



# Blinded Prospective Clinical Validation of an ATR-FTIR Spectroscopy-Based Technique for Rapid Microorganism Identification

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## INTRODUCTION

### MAAP-IR

- Artificial intelligence coupled with attenuated total reflectance Fourier transform infrared spectroscopy
- Clinically validated to identify 36 clinically relevant microorganisms
- UKCA marked for clinical support

### Objective

Evaluate performance and concordance of MAAP-IR with standard clinical identification techniques

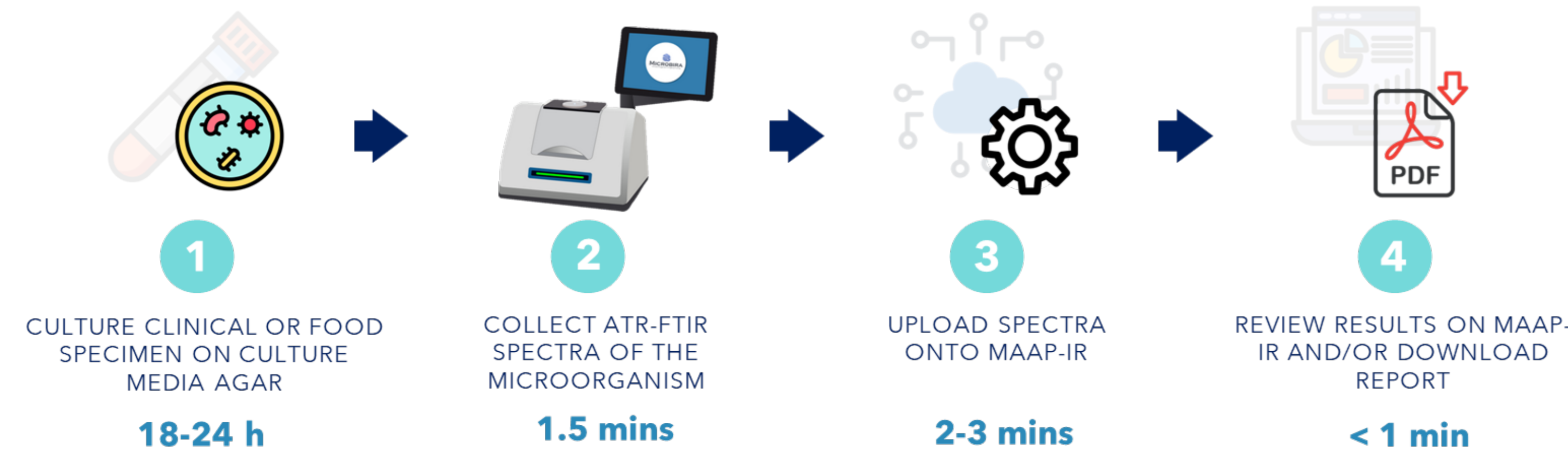
## MATERIAL & METHODS

**Study design:** Prospective, blinded, single-site validation over 6 months

**Site:** The Newcastle upon Tyne Hospitals NHS Foundation Trust

**Sample:** 398 samples collected in routine representing typical species distribution

**Clinical standard:** MALDI-TOF MS



## CONCLUSION

### MAAP-IR offers key benefits:

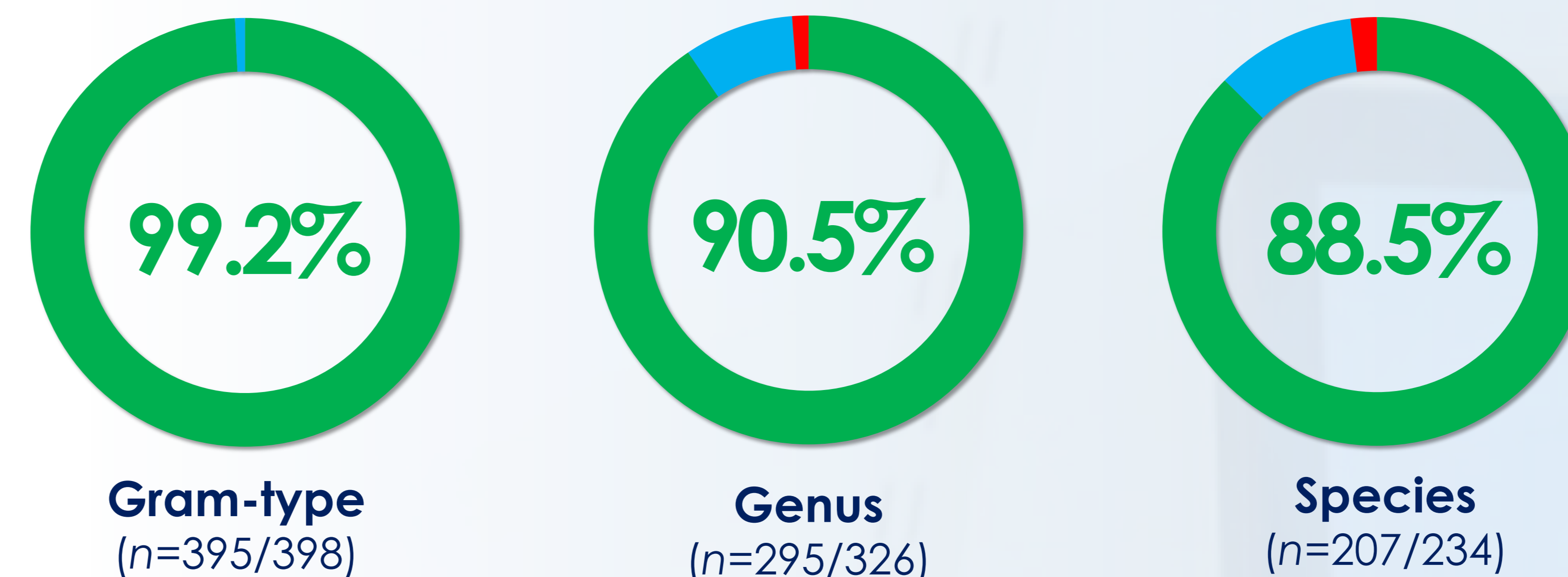
- Reagent-free and cost-effective
- Rapid turnaround (<5 min)
- Minimal sample prep; easily fits into existing workflows
- High diagnostic performance relative to standard techniques

Strong potential for routine clinical integration in both centralized and decentralized labs.



## CLINICAL VALIDATION RESULTS\*\*

### MAAP-IR IDENTIFICATION RESULTS: REPRESENTED SPECIES



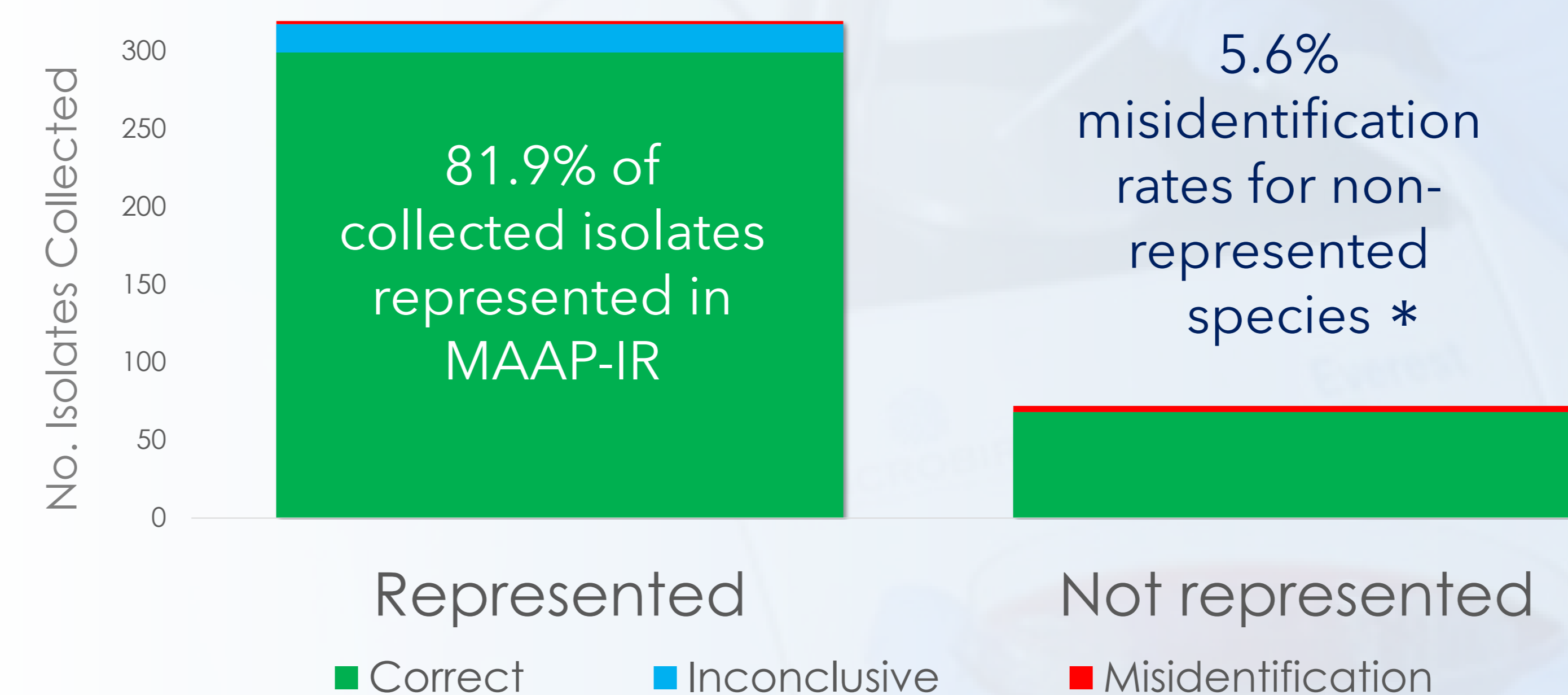
Gram-type (n=395/398)

Genus (n=295/326)

Species (n=207/234)

■ Correct identification  
■ Inconclusive: 0.75% (Gram), 8.3% (genus), 10.7% (species)  
■ Misidentification: 1.2% (genus), 0.9% (species)

### MAAP-IR SPECIES REPRESENTATION DISTRIBUTION



**\*98.6% correct Gram-type identification for all species not represented in MAAP-IR**

### Microorganisms included:

- *Escherichia coli*
- *Klebsiella* species
- *Pseudomonas aeruginosa*
- *Shigella sonnei*
- *Staphylococcus aureus*
- *Enterococcus* species
- *Streptococcus pyogenes*
- *Candida albicans*
- *Candida auris*
- ...

Report MIC00209 generated by MAAP-IR on Mar 26, 2025

Sample Identifier	Genus	Species	Confidence level
DM002	Shigella	sonnei	High
DM007	Candida	albicans	High
DM012	Streptococcus	pyogenes	High
DM014	Klebsiella	species	High
DM020	Staphylococcus	epidermidis	High
DM028	Candida	parapsilosis	High
DM027	Gram-negative	bacteria	Moderate
DM033	Escherichia	coli	Moderate
DM039	Staphylococcus	epidermidis	High
DM043	Gram-positive	bacteria	High
DM047	Inconclusive	Inconclusive	Inconclusive
DM055	Candida	glabrata	High
DM056	Escherichia	coli	High
DM057	Enterococcus	faecalis	Moderate
DM058	Candida	glabrata	High
DM073	Pseudomonas	aeruginosa	High
DM074	Streptococcus	pyogenes	High
DM080	Pseudomonas	aeruginosa	High
DM081	Klebsiella	species	Moderate
DM083	Candida	albicans	High
DM085	Staphylococcus	aureus	High
DM089	Staphylococcus	hemolyticus	High
DM098	Streptococcus	agalactiae	High

Confidence color: High (green), Moderate (yellow), Low (orange), Inconclusive (blue)

**IN VITRO DIAGNOSTIC INTENDED FOR CLINICAL SUPPORT**

MAAP-IR R1 3.0.1.23 | Microbira In Vitro Diagnostic

Note: Identification confidence ranges between 0-100. Ranges per confidence output (high, medium, low) are dependent on the prediction. Please refer to [www.microbira.com](http://www.microbira.com) for detailed information. Please refer to the instructions for use provided with MAAP-IR for usage instructions.

This report has been generated by MAAP-IR R1 3.0.1.23, a certified in vitro diagnostic (IVD) medical device manufactured by Microbira Ltd and UKCA marked to the UK Medical Devices Regulations 2002 (implementing the EU Medical Devices Directive 90/269/EEC).

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In collaboration with:



The Newcastle upon Tyne Hospitals NHS Foundation Trust

\*\*Results are based on those microorganism that were clinically validated for MAAP-IR