Reducing Length of Stay (LOS) to Improve Capacity Collaborative Guidebook

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Key results

By reducing their overall length of stay (LOS), participants in Vizient® Member Networks' Reducing Length of Stay (LOS) to Improve Capacity Collaborative avoided 248,276 patient days, which equated to an overall cost avoidance of $138 million. Additionally, 67% of participating organizations improved their observed LOS rate over the course of the project. These results were accomplished by implementing the following leading practices:

- Establishing LOS as a top organizational goal
- Identifying priority discharges
- Developing escalation pathways for identified discharge barriers
- Standardizing interdisciplinary patient rounds along with standardized scripts for team role responsibilities
- Establishing post-acute partnerships to create smoother discharge dispositions

Specifics on activating these leading practices, successful strategies and action steps to maximize impact are included in this document.

248,276
days avoided

$138M
costs avoided

Case for change

Transitions of care from hospital to post-acute care is both time consuming and complex. When a safe and efficient transition cannot be arranged, a domino effect takes place. More than 30% of all hospital inpatients had a 24-hour delay in discharge due to non-clinical reasons.[1] National Medicare Data shows that LOS has risen nearly 10% from pre-pandemic levels between 2019 and 2021 and outpaces the rise in case mix index (CMI) 7% over the same period. Early 2022 data suggests continuation of this same trend.[2] In addition, longer LOS leads to provider burnout and increases in healthcare costs as seen in Figure 1.[3,4,5] At the same time, inpatient volumes have not yet recovered to 2019 levels, resulting in a perfect storm of operational and financial pressure on hospitals.[3] Vizient data also shows similar trends with rising LOS across all types of hospitals.

According to The Institute for Healthcare Improvement (IHI) emergency department (ED) wait times and delays in care are common.[8] Poorly managed transitions can cause a cascade of negative events, such as:

- Medication errors
- Readmissions
- Delays in treatment

"We have heard many stories in our deep dive work (too many to detail here) with the people 'on the ground' moving patients through the system. Striking the balance between individual patient needs/preferences and the ability for the system to manage these has become an important target for our work."

Director of Clinical Quality, Cottage Health

Figure 1. LOS costs

Longer LOS contributes to the **$4.6B** spent annually on physician burnout, bed capacity and hospital revenue.[5]

Hospital care accounts for 1/3 of healthcare costs. The average LOS for hospital visits is 4.5 days with an average **$10,400** spent per day.[7]

In-hospital complications are **higher** for patients who are medically ready for discharge but remain hospitalized.[8]

Project method and assessment

Significant opportunity for improvement was demonstrated by implementing the leading practices and successful strategies that make up the collaborative framework for this project. The participant impactful practices checklist can be utilized to assess your current ability to use the leading practices effectively.

Collaborative improvement framework

Leading practices	Successful strategies (framework)	Impactful practices
Build consensus among stakeholders	• Involve senior leaders in identifying capacity management as a strategic priority[6] • Align strategic priority with medical staff and hospital leadership priorities[6] • Adopt value-based incentives to support improved patient flow[6] • Involve frontline stakeholders from all departments to create ownership and connectiveness to strategic priority[6] • Measure outcomes and return on investment[6]	☐ Establish LOS as a top strategic goal for organization ☐ Engaged and supportive executive leaders lead to better improvements ☐ Obtain input from key stakeholders on how to improve LOS ☐ Establish throughput and capacity governance ☐ Engage a physician champion
Develop early discharge planning process	• Address discharge delays with the interdisciplinary team earlier in the patient's stay[9] • Develop an escalation process of follow-up actions with clear accountability[6,9] • Communicate discharge plans to the patient and team the day before discharge[6,11] • Proactively involve patients and families in decision-making and discharge planning[6,9] • Address transition from inpatient to outpatient setting early in the patient's stay[9]	☐ Develop post-acute partnerships driven by organization executives ☐ Incorporate Secure Chat (or similar software) into provider workflows to enable communication with them and case managers while avoiding disruptions in patient care ☐ Create algorithms for nurses and physicians to best determine discharge disposition ☐ Assign a medical director to escalate improved response to discharge team from hospitalist on identified clinically ready discharge patients ☐ Offer hospital-provided transportation to discharge destination

	• Organize the discharge one day prior to discharge including examination, signoffs and patient education[6,11] • Orchestrate discharge plans with special designated team for patients with complex care needs, including addressing Social Determinants of Health (SDoH)[6,9]	☐ Partner with hospital-owned facilities for post-acute care such as rehabilitation and skilled nursing facilities (SNF) ☐ Create contracts between hospital and post-acute destinations such as SNFs for post-acute beds that are assigned to the hospital ☐ Request SNFs to accept patients during the weekend
Develop processes for real-time capacity planning	• Establish clear guidelines for inpatient placement[12] • Develop standardized daily interdisciplinary rounds (IDRs) with a standard script for each team member[6,11,14] • Formalize roles and responsibilities of teammates participating in IDRs[13] • Identify patients for early discharge and write discharge orders by 10 a.m.[11] in order to discharge by noon • Identify barriers or bottlenecks that would hinder identified patients discharged by noon[11,12]	☐ Target patients with LOS between 6–14 days to expedite discharge ☐ Identify priority discharges (those that had been identified a day prior and are clinically ready for discharge), and begin the discharge process earlier in the day of discharge ☐ Identify patients earlier in their stay that qualify for long-term acute care hospital ☐ Schedule weekend case managers/social workers
Eliminating delays	• Conduct standardized daily bed huddles[6] • Conduct standardized daily safety huddles[6,11] • Use flexible staffing models to allow for staffing to demand at peak times[6,13] • Create capacity management plan with triggers for escalation and accountability[6] • Conduct biweekly outlier meetings of complex, high-cost patients (case management and nursing)[8]	☐ Standardize daily huddles using standardized scripts ☐ Develop discharge escalation pathways ☐ Conduct Kaizen events focused on discharge planning ☐ Assign physician lead for IDRs ☐ Identify clinically ready priority discharges (discharge by 10 a.m. next day) by utilizing unit-based rounding ☐ Create a mantra such as “Plan for the day. Plan for the stay. What’s in the way?” ☐ Develop “badge buddies” outlining role responsibility and script to follow during IDRs
Use of advanced analytics	• Use a visual management system for daily hospital-wide census levels and bed availability[6] • Incorporate automated, data driven discharge predictions into IDRs[6,14]	☐ Utilize Vizient data to create a customized LOS dashboard for one source of truth ☐ Utilize estimated EDD and remaining LOS during rounds

- Apply machine learning to existing real-time electronic health record (EHR) data to determine estimated day of discharge (EDD)[14]
- Establish a leader to use automated discharge predictions within a standard workflow[14]
- Create a centralized "bed authority" utilizing a visualization system[8]

- ☐ Create financial tracking to communicate dollars saved per facility
- ☐ Survey staff: what is going well, what isn't going well
- ☐ Utilize EHR for discharge report and milestones

Call to action

Using the areas identified in the assessment above, these action steps and call to action questions can be used to improve your effectiveness in successfully using the Reducing Length of Stay (LOS) to Improve Capacity Collaborative leading practices.

- ☐ Have you formed a governance throughput committee and identified a physician champion? Do you have support from your executive leaders?
- ☐ Do you have a clear escalation process to close the loop on identified discharge issues?
- ☐ Is your organization conducting interdisciplinary rounds including identifying patients that are appropriate for early discharge?
- ☐ Are you using one source of truth for your data visualizations that are shared with frontline staff?

Additional resources

Solution	Resources	Fee-based service
Effectiveness **domain** webpage	✓	
Knowledge Transfer webinar recording and slides	✓	
Member Spotlight Webinar—Patient Capacity Management Center: Building our Ecosystem recording and slides	✓	
Knowledge on the Go podcast: sprinting to decrease LOS Vizient **blog**: patient transitions: how can systems do better? Vizient **case study**: culture of mobility improves length of stay and discharges to home Vizient **blog**: sustainability is key to healthcare performance improvement	✓	
Patient Transitions to Post-Acute Care Collaborative Guidebook	✓	
PI Collaborative Improvement Community group	✓	
PI Collaborative PI Toolkit	✓	
Clinical Data Base (CDB) Users		✓
Operational Data Base (ODB) Users		✓

References

1. Ragavan, M V, David S, Lisa S. Barriers to timely discharge from the general medicine service at an academic teaching hospital. *Postgraduate medical journal* 93, no. 1103 (2017): 528-533. Accessed April 8, 2022. :https://effectivehealthcare.ahrq.gov/products/hospital-length-of-stay/report
2. American Hospital Association. *Massive growth in expenses and rising inflation fuel continued financial challenges for America's hospitals and health systems*. April 2022. Accessed August 22, 2023 https://www.aha.org/guidesreports/2023-04-20-2022-costs-caring
3. Phend, C. Emergency Department Volume Numbers Don't Tell the Whole Story: The Rising Toll of Boarding and High-Acuity Care. *Annals of Emergency Medicine*, 2023 *82*(2): A15-A18.
4. Effective Health Care Program, Agency for Healthcare Research and Quality Research Protocol: *Interventions to Decrease Hospital Length of Stay*. Agency for Healthcare Research and Quality,Rockville, MD. Content last reviewed September 2020., Accessed April 7, 2022. https://effectivehealthcare.ahrq.gov/products/hospital-length-of-stay/protocol
5. Finnegan J. The high cost of physician burnout: $4.6B a year. *Fierce Healthcare*. May 28, 2019.
6. Rutherford PA, Anderson A, Kotagal UR, Luther K, Provost LP, Ryckman FC, Taylor J. Achieving Hospital-wide Patient Flow (Second Edition). IHI White Paper. Boston, Massachusetts: *Institute for Healthcare Improvement*; 2020. Accessed April 6, 2022. https://www.ihi.org/resources/Pages/IHIWhitePapers/Achieving-Hospital-wide-Patient-Flow.aspxePapers/Achieving-Hospital-wide-Patient-Flow.aspx
7. Weiss, A and Elixhauser A. Statistical Brief #180; Overview of Hospital Stays in the United States 2012. *AHRQ; H-CUP.* October 2014.
8. *Optimizing Patient Flow: Moving Patients Smoothly Through Acute Care Settings.* IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement; 2003. (Available on www.IHI.org)
9. Patel H, Yirdaw E, Yu A, Slater L, Perica K, Pierce RG, Amaro C, Jones CD. Improving Early Discharge Using a Team-Based Structure for Discharge Multidisciplinary Rounds. *Prof Case Manag*. 2019 Mar/Apr;24(2):83-89. doi: 10.1097/NCM.0000000000000318. PMID: 30688821.
10. Zurlo A, Zuliani G. Management of care transition and hospital discharge. *Aging clinical and experimental research*. 2018 Mar;30(3):263-70.
11. Arogyaswamy, S, Vukovic, N, Keniston, A, et al. The Impact of Hospital Capacity Strain: a Qualitative Analysis of Experience and Solutions at 13 Academic Medical Centers. *J GEN INTERN MED* (2021). https://doi.org/10.1007/s11606-021-07106-8
12. Wertheimer, B, Jacobs, RE, Bailey, M, Holstein, S, Chatfield, S, Ohta, B, Horrocks, A and Hochman, K, 2014. Discharge before noon: an achievable hospital goal. *Journal of Hospital Medicine*, 9(4), pp.210-214.
13. Bonnette, KL, Joshua AS, Michael AM, Dean BE, Cindy LK, Pamela KW, Richard A. "The Development of a Daily Comprehensive and Multidisciplinary Health Care Leadership Huddle." *WMJ* 119, no. 3 (2020): 205-210. Accessed on April 8, 2022. https://wmjonline.org/wp-content/uploads/2020/119/3/205.pdf
14. Davenport PB, Carter KF, Echternach JM, Tuck CR. Integrating High-Reliability Principles to Transform Access and Throughput by Creating a Centralized Operations Center. *J Nurs Adm*. 2018 Feb;48(2):93-99. Accessed 4/8/2022. doi: 10.1097/NNA.0000000000000579. PMID: 29303815.
15. Levin, Scott, Sean Barnes, Matthew Toerper, Arnaud Debraine, Anthony DeAngelo, Eric Hamrock, Jeremiah Hinson, Erik Hoyer, Trushar Dungarani, and Eric Howell. Machine-learning-based hospital discharge predictions can support multidisciplinary rounds and decrease hospital length-of-stay. *BMJ Innovations* 7, no. 2 (2021).
16. He L, Madathil sc, Oberoi A, Servis G, Khasawneh MT. A Systematic Review of Research Design and Modeling Techniques in Inpatient Bed Management. *Computers & Industrial Engineering*. 2019:127:451-466.

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