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Appropriate Use of Cardiac Monitoring in the Emergency Department

English summary

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Québec

SUMMARY

Appropriate Use of Cardiac Monitoring in the Emergency Department

Background

Cardiac monitoring is a non-invasive technique for detecting potentially life-threatening cardiac pathologies such as complex arrhythmias. The European Society of Cardiology recommends that patients presenting to the emergency department with chest pain or symptoms suggestive of acute coronary syndrome (ACS) should be placed on cardiac monitors. However, the use of cardiac monitoring must be appropriate, as the large number of patients admitted to emergency departments with chest pain affects the availability of stretchers with cardiac monitors in some hospitals. In addition, appropriate use of cardiac monitoring can optimize patient management and use of healthcare resources, and reduce the number of treatments, unnecessary hospitalizations, unnecessary tests and associated costs.

In Quebec, there are currently no province-wide recommendations for the appropriate use of cardiac monitors in emergency departments. Triage nurses rely on their own judgment or on orientation to emergency department criteria, where these exist, to decide whether to use cardiac monitoring. Given the lack of clear guidelines for cardiac monitoring in emergency departments, the Ministère de la Santé et des Services sociaux asked INESSS to develop a decision-support tool for nurses to promote the appropriate use of cardiac monitoring in the province's emergency departments.

Methodology

- A systematic search of clinical practice guidelines published between January 2015 and March 2024 on cardiac monitoring and the clinical conditions in which monitoring is recommended in the emergency department was conducted.
- The identification of practice guidelines in databases and grey literature was conducted in collaboration with a scientific information advisor (librarian). Documents were selected on the basis of pre-established criteria, and their quality was assessed using the AGREE II tool.
- An Advisory Committee made up of clinicians from various specialties and areas of expertise (emergency physicians, nurses, cardiologists) was involved in establishing the recommendations.
- The usability of the tool produced was tested by prospective users working in hospitals.

Key recommendations

Following analysis of the information gathered and an iterative process with the members of the Advisory Committee, the following findings and key messages were identified as critical to optimizing cardiac monitoring practices.

The Electrocardiogram in emergency departments

The electrocardiogram (ECG) can be easily administered in emergency departments and does not require the same time and resources as cardiac monitoring. For these reasons, the choice of whether to perform an ECG at the time of triage is left to clinical judgment of nurses, and the clinical tool does not contain a list of specific criteria to guide this decision. The tool does, however, cover the use of the initial ECG when ACS is suspected, and specifies abnormal ECG findings that may justify the use of cardiac monitoring in emergency departments. As such, the initial ECG is recommended for all patients with chest pain and should be performed within ten minutes of the patient's arrival in the Emergency Department when ACS is suspected.

Cardiac Monitoring Recommended

There are many patients with chest pain in emergency departments, and cardiac monitoring is recommended only for those at risk of ACS, since cardiac monitoring in low-risk patients will not improve their condition. For this reason, cardiac monitoring should be used in patients with chest pain only when a severity criterion or three or more cardiovascular risk factors are present, in order to identify patients at higher risk of ACS during triage. Cardiac monitoring should be performed only to detect arrhythmias when at risk, and not to monitor vital signs.

Furthermore, to optimize the use of cardiac monitors in emergency departments, they should be used when a patient has an abnormal ECG accompanied by symptoms such as syncope, palpitations or active chest pain. In fact, many patients may have an abnormal ECG as a result of medication or physical exertion, and placing them all on cardiac monitoring is not justified since they are not necessarily at risk of arrhythmia. It is also not recommended to place all patients with a known arrhythmia on cardiac monitoring; rather, it is recommended to initiate cardiac monitoring only when a recent arrhythmia is found or suspected.

Cardiac Monitoring to Consider

In special situations, such as palpitations with ECG changes, suspected aortic dissection and electrolyte disorders, the decision to initiate cardiac monitoring will depend on the resources available in the hospital, the physician's decision or the patient's risk of developing an arrhythmia. These indications have been grouped together in a “to be considered” section of the tool, with the aim of promoting the appropriate use of cardiac monitoring.

Cardiac Monitoring not recommended

A section containing certain indications where cardiac monitoring is not recommended is also provided, to raise nurses' awareness of the irrelevance of cardiac monitoring in certain cases of syncope, chest pain or known arrhythmia.

Recommendations and Clinical Tool

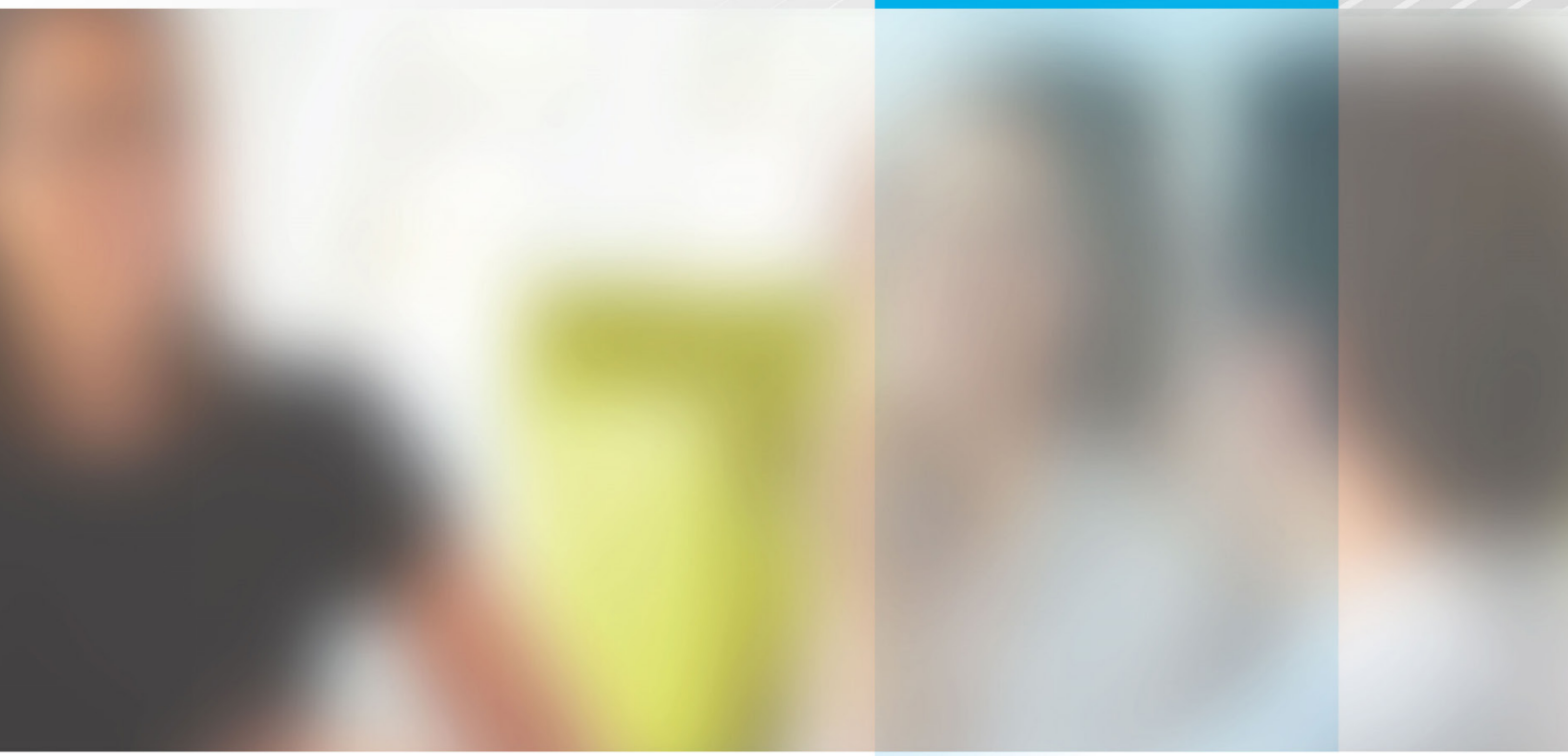
Following an iterative process with members of the Advisory Committee, in which clinical information and recommendations from the literature, contextual elements and the perspective of various stakeholders consulted were triangulated, a series of findings and recommendations were formulated. These recommendations are included in this report, as well as in the resulting decision-support tool designed primarily for nurses.

Conclusions and Issues

To maximize the proper use of cardiac monitors in emergency departments, cardiac monitoring must be performed in the right clinical situation. Without replacing the clinical judgment of nurses, this work should contribute to a more appropriate use of cardiac monitoring and, consequently, promote targeted management, appropriate use of healthcare resources and a reduction in the costs generated by inappropriate use. Harmonization of practices across Quebec hospitals is desirable and will depend on the distribution of the clinical tool associated with this report, and the adoption of the clinical information and recommendations by the healthcare professionals involved.

Updates

The need for updating the recommendations will be assessed four years from the date of publication, based on the progress of scientific data and the evolution of clinical practices, as well as the needs of the health and social services network.



Siège social

2535, boulevard Laurier, 5e étage
Québec (Québec) G1V 4M3
418 643-1339

Bureau de Montréal

2021, avenue Union, 12e étage, bureau 1200
Montréal (Québec) H3A 2S9
514 873-2563
inesss.qc.ca

Institut national d'excellence en santé et en services sociaux
Québec