ACLS FOR SURGEONS - PREMISS

- YOU WILL CARE FOR CARDIAC ARREST PATIENTS
- YOU CAN MAKE A DIFFERENCE EVEN IF NOT "FORMALLY" TRAINED AND ACLS CERTIFIED
- WE CAN ALWAYS IMPROVE OUR KNOWLEDGE AND SKILLS AS MEDICAL PROFESSIONALS
- CONTRARY TO POPULAR TEACHING, WE CAN HURT DEAD PEOPLE—AND TAKE AWAY THEIR ONLY CHANCE FOR LIFE IF CARELESS!
ACLS FOR SURGEONS-
FORMAT

DIFFERENT THIS YEAR
SERIES OF MINI-PRESENTATIONS
EM FACULTY AS PRESENTERS
NO HANDS-ON OR FACILITATED DISCUSSION
ACLS FOR SURGEONS

DAY #1
- ARREST ALGORITHM
- AIRWAY AND VENTILATION
- DRUGS IN ACLS THERAPY

DAY #2
- ELECTRICAL THERAPY
- PERI/POST ARREST CARE
- CPR ADJUNCTS
• LIFE IS PLEASANT.
• DEATH IS PEACEFUL.
• IT’S THE TRANSITION THAT’S TROUBLESOME.

• ISAAC ASIMOV
ACLS GUIDELINES

- INTERNATIONAL GUIDELINES MOSTLY BASED ON CURRENT LITERATURE
- UNPROVEN AS TO ACTUALLY IMPROVING OUTCOME (SELECTION BIAS)
- YET ADEQUATE CPR AND DEFIBRILLATION ARE CLEARLY LIFESAVING
ETIOLOGY OF SUDDEN CARDIAC ARREST

- CORONARY ATHEROSCLEROSIS AND ITS CONSEQUENCES
- PRE-EXISTING STRUCTURAL HEART DISEASE
- ABNORMAL E-LYTES, HYPOXEMIA, AND ACIDOSIS
- IMPAIRED MYOCARDIAL FILLING
- CONSEQUENCES OF TRAUMA
AIMS OF ARREST ALGORITHM

- Recognize the need to respond
- Conduct a primary ABCD survey
- Conduct a secondary ABCD survey
- Know/apply individual rhythm algorithms where appropriate
  - Refer to ACLS textbook for information
- Run the code efficiently
PRIMARY ABCD SURVEY

- AIRWAY—OPEN OR OCCLUDED?
- BREATHING—SUPPORT
- CIRCULATION—CPR NEED?
- DEFIBRILLATION—NEED?
VENTRICULAR FIBRILLATION

- DO NOT INITIALLY WASTE TIME AND RESOURCES WITH AIRWAY INTERVENTION OR IV PLACEMENT WHEN ONLY DEFIBRILLATION WILL BE LIFESAVING
VF/PULSELESS VT

- PROMPT ELECTRICAL DEFIBRILLATION
- MONOPHASIC/BIPHASIC—ACADEMIC
- AED USE SIMPLIFIES CARE, EXPEDITES CARE, AND DOES IN COST EFFECTIVE MANNER
VENTRICULAR FIBRILLATION

- NOT ALL VF IS CREATED EQUAL
- COARSE TO FINE TO ASYSTOLIC IN APPEARANCE
- MAY RELATE TO THE DURATION OF MYOCARDIAL CHAOS ITSELF
ADEQUATE CPR TO “PRIME THE PUMP”

- 2 MINUTES OF EFFECTIVE COMPRESSIONS
- SUPPORT OF END-ORGAN PERFUSION
- REPLETION OF OXYGEN AND METABOLIC SUBSTRATES TO MYOCARDIUM
- PRESSOR SUPPORT OF CORONARY PERFUSION PRESSURE
- ELECTRICAL THERAPY THEN IS MORE EFFECTIVE
SECONDARY ABCD SURVEY

- AIRWAY—INTUBATE
- BREATHING—ASSESS INTUBATION AND VENTILATION
- C—IV ACCESS, CARDIAC RHYTHM ANALYSIS, APPROPRIATE DRUG MANAGEMENT
- D—DIFFERENTIAL DIAGNOSIS (NOT JUST CARDIAC ARREST, BUT SECONDARY TO...)
TANK—TANK—PUMP—RATE

- HOW MUCH IN THE TANK (VOLUME)
- HOW BIG IS THE TANK (RESISTANCE)
- HOW IS THE PUMP FUNCTION
- RATE (FAST, SLOW, CHAOTIC, NONE)
TANK—TANK—PUMP—RATE

- AIM AT POTENTIALLY REVERSIBLE CAUSES
- IMPAIRED/OBSTRUCTED CIRCULATION
- IMPAIRED MYOCARDIAL FUNCTION
- PRIMARY RHYTHM DISTURBANCE (IE—ACLS ALGORITHMS)
IMPAIRED/OBSTRUCTED CIRCULATION

- HYPOVOLEMIA—ABSOLUTE AND RELATIVE
- THROMBOSIS—PULMONARY
- TENSION PNEUMOTHORAX
- TAMPONADE
- PREGNANCY
IMPAIRED MYOCARDIAL FUNCTION

- HYPOXEMIA
- HYDROGEN ION AND ACIDOSIS
- HYPER/HYPO-KALEMIA
- THROMBOSIS—CORONARY
- TOXINS/DRUGS/THERAPUTIC MISADVENTURES
RHYTHM ANALYSIS—4 BEARS

- TOO FAST (SVT, AF, RVR, VT)
  - ELECTRICITY/DRUGS
- TOO SLOW (ASYSTOLE, BRADYCARDIA)
  - PACING/DRUGS
- DISORGANIZED (VF, TOURSADES)
  - DEFIBRILLATION/ LATER DRUGS
- JUST RIGHT (NSR) BUT NOT EFFECTIVE
  - FIX THE CAUSE OF PEA (PULSELESS ELECTRICAL ACTIVITY)
AIMS OF DRUG THERAPY

- IMPROVE CORONARY PERFUSION—CATECHOLS
- SPEED UP—VAGOLYTIC OR CHRONOTROPIC
- SLOW DOWN—CONDUCTION SYSTEM POISONS
- STABILIZE MEMBRANE ACTION POTENTIAL AND POTENTIAL FOR ENHANCED AUTOMATICITY
- THERAPY OF ANY CORRECTABLE CAUSE
  - ANTIDOTES
  - ACID BASE THERAPY
  - ELECTROLYTES
  - CATH LAB/LYTICS
WHEN DO YOU STOP?

- Patients without ROSC (return of spontaneous circulation) after 25 minutes are unlikely to survive, with rare exceptions (hypothermia, toxins)
- Input from staff and family
- Like snowflakes, no two cardiac arrests are the same, and circumstances may alter the duration
POST ARREST CARE

- GET LABS ON THE LIVING
- OPTIMIZE HEMODYNAMICS
- VENTILATORY SUPPORT
- STABILIZE MYOCARDIUM
- SEARCH FOR A TREATABLE CAUSE
• THIS CLINICAL PATHWAY IS INTENDED TO SUPPLEMENT, RATHER THAN SUBSTITUTE, PROFESSIONAL JUDGEMENT AND MAY BE CHANGED DEPENDING UPON A PATIENT’S CLINICAL NEEDS. FAILURE TO COMPLY WITH THIS PATHWAY BY ITSELF DOES NOT REPRESENT A BREACH OF THE ACCEPTABLE STANDARDS OF CARE.
QUESTIONS??