American Heart Association (AHA) Requirement on Use of Feedback Devices in Adult CPR Training Courses

CPR & Emergency Cardiovascular Care

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By January 31, 2019, the AHA will require the use of an instrumented directive feedback device or manikin in all AHA courses that teach the skills of adult CPR. Specifically, an instrumented directive feedback device or manikin is one that, at a minimum, provides audio or visual (or both) feedback on the rate and depth of compressions during CPR training. This requirement will impact AHA Basic Life Support (BLS), Advanced Cardiovascular Life Support (ACLS), ACLS for Experienced Providers, and Heartsaver® Courses taught in the US and internationally.

In the future, as more devices become available for child and infant CPR, the AHA will also require the use of feedback devices in courses that teach the skills of child and infant CPR.

Science Supporting this Requirement*
The *2015 AHA Guidelines Update for CPR and ECC* highlighted research showing the benefit of feedback devices that provide learners with real-time, audio-visual corrective feedback on aspects such as chest compression rate, depth, and recoil.

As stated in the *2015 AHA Guidelines for CPR and ECC*, "Unfortunately, inadequate performance of CPR is common yet challenging for providers and instructors to detect, thereby making it difficult to appropriately focus feedback and improve future performance. Technology could theoretically help address this problem by assessing CPR performance and providing feedback."

Studies have also shown that feedback devices help students achieve mastery of critical CPR skills and shorten the time to demonstration of competence.

Additional information on the science can be found in "*Part 14: Education, CPR Feedback/Prompt Devices in Training*" of the *2015 AHA Guidelines Update for CPR and ECC*.

Definition & Descriptions: Instrumented Directive Feedback Devices**
An instrumented directive feedback device measures compression rate, depth, hand position, recoil, and chest compression fraction and provides real-time audio or visual feedback (or both) on these critical CPR skills. A feedback device can be integrated into a manikin or serve as an accessory to a manikin. To meet the AHA's requirement, at a minimum, the device must measure and provide real-time audio feedback or visual feedback (or both) on compression rate and depth. This audio or visual information allows students to self-correct their skills in real time.

There are many types of instrumented directive feedback devices available for AHA Training Centers to meet this requirement, including

- Those that can be added to and used with existing manikins;
- Those that are part of manikins;
- Monitors or defibrillators used with manikins; or
- High-fidelity manikins

Please note: The AHA cannot review or recommend specific equipment. AHA Training Centers should contact equipment manufacturers for any questions regarding the capability of equipment to meet requirement criteria.

**Bhanji F, Donoghue AJ, Wolff MS, et al. Part 14: education: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2015;132(18 suppl 2): S561-S573.*

***For additional information, please review the document, "Feedback Device Specifics for CPR Instruction," FAQs, and the bibliography of studies on use of feedback devices posted on the AHA Instructor Network.*

Feedback Device Specifics for CPR Instruction

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RATE
As recommended by the *2015 AHA Guidelines Update for CPR and ECC*, quality feedback is critical to understanding and delivering high-quality CPR. When healthcare providers and others trained in CPR are practicing chest compressions, they need to have adequate visual feedback to indicate when they are compressing at a rate of 100 to 120 compressions per minute.

Examples of adequate visual feedback devices:

- *Manikin or device placed on manikin chest that uses light display to give real-time feedback that rate of compression is or is not meeting AHA recommendations*

- *Device with screen display that detects rate of actual compressions and indicates visually whether to push faster or to push slower in real time to meet AHA recommendations*

DEPTH AND RECOIL
Depth of compression and chest recoil are critical skills as well. When compressions are performed at the recommended depth, along with adequate chest recoil, audible feedback from the device should be produced to let students know they are on target. Visual and audible reinforcement in real-time of high-quality CPR technique, is critical in the Chain of Survival.

Examples of adequate auditory feedback devices:

- *Manikin with mechanism that produces a clear audible indication, such as a click, tone, or prompt in real time when depth of compression meets AHA recommendations*

- *Device placed on manikin chest that has screen display and sound capability giving audio and visual prompts in real time to push harder if depth of compression is inadequate, or to push softer if depth of compression is too deep in order to meet AHA recommendations*

HAND PLACEMENT *(while the AHA requirement does not include hand placement, this also is a critical element of high-quality CPR)*
Feedback devices must assist in proper hand placement for delivery of high-quality CPR. This may be accomplished either by landmark instruction or illustration on the device.

Standard Specifics for Feedback Device Compliance with AHA Requirement

- Minimum standard: Instrumented, auditory, and visual feedback for rate and depth of compression.

- Optimum standard: Meets the minimum standard and includes auditory/visual feedback for recoil and didactic(s) for proper hand placement.

Frequently Asked Questions: AHA Requirement on Use of Feedback Devices in Adult CPR Training

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Q: Why is the AHA requiring the use of feedback devices in adult CPR training?

A: Following the scientific evidence on feedback devices highlighted in the *2015 AHA Guidelines Update for CPR and ECC*, by January 31, 2019, the AHA will require the use of an instrumented directive feedback device or manikin in all AHA courses that teach the skills of adult CPR.

Specific and targeted feedback is critical to students understanding and delivering high-quality CPR when faced with a cardiac emergency. Incorporating feedback devices into adult CPR courses improves the quality and consistency of CPR training, which increases the chance of a successful outcome when CPR is performed.

CPR saves lives, and ensuring our courses provide the necessary, correctly performed skills gives healthcare providers and others trained in CPR confidence and empowers them to help in doubling survival rates from cardiac arrest by 2020.

Q: What specific science and research studies support this requirement?

A: The *2015 AHA Guidelines Update for CPR and* ECC highlighted research showing the benefit of feedback devices that provide learners with real-time, audio-visual corrective feedback on aspects such as chest compression rate, depth, and recoil.

As stated in the *2015 AHA Guidelines for CPR and ECC*, "Unfortunately, inadequate performance of CPR is common yet challenging for providers and instructors to detect, thereby making it difficult to appropriately focus feedback and improve future performance. Technology could theoretically help address this problem by assessing CPR performance and providing feedback."

Studies have also shown that feedback devices help students achieve mastery of critical CPR skills and shorten the time to demonstration of competence.

Additional information on the science can be found in "*Part 14: Education, CPR Feedback/Prompt Devices in Training*" of the *2015 AHA Guidelines Update for CPR and ECC*.

A bibliography of research studies on the use of feedback devices in CPR training is available to AHA Training Centers and Instructors on the AHA Instructor Network at Additional Tools>Training Updates.

Q: When does this requirement go into effect?

A: This requirement goes into effect January 31, 2019. Because the AHA recognizes this future requirement may have budgetary and logistical impact on some AHA Training Centers, we are providing more than 16-months' notice to allow adequate time to research, identify, and incorporate device solutions.

Q: Is the AHA also requiring the use of feedback devices for child and infant CPR training?

A: Not at this time. However, in the future, as more devices become available for child and infant CPR, the AHA will also require the use of feedback devices in courses that teach the skills of child and infant CPR.

About Instrumented Directive Feedback Devices

Q: What is an instrumented directive feedback device?

A: An instrumented directive feedback device measures compression rate, depth, hand position, recoil, and chest compression fraction and provides real-time audio or visual feedback (or both) on these critical CPR skills. A feedback device can be integrated into a manikin or serve as an accessory to a manikin.

To meet the AHA's requirement, at a minimum, the device must measure and provide real-time audio feedback or visual feedback (or both) on compression rate and depth. This audio or visual information allows students to self-correct their skills in real time.

Manufacturers offer a variety of instrumented directive feedback devices, at a range of budgetary and logistical needs, to address the chest compression rate and depth requirement, as well as provide feedback on hand placement. Types of feedback devices can include

- Those that can be added to and used with existing manikins;
- Those that are part of manikins;
- Monitors or defibrillators used with manikins; or
- High-fidelity manikins

Descriptions of what a feedback device must do or provide in order to meet the AHA requirement can be found on the AHA Instructor Network at Additional Tools>Training Updates.

Q: Can the AHA review or recommend feedback devices to confirm that they meet the requirement?

A: No, the AHA cannot review or recommend specific equipment; however, we have provided descriptions of what a device must provide or do in order to meet the requirement. These specifics can be found on the AHA Instructor Network at Additional Tools>Training Updates. AHA Training Centers should contact equipment manufacturers directly for any questions regarding the capability of equipment to meet requirement criteria.

Q: Page 28 of the *Highlights of the 2015 AHA Guidelines Update for CPR and ECC* shows a section on High-Fidelity Manikins just after the section on CPR Feedback Devices? Does this mean high-fidelity manikins are the only feedback devices?

A: No. The Guideline on the use of High-Fidelity Manikins is totally separate from the Guideline on the use of feedback devices. They are simply on the same page. There is more detail in *Part 14: Education* of the *2015 AHA Guidelines Update for CPR and ECC*.

Q: Is the AHA requiring the use of feedback devices in adult CPR training courses to encourage adoption of specific devices or programs?

A: No. The key driver of this new requirement is science and saving lives – this requirement is not intended in any way to show preference for particular devices or programs.

While some AHA programs and products, such as the RQI program for hospitals and HeartCode VAM, there are many other products on the market to assist all levels of Training Centers in meeting this requirement by January 31, 2019.

Q: What are the estimated costs to implement and maintain feedback devices in adult CPR training courses?

A: Because there are a wide variety of feedback devices available to meet the AHA requirement, at a range of costs, the AHA cannot estimate costs in general to implement and maintain devices. Costs vary depending on the type of feedback devices used and the number of students trained per Training Center or site.

Q: What is the recommended ratio of feedback devices or manikins a Training Center must have in adult CPR training courses?

A: The recommended ratio of feedback devices is one per manikin (unless the device used is a manikin itself). Please note that any change to the ratio of manikins per students or Instructors in a course agenda could increase or decrease the length of the course. Use of feedback devices may actually reduce practice time as students will be able to self-correct as feedback is provided in real time.

Q: **Is a metronome a feedback device?**
A: No. While a metronome provides a rate to follow during CPR practice, it does not give directive feedback on the student's actual performance.

AHA Survey on Feedback Devices

Q: **Training Centers and Instructors received a survey from the AHA regarding feedback devices. Why was this survey conducted?**
A: To gain insight from our Training Network, the AHA conducted a survey of Training Center Coordinators and Instructors asking about concerns and possible barriers to implement the requirement. Results from the survey informed us about initial confusion, concerns, and overwhelming support for a requirement of this type.

Q: **I did not receive the AHA survey on feedback devices. Why not?**
A: The AHA distributed the survey to all AHA Training Center Coordinators and Instructors who are opted in to receive email communications. If you did not receive the email, and wish to receive AHA email communications, please review your communications preferences in your AHA Instructor Network account.

Additional Information

Q: **How will the healthcare industry be informed about this future AHA requirement?**
A: On Tuesday, August 15, (to coincide with the release of the directive to the AHA Training Network) the AHA distributed a news release about the future requirement to US healthcare industry media in order to more publicly share the information and help the industry prepare for any questions from the AHA Training Network.

Q: **What resources are available to help the AHA Training Network understand and implement this future requirement?**
A: In addition to this FAQ, the AHA offers the following materials to assist AHA Training Centers and Instructors on the AHA Instructor Network at Additional Tools>Training Updates:

- Full, official directive
- Document providing feedback device specifics for CPR instruction
- Bibliography of research studies on feedback devices in CPR training