Effect of Implementing a Rapid Response Team (RRT) on a Skilled Nursing Facility's Hospital Readmission Measure

by

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Abstract

While rapid response teams (RRTs) are well-established in acute care settings as a strategy to recognize and respond to physiologically deteriorating patients, no studies have looked at their implementation in skilled nursing facilities (SNFs). Recently, with the influx of higher acuity patients admitted to SNFs because of Medicare reimbursement changes, SNFs must also manage their hospital readmissions to receive better incentives. This DNP project, a quality improvement (QI) initiative using Kotter's Model for Change Process as its framework, implemented an RRT in a SNF setting and sought to determine its effect on the facility's hospital readmission measure. Specific components of the RRT implementation include the use of the National Early Warning Score (NEWS) tool to identify and recognize the patient's decline and deterioration; the mechanism to activate the RRT; the formalization, formation, and delineation of RRT members' roles and responsibilities; the training and materials provided for nurses; and the data collection, analysis, and evaluation of its effect on the SNF's hospital readmission measure. The project's results were analyzed using a two-sided Fisher's exact test. Although the hospital readmission measure improved by 23.43% post-implementation, the test's p-value was greater than 0.05, signifying no statistical significance between the variables. Further research should be performed to expand the sample size, consider multi-facility settings, and increase the implementation timeframe. The initiative could also be expanded to include long-term care residents, use other aspects to evaluate risk factors for hospital readmission (e.g., diagnosis, lab results, medications), and incorporate electronic health records (EHRs) in future implementations.

Keywords: Rapid response system, rapid response team, skilled nursing facility, early warning system, National Early Warning Score, NEWS, proactive rounding, quality improvement, hospital readmission, rehospitalization, Kotter's Model for Change Process

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Chapter One: Introduction and Overview

Skilled nursing facilities (SNF), emerging from the problem that is the COVID-19 pandemic, are continuously looking for ways to improve their financial viability while still maintaining or even improving patient outcomes. With the recent implementation of the Patient-Driven Payment Model (PDPM), most facilities want to admit higher-acuity patients because caring for them would mean higher per diem reimbursement rates in various payment categories. Also, hospitals are keen to discharge patients to facilities equipped to provide a higher level of care. Meanwhile, patients and family members would prefer to receive health care services in facilities that can do so. As a result, providers are pivoting their offerings and changing their care models to accommodate the influx of higher-acuity patients into their facilities and to survive in the ever-evolving nursing home industry.

For many SNFs, this pivot and change pose various challenges that must be addressed for the transition to succeed. One such challenge is the potential for higher-acuity patients to drive up hospital readmission rates. This is because they tend to be sicker and have more co-morbidities that may exacerbate while at the facility, which would entail sending them back to the hospital. Doing so would impact the SNF's value-based purchasing (VBP) metrics. In addition, an increase in the hospital readmission measure would decrease the incentive or increase the penalties.

To avoid these potential losses, facilities must proactively enact strategies to recognize and manage patients at increased risk for hospital readmission. Moreover, nursing staff must follow clinical protocols to ensure changes in conditions are identified and treatments are timely

initiated within the facility's confines without ever sending the patient back to the hospital. Implementing a rapid response team (RRT) in a SNF may be a way to mitigate the unnecessary need for patients to be transferred to the hospital, especially for patients whose changes in condition can be managed and treated in-house. Because no research exists examining the impact of implementing an RRT on a SNF's hospital readmission measure, this scholarly project will contribute original research to the field.

Background of the Project

In 2017, the Centers for Medicare and Medicaid Services (CMS) launched a program called *Meaningful Measures* to recognize critical areas for measuring quality and advocating improvements to promote patient and healthcare outcomes (Centers for Medicare and Medicaid Services [CMS], 2019). Despite differing mechanisms to measure quality and determine patient outcomes, the *Meaningful Measures* initiative sought to tie reimbursement with value (CMS, 2019). The program was envisioned to be accomplished by standardizing care areas and integrating quality-focused, patient-centric, and outcomes-driven metrics (CMS, 2019).

All CMS-authorized skilled nursing facilities (i.e., SNFs that receive reimbursement from Medicare and Medicaid for services rendered to members) must regularly report clinical information about each patient (CMS, 2019). Utilizing the Minimum Data Set (MDS) format, the data reported to the CMS are collated and compiled to generate the facility's quality measures (CMS, 2020). The data would then be analyzed and synthesized to calculate the facility's reimbursement rates (CMS, 2020). Some of the areas being reported to the CMS by facilities include the following: a) patients who were prescribed antipsychotic medication for the first time; b) improvements in transfer, mobility, and ambulation; c) patients with newly developed pressure injuries or those with current pressure injuries worsening during their stay; d)

vaccinations provided to patients; e) falls with significant injuries experienced by patients during their stay; and f) activities of daily living (ADLs) performance and improvements (CMS, 2020).

While all areas contribute to determining the facility's reimbursement from the CMS, one quality measure provides an added incentive for the facility to perform better. The Skilled Nursing Facility Value-Based Purchasing (SNF VBP) Program incentivizes (by rewarding) or disincentivizes (by penalizing) the facility's provision of quality health care services to Medicare recipients as measured by its hospital readmissions (CMS, 2020). This metric is for all-cause, unexpected hospital readmissions for SNF patients discharged within 30 days from a previous hospital stay (CMS, 2020). The Protecting Access to Medicare Act of 2014 transitioned SNFs from fee-for-service to value-based reimbursements, established the incentives (i.e., rewards/penalties), and started enforcement on October 1, 2018 (Castellucci, 2018).

The CMS has provided SNFs with regular feedback and advice since 2016 on this metric. Then, in the fiscal year 2019, the CMS began to reward or penalize facilities based on their hospital readmission measure (Castellucci, 2018). To determine how SNFs get rewarded or penalized for their performance, the CMS appraises the rehospitalization rates using the two-year lookback data and comparing it to the year being assessed (i.e., when appraising performance for 2022, 2020 data is used to compare) (Castellucci. 2018; CMS, 2020). If SNFs show improvements, a bonus of up to 1.6% in their Medicare Part A payments may be received; otherwise, a penalty of up to 2% may be imposed (Castellucci. 2018; CMS, 2020).

An analysis made by Spanko (2019) contended that more SNFs would receive reductions under this system in 2020 vis-a-vis to those in 2019 (i.e., of the 12,000 plus SNFs throughout the United States, about 77% will have taken a cutback with only 23% receiving a bonus payment in 2020 contrasting this to about 73% cutback and 27% bonus in 2019). Although the bonus/reward

is a reason for providers to focus vigorously on reducing hospital readmissions, inferior results with the measure may also endanger the SNF's standing within a preferred network of providers (Spanko, 2019). The facility's preferred network reputation has also become a more critical factor. SNFs are transitioning to serve higher acuity patients as the Patient-Driven Payment Model (PDPM) became the primary reimbursement model for SNFs.

In October 2019, the CMS started using the PDPM as its new case-mix categorization model, overhauling the SNF prospective payment system (PPS). The PDPM revises the payment methodology from one based on the volume of services provided to one driven by the patient's clinical characteristics (CMS, 2021). Unlike the previous payment model, which incentivizes higher therapy volumes (i.e., the number of minutes rendered) to maximize payment, PDPM requires carefully balancing services delivered to achieve optimal patient outcomes (CMS, 2021). With the focus shifting from therapy minutes to nursing services provided, under the PDPM, admitting higher-acuity patients are now more advantageous for facilities because caring for them would result in higher per diem reimbursement rates in various payment categories (Brady & McKittrick, 2021).

Statement of the Problem

With a) the CMS's thrust towards measuring quality and promoting patient outcomes in its *Meaningful Measures* program; b) its roll-out of the VBP to reward (or penalize) SNFs based on their hospital readmission measure; and c) its overhaul of the reimbursement model that focuses on caring for higher acuity patients, SNFs must continuously innovate to improve their financial viability while still maintaining and even improving patient outcomes. Moreover, as SNFs pivot and adapt to the ever-evolving changes in the nursing home industry, they must

contend with how to strike a balance between caring for higher-acuity patients and not increasing hospital readmission rates. Both aspects directly impact how facilities get reimbursed by CMS.

To avoid these potential losses, facilities must proactively enact strategies to recognize and manage patients at increased risk for hospital readmission. Additionally, nursing staff must follow clinical protocols to ensure changes in conditions are identified early and treatments are initiated timely within the facility's confines without ever sending the patient back to the hospital. Because reducing unplanned hospital readmissions has improved patient outcomes (i.e., reduced length of stay, lessened care complications, decreased morbidity and mortality) (Benbassat & Taragin, 2000), SNFs must devote time, resources, and a concerted effort by the facility's stakeholders and clinical team to address the issue.

Purpose of the Project

With the CMS' overhauling of how SNFs are being reimbursed for services rendered to patients, away from fee-for-service and towards value-based payment, and the transitioning of facilities to care for higher acuity patients, the need to find a balance between these competing priorities must be attained. In addition, there must be a way where facilities can continue to provide top-notch patient care and deliver optimal patient outcomes while still maximizing their reimbursement for services rendered.

As supported by the literature, melding these two priorities may be attained by implementing an RRT to reduce hospital readmissions of patients admitted into the SNF within 30 days from a previous hospital stay. Therefore, this evidence-based practice project aims to establish the effect of implementing an RRT, a quality improvement initiative in a SNF setting, on its hospital readmission measure.

Research Question

As SNFs are faced with the changing reimbursement landscape that values and rewards improved patient outcomes (e.g., reduced hospital readmissions), with the growing necessity to care for higher acuity patients, facilities must proactively enact strategies to manage the hospital readmission measure. Moreover, nursing staff must follow clinical protocols to ensure changes in conditions are identified early, and treatments are initiated timely. Implementing a rapid response team (RRT) in a SNF may be a way to mitigate the unnecessary need for patients to be transferred to the hospital, especially for patients whose changes in condition can be managed and treated in-house. To broaden the understanding of the issue, the following questions are asked:

1) What effect does implementing a rapid response team (RRT) in a skilled nursing facility (SNF) have on its hospital readmission measure?
2) What elements of an RRT can be implemented in a SNF setting?
3) What approaches can be used in implementing the RRT in a SNF?
4) Who needs to be on the RRT, and what are their roles and responsibilities?
5) How often would an RRT be needed, and how often does this currently occur? What is the current outcome?

PICO Question

The conception of a clinical question necessitates the start of a scholarly undertaking. In pursuing evidence-based practice to affect change in the nursing profession or organization, clinicians must recognize the question that needs to be answered. Using an organized methodology to develop and ask a research question is crucial to promoting and translating the

existing evidence (Riva et al., 2012). Moreover, having a standardized PICO question can help create a uniform methodology for asking research questions in future projects (Riva et al., 2012).

- **(P)** Population: patients (65 years and older) admitted into a skilled nursing facility within 30 days of a prior hospital stay
- **(I)** Intervention: implementation of a rapid response team (RRT)
- **(C)** Comparison intervention: no implementation of an RRT (i.e., status quo before the RRT implementation)
- **(O)** Outcome: hospital readmission measure (as obtained via the CMS' *Nursing Home Compare* website)

In elderly patients admitted to a skilled nursing facility (SNF) within 30 days of a prior hospital stay **(P)**, what is the effect of implementing a rapid response team (RRT) **(I)** on the hospital readmission measure **(O)** compared without its implementation **(C)**?

Theoretical Framework

Kotter's Eight Stage Model of Change Process, as described by John Kotter (2012), is a well-known theoretical framework used to transform organizations (Harrison et al., 2021). Many have regarded Kotter's work as one of the leading models for successfully implementing organizational change because the plan can be quickly executed to manage, implement, and evaluate change (Campbell, 2020; Harrison et al., 2021). This model will be utilized as the framework for implementing an RRT in a SNF (See Appendix A for the diagram of Kotter's Eight-Stage Model of Change Process).

The first stage in Kotter's Model establishes the need for creating an urgent awareness among all organizational stakeholders, recognizing the importance of the change initiative as it confronts various challenges to improve patient outcomes. Without creating this sense of

urgency, Kotter (2012) argued that this would guarantee failure when implementing organizational change. Involving everyone by heightening their awareness concerning the change initiative and fostering their understanding of the need to change the status quo will only ensure full stakeholder cooperation in accomplishing and sustaining lasting change. In Kotter's Model, the second stage emphasizes the need to establish a core group with authority and influence tasked with leading the change effort and the essential status and relationships to offer leadership as the change efforts unfold while continuously inspiring all stakeholders (Kotter, 2012). The guiding coalition for the change initiative must include not just the organization's rank and file but also the organization's leaders and managers.

The third stage in Kotter's Model entails the creation of a vision that would steer the initiative toward its success and strategies development that would assist the organization in achieving them (Kotter, 2012). Kotter (2012) noted that an excellent vision affords three primary benefits: (a) clarifying the overall course for change by combining persuasive motivations why the change initiative must take place; (b) empowering stakeholders to engage in actions that would move the organization towards the right path to success, and; (c) coordinating the stakeholders' actions to complete and affect change. In Kotter's Model, the fourth stage involves effectively communicating the vision and strategies that inspires and emboldens organizational stakeholders to believe and advocate for its success (Kotter, 2012). The objective is to encourage all stakeholders to realize that the envisioned change is achievable, consequently aligning the organization's interests with those of stakeholders (Kotter, 2012).

The fifth stage in Kotter's Model entails the start of the change initiative's implementation phase. When obstacles are encountered and experienced during this phase, the guiding coalition must immediately remove and reform them (Kotter, 2012). Obstacles, such as structures,

systems, and people, could hinder the ongoing change effort's success. Determining these barriers and removing them as soon as possible would ensure a smooth-sailing implementation phase (Kotter, 2012). In Kotter's Model, the sixth stage necessitates the generation of short-term wins, which would help showcase the viability and achievability of the change effort (Kotter, 2012). The short-term wins could also aid in intensifying momentum for the change effort while encouraging the stakeholders' interest and continued support for the initiative (Kotter, 2012).

The seventh stage in Kotter's Model, through the solidification of gains, the continuation of progress with the change effort, and the delivery of more change, involves maintaining and sustaining the momentum to guarantee the old ways of doing things would not come back (Kotter, 2012). Furthermore, continuously generating short-term wins fosters a snowball effect for even bigger wins. The wins should sustain the momentum and keep any change resisters from undermining the progress; the winning environment will become a breeding ground for more organizational change efforts (Kotter, 2012). Finally, with the initiative achieving its overarching goal, the need to anchor the change in the organization's culture is paramount, as espoused in the eighth stage of Kotter's Model. This will ensure the transformation gets enmeshed in the organization's very fabric while accomplishing the intended lasting effects. The process of anchoring the change effort into the organization's culture is achieved by (a) constantly highlighting (through short-term and long-term wins) that the changes work and are better than the previous ways; (b) relentlessly and regularly communicating to all stakeholders the affirmative progress of the change effort in patients' lives and outcomes and the well-being of the organization; and (c) resolutely using the benefits of the change effort as a foundation for further improvements (Kotter, 2012).

Significance of the Project

Clinicians are challenged to stay knowledgeable and up-to-date with new evidence to provide the utmost quality of patient care (Institute of Medicine, 2011). Pursuing proven methodologies for old and recent health issues and developing novel programs that enhance the health status of the populations served can be tricky and time-consuming. The challenge can best be addressed by translating and incorporating evidence-based practice (LoBiondo-Wood & Haber, 2018).

By implementing a rapid response team (RRT) in a SNF, the facility may mitigate the unnecessary need for patients' hospital transfers, especially for those whose changes in condition can be managed and treated in-house. While there is a wealth of research about implementing the rapid response team (RRT) in the hospital or acute settings, the plethora of information does not extend to post-acute or skilled nursing settings. To date, sparse research exists examining the effect of implementing RRT in SNFs in the United States. Moreover, no research exists examining the impact of implementing an RRT on a SNF's hospital readmission measure. This scholarly project will contribute original research to the field.

While this DNP project will include only one skilled nursing facility, the concept may be expanded to more skilled nursing facilities throughout the United States. These are the SNFs facing the same challenges with reimbursement, patient acuity, and the need to manage their hospital readmission measure. Specific details about the RRT being implemented, based on evidence from the literature and documented as best practices, will be included. These details can then be utilized by other SNFs as they establish and implement their RRTs.

Definition of Terms

Hospital readmission: A measure utilized within the SNF setting for all-cause, unplanned return-to-hospital (RTH), rehospitalization, or "bounce back" for SNF patients within 30 days of discharge from a prior hospital stay.

Minimum Data Set (MDS): Part of a federally mandated clinical assessment process for all patients in Medicare or Medicaid-certified nursing homes entails a comprehensive, standardized evaluation of each patient's functional capabilities and health needs.

Nursing Home Compare: A CMS-maintained tool for consumers to compare staffing, quality, and safety among nursing homes throughout the United States, the comparison website has a quality rating system that gives each nursing home a rating between 1-star (i.e., quality is below average) and 5-stars (i.e., quality is above average).

Patient-Driven Payment Model (PDPM): The CMS' recently implemented case-mix classification model is used under the SNF Prospective Payment System (PPS) to classify patients in a covered stay and calculate reimbursement. The new model is driven by the patient's clinical characteristics rather than the number of therapy minutes provided for skilled patients.

Rapid response team (RRT): A team of health care professionals who bring expertise to the bedside that proactively evaluates high-risk patients and effectively responds to patients with early signs of deterioration to prevent hospital readmission. Typical members in a SNF setting include interdisciplinary professionals such as RNs, LPNs, CNAs, and therapists.

Skilled patients: Patients admitted to a SNF requiring a high level of medical care (e.g., wound care, intravenous (IV) therapy, injections, catheter care, therapy services) that must be provided by or under the direct supervision of licensed health professionals, such as registered

nurses (RNs) and physical, speech, and occupational therapists. These services can be necessary over the short term for rehabilitation from an illness or injury.

Skilled nursing facility (SNF): A post-acute healthcare setting where patients receive in-patient treatment and rehabilitation services. The patients are usually admitted to the facility from a recent hospital before being discharged to the community.

Skilled Nursing Facility Prospective Payment System (SNF PPS): Implemented via the Balanced Budget Act of 1997, it changed how payment is made for Medicare SNF services. SNFs are no longer paid on a reasonable cost basis or through low volume prospectively determined rates but instead based on a prospective payment system (PPS). The PPS payment rates are adjusted for case-mix and geographic variation in wages and cover all costs of furnishing covered SNF services (routine, ancillary, and capital-related costs).

Skilled Nursing Facility Value-Based Purchasing (SNF VBP): A CMS program that awards SNFs with incentive payments based on the quality of care they provide to Medicare beneficiaries, as measured by performance on the hospital readmissions metric.

Nature, Scope, and Limitation of the Project

Listed below is the nature of the project that, includes information on its scope, limitation, and delimitations:

- Scope: The quality improvement (QI) project will include patients 65 years and older recently admitted to the SNF (i.e., within 30 days). They came from a prior hospital stay regardless of primary admission diagnosis. Patients with a Do Not Resuscitate (DNR) order are excluded from the study because interventions implemented by the RRT may include resuscitation. The baseline hospital readmission measure will come from the CMS's *Nursing Home Compare* website. After implementing the QI

initiative, this metric will be compared to the facility's hospital readmission measure to determine whether the change effort produced the anticipated positive effect (i.e., the reduction of the metric). Because patients who are not on a Medicare-approved stay (e.g., Medicaid, private insurance) do not affect the CMS' hospital readmission measure, they are not included in the study.

- Limitations: While there was significant data about implementing an RRT in the hospital or acute setting, there was limited research on the topic in the skilled nursing facility or post-acute setting. No data is available on the current state of RRTs in the SNF setting, how often they occur, and their outcome. Additionally, there was no data on the effect on the hospital readmission measure of a SNF when an RRT is implemented. As such, data collected and compiled through this initiative will serve the purpose of filling this gap.
- Delimitations: Because of time constraints, the study will only include one SNF for a shorter period (i.e., eight weeks of implementation). No additional staff will be hired for the project's implementation. Currently employed RNs working throughout the day and in all shifts will be utilized to lead the initiative and oversee other staff members (e.g., LPNs, and nursing assistants) in the SNF's operationalization of the RRT. Aside from the costs of printing the materials (e.g., NEWS(2) tool, chart audit tool, RRT log) and staff training for the initiative's implementation in the SNF, no other equipment and/or materials will be needed to be purchased. The current system(s) used by the SNF in obtaining patients' vital signs and how they are documented (e.g., electronic health records or EHR) will be used in the project. The

NEWS(2) tool, chart audit tool, and RRT log will supplement the documentation requirements of the initiative.

Conclusion

Skilled nursing facilities face the challenges of changing regulations (attaining quality measures to remain CMS-certified) and evolving reimbursement models (from fee-for-service to value-based) while simultaneously being expected to maintain or improve patient outcomes. SNFs must balance caring for higher acuity patients while enacting strategies to ensure patients and their conditions are managed appropriately and timely without sending them back to the hospital. Implementing a rapid response team (RRT) in a SNF may be a way to address the unplanned transfer of patients to the hospital. In doing so, the project aims to improve the facility's hospital readmission measure, which would, in turn, improve patient outcomes (i.e., reduced length of stay, lessened complications of care, decreased morbidity and mortality) and increase the facility's Medicare reimbursements.

Chapter 2: Literature Review

The review of the available literature on RRT is exhaustive and inclusive. A plethora of research on RRT is readily available, but they are primarily done in the hospital or acute setting. In addition, much of the research about the topic also considered the effect of RRT on either mortality rates or transfers of patients into a higher-acuity unit (i.e., intensive care unit). None have studied the impact of RRT on readmissions from SNFs back to the hospital.

Search Strategies

An initial search of terms related to RRT, SNF, and hospital readmissions was completed using the PubMed search of Medical Subject Headings (MeSH) terms. PubMed returned several terms in many formats for RRT: rapid response team(s), hospital medical emergency team, code team(s), team(s) rapid response, cardiac crash team(s), crash team(s) cardiac. PubMed returned various terms in multiple for SNF: skilled nursing facility(ies), extended care facility(ies). PubMed also returned various terms in multiple formats for hospital readmissions: patient readmission(s), unplanned readmission(s), hospital readmission(s), thirty-day readmission(s), and 30-day readmission(s). The search strategy will utilize a combination of keywords and MeSH terms.

A comprehensive literature review was completed using these databases: EBSCOhost, CINAHL, ProQuest Central, PubMed Central, and Google Scholar. The search was limited further to include only English-language articles published between 2017 and 2022. A few exceptions based on a study's seminal nature were included. All articles used were peer-reviewed research articles. Searching for the literature specific to the MeSH terms and keywords on RRT, SNF, and hospital readmission returned 97, 1,049, and 194 articles, respectively. Using the AND operator for all three topics yielded no results, signifying that there has not been a study about

the implementation of RRT in a SNF setting and its impact on hospital readmissions. Throughout the search, several themes were identified: RRT, what it is, its components (e.g., afferent, efferent, administration and quality improvement limbs), and its effectiveness; adaption of a hospital-based initiative into SNFs; and the use of the hospital readmission measure as a basis to evaluate the effect of the change initiative.

Conceptual Framework

During a stay in a healthcare setting, the patient may experience deterioration or deconditioning due to disease progression. Because unplanned patient transfers to a higher acuity unit (e.g., intensive care unit or ICU) were found to have resulted in worse outcomes, the importance of identifying and treating them sooner was also found to have resulted in improved outcomes (Kollef et al., 2017). Rapid response teams (RRTs) have been implemented as part of the broader rapid response systems (RRSs) to identify and treat patients who are deteriorating or deconditioning (Jones et al., 2011; Kollef et al., 2017). The other components of RRSs include a mechanism to identify patients who are at risk for clinical deterioration, a way to notify a specified set of responders, a set of interventions that the response team can provide to the patient, and an ongoing evaluative process to review the system's performance (Jones et al., 2011). The value of RRT and its adoption and implementation in hospitals or acute care settings has long been established (Jones et al., 2016; Lee et al., 2022; Stolldorf, 2017). RRTs were associated with improved quality of care in patients experiencing unplanned physiologic deterioration or emergent medical deconditioning (Jones et al., 2016; Lee et al., 2022; Stolldorf, 2017). However, controversies remain as to the effectiveness of RRT (Lyons et al., 2018).

The seminal work of Jones et al. (2011) on RRSs discussed its four components: the afferent limb (identification of the clinical deterioration in patients and mechanism to activate the

system), the efferent limb (utilization of personnel and interventions after the system's activation), quality improvement and patient safety (data collection and analysis from events to optimize and improve the system), and administrative or governance (coordination of resources and coordination of staff education to facilitate improved care upon the system's implementation). Based on the work of Jones et al. (2011), I created a diagram showing the Rapid Response System's four components and their sub-components (See Appendix B).

Related Studies

EWS and RRT Activation

An early warning system (EWS) is a scoring system usually used to identify or detect any deterioration in patients. EWS uses physiologic triggers (e.g., vital signs, related observations, monitoring frequencies, trigger thresholds, and responses) that aids in the detection and eventual direct intervention and care escalation provided to declining or deteriorating patients (Haegdorens et al., 2020; Mcneill & Khairat, 2020; Petersen, 2016). As the EWS reflects the patient's degree of physiologic decline, higher scores indicate greater severity, requiring a much higher clinical response (Haegdorens et al., 2020; Mcneill & Khairat, 2020; Petersen, 2016). The goal of the EWS's use is to provide a mechanism to detect the deterioration early on so that a timely clinical response may be provided via the activation of the RRT, thus improving the patient's outcome (Haegdorens et al., 2020; Mcneill & Khairat, 2020; Petersen, 2016).

The United Kingdom's Royal College of Physicians released the original National Early Warning Score (NEWS) in 2012. The tool aims to efficiently recognize and respond to patients presenting or developing an acute illness (Royal College of Physicians [RCP], 2017). Since then, the tool has been widely implemented worldwide (RCP, 2017). The NEWS standardizes the recording, scoring, and responding to changes in regularly measured physiological parameters

(e.g., respiration rate, oxygen saturation, systolic blood pressure, pulse rate, level of consciousness, and temperature) in patients who are acutely ill (RCP, 2017). In addition, a new iteration of NEWS, dubbed NEWS2, was released in 2017. NEWS2 incorporates the identification of sepsis, alternative oxygen targets in people with chronic lung disease, and delirium onset (RCP, 2017). NEWS2, although intended with a primary focus on the hospital setting, is recommended for use in other locations to identify patients at risk better and facilitate effective patient transfers to the most appropriate clinical area for ongoing care (Kang et al., 2021; Patel et al., 2018; RCP, 2017). Appendix D shows the NEWS2 scoring system, threshold, and triggers; Appendix E is the revised and updated NEWS2 observation chart, and; Appendix F shows the clinical response to the NEWS trigger thresholds.

Daily Proactive RRT Rounds and RRT Composition

In 2015, the Institute of Medicine called for interventions and research to improve interprofessional collaboration in practice (Institute of Medicine [IOM], 2015). A resulting model that stemmed from this is the implementation of an interprofessional or multidisciplinary bedside rounding, bringing together two or more health professionals as part of a consistent team-based approach to care and communicate information with patients, families, and staff (Ratelle et al., 2018; Will et al., 2019). Some of the benefits realized from its implementation include improvements in information sharing, patient and staff satisfaction and experience, and patient outcomes (Ratelle et al., 2018; Ryan et al., 2019; Will et al., 2019).

Utilizing the concept of interprofessional bedside rounding in RRS, with the RRT doing daily proactive rounding of patients, Danesh et al. (2019) found that fewer unplanned patient transfers occurred with its implementation. Furthermore, daily RRT rounding that incorporates the review of EWS to recognize any patient deterioration or decline and provides early

intervention(s) before the patient needed transferring to a higher care level is well supported in the literature (Danesh et al., 2019; Kang et al., 2021). For instance, in a study by Guirgis et al. (2013), the utilization of proactive rounding of high-risk patients by the RRT in a hospital setting resulted in reduced deaths and increased preemptive RRT interventions.

The efferent limb of the RRS is the response arm, which includes the personnel involved in the RRT and the intervention(s) provided to a patient experiencing a physiological decline. In the hospital setting, the RRT is typically composed of healthcare professionals from a variety of fields (e.g., registered nurses, therapists, and physicians), although composition varies widely from setting to setting depending on resource and staff availability (Howell et al., 2012; Song & Lee, 2021). According to Song and Lee (2021), the RRT's effectiveness is intrinsically linked to its composition. Each team member provides the expertise to triage and stabilize physiologically deteriorating or declining patients (Song & Lee, 2021). RRTs at top-performing acute settings exhibited the following features: well-defined team and consistent team members, participation of diverse disciplines as team members, clearly delineated roles and responsibilities of team members bringing expertise in their fields, better communication and leadership, and proper training that includes simulation or mock RRT activations (Howell et al., 2012; Nallamothu et al., 2018).

Education and Training, and Implementation

Clinical staff, especially nurses caring directly for patients, play a crucial role in continuous surveillance, early identification/detection, and prompt intervention if a patient's condition declines or deteriorates (Padilla et al., 2018). Inconsistencies in RRT implementation have been associated with adverse patient outcomes (Padilla et al., 2018). Staff education and training about the RRS influence and affect how nurses monitor and recognize patient

deterioration and decline and the eventual activation of the RRT (Difonzo, 2019). Failure to provide direct-care nurses with appropriate education and training resulted in suboptimal care and unplanned patient transfers (Difonzo, 2019; Padilla et al., 2018). Therefore, nursing staff education is essential in successfully implementing the RRT at the site.

Using didactic, simulation, and teach-back to train nurses to implement any initiative in a healthcare setting has been proven effective (Klingbeil & Gibson, 2018). Dynamic didactic and simulation training fosters the adoption of skills into practice, allowing the nurses to connect theories to performance and develop better assessment and clinical judgment skills (Clayton, 2019). In addition, using the teach-back method when training nurses demonstrated increased knowledge of the topic as misunderstandings are corrected, and misinterpretations are clarified immediately (Klingbeil & Gibson, 2018). Other educational opportunities to introduce the RRT initiative to staff and familiarize them with the process include in-service training sessions, poster boards, newsletters, and e-mail blasts (Scott & Elliott, 2009).

More than ensuring that the workforce is skilled in RRT implementation, Rihari-Thomas et al. (2019) also found in their integrative review of RRSs that positive workplace culture and supportive leadership are crucial for success. Utilizing Kotter's Eight-Stage Model for implementing the change effort, with its focus on creating urgency, forming a powerful coalition, creating a vision for change, communicating the vision, empowering action, creating quick wins, building on the change, and making it stick (Kotter, 2012), is expected to provide the framework for the project's success.

Implementing Hospital-Based Initiatives into SNFs

While the RRTs, as supported in the literature, were primarily implemented in acute care settings, as patients are discharged sooner from the hospital to SNFs, the applicability of RRTs

may be extended in SNFs to reduce hospital readmissions (Ouslander, Engstrom, et al., 2018; Ouslander, Naharci, et al., 2016). In addition, other hospital-based interventions were eventually translated into the SNF setting. One such example is Gardner et al. (2020) adaptation of an initiative designed for hospitals and implemented in SNFs to reduce hospital readmissions. The study looked at the effect of implementing Project Re-Engineered Discharge (RED) as part of the SNFs' discharge process. The implementation resulted in a 0.9% decrease in the primary outcome of hospital readmission within 30 days after SNF discharge and a 1.7% decrease in readmission within 30 days of the index hospitalization discharge date (Gardner et al., 2020).

Hospital Readmission Measure

The Centers for Medicare and Medicaid Services (CMS) created a comparison website called the *Nursing Home Compare*. The website compiles and curates current data on staffing, safety, and quality received by the CMS from more than 15,000 nursing homes in the United States (Centers for Medicare and Medicaid Services [CMS], 2020). As part of the CMS' regulatory mandate, nursing homes are required to submit data about the facility and the patients under its care, which include quality and safety measures (i.e., collectively known as Quality Measures), staffing information, and compliance and survey issues (Schapira et al., 2016).

The *Nursing Home Compare* uses a star rating system, giving each nursing home between 1 and 5 stars. The star ratings come from data and metrics concerning health inspections (i.e., results from annual recertification and complaint surveys within the last 24 months), staffing (i.e., the ratio of RNs/LPNs to residents, and the ratio of CNAs to residents), and quality measures of patient care (CMS, 2020). According to CMS (2020), the SNF's quality measures have two sub-components - short-stay and long-stay patient quality measures. Both play a crucial role in calculating the overall quality measures ratings. Within the short-stay quality measures is

the SNF's hospital readmission measure metric. This metric is updated quarterly based on the latest submitted and comparative data from SNFs nationwide (CMS, 2020).

For this DNP project, the hospital readmission measure reported by the *Nursing Home Compare* will be used as the basis for the pre- and post-implementation evaluation of the initiative's effect. Specific to the hospital readmission measure, the facility reports this metric on each patient's minimum data set (MDS) along with other pertinent information about the patient's Medicare-approved stay at the SNF for reimbursement purposes.

Synthesis of Related Studies and Translation to DNP Project

As SNFs with high hospital readmission rates face financial penalties, implementing interventions to decrease rehospitalization is becoming commonplace. Multicomponent interventions have reduced readmissions through enhanced multidisciplinary team care planning and management and improved training and education to identify and manage common medical conditions that precipitate readmissions (Kripalani et al., 2014). These two significant aspects bode well for the planned implementation of the RRT in the SNF setting. The first aspect of having an enhanced multidisciplinary team care planning and management falls within the purview of the afferent limb (early identification of patient deterioration and decline and activation of RRT) and efferent limb (composition of RRT and the interventions provided to at-risk patients) of the RRS. The second aspect of providing improved training and education for the nursing staff about the initiative falls within the administrative limb. Meanwhile, the continuous quest to enhance the initiative by evaluating its effectiveness and optimizing its processes falls within the quality improvement limb.

Based on the literature review, a gap in research is found relating to the implementation of RRT in the SNF setting, the evaluation of RRT's implementation, and its effect on reducing

the SNF's hospital readmission measure. This gap in research will be the focus of my DNP Project. For my project, the aspects of RRT that I would be implementing include a) the use of the NEW(2) as an early identification tool (and using the tool's data as the mechanism to activate RRT), b) the proactive rounding of the RRT (including the determination of its composition and its role when RRT is activated), and c) the education and training of nurses concerning the application of the RRT into practice. The initiative will be implemented using Kotter's Eight-Stage Model for Change as its theoretical framework. It will look at its effect on the SNF's hospital readmission measure as reported via the *Nursing Home Compare* website. Appendix C shows the conceptual framework mapping of the project.

Methodological Framework

Utilizing the guidance provided by McMeekin et al. (2020) on how to develop methodological frameworks, there are three major activities to consider: a) identifying evidence to inform the framework, b) developing the framework, and c) evaluating and refining the framework. The conceptual framework in Figure 3 can be expanded further, using it as the template for creating a methodological framework for my DNP Project. Specifically, with the RRT's afferent limb, the NEWS(2) tool and the corresponding protocol for nurses to activate the RRT will have to be developed. The efferent limb will have to identify who would comprise the RRT and the roles and responsibilities of team members (including the proactive daily rounding of at-risk patients for hospital readmission). The administrative limb will have to define the training bundle to educate nurses about the initiative. Lastly, the quality improvement limb will utilize the hospital readmission measure from the *Nursing Home Compare* of the SNF and the current quarter's metric as a baseline before implementing the initiative. Post-implementation of

the initiative, the hospital readmission measure will be compared to the baseline to determine its effectiveness.

Conclusion

This chapter detailed the literature review completed concerning the topics of RRT. The search strategies utilized to develop peer-reviewed research articles included in the literature review were delineated. Throughout the search, several themes were identified: RRT, what it is, its components (e.g., afferent, efferent, administration and quality improvement limbs), and its effectiveness; adaption of a hospital-based initiative into SNFs; and the use of the hospital readmission measure as a basis to evaluate the effect of the change initiative. In addition, a framework of an established rapid response system, including its components, was discussed. This framework was adapted for the proposed initiative implementation in the SNF setting after synthesizing related studies about the topics. Furthermore, a methodological framework was established as a template for the next chapter of this study.

Chapter 3: Methodology

The implementation of an RRT in a SNF aims to reduce hospital readmissions. RRTs, although commonly utilized in the hospital setting to improve mortality and reduce patients' transfers to a higher level of care, their implementation in a SNF setting is uncommon. No studies have looked at an RRT implementation in a SNF setting and how it impacts the SNF's hospital readmission measure. RRS, the broader umbrella that includes RRT, has four components: afferent (early identification and mechanism for RRT activation), efferent (RRT composition, members' roles, and responsibilities), administrative (staff education and training, resource allocation), and quality improvement (data collection, evaluation, and process optimization) limbs.

Kotter's Eight-Stage Model for Change will be used as the framework for the phenomenological research of implementing the initiative in the SNF setting. Specifically for my DNP project, the following components of the project will be implemented: the EWS tool to identify and recognize the patient's decline and deterioration; the mechanism to activate the RRT; the formalization and formation of the RRT, including the delineation of its composition, roles, and responsibilities of team members; the training and materials to be provided for nurses working in the SNF; and the data collection, analysis, and evaluation of the initiative's implementation on the SNF's hospital readmission measure.

Project Design

While Kotter's Change Model supports the initiative's overall implementation in the SNF on a macro level, one of the four components (or limbs) of the RRS focuses explicitly on the quality improvement (QI) aspect. As earlier established, RRTs are not commonly implemented in the SNFs, and none has studied the effect of their implementation on the SNF's hospital

readmission measure. Therefore, as a starting point for the phenomenological research that is my DNP project, the initiative will be implemented within the precepts of quality improvement (micro-level).

Quality Improvement (QI) Model

QI is a set of tenets and a systematic, ongoing method aimed at finding solutions to problems in healthcare, enhancing care provision, and delivering improved patient outcomes (Backhouse & Ogunlayi, 2020; Mileski et al., 2017). Using the principles of QI as delineated by Backhouse and Ogunlayi (2020), they are applied to this project as follows:

- Primary intent: To produce quantifiable advancement to a particular aspect of healthcare delivery, often with evidence or theory, and requires local testing to determine the optimal solution. For my DNP project, the quality improvement initiative involves the implementation of an RRT in a SNF setting to determine if it helps reduce hospital readmissions.
- Engaging in a continuous process of testing change ideas: Adopting a theory of change that underscores an ongoing process of developing and testing changes and evaluating results to an expected outcome. Kotter's Eight-Stage Model for Change will be employed to implement the project in a SNF (macro-level).
- Consistent application of an established methodology: Applying a commonly cited method and following it consistently when implementing the QI initiative. Specific to this QI (micro-level), the Define, Measure, Analyze, Improve, Control (DMAIC) Quality Improvement Model will be used. Both Kotter's and the DMAIC Models will solidify the success of the project's implementation at its macro and micro levels.

- Empowerment of frontline staff and service users: Engaging stakeholders (staff, patients, families) by affording them opportunities and skills to participate in the improvement efforts. As the afferent, efferent, and administrative limbs of the RRS are implemented, every effort is made to engage and empower all project stakeholders. In Kotter's Model, this is achieved in Step 1 (create urgency), Step 2 (form a powerful coalition), Step 3 (create a vision for a change), Step 4 (communicate the vision), and Step 5 (empower action).
- Utilizing data to steer improvement: Driving the decision-making process using data and the mechanism to measure the initiative's effectiveness over time. Using the CMS's *Nursing Home Compare* website, the SNF's current hospital readmission measure will be the baseline metric (pre-implementation). After implementing the initiative, the hospital readmission measure will be used to compare the effect of the change effort. Throughout the implementation of the project, as espoused in Kotter's Model's Step 6, short-term successes will be celebrated and used to catapult for more future successes.
- Scale-up and expand, with adaption to context: As the initiative's efficacy increases, the diffusion of the improvement to new environments. As the QI initiative takes its roots and becomes part of the SNF's daily routine, the long-term goal is to build on this project's success to build more changes. With the culture ultimately improved in the process, the mindset of continuous improvement becomes part of the organization's fabric, culture, and every stakeholder. This aspect aligns with Steps 7 (build on the change) and 8 (make it stick) of Kotter's Model.

DMAIC Quality Improvement Model

This DNP project applies the Define, Measure, Analyze, Improve, Control (DMAIC) quality improvement model to direct the implementation of the RRT in the SNF. The DMAIC model, a Six Sigma QI evidence-supported strategy, analyzes and optimizes prevailing processes (Ahmed, 2019; Niñerola et al., 2020). Specific to this DNP project, the DMAIC process includes the following:

- Define: The project's overarching purpose is to lower the rehospitalization of SNF patients, decreasing the unplanned hospital readmissions of SNF patients admitted to the facility within 30 days from a previous hospital stay.
- Measure: Using the CMS hospital readmission measure via its *Nursing Home Compare* website, the current metric is used as the baseline (i.e., pre-implementation) upon which the project's effectiveness will be evaluated (i.e., post-implementation). Meanwhile, the RRT will be implemented in the SNF, focusing on these areas: use of the NEWS2 tool; a mechanism for the RRT activation; RRT composition, roles, and responsibilities; and training and education of staff about the initiative.
- Analyze: Ongoing chart audits will be completed routinely, specifically reviewing NEWS2 compliance and accompanying RRT activation. RRT rounding logs and notes completed by the RRT both on paper and in the electronic health record (EHR) will also be reviewed.
- Improve: Part of its implementation is the training and education provided to nursing staff about the initiative, including the use of NEWS2, the mechanism to activate RRT, RRT composition, team members' roles/responsibilities, and the goal of the RRT initiative to reduce the facility's hospital readmission measure.

- Control: To ensure that the initiative will produce continued and sustained improvement, the following activities are completed regularly: continual audit of patient records, constant use of effective communication with stakeholders, all-out support from the leadership and the initiative's guiding coalition, and provision of real-time coaching of nursing staff to improve compliance.

Sample and Setting

The setting for this DNP project was a skilled nursing facility (SNF) managed and operated by Clear Choice Health Care (CCHC). CCHC is a health care management company based in Florida overseeing the operations of thirteen skilled nursing facilities/long-term care (SNF/LTC) and two assisted living facilities (ALF). It has more than 1,300 private and semi-private SNF/LTC beds and 300 ALF private rooms in eleven locations in Florida (Clearwater, Gainesville, Jacksonville, Melbourne, Orlando, Panama City, Port Charlotte, Sun City, Tallahassee, Tampa, and Winter Haven) and one location in Colorado (Centennial). CCHC's sources of reimbursements include Medicare, Medicaid, VA, managed care, and private insurance, with a current employee count of more than 3,000 full- and part-time staff.

The RRT was piloted initially in one of CCHC's SNF. However, a roll-out in all of its facilities is planned for the future. The pilot SNF for the initiative, located in Melbourne, Florida, has 170 CMS-approved beds with an average daily census of 160; 65 beds are designated for long-term care patients, while 105 are for skilled nursing patients. The SNF's referral sources come from hospital systems in the city and surrounding areas, specifically Health First's Holmes Regional Medical Center, Melbourne Regional Medical Center, Sea Pines Rehabilitation Hospital, Health First's Palm Bay Hospital, Health First's Viera Hospital, and Sebastian River Medical Center. The facility currently employs 28 RNs, 52 LPNs, 126 CNAs, and 64 therapists;

the rest are part of ancillary services (e.g., housekeeping, laundry, maintenance, dietary), administration, and management. The facility's nursing team is headed and led by the Director of Nursing (DON), while the facility is under the auspices of the Nursing Home Administrator (NHA).

SNF Patients

The population of interest in this QI project was geriatric patients 65 years and older and recently admitted to the SNF (i.e., within 30 days). They came from a prior hospital stay regardless of primary admission diagnosis. Patients with a Do Not Resuscitate (DNR) order were excluded from the study because the RRT may implement interventions that might require resuscitation. Patients not on a Medicare-approved stay were also not included in the study because they do not affect the CMS's reported hospital readmission metric on the *Nursing Home Compare* website.

With the initiative's implementation in the facility, frontline nurses and RRT members, all of whom work at the SNF, were also of interest to the project. The direct-care nurses were responsible for completing the NEWS2 tool as part of their ongoing assessment of skilled patients (those admitted within 30 days to the facility from a prior hospital stay). As nurses complete the NEWS2 tool routinely, a score of 5 or greater is required to activate the RRT. The frequency of monitoring is increased in patients experiencing further physiological decline and deterioration. Meanwhile, the RRT conducted daily rounds on all skilled patients. RRT members reviewed the NEWS2 tool, recognized any changes from baseline, coordinated with the primary provider for appropriate intervention(s) to address the physiological decline or deterioration, and recommended transferring patients back to the hospital. The RRT also documented patients'

progress during their stay and provided an evaluation of outcomes and opportunities for improvement as part of the facility's monthly review of all its QI activities.

Nurses

All staff nurses from all shifts tasked to care for skilled patients in the facility (n=52) were eligible to participate in the project. The facility required the participation of these RNs and LPNs. Their attendance during the training and education sessions for the initiative was also required. The facility does not employ agency staff nurses.

RRT Members

The RRT was led by the DON, supported by the clinical leadership (e.g., nurse managers, nurse supervisors), CNA lead, and therapy services (e.g., respiratory therapists). In addition, the RRT was under the auspices of the facility's medical director or designee, who was on call 24/7 for any patient-related issues or concerns. The RRT members were assigned to sub-groups with corresponding scheduled times of operations (e.g., the day shift sub-group operating from 7 am to 7 pm and the night shift sub-group from 7 pm to 7 am). Each sub-group, comprising at least three clinicians with varying qualifications, had a designated leader. Each team member's roles and responsibilities were delineated; the RRT had tasks defined for them to accomplish. In addition, the facility had mandated their attendance during the training and education sessions offered to RRT members.

Currently employed RNs working throughout the day and in all shifts were utilized to lead the initiative and oversee other staff members (e.g., LPNs, and nursing assistants) in the SNF’s operationalization of the RRT. For both nurses and RRT members, no monetary compensation was offered. The staff members' involvement in the initiative's activities was required, but their participation was not a stipulation of employment nor a guarantee of receiving

any benefit. The incentive to be part of the initiative included the potential to reduce hospital readmission and improve patient outcomes.

Instrumentation

NEWS2 Tool

The NEWS tool standardizes the recording, scoring, and responding to alterations in commonly measured physiological parameters (e.g., respiration rate, oxygen saturation, systolic blood pressure, pulse rate, level of consciousness, and temperature) in patients who are acutely ill (RCP, 2017). It was released in 2012 by the Royal College of Physicians (RCP). Its new iteration, dubbed NEWS2 and released in 2017, NEWS2 incorporates the identification of sepsis, alternative oxygen targets in people with chronic lung disease, and delirium onset (RCP, 2017). In a study to determine the NEWS's validity and reliability, Smith et al. (2013) found it to be as good at discerning the risk of severe physiological decline as the best existing systems. At the recommended trigger level for a critical clinical response (i.e., a NEW score of 5 or more), the NEWS was also found to be more sensitive and specific than most existing systems (Smith et al., 2013). Several studies have appraised the validity and reliability of the NEWS2 tool. The Royal College of Physicians (2012), in their official publication launching the NEWS2 tool, enumerated various studies and systematic reviews of the validity and performance of NEWS in hospital and non-acute settings. In the non-acute environment, the NEWS2 tool was determined to have facilitated earlier recognition of deteriorating patients and more appropriate levels of care (RCP, 2012). See Appendix D, E, F.

A printed copy of the NEWS2 tool was placed in a designated area inside the patient's room for each admitted to the SNF within 30 days of a prior hospital stay. The tool was completed by the patient's primary nurse per shift (at the very least) or more often if indicated

(i.e., for a NEW score of 5 or greater). The tool remained in the patient's room and was updated and reviewed regularly by the clinical team during their regular shift reporting and the RRT during their caseload rounding. Any decline or deterioration of the patient's NEW score (5 or greater) immediately warranted an RRT activation. In addition, the RRT used the tool to report and coordinate with the patient's primary provider or physician for any interventions (i.e., medication regimens, treatments, and/or transfer back to the hospital).

RRT Log

As the RRT conducted its regular rounding, any interactions with patients and interventions provided to them were documented in the RRT log. The function of this tool is to gather data for every patient encounter, which would also be used to track/trend patterns about the initiative. The log containing detailed notes by the RRT was also employed to evaluate the project for future improvement recommendations. Appendix H shows the RRT log.

Chart Audit Tool

The project lead created this tool to record compliance using the NEWS2 tool and RRT log in the QI intervention process. Compliance was evaluated by analyzing the information collected through the chart audit. The project lead rated the accurateness or correct application of the NEWS2 tool and RRT log as a) Completely/Correctly Documented, b) Incomplete/Partially Applied with Missing Items, c) Incorrectly Applied, or d) Not Applied. Gathered data on the Chart Audit Tool was aggregated to either Completed or Not Completed to make their reporting easier. Appraising the use of the tools measured staff competence and/or compliance in the correct application of the tools used for this QI project. Appendix I shows the Chart Audit Tool.

Hospital Readmission Measure

Using the CMS's *Nursing Home Compare* website, the SNF's current hospital readmission measure was obtained as the baseline metric (pre-implementation). After implementing the initiative, the hospital readmission measure at that time was used to compare the effect of the change effort. Data used by the CMS to update the *Nursing Home Compare* website comes from the routine Minimum Data Set (MDS) submitted by the facility. In the absence of a more recent update to the *Nursing Home Compare* website's hospital readmission metric for the facility post-implementation, the most current and CMS-accepted MDS submission was used to determine the metric. The MDS-generated hospital readmission measure should be the same metric reflected on the website once the CMS updates the data. Any risk adjustments applied to the data were considered for both the pre-and post-implementation metrics. The goal of the initiative is to compare like-for-like data.

Educational Plan

Staff training on the RRT's purpose, use, and implementation in the facility was delivered in four sessions, covering all four weekdays and weekend shifts, as detailed in the project implementation timeline. Appendix J shows the project implementation timeline. The training of licensed nursing staff focused on the following topics: the basic concepts of managing hospital readmissions; the need for early identification of decline and deterioration, especially for higher acuity patients; and the use of the NEWS2 tool and its incorporation into the daily care processes, including when and how to activate the RRT. Meanwhile, the RRT members' training was delivered in two sessions and focused on team composition and dynamics, the roles and responsibilities of each member, and the team's tasks. Appendix K shows the RRT policy and

procedures for the SNF, which delineates all aspects of the initiative and its implementation in the facility. Appendix N shows the educational materials for training staff about the initiative.

Data Collection

At the start of the project's implementation, the pre-intervention hospital readmission metric for the facility was retrieved from the CMS's *Nursing Home Compare* website. This metric was verified against the actual CMS-accepted MDS submission by the facility for the same period reported on the website. Therefore, the website's reported metric and the MDS data should match. When staff training was completed, and the RRT initiative started, the review and audit of patient charts commenced, lasting eight weeks of implementation. The audit aims to measure staff compliance and track/trend patterns used to evaluate and optimize the QI initiative.

The NEWS2 tool and RRT log were in paper format for the pilot. Plans to adapt them into an electronic version embedded in the facility's electronic health record system (i.e., PointClickCare®) will be rolled out when more facilities participate in the initiative. The Chart Audit Tool was also in paper format. Access to the electronic health records, including the patients' MDS records, was provided to the project lead by the facility's administrator as part of the overall permission to perform the QI initiative. See Appendix S for the site approval by Melbourne Terrace Rehabilitation Center’s (MTRC) Administrator.

Post-intervention data included the aggregated results from the NEWS2 tool, RRT log, and Chart Audit Tool. In addition, as recorded in the MDS, patient transfers back to the hospital were also used to track and trend hospital readmissions. In the event that the CMS has not updated the *Nursing Home Compare* with the facility's most recent hospital readmission metric, the latest eight-week MDS submission will be used to determine the post-intervention measure. Any risk adjustments that were applied to the CMS *Nursing Home Compare* metric must be

readjusted to remove the risk factors included in the calculation since the MDS submission does not include such risk adjustments. Doing this will ensure both metrics are non-risk adjusted; therefore, they can be compared on a like-for-like basis.

Data Analysis Methods

The analysis of collected and compiled data will determine if implementing an RRT in the SNF reduces the facility's hospital readmission measure. Two areas were measured in the data analysis concerning the project objectives. The data collected via chart audit over the eight-week implementation period were analyzed to determine nurses' and RRT members' compliance with the NEWS2 tool and the RRT log. The NEWS2 compliance rates included the times of completion (e.g., day and night shifts), days of the week (e.g., weekdays and weekends), and the nurses completing them (e.g., RNs and LPNs). They were aggregated by the facility's units.

On the other hand, the RRT Log compliance rates included the proactive roundings completed during the day and night shifts and weekdays and weekends, considering the number of RRT activation, prevented return-to-hospital (RTH), and unplanned RTH. They were aggregated weekly during the project's implementation. A descriptive statistic (using percentages) with a confidence interval of 95% was used for analysis.

Meanwhile, Fisher's exact test was employed to analyze the changes in the hospital readmission metric, comparing the pre-intervention and post-intervention data. Fisher's exact test will analyze whether the hospital readmission metric would be the same before and after the intervention's implementation. While Fisher's exact test is practically applied only in analyzing small samples, it is valid for all sample sizes or *n* less than 1,000 (Connelly, 2016; Kim, 2017). In conducting Fisher's exact test, the assumption of independence is that the null hypothesis is true, within the confines of the probability rules for possible outcomes, that there would be no

difference between the pre-and post-intervention hospital readmission measure (Connelly, 2016; Kim, 2017). The null hypothesis will be rejected for this project if the hospital readmission measure before and after the intervention's implementation is not the same, as indicated by the p-value of less than 0.05. The probability value of a test will determine if the variation is significant, meaning the probability of the variation was greater than chance (Connelly, 2016; Kim, 2017).

Data Management Methods

The data management plan involved wide-ranging actions safeguarding participants' information and data. The project team made every effort to keep all collected data confidential. The facility's electronic health record system, PointClickCare®, uses HIPAA-compliant encryption and security (PointClickCare, 2022). Only authorized users were given access to the system. Each authorized user was provided with unique login information. Any personal information of study participants was never sold, and every effort was made to preserve their confidentiality and privacy. The computer used to store any data was password-protected with an alphanumeric passcode that only the project lead knew.

After compiling data from the NEWS2 tool and RRT log, they were appended to the patient's chart as part of the patient's record. After using the Chart Audit tool to track/trend patterns about the initiative, results were shared with the facility's QI team during its monthly quality assurance/performance improvement (QAPI) meeting. The tool was kept in the facility's QAPI binder for future reference. The data collected and analyzed by the project lead will be retained for three years after the project's conclusion. Following the three-year holding period, all data pertaining to the project will be digitally shredded by deleting it from the computer system and the recycle bin.

Ethical Considerations

This DNP project, a quality improvement (QI) initiative, implemented an RRT in a SNF and aimed at reducing hospital readmissions. No patient identifiers were involved and collected, and variables were coded (when applicable) to preserve confidentiality while reviewing patients' charts. The project lead maintained the privacy of patient records (i.e., paper format, electronic format) with the utmost care. No patient names and/or staff names were included in the review process. No compensation was provided to patients and/or staff for participating in this study.

This project was submitted to Aspen University's Institutional Review Board (IRB) Committee. Since it only deals with data gathered during routine physical examinations (i.e., vital signs, signs, and symptoms), the project falls under the exempted-from-full-review category, which is in line with guidelines set forth by the Office for Human Research Protections (2021). IRB approval was obtained before its implementation at the project site. While the NEWS2 tool and RRT log contained patient information, those were not explicitly used for the study. No identifiable patient information was used when data were compiled in the Chart Audit Log, which only reviewed the Room # and Admission Date of those included in the chart audit/review. These were addressed in the IRB application. Additionally, the project lead completed the Collaborative IRB Training Initiative (CITI) curriculum entitled Biomedical Data Researchers (Appendix O), Social, Behavioral, and Education Sciences (Appendix P), and Information Privacy Security (Appendix Q). The IRB approval letter is included in Appendix R.

The study should present none to minimal risk to participants. The probability of the magnitude of harm or discomfort anticipated during this project will not be greater than any ordinarily encountered in daily life (Office for Human Research Protections, 2021). It does not provide any experimental treatment nor expose anyone as part of the study to any physical or

psychological harm (Office for Human Research Protections, 2021). Upon admission to the facility, patients will have signed consent. The consent contains verbiage acknowledging that the patient may be subject to scientific study or research during their stay at the facility. The patient's participation is voluntary. At any given time, the patient or their representative (e.g., healthcare power of attorney) may rescind their involvement in all studies or research being conducted in the facility.

Conclusion

Implementing an RRT in a SNF will measure its effect on the facility's hospital readmission metric. The design, implementation, and analysis were guided by Kotter's Eight-Stage Model and the Quality Improvement (QI), including the Define-Measure-Analyze-Improve-Control QI Model. While Kotter's model supports the initiative's macro-level implementation in the SNF, QI's systematic, ongoing approach to finding solutions to problems in healthcare, enhancing care provision, and delivering improved patient outcomes directed the micro-level implementation details.

The planning process outlined each step in the project. The setting was a 170-bed SNF in Florida, investigating whether implementing an RRT reduces hospital readmissions. Geriatric patients (65 years and older) admitted to the facility within 30 days of a prior hospital stay were included in the study; frontline nurses and designated members of the RRT were also critical in the initiative's implementation. The nurses and RRT members were provided training and education about the project, including their roles and responsibilities. The NEWS2 tool was completed by the nurses routinely; a NEW score of 5 or more was the mechanism to alert the RRT.

Meanwhile, the RRT rounded patients regularly, documenting any interactions with patients and interventions provided in the RRT log. Compliance with these tools was determined using the chart audit tool. The hospital readmission measure from the CMS's *Nursing Home Compare* website and/or the facility's MDS submissions was used as the pre-and post-intervention metric. The staff's compliance with the tools was analyzed using a descriptive statistical method. Comparing the pre-and post-intervention hospital readmission measure was analyzed using Fisher's exact test.

The project team made every effort to minimize the risk to participants. The following activities were undertaken to ensure any risk to participants was mitigated: IRB submission, review, and approval before the project’s implementation; the use of HIPAA-compliant encryption and security for the use of the facility's electronic health record system; preservation of confidentiality and privacy of participants' information; and the use of password-protected passcode for any computers in use.

Chapter 4: Results and Discussion of Findings

As skilled nursing facilities (SNFs) face regulatory changes spurred by the recent CMS' quality-focused thrust and value-driven reimbursement model, coupled with the influx of higher acuity patients, they must enact strategies to maintain or improve outcomes. As a result, a delicate balance of caring for sicker patients while managing their conditions appropriately and timely without any unplanned rehospitalizations exists within SNFs. Through a review of the literature, implementing a rapid response team (RRT) in a SNF was indicated to be a way to address these unplanned patient transfers to the hospital. Thus, the project's implementation aims to determine whether it would improve the facility's hospital readmission measure.

The project's design, implementation, and analysis were guided by Kotter's Eight-Stage Model of Change Process and Quality Improvement (QI), including the Define-Measure-Analyze-Improve-Control QI Model. While Kotter's model supported the initiative's macro-level implementation in the SNF, QI's systematic, ongoing approach to finding solutions to problems in healthcare, enhancing care provision, and delivering improved patient outcomes directed the micro-level implementation details.

This chapter will discuss the results of the project's implementation, starting with a detailed description of how Kotter's Eight-Stage Model of Change Process was used at Melbourne Terrace Rehabilitation Center (MTRC). Then, it will provide detailed information about the project's results and findings, explaining the data collected, how they were analyzed, and how the results inform and relate to the project's purpose.

Applying Kotter's Framework

Kotter's Eight Stage Model of Change Process, as described by John Kotter (2012), is a well-known theoretical framework used to transform organizations (Harrison et al., 2021). In

addition, many have regarded Kotter's work as one of the leading models for successfully implementing organizational change because the plan can be quickly executed to manage, implement, and evaluate change (Campbell, 2020; Harrison et al., 2021). Therefore, this model was utilized as the template for MTRC's transformational change effort with the RRT implementation.

Stage 1: Establishing a Sense of Urgency

In Kotter's Model, the first stage is to create a sense of urgency among managers and employees, a cognizance of the need for the organization to change as it faces new regulatory challenges to improve patient outcomes. Not creating this sense of urgency, as pointed out by Kotter (2012), may be considered the most significant mistake to be made when attempting to effect change in organizations. Everyone involved needs to have that heightened awareness, letting them understand why the change is necessary. Without everyone's full cooperation, sustaining its continuity would be hard, and even more, to accomplish enduring change.

Meanwhile, complacency – having a mindset that things are good enough, thus no change is required, and the status quo is working just fine – has been identified as one of the barriers to establishing a sense of urgency in any change initiative (Kotter. 2012). To combat complacency, MTRC conducts projects year-round to stimulate employee and management participation in essential issues at the facility. Including everyone in any effort for change makes employees more invested in whatever initiative the organization undertakes and more involved in ensuring positive outcomes are realized (Kotter, 2012).

Looking at the latest CMS *Nursing Home Compare* (2022) data for MTRC's percentage of short-stay residents re-hospitalized after a nursing home admission, the facility's risk-adjusted measure is at 25.1%, higher than the national average of 22.1% but slightly better than the

Florida average of 25.2%. This data is for the reporting period of April 1, 2021, to March 31, 2022. Appendix T shows a screenshot of MTRC's most recent hospital readmission metric. The current metric is higher than CMS' mean risk-standardized SNFs readmission rate of 19.42% (Baker et al., 2019). MTRC's current readmission rate ranges from 22% to 25%, a decline from 17% to 19% in previous years (E. Heaton, personal communication, September 1, 2022). Lagging in this measure means MTRC could miss 1.6% in reimbursement incentives and get penalized by up to 2%. If not addressed, the facility risks losing reimbursement money.

Stage 2: Creating the Guiding Coalition

The second stage in Kotter's model entails forming a group that has ample power and clout to lead the change, with the necessary reputation and connections to afford leadership to the change efforts and inspire stakeholders (Kotter, 2012). The guiding coalition for the improvement initiative was evident at MTRC. Emboldened by the need to address head-on the issue of worsening hospital readmission, various ideas were recommended to the top honchos of the organization (i.e., Jeff Cleveland, President and CEO, Geoff Fraser, COO, and Eleanor Heaton, Vice President for Clinical Services). One such innovative solution presented by the project lead was implementing a rapid response team (RRT). After discussing the details of the proposed quality improvement initiative with MTRC's administrative and nursing management team (i.e., Tina Cone, Administrator, and Ashleigh Hinman, Director of Nursing), everyone agreed to move forward with its implementation at the facility. The project's guiding coalition comprises the President/CEO, COO, VP, Administrator, DON, and project lead.

Stage 3: Developing a Vision and Strategy

In Kotter's Model, the third stage involves creating a vision to direct the initiative and develop effective strategies to help the organization achieve it (Kotter, 2012). According to

Kotter (2012), a good vision provides three primary purposes: (a) to clarify the general direction for change by incorporating compelling reasons why the change has to occur; (b) to motivate individuals to take action (although often painful) moving into the right direction by removing barriers to natural reluctance for the change; and (c) to coordinate actions of individuals towards the successful completion of the change initiative. Empowered by the realization of a vision's importance in any change initiative, the guiding coalition looked at the evidence for the initiative (i.e., literature review and best practices) and used them to develop the vision.

Vision for the Initiative

The vision for the initiative was created – a starting point for inspiring action and clarifying the initiative's purpose while giving stakeholders a reason to contribute to its success. The vision at Melbourne Terrace Health Care (MTRC) is to improve outcomes and the lives of patients entrusted to our care through clinical excellence and extraordinary service offered in an atmosphere of compassion, hospitality, and respect. This initiative will be demonstrated and measured by a decrease of at least 10% in hospital readmission rates every quarter for the fiscal year 2022-2023 until the hospital readmission rate for the facility is 18% or lower.

Stage 4: Communicating the Change Vision

The fourth stage in Kotter's model entails effectively conveying the vision and strategies that energize every organizational stakeholder to accept, buy-in, and support the change initiative (Kotter, 2012). The goal here is to inspire everyone to believe that the intended change is possible, with its resulting benefits aligned with the organization and every stakeholder's interests, thereby catapulting them into action to ensure its success (Kotter, 2012).

At MTRC, communication is heavily employed, and its tenets are entrenched in the organization's daily routines. Therefore, conveying the vision and strategies to everyone would

involve incorporating them into existing messaging systems and communication platforms. For instance, to communicate the initiative, the following available media were employed: newsletter, learning boards, care dashboard, instant messaging/email blasts, live/pre-taped sessions, and fireside chats/town hall meetings with executives and leaders. For the nursing staff, communicating the vision and strategies was incorporated during individual coaching, mentoring, walking rounds/group huddles, and all-staff meetings. In addition, they were embedded as part of orientation, mandatory in-service, and in-person, online, or simulation classes.

Specific to training the clinical staff before the project's launch, educational sessions for the nurses and the RRT members were conducted, covering hospital readmissions and implementing a rapid response team (RRT) at the facility as a quality improvement initiative to help improve the metric. The training for nurses included how to use the NEWS2 tool and mechanism to activate the RRT; for the RRT members, how to conduct the rounds and use the RRT log. The educational sessions covered all shifts, including weekdays and weekends, to provide the most coverage for staff needing the in-service.

Stage 5: Empowering Employees for Broad-Based Action

In Kotter's Model, the fifth stage involves the implementation phase of the change initiative, which ran for eight weeks at MTRC. Included in the project's implementation: the NEWS2 tools were furnished to all skilled patients in the facility. The NEWS2 observation tool was placed inside patient rooms and completed by nurses during their regular and routine assessment/evaluation of patients. The RRT members also conducted regular roundings of patients. The RRT recorded their observations and/or data on the RRT log. For anything outside of normal parameters for the NEWS2 tool, the nurses were expected to trigger the RRT. At this

point, the RRT provided the necessary collaboration (with providers) and interventions to assist the patient. Again, the RRT recorded the proceedings on the RRT log.

As with any change implementation, there may be obstacles in structures, skills, systems, and supervisors that could stall or stifle the change effort (Kotter, 2012). Therefore, it is paramount to determine any barriers and make every effort to remove them, aiming to empower stakeholders to effect change (Kotter, 2012). An analysis of the organization's structures, systems, and culture assisted in determining whether potential obstacles exist and finding ways to remove them. The analysis utilized Kotter's concept of a 21st-century organization (Kotter, 2012), specifically in the areas of structure (autonomy and control), systems (innovation and training), and culture (empowerment and risk-taking).

Autonomy and Control

While providing guidance and support, the guiding coalition allows the facility managers, supervisors, and frontline staff autonomy and control of its operation provided that policies and procedures (including regulations) are followed and met. With the guiding coalition at the helm leading the change effort and the vision and strategies consistently and adequately communicated to every stakeholder in the facility, the implementation proceeded without any issues. Facility leaders were expected to deal with individuals not supportive or resisters of the change effort – ideally, to win them over.

Innovation and Training

MTRC is a huge proponent of utilizing evidence-based and best-practice approaches to improve outcomes through clinical excellence and extraordinary services offered to its patients. This mantra is embedded in the organization's mission and vision statements and weaved into the organization's various systems and processes. Specific to this initiative, continuous education and

training was offered to the RRT members and the frontline staff to hone their knowledge and skills in assessing and evaluating high-risk patients for hospital readmission.

Empowerment and Risk Taking

Entrenched in MTRC's culture is the value of empowerment. On any given day, input and feedback from the frontline staff go up for the leadership team to incorporate into the decision-making process. The company gathers feedback by employing employees' automated and ongoing online surveys. In addition, fireside chats and town hall meetings with corporate and facility leadership – the guiding coalition – were routinely done. Engagement by staff in these various fora is usually high, and healthy discussion of topics leads to tangible and concrete results. The organization also values and rewards risk-taking. As a result, empowered clinicians were expected to develop innovative ideas to improve their daily routines.

Stage 6: Generating Short-Term Wins

The sixth stage in Kotter's model entails generating short-term wins for the change effort. Those short-term wins, while helping to showcase the practicability of the initiative and aiding in building its momentum, should be palpably evident across the organization, specifically successful and linked to the change effort (Kotter, 2012). So, the critical question is: How can the organization generate these short-term wins?

For MTRC, presenting metrics during fireside chats and town hall meetings and showcasing success stories of the initiative's implementation to everyone were ways to generate short-term wins. Message boards and care dashboards highlighting improvements from the previous week/month to the current week/month should raise awareness of the initiative's impact on patient outcomes. Including anecdotal snippets in the organization's newsletters and

incorporating case studies about the initiative in education and training programs would ensure that as many stakeholders know how it is improving patients' lives.

Another approach that has been found to achieve higher levels of employee engagement and motivation is the application of gamification in the workplace. (Bonn et al., 2022; Mitchell et al., 2020). Incentives or rewards for the employees, whether intrinsic or extrinsic, are essential aspects of the gamified design (Bonn et al., 2022; Mitchell et al., 2020). For example, to apply gamification at MTRC for this change effort, nursing units that have achieved the goal of decreasing hospital readmission rates by 10% per quarter (as established in the vision) will receive free food, snacks, or goodies for all employees. Meanwhile, gamification was implemented for the nursing staff with the highest compliance in completing the NEWS2 tool to receive incentives or rewards, such as a Starbucks gift card.

Results from the change initiative – actual hospital readmission rates – are available instantaneously from the organization's electronic medical records system and updated by the CMS at least quarterly. With the quick turnaround in accessing and determining data, victories were celebrated sooner rather than later as goals were accomplished. This should keep the drive going for everyone in the facility to aid in encouraging stakeholders as they continue supporting and sustaining the initiative.

The remaining two stages in Kotter's model will be discussed in detail in Chapter 5 under the subheading, Sustaining Change.

Summary of Methods and Procedures

The analysis of collected and compiled data was completed to determine if implementing an RRT in the SNF reduces the facility's hospital readmission measure. Two areas were

measured to gather pertinent data for use in the data analysis portion of the project, which would inform the project objectives: descriptive statistics and Fisher's exact test.

First, the data collected via chart audit over the eight-week implementation period were utilized to determine the nurses' and RRT members' compliance with the NEWS2 tool and the RRT log. This entailed applying a statistical method for data analysis, using descriptive statistics (or percentages) with a confidence interval of 95%. The collected data were aggregated to provide better insights when doing the analysis. For instance, details about the NEWS2 tool compliance would include which nursing units, what time of day (e.g., day or night shifts), and what day of the week (e.g., weekdays or weekends) the tools were completed and who completed them (e.g., RNs or LPNs). Meanwhile, details about the RRT log compliance would include proactive roundings completed, RRT activations, prevented return-to-hospital (RTH), and unplanned RTH, aggregated weekly throughout the initiative's implementation.

Second, Fisher's exact test was used to analyze the hospital readmission metric changes, comparing the pre-intervention and post-intervention data. Applying the test to the pre-and post-intervention metrics would analyze whether statistical significance exists between the two variables: implementation of rapid response team (RRT) and hospital readmissions (return to hospital or RTH). While Fisher's exact test is practically applied only in analyzing small samples, it is valid for all sample sizes or *n* less than 1,000 (Connelly, 2016; Kim, 2017). The test's starting point is the null hypothesis: the probability of a patient getting rehospitalized (RTH) is the same whether RRT was implemented or not.

In conducting the test, the assumption of independence is that the null hypothesis is true, within the confines of the probability rules for possible outcomes, and that there would be no difference between the pre-and post-intervention hospital readmission measure. The null

hypothesis will be rejected for this project if the hospital readmission measure before and after the intervention's implementation is not the same, as indicated by the p-value of less than 0.05. The probability value of a test will determine if the variation is significant, meaning the probability of the variation was greater than chance.

Since the pre-intervention and post-intervention hospital readmission metrics came from the CMS *Nursing Home Compare* website and/or Minimum Data Set (MDS) submissions about the patients at the facility, other data points were collected, compiled, and analyzed. This would provide a better understanding of those included in the sample and for a more robust analysis. Those data points include the number of admissions, average daily census, and length of stay.

Summary of Sample and Setting Characteristics

The QI project was implemented at Melbourne Terrace Rehabilitation Center (MTRC), a Clear Choice Health Care (CCHC)-managed and operated skilled nursing facility located in Melbourne, Florida. MTRC has 170 CMS-approved beds with an average daily census of 160; 65 beds are designated for long-term care patients, while 105 are for skilled nursing patients. The SNF's referral sources typically came from hospital systems in the city and surrounding areas. The facility currently employs 28 RNs, 52 LPNs, 126 CNAs, and 64 therapists; the rest are part of ancillary services (e.g., housekeeping, laundry, maintenance, dietary), administration, and management. The facility's nursing team is headed and led by the Director of Nursing (DON), while the facility is under the auspices of the Nursing Home Administrator (NHA).

For the project, the primary population of interest was geriatric patients 65 years and older and recently admitted to the SNF (i.e., within 30 days). They came from a prior hospital stay regardless of primary admission diagnosis. Patients with a Do Not Resuscitate (DNR) order were excluded from the study because the RRT may implement interventions that might require

resuscitation. Patients not on a Medicare-approved stay were also not included in the study because they do not affect the CMS's reported hospital readmission metric on the *Nursing Home Compare* website. For the QI initiative's implementation period, 151 admissions met the criteria and were included as the study's sample. The facility's average daily census was 102 SNF patients with 31.68 length-of-stay (LOS) days.

The initiative's implementation in the facility required the participation of nurses (RNs and LPNs) and RRT members. They were the secondary population for the QI project. The nurses were responsible for completing the NEWS2 observation tool and activating the RRT for any patient's physiological decline or deterioration. Meanwhile, the RRT members were tasked to conduct proactive daily rounds on all skilled patients, coordinate with the interdisciplinary team to provide appropriate intervention(s) addressing the underlying issue, and/or recommend patient transfers to the hospital.

Full-time and part-time staff nurses (n=52), which include RNs (n=18) and LPNs (n=34), tasked to care for skilled patients in the facility, participated in the project's implementation. The RRT was led by the DON and supported by the clinical leadership (e.g., nurse managers, nurse supervisors), CNA lead, and therapy services (e.g., respiratory therapists). The RRT worked under the supervision of the facility's medical director or designee, who was on call 24/7 for any patient-related issues or concerns.

Results and Interpretation

Two areas were measured to answer the project objectives. First, the data collected via chart audit over the eight-week implementation period were to determine nurses' and RRT members' compliance with the NEWS2 tool and the RRT log. A descriptive statistic (using percentages) with a confidence interval of 95% was the statistical method used for the analysis.

Table 1 shows the NEWS2 Tool compliance results. They were aggregated according to facility units, compliance rates for the shift and times (i.e., days and nights), days (i.e., weekdays and weekends), and nurses (i.e., RNs and LPNs). Looking at the overall trend of the results, the facility units that did well throughout the project's implementation were West 800 and South 900. When shifts and times were considered, days had better compliance rates compared to nights. The average difference between days (89%) and nights (81%) was 8%. When days of the week were considered, weekdays had better compliance rates compared to weekends. The average difference between weekdays (89%) and weekends (80%) was 9%. Lastly, when comparing RNs and LPNs compliance rates, RNs were compliant 89% of the time, while LPNs were compliant 80%; the average difference between the two was 9%.

The next two tables show the RRT Log compliance results. They were aggregated weekly for the project implementation's duration and were further broken down to determine day/night shift (Table 2) and weekdays/weekends (Table 3) compliance. The table considers the compliance rate for proactive roundings completed and the number of RRT activations, prevented return-to-hospital (RTH), and unplanned RTH. By looking at both tables, it can be observed that the RRT proactive roundings are being completed more often as the implementation progresses week after week. For the proactive roundings, there is also a notable difference between day (95%) vs. night (85%) shifts and weekdays (93%) vs. weekends (86%) - 10%, and 7%, respectively. A total of 38 RRT activations were called, primarily happening during the day shift and on weekdays. Nonetheless, as the weeks progressed, the night shift and weekends became more involved.

From these RRT activations, six patients were prevented from returning to the hospital after the early detection of their physiological deterioration and decline, and the early application

of interventions and strategies kept them in-house. A total of 27 unplanned RTH occurred during the implementation period. There is an observable upward trend in prevented RTH and a downward trend in unplanned RTH as the weeks progressed. Day shifts and weekdays had better outcomes (i.e., prevented RTH and unplanned RTH) than their counterparts.

Meanwhile, the second measured area uses Fisher's exact test to analyze the change in the hospital readmission metric, comparing the pre-intervention and post-intervention data. The test's starting point is the null hypothesis: the probability of a patient getting rehospitalized (RTH) is the same whether RRT was implemented or not. The alternative hypothesis assumes that the RRT implementation at MTRC would reduce the hospital readmission measure. The null hypothesis will be rejected for this project if the hospital readmission measure before and after the intervention's implementation is not the same, as indicated by the p-value of less than 0.05. The probability value of a test will determine if the variation is significant, meaning the probability of the variation was greater than chance.

A 2x2 contingency table was used to determine statistical significance in setting up Fisher's exact test (see Table 4). The data on two variables (i.e., RRT Implementation and Return to Hospital), each of which is measured as a dichotomy (e.g., Yes and No), were collected and compiled for both the pre-and post-implementation period. Specifically, for the pre-implementation 12-month period from April 1, 2021, to March 31, 2022, 835 patients met the inclusion criteria, 195 of whom were rehospitalized, and the remaining 640 were not. This translated to a non-risk-adjusted hospital readmission measure of 23.35%. For the eight-week post-implementation period from September 12, 2022, to November 6, 2022, 151 patients met the inclusion criteria, 27 of whom were rehospitalized, and the other 124 remained at the facility. This translated to a non-risk adjusted rehospitalization metric of 17.88%.

Table 5 provides context to the pre-and post-implementation data about the patients included in the sample. For instance, the total number of admissions meeting the inclusion criteria was 835 patients in the pre-implementation period compared to 151 patients in the post-implementation period. In addition, the average daily census was 78 patients compared to 102 patients, and the length of stay (LOS) was 31.24 days compared to 31.68 days for the pre-and post-implementation periods, respectively.

Looking at the percentages before applying Fisher's exact test, there has been a noticeable decrease in the return-to-hospital (RTH). During the implementation process at the facility, the RTH metric trended downward. The data went into the hypothesized or expected direction (i.e., with the RRT implementation, the RTH would improve). The percentage change between the post-implementation versus the pre-implementation hospital readmission measure is a reduction of 23.43%. However, concluding that there is an association between the interventions (i.e., pre- or post-RRT implementation) and outcomes (i.e., resulted in RTH or did not result in RTH) can only be determined when the data is statistically significant (i.e., Fisher's exact test application).

The sample size of n = 986 includes patients in both pre- (n=835) and post-implementation (n=151) periods. This sample size, which is less than 1,000, is considered a small sample, and thus, Fisher's exact test is applicable and appropriate in analyzing the data and their statistical significance (Connelly, 2016; Kim, 2017). In calculating Fisher's exact test, the data were entered into and analyzed by IBM's Statistical Package for Social Sciences (SPSS).

Table 6 shows the Case Processing Summary from SPSS, showing the crosstabulation of the cause variable or independent variable (i.e., RRT Implementation) in the columns and the effect variable or dependent variable (i.e., RTH) in the rows. This mirrors what is shown in Table 4. While SPSS shows other computed values, as earlier noted, Fisher's exact test is most

applicable and appropriate to analyze the data for this study. There are two p-values presented for Fisher's exact test. Because there is reason to believe a relationship exists between the RRT implementation and the hospital admission measure, as evidenced in the literature review, the two-sided Fisher's exact test of independence was used to compare the pre-and post-implementation data.

The computed p-value for the data is 0.168, which is greater than 0.05. Because the p-value is not less than 0.05, the association between the variables is considered to be not statistically significant. Therefore, the study did not find a relationship between the RRT implementation and the hospital readmission measure despite the observable trend that the RTH metric decreased as the RRT was being implemented at the facility. Based on the result, the null hypothesis would not be rejected for this project, meaning the probability of the variation, with a p-value greater than 0.05, may be attributable to chance.

While the result did not categorically establish the association between the initiative's implementation and the expected outcome, the noticeable downward trend in hospital readmissions as the RRT was implemented could bode well for future endeavors. Ranganathan et al. (2015) argued that statistical significance heavily depends on a study's sample size. With this in mind, future implementations may benefit from expanding the sample size to determine statistical significance. Strategies that could increase the sample size include extending the time frame of the implementation and recruiting more SNFs to be part of the study.

Implications for Nursing Practice

In pursuit of implementing novel programs that enhance the health status of the population served, this QI initiative aimed to address hospital readmissions of SNF patients by translating evidence into practice (LoBiondo-Wood & Haber, 2018). Through a literature review

completed to support the project's thrusts, implementing a rapid response team (RRT) in a SNF was hypothesized to mitigate unnecessary patient rehospitalization, especially for those whose changes in condition can be managed and treated in-house. However, while the literature is replete with research on implementing RRTs in the hospital or acute settings, sparse research exists examining its effect on SNFs, and no research exists examining its impact on a SNF's hospital readmission measure. Therefore, the project's implementation at MTRC applied the RRT into a SNF setting and determined whether its implementation affected the SNF's return-to-hospital metric.

The project's implications are multi-faceted, including its contribution to a) the nursing profession, b) the project site, and c) the improvement of patients' outcomes. For the nursing profession, the project is a testament to the growing applications of nursing scholarship into actual practice in a healthcare setting (Armstrong & Sables-Baus, 2019). Nursing services are improved as new knowledge and innovation are produced through the collaboration of nursing academics and practitioners and applications of evidence-based and best-practice research (Armstrong & Sables-Baus, 2019). The synthesis of knowledge from research and the dissemination of outcomes drives further advancement in the field, generating interest for the next generation of scholars in the nursing profession (Armstrong & Sables-Baus, 2019).

The project's implementation at MTRC has produced desirable effects that could benefit the facility in the short and long run. With Kotter's Model fully and effectively operational, the facility can use its systems, structures, and processes to continue with this initiative and/or utilize them for future QI endeavors. For example, the short-term wins generated by this project can be utilized as the foundation for anchoring the culture of change and continuous improvement at the facility. Meanwhile, as a QI initiative, there is an expectation to continuously evaluate and

expand upon the project. Examples of future projects or project expansions emanating from this project are discussed in Chapter 5.

Meanwhile, as SNFs face pressures to remain financially viable, this project has shown that the RRT's implementation at MTRC has produced a noticeable, although not statistically significant, decrease in hospital readmissions. For instance, the percent change between the post-implementation non-risk-adjusted rate of 17.88% and the pre-implementation non-risk-adjusted rate of 23.35% is 23.43%. This is important because the project's vision set its goal to decrease the hospital readmission rates by at least 10% every quarter for the fiscal year 2022-2023 until the hospital readmission rate for the facility is 18% or lower. For the eight-week implementation period, the initiative has achieved both. The hospital readmission rate has decreased by more than 10%, and it has fallen below 18% already. With this metric lower than CMS' target rate of 19.42%, the facility could receive an additional 1.6% reimbursement incentive, boosting the facility's finances.

Lastly, the project helps find solutions to improve patient outcomes. Because unplanned patient transfers to higher acuity units were found to have resulted in worse outcomes, hospitals have long established and implemented rapid response teams (RRTs) to prevent such transfers (Kollef et al., 2017). RRTs were associated with improved quality of care in patients experiencing unplanned physiologic deterioration or emergent medical deconditioning (Jones et al., 2016; Lee et al., 2022; Stolldorf, 2017).

While the RRTs, as supported in the literature, were primarily implemented in acute care settings, as patients are discharged sooner from the hospital to SNFs, the applicability of RRTs may be extended in SNFs to reduce hospital readmissions (Ouslander, Engstrom, et al., 2018; Ouslander, Naharci, et al., 2016). For instance, other patient-outcome-driven initiatives

emanating from hospitals have been successfully implemented in SNFs (Gardner et al., 2020). Therefore, this project extends the RRT implementation into SNFs to help improve patient outcomes, especially the hospital readmission measure.

Conclusion

The RRT implementation at Melbourne Terrace Rehabilitation Center (MTRC) aimed to determine whether it would improve the facility's hospital readmission measure. Improving this patient outcome was deemed necessary because of regulatory changes spurred by the recent CMS' quality-focused thrust and value-driven reimbursement model and the influx of higher acuity patients in SNFs. Since RRTs have been proven in acute care settings, as supported in the literature, to manage patients' conditions appropriately and timely without any unplanned rehospitalizations, adopting this approach in a SNF was also assumed to do the same for its patients.

The initiative's implementation, spanning eight weeks, was guided by Kotter's Eight-Stage Model of Change Process and Quality Improvement (QI): Stage 1: Establishing a sense of urgency; Stage 2: Creating the guiding coalition; Stage 3: Developing a vision and strategy; Stage 4: Communicating the change vision; Stage 5: Empowering employees for broad-based action; Stage 6: Generating short-term wins; Stage 7: Consolidating gains and producing more change; and Stage 8: Anchoring new approaches in the culture.

Two areas were measured to answer the project's objectives: the nurses' and RRT members' compliance with the NEWS2 observation tool and RRT log and the pre-and post-implementation non-risk-adjusted hospital readmission rates. Overall, the facility's units did well throughout the implementation, with compliance rates for the nurses above 80%. Meanwhile, compliance rates of RRT members for their roles and responsibilities (e.g., proactive roundings,

responding to RRT activations, and coordinating the care of declining patients) were above 85%. Six patients were prevented from returning to the hospital (RTH) during the implementation phase, and 27 unplanned RTH. There was an observable upward trend in prevented RTH and a downward trend in unplanned RTH as the weeks progressed.

The pre-and post-implementation non-risk-adjusted hospital readmission rates were compared and analyzed using Fisher's exact test. For the pre-implementation period from April 1, 2021, to March 31, 2022, 835 patients met the inclusion criteria; 195 were rehospitalized, and the remaining 640 were not. This translated to a non-risk-adjusted hospital readmission measure of 23.35%. For the eight-week post-implementation period from September 12, 2022, to November 6, 2022, 151 patients met the inclusion criteria, 27 were rehospitalized, and the other 124 remained at the facility. This translated to a non-risk adjusted rehospitalization metric of 17.88%. The percentage change between the post-implementation versus the pre-implementation hospital readmission measure is a reduction of 23.43%.

With a p-value of 0.168 for Fisher's exact test, the study did not find a relationship between the RRT implementation and the hospital readmission measure despite the observable trend that the RTH metric decreased during the implementation process at the facility. While the result did not categorically establish the association between the variables, this could still bode well for future endeavors. Future implementations may benefit from expanding the sample size to determine statistical significance. Strategies that could increase the sample size include extending the time frame of the implementation and recruiting more SNFs to be part of the study.

The project's implications are multi-faceted, including its contribution to a) the nursing profession, b) the project site, and c) the improvement of patients' outcomes. For the nursing profession, the project is a testament to the growing applications of nursing scholarship into

actual practice in a healthcare setting. The project's implementation at MTRC has produced desirable effects that could benefit the facility in the short and long run, operationally and financially. The project also helps find solutions to improve patient outcomes by extending the RRT implementation into SNFs to help improve patient outcomes, especially the hospital readmission measure.

Chapter Five: Discussions and Conclusion

Rapid response teams (RRTs) have been successfully implemented in hospitals or acute care settings to identify and respond to physiological decline and deterioration in patients. These RRT implementations have resulted in improved patient outcomes. Meanwhile, skilled nursing facilities (SNFs) are seeing higher acuity patients getting admitted to the setting. With recent Medicare reimbursement changes focusing on quality measures and patient outcomes, specifically on hospital readmissions, SNFs are challenged to find ways to maintain or improve this metric.

Because no studies have looked at RRT implementations in SNFs, this quality improvement (QI) project, supported by Kotter's Model for Change Process as its framework, implemented an RRT in a SNF setting, which sought to determine its effect on the facility's hospital readmission measure. Specific components of the RRT implementation include the use of the National Early Warning Score (NEWS) tool to identify and recognize the patient's decline and deterioration; the mechanism to activate the RRT; the formalization, formation, and delineation of RRT members' roles and responsibilities; the training and materials provided for nurses; and the data collection, analysis, and evaluation of its effect on the SNF's hospital readmission measure.

The project's results showed great promise: the hospital readmission measure improved by 23.43% post-implementation, although no statistical significance was found between the variables. However, the foundation laid by this project and its results can be used to build upon the next iterations of the continuous improvement journey. This chapter concludes the journey for this DNP project by discussing the study's findings and best practices, its implications for

practice and future projects, plans for dissemination and sustaining change, recommendations for future projects and practice, and actual DNP essentials met.

Discussion of Findings and Best Practices

Utilizing Kotter's Model for Change as the theoretical framework for the project has made its implementation easier to execute and manage. The eight stages delineated in the model became the project's blueprint for establishing a sense of urgency within the organization, creating a guiding coalition to support the need for change, developing a vision and strategy, and communicating the change vision to all stakeholders. Additionally, the change model guided how the project empowered employees within the organization for broad-based actions and generated short-term wins. Furthermore, the framework established how the initiative could consolidate the gains and produce more change until continuous improvement becomes anchored in the organization's culture.

Having Kotter's Model for Change as the template for implementing the project at Melbourne Terrace Rehabilitation Center (MTRC) helped relate the research to the broader fields of knowledge (e.g., nursing, healthcare, finance, leadership, management, etc.) and provide its direction from beginning to end. The theoretical framework was the skeleton upon which the project's implementation was structured and built. With it, the study ultimately reached the intended outcomes. The project's completion at MTRC was a testament to the framework's ability to transform organizations, showcasing its leading role in successfully implementing organizational change (Campbell, 2020; Harrison et al., 2021).

Highlights in using the model as the study's framework include:

- Creating a sense of urgency is determining aspect(s) of the current system, structure, or processes that are no longer the best option (Kotter, 2012). Once

identified, leaders must establish a compelling reason (an urgency) to address the issue and stem complacency (Kotter et al., 2021).

- Building a guiding coalition helps establish buy-in toward the change effort (Kotter, 2012). A fully-engaged and highly-supportive group of individuals determined for the initiative's success helps infuse positive energy and diffuse any resistance. In addition, the guiding coalition must have credibility, expertise, and trust within the organization, key elements in providing the leadership for the change effort (Kotter et al., 2021).
- Having a strategic vision for the initiative helps connect essential tactics to achieve the intended outcome or goal for the change effort (Kotter, 2012). Without it, confusion ensues as stakeholders are not on the same page with what they are trying to accomplish. Additionally, the clear target motivates everyone to participate well-coordinatedly and be empowered to take action to reach it (Kotter et al., 2021).
- Communicating the change effort must be consistent and frequent to ensure information sharing reaches everyone (Kotter, 2012). Explaining why changes are essential could assist individuals in comprehending the effort's context and purpose, providing an avenue to clarify and give feedback along the way. Effective communication lets stakeholders understand the initiative's overarching purpose and how the changes impact them (Kotter et al., 2021).
- Identifying key milestones for the change effort is critical in determining and generating short-term wins, which can be used to achieve the long-term change vision (Kotter, 2012; Kotter et al., 2021). As in the case of this DNP project, its

> eight-week implementation resulted in a noticeable downward trend in rehospitalizations, a 23.43% post-implementation improvement. This improvement represented more than the 10% decrease aimed at the project's vision. In addition, the post-implementation hospital readmission rate of 17.88% was also lower than the projected reduction of the measure at 18%. Despite not finding a relationship between the two variables (e.g., RRT implementation and hospital readmissions or RTH), the short-term win (i.e., downward RTH trend) could be used to catapult the facility and/or organization to future change endeavors and long-term gains.

Rapid response teams (RRTs) have been a staple in hospitals or acute settings for a while now (Jones et al., 2016; Lee et al., 2022; Stolldorf, 2017). They have been implemented to identify and treat deteriorating or deconditioning patients (Jones et al., 2011; Kollef et al., 2017). The importance of identifying and treating them sooner has resulted in improved outcomes, such as improvements in unplanned patient transfers to higher acuity units (Kollef et al., 2017). Components of RRT include a mechanism to identify patients who are at risk for clinical deterioration, a way to notify a specified set of responders, a set of interventions that the response team can provide to the patient, and an ongoing evaluative process to review the system's performance (Jones et al., 2011).

As higher acuity patients are admitted to SNFs, the applicability of RRTs may be extended in these settings to reduce hospital readmissions (Ouslander, Engstrom, et al., 2018; Ouslander, Naharci, et al., 2016). In the past, hospital-based initiatives had been translated into SNFs. One such example is the adaptation of an initiative by Gardner et al. (2020) designed to reduce hospital readmissions called Project Re-Engineered Discharge (RED). Inspired by Project

RED's results, this project adapted RRTs into SNFs to reduce hospital readmissions of patients admitted from a prior hospital stay. While this project's results did not find an association between the variables, the noticeable downward trend in hospital readmissions as the RRT was implemented could bode well for future endeavors.

The use of an early warning system (EWS) to identify or detect any deterioration in patients was a major feature of RRTs. Physiologic triggers recorded in the EWS, such as vital signs, aiding in the detection, eventual intervention, and escalation of care to declining or deteriorating patients (Haegdorens et al., 2020; Mcneill & Khairat, 2020; Petersen, 2016). Moreover, the EWS also standardized the mechanism to activate the RRT based on the triggers to identify the deterioration (i.e., higher scores indicate greater severity, which requires a much higher clinical response) (Haegdorens et al., 2020; Mcneill & Khairat, 2020; Petersen, 2016).

The project adopted the Royal College of Physicians (RCP) National Early Warning Score tool to record, score and respond to changes in regularly measured physiological parameters in patients who are acutely ill (RCP, 2017). While the tool's initial release only considers the patient's respiration rate, oxygen saturation, systolic blood pressure, pulse rate, level of consciousness, and temperature in the scoring, later iterations (i.e., NEWS2 tool) have incorporated other aspects of the patient's health. NEWS2, although intended with a primary focus on the hospital setting, is recommended for use in other locations to identify patients at risk better and facilitate effective patient transfers to the most appropriate clinical area for ongoing care (Kang et al., 2021; Patel et al., 2018; RCP, 2017).

The NEWS2 tool served its purpose for this project. However, given the complexity and higher acuity of patients in SNF settings, future iterations of the project may benefit from considering not just what is currently captured and scored by the tool. Other factors about the

patient, such as their comorbidities, diagnoses, abnormal lab/diagnostic testings, medications being taken, etc., could make them more prone to rehospitalizations (Al-Tamimi et al., 2021; Glans et al., 2020; Lo et al., 2021). Meanwhile, embedding the tool into the facility's electronic health records (EHR) system may improve compliance. The automated nature of EHR to document, score and determine the patient's risk for hospital readmission could minimize human error(s), reduce the nurses' time spent completing the paper form, and allow RRT members immediate access to patients needing appropriate and timely interventions.

Interprofessional collaboration and a team-based approach to care and communication were essential in the project's implementation. From the nurse's active involvement in completing the observation tools and activating the RRT to the RRT member's proactive and routine roundings of patients and responding to physiologically deteriorating patients, the interplay of roles, responses, and outcomes demonstrated the following best practices:

- Bringing interdisciplinary proactive rounding as part of the initiative's implementation operationalized the team-based approach to care as recommended by Ratelle et al. (2018) and Will et al. (2019). Specifically, the proactive roundings produced effective communication and sharing of vital information to everyone involved in the patient's care, including the patient, their families, and staff.
- Based on the project's results, as the nurses completed the NEWS2 tool and the RRT members conducted the proactive roundings more often throughout the implementation period, the RRT activations consequently increased, which resulted in six patients being prevented from returning to the hospital. Specifically, the interprofessional collaboration and communication helped detect

the patients' early physiological deterioration and decline, which prompted the early application of interventions and strategies to keep them treated and cared for in-house without sending them back to the hospital. In addition, while 27 unplanned RTH occurred during the implementation period, there was an observable upward trend in prevented RTH and a downward trend in unplanned RTH as the weeks progressed.

The RRT comprises individuals from various fields with proficiency to triage and stabilize physiologically deteriorating and declining patients; its composition varies widely depending on the setting, resources, and staff availability (Howell et al., 2012; Song & Lee, 2021). Other features that make them effective include having a well-defined team, roles, and responsibilities, better communication and leadership, and proper training (Howell et al., 2012; Nallamothu et al., 2018). For this DNP project, the RRT was led by the facility's director of nursing (DON) and supported by the clinical leadership (e.g., nurse managers, nurse supervisors), CNA lead, and therapy services (e.g., respiratory therapists). The RRT was under the auspices of the facility's medical director or designee, who is on call 24/7 for any patient-related issues or concerns. Appendix K provides the details of the RRT, including its composition, roles, and responsibilities.

As explained by Padilla et al. (2018), clinical staff, especially nurses caring directly for patients, play a crucial role in continuous surveillance, early identification/detection, and prompt intervention if a patient's condition declines or deteriorates. Therefore, proper staff education and training about the initiative (i.e., how nurses monitor and recognize patient deterioration/decline and the eventual activation of the RRT) resulted in optimal care and reduced unplanned patient transfers (Difonzo, 2019; Padilla et al., 2018). The education and training melded various

formats, including didactic, simulation, and teach-back. Other educational opportunities to introduce the RRT initiative to staff and familiarize them with the process include in-service training sessions, poster boards, newsletters, and email blasts.

Appropriate staffing was essential in ensuring compliance with the initiative and the corresponding outcomes. For instance, when the facility had better nurse-to-patient ratios (i.e., during days and weekdays) and/or more proactive roundings by the RRT were completed (i.e., also during days and weekdays), compliance rates with the NEWS2 observation tool and the RRT log were higher. Better compliance resulted in improved RRT activations and more prevented rehospitalizations. In addition, ongoing staff education and training (e.g., correcting misunderstandings and clarifying misinterpretations about the initiative as the need arises) have increased compliance. As the weeks progressed, there was an observable upward trend in prevented RTH and a downward trend in unplanned RTH.

Implication for Practice and Future Projects

With the recent CMS reimbursement changes (i.e., away from fee-for-service and towards value-based payment) causing an influx of higher acuity patients getting admitted into SNFs, facilities must continue providing top-notch patient care and delivering optimal patient outcomes. At the same time, they must find ways to maximize reimbursements for services rendered while minimizing potential penalties for substandard patient outcomes, such as having a non-improving or worsening return to hospital measure. The RRT's implementation at MTRC helps to determine its effectiveness in reducing the hospital readmissions of patients admitted into the SNF within 30 days from a previous hospital stay.

The resulting evidence and best practice from this QI initiative at MTRC will be used as a template for future roll-out and implementation at other Clear Choice Health Care (CCHC)

facilities. Specific to CCHC, plans are ongoing to integrate the early warning system (EWS) into its electronic health records (EHR) system. This would remove the need for nurses to update the NEWS2 tool manually, thus eliminating the potential for human error(s), such as when transcribing or calculating the score. At the same time, the EWS can be expanded within the EHR to include other data points (e.g., diagnosis, history, lab/diagnostic results, medication/therapeutic regimen, etc.) compared to the current data points that only include the vital signs (e.g., respirations, temperature, oxygenation, blood pressure, pulse) and some observable signs/symptoms (e.g., alertness, new confusion, arousable to voice or pain, and unconscious).

Additionally, the project lead will share the study's results with the Florida Health Care Association (FHCA) members, the state's premier organization for senior care and living, advocating for the RRT's adoption in SNFs as part of its arsenal to manage rehospitalizations. As more facilities implement the RRT, more data could be collected and analyzed. With more settings and samples involved, other research designs and statistical models may be used to expand on the current scope of this project and address its limitations.

Plan for Dissemination

Translating research into practice involves disseminating new knowledge to improve quality, services, and patient outcomes (American Association of Colleges of Nursing [AACN], 2006). As a hallmark of doctoral education, scholarship and research integrate these discoveries and apply them to solve nursing practice problems, answer healthcare issues, and address societal concerns (AACN, 2006). With the focus on fulfilling the desire to expand knowledge through this research and make discovered results readily available to those in the nursing home industry, this DNP project will be submitted for publication in *The Director: Official Journal of*

the National Association of Directors of Nursing Administration in Long Term Care. The journal is the official, peer-reviewed nursing journal of the National Association of the Directors of Nursing Administration (NADONA), representing more than 5,000 nursing leaders and professionals across the entire post-acute care continuum (n.d.).

Furthermore, this DNP project will also be submitted for publication in *The Journal of Nursing Home Research*, the peer-reviewed editorial initiative of the International Association of Gerontology and Geriatrics (IAGG), the global network of professionals and operators in the nursing home field (2012). With the journal's aim to convey current knowledge of best practices in nursing home settings, submitting this evidence-based research for publication will underscore its application that would potentially affect the estimated 17.5 million residents/patients worldwide. Consequently, the wide array of individuals who would be reading and later deciding to translate the research into practice, both in the United States and internationally, would make the discovery worthwhile.

Disseminating the study and its results through presentations at conferences is another avenue to make them available to decision-makers, thought leaders, and clinical leaders. The project lead has started with this mission. On November 2, 2022, preliminary results of the study, including evidence gathered, best practices learned, and data collected and analyzed thus far, were shared with the attendees of the *1st Annual Hot Topics in Caring for the Older Adult*. The virtual conference hosted by the North Carolina Nurses Association was an interactive workshop on various hot topics in the care of older adults. After presenting the project's highlights to the 35-plus attendees, all healthcare leaders from the state, the project lead answered questions, shared insights about the project, and addressed future planned projects. Meanwhile, the project lead intends to present the findings at the Florida Health Care Association (FHCA) Annual

Conference and Trade Show in Orlando, Florida, in July 2023 and the National Association of Directors of Nursing Administration (NADONA) National Conference in Orlando, Florida, in June 2023.

Sustaining Change

Completing the initiative's eight-week implementation does not mean the end of the change effort at the facility (e.g., MTRC) and the organization (e.g., CCHC). On the contrary, guided by Kotter's Model for Change framework and the tenets of quality improvement (QI), there is an expectation of continuing to find improvements to make the systems, methods, and solutions even better. After all, the last two stages in Kotter's model and features in QI call for a systematic and ongoing effort at continuously finding and improving solutions to problems in healthcare, enhancing care provision, and delivering improved patient outcomes (Backhouse & Ogunlayi, 2020; Mileski et al., 2017).

Below is a discussion of the last two stages of Kotter's model delineating the ongoing QI activities that were enacted to bring about lasting and sustained change in the organization for the initiative:

Stage 7: Consolidating Gains and Producing More Change

In Kotter's Model, the seventh stage involves sustaining the momentum, firmly solidifying the gains, continuing the progress with the change effort, and delivering more change to ensure that the organization does not go back to its old ways of doing things (Kotter, 2012). Sustaining momentum keeps any resisters to change at bay, and the short-term wins' success creates a snowball effect, becoming an impetus to advance other change efforts within the organization (Kotter, 2012). For instance, observable and positive results from the RRT approach to reduce hospital readmission would propel other projects and initiatives to greater heights.

To sustain the momentum for the RRT, periodic check-ins were conducted: (a) daily reviews (e.g., evaluation of high-risk patients for hospital readmission during stand-up and stand-down clinical meetings); (b) weekly reviews (i.e., analysis of patients who were sent out, those that the RRT prevented hospital readmission, any near misses, and lessons learned from those cases); and (c) monthly reviews (e.g., based on compiled data, to determine what the RRT could adjust and adapt to streamline its processes, and how it could improve further). The periodic check-ins were documented using the Chart Audit Tool (See Appendix I).

During these periodic check-ins, continuous discussions by everyone involved about the change effort – how it is improving patient outcomes and where the facility stands vis-à-vis the set goals (i.e., for the week, for the month) – were encouraged. This has assisted in celebrating short-term wins, which would then snowball into long-term and lasting successes. Meanwhile, the periodic check-ins also helped reveal any barriers (i.e., structure, systems, culture, or people) that may need to be addressed, updated, or removed by the guiding coalition. This would ensure progress with the change effort shall continue unimpeded.

In an effort to solidify the gains of the change effort, more education and training were afforded to more stakeholders. While initially, those that comprise the RRT members completed intensive education and training, during this stage of the initiative's implementation, other clinical and frontline staff (e.g., nurses, nursing assistants, and therapists) were also given the opportunity to improve their knowledge and skills. The goal here is to amplify the tasks and responsibilities of the RRT so that other clinical team members can perform them regularly and routinely while caring for their patients. The value of this cross-training endeavor would produce exponential results for the initiative as the RRT is no longer constrained to a limited few but would now be expanded to as many clinicians directly involved in patient care. The advantages

of cross-training include increased confidence in caring for patients as new knowledge and skills are acquired, improved team performance, enhanced team efficiency and effectiveness, and more individuals capable of doing the tasks required by the RRT (Vasanthi & Rabiyathul, 2017).

Engaging patients and family members to become partners in the change effort is another tactic that would catapult the initiative to achieve its goal of reducing hospital readmission. By engaging patients and family members – educating them about the program, communicating to them how it improves clinical outcomes, and informing them of approaches they could do to help in the process – they could become valuable partners and contributors to the initiative's successful implementation (Bombard et al., 2018). For example, instead of just relying on clinicians caring for them, engaged patients and family members could assist in recognizing subtle changes that may lead to further decline and possible rehospitalization. In addition, teaching patients and family members what, when, and whom to report the changes would foster better communication, faster response time, and quicker interventions to alleviate any issues the patient is experiencing.

Stage 8: Anchoring New Approaches in the Culture

Now that the change effort has achieved its intended purposes, it is imperative to anchor the change in the organization's culture to ensure that the transformation accomplishes its intended lasting effects. The eighth stage in Kotter's model encapsulates the process of anchoring these new approaches in the organization's culture by (a) consistently showcasing (through short-term and long-term wins) that the changes work and are far effective than the previous ways (e.g., improved systems and processes produce better patient outcomes); (b) relentlessly communicating (i.e., utilizing already-in-place and available media, including existing messaging systems and communication platforms) to all stakeholders (e.g., senior executives,

managers, supervisors, clinical and non-clinical staff, frontline and ancillary employees and non-employees) the positive impact of the new practices in the lives and outcomes of patients and the well-being of the organization (i.e., increased reimbursement, effective and efficient team performance); and (c) purposefully utilizing the benefits of the initiative as a foundation for more change (Kotter, 2012).

Continued commitment from the guiding coalition and leadership from senior management would maintain everyone's focus on the initiative's vision and ensure that the urgency level for the shared purpose remains high. This is not the time to become lax just because short-term wins were accomplished and the future looks rosy. Day in and day out, a consistent and concerted effort must be made by all stakeholders to consciously integrate and nurture the changes in the organization's culture. This could be done by a) identifying and incorporating customs and values that would reinforce the change, b) incorporating these new customs and values when hiring and promoting employees, c) revamping the training and development programs to assist staff in acquiring more knowledge and develop new skills pertinent to the changes, and d) improving or eliminating systems and people that do not align with the new culture (Kotter, 2012).

Recommendations for Future Projects and Practice

Continuous improvement is the foundational tenet in Kotter's Change Model (2012), the framework for the initiative's implementation. It is also an essential aspect in the quality improvement (QI) limb of the seminal work on rapid response systems (RRS) by Jones et al. (2011). QI is a set of tenets and a systematic, ongoing method to find solutions to healthcare problems, enhance care delivery, and produce improved patient outcomes (Backhouse &

Ogunlayi, 2020; Mileski et al., 2017). With this in mind, the expectation after this project is to continue finding improvements to make the systems, methods, and solutions even better.

As a quality improvement (QI) initiative, this DNP project could potentially expand on five areas in the future. These areas are not part of the project's current scope nor pertain to the study's focus, but they could be explored further in future iterations. The five areas are as follows:

First, while the project's setting is a nursing home, the focus is mainly on the hospital readmission measure for skilled patients (i.e., those individuals covered by Medicare A). It was designed this way because their rehospitalization directly impacts the facility's metric and affects how it receives Medicare reimbursement. Still, long-term patients may also benefit from the RRT implementation to ensure that any physical deterioration/decline is detected early and their conditions are managed timely and appropriately.

For this future implementation, the goal still is to reduce hospital readmission, but this time for long-term patients. When implemented, one way to measure the project's result is by using the CMS' long-stay quality measures on the number of hospitalizations per 1,000 long-stay resident days (CMS, 2019). Note that the hospital readmission measure (for skilled patients) affects the facility's overall star and quality measures rating; it is also tied to reimbursement. Meanwhile, long-stay rehospitalization only affects the facility's overall star and quality measures rating; it does not affect reimbursement.

Second, the study's design only considers the patient's vital signs (e.g., respirations, oxygen saturation, blood pressure, pulse, and temperature) and observable signs and symptoms (e.g., use of oxygen, whether the patient is alert, arousable to voice/pain, new confusion, or unresponsive). Because the study adopted the Royal College of Physicians' (2017) National

Early Warning System (NEWS), a validated tool to detect patient deterioration and decline early, the vital signs and the observable signs and symptoms were the only ones included in determining the risk for hospital readmission. Could other factors potentially cause the patient to be rehospitalized?

Various studies have looked at other factors associated with unplanned hospital readmissions, such as existing comorbidities, related diagnoses, medications being taken, and abnormalities in lab/diagnostic testings (Al-Tamimi et al., 2021; Glans et al., 2020; Lo et al., 2021). For instance, are the patient's admitting diagnosis and comorbidities (e.g., COPD, CHF) making them more prone to rehospitalization? What about the medications that the patient is taking? Furthermore, how do laboratory testing and diagnostic results affect the patient's rehospitalization propensity? Now, considering all these new facets of the patient, how can the RRT adapt its systems, processes, and procedures to accommodate these other factors? This would be an interesting future project to determine the interplay among all these variables on patient outcomes, specifically on the hospital readmission measure.

Third, with the advent of electronic health records (EHRs), another area that could be explored further is the use of technological advancements to gather patient information, document them, and automatically consider the variables involved in determining a patient's risk for rehospitalization. For example, the current design uses paper charting to record in the NEWS2 observation tool. Could this be replaced in later studies by using the EHR instead? Combining the data-gathering mechanism and automating the process to determine the risk categorization of patients would streamline and make it faster and less prone to errors.

In addition, how would using the EHR affect compliance rates for the nurses and the RRT members in the initiative's implementation, and how would this ultimately affect the

facility's hospital readmission measure? For example, one reason for non-compliance by the nurses and RRT members is the added time needed to document pertinent data in the NEWS2 tool and RRT log. Using the EHR and allowing it to process everything could remove the additional layers of tasks for nurses and RRT members to accomplish.

Meanwhile, since not all SNFs have access to EHRs or have procured/implemented one in their facility, what financial investment is needed for its procurement/implementation? How much will it cost the facility, and will it be cost-effective? Another consideration is the type or kind of EHR that must be procured/implemented. There are different types/kinds of EHRs with varying features and capabilities. What would suit the facility best based on its needs? Are there ongoing support and educational opportunities included with the procurement/implementation of the EHR for the facility and its staff? These are some of the questions that need to be considered and answered related to the use of EHR.

Fourth, while the result did not categorically ascertain the association between the initiative's implementation and the expected outcome, a relationship between the variables could be established with more patients in the sample. As the RRT was implemented, there was a corresponding downward trend in hospital readmissions. Because statistical significance heavily depends on a study's sample size (Ranganathan et al., 2015), future implementations may benefit from expanding the sample size to determine statistical significance. Strategies that could increase the sample size include extending the time frame of the implementation and recruiting more SNFs to be part of the study.

In order to accomplish this, the resulting evidence and best practice from this QI initiative at MTRC will be used as a template for future roll-out and implementation at other Clear Choice Health Care (CCHC) facilities. Additionally, the project lead will share the study's results with

the Florida Health Care Association (FHCA) members, the state's premier organization for senior care and living, advocating for the RRT's adoption in SNFs as part of its arsenal to manage rehospitalizations. As more facilities implement the RRT, more data could be collected and analyzed. With more settings and samples involved, other research designs and statistical models may be used to expand on the current scope of this project and address its limitations.

Lastly, the DNP project showed that registered nurses (RNs) had better compliance than their licensed practical nurses (LPNs) counterparts. Specifically, RNs were about 9% more compliant than LPNs in implementing the initiative based on completing the NEWS2 observation tool. While factors were not looked closely in the study's design as to the reason(s) why this occurred, future endeavors could explore what caused this phenomenon. For instance, could nurses' educational background influence their willingness to embrace change efforts? Do LPNs require more training and education about the initiative than RNs? And if so, what kind and type of training/education should be provided and for how long?

Actual DNP Essentials Met

In 2006, the American Association of Colleges of Nursing (AACN) established the *Essentials of Doctoral Education for Advanced Nursing Practice* as the blueprint for attaining the highest practice degree available in nursing, the Doctor of Nursing Practice (DNP). On it, the AACN delineated eight core essentials deemed foundational in preparing for and eventually practicing with the degree specifically aimed to develop advanced nursing, leadership, and management competencies, improve patient and healthcare outcomes, and enhance practice and care delivery, among others (AACN, 2006).

While all eight practice essentials influenced this DNP project, three of them were met by its completion:

Essential I: Scientific Underpinnings for Practice

The AACN (2006) underscored the need for doctorate-prepared nurses to be astute in integrating various knowledge from the sciences and translating them to benefit particularly, patients and, generally, healthcare. Likewise, Albert et al. (2020) contended that a firm awareness and understanding of the other sciences' principles should help prepare DNP graduates to address current and future practice issues. For instance, the nursing profession and nursing practice build upon the scientific foundations of both natural (e.g., human biology/microbiology, therapeutics, etc.) and social (e.g., organizational, behavioral, etc.) sciences (AACN, 2006).

The completion of the DNP project meets Essential I for the following reasons:

- The project used Kotter's Change Model as its implementation framework. Kotter's Change Model covers a swath of sciences from organizational structures, behavioral systems, and change management. The same is true with quality improvement.
- The use of the RRT limbs, specifically the afferent and efferent limbs, showcased the adoption of the natural sciences (e.g., assessing and/or evaluating vital signs, signs, and symptoms of deterioration and decline). In addition, the therapeutic approaches applied to keep patients in-house when they undergo physiological issues are also applications of natural sciences.
- Incorporating interdisciplinary collaboration, team-based dynamics, communication, and leadership into the project are applications of related sciences as part of its underpinnings. The study's focus on reimbursements is an application of financial management.

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

The AACN (2006) emphasized the importance of DNP graduates in providing organizational and systems leadership to improve patient and healthcare outcomes. Specifically, they are expected to demonstrate expertise in organizational assessments, systems issues identification, and organization-wide/practice delivery change facilitation (AACN, 2006). In addition, more than directly caring for individual patients, doctorate-prepared nurses focus on the broader population by implementing quality innovations and utilizing new care delivery models (Moran et al., 2019).

The completion of the DNP project meets Essential II for the following reasons:

- An organizational assessment determined that SNFs need to adopt a strategy to address the influx of higher-acuity patients to the setting while ensuring these patients do not end up having unplanned rehospitalizations. Because increased hospital readmissions could ultimately affect the SNF reimbursement, the DNP project implemented an organization-wide change effort (i.e., the RRT implementation).
- A reduction in hospital readmission was realized through its implementation and eventual completion. The non-risk adjusted rehospitalization metric was 17.88% for the eight-week post-implementation period. The percentage change between the post-implementation versus the pre-implementation hospital readmission measure is a reduction of 23.43%.
- Future endeavors are planned for implementation, utilizing the project results as a building block for further development. In addition, successfully disseminating the

evidence and best practices gleaned from this project will become a template for other projects.

Essential V: Health Care Policy for Advocacy in Health Care

The AACN (2006) asserted the need for nurses to fully engage in the policy development process to advance the profession and healthcare. This can be done by continuously identifying and developing evidence-based improvements to care through nursing research and practice (AACN, 2006). Then, the improvements can be tested and implemented through policy changes throughout the healthcare continuum, which involves applying and translating evidence-based research findings into nursing practice and healthcare policy (Masood et al., 2020). A critical step here is providing nurses with educational and training programs catering to understanding and translating the evidence into practice (Turale & Kunaviktikul, 2019).

The completion of the DNP project meets Essential V for the following reasons:

- The project was nurse-led and nurse-driven and aimed at implementing a change initiative to improve healthcare and nursing practice. Nurse managers and frontline nurses were fully engaged in developing, implementing, and evaluating the change effort, with the project guided by Kotter's Change Model as its framework.
- An analysis of current nursing practice identified a need for improvement, and research was applied to determine evidentiary support and best practice. This became the basis for the project's design, implementation, and evaluation.
- The improvement was tested and implemented in a healthcare setting through the DNP project, applying and translating the evidence into nursing practice and

healthcare policy during the eight weeks. Post-implementation, the change effort will be sustained at MTRC and other SNFs.

- Nurses and RRT members were educated and trained to help them understand and translate the evidence into practice.

Conclusion

While the study did not establish statistical significance between implementing a rapid response team (RRT) in a SNF setting and reducing the hospital readmission measure, the project's results showed great promise. The foundation laid by this project and its results can be used to build upon the subsequent iterations of the continuous improvement journey, sustain the change momentum at the project setting, disseminate evidence and best practices gleaned from it, and provide recommendations for future projects and practice. For instance, further research should be performed to expand the sample size, consider multi-facility settings, and increase the implementation timeframe. The initiative could also be expanded to include long-term care residents, use other aspects to evaluate risk factors for hospital readmission (e.g., diagnosis, lab results, medications), and incorporate electronic health records (EHRs) in future implementations.

References

Ahmed, S. (2019). Integrating DMAIC approach of Lean Six Sigma and theory of constraints toward quality improvement in healthcare. *Reviews on Environmental Health, 34*(4), 427-434. https://doi.org/10.1515/reveh-2019-0003

Al-Tamimi, M. A., Gillani, S. W., Abd Alhakam, M. E., & Sam, K. G. (2021). Factors associated with hospital readmission of heart failure patients. *Frontiers in Pharmacology*, 12, 732760. https://doi.org/10.3389/fphar.2021.732760

Albert, N., Pappas, S., Porter-O'Grady, T., & Malloch, K. (2020). *Quantum leadership: Creating sustainable value in health care* (6th ed.). Jones and Bartlett.

American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice.* https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf

Armstrong, G. E., & Sables-Baus, S. (Eds.). (2019). *Leadership and systems improvement for the DNP.* Springer Publishing.

Backhouse, A., & Ogunlayi, F. (2020). Quality improvement into practice. *BMJ, 368*, m865. https://doi.org/10.1136/bmj.m865

Baker, B., Billings, K., Daras, L. C., DiBello, M., He, F., Ingber, M., Karwaski, C., Komp, L., Pogue, Y. Z., Shah, A., Segelman, M., Smith, L., Tan, S., & Vadnais, A. (2019). Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) NQF #2510: All-Cause Risk-Standardized Readmission Measure, Technical Report Supplement - 2019 Update. *Centers for Medicare and Medicaid Services.* https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-

Instruments/Value-Based-Programs/SNF-VBP/Downloads/SNFRM-TechReportSupp-2019-.pdf

Benbassat, J., & Taragin, M. (2000). Hospital readmissions as a measure of quality of health care: Advantages and limitations. *Archives of Internal Medicine, 160*(8), 1074-1081. https://doi.org/10.1001/archinte.160.8.1074

Bombard, Y., Baker, G. R., Orlando, E., Fancott, C., Bhatia, P., Casalino, S., Onate, K., Denis, J. L., & Pomey, M. P. (2018). Engaging patients to improve quality of care: A systematic review. *Implementation Science, 13*, 98. https://doi.org/10.1186/s13012-018-0784-z

Bonn, J., Mulkey, D., & Goers, J. (2022). Using gamification to engage clinical nurses in quality improvement. *Journal for Nurses in Professional Development.* https://doi.org/10.1097/NND.0000000000000898

Brady, J., & McKittrick, M. (2021). From RUGs to PDPM: Demonstrating how policy impacts operations in post-acute setting. *The Journal of Health Administration, 38*(2), 615-626. https://www.ingentaconnect.com/contentone/aupha/jhae/2021/00000038/00000002/art00012

Campbell, R. J. (2020). Change management in health care. *The Health Care Manager, 39*(2), 50-65. https://doi.org/10.1097/HCM.0000000000000290

Castellucci, M. (2018). Most skilled-nursing facilities penalized by CMS for readmission rates. *Modern Healthcare.* https://www.modernhealthcare.com/article/20181128/NEWS/181129930/most-skilled-nursing-facilities-penalized-by-cms-for-readmission-rates

Centers for Medicare and Medicaid Services. (2019). *Meaningful measures.* U. S. Department of Health and Human Services. https://www.cms.gov/Medicare/Quality-Initiatives-

Patient-Assessment-Instruments/QualityInitiativesGenInfo/MMF/General-info-Sub-Page

Centers for Medicare and Medicaid Services. (2020). *The skilled nursing facility value-based purchasing (SNF VBP) program.* U. S. Department of Health and Human Services. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/SNF-VBP/Measure

Centers for Medicare and Medicaid Services. (2021). *Patient-driven payment model.* U. S. Department of Health and Human Services. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/SNFPPS/PDPM

Clayton, W. R. (2019). Overcoming barriers impeding nurse activation of rapid response teams. *OJIN: The Online Journal of Issues in Nursing, 24*(3). https://doi.org/10.3912/OJIN.Vol24No03PPT22

Connelly, L. M. (2016). Fisher's exact test. *Medsurg Nursing, 25*(1), 58-61. https://www.proquest.com/docview/1765639150

Custo, R. T., & Trapani, J. (2020). The impact of rapid response systems on mortality and cardiac arrests - A literature review. *Intensive and Critical Care Nursing, 59*, 102848. https://doi.org/10.1016/j.iccn.2020.102848

Danesh, V., Neff, D., Jones, T. L., Aroian, K., Unruh, L., Andrews, D., Guerrier, L., Venus, S. J., & Jimenez, E. (2019). Can proactive rapid response team rounding improve surveillance and reduce unplanned escalations in care? A controlled before and after study. *International Journal of Nursing Studies, 91*, 128-133. https://doi.org/10.1016/j.ijnurstu.2019.01.004

Difonzo, M. (2019). Performance of the afferent limb of rapid response systems in managing deteriorating patients: A systematic review. *Critical Care Research and Practice, 2019,* Article 6902420, 1-16. https://doi.org/10.1155/2019/6902420

Gagne, C., & Fetzer, S. (2018). Early warning score communication bundle: A pilot study. *American Journal of Critical Care, 27*(3), 238–242. https://doi.org/10.4037/ajcc2018513

Gardner, R. L., Pelland, K., Youssef, R., Morphis, B., Calandra, K., Hollands, L., & Gravenstein, S. (2020). Reducing hospital readmissions through a skilled nursing facility discharge intervention: A pragmatic trial. *Journal of the American Medical Directors Association, 21*(4), 508-512. http://doi.org/10.1016/j.jamda.2019.10.001

Glans, M., Kragh Ekstam, A., Jakobsson, U., Bondesson, A., & Midlov, P. (2020). Risk factors for hospital readmission in older adults within 30 days of discharge – a comparative retrospective study. *BMC Geriatrics, 20*, 467. https://doi.org/10.1186/s12877-020-01867-3

Guirgis, F. W., Gerdik, C., Wears, R. L., Williams, D. J., Kalynych, C. J., Sabato, J., & Godwin, S. A. (2013). Proactive rounding by the rapid response team reduces in-patient cardiac arrests. *Resuscitation, 84*(12), 1668-73. https://doi.org/10.1016/j.resuscitation.2013.08.013

Haegdorens, F., Monsieurs, K. G., De Meester, K., & Van Bogaert, P. (2020). The optimal threshold for prompt clinical review: An external validation study of the national early warning score. *Journal of Clinical Nursing, 29*, 4594– 4603. https://doi.org/10.1111/jocn.15493

Harrison, R., Fischer, S., Walpola, R. L., Chauhan, A., Babalola, T., Mears, S., & Le-Dao, H. (2021). Where do models for change management, improvement and implementation

meet? A systematic review of the applications of change management models in healthcare. *Journal of Healthcare Leadership, 13*, 85–108. https://doi.org/10.2147/JHL.S289176

Howell, M. D., Ngo, L., Folcarelli, P., Yang, J., Mottley, L., Marcantonio, E. R., Sands, K. E., Moorman, D., & Aronson, M. D. (2012). Sustained effectiveness of a primary-team-based rapid response system. *Critical Care Medicine, 40*(9), 2562–2568. https://doi.org/10.1097/CCM.0b013e318259007b

Institute for Healthcare Improvement. (2008). *How-to guide: Deploy rapid response teams.* http://www.ihi.org/resources/Pages/Tools/HowtoGuideDeployRapidResponseTeams.aspx

Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health.* National Academic Press. https://doi.org/10.17226/12956

Institute of Medicine. (2015). *Measuring the impact of interprofessional education on collaborative practice and patient outcomes.* The National Academies Press. https://doi.org/10.17226/21726

Jones, D., DeVita, M. A., & Bellomo, R. (2011). Rapid-response teams. *New England Journal of Medicine, 365*, 139-146. https://doi.org/10.1056/NEJMra0910926

Jones, D., Rubulotta, F. & Welch, J. (2016). Rapid response teams improve outcomes: Yes. *Intensive Care Medicine, 42*, 593–595. https://doi.org/10.1007/s00134-016-4219-5

Journal of Nursing Home Research. (2012). *About the journal.* https://www.jnursinghomeresearch.com/about-the-journal.html

Kang, B. J., Hong, S. B., Jeon, K., Lee, S. M., Lee, D. H., Moon, J. Y., Lee, Y. J., Kim, J. S., Park, J., & Ahn, J. J. (2021). Rapid response system should be enhanced at non-general

ward locations: A retrospective multicenter cohort study in Korea. *Journal of Korean Medical Science, 36*(2), e7. https://doi.org/10.3346/jkms.2021.36.e7

Kim, H. Y. (2017). Statistical notes for clinical researchers: Chi-squared test and Fisher's exact test. *Restorative Dentistry & Endodontics, 42*(2), 152-155. https://doi.org/10.5395/rde.2017.42.2.152

Klingbeil, C., & Gibson, C. (2018). The teach-back project: A system-wide evidence-based practice implementation. *Journal of Pediatric Nursing, 42*, 81-85. https://doi.org/10.1016/j.pedn.2018.06.002

Kollef, M. H., Heard, K., Chen, Y., Lu, C., Martin, N., & Bailey, T. (2017). Mortality and length of stay trends following implementation of a rapid response system and real-time automated clinical deterioration alerts. *American Journal of Medical Quality, 32*(1), 12–18. https://doi.org/10.1177/1062860615613841

Kotter, J. P. (2012). *Leading change.* Harvard Business Review Press.

Kotter, J. P., Akhtar, V., & Gupta, G. (2021). *Change: How organizations achieve hard-to-imagine results in uncertain and volatile times.* John Wiley & Sons.

Kripalani, S., Theobald, C. N., Anctil, B., & Vasilevskis, E. E. (2014). Reducing hospital readmission rates: Current strategies and future directions. *Annual Review of Medicine, 65*, 471–485. https://doi.org/10.1146/annurev-med-022613-090415

Leach, L. S., & Mayo, A. M. (2013). Rapid response teams: Qualitative analysis of their effectiveness. *American Journal of Critical Care, 22*(3), 198–210. https://doi.org/10.4037/ajcc2013990

Lee, S. I., Koh, J. S., Kim, Y. J., Kang, D. H., & Lee, J. E. (2022). Characteristics and outcomes of patients screened by rapid response team who transferred to the intensive care unit. *BMC Emergency Medicine, 22*, 1-8. http://doi.org/10.1186/s12873-022-00575-y

Lo, Y. T., Chang, C. M., Chen, M. H., Hu, F. W., & Lu, F. H. (2021). Factors associated with early 14-day unplanned hospital readmission: A matched case–control study. *BMC Health Services Research, 21*, 870. https://doi.org/10.1186/s12913-021-06902-6

LoBiondo-Wood, G., & Haber, J. (2018). *Nursing research: Methods and critical appraisal for evidence-based practice* (9th ed.). Elsevier.

Lyons, P. G., Edelson, D. P., & Churpek, M. M. (2018). Rapid response systems. *Resuscitation, 128*, 191-197. https://doi.org/10.1016/j.resuscitation.2018.05.013

Maharaj, R., Raffaele, I. & Wendon, J. (2015). Rapid response systems: A systematic review and meta-analysis. *Critical Care 19*, 254. https://doi.org/10.1186/s13054-015-0973-y

Masood, S., Kothari, A., & Regan, S. (2020). The use of research in public health policy: A systematic review. *Journal of Research, Debate and Practice, 16*(1). https://doi.org/10.1332/174426418X15193814624487

McMeekin, N., Wu, O., Germeni, E., & Briggs, A. (2020). How methodological frameworks are being developed: Evidence from a scoping review. *BMC Medical Research Methodology, 20*, 173. https://doi.org/10.1186/s12874-020-01061-4

Mcneill, H., & Khairat, S. (2020). Impact of intensive care unit readmissions on patient outcomes and the evaluation of the National Early Warning Score to prevent readmissions: Literature review. *Journal of Medical Internet Research Perioperative Medicine, 3*(1), e13782. https://doi.org/10.2196/13782

Mileski, M., Topinka, J.B., Lee, K., Brooks, M., McNeil, C. & Jackson, J. (2017). An investigation of quality improvement initiatives in decreasing the rate of avoidable 30-day, skilled nursing facility-to-hospital readmissions: A systematic review. *Clinical Interventions in Aging, 12*, 213-222. https://doi.org/10.2147/CIA.S123362

Mitchell, R., Schuster, L., & Seung Jin, H. (2020). Gamification and the impact of extrinsic motivation on needs satisfaction: Making work fun? *Journal of Business Research, 106*, 323-330. https://doi.org/10.1016/j.jbusres.2018.11.022

Moran, K. J., Burson, R., & Conrad, D. (2019). *The doctor of nursing practice project: A framework for success the doctor of nursing practice project: A framework for success* (3rd ed.). Jones and Bartlett.

Nallamothu, B. K., Guetterman, T. C., Harrod, M., Kellenberg, J. E., Lehrich, J. L., Kronick, S. L., Krein, S. L., Iwashyna, T. J., Saint, S., & Chan, P. S. (2018). How do resuscitation teams at top-performing hospitals for in-hospital cardiac arrest succeed? A qualitative study. *Circulation, 138*, 154-163. https://doi.org/10.1161/CIRCULATIONAHA.118.033674

National Association of the Directors of Nursing Administration. (n.d.). *About the journal.* https://nadonathedirector.scholasticahq.com/about

Niñerola, A., Sánchez-Rebull, M. V., & Hernández-Lara, A. B. (2020). Quality improvement in healthcare: Six Sigma systematic review. *Health Policy, 124*(4), 438-445. https://doi.org/10.1016/j.healthpol.2020.01.002

Nursing Home Compare. (2022). *Melbourne Terrace Rehabilitation Center: Quality measures.* https://www.medicare.gov/care-compare/details/nursing-

home/105635?city=Melbourne&state=FL&zipcode=32904&measure=nursing-home-quality-of-care

Office for Human Research Protections. (2021). *Exemptions (2018 requirements).* https://www.hhs.gov/ohrp/regulations-and-policy/regulations/45-cfr-46/common-rule-subpart-a-46104

Ouslander, J. G., Naharci, I., Engstrom, G., Shutes, J., Wolf, D. G., Rojido, M., Tappen, R., & Newman, D. (2016). Hospital transfers of skilled nursing facility (SNF) patients within 48 hours and 30 days after SNF admission. *Journal of the American Medical Directors Association, 17*(9), 839-845. https://doi.org/10.1016/j.jamda.2016.05.021

Ouslander, J. G., Engstrom, G., Reyes, B., Tappen, R., Rojido, C., & Gray-Micelli, D. (2018). Management of acute changes in condition in skilled nursing facilities. *Journal of the American Geriatrics Society, 66*(12), 2259-2266. https://doi.org/10.1111/jgs.15632

Padilla, R. M., Urden, L. D., & Stacy, K. M. (2018). Nurses' perceptions of barriers to rapid response system activation: A systematic review. *Dimensions of Critical Care Nursing, 37*(5), 259-271. https://doi.org/10.1097/DCC.0000000000000318

Patel, R., Nugawela, M. D., Edwards, H. B., Richards, A., Le Roux, H., Pullyblank, A., & Whiting, P. (2018). Can early warning scores identify deteriorating patients in pre-hospital settings? A systematic review. *Resuscitation, 132*, 101-111. https://doi.org/10.1016/j.resuscitation.2018.08.028

Petersen, J. A. (2018). Early warning score challenges and opportunities in the care of deteriorating patients. *Danish Medical Journal, 65*(2), B5439. https://ugeskriftet.dk/files/scientific_article_files/2018-08/b5439.pdf

PointClickCare. (2022). *Skilled nursing core platform.* https://pointclickcare.com/products/skilled-nursing-core-platform

Ranganathan, P., Pramesh, C. S., Buyse, M. (2015). Common pitfalls in statistical analysis: Clinical versus statistical significance. *Perspectives in Clinical Research, 6*(3), 169-70. https://doi.org/10.4103/2229-3485.159943

Ratelle, J. T., Sawatsky, A. P., Kashiwagi, D. T., Schouten, W. M., Erwin, P. J., Gonzalo, J. D., Beckman, T. J., & West, C. P. (2018). Implementing bedside rounds to improve patient-centred outcomes: A systematic review. *BMJ Quality & Safety, 28*(4). https://doi.org/10.1136/bmjqs-2017-007778

Riva, J. J., Malik, K. M., Burnie, S. J., Endicott, A. R., & Busse, J.W. (2012). What is your research question? An introduction to the PICOT format for clinicians. *Journal of the Canadian Chiropractic Association, 56*(3), 167-171. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3430448/

Royal College of Physicians. (2017). *National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS.* https://www.rcplondon.ac.uk/file/8636/download

Ryan, L., Jackson, D., Woods, C., & Usher, K. (2019). Intentional rounding – An integrative literature review. *Journal of Advanced Nursing, 75*, 1151– 1161. https://doi.org/10.1111/jan.13897

Scholle, C. C., & Mininni, N. C. (2006). Best practice interventions: How a rapid response team saves lives: Learn why bedside nurses are embracing this lifesaving innovation. *Nursing, 36*(1), 36-40. https://doi.org/10.1097/00152193-200601000-00037

Scott, S. S., & Elliott, S. (2009). Implementation of a rapid response team: A success story. *Critical Care Nurse, 29*(3), 66-75. https://doi.org/10.4037/ccn2009802

Smith, G. B., Prytherch, D. R., Meredith, P., Schmidt, P. E., & Featherstone, P. I. (2013). The ability of the National Early Warning Score (NEWS) to discriminate patients at risk of early cardiac arrest, unanticipated intensive care unit admission, and death. *Resuscitation, 84*, 465–70. https://doi.org/10.1016/j.resuscitation.2012.12.016

Song, M. J., & Lee, Y. J. (2021). Strategies for successful implementation and permanent maintenance of a rapid response system. *Korean Journal of Internal Medicine, 36*(5). 1031-1039. https://doi.org/10.3904/kjim.2020.693

Spanko, A. (2019). Proportion of skilled nursing VBP losers grow as 77% receive Medicare payment cuts. *Skilled Nursing News.* https://skillednursingnews.com/2019/12/proportion-of-skilled-nursing-vbp-losers-grows-as-77-receive-medicare-payment-cuts/

Stolldorf, D. P. (2017). Sustaining health care interventions to achieve quality care: What we can learn from rapid response teams. *Journal of Nursing Care Quality, 32*(1), 87–93. https://doi.org/10.1097/NCQ.0000000000000204

Turale, S., & Kunaviktikul, W. (2019), The contribution of nurses to health policy and advocacy requires leaders to provide training and mentorship. *International Nursing Review, 66*, 302-304. https://doi.org/10.1111/inr.12550

Vasanthi, S., & Rabiyathul B. S. (2017). Cross training employees: A conceptual review. *International Journal of Advanced Research in Science, Engineering and Technology, 4*(3), 3542-3545. http://www.ijarset.com/upload/2017/march/19_IJARSET_VASANTHI.pdf

Waldie, J., Tee, S., & Day, T. (2016). Reducing avoidable deaths from failure to rescue: A discussion paper. *British Journal of Nursing, 25*(16), 895-900. https://doi.org/10.12968/bjon.2016.25.16.895

Will, K. K., Johnson, M. L., & Lamb, G. (2019). Team-based care and patient satisfaction in the hospital setting: A systematic review. *Journal of Patient-Centered Research and Reviews, 6*(2), 158–171. https://doi.org/10.17294/2330-0698.1695

Tables

Table 1

NEWS2 Tool Compliance

Facility Units	Shift and Times			Days			Nurses (n=52)		
	Days	Nights	Difference	Weekdays	Weekends	Difference	RNs (n=18)	LPNs (n=34)	Difference
West 400/600 Even	84%	76%	8%	86%	74%	12%	83%	77%	6%
West 500/600 Odd	92%	84%	8%	95%	81%	14%	93%	83%	10%
South 600	86%	78%	8%	87%	77%	10%	89%	75%	14%
South 700	88%	81%	7%	90%	79%	11%	92%	77%	15%
West 800	92%	85%	7%	91%	86%	5%	90%	87%	3%
South 800/900	86%	78%	8%	85%	79%	6%	88%	76%	12%
South 900	92%	84%	8%	90%	86%	4%	89%	87%	2%
Totals - All Units	**89%**	**81%**	**8%**	**89%**	**80%**	**9%**	**89%**	**80%**	**9%**

Table 2

RRT Log Compliance: Day and Night Shifts

Week	Proactive Roundings			RRT Activations		Prevented RTH		Unplanned RTH	
	Days	Nights	Difference	Days	Nights	Days	Nights	Days	Nights
09/12 - 09/18	85%	72%	13%	0	0	0	0	3	4
09/19 - 09/25	88%	76%	12%	2	0	0	0	2	2
09/26 - 10/02	95%	84%	11%	0	1	0	0	1	3
10/03 - 10/09	95%	85%	10%	3	0	1	0	1	2
10/10 - 10/16	97%	88%	9%	1	1	1	0	0	3
10/17 - 10/23	98%	89%	9%	4	2	0	0	1	2
10/24 - 10/30	100%	92%	8%	6	4	1	1	0	2
10/31 - 11/06	100%	93%	7%	8	6	1	1	0	1
Total - All Weeks	**95%**	**85%**	**10%**	**24**	**14**	**4**	**2**	**8**	**19**

Table 3

RRT Log Compliance: Weekdays and Weekends

Week	Proactive Roundings			RRT Activations		Prevented RTH		Unplanned RTH	
	Weekdays	Weekends	Difference	Weekdays	Weekends	Weekdays	Weekends	Weekdays	Weekends
09/12 - 09/18	87%	70%	17%	0	0	0	0	5	2
09/19 - 09/25	89%	75%	14%	2	0	0	0	3	1
09/26 - 10/02	92%	87%	5%	1	0	0	0	2	2
10/03 - 10/09	93%	87%	6%	2	1	1	0	1	2
10/10 - 10/16	95%	90%	5%	1	1	1	0	1	2
10/17 - 10/23	96%	91%	5%	5	1	0	0	2	1
10/24 - 10/30	97%	95%	2%	7	3	2	0	1	1
10/31 - 11/06	98%	95%	3%	9	5	1	1	0	1
Total - All Weeks	**93%**	**86%**	**7%**	**27**	**11**	**5**	**1**	**15**	**12**

Table 4

RRT Implementation and Return to Hospital 2x2 Contingency Crosstabulation

Return to Hospital	RRT Implementation				
	No (0)		Yes (1)		Total
No (0)	640	76.65%	124	82.12%	764
Yes (1)	195	23.35%	27	17.88%	222
Total	**835**	**100.00%**	**151**	**100.00%**	**986**

Table 5

Pre- and Post-Implementation Data Points

	Pre-Implementation	Post-Implementation
Number of Admissions	835	151
Average Daily Census	78	102
Length of Stay	31.24	31.68

Table 6

IBM SPSS Case Processing Summary with Crosstabulation and Fisher's Exact Test Result

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
RTH * RRT	986	100.0%	0	0.0%	986	100.0%

RTH * RRT Crosstabulation

Count

		RRT		
		No	Yes	Total
RTH	No	640	124	764
	Yes	195	27	222
Total		835	151	986

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2.195[a]	1	.138	.168	.082	
Continuity Correction[b]	1.893	1	.169			
Likelihood Ratio	2.295	1	.130	.141	.082	
Fisher's Exact Test				.168	.082	
Linear-by-Linear Association	2.193[c]	1	.139	.168	.082	.029
N of Valid Cases	986					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 34.00.

b. Computed only for a 2x2 table

c. The standardized statistic is -1.481.

Figures

Figure 1

NEWS2 Tool Compliance

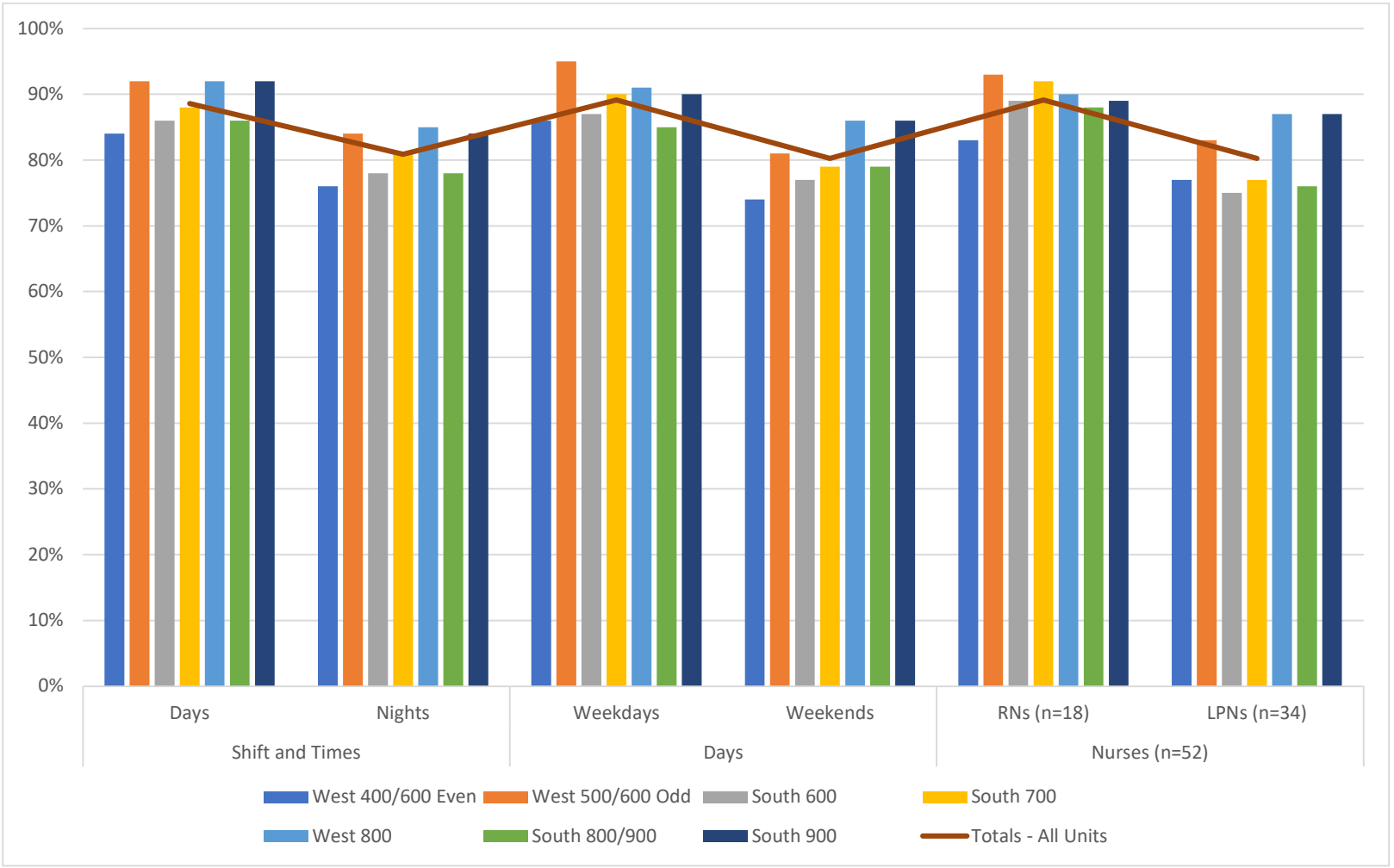


Figure 2

RRT Log Compliance: Day and Night Shifts

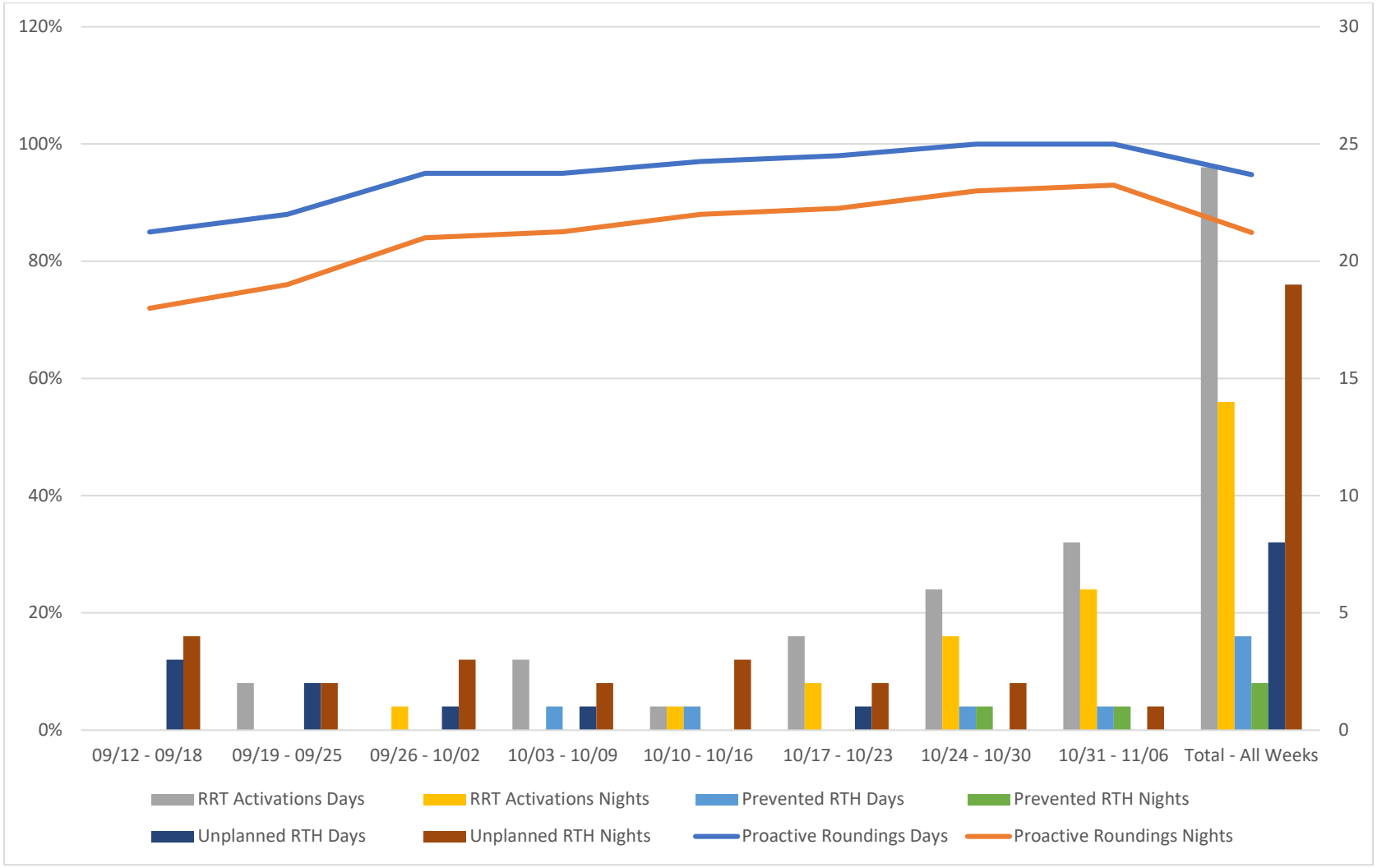
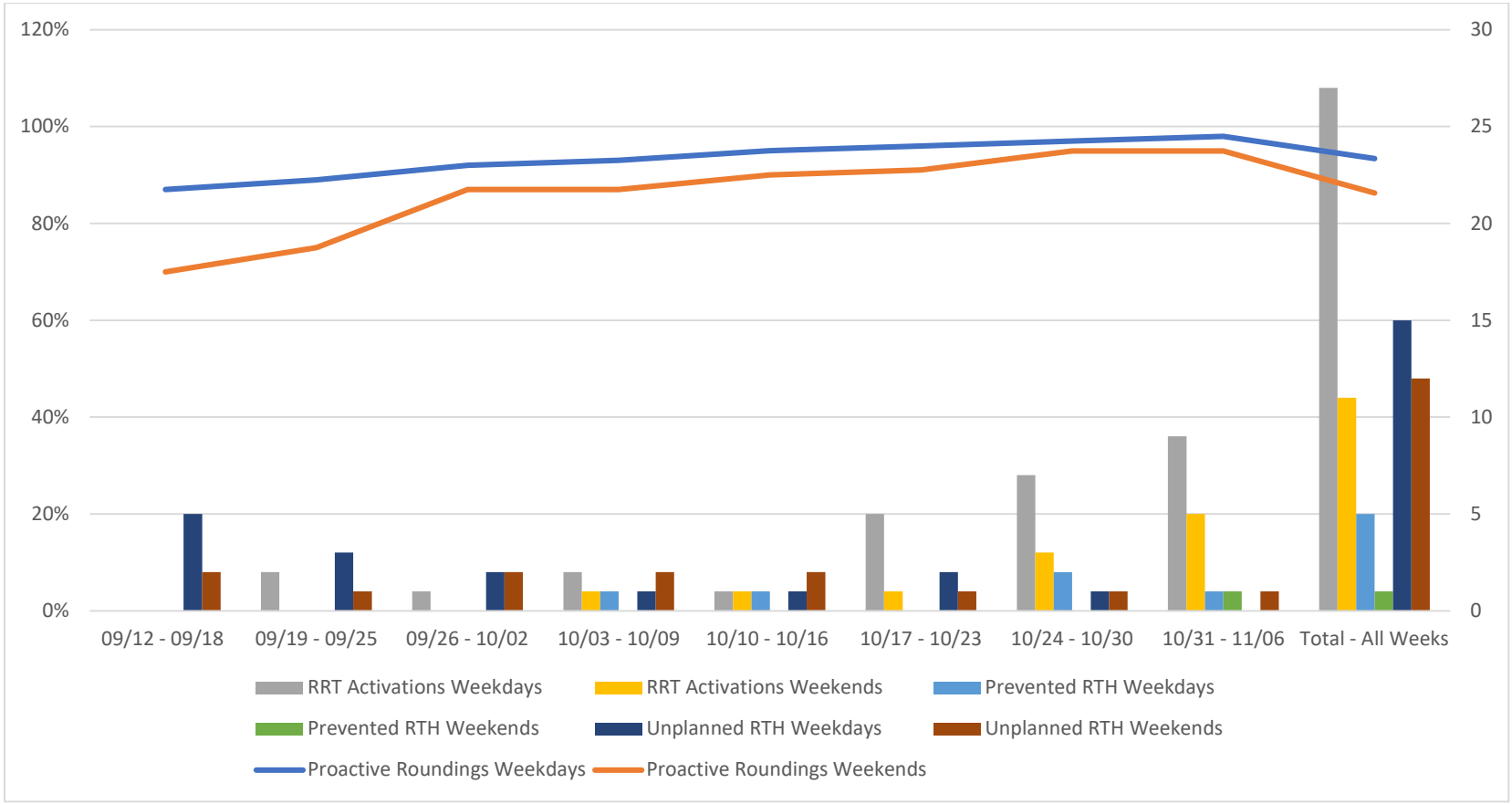


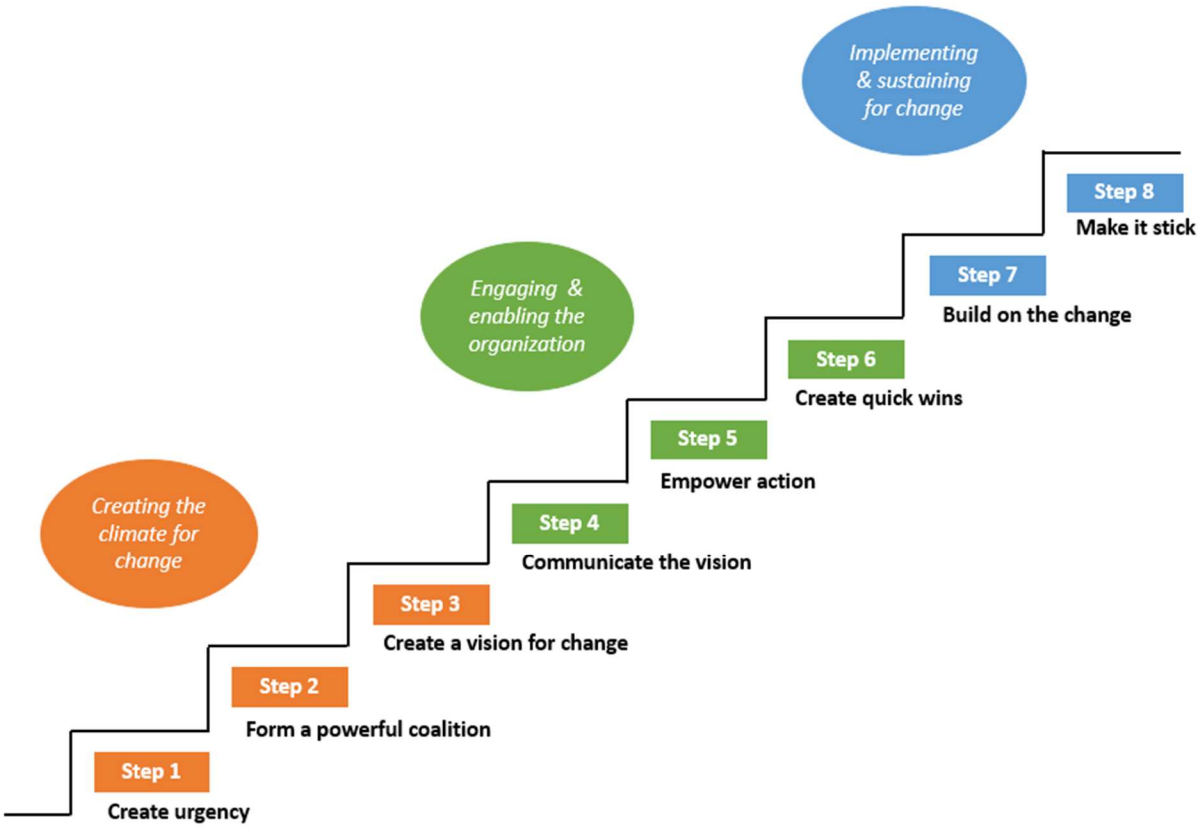
Figure 3

RRT Log Compliance: Weekdays and Weekends



Appendix A

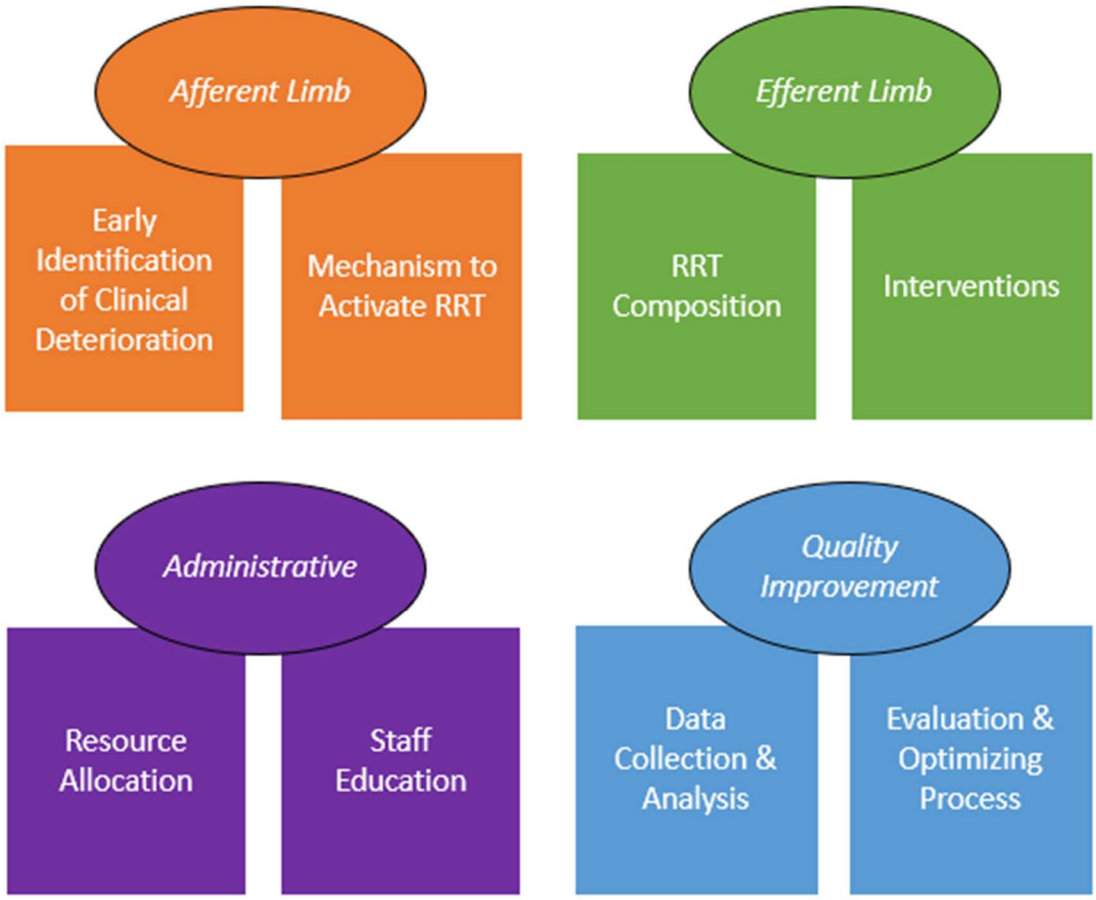
Kotter's Eight-Stage Model of Change Process



Note: Adapted from Kotter's Leading Change (2012).

Appendix B

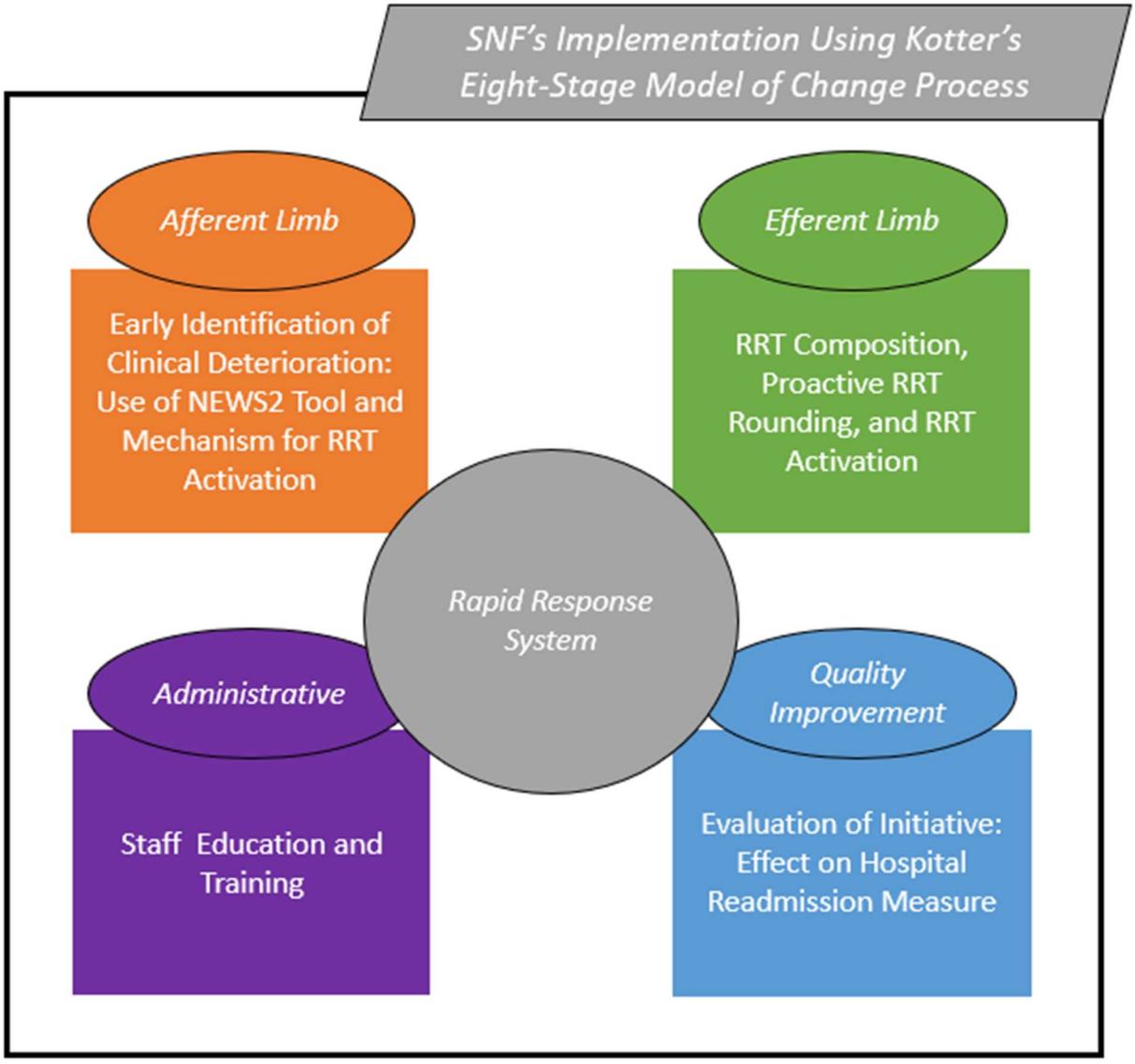
Conceptual Framework of an Established Rapid Response System



Note: Adapted from Jones et al. (2011).

Appendix C

Conceptual Framework of the Proposed RRT for a SNF Implementation



Appendix D

NEWS Scoring System, Threshold and Triggers

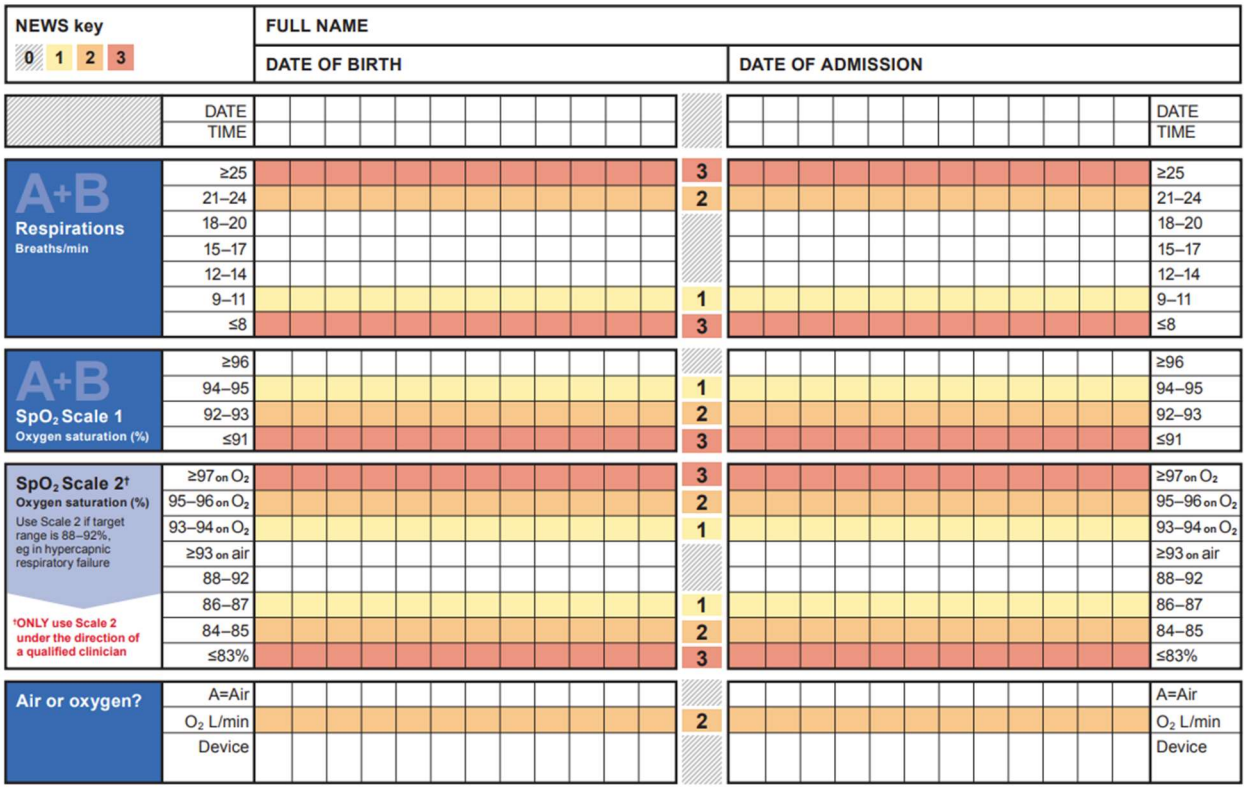
Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

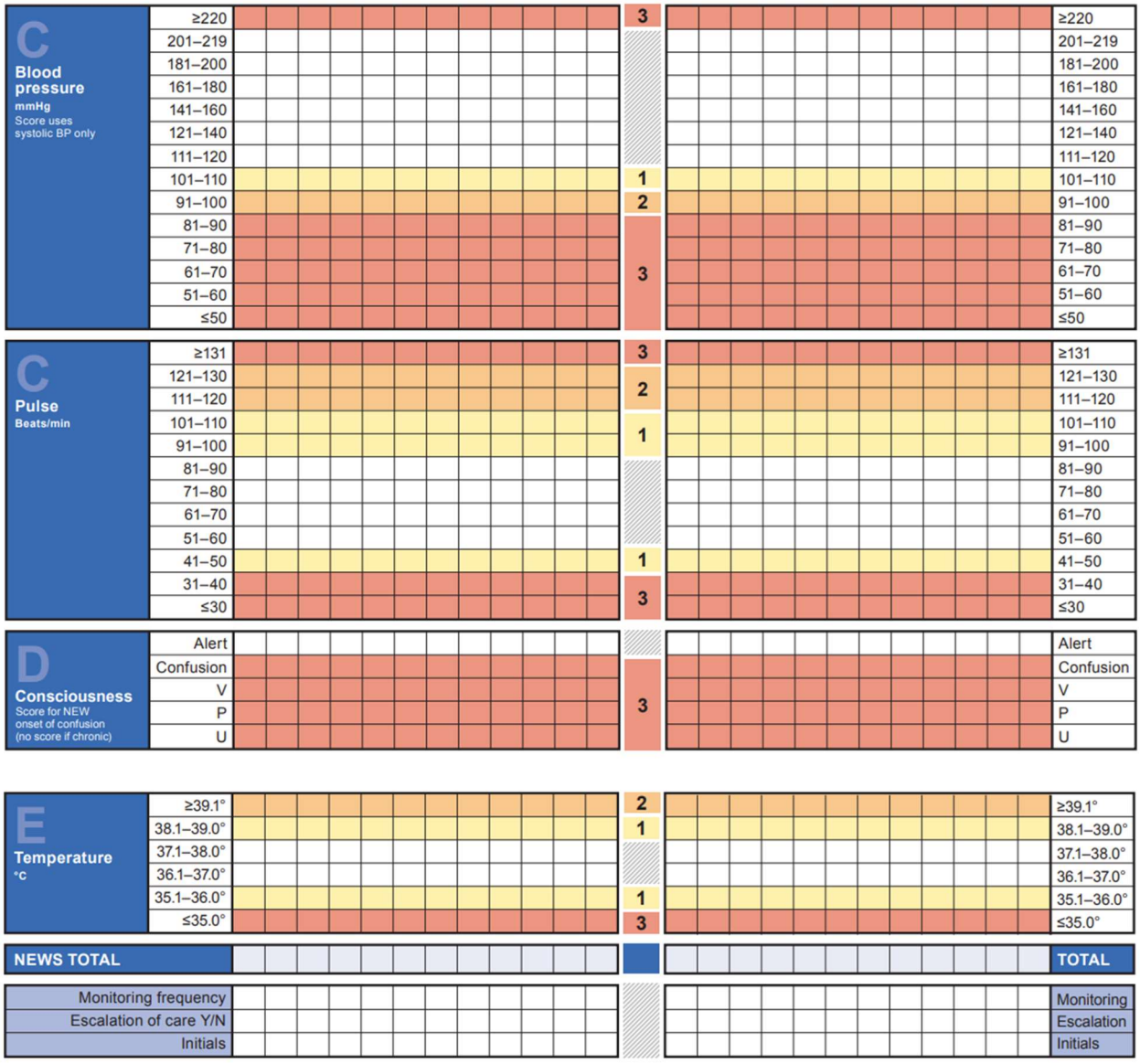
NEW score	Clinical risk	Response
Aggregate score 0–4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low–medium	Urgent ward-based response*
Aggregate score 5–6	Medium	Key threshold for urgent response*
Aggregate score 7 or more	High	Urgent or emergency response**

Note: From "National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS," by the Royal College of Physicians, 2017 (https://www.rcplondon.ac.uk/file/8636/download). Copyright 2017 by the Royal College of Physicians.

Appendix E

NEWS2 Observation Chart





Note: From "National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS," by the Royal College of Physicians, 2017 (https://www.rcplondon.ac.uk/file/8636/download). Copyright 2017 by the Royal College of Physicians.

Appendix F

Clinical Response to the NEWS Trigger Thresholds

NEW score	Frequency of monitoring	Clinical response
0	Minimum 12 hourly	• Continue routine NEWS monitoring
Total 1–4	Minimum 4–6 hourly	• Inform registered nurse, who must assess the patient • Registered nurse decides whether increased frequency of monitoring and/or escalation of care is required
3 in single parameter	Minimum 1 hourly	• Registered nurse to inform medical team caring for the patient, who will review and decide whether escalation of care is necessary
Total 5 or more Urgent response threshold	Minimum 1 hourly	• Registered nurse to immediately inform the medical team caring for the patient • Registered nurse to request urgent assessment by a clinician or team with core competencies in the care of acutely ill patients • Provide clinical care in an environment with monitoring facilities

Total 7 or more Emergency response threshold	Continuous monitoring of vital signs	• Registered nurse to immediately inform the medical team caring for the patient – this should be at least at specialist registrar level • Emergency assessment by a team with critical care competencies, including practitioner(s) with advanced airway management skills • Consider transfer of care to a level 2 or 3 clinical care facility, ie higher-dependency unit or ICU • Clinical care in an environment with monitoring facilities

Note: From "National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS," by the Royal College of Physicians, 2017 (https://www.rcplondon.ac.uk/file/8636/download). Copyright 2017 by the Royal College of Physicians.

Appendix G

NEWS2 Tool Use Permission

500 years of medicine

The Royal College of Physicians

The Royal College of Physicians (RCP) plays a leading role in the delivery of high-quality patient care by setting standards of medical practice and promoting clinical excellence. The RCP provides physicians in over 30 medical specialties with education, training and support throughout their careers. As an independent charity representing over 34,000 fellows and members worldwide, the RCP advises and works with government, patients, allied healthcare professionals and the public to improve health and healthcare.

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Appendix H

RRT Log

Rapid Response Team (RRT) Log

Patient Name:	Rm #:
Admission Date:	Physician:

Date	Encounter Narrative Notes

RRT Members:

Initials	Signature	Initials	Signature
Initials	Signature	Initials	Signature
Initials	Signature	Initials	Signature

Appendix I

Chart Audit Tool

Chart Audit Log

Audit Date:	**Completed By:**

Rm # & Admit Date	**Unit or Station Name**	**Shift**	**Instrument Audited**	**Rate of Compliance**				**Total**
				Correctly Applied (1)	**Partially Applied (2)**	**Incorrectly Applied (3)**	**Not Applied (4)**	
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
							TOTAL	

Appendix J

Project Implementation Timeline

Step One: Develop question(s) to be answered for the project, create PICO

Step Two: Begin literature review, create annotated bibliography

Step Three: Discuss project ideas with industry professionals

Step Four: Project instrumentation - review, development, and ask for permission for use

Step Five: Project policy and procedures, educational materials - review and development

Step Six: DNP proposal presentation, defense, approval

Step Seven: Complete and submit Aspen University IRB proposal for expedited review, and receive IRB approval

Step Eight: Launch project at site - complete educational sessions for nurses and rapid response team (RRT) members, start using NEWS2 tool, RRT log, chart audit tool for the duration of project

Step Nine: Gather and compile data for evaluation

Step Ten: Evaluate, interpret, and report data

Appendix K

Policy and Procedure: Rapid Response Team (RRT)

SECTION: Clinical Procedure Manual

SUBJECT: Rapid Response Team

EFFECTIVE DATE: 06/13/2022 ***REVISION DATE:*** 06/13/2022

PURPOSE

To provide a rapid response system to 1) identify and recognize physiological decline and deterioration in patients admitted to the facility from a prior hospital stay, 2) set guidelines for activating the rapid response team (RRT), and 3) delineate RRT composition, roles, and responsibilities.

The goal of the rapid response team (RRT) is to improve outcomes by providing care resources for rapid intervention of a declining patient.

PROCEDURE

Identification/Recognition of Decline

1. Upon admission into the facility, patients discharged from a recent hospital stay who are 65 and older, and on a Medicare-approved skilled or rehabilitation service will be provided with the NEWS2 Tool. Patients who have a Do Not Resuscitate order are excluded.
2. At a minimum, every shift, the primary nurse for the patient will complete the NEWS2 Tool, documenting the patient's respirations (i.e., breaths/minute), oxygen saturation (i.e., SpO2), blood pressure (i.e., mmHg), pulse (beats/minute), consciousness (i.e., whether alert, confused, V - voice, P - pain, U - unresponsive), and temperature (i.e., degrees Celsius).
3. If the patient's NEW Score total is 0, continue routine monitoring once every shift. For a Score total of 1-4, increase the frequency of monitoring to once every 4 hours.
4. If a single parameter has a Score of 3 OR the Score's total is equal to 5 or more, increase monitoring to once every hour.
    a. The patient's primary nurse will immediately activate the RRT and inform the medical provider or designee of the physiological decline or deterioration.
    b. The RRT will complete a thorough evaluation of the patient. The RRT will record their notes of the event and any interaction with patients, their family or representative(s), and other interdisciplinary team members on the RRT Log.
    c. In collaboration with the primary nurse, and the patient's medical provider or designee, the RRT implements intervention(s) on the patient (i.e., initially, treatments and/or diagnostics, and lastly, escalation of care or send back to the hospital).
5. If the Score's total is equal to 7 or more, in collaboration with the primary nurse and the medical provider or designee, the RRT will transfer the patient back to a higher level of care (i.e., hospital).

Guidelines to Activate RRT

1. Any or all of the criteria in the NEWS2 Tool meets the guidelines for initiating the RRT. The key to using the guidelines properly is the early identification and recognition of:
    a. Nursing staff worried about acute physiological deterioration or decline of patient
    b. Acute change in heart rate </= 40 or >/= 131
    c. Acute change in systolic blood pressure <=/90 or >/= 220
    d. Acute change in respiratory rate </=8 or >/= 25

e. Acute increase in oxygen requirements or deterioration in oxygen saturation </= 91% on room air
f. Acute change in level of consciousness or new confusion
    - Confusion: The patient has new onset confusion, disorientation and/or agitation, where previously their mental state was normal. Changes may be subtle as the patient may respond to questions coherently, but there is some confusion, disorientation and/or agitation.
    - Verbal: The patient makes some kind of response when you talk to them, which could be in any of the three component measures of eyes, voice or motor (e.g., patient's eyes open on being asked "Are you OK?". The response could be as little as a grunt, moan, or slight move of a limb when prompted by voice.
    - Pain: The patient makes a response on any of the three component measures on the application of pain stimulus, such as a central pain stimulus like a sternal rub or a peripheral stimulus such as squeezing the fingers. A patient with some level of consciousness (a fully conscious patient would not require a pain stimulus) may respond by using their voice, moving their eyes, or moving part of their body (including abnormal posturing).
    - Unresponsive: Sometimes seen noted as 'unconscious', this outcome is recorded if the patient does not show any eye, voice or motor response to voice or pain.

Members of RRT, Roles and Responsibilities

1. The RRT, at a minimum, must consist of three members. RRT sub-groups will be assigned with corresponding scheduled times of operations (e.g., the morning shift sub-group operating from 7 am to 3 pm, the evening shift sub-group operating from 3 pm to 11 pm, and the night shift sub-group operating from 11 pm to 7 am).
2. Members of the RRT may include but are not limited to:
    a. Medical/Nurse Leadership (e.g., Medical Director, Nurse Practitioner, Physician Assistant, Director of Nursing, Assistant Director of Nursing)
    b. House Supervisor/Team Leader (e.g., Weekend Supervisor, Unit Manager, Shift Supervisor, Nurse Lead)
    c. Patient's Primary Nurse
    d. Respiratory Therapist
    e. Therapist (e.g., physical therapist (PT), PT assistant, occupational therapist (OT), OT assistant)
    f. CNA Lead
3. Roles and responsibilities:

    Primary Nurse

    a. Promptly activates RRT when indicated
    b. Provides information to RRT and medical staff
    c. Remain present during the activation
    d. Assists RRT with obtaining supplies
    e. Actively participates in assessments and interventions
    f. Notification of family and ongoing psychosocial support

    RRT RN (House Supervisor/Team Leader)

    a. Serves as the Team Leader and delegates responsibilities to other RRT members
    b. Assists the assigned RRT members with care of the patient to include:
        - Patient assessment
        - Identify needed resources
        - Provide interventions
        - Evaluate the effectiveness of interventions
        - Coordinate transport of patient to other care settings (i.e., back to the hospital)
        - Ensure appropriate and ongoing assessments and interventions are provided

- Document interactions and activities with patient on the RRT Log
- Provide education and support to unit clinical staff

RRT Respiratory Therapist

a. Provides respiratory assessment and interventions
b. Communicates with other RRT members as it relates to respiratory care
c. Evaluates effectiveness of interventions
d. Assists the RRT RN as directed
e. Ensure appropriate and ongoing assessments and interventions are provided

4. RRT Daily Rounds
    a. The RRT conducts proactive rounding of high-risk patients
    b. During the rounds, the RRT reviews the patients' NEWS2 Tool, to identify and recognize any deterioration or decline, and provides early intervention(s) to address the physiological issue(s)
    c. The RRT records the encounter and interaction with patients and any intervention provided to patients in the RRT Log
5. Debriefing
    a. A post RRT debriefing should take place within 2 hours of RRT activation to ensure:
    b. Accurate and appropriate documentation of interventions within the medical record and the RRT Log
    c. Review effectiveness of RRT response
    d. Collect feedback for performance improvement from participants

6. Ongoing Quality Improvement (QI)
    a. The facility is committed to provide staff with educational and training opportunities to learn and drill for RRT to ensure appropriate identification/recognition, response and competence.

References

Institute for Healthcare Improvement. (2008). *How-to guide: Deploy rapid response teams.* http://www.ihi.org/resources/Pages/Tools/HowtoGuideDeployRapidResponseTeams.aspx

Royal College of Physicians. (2017). *National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS.* https://www.rcplondon.ac.uk/file/8636/download

Appendix L

Facility's Consent to Treat Form

Clear Choice Health Care

A. CONSENT TO TREATMENT

This resident acknowledges that the Facility renders services to the Resident under the general and specific instructions of the Resident's Attending Physician. The Resident authorizes and directs the Facility to provide routine and emergency care as the Resident's Attending Physician or designee may direct from time to time. If the Resident's Attending Physician and such Attending Physician's on-call designee are unavailable and the Resident requires medical services or if the Attending Physician has not seen the Resident in accordance with the time frames established by law, then the Resident authorizes the Facility to obtain, on behalf of the Resident, the services of any other physician licensed to practice medicine in this state, at the Resident's sole expense (if not covered by Medicaid, Medicare or third-party payor) until the Resident's Attending Physician is available, or the Resident has selected a new Attending Physician. In that event, the Resident authorizes and directs the Facility to provide routine and emergency care as required for the Resident's well-being, health and safety in accordance with the orders of such physicians.

Resident Name _____ Date _____ Designated Facility Representative _____ Date _____

Legal Representative (*e.g.* Guardian) _____ Date _____ Resident Representative (*e.g.* Family Member) _____ Date _____

B. CONSENT TO PHOTOGRAPH

I _____ hereby authorize the attending physician or other designated person(s) to take:

1. Photograph of me for identification ☐ Yes ☐ No
2. Photographs of appropriate parts of my body in order to provide supporting documentation of my medical conditions. (I understand that any photographs taken will be placed in and will remain part of my medical record.) ☐ Yes ☐ No
3. Photographs of me for purposes of (specify): _____ ☐ Yes ☐ No

Resident / Resident Representative _____ Date _____ Witness _____ Date _____

C. ADVANCED DIRECTIVES/MEDICAL TREATMENT DECISIONS – ACKNOWLEDGMENT OF RECEIPT

This is to acknowledge that I have been informed in a language that I understand of my rights and all rules and regulations to make decisions concerning medical care, including the right to accept or refuse medical or surgical treatment and the right to formulate and to issue advance directives to be followed. I understand it is my responsibility to provide to the facility copies of all pertinent documentation, which verify advance directives formulated and/or issued by me for placement in my medical record. Additionally, the facility will follow up to obtain existing advance directive documents not provided at this time or to provide additional documentation and requests by Resident/Resident Representative will be handled by Social Services and applicable copies placed in the medical record.

Resident / Resident Representative _____ Date _____ Witness _____ Date _____

If Resident representative signed: Complete the following:

Print Name _____ Date _____ Interpreter (*if required*) _____ Date _____

Relationship to Resident _____ Date _____

CCHC 0322

Appendix M

Annotated Bibliography

Ahmed, S. (2019). Integrating DMAIC approach of Lean Six Sigma and theory of constraints toward quality improvement in healthcare. *Reviews on Environmental Health, 34*(4), 427-434. https://doi.org/10.1515/reveh-2019-0003

Ahmed (2019) recommends the implementation of DMAIC (define, measure, analyze, improve, control) in healthcare organizations to overcome complex tasks, improve quality measures and performance and enhance patient satisfaction. The implementation of DMAIC, as part of the quality improvement (QI) toolbox, has resulted in healthcare improvements in such measures as the reduction in medical costs, medical errors, and administration errors.

Backhouse, A., & Ogunlayi, F. (2020). Quality improvement into practice. *BMJ, 368*, m865. https://doi.org/10.1136/bmj.m865

Backhouse and Ogunlayi (2020), both experts in the quality improvement (QI) field, delineated the principles of QI (i.e., focusing on iterative change, learning and adaptation; staff and patient engagement; making minor changes to impact processes, systems, and culture). The authors espouse QI use in translating evidence-based research into healthcare practice. They further contended that successful clinical transformation could be achieved by bringing measurable improvements to specific aspects of healthcare delivery, often with evidence or theory.

Benbassat, J., & Taragin, M. (2000). Hospital readmissions as a measure of quality of health care: Advantages and limitations. *Archives of Internal Medicine, 160*(8), 1074-1081. https://doi.org/10.1001/archinte.160.8.1074

Benbassat and Taragin (2000) reviewed the literature on hospital readmissions and found that 9% to 48% of cases were preventable. Causes of hospital readmissions were associated with substandard care, such as the poor resolution of the main problem, unstable therapy at discharge, and inadequate post-discharge care. Randomized prospective trials have shown that between 12% to 75% of all cases are preventable by providing patient education, thorough ongoing patient assessment and evaluation, and immediate interventions when a patient shows physiological decline/deterioration. The authors concluded that while most readmissions resulted from patient frailty and progression of chronic disease, higher than usual rates may identify quality-of-care problems.

Clayton, W. R. (2019). Overcoming barriers impeding nurse activation of rapid response teams. *OJIN: The Online Journal of Issues in Nursing, 24*(3). https://doi.org/10.3912/OJIN.Vol24No03PPT22

Clayton (2019) noted the need for bedside nurses to rapidly recognize any physiological decline in patients and swiftly provide response(s) to address the deteriorating condition. The author recommended the implementation of rapid response teams (RRTs) as a strategy to detect patient deterioration and apply care interventions, mitigate mortality/morbidity and unnecessary transfers to higher acuity care units, and improve patient outcomes and patient safety. Bedside nurses and RRT members must hone their competencies and skillset in this aspect of patient care, the author contended, through enhanced and multimodal educational methodologies (e.g., didactic, simulation, experiential learning, guided reflection, preceptorship, etc.).

Custo, R. T., & Trapani, J. (2020). The impact of rapid response systems on mortality and cardiac arrests - A literature review. *Intensive and Critical Care Nursing, 59*, 102848. https://doi.org/10.1016/j.iccn.2020.102848

Custo et al. (2020) evaluated via a literature review whether the implementation of rapid response teams (RRTs) decreases in-hospital mortality and non-ICU cardiac arrests. Six databases were systematically searched for primary studies published between 2014 and 2017 with the following criteria: intervention involved introducing/maintaining RRT, comparing those without RRT for mortality and cardiac arrest outcomes. A total of fifteen eligible studies were analyzed. Seven out of thirteen studies investigating mortality found statistical significance favoring RRTs. Eight out of thirteen studies investigating cardiac arrests found statistical significance favoring RRTs. The literature review conducted by Custo et al. (2020) suggests that introducing and/or maintaining RRT had a significant effect (i.e., reduction) in mortality and cardiac arrests within healthcare settings.

Danesh, V., Neff, D., Jones, T. L., Aroian, K., Unruh, L., Andrews, D., Guerrier, L., Venus, S. J., & Jimenez, E. (2019). Can proactive rapid response team rounding improve surveillance and reduce unplanned escalations in care? A controlled before and after study. *International Journal of Nursing Studies, 91*, 128-133. https://doi.org/10.1016/j.ijnurstu.2019.01.004

Danesh et al. (2019) examined the effect of implementing proactive rounding by the rapid response team (RRT) to identify and recognize any physiological deterioration and decline of patients as part of their caseload. The study, conducted in a 237-bed community hospital investigating more than 12,000 patients, compared the frequency

of unplanned ICU transfers using two RRT models. Specifically, it evaluated whether meaningful variations exist between staff nurse-activated RRT upon identifying/recognizing a patient's change(s) of condition (pre-intervention period), and RRT activation during proactive rounding guided by the early warning score (post-intervention period). Fewer unplanned ICU transfers were found to have transpired during the post-intervention period (i.e., unplanned escalations were 1.4 times more likely to happen during the pre-intervention period).

Difonzo, M. (2019). Performance of the afferent limb of rapid response systems in managing deteriorating patients: A systematic review. *Critical Care Research and Practice*. https://doi.org/10.1155/2019/6902420

In a systematic review conducted by Difonzo (2019), one of the rapid response system's (RRS) components, the afferent limb, was evaluated to determine the factors influencing its performance in managing patients experiencing physiological deterioration and how patient outcomes were affected. Using five electronic databases, articles between 1995 to 2017 that studied the monitoring, recognition, and escalation of care of declining patients were included. Of the thirty-one studies meeting the criteria, a combination of factors was found that affected the early identification/recognition of physiologically deteriorating patients and the appropriate response (e.g., lack of standardized physiological parameters, lack of education and training of staff, poor compliance with the rapid response team (RRT) activation). Failure to address these issues led to suboptimal care of patients, delayed or failed RRT activation, and potential for worsened measures (e.g., cardiac arrest, unplanned

ICU transfer, mortality). Difonzo (2019) recommended that further implementation of RRS must focus on the factors mentioned above to ensure its success.

Gagne, C., & Fetzer, S. (2018). Early warning score communication bundle: A pilot study. *American Journal of Critical Care, 27*(3), 238–242. https://doi.org/10.4037/ajcc2018513

Gagne and Fetzer (2018), in a time-series study conducted on general ward patients, standardized the use of a clinical decision support tool (i.e., early warning score or EWS) and embedded the EWS into each patient's medical records for real-time review and response. In addition, they employed a communication bundle to notify (via SMS alert, telephone consultation) and allow collaboration (e.g., develop a plan, inform the provider, administer as-needed medications, and follow established protocols for interventions) among nurses in the team. The study, completed in 24 months, showed that unplanned ICU transfers were reduced by using the standardized decision support tool and implementing the enhanced communication process among nurses in the team. Specifically, the results suggest that the need to transfer patients to higher acuity settings significantly declined by applying interventions earlier.

Gardner, R. L., Pelland, K., Youssef, R., Morphis, B., Calandra, K., Hollands, L., & Gravenstein, S. (2020). Reducing hospital readmissions through a skilled nursing facility discharge intervention: A pragmatic trial. *Journal of the American Medical Directors Association, 21*(4), 508-512. http://doi.org/10.1016/j.jamda.2019.10.001

Gardner et al. (2020) implemented the Project Re-Engineered Discharge (RED) initiative (i.e., a systematic discharged process), initially designed for hospitals and adapted for skilled nursing facilities (SNFs) discharges. The project's goal is to determine whether it would reduce hospital readmissions when implemented for SNF

patients discharged to the community. After its implementation, the rehospitalization rates were lower across all four measures in the intervention group (e.g., a 0.9% decrease for hospital readmissions within 30 days after SNF discharge, a 1.7% readmission within 30 days of the index hospitalization discharge date). With its success, the authors concluded that applying a hospital-centric initiative to the SNF environment to reduce rehospitalizations is beneficial, especially in light of Medicare's incentive payments for SNFs with improved performance in this metric.

Guirgis, F. W., Gerdik, C., Wears, R. L., Williams, D. J., Kalynych, C. J., Sabato, J., & Godwin, S. A. (2013). Proactive rounding by the rapid response team reduces in-patient cardiac arrests. *Resuscitation, 84*(12), 1668-73. https://doi.org/10.1016/j.resuscitation.2013.08.013

Guirgis et al. (2013) completed a retrospective review in a 696-bed hospital comprising more than 200,000 in-patient admissions between 2005 and 2012 to determine the effect of proactive rounding (PR) on cardiac arrests, code deaths, rapid response team (RRT) interventions, and ICUs transfers. As part of its RRT, PR was later incorporated as an additional feature (i.e., the team going around the in-patient units, evaluating high-risk patients for decline and deterioration, and providing interventions when needed). With the institution of PR as part of the RRT's responsibilities, the study found a reduction in floor codes and code deaths, plus an increase in RRT interventions and transfers to the ICU.

Haegdorens, F., Monsieurs, K. G., De Meester, K., & Van Bogaert, P. (2020). The optimal threshold for prompt clinical review: An external validation study of the national early

warning score. *Journal of Clinical Nursing, 29*, 4594– 4603. https://doi.org/10.1111/jocn.15493

Haegdorens et al. (2020) validated the optimal threshold of the national early warning score (NEWS) in clinical practice by conducting a retrospective external validation study of patient admissions. The study used two sample groups: 1,523 patients for the cross-sectional sample and 390 patients in the serious adverse event sample. A NEWS greater than or equal to 5 yielded a predictive value of 6.8% and a negative predictive value of 99.5% as a predictor of cardiac arrest, unplanned ICU transfer, and unexpected death. Therefore, considering the predictive value, the optimal threshold for the NEWS is greater than or equal to 5. In clinical practice, a patient with a NEWS below 5 is considered less likely to die unexpectedly, experience cardiac arrest, or be transferred to the ICU. Otherwise, with a NEWS greater than or equal to 5, the patient would immediately require intervention(s) to address the underlying issue(s) causing the physiological deterioration and decline.

Howell, M. D., Ngo, L., Folcarelli, P., Yang, J., Mottley, L., Marcantonio, E. R., Sands, K. E., Moorman, D., & Aronson, M. D. (2012). Sustained effectiveness of a primary-team-based rapid response system. *Critical Care Medicine, 40*(9), 2562–2568. https://doi.org/10.1097/CCM.0b013e318259007b

Howell et al. (2012) compared the effect of having a rapid response team (RRT) composed of non-critical-care trained members, relying on the patient's usual care providers. Using a sample of more than one hundred thousand admissions, the study found the unadjusted risk of unexpected mortality was 72% lower. Adjusting for age, gender, race, admission season, case mix, and ICU bed capacity, the intervention

resulted in an 80% reduction in the odds of unexpected death. The study concluded that using the patient's usual care providers in the RRT, not intensive-care trained personnel, reduced unexpected mortality. This RRT composition approach offers a more cost-effective approach and could be used in facilities with limited intensivist availability, as in the case of skilled nursing facilities (SNFs).

Institute for Healthcare Improvement. (2008). *How-to guide: Deploy rapid response teams.* http://www.ihi.org/resources/Pages/Tools/HowtoGuideDeployRapidResponseTeams.aspx

As part of the Institute for Healthcare Improvement's 5 Million Lives Campaign, the organization developed a toolkit, the how-to guide in deploying rapid response teams (RRTs) in various healthcare settings. The toolkit contains evidence-based and best practice components in implementing RRTs, such as the use of an early warning score, the mechanism for their activation, composition, roles/responsibilities of team members, education and training of stakeholders about the initiative, use of standardized tools, and continuous improvement through feedback and effectiveness measurements.

Jones, D., DeVita, M. A., & Bellomo, R. (2011). Rapid-response teams. *New England Journal of Medicine, 365*, 139-146. https://doi.org/10.1056/NEJMra0910926

This ground-breaking study by Jones et al. (2011) introduced and reviewed the rapid response system (RRT) from its principles to its future directions. As an intervention to detect early signs of deterioration in patients, the RRT aims to improve response time and prevent further decline, ultimately addressing the physiological issue's underlying cause(s). An important principle underlying the RRT is that early

intervention can improve patient outcomes. Jones et al. (2011) delineated and discussed the four limbs of RRT in great detail: afferent, efferent, administration, and quality improvement. As noted by the authors, the potential adverse effects of the RRT implementation include additional cost, diversion of limited resources, desensitization to emergencies, and a decreased sense of responsibility for patients by staff nurses. Meanwhile, the authors introduced the five Es: education, empowerment, efficiency, equipment, and evaluation as elements of a successful RRT deployment.

Jones, D., Rubulotta, F. & Welch, J. (2016). Rapid response teams improve outcomes: Yes. *Intensive Care Medicine, 42*, 593–595. https://doi.org/10.1007/s00134-016-4219-5

Jones et al. (2016) described the features of a successful rapid response team (RRT) (i.e., an approach to recognize and manage at-risk and deteriorating patients). In addition, they discussed the need to implement one in healthcare settings (i.e., because adverse events are usually preceded by physiological deterioration and decline, an RRT helps improve patient outcomes). Some of the patient outcomes highlighted in the study include how RRTs reduce the incidence of cardiac arrests, decrease mortality, and improve end-of-life care.

Kang, B. J., Hong, S. B., Jeon, K., Lee, S. M., Lee, D. H., Moon, J. Y., Lee, Y. J., Kim, J. S., Park, J., & Ahn, J. J. (2021). Rapid response system should be enhanced at non-general ward locations: A retrospective multicenter cohort study in Korea. *Journal of Korean Medical Science, 36*(2), e7. https://doi.org/10.3346/jkms.2021.36.e7

Kang et al. (2021) studied the rapid response team (RRT) activations in non-general ward (non-acute care settings) locations, comparing them with those occurring in the general ward (acute care settings), with the premise that clinical deterioration may

occur at any time. About 13,000 patients were included in the retrospective study, where around 2% of the RRT activations happened in the non-acute care settings. In those RRT activations, shock, cardiac arrest, lower oxygen saturation, and a higher National Early Warning Score (NEWS) were observed. The authors contended implementing a rapid response system in non-acute care settings, given the increasing trend of higher acuity patients in those locations.

Klingbeil, C., & Gibson, C. (2018). The teach-back project: A system-wide evidence-based practice implementation. *Journal of Pediatric Nursing, 42*, 81-85. https://doi.org/10.1016/j.pedn.2018.06.002

Klingbeil and Gibson (2018) implemented an evidence-based practice project at a 290-bed Magnet organization examining the effect of teach-back by a multidisciplinary staff during patient educational encounters. Staff participants were introduced and trained on teach-back using an instructor-led interactive educational session. Post-training, nurses and non-nurses alike showed improved knowledge of the teach-back process. When applying teach-back while providing patient education, the staff immediately clarified any unclear information and corrected any misunderstandings. The authors recommended using teach-back as a practical teaching methodology when imparting information, knowledge, and skills to improve patient safety and quality of care.

Kollef, M. H., Heard, K., Chen, Y., Lu, C., Martin, N., & Bailey, T. (2017). Mortality and length of stay trends following implementation of a rapid response system and real-time automated clinical deterioration alerts. *American Journal of Medical Quality, 32*(1), 12–18. https://doi.org/10.1177/1062860615613841

Kollef et al. (2015) studied the potential influence of incorporating real-time alerts, as an added feature of rapid response systems (RRS), on patient outcomes (e.g., mortality, cardiac arrests, length of stay) when physiological deterioration and decline occur in patients. In all three measures, statistically significant decreases were observed when the real-time alerts were made part of the RRS. While my DNP project relies on paper charting and manual collection of the patient's health data, future iterations could consider technological advances (e.g., wearables, mobile connectivity) in monitoring/alerting for clinical issues that may warrant the RRS activation.

Leach, L. S., & Mayo, A. M. (2013). Rapid response teams: Qualitative analysis of their effectiveness. *American Journal of Critical Care, 22*(3), 198–210. https://doi.org/10.4037/ajcc2013990

Leach and Mayo (2013) investigated rapid response teams (RRTs) through qualitative analysis, identifying five categories and nine subcategories found as essential factors of the RRT effectiveness: organizational culture (organization leadership support), team structure (surveillance and leadership), expertise (clinical knowledge and experience and managing crisis), communication, and teamwork (shared purpose, familiarity, collaboration/conflict, and training). The organizational culture is mission-driven, marked by a dedication to its purposes, and focused on patients and the challenges associated with patient care. Team structure involves the RRT function, the team's design, and the description of the role of each team member. As expertise is the foundation in carrying out the RRT's purpose of rescuing, it means being highly skilled, using a proactive approach by making rounds to identify at-risk

patients early, being good at identifying potential problems, and being able to respond rapidly. During RRT observations, communication involves both verbal and nonverbal and informal and structured. The RRT best perceives communication as not intimidating, with the dialogue focused on the patient. Finally, teamwork is coordination among team members working toward the common goal of addressing a patient's immediate needs. Teamwork was viewed as working well together, understanding the RRT's purpose, and why its members came together as a team.

Lee, S. I., Koh, J. S., Kim, Y. J., Kang, D. H., & Lee, J. E. (2022). Characteristics and outcomes of patients screened by rapid response team who transferred to the intensive care unit. *BMC Emergency Medicine, 22*, 1-8. http://doi.org/10.1186/s12873-022-00575-y

Lee et al. (2022) conducted a retrospective study, evaluating the characteristics of RRT-screened patients transferred to the ICU and determining their clinical outcomes. Factors associated with risk for mortality were assessed using multivariate logistic regression analyses on data from a tertiary medical center between 2016 and 2017. RRT-screened patients needing ICU transfers had a higher National Early Warning Score (NEWS). Although these patients were transferred to the ICU, their outcomes improved (i.e., the mortality rate is lower). The study underscored the importance of using a standardized tool (e.g., NEWS) to identify and recognize a patient's physiological deterioration and decline early on and a mechanism to activate the RRT to provide intervention(s) as soon as possible.

Lyons, P. G., Edelson, D. P., & Churpek, M. M. (2018). Rapid response systems. *Resuscitation, 128*, 191-197. https://doi.org/10.1016/j.resuscitation.2018.05.013

Lyons et al. (2018) reviewed the literature surrounding rapid response systems (RRSs). While RRSs are heterogeneous depending on their setup and setting, the four limbs are typically present with varying approaches in implementation. Meaningful improvements (i.e., unexpected mortality, cardiac arrests, length of stay, and cost) in patient outcomes were typical positive results found in the review. However, there was no mortality benefit found in two of the most extensive randomized trials on RRSs, leading to some controversy around them.

Maharaj, R., Raffaele, I. & Wendon, J. (2015). Rapid response systems: A systematic review and meta-analysis. *Critical Care 19*, 254. https://doi.org/10.1186/s13054-015-0973-y

Maharaj et al. (2015) conducted a systematic meta-analysis of 29 published studies from 1990 through 2013 on rapid response systems/teams (RRS/RRT) that reported cardiac arrests or mortality rates. The review found that the RRS/RRT implementation in the hospital setting reduced the overall mortality rates and cardiac arrests in both adult and pediatric populations. In addition, the authors noted that having a physician on the RRT did not show any benefit, and most of the RRT interventions reviewed did not require their presence. This bodes well for the RRT implementation in skilled nursing facilities (SNFs) without the need for a physician as part of its composition.

Mcneill, H., & Khairat, S. (2020). Impact of intensive care unit readmissions on patient outcomes and the evaluation of the National Early Warning Score to prevent readmissions: Literature review. *Journal of Medical Internet Research Perioperative Medicine, 3*(1), e13782. https://doi.org/10.2196/13782

Mcneill and Khairat (2020), using a literature review of 12 studies with sample sizes ranging from 158 to close to three-quarter of a million patients, evaluated the impact of ICU transfers on patient outcomes and the effect of using the National Early Warning Score (NEWS) on ICU readmissions. While ICU transfers were associated with worsened patient outcomes (e.g., increased mortality and length of stay), using a standardized screening tool, such as the NEWS, helps in objectively deciding to transfer deteriorating patients to a higher acuity setting. Using NEWS has been shown to detect a patient's early clinical deterioration and decline within 24 hours of transfer, with a sensitivity of 93.6% and a specificity of 82.2%. Applying NEWS in assessing patients could help decrease the frequency of inappropriate transfers, addressing any signs and symptoms of potential deterioration before needing any transfers.

Mileski, M., Topinka, J.B., Lee, K., Brooks, M., McNeil, C. & Jackson, J. (2017). An investigation of quality improvement initiatives in decreasing the rate of avoidable 30-day, skilled nursing facility-to-hospital readmissions: A systematic review. *Clinical Interventions in Aging, 12*, 213-222. https://doi.org/10.2147/CIA.S123362

Mileski et al. (2016) investigated the applicability and effectiveness of quality improvement (QI) initiatives in decreasing the rate of unplanned skilled nursing facility (SNF)-to-hospital readmission. Using a systematic review of peer-reviewed articles between 2009 and 2016, 10 articles exploring at least one QI strategy for reducing hospital readmissions from SNFs meeting all inclusion criteria were included in the qualitative analysis. Themes associated with reducing hospital readmissions include having specialized staff, collaborative care management, care

paths, leadership engagement, patient transfer protocol, communication tools, medication reconciliation, and staff education.

Ouslander, J. G., Naharci, I., Engstrom, G., Shutes, J., Wolf, D. G., Rojido, M., Tappen, R., & Newman, D. (2016). Hospital transfers of skilled nursing facility (SNF) patients within 48 hours and 30 days after SNF admission. *Journal of the American Medical Directors Association, 17*(9), 839-845. https://doi.org/10.1016/j.jamda.2016.05.021

Ouslander et al. (2016) performed retrospective root cause analyses of hospital transfers from skilled nursing facilities (SNF) occurring within 48 hours and 30 days of SNF admission to identify potential areas of improvement in care transitions between these two settings. Using the INTERACT quality improvement (QI) bundle on hospital transfers, 66 of the 88 SNFs from across the US were randomized to the intervention group. From the abstracted data on more than 4,000 SNF-to-hospital transfers, 8% occurred within 48 hours of SNF admission, 11% within 3-6 days, 31% within 7 to 29 days, and 50% within 30 days or longer. The common reasons and characteristics for the hospital transfers include prior hospitalization in the last 30 days and year, shortness of breath, falls, functional decline, and suspected infection. SNF staff rated most of the transfers as potentially preventable. The authors recommended that SNFs collaborate with hospitals to reduce potentially avoidable rehospitalizations.

Ouslander, J. G., Engstrom, G., Reyes, B., Tappen, R., Rojido, C., & Gray-Micelli, D. (2018). Management of acute changes in condition in skilled nursing facilities. *Journal of the American Geriatrics Society, 66*(12), 2259-2266. https://doi.org/10.1111/jgs.15632

Ouslander et al. (2018) described the presentation and management of acute changes in conditions occurring in skilled nursing facilities (SNFs). A secondary analysis of the data collected via a randomized controlled trial involving 264 SNFs throughout the US revealed that most acute changes in condition involved multifactorial non-disease specific characteristics, with 10 percent resulting in hospital transfers between 72 hours and seven days after the change. As most transfers were for reasons other than the initial change in condition, the authors noted that the hospital transfers might be unnecessary, and their condition(s) are manageable in the SNF without needing rehospitalization.

Padilla, R. M., Urden, L. D., & Stacy, K. M. (2018). Nurses' perceptions of barriers to rapid response system activation: A systematic review. *Dimensions of Critical Care Nursing, 37*(5), 259-271. https://doi.org/10.1097/DCC.0000000000000318

Padilla et al. (2018) explored the nurses' perceived barriers to rapid response team (RRT) activation using a systematic review of quantitative studies between 2007 and 2018. Themes found in the eight articles included in the review include RRT activator-responder interaction (communication is key), nurse education and training, and nurse experience (RRT composition). Because nurses play a critical role in the early detection of health deterioration of patients, they also play an equally essential role in promptly activating the RRT when a physiological decline is identified. An inconsistency in RRT activation is associated with adverse patient outcomes.

Patel, R., Nugawela, M. D., Edwards, H. B., Richards, A., Le Roux, H., Pullyblank, A., & Whiting, P. (2018). Can early warning scores identify deteriorating patients in pre-

hospital settings? A systematic review. *Resuscitation, 132*, 101-111. https://doi.org/10.1016/j.resuscitation.2018.08.028

Patel et al. (2018) evaluated the effectiveness and accuracy of early warning scores in predicting patient deterioration in non-acute care settings in response to calls in the UK for the National Early Warning Score (NEWS) to be utilized in those settings. Using a systematic review and narrative synthesis of 17 studies meeting the inclusion criteria, patients with a score of 0 were determined very unlikely to deteriorate. Those with a score of or above 7 were more likely to decline, needing further clinical interventions to address the underlying physiologic issue(s). Overall the data suggest that early warning scores do distinguish between patients who are and are not likely to deteriorate, even in non-acute care settings. The result of this study bodes well for my DNP project as I try to translate the use of the NEWS tool in the SNF setting.

Petersen, J. A. (2018). Early warning score challenges and opportunities in the care of deteriorating patients. *Danish Medical Journal, 65*(2), B5439. https://ugeskriftet.dk/files/scientific_article_files/2018-08/b5439.pdf

Petersen (2018) reviewed the challenges and opportunities of early warning score (EWS) use in the care of physiologically deteriorating patients. Because deterioration and/or worsening of vital signs in acutely ill patients often occur before serious adverse events like cardiac arrest, unanticipated ICU transfer, or unexpected death, the early identification and response to these deteriorations could prevent or minimize further decline. Implementing the EWS, an aggregated and weighted track-and-trigger system, helps identify at-risk patients and apply timely and appropriate response(s). Unfortunately, despite widespread use in various healthcare settings,

serious adverse events portended by deteriorating vital signs continue to be a significant source of morbidity, primarily caused by the lack of adherence to the established protocol.

Ratelle, J. T., Sawatsky, A. P., Kashiwagi, D. T., Schouten, W. M., Erwin, P. J., Gonzalo, J. D., Beckman, T. J., & West, C. P. (2018). Implementing bedside rounds to improve patient-centered outcomes: A systematic review. *BMJ Quality & Safety, 28*(4). https://doi.org/10.1136/bmjqs-2017-007778

Ratelle et al. (2018) conducted a systematic review on bedside rounding implementation to promote patient-centered care in the hospital setting. Searching various databases for studies comparing bedside rounding to another form of rounds with a quantitatively reported or measured clinical outcome, 29 met the inclusion criteria, 13 implemented the intervention as part of a bundle, and the most commonly reported results are patient experience and patient knowledge. While a statistically significant improvement was found in patient experience with the initiative, no significant association was found in patient knowledge.

Royal College of Physicians. (2017). *National Early Warning Score (NEWS)2: Standardising the assessment of acute illness severity in the NHS.* https://www.rcplondon.ac.uk/file/8636/download

The Royal College of Physicians (2017) published the primer on its standardized tool, the National Early Warning Score (NEWS2), to assess the severity of acute illness in various healthcare settings. The NEWS, released in 2012 and updated in 2017, was developed to detect and provide a timely and appropriate response to patients' clinical deterioration with acute illness, standardizing the process of recording, scoring, and

responding to physiological measures in patients. The NEWS is based on a simple aggregate scoring system of vital signs/physiological parameters already recorded in routine practice: respiration rate, oxygen saturation, systolic blood pressure, pulse rate, level of consciousness or new confusion, and temperature. The frequency of clinical monitoring and/or activation of a response system (i.e., rapid response team) is dependent on the NEW score.

Ryan, L., Jackson, D., Woods, C., & Usher, K. (2019). Intentional rounding – An integrative literature review. *Journal of Advanced Nursing, 75*, 1151– 1161. https://doi.org/10.1111/jan.13897

Ryan et al. (2018) conducted an integrative literature review to establish the efficacy and acceptance of intentional rounding in current practice. As a means for the nursing staff to routinely check on patients on their status and needs, intentional rounding produced positive patient satisfaction and safety outcomes. While nurses see the benefits of intentional rounding on patients, some view the task as unnecessary, adding to an already hectic schedule. When implemented in a healthcare setting, the initiative's effectiveness is influenced by leadership, staff education and training, communication and buy-in, formalization of structure and protocols surrounding the process, workload, layout, and experience level.

Scholle, C. C., & Mininni, N. C. (2006). Best practice interventions: How a rapid response team saves lives: Learn why bedside nurses are embracing this lifesaving innovation. *Nursing, 36*(1), 36-40. https://doi.org/10.1097/00152193-200601000-00037

As part of the Institute of Healthcare Improvement's 100,000 Lives Campaign, Scholle and Mininni (2006) published the best-practice intervention of deploying a

rapid response team (RRT) in a healthcare setting. The article delineated various aspects of the RRT, including its composition, roles, and responsibilities. It also addressed the criteria nurses use to activate the RRT and their tasks within the broader rapid response system (RRS). Further, the authors provided pointers on how to successfully plan, implement, evaluate, maintain and sustain the RRS/RRT in a healthcare setting.

Smith, G. B., Prytherch, D. R., Meredith, P., Schmidt, P. E., & Featherstone, P. I. (2013). The ability of the National Early Warning Score (NEWS) to discriminate patients at risk of early cardiac arrest, unanticipated intensive care unit admission, and death. *Resuscitation, 84*, 465–70. https://doi.org/10.1016/j.resuscitation.2012.12.016

Smith et al. (2013) tested the use of early warning scores (EWS), explicitly comparing the Royal College of Physicians' National Early Warning Score (NEWS) against 33 other EWSs, to determine patients at risk of physiological deterioration and decline. The study evaluated the performance of the EWSs using the AUROC (area under the receiver-operating characteristic) curve and a vital signs database with close to 200,000 observation sets from more than 35,000 medical admissions. In all three outcomes of cardiac arrest, unplanned ICU transfer, and death, the NEWS discriminated against them better than the 33 other EWSs.

Song, M. J., & Lee, Y. J. (2021). Strategies for successful implementation and permanent maintenance of a rapid response system. *Korean Journal of Internal Medicine, 36*(5). 1031-1039. https://doi.org/10.3904/kjim.2020.693

Song and Lee (2021) discussed the strategies to implement successfully and maintain permanently the rapid response team (RRT) based on its four components: afferent,

efferent, quality improvement, and administration limbs. The afferent limb involves a mechanism to detect and recognize physiological decline and deterioration in patients (i.e., based on patient's vital signs and assessment data), plus a means to activate the RRT properly. The efferent limb is the response arm of the RRT and includes a multidisciplinary team involved in the process. The team composition varies depending on resources' availability and staff at the center. The team's primary task is to triage and stabilize patients before they need to be transferred to a higher acuity care setting. The quality improvement limb is crucial in successfully maintaining the RRS by regularly evaluating team function and effectiveness using a pre-defined metric. The administration limb deals with coordinating resources to facilitate and manage the initiative, including staff education and training regarding the RRT.

Stolldorf, D. P. (2017). Sustaining health care interventions to achieve quality care: What we can learn from rapid response teams. *Journal of Nursing Care Quality, 32*(1), 87–93. https://doi.org/10.1097/NCQ.0000000000000204

Stolldorf (2017) reviewed the factors required to achieve the sustainability of rapid response teams (RRTs) in the healthcare setting. The author highlighted these factors as crucial aspects in the sustainability of RRTs: a) the use of a standardized screening tool for early monitoring and response of deteriorating patients, b) the mechanism to activate the RRT, c) the RRT members' composition, their roles, and responsibilities, d) engagement, support, and leadership with the RRT, e) education and training of staff members involved in the RRT implementation and review, f) the establishment of feedback mechanisms for improvements, and g) defining measurements to determine the initiative's effectiveness.

Waldie, J., Tee, S., & Day, T. (2016). Reducing avoidable deaths from failure to rescue: A discussion paper. *British Journal of Nursing, 25*(16), 895-900. https://doi.org/10.12968/bjon.2016.25.16.895

Waldie et al. (2016) called for new and strengthened approaches to educate and train nurses to meet the need to identify and recognize patients who are experiencing physiological deterioration and decline. Specifically, to address the failure-to-rescue shortcomings, the authors recommended using simulation when educating and training the nursing staff to prepare them for different scenarios of patient deterioration and improve their performance in rescuing patients when they occur.

Will, K. K., Johnson, M. L., & Lamb, G. (2019). Team-based care and patient satisfaction in the hospital setting: A systematic review. *Journal of Patient-Centered Research and Reviews, 6*(2), 158–171. https://doi.org/10.17294/2330-0698.1695

Will et al. (2019) conducted a systematic review that expands on available yet limited research on the relationship between team-based models of care and patient satisfaction. They explored the relationships between team composition, team-based interventions, and patient satisfaction. Of the 142 research studies retrieved for screening, 21 met the inclusion criteria (i.e., experimental, team-based care interventions, patient satisfaction measured as an outcome). Close to 60% of the studies showed that team-based care improves patient satisfaction, and teams with more than one profession and a more comprehensive team-based model scored higher in patient satisfaction. Especially in the clinical setting, implementing a team-based care approach composed of multidisciplinary members improves positive patient satisfaction.

Appendix N

Training and Educational Materials

MANDATORY NURSING IN-SERVICE

TOPIC

Rapid Response Implementation

Identify strategies to recognize and manage patients at increased risk for hospital readmission

WHEN

Sep 9 - 7:30AM/2:30PM

Sep 10 - 7:30AM/2:30PM

WHERE

MTRC Theater

NURSING STAFF

Required to attend one of the in-service sessions

WHY ATTEND?

Be in the know, learn something new.
Refreshments and goodies will be provided.
Win fun prizes.

PRIMER

Rapid Response Team (RRT) in a Skilled Nursing Facility (SNF) Setting

Introduction

Skilled nursing facilities (SNF), emerging from the problem that is the COVID-19 pandemic, are continuously looking for ways to improve their financial viability while still maintaining or even improving patient outcomes.

With the recent implementation of the Patient-Driven Payment Model (PDPM), most facilities want to admit higher-acuity patients because caring for them would mean higher per diem reimbursement rates in various payment categories. Additionally, hospitals are keen to discharge patients to facilities equipped to provide a higher level of care. Meanwhile, patients and family members would prefer to receive health care services in facilities with the capability to do so.

To survive in the ever-evolving nursing home industry, providers are pivoting their offerings and changing their care models to accommodate the influx of higher-acuity patients into their facilities.

Introduction

One such challenge is the potential for higher-acuity patients to drive up hospital readmission rates. This is because they tend to be sicker and have more co-morbidities that may exacerbate while at the facility, which would entail sending them back to the hospital. In doing so, this would impact the SNF's value-based purchasing (VBP) metrics. In addition, an increase in the hospital readmission measure would decrease the incentive or increase the penalties.

To avoid these potential losses, facilities must proactively enact strategies to recognize and manage patients at increased risk for hospital readmission. Moreover, nursing staff must follow clinical protocols to ensure changes in conditions are identified, and treatments are timely initiated within the facility's confines without ever sending the patient back to the hospital.

Introduction

Implementing a rapid response team (RRT) in a SNF may be a way to mitigate the unnecessary need for patients to be transferred to the hospital, especially for patients whose changes in condition can be managed and treated in-house.

Background

In 2017, the Centers for Medicare and Medicaid Services (CMS) launched a program, as part of its overarching aims, called Meaningful Measures to recognize critical areas for measuring quality and advocating improvements to promote patient and healthcare outcomes (Centers for Medicare and Medicaid Services [CMS], 2019).

Despite differing mechanisms to measure quality and determine patient outcomes, the Meaningful Measures initiative sought to tie reimbursement with value (CMS, 2019). The program was envisioned to be accomplished by standardizing care areas and integrating quality-focused, patient-centric, and outcomes-driven metrics, especially in the nursing home, long-term care and skilled nursing facility setting (CMS, 2019).

Background

All CMS-authorized skilled nursing facilities (i.e., SNFs that receive reimbursement from Medicare and Medicaid for services rendered to members) must regularly report clinical information about each patient (CMS, 2019). Utilizing the Minimum Data Set (MDS) format, the data reported to the CMS are collated and compiled to generate the facility's quality measures (CMS, 2020). The data would then be analyzed and synthesized to calculate the facility's reimbursement rates (CMS, 2020).

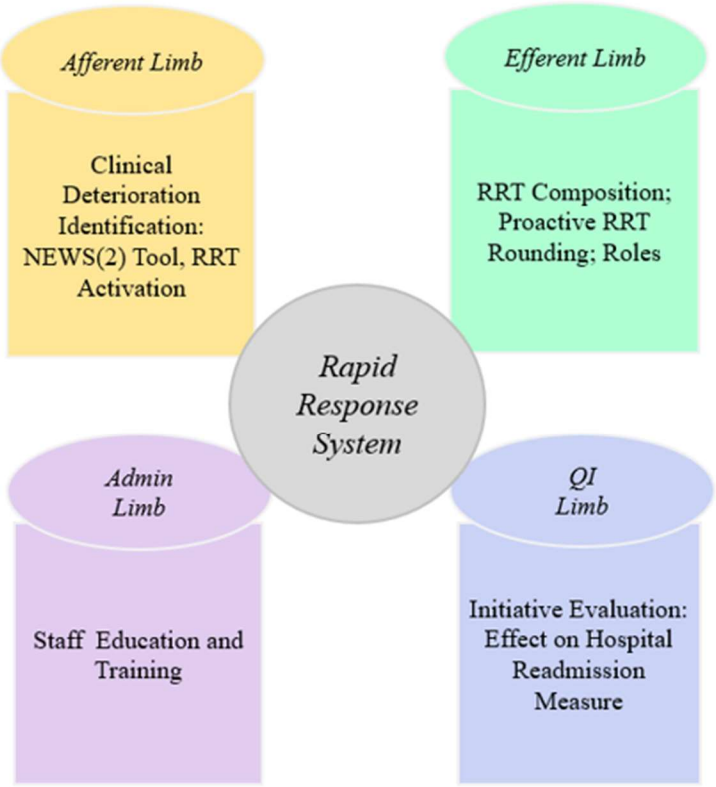
The focus of this primer is on the metric on short-stay residents who were re-hospitalized after a nursing home admission.

Background

While all areas contribute to determining the facility's reimbursement from the CMS, one quality measure provides an added incentive for the facility to perform better. The Skilled Nursing Facility Value-Based Purchasing (SNF VBP) Program incentivizes (by rewarding) or disincentivizes (by penalizing) the facility's provision of quality health care services to Medicare recipients as measured by its hospital readmissions (CMS, 2020). This metric is for all-cause, unexpected hospital readmissions for SNF patients discharged within 30 days from a previous hospital stay (CMS, 2020).

The Protecting Access to Medicare Act of 2014 transitioned SNFs from fee-for-service to value-based reimbursements, established the incentives (i.e., rewards/penalties), and started the enforcement on October 1, 2018 (Castellucci, 2018). If SNFs show improvements, a bonus of up to 1.6% in their Medicare Part A payments may be received; otherwise, a penalty of up to 2% may be imposed (Castellucci. 2018; CMS, 2020).

RRT SNF's Implementation



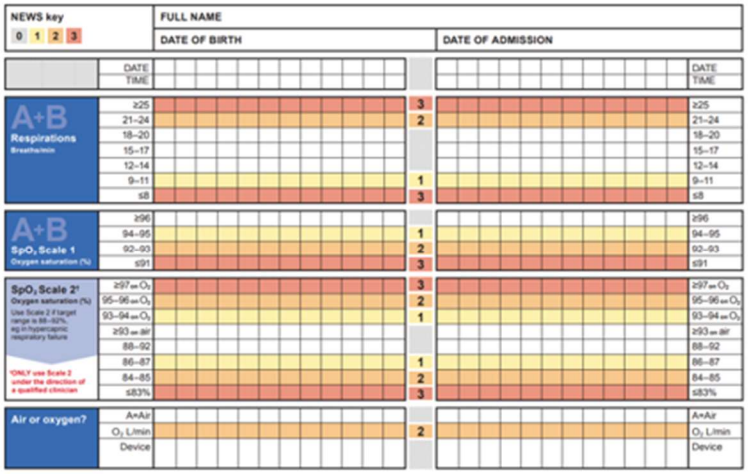
NEWS Scoring/Triggers

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

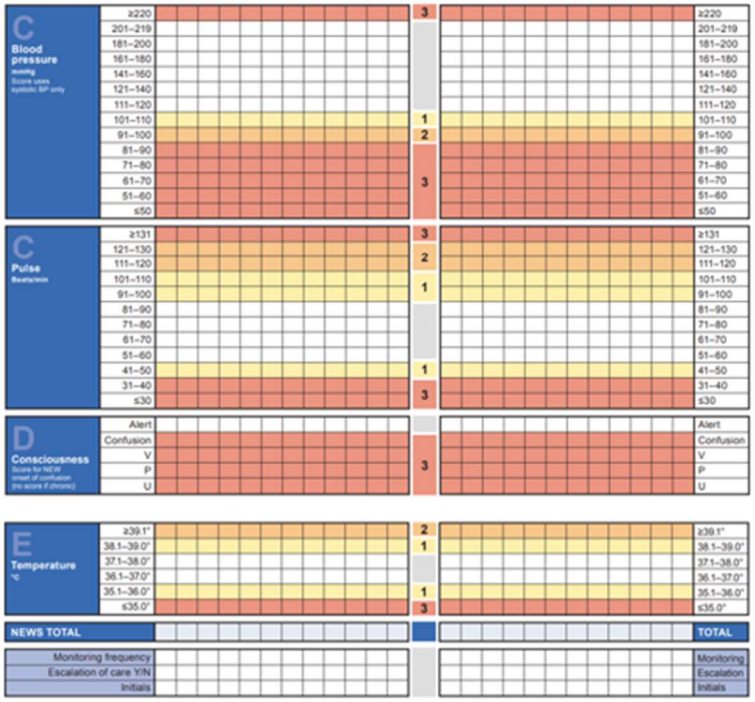
NEW score	Clinical risk	Response
Aggregate score 0–4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low–medium	Urgent ward-based response*
Aggregate score 5–6	Medium	Key threshold for urgent response*
Aggregate score 7 or more	High	Urgent or emergency response**

•*Note:* From "National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS," by the Royal College of Physicians, 2017 (https://www.rcplondon.ac.uk/file/8636/download). Copyright 2017 by the Royal College of Physicians.

NEWS2 Observation Chart



NEWS2 Observation Chart



•*Note:* From "National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS," by the Royal College of Physicians, 2017 (https://www.rcplondon.ac.uk/file/8636/download). Copyright 2017 by the Royal College of Physicians.

Triggers' Clinical Response

NEW score	Frequency of monitoring	Clinical response
0	Minimum 12 hourly	• Continue routine NEWS monitoring
Total 1–4	Minimum 4–6 hourly	• Inform registered nurse, who must assess the patient • Registered nurse decides whether increased frequency of monitoring and/or escalation of care is required
3 in single parameter	Minimum 1 hourly	• Registered nurse to inform medical team caring for the patient, who will review and decide whether escalation of care is necessary
Total 5 or more Urgent response threshold	Minimum 1 hourly	• Registered nurse to immediately inform the medical team caring for the patient • Registered nurse to request urgent assessment by a clinician or team with core competencies in the care of acutely ill patients • Provide clinical care in an environment with monitoring facilities
Total 7 or more Emergency response threshold	Continuous monitoring of vital signs	• Registered nurse to immediately inform the medical team caring for the patient – this should be at least at specialist registrar level • Emergency assessment by a team with critical care competencies, including practitioner(s) with advanced airway management skills • Consider transfer of care to a level 2 or 3 clinical care facility, ie higher-dependency unit or ICU • Clinical care in an environment with monitoring facilities

•*Note:* From "National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS," by the Royal College of Physicians, 2017 (https://www.rcplondon.ac.uk/file/8636/download). Copyright 2017 by the Royal College of Physicians.

RRT Log

Rapid Response Team (RRT) Log

Patient Name:	**Rm #:**
Admission Date:	**Physician:**

Date	Encounter Narrative Notes

RRT Members:

Initials	Signature	Initials	Signature
Initials	Signature	Initials	Signature
Initials	Signature	Initials	Signature

Chart Audit Log

Chart Audit Log

Audit Date: **Completed By:**

Rm # & Admit Date	Unit or Station Name	Shift	Instrument Audited	Rate of Compliance: Correctly Applied (1)	Partially Applied (2)	Incorrectly Applied (3)	Not Applied (4)	Total
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
		□ 7a-3p □ 3p-11p □ 11p-7a	□ NEWS2 Tool □ RRT Log					
TOTAL								

SECTION: Clinical Procedure Manual

SUBJECT: Rapid Response Team

EFFECTIVE DATE: 06/13/2022 ***REVISION DATE:*** 06/13/2022

PURPOSE

To provide a rapid response system to 1) identify and recognize physiological decline and deterioration in patients admitted to the facility from a prior hospital stay, 2) set guidelines for activating the rapid response team (RRT), and 3) delineate RRT composition, roles, and responsibilities.

The goal of the rapid response team (RRT) is to improve outcomes by providing care resources for rapid intervention of a declining patient.

PROCEDURE

Identification/Recognition of Decline

1. Upon admission into the facility, patients discharged from a recent hospital stay who are 65 and older, and on a Medicare-approved skilled or rehabilitation service will be provided with the NEWS2 Tool. Patients who have a Do Not Resuscitate order are excluded.
2. At a minimum, every shift, the primary nurse for the patient will complete the NEWS2 Tool, documenting the patient's respirations (i.e., breaths/minute), oxygen saturation (i.e., SpO2), blood pressure (i.e., mmHg), pulse (beats/minute), consciousness (i.e., whether alert, confused, V - voice, P - pain, U - unresponsive), and temperature (i.e., degrees Celsius).
3. If the patient's NEW Score total is 0, continue routine monitoring once every shift. For a Score total of 1-4, increase the frequency of monitoring to once every 4 hours.
4. If a single parameter has a Score of 3 OR the Score's total is equal to 5 or more, increase monitoring to once every hour.
    a. The patient's primary nurse will immediately activate the RRT and inform the medical provider or designee of the physiological decline or deterioration.
    b. The RRT will complete a thorough evaluation of the patient. The RRT will record their notes of the event and any interaction with patients, their family or representative(s), and other interdisciplinary team members on the RRT Log.
    c. In collaboration with the primary nurse, and the patient's medical provider or designee, the RRT implements intervention(s) on the patient (i.e., initially, treatments and/or diagnostics, and lastly, escalation of care or send back to the hospital).
5. If the Score's total is equal to 7 or more, in collaboration with the primary nurse and the medical provider or designee, the RRT will transfer the patient back to a higher level of care (i.e., hospital).

Guidelines to Activate RRT

1. Any or all of the criteria in the NEWS2 Tool meets the guidelines for initiating the RRT. The key to using the guidelines properly is the early identification and recognition of:
    a. Nursing staff worried about acute physiological deterioration or decline of patient
    b. Acute change in heart rate </= 40 or >/= 131
    c. Acute change in systolic blood pressure <=/90 or >/= 220
    d. Acute change in respiratory rate </=8 or >/= 25

    e. Acute increase in oxygen requirements or deterioration in oxygen saturation </= 91% on room air
    f. Acute change in level of consciousness or new confusion
        - Confusion: The patient has new onset confusion, disorientation and/or agitation, where previously their mental state was normal. Changes may be subtle as the patient may respond to questions coherently, but there is some confusion, disorientation and/or agitation.
        - Verbal: The patient makes some kind of response when you talk to them, which could be in any of the three component measures of eyes, voice or motor (e.g., patient's eyes open on being asked "Are you OK?". The response could be as little as a grunt, moan, or slight move of a limb when prompted by voice.
        - Pain: The patient makes a response on any of the three component measures on the application of pain stimulus, such as a central pain stimulus like a sternal rub or a peripheral stimulus such as squeezing the fingers. A patient with some level of consciousness (a fully conscious patient would not require a pain stimulus) may respond by using their voice, moving their eyes, or moving part of their body (including abnormal posturing).
        - Unresponsive: Sometimes seen noted as 'unconscious', this outcome is recorded if the patient does not show any eye, voice or motor response to voice or pain.

Members of RRT, Roles and Responsibilities

1. The RRT, at a minimum, must consist of three members. RRT sub-groups will be assigned with corresponding scheduled times of operations (e.g., the morning shift sub-group operating from 7 am to 3 pm, the evening shift sub-group operating from 3 pm to 11 pm, and the night shift sub-group operating from 11 pm to 7 am).
2. Members of the RRT <u>may</u> include but are not limited to:
    a. Medical/Nurse Leadership (e.g., Medical Director, Nurse Practitioner, Physician Assistant, Director of Nursing, Assistant Director of Nursing)
    b. House Supervisor/Team Leader (e.g., Weekend Supervisor, Unit Manager, Shift Supervisor, Nurse Lead)
    c. Patient's Primary Nurse
    d. Respiratory Therapist
    e. Therapist (e.g., physical therapist (PT), PT assistant, occupational therapist (OT), OT assistant)
    f. CNA Lead
3. Roles and responsibilities:

    <u>*Primary Nurse*</u>
    a. Promptly activates RRT when indicated
    b. Provides information to RRT and medical staff
    c. Remain present during the activation
    d. Assists RRT with obtaining supplies
    e. Actively participates in assessments and interventions
    f. Notification of family and ongoing psychosocial support

    <u>*RRT RN (House Supervisor/Team Leader)*</u>
    a. Serves as the Team Leader and delegates responsibilities to other RRT members
    b. Assists the assigned RRT members with care of the patient to include:
        - Patient assessment
        - Identify needed resources
        - Provide interventions
        - Evaluate the effectiveness of interventions
        - Coordinate transport of patient to other care settings (i.e., back to the hospital)
        - Ensure appropriate and ongoing assessments and interventions are provided

- Document interactions and activities with patient on the RRT Log
- Provide education and support to unit clinical staff

RRT Respiratory Therapist

a. Provides respiratory assessment and interventions
b. Communicates with other RRT members as it relates to respiratory care
c. Evaluates effectiveness of interventions
d. Assists the RRT RN as directed
e. Ensure appropriate and ongoing assessments and interventions are provided

4. RRT Daily Rounds
   a. The RRT conducts proactive rounding of high-risk patients
   b. During the rounds, the RRT reviews the patients' NEWS2 Tool, to identify and recognize any deterioration or decline, and provides early intervention(s) to address the physiological issue(s)
   c. The RRT records the encounter and interaction with patients and any intervention provided to patients in the RRT Log
5. Debriefing
   a. A post RRT debriefing should take place within 2 hours of RRT activation to ensure:
   b. Accurate and appropriate documentation of interventions within the medical record and the RRT Log
   c. Review effectiveness of RRT response
   d. Collect feedback for performance improvement from participants

6. Ongoing Quality Improvement (QI)
   a. The facility is committed to provide staff with educational and training opportunities to learn and drill for RRT to ensure appropriate identification/recognition, response and competence.

References

Institute for Healthcare Improvement. (2008). *How-to guide: Deploy rapid response teams.* http://www.ihi.org/resources/Pages/Tools/HowtoGuideDeployRapidResponseTeams.aspx

Royal College of Physicians. (2017). *National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS.* https://www.rcplondon.ac.uk/file/8636/download

References

Backhouse, A., & Ogunlayi, F. (2020). Quality improvement into practice. *BMJ, 368*, m865. https://doi.org/10.1136/bmj.m865

Brady, J., & McKittrick, M. (2021). From RUGs to PDPM: Demonstrating how policy impacts operations in post-acute setting. *The Journal of Health Administration, 38*(2), 615-626. https://www.ingentaconnect.com/contentone/aupha/jhae/2021/00000038/00000002/art00012

Castellucci, M. (2018). Most skilled-nursing facilities penalized by CMS for readmission rates. *Modern Healthcare.* https://www.modernhealthcare.com/article/20181128/NEWS/181129930/most-skilled-nursing-facilities-penalized-by-cms-for-readmission-rates

Centers for Medicare and Medicaid Services. (2019). *Meaningful measures.* U. S. Department of Health and Human Services. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityInitiativesGenInfo/MMF/General-info-Sub-Page

Centers for Medicare and Medicaid Services. (2020). *The skilled nursing facility value-based purchasing (SNF VBP) program.* U. S. Department of Health and Human Services. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/SNF-VBP/Measure

Centers for Medicare and Medicaid Services. (2021). *Patient-driven payment model.* U. S. Department of Health and Human Services. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/SNFPPS/PDPM

Kotter, J. P. (2012). *Leading change.* Harvard Business Review Press.

Lyons, P. G., Edelson, D. P., & Churpek, M. M. (2018). Rapid response systems. *Resuscitation, 128*, 191-197. https://doi.org/10.1016/j.resuscitation.2018.05.013

Royal College of Physicians. (2017). *National Early Warning Score (NEWS)2: Standardising the assessment of acute-illness severity in the NHS.* https://www.rcplondon.ac.uk/file/8636/download

Appendix O

CITI Training: Biomedical Data Researchers

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Ram Felix Rengel (ID: 11188050)
- **Institution Affiliation:** Aspen University (ID: 3218)
- **Institution Email:** ram.rengel@gmail.com
- **Institution Unit:** School of Nursing & Health Sciences

- **Curriculum Group:** Biomedical Data Researchers
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 1 - Basic Course
- **Description:** Choose this group to satisfy CITI training requirements for Investigators and staff involved primarily in biomedical research with human subjects.

- **Record ID:** 48978926
- **Completion Date:** 27-May-2022
- **Expiration Date:** 26-May-2025
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and Its Principles (ID: 1127)	17-May-2022	3/3 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	17-May-2022	3/3 (100%)
Avoiding Group Harms - International Research Perspectives (ID: 14081)	17-May-2022	3/3 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	17-May-2022	5/5 (100%)
Cultural Competence in Research (ID: 15166)	19-May-2022	5/5 (100%)
Humanitarian Use Devices (HUDs) (ID: 16306)	19-May-2022	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	21-May-2022	5/5 (100%)
External IRB Review (ID: 16711)	26-May-2022	5/5 (100%)
Students in Research (ID: 1321)	26-May-2022	5/5 (100%)
History and Ethics of Human Subjects Research (ID: 498)	27-May-2022	5/5 (100%)
Informed Consent (ID: 3)	27-May-2022	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	27-May-2022	4/4 (100%)
Records-Based Research (ID: 5)	27-May-2022	4/4 (100%)
Research Involving Prisoners (ID: 8)	27-May-2022	4/4 (100%)
Research Involving Children (ID: 9)	27-May-2022	3/3 (100%)
Research Involving Pregnant Women, Fetuses, and Neonates (ID: 10)	27-May-2022	5/5 (100%)
International Studies (ID: 971)	27-May-2022	3/3 (100%)
FDA-Regulated Research (ID: 12)	27-May-2022	5/5 (100%)
Research and HIPAA Privacy Protections (ID: 14)	27-May-2022	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k13fd492e-e279-4a67-8584-d3c603286250-48978926

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

Appendix P

CITI Training: Social, Behavioral, and Education Sciences (RCR)

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Ram Felix Rengel (ID: 11188050)
- **Institution Affiliation:** Aspen University (ID: 3218)
- **Institution Email:** ram.rengel@gmail.com
- **Institution Unit:** School of Nursing & Health Sciences

- **Curriculum Group:** Responsible Conduct of Research (RCR)
- **Course Learner Group:** Social, Behavioral, and Education Sciences (RCR)
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 48978928
- **Completion Date:** 28-May-2022
- **Expiration Date:** 27-May-2025
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Authorship (RCR-Basic) (ID: 16597)	27-May-2022	5/5 (100%)
Collaborative Research (RCR-Basic) (ID: 16598)	27-May-2022	5/5 (100%)
Conflicts of Interest (RCR-Basic) (ID: 16599)	27-May-2022	5/5 (100%)
Data Management (RCR-Basic) (ID: 16600)	28-May-2022	5/5 (100%)
Mentoring (RCR-Basic) (ID: 16602)	28-May-2022	5/5 (100%)
Peer Review (RCR-Basic) (ID: 16603)	28-May-2022	5/5 (100%)
Research Misconduct (RCR-Basic) (ID: 16604)	28-May-2022	5/5 (100%)
Plagiarism (RCR-Basic) (ID: 15156)	28-May-2022	5/5 (100%)
Research, Ethics, and Society (ID: 15198)	28-May-2022	5/5 (100%)
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	28-May-2022	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?kf0a46b67-7ae6-4438-94b6-6670db7e05ac-48978928

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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Ram Felix Rengel (ID: 11188050)
- **Institution Affiliation:** Aspen University (ID: 3218)
- **Institution Email:** ram.rengel@gmail.com
- **Institution Unit:** School of Nursing & Health Sciences

- **Curriculum Group:** Responsible Conduct of Research (RCR)
- **Course Learner Group:** Social, Behavioral, and Education Sciences (RCR)
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 48978928
- **Report Date:** 06-Jun-2022
- **Current Score**:** 100

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	28-May-2022	5/5 (100%)
Plagiarism (RCR-Basic) (ID: 15156)	28-May-2022	5/5 (100%)
Research, Ethics, and Society (ID: 15198)	28-May-2022	5/5 (100%)
Authorship (RCR-Basic) (ID: 16597)	27-May-2022	5/5 (100%)
Collaborative Research (RCR-Basic) (ID: 16598)	27-May-2022	5/5 (100%)
Conflicts of Interest (RCR-Basic) (ID: 16599)	27-May-2022	5/5 (100%)
Data Management (RCR-Basic) (ID: 16600)	28-May-2022	5/5 (100%)
Mentoring (RCR-Basic) (ID: 16602)	28-May-2022	5/5 (100%)
Peer Review (RCR-Basic) (ID: 16603)	28-May-2022	5/5 (100%)
Research Misconduct (RCR-Basic) (ID: 16604)	28-May-2022	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?kf0a46b67-7ae6-4438-94b6-6670db7e05ac-48978928

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Appendix Q

CITI Training: Information Privacy Security (IPS)

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Ram Felix Rengel (ID: 11188050)
- **Institution Affiliation:** Aspen University (ID: 3218)
- **Institution Email:** ram.rengel@gmail.com
- **Institution Unit:** School of Nursing & Health Sciences

- **Curriculum Group:** Information Privacy Security (IPS)
- **Course Learner Group:** Students, Faculty, Admin
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 48978927
- **Completion Date:** 28-May-2022
- **Expiration Date:** 27-May-2025
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Health Privacy Issues for Students and Instructors (ID: 1420)	28-May-2022	5/5 (100%)
FERPA: An Introduction (ID: 17407)	28-May-2022	5/5 (100%)
Basics of Health Privacy (ID: 1417)	28-May-2022	5/5 (100%)
Health Privacy Issues for Clinicians (ID: 1418)	28-May-2022	5/5 (100%)
Health Privacy Issues for Researchers (ID: 1419)	28-May-2022	5/5 (100%)
Basics of Information Security, Part 1 (ID: 1423)	28-May-2022	5/5 (100%)
Basics of Information Security, Part 2 (ID: 1424)	28-May-2022	5/5 (100%)
Protecting Your Computer (ID: 1425)	28-May-2022	5/5 (100%)
Protecting Your Portable Devices (ID: 1427)	28-May-2022	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?kc57fe211-6f44-4e81-8ca0-e29dbf80198d-48978927

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Web: https://www.citiprogram.org

Appendix R

DNP Proposal Approval

Appendix A: Approval of the DNP Proposal

Doctoral Student: Ram Rengel

The DNP Project Team of the above-named Doctoral Student has met and reviewed the DNP Proposal entitled:

<Project Title>
Effect of Implementing a Rapid Response Team (RRT) on a Skilled Nursing Facility's Hospital Readmission Measure

The DNP Project Team has determined that the proposed DNP is likely to:

1. Make a significant contribution to the field of knowledge;
2. Demonstrate the student's ability to perform independent research;
3. Contain material worthy of publication in a form appropriate to the discipline.

We recommend acceptance of this proposal. It contains all appropriate content and forms.

DNP Project Team Member's Signatures:

Faculty Mentor: Erica Lue (Printed Name)

Faculty Reviewer: Amy Fisher (Printed Name)

Independent Reviewer: Andrea Novak (Printed Name)

Program Approval Signature:

(Printed Name of Program Representative) Date

Completed form should be submitted to ProjectConcert after all signatures are attained. Directions can be found in the DNP Handbook under "Instructions Uploading Documents to ProjectConcert."

Appendix S

Site Approval for Project Implementation

251 E Florida Ave, Melbourne, FL 32901 • (321) 725-3990

August 10, 2022

Dear IRB Administrator,

I have granted authorization for **Ram Felix Rengel** to conduct his project titled**: Effect of Implementing a Rapid Response Team (RRT) on a Skilled Nursing Facility's Hospital Readmission Measure** at our Melbourne Terrace Rehabilitation Center (MTRC), and I attest that I have the authority to grant such permission.

I understand the purpose of the project is to establish the effect of implementing an RRT, a QI initiative in a SNF setting (i.e., MTRC), on our hospital readmission measure.

The organization (MTRC) will allow the following over the duration of the project:

- *Allow the use of the Royal College of Physicians' National Early Warning Score (NEWS2) as a tool for nurses to identify and recognize patient's decline and deterioration, and the mechanism to activate the rapid response team (RRT)*
- *Allow the formation of the RRT to conduct routine rounding on patients and respond to RRT activations*
- *Conduct training and educational opportunities for nurses who would be using the NEWS2 tool and activating the RRT.*
- *Conduct training and educational opportunities for RRT members who would be performing routine rounding on patients and responding to RRT activations.*
- *Allow the project team access to the NEWS2 tool, RRT log, physical patient charts, PointClickCare electronic health records (EHR) and Minimum Data Set (MDS).*
- *Work with the Quality Assurance/Performance Improvement (QAPI) team to gather de-identified patient data specific to the measurable patient outcome (i.e., hospital readmission measure).*
- *Access to de-identified data and use in the final dissertation manuscript.*

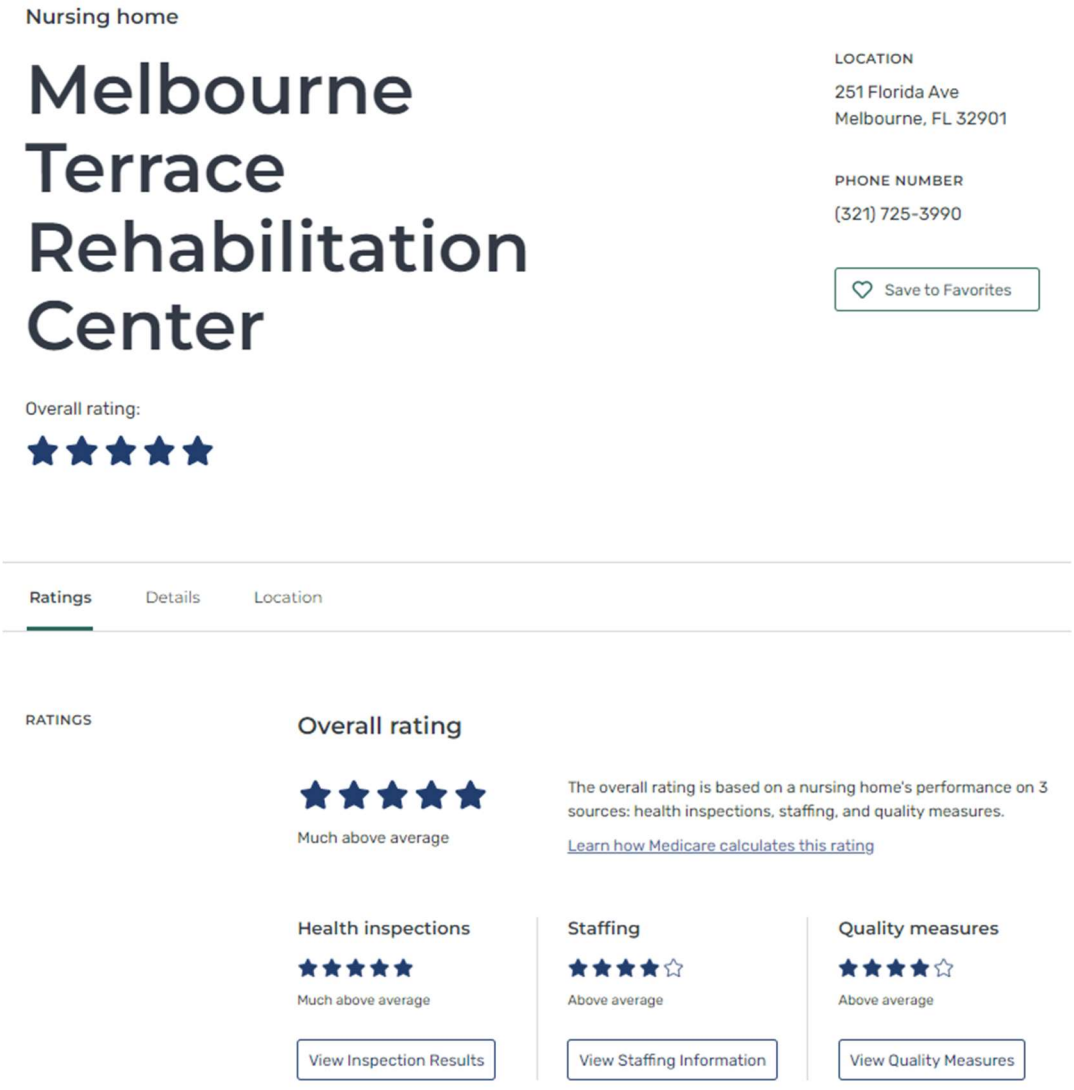
If the IRB has any concerns about the permission being granted by this letter, please contact me by email at **tcone1@melbourneterracerehab.com**.

Sincerely,

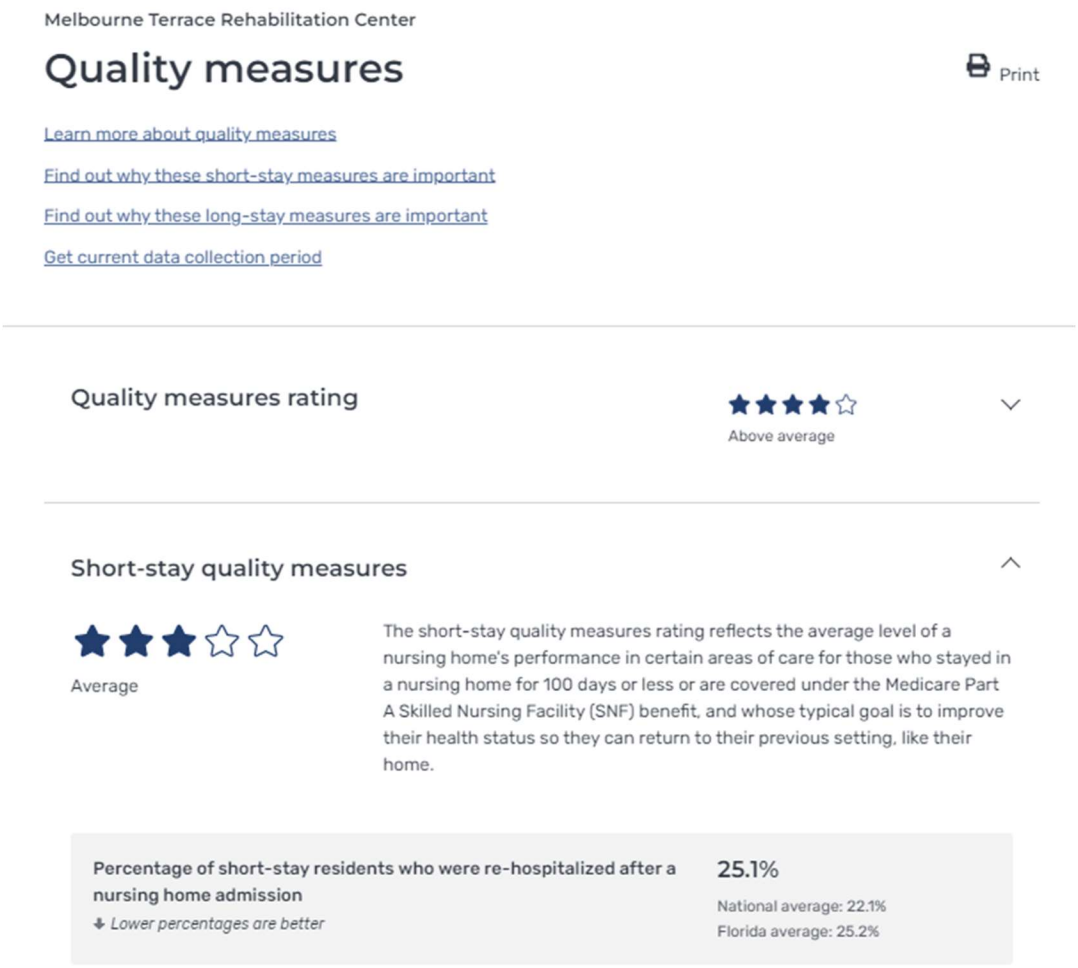
Tina Cone
Administrator
Melbourne Terrace Rehabilitation Center

Appendix T

Melbourne Terrace Rehabilitation Center's *Nursing Home Compare* Information



Note: From "Melbourne Terrace Rehabilitation Center – Overall Rating" by the CMS Nursing Home Compare, 2022. (https://www.medicare.gov/care-compare/details/nursing-home/105635?city=Melbourne&state=FL).



Note: From "Melbourne Terrace Rehabilitation Center – Quality Measures Ratings" by the CMS Nursing Home Compare, 2022. (https://www.medicare.gov/care-compare/details/nursing-home/105635?city=Melbourne&state=FL&measure=nursing-home-quality-of-care).

Appendix U

Approval of the Project

Appendix B: Approval of the Project

Doctoral Student: Ram Rengel

The Advisory DNP Project Team of the above-named Doctoral Student has met and reviewed the DNP entitled:

[TITLE] Effect of Implementing a Rapid Response Team (RRT) in a Skilled Nursing Facility's Hospital Readmission Measure

The DNP Project Team has determined that the Project:

1. Makes a significant contribution to the field of knowledge;
2. Demonstrates the Student's ability to perform independent research;
3. Contains material worthy of publication in a form appropriate to the discipline.

We recommend acceptance of this Project. It contains all appropriate content.

Signature of the DNP Project Team Members

Faculty Mentor name: Dr. Erica Lue Signature: Erica Lue, DNP, MSN-Ed, RN

Faculty Reviewer name: Dr. Tammy Fisher Signature: Tammy Fisher DNP, MSN

Independent Reviewer name: Dr. Andrea Novak Signature: Andrea Novak

Approval

Tracy Lookingbill
Program Director or Program Representative Name

Tracy Lookingbill DNP, MSN, RN
Signature

02/08/2023
Date

Completed form should be submitted to ProjectConcert after all signatures* are attained. Directions can be found in the DNP Handbook under "Instructions Uploading Documents to ProjectConcert."

***The Program Representative will be the Assistant Dean or Dean in the case that the Program Director is serving on the DNP Project Team.**