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Quality Improvement Initiative Implementation at the Unit or Hospital Level

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Abstract

Quality improvement efforts take considerable commitment, including mentorship, training, and resources. Leveraging an established framework, such as that outlined by the American College of Surgeons, to design, implement, and analyze quality improvement projects offers the best chance for success. Herein, we illustrate the application of this framework to a gap in advance care planning for surgical patients. This article helps outline how to go from identifying and outlining a problem, to articulating a clearly defined project goal that is specific, measurable, attainable, relevant, and timebound, and later implementing and analyzing a gap in quality identified at the unit (e.g., service line, inpatient unit, clinic) or hospital level.

Keywords

- advance care planning
- informatics
- resident education
- quality improvement

Since the Institute of Medicine report to *Err is Human* highlighted opportunities to improve the safety and reliability of medical care, there has been an exponential growth in interest, the devotion of resources, and the publication of quality and safety endeavors in surgery.[1] Over the past two decades, the broad adoption of the clinical registries, led by surgeons, measuring outcomes for a broad spectrum of surgical procedures, has made high-quality data far more available and highlighted improvement opportunities. In addition to identifying broad areas for improvement nationally, participating hospitals are presented, through benchmarking, with local opportunities. These hospitals can visualize their performance compared with the larger registry cohort to target areas for improvement. In addition, the increasingly comprehensive metrics followed by hospital leadership that contribute to pay-for-performance and reputational programs frequently encompass surgical patients (e.g., hospital-wide all-cause 30-day readmissions) or are entirely surgical in nature (e.g., surgical site infection). Therefore, it is essential that we, as surgeons, embrace quality improvement and, importantly, recognize that it is an area that requires mentorship, training, and resources to achieve success. For quality improvement efforts to be effective, they need to be addressed with a similar level commitment as one does when developing a new clinical program. It is increasingly recognized that most quality improvement projects initiated fail.[2] There is significant publication bias regarding the surgical quality improvement efforts shared in the surgical literature.

Within this article, we aim to highlight a generic approach to addressing a gap in quality identified at the unit (e.g., service line, inpatient unit, clinic) or hospital level to best ensure success. Recently, the American College of Surgeons has described a new framework to leverage in approaching a quality problem and we illustrate the application of this framework to a gap in advance care planning (ACP) for surgical patients.[3]

Problem Detailing

Before beginning a quality improvement project, the problem being addressed must be clearly outlined. Furthermore, the problem should represent a clinical need that is salient at the local level and not just a broader problem that may or may not be a local issue. Local data describing the extent and nature of the local problem are important for framing the project's goals. Local problems may be a part of large-scale systematic issues or narrower but concerning problems.

In addition to clearly defining the clinical problem using local data, project leaders should recruit and involve an

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interdisciplinary group of stakeholders. Project leaders should seek patient input when defining the problem and incorporate explicit ways of making the project patient-centered. Internal stakeholders should also be involved in identifying and defining the problem. These stakeholders can include physicians (surgeons and non-surgeons as dictated by the problem), nurses, pharmacists, physical therapists, dieticians, surgical technicians, receptionists, and professional school students, who are not part of the project improvement team. Finally, external stakeholders such as payers, hospital leadership, and consultants can also be involved in delineating the problem as relevant. When identifying stakeholders, it is essential to be comprehensive but yet efficient and ensure that true expertise is part of the team. For example, when addressing surgical site infections, infectious disease physicians as well as surgeons should be engaged. Similarly, for issues around informed consent, surgeons, risk managers, and nurses should be engaged.

Advance Care Planning Example (Problem Detailing)

Herein, we provide, woven throughout this article, details of a recent quality improvement project at our institution focused on ACP. With this example, we aim to highlight real-world application of the steps outlined in this article.

The goal of ACP is to prepare patients and their surrogate decision-makers for medical decision-making to help patients receive medical care aligned with their goals and preferences.[4] In the literature, there are reports that very few older adults who undergo major elective surgical procedures have discussed and documented their goals of care and advance directives before elective surgery.[5,6] The gap was highlighted at our hospital through participation in a pay-for-performance metric for bowel surgery. *Participation led to an examination of our own performance on the metric and demonstrated that less than 15% of older adult patients undergoing major elective surgery had ACP documentation in the metric-defined 90-day presurgery window.*[7] Furthermore, these data showed disparities in rates of ACP, with it being particularly uncommon in men and individuals who prefer a non-English language.

While the problem was highlighted via administrative data and a pay-for-performance program, the clinical utility of focusing on ACP documentation was grounded in data showing that ACP conducted within the context of surgical care can provide a critical perspective on a patient and families tolerance for surgical risk and, more importantly, postoperative recovery and implications for functional status. The project was patient-centered in that it was designed to directly improve patient care at the individual and systemic level.

On further analysis of the hospital performance, we identified "subgroups" of patients who contributed to the metric performance—older adults undergoing elective surgery and older adults undergoing unplanned emergency surgery—because the approach to improvement was anticipated to be disparate. Herein, we describe the approach to the latter subgroup.

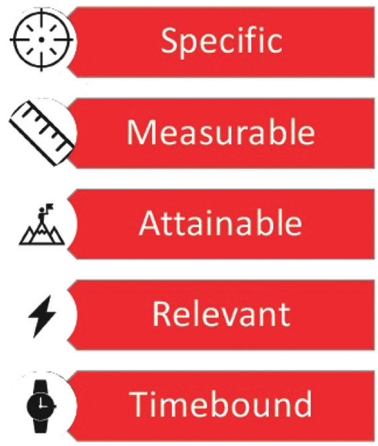

Fig. 1 Goals specified should be specific, measurable, attainable, relevant, and timebound.

Goal Specification

With the problem detailed, it is essential to define the goal. In addition to the local clinical relevance, patient-centered focus, and involvement from multiple stakeholders, it is also important that the project goal be specific and measurable, including the specific outcomes to be measured and how the goals will be measured (►**Fig. 1**). Practical tools such as lists of metrics or data can be used and, when well defined, can help indicate when a project will be successful in outcome evaluation. Project leaders should focus on setting realistic and achievable goals with input from the project team and stakeholders. Furthermore, these goals should be relevant and timely to ensure that the project improves care or outcomes for patients and stakeholders. Lastly, a defined timeframe (e.g., 1 year) in which the project's goals will be measured is important to both define the problem at hand and maximize feasibility.

Advance Care Planning Example (Goal Specification)

In the ACP project, the goal was threefold: (1) increase rates of clinically meaningful ACP conversations between providers and patients on the emergency general surgery (EGS) service; (2) increase documentation of ACP conversations within the electronic health record using standard template; and (3) improve resident understanding of and engagement with conducting ACP discussions with EGS patients (►**Fig. 2**). Of note, the term "clinically meaningful ACP documentation" was a metric defined by the health system's population health team and aligned with the pay-

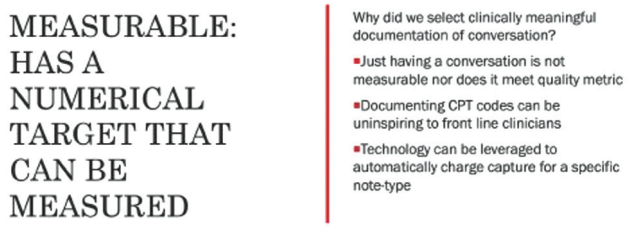

Fig. 2 Goals for the ACP project needed to be measurable.

for-performance metric but was easily retrieved from the electronic health record. When considering the goals and metrics, it is important to ensure that definitions used are standardized and aligned with other work areas when applicable. In addition, ease of collecting data versus specificity of metric should be weighed. When possible, quality improvement teams should partner with health informatics and data analysts to automate reporting from the electronic health record.

In our case, as we defined our goals, we noted that the baseline rate of ACP documentation on the EGS service was less than 19% and the target rate was set at 30%, with the goal of achieving this within 1 year. We selected 30% as it was ACP rate among older adults on the medical services at our hospital and felt achievable.

Strategic Planning

During the planning phase of the project, project leaders should pay special attention to defining the strategy or intervention that will be utilized. Examples of strategies include the use of a checklist, protocol, educational program, or a combination of these modalities. There should be a clear and well-defined link between the problem, outcomes to be measured, and the proposed strategy. During the design portion of the project, project leaders must consider why a strategy was chosen and is expected to work for the identified problem in the local setting. As they were involved in defining the problem, stakeholders from various backgrounds should also be incorporated into deciding on the strategy. If a particular group of stakeholders is key to project success, project leaders should prioritize seeking the support and input of these groups.

Next, planning the strategy includes assessing what resources and information are needed to operationalize the project. Clear role definitions among the project leadership team are imperative (e.g., who will take on each part of the effort, how much time is required, what equipment is necessary, and who will support this effort). In addition to planning the resources needed, project leaders should consider what data to collect on an ongoing basis and how these data will be collected, analyzed, and reported.

As much as possible, project leaders should carefully consider probable limitations, challenges, or hurdles during the project planning phase and before the project begins. A comprehensive assessment of possible or probable challenges should involve the project's stakeholder team as varied perspectives can help anticipate different types of issues. If possible, strategies to help mitigate these anticipated problems should be well defined even before the project begins. Project leaders should keep in mind that the project's strategy should address contextual issues, such as hospital culture, staff engagement, and staff training.

Advance Care Planning Example (Strategic Planning)

To ensure broad stakeholder involvement, a transdisciplinary team was convened and included surgeons (attending and residents), advance practice providers (APPs), registered nurses, palliative care physicians, medical informatics, and medical students to identify potential strategies for integrating ACP into the workflow for patients admitted to the acute care surgery service. The project leaders also sought internal stakeholder input on practical barriers to completion of ACP documentation and strategies for improvement. The team was further supported by an executive sponsor to assist with addressing barriers and ensuring the work was aligned with the institutional goals. In this case, it was the chief population health officer for the health system.

With the team defined, the problem was further delineated. Potential barriers identified included comfort with difficult conversations, time constraints, and lack of familiarity with standard documentation that "counted" toward metric achievement. Through collaborations with the palliative care providers as well as other health system teams that had previously worked to improve ACP, we reviewed approaches, identified what had worked and what had not worked, and sorted through ideas with the lens of surgery and specifically unplanned surgery. It is important to leverage local expertise and to avoid reinventing the wheel because work is often done in siloed fashion.

It was identified that essential resources would include access to electronic health record reporting, ability to modify documentation templates in the electronic health record, and project management.

With the above accomplished, we deployed:

- Educational materials (didactic sessions, invited expert–led grand rounds session, faculty meeting updates, pocket cards).
- Suggested standard work (new template, suggested workflows).
- Monitoring and data feedback to frontline providers (dashboard, performance reports).
- Incentive payments for individuals that achieved target number of notes.

To further secure resources and have the work "make sense" to the end users, the project team aimed to align the work with synergistic efforts including a department of surgery residency curriculum around difficult conversations.[8] This curriculum spans all 5 years of residency and is modeled after surgical training, with graduated complexity that includes learning both basic and advance palliative care skills and then eventually learning how to teach these skills to junior residents. The project team felt that this training, if linked to ACP, might provide residents some of the communication skills that might make it easier for them to broach ACP with acute care surgery patients.

Process Evaluation

Once the project has begun and data are being collected, ongoing evaluation of the improvement effort is imperative. When analyzing the implementation of the project, project leaders should describe the execution of the project (i.e., the specific implementation strategy planned and what was

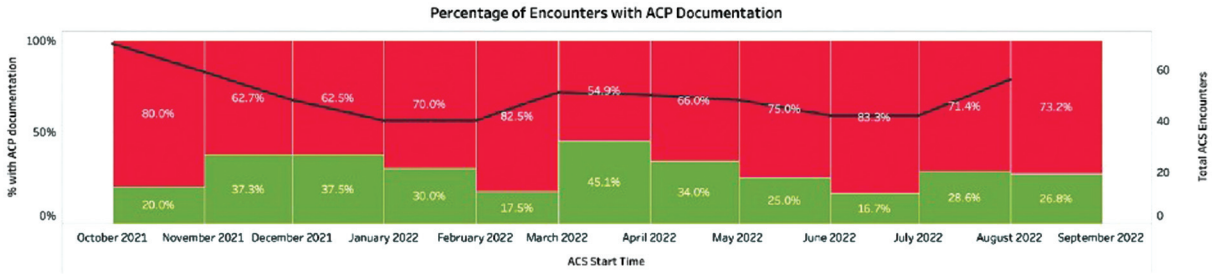

Fig. 3 Customized online dashboard showing real-time project data.

actually done) including an assessment of how well the implementation was conducted from launch to completion. In addition to ongoing assessment of the quality of project execution, project leaders should use an iterative process to identify, describe, and tackle barriers and problems encountered. There should also be a clear throughline from problem identification to the strategy employed to correct or improve the problem. Issues encountered during the course of the project implementation can range but may include protocol compliance and inadequate resources. Throughout the implementation phase of the project, stakeholder involvement remains a key component of problem-solving. Stakeholders should be continuously informed about the evaluation of the project's processes, protocols, and strategies and given opportunity for input and analysis.

Advance Care Planning Example (Process Evaluation)

To evaluate the implementation effort, the resident quality improvement (QI) team reviewed monthly data, shared them with the frontline providers, and tried to solicit impact on what was working and what was not. Residents were surveyed formally at the half-way point about their attitudes toward ACP, experience with conducting ACP on the EGS service, and barriers encountered. Importantly, as the project evolved, it became clear that it was not viable for the residents to be responsible for the majority of the ACP on the EGS service and therefore broader APP education and engagement was conducted, and to better understand their perspectives, focused interviews were undertaken. Additionally, on data review, variation in compliance was driven in part by the resident on the rotation as well as the acute care surgery attending on service. Therefore, the faculty were further engaged and incorporated into the feedback reports.

Outcome Evaluation

Project leaders should have a plan to continually, at regular predetermined intervals, assess the quality of project execution, identify, describe, and tackle barriers and problems encountered, and use data and analytics to measure the effectiveness of the effort and achievement of project goals. To facilitate this, the project's goal must be quantifiable with available data and personnel. The project team will assess whether the specific project goals were achieved fully or partially or were not achieved. At the end of each period of assessment and at the end of the project overall, project leaders should analyze the project's biggest limitations, reflect on unintended consequences, and notify stakeholders of the outcomes.

Advance Care Planning Example (Outcome Evaluation)

When planning the work, care was taken to ensure that the metric was easily measured in the electronic health record so as to obviate the need for manual data collection. Too often, quality improvement projects require excessive manual data abstraction and that may be possible in the outset but is rarely sustainable. Furthermore, with data automation, we were able to examine the data by provider as well as drill down on performance with regard to vulnerable populations to ensure that inequities with regard to the work were front and center (►**Fig. 3**).

Through partnership with health informatics, the data abstraction was automated and transformed into a dashboard that was readily accessible. However, dashboards alone are not enough; to garner enthusiasm for the work, the dashboard was used in brief update presentations and for email reminders. In addition, data from the dashboard were used to populate the EGS service leader rounding lean board as a means of easily reminding senior leaders of the work and escalating barriers when possible.

Cost Evaluation

In addition to evaluating effectiveness of the project from both execution and outcome standpoints, the cost of the project should also be recorded. The project costs include any monetary or budget allotment and full-time equivalents so that it is known how much the project might cost to replicate. Noncompensated personnel costs should also be considered (e.g., provider time to organize the work as well as electronic health record analyst time). Understanding the monetary input and the added value output will help determine whether the project was worth the effort. This can be a formal or informal evaluation. In addition to the project costs and assessment of value from project leaders, stakeholders' perspectives should also be incorporated into the final project assessment. Stakeholders can help contribute information about the value of the project taking into consideration resources, processes, and outcomes.

Advance Care Planning Example (Cost Evaluation)

In our case, reflecting on the costs, we identified the one-time electronic health record build and reporting costs as well as the small amount of money required to trial the incentive payments. In the event that efforts allowed us to meet the pay-for-performance metric, the financial benefit would far outweigh the costs. In the event that we still fell short, the costs of the efforts would be of the order of $15,000, a cost that was acceptable to the senior leadership given the importance of the work.

Knowledge Acquisition

The end of the project also represents an important time for project leaders to reflect on lessons learned during all phases of development, execution, and analysis. The planned use of these assessments, including any data captured during the course of the project, can be used for current and future action, such as data sharing and publishing.

Advance Care Planning Example (Knowledge Acquisition)

As part of the reflection and analysis process, project leaders compiled, summarized, and presented data and, given the gaps in the literature, shared both internally and externally. Collaboration with biostatisticians can be helpful when considering publication in a peer-reviewed journal. In general, when pursuing this avenue, it is essential that the work be novel and timely as, in general, quality improvement projects are difficult to publish in peer-reviewed journals. When considering publication, it is essential to supplement the data from the project with the SQUIRE components so that the report is helpful to someone trying to replicate the work.[9]

End-of-Project Decision-Making

A comprehensive assessment by project leaders with stakeholder input is essential to determine the value of the project, which in turn can inform future actions. Together, the project team (leaders and stakeholders) should decide whether the effort will continue as is, be expanded to other areas, continue with revision, be stopped, or be some combination thereof. Importantly, if the specific goals targeted by the project will be altered or no longer targeted, the project team should determine a plan for ongoing surveillance for recurrence of the problem.

Advance Care Planning Example (End-of-Project Decision-Making)

At the end of the year, while the work had not achieved its target, the improvement was meaningful, and the team reflected that a year was not long enough to achieve the culture change desired. Therefore, it was decided to continue the project for a second year, but the effort be narrowed in scope to better identify the one to two key questions that teams should prioritize asking patients as, with the significant work burden on the service, the full scope of the questions were challenging.

Conclusion

There is a tremendous opportunity to drive improvements in surgery. To take the field to the next level, it is essential to improve the rigor of the work undertaken. Efforts can take significant time, personnel, and system-based resources, and it is imperative to embark with a clearly defined project goal that is specific, measurable, attainable, relevant, and time-bound. Input from stakeholders, both internal and external, is also essential to the ability of a project team to truly understand and change practice (►**Fig. 4**). Successful quality improvement efforts require mentorship, training, and resources and should be developed following a clearly defined set of best practices. With this article, we have highlighted a generic approach to addressing quality gaps at the unit and/or hospital level with examples from our own work on ACP as evaluated through the lens of the American College of Surgeons quality improvement framework.[3]

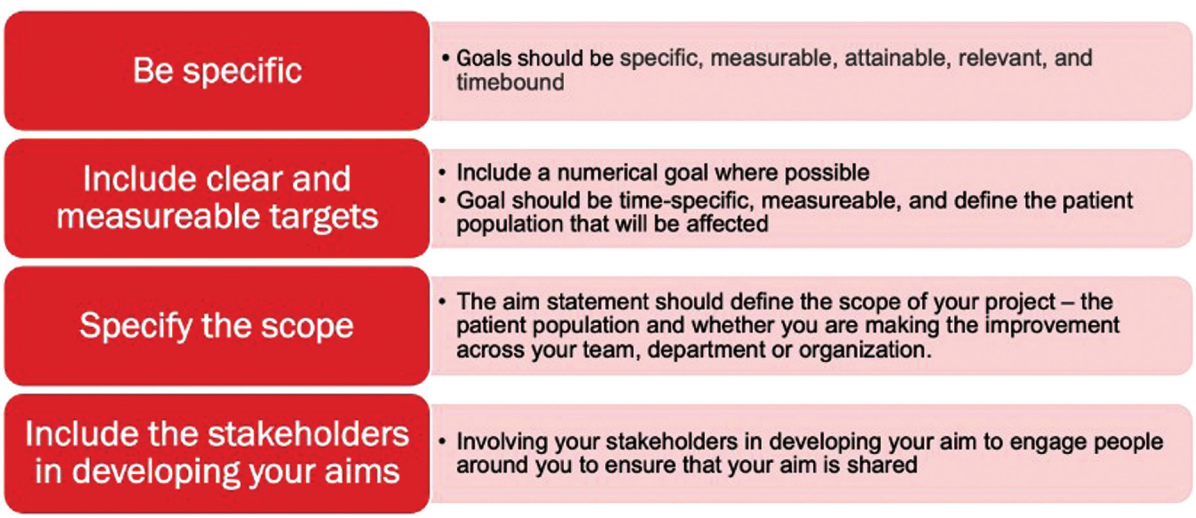

Fig. 4 Summary of best practices.

Conflict of Interest
None declared.

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