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Found in transition: Applying milestones to three unique discharge curricula

Introduction: A safe and effective transition from hospital to post acute care is a complex and important physician competency. Milestones and Entrustable Professional Activities (EPA) form the new educational rubric in Graduate Medical Education Training. 'A safe and effective discharge from the hospital' is an EPA ripe for educational innovation. Methods: The authors collaborated in a qualitative process called, mapping, to develop a Q-sort exercise to be distributed to participants at an Association for Program Directors in Internal Medicine (APDIM) workshop on milestones for transition of care. We analyzed the Qsort results to rank the milestones in order of priority. We then applied this ranking to 3 innovative transitions of care curricula: Simulation (S), Discharge Clinic Feedback (DCF) and TRACER (T). Results: We collected 55 game boards from faculty units at the APDIM workshop. We report the prioritized milestones by Q-sort from the APDIM workshop. From the total 22 milestones, the simulation innovation identified 5/22 milestones, discharge clinic 9/22 milestones and tracer 7/22 milestones related to the EPA. Milestones identified in each innovation related back to one of the top eight prioritized milestones 75% of the time; thus more frequently than the milestones with lower priority. Discussion: We demonstrated that three unique innovations in transitions of care map to the top prioritized Q-sort milestones related to that EPA. Milestones for competency based assessment can be used to guide the development of innovative curricula in transition of care medicine.

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Found in transition: Applying milestones to three unique discharge training curricula

Introduction:

The ability to safely and effectively manage transitions of care represents a critical new competency for today's internist. Brought to light by the increasingly prevalent separation between inpatient and outpatient services, the medical literature continues to demonstrate that poorly managed transitions of care result in significant medical errors, decreased patient satisfaction and poor patient outcomes (Jenchks 2009; van Wlraven 2002; Kripalani 2007; Forster 2003). Coleman et al describe the fragmentation of care in a landmark paper with the ominous title "Lost in Transition" (Coleman, 2004).

While practicing internists attempt to master their own transfer of care skills, the academic medical community is challenged by the need to identify and incorporate these skills into an effective transition of care curriculum for trainees. Discharging patients from the hospital, a major transition of care event, is a daily occurrence in the lives of Internal Medicine house-staff, yet medical literature guiding the training, supervision and evaluation of this critical event is limited. Several studies have highlighted innovative curriculum surrounding transitions of care. Self-audits of resident discharge summaries (Dinescu 2011; Talwalkar 2012) and feedback about the discharge summary (Myers 2006; Legault 2012) improved discharge summary targets. A discharge 'time out' (Coit 2010) and reduced house-staff workload also improved discharge summaries (Mohta 2012). A web-based module utilizing a well-designed teaching case emphasized the importance of communication in the transition (Eskildsen 2010). A qualitative study of the resident perspective on the interdisciplinary nature of teamwork revealed "learning"

by doing" as the foremost theme in 2 residency programs (Greysen 2012). A medical student curriculum using experiential learning that follows a patient through the transition improved confidence (Lai 2008) and was found to be both feasible and effective (Bray-Hall 2010).

Beyond the challenge of developing a program for training physicians in a new patient care venue, academic internists are facing increasingly rigorous standards for measureable training outcomes. Milestones and Entrustable Professional Activities (EPAs) are an evolving framework for defining the competence of medical trainees. Milestones are discrete observable behaviors that demonstrate the competence (Green 2009). An EPA is an activity that constitutes the mass of critical elements or knowledge, skills and attitudes (KSAs) that operationally define a profession (Ten Cate 2007; Hauer, 2014). The theory of milestones and EPAs have been well described and are beginning to be adopted as best practice goals for IM residency programs but there are few examples in the medical literature illustrating how to effectively turn this educational theory into practice (Nasca 2012; Schmacher 2013).

The KSAs needed to accomplish a high quality discharge are both complex and challenging thus ripe for the application of this new paradigm of milestones and EPAs. The authors of this report created three unique curricula in transitions of care training of medical resident in their separate institutions prior to 2009, in other words, prior to the publication of the curricular milestones (Green 2009). With a call for using milestones for standard setting, we embarked on a standard-setting process for applying milestones to our three transitions of care curricula across institutions.

In 2011, the authors presented an APDIM workshop on the transition of care (Meade 2011) both to describe the individual transitions of care at our institution and to discuss and collect data on workshop participants prioritization of milestones for transitions of care and specifically the EPA, "A safe and effective discharge from the hospital." After analyzing the Q-sort data we reflected back on our original curricula, using the prioritized milestones as a gold standard to compare and contrast our transition of care program curriculum. This report describes three curricula in the transition of care, the results of the group Q-sort and the application of the prioritized milestones back to the curricula as a way to compare and contrast curriculum in for training in an EPA.

Methods:

Mapping milestones

The authors collaborated in a qualitative process called mapping, to develop a Q-sort exercise for workshop participants related to the EPA, 'A safe and effective discharge from the hospital". First, we individually choose 22 milestones of the 142 curricular milestones set that applied to the EPA. Then, over three months, we discussed and deliberated our choices in the group process, in three rounds, until there was agreement on the 22 curricular milestones most related to the EPA. Using these 22 milestones we created a Q-sort exercise to distribute and collect at an APDIM workshop. For the exercise we created cards with curricular milestone on the front and an example of the milestones as it applies to the EPA on the back. In a similar iterative process we also mapped curricular milestones to our individual curricula.

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112 Prioritizing milestones

We distributed the Q-sort exercise for this EPA to participants at the APDIM workshop. Participants were Internal Medicine program faculty who worked in groups of 2-3, called participant units, to prioritize the milestones for the EPA. Participants were given instructions on how to rank the milestones by Q-sort methodology. Q-sort methodology enables researchers with some limitation to study subjectivity using a combination of qualitative and quantitative methods (Kampen, 2013). It prioritizes the opinions of an observer (Brown, 1996) and provides an organized means of identifying priorities and areas of divergent opinions among a group (Valenta, 1997). In a Q-sort, the observer rank-orders a set of statements from most important to least important, using an inverted quasi-normal distribution (Brown, 1996; van Exel, 2005). The sample of statements (the Q sample) may represent an existing framework, in this case the 22 milestones related to the EPA (Brown, 1996; van Exel, 2005). Thus, the statements are the unit of analysis; the number of observers is less important than is their theoretical relevance to the topic (Valenta, 2997). Once sorted, statements are analyzed by rank category with a standard deviation. The Q-sort method uses a mathematical substructure to reveal priorities of subjective viewpoints of the observers. The results of the Q-sort can be used to describe the sample of viewpoints, in this case in terms of prioritization of milestones, rather than the sample of observers (van Exel, 2005). We analyzed the Q-sort results by calculating the mean rank order of milestones by faculty units. With this mean ranking we listed the milestones in order of priority. We identified the top 8 milestones because, by Q-sort methodology, the top 8 milestones confer those milestones more than neutral status in the normal distribution. We calculated the proportion of milestones used of the total 22 milestones in the curriculum for each program. With each innovation we calculated

the proportion of milestones that were in the top 8 compared to the total. We then considered the milestones in common between curricula both in the total 22 milestones and in the top 8 milestones to look for trends.

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Results

- First we will describe the milestones as they were mapped to each transitions of care program.
- 141 Then we will describe the Q-sort exercise results. Finally we will reflect on our individual
- 142 curricula using the prioritized milestones as a standard for curriculum.

Mapping Milestones

- In this section we will briefly describe the individual transitions of care curricula and the results
- of mapping the milestones to each program.

- 148 Simulation
- 149 SIU is a small University program in Springfield Illinois with one academic ambulatory site and
- 150 two affiliate hospitals. During an Objective Structured Systems-Interaction Exam or
- 151 simulation, residents are observed discharging a patient from the hospital and evaluated on how
- 152 well they demonstrated the following observable behaviors: Use of the Situation, Background,
- 153 Assessment, Recommendation format to notify the Anti-Coagulation clinic of the patient's
- 154 Warfarin levels and dose, Use of Electronic Health Record to document medication changes,
- 155 Use of the Hospital's medication reconciliation form and Legibility and Accuracy of written
- prescriptions. Five of the 22 curricular milestones are identified for the simulation curriculum: 156
- 157 PC C1, Synthesize all available data; IPC A5, Utilize patient-centered education strategies;

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179 180 Discharge clinic feedback

health care providers.

Minneapolis, Minnesota with one ambulatory clinic and one hospital affiliate. This innovation targets the nine primary care track residents in the program. A discharge clinic feedback provides patients with pharmacist assisted medication reconciliation, lab and radiology testing follow-up and appointment confirmation. The resident evaluates the quality of the discharge and gives feedback to the ward team resident who discharged the patient. This evaluation includes direct feedback from the patient regarding the discharge processes as well as structured feedback on the written discharge summary. Nine of the 22 curricular milestones are identified for the discharge clinic feedback curriculum: SBP A2, Manage and coordinate care and care transitions across multiple delivery systems; IPC A5, Utilize patient-centered education strategies; IPC F2, Ensure succinct, relevant, and patient-specific written communication; PC

IPC F2, Ensure succinct, relevant, and patient-specific written communication; P A1,

Hennepin County Medical Center is a moderate sized academic training program in

Document and report clinical information truthfully; SBP B1, Appreciate roles of a variety of

Modify differential diagnosis and care plan based upon clinical course and data as appropriate; PC B2, Accurately track important changes in the physical examination; P D2, Carry out timely

interactions with colleagues, patients and their designated caregivers; PBLI F1, Respond

F10, Customize care in the context of the patient's preferences and overall health; PC C3,

welcomingly and productively to feedback from all members of the health care team; PBLI A3,

Reflect on audit compared with local or national benchmarks.

181 Tracer

Baystate Medical Center, Springfield MA, is a moderate sized academic training program with one academic ambulatory site and one large hospital affiliate. In a two-week experiential block rotation, the TRAnsitions of Care Rotation (Tracer) follows the ward team patient into the Post-Acute Care (PAC) settings including home, rehabilitation, and long-term care. Follow up includes a visit to the patient in PAC and a formal assessment of the transition, using tools modified from the transition of care literature. This data is communicated in aggregate to the hospital PAC Performance Improvement team, to the ward team, at inter-professional attending rounds, and at morning report. Seven curricular milestones are identified for the Tracer curriculum: IPC C1, Effectively communicate with other caregivers during transitions of care; SBP A2, Manage and coordinate care and care transitions across multiple delivery systems.; IPC D3, Engage in collaborative communication with all members of the health care team; IPC A5, Utilize patient-centered education strategies; IPC F2, Ensure succinct, relevant, and patient-specific written communication; PC F10, Customize care in the context of the patient's preferences and overall health; SBP B1, Appreciate roles of a variety of health care providers.

Prioritizing and applying milestones

We collected 55 game boards from faculty units at the APDIM workshop. We report the prioritized milestones by Q-sort from the APDIM workshop (Table 1) on transitions of care. The priority range for the top eight prioritized milestones is 4.2 - 5.7 (SD 0.97 - 1.84). From the total 22 milestones, the simulation innovation identified 5/22 milestones, discharge clinic 9/22 milestones and tracer 7/22 milestones related to the EPA. We considered two tiers of milestones. We emphasize the top eight milestones in our analysis for reasons described in the methods.

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Milestones identified in each innovation related back to one of the top eight prioritized milestones 75% of the time; thus more frequently than the milestones with lower priority. Four of the top eight milestones were shared by curricula. Two milestones are shared by all three curricula: IPC A5, utilize patient-centered education and IPC F2, ensure succinct, relevant, and patient-specific written communication. Two other milestones are shared by two curricula: SBP A2, Manage and coordinate care and care transitions across multiple delivery systems and PC F10, Customize care in the context of the patient's preferences and overall health. Alternatively, few milestones are in the lower priority milestones set and there is only one milestone shared by more than a single program in the lower priority milestones ie SBP B1, appreciate roles of a variety of health care providers, including, but not limited to, consultants, therapists, nurses, home care workers, pharmacists, and social workers. If you combine the three innovations together, all of the top eight milestones are included.

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Conclusion:

In a learning community of innovative educators, we identified the transition of care curriculum as important, largely lacking, and challenging to develop. Three curricula mapped their individual program innovations to the new assessment framework of milestones related to the EPA "A safe and effective discharge from the hospital." We found that the milestones in our individual curricula had a strong correlation with milestones identified for our chosen EPA, using a Q sort derived standard.

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A limitation of this collaboration is its retrospective look at innovation in a new framework.

The retrospective aspect is a historical phenomenon ie these curricula existed prior to the

milestones framework. Although non-traditional, this retrospective look allows for an inquisitive matching of milestones across program innovation. Another limit is that the authors each rated the milestones associated with their own program without a peer or participant checker or a group vetting process. Nonetheless, there is no other literature in comparing innovative curricula in a specific EPA in the context of the milestones. This work is useful for future prospective work on educational assessment of the Transition of Care.

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The transition of care remains a challenge to the patient, the health care system and to training programs. Tools related to the assessment of "a safe and effective discharge from the hospital" help narrow the current training gap. Programs may apply one or all of the transitions of care curricula described. Alternatively, programs may consider applying the top 8 milestones defined by the prioritization method, O-sort, to an already existing program in transition of care; thereby, assessing the relevance of their curriculum to a benchmark. Establishing a list of milestones for an EPA can occur siloed at each individual program or in collaborative groups. The Q-sort method may have a role the process as we develop standards for EPA in medical education. Milestones are a new training rubric for measurable outcomes and competency based promotion. We need innovative ways to apply milestones and EPA's to curriculum (Hauer 2013). The milestones give us a context to share individual innovations and compare and contrast using a standardized frame.

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Perspective viewpoints:

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- 250 The Entrustable Professional Activity (EPA), a safe and effective discharge from the 251 hospital, is ripe for educational innovation and collaboration.
- 252 Using Q-sort methodology to prioritize curricular milestones for this discharge EPA, we 253 compare and contrast three unique discharge curricula: simulation, discharge clinic and 254 tracer.
 - We demonstrate that the three unique discharge curricula in aggregate capture all of the highest prioritized milestones for this discharge EPA.

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Table 1: Milestones for the EPA "A safe and effective discharge"

| | Priority | SD | Milesotnes Abbreviated | Example | Top 8 Q-sort | S | DCF | Т |
|-----------|----------|------|--|---|-----------------|-----|-----|---|
| IPC C1 | 5.78 | 0.97 | Effectively communicate with other caregivers during transitions of care | Communicates with the PCP or nursing home at discharge. | X | - 5 | Dei | X |
| SBP A2 | 5.52 | 1.16 | Manage and coordinate care and care transitions across multiple delivery systems. | Works with the case manager to make appropriate decisions about where a patient should go after discharge ie home with nursing services or to a nursing home. | X | | X | X |
| PC C1 | 4.89 | 1.25 | Synthesize all available data | Able to synthesize a complicated hospital course. | X | X | | |
| IPC D3 | 4.74 | 1.35 | Engage in collaborative communication with all members of the health care team | Seeks out the nurse and case manager about the plan for discharge. | X | | | X |
| IPC A5 | 4.56 | 1.63 | Utilize patient-centered education strategies | Explains the primary diagnosis to the patient at discharge and uses teach back to check for understanding. | X | X | X | X |
| IPC F2 | 4.48 | 1.31 | Ensure succinct, relevant, and patient- specific written communication | A succinct discharge summary with key components. | X | X | X | X |
| P A1 | 4.48 | 1.85 | Document and report clinical information truthfully | Really did call the pharmacy to confirm the medication list if they say they have. | X | X | | |
| PC F10 | 4.26 | 1.20 | Customize care in the context of the patient's preferences and overall health | Offers home care or nursing home care depending on patient preferences. | X | | X | X |
| PC C3 | 4.15 | 1.17 | Modify differential diagnosis and care plan based upon clinical course and data as appropriate | If the patient is admitted with presumed pnemonia but the clinical course is consistent with CHF then this resident identifies CHF as the final diagnosis and is able to explain why it is not pneumonia. | | | X | |
| Pil | 4.15 | 1.29 | Treat patients with dignity, civility and respect, regardless of race, culture, gender, ethnicity, age or socioeconomic status | Makes special accommodations for a homeless patient such as having social work assist with clothing, food and/or shelter. | | | | |
| PC B2 | 3.96 | 1.22 | Accurately track important changes in the physical examination | Documents the mental status physical exam upon discharge for a patient admitted with altered mental status. | | | X | |

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Table 1: Milestones for the EPA "A safe and effective discharge" (continued)

| | Priority | SD | Milestones Abbreviated | Example | Top 8 Q-sort | | D 07 | _ |
|------------|----------|------|--|--|-----------------|---|------|---|
| PC A2 | 3.93 | 1.17 | Seek and obtain appropriate, verified, and prioritized data from secondary sources | Verifies the medication list with the pharmacy or PCP. | Q soit | S | DCF | T |
| P D2 | 3.74 | 1.16 | Carry out timely interactions with colleagues, patients and their designated caregivers | Completes the discharge summary within 24 hours of discharge. | | | X | |
| MK A9 | 3.70 | 1.14 | Demonstrate sufficient knowledge of socio-behavioral sciences | Has the knowledge that a patient without health insurance may have many barriers to transition of care such as cost of medications, access to PCP, and poor health literacy. | | | | |
| IPC A4 | 3.70 | 1.27 | Engage patients/advocates in shared decision-making for uncomplicated diagnostic and therapeutic scenarios | Checks with the patient about the convenience of the follow up appointment. | | | | |
| SBP B1 | 3.58 | 1.30 | Appreciate roles of a variety of health care providers | Uses the home nurse for to assist with education of the primary diagnosis and medication reconciliation after discharge. | | X | | X |
| PBLI F1 | 3.50 | 1.17 | Respond welcomingly and productively to feedback from all members of the health care team | Responds to nursing concerns about readiness for discharge. | | | X | |
| IPC E3 | 3.50 | 1.21 | Communicate consultative recommendations to the referring team in an effective manner | Includes the name and recommendations of a consultant in the discharge summary. | | | | |
| SBP E3 | 3.41 | 1.47 | Demonstrate the incorporation of cost- awareness principles | Uses the antibiotic that is most appropriate but also affordable to the outpatient at discharge. | | | | |
| P J1 | 3.11 | 1.45 | Maintain patient confidentiality | Knows to get permission from the patient or their health care proxy to disclose any medical information. | | | | |
| P F7 | 2.54 | 1.27 | Recognize the need to assist colleagues in the provision of duties | A supervising resident who does a discharge for an intern because it is too complex for that intern. | | | | |
| PBLI A3 | 2.41 | 1.12 | Reflect on audit compared with local or national benchmarks | Is aware of the high risk concerns for re-admission. | | | X | |

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Abbreviations: Interpersonal communication (IPC), Systems based practice (SBP), Patient care (PC),

Professionalism (P), Medical knowledge (MK), Problem based learning and improvement (PBLI),

Simulation (S), Discharge clinic feedback (DCF), Tracer (T)