Resuscitation Council UK

Systems saving lives Guidelines

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Introduction

Key points

'Systems Saving Lives' is a new section for Guidelines 2021, although some of the information was part of the 'Education and implementation of resuscitation' guidelines in 2015.

Introduction

Guidelines 2021 are based on the International Liaison Committee on Resuscitation 2020 Consensus on Science and Treatment Recommendations and the European Resuscitation Council Guidelines for Resuscitation (2021). Refer to the ERC guidelines publications for supporting reference material.

The Systems Saving Lives Guidelines describe a number of system-level factors that can improve the management of cardiac arrest patients. We provide evidence-informed best practice guidance for interventions to improve outcomes

for both out-of-hospital cardiac arrest (OHCA) and in-hospital cardiac arrest (IHCA). The intended audience includes: governments, managers of health and education systems, healthcare professionals, teachers, students and members of the public.

In these guidelines we emphasise the importance of the connections between the different people involved along the Chain of Survival, and the importance of measuring and improving the performance of resuscitation systems.

In addition to the 2021 guidelines, Resuscitation Council UK has a number of quality standards, publications, public and professional resources to which people should refer when designing and implementing interventions to improve cardiac arrest outcomes. Additionally, each UK nation has – and should continue to develop – a National Framework to improve care for people with out-of-hospital cardiac arrest (England's Resuscitation to Recovery; Scotland's Out-of-Hospital Cardiac Arrest Strategy 2021-2026; Wales' Out of Hospital Cardiac Arrest Plan; Northern Ireland's Community Resuscitation Strategy).

Management of cardiac arrest in patients with known or suspected COVID-19 is not specifically included in these guidelines, but is covered within the separate COVID-19 guidance which is accessible from the RCUK website.

The process used to produce the Resuscitation Council UK Guidelines 2021 is accredited by the National Institute for Health and Care Excellence (NICE). The guidelines process includes:

- Systematic reviews with grading of the certainty of evidence and strength of recommendations. This led to the International Liaison Committee on Resuscitation (ILCOR) Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations.
- The involvement of stakeholders from around the world including members of the public and cardiac arrest survivors.
- Details of the guidelines development process can be found in the Resuscitation Council UK Guidelines Development Process Manual.

Guidelines

Chain of survival and the formula for survival

- The actions to optimise survival in those who sustain out-of-hospital cardiac arrest are called the chain of survival.
- The goal of saving more lives relies not only on solid and high-quality science but also effective education of both members of the public and healthcare professionals.
- Systems engaged in the care of people sustaining cardiac arrest should be able to implement resource-efficient systems that can improve their survival.

Measuring the performance of resuscitation systems

- Organisations or communities caring for people who may have a cardiac arrest should evaluate their system performance and target key areas with the goal to improve performance.

Social media and smartphones apps for engaging the community

- First responders (trained and untrained members of the public, firefighters, police officers, and off-duty healthcare professionals) who are near a suspected out-of-hospital cardiac arrest (OHCA) should be notified by the dispatch centre through an alerting system implemented with a smartphone app or a text message.
- Local ambulance services should implement such technologies in order to:
    - improve the rate of bystander-initiated cardiopulmonary resuscitation (CPR)
    - reduce the time to first compression and shock delivery using an Automated External Defibrillator (AED)
    - improve survival with good neurological recovery.
- Smartphone apps can be used by members of the public to locate public-access AEDs and to record the location of public-access AEDs not already displayed in the smartphone app.
- Ambulance services, other organisations and individuals should register AEDs for which they are responsible with The Circuit.

Community initiatives to promote CPR

- National resuscitation councils, national governments, local authorities and local ambulance services should:
    - engage with and promote Restart a Heart Day activities each year
    - raise awareness of the importance of bystander CPR and AED use

    - train as many people as possible in CPR and AED use
    - use develop new and innovative systems and policies that will save more lives.
- Those responsible for implementing or delivering CPR/AED training in the community should follow Resuscitation Council UK's Quality Standards for CPR and AED training in the community.
- Healthcare systems should implement community initiatives for CPR training for large portions of the population (neighbourhood, town, region, a part of or a whole nation).
- Researchers should examine how rates of bystander CPR and AED use and clinical outcomes vary in different settings. This research should follow Utstein guidelines.
    - Both quantitative and qualitative methodologies should be used to gain a greater understanding of why rates of bystander CPR and AED use vary in different areas.
    - Researchers should explore barriers and motivators to bystander CPR and AED use in respect of ethnic, socio-economic, cultural and educational background.
    - These findings should inform awareness and training initiatives to improve rates of bystander CPR and AED use.
    - Resuscitation experts, healthcare professionals, community and faith leaders should all be engaged in this process.
    - When reporting about resuscitation systems and clinical outcomes, researchers should present data on these barriers and motivators in respect of ethnic, socio-economic, cultural and educational background.
- Experts from all backgrounds should be consulted concerning local acceptability and applicability of Resuscitation Council UK guidelines and recommendations for resuscitation. This will include modifications to resuscitation guidelines in times of pandemic infection.

Children as lifesavers

- Children of school age should routinely receive CPR training each year.
- Trained children should be encouraged to train family members and friends.
- CPR training should also be delivered in higher education institutions, in particular to teaching and healthcare students.
- Governmental Departments for Education in all nations of the UK should implement nationwide programmes, ideally as part of the school curriculum, for teaching CPR and AED use to all schoolchildren.

Role of dispatcher

Dispatcher assisted recognition of cardiac arrest

- Dispatch centres should follow standardised criteria and algorithms (e.g. NHS Pathways or Medical Priority Dispatch System (MPDS)) to determine if a person is in cardiac arrest at the time of the emergency call.
- Local ambulance services should monitor and review their success at recognising cardiac arrest during a 999 call, and research ways to improve recognition of cardiac arrest.

Dispatch assisted CPR/AED

- Dispatch centres should have systems in place to make sure 999 call handlers provide CPR instructions for unresponsive persons not breathing normally.
- Dispatchers should provide chest compression–only CPR instructions for callers who need assistance in initiating CPR.
- Ambulance services should ensure that a database of public access defibrillators (PAD) is integrated into their call handling system and use it to direct bystanders at cardiac arrest to their nearest PAD.

Transport to recognised centres of care

- Adults with non-traumatic OHCA should be considered for transport to a recognised centre of care (e.g. cardiac arrest centre or heart attack centre) for appropriate specialist treatment, according to established protocols. There is no evidence to express a preference for a policy of primarily transporting via ambulance (using bypass protocols) or one of secondary inter-hospital transfer.
- Adults with a cardiac arrest of presumed cardiac aetiology should be transported directly to a hospital with 24/7 coronary angiography capability.

Intra-arrest transport in cardiac arrest

- Transfer from scene to hospital during OHCA should be considered early in the CPR effort, if there are no criteria for withholding or discontinuing CPR. When making this decision, ambulance service personnel should consider distance to hospital, the risks of suboptimal CPR and the risks to all personnel during high-priority transfers.
- Patients may particularly benefit if: the ambulance service witnessed the OHCA; a bystander(s) performed high-quality bystander CPR; there was

return of spontaneous circulation (ROSC) at any time or; the presenting rhythm was ventricular fibrillation or pulseless ventricular tachycardia (VF/pVT) and there was a presumed reversible cause (e.g. cardiac or toxic aetiologies, hypothermia).
- Systems should implement criteria for inter-hospital transfer of IHCA patients in hospitals where advanced CPR techniques are not offered.

References

ERC Guidelines 2021: https://cprguidelines.eu/

Related content
Restart a Heart
Lifesaver learning
Guidance: Standard sign for AEDs