Establishment of a real-time external quality assurance program

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Introduction

Quality Assurance for Aboriginal and Torres Strait Islander Medical Services Program (QAAMS) is a national diabetes care program funded by the Department of Health. QAAMS supports the quality-assured conduct of POCT for HbA1c and urine albumin:creatinine ratio (ACR) on the Siemens DCA Vantage at over 200 sites across Australia. Participants in the QAAMS Program are required to complete monthly quality control (QC) and quality assurance (QA) testing and enter their results via the QAAMS website. QA material and monthly reports are provided by the Royal College of Pathologists of Australasia Quality Assurance Programs (RCPAQAP). QAAMS management designed a real-time QC flagging system in 2018 and RCPAQAP have been collaborating to provide a similar "real-time" external quality assurance (EQA) feedback program to more effectively support QA testing in QAAMS.

Aim

To develop EQA functionality which enables real-time feedback for HbA1c and urine ACR testing in the QAAMS Program.

Methods

Target values for samples from the current QAAMS QAP HbA1c and ACR programs were determined using 5 DCA Vantage instruments. Each QA level was analysed 4 times on each device totalling 20 tests per level. Analytical Performance Specifications (APS) were defined based on the current RCPAQAP recommendations. The target ranges were then programmed into the QAP section of the QAAMS website. Along with the target ranges, associated rules shown in Figure 1 that determine when a review is required were also programmed into the website. As shown in figure 1, real-time feedback to operators comprises "green = no problem", "yellow = warning" and "red = stop issuing patient results" messages. Red flags also initiate an email to the QAAMS Management Team with site and operator information to facilitate follow-up.

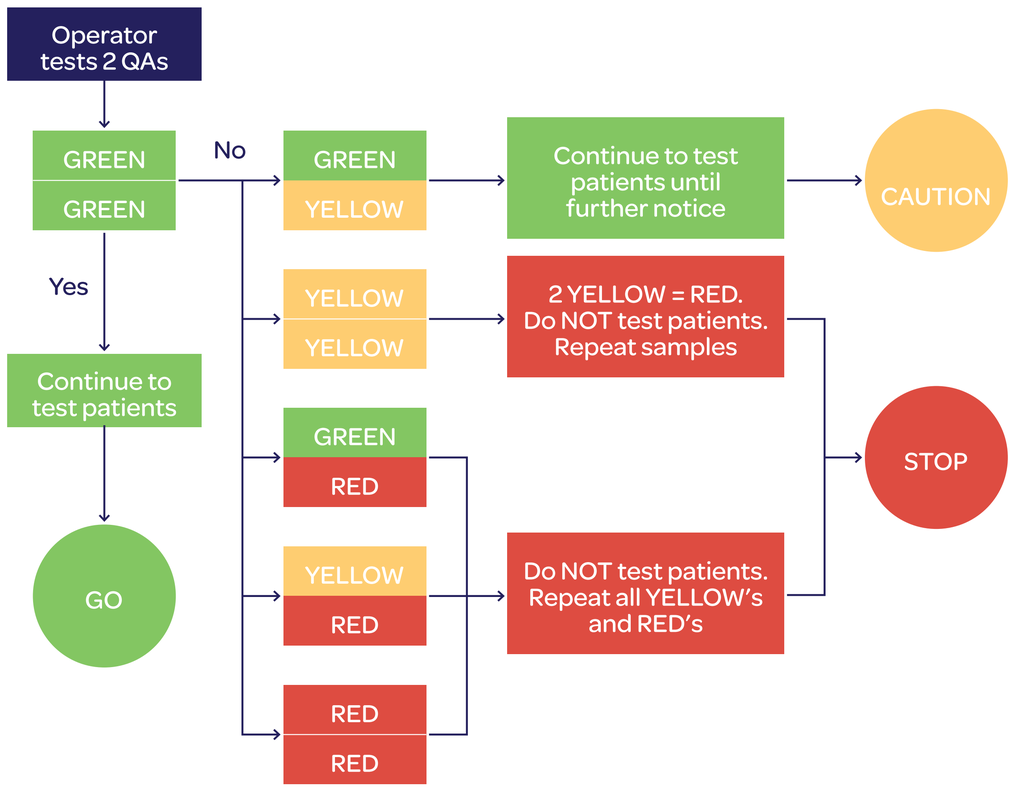

Figure 1. Quality Assurance flow diagram.

Results

Since the "go-live" in May 2019, an average of 3 – 10 sites per week flag with unacceptable EQA results, with an influx of flagging occurring around the end of the month when the testing is due. Figures 2 to 5 display examples of the types of flagging and messaging operators can receive upon inputting their QA data. Figure 2 shows the acceptable testing message received when all results are within the expected range. The unacceptable testing message along with the advice to stop patient testing and call the QAAMS help desk is depicted in figures 3 and 5. Figure 4 displays the "continue with caution" message that is received by operators who have one result in the yellow warning range. Those operators who receive a "stop patient testing" message are required to follow the prompt and contact the QAAMS help-desk directly to receive guidance on how they should proceed. If no contact is made within the first few hours after data entry then they are contacted by the QAAMS Management Team in order to determine the cause of the out of range results. Initial and ongoing feedback on the prompt follow-up of red flags has been overwhelmingly positive.

Discussion and Conclusion

We have successfully established a real-time EQA program for the QAAMS community that fulfils local need. The real time feedback has allowed for prompt follow up, management and resolutions for out of range QA testing allowing operators to be confident in the analytical quality of the testing on their device. The successful establishment of the real-time EQA program for QAAMS provides an opportunity for expansion into other programs in the future.

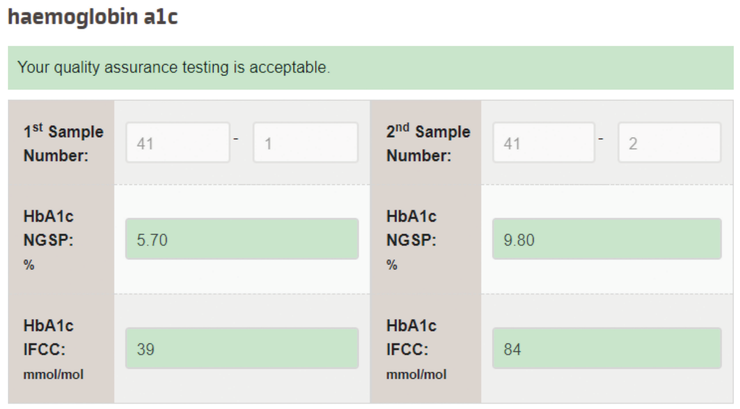

Figure 2. In range "green" real-time feedback.

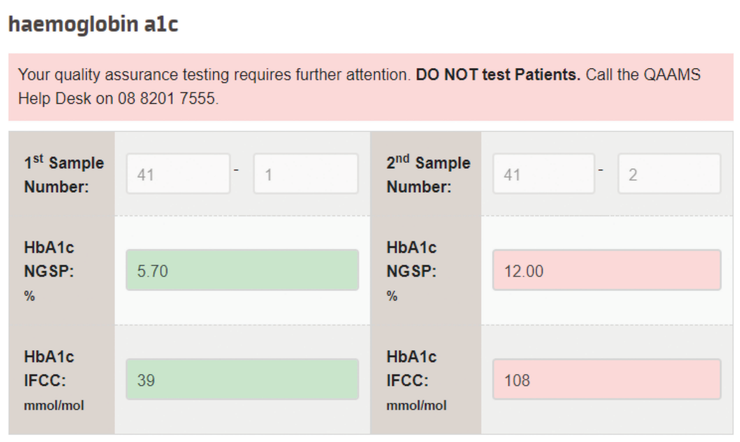

Figure 3. Red Flag real-time feedback.

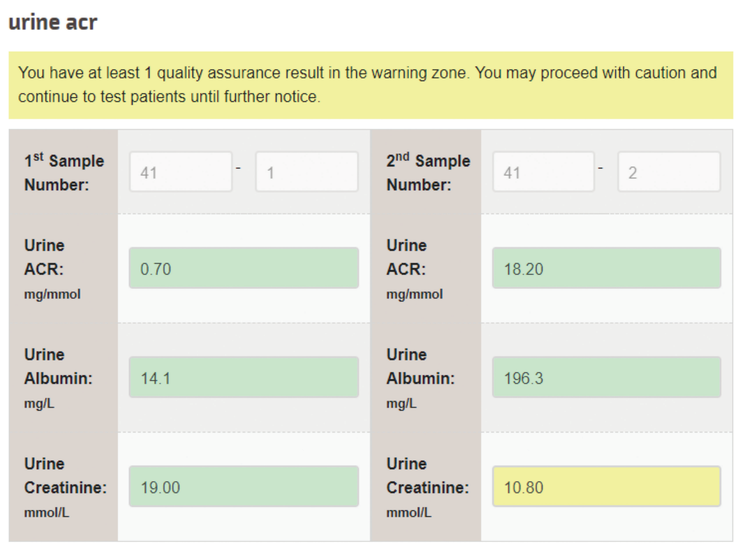

Figure 4. One "caution" real-time feedback.

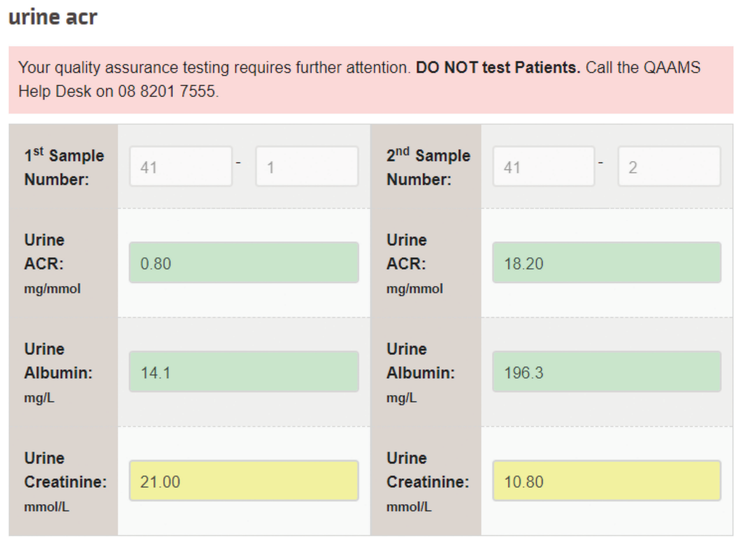

Figure 5. Two cautions equals a red real-time feedback.

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