Highlights From the Resuscitation Education Science Scientific Statement

Summary of Key Findings

In 2018, the American Heart Association (AHA) published a Scientific Statement titled "Resuscitation Education Science: Educational Strategies to Improve Outcomes From Cardiac Arrest." Evidence included in that statement shows that when providers take standardized resuscitation courses, whether online or in person, their skills decay over time. This can lead to poor clinical care and survival outcomes for cardiac arrest patients. In addition, healthcare institutions do not always implement the guidelines from these courses as intended. The AHA has found that applying the concepts summarized here can improve how well providers learn and retain these critical skills.

Mastery Learning and Deliberate Practice

To increase the likelihood that a learner will truly acquire key resuscitation skills, an instructor may ask learners to continue practicing until they demonstrate mastery, known as *mastery learning*.

- **Perfect practice makes perfect.** Use a mastery learning model that requires learners to demonstrate key skills, and set a minimum passing standard for mastery.
- **Measure performance to motivate learners.** Set performance standards that are based on observable behaviors. Determine the most important measures for patient outcomes and process standards such as time, accuracy, and best practices.
- **Use deliberate practice.** Use skill repetition paired with feedback and exercises, known as *deliberate practice*, to teach behaviors that are difficult to master or should be performed automatically.
- **Use overlearning to improve retention.** Train learners beyond the minimum standard, known as *overlearning*, for behaviors that are likely to decay and would require effort to retrain someone to a level of mastery.

Spaced Learning

The current schedule of 1 to 2 days of resuscitation training every couple of years is effective for short-term learning. However, learners often do not retain these skills in the long term. Shorter learning sessions every few months may improve learning outcomes.

- **Out with the old and in with the new.** Try to schedule learning in shorter, more frequent sessions (eg, 1 to 2 hours of training every 3 to 6 months) so that new information can replace what providers have forgotten over time.
- **Take advantage of learning in the clinical environment.** Increase learning outside of scheduled training by debriefing providers after real clinical events or simulations that occur in the clinical environment.
- **Make practice easy by bringing the training to the learners.** Create opportunities for learning in the workplace through training stations, eLearning, rolling refresher events, and simulation.
- **One size does not fit all.** Customize intervals between learning events to suit clinical roles and expectations.

Contextual Learning

A core concept for resuscitation training is to use training experiences that apply to learners' real-world scope of practice.

- **Consider that different learners find relevance in different things.** Tailor the learning experience for the types of learners, their settings, and the resources available in their environment.
- **Acknowledge that manikin fidelity alone is not enough.** When simulating resuscitation, use manikin features that matter. These features should engage learners and be relevant to the learning objectives.
- **Enhance realism for team training.** Ensure that team composition, roles, and contexts are right for your learner groups.
- **Don't be afraid to stress your learners (to a certain extent).** The right amount of stress and cognitive load can enhance experiential learning by maximizing learner engagement.

When healthcare providers take standardized resuscitation courses, their skills decay over time, which can lead to poor clinical care and patient survival outcomes.

Feedback and Debriefing

Prebriefing, feedback, and debriefing can improve resuscitation education.

- **Prebrief for success.** Effective briefing before a learning event, known as *prebriefing*, helps establish a safe environment for learning.
- **Use data feedback to improve performance.** Provide CPR quality data from a feedback device to help learners identify opportunities for improvement.
- **Tailor the debriefing method to need and context.** Instructors should base their debriefing methods and content on what the learners need.
- **Support instructors by using debriefing scripts.** Use debriefing scripts or tools that provide suggested content to help improve learning outcomes.

Assessment

Assessing learner competence is a critical part of developing high-quality resuscitation teams.

- **Measure what is important, not just what is easy.** Measure what truly matters for patient outcomes—develop the right tools to select and train those who will assess learners' performance.
- **Prioritize high-quality assessments.** All resuscitation instructors must make decisions about their learners' competence. To do that, instructors need high-quality assessments.
- **Broaden types of assessments.** Individual assessments give only a piece of the puzzle. Multiple types of knowledge and skills assessments can show instructors a broader picture of the learner's competence.
- **Assessment drives learning.** Assessment should not be an add-on to the end of the course; rather, it should be woven into the instructional design and occur throughout the course.

Innovative Educational Strategies

New methods and digital platforms can improve laypeople's willingness to act, provider performance, and survival from cardiac arrest.

- **Make resuscitation training "stick" with gamified learning.** Apply and regularly refresh game attributes to improve learner engagement and skill retention.
- **Embrace social media and stay up-to-date.** Use social media to disseminate knowledge and engage the resuscitation education community.
- **Choose today's blogs and podcasts over yesterday's textbooks.** Blogs and podcasts can supplement traditional education with an easily accessible resource.
- **Crowdsource for education science.** Getting information from many different people, typically through the Internet, is known as *crowdsourcing*. This approach can help develop resuscitation courses.

Faculty Development

Faculty development should be informed by education science and provide instructors with the skills necessary for success.

- **Understand that there is a science to learning.** Instructors must understand basic teaching and learning theories as well as demonstrate teaching skills before they begin teaching resuscitation courses.
- **Recognize the importance of initial instructor training.** To be effective, initial instructor training should include experiential learning, feedback, and the use of peers as role models.
- **Continue to develop resuscitation instructors.** Use reflective practice, peer coaching, communities of practice, and outcomes-based education to enhance training.
- **Remember that context is everything.** Effective instructors should contextualize information so that students have a rational base for applying the guidelines.
- **Commit to excellence as an instructor.** To improve resuscitation outcomes, instructors must commit to lifelong learning.

Knowledge Translation and Implementation

Principles from knowledge translation and implementation science (ie, applying evidence-based research in the clinical practice) should inform efforts at the local level.

- **Enhance passive knowledge translation with active techniques.** Organizations should combine passive and active knowledge translation techniques to improve awareness and adoption of scientific guidelines.
- **Adopt design thinking.** Organizations should consider human factors, ergonomics, and the physical space when planning their training. In this way, they can support their people by making the right thing to do the easy thing to do.
- **Implement performance measurement.** Organizations should participate in a performance measurement program that features benchmarks, feedback, and public reporting. Collaboration and data sharing help strengthen systems of care.
- **Embrace continuous quality improvement.** Organizations should adopt formal, continuous quality improvement programs that outline the responsibilities of those who respond to cardiac arrest.
- **Consider incentives and penalties.** Systems should consider if incentives and penalties play a role in their individual, team, or organizational performance metrics.
- **Apply de-adoption strategies.** Organizations should have a local strategy to rapidly discontinue, or *de-adopt*, therapies that science no longer supports.
- **Use psychological marketing.** Marketing strategies can reach local and national audiences for community measures such as bystander CPR, and champions can promote local measures that appeal directly to providers' beliefs and emotions. ♥

To download the full version of the 2018 Education Statement, please visit
http://circ.ahajournals.org/lookup/doi/10.1161/CIR.0000000000000583,
or download a QR code reader app and scan this QR code with your smartphone.