to have designated staff for the CDU, where ED team members are scheduled into the CDU. With this type of staff organization,
nurses felt that they were receiving some sort of benefit in association with the CDU and did not complain as much about the financial incentives made only to physicians.

Introducing change with a financial incentive attached to it, such as those changes associated with the pilot sites and physician reimbursement structure, can create boundaries like the ones described in Ferlie et al. (2005). There are already boundaries amongst ED team members by virtue of being from different healthcare professions. Now, not only is there the introduction of change within the organization, but there is also a greater distinction between professions because of the different rewards systems for a specific group. Groups that do not receive any financial rewards from CDU implementation may have a challenging time embracing the change.

The P4R program is different in the sense that it offers funding to the department, where decisions about where funding goes is a collective decision rather than just a specific group of members in the ED. The P4R program is a great way for hospitals to become more involved with achieving specific ED wait time reduction targets. Not only can some hospitals benefit from another method of receiving further funding that can go towards an ED, but if that 10% improvement is achieved each year, it demonstrates that people aren’t waiting as long for the ED services that they require. This method of providing funding allows hospitals to strategize and explore various ways in providing care in order to improve patient flow in an ED. If strategies, such as implementing a CDU in an ED are successful at improving patient flow, it can allow for greater flexibility for other departments in the hospital with their bed occupancy levels, which in turn can impact the number of people waiting in the ED.

8.5 Information and Decision Support

The infrastructure for the hospitals involved in this study aided the process of implementing change within the organizations. The use and application of communication tools such as the trackers found in the ED indicated patients’ status and location, and helped to cue certain processes that ensured ED patients were receiving appropriate care. Furthermore, because the purposes and goals of a CDU are time sensitive in ensuring that patients can be discharged within 24 hours, the tracker and any other form of communication tool have an important role to play.
8.5.1 Similarities in Information and Decision Support

Patient forms and the tracker are communication tools found at all the hospitals that participated in this study. In one form or another, patients’ status and location were noted and communicated with other ED team members. The manner in which time was tracked for CDU patients was consistent amongst all hospitals in this study: the clock began ticking when a patient entered the CDU, and stopped when the patient exited the CDU either by being discharged or by becoming an admitted patient. The time spent in a CDU was time taken out of the ED length of stay, and it was understood that the tracking of times for ED patients was crucial and corresponded with the P4R initiatives.

8.5.2 Differences in Information and Decision Support

The extent to which various forms of communication tools were put to use and applied varied across the hospitals involved in this study. For example and as previously discussed, Hospital #1 used a tracker to indicate patients’ status and location; however, the actual use of the tracker depended on individual nurses and whether it was well integrated into their daily work processes. Yet, it should be noted that sometimes the chaos associated with the ED did not allow for the opportunity to make changes on the tracker; however, any change in patient status was noted in their patient charts.

Another difference worth noting was the advance in technology at Hospital #4 with its tracker and electronic whiteboard. The technology found at Hospital #4 was much more sophisticated than the communication tools used at Hospitals #1, #2 and #3. The whiteboard was a sophisticated electronic tracker that incorporated many cues for assessments and indicated the amount of time that had elapsed for certain procedures. It even flashed or uses colour coding to gain the attention of healthcare professionals when certain actions needed to be performed.

Technological sophistication reveals the effort an organization puts toward implementing change and helps to ease transitions. As Nadler and Tushman (1989) observe, there is a call to adjust the infrastructure of organizations in order to be supportive of, and consistent with, changes being implemented. If there is a collective sense of effort and contribution toward the change being implemented, it may create more attentiveness and openness to the change by ED team members.
Incorporating the use of the tracker into personal work practices also increases the ability to demonstrate the efficiency and effectiveness of CDUs through patient information and results.

Outlining the similarities and differences of key characteristics for implementing change between the hospitals involved in this study helps to identify any unique components that may contribute to the care of patients. The characteristics described in this section provide insights into how work is organized at the hospitals and how patient flow can be affected by these characteristics. In the next section, issues facing patient flow in the CDU are explored, along with the aid of visual diagrams to pinpoint areas of concern.

8.6 CDUs’ Impact on the Delivery of Emergency Care

The flowcharts in Figures 2, 9 and 10 provided in this paper describe a patient’s journey through CDU entrance, CDU processes and CDU exit, and serve as a framework for describing the impact of implementing a CDU. Discussion revolves around each intervention, the expectation from implementing a CDU, the barriers each hospital experienced and how change was accepted by ED team members. The flowcharts add depth to and provide insight for understanding what was actually going on in these hospitals with regard to the implementation of CDUs. Outlining the expectations from implementing CDUs also speaks to the “hiccups” or interruptions in fluidity in patient flow to the CDU and patients’ journey exiting the CDU. This process helps address future implementation of CDUs in hospitals by identifying issues and factors that require attention before achieving success from implementing change.

The literature addresses aspects of an organization that require attention when implementing change through CDUs. These factors pertain to staff or relationships between people, goals and purposes, incentive systems, culture and shared values. A crucial component holding these organizational characteristics together is communication. Communication amongst everyone involved with change eliminates the risk of straying away from the common vision for implementing CDUs. Based on what was learned in this study about ED team members’ opinions regarding their CDUs and their interpretation of what the CDUs mean to them, the findings reflect the notion of a “broken telephone” in communication. When each member puts his or her own spin on the goals and purposes of a CDU, this creates inconsistency in a common vision for the CDU and inhibits the potential to experience its potential benefits. The lack of a
common vision leads one to question whether the purpose and goals of CDUs were clearly defined to ED team members when they were first introduced and implemented.

The general expectation for ED patients who enter the CDU (for a co-located CDU), or become designated as a CDU patient (for a virtual CDU), is illustrated in Figure 3, which provides a description of the characteristics for each type of CDU.

**Figure 3. CDU Characteristics Flow Chart**

One factor contributing to the way work is conducted is the information technology (IT) communication system. This refers to any tracking system in the ED that indicates the patients’ status. As described in the cases, the range in sophistication of the tracker technology varied widely.

Aronsky, Jones, Lanaghan and Slovis (2008) describe the application of sophisticated trackers, also referred to as computerized whiteboard systems, in providing high-quality and timely patient care in the ED. These computerized whiteboard systems provide operational and patient-related information, as well as constant updates on ED operations. This type of system was integrated into the ED at Hospital #4. On the other hand, the use of dry-erase whiteboards can also be seen in EDs for patient tracking, and this type of system was integrated into the ED at Hospital #1.
The disadvantages of a dry-erase whiteboard as a tracker are that it does not allow the recording of up-to-date patient information, it inhibits the ability to anticipate overcrowding and it can contribute to delays or errors in patient care because there is limited integration with a provider order entry system or computerized patient records.

Staff at Hospital #4 noted many benefits associated with having a computerized whiteboard system. Aronsky et al. (2008) list possible advantages in having sophisticated technology incorporated into patient tracking systems, including improved patient flow efficiency, transparency and accountability, effective communication and optimized information management.

Staff at the hospitals in this study that lacked a computerized whiteboard system expressed concerns about the awareness of ED patients designated as CDU patients. Because the trackers at Hospitals #1, #2 and #3 did not provide up-to-date information on ED patients, it was difficult to know whether these patients were actually CDU patients. CDU patients are time sensitive in the sense that they can be discharged within 24 hours of admittance, and if communication lags in this aspect it becomes challenging to achieve the 24-hour discharge target. It can be implied that computerized whiteboard systems are crucial in providing effective communication and patient care in an ED, and will only enhance the process of introducing change and achieving successful CDU implementation.

CDUs are implemented with the goal of admitting patients who can be discharged within 24 hours. The CDU processes displayed in Figure 4 are steps taken to achieve this goal and ensure that efficient patient care is provided.
Figure 4. CDU Processes Flow Chart

However, a common issue in the healthcare sector is limited resources and, more specifically in the cases described in this study, the limited availability of diagnostic services. The latter creates a disruption of patient flow in the CDU. The steps of diagnosis and devising treatment plans for CDU patients could be placed at a standstill, where no further progress can be achieved until after tests have been completed.

The road blocks encountered in the diagnosis and treatment planning stages, where further testing or further observations are required to determine whether admission into the hospital is necessary, are usually encountered later in the day. The provision of diagnostic services is limited to specific hours, and for those CDU patients coming into the ED during the latter part of the day, it is likely that they will have a longer length of stay due to having to wait until the next morning for testing.

The access to diagnostic services poses an issue in the efficiency of CDUs, and possibly contributes to the length of stay exceeding the 24-hour mark. However, providing diagnostic services around the clock is not an option, making it crucial to ensure that CDU patients who
stay overnight receive any testing and diagnostic services as soon as possible the following day. This way, CDU patients can receive a decision as to what is going to happen to them next within the 24-hour period of time.

When patients exit the CDU, it is hoped that they will not be admitted to hospital, because the time spent monitoring and observing CDU patients should be sufficient to allow the patient to exit the CDU; otherwise, there may be other issues contributing to hospital admittance from the CDU. The issues caused by admitting CDU patients into hospital may be from unforeseeable deterioration of patient health status or because the patient was inappropriately placed in the CDU upon initial assessment. Figure 5 displays the various avenues for CDU patients upon exit.

![CDU Exit Flow Chart](image)

**Figure 5. CDU Exit Flow Chart**

For those who do require admission to hospital when exiting the CDU, the time waiting for consultation is lengthy. Staff at the hospitals in this study expressed issues in getting timely access for consults. This extends the length of time for patients in the CDU, and it also ties up an ED bed that could otherwise be put to use by other ED patients. Staff at Hospital #2 indicated that ED patients waiting for consults could not be admitted to the CDU; however, sometimes this
policy could be unpredictably applied. For example, Hospital #1 was the central location for services such as surgical and orthopaedic consultations that other hospitals in the area did not offer, and this created a greater demand on ED services and prolonged wait times to access consults.

At Hospital #3, a nurse described the issues with consults in relation to emergency physicians managing the CDU:

> It [emergency physician management of the CDU] can really be a hindrance, because you delay the consulting process when you know in your mind they’re going to be consulted eventually . . . or you just assume that because you think that their appendix or their gall bladder or whatever they’d have tested for that, or they’re a cardiac patient that has a history, they’d be consulted anyway; it seems to me to be just a delay in process.

If the CDU is regarded as a delay in process for consultations, then the goals and purposes of the CDU need to be revisited. Consults are not just an indication for hospital admittance, but can also be necessary in providing a different perspective from another physician to ensure that patients are receiving the appropriate care and following the appropriate care path.

Hospital #4 had experiences with ED patients who may have been unnecessarily admitted to hospital. This happened because the patients did not have the chance for a consult. Patient flow exiting the CDU needs to ensure appropriate placement for patients in order to avoid discrepancies in data collection associated with efficiency and effectiveness of CDUs. A UCA at Hospital #4 discussed the problems associated with the consults:

> There were certain modalities that we had problems with that we had to CDU patients, patients that were referred to stress tests, cardiologists will leave those just because it’s 4:00, or 5:00 and those patients will not come back to emerg until after, so there are still a few areas where we could possibly need a little bit of help.

The availability of cardiologists for consults at Hospital #4 had created the need for a care pathway for patients requiring stress tests before being placed in the CDU. These patients would not be placed in the CDU unless they fit the CDU criteria. Refinements to the CDU are made along the way; however, clear goals and purposes will always serve as a foundation for which further changes are made.
Overall, the bumps along the journey of patient flow in CDUs are issues that can be addressed or closely monitored in order to fulfill the expectations of implementing a CDU. Ensuring that all team members affected by change are aware and understand the goals of the CDU allows everyone to get back on track and ensure that the CDU is fulfilling its purposes and goals.

8.7 Implications

This study examines the implementation of CDUs at four different hospitals, and provides further understanding on the perceptions of change through an ED intervention and on the impact CDUs have on the efficiency and effectiveness of emergency care. The role of a CDU is to alleviate pressures on the ED by targeting patients with clinical characteristics that allow them to be discharged within 24 hours of admittance. Many hospitals have already implemented a CDU to address issues faced by the ED, and this study can aid in the future implementation of CDUs at other hospitals.

This study reveals how senior executives became aware of and understood the challenges faced by ED team members when being introduced to change. Individuals on the senior executive team can address any issues faced by ED team members on the CDU intervention. For example, it may be necessary to improve or increase educational awareness on the goals and purposes of the CDU, or increase efficiency by addressing minor issues such as the paper colour for CDU order forms or having the forms stapled together to prevent errors from occurring. As well, senior executives are regarded as authorities who have the power to make changes. These individuals need to take on that leadership role when introducing change and use their hierarchical control to address any outstanding issues when implementing a CDU intervention.

Taking stock of the perspectives of the healthcare professionals affected by change allows other hospitals and their ED team members to understand the processes and possible issues when faced with similar issues. ED team members can learn from the experiences described in this study, and address any similar issues that they may encounter during CDU implementation before they become bigger issues.

This study also speaks to policy-makers when considering whether to further expand opportunities to implement CDUs in EDs. This study addresses concerns associated with the availability of resources and the impacts of financial incentives. The findings from this study can
prompt policy-makers to consider ways to promote and improve communication amongst ED team members. Addressing the need for greater communication can boost the creation of a common vision amongst ED team members. Enhancing communication is a two-way street; communication requires listening to those affected by a change. Communication can also be addressed by enhancing ways to inform and ensure that those affected by a change not only know about the purposes and goals of the CDU but also understand them, thereby creating a common vision for ED team members.

The control of these factors by policy-makers contributes to the likelihood of success for implementing CDUs, improvement in the delivery of efficient and effective emergency care and acceptance and embrace of change by ED team members.

Finally, the findings in this study reveal the need for a common vision of CDU purposes and goals amongst all ED team members within each site. The different health professionals at each hospital considered in this study exhibited various perspectives and opinions toward the goals and purposes of their CDUs. Lack of consistency amongst ED team members can create inefficiencies that negatively affect the organization and delivery of care.

The findings from the hospitals involved in this study also exhibit a lack of common vision between members of the senior executive team and members of the physician and nursing teams. Members from the senior executive team are equipped with greater levels of knowledge about CDUs compared to physicians and nurses. However, not all of the knowledge about the CDU and the results achieved from the CDU were fully communicated to members of the nursing and physician teams. If senior managers do not share the results on CDU performance with staff, then staff members cannot witness any difference that the CDU may have to offer. This shortfall became evident in the findings from some of the participants and their opinions about their CDUs.

8.8 Limitations

Case study research provides strong internal validity, and Ferlie et al. (2005) describe how data within cases are strong and “truthful.” However, case study research is weak on external validity. Generalizability of the findings from each of the cases can be restricted, especially because this
The study was an exploratory case study that investigated the perceptions of ED team members on the implementation of change at four hospitals in Ontario.

Due to limited resources, the sample size for this study was also limited. The hospitals that participated in this study came from a convenience sample. The convenience sample was filtered from the pilot study’s purposeful sample, which consisted of only seven hospitals. Three out of the seven hospitals were selected for a convenience sample, and the additional hospital was selected because of its convenient location.

According to Yin (1989), the types of evidence used to collect data, such as interviews and observations, have limitations. The limitations of interviewing may include bias in question selection, bias from participants and their responses, and reflexivity, where the participant may express what the interviewer would like to hear. However, there are benefits from interviews used in case study research: they create a targeted approach in pinpointing attention on the case study topic, and they are also insightful for allowing casual inferences to be made.

The non-participant observations also have limitations. These include time-consuming data collection for observations, selectivity where some facts may be missed by choosing what to observe, and reflexivity (changes due to the observer’s presence). Yet, there are advantages for the application of observations in case study research, including revealing events in real time, providing information on the event context and insight into the interpersonal behaviours that cannot be revealed during interviews.

Despite the challenges faced by conducting a study that used interviews and non-participant observations as methods to collect data, the findings from the study wouldn’t offer the type of insight if accomplished through a quantitative study. For example, if this study was a quantitative study, where the use of surveys to rate ED team members’ perceptions on the efficiency and effectiveness of implementing a CDU on a Likert scale, it would only offer a degree of satisfaction with CDU implementation, but not an explanation or understanding of where that satisfaction and perception comes from. Due to these reasons, and in order to fulfill the objectives of this research study, a qualitative study was deemed most appropriate.

The hospitals’ experience in having a CDU implemented in their EDs ranged from 2 to 10 years. There was only one hospital with a longer experience in having a CDU, and generalizability of
the findings from this case may be limited. This hospital with a greater experience with CDUs was the only one used to compare results with the other hospitals that had lesser experience with CDUs. This hospital’s experience may not be the same as that of the other hospitals with regard to the development and progress with change.

The findings on the perceptions from various healthcare professionals were also limited. There was not an equal number of each type of healthcare professional from each hospital because of the availability of staff for interviews. There is a limitation with the representation of each profession from each hospital, which creates a challenge in the generalizability of the findings. There may be greater representation from one profession over another, making it difficult to draw conclusions on the overall impression and opinions of the CDU. At each hospital, there was an imbalance in the number of professionals interviewed in this study, and this limits the results by not being representative of all opinions within each healthcare profession.

Furthermore, only one hospital in this study had a co-located CDU, so the findings from this case have limited generalizability. The case can be further enhanced by incorporating more hospitals with a co-located CDU, in order to make comparisons and see if the experience in implementing change is consistent and similar.

Many challenges were faced during the data collection phase. EDs can be chaotic places, especially those hospitals faced with staffing challenges, and this makes it difficult to go in and conduct interviews with healthcare professionals who had limited time to spare. For example, at one hospital, the manager provided a list of individuals to interview. This process restricted the randomness of participant selection, and may have impacted the data, because staff members were aware that their manager had selected them to participate in the interviews. However, due to the issues faced with staffing and their availability, this process aided in the success of data collection from this site.

There is a challenge with interviewing participants who are shift workers. There was difficulty in acquiring interested participants, especially with participants who function on a rotational shift-by-shift basis. Communication amongst shift workers poses a challenge because meetings with staff need to occur multiple times during the day in order to accommodate all shift workers, such as those working the night shift.
Another challenge revolved around the beginning phases of data collection. It took several months to attain ethics approval and get into the sites to commence data collection. Contributing to this delay was the communication around introducing the study and scheduling visits at each site. It was a challenge being constantly directed from one person to another in order to make arrangements for data collection. While it was possible to successfully complete data collection, it took about eight months to do so.

Also, this study addressed only hospitals that had successfully implemented CDUs in their EDs, and did not include any hospitals that had been unsuccessful in their efforts. The lack of unsuccessful hospitals limits the conclusions in the experiences of implementing change. There may be hospitals that attempted to implement a CDU within their EDs and did not succeed, and detailed information on those failures would contribute to our understanding of why successful CDU implementation occurs.

Lastly, despite being able to ask all of the questions outlined in the interview guide, when it came to discussing the CDU’s contribution to effective and efficient emergency care, the majority of the responses revolved around their level of satisfaction with the unit. Such responses entailed whether participants enjoyed or disliked the work associated with the CDU; however, they barely elaborated upon the impact CDUs have on patients. For some participants, their evaluation of the CDUs was kept brief by indicating that the CDU is good and that it has been working out well; yet, discussion regarding the overall influence CDUs contribute to delivering efficient and effective emergency care was quite limited.

### 8.9 Future Directions

The exploratory case studies executed in this study have created many opportunities for further research on introducing change through implementing CDUs in EDs. The hospitals that participated in this study have demonstrated success with the implementation of a CDU in their EDs, and that success is represented by the post-study existence and sustainability of the CDUs. Even though the hospitals in this study were still operating CDUs in their EDs at the time of submission of this thesis, it is possible that there may be other hospitals that have tried implementing a CDU and did not succeed. It would be interesting to investigate what factors have contributed to the failure of implementing change, and compare any differences with the challenges faced by the hospitals participating in this study.
The types of CDUs, whether virtual or co-located, create opportunities to further investigate what types of set-up have proven successful at other hospitals and why they have been so successful. As well, conducting a study to include a greater number of hospitals with a CDU can determine whether there are any influential factors in having one type of set-up over the other. It can also further demonstrate whether one set-up is more effective in delivering emergency care.

One aspect that could have been done differently, and that could spark interest for further research, is to incorporate more hospitals that are part of the P4R program. Incorporating more such hospitals could provide further insight into the impact of financial incentives on the implementation of CDUs. As well focusing on funding initiatives that help limit the boundaries that exist between healthcare professionals is ideal. The P4R program allows hospitals an opportunity to acquire more funding on the basis of providing improved results in delivering emergency care. If more hospitals are qualified for this funding, they can use resources on strategies for improving patient flow, such as implementing a CDU in the ED.

The impact of feedback mechanisms and communication tools that contribute to the success of implementing change can also be further investigated. For example, a quantitative study could examine the timeliness of real-time information to affect the care being delivered to patients. The care of CDU patients can be determined by their length of stay in the CDU and whether this time could have been improved by factors such as sophisticated communication tools that offer an interactive component for ED team members.

Lastly, this study, which applied qualitative methods, adds to the literature on CDUs that lack the in-depth understanding of ED team members affected by the change. Further studies that apply qualitative methods are necessary to provide insight that quantitative method studies cannot achieve.

### 8.10 Conclusions

The original intent of this study was to explore the process of implementing CDUs through the perceptions of ED team members. Change theories found in the literature describe many change frameworks that were used and applied to investigate the implementation process of CDUs, which later translated into the impact that CDUs have on the way emergency care is delivered.
It was discovered that the use of a change framework was helpful in understanding the implementation of CDUs. The literature on change theories gave the ability to break down key components for successful implementation of change in organizations. The change framework helped to identify issues that require further attention and work, such as the importance of communication in attaining a common vision for sustaining change.

Based on the perceptions of ED team members, it can be said that having a co-located CDU can create greater awareness about the unit, along with the purposes and goals it has to serve. The existence of co-located CDUs creates a visual component for ED team members to witness patients entering the CDU, receiving treatment and exiting within an appropriate time frame. However, the issue of space constraints along with funding, faced by many Ontario EDs, may not allow for the implementation of co-located CDUs, making it even more crucial to focus efforts on communication and educational initiatives in building awareness. As well, these opinions regarding the benefits of a co-located CDU is based on one hospital that had a co-located CDU in their ED, thereby further research on perceptions about co-located CDUs is required to see if these advantages are consistent to the ones listed above.

Ultimately, there is a list of factors to consider when implementing CDUs in EDs. Characteristics listed in the star model presented by Golden (2006) provide an excellent starting point for identifying areas that require more attention than others. Other necessary factors involved in implementing CDUs are the levels of interprofessional collaboration, communication and desire to obtain a common vision amongst ED team members on the purposes and goals of the CDU. It is recommended that organizations interested in implementing CDUs be willing to put forth significant efforts during the initial stages of implementation, which, according to the literature on change theory, determines the success of implementing change. The sustainability of change relies heavily on whether CDUs have been regarded as something that contributes to the delivery of efficient and effective emergency care, and it requires constant attention and rework. As witnessed with the CDU at Hospital #4 presented in this study, and the ongoing existence of the CDUs at the pilot sites months after the completion of the pilot study, it is evident that the CDUs have contributed to efficient and effective emergency care and demonstrated enough value to remain in their EDs.
References


Retrieved from


Retrieved from


Appendix 1
Observation Guide

Non-participant unobtrusive observations conducted in the nurses’ station within the ED, or, if the ED has a co-located CDU, then observations conducted at the nurses’ desk located across from the co-located CDU.

Key sources of data to observe include:

- Physical Setting: space, size, layout, location, number of beds
- Communication/Interactions: IT systems, face-to-face interactions, frequency, participants (e.g., doctors, nurses, managers, directors)
- Staffing/Team Composition: # of each healthcare profession, roles/tasks of staff members
- Usage/Occupancy of CDU: # of CDU patients, length of occupancy, peak times for use
- Comments on notable non-occurrences: the things that do not happen
Appendix 2
Interview Guide

1. How do you organize your work in managing patients in the CDU?

2. How would you define the effectiveness and efficiency of care being delivered in the CDU? What types of leadership roles facilitate the delivery of efficient and effective care to CDU patients?

3. Were there ever opportunities to make suggestions for change or improvement to the CDU? If so, what were they? Have these changes/suggestions been addressed?

4. How would you define team performance? How would you describe the performance of your clinical partners in accomplishing the goals of the CDU?

5. It has been suggested that the CDU requires a collaborative team approach. How is this different from the ED?
Appendix 3
Theme Definitions

Work Process
The description of one’s daily routine and how work gets accomplished based on the amount of
work dictated by the volume and types of patients assigned to the CDU.

Communication
The process of information exchange between ED staff, other units, and management. Such
examples may include meetings, phone calls, newsletters, emails, discussions and paperwork.

Leader Identification
Recognizing individuals to approach with opinions, suggestions, problems and concerns. Such
examples include managers, chief of emergency or team leaders.

Patient Flow
The path a patient takes from being designated a CDU patient, to the process of being monitored
as a CDU patient and then finally to exiting the CDU, including factors affecting flow

Availability and Adequacy of Resources
Staffing of various health professionals required for the care of CDU patients. Access to
diagnostic and lab services as expected by the CDU guidelines. Funding and structure
redevelopment to manage the CDU.

Patient Assessment
The evaluation of CDU activities and decision-making for the care of patients.

Teamwork
Nature of collaboration among team members, including the tasks and responsibilities assumed
by each.
CDU Effectiveness

Achievement of standards and goals related to patient assessment and discharge.

Staff Satisfaction

Level of satisfaction associated with the CDU.

Financial Incentives

The implications of the funding structure associated with the CDU.

Incorporation of CDU Goals into Work Practices

The acknowledgement and integration of the CDU into work practice, and the awareness of CDU objectives, including orientation of the CDU, and meetings on the progress of the CDU.