Use of a Structured Template to Facilitate Practice-Based Learning and Improvement Projects

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Abstract

Background The Accreditation Council for Graduate Medical Education (ACGME) requires residency programs to meet and demonstrate outcomes across 6 competencies. Measuring residents' competency in practice-based learning and improvement (PBLI) is particularly challenging.

Purpose We developed an educational tool to meet ACGME requirements for PBLI. The PBLI template helped programs document quality improvement (QI) projects and supported increased scholarly activity surrounding PBLI learning.

Methods We reviewed program requirements for 43 residency and fellowship programs and identified specific PBLI requirements for QI activities. We also examined ACGME Program Information Form responses on PBLI core competency questions surrounding QI projects for program sites visited in 2008–2009. Data were integrated by a multidisciplinary committee to develop a peer-protected PBLI template guiding programs through process, documentation, and evaluation of QI projects. All steps were reviewed and approved through our GME Committee structure.

Results An electronic template, companion checklist, and evaluation form were developed using identified project characteristics to guide programs through the PBLI process and facilitate documentation and evaluation of the process. During a 24 month period, 27 programs have completed PBLI projects, and 15 have reviewed the template with their education committees, but have not initiated projects using the template.

Discussion The development of the tool generated program leaders' support because the tool enhanced the ability to meet program-specific objectives. The peer-protected status of this document for confidentiality and from discovery has been beneficial for program usage. The document aggregates data on PBLI and QI initiatives, offers opportunities to increase scholarship in QI, and meets the ACGME goal of linking measures to outcomes important to meeting accreditation requirements at the program and institutional level.

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Editor's Note: The online version of this article contains peer-reviewed documents for practice-based learning and improvement (PBLI) and a list of PBLI projects and outcomes by training program January 2010 to July 2011.

Background

Residency programs' ability to demonstrate outcomes across all 6 competencies is an essential component of the Accreditation Council for Graduate Medical Education (ACGME)[1] accreditation. Leadership at the program and institutional levels can play an instrumental role in providing opportunities for projects in patient safety,

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quality improvement (QI) and practice-based learning and improvement (PBLI). A structured approach to performance assessment is part of QI, along with systematic improvement efforts. Often, QI is intertwined with PBLI, which involves investigation and evaluation of patient care, appraisal and assimilation of scientific evidence, and continuous patient care improvement based on constant self-evaluation and lifelong learning.[2]

Although clearly defined, measuring residents' performance in the PBLI competency has been particularly challenging for training programs.[3,4] Several key elements must be in place before the implementation of a curriculum in PBLI to achieve effectiveness and sustainability. These key elements include (1) trained physician educators with a specialized set of skills to effectively teach QI and PBLI[5]; (2) departmental and institutional supports for QI and patient safety processes; and (3) clear graduate medical education (GME) infrastructure to promote and support the facilitation of PBLI projects. Even with these key elements in place, the documentation requirement for PBLI projects, including QI, can be challenging. Moreover, practical educational tools to guide resident and faculty scholarship projects are limited.[5]

Our project focused on 3 areas relevant to addressing the PBLI core competency requirement. The first entailed the use of a collaborative process to develop an educational approach to provide guidance and documentation on PBLI for all GME programs at our institution. This step established a model for our GME community to address subsequent core competency challenges. The second area focused on the development of a tool to implement and document PBLI initiatives. This provided an educational tool and process to meet goals or program requirements in the implementation and documentation of PBLI activities. The third area was to structure a tool that would incorporate the major elements required for successful scholarship that would meet the 3 levels of ACGME scholarship requirements (faculty, residents, and the program). Successful scholarship in any of these 3 levels can overlap or "count twice" for program requirements as well as GME institutional requirements.

What was known

Assessing resident competency in practice-based learning and improvement (PBLI) may be the most challenging of the 6 competencies.

What is new

An electronic evaluation template used a checklist to guide program leadership through the PBLI process and facilitate evaluation of improvement projects. The development process included extensive review, resulting in program leaders' sense of ownership and support for the tool.

Limitations

Single institution study. Implementation challenges include sustainability, which is addressed through institutional and GME-level support.

Bottom line

The template aggregates data on PBLI and QI initiatives, offers opportunities to increase QI scholarship, and facilitates documenting outcomes important to meeting accreditation requirements.

Methods

Data Collection

We gathered data from multiple sources to identify key characteristics of PBLI projects and QI activities deemed acceptable by ACGME standards.[6,7] We reviewed the ACGME program requirements from all 43 programs (21 residency [49%] and 22 fellowship [51%] programs) at our institution. Program-specific PBLI requirements for QI activities were then identified in all programs. We examined Program Information Form (PIF) responses on PBLI questions asking for documentation of QI projects for programs with accreditation site visits in 2008–2009. We also focused on PBLI core competency citations for 6 different programs and 3 concerns expressed in correspondence by ACGME site reviewers at the time of formal program review. Data were collected and organized by general themes and further reviewed by the GME Core Competency Subcommittee, with representation from the departments of anesthesiology, family medicine, internal medicine, otolaryngology, pathology, pediatrics, general surgery, as well as University Educational Support, and Hospital Patient Safety and Education.

Next, data were grouped into 3 general themes: (1) resident involvement, (2) faculty involvement, and (3) project parameters. Each theme was reviewed and refined through group process–oriented discussion. Five key project characteristics were identified (BOX). These 5 characteristics guided the development of the PBLI template.

BOX 1 **Five Key Project Characteristics of Acceptable Quality Improvement (QI) Projects**

1. Residents and fellows were involved in development or ongoing work of QI project.
2. The project was educational, clinical, or research-based.
3. The project included the initial measurement of one outcome, a plan for improvement, and a plan for how and when to remeasure the effect of the intervention.
4. Clinical measurements included patients cared for by the residents or fellows.
5. At least one resident and one faculty member or mentor were involved in the planning, implementation or intervention, and evaluation of the project.

This GME multidisciplinary group also identified the need for the template to maintain confidentiality to ensure a level of peer protection that provides a level of security from disclosure through discovery or subpoena during legal investigation. This is important in the QI process because it enables programs to examine areas of concern in quality, safety,[8] or other issues within a confidential, protected process. Discussions with the university legal department were conducted to ensure the "peer protection" status of the completed template.

Template Development

After the key characteristics of acceptable QI projects were identified, application of those characteristics was integrated to develop a functional, educational tool. We developed a peer-protected, PBLI template that guided programs through process, documentation, and evaluation of QI projects. The final template was organized into 10 key categories, each with detailed steps, and was created in electronic format. The electronic PBLI template included a companion checklist and evaluation form (both templates are provided as online supplemental material). An online training module, including approaches, questions, and project examples, was developed in parallel to facilitate implementation of the template. All resources were provided in online format with password-protected access. Throughout development of the PBLI template, 3 goals remained constant: first, that the template would guide programs through the PBLI process with multiple participants; second, that it facilitated documentation and evaluation of the PBLI process; and third, that it supported scholarship efforts in documenting QI projects and initiatives.

Approval Process for the PBLI Template

Our template was reviewed and approved in a 3-tiered process to ensure stakeholder participation, relevance, and peer protection. Tier 1 included the GME Core Competency Subcommittee (as described above). Tier 2 included the Graduate Medical Education Committee–Executive Committee. The group was made up of GME leaders, resident council leaders, and 14 program directors from core and noncore programs. Tier 3 included the final approval by the GME Committee, which consists of more than 50 members from all accredited training programs. Steps at each tier were reviewed and approved through our GME Committee structure with consultation from our university legal department. Several iterations and improvements were incorporated because of this 3-tiered process.

Evaluation

Tool use, functionality, and program outcomes were assessed across the institution following implementation of the PBLI template. Information was collected regarding (1) the number and percentage of programs using the template, (2) feedback from users about strengths and usefulness of the template, (3) the number and description of completed projects, (4) the number and type of scholarly output, and (5) program accreditation outcomes.

Results

During a 24-month period after the introduction of the template, we noted an increase in formal, scholarly PBLI projects. We used 5 categories to evaluate our outcomes.

1. Program template use: Between January 2010 and December 2011, 27 of 43 (63%) programs completed projects, 15 (35%) reviewed the template but had not initiated projects, and 1 (2%) program had not responded.
2. Template feedback: Overall, informal faculty and resident feedback following implementation indicated the PBLI template facilitated documentation and project completion as well as conceptual teaching (TABLE).
3. Projects: In the first 18-month period, January 2010 to June 2011, 8 programs (19%) completed projects; in the 6 months between July 2011 to December

TABLE 1 **Perceived Strengths and Limitations of the Practice-Based Learning and Improvement (PBLI) Template**

The strengths of the template included	The limitations of the template included
1. The template provided step-by-step guidance to identify measures, establish baseline data, and determine whether the project required human-subject approval before initiation. 2. The template encouraged collaborative projects and facilitated efficient continuation of projects through multiple rotations and among multiple residents. 3. The template structure assisted mentored learning through guided, structured research meetings. 4. The template provided documentation in the appropriate format for use in completing the ACGME common PIF practice improvement responses for PBLI activities required for continued program accreditation purposes.	1. The template was designed for more in-depth PBLI projects. 2. Training programs that required complete, short-term projects felt the template's detailed documentation was too in-depth, and the PDSA[16] cycle to measure and test a small change was more appropriate.

Abbreviations: ACGME, Accreditation Council for Graduate Medical Education; PDSA, Plan-Do-Study-Act; PIF, Program Information Form.

2011, 19 more programs (44%) completed projects (provided as online supplemental material).

4. Scholarly output: Of the completed projects (n = 29), 2 (7%) have been accepted and presented at national meetings, 3 (10%) have been accepted for local research competition, and 3 (10%) are in manuscript form and will be submitted for publication (provided as online supplemental material).
5. Program accreditation outcome: Six programs (dermatology, radiation oncology, geriatrics, internal medicine, otolaryngology, and general surgery) with experience using the template for PBLI projects have completed the ACGME accreditation site visits for continued accreditation[9] between 2010 and 2011, and no citations or concerns have been received in the PBLI core competency area. All 6 program directors used the Program Information Form response format provided at the end of the template. All program directors reported that the structure helped them to appropriately and concisely respond to the common PIF practice improvement question for the PBLI core competency section. Several of the programs received positive feedback from site visitors regarding the utility of the template to effectively document QI projects.

After the first 18 months, 30 programs (70%) had reviewed the template, with 8 programs (19%) completing projects. Within 24 months, 42 programs (98%) had reviewed the template, with 27 programs (63%) completing projects.

Discussion

The GME leaders are challenged to provide effective institutional educational support to training programs in PBLI activities at the program and institutional level.[5,10–12] We found that using an organized process for QI projects can benefit programs and increase opportunities for scholarly activity while demonstrating competency in PBLI. This can also facilitate the documentation of PBLI learning surrounding quality and improvement for ACGME site visits. To our knowledge, this is the first standardized GME template to guide and document PBLI and QI projects. PubMed and Medline literature searches (using the terms *institutional*, *graduate medical education*, *practice based learning*, *PBLI*, *quality improvement*, *QI*, *template*, *project*, and *evaluation*) failed to locate research studies. Two systematic reviews have identified that guidance from the literature is limited.[13,14] No single study or report offered a clear curriculum map or blueprint for teaching or assessing PBLI for medical students or residents. These reviews found that studies did integrate PBLI curriculum with projects. Yet studies lacked standardized processes, formal project tools, or standard templates that could be accessed across training programs.[13,14]

Leadership support has been identified as a key factor in implementing institution-wide initiatives.[10] In addition to leadership, cost and faculty nonresponse have been identified as barriers to GME institution-wide initiatives.[9] Our team addressed these barriers by linking the PBLI template directly to program and institutional accreditation. First, it increased perceived value, positively affecting response rates. Second, it provided merit through a standardized process that guided and documented scholarship surrounding PBLI and QI activities. Third, it streamlined institutional support at the GME level. The GME office has integrated the use of the PBLI template into the oversight process. This occurs at various key times in the program accreditation oversight process, including annual program outcomes, internal reviews, and site visit preparation.

As with any new institutionalized initiative, it is a challenge to move beyond early adopters and create sustained change. The true hurdle is in identifying methods to maintain a balance between continued supports for early adopters and focusing efforts on programs resistant to change. Through institutional and GME-level support, we used multiple dimensions to overcome this hurdle. The template addressed common and specialty-specific program requirements surrounding PBLI activities. Additional support was provided through online accessibility to the PBLI template, supporting documents, as well as a supplemental training module. Embedding these dimensions in the GME oversight process provided initial, as well as continued, support for programs in a systematic yet individualized manner. Development of a standard template along with electronic accessibility and GME support provided a platform to develop projects across programs. Research suggests that wide educational interventions have the potential to improve learning surrounding PBLI and QI curriculum and projects, but there remains a lack of quality evidence to support findings.[13–15]

Increased program use and scholarly output of the template provides evidence that the PBLI template can be viewed as a valued and effective method of measuring PBLI outcomes. This educational tool has demonstrated initial success in its ability to facilitate experiential learning through collaborative QI projects between trainees and mentors. It has guided scholarship while providing documentation at the program and institutional levels of the PBLI competency for continued accreditation purposes. A limitation of this work is its single-site intervention and the single GME leadership structure.

Conclusions

GME programs are continually engaged in various approaches to teach and assess PBLI. We found the use of a

3-tiered review process during the development stage increased the utility of the PBLI template across various specialty programs. Twenty-seven programs (63%) have successfully used the PBLI template to complete scholarly projects. The "peer-protected" status of the template ensures a level of confidentiality and has increased program interest and use. The template has also proven successful as valid documentation of PBLI core competency activities during ACGME site visits. The PBLI template exemplifies a successful model at an institutional level for programs to guide data-driven improvements in experiential learning, practice improvement and quality, and safety initiatives while enhancing the scholarly activity of both residents and faculty.

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