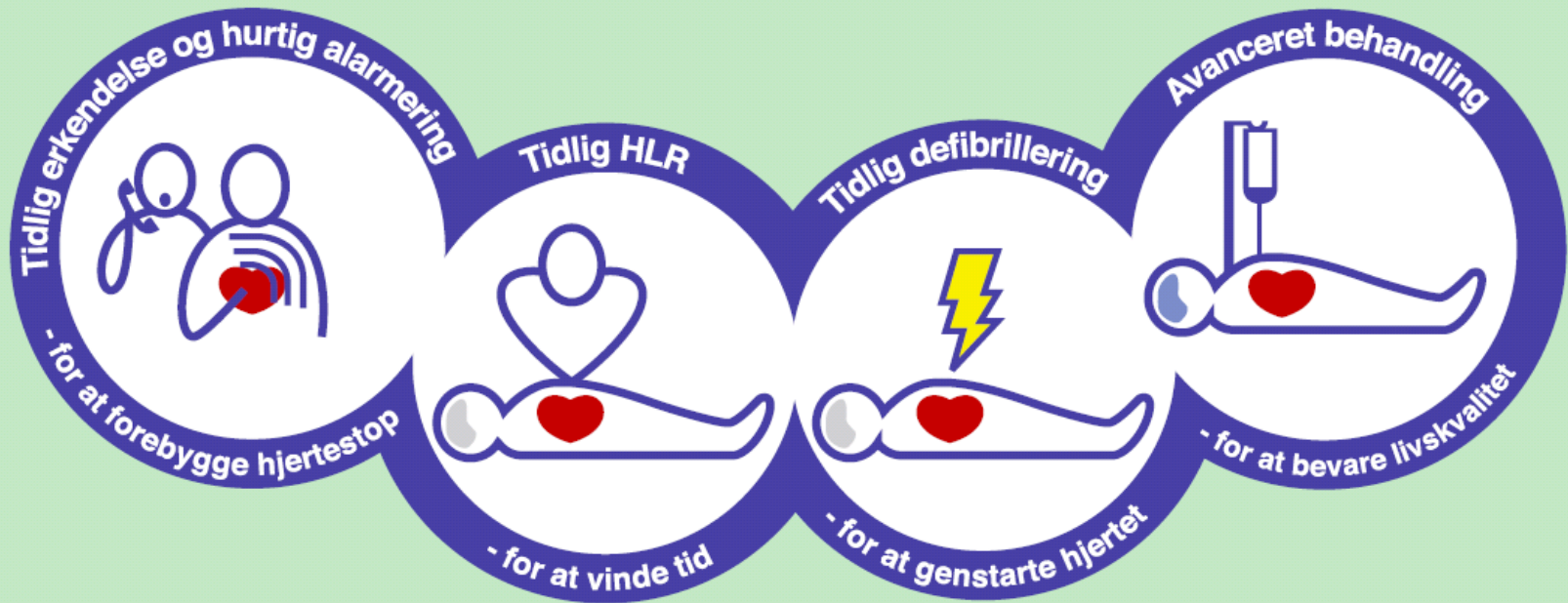


# Hjerte-Lunge Redning (HLR) Brug af Hjertestarter (AED)

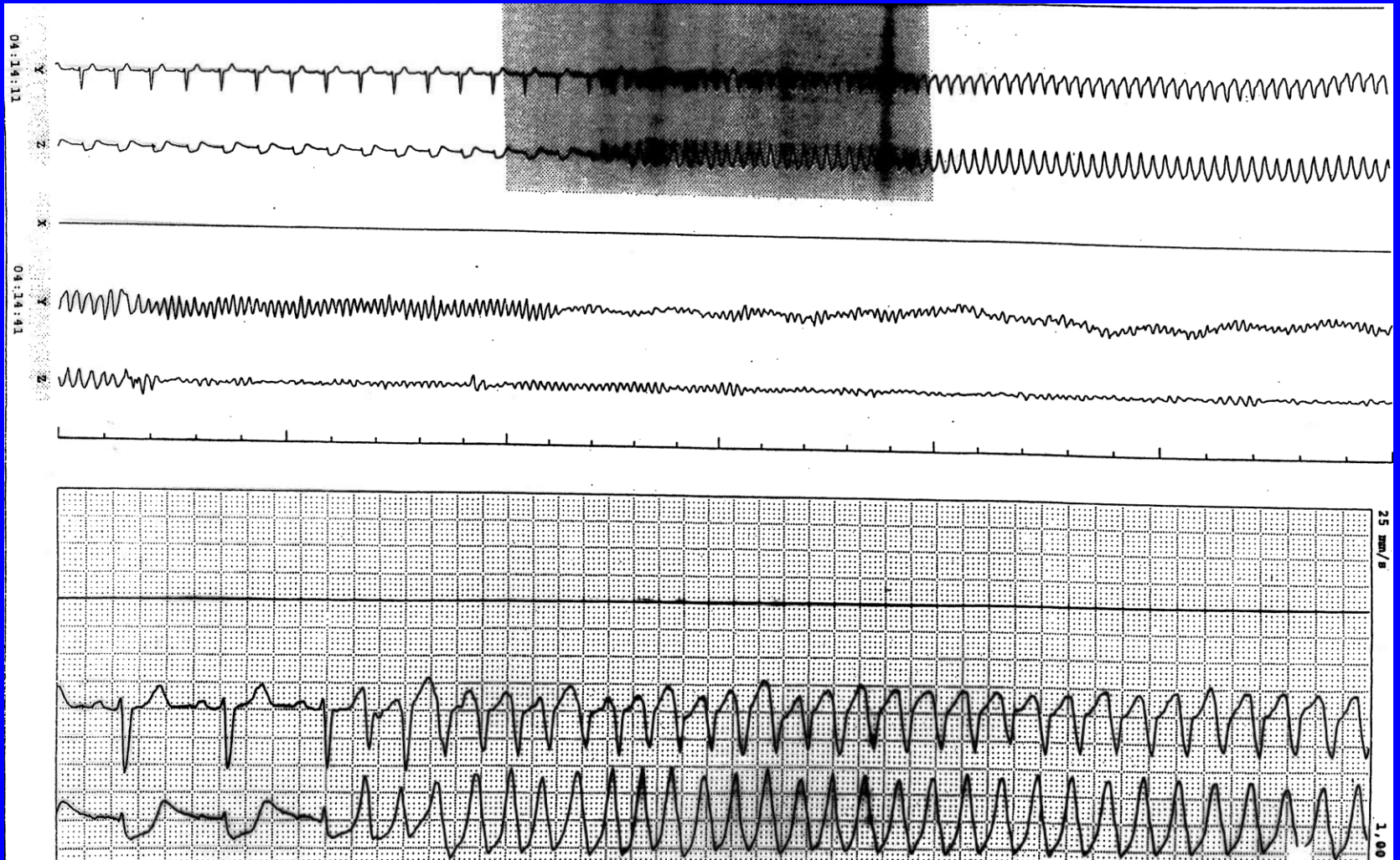
Henrik Schakow & Finn Lund Henriksen



# Overlevelseskæden



# "Kedelig" hurtig hjerterytme – hjertestop



## Pludselig hjertedød (SCD)

- Total dødelighed (60.000)
- Pludselig hjertedød i den almindelige befolkning (6.500)
- Pludselig hjertedød blandt personer < 50 år (750-1.500)



# Aborted Sudden Cardiac Death (aSCD)

## Table. Diseases associated with SCD

### Structural heart diseases

Iskæmisk hjertesygdom  
Hypertrofisk kardiomyopati  
Arytmogen højre ventrikel kardiomyopati  
Dilateret kardiomyopati  
Aortastenose  
Massiv lungeemboli  
Medfødt hjertesygdom  
Hypertensio arterialis  
Aorta-dissektion  
Myokarditis  
Marfan syndrom  
Mitral-prolaps  
Ehler Danloss syndrom

### Ion-channel diseases

Medfødt langt QT syndrom  
Akvisit langt QT syndrom  
Brugada syndrom  
Katecholaminerg polymorf VT

### Other

Ventrikulær takykardi  
WPW  
Overledningsforstyrrelser



# Dansk hjertestopregister

## Hjertestop udenfor hospital 2001-2014



3.500-4.000 hjertestop årligt

(medianalder mænd: 65 år)



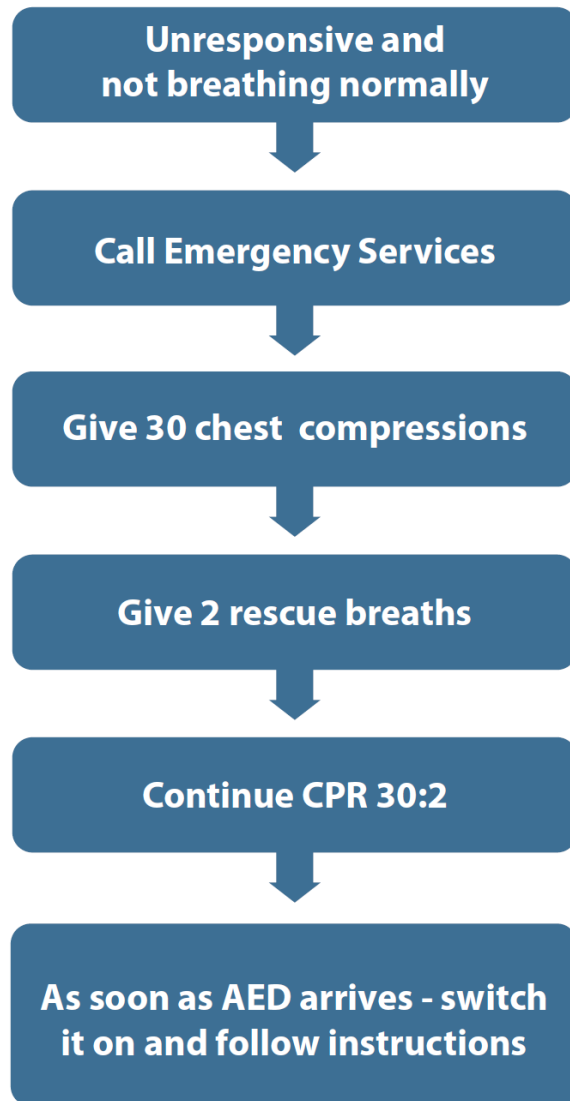
Borgerindsats før ambulancens  
ankomst: 21,1 % → 57,9 % → 64 %



Overlevelse: 2,9% → 10,1% → 11,7%



## European Resuscitation Guidelines for Resuscitation Adult basic life support and use of automated external defibrillators





# European Resuscitation Guidelines for Resuscitation

## Adult basic life support and use of automated external defibrillators

### Automated External Defibrillation Algorithm

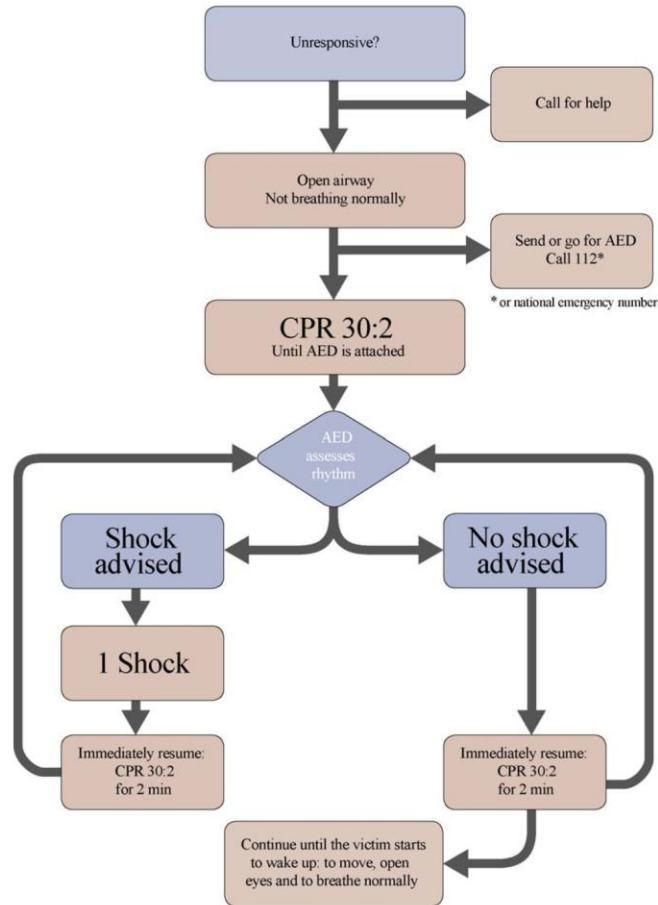
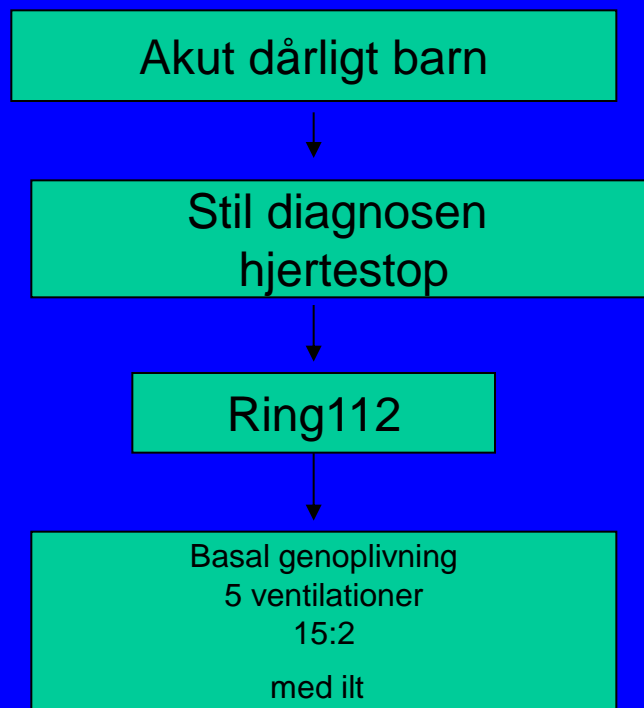


Fig. 2.18. Algorithm for use of an automated external defibrillator. © 2010 ERC.



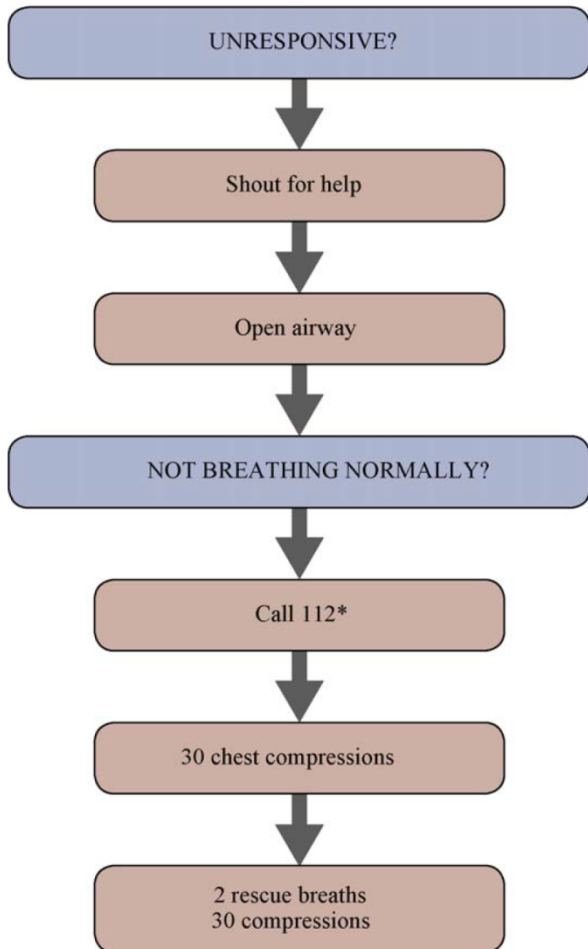
# Basal hjertestopbehandling – Børn indtil puberteten



Ved DC konvertering med defibrillator anvend 4 J/kg

De nyeste AED'ere har en omskifter til børn

## Adult Basic Life Support



\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.

## Bevidstløs?

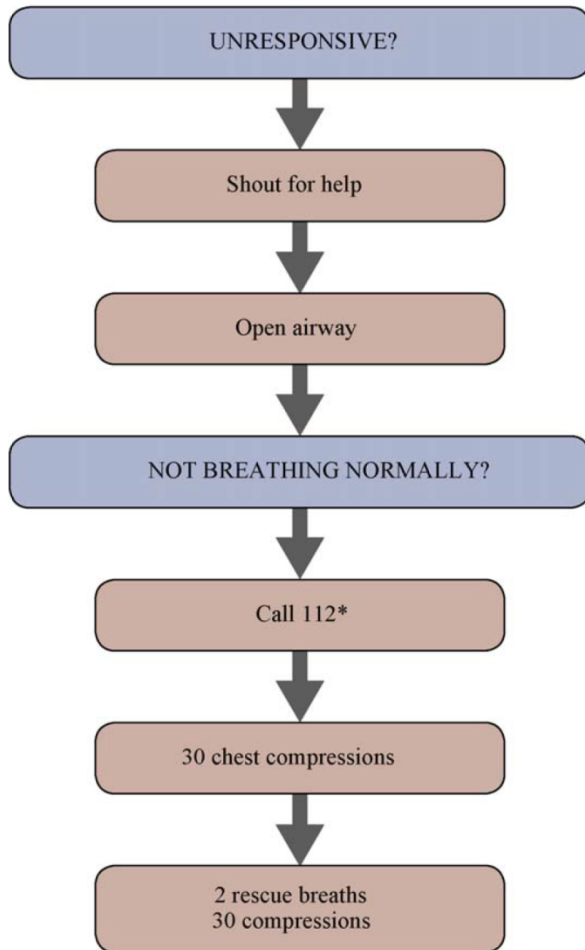
Rusk forsigtigt

Råb højt: "Er du okay?"



Fig. 2.3. Check the victim for a response.

## Adult Basic Life Support



\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.

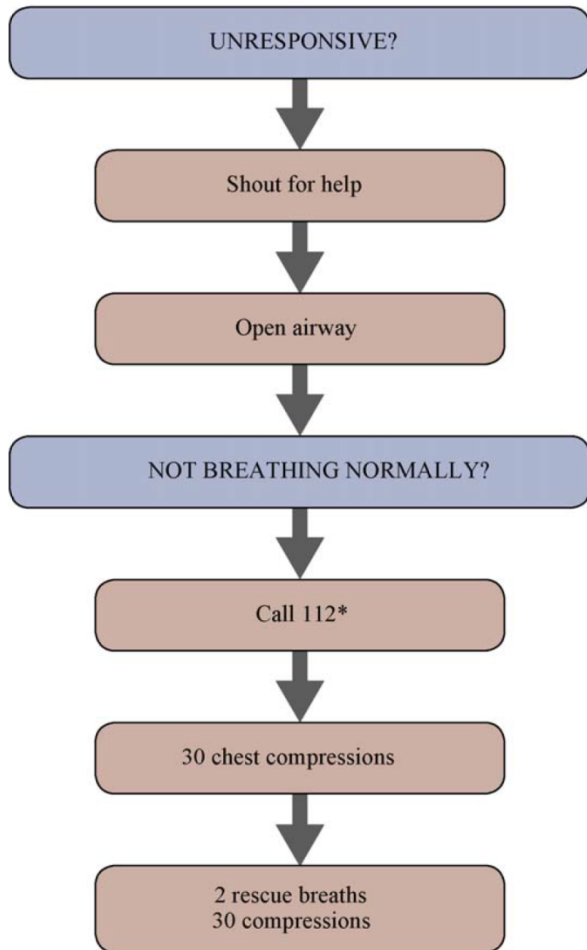
# Bevidstløs!

Råb højt om hjælp!



Fig. 2.4. Shout for help.

## Adult Basic Life Support



\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.

# Skab frie luftveje!

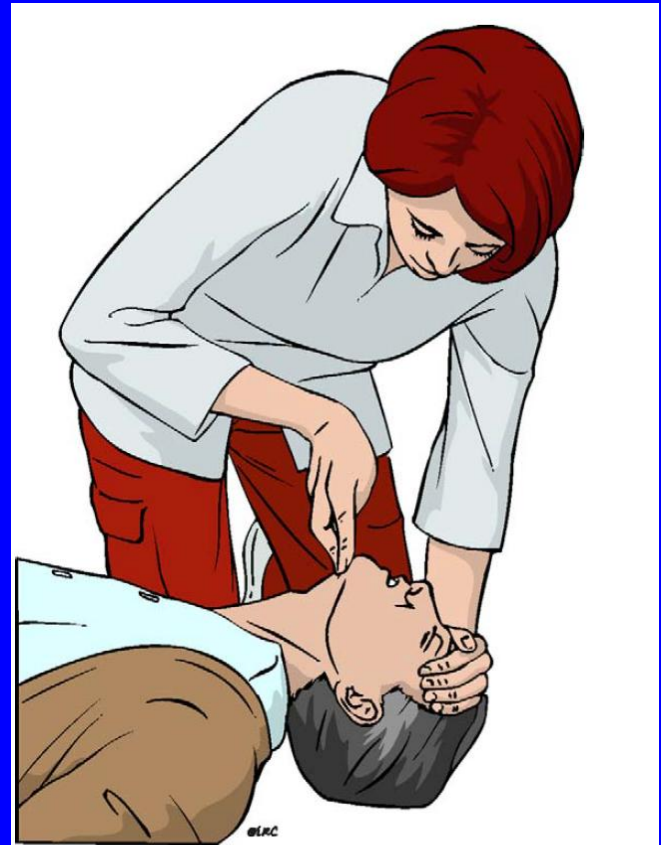
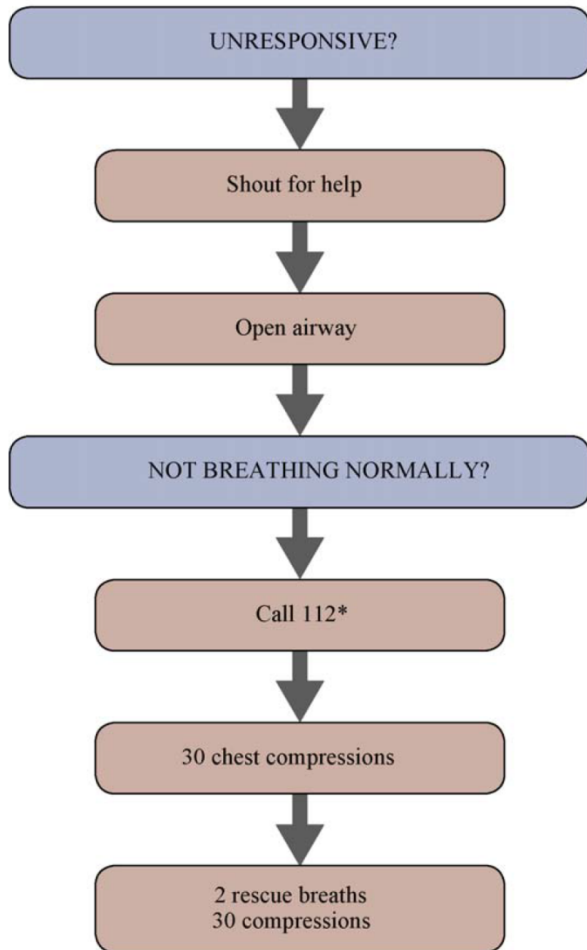


Fig. 2.5. Head tilt and chin lift.

# Kontrollér for vejtrækning

## Adult Basic Life Support



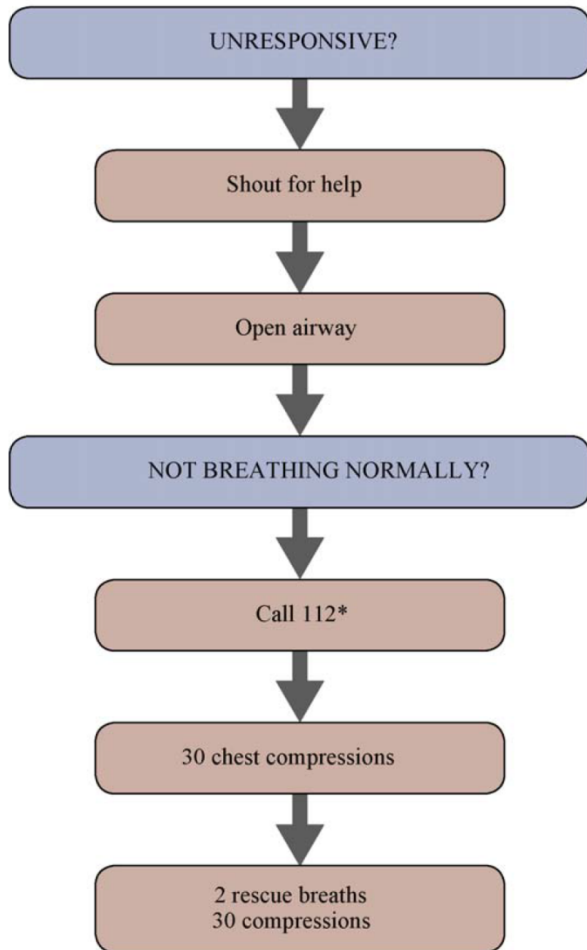
\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.



Fig. 2.6. Look, listen and feel for normal breathing.

## Adult Basic Life Support



\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.

Placér dine hænder midt på  
brystkassen

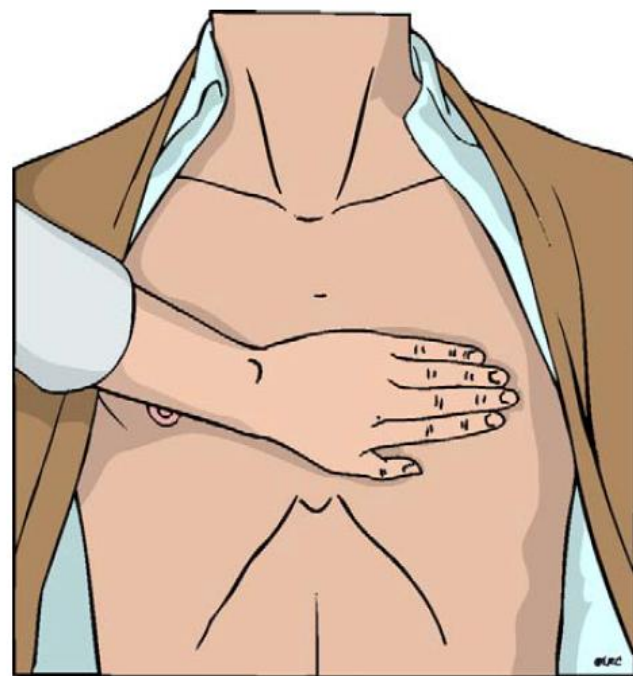
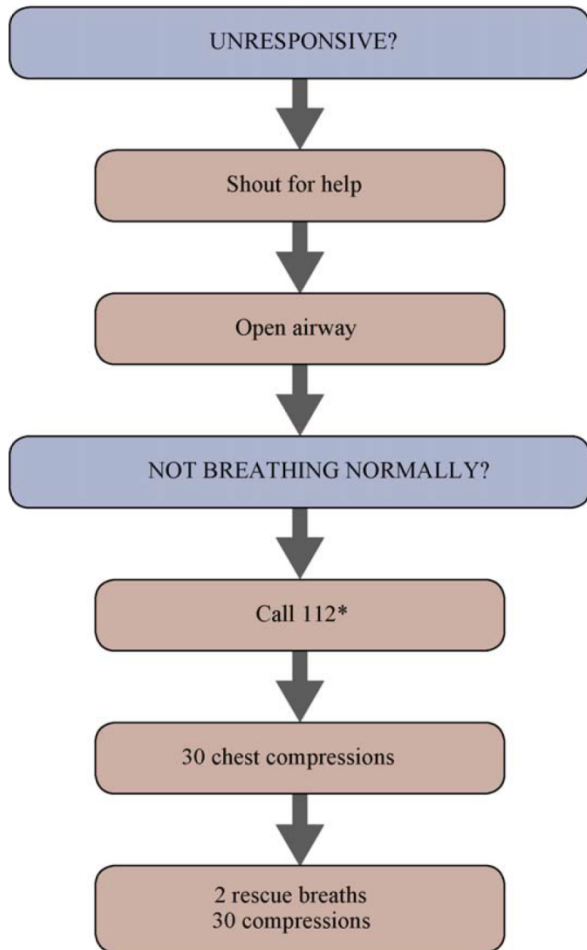


Fig. 2.7. Place the heel of one hand in the centre of the victim's chest.



## Adult Basic Life Support



\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.

Placér dine hænder midt på  
brystkassen

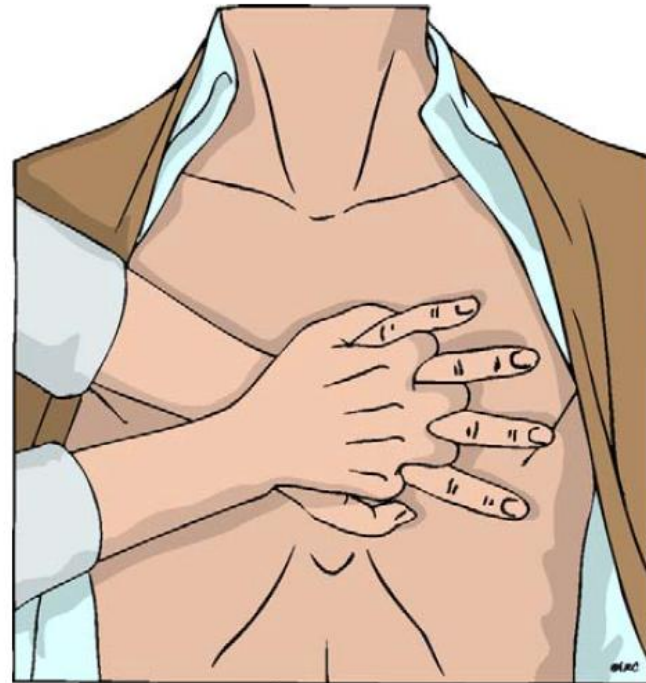
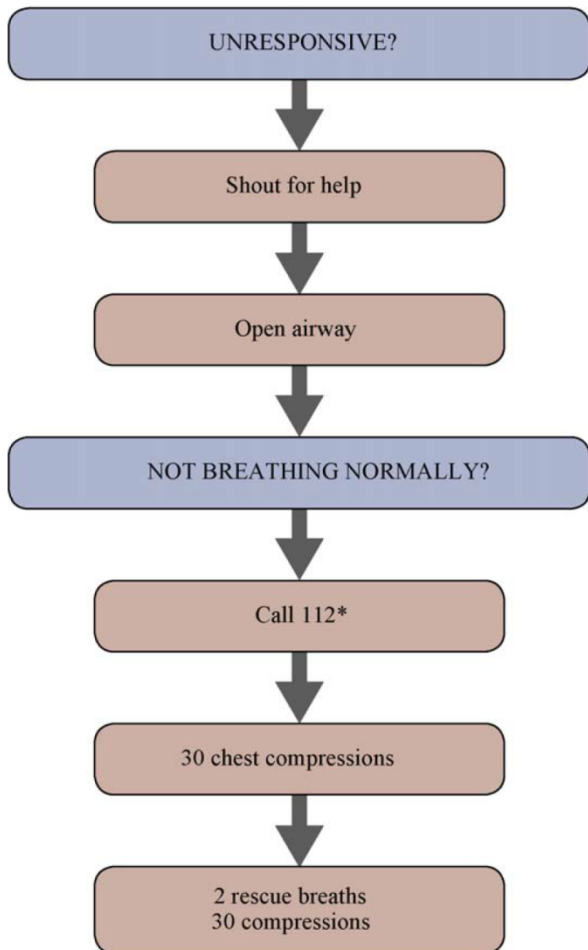


Fig. 2.8. Place the heel of your other hand on top of the first hand.

## Adult Basic Life Support



\*or national emergency number

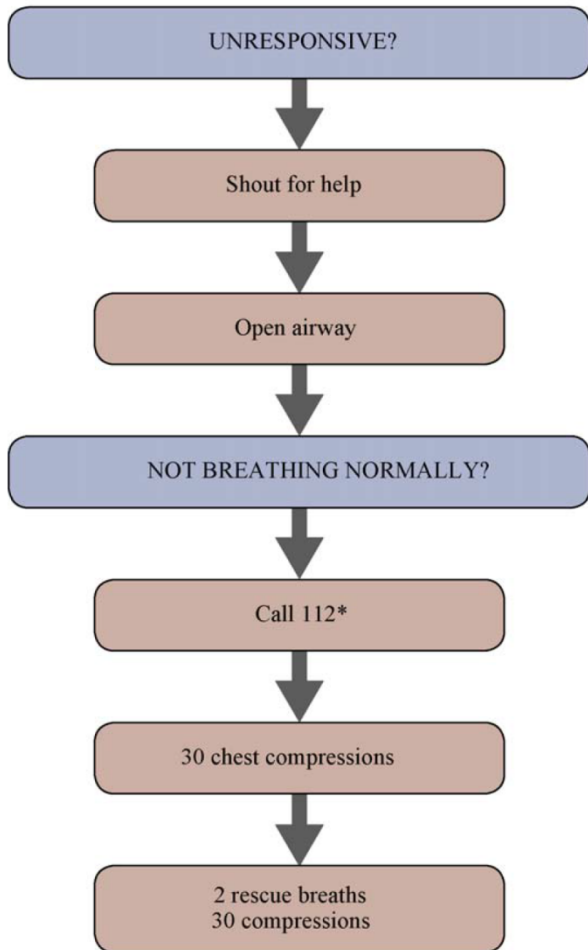
Fig. 2.2. Adult basic life support algorithm.

Tryk hårdt og mindst 5 cm dybt med mindst 100/min.



Fig. 2.9. Interlock the fingers of your hands. Keep your arms straight.

## Adult Basic Life Support



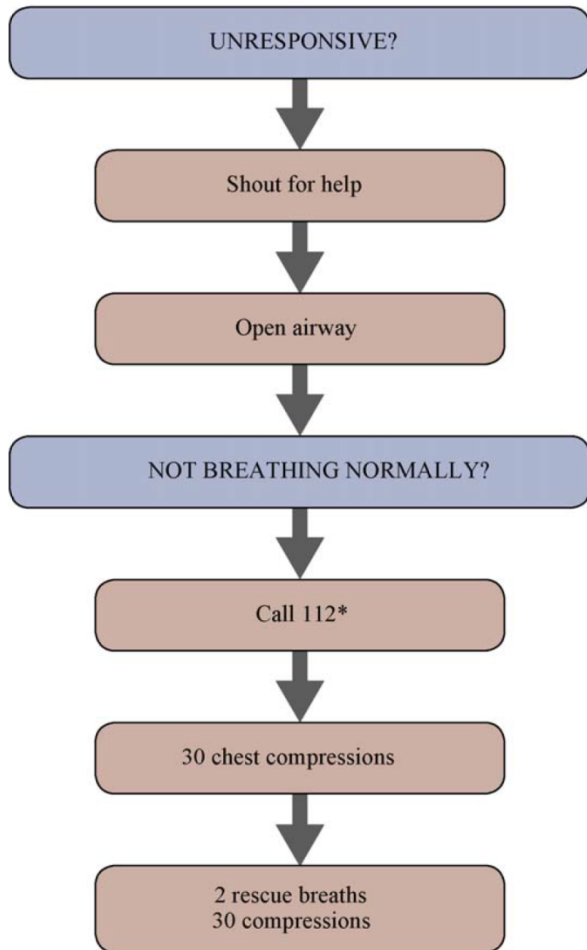
\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.



Fig. 2.10. Press down on the sternum at least 5 cm.

## Adult Basic Life Support



\*or national emergency number

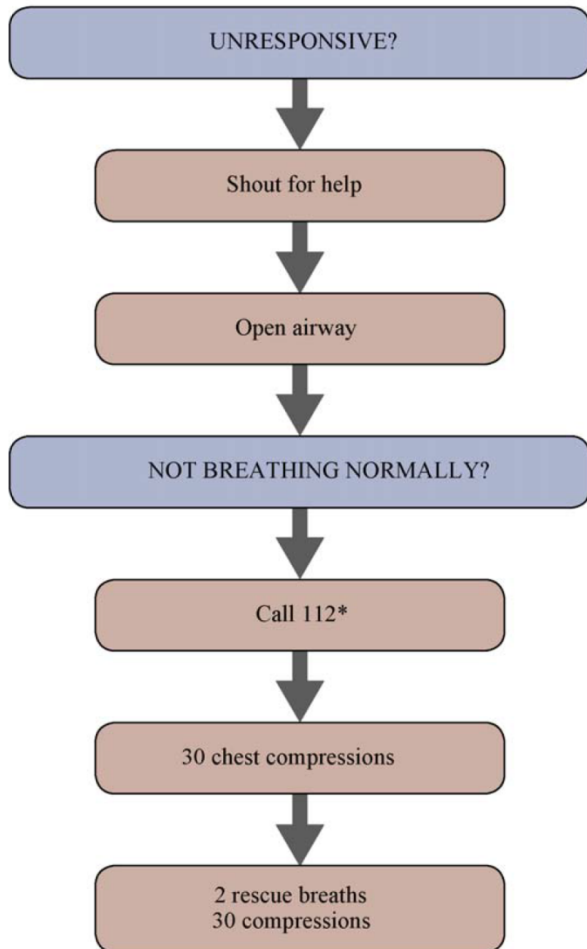
Fig. 2.2. Adult basic life support algorithm.

Luk dine læber omkring  
personens mund



Fig. 2.11. Blow steadily into his mouth whilst watching for his chest to rise.

## Adult Basic Life Support



\*or national emergency number

Fig. 2.2. Adult basic life support algorithm.

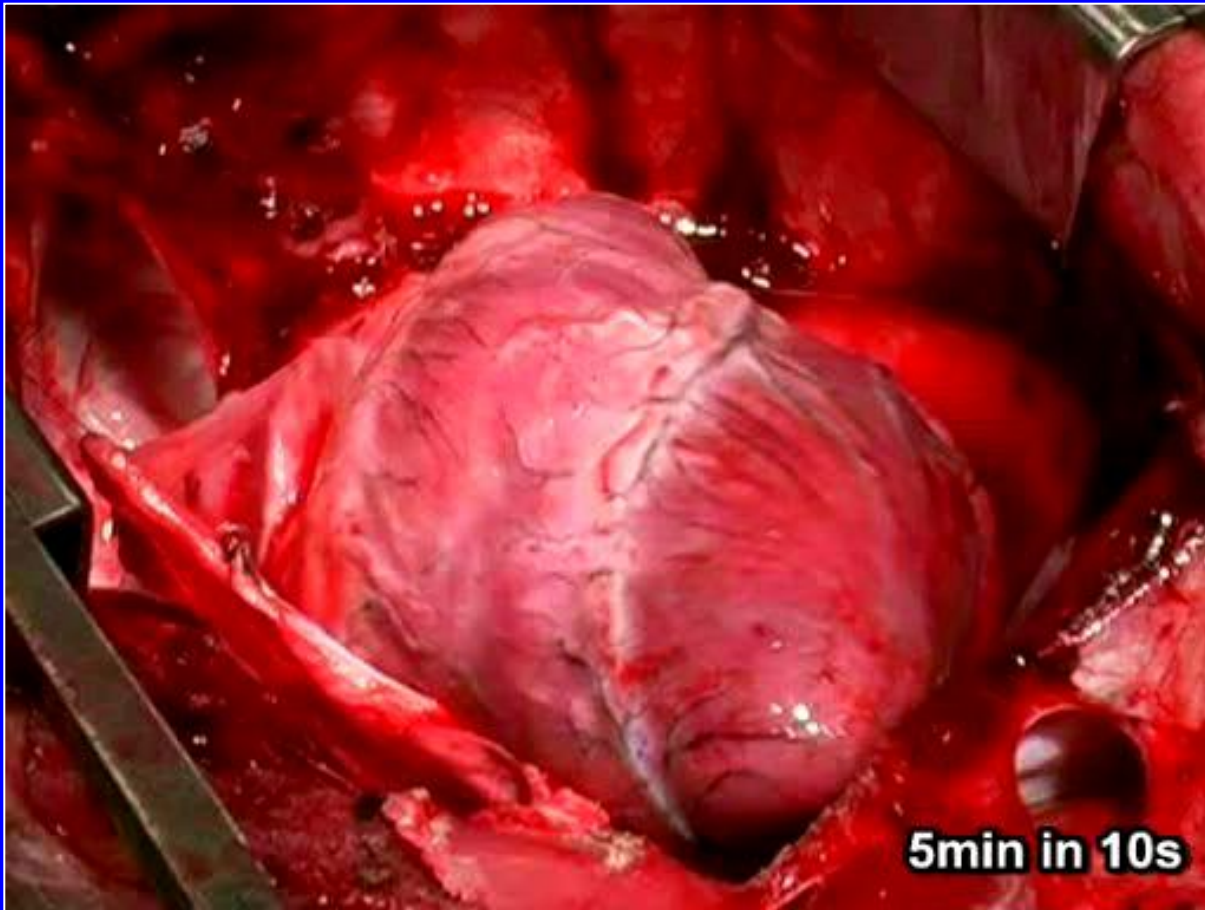
Giv næste indblæsning, når brystkassen har sænket sig



Fig. 2.12. Take your mouth away from the victim and watch for his chest to fall as air comes out.



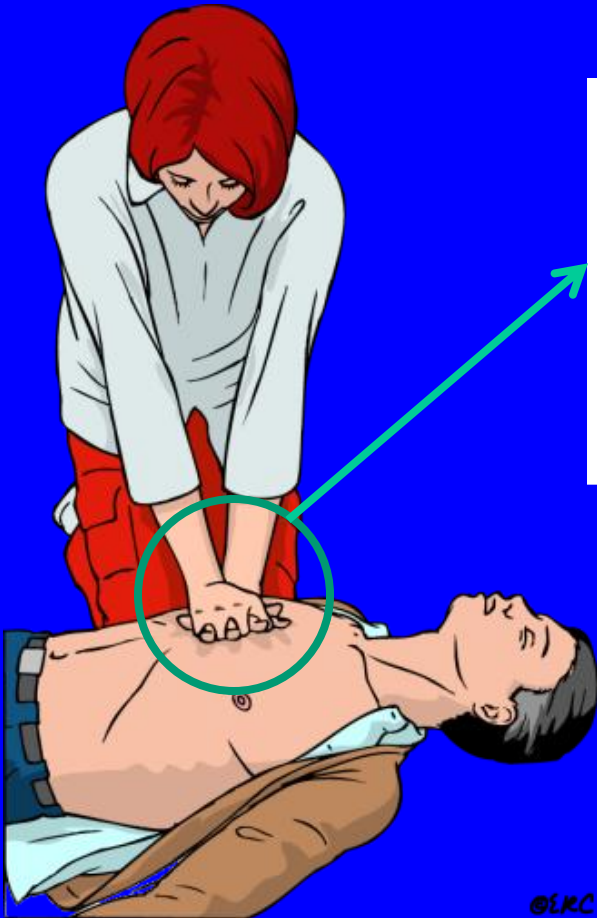
# Hjertestop uden genoplivning





# Tidlig hjerte-lunge-redning for at vinde tid

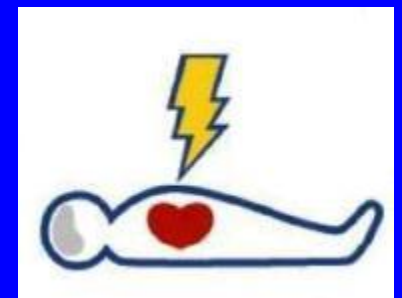
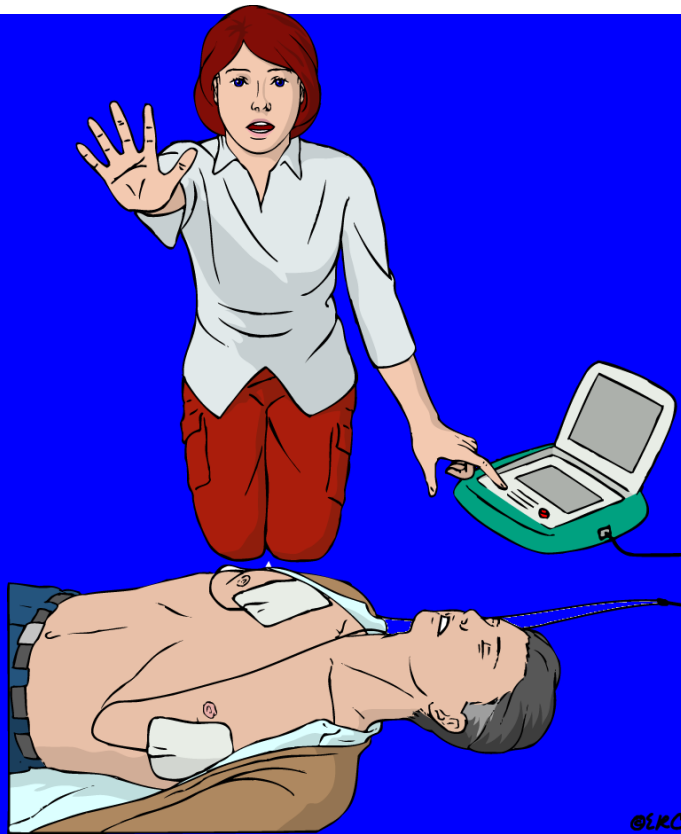
Overlevelsen falder med 7-10 % for hvert minut der går til første defibrillering. Såfremt HLR pågår falder overlevelsen kun 3-4 % for hvert minut der går til første defibrillering.



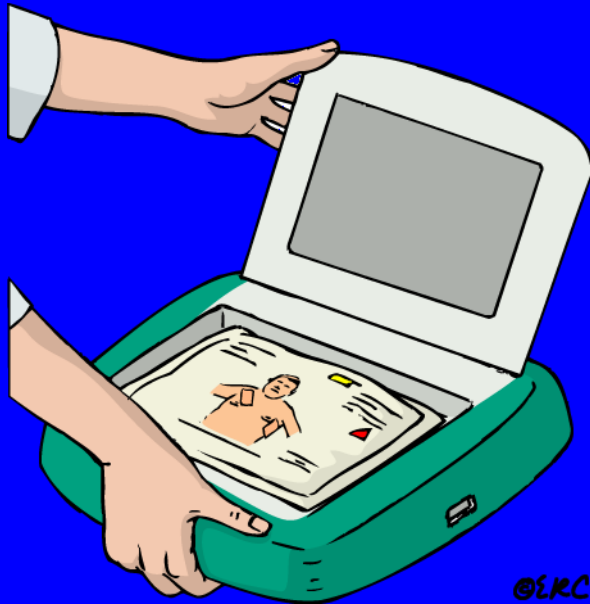
©ERC



# Tidlig defibrillering – for at genstarte hjertet



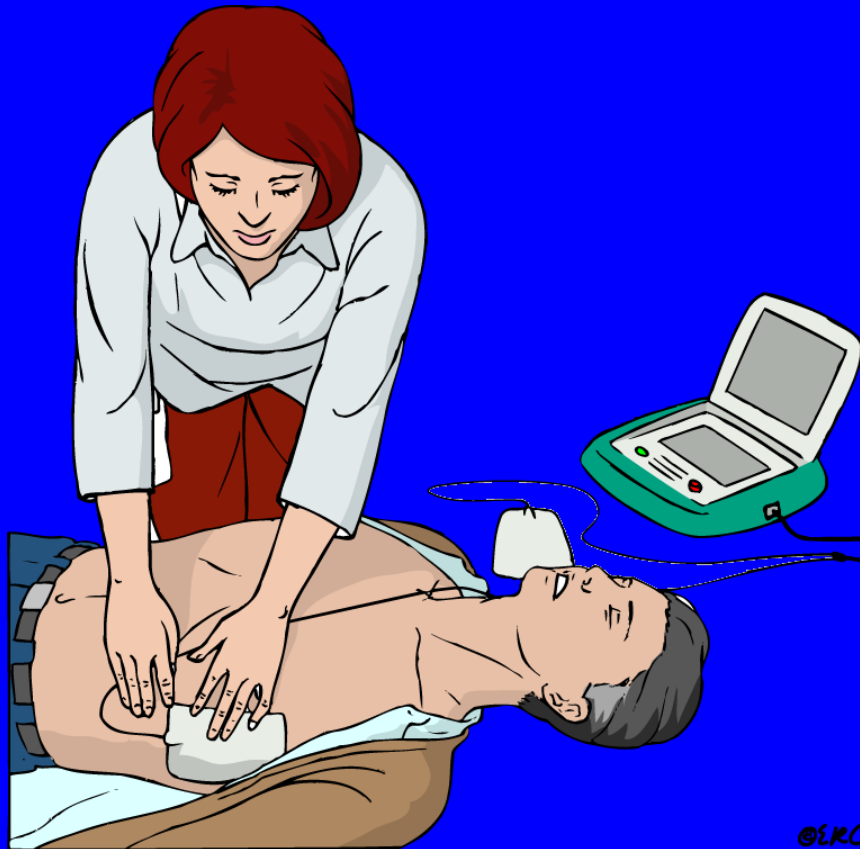
## TÆND HJERTESTARTEREN



Hjertestarteren vil ofte tænde når låget åbnes

# SÆT ELEKTRODER PÅ PATIENTENS BARE BRYSTKASSE

(Ved fugtig brystkasse tør den af inden påsætning af elektroder)  
(Ved behåret brystkasse brug skraber og fjern hår)

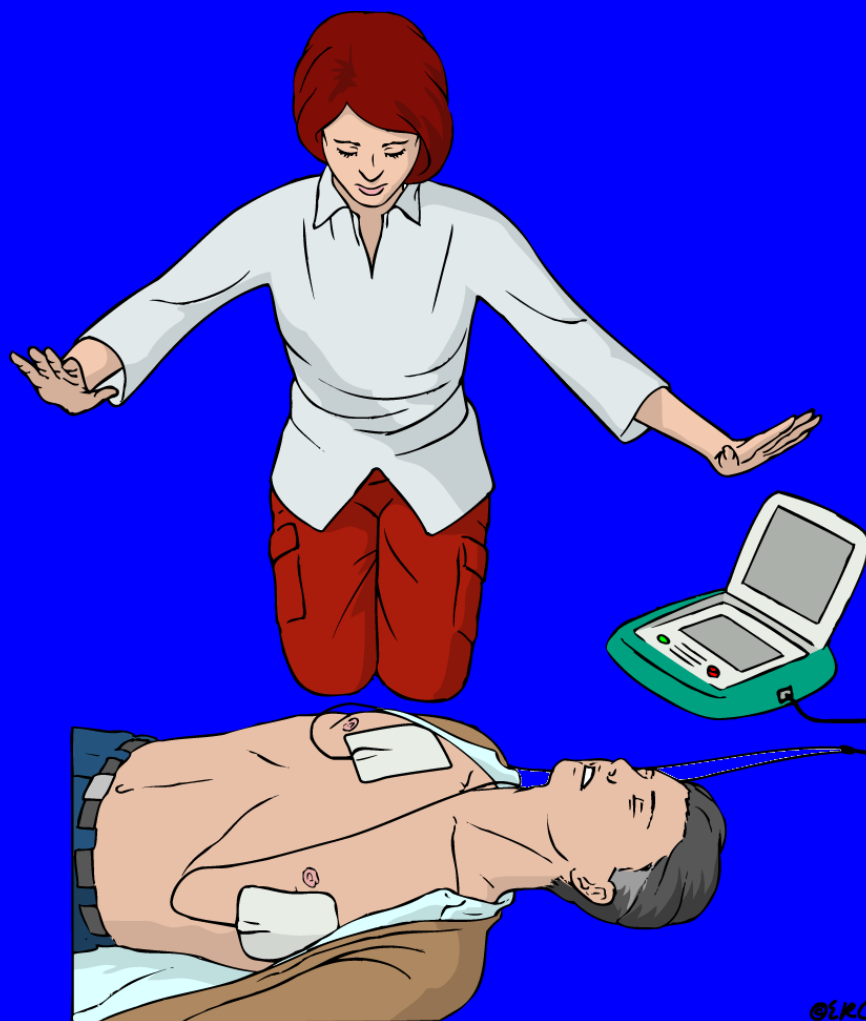


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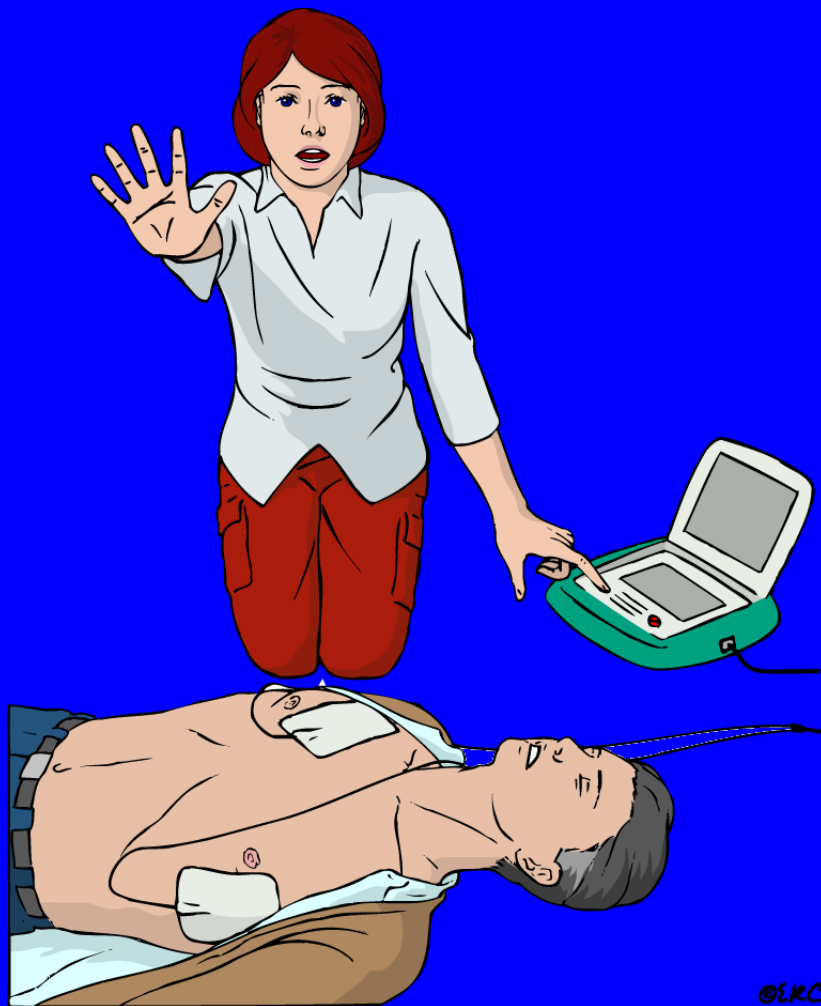


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# ANALYSERER RYTME RØR IKKE VED PASIENTEN



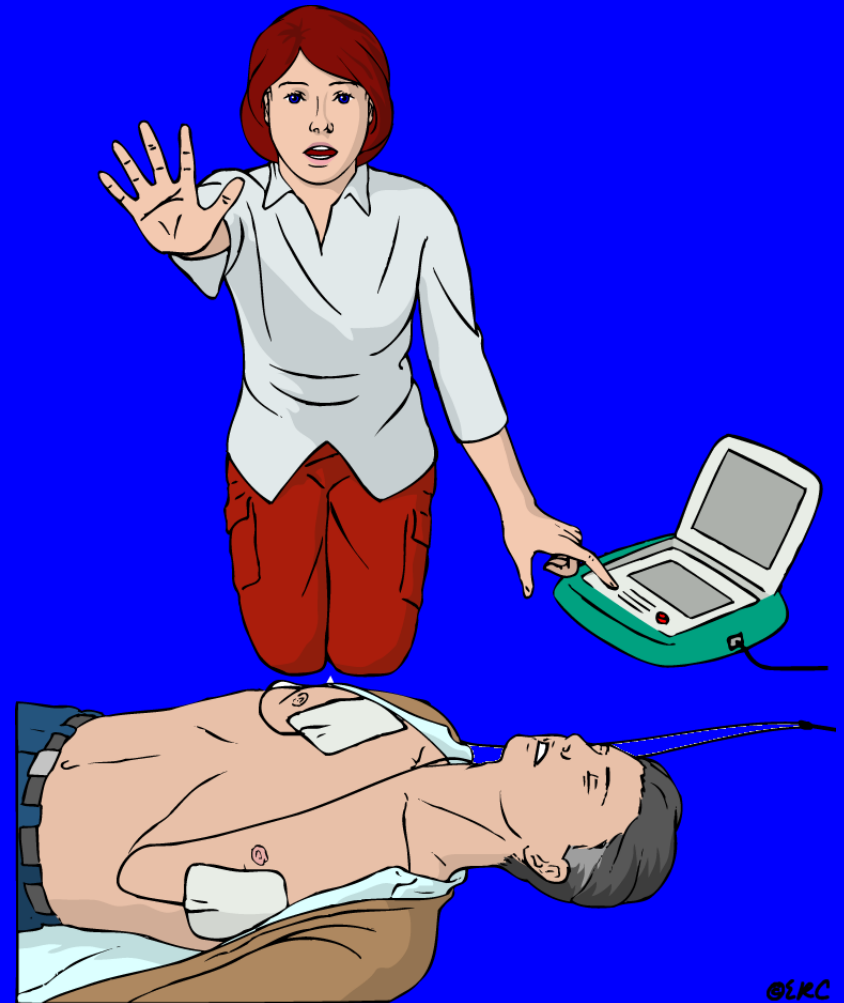
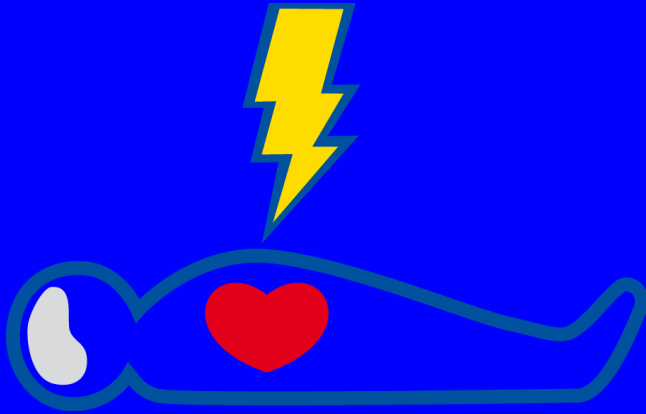
# STØD ANBEFALET



Stå klar  
Afgiv stød



# STØD AFGIVET

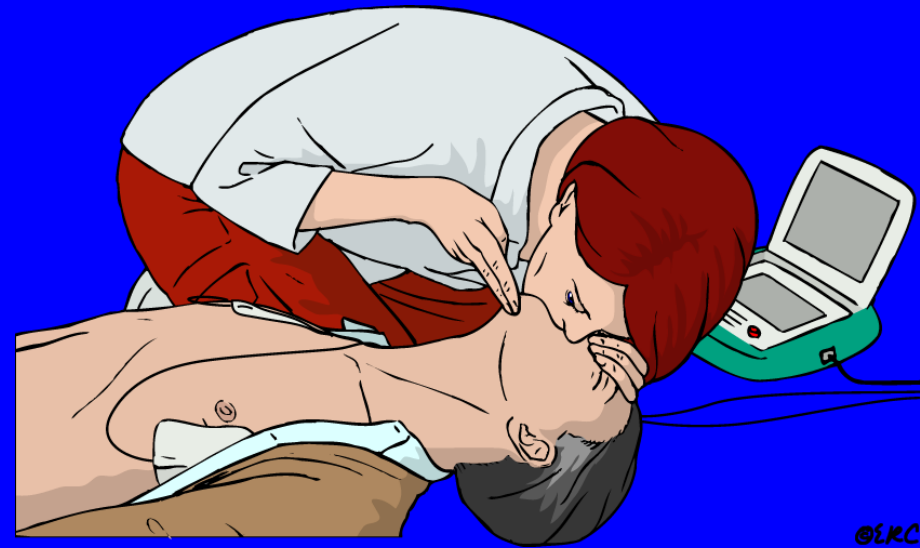


# STØD AFGIVET FØLG HJERTESTARTERENS INSTRUKTIONER



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30



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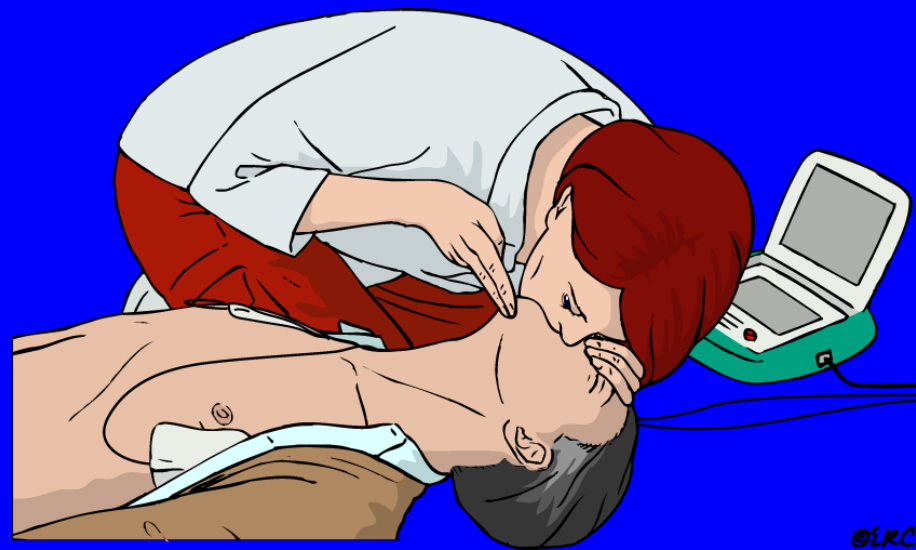
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**STØD IKKE ANBEFALET  
FØLG HJERTESTARTERENS INSTRUKTIONER**



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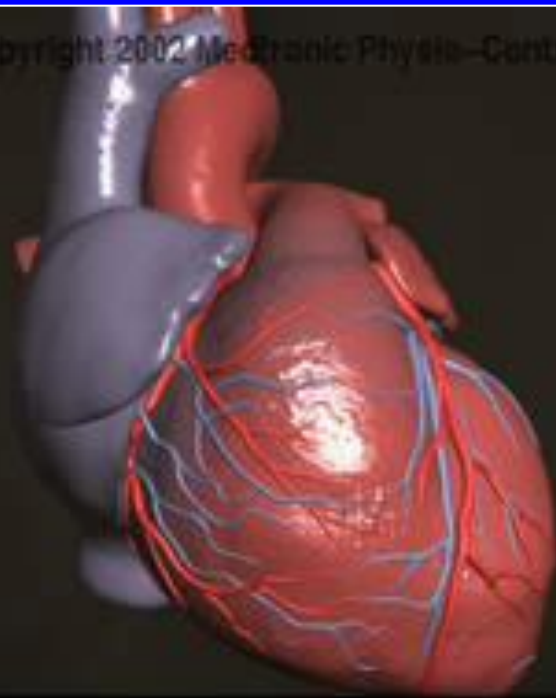
30



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2

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# Monofasisk versus bifasisk stød

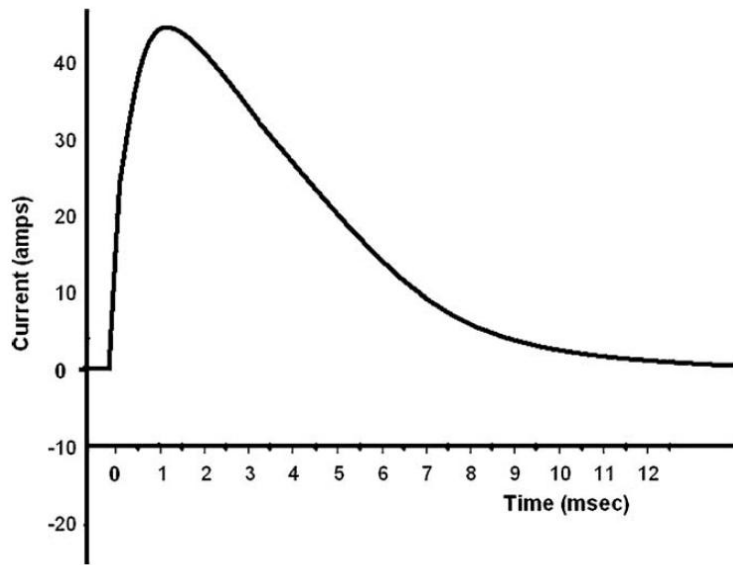


Fig. 3.1. Monophasic damped sinusoidal waveform (MDS).

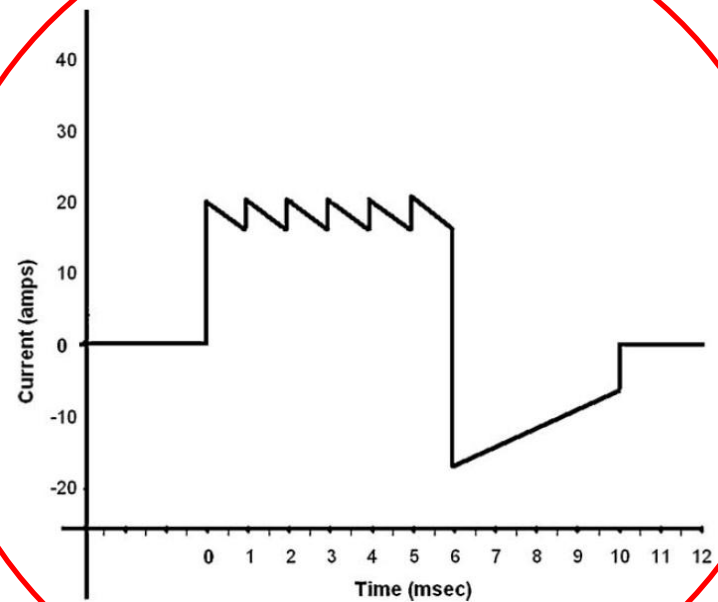
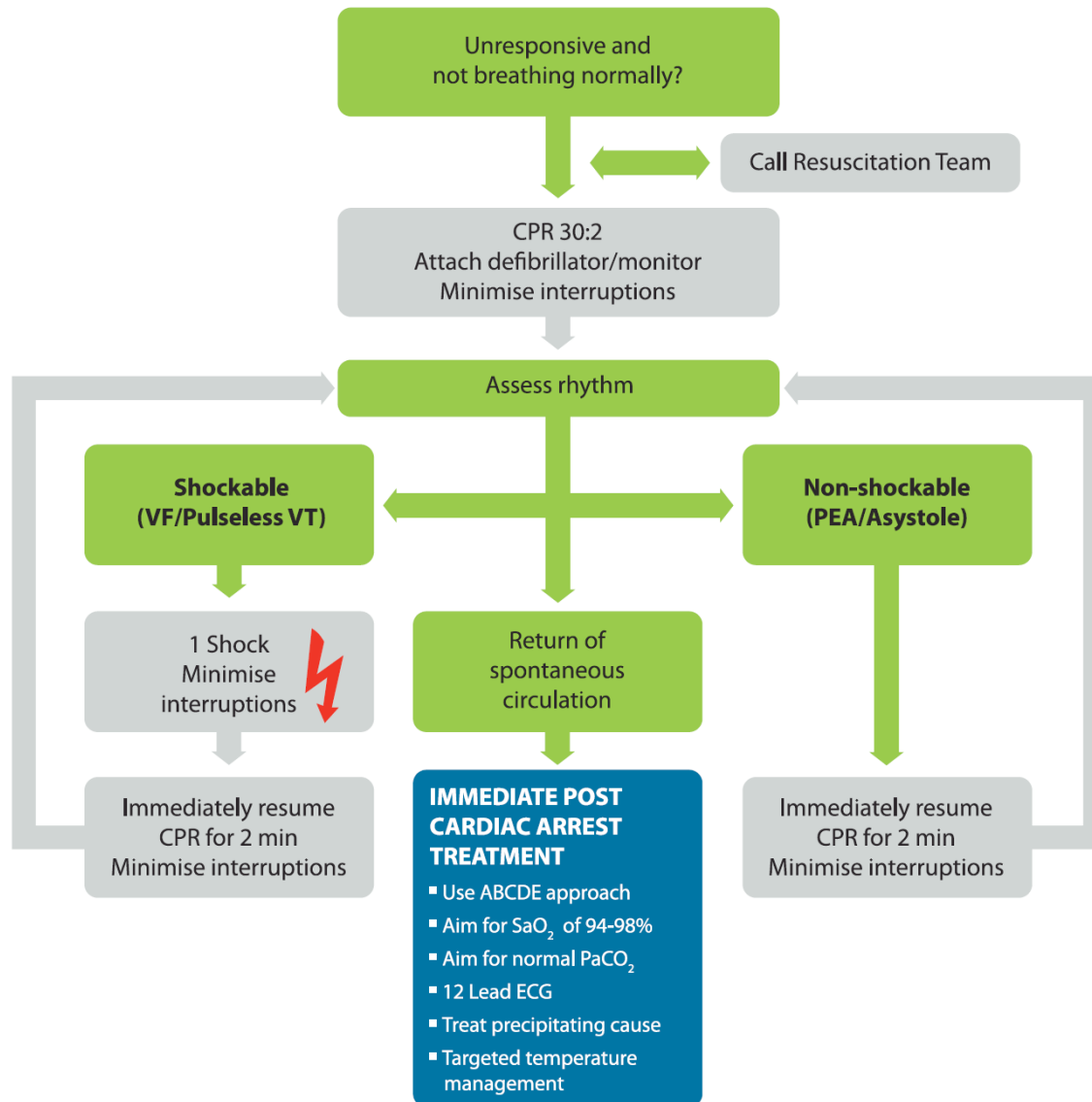


Fig. 3.3. Rectilinear biphasic waveform (RLB).

# Advanced Life Support





### DURING CPR

- Ensure high quality chest compressions
- Minimise interruptions to compressions
- Give oxygen
- Use waveform capnography
- Continuous compressions when advanced airway in place
- Vascular access (intravenous or intraosseous)
- Give adrenaline every 3-5 min
- Give amiodarone after 3 shocks

### TREAT REVERSIBLE CAUSES

Hypoxia	Thrombosis – coronary or pulmonary
Hypovolaemia	Tension pneumothorax
Hypo-/hyperkalaemia/metabolic	Tamponade – cardiac
Hypothermia/hyperthermia	Toxins

### CONSIDER

- Ultrasound imaging
- Mechanical chest compressions to facilitate transfer/treatment
- Coronary angiography and percutaneous coronary intervention
- Extracorporeal CPR

**Fig. 1.7.** Advanced Life Support algorithm. CPR – cardiopulmonary resuscitation; VF/Pulseless VT – ventricular fibrillation/pulseless ventricular tachycardia; PEA – pulseless electrical activity; ABCDE – Airway, Breathing Circulation, Disability, Exposure; SaO<sub>2</sub> – oxygen saturation; PaCO<sub>2</sub> – partial pressure carbon dioxide in arterial blood; ECG – electrocardiogram.



*Tak for opmærksomheden!*

# Minimise interruptions

## Advanced Life Support

