Improving Healthcare Value: Managing Length of Stay and Improving the Hospital Medicine Value Proposition

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Healthcare payment model reform has increased pressure on healthcare systems and hospitalists to improve efficiency and reduce the cost of care. These pressures on the healthcare system have been exacerbated by a global pandemic and an aging patient population straining hospital capacity and resources. Hospital capacity constraints may contribute to hospital crowding and can compromise patient outcomes.[1] Increasing hospital capacity also contributes to an increase in hospitalist census. This increase in census is accompanied by proportional increases in hospitalist burnout, cost of care, and prolonged length of stay (LOS).[2] Managing LOS reduces "waste" (or non–value-added inpatient days) and can improve outcomes and efficiency within the hospital system.

The benefits for LOS reduction when patients are managed by hospitalists compared with primary care practitioners are well described and are associated with decreases in average LOS and cost.[3-5] The shorter LOS with hospitalist care is most pronounced in older patients with more complex disease processes, which has temporal importance. The Department of Health and Human Services expects the proportion of American adults aged >65 years to approach 72 million (20% of the US population) by 2030. Hospitalists are positioned to drive evidence-based care pathways and improve the quality of patient care in this growing patient population. We examine the reasons for managing LOS, summarize factors that contribute to an increased LOS ("waste"), and propose a list of evidence-based value drivers for LOS reduction (Table).[2,6-17] Our experience utilizing this approach within Cleveland Clinic Florida following implementation of many of these evidence-based strategies to reduce non–value-added hospital days is also described in the Appendix Figure.

WHY MANAGE LOS?

Barriers to sustainable LOS-reduction strategies have evolved, in part, since the introduction of the Medicare Prospective Payment System, which moved hospital Medicare payments to a predetermined fixed rate for each diagnosis-related group. This led to financial pressures on healthcare systems to identify methods to reduce cost and, in turn, contributed to an increase in postacute facility utilization with alternative payment models developing in parallel.[18,19] These changes along with disaggregated payments between hospitals and postacute facilities have created a formidable challenge to LOS and cost-reduction plans.[19]

The usual "why" for reducing LOS includes improving hospital capacity constraints, strains on resources, and deleterious outcomes. In our experience, an evidence-based approach to LOS management should focus on: (1) reduction in patient hospital days through reduced care variation; (2) stabilizing hospitalist workloads; (3) minimizing the fragmentation inherent to the hospitalist care delivery model; and (4) developing service lines to manage patients hospitalized in an observation status and for those patients undergoing procedures deemed medically complex. The literature is mixed on the impact of LOS reductions on other clinical end points, such as readmissions or mortality, with the preponderance indicating no deleterious impact.[20-22] Managing LOS using an evidence-based approach that addresses the variability of individual patients is essential to the LOS strategies employed. These strategies should focus on process improvements to drive LOS reduction and utilize metrics under the individual hospitalist control to support their contribution to the hospitalist groups' overall LOS.[23]

IMPROVING HOSPITALIST VALUE AROUND LOS MANAGEMENT

Intrinsic factors such as hospitalist staffing fragmentation, high rounding census, failing to prioritize patients ready to be discharged, variability in practice, number of consultants ordered per patient, and hospitalist behaviors contribute to increased LOS.[2,6,8] A first precept to management of LOS at the group level is to recognize all hospitalist services are not created equal, and "lumping" hospitalists into a single efficiency metric would not yield actionable information.

The literature is rife with examples of the significant variation in practice styles among hospitalists. A large study including more than 1000 hospitalists identified practice variation as the strongest predictor of variations in mean LOS.[7] While Goodwin et al[7] identified significant variation among hospitalists' LOS and the discharge destination of patients, much of the variation could be attributable to the hospitals where they practice. These findings ostensibly highlight the importance of LOS strategies being developed collaboratively among hospitalist groups and the healthcare systems they serve. Similar variation exists among hospitalists on teaching services versus nonteaching services. Our experience parallels that of other studies with regard to teaching services that have found that hospitalists on teaching services often have additional responsibilities and are

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TABLE. **Value Drivers for Length-of-Stay Reduction Strategies**

Value driver	Evidence-based rationale to address	Implementation strategy	Evidence
Hospitalist fragmentation	Discrepancies between admission and discharge diagnosis increase LOS	Reduce handoffs between hospitalists and consider 7-day clinical blocks	Epstein et al[6]
Hospitalist workload	Increases in both LOS and cost across increasing hospitalist workloads	Develop back-up call plans to maintain a census of 15-18 patients per hospitalist	Elliot et al[2]
Reduce variation in hospitalist practice styles	Increase in LOS and cost associated with variability in hospitalist practice styles	Develop standardized care pathways for common conditions	Goodwin et al[7]
Improve diagnosis accuracy on admission	Discrepancies between admission and discharge diagnosis increase LOS	Dedicated admitting teams and reduce hospitalist workloads	Johnson et al[8]
Geographic cohorting of patients in an observation status	Hospitalist-run observation units may reduce LOS by up to 35%	Develop a high-fidelity model for management of observation of patients in a geographic location	Aplin et al[9]
Improve access to care on the weekends	Most commonly occur secondary to medical delays	Identify where services are lean based on facility needs (eg, echocardiograms, interventional radiology)	Selker et al,[10] Carey et al[11]
Reduce low-value testing, procedures, consults	5% of all avoidable days attributed to delays in testing, procedures, consultation	Design strategies at the healthcare-system level to lower the cost of care and reduce non–value-added consultations	Selker et al,[10] Carey et al,[11] Rohatgi et al,[12] Chen et al,[13] Zoucha et al[14]
Perioperative medicine	Reduction of cost and LOS and increase in quality	Develop co-management services for complex patients requiring specialist care	Thompson et al[15]
Improve quality of care for seriously ill	Hospital palliative care decreases cost and LOS	Education of hospitalist around a palliative care approach and advance care planning	Fail and Meir[16]
Promote mobility	Active prevention of functional decline leads to LOS reduction	Structured mobility program	Hoyer et al[17]
Reduce barriers to discharge	Discharge orders are often delayed because hospitalists are caring for other patients and because of an imbalance between supply and demand for ancillary services	Change rounding styles to prioritize discharges for observations and inpatients, in sequence	Zoucha et al[14]
Discharge delays to post–acute care facilities secondary to challenges in finding a facility	Majority of nonmedical delays are due to difficulty finding a postacute facility	Reduce reliance on post–acute care facilities, increase mobility to promote discharge to home, early identification for placement with early family engagement	Selker et al,[10] Carey et al[11]

Abbreviation: LOS, length of stay.

less able to gain the efficiency of nonresident hospitalists services.[3] The impact of teaching services on hospitalist efficiencies is an important component when setting expectations at the hospitalist group level for providers on academic services.

Workload and staffing models for hospitalists have a significant impact on hospitalist efficiency and LOS management. As workload increased, Elliot and colleagues[2] identified a proportional increase in LOS. For occupancies of 75% to 85%, LOS increased exponentially above a daily relative value unit of approximately 25 and a census value of approximately 15. The magnitude of this difference in LOS and cost across the range of hospitalist workloads was $262, with an average increase in LOS of 2 days for every unit increase in census. Higher workloads contributed to inferior discussion of treatment options with patients; delays in discharges; delays in placing discharge orders; and unnecessary testing, procedures, and consults.[14] To mitigate inefficiency and adverse impacts of higher workloads, hospitalist groups should develop mechanisms to absorb surges in census and unanticipated changes to staffing maintaining the workload within a range appropriate to the patient population.

Decreasing fragmentation, when multiple hospitalists care for the patient during hospitalization, is a necessary component of any LOS-reduction strategy. Studies of pneumonia and heart failure have demonstrated that a 10% increase in hosptialist fragmentation is associated with significant increases in LOS.[24] Schedules with hospitalists on 7-day rotating rounding blocks have the intuitive advantage of improving care continuity for patients compared with schedules with a shorter number of consecutive rounding days, resulting in fewer hospitalists caring for each patient and decreased "fragmentation." Additional value drivers for LOS reduction strategies for hospitalists are listed in the Table.

The 2018 State of Hospital Medicine Report highlighted that, among patients discharged by hospitalist groups, 80.8% were inpatient and 19.2% were outpatient. With nearly one in five patients discharged in observation status, it behooves hospitalist programs to work to effectively manage these patients. Indeed, hospitalist-run observation units have been shown to decrease LOS significantly without an increase in return rates to the emergency department or hospital compared with patients managed prior to the introduction of a dedicated observation unit.[9]

Although an in-depth discussion is beyond the scope of the present article, it is worth noting the value of hospitalist comanagement (HCoM) strategies. The impact of HCoM teams are demonstrated by reductions in LOS and cost of care resulting from decreases in medical complications, number of consultants per patient, and a decrease in 30-day readmsissions.[12] The Society of Hospital Medicine Perioperative Care Work Group has outlined a collaborative framework for hospitalists and healthcare systems to draw from.[15]

THE CLEVELAND CLINIC INDIAN RIVER HOSPITAL EXPERIENCE

Within the Cleveland Clinic Indian River Hospital (CCIRH) medicine department, many of the aforementioned strategies and tactics were standardized among hospitalist providers. Hospitalists at CCIRH are scheduled on 7-day rotating blocks to reduce fragmentation. In 2019, we targeted a range of 15 to 18 patient contacts per rounding hospitalist per day and utilized a back-up call system to stabilize the hospitalist census. The hospitalist service lines are enhanced through HCoM services with patients cohorted on dedicated HCoM teams. The follow-up to discharge ratio is used to provide feedback at the provider level as both a management and assessment tool.[23] The rounding and admitting teams are dedicated to their responsibility (with the occasional exception necessitating the rounding team assist with admissions when the volumes are high). Direct admissions and transfers from outside hospitals are managed by a dedicated hospital medicine "quarterback" to minimize disruption of the admitting and rounding teams. Barriers to discharge are identified at the time of admission by care management and aggressively managed. Prolonged LOS reports are generated daily and disseminated to care managers and physician leadership. In January 2019, the average LOS for inpatients at CCIRH was 4.4 days. In December 2019, the average LOS for the calendar year to-date at CCIRH was 3.9 days (Appendix Figure). The value proposition for managing LOS should be viewed in the context of the total cost of care over an extended period of time and not viewed in isolation. Readmission rates serve as a counterbalance to LOS-reduction strategies and contribute to higher costs of care when increased. The 30-day readmission rate for this cohort over this same time period was down slightly compared with the previous year to 12.1%. In addition, observation patients at CCIRH are managed in a closed, geographically cohorted unit, staffed by dedicated advanced-practice providers and physicians dedicated to observation medicine. Over this same time period, more than 5500 patients were managed in the observation unit. These patients had an average LOS of 19.2 hours, with approximately four out of every five patients being discharged to home from an observation status.

The impact of COVID-19 and higher hospital volumes is best visualized in the Figure. Increases in LOS were observed during periods of COVID-19–related "surges" in hospital volume. These reversals in LOS trends during periods of high occupancy reiterate earlier findings by Elliot et al[2] showing that external factors that are not directly under the control of the hospitalist drive LOS and must be considered when developing LOS reduction strategies.

CONCLUSION

The shift toward value-based payment models provides a strong tailwind for healthcare systems to manage LOS. Hospitalists are well positioned to drive LOS-reduction strategies for the healthcare systems they serve and provide value by driving both quality and efficiency. A complete realization of the value proposition of hospitalist programs in driving LOS-reduction initiatives requires the healthcare systems they serve to provide these teams with the appropriate resources and tools.

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