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Identification, validation and benchmarking of quality Indicators in prehospital advanced airway management.

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Benchmarking, which was developed in the industry to detect the organisations with the best process performance of a given task, allows the measurement of performance using specific indicators that result in a metric of the performance that can be compared with others. Better than comparing the results of a specific unit with the mean, which is mostly the case in medical statistics, benchmarking permits to compare the results of a specific unit with the top of the class. It aspires to find a way to improve the process by monitoring performance.

To assess performance, quality indicators are frequently used, as they allow the quantification of the quality and performance of the provided care to facilitate longitudinal monitoring, as well as cross-sectional comparisons of different systems.

Measuring performance and quality is a rising topic in prehospital critical care. In “inhospital” critical care medicine, measuring quality and benchmarking are well developed and have become a permanent and iterative process.

Prehospital critical care must be understood as an integral part of the healthcare provided to critically ill or injured patients, with the same objective as the hospital phase: to contribute to the overall healing process of the patient. In many cases, therapeutic or supportive procedures can be initiated in the prehospital setting. This can potentially delay the arrival in the hospital, but at the same time early prehospital stabilisation of hemodynamically, respiratory and metabolic disorders can significantly improve the outcome of the patient. For some procedures/treatments, it is probably not the matter whether they are indicated in the prehospital setting, but if they are indicated in the overall management of the patient. The challenge of prehospital critical care is to determine which treatment or procedures should be done by whom, when and in which setting.

To measure the overall quality of prehospital critical care, we have to identify Quality Indicators (QI) who measure the structures, the processes and the outcomes (Donabedian). QI must consider at least one of the 6 quality dimensions (effectiveness, equity, timeliness, patient-centeredness, safety and efficiency). They should be specific, sensible and have a link with an outcome.

Quality indicators are frequently used, particularly in assessing processes and outcome. Measurement of processes, like complex interventions, through datasets is accessible, practicable and amenable to change. In contrast to outcome measures, process measurements don’t need risk adjustment to compare performance, that’s why they are frequently the focus of quality improvement systems.

In our work, we decided to focus on one process of PCC: prehospital advanced airway management, as “Airway” and “Breathing” management are comprised in the immediate life-saving measures that should be taken, regardless of etiology. They can be performed during the prehospital phase with a high quality standard and without delaying the time to definitive care.

It has been suggested that the traditional method of systematic reviews could be of limited value in the evaluation of a complex intervention due to the heterogeneity and frequent lack of adequate description of the methods and contextual differences.

We therefore believe that the identification, validation and benchmarking of QI in prehospital advanced airway management could be a better way to evaluate this complex intervention.

In our project, we will first revise the consensus-based template for uniform reporting of data from prehospital advanced airway management and determine quality indicators for intubation and post-intubation management in the emergency setting through a consensus process. We will then collect and start popular benchmarking the QI in a prospective observational multicenter study. Finally, we will evaluate the impact of benchmarking of QI for prehospital advanced airway management on the outcome in a multicenter comparative study. We believe that using benchmarking will help us to optimize this process and improve the quality of prehospital advanced airway management.

Our work will be one piece in the development of a quality improvement network in prehospital critical care that could be the base for further research projects on quality topics.

With the support of networks like EUPHOREA, there is a real potential for developing a structure for monitoring clinical performance that can contribute to further development and elevate the value of prehospital critical care.