An Inpatient Rehabilitation Interprofessional Care Pathway for Traumatic Hip Fracture: A Pilot Quality Improvement Project

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An Inpatient Rehabilitation Interprofessional Care Pathway for Traumatic Hip Fracture: A Pilot Quality Improvement Project

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Project Approval Letter

University of New Hampshire
College of Health and Human Services
Department of Nursing

Final Approval of DNP Scholarly Project
Doctor of Nursing Practice

Date of DNP Scholarly Project Final Report: 5/4/18
Date of DNP Scholarly Project Oral Presentation:
Student Name: Sarah Plante

Title of DNP Scholarly Project: "An Inpatient Rehabilitation Interprofessional Care Pathway for Traumatic Hip Fracture: A Quality Improvement Project"

In partial fulfillment of the requirements for the degree of Doctor of Nursing Practice in the Doctor of Nursing Practice Program

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[Print Name of Agency Stakeholder, Credentials]

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[Print Name of Director/DNP Program, Credentials]

[Print Name of Student, Credentials]

Return completed form to the DNP Program Director.
Copy to DNP student.
Abstract

**Background:** Each year over 300,000 older adults are hospitalized for hip fracture. The impact of the cost of hip fracture on the US health care system is estimated to be as high as $9 billion, with the typical cost of a hip fracture episode around $30,000. Formalized pathways have been developed and successfully utilized for many patient presentations, including hip fracture, in the acute setting. Although this research is important to the comprehensive care of the elderly hip fracture patient, very little research exists that outlines evidence-based best-practice for patients in the post-acute recovery period.

**Purpose:** The primary aim of this project was to develop an evidence-based, comprehensive, coordinated, and interprofessional care pathway for hip fracture patients in the acute rehabilitation setting to improve the percentage of patients discharging to community settings by 20% from current baseline by the end of the pilot period.

**Methods:** The design of this project was an observational cohort study. Descriptive statistics will be used to compare intervention groups to controls, including frequencies and distributions.

**Results:** The hip fracture tool itself had inconclusive results, the impacts of the effects on team work and enhanced coordination of the care team was realized through reducing institutionalized days for hip fracture patients in acute rehabilitation.

**Keywords:** hip fracture, subacute care, clinical pathway, quality improvement
An Inpatient Rehabilitation Interprofessional Care Pathway for Traumatic Hip Fracture: A Pilot Quality Improvement Project

**Problem Description**

Hip fracture is a common event in older adults that results in significant morbidity and mortality, reduced quality of life, and substantial costs to the healthcare system. Alternative models of care have developed recently as a result of the ever-increasing number of patients expected to suffer the consequences from a fractured hip. Financial implications to healthcare facilities have also changed as the result of changing reimbursements. These new models seek to ensure that patient’s care is optimized across the continuum to reduce cost, improve quality, and improve patient satisfaction. A major part of this complex equation involves after-care for patient’s following an acute care hospital stay. The post-acute stage of the continuum can represent a large portion of the episodic cost, and is a significant contributing factor to patient’s functional recovery. In the United States, approximately 90% of patients discharge to an institutional setting following a hip fracture, such as skilled nursing facilities (SNFs), or inpatient rehabilitation facilities (IRFs) (Leland et. al, 2015).

Unfortunately, these patients are particularly vulnerable to the hazards of institutionalization such as falls with injury and pressure ulcers; and morbidity and mortality have a negative relationship to the number of days a patient is unable to safely transition to the home setting. Also not surprising is the relationship between patient’s level of function at discharge and likelihood for an institutional discharge. Institutionalization of frail elders greatly reduces quality of life, increases the risk for complications, and increases healthcare system costs (Carpintero et al., 2014; Leal et al., 2016).

Performance data at a local rehabilitation facility show that discharges to community settings following a hip fracture admission have been less than desirable. For fiscal year (FY) 2016, this IRF discharged 65% of hip fracture patients to community settings, versus 69% and 75% for regional and national case-adjusted benchmarks, respectively. This equates to more days in institutional settings,
higher episodic cost of care, and increased risk of potential harm. Furthermore, another significant metric that determines the effects of therapy intervention on a patient’s level of functioning is the FIM® rating, or Functional Independence Measure. For internal hip fracture patients, the FIM® motor change for FY 2016 was 24.0 versus regional and national case-adjusted benchmarks of 27.7 and 28.5, respectively.

The intent of this quality improvement project is to develop a coordinated and interprofessional care pathway for hip fracture patients in the inpatient rehabilitation setting, to improve functional outcomes and thus reduce discharges to non-community settings.

Available Knowledge

In order to fully appreciate the current state of research on this issue, a comprehensive search of the literature was conducted. Using the MESH terms “hip fracture” and “subacute care”, a broad net was cast in order to retrieve all relevant studies. The search as limited to English language, older adults age 65+, human subjects and timeframe of 2000-2017. The following databases were electronically searched and results retrieved are included: MEDLINE (12), CINAHL (17), Cochrane Register of Randomized Control Trials (3), Cochrane Systematic Review (0), Academic Search Premier (5) and PubMed (22). Citation lists and grey literature were also searched to ensure comprehensiveness. After removal of duplicate articles, 33 unique articles remained. After abstract review, 8 articles were selected for full-text review. After full text review, 3 articles were excluded due to low level of evidence (1) (Chong, Savige, & Lim, 2009), or no reference to subacute care (3) (Giusti et al., 2006; Deutsch et al., 2017; Sivakumar et al., 2013). The 4 remaining articles included 1 systematic review (Beaupre et al., 2005), 1 randomized-control trial (Yea-Ing et al., 2012) and 2 quality improvement articles relevant to the design of this proposal (Krichbaum, 2007 & Gonzalez-Montalvo et al., 2010).

None of the articles were specific to inpatient rehabilitation care pathways, but several common threads appeared throughout all articles. For example, the intervention from an interdisciplinary team focused on physical functioning and medical stability had a positive effect on patient outcomes (Beaupre
et al., 2005; Yea-Ing et al., 2012; Krichbaum, 2007; Gonzalez-Montalvo et al., 2010). Yea-Ing and colleagues (2012), Beaupre and colleagues (2005) and Krichbaum (2007) also sited coordinated, standardized care delivery as positively influencing outcomes such as improvements in activities of daily living (ADLs) and instrumental ADLs, nutrition status, pain and self-reported quality of life measures, respectively. Although this research is important to the comprehensive care of the elderly hip fracture patient, very little research exists that outlines evidence-based best-practice for patients in the post-acute recovery period (Beaupre et al., 2005).

Formalized pathways have been developed and successfully utilized for many patient presentations, including hip fracture, in the acute setting. The UK’s National Institute for Health Care Excellence (NICE) developed a clinical guideline for hip fracture management in 2011, and several US-based organizations have adopted its recommendations for best-practice (National Clinical Guideline Centre, 2011). Unfortunately, there is little guidance as to what should happen to the patient once they transition to post-acute care. This leaves post-acute care providers ill-equipped to employ systematic changes to care delivery that could positively impact patient outcomes.

Along with the clinical management of the patient from a medical and functional perspective, the importance of having a coordinated and interprofessional team cannot be understated. Eduardo Salas and colleagues (2004, 2006, 2009, 2013) have published several landmark studies on the importance of teamwork to drive performance, improve patient safety and increase patient satisfaction. O’Leary and colleagues (2012) synthesized the research of Salas and others into five core components of high-reliability teams: leadership, mutual performance monitoring, back-up behaviors, adaptability and team orientation. Along with these core concepts, support for effective team functioning comes from a combination of trust, shared mental models and closed-loop communication. Elements of high-performing teams will be integrated into the pathway monitoring and follow-up processes in order to facilitate collaboration across disciplines.
Rationale

Bronstein’s Model of Interdisciplinary Collaboration served as the theoretical framework for this quality improvement project. Bronstein’s Model uses five theoretical components essential for creating interprofessional collaboration: interdependence, newly created professional activities, flexibility, collective ownership of goals, and reflection on the process. Contextual factors such as professional roles, structural characteristics, personal characteristics and history of collaboration were also considered as influencing factors in the design and implementation of the hip fracture pathway.

Specific Aims

The primary aim of this project was to develop an evidence-based, comprehensive, coordinated, and interprofessional care pathway for hip fracture patients in the acute rehabilitation setting to improve the percentage of patients discharging to community settings by 20% from current baseline by the end of the pilot period (2/28/18). A secondary aim is to improve the functional outcomes of hip fracture patients as measured by the Functional Independence Measure (FIM®) to regional weighted benchmarks by the end of the pilot period.

The purpose of this report is to outline the development for building the pathway, the workflow redesign that occurred as a result of the implementation, and the outcomes from the pilot stage. Analysis of results, interpretation of the interventions impact on outcomes, and implications for expansion and sustainability will be addressed.

Context

Setting

The organization is a for-profit, physician-owned rehabilitation network consisting of 4 Inpatient Rehabilitation Facilities (IRFs), outpatient services and a home care agency servicing New Hampshire and Massachusetts. The primary site for this intervention is a 33-bed unit located New Hampshire. The
unit is directed by a hospitalist, who manages the medical care of the patient, and a physiatrist, who manages the functional oversight of the patient. Every patient is followed daily by both the physiatrist and the hospitalist. Every patient is required to receive the services of at least two of the three therapy disciplines: physical therapy, occupational therapy, or speech therapy. Therapy is provided at least 15 hours per week, with most patient’s receiving 3 hours per day, 5 days per week. Patients also receive nursing care from rehabilitation-certified nursing staff at a ratio of at most 7:1, depending on the patients’ medical complexity. Unit leadership includes nurse manager, therapy team leaders and case management supervisor.

**Staff Characteristics**

The interdisciplinary team on the units consists of physiatrists, hospitalists, nurses, physical therapists, occupational therapists, speech and language therapists, nursing assistants, unit secretaries, and case managers.

In a recent Agency of Healthcare Research and Quality (AHRQ) Culture of Safety Survey, the inpatient unit involved in this project indicated that teamwork within the unit was noted as an area for improvement; specifically, in the areas of team mates supporting one another, working together to get tasks completed, and helping out teammates when the unit gets busy. It is for this reason that interdisciplinary involvement throughout the entire pathway development, rollout and measurement process was crucial to staff buy-in to enhance opportunities for success.

**Patient Characteristics**

Based upon historical admissions for hip fracture diagnosis during the implementation period for the previous year, there will be estimated 25-50 patients admitted to the Inpatient Rehabilitation Hospital that would be appropriate for the pathway.
Table 1:

*Hip Fracture Patient Characteristics by Discharge Destination*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total</th>
<th>Institution (SNF)</th>
<th>Institution (Home w/ Services)</th>
<th>Community (Home or Institution)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>266</td>
<td>82</td>
<td>156</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>79.5 (9.83)</td>
<td>82.6 (1.1)</td>
<td>78.2 (0.8)</td>
<td></td>
<td>0.0039</td>
</tr>
<tr>
<td>Gender %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39</td>
<td>40.2</td>
<td>36.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>61</td>
<td>59.8</td>
<td>63.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/ Ethnicity, %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.38</td>
<td>0</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>0.76</td>
<td>1.22</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>98.9</td>
<td>97.56</td>
<td>98.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status, %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.3853</td>
</tr>
<tr>
<td>Married</td>
<td>40.1</td>
<td>36.7</td>
<td>42.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Married</td>
<td>59.9</td>
<td>63.3</td>
<td>57.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairment, %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.3473</td>
</tr>
<tr>
<td>Unilateral</td>
<td>99.6</td>
<td>98.8</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilateral</td>
<td>0.4</td>
<td>1.22</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comorbidity (sum)</td>
<td>19.8 (5.4)</td>
<td>20.9 (5.1)</td>
<td>18.9 (5.62)</td>
<td></td>
<td>0.0231</td>
</tr>
<tr>
<td>Length of Stay (days)</td>
<td>11.5 (4.2)</td>
<td>13.2 (3.5)</td>
<td>11.42 (3.62)</td>
<td></td>
<td>0.002</td>
</tr>
<tr>
<td>FIM cognitive</td>
<td>22.4 (5.8)</td>
<td>19.6 (5.3)</td>
<td>24.3 (5.0)</td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>FIM Motor</td>
<td>29.3 (10)</td>
<td>23.8 (6.0)</td>
<td>32.9 (10.3)</td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>FIM Total</td>
<td>53.6 (14.8)</td>
<td>44.8 (9.4)</td>
<td>59.3 (14.1)</td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>FIM cognitive</td>
<td>25.3 (5.64)</td>
<td>23 (5.1)</td>
<td>27.3 (4.6)</td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>FIM Motor</td>
<td>48.1 (17.4)</td>
<td>36.4 (9.9)</td>
<td>57.2 (14.8)</td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>FIM Total</td>
<td>76.9 (22.8)</td>
<td>61.8 (13.2)</td>
<td>88.8 (19.2)</td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>FIM Change</td>
<td>22.5 (16.4)</td>
<td>16.7 (9.5)</td>
<td>29.5 (13.8)</td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Lives Alone (Y/N), %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.3943</td>
</tr>
<tr>
<td>Yes</td>
<td>62.5</td>
<td>60.6</td>
<td>63.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>37.5</td>
<td>39.4</td>
<td>36.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Hospital Setting, %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00054</td>
</tr>
<tr>
<td>Home</td>
<td>93.2</td>
<td>86.6</td>
<td>97.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home w/ Services</td>
<td>6.8</td>
<td>13.4</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Values reported as mean (SD) unless otherwise noted

P values obtained from one-way ANOVA or Fisher's Exact test

*Fishers Exact Test*
Table 1 provides an analysis of the patient characteristics from calendar year 2016 that were admitted to the rehabilitation hospital for hip fracture. In regard to discharge destination (home versus skilled nursing facility) age, sum of comorbidities, length of stay, and functional and cognitive outcomes (as measured by the FIM®) all appear to be statistically significant factors. Based on this information, design of the pathway will focus on modifiable risk factors that can improve a patient’s likelihood for a home discharge- FIM® scores and length of stay.

**Interventions:**

The interventions for this project consisted of:

- Convening an interdisciplinary team dedicated to improving care for hip fracture patients as described in detail below
- Designing care interventions for hip fracture patients that include decision support for nursing, therapists, case management and physicians
- Educating staff on the new pathway which included in-servicing for 45 licensed clinicians from nursing, physical, occupational and speech therapy. Physician education was conducted on a 1:1 basis.
- Designing data collection tool to track patients throughout their rehabilitation stay, to include functional goals, medical stability and discharge planning milestones
- Measuring success of the program through patient-level review, weekly data reviews and progress towards the rehabilitation goals
- Disseminate pathway to other sites within the Network, if appropriate

**Pathway Development**

An interprofessional team was created under the leadership of this author to design a post-acute care pathway for hip fracture patients. The team consisted of the following members:
<table>
<thead>
<tr>
<th>Team Member</th>
<th>Role/ Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Nursing Practice Student</td>
<td>Team leader, oversight for the pathway, project manager, tracking outcomes</td>
</tr>
<tr>
<td>Chief Medical Officer</td>
<td>Executive oversight for medical staff</td>
</tr>
<tr>
<td>Chief Nursing Officer</td>
<td>Executive oversight for nursing staff</td>
</tr>
<tr>
<td>Physician Champion (Physiatrist)</td>
<td>Direct physician patient care for all pathway patients</td>
</tr>
<tr>
<td>Director of Inpatient Therapy</td>
<td>Oversight of all therapy disciplines, accountable for any changes in documentation or practice change at the bedside</td>
</tr>
<tr>
<td>Nursing Manager</td>
<td>Direct oversight for nursing care on the unit</td>
</tr>
<tr>
<td>Director of Education</td>
<td>Design and implement comprehensive training plan for staff</td>
</tr>
<tr>
<td>Inpatient Physical Therapy Team Leader</td>
<td>Direct oversight for physical therapy care on the unit</td>
</tr>
<tr>
<td>Inpatient Occupational Therapy Team Leader</td>
<td>Direct oversight for occupational therapy care on the unit</td>
</tr>
<tr>
<td>Home Care Physical Therapist</td>
<td>Post-discharge coordination, conduct home visits as appropriate, ensure safe transition to home, monitor progress</td>
</tr>
<tr>
<td>Director of Outpatient Therapy Clinical</td>
<td>Monitor progress for patients requiring outpatient services</td>
</tr>
<tr>
<td>Operations</td>
<td></td>
</tr>
<tr>
<td>Case Manager</td>
<td>Discharge planning activities, communication with insurers, utilization review</td>
</tr>
</tbody>
</table>
The timeline for the pathway development and implementation can be found in Figure 1.

Figure 1:

*Hip Fracture Project Timeline*

<table>
<thead>
<tr>
<th>Tasks</th>
<th>October</th>
<th>November</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathway Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go-Live</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathway Implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Collection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The team met weekly to develop the pathway, and progress was reported to the executive oversight team weekly. Each discipline was responsible for reviewing literature for best practice for the treatment of hip fracture and making recommendations based on their expertise. Interventions were broken down by discipline into daily tasks (monitoring), rehab days 1-3, rehab days 4-6 and rehab days 7-10+. Each segment of the pathway is intended to address the following goals:

<table>
<thead>
<tr>
<th>Daily Tasks</th>
<th>Rehab Days 1-3</th>
<th>Rehab Days 4-6</th>
<th>Rehab Days 7-10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Encourage progression of function</td>
<td>• Mitigate patient risks and deficits related to hospitalization</td>
<td>• Address factors related to the cause of the trauma</td>
<td>• Prepare the patient/family for discharge</td>
</tr>
<tr>
<td>• Prevention of harm</td>
<td>• Promote mobility and pain management</td>
<td>• Maintain mobility and pain control</td>
<td>• Ensure post-discharge wrap-around services in place</td>
</tr>
<tr>
<td>• Management of ongoing medical conditions</td>
<td>• Assess and prevent cognitive dysfunction</td>
<td>• Prevention of future harm</td>
<td>• Maintain safe care transition using evidence-based best practice</td>
</tr>
</tbody>
</table>

The pathway is formatted in such a way that each discipline is accountable to perform and document their interventions for each segment of the pathway, although segments of the pathway are
intentionally designed to overlap in an effort to facilitate interprofessional collaboration. As previously mentioned, daily huddles and Team meetings with the care team were used as a venue to discuss any deviations from the pathway and review and troubleshoot any barriers to a home discharge. Representation from each discipline is expected to attend daily huddles and Team meetings. A copy of the pathway that was developed can be found in Appendix A.

Not only was it critical for the implementation team to develop the interventions needed for an effective pathway, the team had to rethink the formatting to make the pathway functional for the disciplines that are expected to follow it. For this reason, the pathway was broken down into one page checklists for each discipline for each segment of the pathway. The “functional pathway” can also be found in Appendix B. The “functional pathway” was printed on bright paper, and was not a part of the patient’s permanent medical record. Daily tasks are indicated by bulleted items in the left column, the right column is reserved for segment-specific (time-sensitive) tasks that must be completed within the specified rehab day(s).

A challenge to the implementation of this pathway was the lack of a standardized location for interprofessional documentation. The intent of this project is to facilitate that interprofessional and cross-contiuum collaboration, so the implementation team made the decision to house the pathway documentation in a centralized location, and to create a central patient “warehouse” for clinical and outcomes data, so that it is available for the entire care team, regardless of physical location. Mandatory in-service trainings occurred over the course of three days, on all shifts. 45 direct care clinical staff attended these trainings.

**Patient Identification**

A new workflow for identifying appropriate patients had to be created. The process for identifying patients appropriate for the pathway is outlined below:
The process for patient identification starts prior to admission when the field liaison receives a referral from the acute care hospital. The field liaison reviews the patients chart to determine if the patient needs criteria for inpatient rehabilitation level of care (i.e. must meet medical necessity for 24 hour physician oversight, and must be reasonably able to participate in and benefit from 15 hours of therapy per week). Once a patient was determined to be eligible for inpatient rehabilitation, the in-house admissions team assigned the patient to a unit and a physician, based on the clinical presentation of the patient and the specialty of the physician. For this pilot, all hip fractures were admitted to one unit, under the service of the physiatrist physician champion on the project team. Communication of admission decisions and patient assignment are primarily via email. Once the project team leader (this author) receives a notification that a hip fracture patient is booked, an admission alert is sent to the project implementation team.

Pathway Initiation

The initiation of the pathway includes the involvement of staff nurses and therapists, the unit educator and the unit secretary. Patient charts are flagged with a sticker to broadcast to the staff that the
patient is on the pathway. The “functional pathway” and supporting assessments as part of the pathway are filed in the interprofessional documentation binder that is kept at the nurse’s station.

**Post-Initiation Follow-Up**

Daily follow-up on the pathway is conducted by the DNP student. Prior to the implantation of the pathway, daily huddles were unstructured and shared patient goals were sporadic and varied by discipline. The intent of the pathway was to facilitate teamwork and interprofessional collaboration by providing a synchronous communication tool for goal-setting and patient progress. Daily follow-up typically includes just-in-time education, ensuring that documentation is being completed, and reviewing and troubleshooting barriers to discharge in real time. Daily review of patient progress occurs at huddles that occur on the unit with one representative from each discipline: physiatry, therapy, nursing, & case management.

**Post-Discharge Follow-Up**

Bi-Weekly meetings with the interprofessional pathway development team discussed patient’s transition to home care, any barriers to transition from home care to outpatient therapy, and cross-continuum care planning. 90-day follow-up phone calls were conducted to assess for any need for further support in the community, or to identify any possible incidences of readmission to the acute setting.

**Study of the Interventions**

The design of this project was an observational cohort study. Effects of the interventions as a whole unit (i.e. effects of the pathway in its entirety, rather than effects of the individual interventions) will be studied as a cohort of enrolled patients. Effects of the pathway outcomes will be measured against historical baseline performance metrics of the same population from the previous calendar year. In order to establish that the observed outcomes were the result of the interventions, outcomes for all non-enrolled patients for the project implementation period will be compared to the enrolled hip fracture population. The data collection period (implementation period) ran from 11/1/17-2/28/18. Daily surveillance on use
of the pathway was conducted by the DNP student during huddles. Daily surveillance included evaluating for incomplete documentation, ensuring hazard prevention interventions were in place and real-time data tracking.

**Measures**

Functional disability was measured using the Functional Independence Measure (FIM®). The FIM® is a reliable and validated tool used by all IRF facilities to measure a patient’s level of disability before and after admission to an IRF. The FIM® is scored on 13 motor tasks and 5 cognitive tasks. Motor tasks include eating, grooming, bathing, upper body dressing, lower body dressing, toileting, bladder and bowel control, transfers and locomotion. Cognitive tasks include comprehension, expression, social interaction, problem solving and memory. Each task is scored on a 7-point Likert scale with a score of 1 meaning patient is dependent on caregivers, and a 7 being patient is independent (no assist needed). Sum scores are between 18 and 126, representing the range of total dependence to total independence. Administration of the FIM® does require specialized training which is required of all clinical staff who administer the questionnaire. The FIM® takes approximately 30 minutes to complete and is a shift to shift expectation for all therapists and nurses at the organization (Linacre et al, 1994).

For the purpose of determining a community discharge, the CMS definition of “community” was used. This includes all patients who discharged home without services (self-care), home with home health services, home with outpatient services and discharges to assisted living facilities (RTI International, 2016).

**Analysis**

Results will be analyzed descriptively using the JMP software. Baseline demographic data will be analyzed using discharge location as the dependent variable. Where applicable, \( P \) values were obtained using one-way ANOVA and Fisher’s Exact test. Descriptive statistics will be used to compare intervention groups to controls, including frequencies and distributions. Sample size was too small for
hypothesis testing, but this analysis should be performed in the future using discharge location as dependent variable and functional improvement as the independent variable.

**Ethical Considerations**

University of New Hampshire (UNH) Internal Review Board (IRB) approval was sought, but not required after review from the Board determined this project was quality improvement and not research. IRB approval will also be sought by the organization in which the project was conducted, and was approved. Ethical considerations with this project will include protection of personal health information (PHI). Organizational policy regarding Federal HIPAA rules and regulations, NH State Law and Medicare’s Conditions of Participation (NH RSA 151.21 and CFR 164.508-165.514.) will be followed as outlined in internal hospital-wide policy “Confidentiality of Patient Information, Access to Patient Health Information”. Due to the nature of the project, special considerations such as HIV/AIDS status, substance abuse and mental health, sexually transmitted diseases and genetic testing results, will not be applicable. All patients under study are protected by HIPAA and authorize consent to treat on admission. All data collected as part of this project will be collected according to the standards of privacy and confidentiality as outlined in internal policy. Any transcription of data will be de-identified. No patient-identifying information shall leave the building. The risks to patients participating in this project is no different than the risks of patients receiving standard care. All electronic files of patient information will be password-protected and only accessible to the project implementation team.

**Results**

Table 2 includes the outcomes for hip fracture patient’s pre and post implementation of the pathway. Again, the historical data was taken from the previous calendar year.
### Table 2:

**Hip Fracture Outcomes Pre & Post Intervention**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Historical Hip Fracture</th>
<th>Hip Fracture Pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Admit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>266</td>
<td>27</td>
</tr>
<tr>
<td>Length of Stay (days)</td>
<td>11.5 (4.2)</td>
<td>13.1 (3.6)</td>
</tr>
<tr>
<td>FIM cognitive</td>
<td>22.4 (5.8)</td>
<td>22.1 (5.6)</td>
</tr>
<tr>
<td>FIM Motor</td>
<td>29.3 (10)</td>
<td>29.2 (9.2)</td>
</tr>
<tr>
<td>FIM Total</td>
<td>53.6 (14.8)</td>
<td>52.9 (13.4)</td>
</tr>
<tr>
<td>FIM cognitive</td>
<td>25.3 (5.64)</td>
<td>25.9 (6)</td>
</tr>
<tr>
<td><strong>D/C</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIM Motor</td>
<td>48.1 (17.4)</td>
<td>52.5 (16.9)</td>
</tr>
<tr>
<td>FIM Total</td>
<td>76.9 (22.8)</td>
<td>81.6 (4.7)</td>
</tr>
<tr>
<td>FIM Change (D/C-Admit)</td>
<td>22.5 (16.4)</td>
<td>28.7 (16.4)</td>
</tr>
<tr>
<td><strong>D/C Community (Home or Home with Services)</strong></td>
<td>156 (58.6%)</td>
<td>21 (77.8%)</td>
</tr>
<tr>
<td><strong>D/C to Skilled Nursing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility</td>
<td>82 (30.8%)</td>
<td>5 (18.5%)</td>
</tr>
</tbody>
</table>

The minimal variation in admission FIM® suggests that the disability level of historical cases versus current cases is similar. Improvements in discharge FIM® scores post-implementation suggest that improvements made to the functional status of the patient, or improvements in use of the FIM® tool itself, resulted in this change. Also important to note is the increase in length of stay (LOS) pre and post implementation period. In order to control for increased LOS in influencing discharge FIM® scores, the
FIM® change is divided by the LOS to determine the metric of “FIM® efficiency”. The FIM® efficiency scores pre and post implementation are 1.95 and 2.19, respectively. This modest increase in FIM® efficiency suggests that the results of the positive FIM® discharge scores were not the result of increasing length of stay alone. Although this modest increase in patient functional outcomes is promising, the largest change that occurred as the result of the pathway implementation is the improvements in discharge to community settings.

In order to better understand this increase in discharges to community settings, and to control for the impact of systematic practice change variation, hip fracture pathway patients were compared to all other non-pathway patients for the same implementation period.

Table 3 shows the functional and discharge location outcomes for the implementation period for patients on the pathway and patients not on the pathway.
Table 3:

Outcomes During Implementation Period

<table>
<thead>
<tr>
<th>Measure</th>
<th>Total</th>
<th>Non-Pathway Patients</th>
<th>Pathway Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>1065</td>
<td>1038</td>
<td>27</td>
</tr>
<tr>
<td>Length of Stay (days)</td>
<td>12.4 (6.8)</td>
<td>12.4 (6.9)</td>
<td>13.1 (3.6)</td>
</tr>
<tr>
<td>FIM cognitive</td>
<td>23.4 (6.2)</td>
<td>23.5 (6.2)</td>
<td>22.1 (5.6)</td>
</tr>
<tr>
<td>FIM Motor</td>
<td>32.6 (21.1)</td>
<td>32.6 (12.1)</td>
<td>29.2 (9.2)</td>
</tr>
<tr>
<td>FIM Total</td>
<td>58.2 (16.9)</td>
<td>58.3 (16.9)</td>
<td>52.9 (13.4)</td>
</tr>
<tr>
<td>FIM cognitive</td>
<td>27.2 (5.7)</td>
<td>27.2 (5.7)</td>
<td>25.9 (6)</td>
</tr>
<tr>
<td>FIM Motor</td>
<td>54.8 (18.9)</td>
<td>54.9 (18.9)</td>
<td>52.5 (16.9)</td>
</tr>
<tr>
<td>FIM Total</td>
<td>85.7 (24.3)</td>
<td>85.8 (0.75)</td>
<td>81.6 (4.7)</td>
</tr>
<tr>
<td>FIM Change (D/C-Admit)</td>
<td>27.5 (15.3)</td>
<td>27.5 (15.2)</td>
<td>28.7 (16.4)</td>
</tr>
<tr>
<td>D/C Community (Home or Home with Services)</td>
<td>732 (68.7%)</td>
<td>710 (68.4%)</td>
<td>21 (77.8%)</td>
</tr>
<tr>
<td>D/C to Skilled Nursing Facility</td>
<td>217 (20.4%)</td>
<td>212 (20.4%)</td>
<td>5 (18.5%)</td>
</tr>
</tbody>
</table>

The increase in length of stay for patients on the pathway is an obvious deviation from usual care. Also important to note as well is the dramatic difference in admission FIM® scores from pathway and non-pathway patients. This suggests that pathway patients enter rehabilitation with a greater burden of care than the general population, which could in part explain the increase in length of stay. Using the same methodology to determine FIM® efficiency as a means to control for variation in length of stay, we
actually observe a mild decline in FIM® efficiency for pathway patients versus the general population of 2.20 and 2.22 respectively.

Again, we see a large variation in discharges to community settings from patients on the pathway and patients not on the pathway. Since we cannot point to functional gains or increasing length of stay as the cause for this variation, this increase in discharges to community settings must be the result of other consequences of the pathway; such as the interprofessional collaboration and enhanced discharge planning activities.

**Summary**

The improvement of FIM® scores and increase in discharges to community settings for historical versus current hip fracture cases is likely the result of systematic changes to clinical care delivery. The little variation in admission FIM® scores for this population suggests that the inter-rater reliability likely remained consistent and therefore could not be a probable explanation for the changes in FIM® discharge improvement in pathway patients versus historical baseline. The modest improvement in FIM® efficiency scores for the intervention group versus the historical hip fracture cases demonstrates functional improvement overall regardless of patients length of stay. When we couple that improvement with the fact that the hip fracture intervention group actually performed slightly less favorably to the usual care group during the same implementation period, we can reasonably conclude that improvements in overall function in hip fracture patients from baseline was not the result of the pathway itself, but from systematic changes to care delivery that impacted all patients.

The improvement of discharges to community settings without a resulting improvement in overall FIM® scores when the intervention group was compared to the usual care group was the most surprising finding. Since we are not able to point to FIM® improvements as a casual factor for this increase, we must conclude that those increased scores were the result, not of the pathway itself, but the
HIP FRACTURE PATHWAY

Interprofessional teamwork, collaboration and enhanced discharge planning that occurred as a result of its development and implantation.

**Interpretation**

Although this study was able to identify sequenced activities to direct patient care, we cannot draw conclusions as to the impact of the specific interventions on patient functional achievements and long-term effects such as morbidity and mortality. In regards to the identified project aims, at this time, we cannot point to improvements in FIM® scores as an influencing factor, we can potentially infer that the hip fracture pathway had an impact on discharges to community settings, however, the small post-implementation sample size limits the ability to draw firm conclusions. A consistent theme throughout the literature suggests that an interprofessional approach to patient recovery can improve outcomes in the acute setting, and that a post-acute and interprofessional approach can maximize patient functional abilities over time. Although not formally measured, the impact of the interprofessional collaboration on discharges to community settings shows promise for future research and scalability to other diagnostic groups in the inpatient rehabilitation setting. Systems-level interventions designed to improve teamwork and interprofessional collaboration may be more beneficial and efficient than designing and monitoring disease-specific pathways that show mixed potential for improvement in outcomes. Taking into account the context of the organization under study, the design of the physician-led rehabilitation model and implementation of location-based care teams that are already in place would position the organization favorably for systems-level change in discharge planning and care transitions improvements.

**Limitations**

The sample size of this study is too small to determine statistical significance to other populations. This work was limited to patients in the inpatient rehabilitation setting only, although the interventions could be implemented at additional levels of care at organizations with direct daily physician and therapy oversight. Care was taken to ensure that the intervention group was compared to a control group for the
intervention period to determine if changes in FIM® scores were the result of systematic practice changes or the new pathway. Systems changes clearly had an impact on FIM® outcomes, although it is unclear how those practice change interventions affected hip fracture patients specifically, and exactly which interventions had the most impact on the FIM® scores. This project also assumed scoring on the FIM® tool itself was consistent across disciplines. Variations in the interrater reliability on FIM® scoring by discipline or by individual user may have had an impact on the findings, and should be considered a limitation of this project.

**Conclusion**

Although the hip fracture tool itself had inconclusive results, the impacts of the effects on teamwork and enhanced coordination of the care team was realized through reducing institutionalized days for hip fracture patients in acute rehabilitation. Interventions to improve teamwork and interprofessional collaboration can be beneficial in any patient care setting. Care should be taken to directly link specific interventions to care outcomes. Practice implications for the care of the traumatic hip fracture patient in the rehabilitation setting should include assessing and improving interprofessional collaboration of the rehabilitation team. Designing a pathway may assist in the development of the collaborative process, but the effects on patient outcomes remains unclear. Efforts to sustain this project include the development of a hip fracture pathway champion to serve as the team leader, similar to role of the DNP student in this pilot. Efforts should be made to reduce the amount of manual data tracking and daily monitoring of incomplete entries in documentation through use of electronic documentation systems, if available.
References


## Traumatic Hip Fracture Rehabilitation Clinical Pathway

**Interventions and care pathway to be supported by physician orders**

<table>
<thead>
<tr>
<th>Date</th>
<th>Days 1-3</th>
<th>Days 4-8</th>
<th>Rehab Days 1-10</th>
</tr>
</thead>
</table>
| **OBJECTIVES** | - Progress of function  
- Prevention of harm  
- Management of ongoing medical conditions  
- Mitigate patient risks and deficits related to hospitalization  
- Promote mobility and pain management  
- Assess and prevent cognitive dysfunction  | - Address factors related to the cause of the trauma  
- Maintain mobility and pain control  
- Prevention of falls  
- Engagement of patient and family in plan of care  | - Prepare patient/family for discharge  
- Ensure post-discharge wrap-around services in place  
- Maintain safe care transition using evidence-based best-practice  |
| **Discipline** | Physician  
Assessment and prevention of hazards of hospitalization, including VTE prophylaxis, multi-modal pain management, bowel regimen, restoration of sleep-wake cycle  
Assessment and prevention of cognitive decline (use of CAM)  
Minimize use of opioids for pain control  | Consider interdisciplinary consultations as appropriate, including: Visits clinic, therapeutic recreation, Speech therapy, Pharmacists, Dietitian, Psychology, etc.  
Monitor lab values, CBC, BMP  | Complete medication reconciliation prior to discharge  
Complete required paperwork to transition patient to the next level of care  
Refer patients to appropriate outpatient services (e.g., physical therapy, pulmonary rehab, cardiac rehab, if appropriate)  
If patient is discharging to SNF, arrange all appropriate controlled substance prescriptions are included to minimize disruption in medication delivery times  |
|  | Nursing  
Assessment and prevention of cognitive dysfunction (i.e. delirium) through screening and prevention measures  
Encourage mobility by ensuring patient is out of bed for meals and transfer-training  
Ensure adequate intake through monitoring of H/O and encouraging PO fluids, as appropriate  
Restoration of elimination regularity through frequent bowel/bladder monitoring  
Continuous monitoring of patient self-reported pain and frequent assessment of treatment effectiveness with overall goal of reducing utilization of opioid pain medication  
Continuous monitoring of co-morbid medical conditions  
Efforts to minimize hazards of hospitalization such as prevention of PNA, VTE, falls, and pressure ulcers through use of screening tools and evidence-based interventions  | Continuation of daily monitoring and address any barriers to progress as identified by the interdisciplinary team  | Ensure satisfactory patient/family “teach back” for all education materials  
Ensure transition to next level of care is supported by best practice interventions (e.g. warm hand-off, thorough medication reconciliation)  |
|  | Physical Therapy  
Ensure pain control with initiation of ice and assessment of pain pre and post therapy  
Encourage patient pain self-report/management  
Prevention of cognitive dysfunction through collaboration with nursing on delirium prevention measures  
Ensure appropriate VTE prophylaxis  | Establish initial home exercise program (HEP) including patient education and documentation tools for self-management  
Balance and coordination activities, as appropriate  
Assess patient for ability to transfer safely with nursing/support staff separately as it relates to tolerating Education on WB restrictions, fall safety  | Establish group therapy if patient unable to maintain consistency with HEP  
Implement full HEP program including instructions on completion of tasks listed for discharge  
Encourage family at the bedside to observe and participate in therapeutic activities  
|  | Occupational Therapy  
Prevention of cognitive dysfunction through collaboration with nursing on delirium prevention measures and completion of evidence-based screening tools  
Education on fall safety; patient/family education for hazards of hospitalization including screening and prevention of pressure ulcers  
Continuous monitoring of patient self-reported pain and frequent assessment of treatment effectiveness  | Encourage mobility by ensuring patient is out of bed for meals, and evaluation of tolerating with least assistive device (i.e. commodes)  
Offering the option to use a chair with arms (e.g., commodes)  
Establish initial home exercise program (HEP) including use of upper extremity mobility and tools for self-management  
Address lower extremity dressing with assistive device  
Balance returning exercises  | Determine home accessibility barriers through collaboration with the patient/family and schedule home visit, if appropriate  
Ensure patient is ambulating to toilet with all disciplines  
Establish group therapy if patient unable to maintain consistency with HEP  
Address lower extremity dressing with assistive device  
Balance returning exercises  |
|  | Case Management  | Assess current patient supports in the community including outside agencies, family supports, and other relevant providers (i.e. behavioral health)  
Facilitate family presence at the bedside  
Request all legal documentation regarding patient  
Directives, Powers of Attorney, and working insurance applications  | Assess current status of legal documentation and plan for completion  
Assiste for discharge placement and begin family teaching (home care, SNF, AL, etc.)  
Ensure OLPT assistive devices recommendations are coordinated with patient/doctor  
Assess for food security at discharge and plan to address  | Ensure alternative discharge plan in place for patients going home  
Plan for post-discharge case management (i.e. follow-up phone calls, PEP appointments, inpatient rehabilitation, OP referral appointments made)  
Consider team discharge with therapy and pharmacy for high-risk patients  |

**Note:** The above table outlines the objectives and interventions for each discipline involved in the rehabilitation process of a patient with a traumatic hip fracture, emphasizing care pathways and goals to optimize patient outcomes and facilitate safe and effective transitions. The document provides a structured approach to managing patient care, incorporating interdisciplinary collaboration and evidence-based best practices to ensure comprehensive and patient-centered care.
## Appendix B

### HIP FRACTURE PATHWAY - DAYS 1-3

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
</table>

**Comments**

### Physician
- If pain is consistently >4, or if pain is interfering with therapy consider scheduled opioid at lowest dose
- Consider supplementation of Calcium and Vitamin D as appropriate
- Consider lab profile to assess CBC and Chem-7 post-admission
- Address VTE prophylaxis
- Assess bowel regimen, ensure medications are scheduled unless contraindicated
- Minimize use of opioid pain medications unless pain is interfering with therapy
- Order ice 5x/day and PRN
- Consider scheduled Acetaminophen (if not contraindicated)
- Consider Celebrex, if indicated to minimize opioid use especially in patients at risk for falls

### Nursing
- Delirium prevention interventions
- OOB for meals
- No bedpans/urinals
- Encourage use of 15
- Skin Assessment QD
- Assess pain logs for effectiveness before/after therapy
- I & O
- Monitor bowel
- Notify physician if pain >4 x 2
- CAM Assessment daily, if y, then Q shift, notify MD of any change in mental status
- Assess for Foley removal
- PVRs x 1, initiate protocol if 1
- Initiate Hip Fracture education
- Orthostatic vital signs X 1

### PT
- Address toileting (no bedpan/urinal)
- Fall safety education
- OOB for meals
- Encourage patient pain self-management
- Venodone boots in use
- Assess for TEG or OOB as appropriate
- Incentive spirometry in use
- Establish initial HEP, glide soap, quad, ankle pumps
- Establish HEP on HEP tracking grid
- Balance and coordination activities
- Iceing if appropriate
- Assess for transfers w/ nursing
- Effectiveness of multi-modal pain control
- Education on WB restrictions/ precautions
- Admit T.U.G & Functional Reach

### OT
- Address toileting (no bedpan/urinal)
- Fall safety education
- OOB for meals
- Daily skin assessment
- MoCA Assessment (day 1)
- Assess need for commode if necessary (day 1)
- Shower level ADL assessment
- Establish HEP for upper extremities
- Establish HM Tracking Grid
- Address lower extremity dressing w/ AE
- Balance retraining exercises
- Effectiveness of multi-modal pain control

### CM
- Access current community supports
- Identify common caregivers, i.e., FSN/A
- Schedule caregiver observation
- Identify community MRI provider, if applicable
- Request Advanced Directives
- Request DPOA paperwork if available
- If appropriate, start Medicaid application process

**Physician:**

**Nurse:**

**Primary OT:**

**Primary PT:**

**Case Manager:**

**RN:**

---

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<table>
<thead>
<tr>
<th>HIP FRACTURE PATHWAY - DAYS 4-6</th>
<th>Day 4: ________  Day 5: ________  Day 6: ________</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physician</strong></td>
<td><strong>Nursing</strong></td>
</tr>
<tr>
<td>- If pain level is consistently &gt;4, or if pain is interfering with therapy consider scheduled opioid at lowest dose</td>
<td>- Delirium prevention interventions</td>
</tr>
<tr>
<td>- Assess bowel regimen, ensure medications are scheduled unless contraindicated</td>
<td>- OOB for meals</td>
</tr>
<tr>
<td>- Minimize use of opioid pain medications unless pain is interfering with therapy</td>
<td>- Encourage patient self-management</td>
</tr>
<tr>
<td>- CAM Assessment daily; if +, then Q1 shift, notify MD of any change in mental status</td>
<td>- Venectomy boots in use</td>
</tr>
<tr>
<td>- Assess pain logs for effectiveness before/after therapy</td>
<td>- Incentive spirometry in use</td>
</tr>
<tr>
<td></td>
<td>- Icing if appropriate</td>
</tr>
<tr>
<td></td>
<td>- Education on WB restrictions</td>
</tr>
<tr>
<td></td>
<td>- Assess for TEDS when OOB as appropriate</td>
</tr>
</tbody>
</table>

**Comments:**

Physician: ____________________________  Hospitalist: ____________________________

Primary OT: ____________________________  Primary PT: ____________________________

Case Manager: ____________________________  RN: ____________________________

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## HIP FRACTURE PATHWAY

**Physician**
- Med Rec day before discharge: please notify nursing, pharmacy and CM
- Complete F/U, pg 1 to be completed by CM (assess for nursing needs vs. PT/OT only)

**Nursing**
- Delirium prevention interventions
- O2S for meals
- No bedpans/urinals
- Encourage use of 15
- Skin Assessment OD
- Hip Fracture education
- Assess pain logs for effectiveness before/after therapy
- I & O
- Monitor bowel
- Notify physician if pain >4 x 2

**Comments**
- CAM Assessment daily: if +, then 0 shift, notify MD of any change in mental status
- Complete teaching record, ensure patient has all d/c paperwork
- Wash/hand off at discharge
- If going SNF, ensure med rec and scripts are faxed 1 day prior to d/c

**Physician:** 
Physician initials: 
Date: 

**PT**
- Address toileting (no bedpans/urinals)
- Fall safety education
- O2S for meals
- Effectiveness of multi-modal pain control
- Encourage patient pain self-management
- Venous boots in use
- Incentive spirometry in use
- Icing if appropriate
- Education on WB restrictions
- Assess for transfers w/nursing
- Assess for TEDS when O2S as appropriate
- Continue to assess full HEP flowchart

**Comments:**

**Physician:** 
Physician initials: 
Date: 

**OT**
- Address toileting (no bedpans/urinals)
- Fall safety education
- O2S for meals
- Effectiveness of multi-modal pain control
- Perform upper extremity exercise program independently
- Address lower extremity dressing w/AE
- Balance retraining exercises
- Daily skin assessment

**Comments:**

**Physician:** 
Physician initials: 
Date: 

**CM**
- SNF paperwork in Crespan for alternative D/C plan for pt going home
- Referral to NRHIC
- Add patient to Case Aid F/U calls list
- Ensure PEP F/U apt was made
- Ensure POLST/MOIST to next LOC

**Comments:**

**Physician:** 
Physician initials: 
Date: 

**Primary OT:** 
Primary OT initials: 

**Primary PT:** 
Primary PT initials: 

**Case Manager:** 
Case Manager initials: 

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