

## Modular teacher training course of the German Resuscitation Council (GRC) for resuscitation lessons in schools



after

Recommendation of the German Conference of Ministers of Education  
and the current GRC templet curriculum

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## 1. BACKGROUND AND PURPOSE OF THE MODULAR GRC TEACHER TRAINING COURSE

Cardiovascular arrest is the most urgent of all emergencies and the third most frequent cause of death. When the heart stops, the brain is no longer supplied with oxygen. As a result, brain cells are destroyed and cannot be restored. In healthy individuals, the oxygen supply lasts for about 3-5 minutes, but less in patients with pre-existing diseases. However, ambulance services may take on average 8 or more minutes to arrive at the scene. Between the cardio-circulatory arrest and the arrival of the professional rescue team, there are often several minutes without resuscitation leading to irreparable damage of the brain.

Fortunately, the time until the arrival of the emergency service can be bridged, and the brain can continue to be supplied with oxygen, if lay bystanders present immediately initiate resuscitation measures. The necessary measures are easy to learn even by children. Their application immediately saves people from death. Many people owe their lives to engaged lay helpers ("Wiederbeleben ist kinderleicht" – "reviving is child's play or dead easy").

Having that in mind, in 2014 the Conference of the Ministers of Education of the Countries of the Federal Republic of Germany recommended the implementation of resuscitation lessons in schools nationwide. According to the decision, pupils from the 7th grade onwards should be taught two lessons annually in life-saving resuscitation.

Teachers, similar to healthcare professionals, are able to successfully resuscitate a cardiac arrest victim and can teach students the basics of resuscitation. The proposed training program will enable teachers to carry out resuscitation lessons in schools in clearly structured steps. The global aim is to sustainably improve the currently comparatively low lay bystander resuscitation rate nationwide, thereby saving 10,000 additional lives per year in Germany. At the same time, the social competence of the pupils might be improved.

The specific goal of this resuscitation education in schools is that basic life support (BLS) procedures will be carried out safely at any time. Thus, in the medium term, every citizen should be familiarized with the basic competencies for resuscitation in order to improve significantly survival after cardiac arrest.

The background to resuscitation lessons in schools is described very clearly in the position paper of the European Council for Resuscitation (Annex 1: *European Resuscitation Council; ERC – Böttiger BW, Bossaert LL, Castrén M, et al. KIDS SAVE LIVES - ERC position statement on school children education in CPR: "Hands that help - Training children is training for life". Resuscitation 2016;105:A1-3*).

The 10 theses on "KIDS SAVE LIVES" contain the background and illustrate the basis and importance as well as the practical implementation of the students' resuscitation training.

## 2. AIMS OF THE COURSE

The German Resuscitation Council has developed a modular GRC-teacher training course for resuscitation education in schools. It is based on international recommendations for cardiopulmonary resuscitation and on extensive experience and course concepts for training in resuscitation of the GRC together with numerous first aid organizations.

The aim of this course is to provide teachers with immediate, sustainable and safe means to successfully pass on simple, basic life-saving resuscitation measures to students.

Upon successful completion of the modular GRC Teacher Training Course, teachers will be able to teach effectively their students the basics of resuscitation (CHECK - CALL - PUSH) as well as the full Basic Life Support measures (including ventilation and the use of a defibrillator).

In addition, the modular GRC Teacher Training Course aims to provide teachers with comprehensive teaching materials with the aim to implement easily BLS resuscitation classes at their schools.

### 3. COURSE CONTENT AND SCHEDULE

The modular GRC Teacher Training Course is a four-hour course that includes the following modules:

- Detection of a cardiac arrest ("check")
- Alerting the rescue services ("calling")
- Learning chest compressions ("push")
- Breathing (mouth-to-mouth ventilation)
- Use an automated external defibrillator (AED)

According to studies and experience available, individualized training steps are recommended for the following age groups:

- From the age of 4 years (kindergarten): Recognizing cardiac arrest ("Checking") and alerting the rescue service ("Calling")
- From 12-14 years (school): Learning chest compression ("pushing")
- From the age of 14 years: Breathing (mouth-to-mouth ventilation) and the use of an AED

It is recommended to train students in a 2-hour lesson each year and practice BLS as long as they attend school. The underlying evidence for this recommendation, which is also reflected in the decision of the Conference of Ministers of Education, comes from studies on "spaced learning", which means short units as often as possible. These short training units are more successful than long courses at once. Thus, the present concept follows modern didactic principles.

The following is an overview of the schedule of the modular GRC Teacher Training Course:

*(Abbreviations: CPR = cardiopulmonary resuscitation; AED = Automated External Defibrillator)*

Durati on	Modul	Content
00.00	Start	Welcome
00:05	Introduction	Successful resuscitation and the concept "KIDS SAVE LIVES"
00.25	Concept idea	1. Level : Check, Call, Push
00.40	CPR Education: Basic practice	Teaching Cardio-pulmonary Resuscitation (CPR) in 4 steps Step 1 Demonstration in real-time Step 2 Demonstration with explanation Step 3 Participant leads teacher Step 4 Participants practice CPR The Learning objectives are: <ul style="list-style-type: none"> <li>• Teachers learn in short time how CPR can be learnt, taught and practiced effectively and correctly. This can be achieved in 20-30 min.</li> <li>• Key points that facilitate and ease BLS teaching will be discussed. By way of example, experiences are presented how to solve problems of CPR-teaching.</li> <li>• Teachers are given the opportunity to reflect on CPR-teaching with examples about correcting error. This can be achieved by scenario training with feedback or debriefing.</li> </ul>
01:45	Break	
02:00	Concept idea	2. Level: Breathing (mouth-to-mouth ventilation) and the use of automated external defibrillator (AED) during CPR-Education
02:10	CPR Education:	Extended CPR-education: Ventilation and AED again in 4 steps:

	Expanded to ventilation and AED including practice	<p>Step 1 Real-time demonstration</p> <p>Step 2 Instructor explains competences</p> <p>Step 3 Participant instructs the instructor</p> <p>Step 4 Participant exercise with focus on improvements of incorrect actions</p> <p>The learning objective are: Correct - check, call, push, ventilation, use of AED and defibrillation (1 x successful)</p> <p>This is achieved on the basis of case studies:</p> <ul style="list-style-type: none"> <li>• One successful defibrillation (analogous to the demonstration)</li> <li>• No shock required (but CPR required)</li> <li>• Continuing defibrillation because of shockable rhythm (2 defibrillations)</li> </ul> <p>CPR skills are checked for correctness and corrected if necessary.</p> <p>The ultimate learning goal is safe and effective CPR.</p>
03:25	Course summary	<p>GRC teaching concept:</p> <ul style="list-style-type: none"> <li>• Motivators, obstacles, fears in CPR-education</li> <li>• CPR teaching materials for schools</li> <li>• Legal aspects of CPR</li> </ul>
03:40 04:00	CPR Practice End	<p>Targeted practice of learned teaching skills</p> <p>Summary of the course and feedback from the participants, if necessary</p> <p>evaluation</p>

In the experience of the GRC a gradual approach suits to achieving the resuscitation skills learning objectives. Central in this step-by-step learning is frequent and repeated practice with corrective and constructive feedback on the CPR-performance.

The proposed four steps in the course concept are:

1. The demonstration of the measures in real-time without additional explanations. This shows what is expected, how the skill is done right, and what is expected of the participants at the end of the course. This includes: The check for responsiveness, the call for help and getting help, the contact with the dispatcher at the rescue center, and the correct initial measures.
2. The instructor demonstrates all measures with his comments, explanations of the background and all sub steps. He provides the necessary theoretical explanations that promote understanding and retention of the individual steps.
3. In this step, a participant will guide the instructor and he or she will do it if properly instructed\*. The aim is to check whether the contents taught were correctly understood and can be implemented cognitively. In addition, the instructing instructor can check whether his lessons were suitable for conveying what was intended.
4. Thorough training of the participants (with feedback on their performance by the instructor) is important in order to achieve the given learning objectives. In this step the instructor corrects all mistakes of the participants and strengthens correct measures and correct behavior. Peer feedback - in other words feedback from the participants - is definitely welcome.

*\* Note on step 3 of this teaching method*

During step 3 in the course concept, the instructor should carry out the measures only completely correctly, to make sure that participants only observe the correct course of action and then remember it clearly in this way. In case of incorrect or incomplete instruction by course participants it is necessary to pause, maintain and / or inquire, in order to offer the possibility to correctly instruct the measures, to correct themselves and finally to present only correct ones. The question of which factors contribute to the correct "retention" is currently the subject of educational research. Very likely the concrete "hands-on or doing it yourself" plays a much bigger role than the "watching or observing". Establishing a relationship to the daily life of the

participants, in which these skills are to be applied, can contribute to better and more effective learning. This relationship to the participants real life should be established by the trainer in the scenario exercise as far as possible.

#### 4. SUCCESS FACTORS FOR RESUSCITATION TEACHING IN SCHOOLS

1. Designation of a school's project coordinator and a deputy for the resuscitation training.
2. At the end of the school lesson install a feedback session to facilitate reflection on the resuscitation training and to allow clarification of open questions by the participants.
3. Regular meetings of BLS teachers to exchange experiences, problems and solutions of the BLS lesson. For questions, the GRC can be contacted at any time. Continuing education of these teachers at least every 2 years is desirable to keep up to date with the latest developments in resuscitation and their education.
4. Provision of sufficient training manikins in order to train the practical exercise intensively. Alternatively, offer training in small groups.
5. Involvement of the school health service.
6. Use of other internal and external support options, such as first aid organizations.

#### 5. LEARNING AND TEACHING MATERIALS PROVIDED AS PART OF THE MODULAR GRC TEACHER

##### TRAINING COURSE:

- Course manuals of the GRC
- GRC BAGEH curriculum for student education in resuscitation
- Fact sheet on cardiac arrest and resuscitation
- The 10 GRC Principles of Resuscitation for Laypersons
- Presentation for resuscitation lessons in schools
- Presentations of the modular GRC teacher training course
- Animation of a defibrillated heart / ventricular fibrillation
- Video of the BLS – In hospital Resuscitation
- Demo Video of the European Resuscitation Council (BLS-AED demo video)

##### Example music to practice resuscitation with the right rhythm (100-120 beats per minute):

- Daft Punk: Get Lucky
- Lady GaGa: Pokerface
- Avicii: Wake me Up
- Robin Thicke: Blurred Lines
- Helene Fischer: Atemlos
- Bee Gees: Staying Alive

##### Links to movies and videos to be imbedded in the CPR-Traching:

###### German clips

- European Space Agency – Video Resuscitation at the international space station:  
[https://www.youtube.com/watch?v=YVEBXvW\\_LIk&feature=youtu.be](https://www.youtube.com/watch?v=YVEBXvW_LIk&feature=youtu.be)
- Warum ist Wiederbelebung wichtig? Ein Prank-Video in Zusammenarbeit mit der Köln International School of Design: <https://www.youtube.com/watch?v=L8Dt4EogOjA>
- Leben retten mit Herzdruckmassage – so geht es! | WDR:  
<https://www.youtube.com/watch?v=BUQRtdG1uaQ>
- GRC Youtube Kanal mit weiteren Videos zum Thema Reanimationsversorgung:  
[https://www.youtube.com/channel/UCS2r4MeA98rum0\\_LXFxl-uA/videos?disable\\_polymer=1](https://www.youtube.com/channel/UCS2r4MeA98rum0_LXFxl-uA/videos?disable_polymer=1)
- Leben retten - kaum einer tut es! | odysso - Wissen im SWR:  
<https://www.ardmediathek.de/ard/player/Y3JpZDovL3N3ci5kZS8xODMyNDY5MA/>

###### Englisches Video:

- Saving a life is a child's play: <https://www.youtube.com/watch?v=0Yf4umHnD3c>
- CPR Cartoon for kids: <https://www.youtube.com/watch?v=BBBumEqCOxU>

**Up-to-date information on resuscitation and resuscitation lessons in schools can be found on the GRC Homepage:**

- [www.grc-org.de](http://www.grc-org.de)

**More German Websites:**

- [www.einlebenretten.de](http://www.einlebenretten.de)
- [www.wiederbelebung.de](http://www.wiederbelebung.de)

**English Website (European and worldwide activities):**

- [www.erc.edu](http://www.erc.edu): European Resuscitation Council
- [www.ilcor.org/wrah](http://www.ilcor.org/wrah): International Liaison Committee on Resuscitation
- [www.lifesaver.org.uk](http://www.lifesaver.org.uk): UK interactive education program, e-Learning
- [www.lifesavervr.org.uk](http://www.lifesavervr.org.uk): virtual reality version of Lifesaver
- <https://www.ircouncil.it/>: Italian Resuscitation Council
- <https://www.resus.org.uk>: Resuscitation Council UK

**Actions and Events on Resuscitation and CPR:**

- **German „Week of Resuscitation“:** Every year in September, this "week of resuscitation" takes place throughout Germany and aims to draw attention on cardiovascular arrest and resuscitation. More information can be found under: <https://www.einlebenretten.de/aktionen.html>
- **World Restart a Heart Day (WRAH):** since 2018 each year on 16th of October the World Restart a Heart Day is celebrated. More information is available at: <https://www.grc-org.de/kooperationen/10-2-World-Restart-a-Heart-Day> & <https://www.ilcor.org/world-restart-a-heart-2019/>

## **ANNEX 1: POSITION PAPERS OF THE EUROPEAN RESUSCITATION COUNCIL**

### **KIDS SAVE LIVES – ERC POSITION STATEMENT ON SCHOOL CHILDREN EDUCATION IN CPR.: “HANDS THAT HELP – TRAINING CHILDREN IS TRAINING FOR LIFE”**

Böttiger BW, Bossaert LL, Castrén M, Cimpoesu D, Georgiou M, Greif R, Grünfeld M, Lockey A, Lott C, Maconochie I, Melieste R, Monsieurs KG, Nolan JP, Perkins GD, Raffay V, Schlieber J, Semeraro F, Soar J, Truhlář A, Van de Voorde P, Wyllie J, Wingen S; Board of European Resuscitation Council (ERC). Resuscitation 2016,105:A1-3

Sudden out-of-hospital cardiac arrest (OHCA) with unsuccessful cardiopulmonary resuscitation (CPR) is the third leading cause of death in industrialised nations.<sup>1</sup> After OHCA, the overall survival rates are 2–10%.<sup>2, 3, 4</sup> In Europe and in the US together, 700,000 people die of OHCA every year. The same applies to other industrialised regions of the world. Many of these lives could be saved if more lay people provided immediate CPR.<sup>2</sup> Emergency medical services (EMS) response times can be several (6–12) minutes or even longer. Unfortunately, following cardiac arrest, the brain starts to die after only 3–5 min without blood flow.<sup>5</sup>

Up to 70% of OHCA are witnessed by family members, friends and other bystanders.<sup>2, 5</sup> Thus, the potentially lethal gap in time before EMS personnel reach the patient can be successfully bridged by laypeople. During the first minutes after OHCA in adults there is still oxygen in the blood and lungs, and immediate bystander chest compressions can save hundreds of thousands of lives each year.<sup>6</sup> Effective CPR is quite easy – laypeople are very unlikely to cause harm by attempting CPR. Bystander CPR increases the patient's chances of survival two- to four-fold.<sup>2</sup> However, bystander CPR rates are 60–80% in only a very few countries; in most countries the rate is far below 20%.<sup>7</sup>

Mandatory nationwide training of school children has the highest impact for improving the bystander CPR rate.<sup>8, 9, 10, 11, 12, 13</sup> This appears to be the most successful way to reach the entire population. The highest bystander CPR rates are in some Scandinavian countries where education of school children in CPR has been mandatory for decades,<sup>12</sup> and this concept is starting to spread.

In support, the World Health Organization (WHO) has endorsed the “Kids Save Lives” Statement in 2015, a joint statement from the European Resuscitation Council (ERC), the European Patient Safety Foundation (EPSF), the International Liaison Committee on Resuscitation (ILCOR) and the World Federation of Societies of Anesthesiologists (WFSA).<sup>6, 10, 11</sup> This statement recommends two hours of CPR training annually from the age of 12 years in all schools worldwide. At this age, children are more responsive to instructions and they learn more easily to help others.<sup>9</sup> Starting at a young age also means that CPR is like swimming or riding a bike: children will not forget how to save a life.<sup>14</sup> Healthcare professionals, teachers trained to teach CPR and others can successfully teach school children, and all can serve as multipliers.<sup>15</sup> CPR knowledge and skills can be spread further by asking children to teach their family and friends.

With the “Kids Save Lives” initiative (Fig. 1), we can help to improve the survival rate of people with OHCA by the factor of two- to fourfold. We can easily save 300,000 additional lives worldwide every year, nearly a thousand every day, and nearly one life every minute.

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### **The 10 ERC principles – increasing survival with “Kids Save Lives”:**

1. Everyone can save a life – even children can save a life.<sup>9, 10, 11, 12, 13, 14, 15, 16</sup>
2. Up to two hours of CPR training a year for school children is enough.<sup>9, 10, 11, 15, 16</sup>

3. Training must involve hands-on practice which may be augmented with theoretical – including virtual – learning.<sup>9</sup> Such training has also been performed without sophisticated equipment or specific resuscitation manikins.
4. Annual training of school children should start by the age of 12 years or earlier.<sup>9, 10, 11, 15</sup>
5. Trained children should be encouraged to train other people. The homework for all children after such training should be: please train 10 other people within the next two weeks and report.
6. A wide range of people, including anaesthesiologists, cardiologists, emergency physicians, nurses, paramedics, medical and other healthcare students, trained teachers and many other volunteers can successfully teach school children in CPR – in schools, in hospitals and elsewhere.<sup>6, 9, 15, 16</sup>
7. The responsible people in the Ministries of Education and/or Ministries of Schools and other leading politicians of each country should implement a nationwide programme for teaching CPR to school children.<sup>12</sup>
8. Every National Resuscitation Council (NRC) or similar organisation should support the implementation of a national initiative and “Kids Save Lives” campaign in its country.
9. With “Kids Save Lives”, children will also learn relevant social responsibility and social skills.<sup>9, 10, 11</sup>
10. National programmes that train school children in CPR can save more lives, improve productivity of society, and reduce healthcare costs.<sup>12, 17.</sup>



Fig. 1. The “KIDS SAVE LIVES” logo has been developed by the Italian Resuscitation Council (IRC). We very much appreciate and acknowledge that the IRC is providing this logo for free to all participating in the “Kids Save Lives” campaign in Europe.

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