TITLE:
Adult code 12 roles

PURPOSE:
To provide guidance to clinicians regarding expectations during a cardiac arrest event. The American Heart Association has developed a code team concept to optimize roles and responsibilities and maximize outcomes via well-defined functioning team resuscitation. The University of Virginia Health System supports this concept. The patient experiencing a cardiac arrest or near cardiac arrest is at a crucial time in their healthcare experience where clinical expertise is of the highest priority.

PATIENT POPULATION:
All patients for whom an Adult Code 12 is activated

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DEFINITIONS:

ACLS – Advanced Cardiac Life Support
AHA – American Heart Association
BLS – Basic Life Support

Code Phase Overview

Phase I-Activation
When a near arrest or cardiac arrest situation is first recognized, BLS level care (CPR and defibrillation when clinically indicated) and activating the response system are the priorities. Appropriate emergency equipment can be brought to the bedside as soon as personnel are available.

Phase II- Team Arrival/transition
The transition of care to the arriving code 12 team takes place during this phase. For clinicians providing initial care, be prepared to convey clinical information related to the series of events leading up to the event (cause) and pertinent patient history (why they are admitted, recent medications, etc.)

Phase III-Transition to Critical care/termination
This phase is marked by transition to critical care or calling the code

Code 12 Team Assignments

Code Team Leader
Responsibility: Provides medical direction for resuscitative efforts
Strength: Resuscitation algorithms, delegation, Advanced Cardiac Life Support
Who should fulfill this role: Senior medicine resident (may defer to equal/ senior physician if warranted)
Immediate actions:

- Identifies self as **team leader** to code participants and remains visible to all
- Identifies **Patient's primary nurse** and asks for history of events
- Quickly assesses patient for ABC's
- Asks for patient to be placed on monitor
- Directs initiation / resumption of CPR
- Verbally identifies rhythm and initiates appropriate ACLS algorithm

Actions during code:

- Remains visible during the code
- Should not become involved with providing actual medical interventions (intubations / line placements) unless absolutely necessary (only person able to perform procedure)
    - If necessary, ensure that another member of the team takes over leadership of the code and that the entire team is aware of this transition
- Identifies cardiac rhythm and other relevant info (e.g. ETT dislodged, lack of pulse, lack of art line tracing) and states out loud clearly so entire team is aware
- Directs interventions and evaluates their efficacies
    - Directs the administration of CPR as per ACLS guidelines
    - Directs rhythm and pulse checks
    - Anticipates necessary interventions and verbalizes them
    - Directs placement of IV/IO access / advanced airway
- Remain cognizant of time flow and be in communication with **documentation nurse** as to timing of interventions

- Primarily communicates directly with Patient's primary nurse
- Remains in a position to overview the events of the code
- Responsible for reviewing EPIC code documentation prior to closing event

Other general considerations:

- Consider enlisting general surgery help with advanced procedures (chest tubes / central lines) if no one else available
- Consider paging ENT for significant airway issues
- May consider the use of ETCO2 to monitor adequacy of CPR
- May consider the use of ice packs for local head cooling to reduce cerebral metabolism in a low flow state
- Consider establishing hypothermia guideline if a return of spontaneous circulation occurs (ROSC)

IRPA

Responsibility: Resident guidance
Strength: Critical care
Who should fulfill this role: IRPA physician
Immediate actions: Ensure that the appropriate physician has accepted the role of team leader
Actions during code: Ensure that extraneous physician staffs are not impeding access and egress to bedside.

Resident physician

Responsibility: Rhythm recognition, monitor operation
Strength: Advanced Cardiac Life Support
Who should fulfill this role: Medicine resident, Family medicine resident or appropriate resident experienced with ACLS
Immediate actions:

- Ensure that monitor/defibrillator is properly placed and functioning
- Initiates ALS care as appropriate

Actions during code: Conveying rhythm to team, defibrillation, synchronized cardioversion and pacing

MET Nurse

Responsibility: Overall Nursing Care
Strength: Critical Care
Who should fulfill this role: MET Nurse
Immediate actions:
Initiates BLS if appropriate

  - Places backboard beneath patient if CPR required
  - Delegates BLS responsibilities when additional qualified help arrives

- Initiates ALS care as appropriate
- Utilizing MET guidelines, administers first round of ACLS medications as appropriate
- Once the **team leader** arrives, identifies self as **MET nurse** and remains in direct communication with the team leader

Actions during code:

- Remains primary provider of patient care through code
  - Administers all medications / fluids
    - Notifies documenter when medications / fluid boluses have been administered
    - Clearly states exactly what was given (i.e. "1 mg epinephrine in")
  - Attempts / delegates IV / IO access if needed
  - Notifies documenter of all interventions that have been performed (i.e. "IO placed in left tibia")
- Continuously reassesses patient status and relays this information to documenter and other team members (i.e. "good pulses with compressions")
- Ensures appropriate transition to critical care in ROSC cases

Pharmacist

Responsibility: Preparing medications, providing supplies out of code cart, providing drug information
Strength: Familiar with Code Cart, draws up medications efficiently, aware of algorithms
Who should fulfill this role: Code 12 pharmacist
Immediate actions:

- Identifies self to **team leader**
- Opens up code cart (if not yet present in room, ask **runner** to obtain)
- Look to **team leader** for verbal orders for medications

Actions during code:

- Prepare and appropriately label all medications requested by the code team leader. This shall include prefilled syringes as well as those medications requiring compounding
  - Assure the appropriate drug, dose, diluent, route, and administration guidelines are utilized for each medication
  - Anticipate potential interventions when possible (i.e. PEA -> epinephrine, bradycardia -> atropine, septic shock -> volume resuscitation, torsades->magnesium)
- When preparing medication infusions (non-premix), refer to the Adult Infusion reference guide on code cart that indicates concentration and appropriate diluent
  - Label infusion with patient's name, expiration date/time, and drug concentration (use premade labels found in code cart when possible)
  - Infusions prepared outside of the pharmacy IV room should be changed out within 4 hours if possible - ask an LIP to order the infusion in EPIC as soon as possible
- Remains with code cart at all times
- If med drawer is getting empty can open second code cart or can call pharmacy for additional med drawer
- If using a lot of a particular drug, ask runner to get additional doses out of pyxis

- **Code 12 pharmacist** also brings a medication box to codes. This box usually includes but is not limited to:
  - Alteplase 50 mg
  - Calcium Chloride syringe
  - Dopamine vial

  - Epinephrine 1:10,000 syringe
  - Epinephrine 1:1000 vial
  - Magnesium sulfate vial
  - Nitroglycerin SL tabs vial
  - Sodium bicarbonate syringe
  - Regular insulin vial

- **Anesthesia** also carries a number of medications to all codes. These usually include:
  - Induction agents: Propofol, Etomidate
  - Paralytics: Succinylcholine, Rocuronium
  - Reversal agents: Neostigmine, Glycopyrrolate,
  - Hemodynamics: Epinephrine, Ephedrine, Phenylephrine, Atropine, Esmolol, Metoprolol,
  - Others: Naloxone, lidocaine

Documentation nurse

Responsibility: Documentation
Strength: Communication
Who should fulfill this role: SRO nurse or nursing staff proficient in EPIC code documentation tool or appropriate documentation tool
Immediate actions:

- Identifies self to **team leader**
- Positions WOW at lower left corner of bed (see diagram) that he / she can directly visualize and hear everything that is occurring, including the following:
  - Team Leader
  - MET Nurse
  - Patient
  - Monitor/defibrillator
- Identifies one timekeeping device to use consistently throughout event (personal wrist watch, room clock, cell phone)

Actions during code:

- Documents / records every 2 minutes:
  - Current vital signs
  - Current rhythm (PEA, asystole, VT, etc…) – ask **team leader** if uncertain about rhythm
  - Current airway intervention – bag mask ventilation / intubation / spontaneous respirations
  - If CPR in progress or spontaneous pulse present
- Records pulse checks, compressions start and stop times.
- Records IV / IO placement, blood draws
- Records all interventions
  - Medication administration, including dosage
  - Defibrillation / cardioversion - rhythm / joules used
  - IV/IO placement – location
  - Volume administered – product and amount given
  - Blood draws
  - Other tubes / lines placed (NG, chest tube, central line)

- Provides **team leader** with CPR times as requested
- Provides **team leader** with times between medication administrations
- Record labs sent and their results
- At the end of the event, is responsible for
    - Ensuring that the all the names of healthcare personnel participating in the code are recorded on the event record
    - Ensuring that the **team leader** has been properly identified for verbal order authorization
    - Ensuring that the documentation is complete including
        - Patient history and precipitating events – ask bedside nurse for help with this section if necessary
        - When code team and defibrillator arrive to room
        - When CPR initiated
        - Whether arrest was witnessed or unwitnessed
        - Patient disposition at the end of the code (i.e. transferred to ICU, expired)
    - If patient expired, exact time of death should be determined by **team leader** and recorded in event record

<u>Respiratory Therapist/RT Supervisor</u>
Responsibility: Airway/Airway Management
Strength: Airway/Airway Management
Who should fulfill this role: Respiratory Therapist/RT Supervisor
Immediate actions:

- Assumes position at patient's head unless otherwise directed
- Initiates bag mask ventilation per ACLS guidelines if appropriate
    - 30:2 compression to ventilation ratio for ALL other situations
    - Continuous ventilation once advanced airway established (8-10 breaths / minute)
- Does a quick scan of room to ensure all needed respiratory equipment available (bag mask, universal airway box, etc.)

Actions during code:

- Responsible for bag mask ventilation as per ACLS guidelines unless otherwise directed by Code leader
    - Is prepared to provide cricoid pressure and / or c-spine precautions as necessary
    - Assesses breath sounds post-intubation
    - Secures ETT after successful intubation
- Airway Management/Intubation
- Arterial Blood Gas acquisition/Arterial Line Placement
- If possible, provides ETCO2 monitoring to evaluate chest compression efficacy
- Should monitor vital signs as related to respiratory status (Sat's, ETCO2, RR)

Anesthesia Resident
Responsibility: Advanced airway management
Strength: Advanced airway management skills
Immediate actions and throughout code:

- At the direction of the **team leader** and with the help of **respiratory therapy**, secures airway
    - Assesses breath sounds post-intubation

Anesthesia Attending
Responsibility: Anesthesia resident management/Advanced airway management
Strength: Advanced airway management skills
Immediate actions and throughout code:

- At the direction of the **team leader** and with the help of **respiratory therapy**, secures airway
    - Assesses breath sounds post-intubation

Compression Champion
Responsibility: Provides adequate chest compressions
Who should fulfill this role: Any qualified healthcare provider who is able to provide high quality chest compressions for a full 2 minutes
Immediate actions and throughout code:

- Initiate chest compressions per 2010 AHA / ACLS guidelines
    - Push hard and fast (100 compressions per minute)
    - Ensure full chest recoil
    - Minimize interruptions in compressions
    - 30:2 compression to ventilation ratio
    - Continuous chest compression once advance airway established
- A rotation of chest compressors should be established
- Compressors should switch out approximately every 2 minutes (or 5 cycles) to ensure that adequate chest compression are being provided
- Limits "hands off time" during CPR and helps to ensure that time off the chest is minimized unless otherwise directed by the **team leader**

Additional Code 12 Support

Patient's primary nurse
Responsibility: liaison with LIP's, Chaplain, Pt. history
Strength: Unit based knowledge
Who should fulfill this role: Unit charge nurse / patient's primary nurse
Immediate actions:

- Initiates BLS and emergency response system as appropriate
- Brings the code cart and / or defibrillator to the bedside
- Identifies self to **Code team leader** (if already present)
- Obtains brief history of events leading to code

- Identifies if all code 12 roles (**documenter**, **medication / code cart** personnel) are fulfilled

Actions during code:

- Ensures that ONLY those needed in the resuscitation remain present
    - Directs extra personnel back to their patient assignments
    - Provides some degree of crowd control
- If family is present, direct them away from the immediate bedside area to allow resuscitation team room to work
    - Ensure that chaplain or social work is available to provide support for family
    - If family wishes to watch the resuscitation, designate medical personnel to provide appropriate explanations of the events in progress
- Contacts or delegates someone else to contact primary service if not already present

Quality Assurance Personnel

Responsibility: Monitor Code 12 event for quality indicators
Who should fulfill this role: Resuscitation Coordinator, IRPA physician, Code 12 Quality Physician, Nursing Supervisor
Immediate actions: Ensure that the quality role is being filled
Actions during code: Monitoring the event for quality indicators. This position is not for the purpose of real time direction, the Code Team Leader is responsible for running the event.

Attending of record

Responsibility: Patient
Strength: Detailed knowledge of patient condition and medical interventions
Who should fulfill this role: Attending of primary service
Immediate actions: Works with IRPA/code Team Leader to ensure smooth transition of care to primary service or continued operation by code 12 team

Appropriate resident of record

Responsibility: Patient
Strength: Detailed knowledge of patient condition and medical interventions
Who should fulfill this role: Resident of primary service
Immediate actions: Works with IRPA/code Team Leader to ensure smooth transition of care to primary service or continued operation by code 12 team

Additional LIP's as required

Responsibility: Takes direction from the **team leader**
Who should fulfill this role: Any additional LIPs
Immediate actions and throughout code:

- At the direction of the **team leader**
    - Performs or assists with procedures (intubation, IVs, IOs, needle decompression)
    - Runs for equipment / blood products
    - Requests consults

    - Enters orders in EPIC / give verbal orders over the phone to pharmacy for emergently need medications / infusions
- Ensures the family is notified of events and is updated as code progresses
- If not actively participating, additional LIPs should step away from the bedside and resume previous duties

Chaplain

Responsibility: Caring for patients and families in crisis and providing support in difficult situations – important that there is a non-healthcare professional that can be with families at all times when healthcare staff are tied up taking care of patient

Strength: Has special training in providing support to families dealing with crisis situations

Immediate actions and throughout code:

- Provide support to family
- Facilitates family presence if and when appropriate

Security

Responsibility: Ensuring a safe environment for the resuscitation to occur

Strength: Special training for dealing with tense situations

Immediate actions and throughout code:

- Aids charge nurse in crowd control
- If transport of patient is required from one unit to another, secures route of transport to facilitate movement

Adult Code 12 Assignments

- **Once Roles are Filled, Personnel are Required to Wait Outside Room**
- **Nursing Supervisor is Empowered to Remove Extraneous Personnel**

Respiratory Therapist/RT Supervisor
- Airway Management
- Mechanical Ventilation
- Intubation

MET Nurse
- Medication Administration
- IO Placement
- MRX Connection and Function

Resident Physician
- History
- Causative factors
- Interface with other Physician Resources

Documentation Nurse
- EPIC Documentation
- Medical History
- Nursing Supervisor Role Assignment Adherence Support

Code Team Leader
- Rhythm Analysis
- Medical Decisions
- Delegation
- Code Cessation
- Final Review of EPIC Record

IRPA
- Physician supervision

Pharmacist
- Medication Preparation
- Medication Resource

Anesthesiology Resident
- Airway Management
- Invasive Airway

Anesthesiology Attending
- Airway Management
- Invasive Airway

Compression Champion
- Rotate Q 2 minutes to mitigate fatigue and maintain quality CPR

Personnel that have a role, but not necessarily for duration of event

Pt's Primary Nurse/Charge Nurse
Liaison with LIP's, familiarity with unit physician staff, Pt. history

Attending of Record

Appropriate Resident of Record

Additional LIP's as clinically required Such As:
Anesthesia, for difficult airway; Surgery, for chest tube or difficult lines; RT/RT Supervisor for difficult ventilation cases; Pharmacy for complex/busy medication cases

Chaplain
- Family Support/Liaison
- Facilitate Family Presence

QA personnel

Other resuscitation considerations

Post resuscitation

If resuscitation is successfully, care should be directed towards optimizing cardiovascular status, protecting neurological status, and supporting end-organ function

- If necessary, transition to higher level of care
- Normalize perfusion and blood pressure
  - Volume resuscitation may still be necessary
- Consider initiating hypothermia guideline
- Treat the initial cause of deterioration
  - Abx for sepsis, anti-arrhythmics for arrythmias, etc
- Consider avoiding hyperoxia
  - Wean FiO2 to goal saturation 94-99%
  - Saturations of 100% may correlate with a pAO2 of anywhere from 80-500, therefore keeping the saturation less than 100% may be helpful in preventing hyperoxia
- Consider avoiding hyperventilation
  - Goal normal pCO2 to avoid cerebral vasoconstriction and potential worsening of cerebral ischemia
- If lines placed in an unsterile manner during the resuscitation, consider replacing in a sterile manner
- Good post-resuscitation care is as important as resuscitation in reducing long term end organ damage

Death

- If resuscitation going poorly and death appears likely
  - **Team leader** may ask if there are any other resuscitative measures that should be undertaken and direct them to be performed if appropriate (i.e. bilateral needle decompressions, pericardial tap) OR
  - **Team leader** may solicit input from the rest of the team regarding the need for any additional resuscitative measures and the likelihood of declaring death imminently
  - If family present, the team leader or their designee should have been keeping the family members apprised. At this juncture, the **team leader** may inform family that efforts at resuscitation will likely not be successful and explain briefly and gently how the next several minutes of the code will unfold.
  - If family has not been present, consider bringing family in prior to the cessation of all resuscitative measures
    - Families who did not wish to witness resuscitation may wish to be present at the moment of death
    - As the family moves to the bedside, consider using clean linens to cover the patient for modesty and any large areas of blood or other spillage
- **Team leader** responsible for calling time of death
  - Best to negotiate a plan with individuals doing compressions and assisting with ventilation how and when the team leader will indicate that CPR is to be stopped in the presence of the family members **before** physically bringing family up to the bedside
  - **Team leader** respectfully informs family that the patient has died
  - **Team leader** gives **documenter** official time of death

- **Team leader** responsible for ensuring that death packet is filled out (may be delegated to patient's primary service attending)
    - Remember to call medical examiner (if necessary), LifeNet, patient's primary service attending, patient's primary physician
    - **Team leader** or other primary provider approaches family to offer autopsy

Resuscitation with DNR in place

- Patients with DNR/DNI orders should not be subjected to attempts at resuscitation. All of these patients and their families will require care, often an escalation of care at the end of life. This care may include treatment of discomfort, pain, anxiety, shortness of breath, etc. Patients and families may prefer the term Allow Natural Death (AND). Consider palliative care team consult for pain and symptom management questions.
- While it is not the preferred plan of care from the standpoint of simplicity, there remains the option of creating a limited resuscitation plan with a patient and family using specific order sets. For many patients, this intermediary position represents a compromise along the transition to full comfort measures with no attempts at resuscitation as the ultimate destination.
    - If a patient with such an intermediary resuscitation plan is becoming more unstable, consider detailed discussions with key physicians, family members and other members of the team as appropriate
    - Patient comfort remains a high priority, if not the top priority. Patients with intermediary resuscitation plans may require treatment of pain, discomfort, anxiety, shortness of breath, etc. Consider palliative care team consult as needed.

REFERENCES:

Peberdy MA, Callaway CW, Neumar RW, et al. Part 9: Post–Cardiac Arrest Care: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation.* 2010; 122:S768-S786.

DISCLAIMER:

Guidelines are general and cannot take into account all of the circumstances of a particular patient. Judgment regarding the propriety of using an specific procedure or guideline with a particular patient remains with the patient's physician, nurse, or other health care professional, taking into account the individual circumstances presented by the patient.

REVISION HISTORY

Date	Version	Description	Owner(s) Name, Credentials, Title	Committee Approval*	Date of Approval
Jan 2013	1		William Brady, MD	Medical Emergency Response Subcommittee	Jan 2013
Feb 2013				Patient Care Committee (executive action)	Feb 2013

*PCC approval is required if the guideline will be used in multiple areas or if the local area does not have a practice committee to approve the guideline. If approval is required through other committees (such as patient safety, infection control, etc), please list those committees and dates of approval as well.