How to leverage technology in efforts to decrease urinary catheter time

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Keywords: Urinary Catheter Removal, Technology, CAUTI, Real Time Data

Background: Catheter associated urinary tract infections (CAUTI) account for 30-40% of hospital acquired infections each year.[1] Removal of indwelling urinary catheters is instrumental in improving CAUTI rates. The CNO at our hospital solicited clinical informatics assistance in utilizing technology to increase timely urinary catheter removal. After discussion with bedside nursing staff, it was determined that they found it difficult to easily identify the length of time a catheter has been in place. Clinical Informatics, Quality Management and Information Systems gathered a team to leverage our current technology to provide real time data to nurses in a format that would encourage timely removal.

Method: The workgroup met weekly to leverage the data repository to display to the nurses' homepage a calculation of the elapsed time a catheter was in place for a given patient. The display has come to be known as the 'Foley Clock'. The logic included the date and time of indwelling catheter insertion and the current date and time to calculate the days & hours a catheter was in place. Once a removal was documented, the clock stopped and "NA" populated the field. The logic included the possibility of a removal and re-insertion which would restart the clock. Validation of every patient who had a catheter over a period of several days was done while education of the nursing staff was carried out.. Then the "Foley Clock" was turned on for all to use.

Results: After running the logic for the first time during testing, we discovered an issue with a different date/time of insertion being recorded by multiple RNs over the course of a stay. This was corrected by adding a key that would automatically pull this information forward and only needed to be documented at the time of initial insertion. This change to documentation resulted in more accurate documentation of catheters. Nursing feedback has been tremendously positive both with the change in documentation and providing real time data on elapsed catheter time. Nurses are now requesting more orders for catheter removal from physicians. In the ten weeks since implementation we have seen our CAUTI incidence rate (per 1000 device days) dropped from 4.21 in November to 0.94 in January.

Conclusions and Recommendations: Pushing real time information to nurses in a format that is useful to daily practice, rather than requiring them to retrieve the information, assists nurses to achieve quality patient care. Nurses report that this has made it easier to identify the length of time catheters are in place, and they now have the tools to encourage providers to consider removal. Having an interdisciplinary team involving bedside care providers, clinical informatics, quality management and information system analysts working together allows for better understanding of the problem and potential solutions. Expect the unexpected. One hurdle we did not expect was that we would need to adjust the nursing documentation in order for this process to function properly.

Reference:

[1] Andreeseen, L, Wilde, M.H. & Herendeen, P (2012). Preventing catheter-associated urinary tract infections in acute care: The bundle approach. *Journal of Nursing Care Quality*, 27 (3), 209-217