PSNet
PATIENT SAFETY NETWORK

COVID-19: Team and Human Factors to Improve Safety

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Background

The rapid transmission of COVID-19 has resulted in an international pandemic with the cumulative death rate expected to further escalate in the months to come. The majority of deaths to date (May 2020) have been highly concentrated in certain geographic areas, placing tremendous stress on local healthcare systems and associated workforces. Healthcare is a fundamentally human endeavor; its reliability and the capacity to provide it are tested under stressful conditions and the COVID-19 pandemic is proving to be an especially difficult test for healthcare systems. Consideration of the humanness of care in the broader context of patient safety can raise awareness of how human weaknesses impact individual clinicians and care teams in ways that could degrade patient safety and quality of care and increase risk for both patients with COVID-19 and the staffs that care for them. These weaknesses are exacerbated by fatigue and burnout, absence of team trust, lack of time, medical illness, and poor psychological safety, each of which can result in reduced performance and contribute to failures such as misdiagnoses and adverse events.

The Safety Problems

Fatigue and burnout

Fatigue and burnout among healthcare providers and staff are prevalent during the normal course of care delivery, and even more so in times of crisis when cognitive and emotional overload are exacerbated by critical environmental and situational conditions. Strategies to address fatigue and burnout, implementation of which require leadership and organizational buy-in, have emerged from countries hit early by the COVID-19 pandemic. They focus on improving workplace conditions and encouraging help-seeking.

- A study of healthcare providers and hospital staff in the Hunan province of China found that explicit evidence-based infection-control guidelines, customized equipment and specialized facilities for the management of COVID?19 helped to mitigate psychological burnout.
- Recommendations based on the Italian COVID-19 experience encourage removing the stigma associated with help-seeking by establishing infrastructure and readily available opportunities for

peer support during and post-crisis.

Absence of trust among care team members

The extraordinary influx of clinicians being drawn together to supplement care teams in COVID-19 “hot spots” necessitates rapid team formation and establishment of trust in team leaders, core steps in ensuring safe practices. Processes for supporting team development, which should already be embedded in general healthcare processes, include:

- Huddles: Huddles operationalize targeted sharing of information to bring team members who are new to the situation up to speed, providing help with role clarification and clinical task assignments.
- De-briefings: Processes through which new team members are invited to share their insights after a care episode should be established; these de-briefings provide opportunities to learn from their experiences and highlight opportunities for improvement.
- Checklists: New team members should be empowered to follow processes and challenge any gaps observed in those processes, without need to take into account hierarchies and conventions with which they are unfamiliar. The TeamSTEPPS curriculum can be used to train teams on how to conduct huddles and debriefings and use checklists to promote better communication.

Lack of adequate time for patient and self-care

The unprecedented nature of COVID-19 care delivery makes teams providing direct care vulnerable to production pressures, which can negatively affect decision-making, task accuracy, civility, mindfulness, situational awareness and information exchange– all behaviors and activities core to patient safety. While the pace of the workplace is not always within a team’s control, collective recognition of the negative impact of substantial, constant and unrelenting demands on individuals calls for heightened attention to the health of the team. It stands to reason that simply ensuring that team members have breaks, food, and hydration when needed can help to reduce the potential for error in stressful circumstances.

Lack of psychological safety

In response to the COVID-19 pandemic, not only are teams coming together with limited or no knowledge of one another in comparison to established clinical teams, but many of these new teams include clinicians whose skills may need updating and/or students whose accelerated certifications for active practice require effective supervision; the collective skills and competence of these new care teams, which so many aspects of safe healthcare practices depend upon, can thus be less than optimal, adding emotional, physical and moral stressors to team members already under stress-heightened conditions. The anxiety[1] associated with providing care in an uncertain situation can also reduce clinician performance. Because of COVID-19, clinicians and staff are currently working in environments where unprecedented loss of life is occurring; this grave situation creates difficult individual and collective psychological strain and moral distress. In addition, providers may find themselves working in clinical situations they find uncomfortable, which decreases the reliability of their output and trust in both the team and the individual provider. Efforts to increase the psychological safety of healthcare workers, especially during pandemics, should ideally focus on:

- Establishing a culture of safety: Encouraging every individual on a care team to voice any concerns they identify that can affect the safety of staff and/or patients is paramount for increasing the psychological well-being of team members. This is more difficult to achieve during times of rapid deployment of staff into unknown environments because they are unfamiliar with cultural norms, processes and hierarchy. In addition, since establishing new units or entire hospitals for surge capacity is occurring in response to the COVID-19 pandemic, cognitive demands, fatigue and care delivery stress can make this is a particularly challenging time to establish or improve safety culture.
- Experience of high-risk industries: Experiences gained in other high-risk industries, such as aviation, offshore drilling and nuclear power in which large-scale disasters have occurred, underscores the value of staff who expose concerning conditions in real time, thereby avoiding catastrophic failures. Therefore, although more difficult to achieve during a pandemic, promoting a culture in which care team members are encouraged to voice their concerns is a goal worth pursuing.
- Organizational support of worker safety: Shortages of basic protections such as personal protective equipment (PPE) reduce healthcare workers' confidence in an organization's ability to keep them safe when delivering care in hazardous situations and adversely affect both their psychological and physical well-being. Therefore, healthcare organizations should do everything possible to provide as safe a working environment as possible, which includes providing adequate PPE. A lack of adequate PPE may contribute to reduced clinician and community trust in healthcare organizations. Federal guidance on how to optimize supplies of PPE has been issued; to promote psychological safety, healthcare organizations should follow the most recently issued guidelines and keep their workers informed about both current local PPE supplies and the organization's efforts to procure more. A recent systematic review and meta-analysis of the literature related to healthcare staff working with patients during infectious outbreaks reported that multiple clinical, training, experience, psychological, and service-related factors (consistent with the factors mentioned above) can increase the risk of psychological stress. Adequate breaks, greater experience, positive feedback, confidence in infection control measures, and adequate protective gear were all shown to decrease the risk of psychological stress.

Strategies to Improve Safety Via Human Factors Engineering

Human factors engineering (HFE) can help to address responses and mitigate risks stemming from the challenges discussed above. Safety approaches that employ HFE are increasingly applied across healthcare settings to reduce the potential negative impacts of individual behaviors on daily care, whether routine or during crises. HFE can help realign workflows to increase worker reliability under duress by designing processes to protect against systems failure stemming from human error. As described below, strategies for reducing human errors that require relatively minimal resources to employ during the COVID-19 pandemic, include prominent signage, workflow review to identify failure points, checklists for donning and doffing PPE, and simulations to test processes.

- Signage: To reduce anxiety, inefficiency, and opportunities for error, prominent signage should be used for equipment locations; reminders about hand hygiene, personal protective equipment use, and environmental cleaning to prevent pathogen transmission; and identification of restricted areas for patient care,[2] personal needs spaces and exits. For example, when spaces need to be

reconfigured and used in different ways to mitigate the risk of exposure and infection, signs can help reassure clinicians and patients, minimize needed explanations and align actions. Human factors and workflow considerations should be applied when determining color(s) and font sizes on, terminology for and placement of signs.[3]

- Workflow review and redesign:[4] Potential failure points should be identified when workflows for new processes are being developed in order to proactively avert opportunities for mistakes which might otherwise occur while those following the processes are under additional pressure, whether during a pandemic, or during normal practice. Healthcare failure mode and effects analysis[5] and other task analysis tools can be deployed quickly to assess an area's readiness for safe use. The results of the analysis can be used to develop standardized processes for patient screening and routing, diagnostic testing, admissions, treatments, care coordination, and patient and family engagement.
- Checklists: In addition to being useful for new staff (as mentioned above), checklists can also be extremely helpful for ensuring that safety steps are performed appropriately even in particularly stressful situations, such as during the COVID-19 pandemic. Checklists are often easy to use in the context of care because they can be aligned and synchronized with workflows and other existing care delivery processes.
- Simulations: Long recognized as a learning and improvement tool in high-risk industries, simulations can prepare teams and organizations with experiences they can use to optimize their preparedness for crisis situations, gained in a low risk environment. The collective knowledge created through simulations can inform training methods, protocol development, personal protective equipment donning and doffing activities, and facilities use and workflow issues.

Summary

This primer describes stressors relevant to the healthcare response to the COVID-19 pandemic from the perspective of care deliverers. It draws attention to the significant personal toll the pandemic is taking on individuals who work in the healthcare system.[6-7] The strategies highlighted herein build on foundational patient safety concepts, rather than broader (and also important) COVID-19-related issues like quality improvement, epidemiology,[8] clinical care,[9-10] and staff protection. Clinicians and healthcare organizations had already been applying these strategies prior to the outbreak of the pandemic to reduce threats to safe care, but implementing them is more important than ever for keeping patients and healthcare providers safe in the age of COVID-19.

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PSNet-Related Resources

Perspectives

- Perspectives on Safety: New Thinking about High Reliability