

Teaching a DISCHARGE Framework to Hospital Teams to Improve Transitions of Care

Shreya P. Trivedi (✉ shreya.trivedi@nyumc.org)

NYU Langone Health <https://orcid.org/0000-0001-7183-0624>

Mack Lipkin

NYU Langone Health

Mark D. Schwartz

NYU Langone Health

Research article

Keywords: Discharge, Transitions of Care, Communication, Framework

Posted Date: February 13th, 2020

DOI: <https://doi.org/10.21203/rs.2.23445/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: Residents typically learn about managing transitions of care as part of the informal curriculum in an ad-hoc, reactive manner. Learning may be enhanced by using a framework to proactively practice addressing key domains for a patient soon-to-be-discharged from the hospital. We developed such an evidence-based framework, DISCHARGE, as a cognitive aid. Using this framework, we implemented and evaluated a workshop designed for hospital teams to learn addressing key components of discharging a patient.

Methods: All members of 8 Internal Medicine teams across 4 rotations were invited to attend an hour-long workshop ranging from September 2017 - February 2018. Participants completed a retrospective, pre-post survey on their perceived change in discharge-related behaviors. We evaluated the perceived effectiveness of the workshop with a retrospective pre-post questionnaire. We used Wilcoxon signed-rank tests for pairwise comparisons to assess perceived changes in discharge behaviors.

Results: A total of 90 of 140 team members (64%) attended the workshop and 79 of the 90 (87%) completed the questionnaire. The session was effective in increasing the likelihood of addressing patient-centered behaviors at discharge (mean 1.4 improvement on a 5-point scale, $P < 0.001$, $R > 0.5$). In addition, senior residents and attendings projected they were more likely to discuss the importance of discharge planning with the team early in a rotation. Interns noted they were more comfortable asking the team for help in carrying out a discharge plan ($p < 0.001$, $R > 0.5$).

Conclusions: Teaching teams a cognitive aid to practice managing hospital discharges may increase the likelihood of addressing important domains for their patients. Incorporating the team allows for explicit alignment for priorities and communication. Further study is needed to document how such learning is translated into discharge practice.

Introduction

The transition from hospital to home renders patients vulnerable. Hospitalized patients are often discharged with poor understanding of the discharge plan which can lead to preventable morbidity and readmissions (1–3). National medical societies and health services interventions have identified several domains to be addressed prior to discharge (4–6). Additionally, the Accreditation Council for Graduate Medical Education highlights transitions of care as a key milestone in resident education (7,8). However, this emphasis has not fully translated into formal medical education, particularly for hospital discharges (9–11). Much is left to informal curricula that vary based on particular resident or attending style, team workload, and care organization (12). Uncertainty and assumptions about other team members responsibilities at discharge add to the problem (13).

Published transitions of care curricula often focus on recognizing and preventing failed transitions (10,11). Frameworks can serve as a cognitive aid for learning new skills and even improve patient outcomes (14–16) yet discharge educational interventions often lack a framework that can enable

consistent, proactive practice prior to discharge. Moreover, prior curricula focus on individual healthcare team members without emphasis on teamwork (10,11).

To equip teams with a cognitive approach to discharging patients, we created an evidence-based framework based on prior literature,(13,17–25) summarized as the acronym, “DISCHARGE:” Drugs, Identifying barriers, Self-management of diseases, Communication with primary care physicians (PCP) and caregivers, Home services, Appointments, Red flags signs, Go (Activity), and Educate (Teach) back. Here, we describe our use of this educational intervention to improve management of hospital discharges and evaluate its impact.

Methods

Setting and Participants

From September 2017 - February 2018, an hour-long discharge planning workshop was given at a safety-net hospital 4 times to rotating internal medicine residents, medical students, and their attending physicians during an inpatient rotation. Of the 140 total members invited during the four sessions, 90 (64%) attended the workshop.

Intervention

The workshop was designed using the following instructional strategies (**Figure 1**): case-based discussion, large group discussion, and team-based simulation. First, actual post-discharge home visit cases were used to guide the learners in the use of the *DISCHARGE* framework. Teams were prompted to identify gaps in transition with these post-discharge cases. As gaps were uncovered, those gaps were then organized and revealed the acronym, *DISCHARGE*.

Next, the evidence for each *DISCHARGE* element was reviewed (17,20–23,25,26). Interventions for each domain were described to demonstrate potential patient impact. Participants then brainstormed how to address the *DISCHARGE* domains in the context of their current caseload and workflow.

Finally, teams were challenged to role-play and analyze one of their own team’s soon-to-be-discharged patients using the *DISCHARGE* framework. The team acted out dividing up responsibilities and role-played patient education.

Outcomes

We evaluated the perceived effectiveness of the workshop with a retrospective pre-post questionnaire that participants voluntarily completed immediately after the workshop (Appendix 1). On a 5-point scale (1 = rarely to 5 = almost always), participants answered how likely they were to perform the following behaviors before and after the session: review medications, educate on disease self-management, review discharge plan with caregivers, communicate with the PCP, and use teach-back with patients. In order to keep the questionnaire brief, we asked about these five domains because we believed they were the most

actionable communication changes. We measured perceived change in team communication and the value placed by the team on discharges by assessing the likelihood of interns asking team members for help discharging patients and the likelihood of residents or attendings speaking about the importance of discharge early in the rotation. An open-ended question prompted to “Share your reflection on the workshop experience” for more insight into the instruction. Our Institutional Review Board approved the protocol as exempt from review.

Analysis

We used Wilcoxon signed-rank tests for pairwise comparisons of the retrospective pre and post workshop perceived behaviors. In a secondary analysis, the results were stratified by role (medical students, interns, residents, and attendings). Effect sizes for the Wilcoxon signed rank test were calculated using the R statistic (27). Content analysis was used to assess free-response reflections (28).

Results

After the sessions, 79 of 90 (87%) participants (18 medical students, 54 residents consisting of 27 post-graduate year PGY1, 14 PGY-2, 13 PGY-3, and 7 attendings) completed the questionnaire. As shown in Fig. 2, the sessions were effective in increasing the reported likelihood to review medications (mean of 1.3 point improvement on the 5-point scale from before to after the workshop, 95% CI 0.6, 1.7), educate about self-management of diseases (1.4 improvement, 95% CI 1.2, 2.1), communicate the discharge plan with caregivers (1.6 improvement, 95% CI 1.1, 2.0) and with PCP (1.5 improvement, 95% CI 1.0, 2.1), and encourage patients to “teach back” their care plan (1.4 improvement, 95% CI 0.9,1.9). The retrospective pre to post intervention improvement in all five measures remained significant among subgroups of students, interns, residents, and attendings, with students and interns demonstrating larger improvements than the attendings ($P < 0.001$). The effect size estimate (R) ranges from 0.57 to 0.60 across these 7 comparisons, suggesting at least a modest effect.

Concerning team communication, senior residents and attendings projected that they would be more likely to discuss the importance of discharge planning with the team early in a rotation in the future. Interns noted they felt more comfortable asking the team for help in carrying out a discharge plan after the session ($p < 0.001$; $R > 0.5$).

Open-ended responses emphasized the usefulness of this cognitive aid to patient care and appreciation of practicing as a team. For example, responses highlighted the utility of this framework in uncovering blind spots:

“We role-played with a seemingly straightforward patient of ours, but after applying the DISCHARGE mnemonic, there were actually a lot more things to consider where her care could potentially fall through the cracks.”

Additionally, respondents appreciated the opportunity to align priorities:

“Best thing was giving us the time to talk about what each of us should be vs. are doing on discharge. It has always been distressing to put in DC instructions in the computer and hoping it will work out.”

Discussion

Applying our comprehensive DISCHARGE approach to patient cases significantly increased team members’ self-reported likelihood of conducting safe discharge practices on inpatient teams in a safety-net hospital medical service. To our knowledge, this is the first educational intervention utilizing a shared mental model of key discharge domains, allowing teams the guided opportunity to strategize discharge care for their own patients by practicing teamwork and communication (10,11). Further efforts to standardize learning about discharge care can decrease variation among team members and help improve discharge care and patient outcomes after hospitalizations.

Limitations include application at a single institution, a lack of nurses in the workshop, and no assessment of actual discharge behaviors or patient outcomes. Further research should include longer-term patient follow-up, scaling up to other hospitals and specialties, and including the entire interdisciplinary team in this deliberate practice.

Conclusions

The gap between the competency that trainees require for effectively managing the hospital discharge process and the skills that are explicitly taught can be bridged using an evidence based conceptual framework, DISCHARGE and a brief, active, skill-building workshop. Proactively teaching cognitive aids with deliberate practice can initiate learners in developing tools to practice high-quality transitional care, a needed step towards ensuring the delivery of consistent and comprehensive discharge care to all patients.

Abbreviations

- “DISCHARGE:” **D**rugs, **I**dentifying barriers, **S**elf-management of diseases, **C**ommunication with primary care physicians (PCP) and caregivers, **H**ome services, **A**ppointments, **R**ed flags signs, **G**o (Activity), and **E**ducate (Teach) back

Declarations

Ethics approval and consent to participate: Our Institutional Review Board approved the protocol as exempt from review. The consent for participation was considered to have been given as each participant agreed to fill in and submit an anonymous questionnaire. Survey.

Consent for publication: Not applicable

Availability of data and materials: Not Applicable

Competing interests: The authors declare no competing interests.

Funding: There was no funding for this work.

Authors' contributions: SPT conceptualized, executed the workshop, analyzed the data and wrote the manuscript. ML helped in creating the DISHCARGE framework and provided substantial feedback on the manuscript. MDS helped analyze the data and provided sustainable feedback on the manuscript. All authors read and approved the final. Manuscript.

Acknowledgements: Thank you to Ian Fagan, Hospitalist at Bellevue Hospital and Sondra Zabar, the Director of Division of General Internal Medicine and Clinical Innovation at NYU School of Medicine for providing feedback for this manuscript.

Corresponding Author: Shreya P. Trivedi MD

References

1. Horwitz LI, Moriarty JP, Chen C, Fogerty RL, Brewster UC, Kanade S, et al. Quality of discharge practices and patient understanding at an academic medical center. *JAMA Intern Med.* 2013 Oct 14;173(18):1715–22.
2. Moore C, Wisnivesky J, Williams S, McGinn T. Medical errors related to discontinuity of care from an inpatient to an outpatient setting. *J Gen Intern Med.* 2003 Aug;18(8):646–51.
3. Antony SM, Grau LE, Brienza RS. Qualitative study of perspectives concerning recent rehospitalisations among a high-risk cohort of veteran patients in Connecticut, USA. *BMJ Open.* 2018;8(6):e018200.
4. Snow V, Beck D, Budnitz T, Miller DC, Potter J, Wears RL, et al. Transitions of Care Consensus Policy Statement American College of Physicians-Society of General Internal Medicine-Society of Hospital Medicine-American Geriatrics Society-American College of Emergency Physicians-Society of Academic Emergency Medicine. *J Gen Intern Med.* 2009 Aug;24(8):971–6.
5. Yam CH, Wong EL, Cheung AW, Chan FW, Wong FY, Yeoh EK. Framework and components for effective discharge planning system: a Delphi methodology. *BMC Health Serv Res.* 2012;12:396.
6. Burke RE, Kripalani S, Vasilevskis EE, Schnipper JL. Moving beyond readmission penalties: creating an ideal process to improve transitional care. *J Hosp Med.* 2013 Feb;8(2):102–9.
7. Jardine D, Deslauriers J, Kamran SC, Khan N, Hamstra S, Edgar L. Milestones guidebook for residents and fellows. 2017; Available from: <https://www.acgme.org/Portals/0/PDFs/Milestones/MilestonesGuidebookforResidentsFellows.pdf>
8. Chan B, Englander H, Kent K, Desai S, Obley A, Harmon D, et al. Transitioning Toward Competency: A Resident-Faculty Collaborative Approach to Developing a Transitions of Care EPA in an Internal Medicine Residency Program. *J Grad Med Educ.* 2014 Dec;6(4):760–4.

9. Aiyer M, Kukreja S, Ibrahim-Ali W, Aldag J. Discharge planning curricula in internal medicine residency programs: a national survey. *South Med J*. 2009 Aug;102(8):795–9.
10. Buchanan IM, Besdine RW. A systematic review of curricular interventions teaching transitional care to physicians-in-training and physicians. *Acad Med*. 2011 May;86(5):628–39.
11. McBryde M, Vandiver JW, Onysko M. Transitions of Care in Medical Education: A Compilation of Effective Teaching Methods. *Fam Med*. 2016 Apr;48(4):265–72.
12. Greysen SR, Schiliro D, Curry L, Bradley EH, Horwitz LI. “Learning by doing”—resident perspectives on developing competency in high-quality discharge care. *J Gen Intern Med*. 2012 Sep;27(9):1188–94.
13. Greysen SR, Schiliro D, Horwitz LI, Curry L, Bradley EH. “Out of sight, out of mind”: housestaff perceptions of quality-limiting factors in discharge care at teaching hospitals. *J Hosp Med*. 2012;7(5):376–81.
14. Skaret MM, Weaver TD, Humes RJ, Carbone TV, Grasso IA, Kumar H. Automation of the I-PASS Tool to Improve Transitions of Care. *J Healthc Qual*. 2019;41(5):274–80.
15. Bergs J, Hellings J, Cleemput I, Zurel Ö, De Troyer V, Van Hiel M, et al. Systematic review and meta-analysis of the effect of the World Health Organization surgical safety checklist on postoperative complications. *Br J Surg*. 2014 Feb;101(3):150–8.
16. Webster CS. Checklists, cognitive aids, and the future of patient safety. *Br J Anaesth*. 2017 Aug 1;119(2):178–81.
17. Coleman EA, Parry C, Chalmers S, Min S-J. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med*. 2006 Sep 25;166(17):1822–8.
18. Kripalani S, Jackson AT, Schnipper JL, Coleman EA. Promoting effective transitions of care at hospital discharge: a review of key issues for hospitalists. *J Hosp Med*. 2007 Sep;2(5):314–23.
19. Cancino RS, Manasseh C, Kwong L, Mitchell SE, Martin J, Jack BW. Project RED impacts patient experience. *Journal of patient experience*. 2017;4(4):185–90.
20. Beardsley JR, Schomberg RH, Heatherly SJ, Williams BS. Implementation of a Standardized Discharge Time-out Process to Reduce Prescribing Errors at Discharge. *Hosp Pharm*. 2013 Jan;48(1):39–47.
21. Rodakowski J, Rocco PB, Ortiz M, Folb B, Schulz R, Morton SC, et al. Caregiver Integration During Discharge Planning for Older Adults to Reduce Resource Use: A Metaanalysis. *J Am Geriatr Soc*. 2017 Aug;65(8):1748–55.
22. Flythe JE, Hilbert J, Kshirsagar AV, Gilet CA. Psychosocial Factors and 30-Day Hospital Readmission among Individuals Receiving Maintenance Dialysis: A Prospective Study. *Am J Nephrol*. 2017 Apr 14;45(5):400–8.
23. Jones CD, Jones J, Richard A, Bowles K, Lahoff D, Boxer RS, et al. “Connecting the Dots”: A Qualitative Study of Home Health Nurse Perspectives on Coordinating Care for Recently Discharged Patients. *J Gen Intern Med*. 2017 Oct 1;32(10):1114–21.

24. Hansen LO, Greenwald JL, Budnitz T, Howell E, Halasyamani L, Maynard G, et al. Project BOOST: effectiveness of a multihospital effort to reduce rehospitalization. *J Hosp Med.* 2013 Aug;8(8):421–7.
25. Hudali T, Robinson R, Bhattarai M. Reducing 30-Day Rehospitalization Rates Using a Transition of Care Clinic Model in a Single Medical Center. *Adv Med.* 2017 Aug 2;2017:5132536.
26. Greysen SR, Hoi-Cheung D, Garcia V, Kessell E, Sarkar U, Goldman L, et al. “Missing pieces”—functional, social, and environmental barriers to recovery for vulnerable older adults transitioning from hospital to home. *J Am Geriatr Soc.* 2014 Aug;62(8):1556–61.
27. Rosenthal R. Parametric measures of effect size. In: Cooper H, editor. *The handbook of research synthesis* , (pp. New York, NY, US: Russell Sage Foundation, xvi; 1994. p. 231–44.
28. Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res.* 2005 Nov;15(9):1277–88.

Figures



Figure 1

Instructional Design of Discharge Workshop

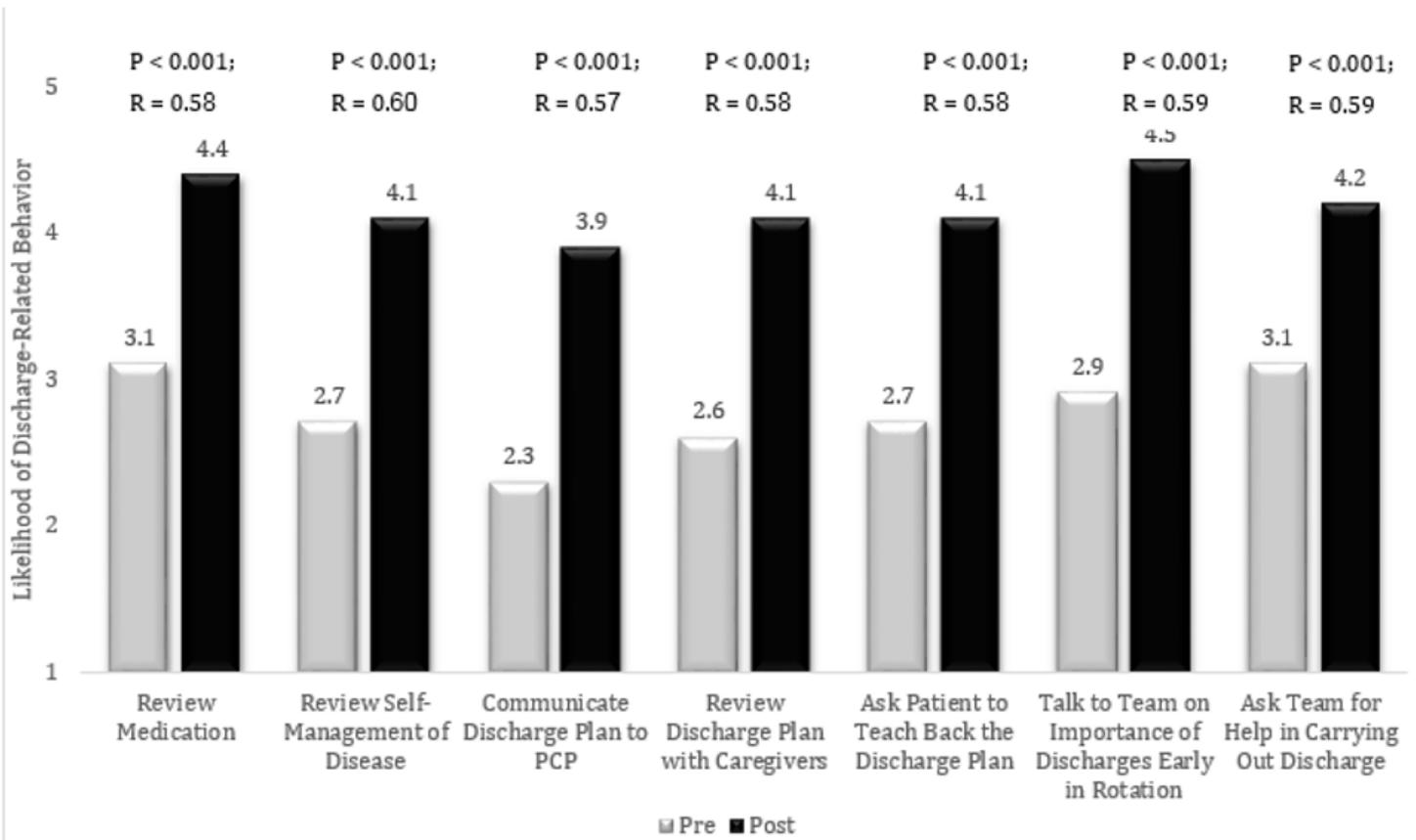


Figure 2

Likelihood of Discharge-Related Communication Behavior by Hospital Teams Before and After a Workshop (n=79)

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [DCWorkshopAppendix.docx](#)