

## Impact Brief

Create a Ripple

### A Network Model for Rapid Infectious Disease Testing

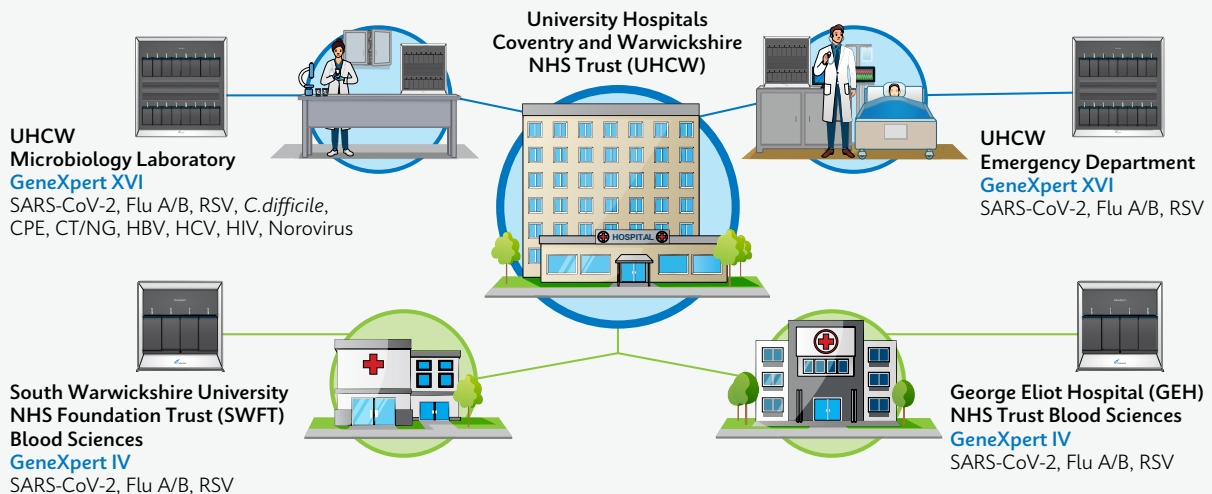
Coventry and Warwickshire Pathology Services (CWPS) model for rapid testing, nearer to the patient, utilised GeneXpert® systems for respiratory and CPE (Carbapenemase-producing Enterobacterales) testing to address operational challenges.

#### Coventry and Warwickshire Pathology Services (CWPS)\*

**1**  
Standardised, decentralised testing across CWPS

**2**  
Actionable PCR results available at each site

**3**  
Transformed patient flow and bed management



CPE – Carbapenemase-producing Enterobacterales, CT/NG – *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG), HBV – Hepatitis B Virus, HCV – Hepatitis C Virus, HIV – Human Immunodeficiency Virus

### A Revolutionised Respiratory Testing Model

#### 2020 Lab Model Centralised PCR Testing

- Transport of samples to UHCW resulted in extended turnaround
- Patients tested on admission increasing the risk of transmission

#### 2021 Proof of Concept Phase Network PCR Testing (Non-Genexpert)

- 4-hour turnaround
- Patients tested prior to admission but 9% error rate

#### 2022 GeneXpert Implementation Optimised Network PCR Testing

- 2-hour turnaround
- Optimised patient pathway 0% error rate and reduced transmission risk

### Summary

- Infectious disease testing was historically centralised at the University Hospital Coventry resulting in extended transport time, having a negative impact on patient flow.
- GeneXpert systems were subsequently implemented across sites to enable a rapid and consistent turnaround of respiratory results pre-admission with Xpert® **Xpress** CoV-2/Flu/RSV **plus**, improve patient flow and help to ease operational pressures.
- The impact of GeneXpert system highlighted the need for a rapid molecular CPE screening solution; the Xpert® Carba-R test was implemented as a result.

## Situation/Challenge



- Patient flow was not optimised across CWPS and turnaround times were high.
- Proof of concept of near patient respiratory PCR testing was performed using a test that proved unreliable and required confirmatory testing for positive results, causing delays in treatment, impeded patient flow and caused significant testing backlogs.
- Increased pressure on beds during the pandemic highlighted the need for rapid CPE screening; patients being transferred in from another hospital required isolating until they had a negative CPE result causing operational pressures.

## Vision

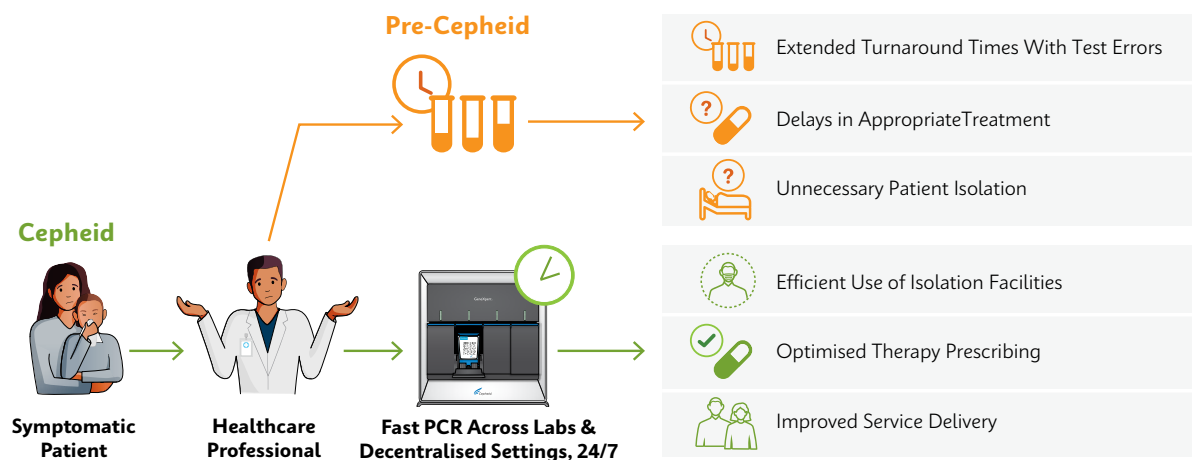


- A reliable, accurate and rapid method of testing for SARS-CoV-2, Flu A/B, RSV at all three sites within the network from a trusted supplier.
- A rapid molecular CPE screening test to aid bed management and further improve patient flow.

## Implementation



- CWPS placed a 16-module GeneXpert system for COVID-19 testing and installed another in a newly established hot lab at UHCW, as well as 4-module instruments at the other two sites.
- Patients were tested with Xpert® SARS-CoV-2 or Xpert® **Xpress** SARS-CoV-2/Flu/RSV **plus** before admission.
- The decentralisation of standardised testing with GeneXpert systems streamlined the transfer of patients between all three trusts, and the test run time of just 36 minutes<sup>#</sup> for SARS-CoV-2, Flu A/B, RSV allowed for a consistent turnaround time of below 2 hours.
- Implementation of CPE screening with Xpert Carba-R, using the negative result increased the availability of side rooms and maintain the flow of patient pathways.



*The Cepheid implementation was successful in reducing turnaround times and reducing the number of patients who needed re-swabbing. This has resulted in fewer patients leaving ED without an actionable result, allowing more appropriate bed placement, and contributing to flow through ED and into the hospital itself.”*

**Lisa Berry, Consultant Virologist**

\* CWPS covers three NHS trusts; University Hospitals Coventry and Warwickshire NHS Trust, South Warwickshire University NHS Foundation Trust, and George Eliot Hospital NHS Trust.

<sup>#</sup> For Xpert **Xpress** SARS-CoV-2/Flu/RSV the full run time is 36 mins, early assay termination (EAT) for positive results when running SARS-CoV-2 only is 25 mins.

Data has been identified and provided by customer.

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