

Advanced Resuscitation Training



DANIEL DAVIS, MD

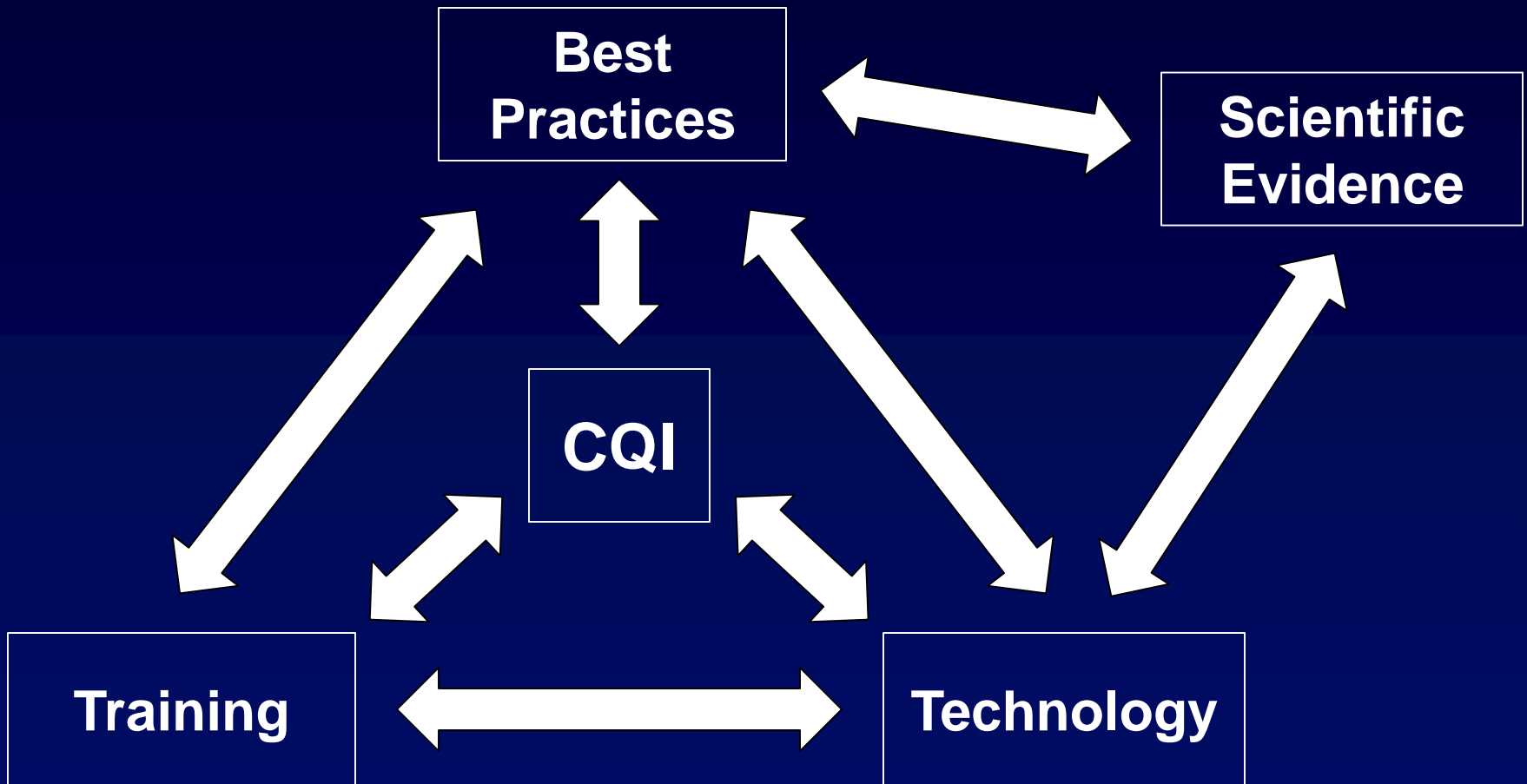
*People should not die
before they are done living.*

What makes ART unique?

- **System of care**
 - Inpatient & prehospital
- **Approach to education**
 - Cognitive psychology
- **Curriculum breadth**
 - Reduce preventable death
- **CQI data collection & analytics**
 - Six sigma-based
- **Clinical outcomes**
 - Consistency across multiple institutions

System of Care

System of Care



The ART Enchilada

		Screening	Monitoring	Early recognition	Critical care (including procedural)	Arrest resuscitation	Post-arrest care	End-of-life issues
Afferents	External							
	Internal (Database)							
	Technology							
Efferents	Special projects							
	Training							

The ART Enchilada

		Screening	Monitoring	Early recognition	Critical care (including procedural)	Arrest resuscitation	Post-arrest care	End-of-life issues
Afferents	External	<ul style="list-style-type: none"> Scientific evidence Past performance Other institutions Manuals/guides Consensus opinion Best practices Guidelines 	<ul style="list-style-type: none"> Scientific evidence Past performance Other institutions Manuals/guides Consensus opinion Best practices Guidelines 	<ul style="list-style-type: none"> Scientific evidence Past performance Other institutions Manuals/guides Consensus opinion Best practices Guidelines 	<ul style="list-style-type: none"> Scientific evidence Past performance Other institutions Manuals/guides Consensus opinion Best practices Guidelines 	<ul style="list-style-type: none"> Scientific evidence Past performance Other institutions Manuals/guides Consensus opinion Best practices Guidelines 	<ul style="list-style-type: none"> Scientific evidence Past performance Other institutions Manuals/guides Consensus opinion Best practices Guidelines 	<ul style="list-style-type: none"> Scientific evidence Past performance Other institutions Manuals/guides Consensus opinion Best practices Guidelines
	Internal (Database)	<ul style="list-style-type: none"> Arrest rates Patient diagnoses Comorbidities Arrest classifications Preventability Risk-adjusted mortality Process issues 	<ul style="list-style-type: none"> Arrest rates Patient diagnoses Comorbidities Arrest classifications Preventability Risk-adjusted mortality Process issues 	<ul style="list-style-type: none"> Arrest rates Diagnoses/comorbidities Arrest classifications Rapid response Preventability Risk-adjusted mortality Process issues 	<ul style="list-style-type: none"> Arrest rates Diagnoses/comorbidities Arrest classifications Preventability ICU/ventilator days Risk-adjusted mortality Process issues 	<ul style="list-style-type: none"> ROSC Survival-to-discharge Good neuro outcomes Arrest-related deaths Arrest classifications CPR process measures Process issues 	<ul style="list-style-type: none"> OOHCA survival ROSC-to-survival ratio Temperature management Facilitated PCI Neurocritical care ICU/ventilator days GLBS/VAP rates 	<ul style="list-style-type: none"> Code/DNAR mortality Rate of 2+ Code Blues Advanced directives Family discussions Palliative care consultation Withdrawal Organ donation
	Technology	<ul style="list-style-type: none"> Manual vitals Monitor vitals Advanced monitoring Telemedicine Mechanical ventilation Circulatory assist devices 	<ul style="list-style-type: none"> Manual vitals Monitor vitals Advanced monitoring Telemedicine Mechanical ventilation Circulatory assist devices 	<ul style="list-style-type: none"> Manual vitals Monitor vitals MEWS/algorithms Advanced monitoring Telemedicine Mechanical ventilation Circulatory assist devices 	<ul style="list-style-type: none"> Manual vitals Monitor vitals MEWS/algorithms Advanced monitoring Telemedicine Mechanical ventilation Circulatory assist devices 	<ul style="list-style-type: none"> Monitor Defibrillator Mechanical compressor Circulatory enhancers Ventilation devices Temperature management ECMO 	<ul style="list-style-type: none"> Advanced monitoring Perfusion Oxygenation Ventilation Temperature management Percutaneous intervention Neurocritical care 	<ul style="list-style-type: none"> Advanced monitoring Computer algorithms Prognostication Palliative care Temperature management Compassionate extubation Family comfort
Efferents	Special projects	<ul style="list-style-type: none"> Triage/disposition Monitoring Screening approaches Telemedicine Hospital configuration Alternate care strategies 	<ul style="list-style-type: none"> Triage/disposition Monitoring Screening approaches Telemedicine Hospital configuration MEWS/algorithms 	<ul style="list-style-type: none"> Triage/disposition Monitoring Rapid response Critical care Procedures Non-arrest codes 	<ul style="list-style-type: none"> Triage/disposition Monitoring Screening approaches Telemedicine Hospital configuration Alternate care strategies 	<ul style="list-style-type: none"> Recognition Monitoring Equipment Code team configuration Protocols Medications Processes 	<ul style="list-style-type: none"> Advanced monitoring Equipment Neurocritical care Hospital configuration Protocols Palliative care Prognostication 	<ul style="list-style-type: none"> Monitoring/equipment Neurocritical care Hospital configuration Palliative care Prognostication Family issues Organ donation
	Training	<ul style="list-style-type: none"> Triage/disposition/monitoring ART Matrix Perfusion Oxygenation Ventilation Policies/protocols Peri-arrest Recognition 	<ul style="list-style-type: none"> Triage/disposition/monitoring ART Matrix Perfusion Oxygenation Ventilation Policies/protocols Peri-arrest Recognition 	<ul style="list-style-type: none"> Triage/disposition/monitoring ART Matrix Perfusion Oxygenation Ventilation Policies/protocols Peri-arrest Recognition 	<ul style="list-style-type: none"> ART Matrix Perfusion Oxygenation Ventilation Monitoring Procedures ROSC Recognition 	<ul style="list-style-type: none"> Recognition Compressions Ventilations Medications Monitoring Defibrillation ROSC Rearrest 	<ul style="list-style-type: none"> ROSC POV Critical monitoring Temperature management Facilitated PCI Neurocritical care Reperfusion strategies End-of-life discussions 	<ul style="list-style-type: none"> Risk stratification Prognostication Patient/family discussion Conflict resolution Palliative care Ethics Organ donation

Approach to Education

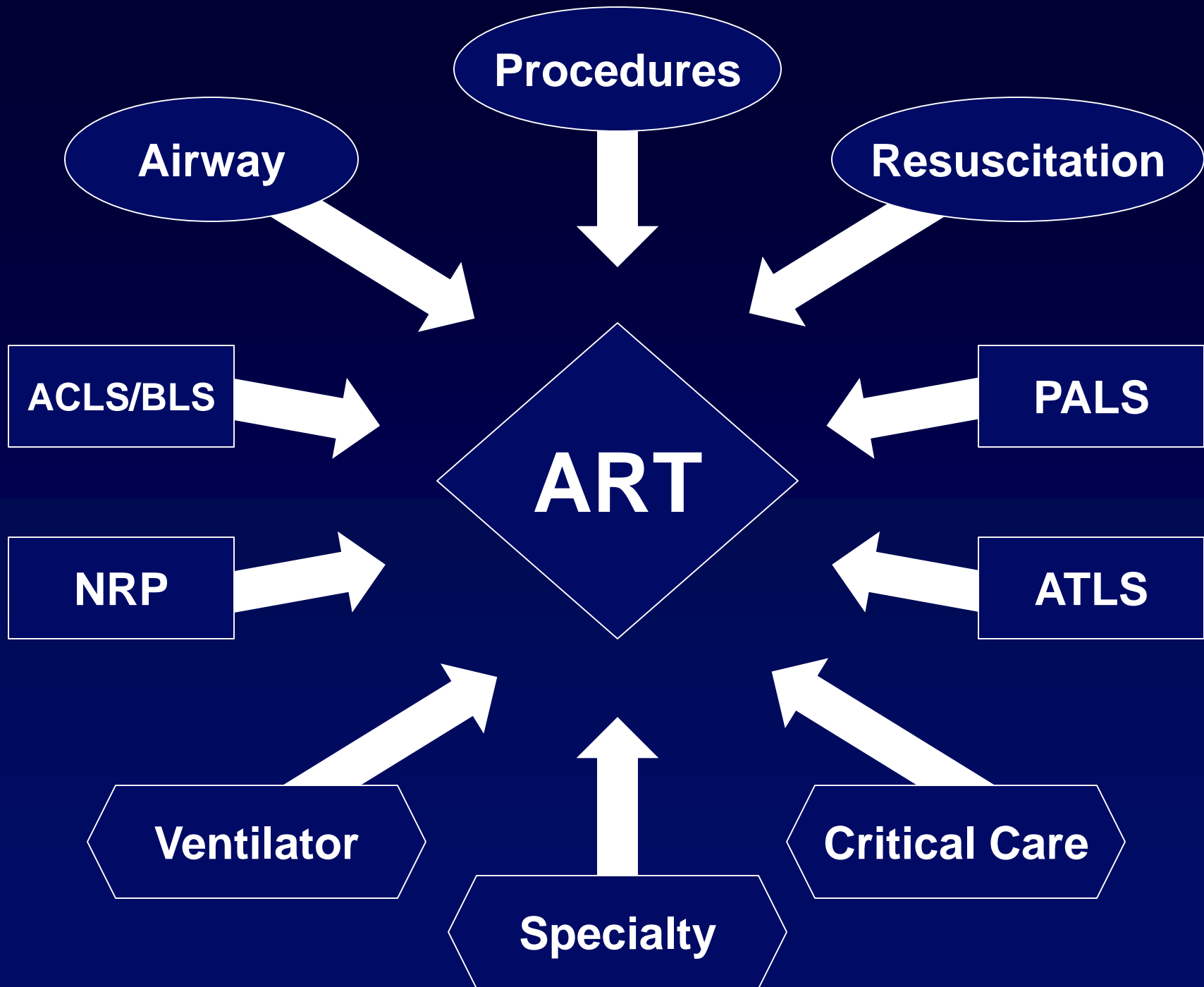
How We Teach

- **Cognitive psychology**
- **Affective domain**
- **Conceptual learning**
- **Vertical perspectivism**
- **Pattern recognition**
- **Multiple modalities**
- **Integrated technology**

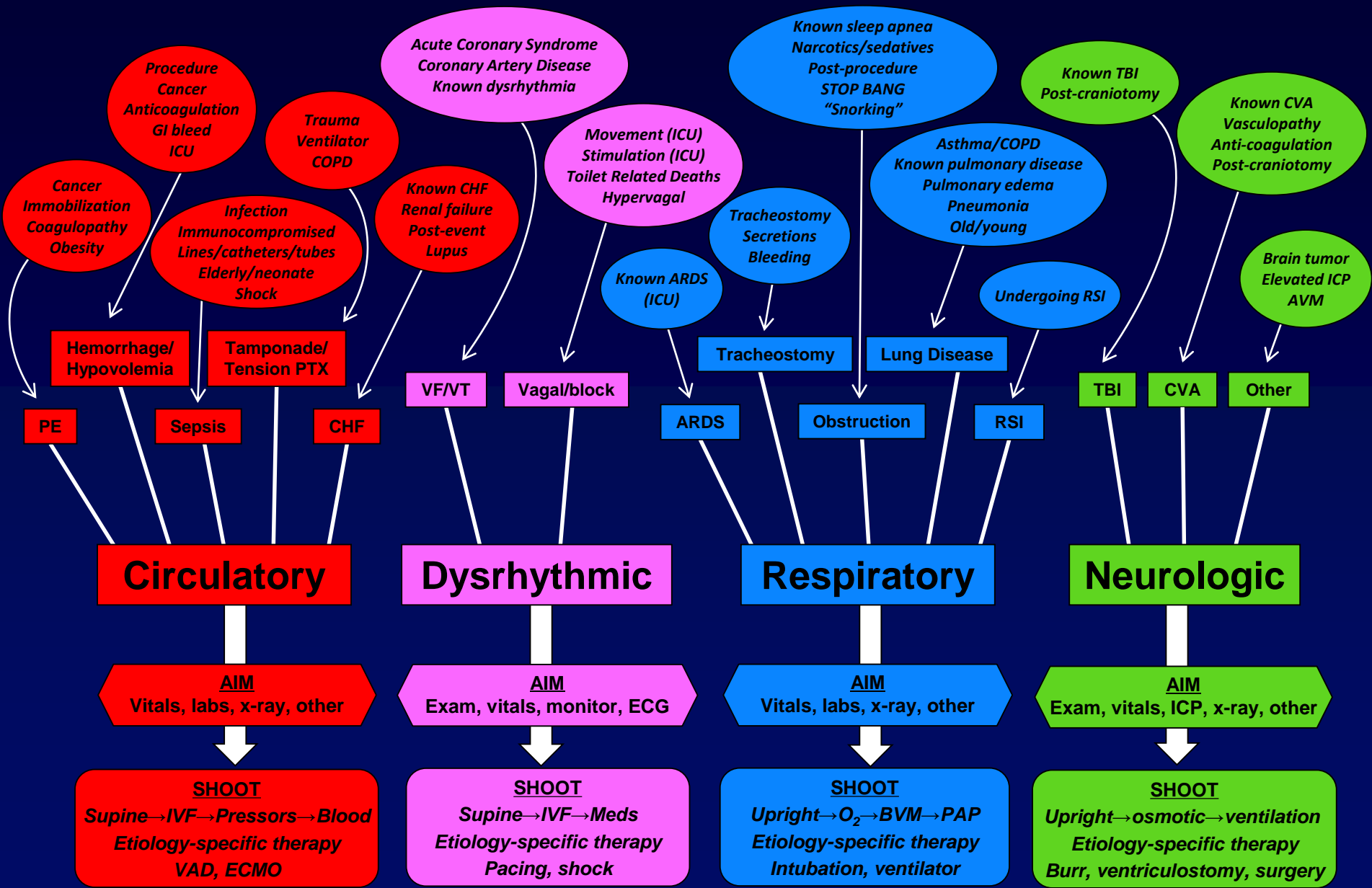
Curriculum Breadth

What We Teach

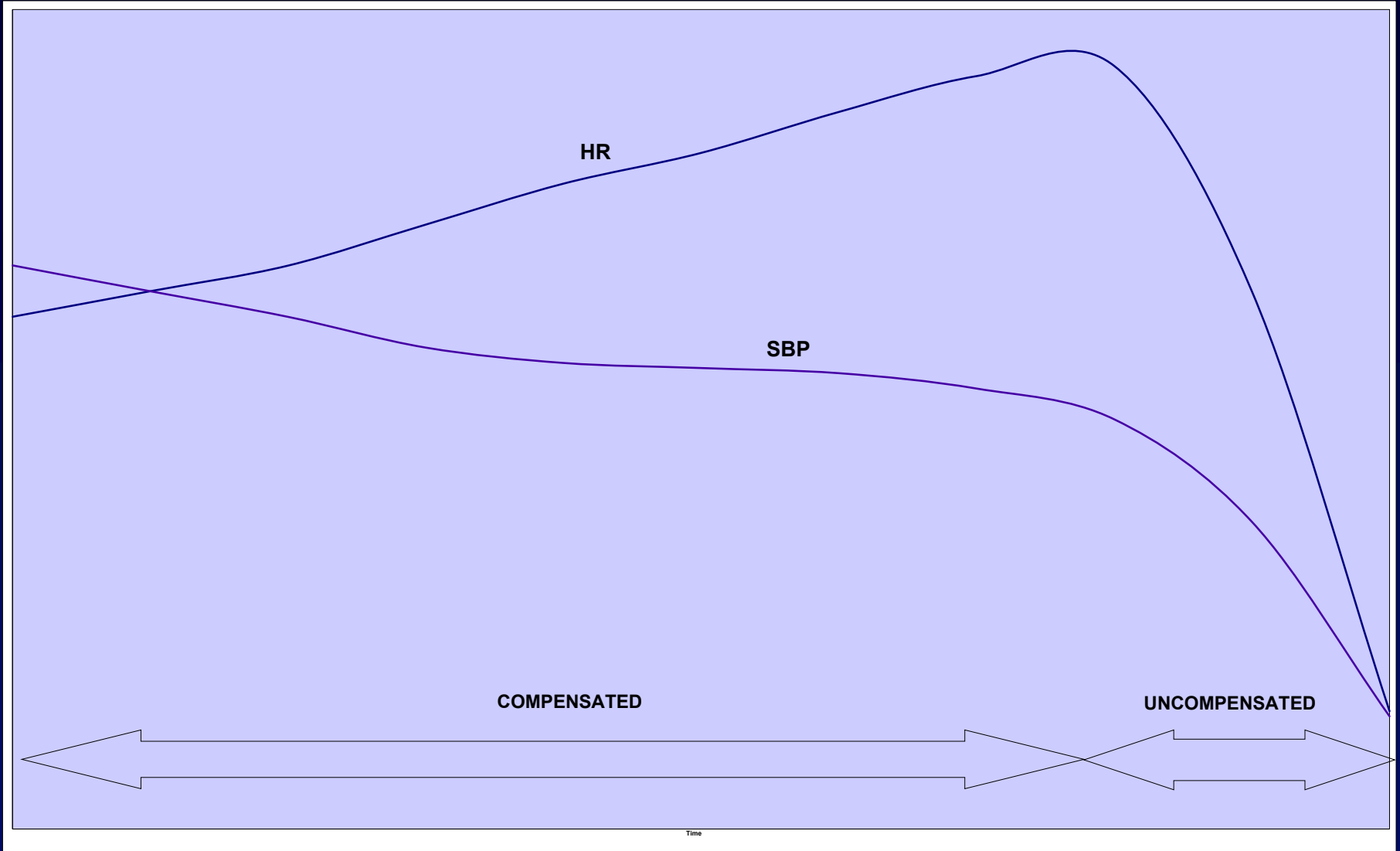
- **Arrest prevention**
 - The Theory of Everything
- **Arrest resuscitation**
 - CPR Island
- **Critical Care**
 - Integrated Model of Physiology
- **Airway Management**
 - Advanced Airway Resuscitation Training



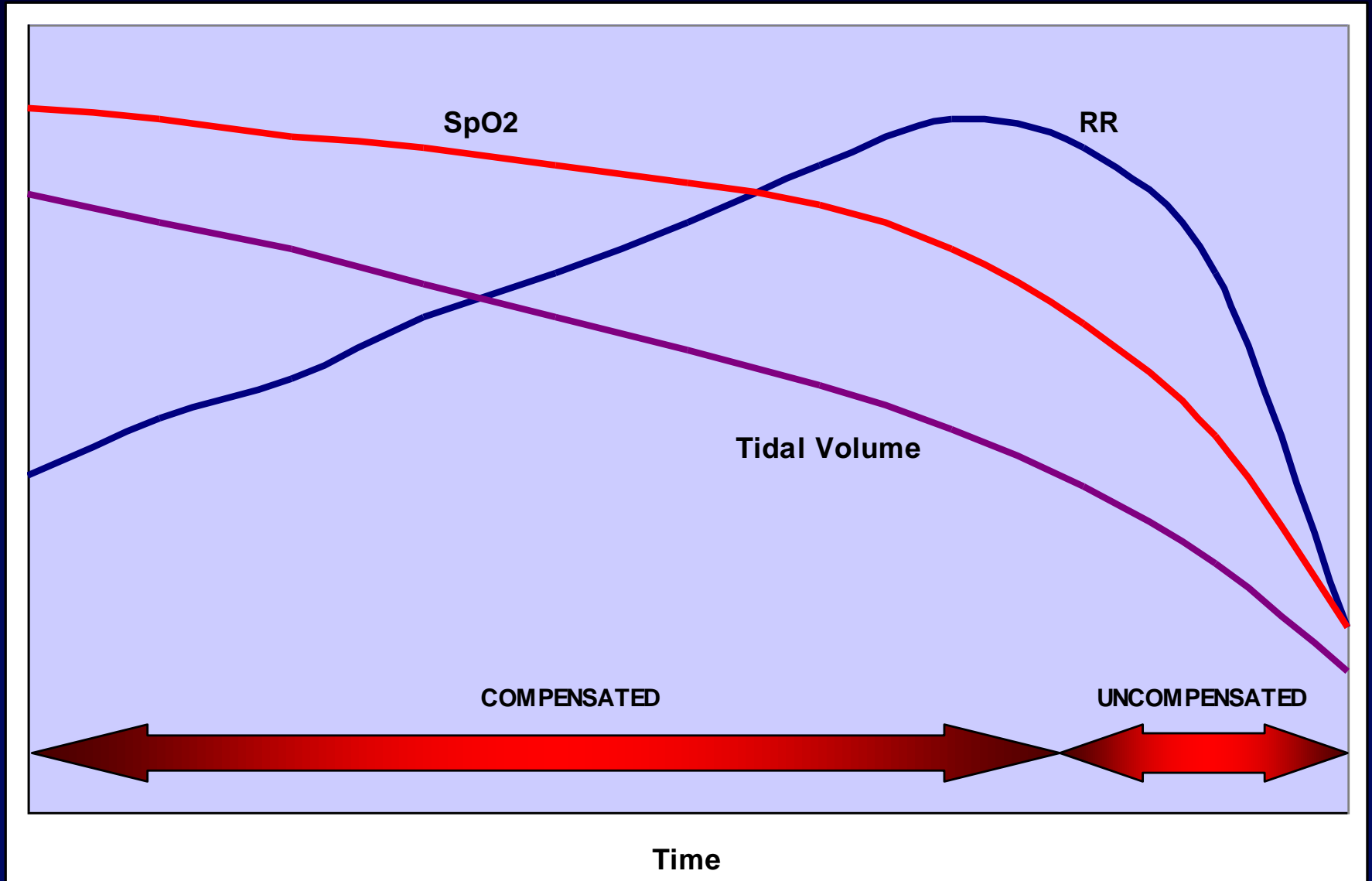
The Theory of Everything



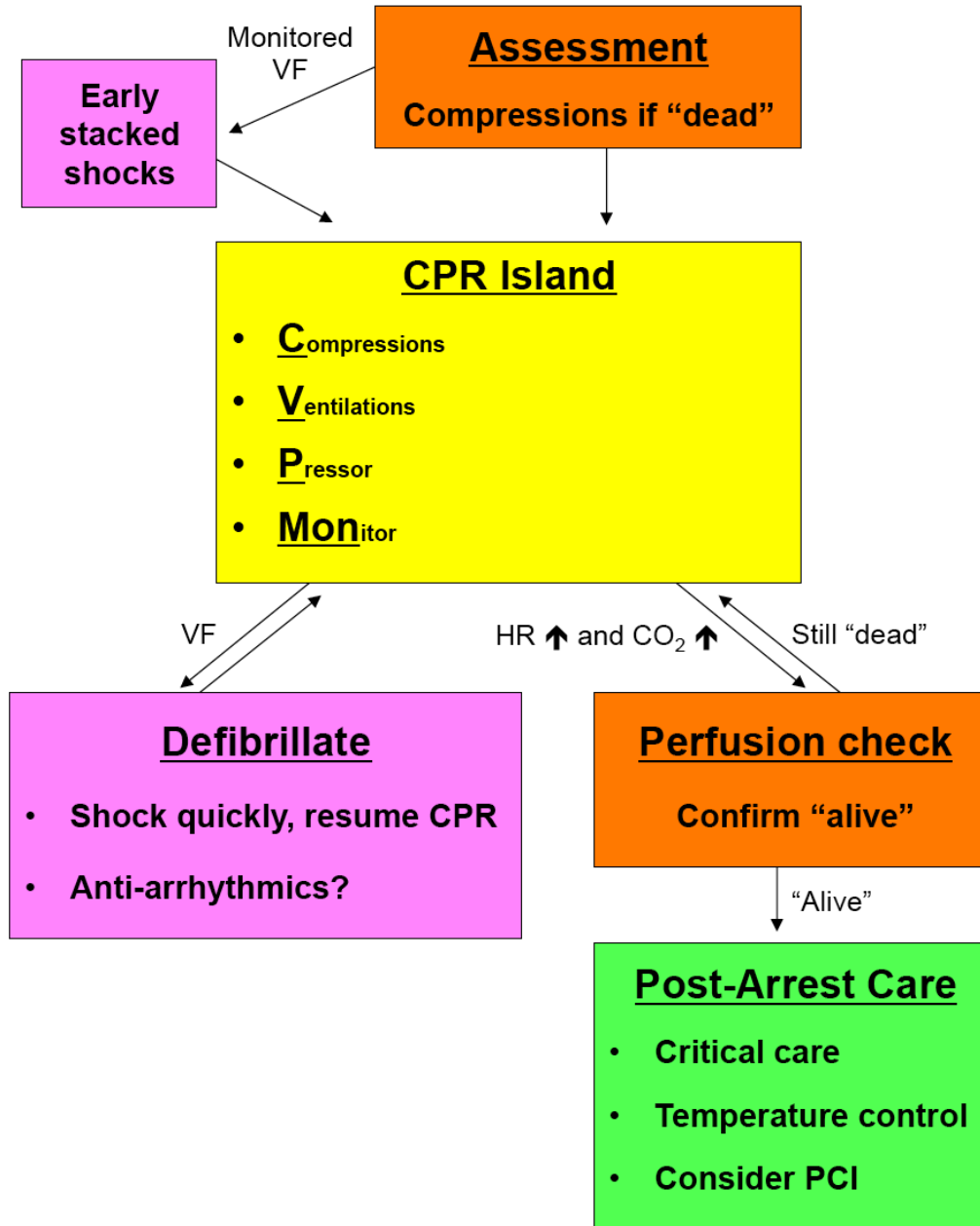
Circulatory



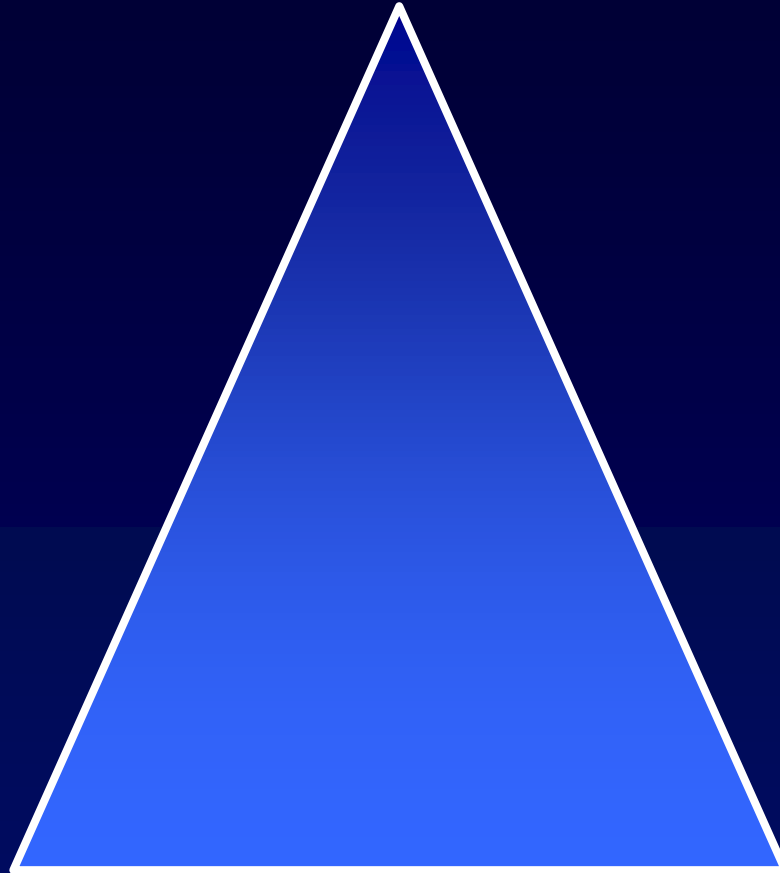
Respiratory



GENERAL ARREST ALGORITHM



PERFUSION



Oxygenation

Ventilation

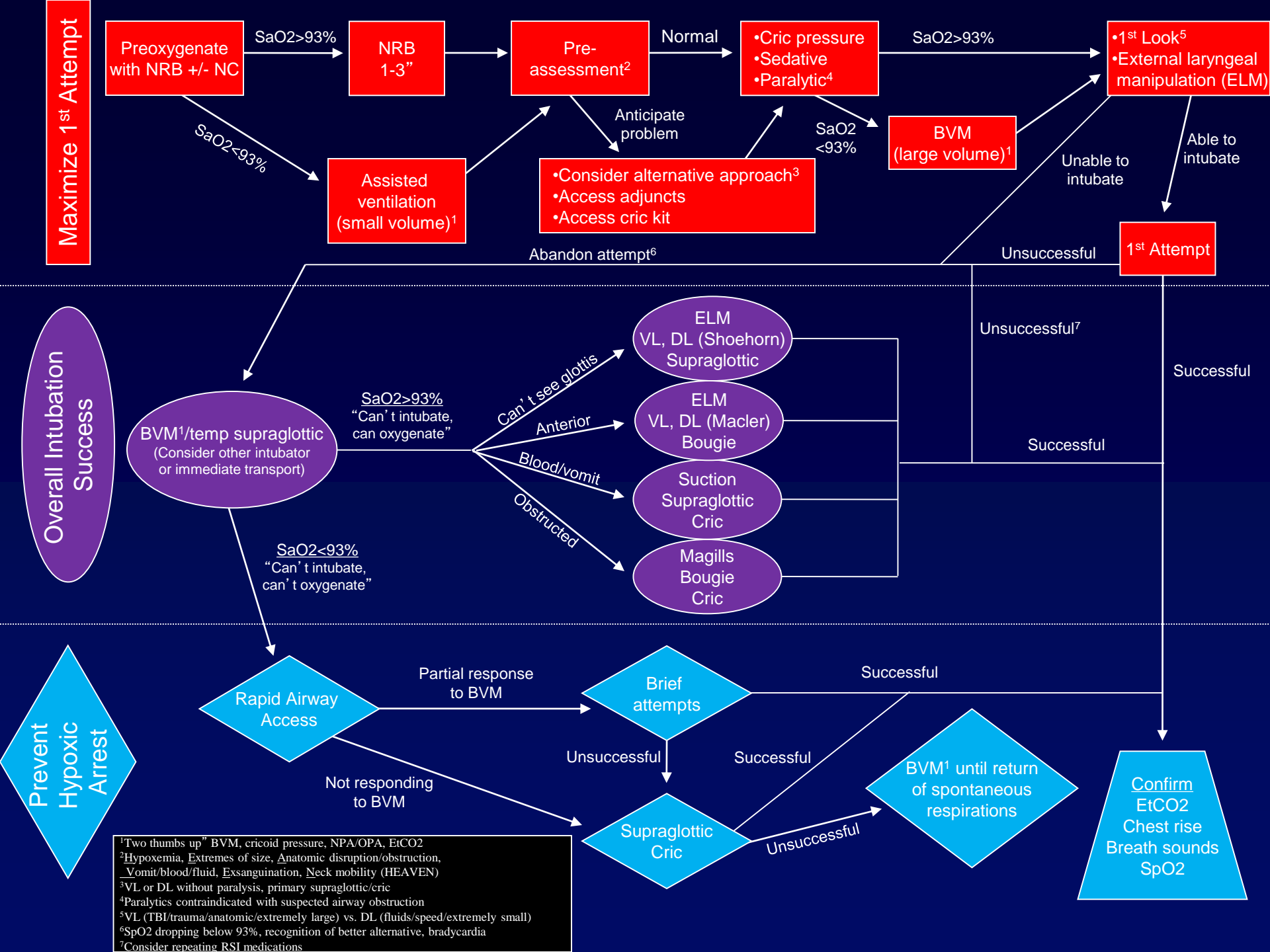
RESPIRATION

Perfusion

Ventilation

Oxygenation





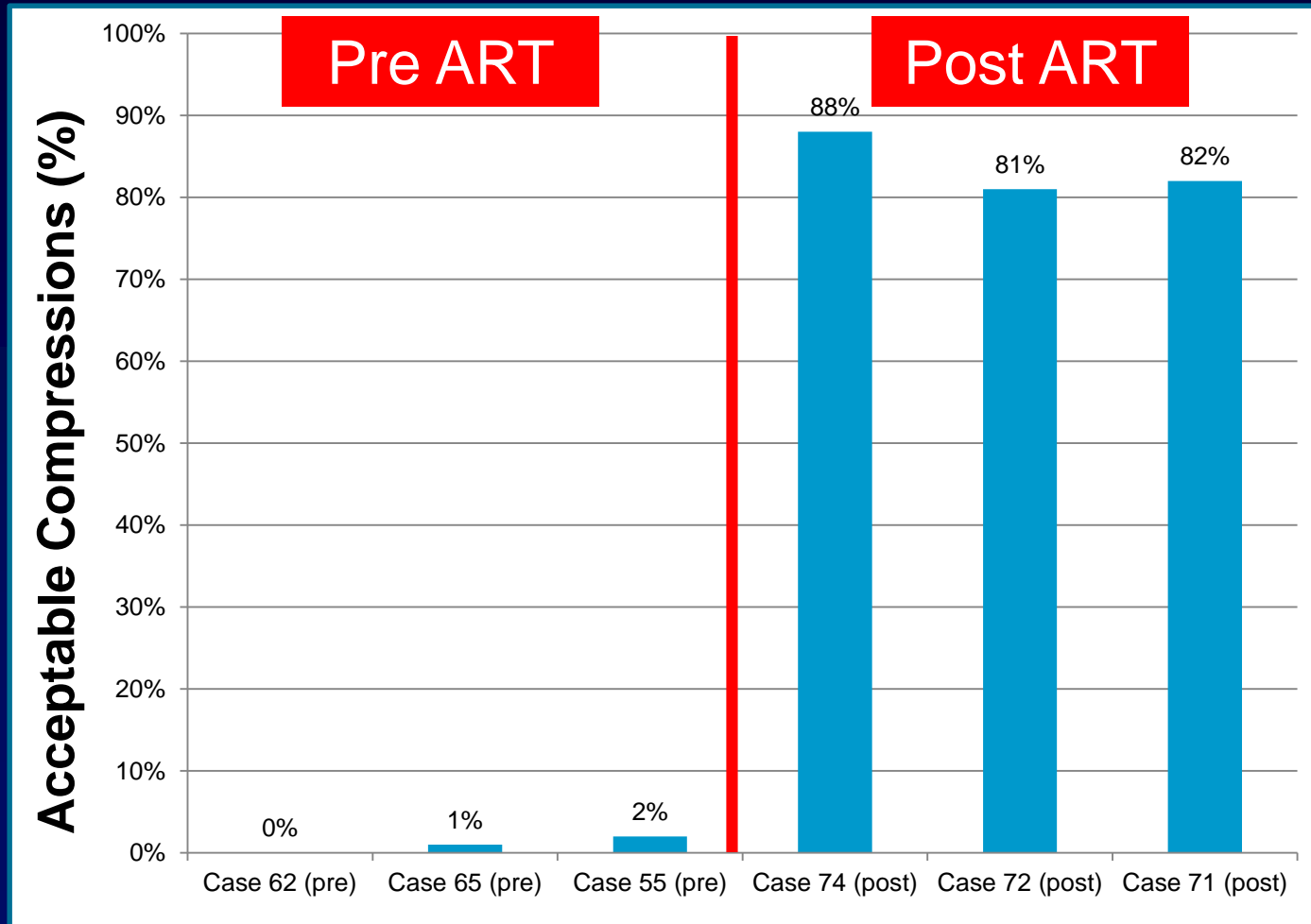
CQI Data/Analytics

ART Data/Analytics

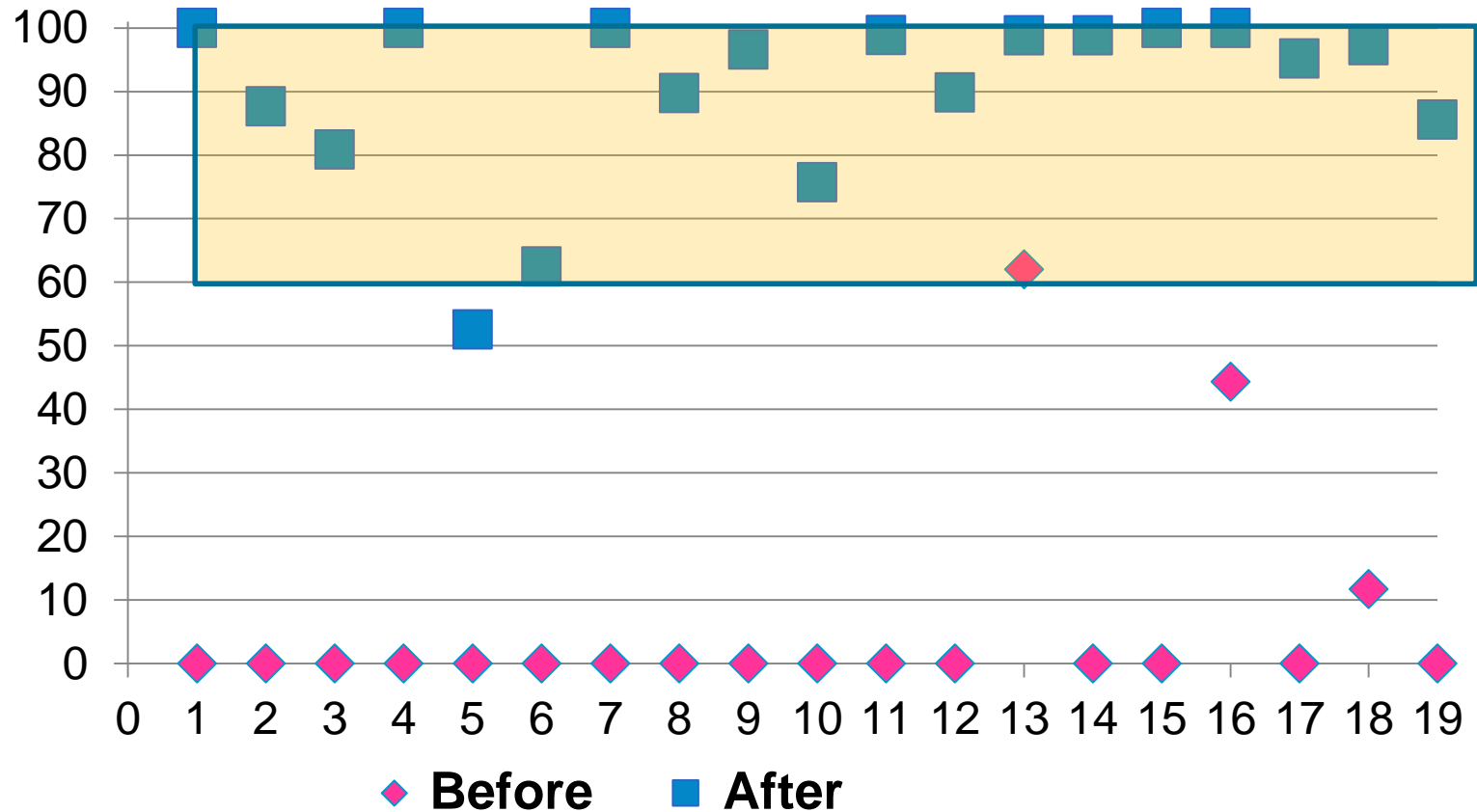
- Institutional
- Operational
- Demographics
- Antecedent events
- Intra-arrest
- Post-arrest
- Process issues
- Clinical interpretation

Clinical Outcomes

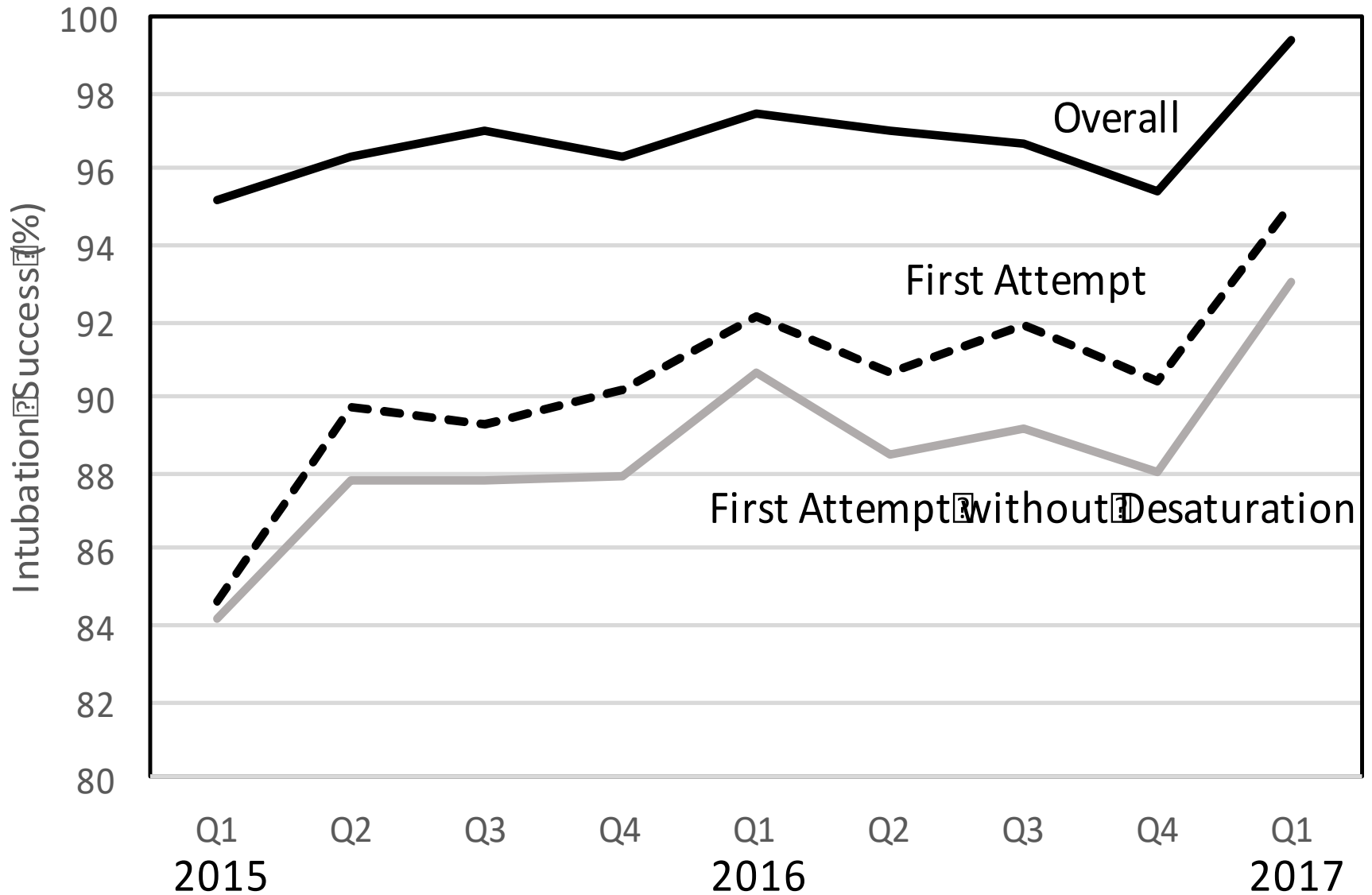
Los Angeles EMS



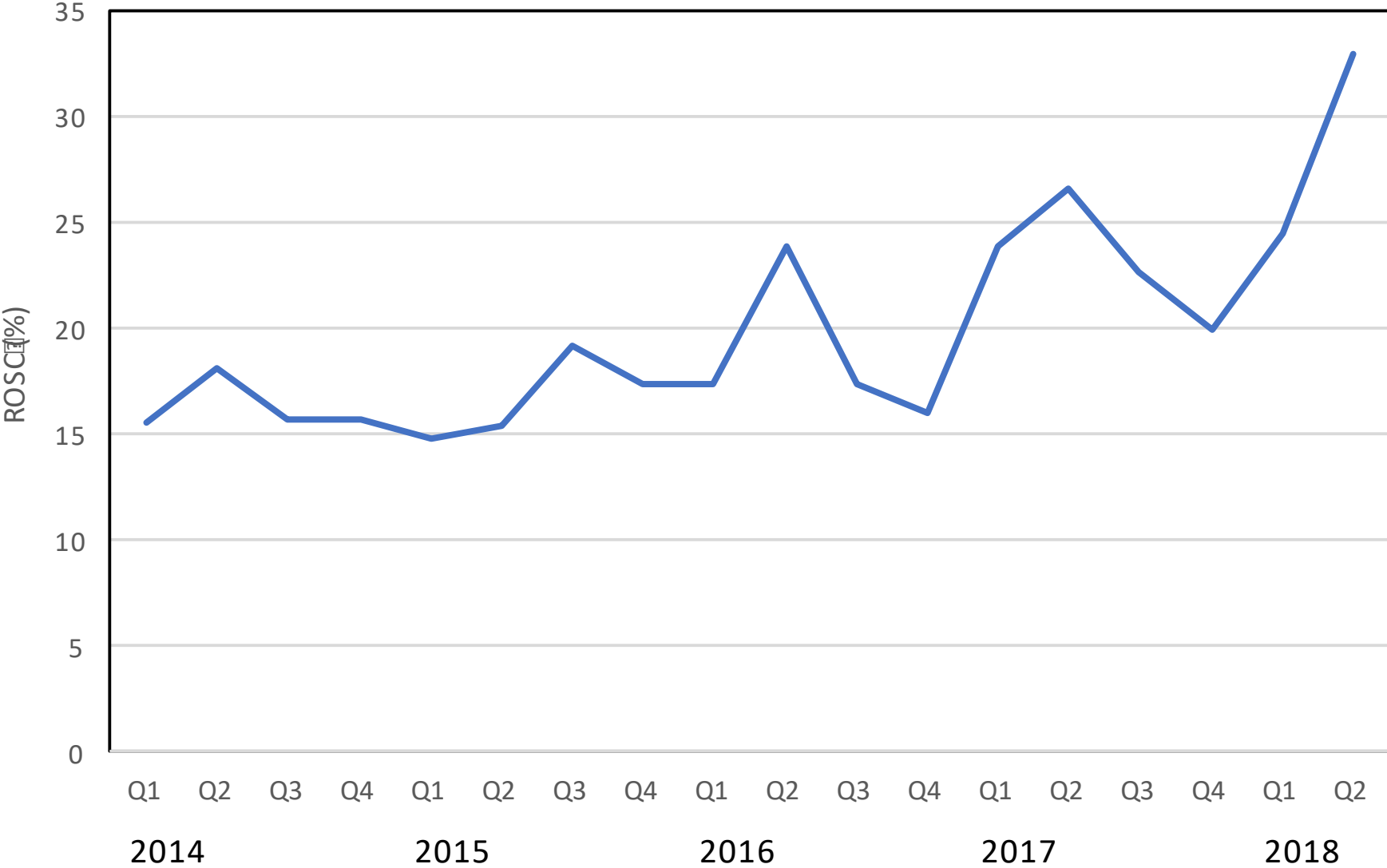
Compressions in Target



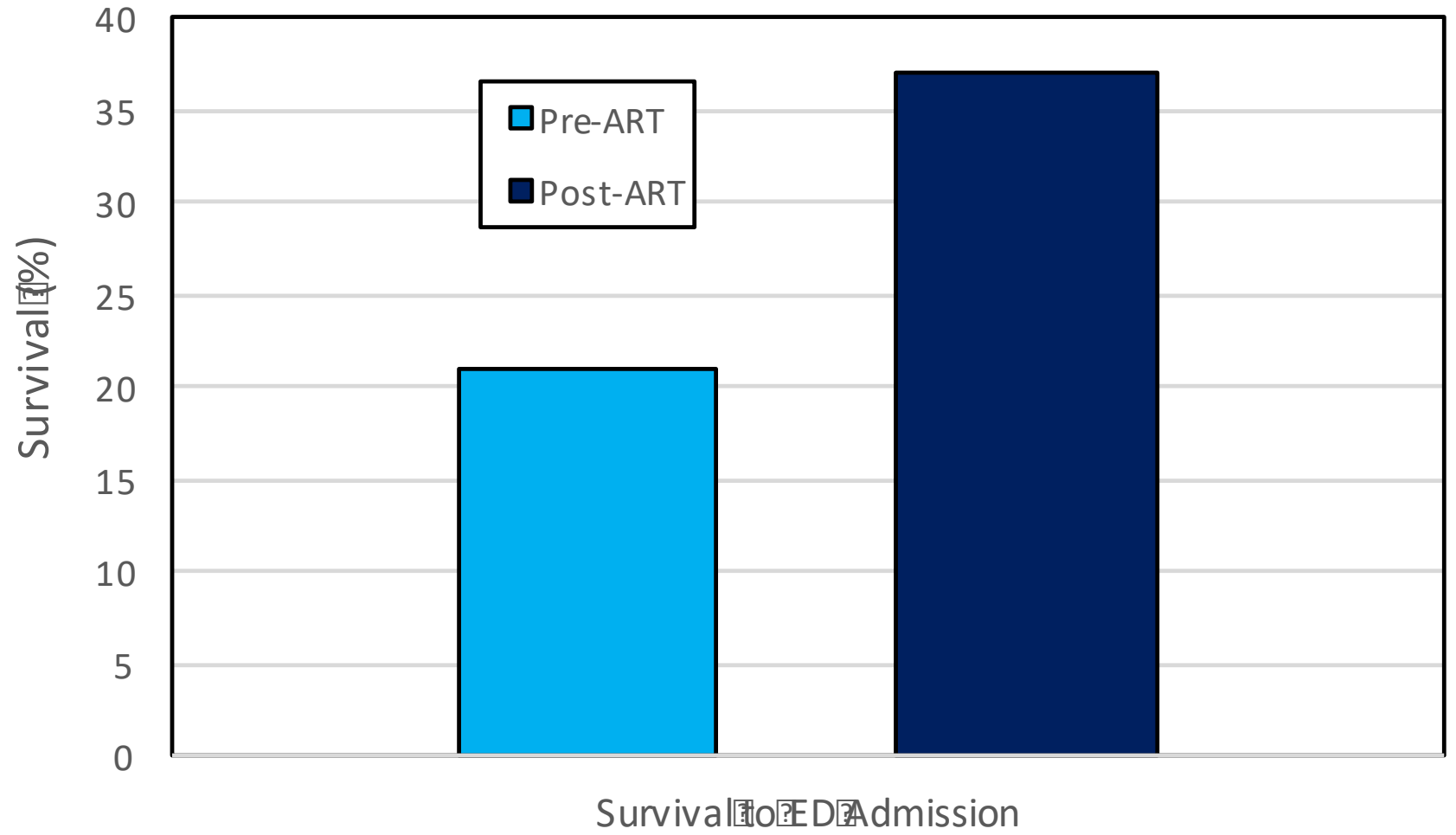
Air Methods Intubations



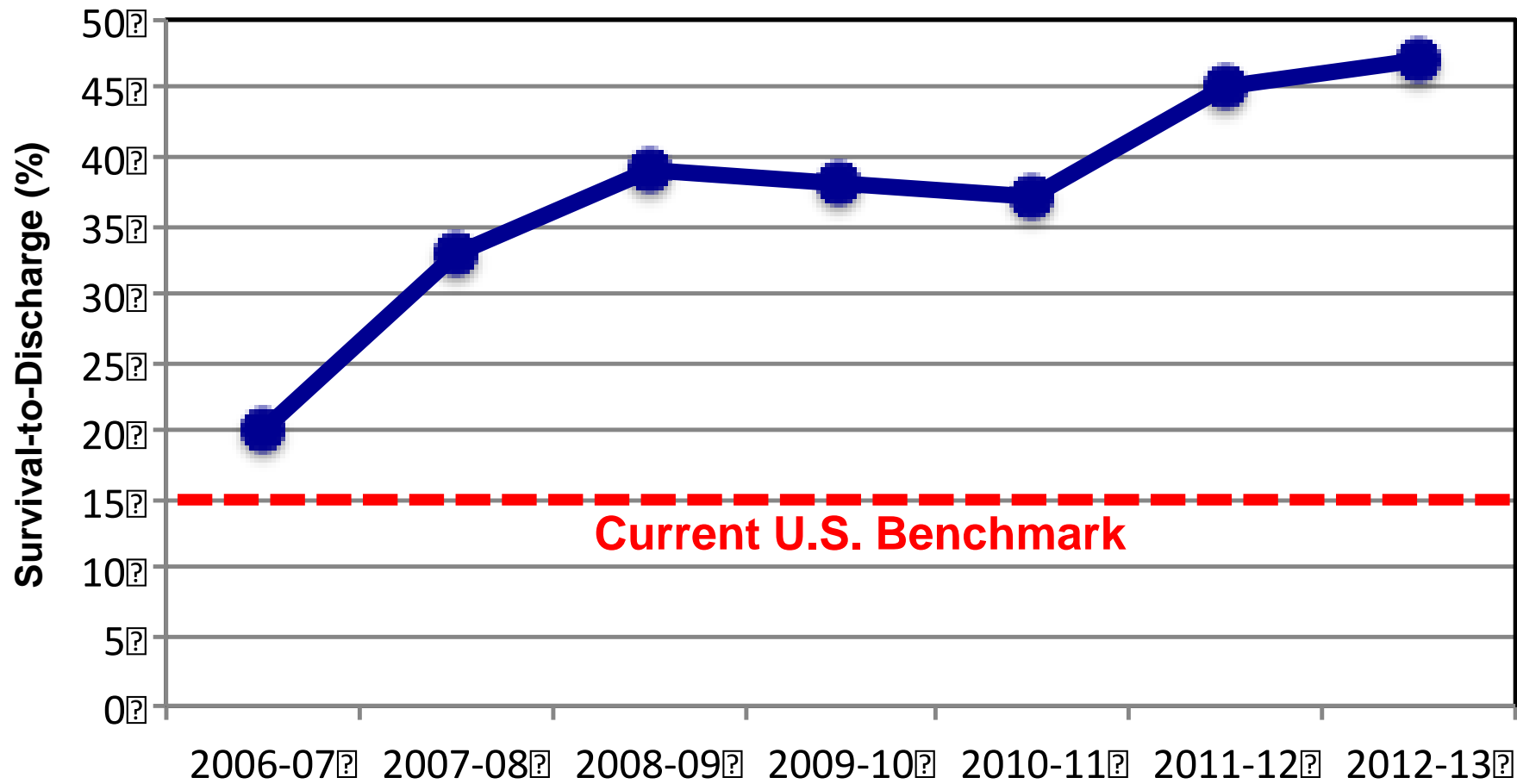
Riverside County FD



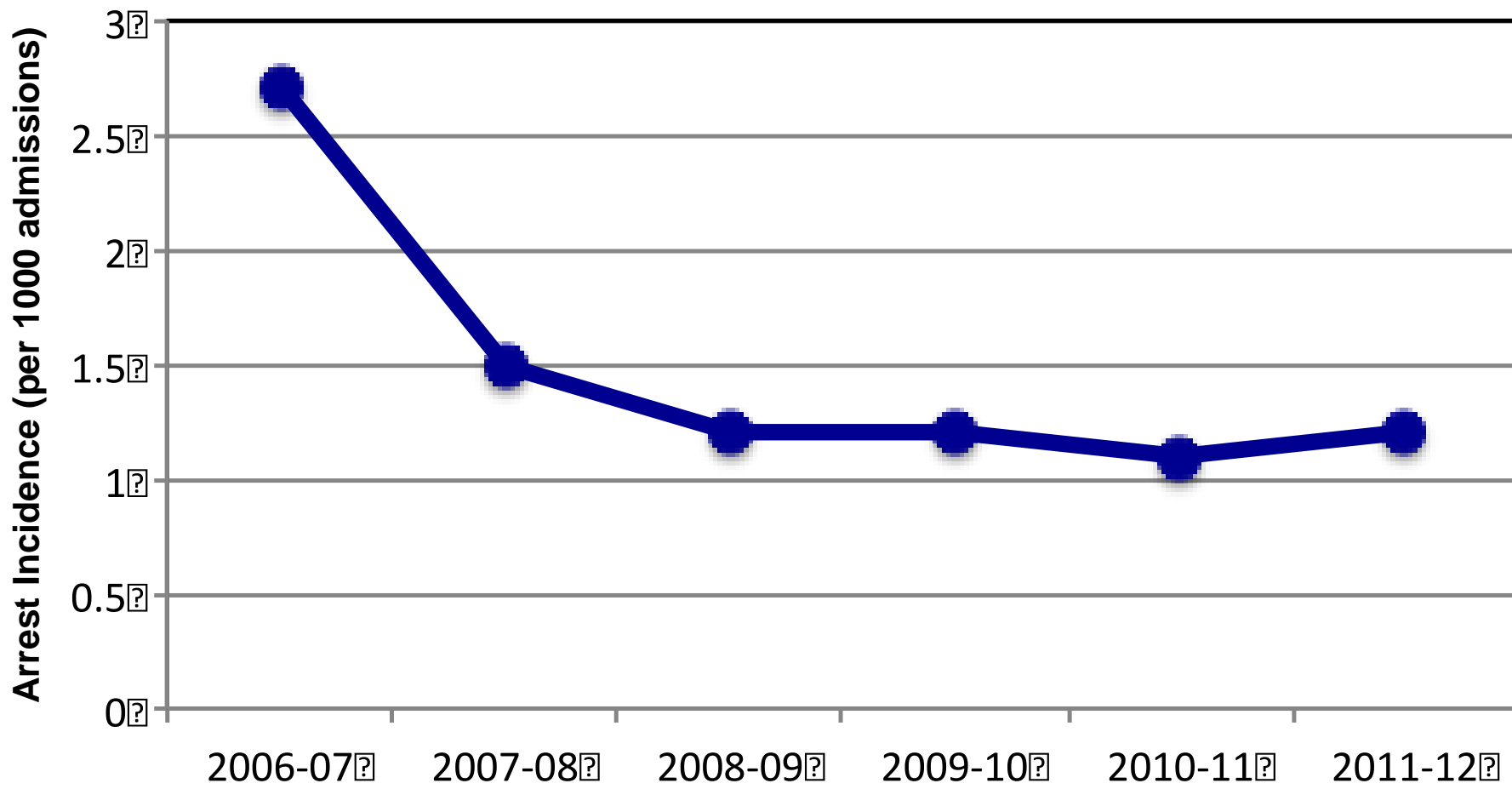
Colton FD



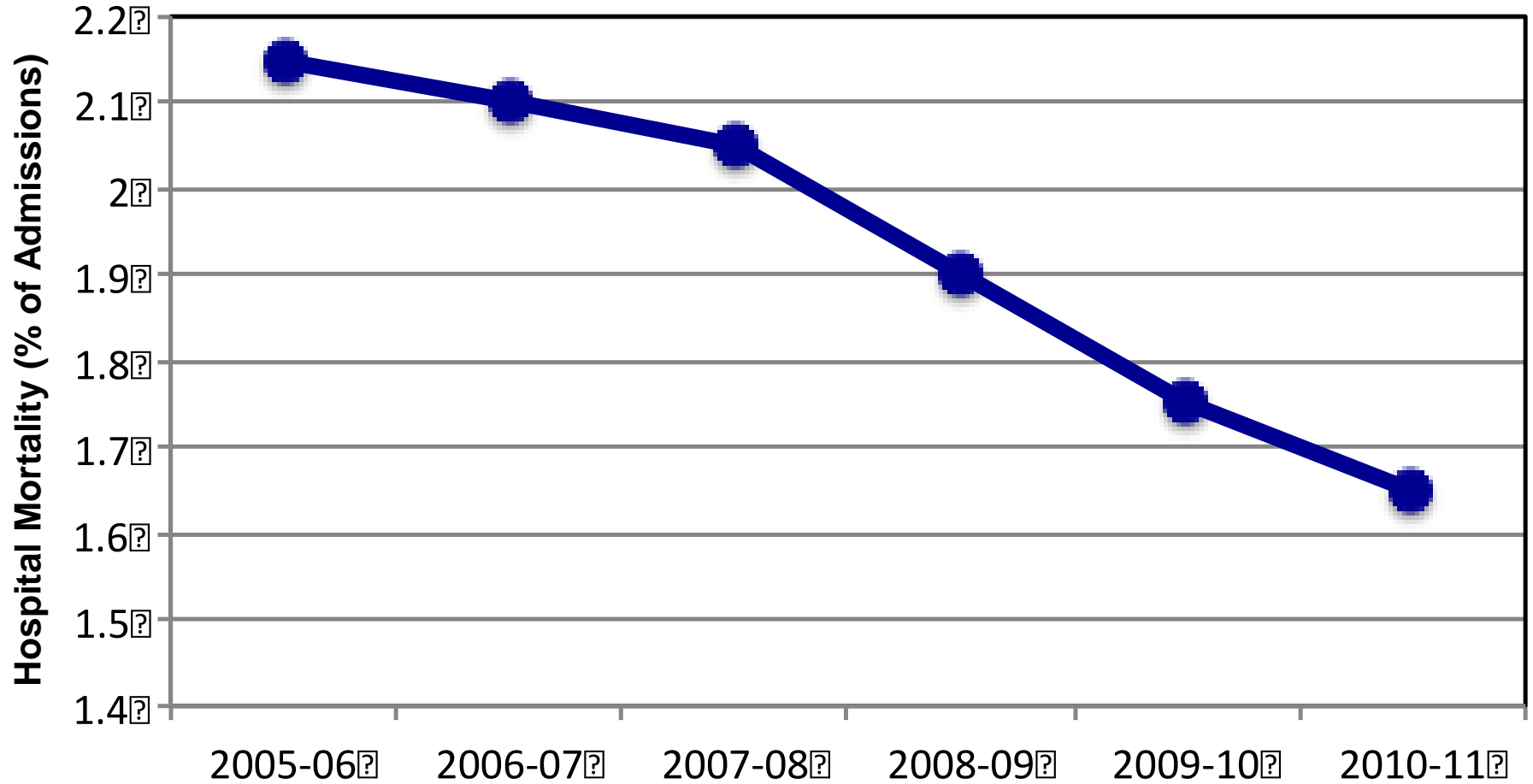
UCSD Arrest Survival



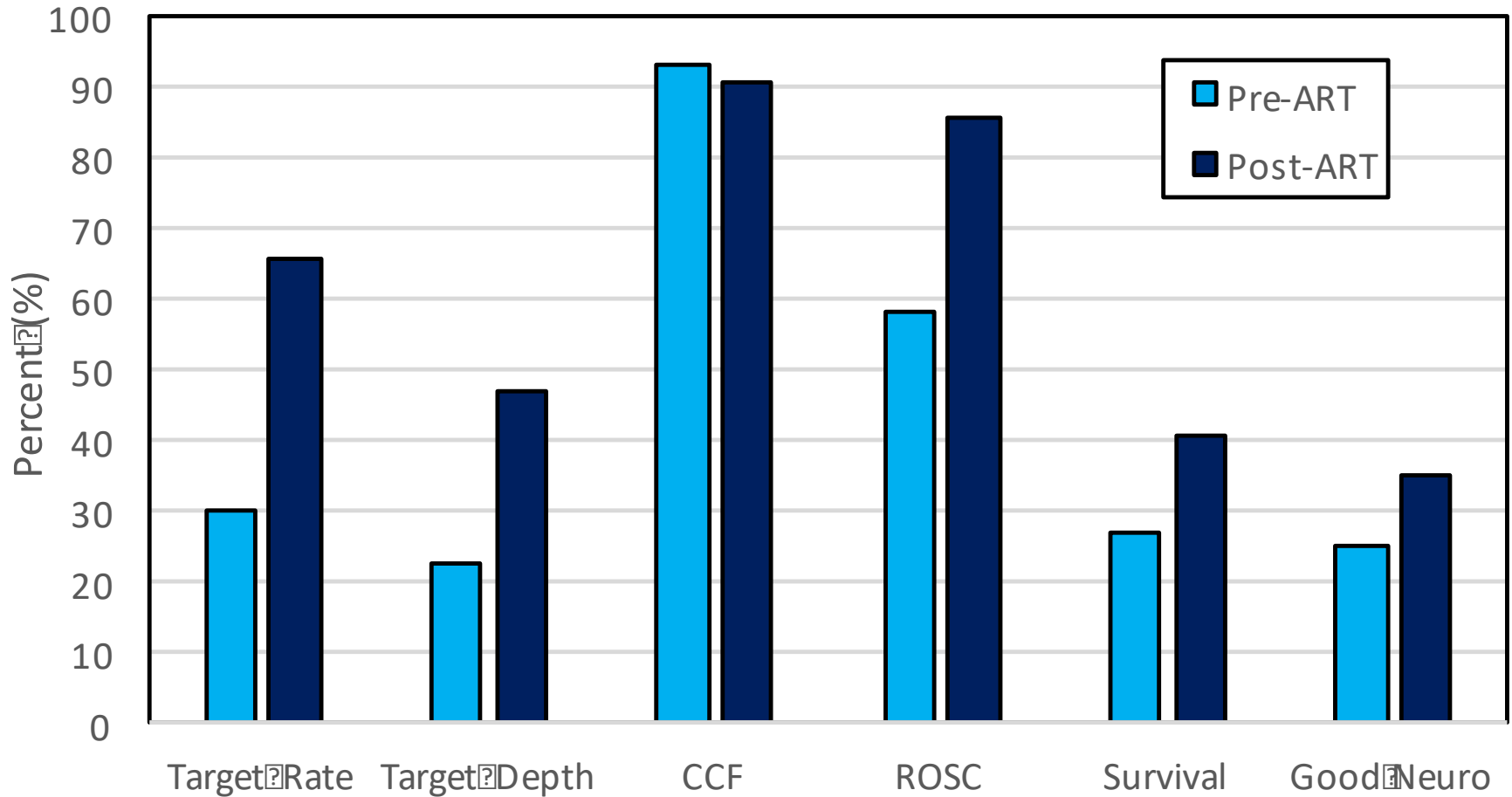
UCSD Non-ICU Arrest Incidence



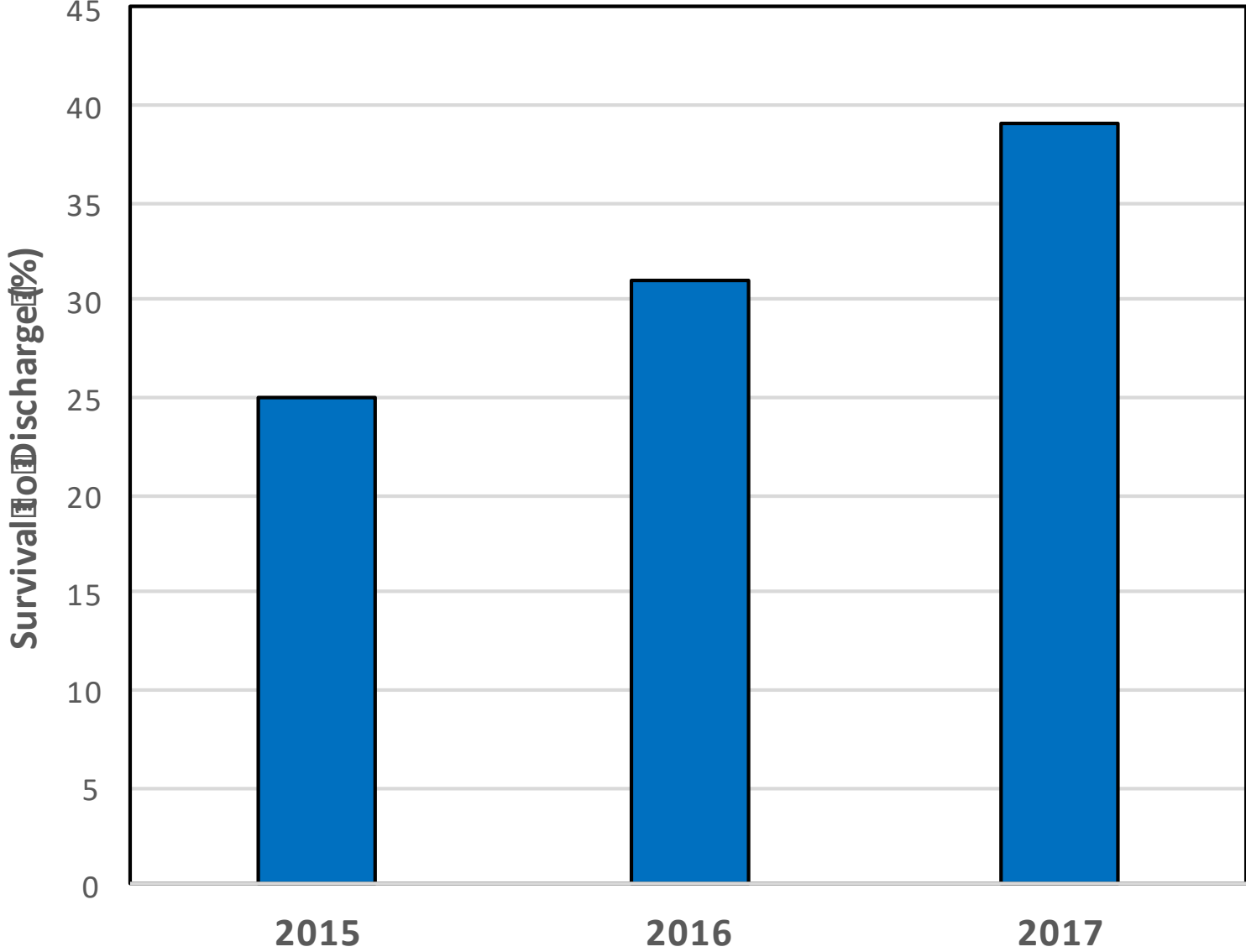
UCSD Hospital Mortality



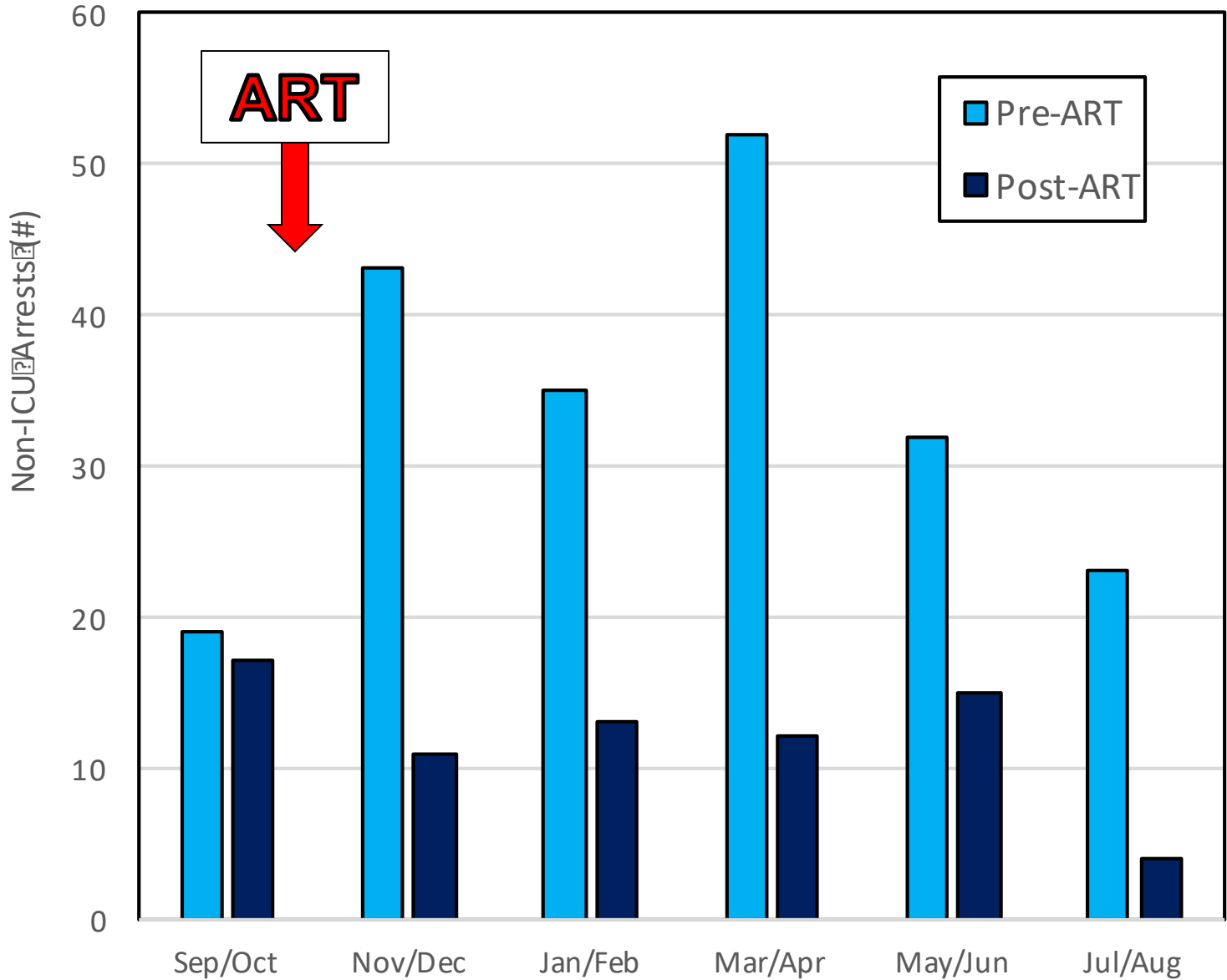
Mayo Florida Arrest Survival



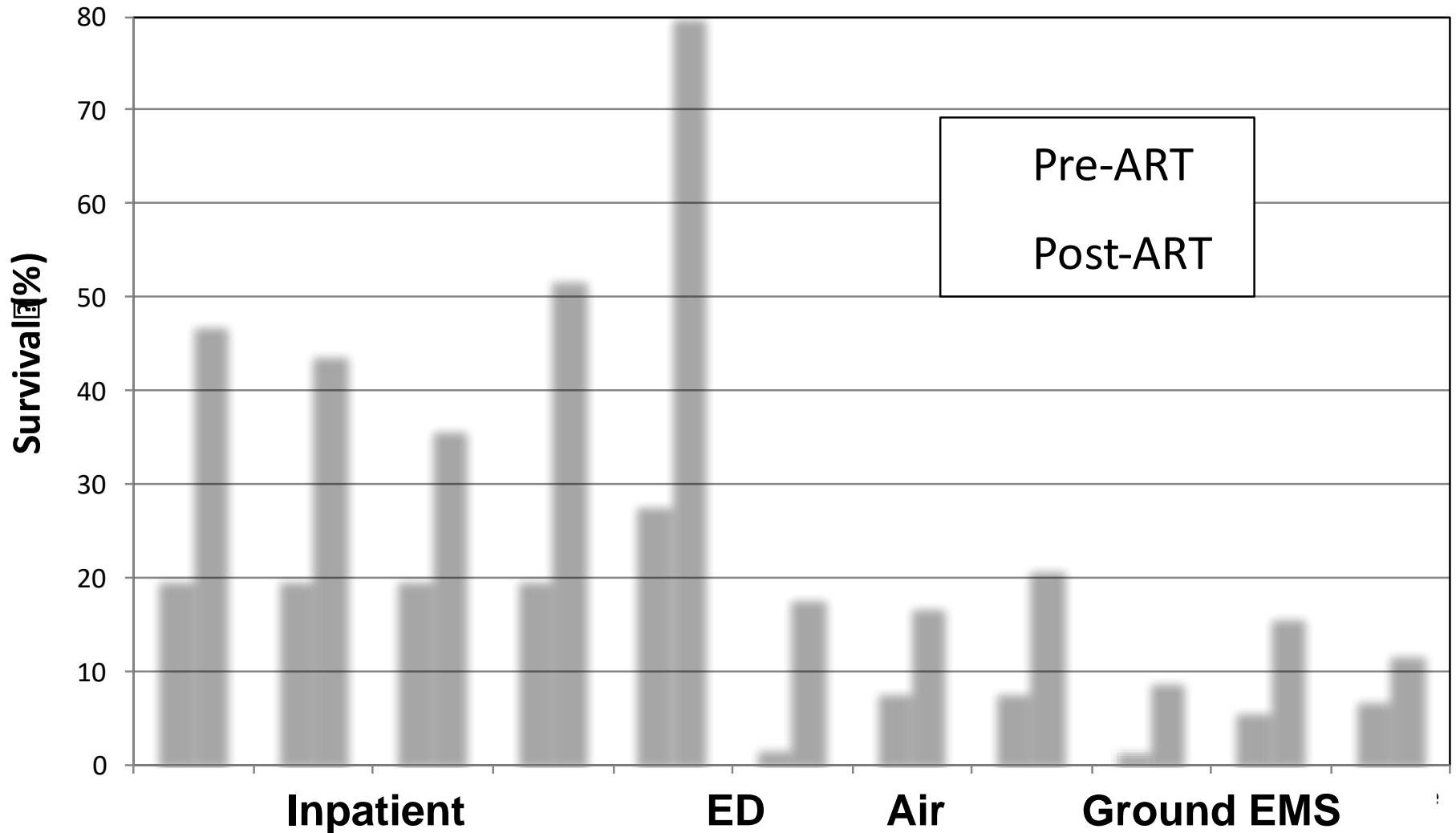
Geisinger Arrest Survival



Ochsner Arrest Incidence



An ART Movement





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