Utilization of the FSS-ICU to Assess Hospital Discharge Disposition

Marcel DiFiore SPT

Amanda Fink SPT

George Fischer SPT

Maria Jordan SPT

Erika Lebron SPT

See next page for additional authors

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Authors

Marcel DiFiore SPT; Amanda Fink SPT; George Fischer SPT; Maria Jordan SPT; Erika Lebron SPT; Alyssa Rieger SPT; Michael Pechulis PT, DPT; and Julie M. Skrzat PT DPT PhD CCS

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Marcel DiFiore SPT, Amanda Fink SPT, George Fischer SPT, Maria Jordan SPT, Erika Lebron SPT, Alyssa Rieger SPT,
Michael Pechulis PT DPT, Julie Skrzat PT DPT PhD CCS

Lehigh Valley Health Network

DeSales University

Introduction

- Admission to an ICU is a life altering event that can result in functional impairments.
- As a result, patients' functional abilities and quality of life post ICU stay is decreased.
- Early identification of patients at risk of developing functional impairments is valuable to allow the healthcare team greater opportunities to implement physical therapy interventions and mobility.
- There are currently few mechanisms for identifying these patients, making it difficult to prioritize follow up physical therapy visits due to constrained resources or measuring effectiveness of interventions.
- However, an emerging method to combat this obstacle is through the use of outcome measures.
- The FSS-ICU is a reliable and valid clinical outcome measure used to evaluate a patient's physical functioning in an ICU setting.

FSS-ICU Score	Criteria	
	Rolling, Supine to Sit, Unsupported Sitting, Sit to Stand	*Ambulation (feet)*
1	Dependent	< 50
2	Maximal assistance	50 – < 150
3	Moderate assistance	150 with 50% assistance
4	Minimal assistance	150 with 25% assistance
5	Supervision or cuing required to complete task	150 with supervision and cuing
6	Modified independent	150 with assistive device
7	Independent	150 independently

- Currently, there is limited research looking into the ability of the FSS-ICU to assist in determining a patient's discharge location.

Aim & Hypothesis

AIM

- To determine if there is a difference between the FSS-ICU scores acquired within 24 hour of a MSICU discharge across hospital discharge locations.

HYPOTHESIS

- There will be a difference in FSS-ICU scores acquired within 24 hours of ICU discharge across hospital discharge locations.

Methodology

Research Design
Retrospective chart review of PI project
Time Frame
10/01/2016 – 09/30/2017
Location
LVHN Cedar Crest

Power Analysis
80% (180 subjects)
Two-tail significant level of .05

Hospital Course
ED → LVHN MSICU → Discharge location
n= 115

Data Analysis
Descriptive statistics
One Way ANOVA
Bonferroni post-hoc

Total Charts Evaluated (n=2075)

Excluded (n=1960)
- Patients transferred to ICU from another hospital, floor, or facility
- Multiple re-admissions within the same time frame
- No discharge record
- Adults unable to consent
- Pregnant women
- Prisoners

Included (n = 115)
- Adults over 18 years old
- Direct admit from home
- Self-reported functionally independent
- Active PT consult
- FSS-ICU ICU discharge score
- Definitive discharge location

Results

PATIENTS' DESCRIPTIVE STATISTICS

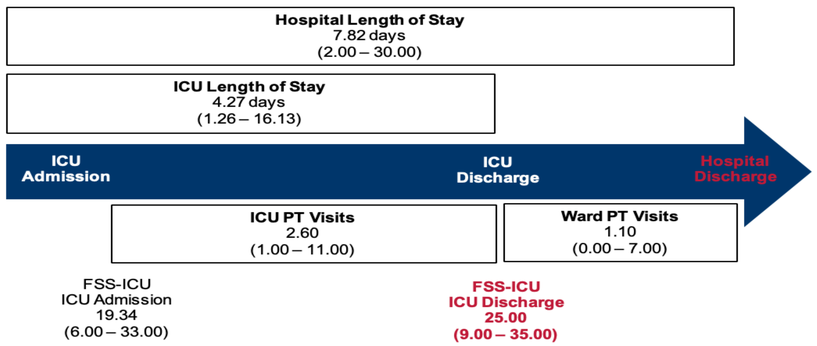
Demographic Data (n=115)

Variable	Mean (SD) [Range]
Age (years)	65.60 (15.79) [22.00 - 94.00]
Sex (male)	71
Body Mass Index	30.00 (8.16) [16.67 – 56.51]

Medical Data

Variable	Frequency (%)	
Diagnosis	Circulatory	9.60
	Respiratory	40.00
	Infectious and Parasitic	8.70
	Nervous	5.20
	Injury/Poisoning/Consequences of external cause	5.20
	Endocrine/Nutritional/Metabolic	15.70
	Mental/Behavioral/Neurodevelopmental	6.10
	Digestive	2.60
	Urinary	2.60
	Other	4.30
Supplemental O_2	Room Air	37.40
	Nasal Cannula	33.00
	Optiflow	20.00
	BiPap	1.70
	Mechanical Ventilation	7.80

PATIENTS' HOSPITALIZATION COURSE



STATISTICAL ANALYSIS

Discharge Location (Frequency)	FSS-ICU Discharge Score Means (Ranges)	One-way ANOVA Analysis	Bonferroni Post Hoc Analysis
Home (71.93%)	27.2 (18 – 35)	F (3,110) = 21.18 p < 0.001	Home vs. SNF: p < 0.001 Home vs. IP: p < 0.001 Home vs. Other: p = 0.005
SNF (16.67%)	19.84 (14-31)		
IP (5.26%)	16.34 (9 – 25)		
Other (6.14%)	20.71 (18 – 23)		

Discussion

- There was a difference in FSS-ICU scores acquired within 24 hours of ICU discharge across hospital discharge locations, demonstrating the FSS-ICU's ability to discriminate between hospital discharge disposition in an acute care hospital.
- Our research provided more functional and usable ranges of FSS-ICU scores. Due to the large sample size of patients discharged home and significant results, patients can be reliably discharged home if they have a score between 28 – 35 at ICU discharge.
- Patients followed a linear pathway throughout their hospital length of stay in order to minimize confounding variables, allowing for a more controlled group during the study.

LIMITATIONS

- A linear pathway is not typical of most patients' hospitalizations.
- Patients self-reported independence for pre-hospital function, which likely contributed to the majority of patients being discharged home.
- Discharge planning is multifactorial. In addition to physical function, social and medical factors also contribute to discharge planning and cannot be accounted for by the FSS-ICU outcome measure.
- Power was not met, however the sample size used was larger than previously reported literature.

FUTURE DIRECTIONS

- Analysis of factors that influence discharge in patients scoring between 19 and 28
- Examine a more heterogenous patient populations including
  - Medical and surgical management.
  - Prior level of function.
- Examine factors that contribute to a meaningful change in FSS-ICU score including
  - Frequency of physical therapy visits in ICU and on ward.
  - Specific physical therapy interventions.

Clinical Relevance

- This study builds upon previously published literature by expanding the sample by size and medical acuity.
- The FSS-ICU successfully discriminated amongst home and other discharge settings by providing a range of scores to aid physical therapists in the clinical decision making of discharge disposition.
- Patients who score at the higher end of the FSS-ICU scale (>28) were more likely to go home.
- With a narrower range of FSS-ICU scores, allocation of physical therapy services will improve based on patients' needs.
- Physical therapy services may be better allocated to patients with lower mobility scores to increase their chances of being discharged home

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KEY: ED: Emergency department. FSS-ICU: Functional Status Score for the Intensive Care Unit. ICU: Intensive care unit. IP: Inpatient rehabilitation. MSICU: Medical surgical intensive care unit. PI: Process improvement. PT: Physical therapy. SNF: Skilled nursing facility.