

# Developing an Intensive Care Unit Acuity Tool

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## Introduction/Problem

- Patient acuity refers to the physical and psychological complexity of patients.
- Tools have been developed to assess the complexity of a patient assignment, nursing workload, and plan for future staffing patterns.
- The Therapeutic Intervention Scoring System 28 (TISS – 28) was developed in the 1970s as a means of stratifying patients by severity of illness and then evolved as a measure of nursing workload in relation to the nursing needs of the patient.
- Data from the electronic medical record can be pulled from the electronic health record to identify the TISS – 28 score without the need for nurses to manually enter information.
- Massachusetts law requires all ICUs to have an acuity tool to assess the level, intensity, and nursing needs of patients in order to provide appropriate staffing levels.

## Aim/Goal

- *In accordance with Massachusetts General Law regulating nurse to patient ratios in critical care units, we developed a tool and process to approximate acuity and guide patient assignments using bio-psycho-social assessment measures.*

## The Team

- Robert Lombardo MS, RN, CCRN
- Sharon O'Donoghue DNP, RN
- Laura Ritter-Cox MSN, RN-BC
- Moore Grant Nurse Consultants
- Moore Grant Work Groups
- Keith Dietz MHSA, MMIS
- Ayad Shammout
- Ariel Mueller MA
- Acuity Tool Committee Members

## The Interventions

- A modified TISS-28 tool which was developed for another project at BIDMC, was used as a starting point to assess its accuracy.
- Certain technologies were not being addressed in this scoring system as designed and updates were made to reflect this increased acuity and workload.
- One auditor with specific instructions chose one day and scored every patient at that point in time to ensure interrater reliability.
- Once the tool was validated, a developer in the IS department extracted the data from our documentation system and the ICU dashboard was used to display the acuity scores.
- The modified TISS-28 scores were manually compared to patient assignments on every ICU patient to validate if the most highly acutely ill patients were being scored and singled appropriately.
- The scores were stratified into three levels; low 12-25, 26-35 intermediate, and > 36 high giving some guidance as to which patients may require one on one care and which patients may be appropriate for 2:1 care.

## Results/Progress to Date

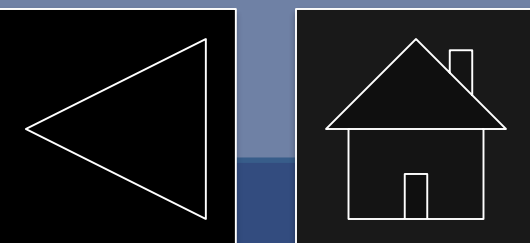
- The capacity dashboard is used to manage throughput at a meeting twice a day where representatives from each ICU meet and share their census and staffing needs to ensure each unit is staffed appropriately.
- The scores are only a guide and provide an objective measure to support nursing judgement while making patient assignments.
- Patient conditions are dynamic and acuity measurement is static and only valid at the time it is measured, so nursing judgement is still utilized ultimately for assignments.

## Lessons Learned

- With changing technology, constant oversight is required to ensure we are updating our documentation system to best represent the acuity of the patient while simultaneously extracting all relevant data points to provide the most accurate facts for staffing.
- Reiterative training to assure all users are entering data consistently.

**For more information, contact:**

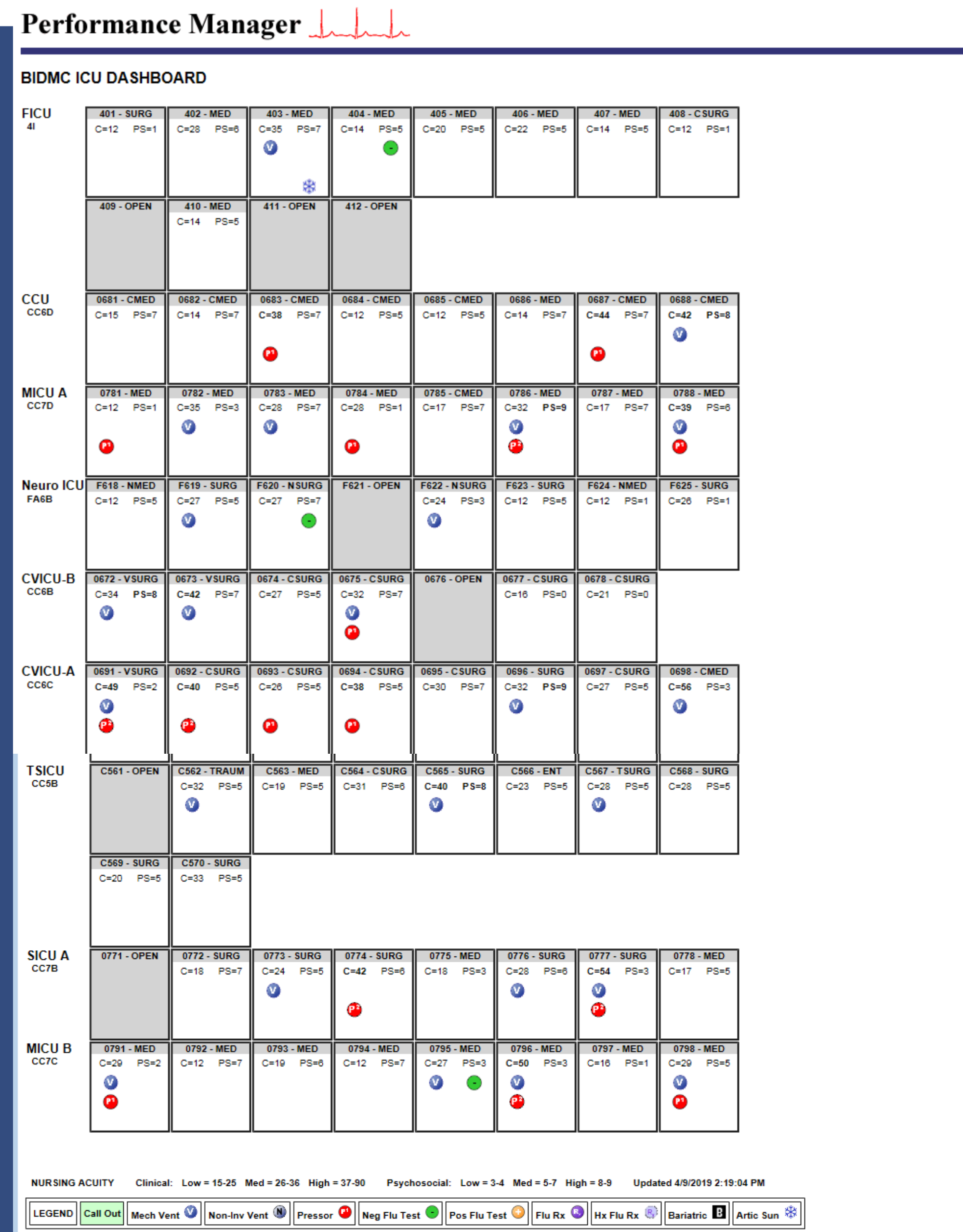
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## More Results/Progress to Date



## Next Steps

- Examine how accurate documentation is currently and assess any need for further user education.
- Review how this acuity tool is being used during the staffing meeting and evaluate areas for improvement.
- Reexamining the TISS-28\* weighting of therapies and possibly adjusting some of the scoring weights for today's technology.
- Possibly interfacing with other scoring systems to provide additional considerations that impact staffing and care delivery such as other complimentary programs/algorithms that impact nurse to patient ratios and assignments.
- Assessing the skill mix of staff and the overall acuity of each ICU may be able to assist the management of allocation of staff across the units in a more efficient manner.

## References

- Massachusetts Rule 958 CMR 8.00 - Bulletin HPC-2015-04, ICU Nurse Staffing Quality Measures
- Katz, A, Andres, J, Scanlon, A. (2018). Application of Therapeutic Intervention Scoring System (tiss) to an Electronic Health Record: A Feasibility Study. Pediatrics. DOI: 10.1542/peds.141.1\_MeetingAbstract.321

➤ ICU Dashboard with all the indicators and Acuity Scoring added

*For more information, contact:*

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