Safety Information Message

Reference: SIM2209(U1) **Issued:** 25 October 2022 **Review Date:** 25 October 2023

UKHSA investigation into potential contamination of bioprosthetic heart valves with *Mycobacterium chelonae* – update (1)

Summary

This safety information message is issued as an update to SIM2209. It highlights the attached UK Health Security Agency (UKHSA) Briefing Note 2022/080 issued on 10 October 2022. Note that actions in Scotland differ from those in the Briefing Note (see below).

Action in Scotland

1. Clinicians are asked to consider the possibility of mycobacterial infection in patients presenting with signs or symptoms suggestive of infective endocarditis following cardiac surgery/implantation of **any bioprosthetic material** (particularly after multiple or "redo" surgeries), and to undertake appropriate investigations including mycobacterial blood cultures which should be processed locally or regionally as appropriate. At present there is insufficient evidence to recommend enhanced follow up of patients who have received BioIntegral products.

2. Following a local decision to explant bioprosthetic cardiac products (e.g. values/conduits) from patients presenting with signs and symptoms of infective endocarditis, such products should be examined for evidence of mycobacterial contamination with direct microscopy for Acid Fast Bacilli (AFB).
    - This recommendation applies regardless of the product manufacturer
    - Microscopy for Acid Fast Bacilli (AFB) should be performed regardless of additionally isolated pathogens, and not just in 'culture negative' cases (co-detection of pathogens was observed in patients with affected valves elsewhere).

    If the direct smear of the explanted bioprosthetic product is AFB positive, the following steps are requested to be undertaken at local laboratories or alternative service provider as per pre-existing arrangements:
    - perform mycobacterial culture of the homogenate as directed by local standard operating procedures (SOP)/ Standard microbiology investigation (SMI), ideally using automated liquid culture systems plus conventional solid media, at both 30°C and 37°C, extended to 12 weeks. (If not available locally then refer to a laboratory that provides this facility.)
    - If culture negative refer aliquot to Great Ormond Street Hospital Microbiology Molecular service, requesting 16S rRNA PCR for mycobacteria, including *M. chelonae*
    - In the event the direct microscopy of the bioprosthetic cardiac product is negative for AFB, teams are requested to revert to their local SOP/SMI in relation to routine culture processes for these specimens.

3. Mycobacterial isolates (or specimens where solid culture cannot be undertaken locally) (any mycobacteria species) from individuals known to have had prior bioprosthetic implants should be sent to the Scottish Mycobacteria Reference Laboratory (as per routine referral pathways) labelled 'bioprosthetic implant recipient'.

4. Clinicians, practitioners and microbiology staff are asked to notify ARHAI Scotland, as per Chapter 3 of the National Infection Prevention and Control (NIPCM), upon new identification of laboratory confirmed mycobacterial infection (any mycobacteria species), or where histology is strongly suggestive, in any individual who has previously received a bioprosthetic implant: National Infection Prevention and Control Manual: Home (scot.nhs.uk)

5. Clinicians should report any device-related adverse incidents, including explant due to early valve failure, to their local adverse event management system (usually called Datix or Ullyses) and to IRIC at https://www.nss.nhs.scot/health-facilities/incidents-and-alerts/report-an-incident/

Suggested onward distribution

Cardiology
Cardio-Thoracic Surgery
Infection Control Staff
Laboratories
Microbiology
Operating Departments
Risk Management
Supplies/Procurement

Enquiries

Enquiries and adverse incident reports should be addressed to:

Incident Reporting & Investigation Centre (IRIC)
NHS National Services Scotland
Tel: 0131 275 7575 Email: nss.iric@nhs.scot

Accessibility: Please contact us using the above details if you are blind or have a sight impairment and would like to request this alert in a more suitable format.

IRIC remit: general information about adverse incidents, safety alerts and IRIC's role can be found in CEL 43 (2009), *Safety of Health, Social Care, Estates and Facilities Equipment: NHS Board and Local Authority Responsibilities,* issued 30 October 2009.

Report an incident: Information on how to report an adverse incident

NHS National Services Scotland is the common name for the Common Services Agency for the Scottish Health Service https://www.nss.nhs.scot/ © Crown Copyright 2022

UK Health Security Agency

Serial number 2022/080 **Date 10/10/2022**

Event: UKHSA investigation into potential contamination of bioprosthetic heart valves with *Mycobacterium chelonae* -update and revised recommendations

Notified by: HCAI, Fungal, AMR, AMU & Sepsis Division and National Mycobacterial Reference Service

Authorised by: Colin Brown (DD HCAI, Fungal, AMR, AMU, & Sepsis Division), Katie Spence (Regional Deputy Director)

Contacts: **HCAIAMR.IOS@ukhsa.gov.uk**

NIERP Level: Routine

Incident Directors: James Elston and Russell Hope

Background and Interpretation

This is an update to the UKHSA Briefing Note 2022/058 issued on 21 July 2022 and contains revised requests/recommendations.

UKHSA continues to investigate potential contamination with *Mycobacterium chelonae* of certain bioprosthetic heart valves and conduits produced by BioIntegral Surgical, Inc.. BioIntegral Surgical has issued Field Safety Notices on 13 April 2022 and 14 July 2022 following European investigations which identified Mycobacterium chelonae contamination in a small number of new and explanted bioprosthetic heart valves.

The following bioprosthetic products remain voluntarily withheld within Europe and the UK, and currently not for routine use: (1) No-React® BioConduit (NRAC); (2) No-React® BioPulmonic Conduit (NRPC); (3) No-React® Injectable BioPulmonic (NRIP); (4) No-React® BioMitral (NRM); (5) No-React® BioAortic (NRA).

It remains unclear currently whether the presence of *M. chelonae,* (detected via direct microscopy and molecular methods) conveys any risk to patients, and to date viable *M. chelonae* has not been cultured from valve tissue or other patient samples after prolonged incubation. Investigation continues in Europe.

Use of devices under a voluntary manufacturer hold would be at the discretion of clinical teams and their associated organisations, having fully considered the risks and benefits on an individual patient basis. Responsibility for duty of candour discussions with patients lies with clinicians and the NHS though UKHSA will support by providing information based on emerging evidence. Duty of candour discussions apply only to prospective use of withheld products; there is no indication to justify retrospective or wider communications at this stage. At present there is insufficient evidence to recommend enhanced follow up of patients who have received BioIntegral Surgical products.

BioIntegral Surgical has voluntarily opted to cancel their certification for selling new devices across their full product range within Europe or UK, effective from the 15th of July. However, all products manufactured prior to this date can still be legally used in the UK, including supplies held by hospitals or distributors, although products which are currently on hold should not be routinely used.

UK Health Security Agency

The continuing UKHSA investigation will be overseen by the HCAI, Fungal, AMR, AMU & Sepsis Division and National Mycobacterial Reference Service under routine arrangements - the contact email address for this incident is now HCAIAMR.IOS@ukhsa.gov.uk

UKHSA requests the measures outlined below be implemented to further understand the incidence of *M chelonae*/non-tuberculous mycobacteria among patients implanted with bioprosthetic cardiac products from any device manufacturer, and to inform risk assessment for this incident. These measures include revised, simplified requests/recommendations on testing of explanted bioprosthetic products.

Implications and recommendations for UKHSA Regions

UKHSA Regions are requested to use their relevant networks to cascade this briefing note and highlight the requests/recommendations for the NHS and Private Providers below. Relevant target audience would include NHS and independent sector microbiology, infection prevention control, infective endocarditis, infectious disease, cardiothoracic, cardiology and radiology/echocardiography teams, as well as laboratories.

HPTs are asked to liaise with the incident team via HCAIAMR.IOS@ukhsa.gov.uk in relation to any potentially linked cases or situations and may be asked to assist investigation accordingly.

Implications and recommendations for the NHS and independent sector

The following requests/recommendations are relevant to NHS and independent sector microbiology, infection prevention control, infective endocarditis, infectious disease, cardiothoracic, cardiology, radiology/echocardiography and other clinical teams manging patients with bioprosthetic devices, as well as laboratories.

- ~~Clinicians are asked to continue to consider the possibility of mycobacterial infection in patients presenting with signs or symptoms suggestive of infective endocarditis following prior cardiac surgical implantation of bioprosthetic products such as heart valves (particularly after multiple 'redo' surgeries); and to undertake appropriate investigations including mycobacterial blood cultures (processed locally with positive samples sent to UKHSA reference laboratories).~~
- ~~Following a local decision to explant bioprosthetic cardiac products (e.g. values/conduits) from patients presenting with signs and symptoms of infective endocarditis, such products should be examined for evidence of mycobacterial contamination with direct microscopy for Acid Fast Bacilli (AFB).~~
    - ~~This recommendation applies regardless of the product manufacturer~~
    - ~~Microscopy for Acid Fast Bacilli (AFB) should be performed regardless of additionally isolated pathogens, and not just in 'culture negative' cases (co-detection of pathogens was observed in patients with affected valves elsewhere).~~
- ~~If the direct smear of the explanted bioprosthetic product is AFB positive, the following steps are requested to be undertaken at local laboratories/by the local team:~~
    - ~~notify the UKHSA investigation team of AFB positive samples via HCAIAMR.IOS@ukhsa.gov.uk~~
    - ~~perform mycobacterial culture of the homogenate as directed by local standard operating procedures (SOP)/ Standard microbiology investigation (SMI), ideally using automated liquid culture systems plus conventional solid media, at both 30ºC and 37ºC degrees, extended to 12 weeks~~
    - ~~save aliquots for potential subsequent molecular investigation (may be arranged in communication with UKHSA investigation team) and retain tissue sample for local histological examination as appropriate~~
- ~~In the event the direct microscopy of the bioprosthetic cardiac product is negative for AFB, teams are requested to revert to their local SOP/SMI in relation to routine culture processes for these specimens.~~
- ~~Submit mycobacterial isolates, clearly labelled 'bioprosthetic implant' to the relevant mycobacterial reference laboratory as per routine referral pathways~~

- ~~Clinicians should continue to report any device-related adverse incidents, including explant due to early valve failure to the MHRA~~ https://yellowcard.mhra.gov.uk/

Implications and recommendations for UKHSA sites and Services

UKHSA Sites and Services are requested to use their relevant networks to cascade this briefing note and the requests/recommendations above. Relevant target audience would include NHS and private sector microbiology, infection prevention control, infective endocarditis, infectious disease, cardiothoracic, cardiology and radiology/echocardiography teams.

Diagnostic laboratories (UKHSA, NHS Trusts, and independent sector) are asked to submit any mycobacterial isolates from individuals known to have had prior bioprosthetic cardiac implants to the relevant mycobacterial reference laboratory as per routine referral pathways labelled ‘bioprosthetic implant recipient’, until further notice.

Implications and recommendations for local authorities

Not applicable.

References / Sources of Information

- UK SMI: B 40 Investigation of specimens for Mycobacterium species (publishing.service.gov.uk)
- Communicable disease threats report, 12-18 June 2022, week 24 (europa.eu).