



# Systems Saving Lives



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Rimini  
IRC 2021  
CONGRESSO  
NAZIONALE  
16-17-18 DICEMBRE  
NUOVE LINEE GUIDA 2021:  
RISUSCITAZIONE CARDIOPULMONARE  
POST-LOCKDOWN

# Conflict of Interest



EUROPEAN  
RESUSCITATION  
COUNCIL



EUReCA  
TWO European Registry  
of Cardiac arrest



ILCOR Chair Social Media Working Group & BLS Task Force Member  
Chair-Elect European Resuscitation Council  
Kids Save Lives Leader European Resuscitation Council  
EuReCa National Coordinator Italy  
Star Wars & Star Trek addicted



Italian  
Resuscitation  
Council



“Campanellino, perché non riesco a volare?”  
“Peter Pan, per volare hai bisogno di ritrovare  
i tuoi pensieri felici”

J. M. Barrie



Future Plans

2020 2021 2022

TRAINING  
RESEARCH  
INNOVATION  
PROMOTION  
POLICY  
MOBILITY  
REGISTRY



Italian  
Resuscitation  
Council



# Saving more lives globally through resuscitation





Local implementation

(IRC)

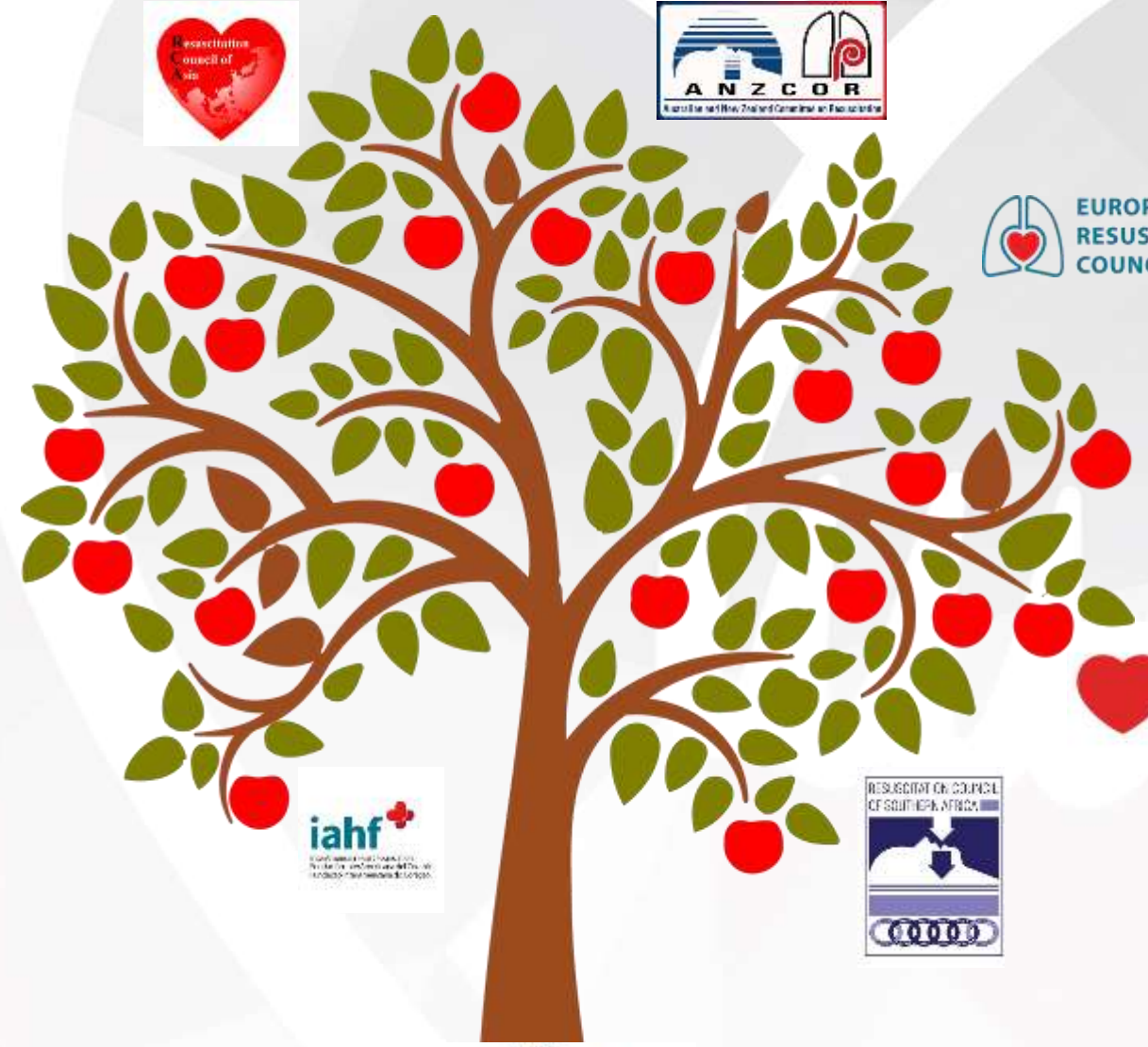


National Resuscitation Council

(ERC)



International Liaison Committee  
on Resuscitation (ILCOR)



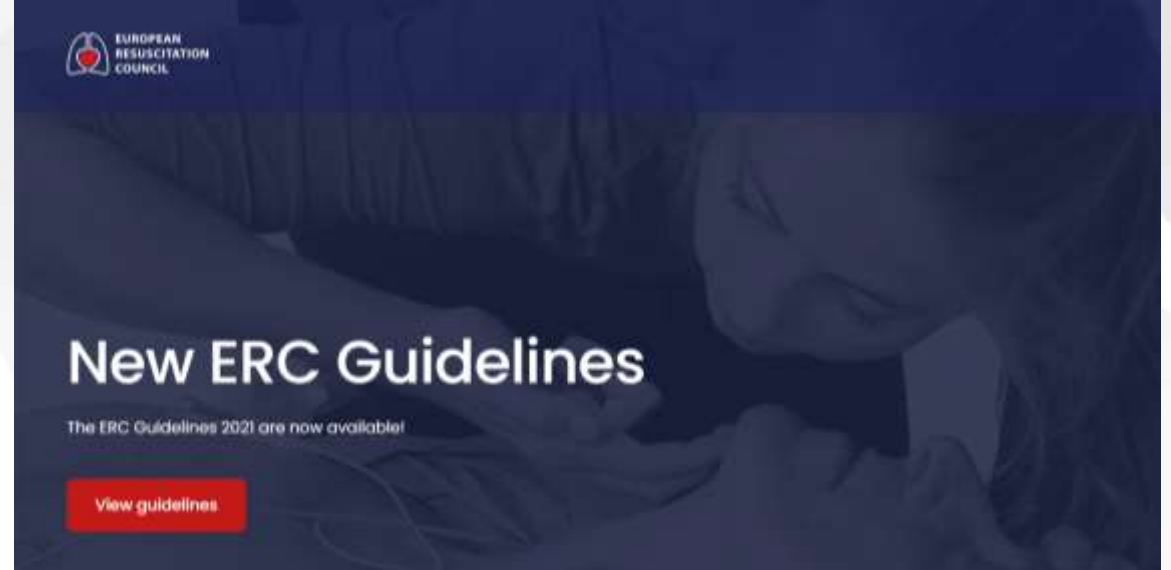
Methapor by Daniele Trevisanuto  
NLS ILCOR Task Force





**EUROPEAN  
RESUSCITATION  
COUNCIL**

**GUIDELINES  
2021**



[ercguidelines.eu](https://www.ercguidelines.eu/)



Italian  
Resuscitation  
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- Epidemiology
- **Systems saving lives**
- Adult basic life support
- Adult advanced life support
- Special circumstances
- Post resuscitation care
- First Aid
- Neonatal life support
- Paediatric life support
- Ethics
- Education





Rimini  
**IRC 2021**  
 CONGRESSO NAZIONALE  
 16-17-18 DICEMBRE  
 NUOVE LINEE GUIDA 2021:  
 RIVOLUZIONE CARDSYSTEM



Available online at [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)  
**Resuscitation**



Journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)

## European Resuscitation Council Guidelines 2021: Systems saving lives

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### Abstract

The European Resuscitation Council (ERC) has published these Systems Saving Lives guidelines, which are based on the 2020 International Consensus on Cardiopulmonary Resuscitation Science with Treatment Recommendations. The topics covered include: chain of survival, resuscitation performance, resuscitation, social media and emergency response for emergency community, European Resuscitation Council, World Resuscitation Alliance, SAVE LIVES campaign, team resource setting, European Resuscitation Academy and Global Resuscitation Alliance, early warning events, field response systems, and medical emergency team, cardiac arrest protocol and role of dispatcher.

### Introduction and scope

The Systems Saving Lives chapter describes numerous and important factors that can globally improve the management of

cardiac arrest patients not as a single intervention but as a system-level approach. The aim of this chapter is to provide evidence-informed best practice guidance, about interventions which can be implemented by healthcare systems to improve outcomes of out-of-hospital and/or in-hospital cardiac arrest.

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<https://doi.org/10.1016/j.resuscitation.2021.01.008>  
 Resuscitation (2021), <https://doi.org/10.1016/j.resuscitation.2021.01.008>

Please cite this article as: Semeraro, F., Greif, R., Böttiger, B.W., Burkart, R., Cimpoeasu, D., Georgiou, M., Yeung, J., Lippert, F., Lockey, A.S., Orlasveengen, T.M., Ristagno, G., Schlieber, J., Schnaubelt, S., Scapigliati, A., Monsieurs, K.G., European Resuscitation Council Guidelines 2021: Systems saving lives, Resuscitation (2021), <https://doi.org/10.1016/j.resuscitation.2021.01.008>



**RESUSCITATION**  
 ERC Guidelines 2021  
 25 - 26 March • Antwerp • Belgium



Italian  
 Resuscitation  
 Council

# Acknowledgments



## SYSTEMS SAVING LIVES CONCEPT



Il capitolo “Systems Saving Lives” descrive numerosi fattori importanti in grado di migliorare la gestione globale dei pazienti colpiti da arresto cardiaco tramite un approccio sistematico anziché interventi singoli.

## SYSTEMS SAVING LIVES AIM



Lo scopo del capitolo è fornire raccomandazioni di buona pratica, basate sull'evidenza, riguardo gli interventi che possono essere implementati dai sistemi sanitari per migliorare gli esiti dopo un arresto cardiaco intra-ospedaliero (IHCA, in-hospital cardiac arrest) ed extra-ospedaliero (OHCA, out-of-hospital cardiac arrest).

# SYSTEMS SAVING LIVES TARGET GROUP



# COMMUNITY & EMS





# TOPICS



Chain of survival & the formula of survival



Measuring the performance of resuscitation systems

Social media and smartphones apps for engaging the community

European Restart a Heart Day (ERHD) & World Restart a Heart (WRAH)



Kids Save Lives



Community initiatives to promote CPR implementation

Low-resource settings

European Resuscitation Academy and Global Resuscitation Alliance

Role of dispatcher

Early Warning Scores, Rapid Response Systems, and Medical Emergency Teams



Cardiac arrest centres



# SYSTEMS SAVING LIVES

**SISTEMI CHE SALVANO VITE LG 2021** 

## 5 MESSAGGI PRINCIPALI

- 1. AUMENTARE LA CONSAPEVOLEZZA SU RCP E DEFIBRILLAZIONE**
  - Formare più e faster possibile
  - Partecipare alla campagna "World Restart a Heart Day"
  - Sviluppare sistemi e politiche nuove e innovative che salvano più vite
- 2. UTILIZZARE LA TECNOLOGIA PER COINVOLGERE LE COMUNITÀ**
  - Implementare tecnologie per allertare i primi soccorsi in caso di arresto cardiaco tramite app per smartphone/messaggi di testo
  - Collegare comunità di primo soccorso per aiutare a salvare vite
  - Mappare e condividere le posizioni dei defibrillatori pubblici
- 3. KIDS SAVE LIVES**
  - Integrare a tutti i livelli delle scuole ad insegnare la RCP secondo lo schema "controlla, chiama e comprime"
  - Chiedi ai bambini di insegnare ai loro genitori o parenti come eseguire la RCP
- 4. CENTRI PER L'ARRESTO CARDIACO**
  - Dove possibile i pazienti adulti con arresto cardiaco extra-ospedaliero dovrebbero essere trattati nei centri per l'arresto cardiaco
- 5. RCP GUIDATA DALL'OPERATORE DI CENTRALE**
  - Fornire istruzioni telefoniche per la RCP in caso di persone che non rispondono e non respirano o respirano in modo anormale
  - Collaborare con il personale della centrale operativa 112/118 per monitorare e migliorare continuamente la RCP guidata al telefono

**SYSTEMS SAVING LIVES GL 2021** 

## RAISE AWARENESS ABOUT CPR AND DEFIBRILLATION

### KEY EVIDENCE

- Bystander CPR and defibrillation saves lives 
- Bystander CPR is not always provided 
- Public Access Defibrillators are not always readily accessible 

### KEY RECOMMENDATIONS

- Raise awareness of the importance of bystander CPR and AEDs 
- Engage with World Restart a Heart Day
- Train as many citizens as possible
- Develop new and innovative systems and policies that will save more lives

**SYSTEMS SAVING LIVES GL 2021** 

## USE TECHNOLOGY TO ENGAGE COMMUNITIES

### KEY EVIDENCE

Alerting first responders improves the rate of bystander-initiated cardiopulmonary resuscitation (CPR), reduce the time to first compression and shock delivery, and improve survival with good neurological recovery 

### KEY RECOMMENDATIONS

- Implement technologies to alert first responders to cardiac arrests through smartphone apps / text messages 
- Develop communities of first responders to help save lives 
- Map and share the locations of public access defibrillators 



# SYSTEMS SAVING LIVES

SYSTEMS SAVING LIVES GL 2021 

**KIDS SAVE LIVES**

**KEY EVIDENCE**



Mandatory nationwide training of schoolchildren has the highest and most important long-term impact for improving bystander CPR rate.

**KEY RECOMMENDATIONS**

- Teach all school children to do CPR using "check, call and compress"
- Continue training in higher education, particularly for healthcare students
- Get children to teach their parents and relatives how to do CPR
- Engage governments and politicians to pass laws to mandate training school children in CPR



SYSTEMS SAVING LIVES GL 2021 

**CARDIAC ARREST CENTRES**

**KEY EVIDENCE**



Cardiac arrest centres are hospitals providing evidence-based resuscitation treatments including emergency interventional cardiology, and bundled critical care with targeted temperature management, protocolised cardiorespiratory support and prognostication



Treatment in cardiac arrest centres provide the best outcomes for patients

**KEY RECOMMENDATIONS**



Where possible care for adult patients with OHCA in cardiac arrest centres

SYSTEMS SAVING LIVES GL 2021 

**DISPATCH ASSISTANCE DURING CPR**

**KEY EVIDENCE**



Early recognition of cardiac arrest and bystander CPR improves survival



Dispatch assistance may improve survival by assisting callers in recognizing arrest and providing CPR instructions

**KEY RECOMMENDATIONS**



- Provide telephone assisted CPR for people who are unresponsive with absent or abnormal breathing
- Work with dispatch staff to continually monitor and improve telephone assisted CPR

## INIZIATIVE DI COMUNITÀ PER PROMUOVERE L'IMPLEMENTAZIONE DELLA RCP

**SYSTEMS SAVING LIVES GL 2021**  
**RAISE AWARENESS ABOUT CPR AND DEFIBRILLATION**

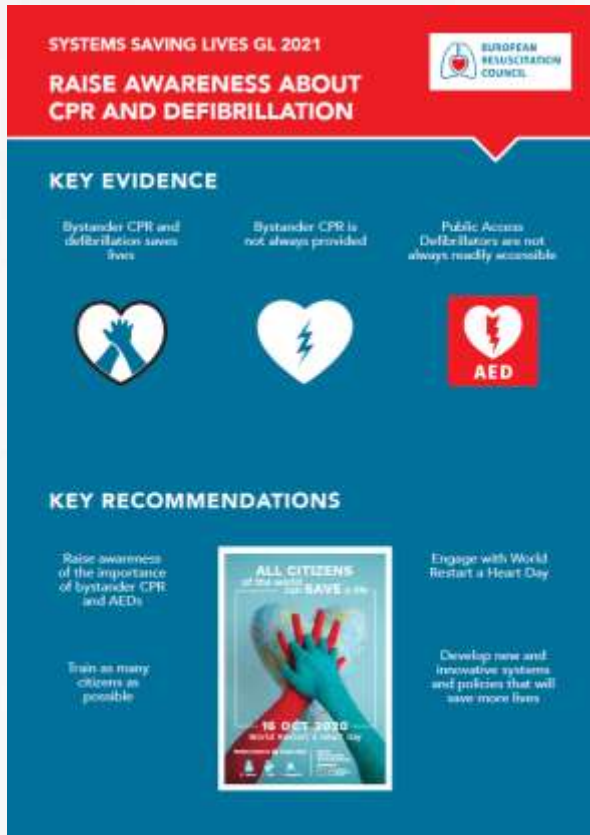
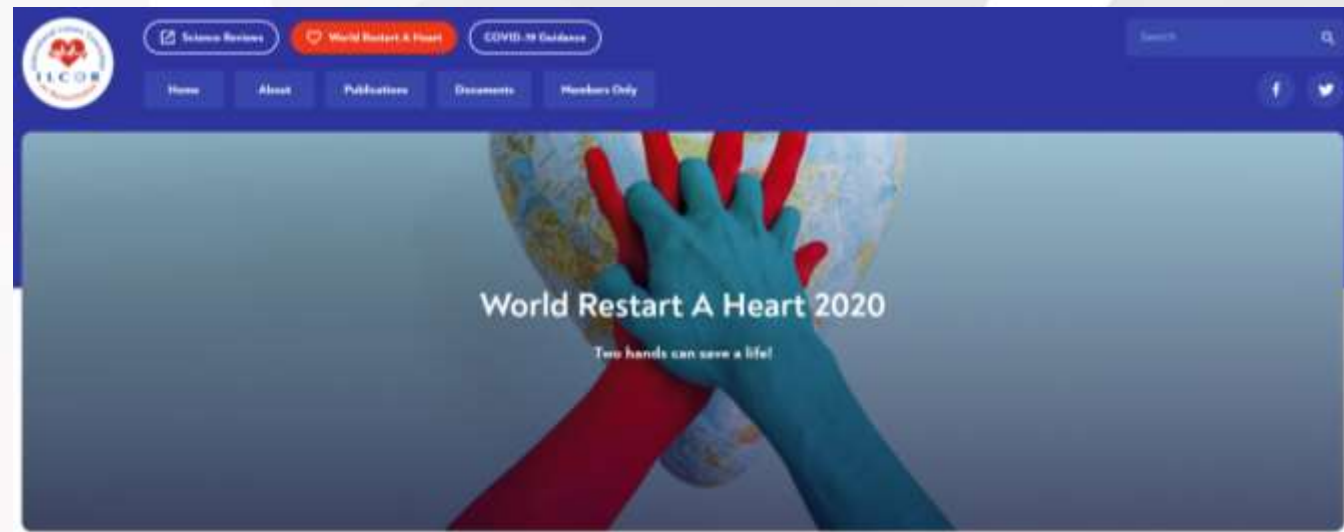
**EUROPEAN RESUSCITATION COUNCIL**

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- Engage with World Restart a Heart Day
- Develop new and innovative systems and policies that will save more lives
- Train as many citizens as possible

Science Review World Restart a Heart COVID-19 Guidance

Home About Publications Documents Members Only

**World Restart a Heart 2020**  
Two hands can save a life!

I sistemi sanitari dovrebbero implementare iniziative a livello di comunità per l'addestramento alla RCP di larghe fasce della popolazione (vicinati/quartieri, città, regioni, parte di o un'intera nazione).

## INIZIATIVE DI COMUNITÀ PER PROMUOVERE L'IMPLEMENTAZIONE DELLA RCP



## INIZIATIVE DI COMUNITÀ PER PROMUOVERE L'IMPLEMENTAZIONE DELLA RCP









Journal of  
*Clinical Medicine*



*Review*

### Community Initiatives to Promote Basic Life Support Implementation—A Scoping Review

Andrea Scapigliati <sup>1,2,\*</sup> , Drieda Zace <sup>2,3</sup> , Tasuku Matsuyama <sup>4</sup> , Luca Pisapia <sup>1</sup> , Michela Saviani <sup>1</sup>,  
Federico Semeraro <sup>2,5</sup>, Giuseppe Ristagno <sup>2,6,7</sup>, Patrizia Laurenti <sup>3</sup> , Janet E. Bray <sup>8</sup>, Robert Greif <sup>9,10</sup>   
and on behalf of the International Liaison Committee on Resuscitation Education, Implementation  
and Teams Task Force <sup>†</sup>

Special Issue "Italian Resuscitation Council  
On Resuscitation Science and Emergencies"



Italian  
Resuscitation  
Council

## UTILIZZARE LA TECNOLOGIA PER COINVOLGERE LE COMUNITÀ



**SYSTEMS SAVING LIVES GL 2021**  
**USE TECHNOLOGY TO ENGAGE COMMUNITIES**

EUROPEAN RESUSCITATION COUNCIL

**KEY EVIDENCE**

Alerting first responders improves the rate of bystander-initiated cardiopulmonary resuscitation (CPR), reduce the time to first compression and shock delivery, and improve survival with good neurological recovery.



**KEY RECOMMENDATIONS**

- Implement technologies to alert first responders to cardiac arrests through smartphone apps / text messages
- Develop communities of first responders to help save lives
- Map and share the locations of public access defibrillators

- In caso di sospetto DHCA, i primi soccorritori (laici addestrati o non addestrati, vigili del fuoco, forze dell'ordine o personale sanitario fuori servizio) che si trovano nelle vicinanze dovrebbero essere allertati dalla centrale operativa utilizzando un sistema di allerta implementato tramite app per smartphone o SMS.
- Ogni paese europeo è fortemente incoraggiato ad implementare queste tecnologie al fine di:
  - Migliorare la RCP iniziata da un astante.
  - Ridurre il tempo che intercorre tra l'inizio della RCP e l'erogazione del primo shock.
  - Migliorare la sopravvivenza con buon esito neurologico.

## UTILIZZARE LA TECNOLOGIA PER COINVOLGERE LE COMUNITÀ

### KEY EVIDENCE

Ingaggiare i first responders la percentuale di RCP avviata da astanti, riduce il tempo per alla prima compressione e l'erogazione del primo shock e migliora la sopravvivenza con un buon recupero neurologico.



### KEY RECOMMENDATIONS



Implementare tecnologie per allertare i first responders in caso di arresto cardiaco tramite app per smartphone/sms.

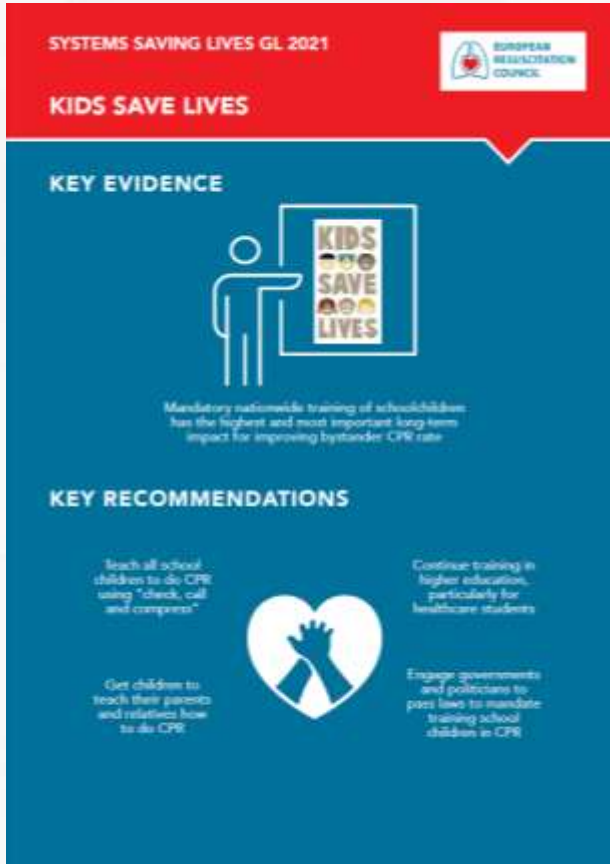


Sviluppare una comunità di first responders per aiutare a salvare vite umane.



Mappe condivise defibrillatori disponibili come PAD

## KIDS SAVE LIVES



SYSTEMS SAVING LIVES GL 2021

KIDS SAVE LIVES

KEY EVIDENCE

Mandatory nationwide training of schoolchildren has the highest and most important long-term impact for improving bystander CPR rate.

KEY RECOMMENDATIONS

- Teach all school children to do CPR using "check, call and compress"
- Continue training in higher education, particularly for healthcare students
- Get children to teach their parents and relatives how to do CPR
- Engage governments and politicians to pass laws to mandate training school children in CPR

### KEY EVIDENCE

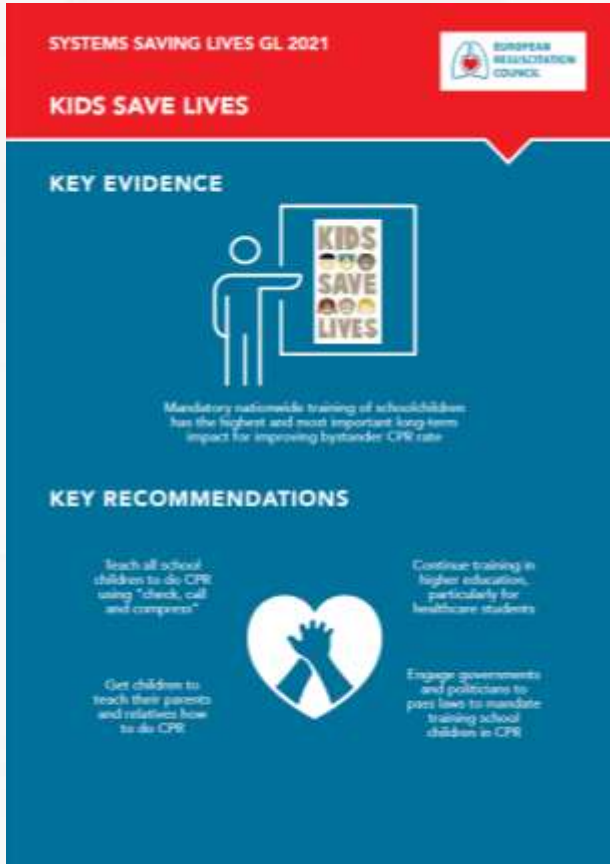
- La formazione obbligatoria a livello nazionale degli scolari ha l'impatto a lungo termine più elevato e più importante per migliorare la percentuale di RCP da parte degli astanti.

### KEY RECOMMENDATIONS

- Insegnare a tutti i bambini delle scuole ad eseguire la RCP secondo lo schema "controlla, chiama e comprimi"
- Chiedi ai bambini di insegnare ai loro genitori e parenti come eseguire la RCP
- L'addestramento alla RCP dovrebbe essere offerta anche negli istituti di istruzione superiore, specialmente agli studenti di scienze della formazione e delle professioni sanitarie.

Tutti i bambini in età scolare dovrebbero ricevere un addestramento annuale alla RCP

## KIDS SAVE LIVES



SYSTEMS SAVING LIVES GL 2021

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- Get children to teach their parents and relatives how to do CPR
- Engage governments and politicians to pass laws to mandate training school children in CPR

### KEY RECOMMENDATIONS

- Chi riveste posizioni di responsabilità nel Ministero dell'Istruzione e nel Ministero della Salute, ed altri leader politici di ciascun paese, dovrebbero implementare un programma nazionale per l'insegnamento della RCP agli studenti. L'addestramento dei bambini alla RCP dovrebbe essere obbligatorio per legge ovunque, dentro e fuori dall'Europa.

Tutti i bambini in età scolare dovrebbero ricevere un addestramento annuale alla RCP



## RESUSCITATION



LETTER TO THE EDITOR | VOLUME 153, P183-184, AUGUST 01, 2020

Renewed KIDS SAVE LIVES campaign to further increase awareness and fight sudden cardiac death in the era of COVID-19

Federico Semeraro • Giuseppe Ristagno • Robert Greif • Andrew Lockey • Koenraad G. Monsieurs • Jerry P. Nolan • Theresa M. Olasveengen • Gavin D. Perkins • Andrea Scapigliati • Bernd W. Böttiger •





## CENTRI PER L'ARRESTO CARDIACO

SYSTEMS SAVING LIVES GL 2021

CARDIAC ARREST CENTRES

EUROPEAN RESUSCITATION COUNCIL

**KEY EVIDENCE**

 Cardiac arrest centres are hospitals providing evidence-based resuscitation treatments including emergency interventional cardiology, and bundled critical care with targeted temperature management, protocolled cardiorespiratory support and prognostication

 Treatment in cardiac arrest centres provide the best outcomes for patients

**KEY RECOMMENDATIONS**

 Where possible care for adult patients with OHCA in cardiac arrest centres

### KEY RECOMMENDATIONS

- Per i pazienti adulti con OHCA non traumatici si dovrebbe valutare il trasporto presso un centro per l'arresto cardiaco in ottemperanza ai protocolli locali.

# RUOLO DELL'OPERATORE DELLA CENTRALE OPERATIVA

SYSTEMS SAVING LIVES GL 2021

DISPATCH ASSISTANCE DURING CPR

EUROPEAN RESUSCITATION COUNCIL

### KEY EVIDENCE

  
Early recognition of cardiac arrest and bystander CPR improves survival

  
Dispatch assistance may improve survival by assisting callers in recognizing arrest and providing CPR instructions

### KEY RECOMMENDATIONS

  
Provide telephone assisted CPR for people who are unresponsive with absent or abnormal breathing

Work with dispatch staff to continually monitor and improve telephone assisted CPR

## KEY RECOMMENDATIONS

- Le centrali operative dovrebbero implementare criteri ed algoritmi standardizzati per determinare se un paziente è in arresto cardiaco al momento della chiamata di emergenza.
- Le centrali operative dovrebbero monitorare la propria capacità di riconoscere l'arresto cardiaco e cercare continuamente modi per migliorare il riconoscimento dell'arresto cardiaco.

# RUOLO DELL'OPERATORE DELLA CENTRALE OPERATIVA

SYSTEMS SAVING LIVES GL 2021

DISPATCH ASSISTANCE DURING CPR

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### KEY EVIDENCE

  
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Provide telephone assisted CPR for people who are unresponsive with absent or abnormal breathing

Work with dispatch staff to continually monitor and improve telephone assisted CPR

## KEY RECOMMENDATIONS

- Le centrali operative dovrebbero implementare sistemi che assicurino che gli operatori forniscano istruzioni pre-arrivo per iniziare la rianimazione in caso di persone prive di coscienza e con respiro anormale.
- Gli operatori della centrale operativa dovrebbero fornire istruzioni per la RCP con sole compressioni toraciche per i chiamanti che assistono persone prive di coscienza e con respiro anormale.

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