



2020 UNIVERSAL GUIDELINES UPDATE & TRAINING PROGRAMS TRANSITION PLAN

Health & Safety Institute
2020 Universal Guidelines Update & Training Programs Transition Plan

Instructor Guidance, Version 1.0

Purpose of this Guide

This Universal Guidelines Update & Training Program Transition Plan is solely intended to give information on Health & Safety Institute training classes. The information in this book is furnished for that purpose and is subject to change without notice.

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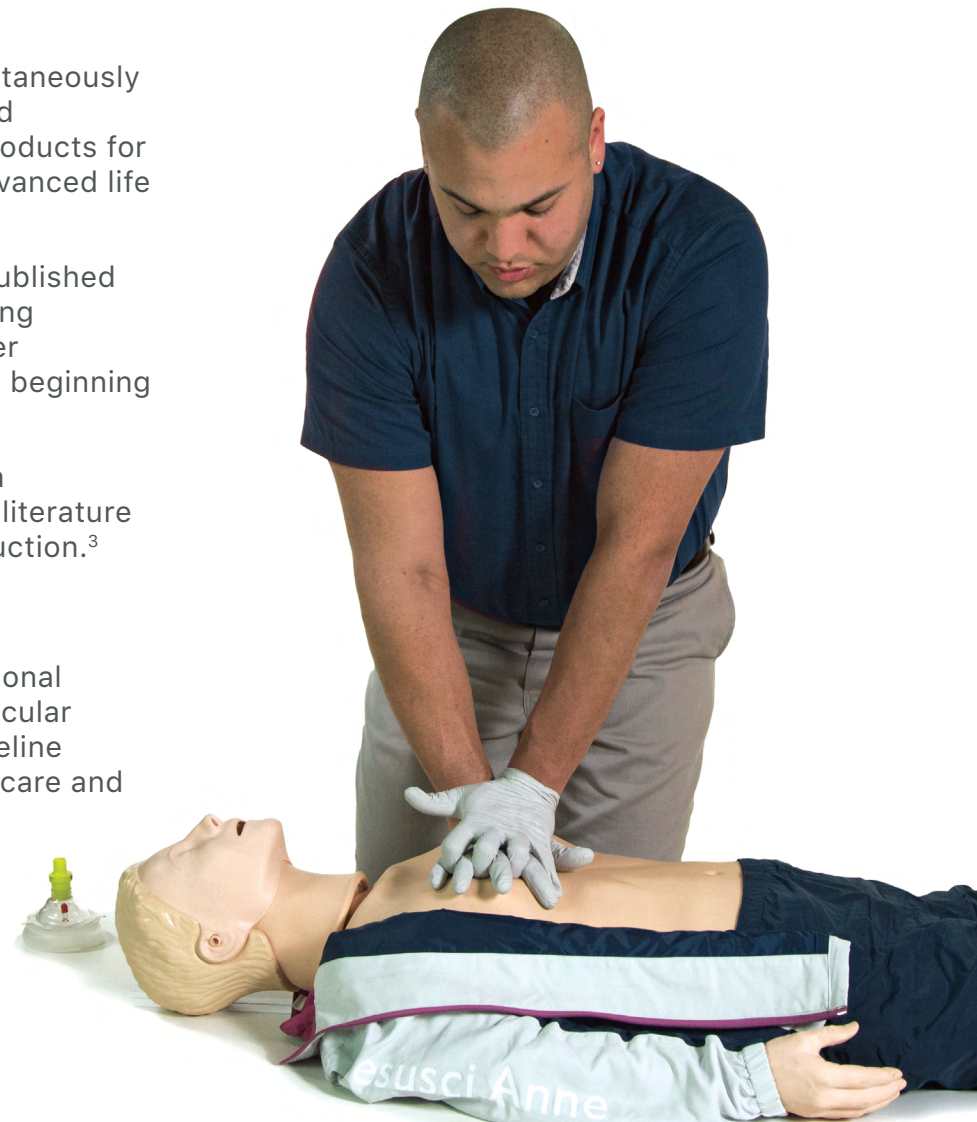
IN BRIEF

On October 21, 2020, the American Heart Association®, Inc. (AHA) simultaneously released updated guidelines for cardiopulmonary resuscitation (CPR) and emergency cardiac care (ECC) as well as updated proprietary training products for basic life support (BLS), advanced cardiac life support, and pediatric advanced life support.¹

On October 27, 2020 the AHA and the American Red Cross (ARC) also published a focused update for first aid.² All North American emergency care training organizations, publishers of emergency care training programs, and other producers of emergency care materials and treatment protocols are now beginning a revision of their own materials, including HSI.

The AHA's guidelines update is largely based on the International Liaison Committee on Resuscitation's (ILCOR) continuous review of the medical literature regarding resuscitation, cardiac arrest, first aid, and its associated instruction.³ ILCOR's mission is to promote, disseminate, and advocate international implementation of evidence-informed resuscitation and first aid.

The AHA is one of eight member councils of ILCOR.⁴ The ILCOR International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations (CoSTR)⁵ and AHA guideline publications reflect treatment recommendations for emergency medical care and instruction based on the most current consensus of scientific evidence.



- 1 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. ©2020 American Heart Association®, Inc. Available: <https://professional.heart.org/en/science-news/2020-aha-guidelines-for-cpr-and-ecc> [Retrieved10/21/2020]
- 2 2020 American Heart Association and American Red Cross Focused Update for First Aid. © 2020 American Heart Association, Inc, and The American National Red Cross. Available: <https://www.ahajournals.org/doi/full/10.1161/CIR.0000000000000900?af=R> [Retrieved10/27/2020]
- 3 Consensus on Science with Treatment Recommendations. Available: <https://costr.ilcor.org/> [Retrieved10/6/2020]
- 4 International Liaison Committee on Resuscitation. Available: <https://www.ilcor.org/about> [Retrieved10/6/2020]
- 5 2020 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations (CoSTR) Available: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000890b> [Retrieved10/21/2020]

four UPDATE PHASES

HSI plans four distinct phases to update our instructors and to integrate the ILCOR CoSTR, AHA, and ARC guidelines into new HSI training programs and materials.



phase one

UNIVERSAL GUIDELINES UPDATE

HSI is comprised of three emergency care training program brands: the American Safety and Health Institute (ASHI), MEDIC First Aid®, and EMS Safety Services (EMSS). These three brands of training programs include a range of courses covering first aid and CPR training for the community and workplace as well as both basic and advanced life support training for healthcare providers.

Phase 1, this Universal Guidelines Update is intended to provide authorized ASHI, MEDIC First Aid, and EMSS Instructors with summarized highlights of the recommended changes in CPR, ECC, and first aid. These recommended changes appear in the enclosed Guideline Update Tables by domain (e.g., First Aid, Adult Basic Life Support, etc.), training programs affected, topic, type (updated or new guideline), previous guideline (if applicable), revised guideline, and the reason for change.

In developing these Guideline Update Tables, we have generally included only those changes that received a strong Class 1 (“is recommended”) or Class 3 recommendation (“is not recommended or harmful”). However, we did not include all Class 1 and Class 3 recommendations because although the strength of the evidence may have improved (for or against), the guideline language itself did not substantially change. See the 2020 ILCOR CoSTR, AHA, and ARC Guidelines for all the details, including recommendations of moderate (“is reasonable”) or weak (“may be reasonable”) strength.

To maintain their current and active status and continue to provide ASHI, MEDIC First Aid, or EMSS training, every Training Center Director, regardless of which brand training program is offered, must log into their Otis Portal by **March 1, 2021** and attest to receiving this Universal Guidelines Update and ensuring that each of their currently authorized instructors reads and is familiar with the updated guidelines for the training programs they teach. For example, instructors who are only teaching ASHI or EMSS Basic Life Support must receive, read, and be familiar with Tables 1, 5, and 6.

Important

Training Center Directors who have not logged into their Otis Portal and attested by **March 1, 2021** will have their Training Center status changed to inactive. An inactive Training Center is not authorized to offer ASHI, EMS Safety, or MEDIC First Aid courses and may not purchase or issue certification cards. After March 1, 2021 the Training Center status will return to active when the Training Center Director logs into their Otis Portal and attests.

Important

The revised guidelines **do not** imply that emergency care or instruction involving the use of earlier guidelines or treatment recommendations is unsafe. You may continue to purchase and teach using the currently available ASHI, MEDIC First Aid, or EMSS training materials until new materials with the new recommendations are available.

How to Use This Universal Guidelines Update

Instructors should use this Universal Guidelines Update to ensure they are thoroughly familiar with the updated guidelines. Updates to resuscitation, cardiac arrest, and first aid treatment guidelines often receive attention online and in radio and television news. As a result, students may arrive at classes aware that there has been a change in guidelines and may expect that the updates will be covered in class.

Instructors who are not familiar with the updated guidelines will be caught off guard and may feel confused or uncertain about how to address the student's questions. Such uncertainty can negatively affect the instructor's confidence and the student's motivation to learn.

Instructors may use the information in this Universal Guidelines Update as a shortcut to provide students accurate communication regarding the difference between previous and new recommendations.

This Universal Guidelines Update may also help Instructors immediately prepare to incorporate some of the most significant changes in recommendations into their classes.

However, doing so is an option, not a requirement. Instructors can continue to teach using their current ASHI, MEDIC First Aid, and EMSS training programs and materials until the new courses with the new recommendations are available.

When addressing the new guideline recommendations in the classroom, it is important to understand that students must still demonstrate achievement of the required knowledge and hands-on skill objectives according to the certification requirements of the current and applicable ASHI, MEDIC First Aid, or EMSS Training Program Standard. Training Program Standards are revised regularly and published in the HSI Training Center Administrative Manual (TCAM), available at <https://emergencycare.hsi.com/quality-assurance-compliance>.

phase two

UNIVERSAL INTERIM TRAINING PROGRAM MATERIALS

It will take time to develop and produce new training program materials that include the new recommendations. To bridge this gap, HSI will provide Universal Interim Training Program Materials. By Universal Interim Training Program Materials, we mean instructional materials that will not be specifically branded as ASHI, MEDIC First Aid, or EMSS, but may be used generically across the programs.

The interim materials are only intended to be used until Instructors begin teaching new courses using new materials.

The use of the interim materials is also optional and not a requirement.

Instructors can continue to use the current ASHI, MEDIC First Aid, or EMSS training materials as designed until the new programs are available.



phase three

INTRODUCTION OF NEW HSI TRAINING PROGRAMS

HSI has already begun the development process of updating and transitioning to new training programs. Our new programs will be updated to the latest science, treatment recommendations, and guidelines. They will receive a fresh new look and expanded features designed to make it easier and more engaging to teach emergency care to both first time and more experienced students. Once the new programs are available, instructors will be required to complete an online orientation to the new programs before teaching. **This orientation will be provided at no charge.**

Brand Transition

ASHI, MEDIC First Aid, and EMS Safety are well known emergency care training brands with deep roots in organizations and communities, in some cases going back decades. These emergency care training brands have achieved broad acceptance, approval, and recognition - collectively meeting the requirements of more than 6400 state regulatory agencies, occupational licensing boards, national associations, commissions, and councils in more than 550 occupations.

At present, ASHI, MEDIC First Aid, and EMS Safety reside as individual emergency care training brands under the umbrella of HSI (that blue sweep over the letters HSI in the HSI logo is intended to convey the impression of an umbrella).

Since ASHI and MEDIC First Aid first joined forces and formed HSI nearly 15 years ago, we have grown significantly in both the health and safety categories, becoming a "family of brands" - all bunched together under that HSI umbrella.

It's getting a bit crowded under there, so we are beginning the process of transitioning all of our individual health and safety training brands, into a single unified one - HSI. This process can be best described as an evolution, not a revolution. A slow and gradual process as opposed to a radical change.

But change there will be.

The next emergency care program we release will be consolidated from two or three brands to one. For example, instead of three CPR, AED, and First Aid training programs (*ASHI CPR, AED, and Basic First Aid, EMS Safety CPR, AED and First Aid, and MEDIC First Aid® BasicPlus CPR, AED, and First Aid*) there will be one HSI CPR, AED and First Aid training program.

We will integrate and expand on the best aspects of each training program while streamlining and harmonizing them.

The new, single unified HSI program will have instructional elements familiar and understandable to the loyal instructors of each individual emergency care brand, while also incorporating the most current guidelines and treatment recommendations.

phase four

SUNSET OF THE INDIVIDUAL BRAND TRAINING PROGRAMS

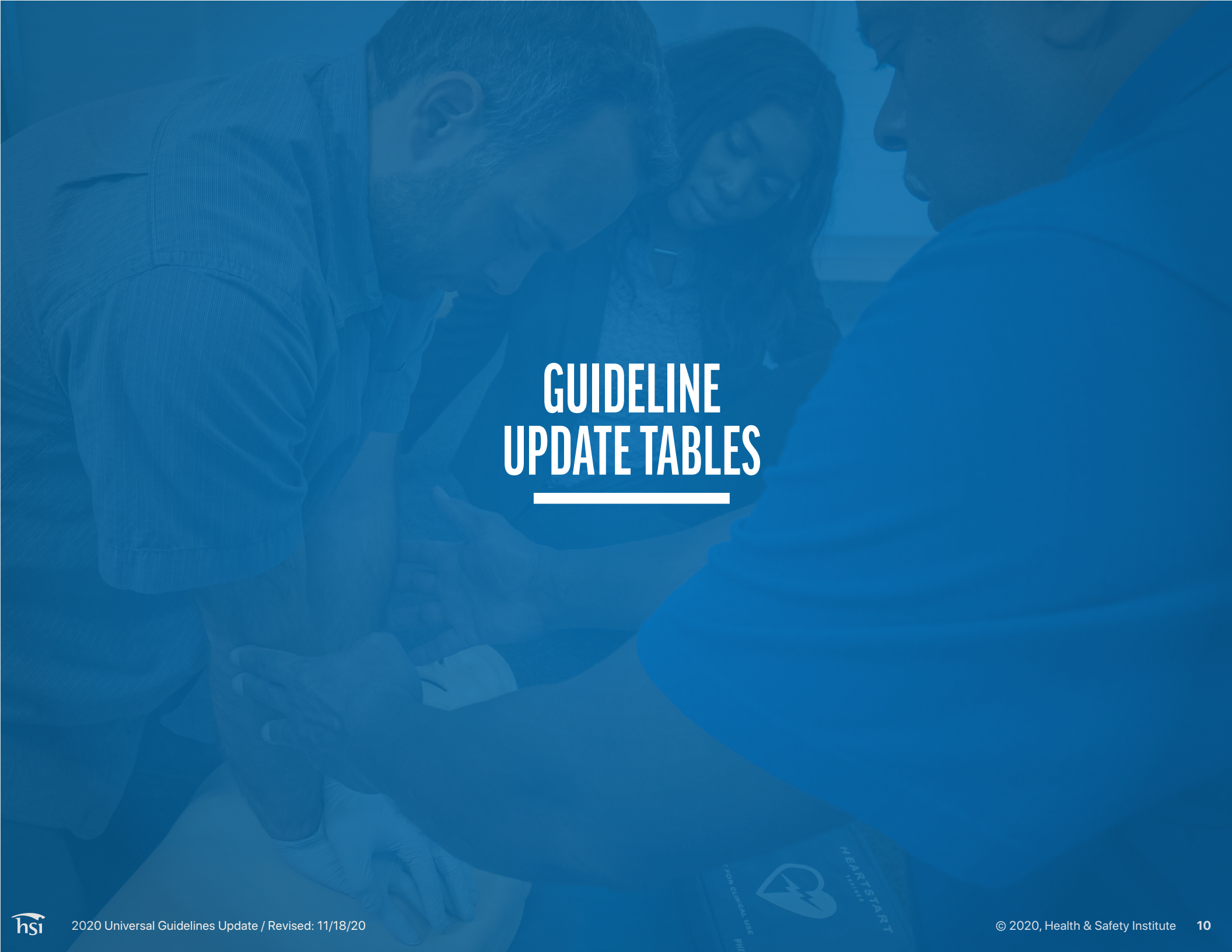
Once a new and updated HSI emergency care training program is available to replace the current and equivalent individual ASHI, MEDIC First Aid, and EMS Safety programs, the individual brand programs will be discontinued.

A reasonable time period (likely 6-12 months) will be allowed for Training Centers and instructors to use up existing student materials, including certification cards. After that time period, discontinued ASHI, MEDIC First Aid, and EMS Safety programs can no longer be used for teaching and their associated certification cards can no longer be legitimately issued.

To address the risk of confusion in the market and among regulators and other approvers during the brand transition, the new and updated HSI brand training programs and related certification cards will continue to carry the logos of the individual brands for a prolonged period of time, likely years.

Gradually, over time, the ASHI, MEDIC First Aid, and EMS Safety brand names will be slowly phased out and that part of the HSI evolution will be complete.





GUIDELINE UPDATE TABLES

table one
EDUCATION

Training Programs Affected: *CPR and AED, BLS*

Topic	Previous Guideline	Revised Guideline	Reason for Change
Booster Training Type: Update	<p>"Given the rapidity with which BLS skills decay after training, coupled with the observed improvement in skill and confidence among students who train more frequently, it may be reasonable for BLS retraining to be completed more often by individuals who are likely to encounter cardiac arrest."</p> <p><i>Circulation</i>. 2015;132[suppl 2]:S561–S573</p>	<p>"It is recommended to implement booster sessions when utilizing a massed learning approach for resuscitation training."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S551–S579</p>	<p>Massed learning is a single lengthy session (most instructor-led classes). In this setting, frequent booster trainings (at intervals of 1–6 months) are associated with improved CPR skills.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Lay Rescuer Training</p> <p>Type: Updated</p>	<p>“CPR self-instruction through video- and/or computer-based modules paired with hands-on practice may be a reasonable alternative to instructor-led courses... A combination of self-instruction and instructor-led teaching with hands-on training can be considered as an alternative to traditional instructor-led courses for lay providers. If instructor-led training is not available, self-directed training may be considered for lay providers learning AED skills.”</p> <p><i>Circulation</i>. 2015;132[suppl 2]:S561–S573</p>	<p>“A combination of self-instruction and instructor-led teaching with hands-on training is recommended as an alternative to instructor-led courses for lay rescuers. If instructor-led training is not available, self-directed training is recommended for lay rescuers.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S551–S579</p>	<p>The evidence reviewed led to a strong (versus “moderate”) recommendation for blended/hybrid learning (online learning with face-to-face learning) as an alternative to Instructor-led training. Where instructor-led training is not available, CPR self-instruction via video or computer-based modules combined with hands-on skill practice is recommended.</p>
<p>Lay Rescuer Training</p> <p>Type: New</p>		<p>“It is recommended to train middle school–and high school–age children in how to perform high-quality CPR.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S551–S579</p>	<p>“Multiple studies have found that middle school– and high school–age children are capable of learning and recalling high-quality CPR skills.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S551–S579</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Provider Considerations</p> <p>Type: New</p>		<p>"It is recommended to target and tailor layperson CPR training to specific racial and ethnic populations and neighborhoods in the United States."</p> <p>"It is recommended to target low-SES populations and neighborhoods for layperson CPR training and awareness efforts."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S551–S579</p>	<p>Studies have found that residents of black, Hispanic, and low socioeconomic status (SES) neighborhoods were less likely to receive bystander CPR and that black residents were less likely to be CPR trained. Targeting these neighborhoods for CPR training and encouraging bystander CPR could eliminate these disparities.</p>

table two

ADULT CPR & AED

Training Programs Affected: *CPR and AED, High-Performance CPR*

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Adult Chain of Survival</p> <p>Type: Update</p>	<p>"...a core set of actions provides a universal strategy for achieving successful resuscitation. These actions are termed the links in the 'Chain of Survival.' For adults they include:</p> <ul style="list-style-type: none"> • Immediate recognition of cardiac arrest and activation of the emergency response system • Early CPR that emphasizes chest compressions • Rapid defibrillation if indicated • Effective advanced life support • Integrated post- cardiac arrest care." <p>REF: <i>Circulation</i>. 2010;122[suppl 3]: S685–S705</p>	<p>"Resuscitation causes, processes, and outcomes are very different for OHCA and IHCA... [out-of-hospital cardiac arrest, in-hospital cardiac arrest]."</p> <p>"The Adult OHCA and IHCA Chains of Survival have been updated to better highlight the evolution of systems of care and the critical role of recovery and survivorship with the addition of a new link. This Recovery link highlights the enormous recovery and survivorship journey, from the end of acute treatment for critical illness through multimodal rehabilitation (both short- and long-term), for both survivors and families after cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>The new link recognizes the need for a system of care to support recovery for survivors and their families after cardiac arrest.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Sequence of Resuscitation</p> <p>Type: Update</p>	<p>"If a lone rescuer finds an unresponsive adult... The trained or untrained bystander should—at a minimum—activate the community emergency response system... If the victim also has absent or abnormal breathing (i.e., only gasping), the rescuer should assume the victim is in cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2010;122[suppl 3]: S685–S705</p>	<p>"If a victim is unconscious/unresponsive, with absent or abnormal breathing (i.e., only gasping), the lay rescuer should assume the victim is in cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>Reemphasis on recognition of cardiac arrest determined by two criteria; assessment of responsiveness and breathing.</p>
<p>Initiation of Resuscitation</p> <p>Type: Update</p>	<p>"The lay rescuer should phone the emergency response system once the rescuer finds that the victim is unresponsive—the dispatcher should be able to guide the lay rescuer through the check for breathing and the steps of CPR, if needed."</p> <p>REF: <i>Circulation</i>. 2010;122[suppl 3]: S685–S705</p>	<p>"After identifying a cardiac arrest, a lone responder should activate the emergency response system first and immediately begin CPR."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>Emphasis on the importance of immediate initiation of CPR after activating the emergency response system.</p> <p>"Ideally, activation of the emergency response system and initiation of CPR occur simultaneously. In the current era of widespread mobile device usage and accessibility, a lone responder can activate the emergency response system simultaneously with starting CPR by dialing for help, placing the phone on speaker mode to continue communication, and immediately commencing CPR."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Initiation of Resuscitation</p> <p>Type: Update</p>	<p>"We recommend that laypersons initiate CPR for presumed cardiac arrest without concerns of harm to patients not in cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 1]: S51–S83</p>	<p>"We recommend that laypersons initiate CPR for presumed cardiac arrest, because the risk of harm to the patient is low if the patient is not in cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>Reemphasis on the importance of initiating resuscitation if cardiac arrest is suspected as the risk of harm is low and outweighed by the potential benefit.</p> <p>"Existing evidence suggests that the potential harm from CPR in a patient who has been incorrectly identified as having cardiac arrest is low. Overall, the benefits of initiation of CPR in cardiac arrest outweigh the relatively low risk of injury for patients not in cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>
<p>Recommendations for Opening the Airway</p> <p>Type: Update</p>	<p>"The trained lay rescuer who feels confident that he or she can perform both compressions and ventilations should open the airway using a head tilt–chin lift maneuver."</p> <p>REF: <i>Circulation</i>. 2010;122[suppl]:S685–S705</p>	<p>"The trained lay rescuer who feels confident in performing both compressions and ventilation should open the airway using a head tilt–chin lift maneuver when no cervical spine injury is suspected."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>Adds the clarifying phrase "when no cervical spine injury is suspected."</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Recommendations for Positioning and Location for CPR</p> <p>Type: Update</p>	<p>“Because hospital beds are typically not firm and some of the force intended to compress the chest results in mattress displacement rather than chest compression, we have traditionally recommended the use of a backboard despite insufficient evidence for or against the use of backboards during CPR.”</p> <p>REF: <i>Circulation</i>. 2010;122[suppl]:S685-S705</p>	<p>“Resuscitation should generally be conducted where the victim is found, as long as high-quality CPR can be administered safely and effectively in that location.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>“It is thought that optimal chest compressions are best delivered with the victim on a firm surface. Manikin studies show generally acceptable thoracic compression with CPR performed on a hospital mattress.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p> <p>“The task force was unable to make a recommendation for the use of a CPR backboard during IHCA [in-hospital cardiac arrest].”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 1): S41–S91</p>
<p>Opioid Overdose</p> <p>Type: Update</p>	<p>“Responders should not delay access to more-advanced medical services while awaiting the patient’s response to naloxone or other interventions.”</p> <p><i>Circulation</i>. 2015;132[suppl 2]:S501–S518.</p>	<p>“Lay and trained responders should not delay activating emergency response systems while awaiting the patient’s response to naloxone or other interventions.”</p> <p><i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>	<p>Clarification and reemphasis on early activation by both lay and trained responders due to 1) the difficulty in correctly distinguishing opioid-associated cardiac and respiratory arrest from other causes, (and naloxone only works if there are opioids involved), and 2) naloxone only works to reverse opioid overdose in the body for 30 to 90 minutes. Many opioids remain in the body longer than that. It is possible that after the naloxone wears off the overdose effects (respiratory depression/arrest) could recur.</p>

table three

PEDIATRIC CPR & AEDTraining Programs Affected: *CPR and AED (infants and children)*

Topic	Previous Guideline	Revised Guideline	Reason for Change
Pediatric Chain of Survival Type: Update	<p>"For best survival and quality of life, pediatric basic life support (BLS) should be part of a community effort that includes prevention, early cardiopulmonary resuscitation (CPR), prompt access to the emergency response system, and rapid pediatric advanced life support (PALS), followed by integrated post-cardiac arrest care."</p> <p>REF: <i>Circulation</i>. 2010;122;S862-S875</p>	<p>"The Pediatric Chain of Survival has been updated. A separate OHCA Chain of Survival has been created to distinguish the differences between OHCA and IHCA [out-of-hospital cardiac arrest, in-hospital cardiac arrest]. In both the OHCA and IHCA chains, a sixth link has been added to stress the importance of recovery, which focuses on short- and long-term treatment evaluation, and support for survivors and their families."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S469-S523</p>	<p>The new link recognizes the need for a system of care to support recovery for survivors and their families after cardiac arrest.</p>
Initiation of CPR Type: Update	<p>"To assess the need for CPR, the lay rescuer should assume that cardiac arrest is present if the victim is unresponsive and not breathing or only gasping."</p> <p>REF: <i>Circulation</i>. 2010;122;S862-S875</p>	<p>"Lay rescuers should begin CPR for any victim who is unresponsive, not breathing normally, and does not have signs of life; do not check for a pulse."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469-S523</p>	<p>Rephrased to emphasize not to check the pulse. Studies show that lay people are unable to reliably determine if there is a pulse or not. So, they should not delay starting CPR in a child with no signs of life by trying to determine if the pulse is present or absent</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>CPR Technique</p> <p>Type: Update</p>	<p>“For an infant, lone rescuers (whether lay rescuers or healthcare providers) should compress the sternum with 2 fingers placed just below the intermammary line.”</p> <p>REF: <i>Circulation</i>. 2010;122; S862-S875</p>	<p>“For infants, single rescuers (whether lay rescuers or healthcare providers) should compress the sternum with 2 fingers or 2 thumbs placed just below the intermammary line.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S469–S523</p>	<p>Adds the two-thumb compression technique for single rescuers. Medical literature suggests that the 2-thumb–encircling hands technique may improve CPR quality compared with the 2-finger technique, especially for depth.</p> <p>NOTE: An infographic in the revised AHA guidelines for pediatric BLS for lay rescuers only shows the 2-finger technique for infant CPR.</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S478 Fig. 4, Step 3</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Opening the Airway</p> <p>Type: Update</p>	<p>“Open the airway using a head tilt– chin lift maneuver for both injured and noninjured victims.”</p> <p>REF: <i>Circulation</i>. 2010;122; S862–S875</p>	<p>“Unless a cervical spine injury is suspected, use a head tilt–chin lift maneuver to open the airway.”</p> <p>“For the trauma patient with suspected cervical spinal injury, use a jaw thrust without head tilt to open the airway.”</p> <p>“For the trauma patient with suspected cervical spinal injury, if the jaw thrust does not open the airway, use a head tilt–chin lift maneuver.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S469–S523</p>	<p>Uncertain.</p> <p>The 2000 pediatric BLS guidelines recommended that jaw-thrust without head tilt be taught to both lay rescuers and healthcare providers as this maneuver theoretically limits motion of the neck region compared with the head tilt–chin lift.</p> <p>REF: <i>Circulation</i>. 2000;102(suppl 1): I-253–I-290</p> <p>The 2005 and 2010 guidelines for lay rescuers recommended a head tilt–chin lift in both injured and non-injured victims. The jaw thrust was no longer recommended for laypersons because it was felt that it was difficult to learn and perform.</p> <p>The 2020 guidelines for opening the airway in infants and children appear to be a return to the 2000 recommendation. This revised Class 1 recommendation is based on the lowest level of evidence - expert opinion.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Opioid-Related Respiratory and Cardiac Arrest</p> <p>Type: New</p>	<p>Not addressed by previous pediatric basic life support guidelines.</p> <p>The 2015 recommendations for an opioid-associated life-threatening emergency were for an adult patient with known or suspected opioid overdose and stated: “it is reasonable for appropriately trained BLS healthcare providers to administer intramuscular or intranasal naloxone”</p> <p>REF: <i>Circulation</i>. 2015;132 [suppl 2]: S414–S435</p> <p>And:</p> <p>“Empiric administration of IM or IN naloxone to all unresponsive opioid-associated life-threatening emergency patients may be reasonable as an adjunct to standard first aid and non-healthcare provider BLS protocols.”</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 2]: S501–S518</p>	<p>“For patients in respiratory arrest, rescue breathing, or bag-mask ventilation should be maintained until spontaneous breathing returns, and standard pediatric basic or advanced life support measures should continue if return of spontaneous breathing does not occur.”</p> <p>“For patients known or suspected to be in cardiac arrest, in the absence of a proven benefit from the use of naloxone, standard resuscitative measures should take priority over naloxone administration, with a focus on high quality CPR (compressions plus ventilation).”</p> <p>“Lay and trained responders should not delay activating emergency response systems while awaiting the patient’s response to naloxone or other interventions.”</p> <p><i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>The revised 2020 pediatric guidelines were taken from the 2020 Adult BLS recommendations. There is no evidence supporting the revised pediatric guideline but the AHA’s Pediatric Writing Group’s opinion was that given the urgency of the opioid crisis, the adult recommendations should be applied to children.</p> <p>Consequently, a new “Opioid-Associated Emergency for Lay Responders Algorithm” was developed.</p>

table four

FIRST AID

Training Programs Affected: *ASHI Basic First Aid, MEDIC First Aid, and EMS Safety CPR, AED and First Aid*

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>First Aid Use of Supplemental Oxygen in Suspected Stroke</p> <p>Type: Update</p>	<p>"No evidence was found in the C2015 review for or against the routine administration of supplementary oxygen by first aid providers."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 1]:S269–S311</p>	<p>"For individuals with suspected stroke, the routine use of supplemental oxygen by first aid providers is not recommended."</p> <p>REF: <i>Circulation</i>. 2020;142:e287–e303</p>	<p>"Because there is no clear benefit to providing supplemental oxygen to patients with confirmed stroke, first aid providers should not routinely give oxygen to individuals with a suspected stroke but instead focus on stroke recognition and early communication with emergency services to expedite transfer to a healthcare facility."</p> <p>REF: <i>Circulation</i>. 2020;142:e287–e303</p>
<p>Tourniquets for Life-Threatening Bleeding</p> <p>Type: Update</p>	<p>"A tourniquet may be considered for initial care when a first aid provider is unable to use standard first aid hemorrhage control, such as during a mass casualty incident, with a person who has multisystem trauma, in an unsafe environment, or with a wound that cannot be accessed."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 2]:S574–S589</p>	<p>"A manufactured tourniquet should be used as first-line therapy for life threatening extremity bleeding and should be placed as soon as possible after the injury."</p> <p>REF: <i>Circulation</i>. 2020;142:e287–e303</p>	<p>Recent studies increased the strength of the recommendation from "may be considered" to "should be used."</p> <p>"Tourniquets can stop extremity bleeding safely and reduce mortality; therefore, they should be used as soon as available for the treatment of life-threatening bleeding... Manufactured tourniquets compared with improvised tourniquets have a higher success rate in bleeding cessation in simulation studies and are preferred."</p> <p>REF: <i>Circulation</i>. 2020;142:e287–e303</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Tourniquets for Life-Threatening Bleeding</p> <p>Type: New</p>	<p>"Hemostatic dressings may be considered by first aid providers when standard bleeding control (direct pressure with or without gauze or cloth dressing) is not effective for severe or life-threatening bleeding."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 2]: S574–S589</p>	<p>"If a manufactured tourniquet is not immediately available or if a properly applied manufactured tourniquet fails to stop bleeding, direct manual pressure, with the use of a hemostatic dressing if available, should be used to treat life-threatening extremity bleeding."</p> <p>REF: <i>Circulation</i>. 2020;142: e287–e303</p>	<p>Recent studies increased the strength of the recommendation from "may be considered" to "should be used."</p> <p>"Because a tourniquet may not always be immediately available for treatment, direct manual pressure, with the use of a hemostatic dressing if available, should be used until such time that a tourniquet is available."</p> <p>REF: <i>Circulation</i>. 2020;142: e287–e303</p>
<p>Dental Avulsion</p> <p>Type: Update</p>	<p>"Place the tooth in milk, or clean water if milk is not available."</p> <p>REF: <i>Circulation</i>. 2010;122; S934–S946</p>	<p>"An avulsed permanent tooth should not be stored in tap water."</p> <p>REF: <i>Circulation</i>. 2020;142: e287–e303</p>	<p>Water has been shown to damage the delicate tooth root cells, reducing the chance for tooth survival after replantation.</p>
<p>First Aid Cooling Techniques for Exertional Hyperthermia and Heatstroke</p> <p>Type: New</p>	<p>"The most important action by a first aid provider for a victim of heat stroke is to begin immediate cooling, preferably by immersing the victim up to the chin in cold water."</p> <p>REF: <i>Circulation</i>. 2010;122; S934–S946</p>	<p>"For adults and children with exertional hyperthermia or heat stroke, first aid providers should move the individual from the hot environment, remove excess clothing, limit exertion, and activate emergency services."</p> <p>REF: <i>Circulation</i>. 2020;142: e287–e303</p>	<p>The new recommendation (based on expert opinion) is an addition to the previous guideline and not a replacement. Heat stroke is a medical emergency that can be fatal. It is important to bring the body's core temperature down quickly. Often the fastest way to do so is to move the person from the hot environment, remove excess clothing (including PPE and other occupational gear, sports equipment, etc.), limit any further physical activity, and activate EMS.</p> <p>Immediate active cooling by using whole body cold-water immersion is still recommended as the most effective technique for rapidly reducing core body temperature for adults and may be considered for children.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Opioid Overdose</p> <p>Type: Update</p>	<p>"Responders should not delay access to more-advanced medical services while awaiting the patient's response to naloxone or other interventions."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 2]:S501–S518.</p>	<p>"Lay and trained responders should not delay activating emergency response systems while awaiting the patient's response to naloxone or other interventions."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>	<p>Clarification and reemphasis on early activation by both lay and trained responders due to 1) the difficulty in correctly distinguishing opioid-associated cardiac and respiratory arrest from other causes (and naloxone only works if there are opioids involved), and 2) naloxone only works to reverse opioid overdose in the body for 30 to 90 minutes. Many opioids remain in the body longer than that. It is possible that after the naloxone wears off the overdose effects (respiratory depression/arrest) could recur.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>First Aid Interventions for Presyncope</p> <p>Type: New</p>	<p>NOTE: First Aid Interventions for Presyncope was a 2019 update to the American Heart Association and American Red Cross Guidelines for First Aid included with the 2019 ILCOR International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations.</p> <p>First Aid for Presyncope, including PCMs, will be in the updated version of our next first aid program.</p>	<p>“If a person experiences signs or symptoms of presyncope (including pallor, sweating, lightheadedness, visual changes, and weakness) of vasovagal or orthostatic origin, the priority for that person is to maintain or assume a safe position, such as sitting or lying down. Once the person is in a safe position, it can be beneficial for that person to use PCMs to avoid syncope.”</p> <p>“If a first aid provider recognizes presyncope of suspected vasovagal or orthostatic origin in another individual, it may be reasonable for the first aid provider to encourage that person to perform PCMs until symptoms resolve or syncope occurs. If no improvement occurs within 1 to 2 minutes, or if symptoms worsen or reoccur, providers should initiate a call for additional help.”</p> <p>“If there are no extenuating circumstances, lower-body PCMs are preferable to upper body and abdominal PCMs.”</p> <p>“The use of PCMs is not suggested when symptoms of a heart attack or stroke accompany presyncope.”</p> <p>REF: <i>Circulation</i>. 2019; 140:e931-e938</p>	<p>Syncope (fainting) is a temporary loss of consciousness usually related to insufficient blood flow to the brain. If a person is standing upright when they faint, physical injury may occur from falls, including serious head injuries, fractures, or other organ damage.</p> <p>Presyncope is feeling like you are going to pass out but without actual loss of consciousness. Presyncope has recognizable signs and symptoms, and rapid first aid treatment could improve symptoms or prevent syncope from occurring.</p> <p>Physical counterpressure maneuvers (PCMs) are maneuvers in which the individual contracts muscles of the body, including the legs, arms, abdomen, or neck, with the goal of elevating blood pressure to prevent syncope.</p> <p>PCMs include handgrip, arm tensing, abdominal muscle tensing, leg crossing with tensing, squatting, and neck flexion. There may be instances when a first aid provider trained in the use of PCMs can help an untrained person experiencing presyncope by directing that person to perform PCMs.</p>

table five

ADULT BASIC LIFE SUPPORTTraining Programs Affected: **BLS**

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Adult Chain of Survival</p> <p>Type: New</p>	<p>"...a core set of actions provides a universal strategy for achieving successful resuscitation. These actions are termed the links in the 'Chain of Survival.' For adults they include:</p> <ul style="list-style-type: none"> • Immediate recognition of cardiac arrest and activation of the emergency response system • Early CPR that emphasizes chest compressions • Rapid defibrillation if indicated • Effective advanced life support • Integrated post– cardiac arrest care." <p>REF: <i>Circulation</i>. 2010;122[suppl 3]: S685–S705</p> 	<p>"Resuscitation causes, processes, and outcomes are very different for OHCA and IHCA... [out-of-hospital cardiac arrest, in-hospital cardiac arrest]."</p> <p>"The Adult OHCA and IHCA Chains of Survival have been updated to better highlight the evolution of systems of care and the critical role of recovery and survivorship with the addition of a new link. This Recovery link highlights the enormous recovery and survivorship journey, from the end of acute treatment for critical illness through multimodal rehabilitation (both short- and long-term), for both survivors and families after cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>The new link recognizes the need for a system of care to support recovery for survivors and their families after cardiac arrest.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Recommendation for Ventilation in Patients with Spontaneous Circulation (Respiratory Arrest)</p> <p>Type: Update</p>	<p>"If an adult victim with spontaneous circulation (i.e., palpable pulses) requires support of ventilation, give rescue breaths at a rate of 10 to 12 breaths per minute, or about 1 breath every 5 to 6 seconds."</p> <p><i>Circulation.</i> 2005;112:IV-24</p> <p>"If an adult victim with spontaneous circulation (i.e., strong and easily palpable pulses) requires support of ventilation, the healthcare provider should give rescue breaths at a rate of about 1 breath every 5 to 6 seconds, or about 10 to 12 breaths per minute."</p> <p><i>Circulation.</i> 2010;122:S685-S705</p>	<p>"If an adult victim with spontaneous circulation (i.e., strong and easily palpable pulses) requires support of ventilation, it may be reasonable for the healthcare provider to give rescue breaths at a rate of about 1 breath every 6 s, or about 10 breaths per minute."</p> <p><i>Circulation.</i> 2020;142(suppl 2):S366–S468</p>	<p>Previous recommendations were based on expert opinion. A 2019 study showed patients receiving bag-mask ventilation had a higher oxygen saturation and a lower incidence of severe hypoxemia (an abnormally low level of oxygen in the blood) when 10 breaths per minute were given. This study raised the quality of the evidence in support of the revised guideline.</p> <p>REF: <i>N Engl J Med</i> 2019; 380:811-821</p> <p>NOTE: This was a Class IIb (weak) "may be reasonable" recommendation in 2005 and 2010 and remains so in 2020.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Recommendations for Opening the Airway After Head and Neck Trauma</p> <p>Type: Update</p>	<p>“Because maintaining a patent airway and providing adequate ventilation are priorities in CPR, use the head tilt–chin lift maneuver if the jaw thrust does not adequately open the airway.”</p> <p>REF: <i>Circulation</i>. 2010;122[suppl 3]: S685–S705</p>	<p>“In the setting of head and neck trauma, a head tilt–chin lift maneuver should be performed if the airway cannot be opened with a jaw thrust and airway adjunct insertion.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>Adds the phrase “and airway adjunct insertion.”</p> <p>“If a jaw thrust and/or insertion of an airway adjunct are ineffective in opening the airway and allowing ventilation to occur, a head tilt–chin lift may be the only way to open the airway. In these cases, this maneuver should be used even in cases of potential spinal injury because the need to open the airway outweighs the risk of further spinal damage in the cardiac arrest patient.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p> <p>NOTE: Airway adjuncts (mechanical airway devices) in basic life support include nasopharyngeal and oropharyngeal airways. Nasopharyngeal airways are contraindicated in patients with head, face, and neck injuries.</p> <p>REF: Emergency Medical Technician Instructional Guidelines Available: https://www.ems.gov/education.html (Retrieved 10/26/2020)</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Opioid Overdose Type: Update</p>	<p>“For a patient with known or suspected opioid overdose who has a definite pulse but no normal breathing or only gasping (i.e., a respiratory arrest), in addition to providing standard BLS care, it is reasonable for appropriately trained BLS healthcare providers to administer intramuscular or intranasal naloxone.”</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 2]:S414–S435</p>	<p>“For patients in respiratory arrest, rescue breathing, or bag-mask ventilation should be maintained until spontaneous breathing returns, and standard BLS and/ or ACLS measures should continue if return of spontaneous breathing does not occur.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>Opioid overdoses deteriorate to cardiopulmonary arrest because unconsciousness leads to airway obstruction by the tongue and respiratory arrest. So, opening the airway and providing rescue breathing for a patient with a pulse until breathing returns is the highest priority.</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p> <p>NOTE: The previous 2015 guideline remains a 2020 Class 2 recommendation (“is reasonable”).</p>
<p>Opioid Overdose Type: Update</p>	<p>“Responders should not delay access to more-advanced medical services while awaiting the patient’s response to naloxone or other interventions.”</p> <p><i>Circulation</i>. 2015;132[suppl 2]:S501–S518</p>	<p>“Lay and trained responders should not delay activating emergency response systems while awaiting the patient’s response to naloxone or other interventions.”</p> <p><i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>	<p>Clarification and reemphasis on early activation by both lay and trained responders due to 1) the difficulty in correctly distinguishing opioid-associated cardiac and respiratory arrest from other causes (and naloxone only works if there are opioids involved), and 2) naloxone only works to reverse opioid overdose in the body for 30 to 90 minutes. Many opioids remain in the body longer than that. It is possible that after the naloxone wears off the overdose effects (respiratory depression/arrest) could recur.</p>

table six

PEDIATRIC BASIC LIFE SUPPORT

Training Programs Affected: *CPR and AED, BLS*

Topic	Previous Guideline	Revised Guideline	Reason for Change
Pediatric Chain of Survival Type: Update	<p>"For best survival and quality of life, pediatric basic life support (BLS) should be part of a community effort that includes prevention, early cardiopulmonary resuscitation (CPR), prompt access to the emergency response system, and rapid pediatric advanced life support (PALS), followed by integrated post-cardiac arrest care."</p> <p>REF: <i>Circulation</i>. 2010;122;S862-S875</p>	<p>"The Pediatric Chain of Survival has been updated. A separate OHCA Chain of Survival has been created to distinguish the differences between OHCA and IHCA [out-of-hospital cardiac arrest, in-hospital cardiac arrest]. In both the OHCA and IHCA chains, a sixth link has been added to stress the importance of recovery, which focuses on short- and long-term treatment evaluation, and support for survivors and their families."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S469-S523</p>	<p>The new link recognizes the need for a system of care to support recovery for survivors and their families after cardiac arrest.</p>
CPR Technique Type: Update	<p>"For an infant, lone rescuers (whether lay rescuers or healthcare providers) should compress the sternum with 2 fingers placed just below the intermammary line."</p> <p>REF: <i>Circulation</i>. 2010;122;S862-S875</p>	<p>"For infants, single rescuers (whether lay rescuers or healthcare providers) should compress the sternum with 2 fingers or 2 thumbs placed just below the intermammary line."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469-S523</p>	<p>Adds the two-thumb compression technique for single rescuers. Medical literature suggests that the 2-thumb-encircling hands technique may improve CPR quality compared with the 2-finger technique, especially for depth.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Support Surfaces for CPR</p> <p>Type: New</p>	<p>"For best results, deliver chest compressions on a firm surface."</p> <p>REF: <i>Circulation</i>. 2010;122;S862-S875</p>	<p>"During IHCA, [in-hospital cardiac arrest] when available, activate the bed's 'CPR mode' to increase mattress stiffness."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469-S523</p>	<p>A soft mattress can reduce the effectiveness of chest compressions. Some hospital beds have a CPR button, lever, and/or valve that, when activated, flattens the bed platform, lowers its height and deflates the bed's air mattress.</p>
<p>Opioid-Related Respiratory and Cardiac Arrest</p> <p>Type: New</p>	<p>Not addressed by previous pediatric basic life support guidelines.</p> <p>The 2015 recommendations for an opioid-associated life-threatening emergency were for an adult patient with known or suspected opioid overdose and stated: "it is reasonable for appropriately trained BLS healthcare providers to administer intramuscular or intranasal naloxone."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 2]:S414-S435</p> <p>And</p> <p>"Empiric administration of IM or IN naloxone to all unresponsive opioid-associated life-threatening emergency patients may be reasonable as an adjunct to standard first aid and non-healthcare provider BLS protocols."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 2]:S501-S518</p>	<p>"For patients in respiratory arrest, rescue breathing, or bag-mask ventilation should be maintained until spontaneous breathing returns, and standard pediatric basic or advanced life support measures should continue if return of spontaneous breathing does not occur."</p> <p>"For patients known or suspected to be in cardiac arrest, in the absence of a proven benefit from the use of naloxone, standard resuscitative measures should take priority over naloxone administration, with a focus on high quality CPR (compressions plus ventilation)."</p> <p>"Lay and trained responders should not delay activating emergency response systems while awaiting the patient's response to naloxone or other interventions."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469-S523</p>	<p>The revised 2020 pediatric guidelines were taken from the 2020 Adult BLS recommendations. There is no evidence supporting the revised pediatric guideline but the AHA's Pediatric Writing Group's opinion was that given the urgency of the opioid crisis, the adult recommendations should be applied to children.</p> <p>Consequently, a new "Opioid-Associated Emergency for Lay Responders Algorithm" was developed.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Treatment of Inadequate Breathing With a Pulse</p> <p>Type: Update</p>	<p>"If there is a palpable pulse ≥ 60 per minute but there is inadequate breathing, give rescue breaths at a rate of about 12 to 20 breaths per minute (1 breath every 3 to 5 seconds) until spontaneous breathing resumes."</p> <p>REF: <i>Circulation</i>. 2010;122;S862-S875</p>	<p>"For infants and children with a pulse but absent or inadequate respiratory effort, it is reasonable to give 1 breath every 2 to 3 s (20–30 breaths/min)."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469–S523</p> <p>NOTE: This is a Class 2a recommendation; "is reasonable."</p>	<p>"For the ease of training, the suggested respiratory rate for the patient with inadequate breathing and a pulse has been increased from 1 breath every 3 to 5 seconds to 1 breath every 2 to 3 seconds to be consistent with the new CPR guideline recommendation for ventilation in patients with an advanced airway."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>

table seven

ADVANCED CARDIAC LIFE SUPPORT

Training Programs Affected: *ASHI ACLS*

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Chain of Survival</p> <p>Type: Update</p>	<p>“Successful resuscitation following cardiac arrest requires an integrated set of coordinated actions represented by the links in the Chain of Survival. The links include the following:</p> <ul style="list-style-type: none"> • Immediate recognition of cardiac arrest and activation of the emergency response system • Early CPR with an emphasis on chest compressions • Rapid defibrillation • Effective advanced life support • Integrated post– cardiac arrest care.” <p>REF: <i>Circulation</i>. 2010;122[suppl 3]: S676 –S684</p>	<p>“Resuscitation causes, processes, and outcomes are very different for OHCA and IHCA... [out-of-hospital cardiac arrest, in-hospital cardiac arrest].”</p> <p>“The Adult OHCA and IHCA Chains of Survival have been updated to better highlight the evolution of systems of care and the critical role of recovery and survivorship with the addition of a new link. This Recovery link highlights the enormous recovery and survivorship journey, from the end of acute treatment for critical illness through multimodal rehabilitation (both short- and long-term), for both survivors and families after cardiac arrest.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>	<p>The new link recognizes the need for a system of care to support recovery for survivors and their families after cardiac arrest.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Care and Support During Recovery</p> <p>Type: New</p>		<p>"We recommend structured assessment for anxiety, depression, posttraumatic stress, and fatigue for cardiac arrest survivors and their caregivers."</p> <p>"We recommend that cardiac arrest survivors have multimodal rehabilitation assessment and treatment for physical, neurologic, cardiopulmonary, and cognitive impairments before discharge from the hospital."</p> <p>"We recommend that cardiac arrest survivors and their caregivers receive comprehensive, multidisciplinary discharge planning, to include medical and rehabilitative treatment recommendations and return to activity/work expectations."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>	<p>These recommendations are supported by "Sudden Cardiac Arrest Survivorship: A Scientific Statement From the AHA."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S366–S468</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Post-Cardiac Arrest Care and Neuroprognostication</p> <p>Type: New</p>		<p>“In patients who remain comatose after cardiac arrest, we recommend that neuroprognostication involve a multimodal approach and not be based on any single finding.”</p> <p>“In patients who remain comatose after cardiac arrest, we recommend that neuroprognostication be delayed until adequate time has passed to ensure avoidance of confounding by medication effect or a transiently poor examination in the early postinjury period.”</p> <p>“We recommend that teams caring for comatose cardiac arrest survivors have regular and transparent multidisciplinary discussions with surrogates about the anticipated time course for and uncertainties around neuroprognostication.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>	<p>The 2020 guidelines update contains extensive information related to neuroprognostication and recommends that “to be reliable, neuroprognostication should be performed no sooner than 72 hours after return to normothermia, and prognostic decisions should be based on multiple modes of patient assessment.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Recommendations for Resuscitation of Cardiac Arrest in Pregnancy</p> <p>Type: Update</p>	<p>"Bag-mask ventilation with 100% oxygen before intubation is especially important in pregnancy."</p> <p>REF: <i>Circulation</i>. 2010;122;S829-S861</p>	<p>"Because pregnant patients are more prone to hypoxia, oxygenation and airway management should be prioritized during resuscitation from cardiac arrest in pregnancy."</p> <p>"Because of potential interference with maternal resuscitation, fetal monitoring should not be undertaken during cardiac arrest in pregnancy."</p> <p>"We recommend targeted temperature management for pregnant women who remain comatose after resuscitation from cardiac arrest."</p> <p>"During targeted temperature management of the pregnant patient, it is recommended that the fetus be continuously monitored for bradycardia as a potential complication, and obstetric and neonatal consultation should be sought."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366-S468</p>	<p>"Airway, ventilation, and oxygenation are particularly important in the setting of pregnancy."</p> <p>"Fetal monitoring ...may distract from maternal resuscitation efforts."</p> <p>"...there are several case reports of good maternal and fetal outcome with the use of TTM [targeted temperature management] after cardiac arrest."</p> <p>"After successful maternal resuscitation, the undelivered fetus remains susceptible to the effects of hypothermia, acidosis, hypoxemia, and hypotension..."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366-S468</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Electrical Therapy for Regular Narrow-Complex Tachycardia</p> <p>Type: Update</p>	<p>"If the patient demonstrates rate-related cardiovascular compromise with signs and symptoms such as acute altered mental status, ischemic chest discomfort, acute heart failure, hypotension, or other signs of shock suspected to be due to a tachyarrhythmia, proceed to immediate synchronized cardioversion."</p> <p>REF: <i>Circulation</i>. 2010;122; S729-S767</p>	<p>"Synchronized cardioversion is recommended for acute treatment in patients with hemodynamically unstable SVT."</p> <p>"Synchronized cardioversion is recommended for acute treatment in patients with hemodynamically stable SVT when vagal maneuvers and pharmacological therapy is ineffective or contraindicated."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366-S468</p>	<p>"These recommendations are supported by the 2015 ACC/AHA/HRS Guideline for the Management of Adult Patients With SVT: A Report of the American College of Cardiology/AHA Task Force on Clinical Practice Guidelines and the Heart Rhythm Society."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366-S468</p>
<p>Oxygenation and Ventilation After ROSC</p> <p>Type: Update</p>	<p>"The 2010 Guidelines defined an arterial oxygen saturation (Sao₂) of less than 94% as hypoxemia...Minimizing risk of hyperoxia must be weighed against the need to avoid hypoxia, which has a well-established detrimental effect."</p> <p>REF: <i>Circulation</i>. 2015;132[suppl 1]: S465-S482</p>	<p>"We recommend avoiding hypoxemia in all patients who remain comatose after ROSC."</p> <p>"The suggested range of 92% to 98% is intended as a practical approximation of the normal range."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366-S468</p>	<p>"Hypoxemia may worsen ischemic brain injury and injury to other organs."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 1): S92-S139</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Electrolyte Abnormalities in Cardiac Arrest</p> <p>Type: Update</p>	<p>“When cardiac arrest occurs secondary to hyperkalemia, it may be reasonable to administer adjuvant IV therapy as outlined above for cardiotoxicity in addition to standard ACLS.”</p> <p>“Hypomagnesemia can be associated with polymorphic ventricular tachycardia, including torsades de pointes, a pulseless form (polymorphic) of ventricular tachycardia. For cardiotoxicity and cardiac arrest, IV magnesium 1 to 2 g of MgSO₄ bolus IV push is recommended.”</p> <p>“Administration of calcium (calcium chloride [10%] 5 to 10 mL or calcium gluconate [10%] 15 to 30 mL IV over 2 to 5 minutes) may be considered during cardiac arrest associated with hypermagnesemia”</p> <p>“The effect of bolus administration of potassium for cardiac arrest suspected to be secondary to hypokalemia is unknown and ill advised.”</p> <p>REF: <i>Circulation</i>. 2010;122; S829-S861</p>	<p>“For cardiac arrest with known or suspected hyperkalemia, in addition to standard ACLS care, IV calcium should be administered.</p> <p>“For cardiotoxicity and cardiac arrest from severe hypomagnesemia, in addition to standard ACLS care, IV magnesium is recommended.”</p> <p>“IV bolus administration of potassium for cardiac arrest in suspected hypokalemia is not recommended.” (Class 3)</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>	<p>“Emergent hemodialysis in the hospital setting remains a definitive treatment for life-threatening hyperkalemia.”</p> <p>“Although the administration of IV magnesium has not been found to be beneficial for VF/VT in the absence of prolonged QT, consideration of its use for cardiac arrest in patients with prolonged QT is advised.”</p> <p>“The controlled administration of IV potassium for ventricular arrhythmias due to severe hypokalemia may be useful, but case reports have generally included infusion of potassium and not bolus dosing.”</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S366–S468</p>

table eight

PEDIATRIC ADVANCED LIFE SUPPORT

Training Programs Affected: **ASHI PALS**

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Pediatric Chain of Survival</p> <p>Type: Updated</p>	<p>"For best survival and quality of life, pediatric basic life support (BLS) should be part of a community effort that includes prevention, early cardiopulmonary resuscitation (CPR), prompt access to the emergency response system, and rapid pediatric advanced life support (PALS), followed by integrated post-cardiac arrest care."</p> <p>REF: <i>Circulation</i>. 2010;122; S862-S875</p>	<p>"The Pediatric Chain of Survival has been updated. A separate OHCA Chain of Survival has been created to distinguish the differences between OHCA and IHCA [out-of-hospital cardiac arrest, in-hospital cardiac arrest]. In both the OHCA and IHCA chains, a sixth link has been added to stress the importance of recovery, which focuses on short- and long-term treatment evaluation, and support for survivors and their families."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2): S469-S523</p>	<p>The new link recognizes the need for a system of care to support recovery for survivors and their families after cardiac arrest.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Post-Cardiac Arrest EEG Monitoring and Seizure Treatment</p> <p>Type: Updated</p>	<p>"Treat postischemic seizures aggressively; search for a correctable metabolic cause such as hypoglycemia or electrolyte imbalance."</p> <p>REF: <i>Circulation</i> 2010;122;S862-S875</p>	<p>"When resources are available, continuous electroencephalography (EEG) monitoring is recommended for the detection of seizures following cardiac arrest in patients with persistent encephalopathy."</p> <p>"It is recommended to treat clinical seizures following cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469-S523</p>	<p>"The American Clinical Neurophysiology Society recommends continuous EEG monitoring for encephalopathic patients after pediatric cardiac arrest. Nonconvulsive seizures and nonconvulsive status epilepticus cannot be detected without EEG monitoring."</p> <p>"The Neurocritical Care Society recommends treating status epilepticus with the goal of stopping convulsive and electrographic seizure activity."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469-S523</p> <p>See also: Pediatric Post-Cardiac Arrest Care: A Scientific Statement From the American Heart Association <i>Circulation</i>. 2019;140:e194-e233</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Recommendations for Post-Cardiac Arrest Recovery</p> <p>Type: New</p>		<p>"It is recommended that pediatric cardiac arrest survivors be evaluated for rehabilitation services."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469–S523</p>	<p>Children surviving cardiac arrest "are at significant risk for both short-term and long-term physical, neurological, cognitive, emotional, and social morbidity... Recovery has been introduced as the sixth link in the Chain of Survival to acknowledge that survivors of cardiac arrest may require ongoing integrated medical, rehabilitative, caregiver, and community support in the months to years after their cardiac arrest."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469–S523</p> <p>See Also: Pediatric Post-Cardiac Arrest Care: A Scientific Statement From the American Heart Association <i>Circulation</i>. 2019;140:e194–e233</p>
<p>Recommendations for Resuscitating the Patient in Cardiogenic Shock</p> <p>Type: New</p>		<p>"For infants and children with cardiogenic shock, early expert consultation is recommended."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469–S523</p>	<p>Because cardiogenic shock in infants and children is rare and complicated, expert consultation is recommended.</p>

Topic	Previous Guideline	Revised Guideline	Reason for Change
<p>Treatment of Inadequate Breathing with a Pulse</p> <p>Type: Updated</p>	<p>"If the infant or child is intubated, ventilate at a rate of about 1 breath every 6 to 8 seconds (8 to 10 times per minute) without interrupting chest compressions."</p> <p>REF: <i>Circulation</i>. 2010;122[suppl 3]; S876–S908</p>	<p>"For infants and children with a pulse but absent or inadequate respiratory effort, it is reasonable to give 1 breath every 2 to 3 s (20–30 breaths/min)."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469–S523</p> <p>NOTE: This is a Class 2a recommendation; "is reasonable."</p>	<p>"One multicenter observational study found that high ventilation rates (at least 30/min in children younger than 1 year of age, at least 25/min in children older than 1 year) during CPR with an advanced airway for cardiac arrest were associated with improved ROSC and survival."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469–S523</p>
<p>Recommendations for Treatment of the Child with Pulmonary Hypertension</p> <p>Type: New</p>		<p>"Provide careful respiratory management and monitoring to avoid hypoxia and acidosis in the postoperative care of the child with pulmonary hypertension."</p> <p>"For pediatric patients who are at high risk for pulmonary hypertensive crises, provide adequate analgesics, sedatives, and neuromuscular blocking agents."</p> <p>REF: <i>Circulation</i>. 2020;142(suppl 2):S469–S523</p>	<p>"Previous PALS guidelines did not provide recommendations for managing pulmonary hypertension in infants and children."</p> <p>REF: <i>Highlights of the 2020 AHA Guidelines CPR and ECC</i>.</p>

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