



UK Health
Security
Agency

Specialist Microbiology Network: Public Health Laboratory Yorkshire and the Humber

Public health microbiology services user handbook

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1 Role of UKHSA Specialist Microbiology Laboratories

Specialist Microbiology laboratories provide specialist and reference microbiology laboratory testing and expert advice. It offers a comprehensive range of clinical diagnostic and public health microbiology tests and services in support of the NHS, other public health colleagues, local authorities and allied healthcare providers.

UK Health Security Agency (UKHSA) has a network of 5 specialist microbiology laboratories across England. Each lead laboratory provides:

- microbiology support for the investigation, management and control of infection and outbreaks of communicable disease both during and out of normal working hours
- expert medical and scientific microbiological advice, including access to UKHSA experts locally and nationally as necessary
- a wide range of diagnostic, specialist and reference tests
- national standard methods and UKHSA testing algorithms
- clear guidance for users
- surge capacity to deal with large (up to 500 specimens per day) unanticipated outbreaks at short notice; UKHSA can also provide additional capacity for larger testing numbers and access to specific typing if required to define the epidemiology of outbreaks
- support for both regional and national capacity to respond to specific events of potential public health importance (for example flu pandemics)
- testing for look back exercises for health protection teams (HPTs), acute NHS trusts, clinical commissioning groups (CCGs), and local authorities
- reporting of laboratory results within specified turnaround times for diagnostic specialist and reference tests; results will be communicated by electronic means wherever possible and may be supported by paper reports as required or appropriate – these services will be provided to all customers (HPTs, NHS trusts and CCGs)
- standard interpretive comments as a part of test reports
- senior clinical and scientific staff will add specific interpretation and further advice relevant to individual patient needs or for public health significance
- mechanisms for the proper handling, storage and security of all samples and documentation at all times; this will be carried out in accordance with UKHSA guidelines, national guidelines and regulatory legal requirement
- efficient and timely communications with public health organisations, both within UKHSA (including HPTs) and externally, for example local authorities and primary care groups or clusters involved in communicable disease control
- microbiology support for the investigation, management and control of incidents of infection and outbreaks of communicable disease both during and out of normal working hours

- expert medical and scientific microbiological advice, including access to UKHSA experts locally and nationally as necessary
- assistance during field investigations by processing clinical samples
- receipt, processing and reporting of laboratory results and epidemiological data in a timely and efficient manner
- assistance in maintaining an efficient communication network with all public health and NHS organisations involved in communicable disease control in Yorkshire and the Humber

All UKHSA laboratories delivering specialist and reference testing either have UKHSA accreditation or are working towards it. The Food, Water and Environment (FW and E) laboratories are all recognised as EU Official Testing Laboratories and are accredited by UKAS.

2 Public Health Outcomes Framework

In addition to its clinical diagnostic microbiology role, the UKHSA lead laboratory in Leeds provides a range of public health microbiology services. These include:

- a full range of tests to investigate any event or outbreak of possible public health significance in the community
- advice on the best diagnostic strategies to be adopted
- advice on interpretation of test results and additional investigations that may be helpful
- support to incident or outbreak investigation teams
- prompt communication of results in agreement with published turnaround times
- follow up or clearance testing of patients or contacts of patients in whom organisms of public health importance are detected.
- support for trusts and HPTs in the specialist investigation of health care associated infection

These public health microbiology services are available to:

- staff in health protection teams
- local authority staff and directors of public health
- clinical commissioning groups
- acute trusts

The laboratory is linked to a network of specialised UKHSA laboratories across England (including laboratories testing food water and environmental samples) and to major reference units at UKHSA Colindale and UKHSA Porton (Microbiology Research services).

This user manual describes the provision of and access to public health microbiology services and gives contact details for the laboratory and its key personnel. It is also available on the [UKHSA website](#).

Please note that support and access to food, water and environmental microbiology services can be obtained from the UKHSA FW and E laboratory at York (refer to [Section 9](#)).

3 Key contacts: Leeds and York

In the event of a suspected outbreak or incident please contact one of the following so that appropriate arrangements for investigation can be made.

Who to contact during normal working hours

In the event of a suspected outbreak or incident please use the following contact number(s) so that appropriate arrangements for investigation can be made: 0113 392 3499.

Medical advice

During working hours, our medical staff will be happy to help you with any enquiries that you may have. Our office will put you through to the most appropriate person to answer your call: 0113 392 6870.

General enquiries

For enquiries about laboratory results please phone the results enquiry telephone lines: 0113 392 6870.

Key laboratory personnel and contact details

Consultant in Public Health Infection, Field Service North East Yorkshire and Humber

National Infection Service

Dr Miles Denton

Email: miles.denton@phe.gov.uk

Contact number: 0113 392 2922 (Direct)

Duty microbiologist

If Dr Denton is not available please contact the Leeds Teaching Hospitals NHS Trust switchboard on 0113 243 2799 and ask to speak to the on call Consultant Microbiologist

Duty virologist

Please contact the Leeds Teaching Hospitals NHS Trust switchboard on 0113 243 2799 and ask to speak to the duty virologist

Within working hours please contact Antony Hale on: 0113 3928749 or 0113 3926870

Dr Antony Hale

Email: antony.hale@nhs.net

Regional Head of Operations North East, Yorkshire and Humber

Anne Barrett

Email: anne.barrett@phe.gov.uk

Contact number: 0191 222 3758

Mobile: 07983 408949

Laboratory manager

Ian Cocking

Email: ian.cocking@nhs.uk

Contact number: 0113 392 6777

Senior Biomedical Scientist (Enteric Laboratory, Leeds)

Liam Burns

Email: Liam.burns@nhs.net

Contact number: 0113 392 8735

For details of access to the food, water and environmental testing service please contact UKHSA FW and E Laboratory, York Laboratory Manager:

Laboratory Manager

Mark Swindlehurst

Email: mark.swindlehurst@phe.gov.uk

Contact number: 01904 468 948

Or

Unit Head

Dr Heather Aird

Email: heather.aird@phe.gov.uk

Contact number: 01904 468 948

Out of Hours Service

The Leeds Laboratory provides an emergency out of hours service for urgent advice (out of hours: 5pm to 9am on weekdays, and anytime at weekends and on bank holidays):

On call Microbiologist: Call 0113 243 2799 and ask to speak to the on call Consultant Microbiologist.

On call Virologist: Call 0113 243 2799 and ask to speak to the on call Consultant Virologist.

To submit microbiology samples to the Leeds laboratory out of hours call 0113 243 2799 and ask to speak to the on call Microbiology Biomedical Scientist.

To submit virology samples to the Leeds laboratory out of hours call 0113 243 2799 and ask to speak to the on call Virology Biomedical Scientist.

To submit FW and E samples to the York laboratory out of hours call 01904 469 948 and speak to the on call FW and E Microbiologist.

Please contact the laboratory in advance of submission, with details of the incident or outbreak and investigations required. Please notify the laboratory of the i-log/outbreak identifier if one has been assigned.

4 Laboratory location, working hours and access details

Regional Laboratory Leeds

Department of Microbiology
Old Medical School,
Leeds General Infirmary,
Leeds, LS1 3EX

The Old Medical School is open Monday to Friday 08.30 to 17.00 (excluding bank holidays). For access at weekends and bank holidays please contact the on call Microbiology Biomedical Scientist via the LGI Switchboard (see above).

FW and E Laboratory York

The laboratory is located as follows:

UKHSA FW and E Microbiology Laboratory, York
Block 10 Food and Environmental Research Agency
Sand Hutton
York
YO41 1LZ

5 NHS laboratories and access to public health testing in Yorkshire and Humber

All NHS laboratories which have provided local public health outbreak support as part of their NHS functions should continue to do so.

All NHS laboratories (including former collaborating laboratories) have responsibilities for health protection which includes providing support for the investigation of local outbreaks in their catchment area, through:

- contributing to the formulation of local contingency plans and participation in exercises
- detection of local outbreaks through monitoring laboratory findings
- detection and prompt reporting of unusual occurrences of public health significance
- providing initial laboratory support for outbreaks, incidents and look back exercises as appropriate
- attendance of appropriate staff at local community control of infection meetings and incident outbreak control team meetings
- advice on appropriate investigations, interpretation of results, among others
- forwarding of appropriate specimens to reference laboratories

If outbreak specimens are normally sent to the local NHS laboratory, then this practice can continue.

Initially diagnostic patient specimens are likely to be examined at the local NHS laboratory, however, once an outbreak has been recognised and declared by the HPT or other appropriate authority there should be a discussion between the initial investigating (NHS) laboratory or HPT with the regional microbiologist or duty consultant microbiologist in the lead laboratory to decide on testing of additional specimens and the method of transport. If either the number of specimens expected is likely to exceed the capacity of the local NHS laboratory or requires specialist tests then the specimens should be referred to the nearest UKHSA laboratory or UKHSA collaborating centre.

If a local NHS laboratory is unable to provide this support at any time, for whatever reason, UKHSA will make arrangements to ensure that these services continue to be provided. If any difficulties with existing or new arrangements are encountered please contact the Regional Head of Operations 0191 222 3758 or 07983 408 949 or Laboratory Manager 0113 392 6777 who will make sure that arrangements are securely in place.

Few NHS laboratories have a Food, Water and Environmental testing capability. In the event of an outbreak or incident where a possible link to food or water has been made arrangements can be made for samples to be tested by the York FW and E Laboratory.

6 Definition of a public health microbiology specimen

A public health microbiology specimen is usually submitted to determine the cause and extent of an outbreak in a community (institution, family group or the wider community) or to see whether an observed cluster of cases is related and constitutes an outbreak.

Specimens may also be submitted to detect spread and contain and or prevent an outbreak (for example, diphtheria, group A streptococcus).

Patient specimens may also be submitted for clearance purposes (for example, faeces for *Escherichia coli* O157) or to detect carriage of pathogens in asymptomatic individuals (for example *Salmonella typhi*)

The list below provides some of the circumstances in which public health specimens may be submitted (this list is not exhaustive):

- in the investigation of an outbreak (for example diarrhoea and vomiting in a nursing home or other institution)
- suspected food poisoning in a group or community
- respiratory symptoms in an institution, for example, suspected Influenza
- to check for clearance of certain pathogens (see above) in individuals working in high risk situations (for example, food handlers, those working with children or other vulnerable groups)
- screening of contacts of index cases for example diphtheria, poliomyelitis
- look back exercises for example carriage of blood borne viruses in a health care worker
- TB contact tracing
- investigation of a cluster of cases of, for example, Legionnaires' disease, which could have a common source

Such specimens are usually submitted at the request of:

- senior staff of a health protection team (HPT)
- an environmental health officer
- at the request or on behalf of the director of public health or consultant in communicable disease control
- at the instigation of the regional microbiologist, for example, for specialist typing in the investigation of episodes of health care associated infection

7 Collection of specimens

In order to provide the best quality results, it is essential that good specimens are collected properly and at the appropriate time. It is also important that they are transported to the laboratory safely and without undue delay (See [Appendix 1](#) for safety considerations).

Inappropriate specimens or those that are inadequately labelled (see request form), damaged or leaking are liable to be discarded. Should this occur, every attempt will be made to inform the sender so that a second specimen can be collected.

Both the request form and specimen container must be labelled with:

- patient's full name
- hospital clinic number or NHS number
- the date the sample was taken
- patient's date of birth
- patient's postcode

The above will assist us in the surveillance of communicable diseases. Please provide full details of where to send the result and who to contact if we need to report an urgent, significant result. Please provide an Outbreak Number if available.

Sample collection and submission

Please ensure that all details are completed on the request form before it is given to the patient. Ask the patient to complete all details on the specimen container before collecting the specimen.

These must include:

- first name
- second name

7.1 Faeces

The specimen size should be at least 5ml. The following methods can be used to collect a specimen:

- the patient or carer should wear disposable gloves
- toilet paper can be crumpled into the toilet bowl or suspended across the toilet bowl in a cross to make a sling
- a clean plastic container can be positioned in the toilet bowl
- cling film can be stretched across the top of the toilet bowl
- contamination with urine should be avoided

- a portion of faeces can then be collected with a wooden tongue depressor or the spoon provided in the specimen pot and transferred to the specimen container
- the specimen pot should then be sealed into the specimen bag and the form included in the pocket provided
- all materials should be placed in a plastic bag which is sealed before disposal in the refuse bin

Please ensure that all details on both the specimen and accompanying request form are completed. Failure to do so may lead to rejection of the specimen.

Please give full clinical details and brief details of the outbreak on the request form. In outbreak situations or when unusual pathogens may be implicated, it is essential to discuss the request with one of our consultant microbiologists before submission of specimens.

Faecal samples will be examined for the presence of:

- salmonella
- shigella
- *E. coli* O157
- campylobacter
- cryptosporidium and giardia species if clinically appropriate
- *C. difficile* in all patients over the age of 65 years and where clinically indicated, for example, in nursing home or care home outbreaks

Please discuss with a member of the laboratory staff should you suspect any of the following pathogens:

- *Vibrio cholerae*
- diarrhoeagenic *E. Coli* (other than *E.coli* O157)
- *Yersinia enterocolitica*
- enteric parasites

Please also discuss with a member of laboratory staff if you suspect food poisoning due to:

- *Staphylococcus aureus*
- *Clostridium perfringens*
- *Bacillus cereus*

Should the clinical history suggest infection with viral pathogens, this too should be clearly indicated on the request form.

When a viral aetiology is suspected Faeces for Virology will be routinely investigated for Norovirus rotavirus.

Additional viral pathogens can be sought (Adenovirus, Astrovirus, Sapovirus); please discuss with the duty virologist.

7.2 Throat Pharyngeal swabs

For detection of carriage of *Neisseria meningitidis*, the swab should be taken through the mouth (sweeping posterior pharynx behind the uvula).

For detection of group A streptococcus, swab the tonsillar area.

For detection of *Corynebacterium diphtheriae*, nose and throat swabs should be submitted. If infection with *C. diphtheriae* is suspected on clinical grounds, a microbiologist should be contacted without delay (that is, without waiting for confirmation by culture). One suspected case of diphtheria requires urgent public health action.

Please note: All swabs specimens must be sent on Copan Eswabs. Aimes charcoal transport swabs or similar type swabs will not be processed. Supplies can be obtained from Leeds Microbiology upon request.

7.3 Viral respiratory specimens

Occasionally outbreaks of influenza occur in institutions. The incident management team will advise when specimens from these outbreaks need to be submitted. Please seek the advice of the virology laboratory on what specimens are required and how these should be submitted.

'Flu' kits can be obtained from the laboratory (these include instructions for collection).

7.4 Sputum

Please contact the laboratory to discuss the submission of specimens. Should you need to submit sputum specimens to examine for the presence of mycobacteria, for example, in cases of suspected tuberculosis, please contact laboratory consultant medical staff for advice and discussion before submitting any specimens.

7.5 Urine

Fresh urine specimens (in a clean universal container) may be required for the diagnosis of Legionnaires' disease.

7.6 Serum

Specimens of clotted blood may be required for:

- investigation of clusters of atypical pneumonia
- look back exercises to detect the transmission of blood borne viruses, by arrangement with laboratory incident or outbreak management team

8 Methods of specimen submission

Direct submission to the laboratory

This method of submission is available to all local authorities submitting samples to the laboratory.

Leeds: Please direct to the Old Medical School, Leeds General Infirmary. Directions are outlined in [Section 4](#) above.

Submission to the laboratory via Post

Specimens can be submitted to the laboratory by post provided they are packaged according to current postal regulations. Details of postal packs are given in Appendix 3.

Details of how more postal packs can be obtained. Environmental health departments will be provided with an initial small supply of postal transport packs for these purposes. These packs contain the appropriate packaging materials, instructions for use and a request form to accompany the specimen (example, attached [Appendix 3](#)).

Any specimens sent by post must comply with infectious substances [transport regulations](#).

Further supplies of sample packs, request forms and specimen containers are available by contacting the FWE laboratory in York.

Postage costs

A separate pack should be used for each specimen. Local authorities are expected to provide postage and it is not expected that patients should pay. Specimens must be sent by First Class post. In special circumstances for example the nature or scale of the outbreak, the Head of Operations or Laboratory Manager at the lead UKHSA laboratory may, by agreement, organise courier transport, additional specimen containers and any other materials

DX Tracked Specimens

If sending samples by DX courier services please use the following address:

Micro
DX 6281505
Leeds 91 LS

9 Investigation of local outbreaks

Environmental Health Officers, Health Protection Teams and General Practitioners can continue to refer specimens for investigation of individual cases of infection and small community outbreaks using their local NHS laboratories if this has been their practice.

If an outbreak control team is convened by the Health Protection Team and specimen numbers exceed or are likely to exceed the capacity of the NHS laboratory then the specimens should be referred to the Lead UKHSA Public Health laboratory or collaborating laboratory, after discussion with a senior member of the UKHSA laboratory staff. Mechanisms for the continued investigation of the outbreak will then be agreed by the outbreak control team.

As soon as an outbreak is recognised (of whatever size) the HPT Lead UKHSA laboratory or collaborating centre will assign an outbreak number identifier and this should be used to identify specimens associated with the outbreak or incident.

If an outbreak is identified initially by an Environmental Health Department (EHD) or Health Protection Team the outbreak specimens should be referred to the Regional Laboratory in Leeds under an outbreak number/identifier if one has been allocated by the EHD or HPT.

If a food or water source is implicated then advice on sampling and sample submission should be sought from the UKHSA Food Water and Environmental Laboratory located in York.

10 Other communicable diseases

Less common infections may require different specimen types or have less distinct storage and transport needs. In such circumstances, please consult with laboratory staff before taking and submitting specimens.

11 Test turnaround times

Information on tests performed and approximate turn around times (TATs) can be obtained direct from the laboratory, please call: 0113 392 6870.

For communication on high priority specimens or any concerns during regular working hours, please call a member of the clinical staff.

12 Reporting results

Results will be reported as hard copy printouts and distributed via established routes.

Should results be required urgently please notify the laboratory prior to sending the sample. If results need to be phoned through this must also be requested at this time and to facilitate this please supply a contact name and phone number at this time.

Appendix 1: Sample Submission Safety Considerations

1.1 Health and Safety

The specimen containers and mail transport systems provided by the laboratory should be used. The individual requesting or taking specimens from patients known to be infectious must ensure that both the form and specimen bag are appropriately labelled.

It is essential, where the requester knows or strongly suspects that the patient is infected with a dangerous pathogen that this specific information is provided with every specimen or request form.

1.2 Packaging of specimens

Specimens should be placed in the appropriate specimen container, which must be securely fastened and any accidental spillage cleaned immediately, with an appropriate chlorine containing disinfectant (see below for details).

Each specimen should be placed in a clear plastic double (marsupial) self sealing bag with one compartment containing the request form and the other the specimen.

Where a needle has been used to obtain the specimen, the needle should be disposed of safely into an approved sharps container at the point of use, and not included in the packet transported to the laboratory.

Packaging of Specimens from patients should be placed in the appropriate specimen container, which must be securely fastened and any accidental spillage cleaned immediately with an appropriate chlorine containing disinfectant:
10,000ppm available chlorine for blood spillage (do not use on urine spills)
1,000ppm for surface disinfection.

Please note, undiluted domestic bleach contains 100,000ppm available chlorine.

1.3 Packaging of High Risk Specimens

Specimens from patients in the infection risk from blood category should be placed in the appropriate specimen container, which must be securely fastened and any accidental spillage cleaned immediately with an appropriate chlorine containing disinfectant: 10,000ppm available chlorine for blood spillage (do not use on urine spills) 1,000ppm for surface disinfection.

Point to be noted: Undiluted domestic bleach contains 100,000ppm available chlorine.

This should be placed in a clear plastic double (marsupial) self sealing bag with one compartment containing the request form and the other the specimen. The specimens should then be placed in a second (outer) plastic bag and appropriately labelled. All specimens and forms should be clearly labelled with an infection risk from blood label.

1.4 Transport of specimens

Specimens packaged as above must be transported to the laboratory in a robust, lidded, washable transport box. Do not use ordinary envelopes or 'jiffy' bags for transportation. Do not staple or puncture polythene bags.

1.5 High risk incidents and safety

Universal precautions should be observed and appropriate personal protective equipment worn when specimens are collected. Sterile gloves to take blood, masks, protective eyewear and a plastic apron if splashing of blood or other body fluids is likely to occur. Any inoculation incidents (needlesticks or contamination of conjunctiva, mucous membranes or broken skin, with blood or body fluids), must be reported as soon as possible, within 2 hours to your occupational health service so that any required action can be instituted promptly.

This procedure must be followed whether or not the patient is perceived to be high risk.

Appendix 2

UKHSA Leeds Laboratory

Request Form for Clinical Public Health Samples only

Outbreak number:

Deliver specimen to: UK Health Security Agency Old Medical School, Leeds General Infirmary Thorseby Place Leeds LS1 3EX					Request number: For Laboratory use only					
Patient Details										
SURNAME*										
FIRST NAME *										
Date of Birth * (dd/mm/yyyy)									Address	
Gender		Male		Female						
NHS Number								Postcode		
* Fields marked with an asterisk are mandatory. Failure to complete all 3 may lead to rejection of the specimen										
Date of sample collection (dd/mm/yy)					Sample type (faeces, swab, serum, among others) please state site of sample, for example, throat, skin, among others					
Sender Details			Local Authority Name				HPT or Other (please specify)			
Investigating officer		Address								
Telephone number		email								
Fax number		Postcode								
ENTERIC Investigation	Clinical Details		Other Details			Investigations Required				
	Diarrhoea Fever Vomiting Blood in stool Recent travel (please give place and dates below)		Sporadic Case Follow- up Case Household Contact Food Handler Possible Outbreak Antibiotics, (please state name and dates)			Enteric outbreak – (please give suspected pathogen) Single organism investigation please state), for example, salmonella, among others Other – please state below				
NON-ENTERIC Investigation	Clinical Details		Other Details			Investigations Required				
	Please state:- Recent travel (please give place and dates below)		Sporadic Case Follow- up Case Household Contact Possible Outbreak Antibiotics, (please state name and date)			Suspected pathogen For example, Influenza, meningococcus, among others				

Appendix 3: Postal packaging for faecal samples

A. Components for submission of samples



B. Simple sample in transport container



C. Multiple samples in one transport container



Instructions to EHO's and patients for sending enteric specimens

1. Place sample inside the sterile universal faeces container (blue or brown top), making sure you do not overfill the container. Please ensure that you fill in the label on the sample container clearly.

2. Place the container inside the plastic transport vial with the pad of absorbent material (SUPASORB) and ensure that the lids on both the faeces container and transport vial are securely closed.
3. Place the transport the vial inside the cardboard transport box. Please complete the request form clearly and as fully as possible.
4. Multiple samples can be submitted in the same transport container. Ensure that there is sufficient absorbent material for the content. Each sample must be in a separate bag to prevent contamination should a leak occur. Place request forms around to outside of the plastic transport container within the cardboard transport box.
5. Place the transport box, together with the completed request form, into the addressed opaque plastic envelope (UN3373), attach stamps and post. Please ensure that you put the address of the referring EHO on the rear of the envelope.

Additional specimen types that may be submitted to laboratory

Swabs can be submitted to the laboratory for testing. Please note that there are different types for Viral and Bacteriology (MC and S) investigations

These samples must be transported to the laboratory using the mechanism given for faecal samples ([Appendix 3](#)).



Viral swab or Eswab

Snap off into red capped tube containing viral transport medium



Eswab for MC and S

Snap off swab into either tube containing liquid amies (Eswab)

About the UK Health Security Agency

UKHSA is responsible for protecting every member of every community from the impact of infectious diseases, chemical, biological, radiological and nuclear incidents and other health threats. We provide intellectual, scientific and operational leadership at national and local level, as well as on the global stage, to make the nation health secure.

UKHSA is an executive agency, sponsored by the [Department of Health and Social Care](#).

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Sustainable Development Goals

