CLER
NATIONAL REPORT OF FINDINGS 2025

ACGME
Accreditation Council for Graduate Medical Education

CLER
Clinical Learning Environment Review

DEDICATION

The ACGME thanks the designated institutional officials at its accredited Sponsoring Institutions, as well as the executive leaders of the participating hospitals, medical centers, and ambulatory care sites, for graciously hosting this set of Clinical Learning Environment Review site visits. We appreciate the effort that went into arranging the visits and ensuring open access to residents, fellows, faculty members, and other staff. It was a privilege to spend time in your organizations, and we recognize your dedication to continually improving graduate medical education and patient care.

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SPECIAL NOTE

Between 2012 and 2025, the ACGME's Clinical Learning Environment Review (CLER) Program conducted site visits to assess graduate medical education (GME) engagement in important cross-cutting areas of focus such as patient safety and health care quality. The information gathered has revealed numerous opportunities for GME to partner with clinical learning environments (CLEs) to improve both learning and patient care. After four cycles of visits and several special protocols, the CLER Program concluded in late 2025. This is the final national report of aggregate data from the fourth cycle conducted between June 2022 and March 2025.

Foreword

Chad W.M. Ritenour, MD, Co-Chair 2023-2024, Chair 2025, CLER Evaluation Committee

For over 12 years, the ACGME'S CLER Program provided insights into opportunities to optimize both the learning environment for resident and fellow physicians and the safety and quality of patient care. This *CLER National Report of Findings* adds to this body of knowledge, highlighting areas of notable strengths and ongoing challenges as well as providing information on new areas of focus such as Teaming.

The report spans a period during which US hospitals, medical centers, and ambulatory clinical sites were emerging from the COVID-19 pandemic and, as such, it is not surprising that these findings reflect the pandemic's lingering impact on both learning and patient care. As noted in past *CLER National Reports*, it will be important to include GME in planning and implementation efforts as CLE leaders seek to rebuild and strengthen their organizations' approaches to improving patient safety and health care quality.

One of the most consistent messages throughout this report is the importance of viewing and addressing the full clinical care team beyond just attending physicians. The report notes both the vital role residents and fellows play as members of the team and how other team members shape the GME learning experience—all of which impact the quality of patient care.

Findings in the CLER Focus Area of Teaming provide a new lens through which to view opportunities to improve interprofessional education and collaborative practice. This focus area recognizes (1) the dynamic nature of how the composition of the clinical care team changes throughout the course of providing patient care and (2) the need for purposeful interactions in which team members capitalize on their various professional strengths to coordinate safe and efficient care.

As CLEs manage the ongoing stresses of staffing shortages and large influxes of staff who are new and/or early in their careers, this report underscores the need for greater investment in mechanisms, infrastructure, and GME involvement that support ongoing interprofessional learning that is purposeful in its design. In particular, these findings reveal the need to optimize teaming not only in emergent situations but also throughout the myriad interactions that characterize day-to-day care.

As with previous *CLER National Reports*, this report reveals many opportunities for CLE executive leaders and GME to work together to solve problems around systems-based issues and emphasizes that, beyond education, GME has a vital role in organizational approaches to optimize patient care.

Introduction

Robin Wagner, RN, MHSA, Senior Vice President, CLER

The *CLER National Report of Findings 2025* presents findings from a stratified random sample (n =181) of the nearly 800 eligible ACGME-accredited Sponsoring Institutions across the United States. As with other *CLER National Reports*, it provides a snapshot of CLEs and how resident and fellow physicians connect with the health care systems in which they learn and train to address important cross-cutting areas such as patient safety, health care quality, well-being, supervision, and professionalism. This report also presents findings on a new CLER Focus Area called Teaming.

The report presents five overarching themes that highlight how residents and fellows are often learning in environments that continue to struggle with challenges that began or were heightened during the COVID-19 pandemic. For example, many CLEs are continuing to rebuild processes and activities to optimize patient safety and health care quality. CLEs are also working to address the complexities associated with the rise in workplace violence. Additionally, CLEs are considering how to purposefully integrate GME in the context of ongoing and dynamic changes to health care systems. These changes are resulting in new care models and intricate administrative structures.

This report also highlights opportunities for improvement, innovation, and learning in each of the CLER Focus Areas, including information on Teaming. This new focus area specifically explored interprofessional learning and development, high-performance teaming, patient engagement in teaming, and systems support for teaming. The findings in this focus area provide important baseline information that CLEs can use as benchmarks to gauge the success of future efforts. For example, when queried during walking rounds, many clinical care team members, including residents and fellows, indicated that they do not routinely meet as a team to discuss how they work together and ways to improve teaming; this indicates an area of opportunity for nearly all CLEs.

Among the strengths to highlight, the *CLER National Report of Findings 2025* found that residents and fellows consistently recognize patient safety vulnerabilities related to the use of remote technologies. This finding is important for patient safety and quality leaders because residents and fellows could serve an important role in both identifying and addressing vulnerabilities associated with the increasing use of artificial intelligence and various remote technologies. Report findings additionally note ongoing variation in the degree of resident and fellow involvement in efforts to improve health care quality and the value of the CLE and GME taking a collaborative and integrated approach to quality improvement.

Key findings in the Supervision and Professionalism Focus Areas reveal opportunities to strengthen support systems for residents and fellows placed in vulnerable situations. Importantly, these findings collectively highlight opportunities for GME leaders to strengthen or build new relationships with CLE executive leaders to keep pace with today's changing systems of care.

This report also presents trends for a subset of CLEs that experienced four site visits since the CLER Program's inception. Several noteworthy observations emerged from this perspective. Notably, there was demonstrable improvement in the median percentage of residents and fellows (post-graduate year (PGY)-3

and above) who reported participating in an interprofessional patient safety event investigation—more than a 20 percent increase since the first cycle of CLER visits. From its earliest days, the CLER Program placed special emphasis on the importance of engaging residents and fellows in interprofessional analyses of patient safety events, so it is encouraging to see this positive trend.

The report also highlights trends that represent no change or changes in an undesirable direction that warrant continued attention. For example, since the first cycle of visits, CLEs continue to lack strategic and comprehensive approaches to eliminate health care disparities.

The *CLER National Report of Findings 2025* reflects both progress in GME/CLE integration and enduring challenges—important insights that can serve as the inspiration to build upon successes and the impetus to test new approaches to solve complex problems. In keeping with the concept of quality improvement, the ACGME encourages CLE and GME leaders to view all of the challenges highlighted in this report as opportunities.

For the past three cycles, a median of over 40 percent of residents and fellows indicated they would "power through" to hand-off even if impaired by fatigue rather than activate some type of backup. In every cycle of visits, this percentage was significantly higher among females than males. Overall, this finding represents a challenge that impacts many CLER Focus Areas, including Patient Safety, Supervision, and Professionalism. It is a complicated challenge to address, as success likely means taking purposeful steps to change the culture within CLEs. Making these changes requires coordination among GME and CLE leaders to encourage and support faculty members and all members of the care team to shift behaviors with the understanding that doing so will further promote patient safety.

In conclusion, the *CLER National Report of Findings 2025* reflects both progress in GME/CLE integration and enduring challenges—important insights that can serve as the inspiration to build upon successes and the impetus to test new approaches to solve complex problems. In keeping with the concept of quality improvement, the ACGME encourages CLE and GME leaders to view all of the challenges highlighted in this report as opportunities.

Overview of the CLER Program

INTRODUCTION

The ACGME established the CLER Program in 2012[1] to provide GME leaders and executive leaders of hospitals, medical centers, ambulatory care sites, and other clinical settings with formative feedback aimed at improving patient care while optimizing learning in six cross-cutting areas of focus:[2] patient safety, health care quality (including health care disparities), supervision, well-being, professionalism, and a new focus area called Teaming.[a]

By conducting periodic CLER site visits and providing formative feedback to clinical sites that serve as CLEs for resident and fellow physicians, the CLER Program aimed to stimulate conversations and motivate CLEs to build upon their strengths and internally address opportunities for improvement. The ACGME refers to CLEs as living and breathing entities–the embodiment of all the individuals within these settings–that influence and imprint upon these early learners. CLER's formative approach recognized that, although there are shared elements, each site that serves as a CLE for resident and fellow physicians has a unique set of internal and external factors that influence the development and implementation of that CLE's strategic goals aimed at improving patient care.

The CLER Program is separate and distinct from nearly all accreditation activities. Two essential elements connect the CLER Program with the rest of the accreditation process: (1) each Sponsoring Institution contacted for a CLER visit is required to complete the visit; and (2) the chief executive officer and the leader of GME (specifically the designated institutional official) of the clinical site must attend the site visit's opening and closing sessions.

PROTOCOL ADAPTATIONS FOR THE FOURTH CYCLE OF SITE VISITS

Due to the marked increase in the total number of ACGME-accredited Sponsoring Institutions, the fourth cycle of CLER visits moved from a census model of visiting one CLE for each Sponsoring Institution to a sampling model of visiting a stratified random sample of Sponsoring Institutions.

This cycle was launched during a time when the United Stated was emerging from the COVID-19 pandemic. As such, with the exception of the final meeting with executive leadership, all group meetings were conducted remotely with videoconferencing. When onsite for the walking rounds, the CLER Field Representatives followed the masking policies of the CLE.

The CLER Field Representatives in this cycle used Protocol 4.0, which was similar but not identical to the protocols used in prior cycles of visits.[3,4,5] When appropriate, this protocol maintained the adaptations from prior protocols, including:

- For the small proportion of Sponsoring Institutions where the visit was exclusive to the ambulatory care setting, the protocol questions and scenarios were modified to fit the setting while keeping the essence of the questions to allow for comparability across settings.

[a] This is a new focus area, introduced in *CLER Pathways to Excellence Version 2.0*. The concept of teaming recognizes the dynamic and fluid nature of the many individuals of the clinical care team who come together in the course of providing patient care to achieve a common vision and goals. It also recognizes the benefits of purposeful interactions that allow team members to quickly identify and capitalize on their various professional strengths and coordinate care that is both safe and efficient.

- In Sponsoring Institutions with one or two program directors, although the interview sessions for the program directors were separate from the sessions with faculty members, the results were combined in the verbal and written reports to maintain anonymity.

This protocol also included a new meeting to explore the focus area of Teaming with individuals of various professions with knowledge of organization-wide initiatives (e.g., manager of an inpatient service, manager of an allied health profession/ancillary service).

In Protocol 4.0, many of the questions remained constant. However, in its commitment to a model of continual quality improvement, CLER Program staff also modified some questions and added new questions to explore important topics in greater depth. For a more detailed description of the protocol, please see the Methodology section of this report (pp.13-22).

THE CLER EVALUATION COMMITTEE

The CLER Evaluation Committee provided oversight and guidance on all aspects of program development. The committee was composed of members with expertise in patient safety and health care quality improvement, as well as GME and executive leadership of hospitals and medical centers (e.g., chief medical officer, chief nursing officer). The committee also included post-graduate physician representation and public members.

For this report, the committee reviewed the data resulting from the site visits and worked with CLER Program staff to review overarching themes and key findings—presented here in the form of challenges and opportunities. The committee members bring an external voice in response to the findings. Their views and commentary on the significance of the key findings and overarching themes are reflected in the discussion sections of this report.

REPORTING THE FINDINGS AND ORGANIZATION OF THE REPORT

Similar to prior reports of findings, this report presents several different perspectives including overarching themes, key findings for each of the focus areas, detailed findings, and a section on trends.

Protocol 4.0 was also the first to include a subprotocol exploring the patient perspective in a subset of the larger Sponsoring Institutions. Findings from the subprotocol have been published separately.[6]

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Methodology

INTRODUCTION

This report details findings of the fourth set of CLER site visits to 181 ACGME-accredited Sponsoring Institutions, which the CLER Program conducted from June 21, 2022, to March 25, 2025.[a] The aggregated findings in this report reflect a mixed-methods approach (i.e., both quantitative and qualitative information gathering and analysis), which was used by the CLER Program to form a comprehensive base of evidence on how the nation's CLEs engage residents and fellows in the CLER Focus Areas.[1]

In addition to the findings from the fourth set of CLER visits, this report includes a look at changes on a selected set of measures in each of the Focus Areas (i.e., four- and three-point analysis). This analysis highlights both progress and challenges in CLEs over time. These findings can enhance and extend understanding of the complex and dynamic nature of CLEs and help inform conversations on how to continually improve physician education and training to ensure high-quality patient care within these learning environments.

SAMPLING AND SELECTION OF CLINICAL LEARNING ENVIRONMENTS

The CLER Program visited a sample of CLEs of ACGME-accredited Sponsoring Institutions, aiming for approximately 25% of the total population of Sponsoring Institutions. To ensure the sample was proportionally representative of all Sponsoring Institutions, the CLER Program employed stratified random sampling to reflect distribution by region and number of ACGME-accredited core residency programs.

During the fourth cycle of CLER visits, there were 791 ACGME-accredited Sponsoring Institutions. This report contains findings from 181 CLEs that are affiliated with 181 Sponsoring Institutions that collectively oversaw 4,045 ACGME-accredited residency and fellowship programs (33.8% of all ACGME programs) and 55,509 residents and fellows (33.8% of all residents and fellows in ACGME-accredited programs). Appendix A provides additional information on the general characteristics of these Sponsoring Institutions (e.g., type of Sponsoring Institution, number of programs) compared to all ACGME-accredited Sponsoring Institutions.

For Sponsoring Institutions with two or more clinical sites that served as participating sites, the CLER Program visited one site due to resource limitations. This selection was based on two factors: (1) which CLE served the largest possible number of programs for that Sponsoring Institution, and (2) whether both the DIO and CEO of the CLE were available for the opening and exit interviews.

For the majority of the Sponsoring Institutions, the CLER site visit occurred at the hospital or medical center that served as the major participating clinical site. At many of these sites, the CLER site visit team spent time in both inpatient and affiliated ambulatory care practices. For a small proportion of Sponsoring Institutions, the site visit was

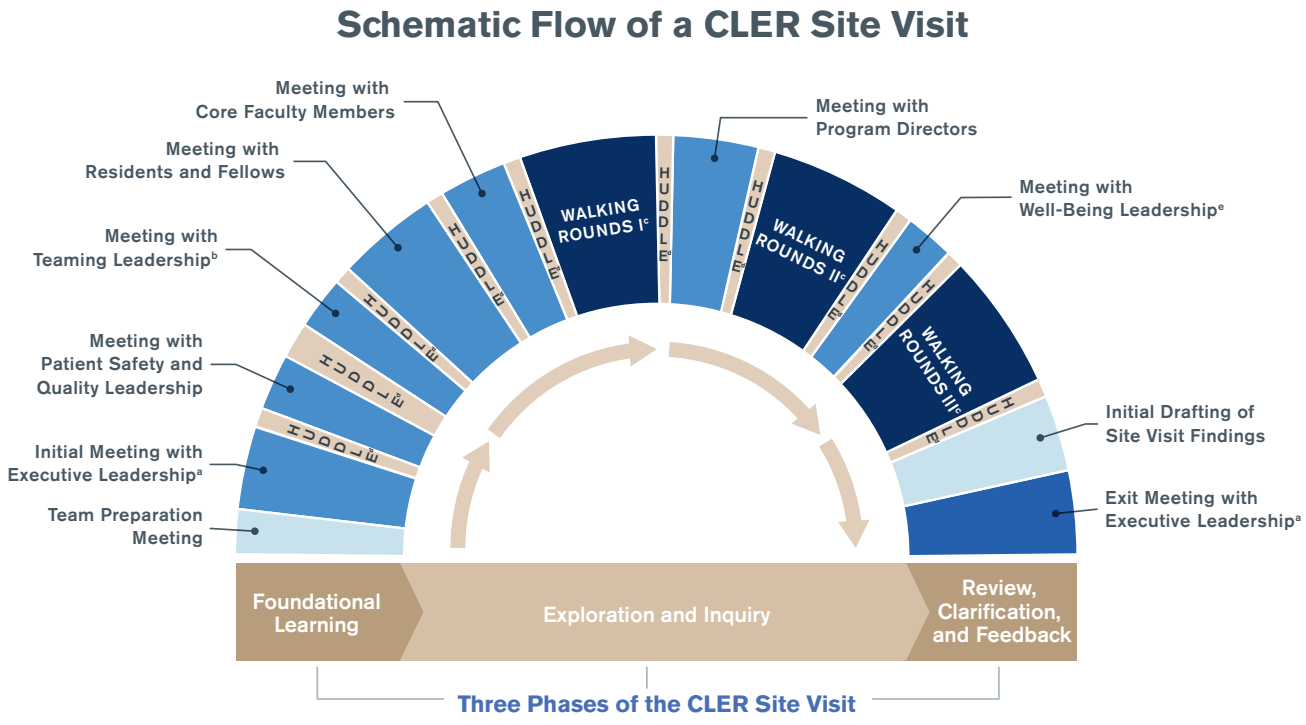
[a] The findings from visits to the smallest sites of Sponsoring Institutions (i.e., preventive medicine programs and single fellowship programs) are omitted from this report.

[b] Source: The ACGME annual data reports. The ACGME annual data reports contained the most recent data on the programs, institutions, and physicians in GME as reported by all ACGME-accredited Sponsoring Institutions and programs. ACGME annual data reports were specifically generated for use by the CLER Program.

conducted exclusively in the ambulatory care setting, including teaching health centers administered by the Health Resources and Services Administration. Additionally, for a small number of Sponsoring Institutions, the site visit was exclusive to an ambulatory care site if the major participating site in an inpatient setting had experienced a CLER site visit for a different Sponsoring Institution.

CLER SITE VISIT PROTOCOL

The CLER site visit protocol included a structured schedule of events for each visit (*Figure 1*). In general, the CLER Program designed its site visit protocol to be the same for all CLER site visits regardless of the number of core residency programs at a Sponsoring Institution. In recognizing that the visits to the smaller Sponsoring Institutions involved spending time in both inpatient and affiliated ambulatory care practices or solely in an ambulatory care setting, the CLER Program modified the protocol and site visit process as needed to accommodate these conditions and other unique aspects of smaller Sponsoring Institutions. Overall, these modifications were minor (e.g., length of site visit, site visit agenda) and are noted accordingly in the sections that follow.



[a] Executive leadership meetings included the participating site's chief executive officer and designated institutional official (required), as well as other members of executive leadership (e.g., chief medical officer, chief nursing officer, dean).

[b] The teaming leadership meeting included individuals with positions or roles at the clinical site with knowledge about organizational-wide initiatives.

[c] Each walking round has a resident or fellow host/escort and opportunity for contact with other members of the clinical care team.

[d] Throughout the site visit, the Clinical Learning Environment Review (CLER) Field Representatives conducted huddles to discuss the information they had gathered.

[e] The well-being leadership meeting included individuals formally or informally designated by executive leadership to address the well-being of all members of the clinical care team at the clinical site.

Figure 1. Schematic Flow of a Clinical Learning Environment Review (CLER) Site Visit

CLER Program staff notified clinical sites of their CLER site visit at least 10 working days in advance. This relatively short notice was intended to maximize the likelihood of gathering real-time information from interviewees.

The number of CLER Field Representatives and visit length varied according to the number of programs and residents and fellows at the site, with teams comprising two to four CLER Field Representatives and visits lasting two to three days. A salaried employee of the ACGME led each CLER site visit team. Additional team members included other CLER Field Representatives, ACGME staff members, or trained volunteers from the GME community.

For site visits that involved time in both inpatient and affiliated ambulatory care practices, the site visit agenda allowed time for the CLER site visit team to travel between the inpatient site and the main ambulatory care clinical site.

For the majority of the visits, the CLER site visit team conducted group interviews in the same order: (1) an initial group interview with the CEO, members of the executive team (e.g., chief medical officer, chief nursing officer), the DIO, and a resident representative; (2) a group interview with patient safety and quality leaders; (3) a group interview with teaming leadership; (4) a group interview with residents and fellows; (5) a group interview with faculty members; (6) a group interview with program directors; (7) a group interview with well-being leadership; and (8) an exit meeting with the CEO, members of the executive team, the DIO, and a resident representative. Following specific guidelines, each clinical site provided the site visit team with a list of all individuals attending the group interviews before the site visit. The CLER team conducted all group interviews in a quiet location without interruption and ensured the interviews did not exceed 90 minutes.

The purpose of the initial meetings with executive and patient safety and quality leaders was to allow the CLER team to become familiar with the basic language and culture of the CLE's current activities in the six Focus Areas. This information helped inform subsequent interviews and observations during the CLER visit.

The purpose of the meeting with teaming leadership was to explore how CLEs address teaming given the dynamic nature of clinical care, the multiple individuals involved in patient care, and the need for these individuals to coordinate efforts to provide safe, high-quality patient care. The meeting included individuals with positions or roles at the clinical site with knowledge about organization-wide initiatives.

The purpose of the meeting with well-being leadership was to gain an understanding of the CLE's efforts to ensure the well-being of its clinical care practitioners (e.g., physicians, nurses, and other health care professionals) to provide safe patient care. The meeting included individuals formally or informally designated by executive leadership to address the well-being of all members of the clinical care team at the clinical site.

The resident and fellow group interviews comprised one to 36 peer-selected participants per session. Specifically, residents and fellows at the Sponsoring Institution, excluding chief residents, voted for their peers to attend the group interviews. The participants broadly represented ACGME-accredited programs at the clinical site with proportionally more individuals from larger programs. The CLER team primarily interviewed residents and fellows who were in their PGY-2 or higher to ensure interviewees had sufficient clinical experience to assess the learning environment. PGY-1 residents in a transitional year residency program were permitted to attend.

For the group interviews with faculty members and program directors, the CLER Program instructed the DIO to invite participants. For the faculty member group interviews, each session comprised one to 34 clinical faculty members who broadly represented the residency and fellowship programs at the CLE. Program directors were not permitted to attend the faculty member meetings. Group interviews with program directors comprised one to 32 leaders of ACGME-accredited core residency programs at each clinical site; sessions included associate program directors when program directors were not available.

For CLEs with more than 30 programs, two separate sets of interviews were conducted with residents and fellows, faculty members, and program directors, with no more than 32 participants attending an individual session.

Additionally, the CLER site visit team conducted a set of walking rounds, escorted by senior or chief residents and fellows, to observe various patient floors, units, service areas, and ambulatory care sites. The CLER Program asked the DIO to select residents and fellows, preferably from a range of different specialties, to guide each CLER Field Representative. For the majority of the visits, residents and fellows who participated in the resident and fellow group meetings or served as the resident representative in the executive leadership meeting were not permitted to serves as escorts for the walking rounds. In CLEs with a small number of residents and fellows, the resident and fellow escorts on the walking rounds were permitted to serve as escorts more than once and could also attend the resident and fellow group meeting.

The walking rounds enabled the CLER site visit team to gather feedback from physicians, nurses, and other health care professionals (e.g., pharmacists, radiology technicians, social workers) in the clinical setting. Each CLER Field Representative conducted three to six sets of walking rounds per clinical site, with each walking round lasting 60 to 120 minutes.

Throughout each visit, the CLER team conducted huddles to discuss the information they had gathered. Later during the visit, they held a team meeting to synthesize their findings, reach consensus, and prepare both an oral report and a draft of a written narrative report. At the exit meeting, the CLER team shared its oral report with executive leadership, which covered initial feedback on the six Focus Areas. The written report, delivered approximately six to eight weeks after the site visit, reflected the same topics but with a more comprehensive and detailed set of observations. The intention of both the oral and written reports was to provide formative information that would help executive leadership assess their practices in the six Focus Areas, inform resident and fellow education and training, and guide improvements in the CLE to ensure high-quality patient care.

DATA SOURCES

Survey Instruments

To conduct the group interviews, the CLER site visit team used a structured questionnaire developed under the guidance of experts in GME and/or the six Focus Areas. The questionnaires contained both closed- and open-ended questions. For the visits exclusive to the ambulatory care setting, the protocol questions and scenarios were modified to fit the setting while keeping the essence of the questions to allow for comparability across settings.

After the questionnaires were initially content validated by expert review, the CLER Program field tested the instruments during seven CLER site visits. At the conclusion of each of these visits, the items were refined as part of an iterative design process; with each iteration, the CLER Program reviewed and revised the items as necessary based on feedback from interviewees and interviewers.

Walking Rounds

The CLER Program designed the walking rounds to facilitate random, impromptu interviews with residents, fellows, nurses, and other health care professionals across a number of clinical areas (e.g., inpatient areas, emergency departments, ambulatory care settings) where residents and fellows learned and trained based on the Sponsoring Institution's ACGME-accredited specialty and subspecialty programs.

The aims of the walking rounds were to (1) triangulate, confirm, and cross-check findings from the group interviews and (2) glean new information on residents' and fellows' experiences across the six Focus Areas. The walking rounds provided important information that could either confirm or conflict with the information gathered during group interviews.

CLER Site Visit Reports

The CLER site visitor team synthesized findings from each visit in a written report, working from a formal template developed and refined in the early stages of the CLER Program. The template helped the CLER Field Representatives ensure that each of the six Focus Areas was fully addressed in the oral and written reports for each clinical site. The reports also included a brief description of the clinical site and any of its notable aspects. All members of the CLER site visit team reviewed and edited each report for accuracy and to achieve consensus on the findings.

In smaller Sponsoring Institutions, results from group interviews with both faculty members and program directors were combined in the oral and written reports to maintain anonymity.

Other Sources of Data

Several other sources of data were used to augment the site visit data, including the ACGME annual data reports[c] and the 2023 American Hospital Association (AHA) Annual Survey Database.[d] The ACGME reports provided information on the Sponsoring Institutions, programs, and physicians in GME, including the number of ACGME-accredited programs; number of residents and fellows matriculated; and university affiliation. The AHA data offered CLE information, including type of ownership (e.g., nongovernment, not-for-profit versus investor-owned, for-profit) and size, as measured by the number of staffed acute care beds.

DATA COLLECTION

Group Interviews with an Audience Response System

CLER Field Representatives conducted group interviews with residents and fellows, faculty members, and program directors using a computerized audience response system (ARS) (Keypoint Interactive version 2.8, Innovision Inc, Commerce, Michigan) that allowed for anonymous answers to closed-ended questions. The ARS data were exported into a Microsoft Excel spreadsheet and then into a software package for statistical analysis. The CLER site visit team documented responses to open-ended questions qualitatively. The three surveys—one each for residents and fellows, faculty members, and program directors—consisted of 36, 18, and 18 closed-ended questions and 18, 10, and 16 open-ended questions, respectively.

[c] The ACGME annual data reports contained the most recent data on the programs, institutions, and physicians in GME as reported by all ACGME-accredited Sponsoring Institutions and programs. ACGME annual data reports were specifically generated for use by the CLER Program.

[d] The AHA Annual Survey Database includes data from the AHA Annual Survey of Hospitals, the AHA registration database, the US Census Bureau population data, and information from hospital accrediting bodies and other organizations.

Group Interviews with No Audience Response System

The CLER site visit team documented all responses qualitatively for group interviews with the CEO, members of the executive team, the DIO, and the resident representative (18 questions); patient safety and quality leadership (25 questions); teaming leadership (14 questions); and well-being leadership (16 questions).

DATA ANALYSIS

Descriptive Statistics

Descriptive statistics were used to summarize and describe distribution and general characteristics of Sponsoring Institutions, CLEs, and physician groups interviewed. For Sponsoring Institutions, characteristics included Sponsoring Institution type (e.g., teaching hospital, medical school) and the number of ACGME-accredited residency and fellowship programs per institution. CLE characteristics included type of ownership (e.g., non-government, not-for-profit), number of licensed beds, and total staff count. Demographic information included sex and medical specialty of physicians who participated in the group interviews.

Analysis of Audience Response System Data

Analyses were conducted at both the individual (e.g., resident and fellow) and CLE levels. For the individual-level analyses, results are based on the total sample of individuals surveyed, presented as percentages. For CLE-level analyses, results show differences among CLEs after individual responses were aggregated at the CLE level and are presented as medians and interquartile ranges. These two levels of analysis provided a national overview of the state of CLE engagement in the six Focus Areas and revealed how CLEs compared on these outcomes.

Chi-square analysis was used to compare resident and fellow responses and to identify any relationships in responses by (1) sex, (2) residency/fellowship year, and (3) specialty grouping. Chi-square analysis was also used to explore whether differences were associated with the following CLE characteristics: (1) regional location, (2) bed size, and (3) type of ownership. Categories in the annual AHA survey informed grouping of CLE-specific variables (e.g., bed size). *P* values of .05 or less were considered statistically significant. All statistical analyses were conducted using SPSS Statistics version 28.0 (IBM Corp, Armonk, New York).

Analysis of CLER Site Visit Reports

Specific findings based on responses to non-ARS questions and interviews on walking rounds were systematically coded in NVivo qualitative data analysis software version 14 (QSR International Pty Ltd, Doncaster, Victoria, Australia) following the principles of content analysis. Three members of the CLER Program staff, trained in qualitative data analysis, generated a master codebook through an iterative process by (1) independently applying codes to the data, (2) peer-reviewing coding, (3) discussing coding discrepancies, and (4) reaching agreement on the codes through consensus. The results were recorded as frequency counts for further descriptive analysis. Overall percentages and percentages stratified by CLE region, bed size, and type of ownership are reported.

Four-Point Analysis of Selected Measures in the CLER Focus Areas

A selected set of measures in each of the Focus Areas was examined to explore change over time since the first cycle of visits for matched observations (i.e., the same CLEs in all four sets of visits). The final dataset for the 4-point analysis comprised 96 CLEs; reasons for exclusion included changes in accreditation status (e.g., voluntary withdrawal), changes in the number of core residency programs, and incomplete or missing data (see *Figure 2*). The measures examined were the same in all four sets of visits (i.e., the questions remained constant between Cycles 1, 2, 3, and 4).

The Kolmogorov-Smirnov test was used to test for normality in the data. Based on the results of the Kolmogorov-Smirnov test and tests of symmetry, nonparametric tests were employed in the 4-point analysis. The Friedman test was conducted to determine if there were differences in the median percentage based on responses to closed-ended questions (i.e., ARS data) that were aggregated at the CLE level. The Wilcoxon signed rank test (and the sign test when the data were non-symmetrical) was conducted as a post-hoc analysis to determine which cycles were significantly different. The Cochran's Q and Friedman tests were conducted to compare changes in the qualitative findings based on coded extractions from the CLER site visit reports. P values of .05 or less were considered statistically significant. SPSS Statistics version 28.0 was used to conduct statistical analyses.

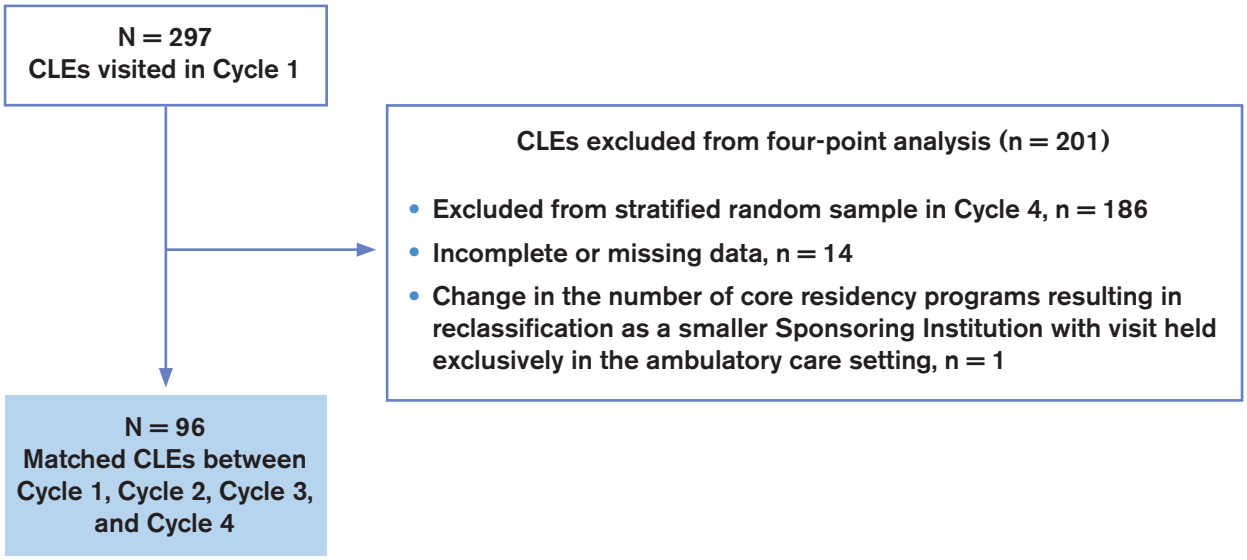


Figure 2. Matched Clinical Learning Environments (CLEs) Between Cycle 1, Cycle 2, Cycle 3, and Cycle 4 of Clinical Learning Environment Review Site Visits

Three-Point Analysis of Selected Measures in the CLER Focus Areas

For the three-point analysis, a selected set of measures in the Focus Areas was examined to explore change over time for matched observations between Cycle 2 and Cycle 4. The final dataset for the three-point analysis comprised 158 CLEs; reasons for exclusion included changes in accreditation status (e.g., Voluntary Withdrawal), changes in the number of core residency programs, and incomplete or missing data (see *Figure 3*). As part of its commitment to a model of continuous quality improvement, the CLER Program added these measures to the site visit protocol in Cycle 2 to explore important topics in greater depth. The measures examined remained constant between Cycle 2 and Cycle 4.

The Kolmogorov-Smirnov test was used to test for normality in the data. Based on the results of the Kolmogorov-Smirnov test and tests of symmetry, nonparametric tests were employed in the three-point analysis. The Friedman test was conducted to determine whether there were differences in the median percentage based on responses to closed-ended questions (i.e., ARS data) that were aggregated at the CLE level. The Wilcoxon signed rank test (and the sign test when the data were non-symmetrical) was conducted as a post-hoc analysis to determine which cycles were significantly different. The Cochran's Q and Friedman tests were conducted to compare changes in the qualitative findings based on coded extractions from the CLER site visit reports. *P* values of .05 or less were considered statistically significant. SPSS Statistics version 28.0 was used to conduct statistical analyses.

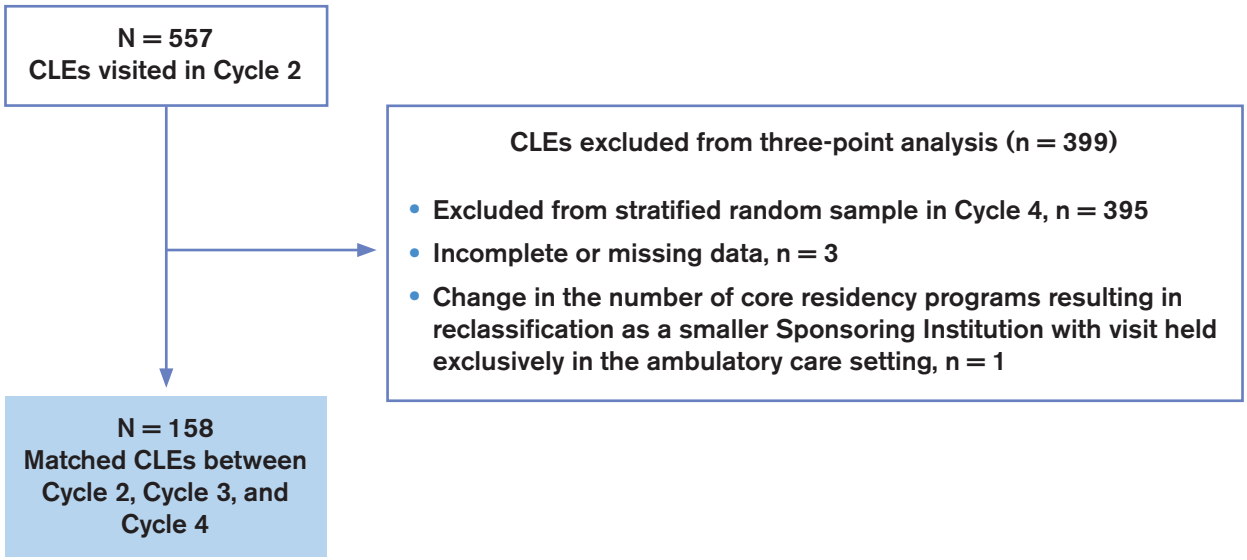


Figure 3. Matched Clinical Learning Environments (CLEs) Between Cycle 2, Cycle 3, and Cycle 4 of Clinical Learning Environment Review Site Visits

Development of Overarching Themes and Findings in the CLER Focus Areas

The overarching themes and findings by Focus Area were determined in three stages. First, the CLER Program staff asked each CLER Field Representative to identify the overarching themes (i.e., broad, high-level observations) and key findings in the Focus Areas based on their summative experiences and observations through a key informant survey. The CLER Program staff systematically analyzed the content of all responses to discern common themes and note salient concepts. The approach to analysis was inductive in that the themes emerged from the content of the responses.

Next, the CLER site visit team reviewed and commented on the results and offered additional findings by consensus. Based on feedback from the CLER Field Representatives, the CLER Program staff revised the summary of results and presented them to the CLER Evaluation Committee. Lastly, the members of the CLER Evaluation Committee reviewed the results and developed a set of commentaries on the importance of the findings and their impact on patient care and physician education and training. The work of the committee was achieved by consensus.

Use of Terms to Summarize Quantitative and Qualitative Results

For the purposes of this report, a specific set of descriptive terms is used to summarize quantitative results from both the ARS and the site visit reports: *few* (<10%), *some* (10%–49%), *most* (50%–90%), and *nearly all* (>90%).

The summary of qualitative data (i.e., responses to open-ended questions during group interviews and conversations on walking rounds) is based on the CLER Field Representatives' assessment of the relative magnitude of responses. The following set of terms is intended to approximate the quantitative terms above: *uncommon or limited*, *occasionally*, *many*, and *generally*.

TRIANGULATION AND CROSS-VALIDATION

Triangulation of the findings enhanced overall accuracy in the conclusions. The findings were cross-validated for consistency and corroboration using multiple sources of complementary evidence and analytic techniques. For example, ARS results were more meaningful when supplemented by critical qualitative information and vice versa. Multiple sources of data provided greater insight and minimized inadequacies of individual data sources when a finding was supported in multiple places. This mixed-methods approach provided a richer, more balanced, and comprehensive perspective by allowing for deeper dimensions of the data to emerge.

LIMITATIONS

As with any formative learning process, limitations to the CLER Program warrant consideration in using the information in this report. Perhaps most importantly, these findings do not suggest cause and effect.

Second, although this aggregated set of findings is designed to be highly representative, it is based on a series of sampled populations and thus may not be generalizable to all CLEs. As previously mentioned, the CLER teams interviewed a sample of residents, fellows, faculty members, program directors, and other clinical and administrative staff for each visit–with the aim of broad representation across all programs (e.g., proportionally more individuals from larger programs). Although the goal was to achieve a broad degree of representativeness, the sample may or may not reflect the entire population. Given that the CLER Program provided formative assessment, this approach to sampling allowed for a broad and in-depth understanding of socially complex systems such as CLEs. The CLEs that were not included in this sample may represent different experiences and consequently could yield different conclusions.

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Overarching Themes

INTRODUCTION

As in prior *CLER National Reports of Findings*, this fourth report reveals a number of overarching themes that cut across the six CLER Focus Areas. Of note, the CLER protocol did not directly assess for these themes. Rather, themes are based on the CLER Field Representatives' overall observations for this cycle of CLER visits. The development of these themes is described in detail in the Methodology section of this report (pp. 13-22).

These overarching themes appear in the following shaded boxes and are numbered for easy reference within the report; these numbers do not suggest order or importance. Each theme is accompanied by a discussion section authored by the CLER Evaluation Committee, which highlights the theme's relevance to the GME community and the CLEs in which residents and fellows learn and train.

OVERARCHING THEMES

THEME 1

Clinical learning environments' patient safety and health care quality activities have been slow to recover from the decline seen during the COVID-19 pandemic, thereby creating challenges for residents and fellows to engage in these activities.

Discussion

CLEs' slow recovery in reinstating processes and activities to optimize patient safety and health care quality post-pandemic poses risks to patient care and the practice of medicine.

In many CLEs, resident and fellow physicians provide a significant amount of frontline care from the moment they start their post-graduate education and training. Yet, absent purposeful education and practice, residents and fellows may not learn the value of systems-based, team-oriented approaches to optimizing patient safety and quality. Without formal training in patient safety, residents and fellows will likely rely on their intuition to solve problems one patient at a time, missing the opportunity to understand how solving for issues with one patient may benefit other patients as well.

Preparing residents and fellows to optimize patient safety and health care quality requires CLE leaders, especially those in patient safety and quality, to partner with GME leaders to design and implement educational programming that provides ongoing experiential learning to build the knowledge and skills that support the CLE's culture of safety. Learning how CLEs collect, analyze, and act on information at a systems level is a critical set of skills residents and fellows need to acquire during their education and training if they are to enter practice with an understanding of their responsibility as part of a collective interprofessional effort to optimize care every day.

As mentors, faculty members are key role models to ensure that residents and fellows are able to integrate patient safety and health care quality concepts into their daily workflow and as part of interprofessional team-based care. Yet often, faculty members have had little exposure to the fundamentals of patient safety and how to teach these concepts. To address this, faculty members need protected time, support, and opportunities to attend professional development activities on thoughtfully incorporating patient safety and health care quality into educational programming and clinical practice.

As part of their strategic plan, CLEs need to actively engage faculty members, residents, and fellows in systems-based efforts to address patient safety and quality, as doing so will increase their capacity to optimize care.

THEME 2

Clinical learning environments vary in assessing and addressing the complexities of workplace violence, including the range of contributing factors and their impact on the health and safety of patients, families, and the health care team, including residents and fellows.

Discussion

CLEs seek to make the environment safe for members of the clinical care team, ancillary and support staff, and patients and visitors, as reflected in their mission statements. While this may be a CLE's high-level goal, this finding indicates the CLE may be addressing acts of violence and disruptive behaviors occurring within its organization without necessarily probing to better understand the range of factors that may contribute to these behaviors.

Workplace violence is defined as any act or threat of physical violence, harassment, intimidation, or other threatening behavior that occurs at the workplace.

Violence, whether from patients, families, or staff/co-workers, can manifest in a number of ways (e.g., physical, verbal, psychological) and vary across service lines and departments, which can have a negative impact on clinical care. Many issues that lead to violence are associated with escalations of aggressive and disruptive behaviors on the part of patients, families, and/or members of the clinical care team that can have a detrimental effect on the delivery and quality of care. Disruptive behavior is defined as any inappropriate behavior, confrontation, or conflict, ranging from verbal abuse to physical or sexual harassment. Disruptive behavior causes strong psychological and emotional feelings, which can affect attitudes and actions.

The risk factors for workplace violence can fall into several categories including clinical, organizational, and societal. To optimally mitigate risk, CLEs need to be able to differentiate the etiology of violence and associated behaviors and recognize that different origins necessitate different approaches and interventions. Various etiologic factors to consider include:

Escalations of aggressive and disruptive behavior as a symptom(s) of illness or impairment:

As health care organizations, CLEs need to consider that aggressive and disruptive behavior may be a manifestation of underlying illness or impairment. For these situations, CLEs need to ensure members of the clinical care team are familiar with identifying and caring for patients, families, and/or team

members who may be displaying aggressive and disruptive behaviors as a symptom(s) of illness or impairment. In doing so, CLEs need to provide access to de-escalation techniques and ensure trained clinical staff and services are available to rapidly respond in these situations. CLEs also need to be alert to the potential impact these situations may have on the well-being of the entire clinical care team and provide resources that ensure psychological and physical safety for all who are involved.

Escalations of aggressive and disruptive behaviors associated with health systems:

Organizational factors, including staffing shortages, limitations in physical facilities, and increases in new and temporary staff who are unfamiliar with a CLE's processes, can place numerous stressors on patients, staff, and practitioners. For patients, these factors may contribute to long wait times and delays in care that lead to mounting frustration. For practitioners and staff, these factors may negatively impact workload as they are continually expected to fill the gaps. Additionally, patients, families, and/or practitioners may perceive the CLE lacks commitment to cultural awareness (e.g., lack respect for individual religious preferences, lack of availability or impetus to use interpreter services). These circumstances may lead to frustrations that can negatively manifest in many ways throughout the CLE.

For these examples and others that stem from organizational systems-based factors, CLEs need to develop and implement systems-based solutions that focus on addressing the organizational challenges at the source of the frustrations.

Escalations of aggressive and disruptive behaviors in the context of workplace culture and society at large:

Within the CLE's culture, disruptive behaviors, such as harassment and microaggressions, may permeate the workplace, thereby risking progression into violence. Additionally, increasing displays of disruptive behaviors and societal frustrations may be associated with a lack of general trust and respect for the health care system and members of the clinical care team. CLEs need to have this context in mind when designing solutions to address potential violence within their organizations and devote time and resources to increasing their awareness and understanding of their organizational culture and the communities they serve.

For each of the above-noted sources of workplace violence, CLEs need to identify the scope of the problem, develop and implement policies and procedures to report and manage aggressive and disruptive behaviors, and provide training on the skills necessary to mitigate risk and protect both patients and the clinical care team. Approaches to mitigating workplace violence should be part of routine learning for the entire clinical team, including residents and fellows. An important example is training on de-escalation and recognition of mental health emergencies. Training in these areas necessitates team-based learning, including simulation, to build the necessary skills. Importantly, CLEs need to put processes in place to continually monitor and assess the effectiveness of their efforts.

CLEs also have a responsibility to communicate expectations for respectful conduct of all who enter their facilities, whether patients, visitors, members of the clinical care team, or other staff. Many CLEs have begun to do so through signage in public spaces and patient onboarding materials that expressly outline appropriate behaviors as well as those that will not be tolerated.

The safety of both patients and the clinical care team, including residents, fellows, and other learners, needs to be of primary concern to all CLEs. For patients and families, failure to address these concerns can result in suboptimal care. For practitioners and staff, failure to address them can negatively impact well-being, psychological and/or physical safety, and job satisfaction which, in turn, contributes to increases in staff turnover and loss of organizational knowledge and experience.

THEME 3

In many clinical learning environments, increased systems-based efforts to innovate and improve patient care delivery do not appear to always align with current models of graduate medical education.

Discussion

Hospitals, ambulatory care sites, and health care systems that serve as CLEs need to actively work with GME leaders and faculty members to fully integrate resident and fellow learning into patient care. GME leaders and faculty members have advanced and detailed knowledge of the complex set of issues and standards that are required to meet the needs of high-performing GME programs. CLE and GME leaders need to work collaboratively to optimize the learning environment to address situations from both perspectives, including those for which GME standards might be perceived to challenge the ability to provide high-quality patient care, as well as those for which the clinical site's policies and practices interfere with the performance and outcomes of GME.

Purposeful attention to CLE/GME integration is needed to:

- understand how best to implement GME in the context of various physician models (whether employed, contracted, or volunteer), setting clear expectations for consultation, supervision, and care transitions and monitoring these engagements to ensure expectations are being met;
- monitor the impact of innovations and decision support tools (e.g., automated medication dosing, automated use of clinical pathways) that may protocolize medicine and negatively affect residents' and fellows' ability to acquire and enhance skills in critical thinking;
- monitor the impact of systems-based efforts to maximize practice efficiencies, which may be impacted by patient- and learner-centered care; and,
- minimize the unintended adverse impact on the health system or its GME mission, (e.g., implementing new medical staffing models that may negatively impact resident and fellow education; changes in processes for how to transfer care from one group of practitioners to another).

For CLEs, this theme emphasizes the need for ongoing regularly scheduled meetings and purposeful conversations among GME and CLE leaders to ensure close alignment of goals.

THEME 4

The increasing frequency and complexity of health care system consolidations create challenges and opportunities for clinical learning environments to optimize patient care and integrate graduate medical education.

Discussion

Health care system consolidation creates numerous challenges:

- As health systems increase in size and complexity, this may result in new layers of leadership to their infrastructure, often creating wider distances between the GME leaders (who are primarily located in one CLE) and the CEOs and executive leaders of the health systems that encompass numerous other clinical sites. In these large systems, decision-making is often centralized at the top with less opportunity for autonomy, experimentation, and innovation at the local level.
- Similarly, organizational metrics for tracking performance in patient safety and health care quality may be prioritized at the system level and less relevant to the CLE's local needs or experiences. Loss of local decision-making and associated resources could impact the CLE's ability to conduct effective quality improvement, especially if the CLE leaders are unable to act on opportunities to effect change quickly and efficiently. This could result in disengagement in quality improvement among all members of the care team, including residents and fellows.
- As health care systems increase in size and complexity, each of the environments within these systems has its own culture, creating challenges related to communication, collaboration, and information sharing across CLEs. For example, residents whose programs are associated with a large health system may have different employers and benefits depending on their program, potentially resulting in perceived or real inequities. Additionally, variability in staffing models, including use of volunteer medical staff across various clinical sites, can contribute to differences in learning experiences across the system.

Health care system consolidation also creates numerous opportunities to enhance GME:

- Larger systems may provide residents and fellows with new opportunities to care for patient populations and communities (e.g., underserved, urban, or rural populations) previously not included in their CLE.
- Additionally, with larger and more complex health care systems, there may be more opportunities to engage in health systems improvement activities, including efforts to understand how organizational culture can impact health care within larger and more complex systems.
- Economies of scale in larger systems can provide resources such as faculty development in patient safety and quality to all clinical sites in their system. Also, larger systems may have infrastructure and resources such as electronic health records, simulation centers, and common performance metrics. These resources support patient care and interprofessional learning, thereby making it easier for resident and fellow physicians to engage with other members of the clinical care team on common projects to improve patient care.

As health care systems reconfigure and changes intensify, GME leaders need to be embedded at both local and system levels to work with CLE and system leaders to purposely embrace challenges and opportunities. By actively partnering on an ongoing basis, GME and CLE leaders can prepare the future physician workforce to optimally work within these systems.

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Challenges and Opportunities in the CLER Focus Areas

INTRODUCTION

In this fourth and final *CLER National Report of Findings*, the CLER Program again provided a snapshot of the CLEs that host resident and fellow physicians–continuing to elucidate the important interface between learning and patient care. As in prior *National Reports*, the findings reveal both strengths and opportunities for improvement.

This section presents the views of the CLER Evaluation Committee on the significance of the findings in the CLER Focus Areas. The shaded boxes that follow present selected findings based on both quantitative and qualitative results drawn from the CLER site visits. (Refer to the Methodology section on pp. 13-22 for more information on the specific terminology used in describing the findings.) As with the section reporting on the overarching themes (pp. 23-29), the CLER Program staff presented the CLER Evaluation Committee with a summary of results to review in the development of this section.

PATIENT SAFETY

FINDING

Across clinical learning environments, while there appeared to be increasing awareness of the value of engaging residents and fellows in patient safety event reviews and analyses, executive leadership efforts to increase and improve meaningful engagement of residents and fellows were not prioritized.

Discussion

Since its inception, the CLER Program prompted CLE and GME leaders to recognize the value of engaging residents and fellows in patient safety event analyses that include the components of: 1) review by an interprofessional team; 2) detailed analysis of patient safety event–related systems and processes; 3) identification of potential systems changes; 4) implementation of an action plan; and 5) follow-up evaluation of the actions.

When residents and fellows participate in these analyses, the CLE benefits from the insights of individuals on the frontlines who see the challenges associated with providing safe care and manage these challenges daily. In turn, residents and fellows develop an understanding of how organizations address systems-based problems and the value of interprofessional input to solve complex issues. From the patient's perspective, residents and fellows are part of the organization they count on to maximize their safety while receiving care.

It is encouraging that CLEs have increased awareness of the value of involving residents and fellows in patient safety event analyses; however, to optimize care, CLEs need to make it a priority. Executive leaders of CLEs

could take various approaches to setting strategic priorities to engage residents and fellows in patient safety event analyses. Whether through their organization's formal patient safety and quality plans or ongoing interactions with their patient safety leaders, CLE leaders need to work with GME leaders to set clear and measurable goals to engage residents and fellows in patient safety event analyses, communicate these goals, and then track progress at regular intervals.

From the GME perspective, this finding also highlights the need for GME leaders to be knowledgeable about the CLE's patient safety program and its strategic priorities, policies, and procedures. The GME committee may then work with program directors to establish alignment with the CLE's patient safety priorities and develop specific goals for each program as part of a longitudinal progressive learning plan that educates and engages residents and fellows and instills in them a sense of accountability to the CLE's systems to optimize patient safety.

To ensure success, the CLE needs to involve as many residents and fellows as possible in the process of problem solving around patient safety at the organizational level. For the majority of CLEs, the number of residents and fellows far exceeds the number of formal patient safety event investigations conducted annually. This is especially true when only considering investigations of serious safety events. However, the majority of CLEs may also have hundreds if not thousands of near misses and close calls reported each year that would benefit from analysis.

By partnering with the CLE's patient safety leaders and other members of the care team (e.g., nurses), residency and fellowship programs could increase the CLE's capacity to address the full range of patient safety events (including near misses and close calls). In doing so, the CLE could benefit from system changes that mitigate the risk of more serious events occurring in the future. By applying the elements of a formal patient safety event analysis, such as an aggregate root cause analysis, to near misses and close calls, the CLE can implement systems changes that decrease the likelihood of a situation recurring and causing serious harm. GME also benefits from this partnership, as involving residents and fellows in formal analyses of near misses and close calls gives these learners a psychologically safe space to acquire these important systems-based problem-solving skills and equips them to champion patient safety wherever they practice.

HEALTH CARE QUALITY

FINDING

The quality improvement activities of the clinical learning environment and graduate medical education were often siloed. There appeared to be a mutual lack of recognition on the importance and value of a collaborative and intentional approach to quality improvement.

Discussion

This finding reflects the need for both GME and the CLE to share in learning and innovation to improve patient care. While good work in quality improvement (QI) may be occurring in both spaces, joining forces has the potential to exponentially accelerate these efforts. By partnering, CLE and GME leaders can develop and communicate shared goals for improvement that widen their reach, expand their resources, and realize efficiencies.

Often, residents and fellows do not know the CLE's priorities for improving health care quality. Much of resident and fellow QI work is limited to designing and completing small projects that can fit within a dedicated short window of time and meet their education and training requirements. Although these small projects of personal interest to residents and fellows have the benefit of introducing them to the science and methodology of QI, without alignment to the CLE's goals, these projects are seldom scaled up and rarely result in sustained organizational change that helps learners understand how to have positive impact at a system level.

The CLE's QI efforts often focus on addressing issues related to either regulatory or performance incentives (e.g., decreasing hospital-acquired infections and improving patient throughput/decreasing length of stay). These projects frequently focus on solving large, multifactorial problems that may necessitate complex solutions. While solving these problems is at the core of CLE efforts to optimize patient care, it often requires a significant time commitment on behalf of the QI team. As a result, the CLE's QI leaders do not necessarily seek to involve residents and fellows beyond asking them to implement certain steps within the QI process (e.g., writing orders for catheter removals), thereby missing key insights of these frontline providers of care.

Additionally, CLE quality leaders may hesitate to involve residents and fellows in QI efforts—either believing that they cannot interfere with GME scheduling or, in some cases, experiencing resistance from faculty members or program directors due to multiple competing demands.

Involving residents and fellows in QI serves two goals: improving patient care and imparting skills that can be expanded and used throughout their careers. While small projects of personal interest for residents and fellows may be local and modest in scope, their chances for success greatly improve if they are conducted in coordination with CLE quality leaders. In these circumstances, residents benefit from access to CLE resources and support, including the expert guidance of individuals trained in QI methodology. This coordination benefits the CLE and allows quality leaders the possibility to view these resident-led projects as pilots with the potential for sustainability, dissemination, and spread to other areas/service lines. In addition to the insights gained from smaller resident-led projects, embedding residents and fellows in the CLE's larger QI initiatives would be beneficial, as their inputs can inform all stages of project design through evaluation and sustainment.

Whether QI projects are large or small, mutual benefit will be gained when GME and CLE leaders partner in these efforts. CLEs benefit from the insights provided from frontline members of the clinical care team who are problem-solving as part of their day-to-day practice while residents and fellows acquire knowledge and skills needed to engage in and conduct QI in the future.

HEALTH CARE DISPARITIES

FINDING

In general, clinical learning environments were focused on health disparities and collecting data on social determinants of health, yet there appeared to be limited progress on understanding and addressing disparities in the delivery of care. Where there were efforts to address health care disparities, they focused on state and national performance metrics and not on a comprehensive strategy to identify and address disparities in health care unique to their patient populations.

Discussion

This finding notes little progress in understanding and addressing disparities in the delivery of care[1,2]—an opportunity that has been highlighted in CLER National Reports since the beginning of the CLER Program. Given the complexities of these issues, CLE leaders would benefit from partnering with GME leaders in the ongoing journey to identify and address health care disparities with the goal of developing a comprehensive strategy tailored to the patient populations of the CLE.

In the past, CLE leaders noted that to address these disparities, they first needed to improve their data collection systems to have the capability to stratify their process and outcomes data by well-established factors such as language, zip code, etc. The disparities revealed during the COVID-19 pandemic prompted many CLEs to improve their data collection systems and obtain more robust information. These improvements place CLEs in a better position to take the next steps of examining the care delivered at their clinical sites.

It is not surprising that the finding notes CLEs focus on state and federal performance metrics. For the clinical sites that serve as CLEs, a significant portion of their financial viability may rest on their performance in these areas. With increased access to patient demographics, CLEs can now enhance their efforts to address health care disparities, moving beyond regulatory requirements to address local disparities that are not part of the national metrics, such as differences in care delivered to patients with substance use disorders or disparities in use of interpreter services.

It is also important to note that during this cycle of CLER visits (2022-2025), hospital regulatory organizations, specifically The Joint Commission, were developing new requirements to reduce health care disparities.[3] One of The Joint Commission's requirements is that an organization assess a patient's health-related social needs and provide information about community resources and support services as available. For GME, this also has the potential to increase resident and fellow understanding of how social determinants of health affect patient care and outcomes.

CLE leaders need to proactively share the data they collect—on both health and health care disparities specific to their patient populations—and in doing so, work with GME leaders to ensure residents and fellows can access and interpret the information and have opportunities to engage in the CLE's efforts to use the data to improve care.

As physicians on the frontline of care, residents and fellows are a rich source of information and see firsthand the disparities in care that are specific to each CLE, considering they rotate through many areas and are part of many clinical care teams in the course of their education and training.

TEAMING

FINDING

Across clinical learning environments, efforts to improve interprofessional teaming in non-emergent clinical care situations were not focused on educating on the skills needed to optimize teaming to improve patient outcomes, including purposeful and timely reflection on team performance among numerous health care professionals.

Discussion

The concept of "teaming" emphasizes flexible, dynamic collaboration among individuals to solve problems and innovate, especially in complex and uncertain environments. In health care, teaming recognizes the dynamic and fluid nature of many individuals on the clinical care team who come together in the course of providing patient care. In most CLEs, the majority of patient care is delivered by clinical care teams that are dynamic and ever-changing in composition and therefore cannot rely on familiarity among team members. This has the potential to greatly impact the efficiency and effectiveness of patient care. When team members learn evidence-based strategies and tools for effective teaming, they develop a shared mental model of the team goal and the role each team member plays in achieving that goal. While these steps are standard components of teamwork, the practice of high-performing teaming sets the expectation that these steps, along with reflection on team performance (e.g., debrief), are purposely and regularly addressed in all aspects of patient care.

Within CLEs, much of the effort to optimize teaming focuses on managing high-stakes emergent situations, such as in trauma services. This is understandable, as these are critical situations for CLEs to manage, often under high pressure. This CLER finding highlights the opportunity for the CLE to ensure members of the clinical care team apply the same skills to optimizing day-to-day patient care. To do so, CLEs need to foster both a mindset and skills that members of the care team can apply easily and often to accommodate fluidity among members. This is especially critical for new learners such as residents and fellows as they are relatively new to their roles and just learning how to work in interprofessional teams. Learning how to optimize teaming at this juncture of their careers will provide residents and fellows with valuable skills they will use throughout their professional lives.

Many CLEs have educational efforts in place to address elements of teaming, especially efforts to improve communication and foster teamwork skills such as establishing trust, defining leadership, mutual accountability, etc. In doing so, many CLEs use established training programs (e.g., TeamSTEPPS, crew resource management). These efforts are valuable to improve team performance; however, they are often one-time events with no clear plan for follow-up. To be effective, CLEs need to develop comprehensive plans to implement and sustain these training programs. Examples include explicit plans to start in one area or service line and spread to other areas of the clinical site, as well as plans to refresh training on an ongoing basis to address staff turnover.

CLEs are also implementing interprofessional multidisciplinary patient rounds to improve teamwork and communication. However, in many CLEs, these rounds are only occurring in a few select service lines or units and have not yet become standardized throughout the organization.

Additionally, care team members, including residents and fellows, often receive no training prior to joining interprofessional multidisciplinary rounds, potentially leading to inefficiencies and leaving them ill-equipped to understand their roles in promoting good teaming processes. All members of the care team would benefit from organized training that helps them to understand how the principles of teaming can be optimized during patient rounds that include active patient and family participation.

Lastly, this finding notes a general absence of organized CLE educational efforts to develop skills that involve purposeful debriefing and reflection on team process and performance and dedicated time during the day to conduct those reflections. Examples of reflection include asking questions such as, "What is working well in our process of interprofessional care?" and "What could be improved?" Debriefing and reflection can be powerful tools for organizational improvement. However, these activities require CLE leaders to provide dedicated time that allows teams to participate.

To become highly reliable learning organizations, CLEs need to develop and implement a comprehensive strategy to optimize teaming throughout all areas of the clinical site. In making this investment, they will build organizational resiliency as they equip the care team with the skills to manage fluidity among members while optimizing safe, high-quality patient care.

SUPERVISION

FINDING

Across many clinical learning environments, residents and fellows indicated encountering resistance from physicians when requesting help. Often, residents and fellows noted that this experience was more frequent when interacting with consultants than with other attending physicians.

Discussion

This finding highlights overlap among the CLER Focus Areas as it impacts not only supervision, but also professionalism, well-being, teaming, and, importantly, patient safety. Faculty resistance to requests for assistance by residents and fellows can manifest in a range of unprofessional behaviors, from subtle passive aggression to overtly aggressive interactions. These behaviors can, in turn, adversely impact patient safety. When a resident, fellow, or other member of the care team encounters resistance from a physician in authority, the natural response is to minimize or delay further interactions as much as possible to avoid conflict. This response could have serious consequences, as it may result in delays in care that cause harm to patients.

Effectively managing these situations requires CLE and GME leaders to collaborate to heighten awareness, address these scenarios, and establish processes that optimize residents' and fellows' chances for respectful encounters that expedite safe, high-quality patient care. This starts with fostering a supportive and psychologically safe environment that encourages requesting help as needed. Together, GME and CLE leaders need to identify and remove barriers that prevent residents and fellows from asking for assistance (e.g., eliminating the stigma that may be associated with asking for help).

One approach is to develop and distribute a structured set of policies and procedures to define expectations for both residents/fellows and faculty members/consultants to follow when contacting or being contacted for help. These expectations need to articulate a low threshold for residents and fellows (or any member of the clinical care team) to escalate concerns and/or report non-responsiveness to the attending physician. Additionally, these expectations need to reinforce the CLE's processes for reporting disruptive or disrespectful behavior. Importantly, the CLE needs to establish a psychologically safe approach so that residents, fellows, and others feel comfortable reporting concerns. Once the process is established, CLEs need to monitor its use and provide feedback on adherence to expectations. Doing so increases the likelihood that residents/fellows and other members of the care team will view the processes as safe, effective, and free from retribution.

In the education and training of residents and fellows, CLEs commit to the larger mission of preparing physicians for independent practice. For medical staff who are private practitioners, non-teaching medical staff, specialty consultants, or for those who are temporarily hired (locum tenens), CLEs need to ensure that as part of their orientation, they understand their responsibilities to support the educational mission of the CLE, including expectations for respectful interactions with residents and fellows that will be monitored on a regular basis.

For CLEs, supervision involves much more than the relationship between the resident/fellow and their immediate supervisor. To ensure patient safety, supervision needs to be regarded as a joint GME/CLE responsibility that involves all members of the clinical care team working together to optimize care.

WELL-BEING

FINDING

Although there was recognition of systems-based factors that impact well-being, a limited number of clinical learning environments appeared to have assigned personnel with dedicated resources who are empowered to identify, address, and monitor systems-based factors that impact the continuum of well-being of the clinical care team.

Discussion

Over the years, many health care organizations have embraced the "Quadruple Aim" of simultaneously improving patient outcomes, enhancing patient experience, improving health care practitioner well-being, and reducing cost of care. The ACGME has embraced the Quadruple Aim in its mission and has recognized the importance of well-being by creating specific requirements designed to promote the psychological, emotional, and physical well-being of resident and fellow physicians. These requirements are essential; however, it is important to recognize that residents and fellows are part of a larger clinical care team, and their collective well-being also has an impact. For example, if the nurses in a CLE are experiencing stress, this is likely to negatively affect their interactions with residents and fellows. However, when the CLE makes efforts to optimize the well-being of the entire care team, it creates an environment in which residents, fellows, and all members of the clinical care team can thrive.

Comprehensively addressing the well-being of an entire organization is a complex process that requires purposeful planning, coordination, and collaboration across several leadership levels. While many CLEs are committed to improving their work environment and culture, addressing the systems-based drivers that may

negatively impact organizational and individual well-being requires a comprehensive strategy that goes beyond promoting personal resilience and self-care. This strategy needs to address well-being along a continuum—from resources for individuals to systems-based changes that optimize team and organizational function.

To operationalize and successfully execute an organizational well-being strategy, CLE executive leaders need a dedicated team with the authority and charge to systematically improve well-being and the expertise to measure, address, and evaluate its impact. Leading and effecting organization-wide improvements in well-being necessitate deep expertise, including specialized knowledge in (a) the factors that negatively impact well-being, (b) evidence-based practices to address the different dimensions of well-being, (c) systems approaches to improving well-being, and (d) assessing progress and effectiveness of various well-being efforts throughout the CLE.

CLE executive leaders need to ensure their well-being leaders have the infrastructure and resources to develop, implement, analyze, and sustain the CLE's strategy to promote the well-being of the clinical care team. It is essential that the assigned personnel and dedicated resources to accomplish the work are commensurate with the size and needs of the CLE. This is an area in which GME and CLE leaders can partner to align and share tools and approaches that could expand the resources currently available to residents, fellows, and staff.

It is equally important that well-being leadership in the CLE directs improvement work in collaboration with other senior leaders throughout the organization, including GME leaders. Absent oversight by a cohesive leadership team that partners with GME leaders, efforts to improve well-being are collections of thoughtful activities, each independent with their own set of goals. Without dedicated leadership aligning efforts across the organization, the CLE is at risk for redundancy, inefficiencies, and gaps in ability to provide resources and assistance for various members of the care team. GME is also at risk as residents and fellows are key members of the clinical care team and are therefore affected by the CLE's efforts to address the well-being of all who provide care. By partnering with purpose, GME and CLE leaders can recognize mutual benefit and align and/or integrate their respective efforts to optimize well-being.

PROFESSIONALISM

FINDING

In general, clinical learning environments did not have mechanisms to ensure that faculty members disclose potential conflicts of interest during each resident and fellow clinical rotation.

Discussion

As part of exploring professionalism, the CLER Program recognized that conflicts of interest may have potential lasting impacts on residency and fellowship. This finding specifically addresses a critical juncture in education and training that is largely overlooked yet poses vulnerabilities for both the CLE and its residents and fellows: understanding and disclosing potential conflicts of interest among faculty members when they are part of the teaching service.

Several studies have noted the imprinting that occurs during residency and fellowship.[7,8] This imprinting largely occurs as residents and fellows work alongside their attending physicians and other faculty members in day-to-day practice, resulting in habits they will take with them for the remainder of their careers.

When residents and fellows work alongside faculty members with special interests in devices, medications, etc., they may develop biases when making clinical decisions that involve use of these products while not realizing the range of options available. In other situations, faculty members may have financial interests in using certain facilities, such as ownership in a surgicenter or long-term care facility. Risks for residents and fellows developing the same type of biases apply if these conflicts are not explicitly disclosed and managed in the course of providing patient care, potentially impacting their clinical decisions, approaches to informed consent, etc.

The responsibility to review and manage disclosure of conflicts rests with CLE and GME leaders. They need to ensure residents and fellows receive the information at the right time and not solely rely on them to regularly check an organizational database. CLE and GME leaders need to partner to develop expectations and processes for faculty members to proactively and routinely disclose conflicts of interest. These processes need to go beyond requirements to disclose during educational presentations and didactics to focus on disclosures closer to the point of care. Additionally, the processes for disclosure need to ensure active discussion to help residents and fellows understand and mitigate the potential for bias while also having knowledge about available alternative treatments.

To be effective, the CLE needs to ensure mechanisms are in place to disseminate conflicts of interest, monitor these processes on a regular basis, and intervene when there are gaps in disclosures. It especially needs to intervene when residents and fellows feel uncomfortable or unsure about how to manage their knowledge of faculty conflicts and their concerns regarding potential retaliation.

By enhancing their efforts to manage disclosures of conflicts of interest, CLEs can promote a clinical and educational experience that is morally and ethically sound while instilling good habits and practices in resident and fellow physicians entering independent practice for generations to come.

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Detailed Findings

INTRODUCTION

This section includes detailed findings from the fourth set of visits (2022–2025) of the CLER Program. The findings in the six CLER Focus Areas[1] are based on site visits to the major participating clinical sites (i.e., hospitals, medical centers, ambulatory care sites, and other clinical settings) for 181 ACGME-accredited Sponsoring Institutions. These clinical sites serve as CLEs for the Sponsoring Institutions.[2,3]

Collectively, the 181 Sponsoring Institutions oversee 4,045 ACGME-accredited residency and fellowship programs, with a range of one to 146 programs per Sponsoring Institution (median = 11). These Sponsoring Institutions account for 33.8% of all residents and fellows in ACGME-accredited programs, with a range of 14 to 1,958 residents/fellows per Sponsoring Institution (median = 170).

Among the CLEs, 32.0% were located in the Southern region of the United States, 23.8% in the Northeast, 22.7% in the Midwest, and 20.4% in the West. The sites ranged in size from 42 to 3,018 acute care beds (median = 405). The majority (70.8%) were non-government, not-for-profit organizations; 20.2% were government, non-federal; 5.4% were investor-owned, for-profit; and 3.6% were government, federal.

In total, the CLER teams interviewed more than 1,000 members of executive leadership (including CEOs), 4,188 residents and fellows, 3,688 core faculty members, and 2,612 program directors of ACGME-accredited programs during the group interviews. Additionally, CLER teams interviewed the CLEs' leadership in patient safety and health care quality; individuals formally or informally designated by executive leadership to address the well-being of all members of the clinical care team at the clinical site; and thousands of residents, fellows, faculty members, nurses, pharmacists, social workers, and other health care professionals while on walking rounds in the clinical areas.

These findings are based on a mixed-methods approach to data gathering and analysis to improve the accuracy of findings by combining quantitative, descriptive, and qualitative evidence in a complementary manner (see Methodology section, pp. 13-22). As such, some of the findings are represented quantitatively while others are described qualitatively.

The combination of methodologies and varied representation of findings should be considered when interpreting the results, making comparisons, or drawing conclusions. Both supporting and conflicting evidence may be presented to explain or qualify findings. For example, results from the group interviews may appear more positive than information gathered on walking rounds. Alternatively, practices reported during group interviews may have been verified on walking rounds.

INTERPRETING QUANTITATIVE RESULTS FROM THE GROUP INTERVIEWS

During the group interviews with residents and fellows, faculty members, and program directors, an electronic audience response system (ARS; Keypoint Interactive version 2.8, Innovision Inc, Commerce Township, Michigan) was used to collect anonymous responses to closed-ended questions. ARS results were analyzed at both the individual (e.g., residents and fellows) and CLE levels.

At the individual level of analysis, results are presented as percentages of the total number of individuals surveyed. For example:

> *"In the group interviews with residents and fellows, 42.0% indicated that they were aware of results from patient safety event investigations at the clinical site."*

At the CLE level of analysis, individual responses were aggregated at the CLE level and results are presented as median and interquartile range (IQR) percentages. For example:

> *"Across CLEs, a median (IQR) of 40.7% (25.2%–55.8%) of the residents and fellows indicated that they were aware of results from patient safety event investigations at the clinical site."*

Statistically significant differences (i.e., $P \leq .05$) in responses due to resident and fellow characteristics (e.g., residency year) and CLE characteristics (e.g., bed size) are also reported. Of note, statistical significance does not always imply practical significance. For example, differences in responses by residency year may be statistically significant, but the differences may not be meaningful or large enough to have practical relevance or implications.

ADDITIONAL CONSIDERATIONS

As described in the Methodology section (pp. 13-22), this report contains a specific set of descriptive terms that summarize quantitative results from both ARS and specific findings that were quantified from the site visit reports. These terms and their corresponding quantitative ranges are as follows:

> *few* (< 10%), *some* (10%–49%), *most* (50%–90%), and *nearly all* (> 90%)

In addition to the quantitative data, this report contains qualitative data from a number of open-ended questions the CLER site visit teams asked during group interviews and walking rounds. This information, by design, was not intended to be enumerated. For these questions, CLER site visit teams made an assessment of the relative magnitude of observations at each individual site. To prevent confusion, these results are presented in the report using a set of descriptive terms that differ from the previously described terms used for quantitative data. The qualitative descriptive terms, which are intended to approximate the quantitative terms above, are as follows:

> *uncommon or limited, occasionally, many,* and *generally*

Finally, this section follows approximately the same structure as the individual CLER site visit reports received by participating institutions. This structure is intended to facilitate easy comparison between data from an individual site and that of this report, which aggregates results from all 181 Sponsoring Institutions. Those who seek additional details may consult the appendices (pp. 81-119).

PATIENT SAFETY

The CLER Program explored structural aspects of the CLE's patient safety program as well as several aspects of resident and fellow engagement in patient safety with emphasis on six major topics: (1) use of the patient safety event reporting system, (2) feedback on patient safety event reports, (3) inclusion in patient safety event investigations, (4) sharing lessons from patient safety event reports and investigations, (5) perceived patient safety vulnerabilities in care transitions, and (6) perceived patient safety vulnerabilities related to the use of remote technology.

Patient Safety Administrative Infrastructure

For this cycle, the CLER Program introduced several questions to better understand the CLE's administrative infrastructure to address patient safety. In most CLEs (80.5%), the patient safety program is part of a larger organizational patient safety and quality program. In 8.9% of CLEs, the patient safety program is part of risk management, and 4.1% have a freestanding patient safety program. In the remaining CLEs (6.0%), the organizational relationship of their patient safety program was described as "other."

When asked if risk management is introduced together or separately from the patient safety program at new employee orientation, 42.7% of CLEs indicated risk management is introduced together with the patient safety program. In regard to which entity takes the primary lead in conducting patient safety event investigations of serious safety events, 62.5% of CLEs indicated the patient safety program as part of a larger organizational patient safety and quality program; 25.8%, patient safety program as part of risk management; 5.0%, free-standing patient safety program; and 6.7%, "other".

In a separate query, distinct from any processes to address complaints and concerns, 31.0% of CLEs indicated patients are instructed or informed to report patient safety events to the patient safety office.

Use of the Patient Safety Event Reporting System

CLE Systems for Reporting

In general, the majority of CLEs (98.4%) had an online or electronic patient safety event reporting system. In approximately 11% of the CLEs, there were clinical service areas or departments that maintained their own patient safety event reporting system—often these were separate reporting systems for faculty members, medical staff, and/or outpatient service areas. It was uncommon for the CLE to monitor these separate systems to identify opportunities to mitigate recurrence of potential patient safety vulnerabilities.

Approximately 84% of CLEs were able to track the number of patient safety event reports submitted by residents and fellows (see Appendix C1). Nearly 76% of CLEs were able to track the number of patient safety event reports submitted by medical staff physicians. The remaining CLEs indicated that their system did not track such information.

More than 67% of CLEs provided the Graduate Medical Education Committee with information on the number or percentage of patient safety event reports submitted by residents and fellows. Nearly 50% of CLEs provided this same information to their governing body. Overall, it was less common for CLEs to routinely provide the same groups with the number or percentage of patient safety event reports submitted by medical staff physicians.

Reporting

Of the residents and fellows surveyed in the group interviews, 72.0% indicated that they had experienced an adverse event, near miss/close call, or unsafe condition while at their CLE (median [IQR], 72.3% [59.5%–81.1%] across CLEs). Appendix B1 provides information on the variability of this experience by sex, PGY level, and specialty grouping.

Of the residents and fellows who reported that they had experienced an adverse event, near miss/close call, or unsafe condition, 55.6% indicated that they had personally reported the patient safety event using the CLE's patient safety event reporting system (median [IQR], 57.9% [41.3%–75.0%] across CLEs). Responses varied by PGY level and specialty grouping (*Figure 1*; see also Appendix B2 for additional information on variability). For those who did not personally enter the patient safety event into the system, 9.4% indicated that they relied on a nurse or medical assistant to submit the patient safety event report, 25.0% indicated they relied on a physician supervisor, and 10.0% indicated they cared for the patient and chose not to submit a report.

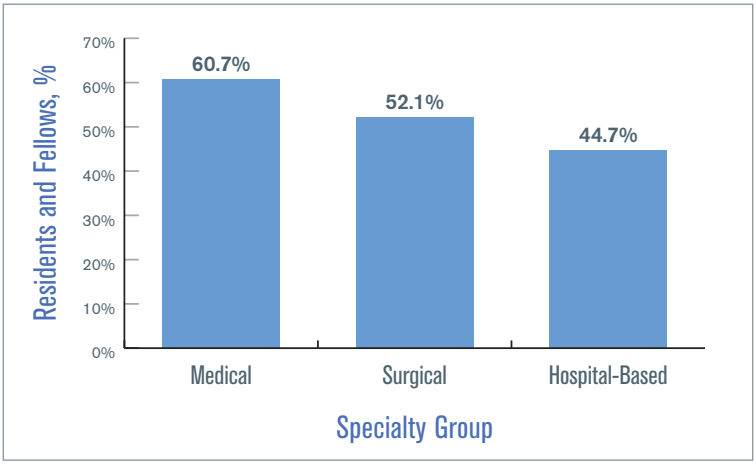


Figure 1. Percentage of Residents and Fellows Who Reported Experiencing an Adverse Event, Near Miss/Close Call, or Unsafe Condition and Submitted a Report Through the Clinical Site's Reporting System, by Specialty Group

The CLER teams also explored faculty members' and program directors' use of the CLE's patient safety event reporting system. In group interviews, 38.5% of faculty members and 40.2% of program directors indicated that they had personally reported an adverse event, near miss/close call, or unsafe condition during the past year (4.6% of the program directors had no clinical responsibilities at the site).

In a separate query, 20.2% of residents and fellows in group interviews indicated that they had reported a near-miss/close-call event while at the CLE, with responses varying by specialty grouping and PGY level (*Figure 2*). Across CLEs, the median (IQR) finding was 18.2% (11.1%–28.3%); responses varied by type of ownership. Appendix B3 provides complete information on variability.

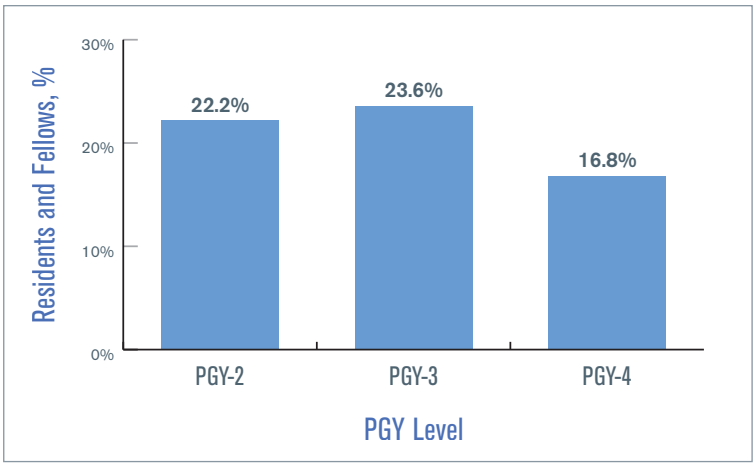


Figure 2. Percentage of Residents and Fellows Who Reported a Near-Miss/Close-Call Event, by Postgraduate Year (PGY) Level.

Feedback on Patient Safety Event Reports

In group interviews, the CLER teams asked residents and fellows whether they received feedback on patient safety event reports. Of those who had experienced an adverse event, near miss/close call, or unsafe condition and who had personally submitted a patient safety event report or relied on a nurse, medical assistant, or supervisor to submit the report, 39.2% reported that they received feedback on the outcome of the report. Responses varied by sex, specialty grouping, and PGY year. Across CLEs, the median (IQR) was 35.3% (20.5%–50.0%), with responses varying by CLE bed size and region (*Figure 3*). Appendix B4 provides detailed information on variability.

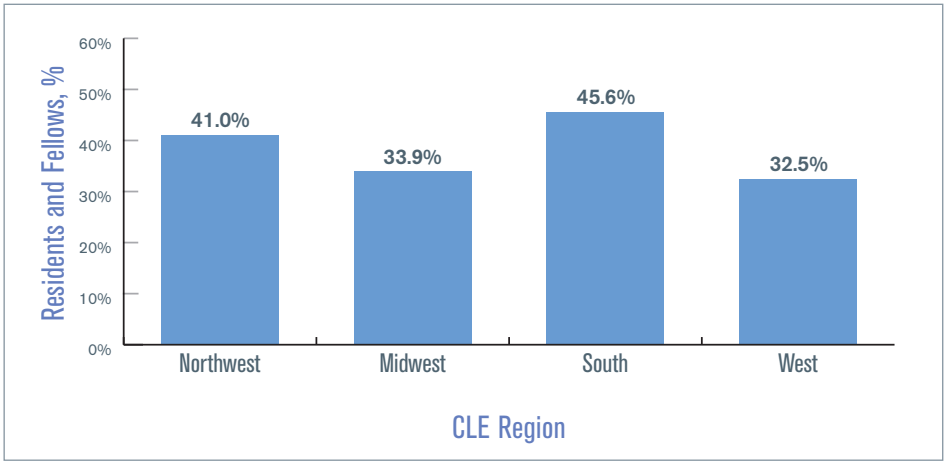


Figure 3. Percentage of Residents and Fellows Who Reported Receiving Feedback on the Outcome of a Patient Safety Event Report Submitted, by Clinical Learning Environment (CLE) Region

Many residents and fellows appeared to be unaware of how their CLEs use the reporting of adverse events, near misses/close calls, or unsafe conditions to improve care broadly and at the individual departmental level. Across CLEs, residents, fellows, nurses, and other clinical staff expressed a strong desire to receive feedback on the changes that were made in response to the submitted patient safety event report.

Inclusion in Patient Safety Event Investigations

In many CLEs (93.9%), patient safety and quality leaders indicated that residents and fellows participate in a patient safety event analysis if involved in the event being investigated. When asked to describe their role in the investigative steps, patient safety and quality leaders noted that residents and fellows are often interviewed by the investigative team, participate in identifying the root causes of the event, develop action plans as members of the interprofessional investigative team, and help to implement the action plan. The patient safety and quality leaders noted that residents and fellows are less often involved in monitoring the implementation and effectiveness of the action plan.

In 67.4% of CLEs, patient safety and quality leaders indicated that residents and fellows who are not involved in the event being investigated can participate in the event analysis. They often participated in identifying the root causes of the event and developing action plans; their participation in implementing the action plan and monitoring action plan implementation and effectiveness was less common.

In group interviews, 60.5% of the residents and fellows who were PGY-3 and higher indicated that they had participated in an interprofessional investigation of a patient safety event that included components such as analysis of system issues, development and implementation of an action plan, and monitoring for continuous improvement. Reponses varied by PGY level and specialty grouping (*Figure 4*). Across CLEs, the median (IQR) finding was 62.0% (50.0%–77.6%). Responses varied by region and CLE bed size. Appendix B5 provides detailed information on variability.

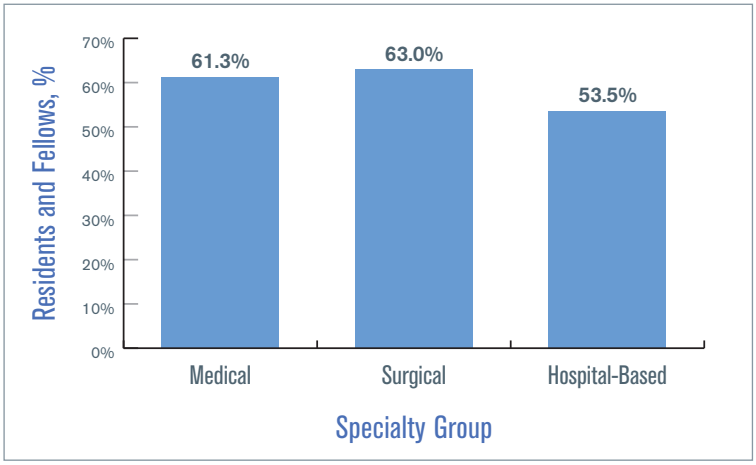


Figure 4. Percentage of Residents and Fellows (Postgraduate Year 3 and Above) Who Reported Participating in an Interprofessional Investigation of a Patient Safety Event, by Specialty Group.

Across CLEs, many residents and fellows interviewed on walking rounds indicated they had not participated in an interprofessional patient safety event investigation. For those who had been members of the event analysis team, they generally did not describe participating in a process that included components such as analysis of system issues, development and implementation of an action plan, and monitoring for continuous improvement.

In general, residents, fellows, and program directors varied widely in their perceptions of what constituted a formal investigation of a patient safety event. In many CLEs, the physician groups mentioned departmental morbidity and mortality conferences, case conferences, and grand rounds—limited to physician participation—as the primary means by which residents and fellows experience patient safety event investigations. These experiences lacked the attributes of a formal patient safety event investigation aimed at preventing future adverse events, improving patient care, and sustaining improvements in patient safety.

Overall, while there appeared to be increasing awareness of the value of engaging residents and fellows in patient safety event reviews and analyses, efforts to increase and improve engagement of residents and fellows were not prioritized across CLEs. Many CLEs did not appear to have measurable goals to include residents and fellows in patient safety event investigations as members of the event analysis team.

Lessons Learned from Patient Safety Event Investigations

In group interviews, 91.7% of faculty members and 90.9% of program directors agreed or strongly agreed that patient safety events analyzed at their clinical site consistently resulted in sustained improvements in patient care.

In group interviews with residents and fellows, 42.0% reported that they were aware of results from patient safety event investigations at their clinical site (median [IQR], 40.7% [25.2%–55.8%] across CLEs). Appendix B6 provides detailed information on variability.

When asked how they learned about the results from patient safety event investigations at their clinical site, residents and fellows often mentioned departmental, divisional, or teaching conferences in which results from some investigations were shared. In general, they did not describe a process in which their CLE shared lessons learned from patient safety event investigations with all residents and fellows. It was uncommon for residents and fellows to mention receiving information on the outcomes of an investigation, including recommended actions to address vulnerabilities in the system and to improve patient safety.

Disclosure of Patient Safety Events

In addition to any training they may have received from their program on disclosing medical errors, 46.7% of residents and fellows in group interviews indicated that their clinical site provided them with training specific to how it would like its patients and/or families to receive disclosure of medical errors (6.7% reported that such training was not applicable to their specialty). Responses varied by sex and specialty grouping. Across CLEs, the median (IQR) finding was 49.0% (31.6%–60.8%), with responses varying by region.

Perceived Patient Safety Vulnerabilities in Care Transitions

When asked about transitions in patient care that have the likelihood of posing the greatest risk to patient safety at their clinical site, 25.3% of residents and fellows in group interviews indicated inpatient to outpatient; 23.5%, intra-hospital (e.g., emergency department to floor, operating room to floor); 7.6%, into the hospital/medical center; 18.0%, transfers between services; 20.7%, shift-to-shift hand-off; and 3.5%, “other.”

Across CLEs, residents, fellows, nurses, and other health care professionals interviewed on walking rounds identified several transitions posing the greatest risk for patient safety at their clinical site. When describing these patient safety vulnerabilities, they often mentioned:

- delays in patient care when beds are unavailable for admitted emergency department patients, resulting in a lack of clarity as to who is responsible for the patient's care, delays in treatment, changes in condition, or patient admission to an inappropriate level of care;
- transfers from the emergency department to the inpatient floors or units when patients reach the floor without prior report of their condition to the receiving nurse; and,
- transfers from inpatient to outpatient care when outpatient follow up is not timely or patients do not have access to medications resulting in deterioration and subsequent readmission.

In a separate query, 87.8% of residents and fellows reported following a standardized process for handling transitions of care when rotating on or off clinical rotations (median [IQR], 91.7% [83.0%-100%] across CLEs). Appendix B7 provides information on variability.

Perceived Patient Safety Vulnerabilities Related to the Use of Remote Technology

In nearly all CLEs, patient safety and quality leaders indicated that remote technology is used for patient care at their clinical site.

Across CLEs, residents and fellows in group interviews identified numerous patient safety vulnerabilities related to the use of remote technology (e.g., telemedicine, remote monitoring, e-consults, patient portals, telestroke) at their clinical sites–posing risk for misdiagnosis or inaccurate diagnosis, complications, overtreatment, and delays in care and also limiting the ability to monitor conditions. Common examples included:

- lack of well-defined guidance or protocols that outline criteria for appropriateness for use of telemedicine versus in-person visits;
- inability to perform a complete and accurate patient assessment, including performing a direct physical examination, obtaining vital signs, and collecting medical history information;
- delays in care or risk of misdiagnosis when patients are inappropriately triaged to a telemedicine visit when an in-person visit would have been more appropriate;
- challenges coordinating concurrent care when using e-consults due to challenges with patient, family, and practitioner availability;
- vulnerabilities associated with converting telemedicine visits to telephone-only calls due to connectivity issues, creating risks such as loss of visual physical findings and delays in care;
- receiving incomplete information when patients are not forthcoming or find it difficult to have conversations on sensitive topics during remote visits because of privacy concerns or lack of privacy in the home setting;

- challenges with accessing or coordinating the use of translation or interpretive services for non-English-speaking patients;
- challenges in being able to escalate care when emergency situations arise during telemedicine visits; and,
- risk of incomplete or inaccurate medication reconciliation when unable to review medication bottles as during an in-person visit.

In general, patient safety and quality leaders did not recognize the breadth of patient safety risks associated with remote technology. Occasionally, they described proactive processes to assess patient safety vulnerabilities related to the use of remote technology. Additionally, new technology was often introduced without a proactive assessment of patient safety risks, and vulnerabilities were only addressed after an event had occurred.

The CLER site visit team also asked patient safety and quality leaders about resident and fellow supervision issues related to the use of remote technology at their clinical site. They often mentioned issues such as ensuring supervision of telemedicine services provided by residents and fellows, ensuring supervision of consults when the attending physician is supervising virtually, and how phone-only encounters can limit faculty members' ability to directly supervise residents' and fellows' interactions with patients.

HEALTH CARE QUALITY (INCLUDING HEALTH CARE DISPARITIES)

The CLER Program explored resident and fellow engagement in improving health care quality within the context of four major areas: awareness of the CLE's health care quality priorities, engagement in quality improvement (QI) activities, access to quality metrics data, and engagement in CLE efforts to eliminate health care disparities.

Priorities to Improve Health Care Quality

Although priorities to improve health care quality varied across CLEs, some common themes included alignment with broad national priorities such as Centers for Medicare & Medicaid Services Value-Based Purchasing, Core Measures, or other publicly reported performance measures. Many CLEs were highly focused on meeting specific criteria, such as reducing 30-day readmissions or improving performance on metrics related to congestive heart failure, pneumonia, and patient experience scores.

When describing their CLE's priorities to improve health care quality, residents, fellows, and faculty members often focused on departmental activities and did not describe priorities that aligned with those identified by the CLE's executive leadership or the patient safety and quality leaders. When the physician groups identified priorities aligned with those of executive leadership, they most commonly were associated with nationally recognized measures, especially those related to Medicare's Hospital Value-Based Purchasing Program.

Engagement in Quality Improvement Activities

In many CLEs (82.8%), residents and fellows were unfamiliar with the QI processes (e.g., Lean, Plan-Do-Study-Act, and Six Sigma) used by their clinical site to improve patient care (*Figure 5*, see also Appendix C2).

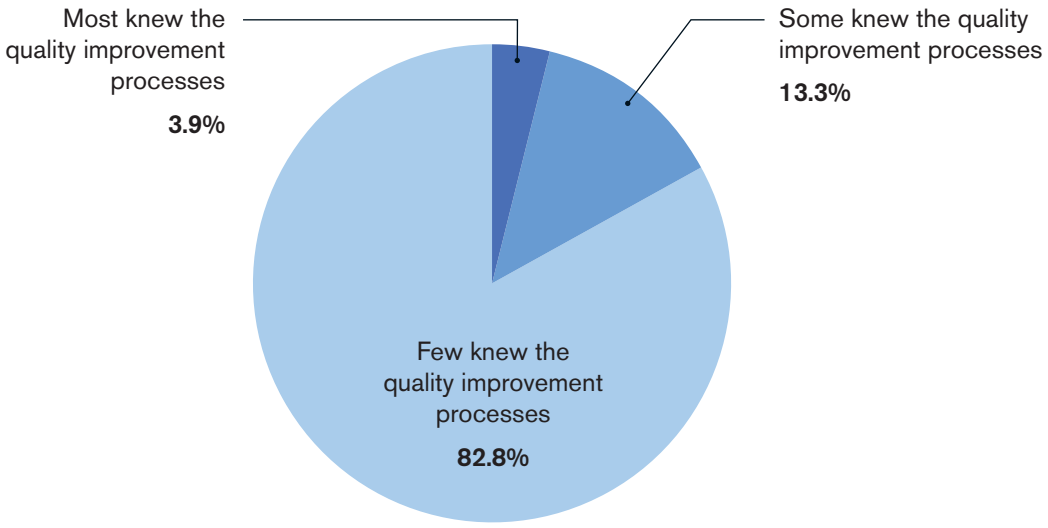


Figure 5. Percentage of Clinical Learning Environments by Proportion of Residents and Fellows Who Knew the Quality Improvement Processes Used by the Clinical Site to Improve Patient Care

In the group interviews, 73.6% of residents and fellows (PGY-2 and above) reported they had participated in a QI project of their own design or one designed by their program, department, or ambulatory care setting. Of this group, 42.6% reported that their QI project was directly linked to one or more of the CLE's goals; 39.3% were uncertain. Of those who reported that their QI projects were linked to the CLE's goals, 70.8% reported that their projects involved interprofessional teams. Appendices B8, B9, and B10 provide complete information on variability.

Overall, in the group interviews and on walking rounds, it was uncommon for residents and fellows to describe QI projects that aligned with their CLE's priorities.

In many CLEs (85.1%), the projects described did not include all the components of a complete QI cycle (i.e., Plan-Do-Study-Act) (*Figure 6*; see also Appendix C3). Often, resident and fellow participation was limited to planning and implementing a QI activity—their QI projects did not involve formally assessing effectiveness and designing follow-up actions to adjust, support, and sustain QI efforts.

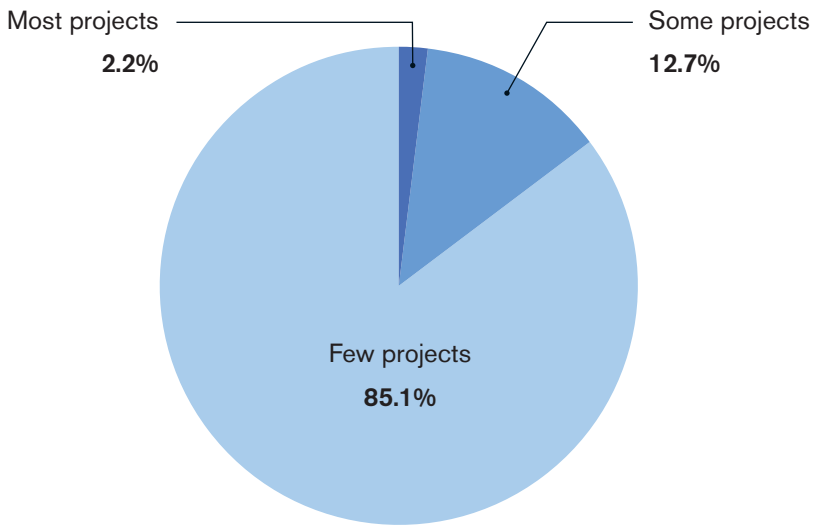


Figure 6. Percentage of Clinical Learning Environments by Proportion of Resident and Fellow Quality Improvement Projects with Components of a Complete Quality Improvement Cycle

In 17.3% of CLEs, patient safety and quality leaders indicated that they centrally monitor all resident- and fellow-led QI projects. In 12.7% of the CLEs, resident- and fellow-led QI projects are only monitored when aligned with clinical site-wide QI priorities.

In general, the QI activities of the CLE and GME were often siloed. There appeared to be a mutual lack of recognition of the importance and value of a collaborative and intentional approach to QI.

Access to Data

Many patient safety and quality leaders indicated that they provide residents and fellows with departmental or clinical service line quality performance data by sending these data to department chairs or program directors; they assume these data will be cascaded to their residents and fellows. Occasionally, they described proactive efforts to actively disseminate this information to increase awareness, understanding,

and use of the data. Generally, it was less common for patient safety and quality leaders to provide residents and fellows with quality performance data specific to their patients.

Of the residents and fellows in the group interviews, 27.9% reported receiving aggregated or benchmarked QI data on their own patients. Responses varied by PGY level and specialty grouping. Across CLEs, the median (IQR) finding was 28.6% (16.0%–44.6%), with responses varying by CLE bed size and type of ownership (*Figure* 7). Appendix B11 provides complete information on variability.

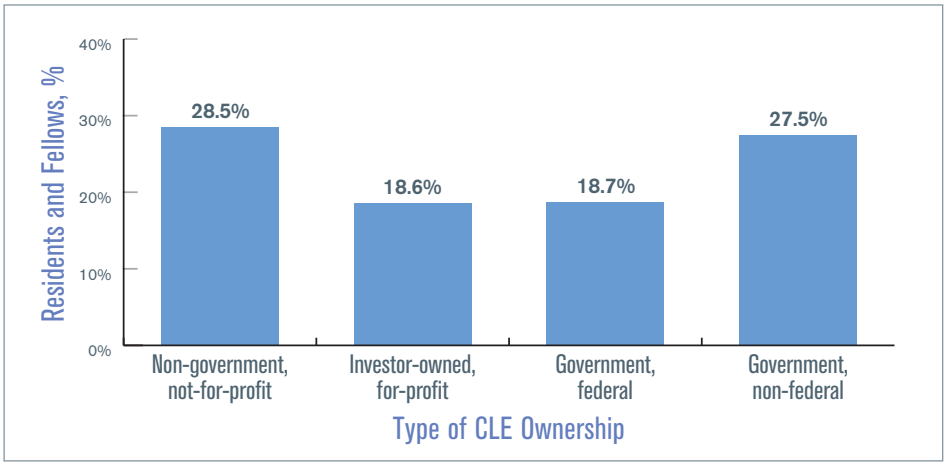


Figure 7. Percentage of Residents and Fellows Who Reported Receiving Aggregated or Benchmarked Quality Performance Data About the Care of Their Own Patients, by Type of Clinical Learning Environment (CLE) Ownership

Engagement in CLE Efforts to Eliminate Health Care Disparities

Strategies Focused on Eliminating Health Care Disparities

Across many CLEs, executive leaders were aware of health disparities issues affecting their surrounding communities. Many described efforts to improve access to care and providing free or low-cost care and clinics for the underserved.

In general, CLEs were focused on health disparities and collecting data on social determinants of health. A limited number of executive leaders spoke to health care disparities occurring within their hospital or medical center. It was also uncommon for executive leaders to describe measures stratified by subpopulations for the purposes of identifying health care disparities as part of their CLE's process for tracking quality and safety performance measures.

Overall, 6.6% of executive leaders described a specific strategy or a systematic approach to identifying, addressing, and continuously assessing variability in the care provided to or the clinical outcomes of their patient populations at risk for health care disparities. Another 21.0% of executive leaders described what appeared to be the early stages of developing a systematic approach to identifying variability in the care provided to or the clinical outcomes of their patient populations at risk for health care disparities.

Participation in Quality Improvement to Address Health Care Disparities

In many CLEs, residents and fellows interviewed during the group discussions and on walking rounds described patient populations at risk for health care disparities at their clinical site.

In the group interviews, 12.4% of residents and fellows reported that they had participated in a QI project focused on eliminating health care disparities at their clinical site (median [IQR], 10.5% [0.9%–18.9%] across CLEs). Responses varied by sex, PGY level, and specialty grouping (*Figure 8*). Appendix B12 provides complete information on variability.

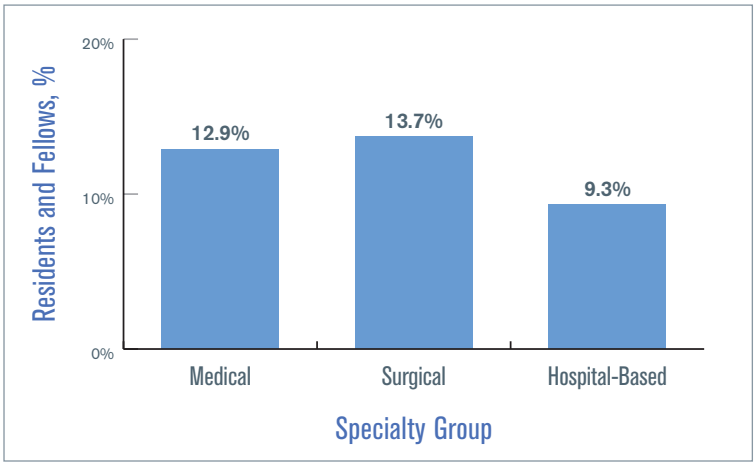


Figure 8. Percentage of Residents and Fellows Who Reported Participating in a Quality Improvement Project Focused on Eliminating Health Care Disparities, by Specialty Group

TEAMING

The concept of teaming recognizes how the composition of the clinical care team changes throughout the course of providing patient care. Teaming often happens across departmental and organizational boundaries. It involves purposeful interactions in which team members capitalize on their various professional strengths to coordinate care that is safe and efficient. The CLER site visit team explored several aspects of teaming, including promoting teaming in the CLE, engagement in the design and improvement of patient care, and the role of patients[a] in teaming.

As part of exploring this focus area, the CLER teams interviewed individuals with positions or roles at the clinical site with knowledge about organizational-wide initiatives. The group interview with teaming leadership often included a manager or director of an inpatient/outpatient service (22.4%), a manager or director of an allied health profession/ancillary service (13.5%), and a physician director (9.3%). Other participants included a nurse manager, a simulation leader, and a leader of continuing education/continuing medical education.

Promoting Teaming in the CLE

In many CLEs, teaming leadership indicated that their clinical site had resources to improve teaming across departments, service lines, and various health care settings (e.g., inpatient, outpatient, skilled nursing facilities, home health). While they often mentioned resources such TeamSTEPPS® training, simulation, safety huddles and debriefs, role shadowing, and workshops to improve communication, they did not describe ongoing training or development of skills specific to optimizing teaming.

In the group interviews, 40.2% of the residents and fellows reported that they had participated in activities organized by their clinical site to develop their skills in teaming in non-emergent patient care. Across CLEs, the median (IQR) was 40.7% (26.7%-60.0%); responses varied by region, CLE bed size, and type of ownership (*Figure 9*; see also Appendix B13). When asked the same question, 50.3% of the faculty members in group interviews reported participating in such activities. When describing these activities, the physician groups often mentioned unit-based activities related to interprofessional patient rounding and department-specific activities such as simulations focused on improving communication among health care professionals and with patients. In general, these groups did not mention specific activities centrally organized by their CLE.

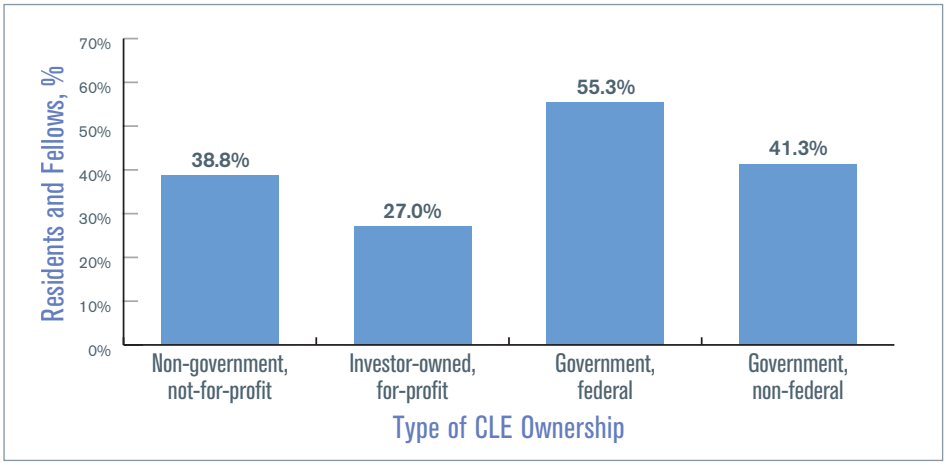


Figure 9. Percentage of Residents and Fellows Who Reported Participating in Activities Organized by the Clinical Site to Develop Their Skills in Teaming in Non-Emergent Patient Care, by Type of Clinical Learning Environment (CLE) Ownership

[a] "Patient" can include family members, caregivers, patient legal representatives, and others.

In nearly all CLEs (98.3%), residents, fellows, nurses, and other health care professionals interviewed during walking rounds indicated that they do not routinely meet to discuss how they are working together to provide patient care and ways to improve teaming across the continuum of care (see Appendix C4).

In general, CLE efforts to improve interprofessional teaming in non-emergent clinical care situations were not focused on educating on the skills needed to optimize teaming to improve patient outcomes (e.g., purposeful and timely reflection on team performance among various members of the clinical care team).

Engagement in Patient Care Design and Improvement

Excluding changes in personnel, teaming leadership in many CLEs described significant organizational changes to patient care (e.g., opening a new unit, improving throughput) during the past year at their clinical site. Occasionally, they indicated that residents, fellows, faculty members, nurses, and other health care professionals provided input in making these changes.

On walking rounds, when the CLER site visit team further explored frontline input into organizational changes to patient care, clinical care team members in 8.1% of CLEs indicated that organizational changes affecting patient care were made with collaborative input from frontline staff (see Appendix C5).

The Role of Patients in Teaming

As part of this focus area, the CLER site visit team also explored the role of patients in teaming. When asked if there are expectations at their clinical site to involve patients in resident/fellow change-of-duty hand-offs, 18.3% of residents and fellows in group interviews indicated that there are expectations. Responses varied by PGY level and specialty grouping. Across CLEs, the median (IQR) finding was 18.8% (9.1%-29.1%), with responses varying by region and CLE bed size (*Figure 10*; see also Appendix B14). When asked the same question, 28.7% of faculty members and 26.6% of program directors reported that there are expectations.

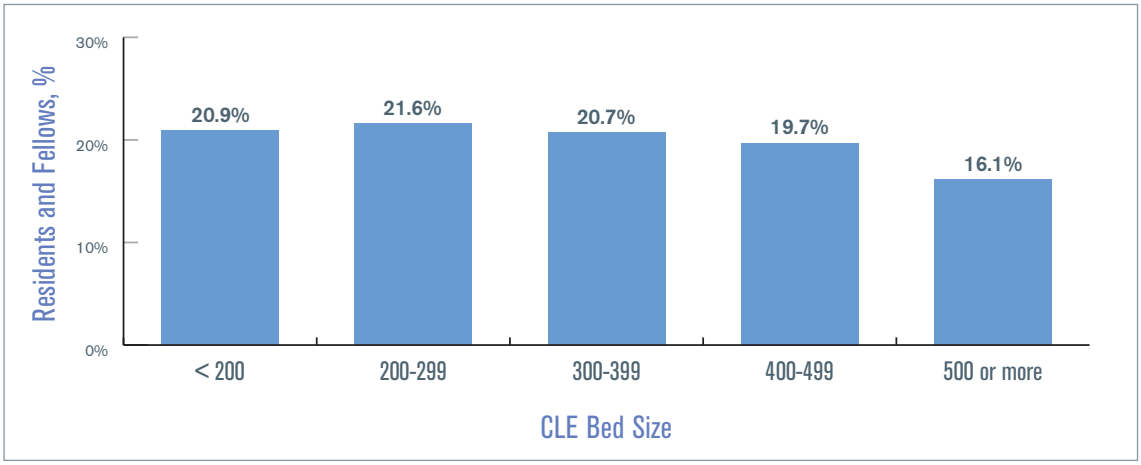


Figure 10. Percentage of Residents and Fellows Who Reported There are Expectations at the Clinical Site to Involve Patients in Resident/Fellow Change-of-Duty Hand-Offs (e.g., Change-of-Shift, Change-of-Service), by Clinical Learning Environment (CLE) Bed Size

In many CLEs, it did not appear that there were specific and purposeful efforts to ensure that clinical care team members engage patients in decisions related to their care. While teaming leadership often mentioned activities such as bedside rounding, change-of-shift handoffs at the bedside, and interprofessional discharge planning rounds, it appeared these activities were often used to inform patients of their plan of care rather than engage them in discussions about their care plan options. It was unclear if the CLE monitored these activities.

SUPERVISION

The CLER Program explored resident and fellow supervision and the issues around this focus area to assess perceptions of supervision and potential vulnerabilities, awareness of situations requiring direct supervision, and patient safety events related to supervision.

Perceptions of Supervision and Potential Vulnerabilities

In many CLEs, executive leaders did not express concerns or identify any specific vulnerabilities related to resident and fellow supervision within their organization.

While the majority of physicians in group interviews reported a culture of close supervision, there were also perceptions of inadequate supervision. Among the residents and fellows surveyed in the group interviews, 22.3% reported that they had been placed in a situation or witnessed one of their peers in a situation in which they believed there was inadequate supervision (e.g., the attending physician was not available) while in training at the clinical site. Responses varied by PGY level and specialty grouping (*Figure 11*). Across CLEs, the median (IQR) finding was 21.1% (10.5%–30.4%), with responses varying by region. Appendix B15 provides complete information on variability.

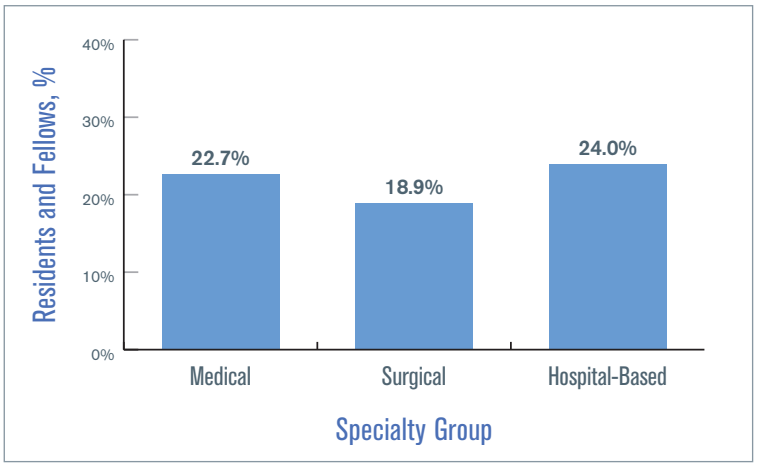


Figure 11. Percentage of Residents and Fellows Who Reported Having Been Placed, or Witnessing One of Their Peers Placed, in a Situation in Which They Believed There Was Inadequate Supervision, by Specialty Group

In group interviews, the CLER teams also asked residents and fellows about their experiences in contacting attending physicians and consultants for assistance. Of those surveyed, 43.0% indicated that they had encountered an attending physician or consultant who made them feel occasionally or frequently uncomfortable when requesting help at their clinical site (median [IQR], 43.4% [30.8%–55.6%] across CLEs). This finding varied by PGY year and sex (*Figure 12*; see also Appendix B16). Approximately 46% of the program directors perceived that their residents and fellows had encountered an attending physician or consultant who made them feel occasionally or frequently uncomfortable when requesting help.

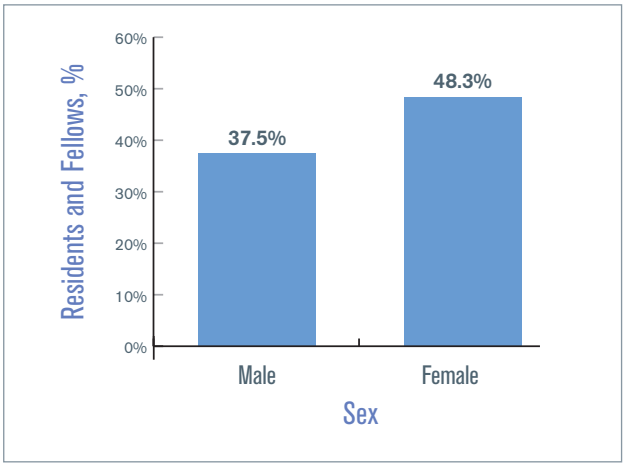


Figure 12. Percentage of Residents and Fellows Who Reported Encountering a Physician (Attending Physician or Consultant) Who Made Them Feel Occasionally or Frequently Uncomfortable When Requesting Assistance, by Sex

When discussing issues related to supervision that may create patient safety vulnerabilities, physician groups often mentioned the challenges of providing supervision during evenings, on weekends, and during times of high acuity and patient volume. They also noted that competing clinical responsibilities further limited the availability of faculty members to supervise residents and fellows.

Across CLEs, many residents and fellows expressed hesitancy to report concerns regarding supervision or to request help from attending physicians, non-core faculty members, and consultants. They often noted that this experience was more frequent when interacting with consultants than with other attending physicians. When discussing their reluctance or discomfort with asking for assistance, they noted concern about bothering the attending physician; unwillingness to appear unprepared; encountering resistance when asking for help; and/or fear of being criticized, demeaned, or other negative consequences.

Residents and fellows also mentioned gaps in supervision when their peers provide consultative services, noting these gaps as a potential source of patient safety vulnerabilities.

Awareness of Situations Requiring Direct Supervision

Approximately 25% of residents and fellows in the group interviews indicated that they had an objective way to know which procedures their peers from other services were allowed to do without direct supervision when providing consultative services on their patients (15.7% reported that residents and fellows from other services do not consult on their patients). Across CLEs, the median (IQR) was 18.5% (7.9%-37.5%). Appendix B17 provides information on variability.

In group interviews with faculty members, 74.1% indicated that they had an objective way of knowing which procedures a particular resident or fellow was allowed to perform without direct supervision (12.1% reported that their residents and fellows do not perform procedures). In many CLEs, faculty members reported that this information is documented in an online system and maintained by the GME office or individual programs. They also indicated that nurses and other clinical staff members had mechanisms (e.g., paper or online methods) to verify the level of supervision needed when residents and fellows perform clinical procedures outside of the operative areas.

On walking rounds, it appeared that the nurses had limited access to or were unaware of systems to verify the level of supervision needed when residents and fellows perform clinical procedures outside of the operative areas. Those aware of systems varied in their awareness of how to access the information or did not routinely use the information in the course of clinical care. Often, the information appeared to be incomplete, inaccurate, or did not exist. In addition, faculty members and nurses in several CLEs reported that all procedures were directly supervised, obviating the need for such systems.

In many CLEs (97.6%), nurses reported that, in the absence of an attending physician, they relied principally on familiarity, trust, or PGY level when residents and fellows performed procedures (*Figure 13*; see also Appendix C6).

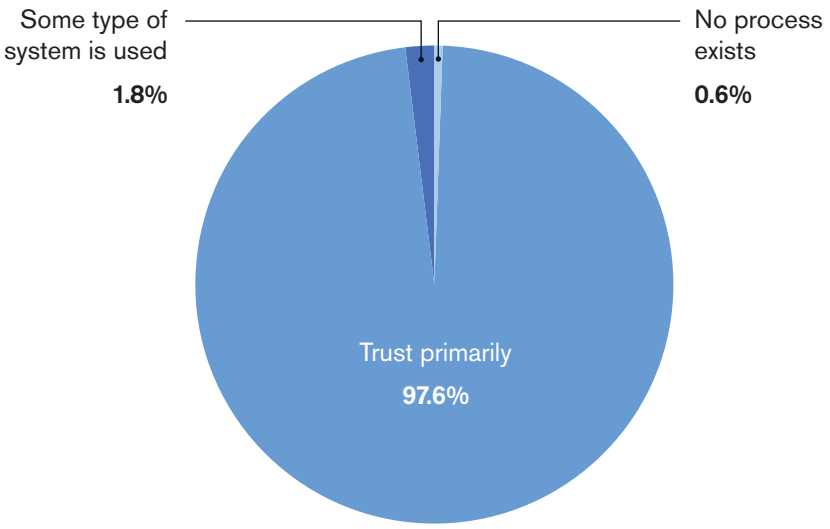


Figure 13. Percentage of Clinical Learning Environments by Mechanism Used to Identify Resident and Fellow Competence to Perform Clinical Procedures in the Absence of an Attending Physician, as Reported by Nurses

Patient Safety Events Related to Supervision

Executive leaders were often unaware of patient safety vulnerabilities attributed to supervision. In 45.9% of CLEs, patient safety and quality leaders recalled patient safety event reports in the past year related to resident and fellow supervision (see Appendix C7). In group interviews with program directors, 15.2% reported that in the past year, they had to manage an issue of resident or fellow supervision that involved a patient safety event at their clinical site.

In general, executive and patient safety and quality leaders indicated that they addressed patient safety events related to supervision as a factor in a retrospective review of reported patient safety events. It was uncommon for CLEs to proactively monitor for potential patient safety events related to supervision. The issue of supervision was often viewed as the responsibility of the GME community.

WELL-BEING

This focus area recognizes the importance of sustainable systems that comprehensively address the well-being of residents, fellows, faculty members, and other health care professionals to provide safe patient care. While the concept of well-being is large in scope, the CLER Program explored a selected set of four interrelated topics: work/life balance, fatigue, burnout, and support of those at risk of or demonstrating self-harm.

As part of exploring this focus area, the CLER teams interviewed individuals formally or informally designated by executive leadership to address the well-being of all members of the clinical care team (e.g., physicians, nurses, and other health care professionals) at the clinical site. The group interview with well-being leadership often included a human resource director or representative (14.9%), a well-being program representative (11.4%), and a spiritual care representative (11.4%). Other participants included a mental/behavioral health professional (e.g., psychologist or psychiatrist), a faculty member, an employee assistance program representative, an ombudsperson, a resident or fellow, a nurse, and a social worker.

Strategies to Support the Well-Being of the Clinical Care Team

In nearly all CLEs, well-being leadership indicated that their CLE maintained several activities and programs to promote the well-being of residents and fellows. Occasionally, they described formal processes to assess the effectiveness of these efforts.

A limited number of CLEs (23.4%) appeared to have a formal strategy to promote, improve, and sustain the well-being of all clinical care team members to ensure safe and high-quality patient care (*Figure 14*; see also Appendix C8). While many CLEs had wellness initiatives and other activities, programs, or resources focused on emotional and physical health (e.g., mindfulness and resilience training, counseling services, provision of nearby gym facilities), these efforts were isolated and initiated by individual programs, service lines, units, or professional groups. In addition, there was recognition of the impact of staffing shortages, electronic medical record documentation, and workplace violence on the well-being of the clinical care team that was addressed with varying degrees of success. In general, these efforts did not appear to be part of a larger comprehensive organizational strategy focused on systems-based solutions to optimize the well-being of the entire clinical care team.

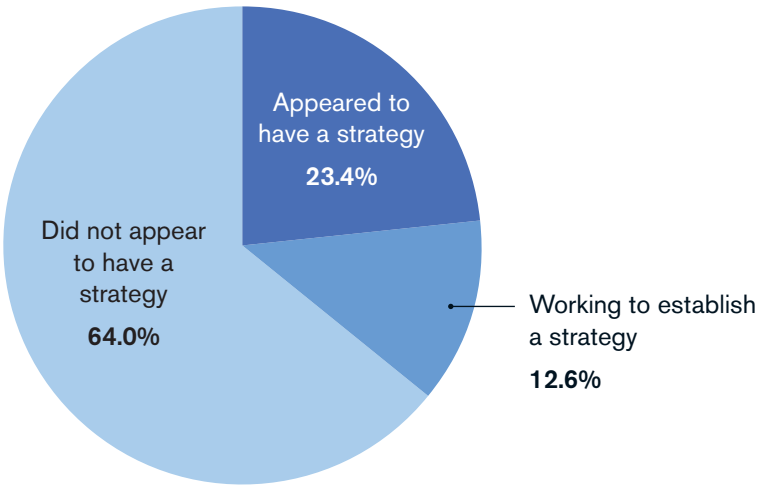


Figure 14. Percentage of Clinical Learning Environments That Appeared to Have a Formal Strategy to Support the Well-Being of All Clinical Care Team Members

Maintaining Personal Well-Being and Fulfilling Professional Obligations

In the section that follows, workload refers to volume and complexity of patient care, in addition to hours worked, including time for documentation, research, and educational activities.

When asked to what extent CLE leadership collaborated with GME leadership to set expectations for resident and fellow workload to optimize patient care while supporting their well-being, 50.6% of program directors surveyed reported that this collaboration occurred to a moderate or great extent. Regarding faculty workload, the well-being leaders in many CLEs were unsure if their clinical site set or collaborated to set upper limits to promote safe and high-quality patient care.

In group interviews with faculty members, 78.0% agreed or strongly agreed that their CLE created an environment that promotes balance between faculty members' workload and their well-being. In a separate query, 22.8% of faculty members and 34.8% of program directors agreed or strongly agreed that the volume and intensity of faculty members' workload adversely impacted their ability to teach residents and fellows.

Many CLEs did not appear to monitor whether residents, fellows, and faculty members exceeded expected workload. Many also did not appear to monitor whether faculty members' clinical workload adversely impacted their teaching responsibilities.

Fatigue Management

When asked to consider a hypothetical scenario in which they were maximally fatigued yet had two hours left before the end of their shift or workday, 43.5% of residents and fellows surveyed indicated that they would power through to hand-off or the end of the day. Responses varied by PGY level, specialty grouping, and sex (*Figure 15*). Across CLEs, the median (IQR) finding was 41.7% (28.6%–52.0%), with responses varying by CLE bed size. Appendix B18 provides detailed information on variability.

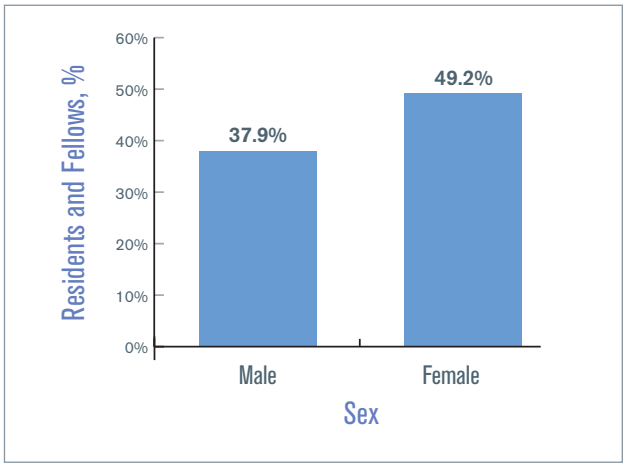


Figure 15. Percentage of Residents and Fellows Who Reported That They Would Power Through When Maximally Fatigued, by Sex

In this same circumstance, 34.6% indicated that they would notify a supervisor and expect to be taken off duty immediately; 9.8% indicated that they would ask another resident to take over their responsibilities; and 4.7% indicated that they would notify a supervisor and expect to be asked to stay until end of shift.

When presented with the same scenario, 12.5% of the program directors surveyed expressed the belief that the resident or fellow would power through to hand-off or the end of the day. Approximately 66% believed that the resident or fellow would notify their supervisor and expect to be taken off duty immediately.

Nearly 80% of the residents and fellows in the group interviews agreed or strongly agreed that their clinical site had successful systems in place to ensure patient safety from the risks of resident and fellow fatigue. Responses varied by sex and PGY level. Across CLEs, the median (IQR) finding was 81.5% (70.5%–92.7%); responses varied by CLE bed size, type of ownership, and region (*Figure 16*). Appendix B19 provides complete information on variability.

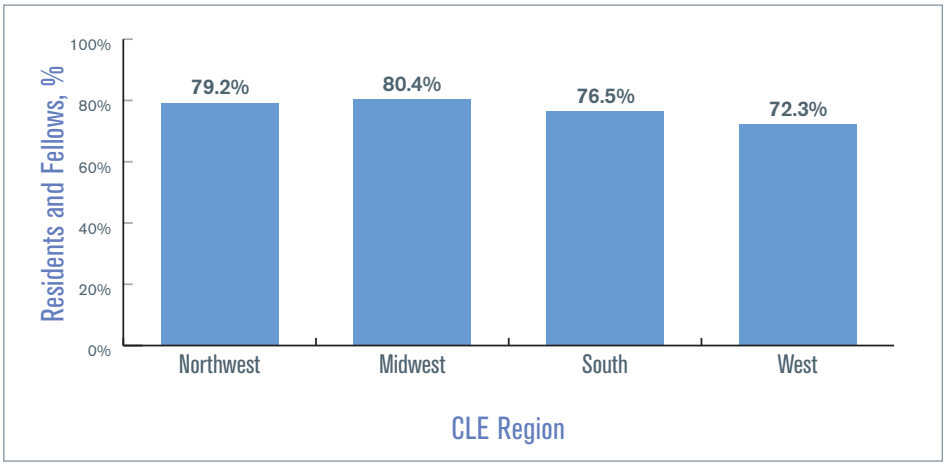


Figure 16. Percentage of Residents and Fellows Who Agreed or Strongly Agreed That Their Clinical Site Had Successful Systems to Ensure Patient Safety from the Risks of Resident and Fellow Fatigue, by Clinical Learning Environment (CLE) Region

In approximately 33% of CLEs, residents, fellows, nurses, and other health care professionals interviewed during walking rounds indicated that they were aware of clinical site efforts to proactively address fatigue among members of the clinical care team (*Figure 17*; see also Appendix C9).

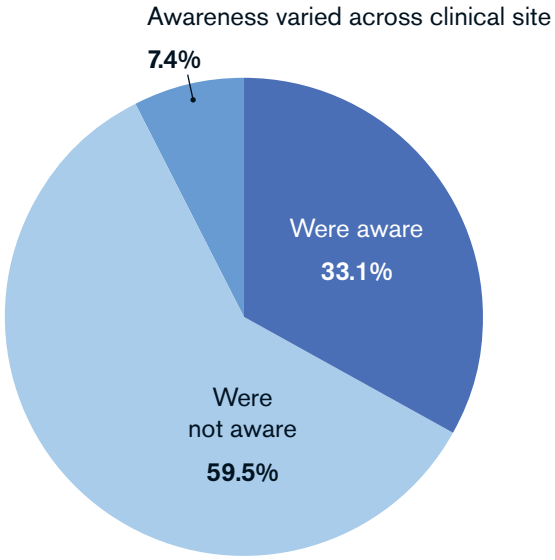


Figure 17. Percentage of Clinical Learning Environments Where Clinical Care Team Members Indicated They Were Aware of Clinical Site Efforts to Proactively Address Fatigue Among Members of the Clinical Care Team

Recognition and Mitigation of Burnout

In many CLEs, well-being leadership described various efforts to build awareness of the risks and signs of burnout among all members of the clinical care team. They often mentioned didactic educational sessions, online learning modules, self-administered mobile or web applications to assess burnout, and education during new employee orientation and onboarding.

During group interviews, 71.6% of residents and fellows and 71.7% of faculty members reported that they were moderately or very prepared to recognize and respond to burnout among members of the clinical care team.

When asked how frequently they see signs of burnout among faculty members at their clinical site, 55.5% of the residents and fellows surveyed responded sometimes or often (41.5% and 13.9%, respectively). When asked the same question, 61.5% of faculty members reported that they sometimes or often see signs of burnout among their faculty colleagues; (47.1% and 14.4%, respectively).

In describing some of the ways burnout is expressed among their faculty members, residents and fellows in the group interviews often mentioned less interest in teaching, apathy, cynicism, loss of empathy, less time devoted to their patients, unprofessional behavior, and leaving the organization.

When asked about the contributing factors at their clinical site that increase their risk for burnout, faculty members in group interviews mentioned the following:

- high patient volume and/or high patient acuity;
- clinical productivity pressures;
- extensive documentation requirements;
- inadequate clinical and administrative support;
- managing challenges associated with social determinants of health; and
- challenge of balancing teaching, research, administrative responsibilities, and patient care.

On walking rounds, the CLER site visit team also asked residents, fellows, nurses, and other health care professionals about system-level factors contributing to their burnout. They often mentioned:

- excessive and lengthy electronic health record documentation requirements;
- staffing shortages in most professions;
- staff turnover;
- delays in patient care and throughput exacerbated by increased patient volume and acuity;
- lack of adequate equipment and resources on some units and floors; and,
- increasing episodes of workplace violence toward practitioners.

A limited number of CLEs appeared to have a systematic approach to prevent, recognize, and effectively mitigate burnout among physicians. When engaged in efforts to address burnout, many CLEs were at varying stages of implementing solutions, and assessing the effectiveness of these efforts was uncommon.

Support of Those at Risk of or Demonstrating Self-Harm

During the group interviews with residents and fellows, 51.6% reported that there are standardized processes at their clinical site that they are expected to follow if they identify a member of the clinical care team at risk of or demonstrating self-harm (median [IQR], 50.0% [34.7%–66.7%] across CLEs; see also Appendix B20 for information on variability). When asked the same question, 65.3% of the program directors surveyed reported that there are standardized processes they are expected to follow in such situations.

In many CLEs, processes did not appear to exist to identify residents, fellows, and faculty members at risk of or demonstrating self-harm. Many CLEs also did not appear to assess the effectiveness of their efforts to facilitate care for those at risk of or demonstrating self-harm.

PROFESSIONALISM

The concept of professionalism encompasses a number of attributes. CLER visits focused mainly on those involving honesty, integrity, disclosure of potential conflicts of interest, respectful treatment of others, and patient experience survey data related to professionalism.

Honesty in Reporting

In the group interviews, 90.7% of residents and fellows responded that they believe their CLE provides a supportive, non-punitive environment in which to bring forward concerns about honesty in reporting. Responses varied by sex. Across CLEs, the median (IQR) finding was 94.7% (86.7%–100%), with responses varying by type of ownership. Appendix B21 provides complete information on variability.

Culture of Reporting Work Hours

When asked to consider a scenario in which a colleague stays one to two hours beyond their work hour limits to address a small, nonurgent clinical task, 35.4% of the residents and fellows surveyed indicated that it was very unlikely their colleague would report this time. When presented with the same scenario, 6.1% of the program directors indicated that it was very unlikely that a resident or fellow would report the time.

Documentation Practices

In the group interviews, 24.4% of residents and fellows reported that they had documented a history or physical finding in a patient medical record that they did not personally elicit while at their clinical site (e.g., copying and pasting from another note without attribution). For 6.0% of the residents and fellows, documenting a history or physical finding in a patient medical record did not apply to their specialty. Appendix B22 provides detailed information on variability.

When the CLER teams asked the faculty members about their documentation practices, 8.7% in group interviews indicated that they had documented a history or physical finding in a patient medical record that they did not personally elicit (6.7% reported that documenting a history or physical finding in a patient medical record did not apply to their specialty).

Integrity

Of the residents and fellows surveyed in group interviews, 9.9% reported that on occasion they felt pressured to compromise their honesty or integrity to satisfy an authority figure while at the CLE (median [IQR], 7.4% [0%–14.3%] across CLEs). See Appendix B23 for complete information on variability.

To further explore issues of integrity, CLER teams presented residents and fellows with a scenario in which one of their colleagues has written a manuscript and the department chair or program director–although not involved in the project–asks to be included as an author. Approximately 58% of those surveyed responded that they would advise the colleague to discuss the matter with a faculty member or their designated institutional official. The next-most-common response (18.2%) was to advise their colleague to include the department chair's or program director's name on the manuscript.

Disclosure of Potential Conflicts of Interest

When asked how often faculty members disclose whether or not they have potential conflicts of interests (e.g., research funding or commercial interests) during each resident and fellow clinical rotation, 44.0% of residents and fellows in the group interviews reported that faculty members often or always disclose this information. Responses varied by PGY level and specialty grouping. Across CLEs, the median (IQR) finding was 46.5% (33.3%–57.3%), with responses varying by region and CLE bed size (*Figure 18*). Appendix B24 provides detailed information on variability.

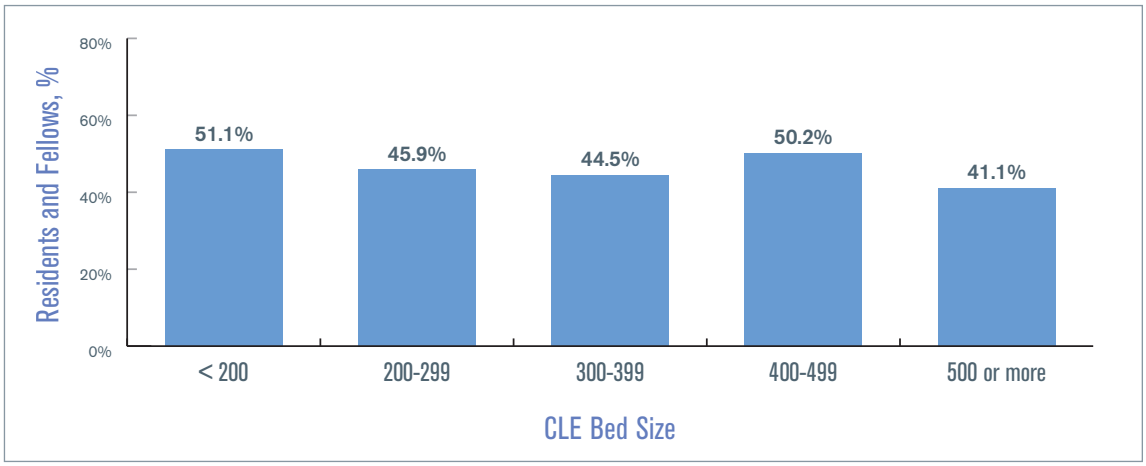


Figure 18. Percentage of Residents and Fellows Who Reported That Based Upon Their Experience at the Clinical Site, Faculty Members Often or Always Disclose Whether or Not They Have Potential Conflicts of Interests (e.g., Research Funding or Commercial Interests) During Each of Their Clinical Rotations, by Clinical Learning Environment (CLE) Bed Size

In many CLEs, executive leaders indicated that their clinical site did not have mechanisms to ensure that faculty members disclose potential conflicts of interest to all residents and fellows during clinical rotations.

Respectful Treatment of Others

In the group interviews, 75.3% of faculty members and 79.2% of program directors expressed the belief that their CLE was usually or always effective in managing reports of unprofessional behavior.

While many residents, fellows, nurses, and other health care professionals described their work environment as respectful and collegial, in nearly all of the CLEs (98.1%), individuals across multiple areas described the behavior of attending physicians and nurses as disrespectful or disruptive. In many CLEs, these behaviors were described as chronic, persistent, or pervasive in nature.

Across CLEs, many residents and fellows also described professionalism issues in obtaining consultation services, including lack of responsiveness and disrespectful communications in response to their requests for consultation, especially after hours and on weekends.

In general, residents and fellows across CLEs did not appear to be aware of the mechanisms and resources available to resolve perceived mistreatment beyond those offered by GME. Residents, fellows, and other clinical staff often mentioned that they would not report unprofessional behavior out of concern for adverse consequences of reporting.

Patient Experience Survey Data Related to Professionalism

In 50.6% of CLEs, the patient safety and quality leaders indicated that their clinical site provides residents and fellows with patient experience survey data related to the physician component of patient care (e.g., communication with health care practitioners) (see Appendix C10).

In the group interviews, 22.4% of residents and fellows reported they had received data on their own patients' experiences during the past 12 months. Across CLEs, the median [IQR] finding was 20.0% (10.0-35.7%)].

REFERENCES

1. CLER Evaluation Committee. 2019. "CLER Pathways to Excellence: Expectations for an Optimal Clinical Learning Environment to Achieve Safe and High-Quality Patient Care, Version 2.0." Chicago, IL: Accreditation Council for Graduation Medical Education.

2. Weiss, Kevin B., Robin Wagner, and Thomas J. Nasca. 2012. "Development, Testing, and Implementation of the ACGME Clinical Learning Environment Review (CLER) Program." *Journal of Graduate Medical Education* 4 (3): 396–98. doi.org/10.4300/JGME-04-03-31.

3. Weiss, Kevin B., James P. Bagian, and Thomas J. Nasca. 2013. "The Clinical Learning Environment: The Foundation of Graduate Medical Education." *JAMA* 309 (16): 1687–88. doi.org/10.1001/jama.2013.1931.

Trends in the CLER Focus Areas

INTRODUCTION

The CLER Program assessed and monitored a selected set of observations in the CLER Focus Areas[1] over several cycles of visits. This section offers a four-point analysis of changes in each of these areas. The measures examined are not comprehensive and do not summarize the full scope of resident and fellow engagement in the CLER Focus Areas. Instead, these trends offer a snapshot that paints a multidimensional picture of the CLE. These findings are intended to further stimulate new discussions on continuously improving the CLE. This section also offers a three-point analysis of selected measures that were added to the site visit protocol during the second cycle of visits to explore important topics in greater depth.

The results are based on matched cases (i.e., CLEs) and a combination of quantitative (e.g., resident and fellow responses to closed-ended questions in group interviews) and qualitative (e.g., observations and interviews on walking rounds) information. Details on data sources and the methods for analysis are described elsewhere in this report (see Methodology, pp. 13-22).

This section reports changes on selected measures and is not designed to imply plausible explanations of effects or to establish causal relationships. Additionally, statistical significance does not necessarily imply practical significance, as the differences may not be large enough to have practical implications. Many factors may influence change, such as awareness and understanding of the CLER Focus Areas, opportunities for engagement (e.g., participation in patient safety event investigations), and attention to improvements in selected Focus Areas (e.g., patient safety and health care quality). These factors may vary across CLEs and change over time; thus, such factors should be considered in interpreting these findings.

PATIENT SAFETY

The overall changes on selected measures in patient safety between Cycle 1 and Cycle 4 are presented in *Figure 1*.

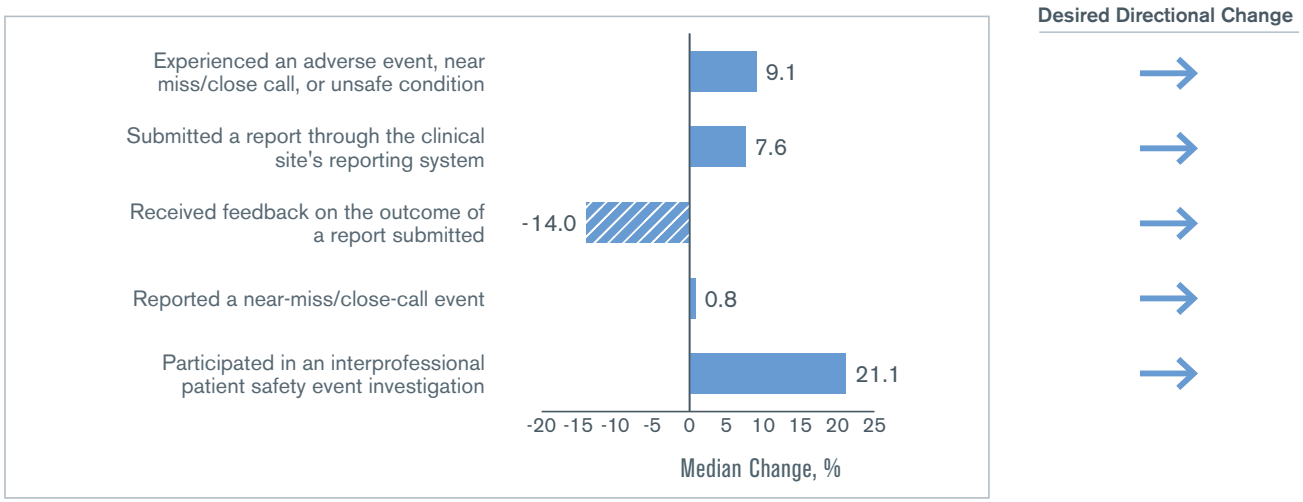


Figure 1. Median Percentage Differences on Selected Measures in Patient Safety Between Cycle 1 and Cycle 4 of Clinical Learning Environment Review Visits Based on Resident and Fellow Responses to Closed-Ended Questions in Group Interviews

Across CLEs, the median percentage of residents and fellows who reported experiencing an adverse event, near miss/close call, or unsafe condition varied over time (*Figure 2*). The median (IQR) findings in Cycle 1, Cycle 2, Cycle 3, and Cycle 4 were 64.0% (54.4%–75.6%), 71.6% (59.6%–81.6%), 75.0% (66.7%–83.3%), and 73.2 (63.7%–81.4%), respectively ($P < .001$). The percentage of residents and fellows who reported these events into their CLE's patient safety event reporting system trended upward over the last four cycles (*Figure 3*). The median (IQR) findings in Cycle 1, Cycle 2, Cycle 3, and Cycle 4 were 48.2% (33.3%–64.2%), 53.5% (40.0%–68.2%), 54.5% (44.6%–68.1%), and 55.8% (42.0%–69.4%), respectively ($P < .05$).

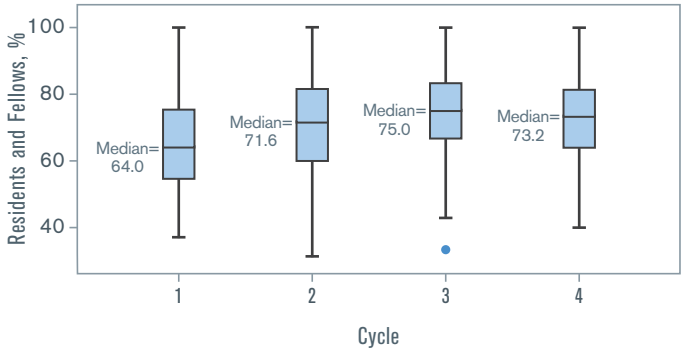


Figure 2. Boxplots[a] of the Median Percentage of Residents and Fellows Who Reported Experiencing an Adverse Event, Near Miss/Close Call, or Unsafe Condition: Cycles 1-4

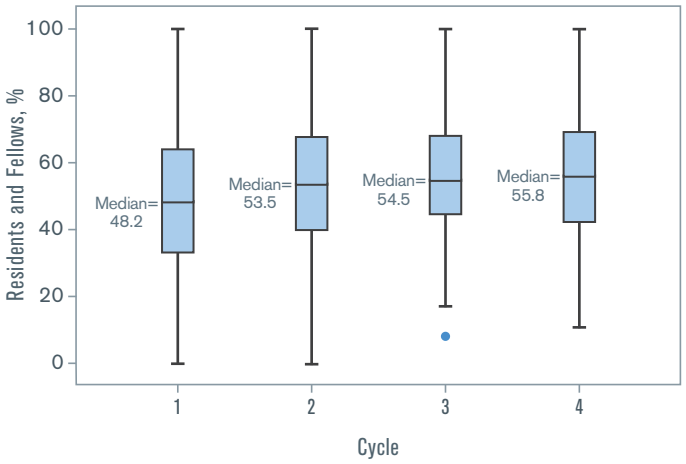


Figure 3. Boxplots of the Median Percentage of Residents and Fellows Who Reported Experiencing an Adverse Event, Near Miss/Close Call, or Unsafe Condition and Submitted a Report Through the Clinical Site's Reporting System: Cycles 1-4

[a] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

When queried separately, the median percentage of residents and fellows who reported a near-miss/close-call event increased between Cycles 1 and 2 but trended downward in Cycles 3 and 4 (*Figure 4*). The median (IQR) findings were 18.3% (10.4%–29.6%) in Cycle 1, 23.8% (15.4%–34.8%) in Cycle 2, 21.4% (12.7%–27.2%) in Cycle 3, and 19.1% (12.1%–27.7%) in Cycle 4 ($P < .01$).

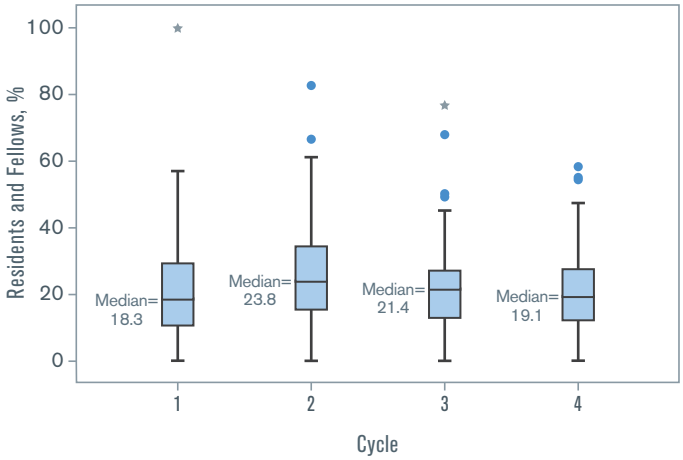


Figure 4. Boxplots of the Median Percentage of Residents and Fellows Who Reported a Near-Miss/Close-Call Event: Cycles 1-4

Across CLEs, the median percentage of residents and fellows who reported receiving feedback on the outcome of a patient safety event report submitted into the CLE's central reporting system continued to decline over time (*Figure 5*). In Cycle 1, Cycle 2, Cycle 3, and Cycle 4, the median (IQR) findings were 50.0% (33.3%–59.7%), 50.0% (33.8%–66.1%), 44.4% (33.3%–59.7%), and 36.0% (23.1%–50.0%), respectively. These differences were statistically significant ($P < .001$).

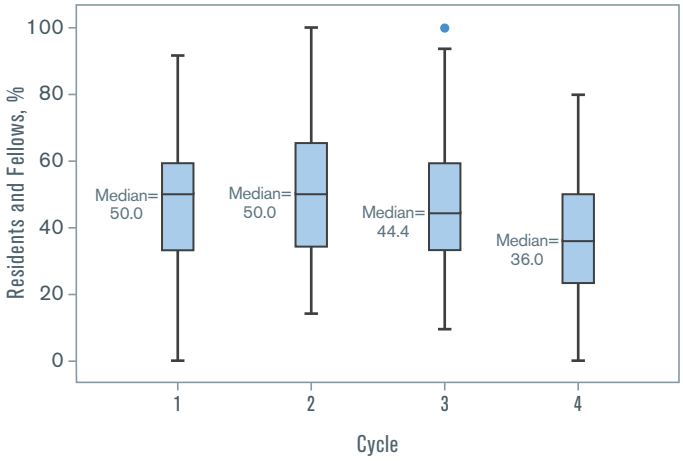


Figure 5. Boxplots of the Median Percentage of Residents and Fellows Who Reported Receiving Feedback on the Outcome of a Report Submitted Through the Clinical Site's Reporting System: Cycles 1-4

The median percentage of residents and fellows (PGY-3 and above) who reported participating in an interprofessional patient safety event investigation increased significantly in Cycle 4 (*Figure 6*). The median (IQR) percentage was 40.0% (30.6%–51.9%) in Cycle 1, 36.6% (29.4%–50.0%) in Cycle 2, 39.1% (29.0%–50.0%) in Cycle 3, and 61.1% (50.0%–71.5%) in Cycle 4. These differences were statistically significant ($P < .001$).

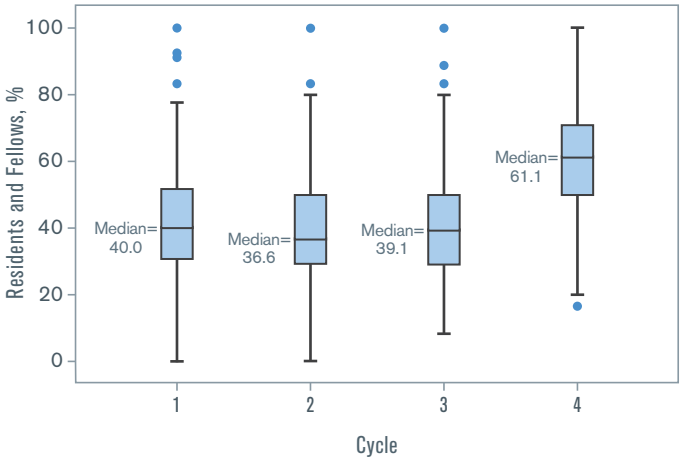


Figure 6. Boxplots of the Median Percentage of Residents and Fellows (PGY-3 and Above) Who Reported Participating in an Interprofessional (Physicians, Nurses, Administrators, Others) Investigation of a Patient Safety Event (e.g., Root Cause Analysis): Cycles 1-4

Abbreviation: PGY, post-graduate year.

Table 1 presents results related to qualitative information collected during interviews with patient safety and quality leaders. The percentage of CLEs that tracked the number of patient safety event reports submitted by residents and fellows increased over the last four cycles–30.9% in Cycle 1, 79.0% in Cycle 2, 76.5% in Cycle 3, and 90.1% in Cycle 4. This change over time was statistically significant ($P < .001$).

Table 1. Percentage of Clinical Learning Environments that Track Resident and Fellow Reporting of Patient Safety Events

Items	Scale	Cycle 1 n (%)	Cycle 2 n (%)	Cycle 3 n (%)	Cycle 4 n (%)
Tracks the number of patient safety event reports submitted by residents and fellows*	Tracks reporting	25 (30.9)	64 (79.0)	62 (76.5)	73 (90.1)
	Does not track reporting	56 (69.1)	17 (21.0)	19 (23.5)	8 (9.9)

*Statistically significant at $P < .001$.

HEALTH CARE QUALITY (INCLUDING HEALTH CARE DISPARITIES)

Figure 7 presents the overall changes on selected measures in health care quality and health care disparities between Cycle 1 and Cycle 4.

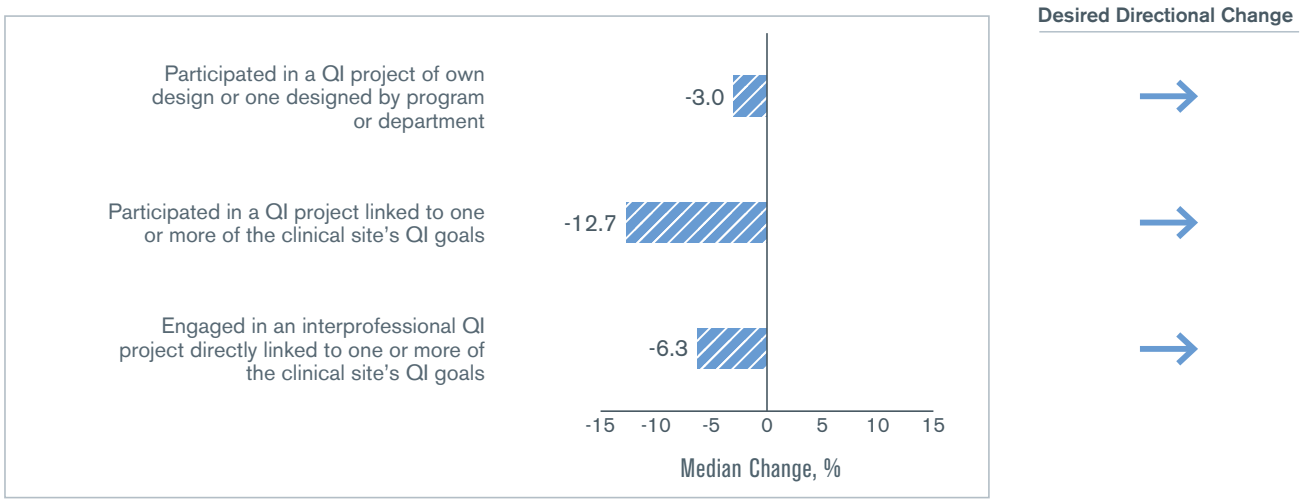


Figure 7. Median Percentage Differences on Selected Measures in Health Care Quality Between Cycle 1 and Cycle 4 of Clinical Learning Environment Review Visits Based on Resident and Fellow Responses to Closed-Ended Questions in Group Interviews

Abbreviation: QI, quality improvement.

Although there was a modest increase in the median percentage of residents and fellows (PGY-2 and above) who reported that they had participated in a QI project of their own design or one designed by their program or department between Cycle 1 and Cycle 2, a smaller percentage reported the same in Cycle 4 . The median (IQR) findings were 77.2% (65.9%–88.8%) in Cycle 1, 80.0% (69.1%–88.9%) in Cycle 2, 80.0% (69.6%–88.3%) in Cycle 3, and 74.2% (63.6%–85.1%) in Cycle 4. The overall change between Cycle 1 and Cycle 4 was statistically significant ($P < .001$).

Of the residents and fellows (PGY-2 and above) who reported that they had participated in a QI project, the median percentage who reported that the project was linked to the clinical site's QI goals declined over time since the first cycle of visits (*Figure 8*). In Cycle 1, Cycle 2, Cycle 3, and Cycle 4, the median (IQR) findings were 55.6% (43.5%–69.8%), 50.0% (33.7%–69.0%), 44.0% (30.6%–63.2%), and 42.9% (29.3%–60.0%), respectively. The overall change between Cycle 1 and Cycle 4 was statistically significant ($P < .001$).

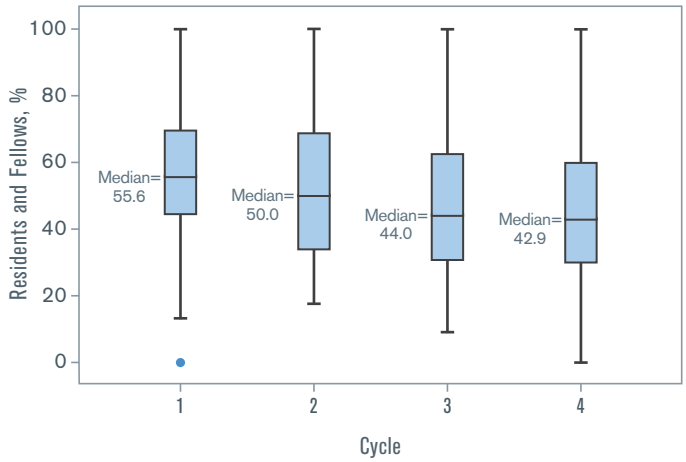


Figure 8. Boxplots of the Median Percentage of Residents and Fellows (PGY-2 and Above) Who Reported Participating in a Quality Improvement Project Linked to One or More of the Clinical Site's Quality Improvement Goals: Cycles 1-4

The median percentage of residents and fellows (PGY-2 and above) who reported being engaged in an interprofessional QI project linked to the clinical site's QI goals increased between Cycle 1 and Cycle 2 but trended downward in Cycle 3 and Cycle 4 (*Figure 9*). The median (IQR) findings in Cycle 1, Cycle 2, Cycle 3, and Cycle 4 were 73.0% (60.0–88.2%), 78.3% (66.7–90.2%), 73.3% (59.4–85.7%), and 66.7% (55.6%–83.3%), respectively. The overall change between Cycle 1 and Cycle 4 was not statistically significant.

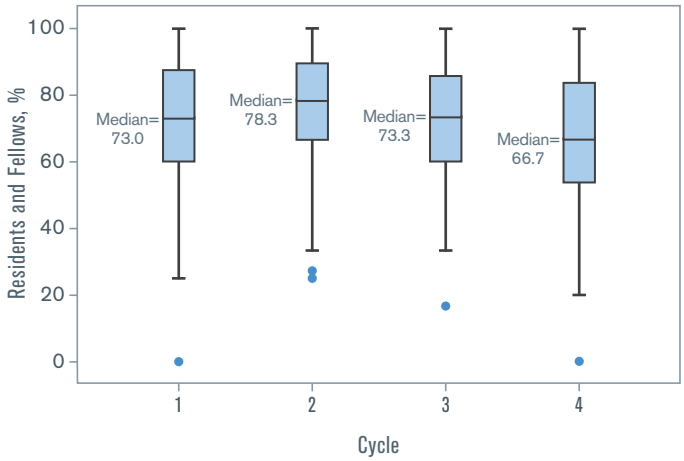


Figure 9. Boxplots of the Median Percentage of Residents and Fellows (PGY-2 and Above) Who Reported Being Engaged in Interprofessional Quality Improvement Teams (e.g., Nurses, Administrators, Pharmacists) While Participating in a Quality Improvement Project Directly Linked to One or More of the Clinical Site's Quality Improvement Goals: Cycles 1-4

Since Cycle 2, a greater proportion of resident and fellow QI projects did not appear to have the components of a complete QI cycle (as described during group interviews and on walking rounds). The overall percentage in which this was the case was higher in Cycle 4 than in the previous two cycles (*Table 2*).

Table 2. Percentage of Clinical Learning Environments by Proportion of Resident and Fellow Quality Improvement Projects with Components of a Complete Quality Improvement Cycle

Item	Scale	Cycle 2 n (%)	Cycle 3 n (%)	Cycle 4 n (%)
Proportion of resident and fellow quality improvement projects with components of a complete quality improvement cycle	Most	7 (4.4)	6 (3.8)	4 (2.5)
	Some	28 (17.7)	24 (15.2)	21 (13.3)
	Few	123 (77.8)	128 (81.0)	133 (84.2)

Although less than one third of the CLEs monitored resident and fellow quality improvement activities in the last three cycles of visits, there was an upward trend between Cycle 2 and Cycle 4–25.0% in Cycle 2, 8.1% in Cycle 3, and 29.1% in Cycle 4 (*Table 3*).

Table 3. Percentage of Clinical Learning Environments that Monitored Resident and Fellow Quality Improvement Activities

Items	Scale	Cycle 2 n (%)	Cycle 3 n (%)	Cycle 4 n (%)
Percentage of clinical learning environments that monitored resident and fellow quality improvement activities*	Monitoring	37 (25.0)	12 (8.1)	43 (29.1)
	Not Monitoring	111 (75.0)	136 (91.9)	105 (70.9)

*Statistically significant at $P < .001$.

In the area of health care disparities, a significantly smaller median percentage of residents and fellows reported receiving aggregated or benchmarked quality performance data about the care of their own patients in Cycles 3 and 4 compared to Cycle 2 (*Figure 10*). The median (IQR) findings were 35.3% (23.6%–51.3%) in Cycle 2, 32.8% (20.2%–50.0%) in Cycle 3, and 26.3% (16.0%–44.0%) in Cycle 4 ($P < .001$).

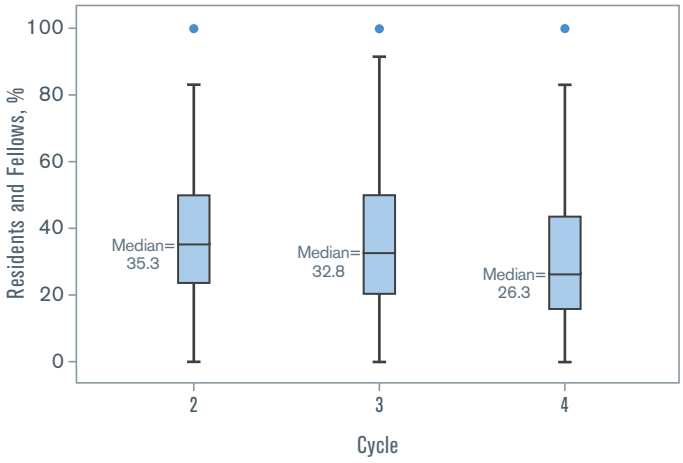


Figure 10. Boxplots of the Median Percentage of Residents and Fellows Who Reported Receiving Aggregated or Benchmarked Quality Performance Data About the Care of Their Own Patients: Cycles 2-4

The median percentage of residents and fellows who reported participating in a quality improvement project focused on eliminating health care disparities varied over time. The median (IQR) findings were 10.0% (3.7%–18.7%) in Cycle 2, 7.0% (0.0%–14.4%) in Cycle 3, and 10.5% (3.4%–17.8%) in Cycle 4. These differences were not statistically significant.

After four cycles of visits, there was little change in the percentage of CLEs that appeared to have a systematic approach to addressing health care disparities among at-risk patients receiving care at these clinical sites–less than 10.0% of CLEs in each cycle. Since the first two cycles of visits, a small percentage of CLEs in Cycle 3 (20.7%) and Cycle 4 (27.2%) appeared to be in the early stages of developing a systematic approach to identifying variability in the care provided to or the clinical outcomes of their known vulnerable patient populations.

SUPERVISION

The overall changes on selected measures in supervision between Cycle 1 and Cycle 4 are presented in *Figure 11*.

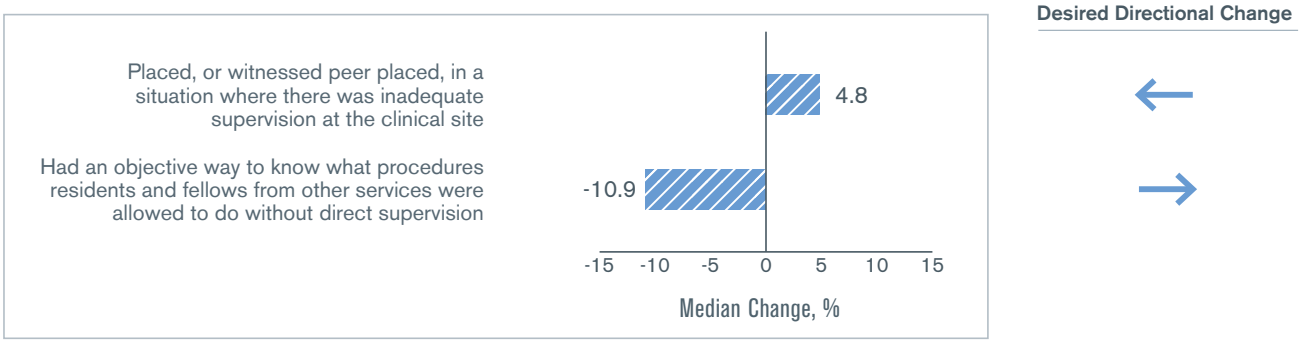


Figure 11. Median Percentage Differences on Selected Measures in Supervision Between Cycle 1 and Cycle 4 of Clinical Learning Environment Review Visits Based on Resident and Fellow Responses to Closed-Ended Questions in Group Interviews

From Cycle 1 to Cycle 2, there was a significant increase in the median percentage of residents and fellows who reported having an objective way to know what procedures residents and fellows from other services were allowed to do without direct supervision when they consulted on patients. The median percentage decreased in Cycle 3 and again in Cycle 4 (*Figure 12*). In Cycle 1, Cycle 2, Cycle 3, and Cycle 4, the median (IQR) findings were 36.9% (19.4%–61.7%), 45.1% (29.2%–66.0%), 38.6% (25.0%–64.7%), and 26.0% (14.7%–48.7%) ($P < .001$).

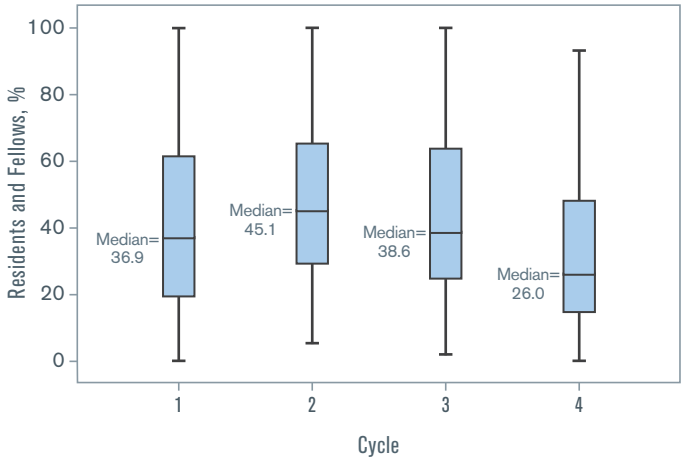


Figure 12. Boxplots of the Median Percentage of Residents and Fellows Who Reported Having an Objective Way to Know What Procedures Residents and Fellows from Other Services Were Allowed to Do Without Direct Supervision When They Consulted on Patients: Cycles 1-4

Over the past four cycles, the median percentage of residents and fellows who reported having been placed or witnessing one of their peers placed in a situation in which they believed there was inadequate supervision varied over time (*Figure 13*). The median (IQR) percentage was the lowest in Cycle 1–18.3% (8.4%–27.7%). In Cycle 2, Cycle 3, and Cycle 4, the median (IQR) findings were 25.0% (16.0%–31.6%), 30.0% (19.1%–41.6%), and 23.0% (14.7%–29.6%), respectively. This change over time was statistically significant ($P < .001$).

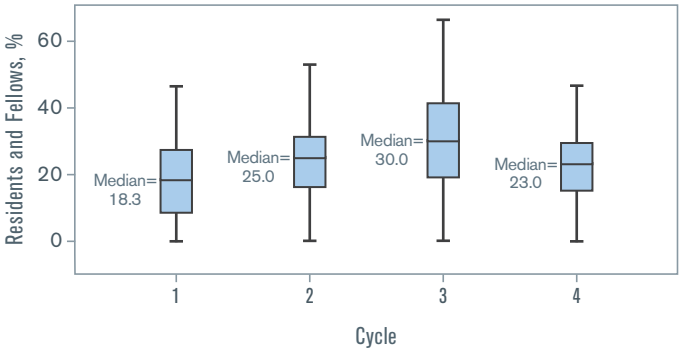


Figure 13. Boxplots of the Median Percentage of Residents and Fellows Who Reported Having Been Placed, or Witnessing One of Their Peers Placed, in a Situation in Which They Believed There Was Inadequate Supervision at the Clinical Site (e.g., the Attending Wasn't Available): Cycles 1-4

The median percentage of residents and fellows who reported encountering a physician (attending physicians or consultants) who made them feel uncomfortable when requesting help varied over time (*Figure 14*). The median (IQR) findings were 44.9% (32.8%–61.5%) in Cycle 2, 46.0% (30.6%–62.3%) in Cycle 3, and 43.4% (31.9%–55.6%) in Cycle 4. The overall change between Cycle 2 and Cycle 4 was not statistically significant.

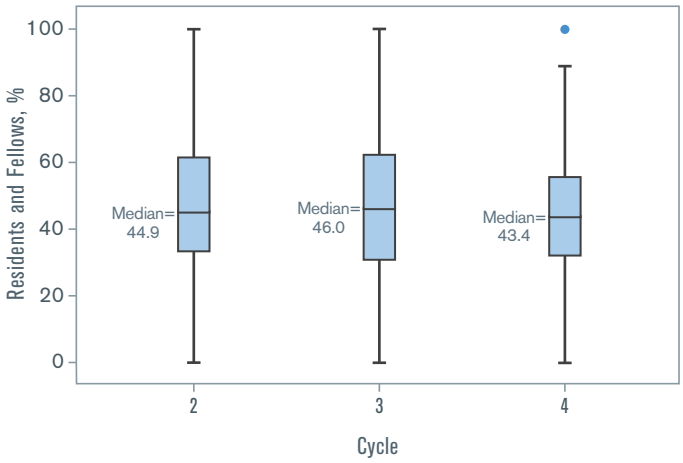


Figure 14. Boxplots of the Median Percentage of Residents and Fellows Who Reported Encountering a Physician (Attending Physicians or Consultants) Who Made Them Feel Uncomfortable When Requesting Assistance: Cycles 2-4

In the majority of CLEs–82.8% in Cycle 1, 94.3% in Cycle 2, 89.7% in Cycle 3, and 96.6% in Cycle 4–nurses indicated on walking rounds that in the absence of an attending physician, they relied primarily on trust when residents and fellows performed clinical procedures (*Table 4*).

Table 4. Percentage of Clinical Learning Environments by Mechanism Used for Identification of Resident and Fellow Competence to Perform Clinical Procedures, as Reported by Nurse

Item	Scale	Cycle 1 n (%)	Cycle 2 n (%)	Cycle 3 n (%)	Cycle 4 n (%)
Mechanism used for identification of resident and fellow competence to perform clinical procedures, as reported by nurses*	Some type of system is used	14 (16.1)	5 (5.7)	9 (10.3)	2 (2.3)
	Trust primarily	72 (82.8)	82 (94.3)	78 (89.7)	84 (96.6)
	No process exists	1 (1.1)	–	–	1 (1.1)

*Statistically significant at $P < .001$.

Four-Point Analysis

The overall changes on selected measures in Well-Being between Cycle 1 and Cycle 4 are presented in *Figure 15*.

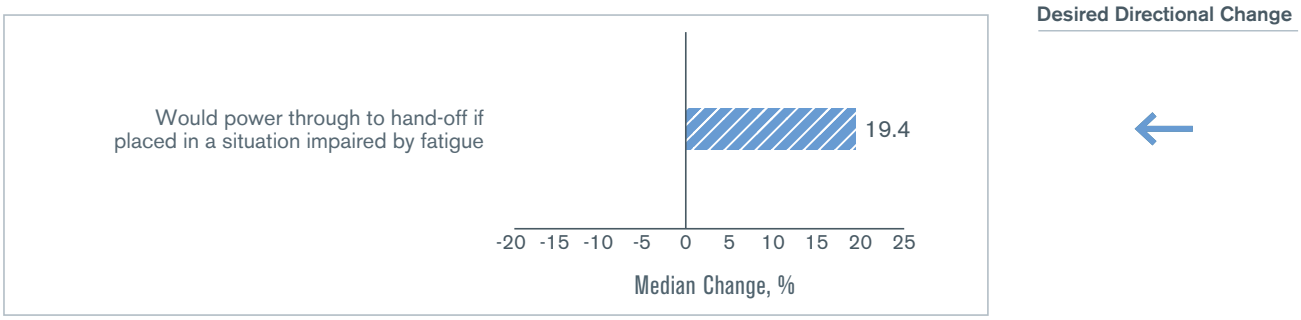


Figure 15. Percentage of Residents and Fellows Who Reported They Would Power Through When Maximally Fatigued: Median Percentage Differences Between Cycle 1 and Cycle 4 of Clinical Learning Environment Review Visits

Overall, the median percentage of residents and fellows who reported that they would power through to hand-off if placed in a situation in which they were impaired by fatigue trended upward in Cycle 2 and remained relatively the same over time (*Figure 16*). The median (IQR) findings in Cycle 1, Cycle 2, Cycle 3, and Cycle 4 were 26.8% (16.3%–37.7%), 46.5% (22.4%–55.8%), 45.7% (31.4%–57.6%), and 46.2% (33.3%–52.3%), respectively. The median percentage difference between Cycle 1 and Cycle 4 was statistically significant ($P < .001$).

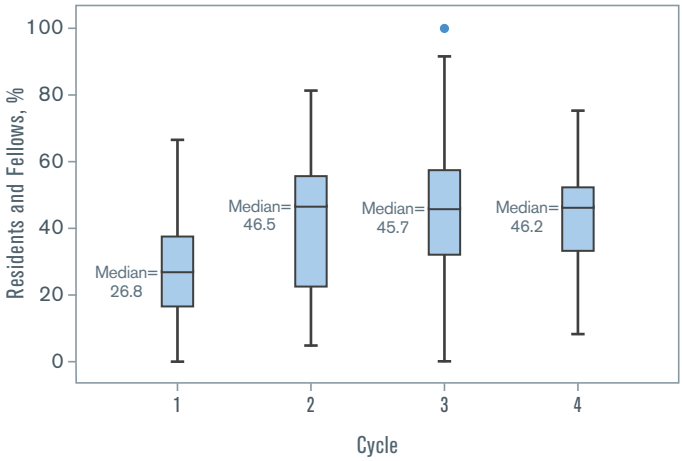


Figure 16. Boxplots of the Median Percentage of Residents and Fellows Who Reported They Would Power Through When Maximally Fatigued: Cycles 1-4

PROFESSIONALISM

Figure 17 presents the overall changes on selected measures in professionalism between Cycle 1 and Cycle 4.

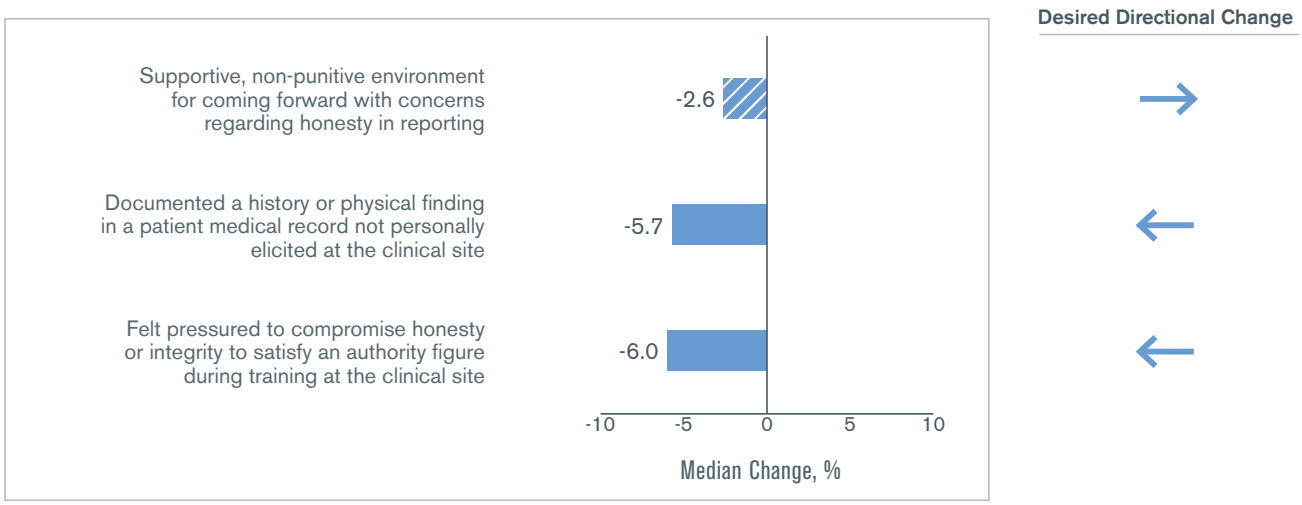


Figure 17. Median Percentage Differences on Selected Measures in Professionalism Between Cycle 1 and Cycle 4 of Clinical Learning Environment Review Visits Based on Resident and Fellow Responses to Closed-Ended Questions in Group Interviews

Across CLEs, the median percentage of residents and fellows who reported that their clinical site provided a supportive, non-punitive environment for coming forward with concerns regarding honesty in reporting remained relatively high over the last four cycles of visits. The median percentage was highest in Cycle 1 (median [IQR], 96.2 [90.0%–100%]). In Cycle 2, Cycle 3, and Cycle 4, the median (IQR) findings were 89.0% (84.1%–94.8%), 90.0% (82.6%–96.3%), and 93.6% (86.6%–96.9%), respectively.

The median percentage of residents and fellows who reported that they had documented a history or physical finding in a patient medical record that they did not personally elicit (e.g., copying and pasting from another note without attribution) varied over time (*Figure 18*). In Cycle 1, Cycle 2, Cycle 3, and Cycle 4, the median (IQR) findings were 31.7% (20.0%–44.5%), 30.1% (14.3%–41.5%), 32.1% (19.8%–43.1%), and 26.1% (14.1%–32.8%), respectively. The median percentage difference between Cycle 1 and Cycle 4 was statistically significant ($P < .001$).

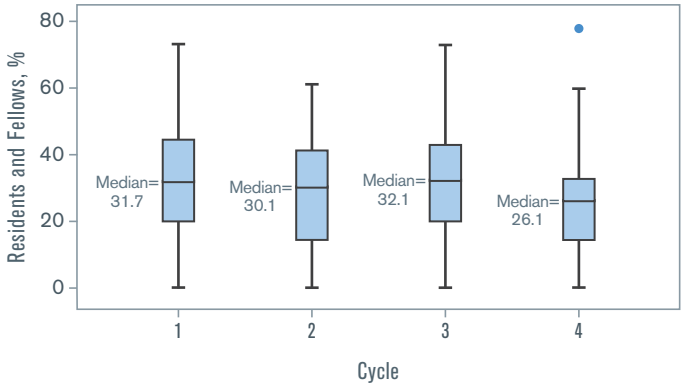


Figure 18. Boxplots of the Median Percentage of Residents and Fellows Who Reported They Had Documented a History or Physical Finding in a Patient Medical Record That They Did Not Personally Elicit at the Clinical Site (e.g., Copying and Pasting from Another Note Without Attribution): Cycles 1-4

The median percentage of residents and fellows who reported that they felt pressure to compromise their honesty or integrity to satisfy an authority figure during their training at their CLE was the lowest during Cycle 4, with a median (IQR) of 8.3% (5.2%–14.3%) (*Figure 19*). In Cycle 1, Cycle 2, and Cycle 3, the median (IQR) findings were 14.3% (8.3%–21.9%), 12.5% (5.5%–20.9%), and 14.3% (7.1%–20.0%), respectively. These differences were statistically significant.

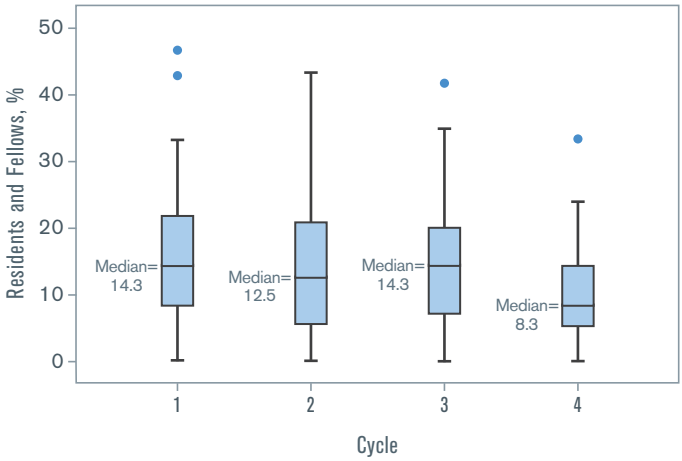


Figure 19. Boxplots of the Median Percentage of Residents and Fellows Who Reported Having Felt Pressured to Compromise Their Honesty or Integrity to Satisfy an Authority Figure During Their Training at the Clinical Site: Cycles 1-4

SUMMARY AND CONCLUSIONS

On most measures, resident and fellow engagement in patient safety has trended in the desired direction. Most notably, there was significant improvement in engaging them in interprofessional patient safety event investigations in Cycle 4. Conversely, while there was an upward trend in the median percentage of residents and fellows who used their clinical site's patient safety event reporting system to report events, challenges continued to exist in providing them feedback on the outcome of the reports submitted.

There was a downward trend in the undesired direction or little change over the last four cycles of visits on most measures in the area of health care quality. Of note, the median percentage of residents and fellows who reported participating in a QI project aligned with the clinical site's QI goals declined significantly between Cycle 1 and Cycle 4. Further, the proportion of resident and fellow QI projects that appeared to have the components of a complete QI cycle also declined over time.

In the area of health care disparities, the number of CLEs engaged in a systematic approach to identify and eliminate disparities in health care and the clinical outcomes of their known vulnerable patient populations remained relatively the same since Cycle 1. Additionally, a small median percentage of residents and fellows reported participating in a QI project focused on eliminating health care disparities in each cycle of visits.

Although there was minimal change in the median percentage of residents and fellows who reported encountering a physician (attending physicians or consultants) who made them feel uncomfortable when requesting help, a smaller percentage reported this experience in Cycle 4 compared to previous cycles of visits. In the area of supervision, there was also a significant downward trend in the median percentage of residents and fellows who reported having an objective way to know what procedures residents and fellows from other services were allowed to do without direct supervision when they consulted on patients.

The median percentage of residents and fellows who reported that they would power through to hand-off if impaired by fatigue trended upward in Cycle 2—in the undesired direction of change—and has remained relatively unchanged over time.

In the area of professionalism, a high median percentage of residents and fellows continued to report that their clinical site provided a supportive, non-punitive environment for coming forward with concerns regarding honesty in reporting. While the median percentage of residents and fellows who reported that they had documented a history or physical finding in a patient medical record that they did not personally elicit varied over time, the median percentage was the lowest in Cycle 4 compared to in previous cycles. Similarly, the median percentage of residents and fellows who reported that they felt pressured to compromise their honesty or integrity to satisfy an authority figure was lower in Cycle 4 than in previous cycles.

The trends across the CLER Focus Areas point to progress in some areas, little or no movement in others, and undesired change in other areas. Considering the dynamic nature of CLEs, there can be a considerable time lag between the discovery of challenges, implementation of systems changes to address these challenges, and demonstrable results. The selected trends offer a perspective on how CLEs can continue their journey to assess and explore innovative ways to improve the learning environment and ensure safe and high-quality patient care.

REFERENCES

1. CLER Evaluation Committee. 2019. "CLER Pathways to Excellence: Expectations for an Optimal Clinical Learning Environment to Achieve Safe and High-Quality Patient Care, Version 2.0." Chicago, IL: Accreditation Council for Graduation Medical Education.

APPENDIX A1.

GENERAL CHARACTERISTICS OF SPONSORING INSTITUTIONS

A1.1. Sponsoring Institution Distribution by Region and Type

Characteristic	SIs with CLER Visits, % (n = 181)	All SIs, % (N = 791)
Region		
Northeast	23.8	21.2
Midwest	22.7	20.6
South	32.0	35.3
West	20.4	21.4
Territory	1.1[a]	1.5
Type of Sponsoring Institution		
General/teaching hospital	50.8	42.0
Medical school or health science center	23.8	16.6
Educational consortium	5.5	7.8
Children's hospital	1.7	2.1
Other	18.2	31.5

A1.2. Sponsoring Institution Distribution by Number of ACGME-Accredited Residency and Fellowship Programs and Participating Sites[b]

Programs and Sites	SIs with CLER Visits, % (n = 181)	All SIs, % (N = 791)
Number of Programs		
< 5	30.4	53.1
5–11	21.0	19.1
12–26	24.9	10.6
> 26	23.8	17.2
Number of Core Programs		
< 3	28.7	50.2
3–6	24.9	21.1
7–13	23.8	12.3
> 13	22.7	16.4
Number of Participating Sites		
< 10	27.6	37.9
10–18	23.2	23.1
19–40	24.9	21.5
> 40	24.3	17.4

[a] Limited to two Sponsoring Institutions (SIs) in Puerto Rico.

[b] Percentages do not total 100 because of rounding.

Abbreviations: ACGME, Accreditation Council for Graduate Medical Education; CLER, Clinical Learning Environment Review.

A1.3. Number and Distribution of Core Faculty Members at Sponsoring Institutions by Specialty Grouping

Specialty Subgroup	SIs with CLER Visits, % (n = 43,608)	All SIs, % (N = 127,719)
Medical	49.5	50.0
Surgical	27.1	26.8
Hospital-based	23.4	23.2

A1.4. Number and Distribution of Residents and Fellows at Sponsoring Institutions by Sex, Post-Graduate Year (PGY) Level, and Specialty Grouping

Resident and Fellow Characteristic	SIs with CLER Visits, % (n = 55,509)	All SIs, % (N = 164,222)
Sex		
Male	50.0	50.2
Female	49.5	49.1
Unknown	0.5	0.7
PGY Level		
PGY-1	26.2	26.6
PGY-2	22.9	23.2
PGY-3	21.9	22.1
PGY-4+	29.0	28.1
Specialty Group		
Medical	60.4	61.3
Surgical	20.4	19.8
Hospital-Based	19.2	18.9

Abbreviations: CLER, Clinical Learning Environment Review; PGY, post-graduate year; SI, Sponsoring Institution.

APPENDIX A2.

GENERAL CHARACTERISTICS OF CLINICAL LEARNING ENVIRONMENTS

A2.1. Clinical Learning Environment Distribution by Type of Ownership and Services[a]

Characteristic	SIs with CLER Visits, % (n = 168)[b]	Teaching Hospitals,[c] % (n = 282)	All Hospitals, % (N = 6,166)
Type of Ownership			
Non-government, not-for-profit	70.8	73.4	51.4
Investor-owned, for-profit	5.4	1.4	26.2
Government, federal	3.6	8.2	3.4
Government, non-federal	20.2	17.0	19.0
Service for Majority of Patients			
General medical and surgical	95.2	88.7	72.9
Other[d]	4.8	11.3	27.1

A2.2. Clinical Learning Environment Distribution by Beds and Staffing[a]

Characteristic	SIs with CLER Visits, Median (IQR)	Teaching Hospitals, Median (IQR)	All Hospitals, Median (IQR)
Total Licensed Beds	554 (336–802)[e]	667 (463–901)[f]	106 (36–267)[g]
Total Staffed Beds	405 (271–627)	584 (364–819)	75 (28–190)
Staff[h,i]			
Registered nurses	1,100 (641–1939)	1,828 (1100–3032)	110 (51–395)
Clinical staff	713 (411–1304)	1,156 (681–1760)	103 (50–279)
All other personnel	1,629 (873–3030)	2,683 (1414–4377)	207 (100–543)

[a] Based on the 2023 American Hospital Association Annual Survey.

[b] Missing data (< 8%) largely due to clinical sites that do not report data to the American Hospital Association. Percentages based on valid percent.

[c] Member of Council of Teaching Hospitals of the Association of American Medical Colleges.

[d] Includes psychiatric, rehabilitation, acute long-term care hospital, children's general medical and surgical, and other types of services.

[e] Missing data < 25%.

[f] Missing data < 17%.

[g] Missing data < 42%.

[h] Physicians, residents, interns, and other trainees omitted from staff count.

[i] Full-time and part-time personnel only; excludes full-time and part-time equivalent personnel.

Abbreviations: CLER, Clinical Learning Environment Review; IQR, interquartile range; SI, Sponsoring Institution.

APPENDIX A3.

CLINICAL LEARNING ENVIRONMENTS VISITED: NUMBER OF PROGRAMS AT SITE

Programs[a]	SIs with CLER Visits, % (N = 181)
Number of Programs at Site	
< 4	26.5
4–10	25.4
11–27	24.3
> 27	23.8
Number of Core Residency Programs at Site	
< 3	31.5
3–5	20.4
6–12	23.8
> 12	24.3

[a] Based on the 2022-2025 Accreditation Council for Graduate Medical Education data.

Abbreviation: SI, Sponsoring Institution

APPENDIX A4.

CLER VISITS: CHARACTERISTICS OF GROUPS INTERVIEWED

A4.1. Selected Characteristics of Residents and Fellows in the Group Interviews[a,b,c]

Characteristic	Residents and Fellows, % (N = 4,188)
Sex	
Male	50.5
Female	47.6
Other or prefer not to answer	1.8
Post-Graduate Year (PGY) Level	
PGY-1	2.1
PGY-2	25.7
PGY-3	30.5
PGY-4+	41.8
Specialty Group	
Medical	56.5
Surgical	23.9
Hospital-Based	19.6

A4.2. Selected Characteristics of Faculty Members and Program Directors in the Group Interviews[a,b,c]

Characteristic	Faculty Members, % (N = 3,688)	Program Directors, % (N = 2,612)
Years at Hospital, Medical Center, or Ambulatory Care Site		
≤ 2	17.3	5.7
3–5	26.1	16.4
6–10	24.8	28.6
> 10	31.8	49.3
Program		
Core residency program	55.1	47.4
Fellowship program	12.5	47.2
Both	32.4	5.3
Specialty Group		
Medical	55.7	55.3
Surgical	23.5	23.9
Hospital-Based	20.8	20.7

[a] Based on audience response system data.

[b] Missing data (< 10%) have been omitted; percentages based on valid percent.

[c] Percentages do not total 100 because of rounding.

APPENDIX B.

SELECTED RESULTS FROM RESIDENT AND FELLOW GROUP INTERVIEWS

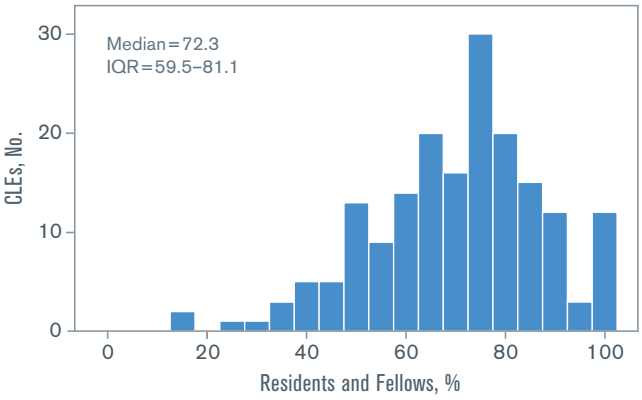
B1. Percentage of Residents and Fellows Who Reported Experiencing an Adverse Event, Near Miss/Close Call, or Unsafe Condition

PERCENT OF TOTAL SURVEYED[a] (n = 4,031)	72.0

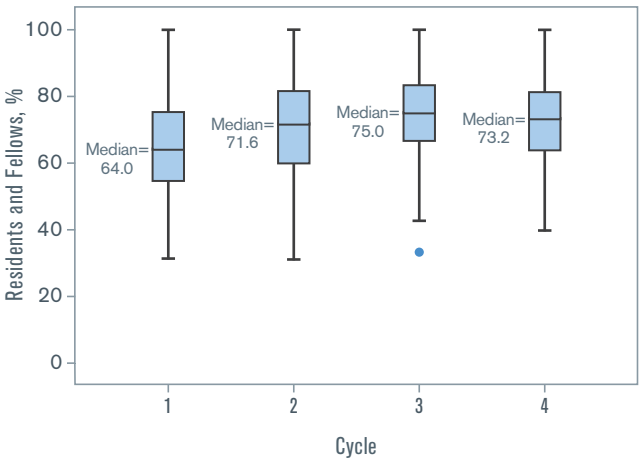
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 4,031)
Sex	
Male	70.3
Female	73.7
PGY Level* **	
PGY-1	48.1
PGY-2	71.5
PGY-3	75.9
PGY-4+	71.2
Specialty Group* **	
Medical	71.7
Surgical	76.7
Hospital-Based	67.1
CLE Characteristics	
Region[b]* **	
Northeast	70.8
Midwest	72.6
South	71.5
West	75.9
Bed Size* **	
< 200	68.4
200–299	66.7
300–399	68.7
400–499	70.6
500 or more	74.9
Type of Ownership* **	
Non-government, not-for-profit	72.5
Investor-owned, for-profit	56.2
Government, federal	76.3
Government, non-federal	73.1

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 96)***



[a] Missing data (< 9%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

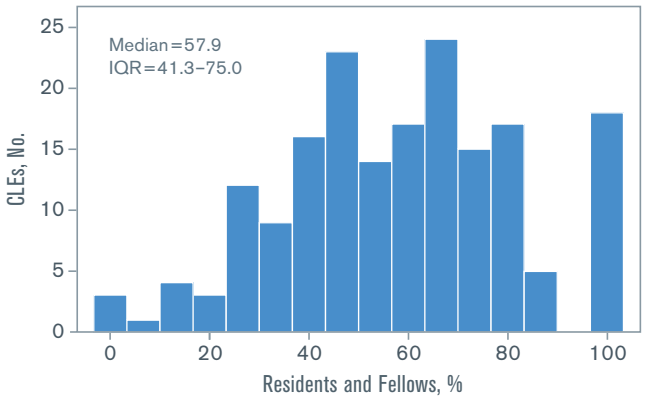
B2. Percentage of Residents and Fellows Who Reported Experiencing an Adverse Event, Near Miss/Close Call, or Unsafe Condition and Submitted a Report Through the Clinical Site's Reporting System

PERCENT OF TOTAL SURVEYED[a] (n = 2,719) **55.6**

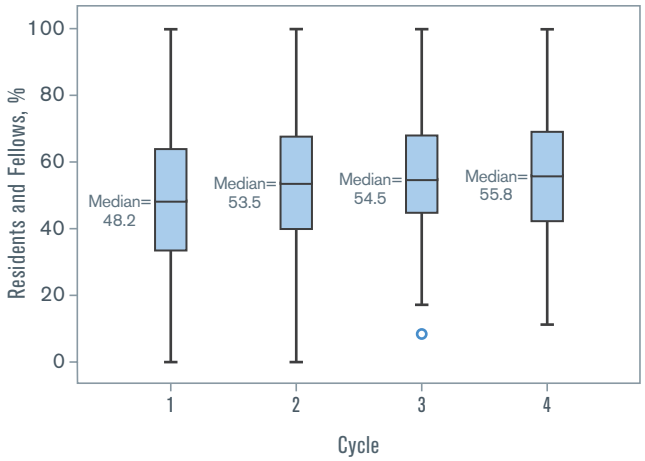
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 2,719)
Sex	
Male	55.4
Female	56.0
PGY Level**	
PGY-1	33.3
PGY-2	53.9
PGY-3	58.3
PGY-4+	55.3
Specialty Group***	
Medical	60.7
Surgical	52.1
Hospital-Based	44.7
CLE Characteristics	
Region[b]	
Northeast	54.6
Midwest	57.6
South	55.6
West	52.6
Bed Size	
<200	57.5
200–299	57.8
300–399	52.1
400–499	60.6
500 or more	54.7
Type of Ownership*	
Non-government, not-for-profit	57.0
Investor-owned, for-profit	39.8
Government, federal	60.0
Government, non-federal	52.3

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 96)*



[a] Missing data (< 11%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

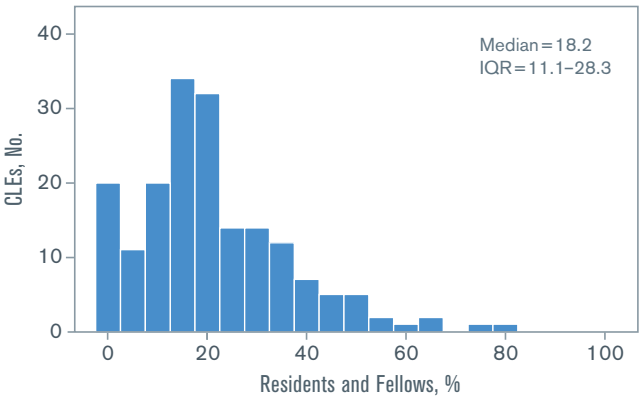
B3. Percentage of Residents and Fellows Who Reported a Near Miss/Close Call Event

PERCENT OF TOTAL SURVEYED[a] (n = 4,016) **20.2**

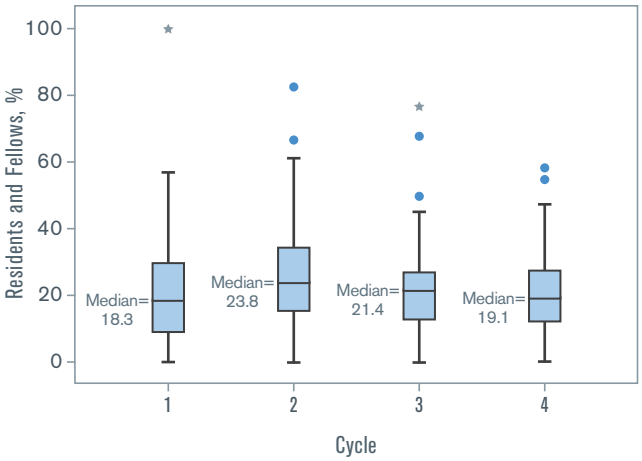
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 4,016)
Sex	
Male	19.2
Female	21.2
PGY Level* **	
PGY-1	10.1
PGY-2	22.2
PGY-3	23.6
PGY-4+	16.8
Specialty Group* **	
Medical	22.2
Surgical	17.6
Hospital-Based	17.0
CLE Characteristics	
Region[b]	
Northeast	18.9
Midwest	22.8
South	19.4
West	20.7
Bed Size	
<200	22.2
200–299	17.7
300–399	17.2
400–499	24.4
500 or more	20.9
Type of Ownership*	
Non-government, not-for-profit	21.4
Investor-owned, for-profit	13.9
Government, federal	21.7
Government, non-federal	18.3

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 96)**



[a] Missing data (< 9%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

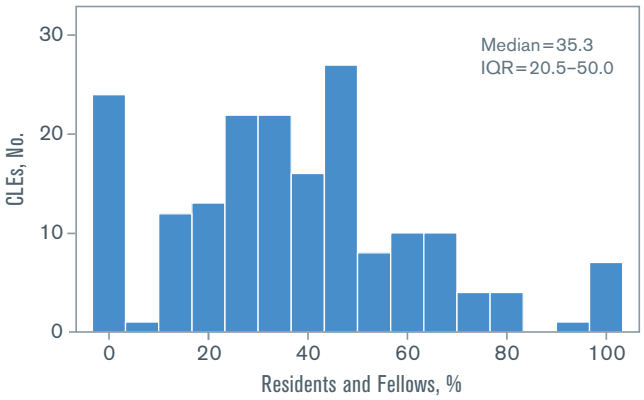
B4. Percentage of Residents and Fellows Who Reported Receiving Feedback on the Outcome of a Report Submitted[a] Through the Clinical Site's Reporting System

PERCENT OF TOTAL SURVEYED[b] (n = 2,188)	39.2

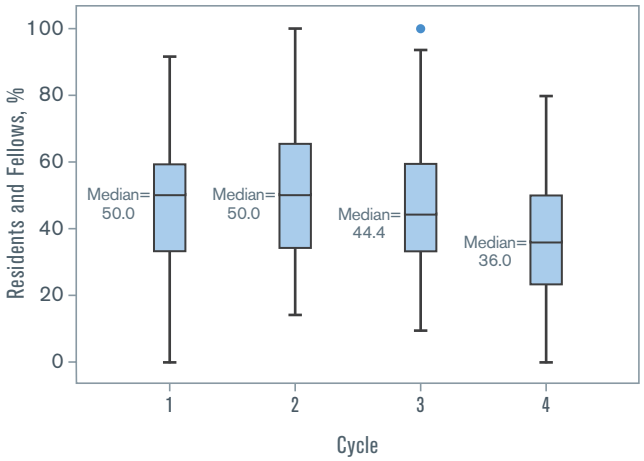
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[b]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 2.188)
Sex**	
Male	43.4
Female	35.5
PGY Level***	
PGY-1	26.9
PGY-2	31.4
PGY-3	37.0
PGY-4+	46.3
Specialty Group**	
Medical	36.2
Surgical	44.5
Hospital-Based	42.9
CLE Characteristics	
Region[c]***	
Northeast	41.0
Midwest	33.9
South	45.6
West	32.5
Bed Size*	
<200	30.9
200–299	41.9
300–399	38.7
400–499	29.2
500 or more	40.7
Type of Ownership	
Non-government, not-for-profit	38.2
Investor-owned, for-profit	27.9
Government, federal	42.0
Government, non-federal	42.2

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[d,e] (n = 96)***



[a] Report submitted by resident or fellow or through a nurse, medical assistant, or supervisor.

[b] Missing data (< 15%) have been omitted; percentages based on valid percent.

[c] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[d] Results based on matched observations; see Methodology (p. 13–22).

[e] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

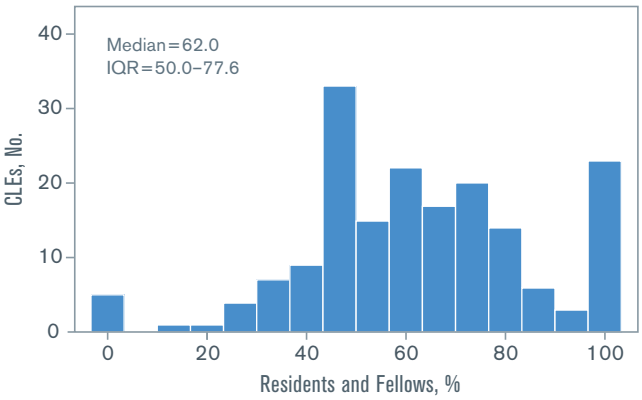
B5. Percentage of Residents and Fellows (PGY-3 and Above) Who Reported Participating in an Interprofessional (Physicians, Nurses, Administrators, Others) Investigation of a Patient Safety Event (e.g., Root Cause Analysis)

PERCENT OF TOTAL SURVEYED[a] (n = 2,838)	60.5

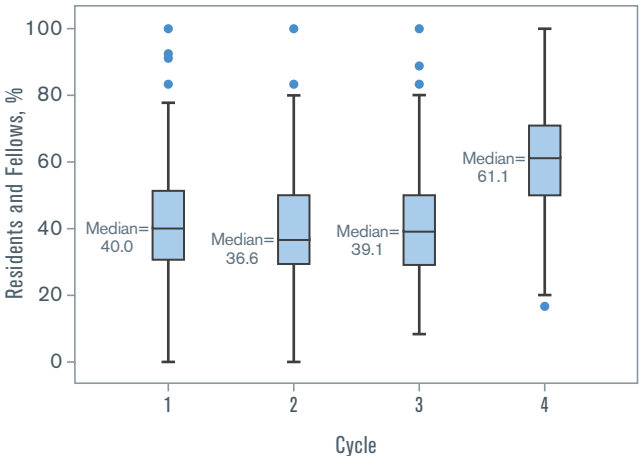
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 2,838)
Sex	
Male	61.2
Female	59.7
PGY Level* **	
PGY-3	56.5
PGY-4+	63.4
Specialty Group* **	
Medical	61.3
Surgical	63.0
Hospital-Based	53.5
CLE Characteristics	
Region[b]*	
Northeast	64.0
Midwest	57.7
South	61.1
West	55.5
Bed Size**	
<200	72.6
200–299	61.1
300–399	59.2
400–499	61.1
500 or more	58.6
Type of Ownership	
Non-government, not-for-profit	60.2
Investor-owned, for-profit	51.9
Government, federal	60.2
Government, non-federal	60.7

DISTRIBUTION ACROSS CLEs[c] (n = 180)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[d,e] (n = 93)***



[a] Missing data (< 6%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 95% or more of the total number of CLEs (N = 181).

[d] Results based on matched observations; see Methodology (p. 13–22).

[e] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

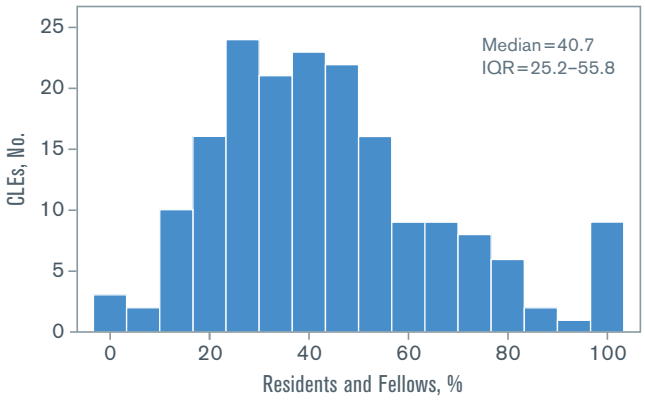
B6. Percentage of Residents and Fellows Who Reported Being Aware of Results from Patient Safety Event Analyses at the Clinical Site

PERCENT OF TOTAL SURVEYED[a] (n = 4,022) **42.0**

PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 4,022)
Sex	
Male	42.3
Female	41.1
PGY Level	
PGY-1	41.6
PGY-2	38.5
PGY-3	43.8
PGY-4+	42.8
Specialty Group* **	
Medical	38.6
Surgical	48.9
Hospital-Based	42.4
CLE Characteristics	
Region[b]	
Northeast	43.0
Midwest	39.3
South	43.0
West	39.7
Bed Size	
<200	49.7
200–299	39.2
300–399	41.3
400–499	41.8
500 or more	40.9
Type of Ownership* **	
Non-government, not-for-profit	42.7
Investor-owned, for-profit	26.5
Government, federal	41.3
Government, non-federal	40.8

DISTRIBUTION ACROSS CLEs (n = 181)



[a] Missing data (< 9%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

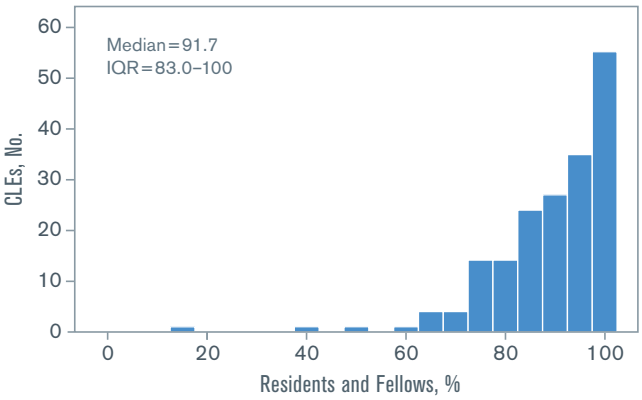
B7. Percentage of Residents and Fellows Who Reported Following a Standardized Process for Handling Transitions of Care When Rotating On or Off of Clinical Rotations

PERCENT OF TOTAL SURVEYED[a] (n = 4,011) **87.8**

PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 4,011)
Sex	
Male	87.9
Female	87.8
PGY Level	
PGY-1	82.3
PGY-2	88.8
PGY-3	88.1
PGY-4+	86.8
Specialty Group**	
Medical	89.0
Surgical	87.8
Hospital-Based	84.1
CLE Characteristics	
Region[b]**	
Northeast	90.5
Midwest	87.3
South	87.0
West	85.1
Bed Size	
<200	86.0
200–299	88.8
300–399	89.8
400–499	89.0
500 or more	86.9
Type of Ownership	
Non-government, not-for-profit	87.9
Investor-owned, for-profit	88.1
Government, federal	81.5
Government, non-federal	88.0

DISTRIBUTION ACROSS CLEs (n = 181)



[a] Missing data (< 9%) have been omitted; percentages based on valid percent.
[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.
* Statistically significant at $P < .05$.
** Statistically significant at $P < .01$.
*** Statistically significant at $P < .001$.
Abbreviation: PGY, post-graduate year.

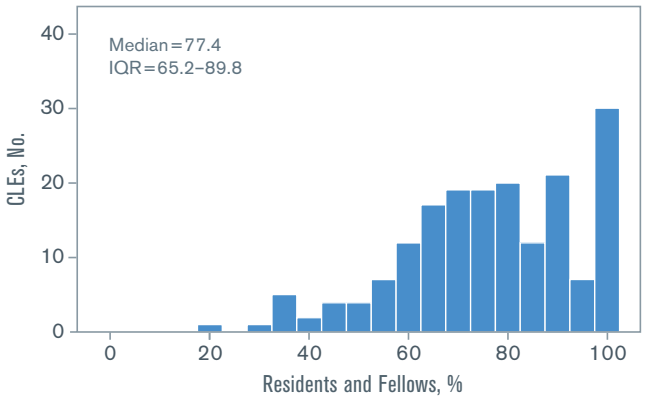
B8. Percentage of Residents and Fellows (PGY-2 and Above) Who Reported Participating in a Quality Improvement Project of Their Own Design or One Designed by Their Program or Department

PERCENT OF TOTAL SURVEYED[a] (n = 3,783) **73.6**

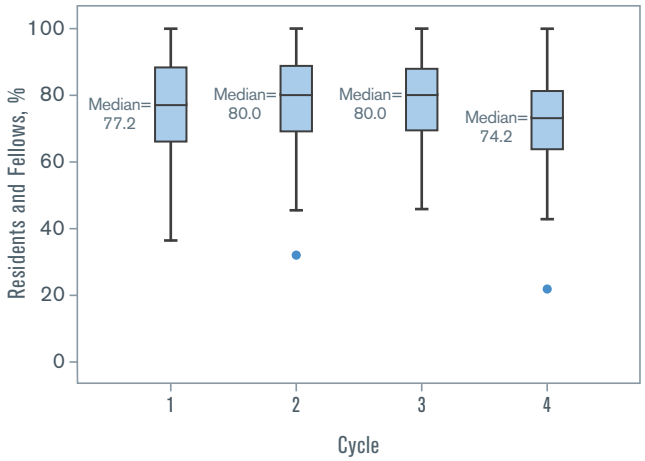
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,783)
Sex	
Male	73.2
Female	73.7
PGY Level* **	
PGY-2	69.3
PGY-3	79.3
PGY-4+	72.1
Specialty Group* **	
Medical	75.8
Surgical	70.6
Hospital-Based	70.2
CLE Characteristics	
Region[b]	
Northeast	71.2
Midwest	74.5
South	74.4
West	73.9
Bed Size	
<200	78.8
200–299	71.6
300–399	71.2
400–499	74.1
500 or more	73.8
Type of Ownership	
Non-government, not-for-profit	72.9
Investor-owned, for-profit	69.3
Government, federal	82.0
Government, non-federal	74.3

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 94)***



[a] Missing data (< 8%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

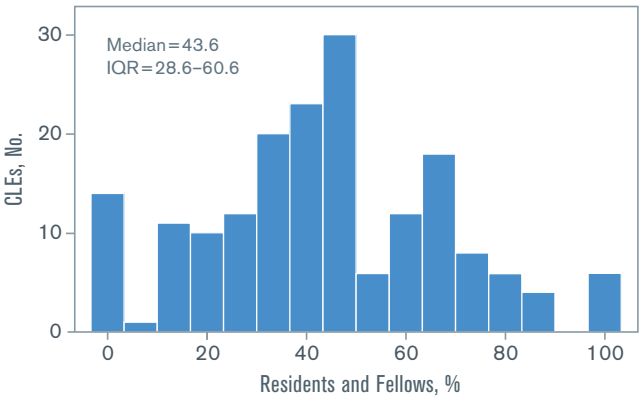
B9. Percentage of Residents and Fellows (PGY-2 and Above) Who Reported Participating in a Quality Improvement Project Linked to One or More of the Clinical Site's Quality Improvement Goals

PERCENT OF TOTAL SURVEYED[a] (n = 2,627)	42.6

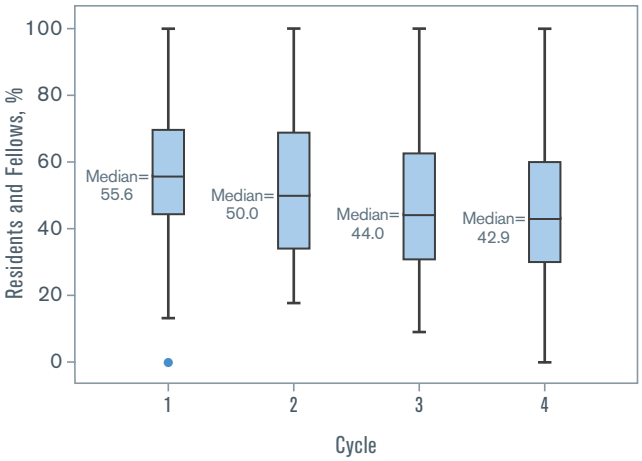
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 2,627)
Sex	
Male	42.6
Female	42.6
PGY Level	
PGY-2	42.3
PGY-3	44.3
PGY-4+	41.3
Specialty Group	
Medical	42.9
Surgical	42.3
Hospital-Based	42.2
CLE Characteristics	
Region[b]**	
Northeast	46.7
Midwest	42.1
South	43.2
West	33.0
Bed Size***	
<200	43.1
200–299	41.3
300–399	43.3
400–499	52.0
500 or more	40.8
Type of Ownership***	
Non-government, not-for-profit	43.0
Investor-owned, for-profit	27.3
Government, federal	43.0
Government, non-federal	41.9

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 93)***



[a] Missing data (< 11%) have been omitted; percentages based on valid percent.

[b] Results from Clinical Learning Environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

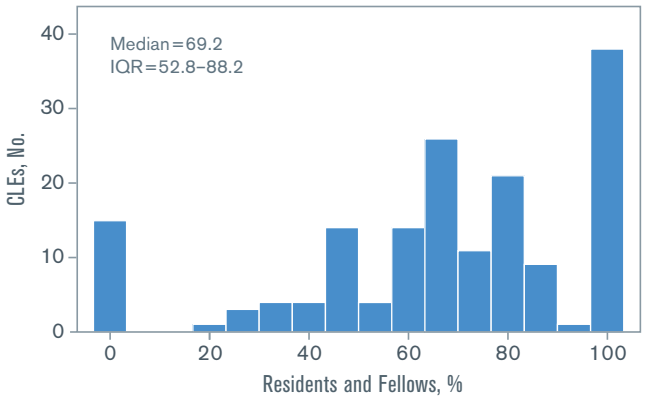
B10. Percentage of Residents and Fellows (PGY-2 and Above) Who Reported Being Engaged in Interprofessional Quality Improvement Teams (e.g., Nurses, Administrators, Pharmacists) While Participating in a Quality Improvement Project Directly Linked to One or More of the Clinical Site's Quality Improvement Goals

PERCENT OF TOTAL SURVEYED[a] (n = 1,037) **70.8**

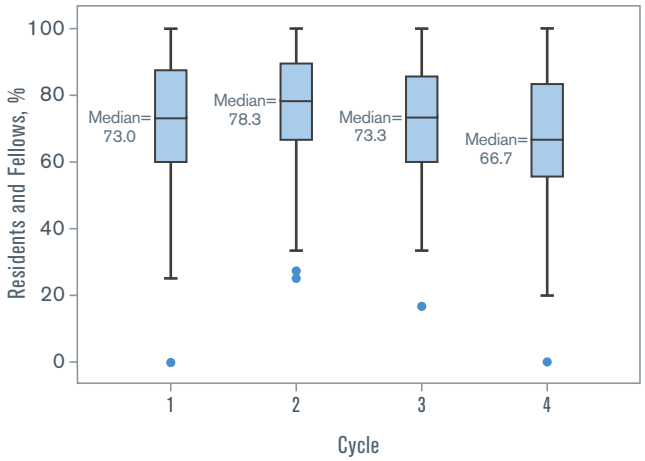
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 1,037)
Sex	
Male	71.5
Female	69.7
PGY Level	
PGY-2	70.4
PGY-3	67.0
PGY-4+	74.3
Specialty Group	
Medical	69.6
Surgical	74.6
Hospital-Based	70.3
CLE Characteristics	
Region[b]	
Northeast	71.7
Midwest	68.2
South	69.4
West	71.9
Bed Size	
<200	71.8
200–299	64.0
300–399	63.8
400–499	78.6
500 or more	71.4
Type of Ownership	
Non-government, not-for-profit	69.7
Investor-owned, for-profit	59.3
Government, federal	67.4
Government, non-federal	71.9

DISTRIBUTION ACROSS CLEs[c] (n = 165)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[d,e] (n = 89)



[a] Missing data (< 14%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 90% or more of the total number of CLEs (N = 181).

[d] Results based on matched observations; see Methodology (p. 13–22).

[e] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

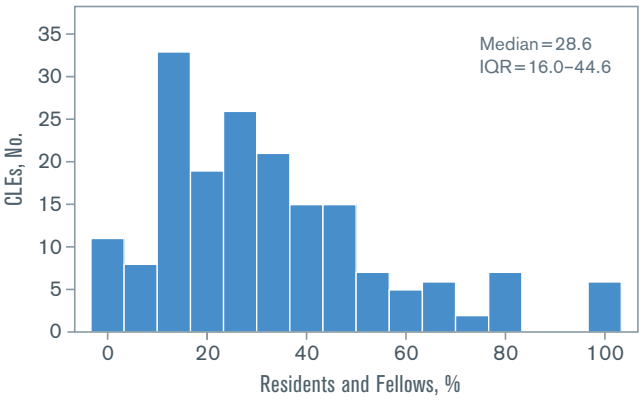
B11. Percentage of Residents and Fellows Who Reported Receiving Aggregated or Benchmarked Quality Performance Data About the Care of Their Own Patients

PERCENT OF TOTAL SURVEYED[a] (n = 3,960) **27.9**

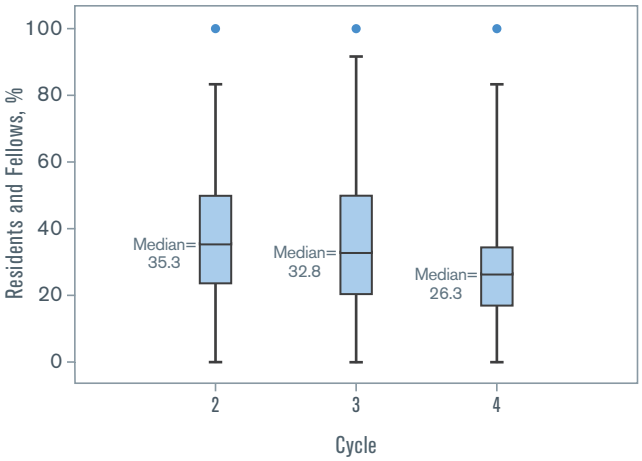
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,960)
Sex	
Male	28.9
Female	26.8
PGY Level* **	
PGY-1	30.6
PGY-2	32.1
PGY-3	29.6
PGY-4+	24.1
Specialty Group* **	
Medical	29.5
Surgical	23.7
Hospital-Based	28.5
CLE Characteristics	
Region[b]	
Northeast	27.8
Midwest	28.0
South	26.7
West	28.3
Bed Size*	
<200	26.4
200–299	24.1
300–399	28.2
400–499	30.7
500 or more	27.7
Type of Ownership* **	
Non-government, not-for-profit	28.5
Investor-owned, for-profit	18.6
Government, federal	18.7
Government, non-federal	27.5

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 2–4[c,d] (n = 157)***



[a] Missing data (< 10%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

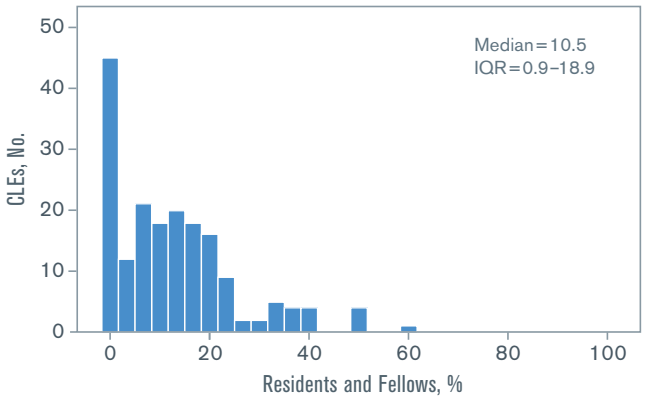
B12. Percentage of Residents and Fellows Who Reported Participating in a Quality Improvement Project Focused on Reducing/Eliminating Health Care Disparities

PERCENT OF TOTAL SURVEYED[a] (n = 3,955) **12.4**

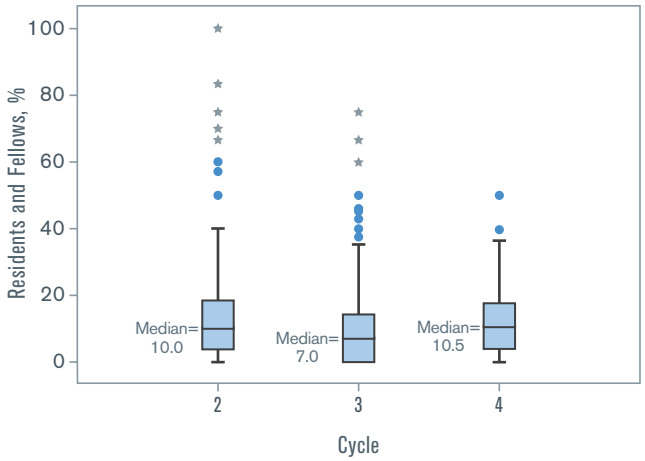
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,955)
Sex* **	
Male	10.2
Female	14.6
PGY Level**	
PGY-1	6.5
PGY-2	12.9
PGY-3	13.4
PGY-4+	11.5
Specialty Group*	
Medical	12.9
Surgical	13.7
Hospital-Based	9.3
CLE Characteristics	
Region[b]*	
Northeast	14.1
Midwest	10.7
South	11.5
West	13.3
Bed Size	
<200	12.0
200–299	11.8
300–399	10.7
400–499	14.0
500 or more	12.6
Type of Ownership	
Non-government, not-for-profit	12.1
Investor-owned, for-profit	6.9
Government, federal	12.3
Government, non-federal	13.5

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 2–4[c,d] (n = 158)



[a] Missing data (< 11%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

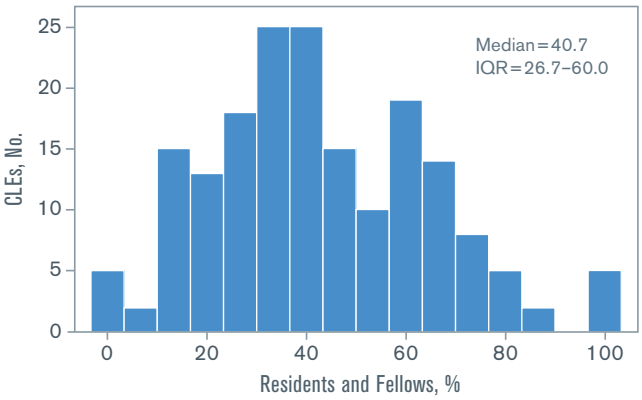
B13. Percentage of Residents and Fellows Who Reported Participating in Activities Organized by the Clinical Site to Develop Their Skills in Teaming in Non-Emergent Patient Care

PERCENT OF TOTAL SURVEYED[a] (n = 3,962) **40.2**

PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,962)
Sex*	
Male	37.9
Female	42.4
PGY Level**	
PGY-1	44.3
PGY-2	43.8
PGY-3	41.4
PGY-4+	36.5
Specialty Group***	
Medical	41.0
Surgical	42.8
Hospital-Based	33.5
CLE Characteristics	
Region[b]*	
Northeast	43.3
Midwest	39.4
South	39.5
West	35.6
Bed Size**	
<200	46.5
200–299	39.2
300–399	36.8
400–499	48.1
500 or more	38.9
Type of Ownership***	
Non-government, not-for-profit	38.8
Investor-owned, for-profit	27.0
Government, federal	55.3
Government, non-federal	41.3

DISTRIBUTION ACROSS CLEs (n = 181)



[a] Missing data (< 10%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

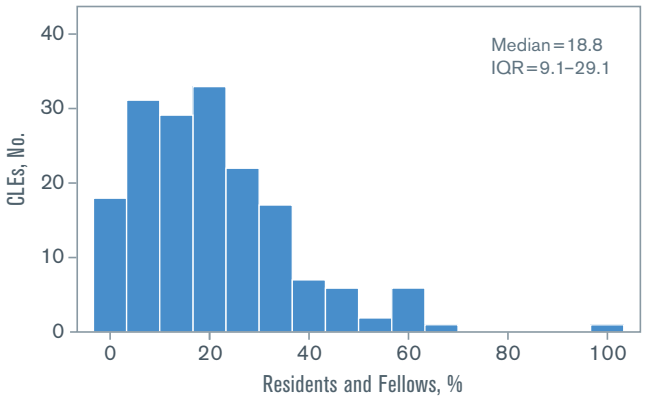
B14. Percentage of Residents and Fellows Who Reported There Are Expectations at the Clinical Site to Involve Patients in Resident/Fellow Change-of-Duty Hand-Offs (e.g., Change of Shift, Change of Service)

PERCENT OF TOTAL SURVEYED[a] (n = 3,852) **18.3**

PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,852)
Sex	
Male	17.8
Female	18.5
PGY Level**	
PGY-1	12.7
PGY-2	19.3
PGY-3	18.3
PGY-4+	17.7
Specialty Group***	
Medical	18.4
Surgical	17.7
Hospital-Based	17.4
CLE Characteristics	
Region[b]**	
Northeast	18.7
Midwest	14.5
South	20.9
West	16.6
Bed Size*	
<200	20.9
200–299	21.6
300–399	20.7
400–499	19.7
500 or more	16.1
Type of Ownership	
Non-government, not-for-profit	17.3
Investor-owned, for-profit	16.8
Government, federal	20.9
Government, non-federal	19.7

DISTRIBUTION ACROSS CLEs[c] (n = 173)



[a] Missing data (< 12%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 95% or more of the total number of CLEs (N = 181). Of note, results from visits that were held exclusively in the ambulatory care setting (5%) have been omitted due to modifications to the question and/or scenario to better fit the setting. These modifications limited comparability across inpatient and ambulatory care settings.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

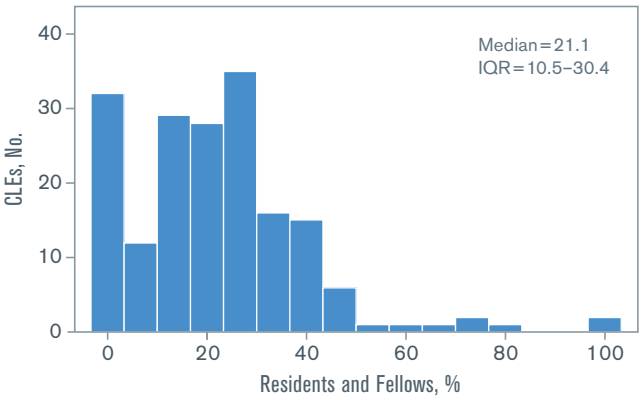
B15. Percentage of Residents and Fellows Who Reported Having Been Placed, or Witnessing One of Their Peers Placed, in a Situation Where They Believed There Was Inadequate Supervision at the Clinical Site (e.g., the Attending Physician Was Not Available)

PERCENT OF TOTAL SURVEYED[a] (n = 3,927) **22.3**

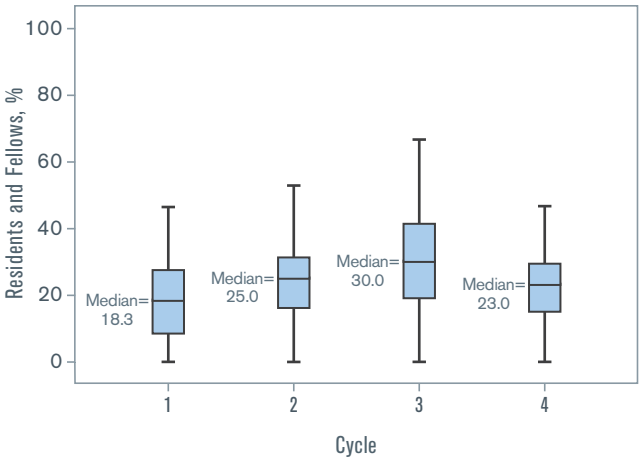
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,927)
Sex	
Male	20.3
Female	23.8
PGY Level* **	
PGY-1	28.6
PGY-2	25.4
PGY-3	26.7
PGY-4+	17.0
Specialty Group*	
Medical	22.7
Surgical	18.9
Hospital-Based	24.0
CLE Characteristics	
Region[b]* **	
Northeast	20.8
Midwest	21.7
South	21.0
West	29.1
Bed Size	
<200	18.6
200–299	23.1
300–399	23.1
400–499	19.2
500 or more	23.2
Type of Ownership	
Non-government, not-for-profit	22.3
Investor-owned, for-profit	27.8
Government, federal	21.7
Government, non-federal	22.5

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 96)***



[a] Missing data (< 11%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

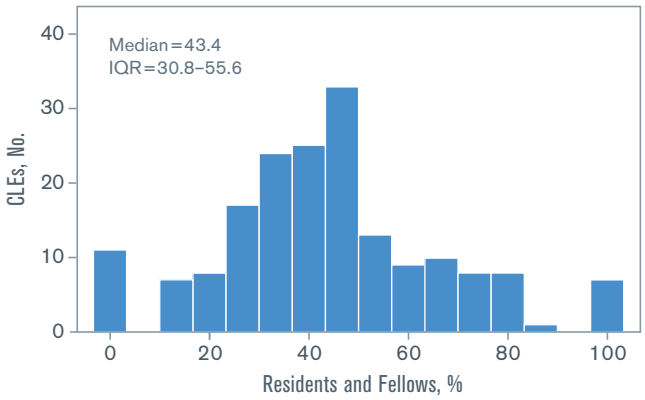
B16. Percentage of Residents and Fellows Who Reported Encountering a Physician (Attending Physicians or Consultants) Who Made Them Feel Uncomfortable When Requesting Assistance

PERCENT OF TOTAL SURVEYED[a] (n = 3,960) **43.0**

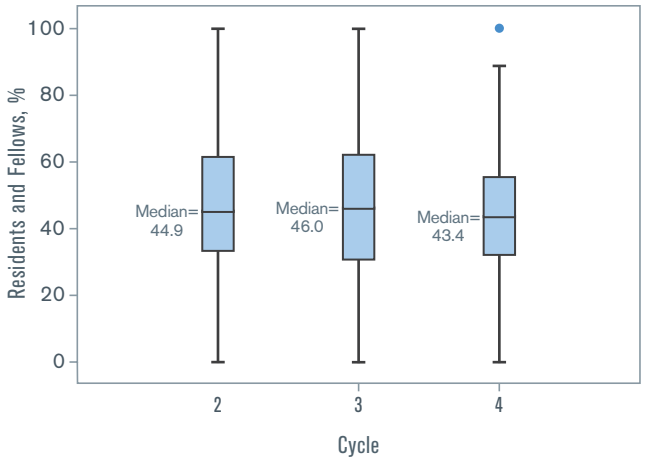
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,960)
Sex* **	
Male	37.5
Female	48.3
PGY Level* **	
PGY-1	48.1
PGY-2	51.4
PGY-3	50.4
PGY-4+	32.7
Specialty Group	
Medical	44.1
Surgical	40.9
Hospital-Based	43.1
CLE Characteristics	
Region[b]* **	
Northeast	38.4
Midwest	42.5
South	43.6
West	52.7
Bed Size* **	
<200	38.1
200–299	35.3
300–399	43.1
400–499	44.2
500 or more	46.0
Type of Ownership*	
Non-government, not-for-profit	45.2
Investor-owned, for-profit	35.5
Government, federal	36.0
Government, non-federal	41.7

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 2–4[c,d] (n = 158)



[a] Missing data (< 10%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

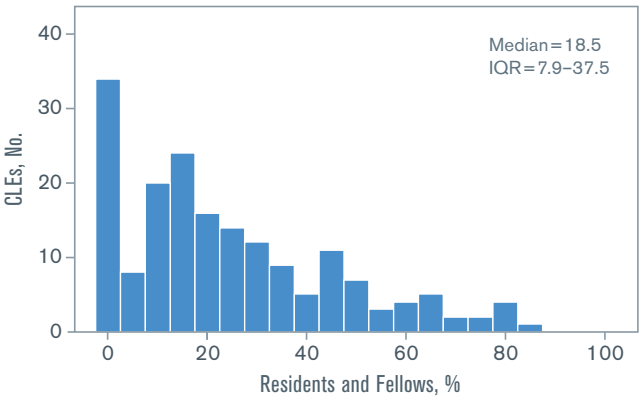
B17. Percentage of Residents and Fellows Who Reported Having an Objective Way to Know What Procedures Residents and Fellows from Other Services Were Allowed to Do Without Direct Supervision When They Consulted on Patients

PERCENT OF TOTAL SURVEYED[a] (n = 3,890) **24.8**

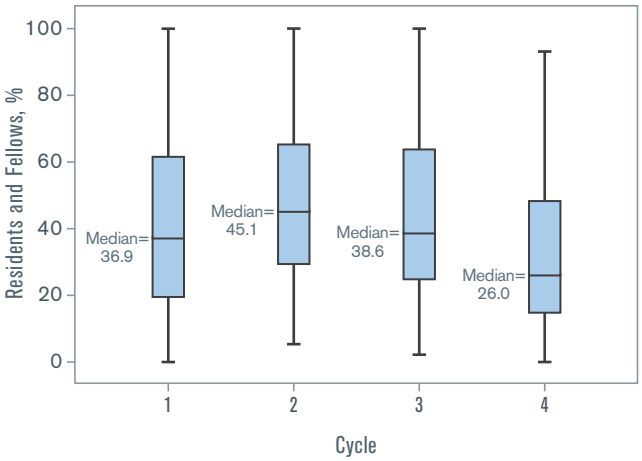
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,890)
Sex* **	
Male	27.3
Female	22.0
PGY Level	
PGY-1	33.3
PGY-2	23.2
PGY-3	24.5
PGY-4+	25.4
Specialty Group* **	
Medical	23.6
Surgical	29.6
Hospital-Based	21.4
CLE Characteristics	
Region[b]	
Northeast	25.4
Midwest	24.0
South	24.0
West	24.0
Bed Size* **	
<200	22.6
200–299	26.1
300–399	31.5
400–499	26.5
500 or more	22.2
Type of Ownership	
Non-government, not-for-profit	23.3
Investor-owned, for-profit	26.1
Government, federal	24.8
Government, non-federal	26.8

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 96)***



[a] Missing data (< 12%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

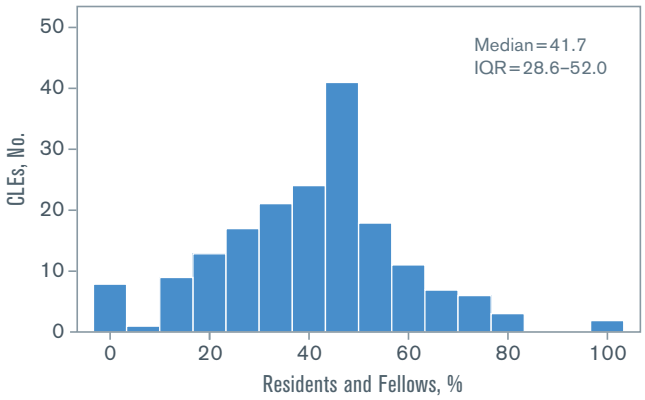
B18. Percentage of Residents and Fellows Who Reported That They Would Power Through to Hand-off or the End of Their Workday if Placed in a Situation in Which They Were Impaired by Fatigue, Maxed Out on Caffeine, and a 15-Minute Nap Had No Effect

PERCENT OF TOTAL SURVEYED[a] (n = 3,905) **43.5**

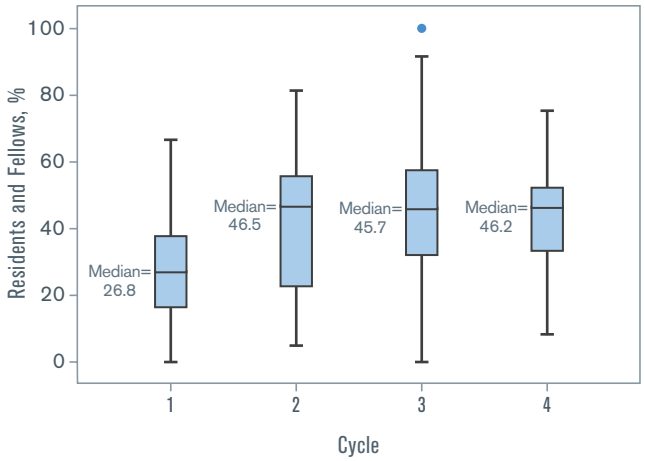
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,905)
Sex* **	
Male	37.9
Female	49.2
PGY Level* **	
PGY-1	54.4
PGY-2	48.6
PGY-3	45.9
PGY-4+	37.8
Specialty Group* **	
Medical	43.2
Surgical	44.2
Hospital-Based	42.9
CLE Characteristics	
Region[b]	
Northeast	40.2
Midwest	44.8
South	43.4
West	46.6
Bed Size* **	
<200	34.8
200–299	37.4
300–399	44.3
400–499	42.4
500 or more	46.2
Type of Ownership	
Non-government, not-for-profit	44.0
Investor-owned, for-profit	39.8
Government, federal	36.8
Government, non-federal	44.6

DISTRIBUTION ACROSS CLEs (n = 181)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[c,d] (n = 96)***



[a] Missing data (< 12%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology (p. 13–22).

[d] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

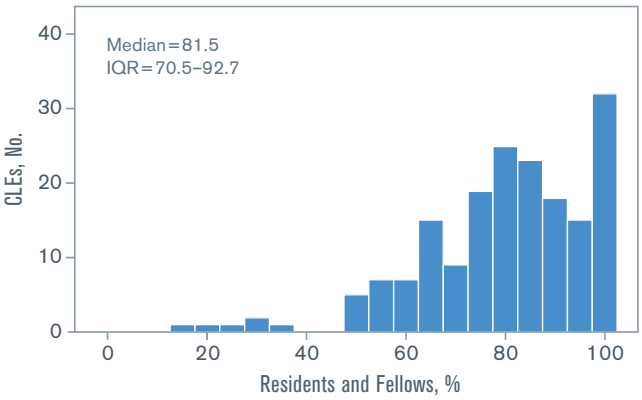
B19. Percentage of Residents and Fellows Who Agreed or Strongly Agreed That Their Clinical Site Had Successful Systems to Ensure Patient Safety from the Risks of Resident and Fellow Fatigue

PERCENT OF TOTAL SURVEYED[a] (n = 3,936) **77.8**

PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,936)
Sex* **	
Male	80.3
Female	75.7
PGY Level**	
PGY-1	78.9
PGY-2	76.3
PGY-3	75.6
PGY-4+	80.7
Specialty Group	
Medical	78.7
Surgical	75.1
Hospital-Based	78.8
CLE Characteristics	
Region[b]**	
Northeast	79.2
Midwest	80.4
South	76.5
West	72.3
Bed Size***	
<200	84.9
200–299	80.8
300–399	75.7
400–499	81.0
500 or more	75.7
Type of Ownership*	
Non-government, not-for-profit	78.1
Investor-owned, for-profit	74.7
Government, federal	84.0
Government, non-federal	75.1

DISTRIBUTION ACROSS CLEs (n = 181)



[a] Missing data (< 11%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

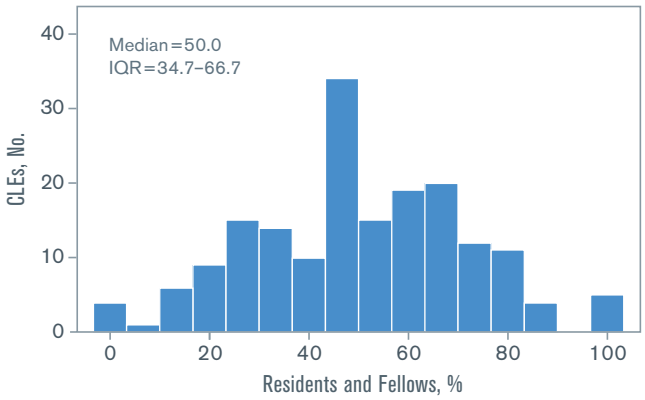
B20. Percentage of Residents and Fellows Who Reported There Are Standardized Processes at the Clinical Site That They Are Expected to Follow if They Identify Members of Their Clinical Care Team at Risk of or Demonstrating Self-Harm

PERCENT OF TOTAL SURVEYED[a] (n = 3,881) **51.6**

PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,881)
Sex	
Male	53.3
Female	49.8
PGY Level	
PGY-1	47.4
PGY-2	48.4
PGY-3	52.9
PGY-4+	52.3
Specialty Group* **	
Medical	48.3
Surgical	57.2
Hospital-Based	52.9
CLE Characteristics	
Region[b]**	
Northeast	50.5
Midwest	50.5
South	55.3
West	46.1
Bed Size*	
<200	53.4
200–299	48.8
300–399	51.1
400–499	60.3
500 or more	50.8
Type of Ownership* **	
Non-government, not-for-profit	50.2
Investor-owned, for-profit	41.6
Government, federal	62.7
Government, non-federal	53.8

DISTRIBUTION ACROSS CLEs[c] (n = 179)



[a] Missing data (< 12%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 95% or more of the total number of CLEs (N = 181).

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

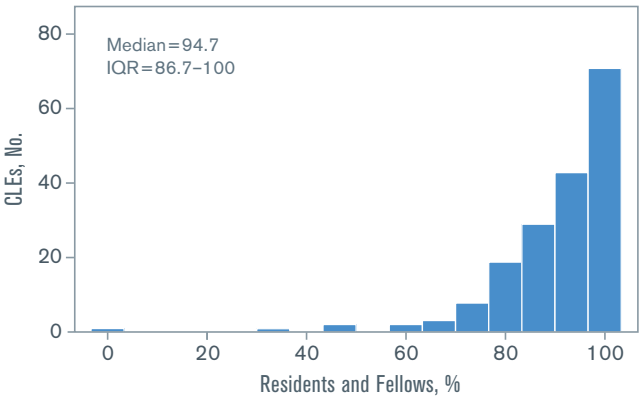
B21. Percentage of Residents and Fellows Who Reported That Their Clinical Site Provided a Supportive, Nonpunitive Environment for Coming Forward with Concerns Regarding Honesty in Reporting (e.g., Patient Data, Work Hours)

PERCENT OF TOTAL SURVEYED[a] (n = 3,839) **90.7**

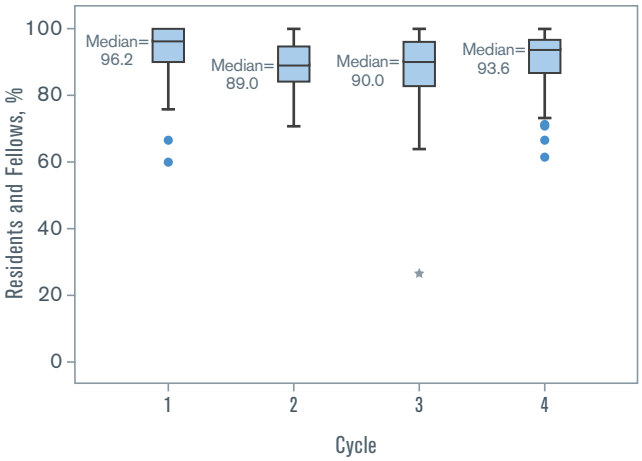
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,839)
Sex*	
Male	92.0
Female	89.7
PGY Level	
PGY-1	90.4
PGY-2	89.9
PGY-3	90.2
PGY-4+	91.7
Specialty Group	
Medical	90.6
Surgical	90.1
Hospital-Based	91.6
CLE Characteristics	
Region[b]	
Northeast	91.9
Midwest	91.0
South	90.8
West	89.4
Bed Size	
<200	92.1
200–299	88.9
300–399	91.2
400–499	95.1
500 or more	90.5
Type of Ownership**	
Non-government, not-for-profit	91.9
Investor-owned, for-profit	84.0
Government, federal	90.6
Government, non-federal	89.1

DISTRIBUTION ACROSS CLEs[c] (n = 179)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[d,e] (n = 94)***



[a] Missing data (< 13%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 95% or more of the total number of CLEs (N = 181).

[d] Results based on matched observations; see Methodology (p. 13–22).

[e] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

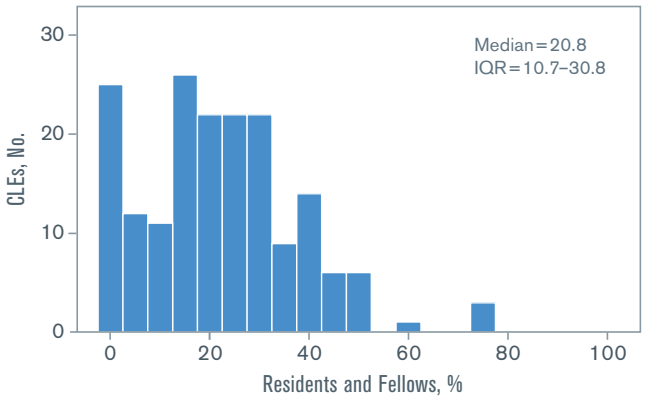
B22. Percentage of Residents and Fellows Who Reported They Had Documented a History or Physical Finding in a Patient Medical Record That They Did Not Personally Elicit at the Clinical Site (e.g., Copying and Pasting from Another Note Without Attribution)

PERCENT OF TOTAL SURVEYED[a] (n = 3,820)	24.4

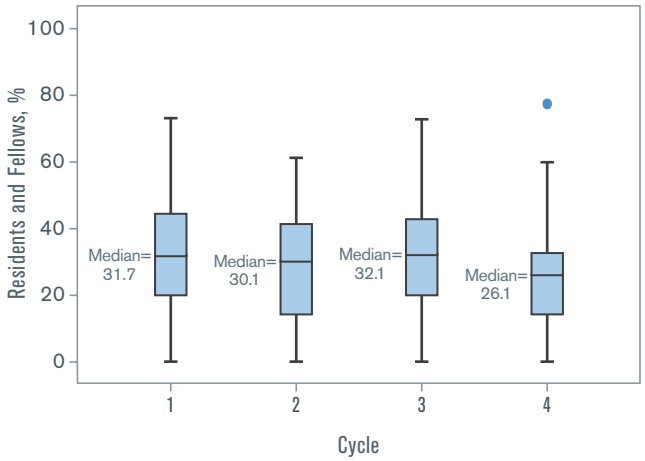
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,820)
Sex*	
Male	25.6
Female	23.3
PGY Level***	
PGY-1	32.4
PGY-2	26.0
PGY-3	25.6
PGY-4+	22.3
Specialty Group***	
Medical	25.2
Surgical	24.6
Hospital-Based	22.8
CLE Characteristics	
Region[b]	
Northeast	22.1
Midwest	25.3
South	23.8
West	29.0
Bed Size**	
<200	16.7
200–299	22.6
300–399	21.9
400–499	23.3
500 or more	26.9
Type of Ownership	
Non-government, not-for-profit	23.3
Investor-owned, for-profit	23.5
Government, federal	25.2
Government, non-federal	27.7

DISTRIBUTION ACROSS CLEs[c] (n = 179)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[d,e] (n = 94)***



[a] Missing data (< 14%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 95% or more of the total number of CLEs (N = 181).

[d] Results based on matched observations; see Methodology (p. 13–22).

[e] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

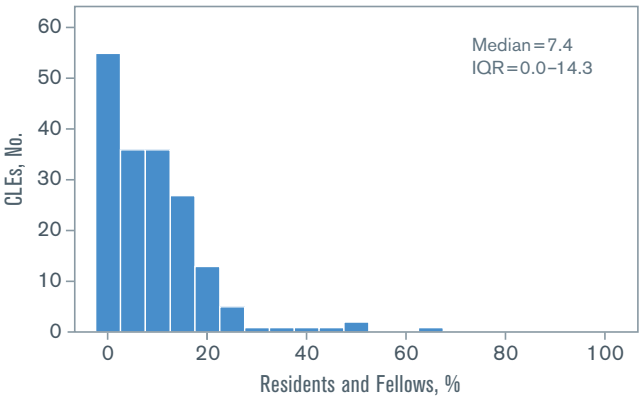
B23. Percentage of Residents and Fellows Who Reported Having Felt Pressured to Compromise Their Honesty or Integrity to Satisfy an Authority Figure During Their Training at the Clinical Site

PERCENT OF TOTAL SURVEYED[a] (n = 3,814) **9.9**

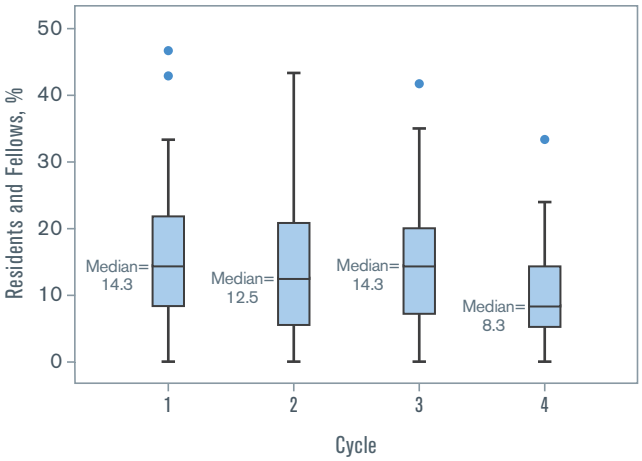
PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,814)
Sex**	
Male	8.8
Female	10.5
PGY Level	
PGY-1	6.8
PGY-2	10.0
PGY-3	10.3
PGY-4+	9.6
Specialty Group*	
Medical	9.2
Surgical	12.5
Hospital-Based	8.7
CLE Characteristics	
Region[b]	
Northeast	10.0
Midwest	10.2
South	9.9
West	10.1
Bed Size	
<200	7.5
200–299	11.9
300–399	9.6
400–499	9.7
500 or more	10.0
Type of Ownership	
Non-government, not-for-profit	10.1
Investor-owned, for-profit	9.8
Government, federal	9.7
Government, non-federal	9.8

DISTRIBUTION ACROSS CLEs[c] (n = 179)



CHANGE IN MEDIAN BETWEEN CLER VISITS: CYCLES 1–4[d,e] (n = 94)***



[a] Missing data (< 14%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 95% or more of the total number of CLEs (N = 181).

[d] Results based on matched observations; see Methodology (p. 13–22).

[e] The horizontal line in the middle of the box indicates the median and the top and bottom of the box indicate the 75th and 25th percentiles, respectively, also known as the interquartile range (IQR). The whiskers above and below the box mark the maximum and minimum values, respectively. The points beyond the whiskers are outliers.

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

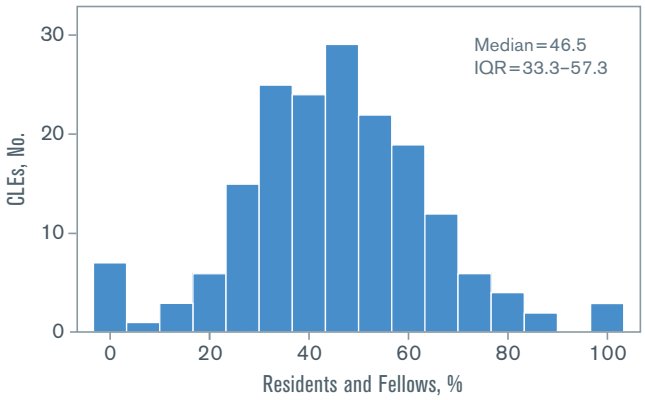
B24. Percentage of Residents and Fellows Who Reported That Based Upon Their Experience at the Clinical Site, Faculty Members Often or Always Disclose Whether or Not They Have Potential Conflicts of Interests (e.g., Research Funding, Commercial Interests) During Each of Their Clinical Rotations

PERCENT OF TOTAL SURVEYED[a] (n = 3,751) **44.0**

PERCENTAGE BY RESIDENT AND FELLOW AND CLE CHARACTERISTICS[a]

Resident and Fellow Characteristics	Residents and Fellows, % (n = 3,751)
Sex	
Male	43.9
Female	43.9
PGY Level*	
PGY-1	26.8
PGY-2	45.4
PGY-3	42.1
PGY-4+	44.4
Specialty Group***	
Medical	39.1
Surgical	53.5
Hospital-Based	45.8
CLE Characteristics	
Region[b]***	
Northeast	44.6
Midwest	41.5
South	47.1
West	37.2
Bed Size**	
<200	51.1
200–299	45.9
300–399	44.5
400–499	50.2
500 or more	41.1
Type of Ownership	
Non-government, not-for-profit	43.7
Investor-owned, for-profit	40.6
Government, federal	42.4
Government, non-federal	43.7

DISTRIBUTION ACROSS CLEs[c] (n = 178)



[a] Missing data (< 15%) have been omitted; percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 1%) omitted to ensure anonymity.

[c] Distribution includes 95% or more of the total number of CLEs (N = 181).

* Statistically significant at $P < .05$.

** Statistically significant at $P < .01$.

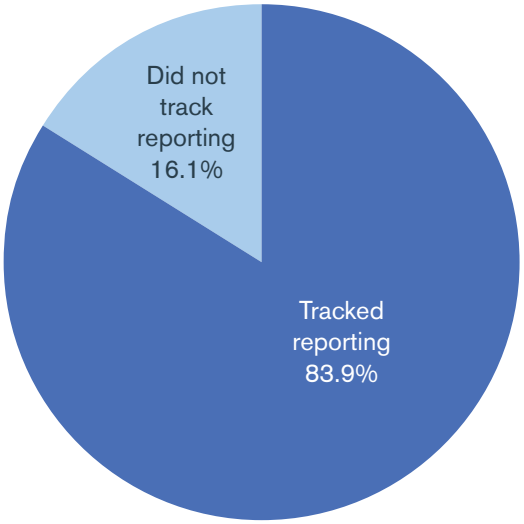
*** Statistically significant at $P < .001$.

Abbreviation: PGY, post-graduate year.

APPENDIX C.

SELECTED QUALITATIVE RESULTS FROM CLINICAL LEARNING ENVIRONMENT REVIEW SITE VISIT REPORTS

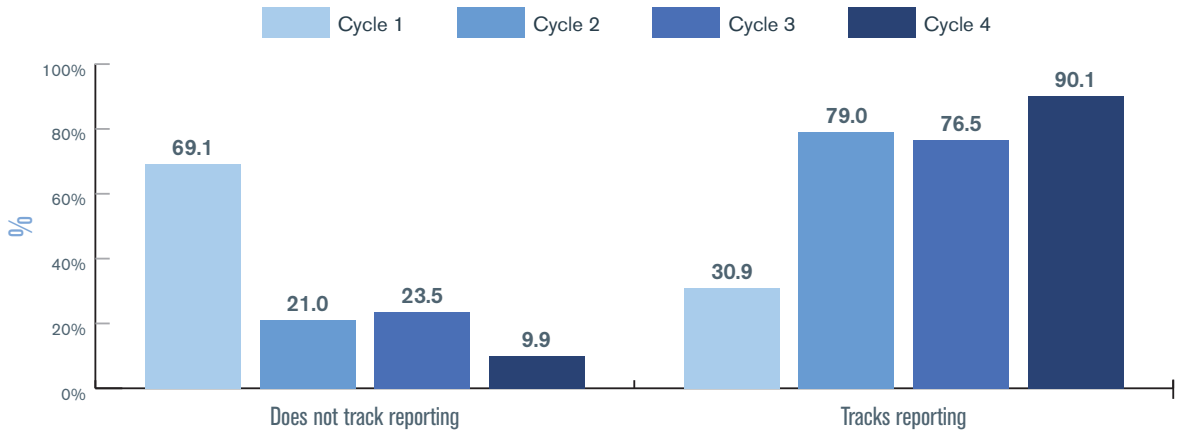
C1. Percentage of Clinical Learning Environments That Tracked the Number of Patient Safety Event Reports Submitted by Residents and Fellows[a]



PERCENTAGE OF CLEs THAT TRACKED REPORTING, BY CLE CHARACTERISTICS

Characteristics	CLEs, %
Region[b]	
Northeast	79.5
Midwest	84.6
South	79.2
West	88.2
Bed Size	
<200	73.1
200–299	80.0
300–399	80.6
400–499	92.9
500 or more	85.9
Type of Ownership	
Non-government, not-for-profit	78.2
Investor-owned, for-profit	87.5
Government, federal	100
Government, non-federal	94.1

CHANGES BETWEEN CLER VISITS: CYCLES 1–4[c] (n = 81)***



[a] Missing data (< 1%) have been omitted; percentages based on valid percent. Of note, data are missing largely due to the development and refinement of a formal written site visit report template in the early stages of program implementation.

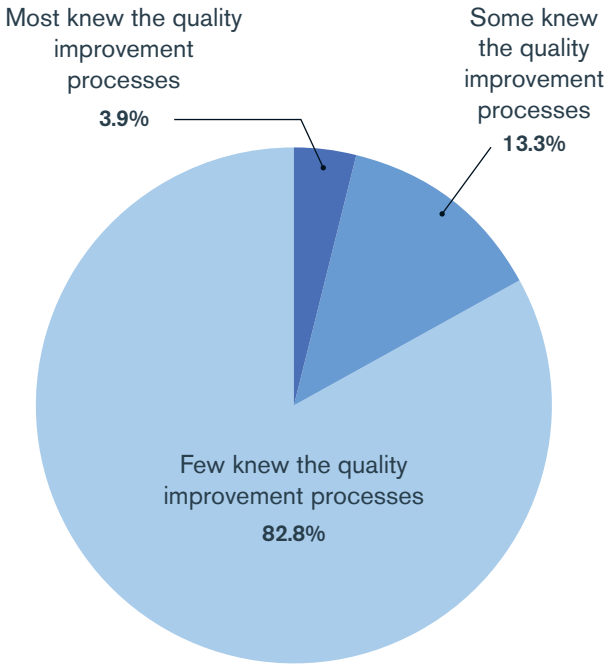
[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology section (p. 13–22).

*Statistically significant at $P < .05$. **Statistically significant at $P < .01$. ***Statistically significant at $P < .001$.

Abbreviation: CLER, Clinical Learning Environment Review.

C2. Percentage of Clinical Learning Environments by Proportion of Residents and Fellows Who Knew the Quality Improvement Processes Used by the Clinical Site to Improve Patient Care[a]



PERCENTAGE OF CLEs WHERE MOST RESIDENTS AND FELLOWS KNEW THE QUALITY IMPROVEMENT PROCESSES USED BY THE CLINICAL SITE TO IMPROVE PATIENT CARE, BY CLE CHARACTERISTICS

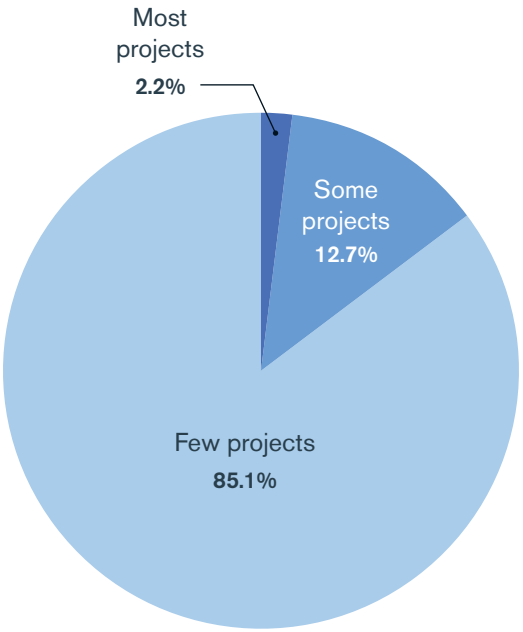
Characteristics	CLEs, %
Region[b]	
Northeast	5.0
Midwest	0.0
South	5.7
West	0.0
Bed Size	
<200	3.8
200–299	3.8
300–399	6.5
400–499	0.0
500 or more	1.4
Type of Ownership	
Non-government, not-for-profit	4.2
Investor-owned, for-profit	0.0
Government, federal	0.0
Government, non-federal	0.0

[a] Percentages based on valid percent.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

Abbreviation: CLER, Clinical Learning Environment Review.

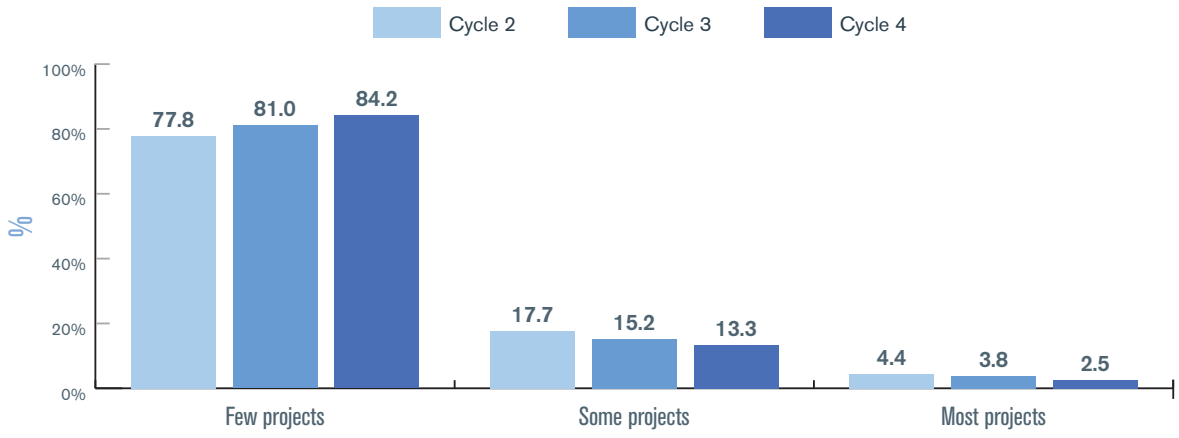
C3. Percentage of Clinical Learning Environments by Proportion of Resident and Fellow Quality Improvement Projects with Components of a Complete Quality Improvement Cycle[a]



PERCENTAGE OF CLEs WHERE MOST RESIDENT AND FELLOW QUALITY IMPROVEMENT PROJECTS HAD COMPONENTS OF A COMPLETE QUALITY IMPROVEMENT CYCLE, BY CLE CHARACTERISTICS

Characteristics	CLEs, %
Region[b]	
Northeast	2.5
Midwest	0.0
South	3.8
West	0.0
Bed Size	
<200	7.7
200–299	0.0
300–399	0.0
400–499	0.0
500 or more	1.4
Type of Ownership	
Non-government, not-for-profit	2.5
Investor-owned, for-profit	0.0
Government, federal	0.0
Government, non-federal	0.0

CHANGES BETWEEN CLER VISITS: CYCLES 2–4[c] (n = 158)



[a] Percentages based on valid percent.

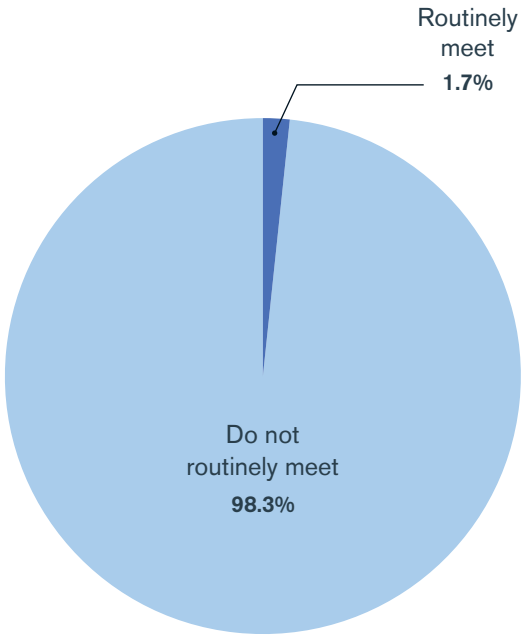
[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology section (p. 13–22).

* Statistically significant at $P < .05$. ** Statistically significant at $P < .01$. *** Statistically significant at $P < .001$.

Abbreviation: CLER, Clinical Learning Environment Review.

C4. Percentage of Clinical Learning Environments Where Clinical Care Team Members Indicated They Routinely Meet to Discuss How They Are Working Together to Provide Patient Care and Improve Teaming Across the Continuum of Care[a]



PERCENTAGE OF CLEs WHERE CLINICAL CARE TEAM MEMBERS INDICATED THEY ROUTINELY MEET TO DISCUSS HOW THEY ARE WORKING TOGETHER, BY CLE CHARACTERISTICS

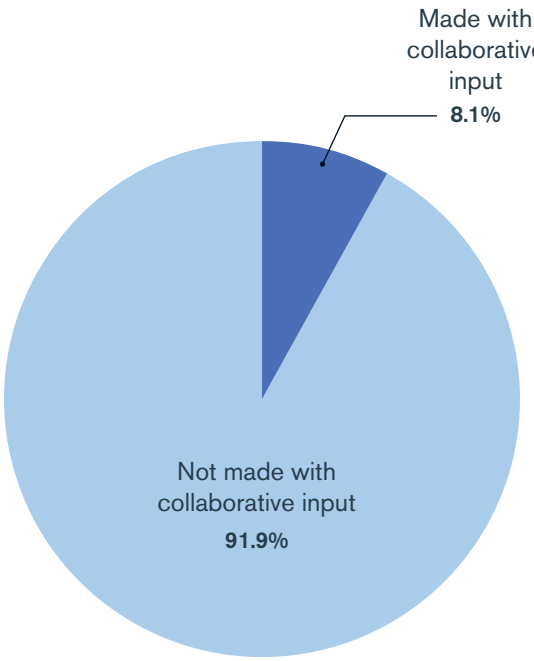
Characteristics	CLEs, %
Region[b]	
Northeast	0.0
Midwest	2.6
South	0.0
West	0.0
Bed Size	
<200	3.8
200–299	0.0
300–399	0.0
400–499	0.0
500 or more	0.0
Type of Ownership	
Non-government, not-for-profit	0.8
Investor-owned, for-profit	0.0
Government, federal	0.0
Government, non-federal	0.0

[a] Missing data (< 1%) have been omitted; percentages based on valid percent. Of note, data are missing largely due to the development and refinement of a formal written site visit report template in the early stages of program implementation.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

Abbreviation: CLER, Clinical Learning Environment Review.

C5. Percentage of Clinical Learning Environments Where Clinical Care Team Members Indicated That Organizational Changes Affecting Patient Care Are Made with Collaborative Input from Frontline Staff[a]



PERCENTAGE OF CLEs WHERE CLINICAL CARE TEAM MEMBERS INDICATED THAT ORGANIZATIONAL CHANGES AFFECTING PATIENT CARE ARE MADE WITH COLLABORATIVE INPUT FROM FRONTLINE STAFF

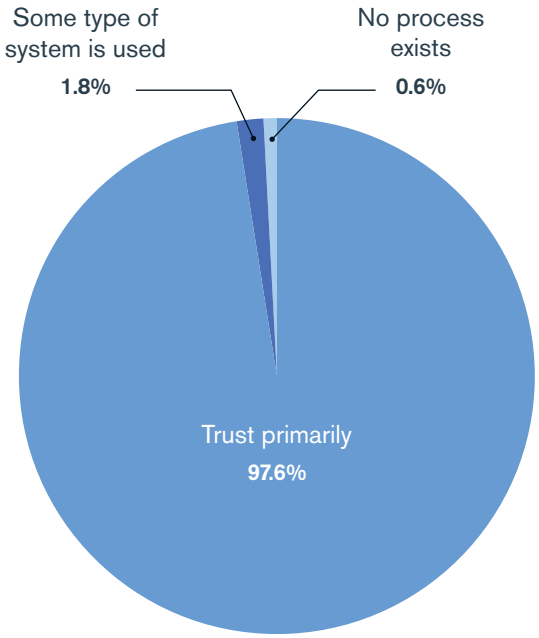
Characteristics	CLEs, %
Region[b]	
Northeast	7.9
Midwest	10.8
South	9.4
West	0.0
Bed Size	
<200	4.0
200–299	12.0
300–399	16.7
400–499	0.0
500 or more	4.5
Type of Ownership	
Non-government, not-for-profit	10.6
Investor-owned, for-profit	0.0
Government, federal	0.0
Government, non-federal	0.0

[a] Missing data (< 5%) have been omitted; percentages based on valid percent. Of note, data are missing largely due to the development and refinement of a formal written site visit report template in the early stages of program implementation.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

Abbreviation: CLER, Clinical Learning Environment Review.

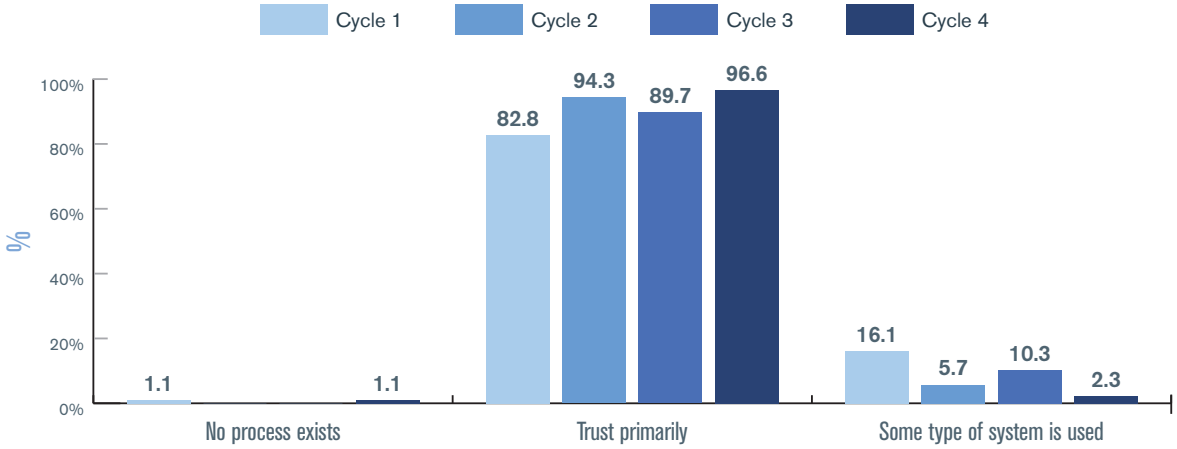
C6. Percentage of Clinical Learning Environments by Mechanism Used for Identification of Resident and Fellow Competence to Perform Clinical Procedures in the Absence of an Attending Physician, as Reported by Nurses[a]



PERCENTAGE OF CLEs WHERE TRUST IS PRIMARILY USED TO IDENTIFY COMPETENCE, BY CLE CHARACTERISTICS

Characteristics	CLEs, %
Region[b]	
Northeast	97.4
Midwest	97.3
South	100
West	100
Bed Size	
<200	100
200–299	96.0
300–399	96.8
400–499	100
500 or more	100
Type of Ownership	
Non-government, not-for-profit	99.1
Investor-owned, for-profit	88.9
Government, federal	100
Government, non-federal	100

CHANGES BETWEEN CLER VISITS: CYCLES 1–4[c] (n = 87)**



[a] Missing data (< 6%) have been omitted; percentages based on valid percent. Of note, data are missing largely due to the development and refinement of a formal written site visit report template in the early stages of program implementation.

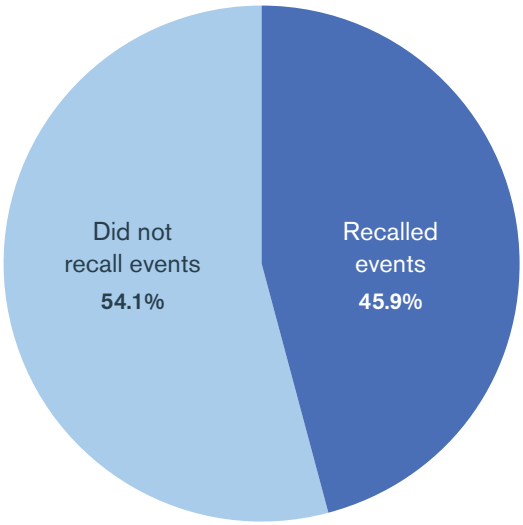
[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology section (p. 13–22).

* Statistically significant at $P < .05$. ** Statistically significant at $P < .01$. *** Statistically significant at $P < .001$.

Abbreviation: CLER, Clinical Learning Environment Review.

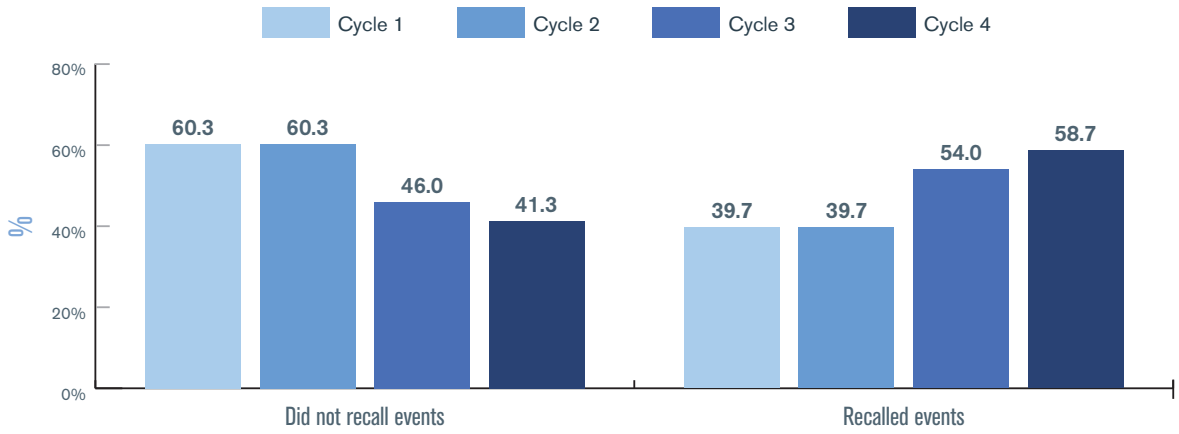
C7. Percentage of Clinical Learning Environments Where Patient Safety and Quality Leadership Recalled Patient Safety Event Reports Involving Issues of Resident or Fellow Supervision[a]



PERCENTAGE OF CLEs WHERE PATIENT SAFETY AND QUALITY LEADERSHIP RECALLED EVENTS, BY CLE CHARACTERISTICS

Characteristics	CLEs, %
Region[b]	
Northeast	50.0
Midwest	38.5
South	49.1
West	58.8
Bed Size	
<200	26.9
200–299	50.0
300–399	51.6
400–499	57.1
500 or more	52.1
Type of Ownership	
Non-government, not-for-profit	48.7
Investor-owned, for-profit	33.3
Government, federal	66.7
Government, non-federal	47.1

CHANGES BETWEEN CLER VISITS: CYCLES 1–4[c] (n = 63)*



[a] Percentages based on valid percent.

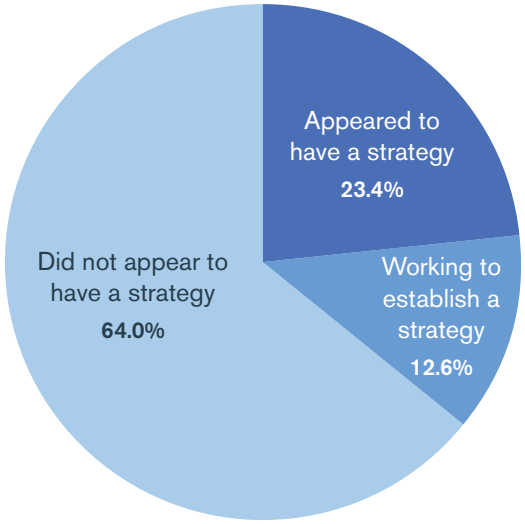
[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

[c] Results based on matched observations; see Methodology section (p. 13–22).

* Statistically significant at $P < .05$. ** Statistically significant at $P < .01$. *** Statistically significant at $P < .001$.

Abbreviation: CLER, Clinical Learning Environment Review.

C8. Percentage of Clinical Learning Environments That Appeared to Have a Formal Strategy to Support the Well-Being of All Clinical Care Team Members[a]



PERCENTAGE OF CLEs THAT APPEARED TO HAVE A FORMAL STRATEGY TO SUPPORT THE WELL-BEING OF ALL CLINICAL CARE TEAM MEMBERS, BY CLE CHARACTERISTICS

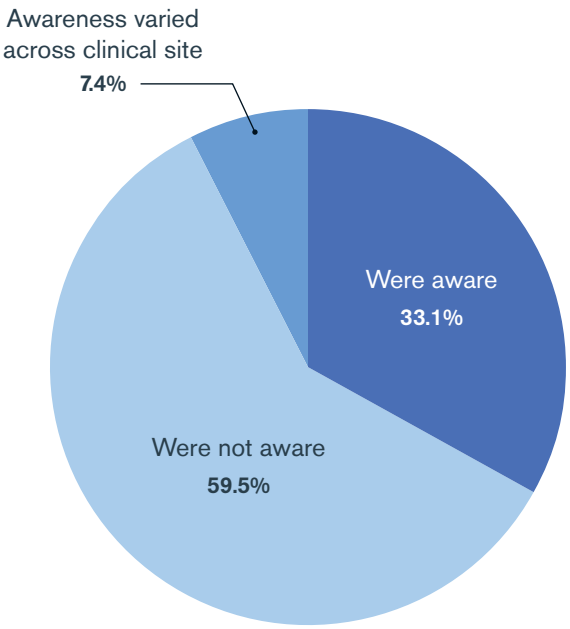
Characteristics	CLEs, %
Region[b]	
Northeast	26.3
Midwest	15.8
South	15.4
West	34.4
Bed Size	
<200	7.7
200–299	15.4
300–399	10.0
400–499	14.3
500 or more	36.4
Type of Ownership	
Non-government, not-for-profit	19.5
Investor-owned, for-profit	0.0
Government, federal	16.7
Government, non-federal	35.3

[a] Missing data (< 4%) have been omitted; percentages based on valid percent. Of note, data are missing largely due to the development and refinement of a formal written site visit report template in the early stages of program implementation.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

Abbreviation: CLER, Clinical Learning Environment Review.

C9. Percentage of Clinical Learning Environments Where Clinical Care Team Members Indicated They Were Aware of Clinical Site Efforts to Proactively Address Fatigue Among Members of the Clinical Care Team[a]



PERCENTAGE OF CLEs WHERE CLINICAL CARE TEAM MEMBERS INDICATED THEY WERE AWARE OF CLINICAL SITE EFFORTS TO PROACTIVELY ADDRESS FATIGUE AMONG MEMBERS OF THE CLINICAL CARE TEAM, BY CLE CHARACTERISTICS

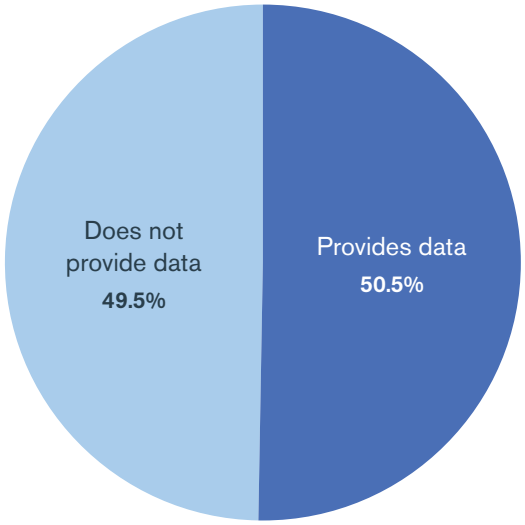
Characteristics	CLEs, %
Region[b]	
Northeast	35.0
Midwest	28.9
South	32.7
West	30.3
Bed Size	
<200	21.7
200–299	26.9
300–399	20.0
400–499	53.8
500 or more	37.1
Type of Ownership	
Non-government, not-for-profit	27.6
Investor-owned, for-profit	33.3
Government, federal	40.0
Government, non-federal	43.8

[a] Missing data (< 4%) have been omitted; percentages based on valid percent. Of note, data are missing largely due to the development and refinement of a formal written site visit report template in the early stages of program implementation.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

Abbreviation: CLER, Clinical Learning Environment Review.

C10. Percentage of Clinical Learning Environments That Provide Residents and Fellows with Patient Experience Survey Data Related to the Physician Component of Patient Care (e.g., Communication with Health Care Practitioners)[a]



PERCENTAGE OF CLEs THAT PROVIDE RESIDENTS AND FELLOWS WITH PATIENT EXPERIENCE SURVEY DATA RELATED TO THE PHYSICIAN COMPONENT OF PATIENT CARE, BY CLE CHARACTERISTICS

Characteristics	CLEs, %
Region[b]	
Northeast	66.7
Midwest	33.3
South	41.2
West	63.6
Bed Size	
<200	56.0
200–299	61.5
300–399	50.0
400–499	42.9
500 or more	44.9
Type of Ownership	
Non-government, not-for-profit	53.0
Investor-owned, for-profit	33.3
Government, federal	66.7
Government, non-federal	40.6

[a] Missing data (< 3%) have been omitted; percentages based on valid percent. Of note, data are missing largely due to the development and refinement of a formal written site visit report template in the early stages of program implementation.

[b] Results from clinical learning environments (CLEs) in Puerto Rico (< 2%) have been omitted to ensure anonymity.

Abbreviation: CLER, Clinical Learning Environment Review.

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