

Above Bar CPR
3121 Park Ave Suite E
Soquel, CA 95073

ACLS Pre-course Letter to Participants

Dear **ACLS** Provider Course student:

Class begins with registration at 7:45 a.m. Please plan to be on time because it will be difficult for late students to catch up once we start. Students are expected to attend and participate in the entire course.

ATTENTION: TO BEGIN PREPARATION FOR THE COURSE:

Please visit the website: www.heart.org/ecstudent and enter the word "compression" in the box provided. This will take you to the Pre-Course Assessment which you must complete before class. Please bring a copy of your results with you to class. Your instructor will collect this at the start of the course as proof that you completed it/studied.

The ACLS Provider Course is designed to teach you the lifesaving skills required to be both a team member and a team leader in either an in-hospital or out-of-hospital setting. Because the ACLS Provider Course covers extensive material in a short time, you will need to prepare for the course beforehand. You should prepare for the course by doing the following:

1. Complete the Pre-Course Assessment (see above for directions on completing this) and watch the additional videos on the online site.
Your success in this course depends on being proficient in the knowledge of EKG and pharmacology skills in this pre-course exercise.
2. Review and understand the information in your *ACLS Provider Manual*. Pay particular attention to the 10 core cases in Part 4. You can buy a book from us or an AHA approved publisher.
<http://eworldpoint.com/>, <http://www.channing-bete.com/>, <http://www.laerdal.com>
3. Review and understand the information in the *BLS for Healthcare Providers* manual. The resuscitation scenarios require that your BLS skills and knowledge are current. You will be tested on adult 1-rescuer CPR and AED skills at the beginning of the ACLS Provider Course.

4. Review, understand, and complete the ECG and Pharmacology pre-course assessment tests in the ACLS student manual. **You will not be taught how to read or interpret ECGs in the course, nor will you be taught details about ACLS pharmacology.** Please call our office if you need to take an ACLS Prep class to cover EKG and pharmacology.

5. Print your scores for the pre-course assessment tests and bring them with you to class. Your scores **MUST** reflect a passing grade of 80% or above to be prepared to take the course.

What This Course Does Not Cover

The ACLS Provider Course does not teach algorithms, ECG, or pharmacology information. If you do not learn and understand the ECG and pharmacology information in the pre-course assessment tests, it is unlikely that you can successfully complete the ACLS Provider Course. Please call our office if you feel you need an ACLS prep course prior to attending your ACLS course.

What to Bring and What to Wear

Bring your *ACLS Provider Manual* to class to refer to during the case discussions. You may also refer to the *Handbook of Emergency Cardiovascular Care for Healthcare Providers (optional)*, and you may bring it to the course to use as a reference guide during some of the stations in the course. We have the handbook for sale at Above Bar Cpr. You will NOT be able to access the ECC Handbook during the written evaluation. Please wear loose, comfortable clothing to class. You will be practicing skills that require you to work on your hands and knees, and the course requires bending, standing, and lifting. If you have any physical condition that might prevent you from engaging in these activities, please tell the instructor. He or she may be able to adjust the equipment if you have back, knee, or hip problems.

******If you are taking this course for the first time, please begin studying the materials at least two weeks in advance. You MUST have a general understanding of the material prior to class. Do not wait until the night before class to do your pre-course work!***

We look forward to having you in class! If you have any questions about the course, or are having difficulty accessing the online site, please call us well in advance of the course at (831)462-4376.

Jason Boudreault
Training Site Coordinator

Above Bar

ACLS Algorithms

American Heart Association 2010 Guidelines

Introduced October 2010 by the
American Heart Association (AHA)
Emergency Cardiac Care Committee (ECC)
and the
International Liaison Committee on Resuscitation (ILCOR)

**FIRST RESPONSE
TRAINING**

Ventricular Fibrillation/Pulseless V-Tach



****Start Immediate High Quality CPR****

If un-witnessed code or down time > 4 minutes, 2 minutes of CPR *prior to defibrillation*

↓
Defibrillate 200j*

*biphasic (or device specific dose)

↓
Continue CPR immediately

←←←w/o pulse or rhythm check

↓
Epinephrine 1mg →→

↓
Defibrillate

↓
Amiodarone 300mg IVP →→

↓
Defibrillate

↓
Epinephrine 1mg

↓
Defibrillate

↓
Amiodarone 150mg IVP

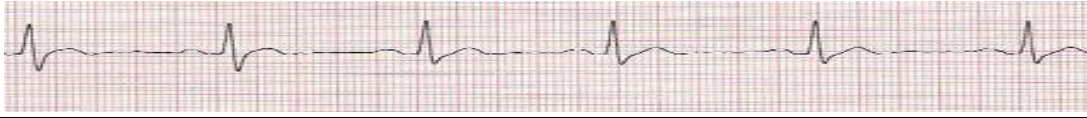
↓
Continue with Epi every 3-5 minutes while searching for and treating reversible causes

- ✓ **Considerations: Sodium Bicarbonate 1meq/kg** if suspected acidosis, Tricyclic overdose, hyperkalemia or extended down time.
- ✓ **Consider Magnesium Sulfate 1-2 grams I.V. (if Torsades is present).**
- ✓ **Upon return of spontaneous circulation (ROSC):** Assess vital signs. Intubate if not already done. Provide medication appropriate for heart rate and blood pressure. Consider hanging a maintenance infusion of the anti-arrhythmic used during the code to prevent reoccurrence of V-Fib.

Secure the airway without prolonged intubation attempts
And establish IV or IO with Saline or LR

You may use 40u Vasopressin instead of your first or second scheduled dose of epinephrine for any Pulseless arrest

If Amiodarone is not available, Lidocaine may be used. First dose is 1-1.5mg/kg IVP; 2nd dose is 0.50.75mg/kg



Pulseless Electrical Activity (PEA) & Asystole

HIGH QUALITY CPR



Provide O₂, IV or IO access



Epinephrine 1 mg*

(Repeat every 3 –5 minutes)



Consider possible causes and correct

The 5 H's and the 5 T's, while beginning drug therapy

Hypoxia

Hypovolemia

Hyper/hypokalemia

Hypothermia

Hydrogen ion/acidosis

Toxins/overdose

Thromboemboli-coronary

Thromboemboli-pulmonary

Tension pneumothorax

Tamponade (cardiac)

***Note: Repeated unsuccessful intubation attempts are not recommended. BVM support of the airway is acceptable until advanced airway can be placed.**

***You may consider Vasopressin instead of the first or second dose of epi.**

Several factors should be considered when making the decision to terminate resuscitation efforts on a patient in extended Asystole:

Down Time

Cold Water Drowning

Age

Blood Pooling

DNR, family wishes

Cause of death

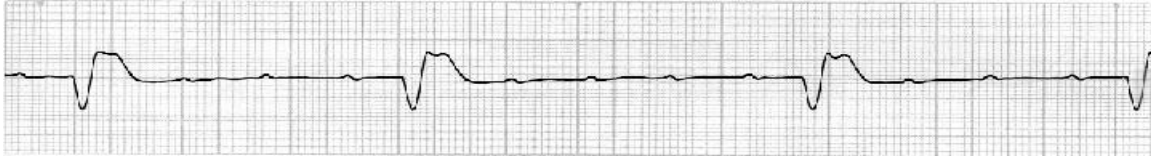
Chronic Medical Conditions

Skin Temperature

Trauma

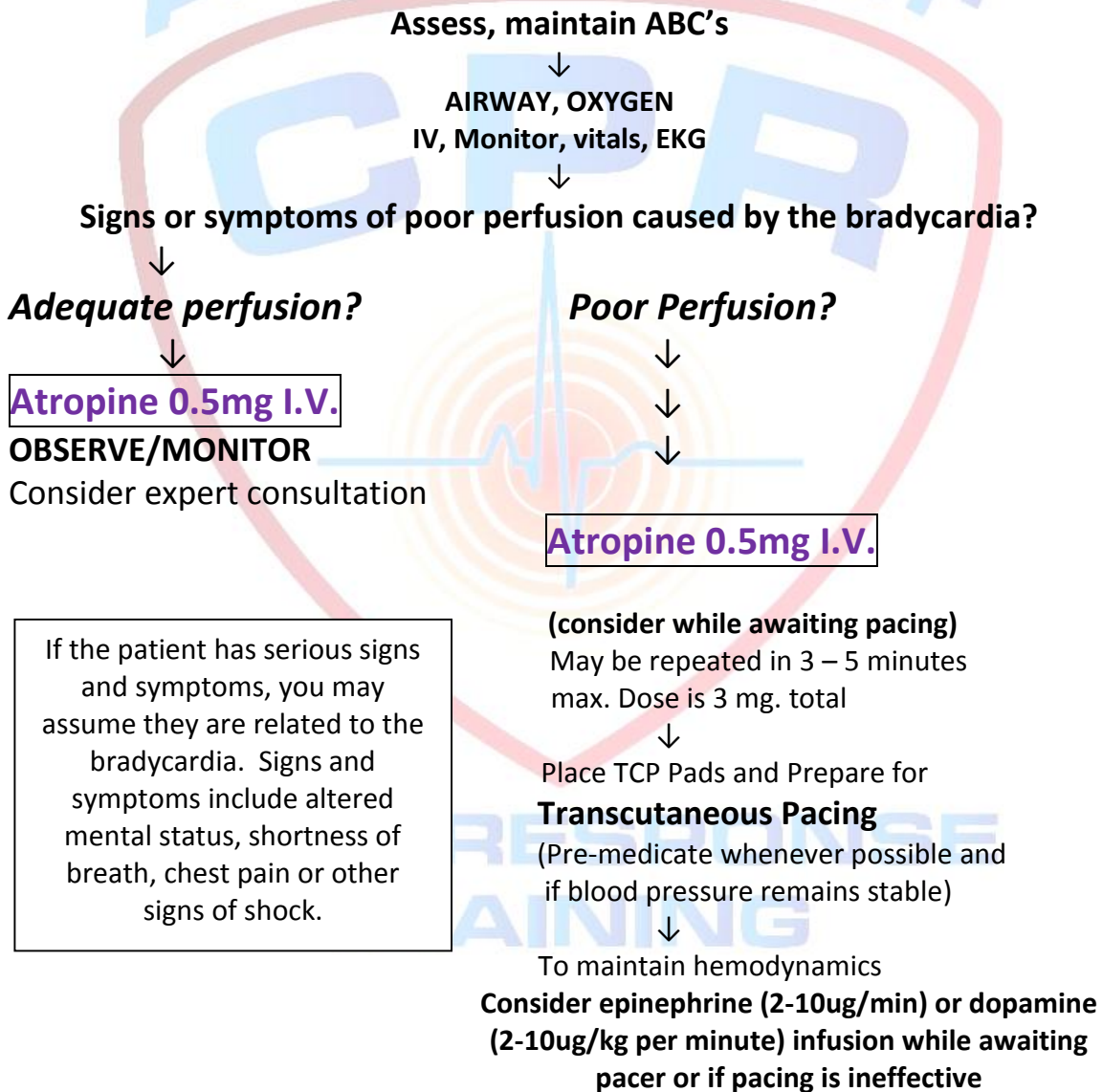
Co-morbidities

And most importantly.....quality of life!



Symptomatic Bradycardia

(Heart rate <50bpm and inadequate for clinical condition, such as altered mental status, chest pain, or signs of shock.)



Ventricular
Tachycardia with
Pulses
STABLE

Assess ABC's, Secure airway and provide oxygen, 12 Lead EKG



Start IV, draw labs

Assess vital signs, attach pulse ox



AMIODARONE
150 mg over 10 minutes (15 mg/min)
or ADENOSINE 6-12mg

If rhythm does not resolve, consider Synchronized Cardioversion

Start at 100 joules*

(Pre-medicate whenever possible)



IF SUCCESSFUL TERMINATION OF V-TACH DO NOT CONTINUE



If Polymorphic V-Tach
(Torsades de Pointes)

1-2 grams of Magnesium sulfate

Some clinicians may choose DC cardioversion as their first treatment for all wide complex tachycardias regardless of cardiac function. Do not mix antiarrhythmics. If you choose to use Amiodarone for example, do not give any other antiarrhythmic.

Ventricular
Tachycardia with
Pulses
UNSTABLE

Assess ABC's, vitals



Administer oxygen

Start IV



Perform immediate Synchronized Cardioversion
Start at 100 joules*

(Pre-medicate whenever possible)



IF SUCCESSFUL TERMINATION OF V-TACH DO NOT CONTINUE



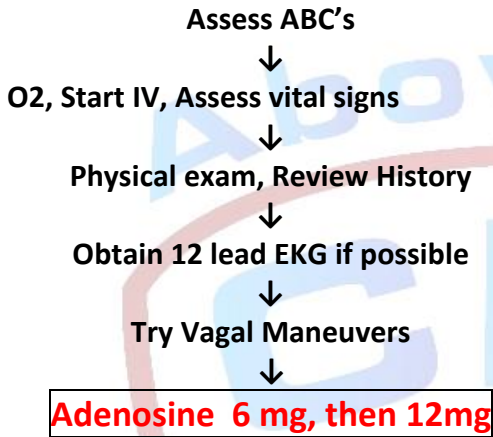
To prevent reoccurrence, consider an Amiodarone drip, 150 mg over 10 minutes (15 mg/min)

Do not mix antiarrhythmics. If you choose to use Amiodarone, for example, do not give any other antiarrhythmic.

****Biphasic energy dose, or you may use the clinically equivalent monophasic energy dose***



**Supraventricular
Tachycardia**
STABLE



If rhythm persists, consider Synchronized Cardioversion
120-200 joules
(Consider Sedation)

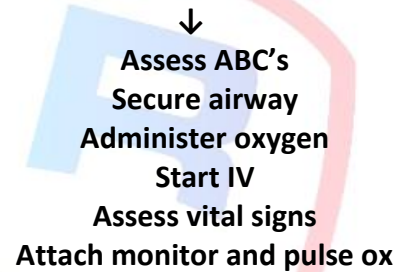
Cardioversion can be done immediately, but make sure to consider possible history of A-Fib or A-Flutter for > 48 hours.

NOTE: Adenosine is given as rapidly as possible, followed by a saline flush!

You may also use 6 mg Adenosine as a diagnostic test to discover A-fib or A-flutter

**Supraventricular
Tachycardia**
UNSTABLE

Look for symptoms related to the tachycardia, such as chest pain, shortness of breath altered mental status or hemodynamic instability.



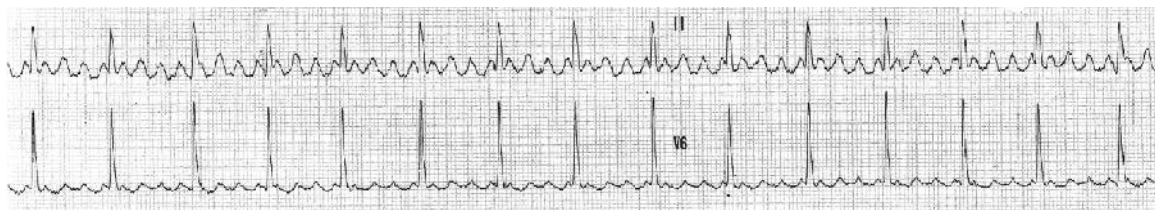
Synchronized Cardioversion
120-200 joules*

↓
If rhythm does not convert, continue

↓
Adenosine 6mg
↓
Adenosine 12mg

*Biphasic energy dose, or you may use the clinically equivalent monophasic energy dose. Be sure to have suction, IV line established, intubation, and pulse oximetry available.





Atrial Fibrillation

Atrial Flutter

Stable w/uncontrolled rate

Assess ABC's, obtain 12 lead EKG



Start IV, vital signs, BP, SaO2



Review history of A-fib/flutter



Cardizem 0.25 mg/kg (bolus)

A Cardizem drip will then be administered per doctor's orders as a maintenance infusion, usually 5-15mg/hr.

Consider expert consultation

***Note: never delay cardioversion in lieu of sedation if the patient is unstable. (You can always apologize later)**

If AF has been present for >48 hours, a risk of systemic embolization exists with conversion to sinus rhythm unless pts are adequately anticoagulated. Electrical cardioversion and the use of antiarrhythmic agents should be avoided unless the patient is unstable or hemodynamically compromised. Cardizem is given over 2 minutes to avoid a drop in blood pressure.

Atrial Fibrillation

Atrial Flutter

Unstable w/uncontrolled rate and symptomatic

Assess ABC's, obtain 12 lead EKG



Start IV, vital signs, BP, SaO2



Provide oxygen if needed and review patient's history,



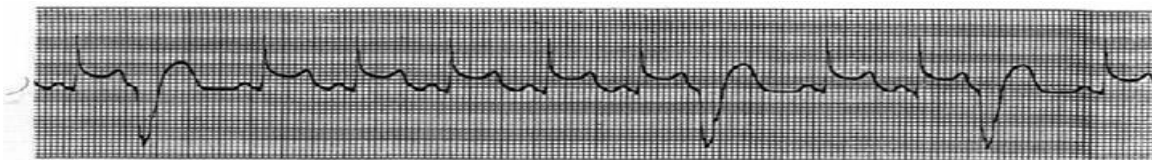
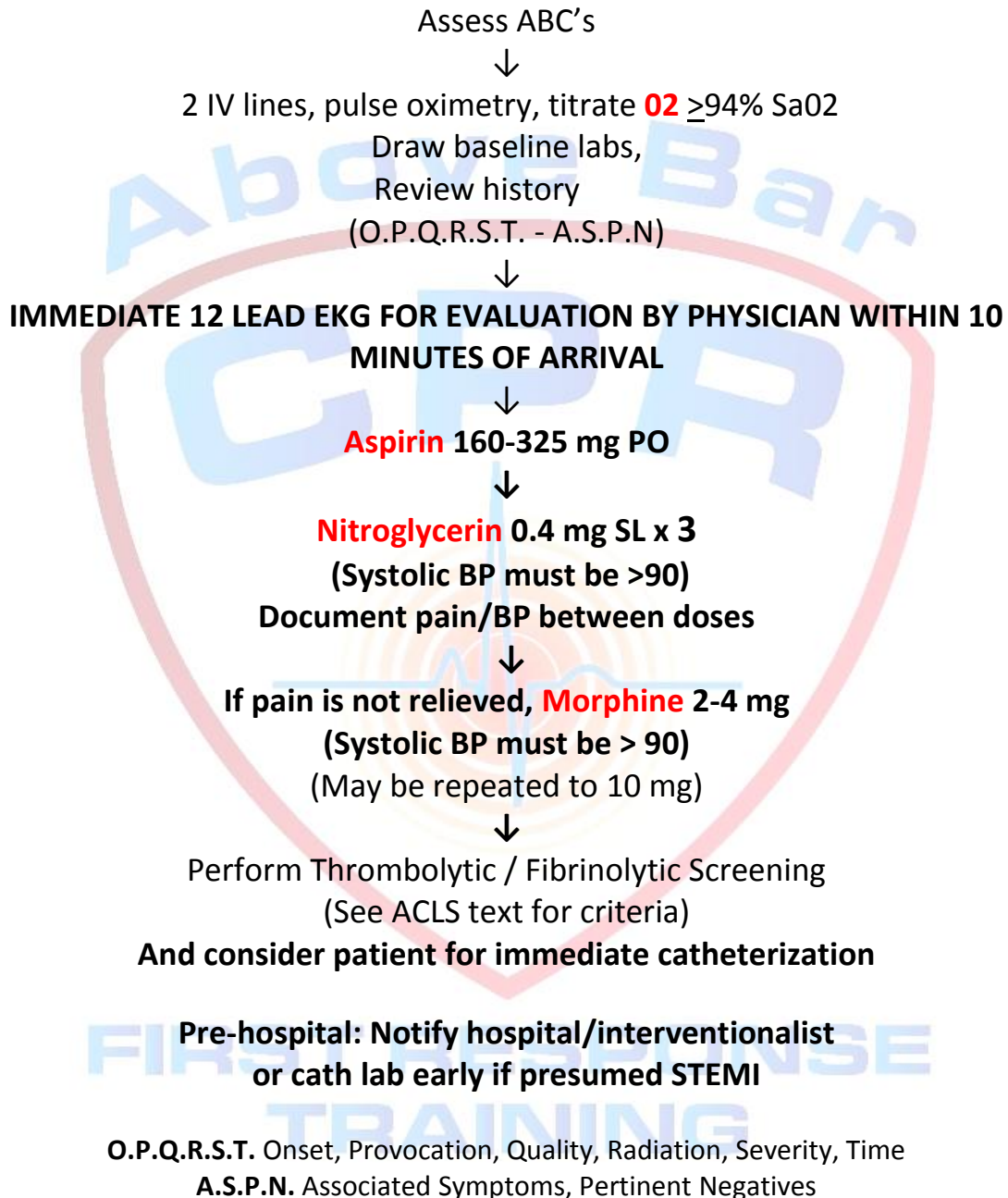
If determined a new onset, consider **synchronized cardioversion @ 120-200 joules** (Consider Sedation)

OR CONSIDER

Cardizem 0.25 mg/kg (bolus)

Chest Pain of Cardiac Origin

Acute Coronary Syndrome



Wenckebach (Mobitz Type I)

As the sinus node initiates impulses each one is delayed in the AV NODE a little longer than the preceding one until one is eventually blocked completely. Those impulses that are conducted travel normally through the ventricles.

REGULARITY	Irregular in a pattern of grouped beating.
RATE	Since some beats are not conducted the ventricular rate is usually slightly slower. The atrial rate is normal.
P WAVES	Upright and uniform. Some P waves are not followed by QRS complexes.
PRI	Get progressively longer until on P wave is not followed by a QRS complex. After the blocked beat the cycle starts again.
QRS:	The QRS complex measurement will be normal.

***Longer... longer... longer block
Must be a wenckebach!!!***

Classic Second Degree Heart Block (Mobitz Type II)

The AV NODE selectively conducts some beats while blocking others. Those that are not blocked are conducted through to the ventricles. Once in the ventricles conduction proceeds normally.

REGULARITY	If the conduction ration is consistent the rhythm will be regular. If the conduction ratio varies the rhythm will be irregular.
RATE	The atrial rate is usually normal. Since many of the atrial impulses are blocked the ventricular rate will usually be in the bradycardia range.
P WAVES	Upright and uniform. There are more P Waves than QRS complexes.
PRI	Conducted beats will be constant.
QRS	The QRS complex measurement will be normal.

If the P-R's look the same to you...

You must be a 2X2!!!

2°Type II

Complete (3°) Heart Block

The block between the atria and the ventricles is complete.

The sinus beats cannot penetrate and therefore are not conducted through to the ventricles. An escape mechanism from within the junction (if the block is high in the AV node) or the ventricles (if the block is in the bundle branches) will take over to pace the ventricles. The atria and the ventricles function in a totally dissociated fashion.

REGULARITY	Both the atria and the ventricles are firing so the P-P intervals and the R-R intervals will be regular.
RATE	The atrial rate will usually be in a normal range. The ventricular rate may be 20-60.
P WAVES	More P waves than atrial complexes.
PRI	No atrial impulses conducted to the ventricles. There is no PRI. The P-waves have no relationship to the QRS complexes. May occasionally see a P-wave on or near a QRS complex.
QRS	If the ventricles are being controlled by a junctional focus the QRS complex will measure less than 12 seconds. If the focus is ventricular the QRS will be wide.

*If my PR's make no sense to thee...
I must be a 3rd degree!!*

Above Bar CPR

ACLS Practice Quiz

1. High quality CPR is paramount to a successful outcome in cardiac arrest. CPR should not be stopped for more than _____ seconds for any intervention.
2. In what ACLS rhythms would you use Atropine?
3. In what ACLS rhythms does a patient get epinephrine?
4. What is your first action for a patient in witnessed cardiac arrest after checking the patient and calling a code?
5. What two things should you consider for a patient in stable SVT?
6. When should we begin pacing in a conscious patient?
7. At what point would you give a patient with chest pain morphine?
8. What is the dose of Atropine for Bradycardia?
9. Magnesium Sulfate is used in this rhythm:
10. What is the action of Dopamine?
11. Vasopressin is a hormone used in cardiac arrest. What is the dose?
12. When is Amiodarone used?
13. What is the dose for an Amiodarone bolus post arrest?
14. You suspect your patient has been “down” for an extended period. What drug should you consider?
15. Can epi be used in a conscious patient?
16. Is atropine appropriate to use in SVT?

17. What is the range of doses of Lidocaine during a code?
18. Nitroglycerin is given with a blood pressure above what?
19. SVT is a heart rate above:
20. What action should we consider for a patient with a heart rate of 220, and B/P of 78/38?
21. State the maximum dose of Lidocaine in cardiac arrest?
22. How much epinephrine can be pushed in a code for v-fib, PEA, or asystole?
23. What is the treatment for a nearly unconscious patient in V-Tach with a pulse?
24. What is the post arrest gtts/min of Dopamine on a patient who weights 197 lbs?
25. After your first defibrillation of a patient in V-fib what is your next action?
26. What is the drug of choice in stable SVT?
What are the 1st and 2nd doses?
27. What are the benefits of giving morphine to a chest pain patient?
28. Your patient has a heart rate of 29, but he feels fine. What are two actions you should take right away? (Hint: one is a drug!) Give the dose of the drug also.
29. Your patient is in a narrow complex tachycardia with a rate of 178. He has no symptoms besides feeling a little anxious. What drug is appropriate for this rapid heartbeat? What is the dose?
30. What drug is effective for slowing down rapid atrial fibrillation?
What is the dose?
31. Your patient suddenly shows V-tach on the monitor. He is pulseless. After shocking the patient, what is the first drug you administer and how much?
(There are two drugs you can choose)

32. The patient is now in V-fib. (refer to previous question) what are your choices for another drug to administer to this patient?

33. The first drug to give a chest pain patient is:

34. Your patient continues to have chest pain after administration of 3 nitroglycerin tablets. What is the next drug to consider, what is the dose, and what are the actions of the drug?

35. This drug is given as a drip after resuscitating a patient that was in v-fib. It will prevent your patient from going into v-fib again. What is it and how do you hang the drip? (two drug choices)

36. We would use this drug in the event of a Torsades de pointes code. What is the drug?

Use the space here to jot down questions you have about ACLS.

- 1.
- 2.
- 3.
- 4.
- 5.



FIRST RESPONSE
TRAINING

Above Bar CPR Pharmacology worksheet

Use this quiz to practice your pharmacology application.

1. Your patient has a heart rate of 29, but he feels fine. What are two actions you should take right away? (Hint: one is a drug!) Give the dose of the drug also.
2. Your patient is in a narrow complex tachycardia with a rate of 178. He has no symptoms besides feeling a little anxious. What drug is appropriate for this rapid heartbeat? What is the dose?
3. What drug is great for slowing down rapid atrial fibrillation? How much should you give?
4. Your patient suddenly shows V-tach on the monitor. He is pulseless. After shocking the patient, what is the first drug you administer and how much? (There are two drugs you can choose)
5. After the second shock (refer to previous question) what are your choices for another drug to administer to this patient in pulseless v-tach?
6. This drug is given in the event of chest pain. It is the first choice to relieve pain. What is it and what is the dose. What must you do before administering the drug?
7. If chest pain is not relieved by the previous drug (refer to question 6) what is the next drug to try, how much do you give, and what are the actions of the drug?
8. This drug is given as a drip after resuscitating a patient that was in v-fib. It will prevent your patient from going into v-fib again. What is it and how do you hang the drip?
9. This drug should be administered if your patient may be acidotic.. What is it?
10. We would use this drug in the event of a Torsades de pointes code. What is the drug?