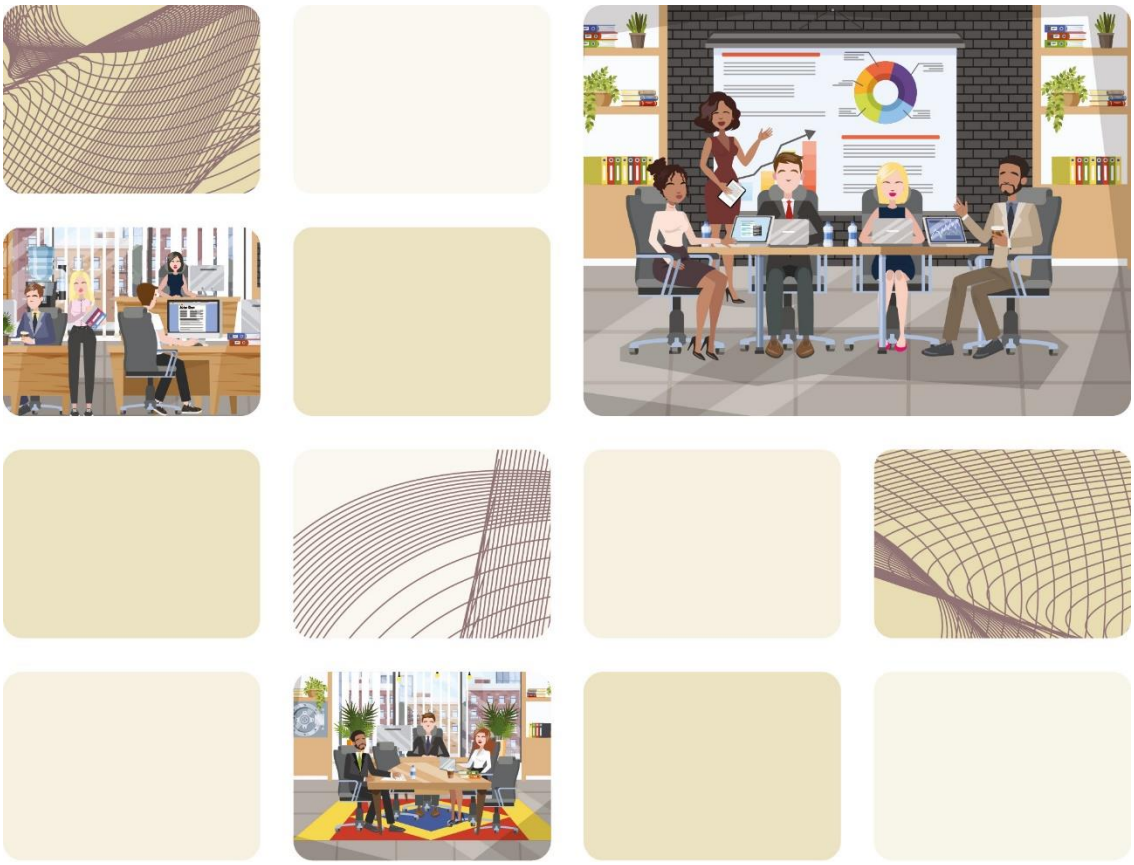
UK Health Security Agency

UK Standards for Microbiology Investigations

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

ID 1 - Introduction to the identification of medically important bacteria and fungi from culture



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

Issued by the Standards Unit, UK Standards for Microbiology Investigations, UKHSA

Consultation: 31/03/2025 – 14/04/2025
Version of document consulted on: ID 1 dv+

Comments on Section 3 - Scope of Document

Infection Science Severn Pathology (Collaboration between NBT and UKHSA)

Comment number: 1
Date received: 09/04/2025

Title of document - is in small font on pages 2 - 35. Is this needed or would a larger font, possibly in Bold, on pages 2 - 6 only work better? It looks really odd at the moment and the title could be miss-read as part of a paragraph from the end of one page and the beginning of the following page.

Recommended Action

1. Accept. The title of the document had been made into a smaller font for clarity.

Comments on Section 7 - Target Organisms

UKHSA Public Health Laboratory, Birmingham

Comment number: 2
Date received: 07/04/2025

This section states "All medically important bacteria and fungi." but this contradicts section 3 which states "This UK Standards for Microbiology Investigations (UK SMI) document describes identification of the common bacteria and fungi which may be encountered in clinical specimens following isolation on agar plates.". So please can you clarify if this document is about ALL medically important bacteria and fungi, or only those that are or can be grown on agar plates?

Recommended Action

1. Accept. The scope has been edited to clarify this.

Comments on Section 8 - Identification

Gian Sagar Medical college & Hospital

Comment number: 3
Date received: 01/04/2025

1. In subsection 8.4.1- Coagulase test (for differentiation between CONS and S. aureus), Modified ZN test (for Nocardia) and Albert stain (for C. diphtheriae) can be appended in the list if deem suitable.

2. In subsection 8.4.2- India Ink test (for Cryptococcus species) can be added if deem suitable.

Recommended Action

1. Accept. Links to these tests have been added.
2. Accept. Links to staining UK SMI has been added.

UKHSA Public Health Laboratory, Birmingham

Comment number: 4

Date received: 07/04/2025

1. The statement "Isolates are first cultured and examined. Individual cultures can be identified using appropriate staining techniques, if required." doesn't seem quite right. Identification is usually starts with colony morphology, i.e. spotting what might be of interest, and then looking at microscopic morphology using staining and/or MALDI-TOF other methods. Colony morphology recognition in clinical sample type context is still quite critical as pointed out in section 8.1.

2. Section 8.1.1 - "chromogenic media is recommended" should be "chromogenic media are recommended".

3. In section 8.2.2 says "Cellotape mount - placing a piece of an adhesive tape (good quality, optically clear) fungus-side down onto a drop of lactophenol cotton blue on a slide and applying an additional drop of lactophenol on top then a coverslip for examination (38)." This does not mention how to get any fungus onto the cellotape. Please add that bit in.

4. Section 8.3 should probably say "It is a rapid, mostly accurate and mostly highly reliable identification tool for the characterisation of a diverse collection of pathogens." because it is not always accurate or reliable. There are many known caveats and limitations with the available databases.

5. Section 8.4.2 says "Chromogenic agar should be incubated for a minimum of 24 hours at 36°C," should this perhaps be modified with "or according to manufacturer's stated use specifications"?

6. Section 8.5.1 says "The use of commercially available identification kits alongside other biochemical tests may be used to give accurate identification of bacteria and yeasts (69)." and then immediately notes limitations that mean they may not give totally accurate results. Please can this be resolved.

Recommended Action

1. Accept. This statement has been amended for clarity.
2. Accept. This has been changed.
3. Accept. A sentence about adding the fungus to the cellotape has been added.
4. Accept. The sentence has been modified as suggested.
5. Accept. This has been added.
6. Accept. The section has been re-structured.

Infection Science Severn Pathology (Collaboration between NBT and UKHSA)

Comment number: 5
Date received: 09/04/2025

1. Section 8.2.1 (P13) Bacteria - Description of appearance is misleading - can be in chains or grape-like appearance - but only within liquid/broth culture. NOT from a film made from a solid culture.

2. Section 8.2.1 (P14) Bacteria - I think it is worth including a comment that some organisms are often Gram-variable e.g. Bacillus spp., Clostridium spp.

3. Section 8.4.2 (P17) Candida Chromogenic agar - *Candida auris* has changed its name to *Candidozyma auris*.

Recommended Action

1. Accept. This has been changed.
2. Accept. This has been added.
3. Accept. Candida auris has been changed to Candidozyma auris throughout.

Italian Group

Comment number: 6
Date received: 11/04/2025

Section 8.2.2 - Spores should be substituted by Conidia

Recommended Action

1. Accept. This has been changed.

Institute of Biomedical Science

Comment number: 7
Date received: 24/04/2025

1. Page 12 - Pathogenic yeasts are not categorised as dimorphic. Dimorphic is a term when used to describe some mould species eg Histoplasma spp.

2. Page 12 - One wouldn't advocate identification of yeast by Chromagar only. Chromagar useful as an indicator of particular yeast species and the presence of mixtures in a culture

3. Page 12 - "some species of Histoplasma capsulatum" is incorrect it should be some species of Histoplasma

4. Page 12 - Although correct, it would be impracticable for most routine labs to culture at temperature >37oC. Culturing at 30oC and 37oC should be performed routinely.
5. Page 12 - No mention of Coccidiodes sp, this is an important dimorphic HG3 fungus which is not a yeast at 37oC, but forms spherules in tissue etc at this temperature. Maybe not refer to individual species of HG3 mould, as there are

more than one species in each genus so refer to them as Blastomyces sp etc.

6. Page 13 - “especially filamentous fungi” not needed.

7. Page 14 - “as gram positive yeast-like cells” May be put in just “usually as gram positive”

8. Page 14 - Should be “clinically important yeasts”

9. Page 14 - Add; Blastospore arrangement

10. Page 14 - Spelling; Should be “conidia”. Spores are conidia so no need to state both may be use “sporing structures and conidia.” instead.

11. Page 16 - Should use “yeast species” instead of candida. Should use “other yeast species” instead of “non-albicans species”. Shouldn’t use “Candida species level identification.” Should be “identification of yeast to species level”

12. Page 16 - After texture add, “but Chromogenic media should not be relied on, on its own for yeast identification.

13. Page 17 - Use “non albicans yeast” instead of candida.

14. Page 17 - Germ tubes - Probably not widely used. After “strain variation” add “or bacterial contamination”

15. Page 17 - Germ tubes - Candida tropicalis produce true hyphae, but in GT test a pinching of the hyphae next to the blastospore occurs.

Recommended Action

1. Accept. This has been removed.
2. Accept. This has been clarified throughout the document.
3. Accept. This has been changed.
4. None. This is stated later in the paragraph.
5. Accept. Information regarding *Coccidiodes* species has been added and reference to individual mould species have been removed.
6. Accept. This has been removed.
7. Accept. This has been changed.
8. Accept. This has been changed.
9. Accept. Blastospore arrangement has been added.
10. Accept. ‘Sporing structures and conidia’ have been added.
11. Accept. These changes have been made.
12. Accept. This has been added.
13. Accept. This has been added.
14. Accept. Bacterial contamination added.
15. Accept. This has been modified accordingly.

Comments on Section 9 - Storage

General hospital of Vienna/KILM/Dept. of med. microbiology

Comment number: 8
Date received: 01/04/2025

For specific storage and transport conditions, please refer to individual UK SMI identification documents ...
-> Link may be wrong- I cannot find a document about "storage"

Recommended Action

1. Accept. The statement has been altered to clarify this.

Comments on the Algorithms

Chester and Wirral Microbiology Service

Comment number: 9
Date received: 08/04/2025

1. Algorithm 3:
   Suggest adding 'Clostridioides' beneath 'Clostridium'
   Suggest add additional actinomycetes such as Schaalia
   'Gordona' should be 'Gordonia'

2. Algorithm 6:
   Remove 'formerly known as Penicillium'
   Italicise *Cladophialophora bantiana#* and *Rhinocladiella mackenziei#*

3. Appendix
   Add *Candidozyma auris*

Recommended Action

1. Accept. All suggested changes have been made.
2. Accept. All suggested changes have been made.
3. Accept. *Candidozyma auris* added throughout document.

Infection Science Severn Pathology (Collaboration between NBT and UKHSA)

Comment number: 10
Date received: 09/04/2025

1. Algorithm 3 (P24) - Characteristics of Gram Positive Rods. Include *Clostridioides difficile*

2. Appendix: List of revised fungal taxa mentioned in this document. (P28) - Need to include *Candida auris* - now called *Candidozyma auris*.

Recommended Action

1. Accept. *Clostridioides difficile* has been added.
2. Accept. *Candidozyma auris* has been added throughout the document

Italian Group

Comment number: 11

Date received: 11/04/2025

Algorithm 1 - it might be helpful to clarify whether MALDI-TOF and staining and biochemical tests must always be performed or a laboratory can first perform staining and biochemical tests and if there is no identification, perform MALDI-TOF and if there is no identification, perform molecular tests or vice versa, perform MALDI-TOF first, then staining and biochemical tests and if there is no identification, perform molecular tests.
If so, Algorithm 1 should be modified
It could be useful to add under "no identification" after "staining and biochemical test", "MALDI-TOF if not already done".

Recommended Action

1. Accept. An optional arrow has been added between the staining and MALDI TOF MS to represent this.

IBMS

Comment number: 12

Date received: 24/04/2025

1. Page 22 - One wouldn’t promote identification of yeast using just chromogenic agar:
   Mould and yeast - Check MALDI TOF ID against expected microscopic morphology and see if the culture is mixed – DON’T RELY JUST ON THE MALDI ID
   Use short extraction method primarily – if no ID use full extraction: if still no ID go to molecular using relevant primers depending on whether the isolate is a yeast or mould. (Biochemical test not practical for yeast and mould).

2. Page 27 - Dimorphic: for Blastomyces, Paracoccidioides, Coccidioides “use sp” as there are more than one species of these fungi. Add “Emergomyces”
   Yeast: blastospores, pseudohyphae: “Yeast sp not *C.albicans*”
   Blastospores only: Yeast sp

3. Page 28 - Prev. name *Candida auris* + revised species *name Candidozyma auris*

Recommended Action

1. None. This is stated in previous sections of the document. This algorithm is only meant as a brief overview, detailed methodology can be found in other bacteriology or identification documents.
2. Accept. These changes have been made.
3. Accept. *Candida auris* has been changed to *Candidozyma auris* throughout.

General Comments

Gian Sagar Medical college & Hospital

Comment number: 13
Date received: 01/04/2025

Where the gram negative rods were classified based on oxidase test. I was having a feel to add Vibrio and Hemophilus in the list of positives. Then I realised if we can reframe the algorithms based on the growth on culture media and preliminary tests performed on the colonies, it will reflect more closer to what we practice routinely.

Recommended Action

1. None. The algorithms are for guidance only. Laboratories are able to expand on them based on their practice.

Infection Science Severn Pathology (Collaboration between NBT and UKHSA)

Comment number: 14
Date received: 09/04/2025

1. Whilst MALDI-TOF is a great tool for identification, there are still a significant number of organisms that it cannot safely distinguish between. I think this should be stated more prominently.

2. I also think it is important to state that all identification procedures carried out must be done as a confirmation of an presumptive identification, taking into account growth/appearance etc., parameters, not as a 'fishing' exercise. MALDI and other tech is great, but there is a serious temptation for people under pressure to rely on results without completing the basic common sense thought/decision processes first.

Recommended Action

1. Accept. This has been clearly stated in the MALDI-TOF MS and Technical limitations sections.
2. Accept. The MALDI-TOF MS section has been altered to reflect this.

Italian Group

Comment number: 15
Date received: 11/04/2025

Probably it would be more appropriate to write a SMI dedicated only to Fungi. In this SMI the description of Fungi is too synthesized. It would seem appropriate to consider that fungi (yeasts, molds, dimorphs) could benefit from different identification approaches. Only yeasts could be assimilated, in a specific SMI, to bacteria.

Recommended Action

1. None. A specific fungal identification UK SMI has been added to the workplan.

IBMS

Comment number: 16
Date received: 24/04/2025

The have also noted more generally whether ID of Fungi should be separated from Bacteria as it is difficult to generalise.

Recommended Action

1. None. A specific fungal identification UK SMI has been added to the workplan.

Respondents indicating they were happy with the contents of the document

Overall number of comments: 3			
Date received	01/04/2025	Lab name	MGM Medical College, Aurangabad
Date received	08/04/2025	Lab name	Aminu Kano Teaching Hospital, Kano
Date received	11/04/2025	Lab name	Keith Shuttleworth and Associates Ltd