Case Study

# Bringing point of care CRP testing to a paediatric virtual ward service

## Background

***Darent Valley Hospital, part of Dartford and Gravesham Trust, identified the need for a point of care (POC) C-reactive protein (CRP) test to enhance clinical decision-making and streamline the patient pathway within their children's virtual ward service.***

After evaluating point of care devices against their traditional laboratory analyser method, the QuikRead Go was selected as the ideal solution to improve service delivery and patient care.

## Challenge

Before implementing POC testing with the QuikRead Go, the process for testing CRP in young patients involved a venous blood draw followed by sending the sample to the central laboratory.

This method resulted in **significant delays**—often hours, or even overnight—before treatment decisions could be made. The **additional step** of a **second patient visit** was required to either escalate or de-escalate antibiotic treatment based on the results. Compounding this issue was the **risk of sample haemolysis** during transport, which not only delayed diagnosis further but also **caused frustration** for both the clinical team and families, who often faced additional visits for new blood samples.

## Aim

- Improve patient experience
- Reduce repeat appointments
- Allow easy transportation between patient homes

# Evaluation

The point of care team, led by Darren Browne (POCT Manager), supported the performance evaluation of point of care devices against their laboratory analyser method. The QuikRead go was selected on the basis of the following:

- Ability to test children under 2 years old
- Portability with a bag, allowing easy transport between patient homes
- Small sample volume (10 µL), ideal for young patients
- Fast results in just 2 minutes
- Room temperature storage of consumables, with a shelf life of up to 12 months
- Battery and mains powered, offering flexibility
- Bi-directional connectivity (wired and wireless) to AegisPOC middleware
- Wide haematocrit range (15-75%) suitable for infants under 2 years of age

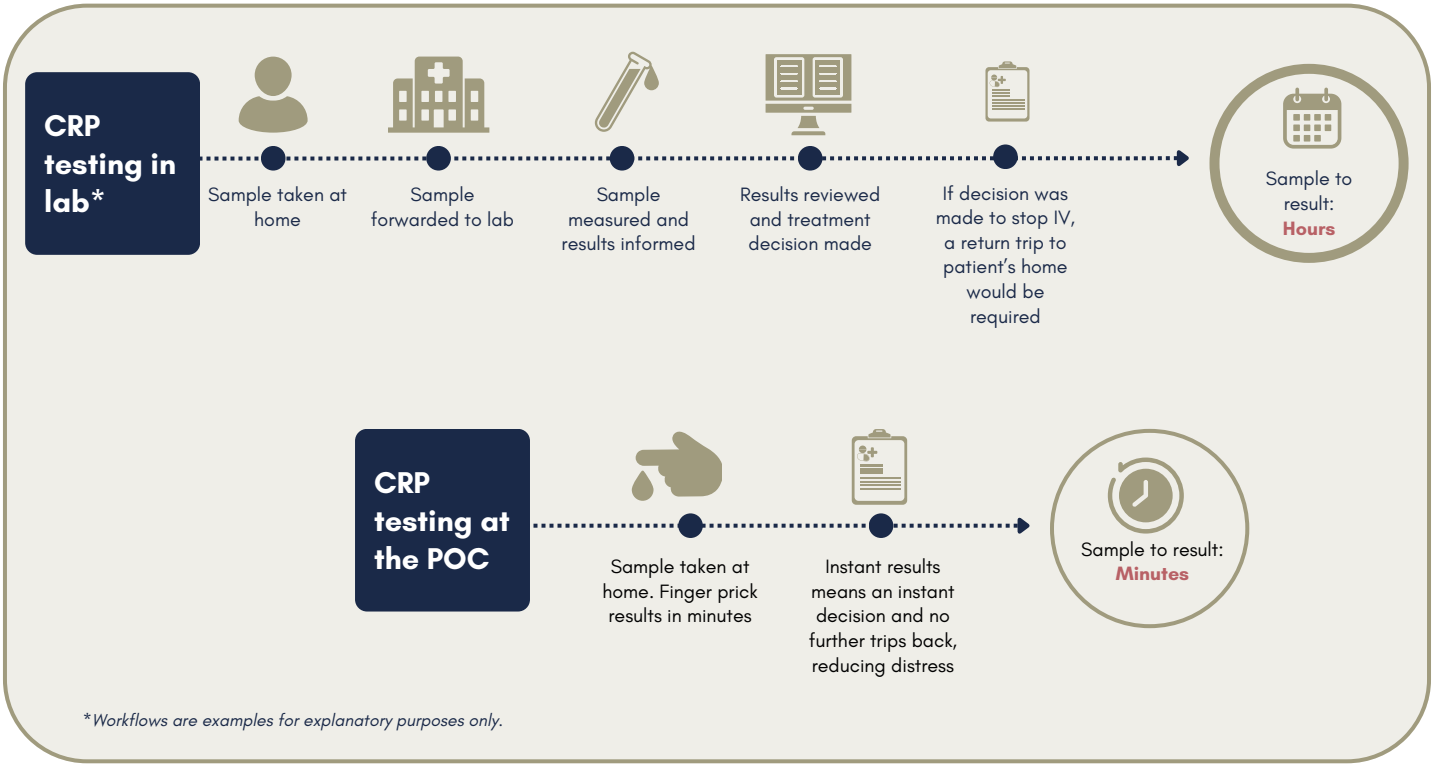
Their evaluation involved the following:

1. **Precision study**: Three levels of QuikRead go quality controls were ran with 6 replicates over 5 days.
2. **Bias assessment:** 39 patient samples were run on the QuikRead go as well as their Beckman Coulter laboratory analyser. These samples covered a low (0-10mg/L), medium (10-80mg/L), and high (80-200mg/L) CRP value range (as defined by the laboratory analyser method).

## Importance of haematocrit correction

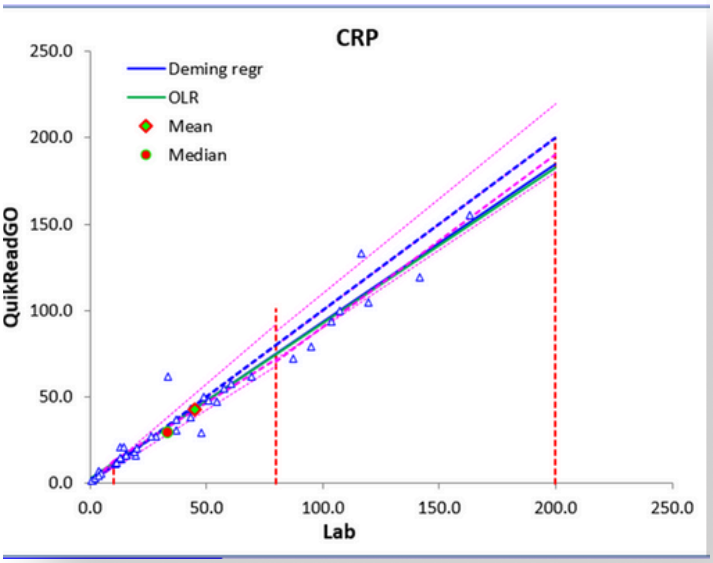
In paediatric care, accurate C-reactive protein (CRP) measurement is critical, yet often compromised by variations in haematocrit (HCT) levels. Infants and toddlers naturally exhibit a wide HCT range —from 29% to 68%—far from the adult average of 40% typically used to calibrate CRP point-of-care tests.

Without HCT correction, CRP results can be significantly skewed, potentially leading to misdiagnosis. The QuikRead go system, with its automated HCT correction and industry-leading range of 15-75%, ensures reliable CRP readings across all ages, especially for children under two years. This makes it a vital tool in paediatric diagnostics.



## Results

They found the QuikRead go had acceptable repeatability in the precision study (<5% CV variation) and performance was comparable to the laboratory analyser method.




*QuikRead go easy CRP performance compared to laboratory analyser method (bias assessment)*


## Key benefits

Following implementation of the QuikRead go, the children's virtual ward team were able to get a CRP result in **just two minutes**, enabling them to **treat the patient immediately**, rather than waiting for the laboratory result and visiting the patient a second time. The other key issue the team had with laboratory analysis was the risk of sample haemolysing , which was also frustrating to the child and parents as it required another visit from the clinical team and another delay in treatment decision.

The **small sample size** of the QuikRead go is also much **less invasive** and distressing for young children. Ultimately, the QuikRead go not only provided **certainty of clinical condition** and treatment required for the clinician, but most importantly was better for the patient, providing less distress.

Ultimately, the QuikRead go not only supported quicker and more confident clinical decision-making, but also improved the overall patient experience by reducing discomfort and avoiding repeated interventions.

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