EKG Component and Thoracic Impedance Sensor for Double Sequential Defibrillator

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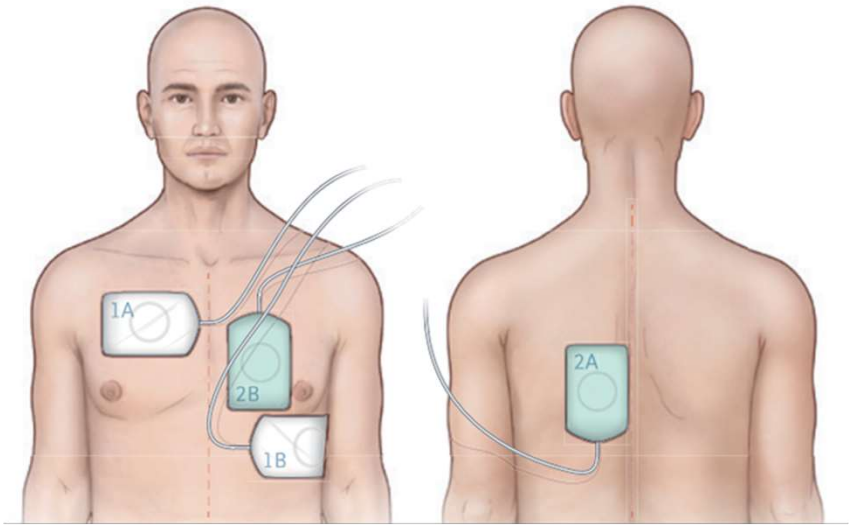
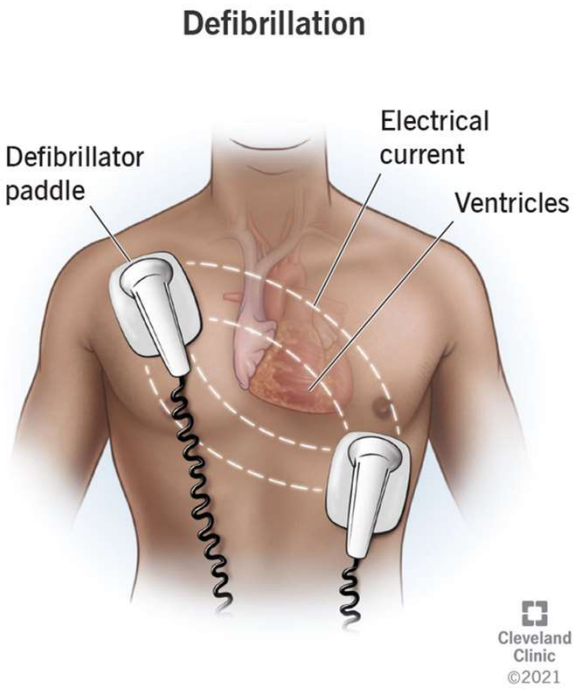
Double Sequential External Defibrillation (DSED) Background



- Survival rates
  - 30.4% for DSED patients
  - 13.3% with standard defibrillation
- Ambulances carry only one defibrillator/cardiac monitor with them rendering DSED impossible [5]

Problem Statement



- Standard defibs:
  - Two pad EKG with analysis
  - Thoracic impedance is calculated across AL pads to determine voltage for shock
  - Rhythms determine when to shock
- DSED defib
  - Four pad EKG
  - More in depth impedance measurements AP/AL
    - Obese patients respond better to two shocks

Design Goals and Constraints

1. Electrocardiogram with four pads AP/AL
2. Thoracic impedance calculation and output
3. Rhythm analysis