

CURRENT TOPICS

Simulation Integration With Total Worker Health

Benjamin McManus, PhD¹ , Katherine B. Redden, BS², and Marjorie L. White, MD³

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Simulation-based training methods have proven effective in addressing the top three Occupational Safety and Health Administration (OSHA) violations (fall protection in construction, respiratory protection in general industry, and ladder violations in construction, respectively; Occupational Safety and Health Administration [OSHA], 2023). Simulation can increase the efficacy of current training practices, which may reduce preventable injury and fatality rates (Rey-Becerra et al., 2021). Given its relevance and high degree of engagement, simulation may be the ideal training method to enhance occupational health and safety, especially when integrated into promotional programs (Chan et al., 2021), and this may also apply to total worker health (TWH).

Simulation can be procedural or immersive (Liang et al., 2019), both of which can occur in in-class environments or *in the workplace* (Radhakrishnan et al., 2021). In addition to decreasing factors that could lead to psychological and physical injury, simulation-based training has improved outcomes in worker reaction time, self-efficacy, situational awareness, preparedness level, confidence, and competency (Chan et al., 2021).

Within TWH's goal of an integrated approach to worker health, simulation can facilitate the identification of unsafe workplace conditions and situations, strengthen training methods to improve safe practices and environments, and ultimately protect the workers (McLellan, 2017). Regardless of the targeted skills, behaviors, situations, and environments, the simulated experience should be purposeful and standardized. Occupational Health Nurses (OHN) can design simulations following four criteria (in *italics* below).

Identify unsafe workplace conditions and situations. The best practices in simulation are to perform a needs assessment to provide evidence for the need for a simulation experience (e.g., the Simulation Education Needs Assessment Tool (SENAT); Britt et al., 2023).

Determine the specific risk factors affecting safety. Construct measurable objectives and

structure the simulation format based on the identified purpose, theory, and modality for training. A simulation course planning form such as the one used in healthcare simulation found in www.uab.edu/simuab/forms-resources can be used.

Develop training methods to improve safe practices and environments. The best practices in simulation are to (a) design a scenario to provide the context for the simulation; (b) construct a simulation environment to create the necessary perception of realism; (c) maintain a facilitative approach centered around the learner and driven by the objectives, the learner's knowledge or level of experience, and the desired outcome. Begin the simulation with a pre-briefing and end with a debriefing (feedback) session. Include evaluations of the learner, facilitators, the simulation experience itself, and any relevant support personnel; and (d) provide materials and resources necessary for the learner to meet the identified objectives in the simulation. See examples of Scenario Pre-Planning Forms, guides for pre-briefing and debriefing, and scenario templates in healthcare simulations at www.uab.edu/simuab/forms-resources.

Protect the Workers. Best simulation practices are to pilot the simulation before implementation and provide real-time feedback during simulation.

Highly engaging safety training methods have proven more effective in knowledge acquisition and safety performance, particularly in learning contexts involving action, dialogue, and reflection (debriefing). Aligning with TWH, OHNs, and other occupational health professionals may leverage simulations in training to promote safe work design and procedures for injury prevention where possible.

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ORCID iD

Benjamin McManus  <https://orcid.org/0000-0003-1383-9289>

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