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Short paper

Why the Norwegian 2021 guideline for basic life support are different



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Introduction

Medical guidelines provide health care professionals with a framework for how they should treat patients and perform training. Although based on the available scientific evidence, their legitimacy depends on a transparent process for development and implementation. In the absence of sufficient evidence, consensus processes can be guided by values and preferences.¹

In cardiac arrest, death is imminent unless a chain of actions is initiated within minutes.² Therefore, guidelines for cardiopulmonary resuscitation (CPR) have existed for more than six decades.³ Time-critical actions like CPR,⁴ defibrillation⁵ and notification of emergency medical services (EMS),⁶ have improved outcomes for a large number of patients with out-of-hospital cardiac arrest (OHCA).

Norwegian guideline

The Norwegian guideline for basic life support (BLS) for lay people was published by the Norwegian Resuscitation Council (NRC) in June 2021.⁷ The following sequence is recommended for adult patients with reduced consciousness or without signs of life: Call the emergency medical communication center (EMCC), open the airways, examine respiratory efforts for 10 seconds in cooperation with the EMCC. If not breathing or abnormal breathing, start CPR (Fig. 1).⁷

Current European Resuscitation Council (ERC) guideline recommends lay rescues to open the airway and assess breathing before

calling the EMCC. The problem with this approach is that the EMCC will start by guiding airway management and assessment of breathing, so time will potentially be lost if lay people are trained to do this first. We believe lay people should be taught to call the EMCC as early as possible, even before airway maneuvers are performed.

Will the Norwegian guideline improve patient care?

In Norway, 85% of all OHCA patients receive bystander CPR before ambulance arrival.⁸ Despite this, overall 30-day survival for EMS-treated OHCA is only 14%. We rarely know the time interval between collapse and the initiation of CPR. Data from the Swedish Cardiac Arrest Registry indicate that there may be a time delay of several minutes between collapse and EMCC call, however such estimates are often prone to bias.⁹ In a Norwegian study, less than 20% of callers had initiated CPR prior to contacting the EMCC.¹⁰ In a Dutch study, only 11 of 285 callers used the term “cardiac arrest” in their communication with the EMCC.⁶ Some lay people may also have the impression that they are responsible for the decision to initiate CPR,¹¹ which may reflect how we have trained lay people for six decades in life saving measures. Thus, despite more than half a century of training, bystanders are still not consistently able to recognize OHCA, and CPR is commonly initiated by the EMCC. Especially in the presence of agonal breathing or seizures the identification of OHCA is delayed.^{12,13} With training, the EMCC can identify 95% of OHCA.¹⁴ In effect, the EMCC operate as a “team leader” in OHCA before ambulance arrival.¹⁵ We therefore argue that early involvement of the EMCC will reduce time to initiation of CPR.¹⁶ The Amer-

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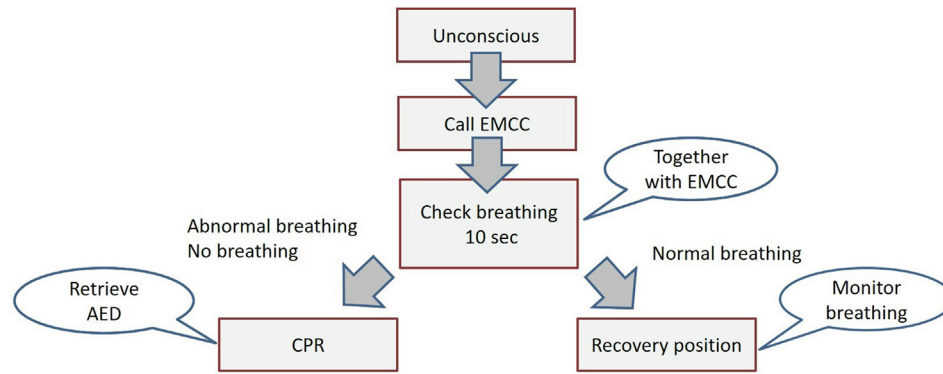


Fig. 1 – The Norwegian Basic Life Support guideline 2021.

ican Heart Association also state that “...witnesses to an unresponsive person should summon EMS and then be instructed by telecommunicators to initiate telephone-assisted CPR...”¹⁷ It may be in this earliest stage of OHCA that the effect of bystander CPR may be the greatest.¹⁸

Measurement of effect

We do not know whether the revised Norwegian guideline will affect patient outcome. Randomized clinical trials do not seem feasible in this setting. It is difficult to assess which early actions in the ‘chain of survival’ that affect the probability of survival for individual patients. We conclude that strong evidence for any recommendations for the early sequence of examinations and actions in these situations will be hard to find.

We are not concerned about adverse effects of the recommended change. In all telephone triage systems, an unconscious patient will trigger an emergency response so the consequence of over-triage should be negligible. Importantly, the Norwegian guidelines for BLS will allow bystanders to recognize cardiac arrest and commence CPR without loss of time in the medical response.

Possible positive effects will be hard to quantify, as any time intervals and actions performed before calling EMCC are difficult to measure. Future evaluation of time intervals may include more precise data collection using electronic records. Relieving bystanders of the responsibility to decide if the patient has cardiac arrest may decrease uncertainty, and enhance early initiation of the ‘chain of survival’.¹⁸ Preparing participants at first aid courses for the most probable scenarios, will improve their preparedness to act and reduce the uncertainty and guilt that some experience afterwards.¹⁹ Most importantly, an alignment of expectations from first aid courses and what happens in real world will improve legitimacy of guidelines. This will be helpful for bystanders that suddenly find themselves in a life-and-death situation and the patient they treat.

Conflict of Interest

Conrad Arnfinn Bjørshol: Deputy board member of the Norwegian Resuscitation Council. Previous advisory board leader of national first aid campaign Saving lives together. Has received funding from Laerdal Medical Foundation for Acute Medicine, the Norwegian

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CRedit authorship contribution statement

Conrad Arnfinn Bjørshol: Conceptualization, Writing – original draft, Writing – review & editing, Visualization. **Trond Nordseth:** Conceptualization, Writing – review & editing, Visualization. **Jo Kramer-Johansen:** Conceptualization, Writing – review & editing, Visualization.

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