Title: UNDERSTANDING THE ACCURACY OF CLINICIAN PROVIDED ESTIMATED DISCHARGE DATES FOR SURGICAL VS NON-SURGICAL HOSPITAL ADMISSIONS

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Introduction: Discharge planning can improve the safety and timeliness of discharge from the hospital. It is a vital tool in managing hospital capacity and can have a positive impact on length of stay and efficiency in the hospital, which can be essential for maintaining hospital throughput for surgical postoperative admissions. The decision to discharge a patient from the hospital is governed by many complex factors including patient characteristics, insurance, follow-up, and hospital factors.[1] Early discharge planning, beginning at the time of admission, has been effective in reducing hospital length of stay and readmissions.[2–4] Between 2014 and 2017, Vanderbilt University Medical Center implemented a tool in the electronic medical record (EMR) requiring providers to input the patient's estimated discharge date on each hospital day. We hypothesized that estimated discharge dates would be more accurate for surgical patients compared to medical patients and analyzed the data to identify factors associated with more accurate discharge estimates.

Methods: In this retrospective observational study, we identified admitted adult patients on both surgical and non-surgical services at VUMC between March 2014 and November 2017. Via an analysis of covariance (ANCOVA) approach, we identified the potential factors for more accurate estimates of discharge dates. The primary outcome was the difference between estimated discharge date and actual discharge date, and the primary exposures of interest were the clinical team the patient was admitted to and whether the patient underwent surgery while admitted to the hospital.

Results: A total of 304,802 entries from 68,587 inpatient encounters met inclusion criteria. After controlling for measured confounding, we found that discharge estimates got more accurate as the difference between estimated and actual discharge date narrowed; for each additional day closer to discharge, prediction accuracy improved by .67 days (95% confident interval [CI], 0.66 to 0.67; p<0.001), on average. No difference was observed on the primary outcome of patients receiving surgical procedures, in comparison to non-surgical treatment (0.02; p=0.1106). Faculty members performed best among all clinicians in predicting estimated discharge date with a 0.44-day better accuracy (95% CI, 0.40 to 0.48; p<0.001), on average, than trainees and a 0.24-day better accuracy (95% CI, 0.20 to 0.27; p<0.001), on average, than other staff. Specific clinical care teams, staff types, and discharge dispositions were associated with the variability in estimated discharge date versus actual discharge date (p<0.0001).

Discussion: Prior studies have demonstrated that failure to assign and communicate an estimated discharge date is one barrier to timely discharge planning.[3–5] Given the widespread variation in current efforts to improve discharge planning and the recommended approach of assigning a discharge date early in the hospital stay, understanding provider estimated discharge dates is vital to hospital bed management. We anticipated surgical patients would have higher accuracy in discharge estimates because many surgeries are planned and follow predictable recovery paths. Unlike surgery, most medical patients are not electively admitted for a distinct problem. However, we found no different in discharge prediction accuracy between surgical and non-surgical patients. It is possible that patients were admitted to a medical service, then underwent unplanned surgeries, which may have added variability to discharge estimations. The higher than anticipated variability in discharge estimates for surgical patients may also be attributable to complications associated with surgery. Assessing factors that impact the variability in discharge accuracy can allow hospitals to design targeted interventions to improve discharge planning and reduce unnecessary hospital days.

Conclusion
By understanding the performance of clinicians in estimated discharge dates, we can inform operational decisions around discharge planning, identify specific hospital services and patient factors that are vulnerable to discharge delay, and optimize efficient discharge planning.

References:

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