

Crash Course on Crash Carts in the Ambulatory Healthcare Setting

Definition of a crash cart/crash kit

A crash cart/kit or code cart/kit is a set of trays, drawers or shelves on wheels used for transporting and dispensing emergency medications and equipment at the site of a medical emergency. A crash cart/kit is deployed to administer life support protocols such as Advanced Cardiac Life Support/Advanced Life Support (ACLS/ALS), Pediatric Advanced Life Support (PALS).

Basic crash kits, also known as emergency medical kits, are available for common medical emergencies (such as allergic reactions, opioid overdose, and asthma) that do not require IV medications or ACLS training. These are commonly found in family, general and dental practices.

Who needs a crash cart/kit?

There are certain procedures that put a patient at risk for a medical emergency and those facilities performing those procedures are required to have a crash cart. State regulatory agencies require certain facilities to have a crash cart. This includes hospitals, outpatient surgery centers, freestanding emergency departments and all facilities where conscious sedation is performed. Physician offices who perform certain diagnostic testing such as cardiac stress testing or stress echocardiogram also must have a crash cart available.

Additionally, any facility that treats patients who have the potential to have a sudden deterioration in their condition should have equipment and medications to treat a patient before emergency responders arrive. Those include facilities performing any level of sedation, imaging facilities performing medical imaging with contrast medium, cardiology practices and offices, urgent care centers, dialysis clinics and nursing homes.

Is there a standard crash cart/kit formulary?

No. The size, shape, and contents of a crash cart may be different between facilities. The crash cart in an urgent care facility is typically different than the one in a surgical facility. The crash cart may even differ between departments within the same facility. For example, an adult crash cart is set up differently than a pediatric crash cart.

Recommended crash cart formularies are defined by your state and federal department of health licensing agencies as well as the appropriate accrediting bodies depending on facility type and procedure classifications.

Always follow your compliance officer's and/or medical director's guidelines for required contents and quantities for your specific facility and procedure categories.

See A Guide to Accrediting Bodies.



Common Basic / Advanced Crash Kit Medication and Equipment

What is typically found in a crash cart/kit?

Depending on your location and average EMS response times, it's recommended to deploy a crash cart (or crash kit) that contains equipment and medications that would be required to treat a patient in the first thirty minutes or so of a medical emergency. Always follow your medical director's guidelines for contents and required quantities. These typically follow the current American Heart Association Guidelines for CPR and ECC as well as the algorithms and training for either Basic Life Support (BLS) or Advanced Cardiac Life Support (ACLS).

Common Basic Crash Kit Medications and Equipment

- Adult and pediatric-dose epinephrine auto-injector
- Epinephrine 1:1000 for IM use
- Diphenhydramine, oral and vial for IM use
- Albuterol inhaler, aspirin, nitroglycerin spray, oral glucose, naloxone nasal spray
- Bag valve mask (BVM) resuscitator with adult mask oropharyngeal airway set



Common Advanced Crash Kit Medications and Equipment

- Basic Crash Kit medications and devices plus:
- Monitor/defibrillators, suction devices, and bag valve masks (BVMs) of different sizes
- First line drugs for treatment of common problems such as adenosine, dextrose, diazepam or midazolam, epinephrine for IM use, naloxone, nitroglycerin
- Advanced cardiac life support (ACLS) drugs such as epinephrine, atropine, amiodarone, lidocaine, sodium bicarbonate, and dopamine
- Succinylcholine or another paralytic, and a sedative such as etomidate or midazolam, endotracheal tubes and other intubation devices
- Drugs for peripheral and central venous access
- Pediatric medications and devices



Common ACLS Crash Cart Medications and Equipment

Common ACLS Crash Cart Medications and Equipment

Medications are usually kept in the top drawer of most crash carts. These need to be accessed and delivered as quickly as possible in emergency situations. Therefore, they need to be readily available to providers and the medications provided in a way that makes them easy to measure and dispense quickly.

Crash Cart Medication Drawers

The common set of **first drawer** medications might be:

- Alcohol swabs
- Amiodarone 150 mg/3ml vial
- Atropine 1mg/10 mL syringe
- Sodium bicarbonate 50m Eq/50 mL syringe
- Calcium chloride 1gm/10 mL syringe
- Sodium chloride 0.9% 10 mL vial Inj. 20 mL vial
- Dextrose 50% 0.5 mg/ml 50 mL syringe
- Dopamine 400 mg/250 mL IV bag
- Epinephrine 1 mg/10 mL (1:10,000) syringe
- Sterile water
- Lidocaine 100 mg 5 mL syringes
- Lidocaine 2 gm/250 mL IV bag
- Iodine swab stick
- Vasopressin 20 units/ml 1 mL vial

Crash Cart Medication Drawers

The common set of **second drawer** medications might be:

- Saline solution of various sizes such as 100 mL or 1L bags.
- A crash cart in the surgery department may include Ringer's lactate solution.

*If the crash cart also contains pediatric medications these may be contained in the **second drawer**. Often these would include:*

- Atropine 0.5 mg/ 5 mL syringe
- Sodium bicarbonate 10 mEq/10 mL syringe
- Saline flush syringes
- Sodium chloride 0.9% 10 ml flush syringe



Common ACLS Crash Cart Medications and Equipment

Crash Cart Intubation Drawer

Many crash carts will also include most of the materials necessary to perform intubation. These may be contained in the third or fourth drawers depending on the setup of the particular crash cart.

The adult intubation drawer may contain:

- Endotracheal tubes of various sizes
- Nasopharyngeal and / or oropharyngeal airways
- Laryngoscope handle and blades of different sizes
- A flashlight with extra batteries
- A syringe of sufficient size to inflate the cuff on it endotracheal tube
- Stylets
- Bite block
- Tongue depressors

***Pediatric intubation materials** may be in a separate cart or, if they are included in the adult crash cart they may occupy their own drawer.*

The **pediatric intubation** supply drawer may contain the following pediatric sized:

- 2.5 mm uncuffed endotracheal tube
- 3.0 mm – 5.5 mm micro-cuff endotracheal tubes
- Pediatric Stylet (8 Fr)
- Neonatal Stylet (6 Fr)
- Nasopharyngeal and / or oropharyngeal airways
- Laryngoscope blades
- Disposable Miller blades
- Disposable Macintosh blades
- Arm boards of various sizes
- Vacutainers for blood collection
- Spinal needles
- Suction catheters of various sizes
- Umbilical vessel catheter
- Disinfectants (swab sticks)
- Pediatric IV kits
- Intravenous lines



Common ACLS Crash Cart Medications and Equipment

Crash Cart IV Drawer

It is usually the case that the equipment necessary to start an IV is in a separate drawer from materials needed to maintain an IV, such as the fluids and the tubing.

The IV drawer(s) usually contain the following:

- IV start kit
- Angiocatheters 14 Ga and/or 16 Ga
- Disinfectants (Chloraprep, Betadine)
- Luer lock syringes of various sizes
- Tourniquet tubing
- Insyte autoguards of various sizes
- Vacutainers
 - Blue top
 - Purple top
 - Green top
 - Red top
- Spinal needles of various sizes
- Regular needles of various sizes
- 3-Way stopcock
- Tape
- Arm boards
- ABG syringes and sampling kits
- Catheter tips
- Tubing
- IV solutions may also be kept in this drawer

Procedure drawer/bottom drawer

The bottom drawer on crash carts is usually devoted to keeping prepackaged items available for various urgent and emergent procedures.

The following items may be found in the procedure drawer:

- ECG electrodes
- Sterile gloves of various sizes
- Sutures of various sizes and materials
- Suction supplies
- Salem pump
- Cricothyroidotomy kit
- Adult and pediatric cutdown pack
- Yankauer suction
- Drapes to create a sterile field
- Large bore needle and syringe (for tension pneumothorax)
- Suction Cath Kit 14 Fr & 18 Fr
- Lumbar puncture kit

It's Important to check regularly - Maintenance of Crash Cart

The worst thing ever is to reach for a piece of emergency equipment or an emergency medication and find it inoperable or expired. It's important that the crash cart is checked regularly and maintained so that it's ready when needed.

Consider deploying technology and automation to aid in maintaining crash cart contents. At a minimum:

- Expiration dates on medications should be checked on the first day of the month
- Expired medications should be promptly removed and replaced
- The defibrillator pads on the AED or the defibrillator should be checked for expiration date
- The battery charge on the monitor and/or AED should be checked and documented



A Guide to Accrediting Bodies

Accreditation Bodies by facility type:

All Facilities:

The Joint Commission



The Joint Commission is viewed as the gold standard for safety and quality. The organization surveys virtually all types of health care delivery sites, from the most complex hospitals to surgery centers to urgent care and retail clinics. The Joint Commission has dedicated payer relations experts to help providers with payer relations and contracts.

Accreditation Program Fact Sheets

- [Facts about Laboratory Accreditation](#)
- [Facts about Behavioral Health Care Accreditation](#)
- [Facts about Critical Access Hospital Accreditation](#)
- [Facts about the Nursing Care Center \(NCC\) Accreditation program](#)
- [Opioid Treatment Program \(OTP\) Accreditation](#)
- [Facts about Hospital Accreditation](#)
- [Facts about Ambulatory Care Accreditation](#)
- [Facts about Office-Based Surgery Accreditation](#)
- [Facts about Home Care Accreditation](#)

Accreditation Association for Ambulatory Health Care (AAAHC)



<https://www.aaahc.org/accreditation/accreditation-general-information/>

AAAHC (Accreditation Association for Ambulatory Health Care), founded in 1979, is the leader in ambulatory health care accreditation with more than 6,100 organizations accredited. AAAHC accredits a wide range of outpatient settings including ambulatory surgery centers, office-based surgery facilities, endoscopy centers, student health centers, medical and dental group practices, community health centers, employer-based health clinics, retail clinics, and Indian/tribal health centers, among others.

Any organization that meets AAAHC [Survey Eligibility Criteria](#) may apply for an accreditation survey. The following types of organizations have found the AAAHC standards and survey procedures particularly appropriate and helpful in improving the quality of care they provide:

- Ambulatory health care clinics
- Ambulatory surgery centers
- Birthing centers
- College and university health centers
- Community health centers
- Dental group practices
- Diagnostic imaging centers
- Endoscopy centers
- Federally Qualified Community Health Centers
- Health Plans
- Independent physician associations (IPAs)
- Indian health centers
- Lithotripsy centers
- Managed care organizations
- Medical Home Organizations
- Military health care facilities
- Multi-specialty group practices
- Occupational health centers
- Office-based anesthesia organizations
- Office-based surgery centers and practices
- Oral and maxillofacial surgeons' offices
- Pain management centers
- Podiatry practices
- Radiation oncology centers
- Single specialty group practices
- Surgical recovery centers
- Urgent or immediate care centers
- Women's health centers

Urgent Care:

The Joint Commission



The Joint Commission accredits, under the Ambulatory Care accreditation program, more than 25 freestanding urgent care operators, representing more than 200 sites of care. This count does not include urgent care centers accredited as owned or affiliated with hospitals or health systems.

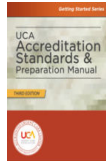
For more information visit:

https://www.jointcommission.org/accreditation/ahc_seeking_urgent_care.aspx

The Urgent Care Association (UCA)

The UCA has a dual “certification” and “accreditation” program. The certification part is where qualifies your center as having minimum scope, x-ray and laboratory services, and quality and safety programs for patients and employees.

The UCA Accreditation Standards & Preparation Manual guides you through setting up best practices for your organization in terms of patient safety and quality of care.



For more information visit:

<https://www.ucaa.org/Resources/Reports-and-Manuals/BKct/ViewDetails/SKU/UCA20AUCMan>

National Urgent Care Center Accreditation (NUCCA)

The National Urgent Care Center Accreditation program is an independent, non-profit organization that provides Accreditation to properly qualified Urgent Care Centers throughout the United States.



For more information visit:

<http://ucaccreditation.org/important-documents.html>

Freestanding Emergency Centers: **American College of Emergency Physicians®**

American College of Emergency Physicians (ACEP)

ACEP passed several resolutions about freestanding emergency departments (FECs) at the Council meeting in Las Vegas in October 2016. One of these, Resolution 9, called for creating accreditation standards.

The ACEP is exploring the possibility of setting ACEP-endorsed minimum accreditation standards for freestanding emergency centers as well as the feasibility of ACEP serving as an accrediting (not licensing) entity for freestanding emergency centers, where FECs are allowed by state law.

For more information visit:

www.acep.org

Center for Improvement in Healthcare Quality (CIHQ)

CIHQ is a member-based organization comprised of hospitals and other healthcare entities throughout the United States.



Accreditation Standards:

<https://www.cihq.org/fsec.asp>

Medical Imaging Centers:

The Joint Commission

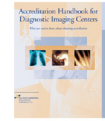


The Joint Commission's Ambulatory care program is designated by the Centers for Medicare and Medicaid Services (CMS) as an approved accreditor for freestanding ambulatory organizations providing advanced diagnostic imaging services such as MRI, CT, PET and nuclear medicine. As the nation's preeminent accrediting body, The Joint Commission provides a patient-centered, customer driven accreditation process that strives to meet the unique needs of diagnostic imaging providers.

For more information visit:

https://www.jointcommission.org/assets/1/18/2011_IMG_Hdbk.pdf

https://www.jointcommission.org/accreditation/diagnostic_imaging_centers.aspx



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For more information visit:

<https://www.aaahc.org/accreditation/accreditation-general-information/>

American College of Radiology (ACR)

Accreditation and The Diagnostic Imaging Centers of Excellence (DICOE) program



The American College of Radiology (ACR) accreditation programs for diagnostic imaging are modality based. Each modality has its own program requirements which can be found on the website. The ACR assesses the qualifications of personnel, policies and procedures, equipment specifications, quality assurance (QA) activities, patient safety, image quality, and the quality of patient care.

The Diagnostic Imaging Centers of Excellence (DICOE) program takes accreditation to the next level by providing a comprehensive assessment of the entire medical imaging enterprise including structure and outcomes.

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For more information visit:

<https://www.acraccreditation.org/>

IAC Accreditation Programs

The IAC is a nonprofit organization in operation to evaluate and accredit facilities that provide diagnostic imaging and procedure-based modalities, thus improving the quality of patient care provided in private offices, clinics and hospitals where such services are performed. The IAC programs for accreditation are dedicated to ensuring quality patient care and promoting health care.



Select one of the IAC accreditation programs below to learn more about the program basics and fee structure:

Diagnostic Imaging Accreditation Programs

Vascular Testing
Echocardiography
Nuclear/PET
MRI
CT
Dental CT

Procedure-Based Accreditation Programs

Carotid Stenting
Vein Center
Cardiac Electrophysiology
Cardiovascular Catheterization

For more information visit:

<https://www.intersocietal.org/iac/about/programs.htm>

RadSite



RadSite's comprehensive accreditation program evaluates providers against established industry standards and best practices. RadSite is a CMS-recognized accrediting body and is designated by the Centers for Medicare and Medicare Services (CMS) as an accrediting organization under the Medicare Improvements for Patients and Providers Act of 2008 (MIPPA). The modalities covered under MIPPA are CT, MRI, PET, and SPECT.

For more information visit:

<https://radsitequality.com/programs-and-services/>

Ambulatory Surgery Centers (ASCs):



The Joint Commission

The Joint Commission is viewed as the gold standard for safety and quality. The organization surveys virtually all types of healthcare delivery sites, from the most complex hospitals to surgery centers to urgent care and retail clinics. The Joint Commission has dedicated payer relations experts to help providers with payer relations and contracts.

For more information visit:

https://www.jointcommission.org/accreditation/ambulatory_surgical_center.aspx

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For more information visit:

<https://www.aaahc.org/accreditation/accreditation-general-information/>

AAAASF accreditation programs help facilities demonstrate a strong commitment to patient safety, standardize quality, maintain fiscal responsibility, promote services to patients and collaborate with other health care leaders. An accredited facility must be fully equipped to perform procedures in the medical specialties listed on its accreditation application.

For more information visit:

<https://www.aaaaf.org/programs/medicare-programs/medicare-surgical/>

Office-Based Surgery (OBS) Accreditation:

Office-based surgery accreditation:

The most common specialties performing office-based surgery are pain management, minor plastic surgery and GI. The requirement is typically based on the levels of anesthesia used and/or complexity of procedure performed. For instance, New York and Pennsylvania refer to pain management as “invasive and complex” regardless of whether anesthesia or moderate sedation is used with the procedure.

Roughly thirty state health departments plus D.C. have jurisdiction on office-based surgery meeting various thresholds. They include Alabama, Arizona, California, Colorado, Connecticut, DC, Delaware, Florida, Illinois, Indiana, Kansas, Kentucky, Louisiana, Massachusetts, Mississippi, Nevada, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia and Washington.

Accreditation by a third party is the most typical way of satisfying the office-based surgery state regulation. A few states however, require their own survey. In either case, both the state regulations and the accreditation standards will have governance.

Additional information on OBS governance:

<http://www.fsmb.org/siteassets/advocacy/policies/outpatient-office-based-surgery.pdf>

For those OBSs not seeking full ASC accreditation:

Joint Commission:

Any office-based surgery organization may apply for Joint Commission OBS (rather than ASC) accreditation if all the following eligibility requirements are met:



- The organization is in the United States or its territories or, if outside the United States, is operated by the U.S. government or under a charter of the U.S. Congress.
- If required by law, the organization has a license or registration to conduct its scope of services. The organization can demonstrate that it continually assesses and improves the quality of its care, treatment, and/or services. This process includes a review by clinicians, including those knowledgeable in the type of care, treatment, and/or services provided at the organization.
- The organization identifies the services it provides, indicating which care, treatment, and/or services it provides directly, under contract, or through some other arrangement.
- The organization provides services that can be evaluated by The Joint Commission's standards.

- The tests, treatments, or interventions provided at the organization are prescribed or ordered by a licensed independent practitioner in accordance with state and federal requirements.
- The organization meets parameters for the minimum number of patients/volume of services required for organizations seeking Joint Commission initial or reaccreditation; that is, three patients served, with at least one patient having a procedure at the time of survey.
- The organization is limited to business occupancy, which is defined as an occupancy that can only have three or fewer individuals at the same time, who are either rendered incapable of self-preservation in an emergency or are undergoing general anesthesia.
- The organization must be surgeon-owned or surgeon-operated (for example, a professional services corporation, private physician office, or small group practice).
- The organization provides invasive procedures to patients. Local anesthesia, minimal sedation, conscious sedation, or general anesthesia are administered. (Excluded are practices that limit procedures to excisions of skin lesions, moles, and warts and abscess drainage limited to the skin and subcutaneous tissue.)

For more information visit:

https://www.jointcommission.org/accreditation/officebased_surgery.aspx

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For more information visit:

<https://www.aaahc.org/accreditation/accreditation-general-information/>

The American Association for Accreditation of Ambulatory Surgery Facilities, Inc. (AAAASF)



AAAASF accreditation programs help facilities demonstrate a strong commitment to patient safety, standardize quality, maintain fiscal responsibility, promote services to patients and collaborate with other health care leaders. An accredited facility must be fully equipped to perform procedures in the medical specialties listed on its accreditation application.

For more information visit:

<https://www.aaaasf.org/programs/medicare-programs/medicare-surgical/>

Other:

Healthcare Facilities Accreditation Program (HFAP)



Healthcare Facilities Accreditation Program (HFAP) is authorized by the Centers for Medicare and Medicaid Services (CMS)

The Ambulatory Care/Office Based Surgery (AMB/OBS) Program services physician offices, dental offices, sleep centers and clinics that perform procedures requiring various levels of sedation.

Due to an increase in the demand for offices and clinics (especially those performing anesthesia/sedation) to be accredited, the standards have been revised to include best practices and an overall comprehensive approach to assist in achieving compliance. The standards cover organizational and administrative criteria, physical environment, infection control, and quality assessment/performance improvement. They also include clinical and surgical criteria, medical records, pharmacy and laboratory/radiology.

For more information visit:

https://www.hfap.org/AccreditationPrograms/amb_care.aspx