SUPPORTED BY
NIHR | National Institute for Health Research

UNIVERSITY OF Southampton

POINT OF CARE TESTING USING FEBRIDX ® TO IMPROVE ANTIBIOTIC USE FOR RESPIRATORY TRACT INFECTIONS IN PRIMARY CARE:

A MIXED METHODS FEASIBILITY STUDY PROTOCOL (PREFIX)

Christopher Wilcox [1], Nour Odeh [1], Ingrid Muller [1], Jill Rutter [1], Paul Little [1], Taeko Becque [1], Nazrul Islam [1], Tristan Clark [2], Nick Francis [1]

1: Primary Care Research Centre, University of Southampton

2: School of Clinical and Experimental Sciences, University of Southampton

POINT OF CARE TESTING

- There is a drive to safely reducing unnecessary antibiotic prescriptions for lower respiratory tract infections (LRTIs) in primary care
- Differentiating viral vs bacterial LRTIs can be challenging
- A promising area is ‘point-of-care’ testing (POCT) using rapid diagnostic tests
- Current devices mostly limited to single biomarkers (e.g. CRP) or specific pathogens (e.g. influenza) and require large desktop analyzers

FebriDx®

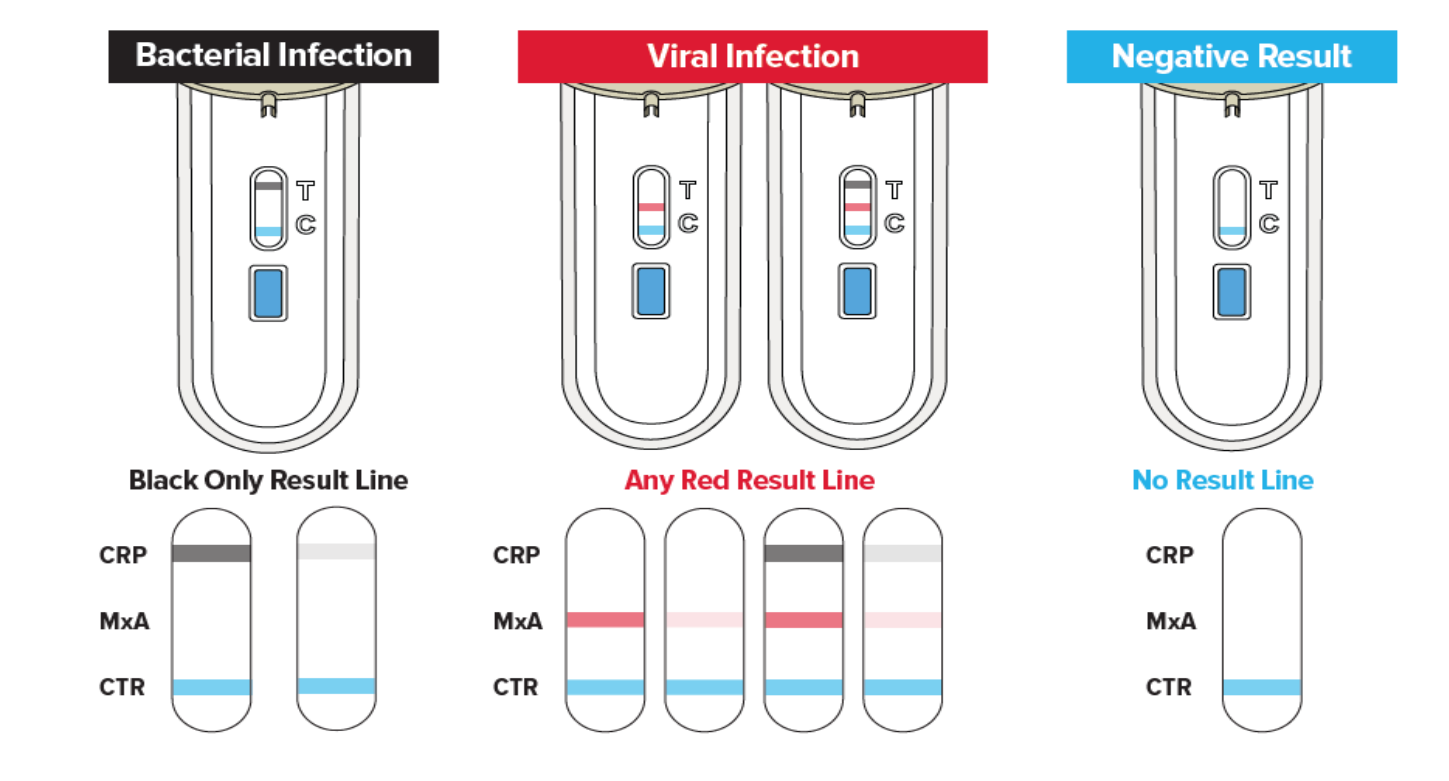
- FebriDx ® is a single-use, dual-marker, lateral flow test that tests for viral and bacterial host response using a fingerpick of blood and gives a result in 10 minutes

- It identifies immune responses associated with both bacterial infection (C-Reactive Protein - CRP) and viral infection (Myxovirus resitance protein A - MxA)

- Costs around £12.75 per test

LUMOS DIAGNOSTICS

FebriDx®


Bacterial Infection
T
C
Black Only Result Line
CRP
MxA
CTR
Viral Infection
T
C
T
C
Any Red Result Line
CRP
MxA
CTR
Negative Result
T
C
No Result Line
CRP
MxA
CTR

STUDIES OF FebriDx®

- Nearly all studies based in secondary care
- For bacterial detection, agreement between FebriDx ® and gold-standard PCR was **91.7%** (sensitivity 80%, specificity 93%) and for viral detection agreement was **84%** (sensitivity 87%, specificity 83%).
- Has been rolled out in some centres internationally (including Southampton General Hospital ED)
- To-date only one small study in primary care showing good ease-of-use and cost-effectiveness

Self W, et al. 2017
Shapiro NI et al 2018
Sambursky R et al 2015
Clark TW et al 2020

AIMS OF OUR FEASIBILITY STUDY

1) Explore the potential clinical utility and facilitators/barriers to using FebriDx ® to safely reduce the use of antibiotics for LRTI in primary care.

2) Explore the feasibility of conducting a future trial assessing the clinical impact, safety and cost-effectiveness of FebriDx ® to guide antibiotic use for LRTIs in UK primary care

STUDY DESIGN

- Mixed-methods, multi-centre, feasibility study of up to 300 patients at GP practices in South England

STAGE ONE (quantitative data collection)

- **P**: Patients aged >1year, with symptoms of a LRTI (<28 days), deemed likely to be prescribed antibiotics (immediate or delayed)
- **I**: FebriDx
- **C:** N/A
- **O**: Outcomes include FebriDx results and success rate, time-to-result, antibiotic use, and subsequent re-consultation/antibiotic use and complications

STAGE TWO (qualitative semi-structured interviews)

- 10-20 patients and 10-20 staff

INITIAL RESULTS FROM FIRST 38 PATIENTS

FebriDx results

- 60% were negative (i.e. no detection of CRP or MxA)
- 10% both CRP and MxA positive
- 25% positive CRP alone
- 5% positive MxA alone

- Approximate reduction in antibiotic use of around 50% (not including any re-consultation data)

- Clinicians felt more confident that:
  - Antibiotics were <u>not</u> necessary in 50% of cases
  - Antibiotics <u>were</u> necessary in 42%
  - No difference in 8%

INITIAL RESULTS – QUALITATIVE

Three interviews with patients

- Overall positive about the test – found it painless and happy to wait for results
- One patient (had a negative test result) felt the results weren't well explained and left feeling confused and unsatisfied

I think it's definitely a way forward. I come from the business world and I can see speed and efficiency and time saving and cost saving, so I think it's fantastic. *Patient 001-004*

Early feedback from GP practice staff

- Enthusiastic about the test
- There is definitely a learning curve
- Some confusion about the interpretation of a negative result