Title:	Code Blue	Page 1 of 7
Policy No:	3 HUH HWH CLN 8007	Effective Date: May 15, 2005

OBJECTIVE
To provide emergency resuscitation to adult patients, visitors, or staff who experience a medical emergency at Harper University Hospital (HUH), Hutzel Women's Hospital (HWH), or The Cancer Hospital (TCH).

SCOPE
All health care personnel and other designated employees.

DEFINITIONS
Code Blue: A medical emergency that requires response of the code blue team for emergency resuscitation of an adult.

Code Blue–Pediatric: A medical emergency occurring in a child age 1 month to 8 years of age.

Code Pink: A medical emergency occurring in a neonate (ages birth to 28 days) or in a patient admitted to the Neonatal Intensive Care Unit (NICU) or Special Care Nursery (SCN).

POLICY
All patients, visitors, and employees who sustain a cardiac or pulmonary arrest are resuscitated consistent with their code status designation.

PROVISIONS
A. A Code Blue is a hospital emergency established to handle, in a prompt and orderly fashion, any unexpected cardiac or respiratory emergency within the hospital.
   1. Physicians must designate a code status when a patient is admitted to Harper University Hospital or The Cancer Hospital. The three categories defined in Tier 1CLN 009 Resuscitate/Do not Resuscitate [DNR] Orders are:
      a. Full Support
      b. Do not resuscitate: clinical management with some limitations
      c. Do not resuscitate: comfort measures only
   2. A Code Blue is called and cardiopulmonary resuscitation (CPR) is initiated by any physician, RN, LPN, PCA or other BLS-trained health care personnel to quickly establish circulation and ventilation for the person in need.
   3. A Code Blue – Pediatric is called for medical emergencies in patients or visitors from ages 1 month to 8 years of age (see 3 HUH PED 8001).
   4. A Code Pink is called for medical emergencies in neonatal patients or visitors ages birth to 28 days, or for infants admitted to the NICU or SCN.
   5. The announcement of a "Code Blue" over the public address or radio page system is a summons to all necessary departments to respond promptly with their equipment and/or personnel and initiate efforts. The following personnel respond to a Code Blue in all areas covered by the Harper Hutzel Hospital code team:
      a. Critical Care Fellow
      b. A senior medical resident and his/her team of junior medical residents and/or interns.
      c. Anesthesiologist or Certified Registered Nurse Anesthetist (CRNA)
      d. Nursing Supervisor
      e. SWAT nurse when on duty
      f. Respiratory Therapist
      g. Clinical Manager/designee, Charge Nurse, RN assigned to the patient
      h. Security officer
      i. Pastoral Care if in house
      j. OB attending physician if emergency occurs in Labor and Delivery (LDR), Labor, Delivery, Recovery & Post Partum (LDRP), Maternal Special Care (MSCU), Antepartum, or Post Partum areas.
      k. OB resident staff if emergency occurs in LDR, LDRP, Antepartum, or Post Partum areas.
      l. Transportation staff member with a transport stretcher

Sponsor: CPR Committee

m. Logistics staff with a back-up Code Blue Crash Cart/Defibrillator, Transport Monitor with transcutaneous pacemaker capability, and Red Bag containing transvenous pacing equipment.

6. The critical care fellow is designated as the team leader unless otherwise determined. The attending physician, resident responsible for the patient's care, or senior resident may be designated as Code Blue Team Leader in some circumstances.
7. A senior physician who is not the team leader or the nursing supervisor will dismiss all unnecessary personnel from the room.

B. Duties of personnel detecting a Code Blue:
   1. Remain with patient
      a. Call Code Blue by dialing 117 and give the operator the location of the incident.
      b. Initiate CPR.
   2. Request assistance from other personnel to bring a Code Blue Crash Cart to the patient.
      a. Place a cardiac board, if available, under the patient between shoulders and waist or leave/place the patient on the floor.
      b. Adjust bed/stretcher to flat position. Deflate or decompress any air mattress or specialty bed.
      c. Hook the patient up to the Code Blue Crash Cart monitor/defibrillator or automatic external defibrillator (AED) when it arrives.
      d. If an AED is available, BLS-trained personnel will initiate use of the AED as described by the American Heart Association (AHA) BLS protocol and per manufacturer's instructions.
   3. When the Code Blue team arrives, the personnel who detected the Code Blue should assist them as needed.

C. Duties of Telepage Operator:
   1. Answer the emergency line 117 immediately. If the emergency call relates to a Code Blue, immediately implement the following:
      a. A Code Blue notification is announced and repeated three times over the public address system including the location, room number, and bed number if applicable.
      b. A Code Blue alert is broadcast on the radio paging system to all Code Blue team members.
      c. The following areas are phoned to inform them of the Code Blue:
         i. Anesthesia Department, 745-8521
         ii. Logistics Management, 745-8174
         iii. Transportation Department (0700-2300), 745-1790
         iv. Security, 745-8353

D. Duties of medical and surgical residents:
   1. All designated physicians respond to a Code Blue when alerted by the public address announcement and/or pager.
      a. Upon arrival, a physician supervises and/or performs cardiac compressions and/or ventilations as needed until other members of the team arrive.
      b. When the Code Blue Team arrives, the team leader is identified. The critical care fellow is the team leader unless otherwise determined.
      c. The team leader supervises establishment of a patent airway.
      d. The team leader supervises insertion of IV access if needed. If a resident is appropriately trained, he/she may place a central venous catheter.
      e. The team leader orders and/or supervises the administration of appropriate drugs.
      f. The team leader administers or supervises the administration of countershock when indicated.
      g. Following successful resuscitation, the team leader initiates post-resuscitative care.

E. Special considerations for Pregnant Patients:
   1. If patient is pregnant, qualified personnel will manually displace the uterus to the left, or place a wedge/blanket under the patient's right hip during CPR. Left lateral displacement of the uterus increases venous return to the heart and augments cardiac output during CPR.

2. If patient is 24 weeks gestation or greater, Code Blue Team Leader or designee will notify the Labor and Delivery team stat by dialing 966-7063 to reach the third year obstetrics resident. The Labor and Delivery team will determine need for emergent delivery of fetus.

F. Duties of Code Blue Team Leader after Code Blue:
1. Discontinues CPR efforts.
2. Confers with the attending physician regarding the patient's disposition. If the attending physician is not available, the team leader makes the decision regarding the patient's disposition and continues to attempt to contact the attending physician.
3. The team leader ensures that the patient's family is notified. If possible, notification should be done by the attending physician, the responsible resident, or the team leader.
4. The team leader completes the physician portion of the *CPR Report Form* and reviews the entire form for completeness and accuracy.
5. The team leader documents a summary of the event in the progress notes of the patient's medical record.
6. Documentation should include events immediately preceding the arrest, if known, assessment of etiology of the arrest, and an immediate post-code evaluation if the patient survived the arrest.

G. Duties of Administrative Supervisor:
1. Provides support to the code team and nursing personnel as needed.
2. Requests that unneeded personnel leave the code blue area.
3. Assists in the placement or transfer of the patient to an appropriate bed as needed.

H. Duties of Respiratory Therapist:
1. Assist in ventilation and oxygenation of the patient as follows:
   a. Ventilates patient using manual resuscitation bag, mask, and appropriate airway.
   b. Delivers ventilator, prepares ventilator for patient use and implements ventilator support.
   c. After successful resuscitation, assumes responsibility for airway protection and maintenance of effective ventilation and oxygenation. Remains with the patient until transfer/disposition is completed.
2. Performs cardiac compressions as needed.

I. Duties of Anesthesia staff:
1. Establishes or verifies a patent airway and effective ventilation.
2. After successful intubation, anesthesia staff may relinquish responsibility for the protection of the airway and the maintenance and monitoring of effective ventilation to the Code Blue Team Leader.

J. Duties of Nursing and Support Personnel
1. Recognize arrest or medical emergency and call Code Blue #117 to summon Code Blue Team.
2. Obtain manual resuscitation bag/mask and begin CPR. Summon help to bring the Code Blue Crash Cart and emergency equipment to the patient.
3. Remove roommate, other patients and visitors from the area, if possible, prior to the arrival of the Code Blue Crash Cart.
4. On the Post Partum Mother Baby Units; designate qualified personnel to move infant to unit nursery for direct observation during the Code Blue.
5. Upon arrival of the Code Blue Crash Cart:
   a. Turn on the monitor and connect monitoring leads to the patient.
   b. Apply AED if available and initiate AED shocks as indicated.
   c. Position the cart with the monitor facing the patient.
   d. Obtain initial rhythm and document accordingly. If unsure of the rhythm, ask a physician.
   e. Plug the cart's electrical cord into a wall receptacle and turn on the suction pump.
   f. Assist ventilation efforts by:
      i. Assembling a suction catheter and assure suction system is operational.
      ii. Connect oxygen flowmeter with attached delivery tubing to wall outlet or portable tank.
   g. Request the team leader to identify him/herself.
6. Assess the patient's IV site if present. Verify IV fluid with the team leader.

7. Designate person to keep log of code events. Record information requested on the *CPR Report Form* (Appendix A) as it occurs in sequence. The person logging events must sign the *CPR Report Form*.
8. Inform the Administrative Supervisor of needs for additional equipment, drugs or personnel. In addition to the people assisting with resuscitation, someone must always be available to relay messages outside the room and obtain additional equipment/supplies. In patient rooms, the intercom should remain open to the nursing station.
9. Post CPR duties:
   a. Ensure appropriate nursing staff and the team leader completes the *CPR Report Form*. Place the patient's identification label on all three copies of the *CPR Report Form*and place the original white copy in the patient's medical record. Send the pink copy to the Pharmacy and the yellow copy to the CPR committee via the manager of the department where the code occurred.
   b. Complete the *Crash Cart Report Form* (Appendix B) regarding equipment and supplies. Send it to the Logistics Management department with the Code Blue crash cart.
   c. Properly dispose of supplies using appropriate waste containers. Reusable equipment is placed on top of the Code Blue crash cart for retrieval.
   d. Notify Logistics Management when the cart is ready to be picked up.
   e. Order replacement emergency equipment as necessary.

K. Duties of Pharmacist
1. Upon request, a pharmacist will respond immediately to the Code Blue.
2. The pharmacist consults with the team leader regarding medication therapy.
3. The pharmacist provides drug and therapeutic information in the form of dosages, calculations, drug interactions, IV compatibility, side effects and adverse reactions.
4. The pharmacist prepares and mixes medications for administration in conjunction with the unit nurse as needed.

L. *CPR Report Form*: Guidelines for Completion
1. Arrest Recognition:
   a. Fill in the date of the arrest, using zeros to fill in all the boxes, e.g. 120102 = December 1, 2002.
   b. Check the box to indicate who recognized the arrest. If other is checked, identify by whom.
   c. Fill in the time the arrest was recognized and the location, e.g. unit, room and bed number.
   d. Fill in the time CPR was started using military time and by whom (first initial, last name and professional designation).
2. Arrest Features:
   a. Check whether or not the arrest was witnessed.
   b. Check the box next to the type of arrest; describe "other" if applicable.
   c. Check the box next to the initial cardiac rhythm; describe "other" if applicable. Confirm rhythm with the team leader.
3. Intubation:
   a. Check whether or not the patient was intubated during the code.
   b. Fill in the time of intubation and who intubated the patient, e.g. anesthesia, physician - service.
4. IV Line:
   a. Indicate any pre-existing IV and its location.
   b. For patients having no pre-existing IV:
      i. Check that IV was not pre-existing.
      ii. Fill in the time the IV was inserted and who inserted it.
   c. Check the location of the IV insertion.
5. Pacemaker:
   a. Indicate whether there is a pre-existing pacemaker. If there is, check the appropriate box for capture.
   b. When a pacemaker is inserted during the code, fill in the insertion time, physician name who inserted/applied the pacemaker and the pacemaker type.
6. Charting Section:
   a. Time: Note the time using military notation for each entry.
   b. Rhythm: Note the rhythm initially and for each intervention. Document any rhythm changes.

c. BP: Document Blood Pressure when obtained.
d. HR: Document Heart Rate when obtainable via apical rate or from monitor, if accurate.
e. Medication/Other Procedure:
   i. Chart all medications given, including dose, concentration and route.
   ii. Chart all IVs hung during the code, including the rate, dose (if calculated), site and concentration of solution, e.g. 400mg Dopamine/D5W 250ml wide-open or 10 micrograms/kg/minute.
   iii. Document any central line or other IV lines inserted during the code in the charting section according to the sequence of events
   iv. With the exception of the initial ABG's and electrolytes, chart all blood specimens drawn during the code in this section.
f. DC Shock: Document joules used to defibrillate the patient.
g. Resultant Rhythm/Effect: Document rhythm resulting from any intervention. When unclear, ask the team leader. Strips documenting response to pharmacological or electrical treatment are taped to the back of the white patient chart copy.
h. Labs: Document the times the initial ABG's and electrolytes are drawn in this section.
i. Nurse Recorder: Signature and professional designation of the RN completing the form.

7. Resultant Patient Condition:
   a. The team leader completes this section.
   b. Document the resulting patient's condition and disposition after the code. If the patient expired, check the appropriate box; indicate the time of death, and who pronounced the patient.
   c. Document notification of the attending physician and family.
   d. Complete the physician's comment section.
   e. Sign the form and record beeper number.
8. Nursing staff places the patient's identification label on all three copies of the CPR report. The white copy is placed in the patient's chart. The yellow copy is submitted to the CPR committee. (It may be sent via the manager of the department where the code occurred.) The pink copy is sent to the Pharmacy.

M. Duties of Pastoral Care Personnel:
1. When in the hospital, respond to Code Blue announcement.
2. Determine religious affiliation of patient. Assess and provide for religious rites as appropriate.
3. Minister to the family of the patient if present.
4. Minister to the patient's roommate or others present if appropriate.
5. Assist with notification of the patient's family as directed by the physician.

N. Duties of Logistics Management
1. Immediately dispatch a Central Services Technician to bring a portable monitor/defibrillator with transcutaneous pacing capability, a Transvenous pacing set-up, and a replacement Code Blue crash cart to the location of the code blue.
2. Upon notification from the department where the code blue occurred, pick up the used Code Blue crash cart and portable monitor/defibrillator if it is not in use. EXCEPTION: On HWH units with Heartstream XL or Codemaster defibrillators, the monitor/defibrillator is not sent down to Logistics with the crash cart. If the portable monitor/defibrillator remain with the patient, nursing staff will notify Logistics Management when and where to retrieve the equipment.
3. Correct any deficiencies noted on the *Crash Cart Report Form* and contact Clinical Engineering for repairs if necessary.

O. Duties of Central Sterile Processing
1. Clean the crash carts
2. Promptly restock the used crash cart, arranging all supplies according to the standard.

P. ICU staff members are responsible for restocking ICU emergency/crash carts according to 3 HUH HWH CLN 8009 Crash Cart and Emergency Equipment.

Q. Pharmacy provides replacement emergency medication trays.

Sponsor: CPR Committee

R. Staff CPR Education Program
1. Designated Patient Care Services personnel complete the Health Care Provider BLS or Heart Saver course every two years. Equipment review and skills assessment are completed annually.
2. Designated Patient Care Services personnel complete ACLS provider certification every two years according to policy 2 PC 1026 Mandatory Advanced Cardiac Life Support (ACLS) Requirements.

S. Patient Care Unit Emergency Equipment
1. Each patient care unit has emergency drugs in the Pyxis Medstation. Pharmacy maintains an adequate supply according to par stock levels.
2. Each patient care unit has an ambu bag, mask and packaged adult airway for emergency use.
3. Portable suction is attached to each Code Blue Crash Cart.
4. Portable emergency oxygen is located on each patient care unit.
5. Patient Care Services personnel are responsible for maintaining emergency equipment and ensuring its replacement after use.

T. Pediatric Emergency Equipment
1. Patient care units that care for pediatric patients as per hospital policy will maintain pediatric emergency equipment and weight specific drug dosing information for those patients.

U. Neonatal Emergency Equipment
1. Patient care units that care for neonatal patients will maintain neonatal emergency equipment on Code Pink Crash Carts per 3 HWH WHS 8006.

V. Code Blue Crash Carts/Emergency Equipment
1. The locations of Code Blue Crash Carts are identified in Attachment 1.
2. The Intensive Care Units, Cardiac Catheterization Lab, Operating Room, Same Day Surgical Center, Emergency Department, Echo Lab, and Meyer's Lab house and restock their own equipment for Code Blue/Resuscitation.
3. Code Blue Crash Carts are to be used for Code Blue events, not as a routine source of drugs or supplies. Logistics Management places plastic locks on each Code Blue Crash Cart to ensure they are not compromised.
4. A *CPR Report Form* (Appendix A), Preparation and Dosing of Drugs in Code Blue (Attachment 2), and copies of current AHA ACLS algorhythms are attached to each cart (Attachment 6).
5. A *Crash Cart Report Form* (Appendix B) is attached to each cart. Users should report any crash cart deficiencies on the form that is returned with the used cart. If the crash cart deficiency could or does result in a delay in patient treatment, an incident report is generated. Logistics Management is responsible for correcting problems with the Code Blue Crash Cart.
6. Pharmacy provides a sealed medications drawer insert to Logistics Management for each Code Blue Crash Cart. The pharmacy drawer contents are itemized in Attachment 3.
7. A cardiac defibrillator with cardiac monitor is located on top of each Code Blue Crash Cart.
8. An assembled suction system with suction tubing and Yankauer are located on the Code Blue Crash Cart.
9. The *Crash Cart Replenishment Form* (Attachment 4) itemizes the supply stock and locations on the Code Blue Crash Cart.
10. A *Crash Cart Expiration Checklist* (Attachment 5) is attached to each Code Blue Crash Cart indicating the expiration dates of supplies.
11. Designated staff in each area that houses a Code Blue Crash Cart checks the cart in accordance with policy 3 HUH HWH CLN 8009. Any problems or cart supply expirations are reported to Logistics Management immediately for replacement/correction. Problems with oxygen tanks are referred to Pulmonary Department for resolution.

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ATTACHMENTS
1: Crash Cart Locations
2: Preparation and Dosing of Drugs in Code Blue
3: Crash Cart Drug List
4: Crash Cart Replenishment Form
5: Crash Cart Expiration Checklist
6. AHA ACLS Algorhythms

ADMINISTRATIVE RESPONSIBILITY
The Vice President of Operations and Vice President of Patient Care Services have overall authority and responsibility for the administration of all policies, procedures, and guidelines related to patient care. Department managers have day-to-day responsibility for enforcement of this policy.

APPROVAL SIGNATURE(S)

_____ _____
Vice President of Operations Date

_____ _____
Vice President of Patient Care Services Date

REVIEW DATE
May 15, 2008

SUPERSEDES
3 HAR PC 8401 Cardiopulmonary Resuscitation (March 31, 2002)
3 HTZ CLN 8007 Code Blue (December 1, 2001)

Sponsor: CPR Committee

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Code Blue Crash Cart Locations	Attachment 1

Code Blue Crash Cart/Emergency Equipment Locations

Code Blue Crash Carts:

10 Webber North
10 Webber South
Hemodialysis (10th floor ICU tower)
9 Webber North
9 Webber South
8 Webber North (Vascular Lab)
8 Webber North (Pulmonary)
8 Webber South
8 PCU
8 Brush North (Nuclear Lab)
5 Webber North
5 Webber South
5 Brush North
5 Brush Center
4 Webber North
4 Webber South
3 Brush (North & South)
3 Webber North (L&D)
3 Webber South (LDRP, MSCU)
OB Recovery Room
L&D Operative Suite
Labor Reception Center (3 ICU Tower)
2 Webber North
2 Webber South
2 Brush North/South
1 Webber South (Patient Testing Center)
Emergency Department (1st Floor, Pro Building)
Wertz Clinic E (covers all Wertz, Walt Breast Center, BMT Clinic)
ROC (Radiation Oncology)
1 Hudson Health Information Management (covers first floor Brush – Nursing Supervisor will transport cart)
Arteriogram Holding Area (covers Nuclear Medicine, CT, MRI, Radiology, Tunnel to junction, Pathology and first floor Webber)
Ground (basement) Brush North Logistics Management (covers Brush and Hudson basement)
Ground Webber North/Wertz (ARC South)
Ground Webber North/Wertz (Diagnostics & Evaluation/Endoscopy)
Ground Webber South (PACU)

Code Pink Carts

3 Webber North
3 Webber South
3 Brush Center
2 Webber North
2 Webber South
2 Brush Center

Pediatric Emergency Equipment

10 Webber North
6 ICU

Sponsor: CPR Committee

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Code Blue Crash Cart Locations	Attachment 1

Emergency Equipment:

The following areas house and restock their own equipment for CPR including a defibrillator and emergency drugs:

9 ICU
6 ICU
5 ICU
4 ICU
Cardiac Catheterization Lab (Basement Webber North)
Operating Room (Basement Webber South)
Same Day Surgical Center (3rd Floor Professional Office Building)
Ambulatory Reception Center Emergency Department (1st Floor Professional Office Building)
Electrophysiology Lab (8 Webber South)
Echo Lab (8 Brush South)
Meyer's Endoscopy Lab (Basement Wertz)
Diagnostics & Evaluation Unit (Basement Wertz)

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Preparation and Dosing of Drugs in Code Blue	Attachment 2

Guidelines for Using the Code Blue Crash Cart: Preparation and Dosing of Drugs in Code Blue

Drug	Preparation	Infusion Rate	Dosing Regimen
Adenosine	N/A	6 mg over 1-3 sec	Initial bolus: 6mg IVP over 1-3 sec. Dose should be followed by 20ml NS. If no response within 1-2 min, a 12mg repeat dose should be administered in the same manner.
Amiodarone	N/A	N/A	Initial bolus: 300 mg rapid IVP diluted in 20ml D5W or NS. May repeat a second dose of 150 mg in 3-5 minutes, if no response. *If an infusion is required, pharmacy will compound. The concentration will be 450mg/250 D5W. After the loading dose has been given, the infusion rate should be 1 mg/min for 6 hours, then 0.5mg/min over the next 18 hours.
Atropine	N/A	N/A	Asystole & slow pulseless electrical activity: 1mg IV and repeat in 3-5 min if asystole persists. Bradycardia: 0.5-1mg IV every 3-5 min to a total dose of 0.04mg/kg or 3mg. Endotracheal dose: 1-2.5mg diluted in 10ml NS
Calcium Chloride	N/A	N/A	A 10% solution of calcium chloride can be given in a dose of 2-4mg/kg and repeated as necessary at 10 min intervals.
Dopamine	400mg/250ml D5W Concentration: 1.6mg/ml	2-20mcg/kg/min	Initial rate: 2.5-5mcg/kg/min and titrate to desired effect. Common dosing range is 5-20mcg/kg/min.
Epinephrine	1mg/250ml D5W Concentration: 4mcg/ml	1-10mcg/ml	IV bolus: 1mg (1:10,000) solution every 3-5min. Intermediate dose: 2-5mg IV bolus every 3-5min. Escalating dose: 1, 3, 5 mg IV bolus (3 min apart). High dose: 0.1 mg/kg IV bolus every 3-5min. Endotracheal dose: 2-2.5mg of 1:1000 solution. Add NS for total volume of 10ml. Infusion rate: 0.1-1 mcg/kg/min.
Isoproterenol	1mg/250ml D5W Concentration: 4mcg/ml	2-10mcg/min	Infusion rate: 2-10mcg/min and titrate according to heart rate and rhythm.
Lidocaine	1gm/250ml Concentration: 4mg/ml	1-4mg/min	Initial bolus: 1-1.5mg/kg, additional boluses of 0.5-1.5mg/kg can be given every 5-10min if necessary to a total of 3mg/kg. With return of perfusion, a continuous infusion should be initiated at 2-4mg/min.
Magnesium Sulfate	N/A	N/A	1-2gm (8-16 mEq) diluted in 10ml and administered over 1-2 min in VF/VT. In patients with documented hypomagnesemia, a loading dose of 1-2gm in 50-100ml D5W should be administered over 5-60min. An infusion of 0.5-1gm/h should follow for up to 24

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Preparation and Dosing of Drugs in Code Blue	Attachment 2

			hours.
Metoprolol	N/A	N/A	5-10mg slow IVP at 5 min intervals to a total dose of 15mg.
Norepinephrine	4mg/250ml D5W Concentration: 16mcg/ml	0.5-30mcg/min	Initial dose: 0.5-1mcg/min and titrate to effect. Patients with refractory shock may require 8-30mcg/min.
Procainamide	1gm/250ml D5W Concentration: 4mg/ml	1-4mg/min	IV infusion: 20mg/min until arrhythmia is suppressed, hypotension ensues, the QRS complex is widened by 50% of its original width, or a total of 17mg/kg of the drug has been administered. The maintenance infusion rate is 1-4mg/min.
Sodium Bicarbonate	N/A	N/A	1 mEq/kg, then half this dose every 10 min.
Vasopressin	N/A	N/A	ACLS Dose: 40 Units IVP over 2 minutes Drip for refractory shock: 10 Units in 100 ml D5W. (may go 100 units in 100ml D5W). Infuse at 0.04 to 0.08 Units/min. Higher doses are not well studied).
Verapamil	80mg/250ml D5W	0.32mg/ml	Initial dose: 2-5mg given IV over 2 min. Repeated doses of 5-10mg may be administered every 15-30 min to a maximum of 20mg.

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Code Blue Crash Cart Drug List	Attachment 3

Guidelines for Using the Crash Cart: Preparation and Dosing of Drugs in Code Blue

Drug	Preparation	Infusion Rate	Dosing Regimen
Adenosine	N/A	6 mg over 1-3 sec	Initial bolus: 6mg IVP over 1-3 sec. Dose should be followed by 20ml NS. If no response within 1-2 min, a 12mg repeat dose should be administered in the same manner .
Amiodarone	N/A	N/A	Initial bolus: 300 mg rapid IVP diluted in 20ml D5W or NS. May repeat a second dose of 150 mg in 3-5 minutes, if no response. *If an infusion is required, pharmacy will compound. The concentration will be 450mg/250 D5W. After the loading dose has been given, the infusion rate should be 1 mg/min for 6 hours, then 0.5mg/min over the next 18 hours.
Atropine	N/A	N/A	Asystole & slow pulseless electrical activity: 1mg IV and repeat in 3-5 min if asystole persists. Bradycardia: 0.5-1mg IV every 3-5 min to a total dose of 0.04mg/kg or 3mg. Endotracheal dose: 1-2.5mg diluted in 10ml NS.
Calcium Chloride	N/A	N/A	A 10% solution of calcium chloride can be given in a dose of 2-4mg/kg and repeated as necessary at 10 min intervals.
Dopamine	400mg/250ml D5W Concentration: 1.6mg/ml	2-20mcg/kg/min	Initial rate: 2.5-5mcg/kg/min and titrate to desired effect. Common dosing range is 5-20mcg/kg/min.
Epinephrine	1mg/250ml D5W Concentration: 4mcg/ml	1-10mcg/ml	IV bolus: 1mg (1:10,000) solution every 3-5min. Intermediate dose: 2-5mg IV bolus every 3-5min. Escalating dose: 1, 3, 5 mg IV bolus (3 min apart). High dose: 0.1 mg/kg IV bolus every 3-5min. Endotracheal dose: 2-2.5mg of 1:1000 solution. Add NS for total volume of 10ml. Infusion rate: 0.1-1 mcg/kg/min.
Isoproterenol	1mg/250ml D5W Concentration: 4mcg/ml	2-10mcg/min	Infusion rate: 2-10mcg/min and titrate according to heart rate and rhythm.
Lidocaine	1gm/250ml Concentration: 4mg/ml	1-4mg/min	Initial bolus: 1-1.5mg/kg, additional boluses of 0.5-1.5mg/kg can be given every 5-10min if necessary to a total of 3mg/kg. With return of perfusion, a continuous infusion should be initiated at 2-4mg/min.
Magnesium Sulfate	N/A	N/A	1-2gm (8-16 mEq) diluted in 10ml and administered over 1-2 min in VF/VT. In patients with documented hypomagnesemia, a loading dose of 1-2gm in 50-100ml D5W should be administered over 5-60min. An infusion of 0.5-1gm/h should follow for up to 24 hours.

Sponsor: CPR Committee

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Metoprolol	N/A	N/A	5-10mg slow IVP at 5 min intervals to a total dose of 15mg.
Norepinephrine	4mg/250ml D5W Concentration: 16mcg/ml	0.5-30mcg/min	Initial dose: 0.5-1mcg/min and titrate to effect. Patients with refractory shock may require 8-30mcg/min.
Procainamide	1gm/250ml D5W Concentration: 4mg/ml	1-4mg/min	IV infusion: 20mg/min until arrhythmia is suppressed, hypotension ensues, the QRS complex is widened by 50% of its original width, or a total of 17mg/kg of the drug has been administered. The maintenance infusion rate is 1-4mg/min.
Sodium Bicarbonate	N/A	N/A	1 mEq/kg, then half this dose every 10 min.
Vasopressin	N/A	N/A	ACLS Dose: 40 Units IVP over 2 minutes Drip for refractory shock: 10 Units in 100 ml D5W. (may go 100 units in 100ml D5W). Infuse at 0.04 to 0.08 Units/min. Higher doses are not well studied).
Verapamil	80mg/250ml D5W	0.32mg/ml	Initial dose: 2-5mg given IV over 2 min. Repeated doses of 5-10mg may be administered every 15-30 min to a maximum of 20mg.

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Crash Cart Replenishment Form	Attachment 4

MATERIALS RESOURCES MANAGEMENT
CENTRAL STERILE PROCESSING
CRASH CART REPLISHMENT FORM

Harper University Hospital
Detroit Medical Center/Wayne State University

CRASH CART NUMBER	PROCESSED BY	
	QA PERFORMED BY	
	DATE	

LOCATION / ITEM	STOCK LOCATION	STOCK NUMBER	PAR	NEED	FILLED
DRAWER 1 PHARMACY					
MEDICINE TRAY		(FROM PHARMACY)	1		
DRAWER 2: MISCELLANEOUS					
PRE-JELLED ELECTRODES	F1-D1	42981941BG	6		
ROLL EKG PAPER 9-8047	G3-A1	48128220RL	1		
TEGADERM	I2-D2	48193051EA	2		
LIFEPAK DEFIB PACKAGES	F1-D3	48179424PR	2		
DRAWER 3: SYRINGES/NEEDLE					
3CC 21GA SYRINGE	F5-E4	4811243EA	10		
5CC 21GA SYRINGE	F5-E4	48181302EA	6		
10CC SYRINGE	F5-B3	48184259EA	6		
ARTERIAL BLOOD SAMPLING KIT	F3-F1	48181207EA	1		
20CC SYRINGE	F5-C1	48133410EA	2		
60CC SYRINGE	F5-33	48183422EA	1		
19GA SPINAL NEEDLE	F3-A2	48188165EA	2		
18GA SPINAL NEEDLE	F3-A1	48188199EA	2		
21GA NEEDLE	F3-D1	48188219BX	10		
18GA NEEDLE	F3-C2	48188104BX	5		
25GA NEEDLE 5/8"	F3-B4	48188313BX	2		
TB SYRINGE	F5-A1	48181225EA	4		
STERILE HEMOSTAT	B7-B2	481360A4EA	1		
SUTURE SILK 3.0 684H	D5-A3	48196292BX	3		
PENROSE DRAIN 1/4 X 12	J3-E1	36678112EA	2		
SCALPEL	F5-E1	48136960EA	1		
ALCOHOL SPONGES	B6-B2	48194730BX	20		
IODINE SPONGE	B6-B4	4819473OBX	6		
VACUTAINER HOLDER	F2-B3	48156649EA	1		
VIAL ADAPTER	G4-A5	36727510BX	2		
LAB TUBE BLUE	F2-B1	48156638EA	2		
4 WAY STOPCOCK	J1-E1	36996004EA	2		
TUBING CONNECTOR 1/4"		3699792GEA	2		
BANDAGE SCISSOR	B7-B3	481360BBEA	1		
VACUTAINER NEEDLE	F2-B2	48156649EA	1		
DRAWER 4: RESPIRATORY					
TWILL TAPE 1/2 X 18"			2		
OXYGEN NIPPLE ADAPTER	J1-B7	48162011EA	1		
SUCTION YANKAUER	J5-B1	48136115EA	1		
KIT SUCTION WITH GLOVE 14FR	J2-C1	48136134LA	5		
OXYGEN FLOWMETER		RESP	1		
CVD FLARED TIP, CANNUAL NASAL	F1-B2	481620BYEA	1		
ADULT AIRWAY MEDIUM	F1-B2	481623CPEA	1		

Sponsor: CPR Committee

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Crash Cart Replenishment Form	Attachment 4

MATERIALS RESOURCES MANAGEMENT
CENTRAL STERILE PROCESSING
CRASH CART REPLISHMENT FORM

Harper University Hospital
Detroit Medical Center / Wayne State University

LOCATION / ITEM	STOCK LOCATION	STOCK NUMBER	PAR	NEED	FILLED
ADULT AIRWAY LARGE	E1-B3	481623ALEA	1		
MAGILL FORCEP	B7-E5	CSP	1		
INTUBATING 14FR.	E1-C1	369946BYEA	1		
JELLY LUBRICANT	I2-A4	36331005EA	5		
LARYNGOSCOPE SET:					
BATTERY HANDLE	B7-B6	REUSABLE	1		
C BATTERIES	RIM-M	46531318EA	2		
STRAIGHT BLADE	B7-B7	REUSABLE	1		
CURVED BLADE	B7-B8	REUSABLE	1		
ENDOTRACH TUBE 6.0	E1-D1	481623DXEA	1		
CUFFED TRACH TUBE 7.0	E1-D2	481623CVEA	1		
TRACH MURPHY TUBE 8.0	E1-D4	481623CWEA	1		
TRACH MURPHY TUBE 9.0	E1-E6	481623AJEA	1		
SALEM SUMP TUBE 14FR	J1-C1	408197812EA	1		
1" TAPE HYPO-ALLERGENIC	I3-C1	48193904RL	1		
1" TAPE TRANSPORE	I3-B1	48193902RL	1		
1" CLOTH TAPE	I3-A4	48193906RL	1		
SODIUM INHALATION SOL	F1-D4	RESP	1		
LAB TUBE LAVENDER	F2-D1	48156654EA	2		
LAB TUBE RED	F2-D1	48156629EA	2		
LITHIUM HEAPARIN TUBE	F2-A1	48156851BX	1		
EASY CAP II	E1-C2		1		
DRAWER 5: INTRAVENOUS					
500ML D5W 2B0063	K5-D1	35882011EA	3		
250ML D5W 2B0062	K5-C3	35882010EA	8		
500ML NS 2B1323	K4-C2	35882034EA	2		
1000ML NS 2B1324	K4-D1	35882035EA	2		
500ML 5D NS 2B1063	K4-E3	35882019EA	3		
500ML 5DLR K2-D3	K2-D3	35882039EA	1		
IV LABELS	K3-B1	321971DBRL	7		
CUTDOWN CATHETER	H3-B3	PENDING	1		
ANGIO CATH 18X1.25	F4-A1	48155821EA	4		
14GA INTRACATH 14GX16X8	H3-A1	48155823EA	6		
17GA INTRACATH 17GX19X8	H3-A2	48155824EA	2		
SET IV BASIC SOLUTION 2C5402	K2-A2	48167420EA	2		
IV ADM BLOOD YTYPE W/O NDL	K2-A3	48167436EA	2		
SET IV EXTENTION 2C5645	K6-A4	48167461EA	2		
IV ADM 2-SITE SET 2C6425	K2-B1	48167421EA	2		
INTERLINK INJ. SITE 2N3399	G4-B1	36727576EA	4		
INTERLINK LEVLOCK CAN. 303370	G4-B3	481558AREA	4		
18GA INTERLINK2C7831	G4-B2	481282CYEA	4		
CONTFLO. SOL SET 2C6537	K1-B4	48167429EA	4		
DRAWER 6: TRAY/AMBU					
BAG, INFU PRESSURE ILT	F1-B3	481620DTEA	2		
TRIPLE LUMEN CATHETER AK-25703	D3-C2	48121169EA	1		
CORDIS CATHETER INTRO	H2-A4	48121102EA	1		
DOWNTIME FORM		4818129EA	1		
CVC INSERTION TRAY	D3-E1	48189429EA	1		
RESUSCIATOR ADULT 36" BAG	F1-E1	48162039EA	1		
TRANSVENOUS PACING KIT	H3-B1	48172301EA	1		
VENESECTION TRAY	L1-A1	481360A7EA	1		
MASK MED/ADULT	F1-A1	36973739EA	1		

Sponsor: CPR Committee

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MATERIALS RESOURCES MANAGEMENT
CENTRAL STERILE PROCESSING
CRASH CART REPLISHMENT FORM

Harper University Hospital
Detroit Medical Center / Wayne State University

LOCATION / ITEM	STOCK LOCATION	STOCK NUMBER	PAR	NEED	FILLED
MASK LARGE/ADULT	F1-A1	36973738EA	1		
8OZ. SOL POVIDONE	B7-C2	358830BMEA	1		
GLOVE SIZE 7	C3-E2	36661111PR	2		
GLOVE SIZE 8	C3-E1	36661113PR	2		
4X4 STERILE 12PLY GAUZE	I1-B1	481930B1EA	12		
GOGGLES	B4-32	48314304CA	1		
GOWN PERSONAL PROTECTOR	D6-D3	369946013EA	1		
RIGHT SIDE:					
SUCTION CANNISTER	J4-D1	48136104EA	1		
SUCTION TUBING 9/32X10	J5-D1	48136114EA	1		
SUCTION YANKAUER	J5-B1	48136115EA	1		
EXAM GLOVE	C3-D2	366110BJBX	1		
LEFT SIDE:					
NEEDLE SYRINGE CONTAINER	A1-A1	36812070EA	1		

NURSING UNIT RETRIVED FROM:	MISSING ITEMS:

Sponsor: CPR Committee

Policy # 3 HUH HWH CLN 8007	Policy Title: Code Blue Attachment Title: Crash Cart Expiration Checklist	Attachment 5

LOGISTICS MANANGEMENT
SUPPLY DEPOT
CRASH CART EXPIRATION CHECKLIST
LOCK #_____

DRAWER #1 ***EXPIRATION DATE***

MEDICINE TRAY

DRAWER #3

LAB TUBE BLUE
LAB TUBE LAVENDER
LAB TUBE RED
LITHIUM HEAPARIN TUBE

DRAWER #5

500ML D5W 2B0063
250ML D5W 2B0062
500ML NS 2B1323
1000ML NS 2B1324
500ML 5D NS 2B1063
500ML 5DLR K2-D3

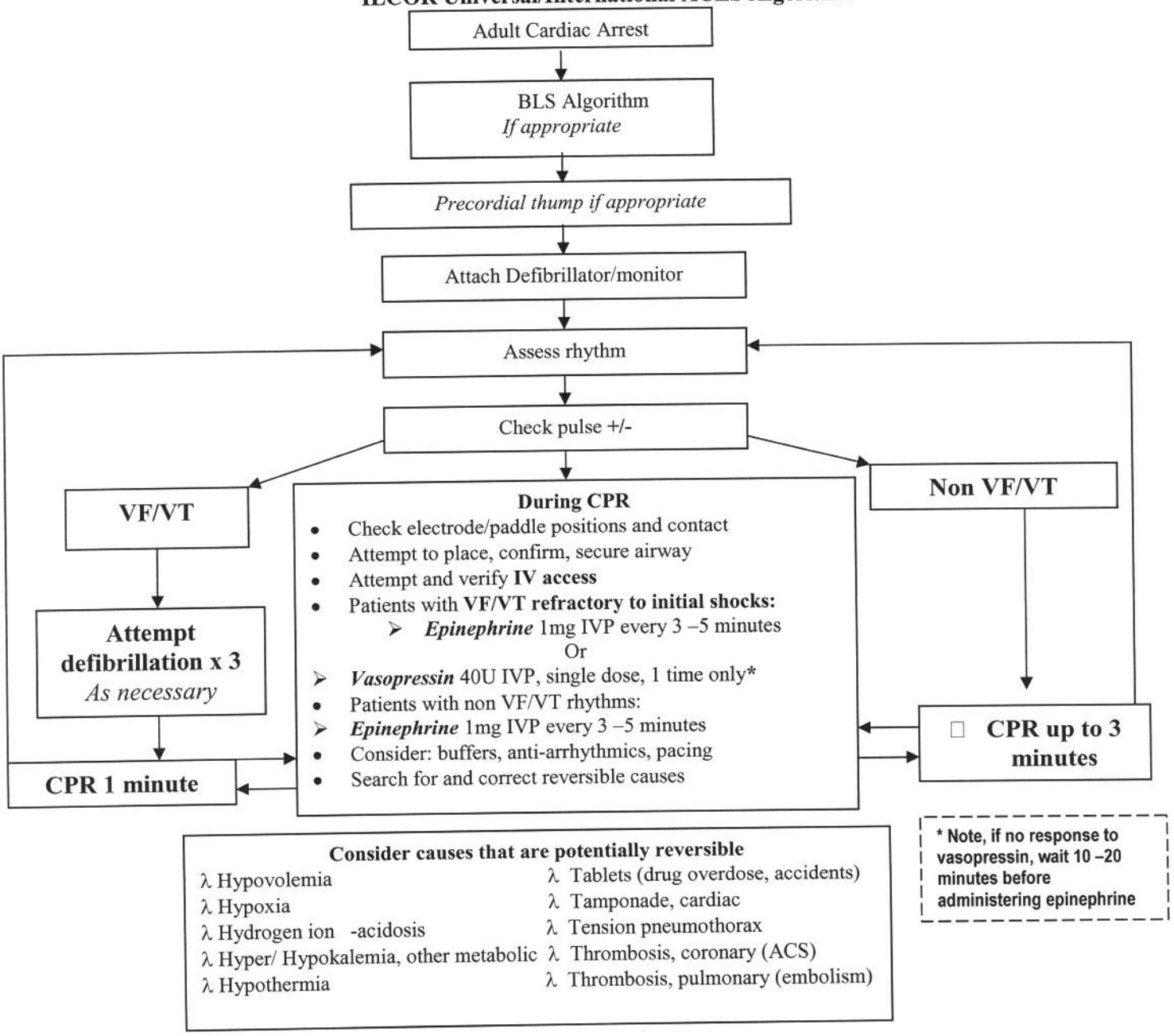
DRAWER #6

TRIPLE LUMEN CATHETER AK-25703
CORDIS CATHETER INTRO
CVC INSERTION TRAY
TRANSVENOUS PACING KIT
8OZ. SOL POVIDONE

PLEASE CALL LOGISTICS MANANGEMENT (#58171) IF ANY OF THE ABOVE PRODUCTS ARE SCHEDULED TO EXPIRE.

Policy # 3 HUH HWH CLN 8007	Policy Title Code Blue Attachment Title: ILCOR Universal/International ACLS Algorithm	Attachment 6

ILCOR Universal/International ACLS Algorithm



Sponsor: CPR Committee

Policy # 3 HUH HWH CLN 8007	Policy Title Code Blue Attachment Title: ILCOR Universal/International ACLS Algorithm	Attachment 6

Ventricular Fibrillation/Pulseless VT Algorithm

Primary ABCD Survey

Focus: basic CPR and defibrillation

λ Check responsiveness λActivate emergency response system λCall for defibrillator

A **Airway:** Open the airway
B. **Breathing:** Provide positive-pressure ventilation
C. **Circulation:** Give chest compressions
D. **Defibrillation:** Assess for and shock VF/pulseless VT up to 3 times (200J, 200 –300 J, 360J, or equivalent biphasic) *if necessary*

↓

Rhythm after first 3 shocks?

↓

Persistent or recurrent VF/VT

↓

Secondary ABCD Survey

Focus: more advanced assessments and treatments

A Airway: Place airway device as soon as possible
B Breathing: Confirm airway device placement by exam plus confirmation device
B Breathing: Secure airway device; purpose made tube holders preferred
B Breathing: Confirm effective oxygenation and ventilation
C Circulation: Establish IV access
C Circulation: Identify rhythm and monitor
C Circulation: Administer drugs appropriate for rhythm and condition
D Differential Diagnosis: Search for and treat identified reversible causes

↓

Epinephrine 1 mg IVP, repeat every 3 – 5 minutes Or Vasopressin 40 U IVP single dose, 1 time only*

↓

Resume attempts to defibrillate 1 x 360 J (or equivalent biphasic within 30 - 60 seconds)

↓

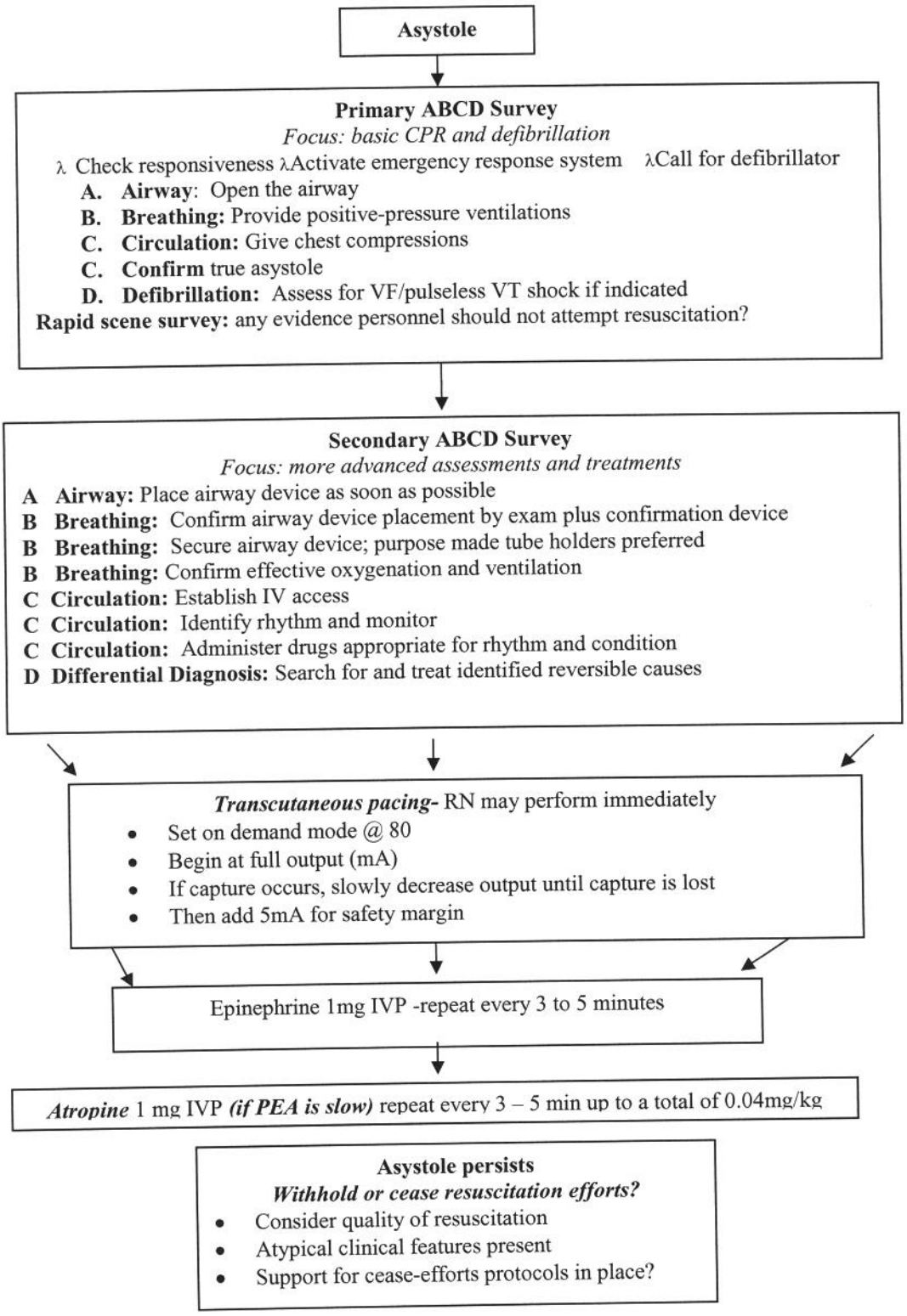
Physician to consider anti-arrhythmics: amiodarone (IIb, lidocaine (indeterminate), magnesium (IIb if hypomagnesemic state), procainamide (IIb for intermittent/recurrent VF/VT). **Physician considers buffers.**

↓

Resume attempts to defibrillate

*** Note, if no response to vasopressin, wait 10 –20 minutes before administering epinephrine**

Policy # 3 HUH HWH CLN 8007	Policy Title Code Blue Attachment Title: ILCOR Universal/International ACLS Algorithm	Attachment 6



Sponsor: CPR Committee

Policy # 3 HUH HWH CLN 8007	Policy Title Code Blue Attachment Title: ILCOR Universal/International ACLS Algorithm	Attachment 6

Pulseless Electrical Activity Algorithm

Pulseless Electrical Activity
(PEA = rhythm on monitor without detectable pulse)

↓

Primary ABCD Survey
Focus: basic CPR and defibrillation

λ Check responsiveness λActivate emergency response system λCall for defibrillator

A **Airway:** open the airway
B **Breathing:** provide positive-pressure ventilations
C **Circulation:** give chest compressions
D **Defibrillation:** assess for and shock VF/pulseless VT

↓

Secondary ABCD Survey
Focus: more advanced assessments and treatments

A **Airway:** Place airway device as soon as possible
B **Breathing:** Confirm airway device placement by exam plus confirmation device
B **Breathing:** Secure airway device; purpose made tube holders preferred
B **Breathing:** Confirm effective oxygenation and ventilation
C **Circulation:** Establish IV access
C **Circulation:** Identify rhythm and monitor
C **Circulation:** Administer drugs appropriate for rhythm and condition
C **Circulation:** Assess for occult blood flow ("pseudo – EMD")
D **Differential Diagnosis:** Search for and treat identified reversible causes

↓

Consider causes that are potentially reversible

λ Hypovolemia
λ Hypoxia
λ Hydrogen ion -acidosis
λ Hyper/ Hypokalemia, other metabolic
λ Hypothermia
λ Tablets (drug overdose, accidents)
λ Tamponade, cardiac
λ Tension pneumothorax
λ Thrombosis, coronary (ACS)
λ Thrombosis, pulmonary (embolism)

↓

Epinephrine 1mg IVP -repeat every 3 to 5 minutes

↓

Atropine 1 mg IVP ***(if PEA is slow)*** repeat every 3 – 5 min up to a total of 0.04mg/kg [3]

Policy # 3 HUH HWH CLN 8007	Policy Title Code Blue Attachment Title: ILCOR Universal/International ACLS Algorithm	Attachment 6

Bradycardia

Bradycardia

- ***Slow*** (absolute bradycardia = rate < 60 bpm)

or

- ***Relatively Slow*** (rate less than expected relative to underlying condition or cause)

Primary ABCD Survey

λ Assess ABCs λ Secure airway non-invasively λEnsure monitor /defibrillator is available

Secondary ABCD Survey

- Assess secondary ABCs (invasive airway management needed?)
- Oxygen - IV Access – monitor – fluids
- Vital Signs, pulse oximeter, monitor BP
- Obtain and review 12-Lead ECG
- Obtain and review portable chest X ray
- Problem-focused history
- Problem – focused physical examination
- Consider causes (differential diagnoses) - (e.g., hypoxia, increased ICP, drug overdose)

Serious signs or symptoms?
Due to bradycardia

NO

Type II second-degree AV block
or
Third –degree AV block

NO

Observe

Yes

Intervention sequence

- Atropine 0.5 to 1.0 mg IVP
- RN may perform immediately Transcutaneous Pacing
- Dopamine 5 to 20 mcgm /kg/min
- Epinephrine 2 to 10 mcgm / min

Yes

- Prepare for transvenous pacer
- Set in demand mode at rate of 80.
- Set current (mA) output at minimum setting and increase until consistent electrical capture is achieved. Then add 5 mA for safety margin
- If symptoms develop, use transcutaneous pacemaker until transvenous pacer placed

Policy # 3 HUH HWH CLN 8007	Policy Title Code Blue Attachment Title: ILCOR Universal/International ACLS Algorithm	Attachment 6

Unstable Ventricular Tachycardia Overview

UNSTABLE VENTRICULAR TACHYCARDIA

- Serious signs and symptoms:
  - Chest pain
  - Hypotension
  - Change in LOC
  - SOB
  - Symptoms of CHF
- Establish that rapid heart rate is cause of symptoms
- Rate related symptoms usually occur at rates > 150bpm
- ***Immediately cardiovert @ 100J, 200J, 300J, 360J***

Refer to policy CC 204 Cardioversion, Elective and Emergent