Impact of a Visual Algorithm Tool on Discharge Planning Among Medicine Housestaff

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Introduction

Discharge planning is a crucial part of providing high-quality care. When done well, it is associated with improved outcomes including reduced hospital readmission rates.1 An effective discharge plan requires early identification of patients’ post-acute care needs as well as potential barriers to placement. More than half of all hospitalizations in the United States occur at teaching hospitals.2 Despite housestaff physicians’ desire to receive more structured guidance on how to provide high-quality discharge care, most receive little formal training on discharge planning and are instead expected to learn “on-the-go”.3-4 One approach to providing this guidance is via decision-support tools. When used for discharge planning they have been associated with improved outcomes.5 Most attempts at teaching transitions of care to trainees, have been didactics-oriented.6 Very little is known about the impact decision-making tools, such as a visual algorithm, could have on housestaff education about this important topic.

The West Los Angeles Veterans Affairs (WLAVA) Medical Center, a large urban training site, has many disposition options that are not available at our other affiliated training sites. Acceptance criteria for these myriad options are not intuitive and can be overwhelming. In our experience, housestaff often express confusion about these options, which can lead to decreased provider satisfaction and delayed or inappropriate referral placement. One particularly confusing option at WLAVA is the Transitional Care Unit (TCU). The TCU accepts patients who have subacute care needs but do not qualify for other disposition options. Hospitalist screeners for the TCU have frequently noted inappropriately placed referrals. For quality improvement (QI) purposes, we developed a visual algorithm tool that outlined appropriate decision-making for post-acute disposition of patients at WLAVA. We hypothesized this decision-support tool could 1) improve housestaff satisfaction and decrease confusion with discharge planning at WLAVA and 2) increase the proportion of appropriate TCU referrals.

Methods

We developed a visual algorithm tool (Figure 1) that outlined acceptance criteria for WLAVA’s many post-acute care options. The algorithm’s purpose was to guide housestaff in a stepwise fashion to determine the most appropriate disposition option for their patients. Our target audience was housestaff rotating through the 5 inpatient medicine teams at WLAVA. This project occurred over 7 weeks from May to June 2018. Due to time and staffing constraints, we were only able to roll out the algorithm to 2 out of the 5 teams, which we termed the “education” group. We also gave the “education” group a glossary of common disposition-related terms (Supplemental Fig. 1) and instructed them on how to use the algorithm. The other 3 teams, which we termed the “non-education” group, performed their clinical duties as usual. Housestaff from both groups were surveyed at the start and end of their rotations. This survey (Supplemental Fig. 2) consisted of 8 questions. It assessed knowledge, comfort level, and satisfaction related to disposition at WLAVA. We compared responses between the “education” and “non-education” groups to assess the impact of our algorithm tool. We retrospectively reviewed all TCU referrals received during the project period for appropriateness, based on whether or not the referral was accepted by the screening hospitalist at that time. This project was reviewed by our Institutional Review Board who determined it to meet quality improvement criteria.

Statistical Analysis

Survey responses were summarized using frequencies and percentages for categorical variables. After collapsing the responses into “education” and “non-education” groups, chi-square test or Fisher's exact test were used to determine if there were any differences in survey responses within each group at the start of the rotation compared to the end, and between the two groups at the end of their rotations. Comparison of TCU acceptance rates between the different groups was assessed using the chi-square test. Statistical analyses were conducted in SAS Version 9.4. P-values <0.05 were considered statistically significant.

Results

There were 34 respondents in the “education” group, 17 at the start of the rotation; 17 at the end) and 52 respondents in the “non-education” group 28 at the start; 24 at the end. By the end of their rotations, housestaff from both “education” and “non-
education” groups showed an increased comfort level with most disposition-related survey items (Table 1). Only housestaff from the “education” group expressed increased understanding about the concept of custodial placement and the indication for conservatorship. Only the “non-education” group expressed greater understanding of when Medi-Cal (California’s version of Medicaid) was necessary for placement. All respondents (17/17) in the “education” group found the algorithm tool to be helpful. There was no significant difference in comfort level or satisfaction with discharge planning between the 2 groups at the end of their rotations. There was a higher acceptance rate of TCU consults placed by the “education” group compared to the “non-education” group (13/16 vs 8/19, p=0.019).

Discussion

Effective discharge planning requires a firm grasp of the post-acute care resources available in a particular healthcare system. Without this understanding, clinicians cannot properly advocate for their patients during this vulnerable transition period. It is never too early to start mastering this skill, and in fact, the Accreditation Council for Graduate Medical Education (ACGME) has designated “systems-based practice” to be one of the 6 core competencies for residents. Despite this emphasis by the ACGME, many residency programs still lack formal training on discharge planning. It is then no surprise that housestaff often feel unprepared with specific aspects of discharge education and lack sufficient knowledge about the services that post-acute care settings can provide. Our visual algorithm tool was considered helpful by housestaff at WLAVA in their discharge planning. Its use was also associated with a higher percentage of appropriate referrals to one of our hospital’s subacute care services. The algorithm’s lack of impact on comfort level and satisfaction with disposition may be explained by the QI project occurring at the end of the academic year, when housestaff are generally more comfortable with discharge planning processes. Based on the positive feedback we received from housestaff on this algorithm, we have since rolled it out to all inpatient medicine teams along with integrating it into lectures at our training site to increase formalized teaching on transitions of care. In the future, we hope to continue incorporating this decision-making tool into other parts of our current workflow, including our interdisciplinary discharge rounds, so that we can receive feedback from other important team members like social work and case management.

Discharge planning is an important skill that is undertaught in the formal curriculum of residencies. In our QI project, we found that implementing a standardized visual decision-making tool helped increase housestaff education in this crucial area of patient care. The initial feedback we received about our algorithm was encouraging and we hope to continue implementing it in future related QI work.

Acknowledgements

The authors would like to thank Holly Wilhalme for her assistance with our statistical analysis.
Figure 1: Visual algorithm tool developed by the authors to assist housestaff with discharge planning. It provides question prompts and describes recommend steps clinicians at our institution should take to determine the most appropriate disposition option for their patient. In the bottom left-hand corner, we provided 1) a glossary of commonly encountered acronyms and 2) a brief description of some common discharge locations such as assisted living facilities and community nursing homes.
<table>
<thead>
<tr>
<th>Question / Response</th>
<th>Education Group</th>
<th>Non-Education Group</th>
<th>P Value</th>
<th>Education Group</th>
<th>Non-Education Group</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Start of Rotation</td>
<td>End of Rotation</td>
<td>P Value</td>
<td>Start of Rotation</td>
<td>End of Rotation</td>
<td>P Value</td>
</tr>
<tr>
<td>I understand the difference between the disposition options at WLAVA</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>12 (70.6%)</td>
<td>1 (5.9%)</td>
<td>0.0001*</td>
<td>13 (46.4%)</td>
<td>3 (12.5%)</td>
<td>0.0146*</td>
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<tr>
<td>Agree/Neutral</td>
<td>5 (28.4%)</td>
<td>16 (94.1%)</td>
<td></td>
<td>15 (53.8%)</td>
<td>21 (87.5%)</td>
<td></td>
</tr>
<tr>
<td>I know what consult to place for the post-acute disposition of my patient at WLAVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>10 (58.8%)</td>
<td>0 (0.0%)</td>
<td>0.0001*</td>
<td>10 (35.7%)</td>
<td>2 (8.3%)</td>
<td>0.0241*</td>
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<tr>
<td>Agree/Neutral</td>
<td>7 (41.2%)</td>
<td>17 (100.0%)</td>
<td></td>
<td>18 (64.3%)</td>
<td>22 (91.7%)</td>
<td></td>
</tr>
<tr>
<td>I know when to place a TCU consult</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>6 (35.3%)</td>
<td>1 (5.9%)</td>
<td>0.0339*</td>
<td>12 (42.9%)</td>
<td>3 (12.5%)</td>
<td>0.0296*</td>
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<td>Agree/Neutral</td>
<td>11 (64.7%)</td>
<td>16 (94.1%)</td>
<td></td>
<td>16 (57.1%)</td>
<td>21 (87.5%)</td>
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<tr>
<td>I am familiar with the insurance or service connection requirements for the different post-acute care options at WLAVA</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Disagree</td>
<td>15 (88.2%)</td>
<td>4 (23.5%)</td>
<td>0.0003*</td>
<td>20 (71.4%)</td>
<td>5 (20.8%)</td>
<td>0.0003*</td>
</tr>
<tr>
<td>Agree/Neutral</td>
<td>2 (11.8%)</td>
<td>13 (76.5%)</td>
<td></td>
<td>8 (28.6%)</td>
<td>19 (79.2%)</td>
<td></td>
</tr>
<tr>
<td>I understand the difference between skilled and custodial placement</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
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<td>1 (5.9%)</td>
<td>0.0152*</td>
<td>7 (25.0%)</td>
<td>2 (8.3%)</td>
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<td>Agree/Neutral</td>
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<td>16 (94.1%)</td>
<td></td>
<td>21 (75.0%)</td>
<td>22 (91.7%)</td>
<td></td>
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<td>I understand which patients require a DPOA or conservator for placement</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Disagree</td>
<td>8 (47.1%)</td>
<td>0 (0.0%)</td>
<td>0.0026*</td>
<td>4 (15.4%)</td>
<td>2 (8.3%)</td>
<td>0.6688</td>
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<tr>
<td>Agree/Neutral</td>
<td>9 (52.9%)</td>
<td>17 (100.0%)</td>
<td></td>
<td>22 (84.6%)</td>
<td>22 (91.7%)</td>
<td></td>
</tr>
<tr>
<td>I understand which patients require Medi-Cal for placement</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>12 (70.6%)</td>
<td>8 (47.1%)</td>
<td>0.296</td>
<td>20 (74.1%)</td>
<td>7 (29.2%)</td>
<td>0.0013*</td>
</tr>
<tr>
<td>Agree/Neutral</td>
<td>5 (29.4%)</td>
<td>9 (52.9%)</td>
<td></td>
<td>7 (25.9%)</td>
<td>17 (70.8%)</td>
<td></td>
</tr>
<tr>
<td>What is your current level of satisfaction with discharge planning at WLAVA?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsatisfied/Very Unsatisfied</td>
<td>9 (52.9%)</td>
<td>4 (23.5%)</td>
<td>0.0776</td>
<td>9 (33.3%)</td>
<td>6 (25.0%)</td>
<td>0.5144</td>
</tr>
<tr>
<td>Very Satisfied/Satisfied/Neutral</td>
<td>8 (47.1%)</td>
<td>13 (76.5%)</td>
<td></td>
<td>18 (66.7%)</td>
<td>18 (75.0%)</td>
<td></td>
</tr>
</tbody>
</table>

*p-value < 0.05

**Table 1**
Comparison of Survey Responses Between Education and Non-Education Groups
COMMON DISPOSITION TERMS

HMO (Health Maintenance Organization)
Managed care health insurance plan that usually limits coverage to care from hospitals or doctors who are "in network" or contract with the HMO.

MEDICAL
Medicaid-state joint program to help patients pay for medical care. This is California's version of Medicaid, which provides people with income up to 138% of federal poverty level with access to care at or below 138% of federal poverty level.

After application is filed, typically takes 2 weeks to receive your "MedCal number." Facilities will not accept referrals unless they have this number.

For long-term care, allotted care at skilled nursing facilities. A skilled nurse is defined as one who has received a licensing in the RN or LPN program.

Medicare
Medicare is a federal health insurance program available to people age 65 years or older, or younger if eligible due to disability or end-stage renal disease.

Medicare beneficiaries are given a "Medicare Number" to use when seeking care or purchasing prescription drugs.

Part A of Medicare is hospitals and hospice care.

Part B of Medicare is outpatient services.

Part C of Medicare is Medicare Advantage plans.

Medicaid
Medicaid is a joint federal-state health program for low-income people which covers medical expenses. Eligible for certain services.

Medicaid recipients are given a "Medicaid Number".

Medicaid is available to those below 138% of the Federal Poverty Level.

Medicaid provider numbers must be used by providers to bill for services rendered.

Medicaid is only available to those below 138% of the Federal Poverty Level.

Medicaid provider numbers must be used by providers to bill for services rendered.

SPECIAL SECURITY BENEFITS

Social Security Disability

Eligibility for Social Security Disability requires that the patient is unable to perform any substantial gainful activity for at least 12 months.

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Retirement Benefit

Eligibility for Social Security Disability requires that the patient is unable to perform any substantial gainful activity for at least 12 months.

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Eligibility for Social Security Disability requires that the patient is unable to perform any substantial gainful activity for at least 12 months.
Supplemental Figure 2: Survey provided to housestaff rotating on one of WLAVA’s inpatient medicine services. There were two versions of this survey, one provided at the start of a housestaff physician’s rotation, one provided at the end of the rotation.
REFERENCES


