Current Debates in Cardiac Arrest Care
by Gabriela Rifkind

Initial Project Objective

Research current debates and innovations in cardiac arrest care and analyze the available evidence.

Areas of investigation include:
- Optimum timing for administering medication
- Which medications to administer during a cardiac arrest
- Alternative placement of defibrillator pads
- Use of ultrasound in determining presence of cardiac contractions in suspected pulseless electrical activity (PEA)
- ECMO in cardiac arrest
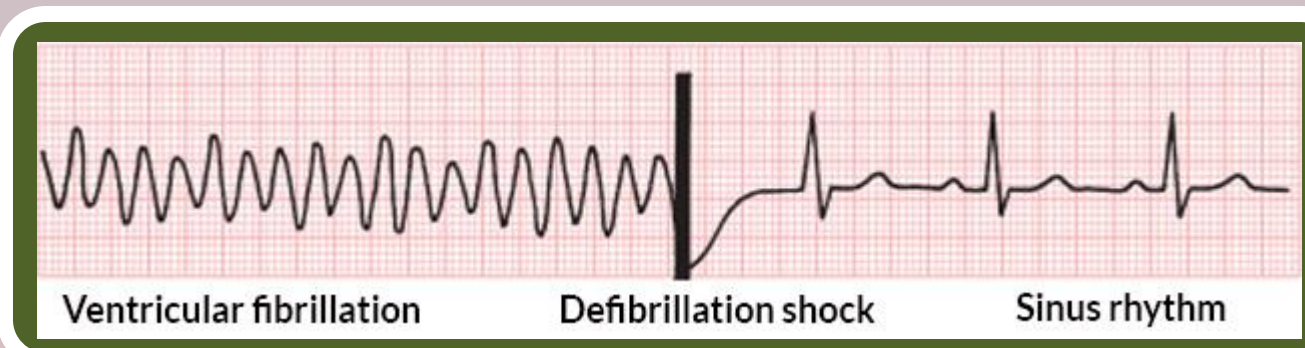
Project Challenges

EMS is largely based on trial and error and anecdotal evidence. There is a lack of high quality randomized controlled trials in prehospital medicine.
Existing research tends to be inconclusive or contradictory.
Many studies are unable to, or fail to understand, the need to control for certain confounding variables which are critical to obtaining clearer data.

What is a Cardiac Arrest?

The American Heart Association defines cardiac arrest as "the abrupt loss of heart function".
Cardiac arrest can be caused by a variety of factors including,
- Arrhythmias (ventricular fibrillation or ventricular tachycardia)
- Myocardial Infarction (heart attack)
- Anything forcing the heart to attempt to function without adequate resources (blood, oxygen, sugar, etc)
- Trauma
- Metabolic Disturbances

Ventricular fibrillation   Defibrillation shock   Sinus rhythm
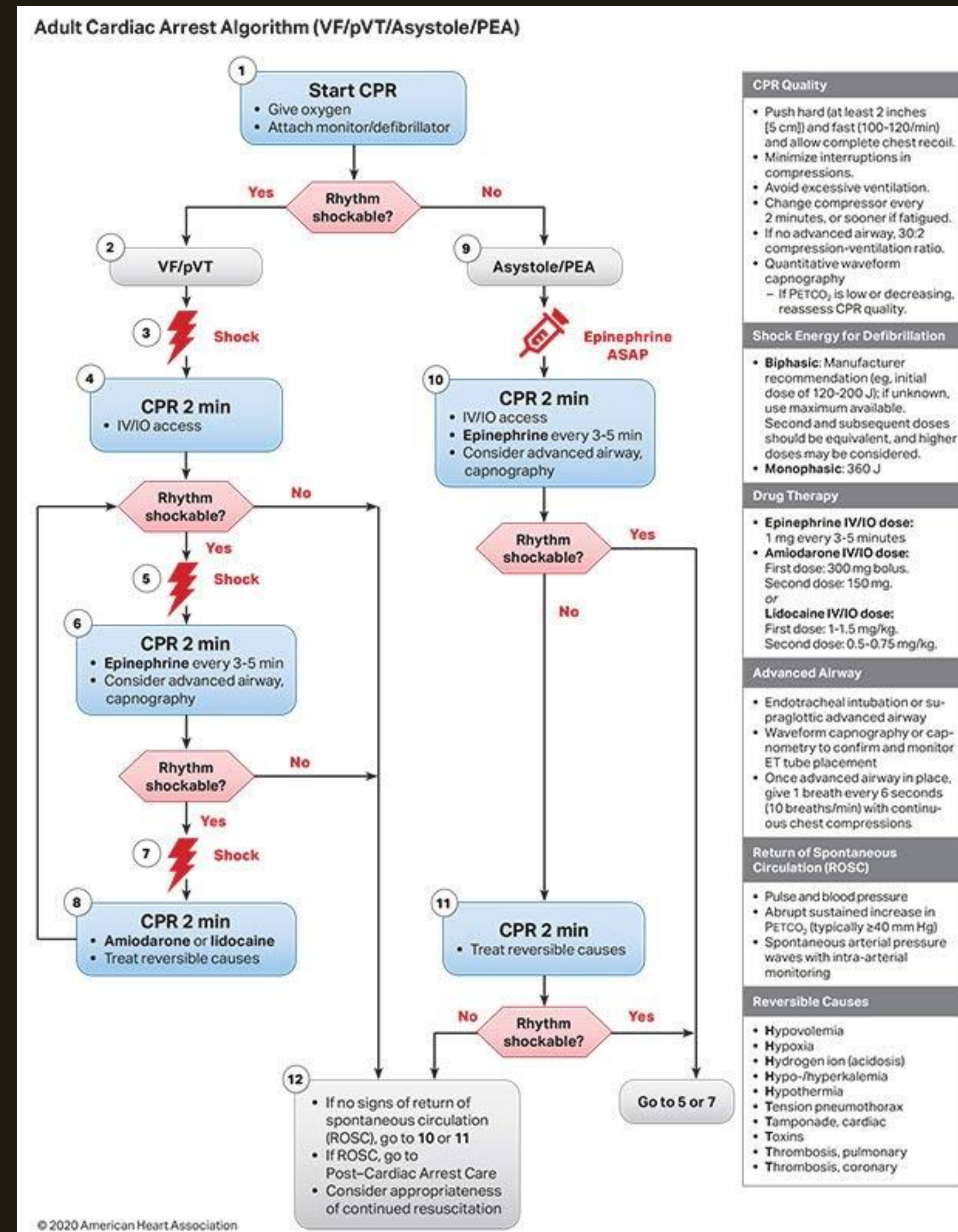
Optimum Time for Administering Medication?

Studies have largely failed to validate the use of medications in cardiac arrest.
Most studies seem not to control well for confounding variables.
Most studies are too small to draw definitive conclusions.

Current Cardiac Arrest Guidelines

AHA 2020 Adult Cardiac Arrest Algorithm

The AHA makes recommendations for the dose, type, and timing of medication administration during cardiac arrests

Adult Cardiac Arrest Algorithm (VF/pVT/Asystole/PEA)
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Alternative Placement of Defibrillator Pads?

Alternatives to standard pad placement may better defibrillate the necessary portions of the heart.

Studies conflict on which defibrillation pad placement is best.

Plans for Concluding the Project
- Paper summarizing research
- Make recommendations on trial design for the future