# Clinical Practice Change

Choosing Wisely Manitoba™

## Discontinuation of the use of creatine kinase for the diagnosis of acute coronary syndrome (ACS)

**Date Effective: December 1, 2019**

### PURPOSE AND INTENT

Creatine kinase (CK) does not provide diagnostic value beyond that of troponin, and therefore should not be routinely ordered for the diagnosis or monitoring of ACS.

### PRACTICE OUTCOME

To eliminate measurement of CK for the diagnosis of ACS.

### BACKGROUND

The detection of cardiac troponins in serum is extremely specific to cardiac injury,[1] and contemporary high-sensitivity troponin T (hsTnT) assays have a sensitivity of 92-100% and a negative predictive value of 96-100%.[2] Current evidence-based guidelines recommend the use of high sensitivity troponin assays for the diagnosis of ACS. The 2018 American Heart Association consensus guidelines on the universal definition of myocardial infarction recommend high sensitivity troponin assays for the diagnosis of ACS due to their superior sensitivity and specificity for myocardial injury; other biomarkers, such as CK, are not recommended.[3]

A 2018 survey of practice in regional emergency departments revealed that CK and hsTnT are ordered very commonly together, most often as protocol-initiated bloodwork at the time of patient triage. This is consistent with a recent retrospective analysis at a tertiary hospital emergency department in the Winnipeg health region, in which CK provided no additional clinical utility in the diagnosis of AMI in the context of modern troponin assays.[4]

This policy has been developed in cooperation with and is endorsed by Choosing Wisely Manitoba.

### GUIDELINES

The proposed policy has several objectives:

1. To eliminate usage of CK testing for the diagnosis of ACS as it provides no benefit to patient care and clinical decision making.
2. To reduce unnecessary testing and contribute to appropriate resource stewardship in the diagnosis of ACS.
3. To align clinical practices in the region with evidence-based standards of care for biomarkers of ACS.

### COMPONENTS

1. CK should not routinely be used for the workup of chest pain or when considering a diagnosis of ACS, as it has been replaced by troponin testing.



This Clinical Practice Change is a directive of Choosing Wisely Manitoba, an initiative to improve the appropriate use of diagnostic testing in our province. Choosing Wisely Manitoba is a partnership of the Centre for Health Care Innovation and Shared Health.

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2. CK should not be part of standardized bloodwork order sets for patients being worked up for ACS.
3. CK should not be paired with troponin on requisitions and will be removed from routine ACS order sets.
4. CK may still be ordered if clinically indicated for other conditions (e.g. rhabdomyolysis).
5. Periodic audits should be undertaken to assess adherence to this clinical practice guideline.

**REFERENCES**

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