

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 1 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

**PUBLIC HEALTH LABORATORY,
DUBLIN
HEALTH SERVICE EXECUTIVE**

USERS MANUAL

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Public Health Laboratory, Dublin
Health Service Executive,
Cherry Orchard Hospital,
Dublin 10.
Tel: 01 7955175/6
Fax: +353-1-6231908
Email: phl.dublin@hse.ie

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 2 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

FOREWORD

The aim of this manual is to aid all users of the Public Health Laboratory, Health Service Executive, Dublin (PHL, HSE, Dublin) gain the optimum service from the laboratory appropriate to their needs and public health priority. In particular, it will aid the user in selecting and obtaining the most appropriate specimen for microbiological analysis. The user needs to submit the appropriate requestor, patient unique identifiers and sample information on the relevant PHL HSE Dublin forms for the optimum test selection. Transporting the appropriate sample to the laboratory under the correct conditions, packaging and within the acceptable time frames will aid quality analysis and appropriate interpretation of results. The value of a particular bacteriology test result is still greatly dependent on these pre-analytical, analytical and post analytical processes.

Document control:

All changes made to this new issue (Issue 007 of 2022) document are highlighted in yellow.

Authors: Dr. Eleanor McNamara, Laboratory Director and Consultant
Microbiologist
Lucy Devlin, Quality Manager.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 3 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

CONTENTS

General Information and scope of PHL, HSE, Dublin.....	5
Data Protection.....	6
Opening Hours.....	6
Out of Hours service.....	6
Clinical Advice.....	7
User satisfaction.....	7
PHL Contact Numbers.....	8
Sample Submission	9
VTEC	9
Campylobacter samples.....	9
Completion of PHL, HSE Request Forms.....	9
Specimen/Sample Identification.....	10
Transport of Clinical Specimens/Samples to the Laboratory.....	10
Food sample Submission.....	13
Water sample Submission.....	14
Sample Rejection.....	15
Sample Retention and Further Test Requests.....	15
Complaints Procedure.....	16
Turnaround Time.....	16
PHL Protocol for Phoning Results.....	16
PHL Policy on Faxing and E-mailing Reports.....	17

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 4 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

Summary of National Reference VTEC / Campylobacter/ C. difficile Reference
service and Clinical Microbiology service.....18

Summary of the Food Testing Service.....20

Summary of the Water Testing Service.....20

Appendix 1 Scope of Micro testing at PHL HSE Dublin21

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 5 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

GENERAL INFORMATION AND SCOPE OF PHL, DUBLIN

This user manual provides information on the activities and structure of the Public Health Laboratory, Dublin.

The Public Health Laboratory is a Health Service Executive laboratory, located within the grounds of Cherry Orchard Hospital, Ballyfermot, Dublin 10, and is administered by HSE Community Healthcare East, CHO 6. It incorporates INAB (Irish National Accreditation Board) accredited National reference microbiology laboratory services, regional and local clinical and environment microbiology services and is a designated Official food testing laboratory (S.I. 79/2020 -EU Official Control of Foods). The laboratory **microbiology** scope is for:

1. A National VTEC (verocytotoxin *E. coli*) Reference Laboratory (NRL-VTEC) clinical service. Clinical and environmental samples are analysed for VTEC utilising molecular and culture techniques. The VTEC service is accredited to ISO 15189 for clinical enteric specimens and ISO 17025 for food, water and environmental samples.
2. A National sentinel Reference clinical service for Campylobacter characterisation, which commenced in 2019 and has now been incorporated into our routine service.
3. A National *Clostridioides difficile* Reference Laboratory service. (Some parts of testing methodology are currently unaccredited).
4. A detailed gastro-enteric clinical microbiology diagnostic service (including bacteria, viruses, ova and parasites) accredited to ISO 15189, for clinical management, surveillance and to support and advise on the investigation of gastro-enteric outbreaks both nationally and regionally.
5. An ISO 17025 accredited Regional Public Health food and water microbiology analytical service. This is accessed by the Environmental Health Service (EHS), Public Health Doctors and Acute Hospital Facilities.

Clinical samples, bacterial isolates, food and water samples are tested for microbiological analysis only.

The results of any unaccredited tests are marked by an asterisk.

Clients will be informed of any change to the accreditation status of the Public Health Laboratory HSE Dublin.

It is the policy of the laboratory not to refer tests within the scope of the laboratory, to external laboratories. If, in exceptional circumstances, the PHL must subcontract tests for which it is accredited, PHL would ensure that the work was sent to an accredited laboratory where possible and clients would be informed.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 6 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

DATA PROTECTION

The Public Health Laboratory complies with the data protection and confidentiality policies of the HSE, thus ensuring all data is processed in line with the principles of the General Data Protection Regulation (GDPR) and relevant Irish legislation.

IMPARTIALITY

The laboratory functions as a distinct entity to carry out a range of services, thus guaranteeing its impartiality. Staff are required to sign a declaration of impartiality. The requirement for on-going impartiality is documented.

OPENING HOURS:

The PHL's routine service is provided from 9.00 a.m. to 5.00 p.m. Monday-Friday. A limited service is provided on Saturday mornings from 9.30 a.m. to 12.30 pm and Sundays from 10.00 to 12.00 mid-day. Urgent samples are facilitated outside of these hours. Please contact the laboratory to arrange the receipt of all urgent specimens in advance of sending them by contacting Cherry Orchard Hospital (COH) switch. See 'out of hours' contact details below or if during working hours, please phone PHL HSE Dublin at 01-7955174/5. Out of hours, non urgent specimens may be delivered to the gate lodge of COH and refrigerated overnight until collection by PHL staff. PHL clerical staff are available for phone queries about validated results or for general enquiries etc. from 9.00 a.m. to 5 p.m. Monday to Friday at 01 7955175/6.

OUT OF HOURS SERVICE:

A Consultant Microbiologist approved emergency 'out of hours' service is available between 5 p.m. and 9 a.m. Monday to Friday and between 12.30 p.m. on Saturday to 9.00 a.m. on Monday (i.e.7/7). This service is accessed only by contacting the Laboratory Director or the designated Consultant locum. Their contact details are available via the Cherry Orchard Hospital switchboard (01 7955000).

Note: The Consultant Microbiologist must be telephoned (via the Cherry Orchard Hospital switchboard 01 7955000) in advance for approval to analyse urgent specimens to be processed out of hours. Users should not telephone the laboratory as telephones are not staffed out of routine hours.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 7 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

CLINICAL ADVICE:

Advice regarding diagnosis and treatment of infection is available at all times. Contact numbers are given overleaf. For out of hours advice including infection control advice, please contact the on-call Consultant Microbiologist via switchboard (01 7955000).

Environmental result interpretation (food and waters)

Advice regarding interpretation of environmental results on the final report is available at all times. Contact numbers are given overleaf.

USER SATISFACTION:

The Public Health Laboratory operates an on-going process of service evaluation and improvement to meet the needs and requirements of users. Laboratory management regularly assesses contributions and complaints received in the laboratory from users of the Microbiology service. User satisfaction is assessed by either periodical questionnaires or User open days. Open days are targeted to specific clients. Please write or email the Chief Medical Scientist or Quality manager

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 8 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

PHL CONTACT NUMBERS (01 7955175)

Name	Ext.	E mail
General secretarial office General enquiries/results	01 7955175/6	phl.dublin@hse.ie
Consultant Microbiologists		
Dr. Eleanor McNamara	01 7955214	eleanor.mcnamara@hse.ie
Dr. Brian O'Connell	01 7955214	boconnell@stjames.ie
Prof. Johannes Wagner	01 7955214	wagenerj@tcd.ie
Chief Medical Scientist Anne Carroll	01 7955247	anne.carroll@hse.ie
National Reference Laboratory(NRL) Service Dr. Eleanor McNamara Anne Carroll	01 7955214 01 7955247	eleanor.mcnamara@hse.ie anne.carroll@hse.ie
Clinical Laboratory Senior Medical Scientist Donal Lanigan	01 7955174	donal.lanigan@hse.ie
Food Laboratory Senior Medical Scientist Aidan Gibson	01 7955216 01 7955249	aidan.gibson@hse.ie
Water Laboratory Senior Scientist Paul Larkin	01 7955217 01 7955250	paul.larkin@hse.ie
Quality Manager Lucy Devlin	01 7955248	lucy.devlin@hse.ie
Infection Control Nurse Specialist Triona Mills	01 7955215	triona.mills@hse.ie

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 9 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

SAMPLE SUBMISSION

GENERAL GUIDELINES

All samples submitted to PHL should be in the appropriate sterile container accompanied by the **relevant completed PHL Dublin request form (available on the PHL website)**. Samples should be transported to the laboratory as soon as possible under the appropriate transport conditions (see relevant section below).

VTEC, CAMPYLOBACTER, C. DIFFICILE AND CLINICAL SAMPLE SUBMISSION:

Samples should be submitted with the appropriate accompanying PHL request form – see PHL website. Collect appropriate clinical specimens in sterile containers before commencement of antimicrobial therapy if possible. This is usually possible for most mild infections. For more serious infections, antimicrobial therapy should not be withheld pending collection of a specific specimen.

If in any doubt as to the appropriate container, please contact the laboratory for advice.

Please send an adequate amount of specimen. As a general rule – ‘the more specimen the better’.

COMPLETION OF PHL CLINICAL REQUEST FORMS:

Adequate identification of patient (including at least 2 unique identifiers) samples is essential for patient safety.

The following details should be recorded on the request form:

- **Full Patient Name**
- **DOB**
- Patients Address
- **External laboratory number/MRN** (where available)
- **Gender**
- **Date of sample Collection**
- Ward/Source
- **Requesting Clinician and contact details** (all clinical samples must be requested by a named medical Doctor).
- Specimen Type
- Tests requested with relevant clinical details.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 10 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

Those highlighted in **bold** are mandatory and include patient identifiers.

Please ensure that relevant clinical details are included on the request form. Please include details if the specimen is associated with an outbreak (provide outbreak code) investigation, in an ‘at risk’ occupation (Health Care or Food Worker) or if there is a history of foreign travel, or a specific diagnosis is being considered. All of the above may influence the type of test that the laboratory performs.

Bacterial isolates for identification, characterisation or toxin testing must be accompanied by a current VTEC, Campylobacter or **C. difficile** NRL request form. All PHL Dublin request forms are available from our website:

<https://www.hse.ie/eng/services/list/5/publichealth/publichealthlabs/public-health-laboratory-dublin/>

CLINICAL SPECIMEN/SAMPLE IDENTIFICATION

The following details should be recorded on all specimen containers:

- **Full Patient Name**
- **DOB**
- **MRN** (where available)
- **Date of collection**

Those highlighted in **bold** are essential patient identifiers.

Specimens cannot be processed unless there is a minimum of two patient identifiers on the specimen which match those on the request form, one of which must be the full patient name. **If the sample does not have the two patient identifiers or is unsuitable (i.e. leaking) the sample will be rejected and a repeat sample requested. The sample is still logged in and is recorded as a rejected sample on our Laboratory Information Management System (LIMS). The doctor or hospital laboratory will be phoned to inform them that the sample is not being processed and repeat testing offered.**

It is laboratory policy **NOT** to process unlabelled or mislabelled specimens.

TRANSPORT OF CLINICAL SPECIMENS/SAMPLES TO THE LABORATORY.

- All samples must be packaged appropriately. It is the responsibility of the person dispatching the sample to the laboratory to ensure that it is packaged correctly and

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 11 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

does not pose a risk to anyone coming in contact with it during transport or on receipt in the laboratory (Ref: S.I. No.617 of 2010 Carriage of Dangerous Goods by Road Regulations 2010).

- Specimens should be transported and processed as soon as possible; individual test requirements may invalidate the test request if the samples is too old (48-72h).
- All Category B biological substances should be packaged according to UN3373 IATA Packaging Instruction 620. Clinical samples should be put into a small plastic specimen bag with enough absorbent material to soak up the entire sample if a leak occurs. Isolates should be on a suitable growth medium (e.g. Nutrient Agar slope) and sealed with Parafilm beforehand.
- The Primary container is then placed into a secondary screw top plastic container.
- The secondary container should be certified leak proof at 95KPa and filled with paper towel or cotton wool so that the specimen is secure and does not rattle in the container.
- The Secondary container is put into a Category B labelled cardboard box which has an address label, UN3373 label and orientation label.
- Faeces samples are held at room temperature if they are to be processed on the day of arrival in the laboratory. Other sample types are refrigerated at 2 - 8° C.
- If processing is delayed sample should be refrigerated at 2 - 8° C for a maximum of 72 hours.
- Urgent samples will be processed upon receipt or discussed with Consultant Microbiologist if received out of hours. Clients sending urgent samples should notify the laboratory in advance as outlined above.
- 1-2g is sufficient for culture of faeces. As multiple samples are rarely indicated for detection of faecal pathogens, if more than one sample is taken on the same day they may be pooled.
- Isolates received for VTEC analysis before 11a.m. will be processed directly from the slope/plate on the day of receipt.
- For ova and parasite analysis, ideally three stool samples should be collected over no more than a 10-day period. It is usually recommended that samples are collected every other day. Unless the patient has severe diarrhoea or dysentery, no more than one sample should be examined within a single 24 hour period, as shedding of cysts and ova tends to be intermittent. If *E. histolytica* or *G. duodenalis* are suspected and the first 3 samples are negative, ideally 3 additional samples should be submitted at weekly intervals. There are no prescribed limits for the size of sample required, but some laboratory procedures will require larger quantities than others.
- For Sellotape slides/perianal swabs suspecting *E. vermicularis* ova, the sample should be taken between 10pm and midnight, or early in the morning, before defecation or bathing. To prevent deterioration, refrigeration or storage of sample at room temperature for up to 48hrs is advised. It is recommended that samples should be taken for at least 4 to 6 consecutive days. If the results of all these are negative the patient

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 12 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

can be considered free from infection. In practice, more than one sample is rarely received.

- Samples requesting detection of *S. haematobium*, it is preferable to obtain total urine collected over the time period between 10am and 2pm. A minimum of 10ml is required. In patients with haematuria, eggs may be found trapped in the blood and mucus in the terminal portion of the urine sample. If the urine cannot be examined within an hour of collection, it is advisable to add 1mL of undiluted formalin to preserve any eggs that may be present. For duodenal/jejunal aspirates, a minimum volume of 1mL is required.
- Fresh faeces samples are essential for the examination of trophozoites ideally within 30 minutes from the time of collection.

SWABS/CONTAINERS USED IN THE PHL HSE, DUBLIN

1. **Universal container** – two types with different apertures are used for collection of bodily fluids.
2. **Amies Transport swabs** for routine collection of rectal swabs.

If you have any other queries, please contact the laboratory.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 13 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

FOOD AND WATER SAMPLE SUBMISSION:

FOOD SAMPLES:

Foods should be sampled and transported to the laboratory as per “FSAI/HSE Guidance on Sampling of Food for Microbiological Testing (Current Issue)

Official Food Sample

- Under the terms of the Official Control of foodstuffs Directive 93/99/EEC and EU 2017/625 an official food sample must be examined in an official Food Control Laboratory. The Public Health Laboratory is designated as an official food testing laboratory under S.I.79 of 2020. Official food samples should have a documented chain of custody as all food sample results are legally actionable and all food results are copied to the Food Safety Authority of Ireland as the competent Authority.

Specimen Request Form for Food samples.

A specimen request form (National Sample Submission Form (NSSF)) should accompany each sample of food to be tested. The receiving PHL staff member must record the following details on the requisition form:

1. Date and time of receipt of sample.
2. Temperature of sample on receipt if appropriate
3. Receivers name
4. Storage condition on receipt
5. Tick box once sample and form information has been crosschecked.

By the EHO:

1. Name of the EHO delivering sample
2. Name of EHO collecting sample
3. Food type and code
4. Packaging conditions etc
5. Reason for sampling
6. Supplementary information if food poisoning outbreak
7. Premises name and sample description.
8. Any other comments about the sample

Sample Size

The standard minimum routine food sample size in a sterile container for the PHL is 100g (25g x 4). This may vary depending on sample availability, for example, if the sample is related to a complaint.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 14 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

WATER SAMPLES:

Water samples must be submitted in sterile containers. The sample container must contain sodium thiosulphate if the water sample has been treated with a biocide (e.g. chlorine).

If in any doubt as to the appropriate container or transport conditions, please contact the laboratory for advice.

Specimen Request Form for Water samples

A PHL Dublin request form should accompany each sample of water sample to be tested. The receiving PHL staff member will record the temperature of the container that was used to transport the sample.

See Table 1 for the minimum volume of sample required and the type of container required.

TABLE 1

Sample type	Min. Vol. required	Sodium Thiosulphate	Sterile Container
Mains/ Drinking Water	500ml	Required	YES
Endoscopy water	500ml	Required(If biocide)	YES
Heater cooler water	300ml	Required(If biocide)	YES
Swimming Pools	500ml	Required	YES
Hydrotherapy pools	500ml	Required	YES
Well Water (microbiologically treated)	500ml	Required(If biocide)	YES
Well water untreated	500ml	Not Required	YES
Group Scheme (treated)	500ml	Required(If biocide)	YES
Group Scheme (untreated)	500ml	Not Required	YES
Seawater	500ml/1000ml/2000ml	Not Required	YES
Surface water	500ml	Not Required	YES
Water for pathogens (eg. VTEC, Salmonella, Campylobacter)	At least 1 litre	If biocide present	YES

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 15 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

Bottled water	At least 1 litre		YES
Pre bottled water	At least 1 litre	If biocide present	YES
Water for dialysis	500ml	If biocide present	YES
Water for Legionella testing	At least 1 litre		YES

Please ensure that relevant details are included on the request form. All of the above may influence the type of tests that the laboratory performs.

The current PHL Dublin food and water sample request forms are available to download from the website:

<https://www.hse.ie/eng/services/list/5/publichealth/publichealthlabs/public-health-laboratory-dublin/request-forms.html>

SAMPLE REJECTION:

Referred samples that don't meet the required acceptance criteria will be registered and discussed with a Senior Scientist or Consultant staff. If the decision is to reject the sample, it will be discarded and the reason for rejection noted and informed to the referring doctor/laboratory/environmental health officer. It is laboratory policy **NOT** to process unlabelled or mislabelled samples. Where deviating samples are chosen to be processed, this will be recorded as such and, if applicable, an interpretation will be applied cautiously.

SAMPLE RETENTION AND ADDITIONAL TESTING REQUESTS:

Clinical Specimens:

Following testing, routine clinical samples are stored at 2 - 8° C for a week or until the final report has been authorised.

Samples processed in the CL3 laboratory are stored at 2 - 8° C for a minimum of a week.

Requests for additional testing on samples may be possible on a case-by-case basis, once agreed by PHL HSE Dublin staff up to 72 hours after receipt. Please contact the laboratory as soon as possible if the need for additional testing is identified. If a client/user requests additional testing verbally, it must be followed up by a written confirmation.

If there is a delay in processing a sample, that could compromise patient care, then the requestor will be informed of this by PHL.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 16 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

Food and Water Samples:

Where practicable, food samples are frozen at -20°C on the day of testing and retained in the laboratory for up to three weeks.

Water samples are stored in the fridge for up to a week. A sample will be held for longer than a week should further testing be required and/or until the final confirmed results are obtained.

VTEC, Campylobacter and *C. difficile* Isolates:

VTEC and Campylobacter isolates are logged with unique identifiers and stored indefinitely on freezer beads at -70°C.

COMPLAINTS PROCEDURE:

A complaints procedure is in place in the Public Health Laboratory. Initial complaints may be received and documented by phone, **email or letter**.

All complaints will be fully investigated in accordance with our quality management system documented protocols (See PHL HSE Dublin Quality Manual and File 8).

TURNAROUND TIMES:

Turnaround times vary depending on the sample type and the tests requested, and is the maximum number of days between sample receipt and issue of result.

When sending a culture to PHL for VTEC testing, please pick from a non-selective medium or check the purity of the isolate before sending. Submitting a pure culture ensures that VTEC PCR results are available within 24 hours. The turnaround time for VTEC isolates is 4 working days.

The turnaround time for VTEC and/or routine stools is 6 working days.

The turnaround time for routine Campylobacter requests for confirmation and phenotypic antimicrobial sensitivity results is **6 working days**.

The turnaround time for NRL Campylobacter samples is 6 working days.

The turnaround time for NRL *C. difficile* samples is 6 working days.

The turnaround time for enteric viral PCR screen is 3 working days.

The turnaround time for whole genome sequencing on isolated bacteria is generally two weeks. However, during outbreaks periods of heavy workloads, this will be longer for routine isolates as urgent outbreak isolates will be prioritised.

Faeces/Duodenal Aspirates

Turnaround times for Ova and Parasites - microscopy and/or PCR result within 3 working days. If a sample is for routine culture or VTEC studies as well as O/P, it

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 17 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

may take up to 6 working days before the result is reported. Any positive parasites will be phoned straight away.

Sellotape Slide/Perianal Swab

Written report within 72hrs

PHL PROTOCOL FOR PHONING RESULTS:

Clinical results

All preliminary positive results, of clinical significance are phoned within 24 hrs to the relevant requesting Doctor (i.e. the requesting medical doctor-GP or relevant Public Health doctor). Positive results of samples, received from clinical laboratories, are phoned to the requesting laboratory scientific staff or medical personnel. Such phone calls are documented on LIMS and the final report/cert. of analysis

Environmental results

If a significant pathogen is detected, a preliminary result will be phoned to the Environmental Health Officer or laboratory Scientist and then a final hard copy result dispatched. Such phone calls are documented on LIMS and the final report/cert of analysis.

PHL POLICY ON FAXING AND E-MAILING REPORTS:

The public health laboratory complies with the Health Service Executive’s policies on electronic transmission of results.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 18 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

A. SUMMARY OF NRL VTEC, CAMPYLOBACTER AND C. DIFFICILE SERVICE AND CLINICAL MICROBIOLOGY SERVICE:

The PHL provides a National VTEC Reference service for clinical samples. We also provide a sentinel National Reference service for Campylobacter characterisation, and we were awarded the tender to provide a *C. difficile* National Reference Service in 2021. These services are accessed by Directors/ Clinical Microbiologists/ Chief Medical Scientists of regional and primary clinical laboratories, and Public Health Doctors, who submit samples or presumptive isolates for confirmatory VTEC, Campylobacter and *C. difficile* studies and detailed molecular strain characterisation. The Environmental Health Service send environmental samples for VTEC analysis.

Verocytotoxin producing *E. coli* (VTEC), Campylobacter and *C. difficile* isolates

The range of services includes:

- Identification to genus and species level
- Phenotypic and molecular typing.
- Whole genome sequencing for antimicrobial resistance determinants, virulence factors and cluster analysis of potential public health significance. This is novel methodology is currently not accredited.

The following are some recommended samples to be sent from patients with particular clinical syndromes -

GASTROINTESTINAL TRACT INFECTION

Gastroenteritis

Please note that this laboratory employs a cost-effective approach to the diagnosis of infectious diarrhoea. Not all specimens are examined for every pathogen. It is therefore important that clinical details or suspected diagnoses are included on the request form. Information that is of use when processing specimens includes: travel history, occupation, relationship to a particular food, prolonged diarrhoea, antibiotic use, suspected outbreak. The laboratory examines stool samples routinely for:

- *Salmonella sp.*
- *Shigella sp.*
- VTEC (*Verotoxigenic E. coli*)
- *Campylobacter sp.*
- *Clostridium difficile* toxin detection by PCR and culture of PCR positive samples is performed on all specimens from patients over 2 years of age.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 19 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

Samples are tested using molecular methods for the above pathogens and all PCR positive samples are further tested by culture methods in order to isolate the organism if possible.

- Other pathogens e.g. *Yersinia*, *Vibrio*, *Aeromonas*, enteric viruses, ova and parasites (O/P) etc. are only examined if the clinical details suggest that possibility or if specifically requested.
- An O/P PCR method is used for *Cryptosporidium*, *Giardia*, *Entamoeba histolytica* and *Dientamoeba fragilis*. Traditional wet prep O/P microscopy is also available.
Ova and Parasite testing may be requested if the patient has had chronic unexplained diarrhoea, if the patient is immunocompromised or if there is a history of foreign travel.
- *Rotavirus/Adenovirus* PCR stool detection is performed on patients under 5 years of age.
- Norovirus and other enteric viruses (adenovirus, sapovirus, enterovirus, rotavirus) PCR stool detection is available when clinically indicated.

When to send a stool specimen: Send a stool specimen to the laboratory when there are ≥ 3 liquid or very loose stools (ie. stool takes up the shape of the container) per day. There may be other symptoms suggestive of infectious diarrhoea e.g. abdominal pain or discomfort, nausea, faecal urgency, tenesmus, fever, blood or mucus in stools. Asymptomatic patients may be requested to submit stool samples in outbreak investigations. Hospital specimens should be sent to the laboratory immediately. In General Practice, please refrigerate stools if there is to be a delay in transporting the specimen.

How much stool to send: Please fill the specimen container to between $\frac{1}{4}$ and $\frac{1}{2}$ full. Please do not fill to the brim.

RECTAL SWABS

Rectal swabs are used to detect enteric carriage of multi drug resistant organism's (MDRO's) e.g. vancomycin resistant Enterococci (VRE) or carbapenem producing Enterobacteriaceae (CPE). The tip of a sterile swab is passed approximately 2.5 cm beyond the anal sphincter. Rotate the swab gently and withdraw it and place the swab into the container with the appropriate transport medium.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 20 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

B. A SUMMARY OF THE FOOD TESTING SERVICE:

The Public Health Laboratory is designated an “Official Laboratory” approved for Microbiological testing under Statutory Instrument (SI) 79/2020: European Communities (Official Control of Foodstuffs) Regulations 2020.

ISO 17025 ACCREDITATION:

The Public Health Laboratory is accredited to ISO 17025 by the Irish National Accreditation Board. ISO 17025 section 6.6 requires laboratories to review the competency of referral laboratories. A competent referral laboratory is one that complies with this International Standard.

For information:

The current scope of accreditation for the PHL, HSE Dublin Laboratory is freely available as a “pdf” download from the INAB web site at:

<https://www.inab.ie/fileupload/testing/public-health-laboratory-dublin-101t.pdf>

Food samples are tested for a comprehensive microbiological scope in accordance with the FSAI/HSE service contract. In addition a significant food safety surveillance programme of food samples from hospitals is undertaken. Environmental swabs procured from food business operators are also processed.

A schedule of testing is agreed locally on an annual basis with the environmental health service (EHS) and hospital catering managers. National surveys are agreed annually with the Food Safety Authority of Ireland (FSAI).

See Appendix 1 for the list of accredited microbiological food tests available.

C. A SUMMARY OF THE WATER TESTING SERVICE.

A comprehensive accredited microbiological surveillance of many types of waters is undertaken annually. This includes potable, bottled, therapeutic (Endoscopy, dialysis), bathing and seawaters. A local schedule of water testing is reviewed and agreed annually with the HSE, EHS and hospital clients.

See Appendix 1 for the list of accredited microbiological water tests available.

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 21 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

APPENDIX 1 SCOPE OF MICROBIOLOGICAL TESTING AT PHL, DUBLIN

Food Tests

PHL Test number	Test name	Primary Reference	Accredited Yes/No
SFM001	Aerobic Colony Count	ISO 4833-2:2013	Yes
SFM002	Enumeration of <i>Escherichia coli</i>	ISO 16649-2:2001	Yes
SFM003	Enumeration of <i>Staphylococcus aureus</i>	ISO 6888-1:2021	Yes
SFM004	Enumeration of <i>Bacillus cereus</i> including <i>Bacillus</i> species	ISO 7932:2005 AMD 2020	Yes
SFM005	Enumeration of <i>Clostridium perfringens</i>	ISO 7937:2004	Yes
SFM006	Detection of <i>Salmonella</i> species	ISO 6579-1:2017	Yes
SFM007(E)	Enumeration of <i>Listeria monocytogenes</i> and other <i>Listeria</i> species	ISO 11290-2:2017	Yes
SFM007(D)	Detection of <i>Listeria monocytogenes</i> and other <i>Listeria</i> species	ISO 11290-1:2017	Yes
SFM008	Detection of <i>Campylobacter</i> species	ISO 10272_1:2017	Yes
SFM009	Enumeration of Enterobacteriaceae	ISO 21528-2:2017	Yes
SFM011	Detection of <i>Escherichia coli</i> O157 using immunomagnetic separation	ISO 16654:2001 AMD 1:2017	Yes
SFM022	Detection of <i>Escherichia coli</i> O26 using immunomagnetic separation	ISO 16654:2001 AMD 1:2017	Yes
SMM006 Molecular	Detection of <i>Salmonella</i> species in food samples by DNA extraction PCR	ISO 13136:2012	Yes

Environmental swab tests

SEM001	Detection of <i>Pseudomonas aeruginosa</i> on environmental swabs	ISO 18593:2004 ISO 16266:2008	Yes
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Water Tests

PHL Test number	Test name	Primary Reference	Accredited Yes/No
WSOP 1	General Techniques for the Detection of Bacteria by Membrane Filtration	ISO 8199:2018	Yes
SWM001	Enumeration of Coliform Bacteria and <i>E coli</i> by Membrane Filtration	ISO 9308-1:2014 Amendment 1:2016	Yes
SWM003	Enumeration and confirmation of Enterococci	ISO 7899-2:2000	Yes
SWM004	Enumeration and confirmation of <i>Clostridium perfringens</i>	ISO 14189:2013	Yes
SWM005	Detection of <i>Salmonella</i> spp. by culture	ISO 19250:2010	Yes
SWM006	Enumeration of Total Plate Counts 22°C	ISO 6222:1999	Yes
SWM007	Enumeration of Total Plate Counts 37°C	ISO 6222:1999	Yes
SWM008	Enumeration and confirmation of <i>Ps.</i>	ISO 16266:2006	Yes

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 22 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

	<i>aeruginosa</i>		
SWM009	Detection and enumeration of Coliform Bacteria and <i>E. coli</i> by IDEXX Quantitray™	ISO 9308-2:2012	Yes
SWM010	Detection of <i>E. coli</i> O157 Using Immunomagnetic Separation	MDW Part 4:2016	Yes
SWM0012	Detection and enumeration of <i>Legionella</i> species by membrane filtration	ISO 11731:2017	Yes
SWM0017	Total Viable Count for Environmental/Endoscopy water	ISO 15883-4 :2018	Yes
SWM0018	Detection of <i>Mycobacterium</i> species by membrane filtration	ISO 15883-4:2018	Yes
SWM0018M	Detection of slow-growing <i>Mycobacterium</i> spp. from waters from heater-cooler units	ISO 15883-4:2018	Yes
SWM0019	Enumeration of <i>S. aureus</i> by Membrane Filtration	HPA W10	No
SWM0020	Detection of <i>E. coli</i> O26 Using Immunomagnetic Separation	MDW Part 4:2016	Yes
SWM0023	Total Viable Count/ml for Dialysis waters	ISO 23500:2014 ISO 13959:2014 ISO 11663: 2014	Yes
SMM007 Molecular	Detection of <i>Salmonella</i> spp in water samples using automated DNA extraction and real-Time PCR	ISO 13136:2012	Yes

Clinical tests

PHL Test number	Test name	Accredited Yes/No
SCM001	Investigation of faecal specimens for faecal pathogens	Yes
SCM002	Investigation of faecal specimens for the detection and isolation of verotoxigenic <i>E. coli</i> (VTEC) and enteropathogenic <i>E. coli</i> (EPEC)	Yes
SCM003	Investigation of Ova and Parasites in specimens other than blood	Yes
SCM004	Antimicrobial Susceptibility Testing	Yes

Public Health Laboratory, Dublin Health Service Executive	Public Health Laboratory Users Manual
Issue No. 007 Issue Date: 08/02/2022 Page 23 of 23	Issued by: Lucy Devlin Approved by: Eleanor McNamara Location(s): Files 5 Appendix and website

Molecular Tests

PHL Test number	Test name	Accredited Yes/No
SMM001	Detection of <i>vt1</i> , <i>vt2</i> , <i>vt2f</i> , <i>E. coli</i> serogroups O157, O26, O104, O145, O111 and O103 by PCR from bacterial isolates.	Yes
SMM002	Detection of VTEC in food using automated DNA extraction and Real-Time PCR	Yes
SMM003	Detection of VTEC in water using automated DNA and Real-Time PCR.	Yes
SMM004	Detection of VTEC from faecal specimens using automated DNA extraction and Real-Time PCR	Yes
SMM005	Detection of enteric pathogens using automated DNA extraction and Real-time PCR	Yes
SMM008	WGS VTEC	No
SMM008	WGS Campylobacter	No
SMM008	WGS <i>C. difficile</i>	No
SMM009	SARS- CoV-2	No