

ALS Training with ECS

Stefan Mönk



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- Anesthesiologist
- HPS in 1997 (Mainz University, Germany)
- Co-founded 2 centres
- From user to adjunct faculty to full time
- Use, training, development, project management, sales support





European Resuscitation Council

- Network of National Resuscitation Councils in Europe
- Red Cross
- Cardiology
- Intensive Care Medicine
- Emergency Medicine
- Anaesthesiology
- Global International Liaison Committee on Resuscitation (ILCOR)

European Resuscitation Council

- ERC defines life support guidelines and training within Europe. Its rules and trainings are de-facto standard, sometimes with legal consequences: E.g. in the UK health professionals are required to be ERC providers (i.e. underwent successfully an ERC course) to work in hospitals. The ERC is similar to the AHA and both organizations work closely together and their guidelines are similar (not identical!).
- ERC training focuses on practice. They include high workload for the simulators, in-

European Resuscitation Council

- ERC training focuses on practice.
- High workload for the simulators,
 - frequent defibrillations
 - almost constant chest compression
 - repeated in-tubations and other airway management manoeuvres
- High workload for trainees:
 - Duration of a scen-ario is 5 to 10 minutes
 - Up to 3 scenarios are conducted within a 30 minute period at peak activity times
 - Official duration of the course is 2.5 days but often content is squeezed into 2 days to allow it to be conducted on one weekend.

METI

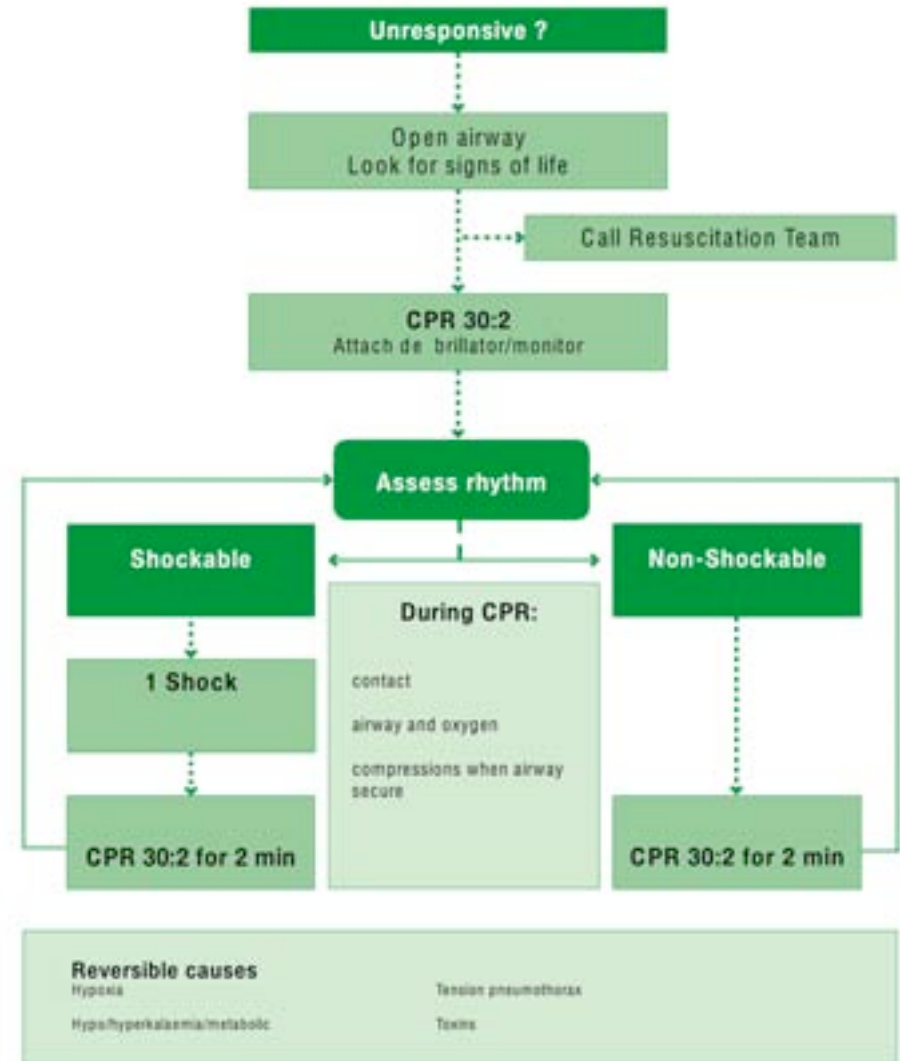
www.erc.edu



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Advanced Life Support





Tachycardia Algorithm (with pulse)

- Support ABCs: give oxygen; cannulate a vein
- Monitor ECG, BP, SpO₂
- Record 12-lead ECG if possible; if not, record rhythm strip
- Identify and treat reversible causes (e.g. electrolyte abnormalities)

Synchronised DC shock*
Up to 3 attempts

- Amiodarone 300 mg IV over 10-20 min and repeat shock; followed by:
- Amiodarone 900 mg over 24 h

Is patient stable?
Signs of instability INCLUDE:
1. Reduced conscious level 2. Chest pain
3. Systolic BP < 90mmHg 4. Heart failure
(Rate-related symptoms uncommon at less than 150 beats min⁻¹)

Broad QRS
Is QRS regular?

Is QRS narrow (< 0.12 sec)?

Narrow QRS
Is QRS regular?

Irregular
Seek expert help

Regular
If Ventricular Tachycardia
(or uncertain rhythm):
• Amiodarone 300 mg IV over 20-60 min; then 900 mg over 24 h
If previously con rmed SVT with bundle branch block:
• Give adenosine as for regular narrow complex tachycardia

Regular
• Use vagal manoeuvres
• Adenosine 6 mg rapid IV bolus; if unsuccessful give 12 mg; if unsuccessful give further 12 mg;
• Monitor ECG continuously

Normal sinus rhythm restored?
Yes
Probable re-entry PSVT:
• Record 12-lead ECG in sinus rhythm
• If recurs, give adenosine again & consider choice of anti-arrhythmic prophylaxis

Irregular
Irregular Narrow Complex Tachycardia
Probable atrial fibrillation
Control rate with:
• β-Blocker IV or digoxin IV
If onset < 48 h consider
• Amiodarone 300 mg IV 20-60 min; then 900 mg over 24 h

No
Seek expert help
Probable atrial flutter
• Control rate (e.g. β-Blocker)

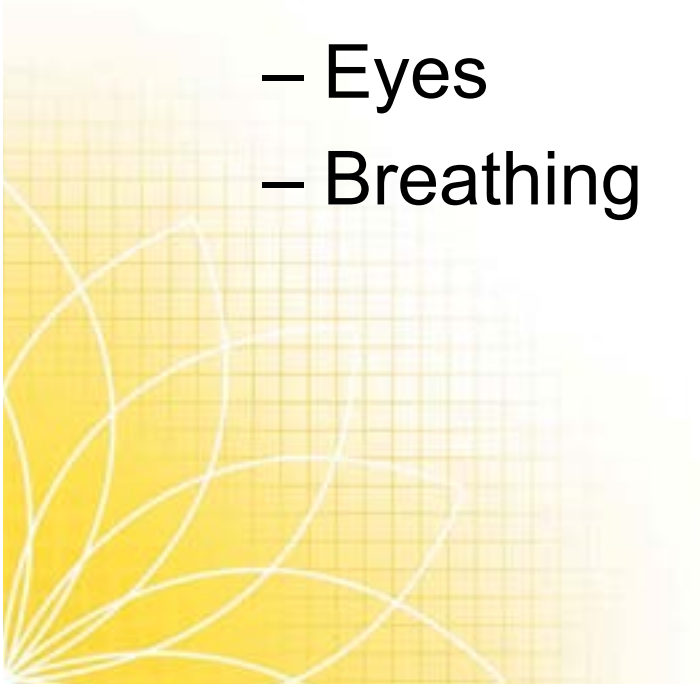
* Attempted electrical cardioversion is always undertaken under sedation or general anaesthesia

Situation

- Traditional field for mannequins without model of physiology
- Faculty unfamiliar with simulation
- Mistrust towards new method
- „I can teach with a broomstick“

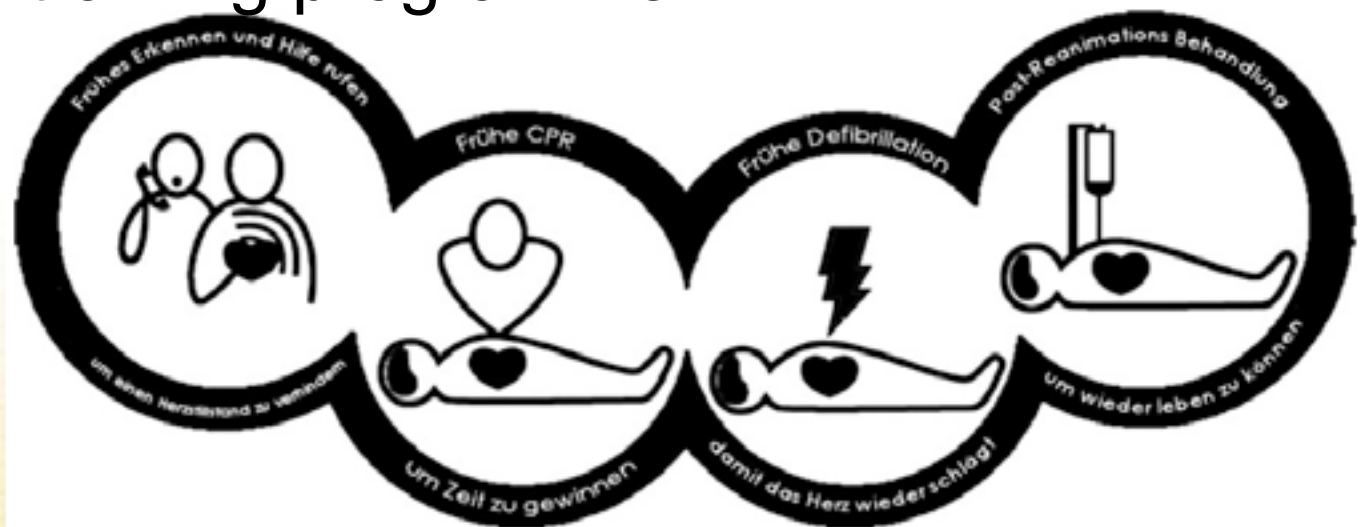
Highlights

- It DID work!
- Successful resuscitation:
 - Pulses
 - Eyes
 - Breathing



Existing Material

- Content
- Experience
- Manual for trainees
- Manual for facilitators
- Facilitator training programme



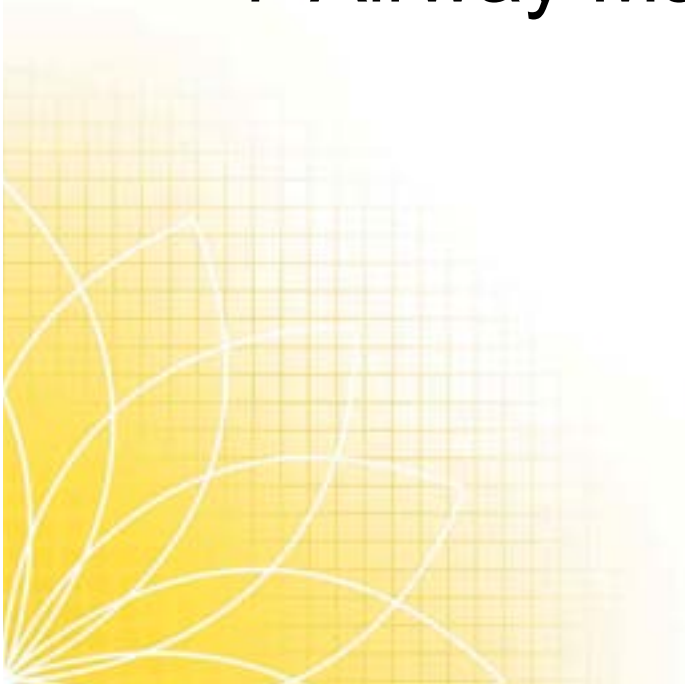
36 SCEs
Waveform display standards

New:

- Initial assessment
- Airway management
- ECG
- pulseless VT
- VF
- Asystolie
- PEA
- Bradycardia
- Tachycardia
- Atrial Fibrillation
- Tension Pneumothorax
- Near Drowning
- Anaphylaxis
- Asthma
- E'lyte disturbances
- Pregnancy
- Hypovolemia
- Intoxication
- Summative Assessment

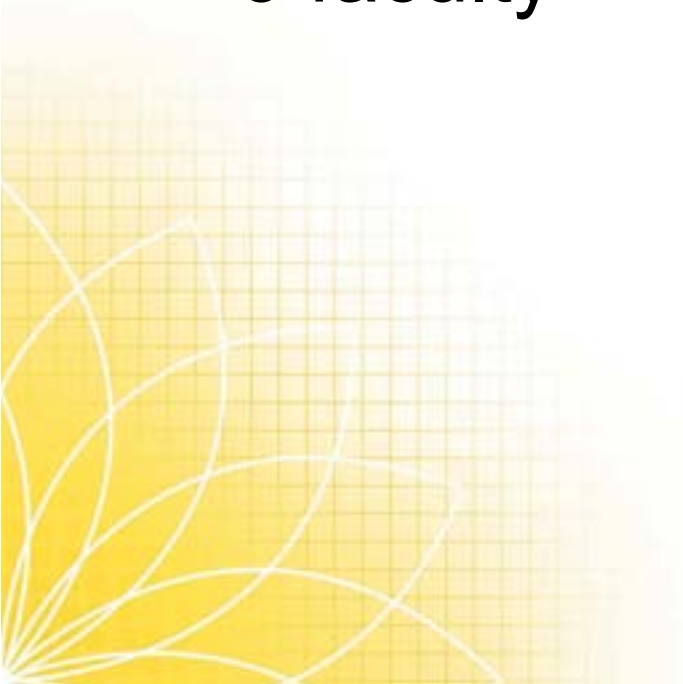
Examples

- 15 PEA
- 19 Narrow Complex Tachycardia
- 7 Airway Management



Pilot Course

- 18 participants
- 3 groups
- 6 faculty
- 36 SCE
- 3 ECS
- 3 Operators



Results

- The 1st official “European Resuscitation Council Provider Training” that relied completely on METI equipment was conducted successfully Oct 11 & 12, 2008 in Mainz, Germany.
- Participants were happy and faculty members were enthusiastic.

Results

- No ECS broke down.
- Scenarios needed very limited user activity. Only clicks on the “Next” button were necessary.
- Biphasic defibrillation was detected.
- NIBP Worked fine. NIBP measuring has previously not been available in ERC courses. Met with great enthusiasm.

Results

- NIBP measurement
 - Breath sounds
 - Pulses
 - SpO2
 - ...
-
- ...Had previously not been available in ERC courses.
 - ...Worked fine.
 - ...Were met with great enthusiasm.
 - ...Added realism

Problems

- EKG rhythms They are central in the training.
- A number of rhythms are expected for an ERC course but are not available in the HPS software: AV block 1st degree, Torsade de points. Asystole should not look like a totally flat line but rather like a very long phased sinus rhythm.
- Atrial flutter does not work after AV block 3.
- ECG should show artefacts while chest compression is performed

Things ToDo

- Version 2
- LM (elements are lacking)
- from drill to education
- new curriculum with simulation
- operator training
- Replace fine VF with coarse VF
- „keep them dead“
- Some minor adjustments on the scripts.

