



ELSEVIER

Contents lists available at ScienceDirect

Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation

Commentary and concepts

“All citizens of the world can save a life” — The World Restart a Heart (WRAH) initiative starts in 2018

B.W. Böttiger^{a,*}, A. Lockety^b, R. Aickin^c, M. Castren^d, A. de Caen^e, R. Escalante^f, K.B. Kern^g, S.H. Lim^h, V. Nadkarniⁱ, R.W. Neumar^j, J.P. Nolan^k, D. Stanton^l, T.-L. Wang^m, G.D. Perkinsⁿ^a Department of Anaesthesiology and Intensive Care Medicine, University Hospital of Cologne, Kerpener Straße 62, 50937 Köln, Cologne, Germany^b Emergency Department, Calderdale Royal Hospital, Halifax, United Kingdom^c Children's Emergency Department, Starship Children's Hospital, Auckland, New Zealand^d Department of Emergency Medicine and Services, Helsinki University Hospital and Helsinki University, Helsinki, Finland^e Pediatric Critical Care Medicine, Stollery Children's Hospital, Edmonton, Canada^f Unidad de Cuidados Intensivos, Instituto Nacional de Salud del Niño, Universidad Peruana de Ciencias Aplicadas – Centro de Simulación Clínica, Chair InterAmerican Heart Foundation/Emergency Cardiovascular Care, Lima, Peru^g Department of Medicine, Division of Cardiology, University of Arizona, Tucson, AZ, USA^h Department of Emergency Medicine and Education, Singapore General Hospital, Adjunct Associate Professor, Yong Loo Lin School of Medicine and Duke-NUS Medical School, National University of Singapore, Singaporeⁱ Department of Anesthesia, Critical Care and Pediatrics, University of Pennsylvania Perelman School of Medicine, The Children's Hospital of Philadelphia, 3401 Civic Center Boulevard, Philadelphia, PA, 19063, USA^j Department of Emergency Medicine, University of Michigan, Ann Arbor, MI, USA^k Department of Anaesthesia and Intensive Care Medicine, Royal United Hospital, Bath, United Kingdom^l Chair, Resuscitation Council of Southern Africa, Clinical Leadership, Netcare 911, South Africa^m Chairman, Resuscitation Council of Asia, CEO, National Resuscitation Council of Taiwan, Chang Bing Show Chwang Memorial Hospital, Taiwan, Medical and Law School, Fu-Jen Catholic University, Taiwanⁿ Warwick Clinical Trials Unit and Heart of England NHS Foundation Trust, University of Warwick, Coventry, United Kingdom

ARTICLE INFO

Keywords:

Cardiac arrest
Cardiopulmonary resuscitation
International Liaison Committee on Resuscitation
Lay resuscitation
KIDS SAVE LIVES

ABSTRACT

“All citizens of the world can save a life”. With these words, the International Liaison Committee on Resuscitation (ILCOR) is launching the first global initiative – World Restart a Heart (WRAH) – to increase public awareness and therefore the rates of bystander cardiopulmonary resuscitation (CPR) for victims of cardiac arrest. In most of the cases, it takes too long for the emergency services to arrive on scene after the victim's collapse. Thus, the most effective way to increase survival and favourable outcome in cardiac arrest by two- to fourfold is early CPR by lay bystanders and by “first responders”. Lay bystander resuscitation rates, however, differ significantly across the world, ranging from 5 to 80%. If all countries could have high lay bystander resuscitation rates, this would help to save hundreds of thousands of lives every year. In order to achieve this goal, all seven ILCOR councils have agreed to participate in WRAH 2018. Besides schoolchildren education in CPR (“KIDS SAVE LIVES”), many other initiatives have already been developed in different parts of the world. ILCOR is keen for the WRAH initiative to be as inclusive as possible, and that it should happen every year on 16 October or as close to that day as possible. Besides recommending CPR training for children and adults, it is hoped that a unified global message will enable our policy makers to take action to address the inequalities in patient survival around the world.

* Corresponding author.

E-mail address: bernd.boettiger@uk-koeln.de (B.W. Böttiger).¹ <http://anaesthesie.uk-koeln.de>.



The World Restart a Heart (WRAH)-Logo has been developed for ILCOR by the European Resuscitation Council. The use of the logo is free to all participating in the “World Restart a Heart”-initiative worldwide.

“All citizens of the world can save a life”. With these words, the International Liaison Committee on Resuscitation (ILCOR) is launching the first global initiative – World Restart a Heart (WRAH) – to increase awareness and therefore the rates of bystander cardiopulmonary resuscitation (CPR) for victims of cardiac arrest. It is well known that lay bystander resuscitation rates differ significantly across the world, ranging from 5 to 20% in many countries, to higher than 60–80% in a few other countries [1,2]. If all countries in the world could have the latter high lay bystander resuscitation rates, this would help to save hundreds of thousands of lives every year of people who have an out-of-hospital cardiac arrest (OHCA) [1,3–5]. In order to achieve this goal, all seven ILCOR councils (American Heart Association, European Resuscitation Council, Heart and Stroke Foundation of Canada, Australian and New Zealand Committee on Resuscitation, Resuscitation Council of Southern Africa, InterAmerican Heart Foundation, and Resuscitation Council of Asia) have agreed to participate in WRAH 2018 (www.ilcor.org/wrah). This aligns perfectly with the vision of ILCOR, which is to “save more lives globally through resuscitation” [6].

Cardiac arrest is a major international public health problem accounting for an estimated 15%–20% of all deaths. Estimates of the incidence of emergency medical service (EMS) assessed out-of-hospital cardiac arrest in various continents range from 53 to 112 per 100,000 [7]. It is one of the top three leading causes of death in industrialised nations. It is estimated that in the US and in Europe alone, more than 700,000 people die annually following cardiac arrest, despite treatment by EMS [8,9]. The same applies to all other developed parts of the world. Thus, despite many improvements in EMS and hospital treatment of cardiac arrest patients, the overall survival rates remain very low. The key problem is that it takes – in most of the cases – too long for the EMS to arrive on scene after the victim’s collapse. The most oxygen sensitive organ, the brain, starts to die after 3–5 min following circulatory arrest, so all response times in excess of this will be detrimental. Thus, professional treatment that EMS delivers – and if there is no bystander resuscitation – arrives too late for cardiac arrest patients in most cases [3,9].

The most effective way to increase survival and favourable outcome in cardiac arrest by two- to fourfold is swift onset of cardiopulmonary resuscitation (CPR) by bystanders, who we know observe the victim collapse in at least 50% of cases, and by educated and CPR trained “first responders” who are dispatched in parallel with the EMS [1,4,5,10–12]

In 2012, the European Resuscitation Council (ERC) successfully lobbied the European Parliament to pass a Written Declaration supporting the establishment of an annual day to promote awareness of the importance of bystander CPR (“Written Declaration on Establishing a European Cardiac Arrest Awareness Week”), which was supported and signed by 400 Members of the European Parliament from different political parties representing more than 50% of all members of the European Parliament. Subsequently, the first European Restart a Heart day (ERHAD) was launched on 16 October 2013 by the ERC, with the support from 32 European National Resuscitation Councils and with initiatives in more than 20 European countries. The topic for Europe in 2013 was “CHILDREN SAVING LIVES” (www.erc.edu/about/restart).

One pillar of the European Restart a Heart initiative – the KIDS SAVE LIVES Statement – has been endorsed by the World Health Organization (WHO) in 2015 [13–15], and all this has the potential to make a significant global impact in reducing deaths from cardiac arrest. Thus, besides media campaigns, mass trainings, focussed refreshers, and resuscitation education in adults, educating school children in CPR is an effective and long-lasting way to increase bystander efforts [3,13–16]. Following such training, school children can also serve as multipliers [3], and they can educate their parents, brothers and sisters, grandparents and others, which is most important, since more than 60% of all cardiac arrests occur at home. All this will have a significant positive influence on survival after cardiac arrest [1,3].

Similar initiatives have also been developed in parallel around the world. In 2007, the American Heart Association in coalition with the American Red Cross and the National Safety Council worked collaboratively to federally designate a National CPR and AED Awareness week in the United States. At the same time, legislation has been passed in 38 of the 50 states and the District of Columbia requiring all students to receive CPR training prior to high school graduation. This has resulted in more than 2 million U.S. students trained in CPR each year.

In Australia and New Zealand, a similar initiative to European Restart a Heart was led by the ambulance authorities with the support from the Resuscitation Councils. South Africa have a pre-planned ‘National CPR Day’, that will be aligned with WRAH. Similarly, in Canada, there is a ‘CPR Month’ with collaborative work planned with St John and Canadian Red Cross. In Asia, lay person CPR campaigns are widespread including Taiwan where school CPR training has been delivered for more than 17 years. There are similar projects looking at CPR education for schools and the public in Central and South America.

The ILCOR WRAH initiative is a natural evolution of all of these campaigns, and the plan is now to capture best practice from them all. The primary goal of ILCOR WRAH is therefore to increase cardiac arrest awareness and to enable as many non-professionals as possible to resuscitate and restart a heart, and thus increase bystander CPR rates in all countries worldwide.

To be as successful as possible, ILCOR is keen for the WRAH initiative to be as inclusive as possible. This will require some flexibility in style and approach in different parts of the world, as highest priority themes in one area may not be highest priority in other areas.

The following overarching principles of ILCOR WRAH have been agreed:

- 1) WRAH Day will occur every year on 16 October, commencing in 2018.
- 2) ILCOR will share resources and enthuse and motivate regional resuscitation councils. Involvement with WRAH will be voluntary for national resuscitation councils (NRCs), and they will be encouraged to develop their own strategies that fit their own countries.
- 3) It is not essential that all WRAH activity has to take place on one particular day (i.e., 16 October) but that it is done as close to that day as possible. It is important that a specific day is kept for the majority of the activity – and we would hope that most people do training on this day – particularly for media activity.

- 4) We will not limit WRAH activity to school children, although if countries wish to prioritise the training of children then we have many resources to share with them to enable this to happen.
- 5) We will have a media strategy for WRAH. There is a dedicated page on the ILCOR website for WRAH (www.ilcor.org/wrah). This page will include examples of good practice from previous years and downloads of materials. This includes media packs, sample letters to schools etc., and all these will be shared.

For detecting overall impact and measures of success, ILCOR will look for numbers trained in CPR – a minimum requirement being chest compression only training. We will also include media metrics, e.g. reach of social media etc. This will enable us to see how widespread the message of WRAH has been in addition to numbers trained.

It is hoped that a unified global message will enable our policy makers to take action to address the inequalities in patient survival around the world. WRAH 2018 will be the first opportunity for all the citizens of the world to join together and show their support for the promotion and facilitation of CPR education for everyone.

Web links

Further already existing information, videos, presentations, curricula and concepts on lay resuscitation initiatives, school children education in resuscitation and ERAHD can be found here:

www.erc.edu
www.ilcor.org/wrah
www.lifesaver.org.uk
<https://kids-save-lives.net/>
www.grc-org.de
<https://www.ircouncil.it/>
<https://www.resus.org.uk>
www.einlebenretten.de
www.wiederbelebung.de
<http://www.wosp.org.pl/uczmy-ratowac/rekord>
<https://www.youtube.com/watch?v=0Yf4umHnD3c>
<https://www.youtube.com/watch?v=UYlvdUcGjz0>
<https://www.youtube.com/watch?v=EDp4krk2-M>
<https://www.youtube.com/watch?v=L8Dt4EogOjA>
https://www.youtube.com/watch?v=YVEBXvW_Lik&feature=youtu.be

Conflicts of interest

Bernd W. Böttiger is European Resuscitation Council (ERC) Board Director Science and Research; Associated Editor, European Journal of Anaesthesiology (EJA); Speakers honorarium from Medupdate, FoMF, Baxalta, Bayer Vital, Zoll, Bard; Chairman, German Resuscitation Council (GRC); Board Member, German Society of Interdisciplinary Intensive Care and Emergency Medicine (DIVI); Associated Editor, Resuscitation. Maaret Castrén is the Honorary Secretary of ILCOR. Andrew Lockey is Honorary Secretary of the Resuscitation Council (UK). Robert W. Neumar is ILCOR Co-Chair and has received NIH research funding (R34 HL130738, R44 HL091606, K12 HL133304, R01 HL133129) and industry research support from PhysioControl

(equipment support for laboratory and clinical research), Jerry Nolan is Chair of the ERC and Editor-in Chief of Resuscitation. Gavin Perkins is Co-Chair ILCOR and ERC Board Director ILCOR and Guidelines. Richard Aickin, Allan de Caen, Raffo Escalante, Karl B. Kern, Swee Han Lim, Vinay Nadkarni, David Stanton and Tzong-Luen Wang declared that they have no conflicts.

Acknowledgements

We cordially thank all colleagues, ministers, politicians, teachers, women and men, children, organizations, medical societies and business entities who have supported and will support the ILCOR “World restart a heart” initiative and other initiatives all over the world. Bernd W. Böttiger and Gavin Perkins are supported by the ERC Research NET.

References

- [1] Wissenberg M, Lippert FK, Folke F, Weeke P, Hansen CM, Hansen EF, et al. Association of national initiatives to improve cardiac arrest management with rates of bystander intervention and patient survival after out-of-hospital cardiac arrest. *JAMA* 2013;310:1377–84.
- [2] Gräsner JT, Lefering R, Koster RW, Masterson S, Böttiger BW, Herlitz J, et al. EuReCa ONE-27 Nations, ONE, Europe, ONE Registry: a prospective one month analysis of out-of-hospital cardiac arrest outcomes in 27 countries in Europe. *Resuscitation* 2016;105:188–95.
- [3] Böttiger BW, Bossaert LL, Castrén M, Cimpoesu D, Georgiou M, Greif R, et al. Board of European Resuscitation Council (ERC): 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.
- [4] Kragholm K, Wissenberg M, Mortensen RN, Hansen SM, Malta Hansen C, Thorsteinsson K, et al. Bystander efforts and 1-year outcomes in out-of-hospital cardiac arrest. *N Engl J Med* 2017;376:1737–47.
- [5] Kragholm K, Wissenberg M, Mortensen RN, Fonager K, Jensen SE, Rajan S, et al. Return to work in out-of-hospital cardiac arrest survivors: a nationwide register-based follow-up study. *Circulation* 2015;131:1682–90.
- [6] Perkins GD, Neumar R, Monsieurs KG, Lim SH, Castrén M, Nolan JP, et al. The International Liaison Committee on Resuscitation – review of the last 25 years and vision for the future. *Resuscitation* 2017;121:104–16.
- [7] Hayashi M, Shimizu W, Albert CM. The spectrum of epidemiology underlying sudden cardiac death. *Circ Res* 2015;116:1887–906.
- [8] Mozaffarian D, Benjamin EJ, Go AS, Arnett DK, Blaha MJ, Cushman M, et al. Executive summary: heart disease and stroke statistics – 2016 update: a report from the American Heart Association. *Circulation* 2016;133:447–54.
- [9] Strategies to Improve Cardiac Arrest Survival. 2018 Available at: <http://www.nap.edu/catalog/21723/strategies-to-improve-cardiac-arrest-survival-a-time-to-act> – Accessed April 10 th, 2018.
- [10] Böttiger BW, Grabner C, Bauer H, Bode C, Weber T, Motsch J, et al. Long term outcome after out-of-hospital cardiac arrest with physician staffed emergency medical services: the Utstein style applied to a midsized urban/suburban area. *Heart* 1999;82:674–9.
- [11] Holmberg M, Holmberg S, Herlitz J. Effect of bystander cardiopulmonary resuscitation in out-of-hospital cardiac arrest patients in Sweden. *Resuscitation* 2000;47:59–70.
- [12] Ringh M, Rosenqvist M, Hollenberg J, Jonsson M, Fredman D, Nordberg P, et al. Mobile-phone dispatch of laypersons for CPR in out-of-hospital cardiac arrest. *N Engl J Med* 2015;372:2316–25.
- [13] Böttiger BW, Semeraro F, Altemeyer KH, Breckwoldt J, Kreimeier U, Rücker G, et al. KIDS SAVE LIVES: school children education in resuscitation for Europe and the world. *Eur J Anaesthesiol* 2017;34:792–6.
- [14] Böttiger BW, Van Aken H. Kids save lives – training school children in cardiopulmonary resuscitation worldwide is now endorsed by the World Health Organization (WHO). *Resuscitation* 2015;94:A5–7.
- [15] Böttiger BW, Van Aken H. Training children in cardiopulmonary resuscitation worldwide. *Lancet* 2015;385:2353.
- [16] Lockey AS, Barton K, Yoxall H. Opportunities and barriers to cardiopulmonary resuscitation training in English secondary schools. *EJEM* 2016;23:381–5.