

Quantifying Nursing Workload to Optimize Staffing on an Adult Inpatient Leukemia Unit to Improve Patient Care

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1 Background

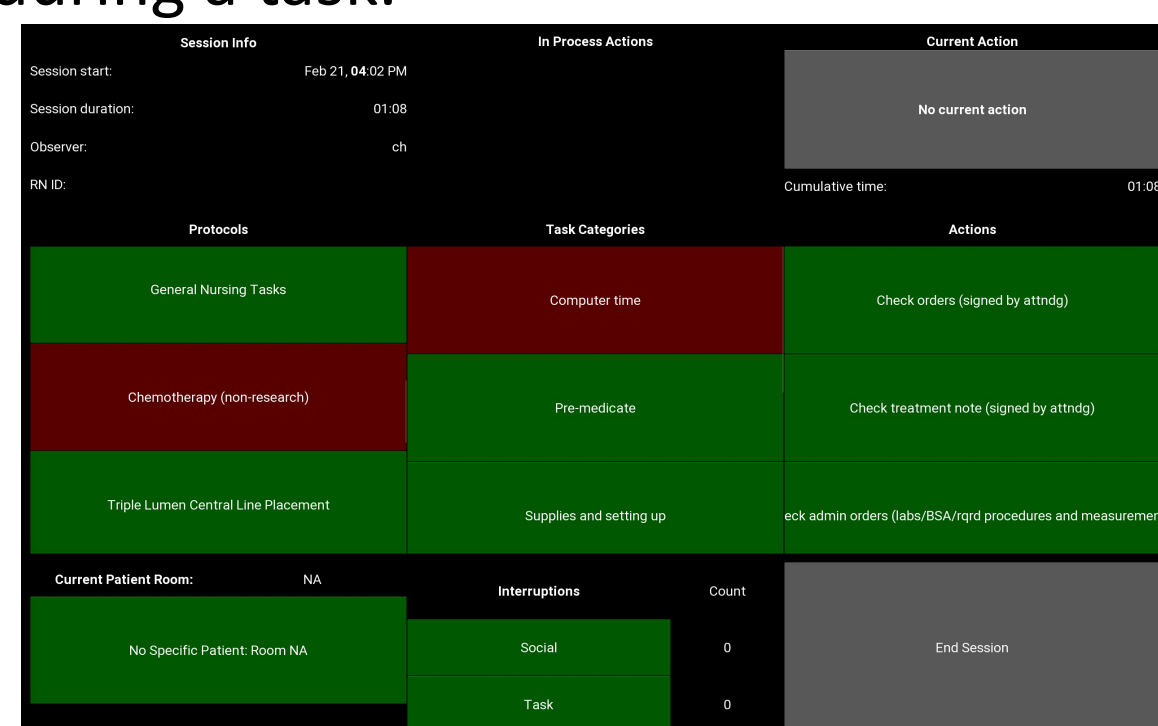
A staffing model change to a National Cancer Institute designated Comprehensive Cancer Center in January 2015, budget restraints, and increased nurse to patient ratios resulted in a nursing exodus. According to Ebright, “83% of nurses agree that improving nurses’ environment and workload promotes nursing retention” (as cited in Sir, Dundar, Steege, & Pasupathy, 2015). Nursing workload is hard to appraise and has yet to be done for an inpatient leukemia specific nursing workforce. As Brennan et al. (2012) points out, information is not reported on the time spent per patient and for individual care needs. By timing leukemia specific nursing tasks we can quantify nursing workload and improve patient outcomes by staffing to ensure excellent patient care and promote patient safety.

2 Objectives

This phase of the project was focused on data collection of leukemia specific nursing tasks. The data will serve to validate the nursing time required to care for leukemia patients during a shift. The timing data can justify necessary staffing levels and the equitable allocation of patient assignments through the creation of an oncology acuity tool.

3 Methods

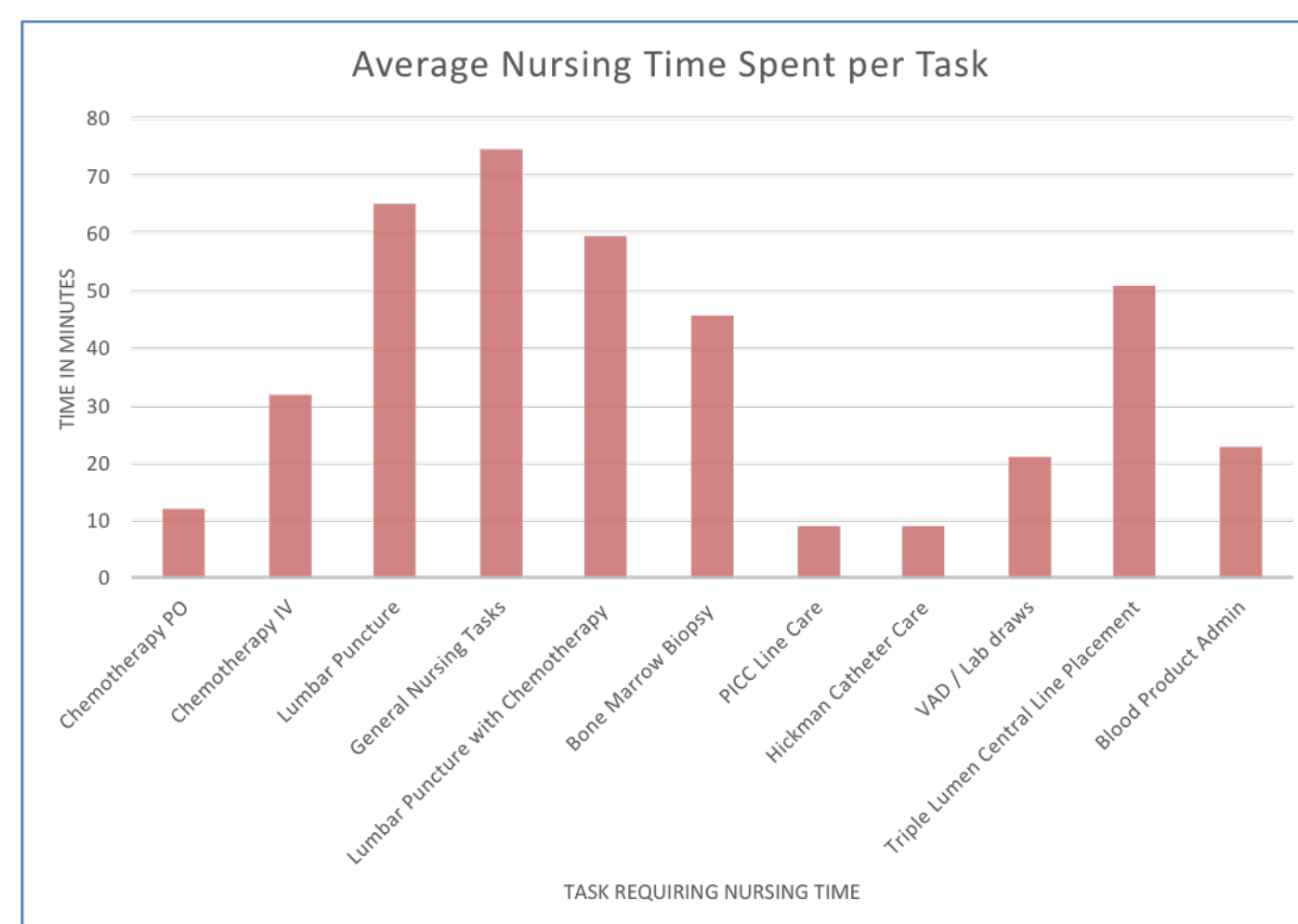
We conducted a time and motion study using a tablet with an application created by the Armstrong Institute for Patient Quality and Safety. The program had categories for specific types of leukemia nursing care. Each category was assigned specific tasks, further broken down into steps of each task. This allowed for each phase of the task to be timed. The program gave the data collector the option to pause a task and track interruptions while timing, as a leukemia nurse is frequently interrupted during a task.



Application created by the Armstrong Institute for Patient Safety and Quality

4 Results

Timing varied between morning and afternoon and was typically done in 3-5 hour shifts to allow for a variety of nursing tasks to be timed. Initially one nurse was followed during a timing shift, but as the need for timing specific time intensive tasks grew it was optimal to coordinate following multiple nurses for individual tasks. This allowed for an increased number and variety of tasks to be timed.



The data above represents the average time spent performing specific nursing tasks. General nursing tasks, lumbar punctures with and without chemotherapy, central line placement and bone marrow biopsies were the lengthiest tasks on average.



When nurses were asked what tasks took up the majority of their time the top three reasons cited were time intensive patients (total care or high fall risk), chemotherapy administration, and IMC (the more acutely ill patients).

5 Conclusions

This phase of the study validated that most leukemia nursing time is devoted to hands on patient care tasks and for procedures such as lumbar punctures and central line placements. It was difficult to capture true allocation of nursing time through the course of a 12 hour shift since data was collected in 3-5 hour time spans, however this allowed for a greater diversity of specific tasks to be timed. Chemotherapy administration includes computer time to validate check lists and timing this process from start to finish was challenging. Nurses often pause to attend to

another nursing task and then come back to complete the check list. The preliminary data shows an opportunity to improve the current staffing model by using the timing data to create a patient assignment for leukemia nurses that is fair and equitable.

6 Future Directions

Continued data collection focused on leukemia specific tasks will help to further demonstrate the need for an oncology acuity tool in regards to allocating patient assignments based on required nursing time. As previously mentioned if the start of a nursing task was already initiated the entire task could not be timed, so there were many chemotherapy administrations that were missed because the corresponding computer time was completed prior to the commencement of timing. General nursing tasks were easiest to time and were timed while waiting for the next leukemia specific task to begin. This resulted in a disproportional amount of data for this category in comparison to the other timed tasks. This data collected could be used as the basis for the creation of an oncology acuity tool and for improving nurse patient ratios based on nursing workload.

7 References

- Brennan, C. W., Daly, B. J., Dawson, N. V., Higgins, P. A., Jones, K. R., Madigan, E., & Van Der Meulen, J. (2012). The oncology acuity tool: A reliable, valid method for measuring patient acuity for nurse assignment decisions. *Journal of Nursing Measurement*, 20(30), 155-185. <http://dx.doi.org/10.1891/1061-3749.20.3.155>
- Sir, M. Y., Dundar, B., Steege, L. M. B., Pasupathy, K. S. (2015). Nurse-patient assignment models considering patient acuity metrics and nurses’ perceived workload. *Journal of Biomedical Informatics*, 55, 237-248. <https://doi.org/10.1016/j.jbi.2015.04.005>

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