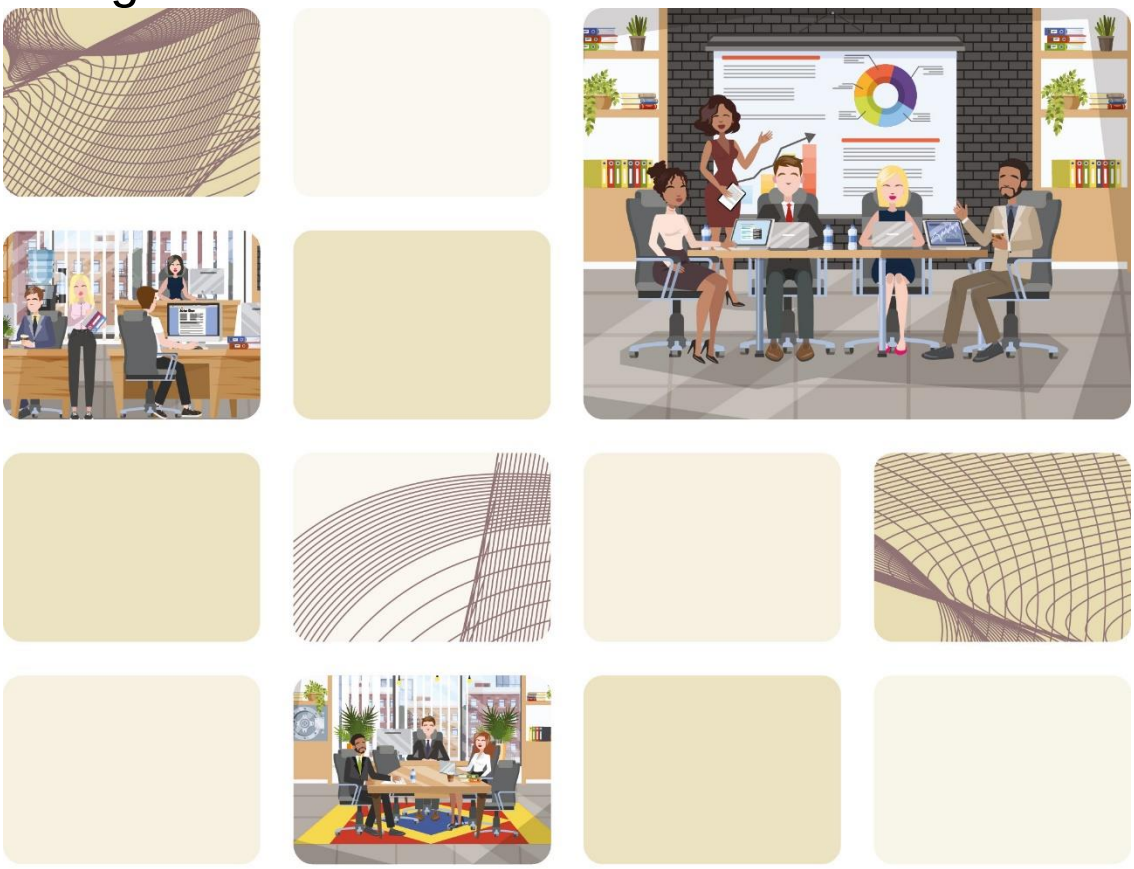
UK Health Security Agency

UK Standards for Microbiology Investigations

Review of users' comments received by Working group for microbiology standards in clinical bacteriology

ID 17 Identification of Pseudomonas species and other non-glucose fermenters



This publication was created by UK Health Security Agency (UKHSA) in partnership with the partner organisations.

Recommendations are listed as ACCEPT/ PARTIAL ACCEPT/DEFER/ NONE or PENDING

Consultation: 07/05/2024 – 24/05/2024
Version of document consulted on: ID 17dj+

3 Scope of document

Comment number: 1

Date received: 24/05/2024
Laboratory or organisation name: Healthcare Infection Society

The scope should give some indication of whether this is aimed at pathology labs dealing with clinical specimens and isolates or whether this also applies to environmental isolates (air, water, surfaces). Environmental monitoring of healthcare waters is a mandatory requirement in the UK and Pseudomonas aeruginosa is the main target organism of interest for patient safety as stipulated in HTM 04-01. Considering only the clinical specimen pathway, outbreak surveillance screening is missed.

Reading the document, it is clear this is primarily aimed at clinical specimens but route cause analysis and outbreak surveillance (environmental) involves different sampling and testing methodology to isolate similar organisms in the clinical pathway. There becomes a risk of not having confidence in the results for outbreak screening.

Recommended action

1. Accept: A sentence has been added to the scope to clarify that the document does not include environmental samples.

4.1 Taxonomy and Characteristics

Comment number: 2

Date received: 07/05/2024
Laboratory or organisation name: UKHSA in Collaboration with North Bristol NHS Trust

1. Burkholderia species - the SMI currently states that:

   ‘The type species is Burkholderia cepacia (1). The B. cepacia complex (Bcc) consists of 22 closely related species most of which are opportunistic pathogens (11). The species within the B. cepacia complex that can cause infections in CF patients are Burkholderia multivorans and Burkholderia cenocepacia, (12,13).’

Most of the species within Cepacia complex are actually associated with CF infection - please see uploaded document for further information.

2. There are two other organisms that I would like to see included: Inquilinus limosus and Sphingomonas paucimobilis.

   Inquilinus is increasingly being found in CF cultures but can take up to 5 days to grow. It can also be very difficult to identify, especially if subcultured (personal experience) and can be mis-identified as Sphingomonas paucimobilis (personal experience).

   Please see uploaded document for link to relevant paper.

Recommended action

1. Accept: This has been updated in the document.
2. Accept: These organisms have been included

Comment number: 3

Date received: 24/05/2024
Laboratory or organisation name: Healthcare Infection Society

The list of less common Gram negative bacteria should include both Cupriavidus species and Chryseomonas species. Both were implicated in the recent Queen Elizabeth University Hospital (QEUH) and Royal Hospital for Children (RHC) outbreaks, and these two uncommon bacteria were a cause in some cases.

The proposal for the New Hospital Programme will bring new challenges for better healthcare design and water safety. New organisms such as Cupriavidus species and Chryseomonas species should be added as new emerging pathogens of interest.

Recommended action

1. Accept: These organisms have been included

5 Technical information and limitations

Comment number: 4

Date received: 07/05/2024
Laboratory or organisation name: UKHSA in Collaboration with North Bristol NHS Trust

The UK SMI doesn't mention that some isolates of Pseudomonas aeruginosa from CF patients produce large quantities of alginate, which can significantly interfere with

identification carried out by MALDI-TOF MS - treating the MALDI spot with formic acid before adding the matrix may help.

Recommended action

1. Accept: The suggestion of a formic acid has been added to the technical information and UK SMI TP 40 has been cross referenced for the procedure.

Comment number: 5

Date received: 24/05/2024
Laboratory or organisation name: Healthcare Infection Society

MALDI-TOF-MS libraries are biased for clinical isolates however, not always suited to non-clinical or environmental isolates. This should be added as a limitation of the system adopted in many pathology laboratories.

Recommended action

1. Accept: This has been added as a limitation.

8 Identification

Comment number: 6

Date received: 24/05/2024
Laboratory or organisation name: Healthcare Infection Society

1. This should indicate whether this covers both culture of clinical and environmental specimens and that the pathways employed may differ.
2. Table 2 mentions short wave UV for fluorescence identification. Please note short-wave UV exposure can render some strains non-viable for subculture and may compromise stored samples in outbreak situations. Suggest that a subset is used. Alternatively, long-wave UV is less damaging to strains and may be useful.

Recommended action

1. Accept: A statement has been added to clarify but in the scope.
2. None: UV light has been removed from the final document

8.1.1 Bacterial growth medium

Comment number: 7

Date received: 24/05/2024

Laboratory or organisation name: Healthcare Infection Society

1. The primary isolation media for Pseudomonas aeruginosa in environmental screening is CN selective agar. It is not used as secondary media. This distinction should be made to avoid confusion of environmental screening pathways.
2. Water testing labs handling healthcare waters will be using CN selective agar and may not recover other species. CN is harsh and suppress growth at low counts. Consequently, the sensitivity of using CN selective agars as primary media for isolation may not be the same as using non-selective agars for primary isolation. This distinction should be considered especially in outbreak screening whether the two methods will be used.

Recommended action

1. None: The document does not include environmental samples. This has been clarified in the scope.
2. None: Water testing procedures are outside the scope of UK SMIs.

8.3 MALDI-TOF MS

Comment number: 8

Date received: 24/05/2024
Laboratory or organisation name: Healthcare Infection Society

1. As before MALDI-TOF MS libraries are biased for clinical isolates however, not always suited to non-clinical or environmental isolates. There is a risk of false-negative reporting of results occurring in outbreak screening of clinical and non-clinical samples, especially if the environmental isolates are present but not compatible with the MALDI library.
2. Water test labs will follow a different procedure and at present MALDI is not a mandatory requirement.

Recommended action

1. Accept: This has been added to the technical limitations.
2. None: Water testing laboratories are outside the scope of this document.

9 Storage

Comment number: 9

Date received: 24/05/2024
Laboratory or organisation name: Healthcare Infection Society

1. Storage at -80 C. Should this be with a cryopreservative or as the neat sample? Please state?
2. Storage at -80 C may be subject to environmental energy consumption scrutiny and manufacturers are promoting -40 C freezers instead. This may affect labs operating on “Greener practices” and unable to comply with this temperature requirement.

Recommended action

1. Accept: ‘Or cryopreserved’ has been added.
2. Accept: ‘Or cryopreserved’ has been added to cover laboratories that do not use -80 C freezers.

Algorithms

Comment number: 10

Date received: 24/05/2024
Laboratory or organisation name: Healthcare Infection Society

1. Algorithm 1. This depicts clinical isolates, but excludes P. aeruginosa and relevant isolates from environmental waters
2. Algorithm 2 – this pathway does not cover bacterial isolates recovered from selective agars in environmental samples

Recommended action

1. None: Samples from environmental waters are outside the scope of this document
2. None: Samples from environmental waters are outside the scope of this document

Financial barriers

Respondents were asked: ‘Please state any potential organisational or financial barriers in applying the recommendations'.

Comment number: 11

Date received: 07/05/2024
Laboratory or organisation name: UKHSA in Collaboration with North Bristol NHS Trust

None

Health benefits

Respondents were asked: ‘Please state any health benefits, side effects or risks that might affect the implementation of this UK SMI'.

Comment number: 14

Date received: 07/05/2024
Laboratory or organisation name: UKHSA in Collaboration with North Bristol NHS Trust

None

Conflicts of Interest

Respondents were asked: ‘Please state any conflict of interest, if known.’

Comment number: 17

Date received: 07/05/2024
Laboratory or organisation name: UKHSA in Collaboration with North Bristol NHS Trust

None

Interested parties

Respondents were asked: ‘Please state any interested parties for the development of this document'

Comment number: 20

Date received: 07/05/2024
Laboratory or organisation name: UKHSA in Collaboration with North Bristol NHS Trust

None

Respondents indicating they were happy with the contents of the document

Overall number of comments: 2			
Date received	08/05/2024	**Lab name**	Shrewsbury and Telford Hospital NHS Trust
	16/05/2024	**Commercial Company**	Battelle UK Ltd.
Health benefits None submitted			