



# Laboratory Critical Values in Patients with Hyperkalemia: Automated Notification and Internal Audit Support Effective Clinical Decision

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## Background & Aim

Hyperkalemia can result in life-threatening cardiac arrhythmias and is associated with mortality risk. Patients who have an advanced stage of chronic kidney disease are at higher risk for hyperkalemia. The critical value (CV) of laboratory reporting is increasingly recognized as a key issue in ensuring patient care and minimizing harm. In our study, we improved the CV reporting and setup an internal audit management mechanism in 2018 to evaluate the effectiveness of CV automated notification in the patient's outcomes.

## Methods

The serum potassium critical value notification is set at <2.5 mmol/L and >6.0 mmol/L. The information system is setup to meet the notification and automatically send SMS, following by a paper notice to clinicians, and the clinical end will reply the process and results. Secondly, the audit results are reported in the monthly meeting. We describe the approach of clinicians, and their decision making following CV reporting.

## Conclusion

The laboratory plays a key role in ensuring patient safety, especially in CV reporting and an internal audit management mechanism. An evaluation should be made of the patient's outcome and clinical decision making in order to assess the effectiveness of the CV process.

## Relevance to HPH

Setup an internal audit management mechanism can improve medical efficiency and quality, so that the medical care team can make timely judgment and proactive treatment to ensure patient safety and achieve the goal of Holistic Health Care.

## Results

We retrospectively audited the data from 2017 to 2019. The number of CV notifications is 98, 109 and 91 cases, respectively. Less than three times for 127 patients (91.37%) and more than 4 times for 12 patients (8.63%) in 2017 to 2018. In 2019, less than three times for 56 patients (93.33%) and more than 4 times for 4 patients (6.67%). After improving the management mechanism, CV notification led to a change of treatment in clinicians about 55% (P<0.05).

Figure 1 The numbers of notice from 2017 to 2018

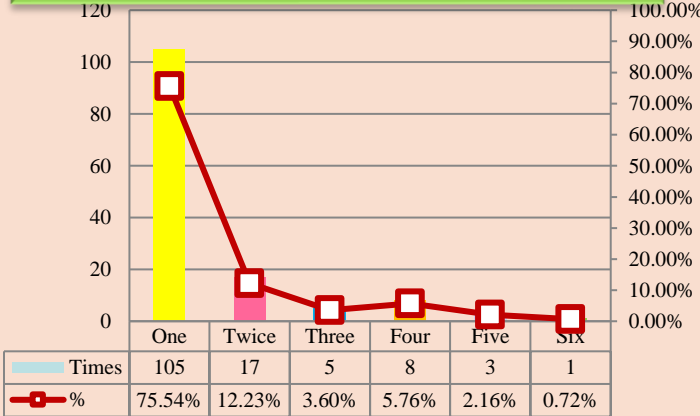


Figure 2 The numbers of notice in 2019

