CLER
Clinical Learning
Environment Review

NATIONAL REPORT OF FINDINGS 2016

ISSUE BRIEF No.7

FATIGUE MANAGEMENT, MITIGATION, AND DUTY HOURS

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Issue Briefs

The CLER Program presents this series of Issue Briefs to supplement the *CLER National Report of Findings 2016*.

Each issue in the series features one of the focus areas of the CLER Program—supplementing the key challenges and opportunities highlighted in the National Report and enhancing the discussion as to their relevance and potential impact on GME and patient care.

In both the National Report and the Issue Briefs, the findings are based on data collected during the CLER site visits, including responses to closed-ended questions collected via an audience response system, open-ended structured interviews with the clinical site's executive leaders and leaders in patient safety and health care quality, and information gathered from the many individuals interviewed during walking rounds of the site's clinical units.

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Background

The ACGME established the CLER Program to provide formative feedback that presents graduate medical education (GME) leaders and the executive leadership of the clinical learning environments (CLEs) for GME with information on six areas of focus: **patient safety, health care quality, care transitions, supervision, duty hours/fatigue management and mitigation, and professionalism.**[1,2,3]

The *CLER National Report of Findings 2016*[4] presents information from the first set of CLER site visits to participating sites of 297 ACGME-accredited Sponsoring Institutions of residency and fellowship programs. These visits, conducted from September 2012 through March 2015, focused primarily on teaching hospitals, medical centers, and ambulatory sites that host three or more core residency programs.

In the group sessions conducted during these visits, the CLER teams collectively interviewed more than 1,000 members of executive leadership (including CEOs), 8,755 residents and fellows, 7,740 core faculty members, and 5,599 program directors of ACGME-accredited programs in the group sessions. Additionally, the CLER teams interviewed the CLEs' leadership in patient safety and health care quality and thousands of residents and fellows, faculty members, nurses, pharmacists, social workers, and other care providers while on walking rounds of the clinical areas.

OVERARCHING THEMES OF THE NATIONAL REPORT OF FINDINGS

The initial visits of the CLER Program revealed a number of findings that appeared to be common across many of the CLEs and six focus areas.

- Clinical learning environments vary in their approach to and capacity for addressing patient safety and health care quality, and the degree to which they engage residents and fellows in these areas.
- Clinical learning environments vary in their approach to implementing GME. In many clinical learning environments, GME is largely developed and implemented independently of the organization's other areas of strategic planning and focus.
- Clinical learning environments vary in the extent to which they invest in continually educating, training, and integrating faculty members and program directors in the areas of health care quality, patient safety, and other systems-based initiatives.
- Clinical learning environments vary in the degree to which they coordinate and implement educational resources across the health care professions.

In addition to serving as a basis for the overarching themes, the initial CLER visits sought to establish baseline structural and operational characteristics of the clinical sites, as well as their training practices in the six focus areas for residents and fellows. In future cycles, the CLER Program will also seek to understand how the sites identify and prioritize areas for improvement and assess progress over time.

Fatigue Management, Mitigation, and Duty Hours

A STORY FROM THE FIELD

During an evening conversation between the CLER team and a small group of residents in their call room, the residents were asked about how they handled fatigue to avoid negatively impacting patient care and safety. One resident noted that while residents were expected to be reasonably rested when on duty, there was little effort to help them with managing patient care when fatigued. One resident noted that coffee was available on the unit most of the time. Another resident said that when she is tired, she tries to get some sleep, however the nurses and laboratory staff often call randomly throughout the night with both urgent and non-urgent issues or concerns, so she often doesn't get time to rest. A third resident noted that a few weeks earlier he was charting in the electronic health record during the early morning hours and nearly made a serious mistake in a patient order due to being tired. Another resident noted that they were expected to keep an eye on each other to look for signs of fatigue and if they found a colleague who appeared fatigued, they were to approach them and tell them to get some rest. The last comment was met with a few chuckles from the other residents in the room. When asked why they found this humorous, they noted that this was unlikely to happen as it was not the way they truly managed fatigue; they said that if they were tired they got their work done quickly so they could go home as soon as possible.

The story above highlights common findings across CLEs as to how residents are managing their fatigue. The residents in the story viewed fatigue as something you manage by trying to get through your responsibilities so you can get home to rest. The CLE did not appear to have any formal or effective fatigue prevention, management, or mitigation strategies in place other than coffee.

The resident comments suggest a lack of awareness concerning the range of ways fatigue can contribute to patient safety events, as well as the absence of explicit and effective systems for alleviating and managing fatigue. The story also indicates nurses and other members of the care team were not expected to support identification and mitigation of fatigue. In fact, their standard care processes were likely exacerbating the problem. While it is not known how other clinical providers are managing and mitigating their fatigue, the residents' comments also suggest there may be larger systemic issues within CLEs–specifically, a lack of actions by the CLE that explicitly identify and effectively mitigate the risk to safe and appropriate care caused by fatigue.

In the area of fatigue management, mitigation, and duty hours, the *CLER National Report of Findings 2016* presents data related to education, awareness and use of resources, links to patient safety, and feedback on the ACGME's requirements addressing resident and fellow duty hours. The sections that follow highlight several examples of the detailed information found in the National Report and expand upon the areas identified as challenges and opportunities, and enhance the discussion regarding these findings.

Selected Findings

Figure 1 presents the distribution of CLEs by the percent of residents and fellows within their CLE who reported they would power through to hand-off when maximally fatigued–a median of 29.4 percent. There were statistically significant differences in responses by CLE region and bed size (Table 1).

Figure 2 presents the percentage of CLEs where patient safety and quality leaders recalled patient safety events related to resident and fellow fatigue (6.0%).

These findings indicate that mitigating fatigue is a challenge across some CLEs, thereby placing both patients and provider well-being at risk. GME and CLEs will need to further explore preventative measures and system-wide fatigue management strategies to enhance quality of patient care, safety, and learning in clinical settings.

Table 1

Percentage of residents and fellows who reported that they would power through to hand-off when maximally fatigued, by CLE Characteristics[bc]

CLE Region, Bed Size, and Type of Ownership	
Region[d]*	
Northeast	34
Midwest	31
South	34
West	35
Bed Size**	
<200 beds	25
200-299 beds	25
300-399 beds	31
400-499 beds	35
500 or more beds	35
Type of Ownership	
Nongovernment, not-for-profit	34
Investor-owned, for-profit	31
Government, federal	27
Government, nonfederal	34

[b]Results are presented as percentages of the total number of individuals surveyed (n=8,387).

[c]Missing data=368.

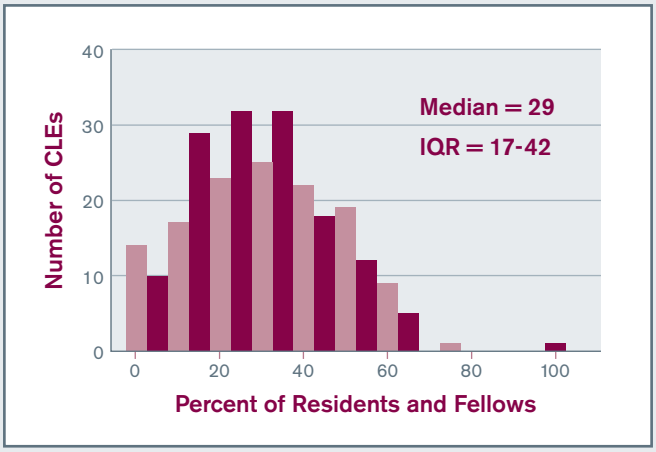
[d]Results from CLEs in Puerto Rico (n=3) have been omitted to protect their anonymity.

*Statistically significant at p<.05.

**Statistically significant at p<.0001.

Figure 1

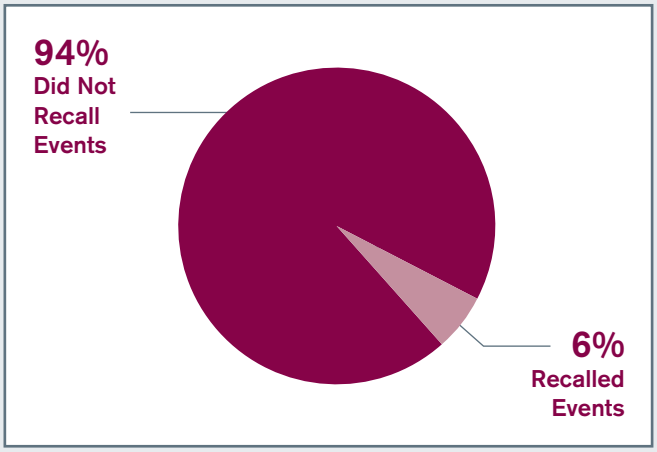
Percentage of residents and fellows who reported that they would power through to hand-off when maximally fatigued: Distribution across CLEs[a]



[a]Distribution includes 90% or more of the 297 CLEs.

Figure 2

Percentage of CLEs where patient safety and quality leaders recalled patient safety events related to resident and fellow fatigue



Challenges and Opportunities

For the National Report, the members of the CLER Evaluation Committee reviewed aggregated data and selected five key findings to highlight and discuss. The following section expands upon the information presented in the National Report to include additional selected findings and a more in-depth discussion regarding the potential impact on patient care and resident and fellow education.

In general, CLEs had developed and implemented some form of fatigue management for residents and fellows. Strategies included those required by accreditation standards (e.g., adherence to duty hour restrictions, availability of call rooms, and education on fatigue management), as well as other strategies (such as offering taxi rides when a resident is too tired to drive home).

- In response to an inquiry about strategies for fatigue management in the CLE, the residents and fellows almost always mentioned call rooms for napping, cab fare/car service to their home when too fatigued to drive (reportedly infrequently used), and caffeinated drinks (sometimes available at no cost). These modalities varied by department and were not consistently offered within the CLE. Deliberate interventions such as strategic napping were rarely mentioned. Occasionally, residents indicated the nurses would batch lab results and requests for orders to allow them more opportunity for napping, particularly when covering the intensive care units.
- When provided with a scenario of being maximally fatigued two hours prior to hand-off, across CLEs some residents and fellows reported that they would power through rather than expect to be taken off duty.

In many CLEs, residents, fellows, faculty members, and nurses reported observing resident fatigue related to factors other than the number of hours worked (e.g., periods of high patient volume or high-acuity patient care).

- Many faculty members and program directors focused on duty hours and did not consider other contributing factors outside of work, such as a new baby, sick family member, financial difficulties, or other stressors that could impact resident and fellow fatigue, irrespective of the hours worked.

In many CLEs, faculty members reported a significant increase in their own fatigue.

- Across many CLEs, faculty members expressed the belief that the restrictions on resident and fellow work hours have shifted more responsibilities for patient care to them, which in turn has contributed their fatigue and stress.

Many GME programs enforced duty hour limits so strictly that they, in effect, discouraged using the exceptions permitted by the ACGME Common Program Requirements due to concerns this would trigger added scrutiny and/or citations.

Many faculty members and program directors perceived that there could be increased risk to patients due to frequent hand-offs prompted by institutional efforts to comply with duty hour requirements.

In most CLEs, there were program directors who were aware of patient safety events that had occurred at the CLE that were related to resident fatigue. Executive leadership, GME leadership, and patient safety leadership at these sites were not always aware of these events.

Across many CLEs, residents and fellows reported that they frequently completed their documentation in the electronic health record at home and did not always count this time when reporting their duty hours.

Across CLEs, most program directors indicated they believe their residents and fellows include their moonlighting hours when reporting duty hours (for the programs that allow for moonlighting).

Discussion

Most CLEs have met their responsibilities to follow duty hour requirements and implemented the basic strategies required for ACGME accreditation. Nevertheless, residents, fellows, faculty members, and nurses still report instances of resident and fellow fatigue. Fatigued providers can place patients at risk for medical errors, and also jeopardize their own health (e.g., car accidents, burnout). Fatigue management is about both patient safety and provider well-being. Moreover, "fatigue" can also be a precursor to burnout or a marker for depression. CLEs should be encouraged to train residents, fellows, faculty members, and other clinical staff members to consider such factors—and not only work hours—in determining a provider's "fitness for duty."

Patient care would benefit from CLEs taking a more systematic approach to fatigue management that includes all health care professionals. The *CLER National Report of Findings 2016* noted that the executive leaders of the hospitals, medical centers, and other sites that comprise CLEs may not be aware of the impact of resident and fellow fatigue on patient safety, signaling a need for closer integration of the CLE and its GME community. Engaging both CLE and GME leadership is a prerequisite to building an effective fatigue management system. Systems of patient care designed without the involvement of GME leadership may result in increased vulnerabilities to patient safety.

Across most CLEs, assessment of resident fatigue appears to be largely limited to monitoring the number of hours worked. Yet there are many other factors that can cause fatigue, including task or mental overload due to high-volume or high-acuity patient activity, circadian rhythm disruption, chronic sleep deficit, and non-work-related activities. The CLE and GME communities need to be aware of these other contributing factors so they can develop and implement the appropriate mitigating steps.

For residents and fellows who moonlight, the extra clinical hours can contribute to fatigue—potentially affecting both patient safety and the quality of the educational experience. Data from the first set of CLER visits indicated that, across most CLEs, most program directors believe the majority of their residents and fellows include their moonlighting hours when reporting duty hours. However, program directors also noted they may not be fully aware of the extent of their residents' and fellows' moonlighting activity and its impact on fatigue.

Regardless of the many reasons why a resident or fellow may be fatigued, CLEs need to establish systems that ensure that moonlighting or other activities are not adversely impacting the ability to provide optimal patient care within an optimal educational environment.

This paradox of CLEs meeting the duty hour requirements while still having reports of fatigue suggests that the most commonly used strategies for fatigue management may be insufficient. CLEs need to implement more advanced strategies, such as scheduling to maximize rest and reset circadian rhythms, strategic naps, and systems to relieve tired providers.

For meaningful change to occur and be sustained, CLEs have to promote a culture that focuses on prevention, early detection, and meaningful mitigation of fatigue. An appropriate culture promotes a positive response when a person acknowledges being fatigued—encouraging the person to engage back-up systems. Similarly, a supportive culture celebrates asking for help when fatigued as a sign

of good clinical judgment and strength rather than of weakness. A well-functioning system would include a low threshold for residents and fellows to report fatigue and easy mechanisms to invoke a back-up system to support or relieve them of their clinical activities until rested. To overcome widespread resident and fellow reluctance to using these solutions, they must be viewed as both accessible and non-punitive—protecting both the fatigued individual and other team members who may need to assume additional clinical responsibilities until the fatigued individual is rested.

CLEs need to progress from individual tactics for fatigue management toward system-wide strategies that are routinely monitored to ensure their efficacy. For example, CLEs could develop redundant systems to help manage fatigue rather than relying on a single system that depends solely on vigilance and self-monitoring of individuals. CLEs could focus on addressing known challenges, such as specific clinical units with high work intensity, and times when staffing is reduced (e.g., weekends and holidays). CLEs may also consider developing systems for monitoring resident and fellow fatigue that involve other members of the health care team who might easily recognize a tired resident or fellow—as residents and fellows may not recognize or acknowledge fatigue in themselves or their colleagues.

A number of factors related to financial productivity, patient complexity, regulatory requirements, and implementation of the electronic health record have increased faculty workload over the past decade. CLE cultures where faculty members are expected to routinely complete their EHR documentation after hours at home foster an attitude that adversely imprints on residents and fellows and subsequently affects patient care.

The ACGME, through accreditation requirements and attention to duty hours, has encouraged better fatigue management for residents and fellows. However, there are no widespread comparable guidelines for faculty members, resulting in faculty fatigue, increased patient safety vulnerability, and physician burnout.

Any CLE strategies to mitigate fatigue should include the program directors, faculty members, and resident leaders who play a pivotal role in creating a culture of fatigue prevention, management, and mitigation through their behavior and their expectations of residents and fellows. They need to model the behavior they wish to see in their residents, fellows, and colleagues and receive active support from the CLE in these efforts.

Attempts by the CLE to address faculty member fatigue and possible burnout may require new resources. For example, faculty members often perform tasks that could be delegated to other staff members (e.g., administrative tasks, non-clinical work). When faculty members are overburdened, they have less time to teach, fulfill academic responsibilities (e.g., conduct research), mentor, and coach. This creates a cycle that contributes to decline in quality of care and in opportunities for the members of the faculty to find meaning in their work.

Based on faculty member concerns raised during the group interviews, the current ACGME duty hour requirements appear to have amplified the importance of achieving good hand-offs at every change of care. As noted above, many faculty members and program directors perceived increased risk to patients due to more frequent hand-offs. While this concern is worth noting, it also should be stressed that when hand-offs are performed in an accurate and reliable manner, more frequent hand-offs should not, in and of themselves, increase patient risk. However, when hand-off processes

are not accurate or reliable, increasing the frequency of hand-offs could increase vulnerabilities in patient care. Properly performed hand-offs can enhance patient safety as they engage 'fresh eyes' that may detect issues overlooked by the previous members of the health care team.

By instituting and enforcing duty hour requirements, the ACGME has responded to public concerns and established standards to mitigate risks to patient safety. However, within the GME community there appears to be some reluctance to use the flexibility built into the ACGME requirements–that is, the exceptions in the *2011 Common Program Requirements*. The CLER site visit data suggest that more work is needed to communicate circumstances in which making an exception is not only acceptable but necessary in order to ensure safe, high quality patient care.

While CLEs need to have continual and robust programmatic efforts to mitigate and manage fatigue in place, primary efforts need to focus on strategies for fatigue prevention.

CLE leaders need to understand the science of fatigue in order to design their delivery systems in a way that minimizes the risk to patients that residents, fellows, and other clinical providers create when caring for patients while fatigued. Similarly, GME leaders need to understand the science that underlies fatigue so they can design their program experiences and schedules in a way that minimizes situations that inadvertently place residents and fellows at repeated or continual risk for providing care while fatigued.

Conclusion and Next Steps

The ultimate goal of GME is to prepare residents and fellows to deliver safe and high quality patient care throughout their careers. The results from the first set of CLER visits indicate that the ACGME's 2011 duty hour requirements are being viewed as having attenuated the more noticeable presentations of resident fatigue. Yet, even with the ACGME's 2011 duty hours in place, the CLER findings indicate that many residents and fellows train in a culture that allows and/or expects them to "power through" their patient care responsibilities while tired. The findings also highlight awareness of patient safety incidents related to resident and fellow fatigue.

These findings demonstrate there are substantive opportunities to improve patient safety if CLEs engage their front-line clinical providers, including the GME community, in re-envisioning how to more effectively prevent and manage fatigue and its impact on patient safety in their health care environments.

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