The First Available Bed may not be the Best Bed

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January 21, 2025

Rushed bed assignments, though understandable due to pressure on hospital capacity, can be detrimental to patient flow and care quality.

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The need to make weighty decisions in a hurry is frequent (some would say inevitable) in the context of acute care hospitals, particularly during periods with high occupancy rates. As tempting as it may be to solve the real and serious problem that is ED boarding, doing so at the expense of a disciplined bed assignment model incorrectly prioritizes urgency over operational excellence and patient safety.

We shouldn't condemn those who choose to relieve one of the most painful manifestations of overcrowding, but we need to acknowledge that said choice is neither sustainable nor productive from a comprehensive site-of-care management perspective. Rushing boarding ED patients to the first available bed is a low-quality operational decision likely to cause the following:

· Worse clinical metrics and adverse events, such as falls with harm and nosocomial infections,

· Worse financial metrics, because avoidable readmissions and unnecessary LOS extensions are generally costly,

· Increased risk of litigation, particularly in the US market,

· Reputational damage to individuals and organizations,

· Ill will between different clinical teams within the hospital, which is likely to fester and undermine other throughput optimization initiatives that require cross-silo cooperation.

In other words, it makes little or no sense to *'solve'* ED boarding by postponing adverse events and merely changing the location where they will happen. Bed assignment exercises that resemble a game of *'hot potato'* will

not yield better capacity management in a sustainable way, while most likely weakening care quality and patient safety.

Designing a decision-support model that allows busy clinical teams to know in advance the safest location for each ED patient that needs to be admitted is far better than the Faustian Bargain referenced above. In turn, that decision-support model requires the use of data analytics in a way that makes them intuitively accessible to clinical teams (ideally in the form of a centralized patient flow squad), so they can avoid the sophistry of a non-existent trade-off between operational efficiency and patient safety.

The example of a mid-size non-profit hospital illustrates how to enact an AI-assisted solution that increases the quality of clinical decisions while yielding shorter LOS. This hospital's ex-ante situation included **40 percent of its patients ending up in the *'wrong bed'* after admission**. They concluded that the first available bed was the *'wrong bed'* almost half the time after realizing how often those patients had to be moved during their stay, which in turn undermined care continuity and increased LOS when some processes had to be re-started after relocation.

One of the causes of suboptimal bed allocation was the sheer number of **unsupported admission decisions the clinical teams had to make on their feet, estimated to be around 6,000 per month** by a clinical leader. Aside from the challenge of volume, the chronological order of the steps in the decision-making process was also off. Patient flow managers on the inpatient side did not receive any advanced warnings from ED clinicians, therefore having to assign beds in a hurry only after the decision to admit was made in the ED.

The hospital's leadership shared a dual mandate with their data analytics partner, in order to define and quantify the aims of the optimized patient allocation project:

· Maximize the number of patients that can be assigned to beds in the specialty unit most compatible with their clinical needs.

· Minimize the use of "contingency beds" for those patients who cannot be placed on beds within the best suited unit.

The data analytics team started by reviewing the operational metrics and clinical outcomes of 50,000 cases of admitted patients (roughly the equivalent of six months for that particular hospital). With the insights derived from that analysis, they crafted an advanced optimization model that

recommends the best placement for each patient, taking into account not just current occupancy level, but also projected occupancy levels during that patient's estimated LOS.

This impressive analytical accomplishment was combined with a deliberate decision about transparency and communication, ensuring that all clinicians and patient flow managers have real-time access to the bed placement recommendations made by the model, so that clinical operations decisions can be made collaboratively, as well as based in a single source of truth. Under this setup, flow managers in relevant units have 90 minutes to prepare beds for patients assigned to them.

Since its implementation, the new bed assignment model has accelerated bed turnover (decreasing ALOS by 6 percent), yielded fewer adverse events and higher patient satisfaction with beds that fit their needs; and greatly reduced the use of "contingency beds".

It is unlikely that the decisions clinical teams need to make will become fewer or less difficult in the near future. It is equally unlikely that they'll have the luxury of time to consider every single factor for each individual patient when assigning them to a bed. Health system leaders who place such a responsibility on their clinicians should strive for data analytics maturity within their organizations, so that the ensuing capabilities can support those who consistently do their best to care for patients.