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Department of Public Health
Bureau of Health Care Safety and Quality
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To: Jane Foley, Associate Chief Nurse
Beth Israel Deaconess Medical Center

From: Eric Sheehan, JD, Interim Director
Bureau of Health Care Safety and Quality

Date: February 16, 2016

Re: Acuity Tool Submission for Intensive Care Unit Registered Nurse Staffing

Thank you for submitting the acuity tool to the Massachusetts Department of Public Health (DPH). After interdisciplinary review of the tool, there were several areas identified that require further clarification, modification or revision. They are:

1. The acuity tool does not specify how scores will be used to calculate the number of nurses or nursing hours required to care for the patient. How do low, medium and high scores translate into nurse staffing hours?
2. The acuity tool does not specify how psychosocial scores of low, medium or high impact clinical scores. Please explain the relationship to the clinical score or overall score calculated.
3. The acuity tool explanation does not specify how frequently staff perform the acuity assessments.

Please amend the acuity tool submission to include supporting documentation for the identified areas and upload the new submission as an attachment to the case file that was initially created in the Health Care Facility Reporting System no later than February 29, 2016. Once these steps are completed then please resubmit the case so that it may be reviewed. If you have any questions then please contact Katherine Fillo at (617) 753-7328 or Katherine.fillo@state.ma.us

1/20/16

Intensive Care Unit: Acuity Tool Certification

Beth Israel Deaconess Medical Center

330 Brookline Ave

Boston MA 02215

ATTACHMENT A

ICU Nurse Staffing Acuity Tool Certification Checklist

1) Is the Acuity Tool in writing, either in electronic or hardcopy format?

a. Yes ☐ No ☐

b. If yes, what format: Electronic ☒ Hardcopy ☐

2) Does the Acuity Tool include a method for scoring a defined set of indicators, which shall include Clinical Indicators of Patient Stability and other Indicators of Staff Nurse Workload?

a. Yes ☒ No ☐

b. What type of ICU is the Acuity Tool going to be used in? — See attached.
(print ICU type) CVICU, CCU, TSICU, SICU, MICU

c. If yes, does it include Clinical Indicators of Patient Stability, as defined in regulation?
Yes ☒ No ☐

If yes, which indicators are included, as defined in regulation:

1. Physiological status Yes ☒ No ☐

2. Clinical complexity Yes ☒ No ☐

3. Related scheduled procedures Yes ☒ No ☐

4. Medications and therapeutic supports appropriate to the ICU Patient population in the ICU in which the Acuity Tool will be deployed. Yes ☒ No ☐

d. If yes, does it include other Indicators of Staff Nurse Workload, as defined in regulation?
Yes ☒ No ☐

If yes, which indicators are included, as defined in regulation:

1. Patient age, including gestational age as applicable, and cognitive/functional ability.
Yes ☒ No ☐

2. Patient and family communication skills and cultural/linguistic characteristics.
Yes ☒ No ☐

3. Need for patient and family education. Yes ☒ No ☐

4. Family and other support for the patient. Yes ☒ No ☐

5. Need for care coordination. Yes ☒ No ☐

6. Transitional care and discharge planning required for the patient. Yes ☒ No ☐

3) Based on the information provided in sections 1 and 2, is the Acuity Tool tailored to the unique care needs and circumstances of the patient population in the ICU? Yes ☒ No ☐

4) Are there requirements specified in the guidance of the Commission to be considered?

Yes ☐ No ☐

? unclear what is meant by this question

Intensive Care Unit: Acuity Tool Certification

Institution Name:	Beth Israel Deaconess Medical Center
Hospital Contact Name: Title: E-mail Address: Phone Number:	Pat Folcarelli RN, PhD Sr. Director, Patient Safety Silverman Institute for Health Care Quality and Safety Beth Israel Deaconess Medical Center (617) 632-8174 fax (617) 632-0369 pfolcare@bidmc.harvard.edu Jane Foley, RN, BSN, MHA Associate Chief Nurse Critical Care & Med/Surg Inpatient Units Patient Care Services Lois E. Silverman Department of Nursing Beth Israel Deaconess Medical Center Boston, Ma 02215 617-632-7176 jfoley@bidmc.harvard.edu
Name of Proposed Acuity Tool:	Nursing Intensity Score
Acuity Tool Format:	Electronic (data pulled from the EMR)
Intensive Care Units in which the acuity tool will be deployed:	Cardiovascular Care Unit Coronary Care Unit Trauma Surgical ICU Surgical ICU Medical ICU – 6 Medical ICU -7 Medical/ Surgical ICU- Finard 4

I. Acuity Tool Description

BIDMC has adopted an acuity measurement tool, the Therapeutic Intervention Scoring System 28 (TISS-28 modified) for this purpose and as a guide for nurse/patient assignments in the intensive care units. The TISS – 28 was developed as a means for considering and

classifying the nursing workload in relation to the acuity of patient illness. The scoring of the TISS – 28 was slightly modified and updated to include the newer technologies currently utilized in ICU's, validation of the tool was performed by ICU staff nurses. At BIDMC we will have the ability to calculate scores at the patient level by pulling electronic data points from the patient record without the need for staff nurses to manually score the acuity/intensity. This score will be displayed for the nurses to view when planning staffing. We have also added an additional 2 questions related to cognitive status, family and other social needs to assess intensity in those domains. These will be a part of the electronic documentation tool and will also be considered when assessing nursing therapeutic intensity. BIDMC has utilized the TISS – 28 in two recent studies related to care in the BIDMC ICU's to assess factors associated with harm events. This was part of work done to identify "Risky States" for ICU patients as work funded by the Gordon and Betty Moore Foundation. The language of the TISS – 28 was slightly modified and updated to include the newer technologies currently utilized in ICU's.

II. Methodology for Scoring Acuity

Each patient in the Adult Intensive Care Units at BIDMC will have the intensity of their nursing needs assessed using the TISS - 28 which employs a defined set of Clinical Indicators of Stability.

The Adult Units at BIDMC include: MICU, Trauma SICU, SICU, Neuro SICU, Cardiovascular ICU, Coronary Care Unit, and one combined MICU/SICU. There are currently 77 ICU beds in these units. The same tool will be utilized by all units.

Each patient will receive a score. Scores are calculated by an automated extraction from the ICU on line documentation system. Patient scores can range from 12-90 points.

So, for example - Patient's with TISS of 12 -25 are considered lower workload (example: called out patient that required only oxygen assisted breathing device). Those with scores of 26-36 are considered moderate workload (e.g., critical but stable patient that requires ventilator support, single vasoactive drug, over 1.5L of blood, single bedside, and travel to the OR). Finally, scores of 37-90 are considered high workload (e.g., critical and unstable patient that required ventilator support, tracheotomy tube, multiple vasoactive drugs, over 1.5L of blood, arterial catheter, one-to-one care, central venous line, treatment for acidosis, single bedside procedure, and travel to the OR).

The psychosocial and care coordination needs related to communication skills, cultural/linguistic characteristics, need for education family/patient, need for support family patient, transitional care planning will be extracted from the online medical record. Scores can range from 3- 9 indicating high, medium or low psychosocial and care coordination needs. This additional calculation will also be displayed for each patient on the electronic dashboard along with TISS – 28 score.

All patient level scores will be electronically updated every 15 minutes capturing the changing clinical and psychosocial needs of a critical care patient. Staff will have continual access to the acuity dashboard.

We recognize that the acuity score is a guide and does not replace sound nursing assessment and judgment of a patient's intensity of needs. For example, patients with complex communication needs, complex family education needs, highly complex coordination requirements or transitional needs will all be considered at the bed meeting by the staff when assigning patients.

In any instance where the acuity score is inconsistent with the clinical nurse's assessment and judgment regarding the ratio of nurse to patient, the conflict will be resolved in consultation with the Nursing Director or their designee, and as appropriate other clinical nurses with consideration of the ICU skill mix, ICU census and other contributory environmental factors.

III. Indicators Included

Clinical Indicators of Patient Stability	
<input checked="" type="checkbox"/>	Physiological status
<input checked="" type="checkbox"/>	Clinical complexity*
<input checked="" type="checkbox"/>	Related scheduled procedures
<input checked="" type="checkbox"/>	Medications and therapeutic supports
Indicators of Staff Nurse Workload	
<input checked="" type="checkbox"/>	Patient age
<input checked="" type="checkbox"/>	Patient and family communication skills and cultural/linguistic characteristics
<input checked="" type="checkbox"/>	Patient and family education
<input checked="" type="checkbox"/>	Family and other support
<input checked="" type="checkbox"/>	Care coordination
<input checked="" type="checkbox"/>	Transitional care and discharge planning

See attached document & screen shots describing the indicators and weighed scores.

*Note: Clinical complexity is a composite of all defined indicators.

IV. For the ICU(s) listed above, please briefly describe how your acuity tool meets the unique care needs and circumstances of the patient population in that ICU

The Nursing Intensity Tool is designed to electronically capture indicators of workload from the EMR. All of the indicators that are standard of care for a critical care patient are included but not limited to: physiological monitoring, complex medication administration, care of drains & tubes, routine and complex dressing changes, psychosocial support and educational needs for patients and families across all of our service specific ICUs. The tool also accounts for service specific ICU care related to both procedures and equipment as described below.

This standard concept allows for flexibility as patients are often admitted and cared for across service lines in critical care.

BIDMC ICU Descriptions		Examples of Unit Specific Acuity Tool Indicators
Cardiovascular Intensive Care Unit (CVICU) is a 16-bed unit specializing in care of patients immediately following cardiac and vascular surgery. Patients require intensive pressure monitoring, hemodynamic management, and ventilatory support.		ECMO (Extracorporeal Membrane Oxygenation) LVAD (Left Ventricular Assist Device)
Coronary Care Unit (CCU) is an 8-bed, state-of-the-art unit specializing in the care of critically ill patients with acute coronary syndromes, advanced heart failure and complex arrhythmias. Patients require invasive pressure monitoring and ventilatory support.		Tandem Heart Artic Sun (Hypothermia Therapy)
Trauma/Surgical ICU is a 10-bed trauma and surgical unit providing highly specialized care to patients who arrive in the ICU from our Level I Trauma ED as well as direct admits from ICU's of outside hospitals. Patients receive multisystem monitoring and management.		Blackmore Massive Transfusion Artic Sun (Hypothermia Therapy)
Surgical ICU/Neuro ICU is a 15-bed unit designed to provide state-of-the-art care for a variety of surgical patients, including transplant, thoracic, neurosurgery and neuromedicine. Patients receive intensive state-of-the-art pre- & post-operative multisystem monitoring and management.		ICP Drain (Intracranial Pressure Drain) Medications requiring specific monitoring
Medical Intensive Care (MICU 6 and MICU 7) are eight bed ICUs specializing in the care of the medical intensive care patient. Nurses care for patients with a wide variety of infectious disease, GI, cardiac and respiratory conditions who require ventilator support and invasive pressure monitoring and support.		CRRT (Continuous Renal Replacement)
Finard 4 (MICU/SICU) is a 12 bed combined medical/surgical intensive care unit caring for general medical and surgical patients requiring critical care intervention and monitoring. Also provides care for specialty populations including hematology, oncology and bone marrow transplant patients, OB/GYN patients, and patients with various gastrointestinal disorders requiring ICU level care including mechanical ventilation and invasive pressure monitoring and intervention.		CRRT (Continuous Renal Replacement) Blackmore Massive Transfusion TPN/OPN

Please see the attached supporting documents.

Therapeutic Intervention Scale Score – 28 (TISS – 28)

Clinical Index:

Category	Points	Comment
Basic Activities		
Standard monitoring	5	All patients get these points
Routine lab draws	1	All patients get these points
Routine medication	2	All patients get these points
Medications requiring specific monitoring (ie Insulin)	3	
Routine dressing changes	1	All patients get these points
Pressure Ulcer care	1	
Care of drains	3	
Ventilatory Support		
On a ventilator	5	
Needs O2 delivery	2	
Has a tracheostomy	1	
Receiving chest PT	1	All patients get these points
Cardiovascular Support		
Single vasoactive medication	3	
Multiple vasoactive medication	4	
1.5 L IVF or blood products	4	
Arterial catheter	2	
Central Venous Line	2	
LVAD, Tandem Heart, Impella, PICO, ECMO, Alsius, Arctic Sun, Heart mate, Blakemore, massive transfusion ordered	8	
Code Blue in past 24 hours	3	
Renal Support		
CRRT	8	
Measuring urine output	2	All patients get these points
Actively diuresing (Lasix etc.)	3	
Neurologic Support		

ICP Drain	4	
Metabolic Support		
Acidosis/Alkalosis	4	
TPN/OPN	2	
Tube Feedings	3	
Specific Interventions		
Single procedure done in the ICU	3	
Multiple procedures done in the ICU	5	
Travel required (OR, Cath Lab, ERCP etc.)	5	

Psychosocial Index:

Acuity Information	Problem List	Pain	Altered Fluid Balance	Altered Respiratory	Impaired Skin Integrity	Impaired Tissue	Infection	Post-op Care in the ICU
<p>Acuity Information</p> <p>Last RASS</p> <p>#Wrong number of arguments or</p> <p>During your shift how would you describe the Nursing Time and Intensity of the following activities:</p> <p>Patient/family support including coordination of social service/interpreter services as needed.</p> <p>Patient/family education including discharge planning and care coordination as needed.</p>								
<div> <input type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low </div> <div> <input type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low </div>								

1. Multiple Vasoactives in MICU

[illegible]

2. CRRT in MICU

8. The Performance Manager ICU Dashboard will display to the clinical bedside staff the clinical acuity score determined by the indicators pulled from the EMR, along with nursing assessment of the psychosocial needs calculated by 2 questions answered by the bedside nurse.

Performance Manager

BIDMC ICU DASHBOARD

FIGU 41	401 - OPEN	402 - MED C=25 PS=4	403 - MED C=66 PS=6	404 - MED C=58 PS=7	405 - MED C=65 PS=7	406 - MED C=21 PS=3	407 - MED C=40 PS=5	408 - MED C=34 PS=4
MICU 6 CG6D	409 - MED C=63 PS=7	410 - MED C=26 PS=4	411 - OPEN	412 - MED C=64 PS=7	0605 - MED C=28 PS=4	0608 - MED C=60 PS=7	0607 - MED C=46 PS=6	0608 - MED C=57 PS=7
MICU 7 CC7D	0601 - MED C=26 PS=4	0602 - MED C=63 PS=7	0603 - NMED C=48 PS=6	0604 - MED C=56 PS=6	0605 - MED C=28 PS=4	0608 - MED C=27 PS=4	0607 - MED C=41 PS=5	0708 - MED C=31 PS=4
CCU FA6B	F618 - CMED C=15 PS=3	F619 - CMED C=74 PS=6	F620 - CMED C=40 PS=6	F621 - CMED C=16 PS=3	F622 - CMED C=48 PS=6	F623 - CMED C=56 PS=7	F624 - CMED C=17 PS=3	F625 - MED C=65 PS=7
SICU CC9B	0672 - SURG C=60 PS=7	0673 - NSURG C=54 PS=6	0674 - NSURG C=15 PS=3	0676 - TSURG C=41 PS=5	0676 - NSURG C=47 PS=6	0677 - NSURG C=48 PS=6	0678 - NMED C=18 PS=3	
CC6C	0601 - NSURG C=64 PS=7	0602 - SURG C=36 PS=4	0603 - NMED C=75 PS=8	0604 - NSURG C=20 PS=4	0605 - SURG C=18 PS=3	0606 - OPEN	0607 - SURG C=39 PS=5	0608 - TRAUM C=30 PS=5
TSICU CC6B	0661 - SURG C=36 PS=5	0662 - SURG C=74 PS=6	0663 - CMED C=37 PS=5	0664 - SURG C=56 PS=7	0665 - SURG C=20 PS=4	0666 - SURG C=50 PS=7	0667 - TRAUM C=43 PS=5	0668 - TSURG C=65 PS=7
CVICU CC7B	0771 - CSURG C=61 PS=7	0772 - OPEN	0773 - CSURG C=62 PS=7	0774 - CSURG C=54 PS=6	0775 - CMED C=27 PS=4	0776 - SURG C=62 PS=7	0777 - OPEN	0778 - CSURG C=42 PS=5
CC7C	0701 - CSURG C=68 PS=8	0702 - CSURG C=24 PS=3	0703 - CSURG C=25 PS=4	0704 - OPEN	0705 - CMED C=76 PS=8	0706 - TSURG C=47 PS=6	0707 - CSURG C=36 PS=4	0708 - CSURG C=39 PS=5

NURSING ACTIVITY

Clinical: Low = 15-25 Mod = 26-36 High = 37-50 Psychosocial: Low = 3-4 Mod = 5-7 High = 8-9

LEGEND	Call Out	Mach Vent	Non-Inj Vent	Proseor	Neg Flu Test	Pos Flu Test	Flu Rx	Hx Flu Rx
			N					

TO: Eric Sheehan JD, Interim Director

Bureau of Health Care Safety and Quality

FROM: Jane Foley, Associate Chief Nurse

Beth Israel Deaconess Medical Center

DATE: February 25, 2016

RE: Acuity Tool Submission for Intensive Care Unit Registered Nurse Staffing

Thank you for your comments and questions regarding our submission to the DPH. We are writing to clarify our initial submission and to respond to your questions.

- 1. The acuity tool does not specify how scores will be used to calculate the number of nurses or nursing hours required to care for the patient. How do low, medium and high scores translate into nurse staffing hours?**

The BIDMC Acuity Tool calculates the Therapeutic Intensity Scale Score for Clinical Intensity, with added assessments of Psychosocial needs. Taken together, these scores stratify patients into three Clinical Intensity ranges that are then further stratified by Psychosocial needs. The attached algorithm should serve to clarify how these scores will be used to assess the need for a one to one assignment vs. a two to one assignment for patients.

- 2. The acuity tool does not specify how the psychosocial scores of low, medium or high impact the clinical scores. Please explain the relationship to the clinical scores or overall score calculated.**

The attached algorithm clarifies how the psychosocial scores will be used in combination with the clinical acuity score to assess the needs for that patient.

- 3. The acuity tool explanation does not specify how frequently staff performs the acuity assessments.**

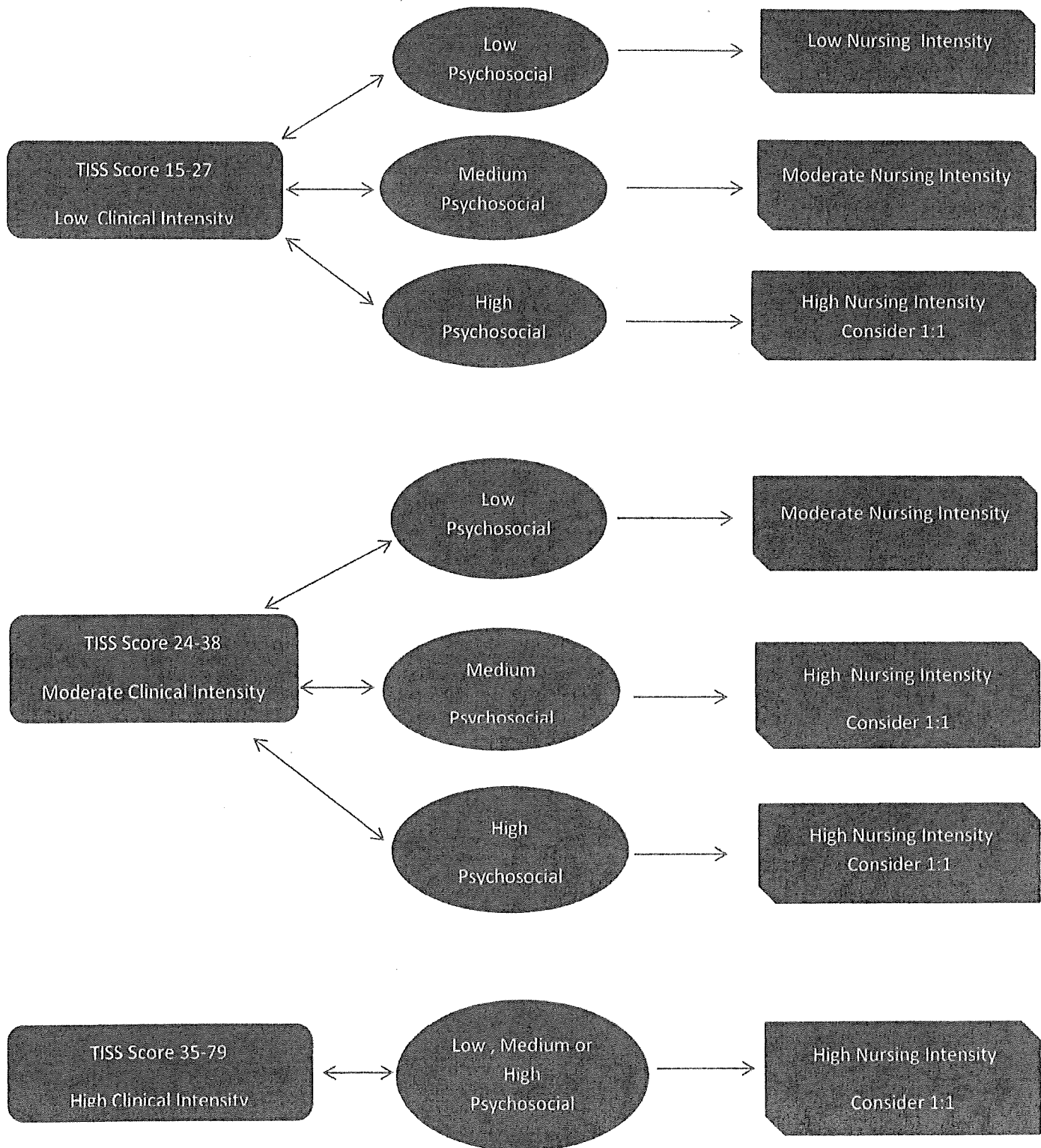
The calculation of the combined Clinical Assessment from the TISS and the Psychosocial Assessment will be reviewed every 12 hours prior to the ICU bed meeting. The ICU Bed Meeting is the point at which the assignments for the following 12 hours are planned. We want to stress that the process for calculating the Clinical Assessment is fully automated and retrieved and updated every 15 minutes from electronic data as documented by the clinical team in the electronic medical record for the ICU. The Psychosocial scores are input by the nursing staff at least once per shift on every patient. These can be updated at any point for changes in status and will similarly be displayed on the ICU electronic dashboard as described in our previous submission.

Respectfully submitted

2/26/16

ICU ACUITY TOOL STAFFING ALGORITHM

***All staffing decisions are based on nursing assessment**



February 22, 2016