CURRENT VERSION AMENDMENTS

Each Policy and Procedure has an individual record of amendments. The amendments for the current version are listed below.

Amendment Number/ Date	Version no. Discarded	Version no. Issued	Page	Section(s) involved	Amendment
8/22.06.2017.	3.4	3.5	2	Contact Details	Changed fax number to 091-542238
			2	Contact Details	Changed e-mail contacts. Deleted Jean and added Joanne and Mark
			2	Contact Details	Delete website section
			5	Services offered	Deleted PFGE, phage typing and MLVA and added analysis of WGS
			8	SLA	Added Service Level Agreement line

Change Control No._____MIC020/17_____

National *Salmonella*, *Shigella* & *Listeria* Reference Laboratory
Users Guide

Contact details

Head of Department: Prof. M.Cormican (091) 544146

Laboratory Tel: (091) 544628
Fax: (091) 542238
e-mail: niall.delappe@hse.ie
joannem.king@hse.ie
Mark.MaGuire2@hse.ie

Address

National *Salmonella*, *Shigella* & *Listeria* Reference Laboratory
Department of Medical Microbiology
University Hospital Galway
Galway

Role of NSSLRL and relationships with other Agencies

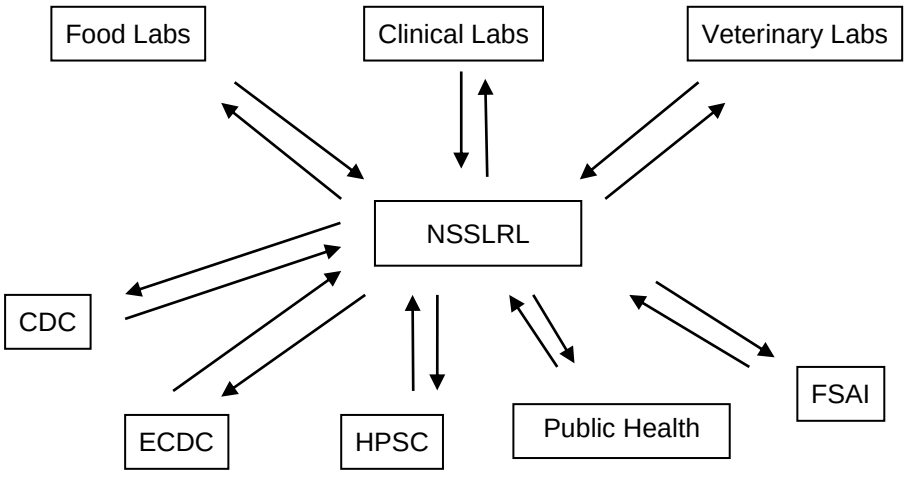

Fig.1 NSSLRL Organisational Chart

Primary clinical laboratories identify *Salmonella*, *Shigella* and *Listeria* to species level and determine the isolates susceptibility to those antimicrobial agents immediately relevant to patient treatment. This provides immediate information to the clinician for treating an individual patient.

Isolates are referred to the NSSLRL for confirmation and for subtyping. The NSSLRL confirms the result of the clinical laboratory and may detect low-level antimicrobial resistance or resistance to less commonly used antimicrobial agents by reference methods.

The NSSLRL also adds a national public health dimension to the work of the clinical laboratories by recognition and confirmation of links between individual cases of infection, even where outbreaks are widely dispersed. This information is primarily to guide public health intervention to recognise and control transmission of infection. Trends of *Salmonella* infections in Ireland can also be more closely followed. Typing of isolates from food and animal sources help in tracing the sources of infection.
The NSSLRL works in tandem with numerous agencies in protecting public health. The laboratory which identifies the pathogen and any clinician involved in the care of the patient is obliged to notify the case to Public Health (PH). The 9 PH departments in the country regularly review surveillance data locally to determine if incidence is increased or if trends are occurring in age groups, areas and concerns are discussed with the NSSLRL. PH contacts the case to try and determine the source of infection and give advice to prevent spread of infection to others. The above actions may be carried out by medical staff from PH with the assistance of Environmental Health officers. Stool specimens may subsequently be submitted to clinical laboratories to determine if contacts of the cases are also infected (outbreak) and/ or food (and occasionally water) samples may be sent to a food and water laboratory to try to determine a source of infection. If a relevant pathogen is isolated in those laboratories the isolates will be sent to the NSSLRL for comparison with the isolate from the first case or outbreak. As part of the investigation a questionnaire is administered to investigate possible risk-factors (contact with animals, occupation etc), travel history and recent food history. When more than one case is detected cross-comparison of

questionnaires may allow a putative source to be identified through statistical analysis.

The Health Protection Surveillance Centre (HPSC) looks at national trends. The two tier surveillance ensures local trends are picked up by PH and that national trends can be detected by HPSC. When major outbreaks occur an outbreak control team (OCT) may be set up at the discretion of the Director of Public Health (regional level) or by the Health Protection Surveillance Centre (National Level). Staff of NSSLRL are consulted regarding the need for an OCT and the consultant microbiologist from NSSLRL (and sometimes other staff of NSSLRL) is involved as a member of the OCT to guide the interpretation of the microbiology results. Other agencies involved include HPSC, PH and Food Safety Authority of Ireland (FSAI).

The NSSLRL and HPSC liase with the European Centre for Disease Control (ECDC) to help identify and control international dimensions to outbreaks. This involves sharing data, countries issuing outbreak alerts and monthly outbreak summaries.

Services offered

The NSSLRL only performs analysis on isolates received on nutrient agar bijoux. The NSSLRL does not test primary samples, e.g. faeces, blood or food, therefore results are qualitative and not quantitative.

The NSSLRL types isolates from food and animal sources as well as those of human origin. The primary role of the NSSLRL is to protect human health. Clients should be aware that if animal or food isolates are similar to those from sporadic or outbreak-associated human isolates this information will be shared with relevant bodies, e.g. Food Safety Authority of Ireland (FSAI), Health Protection Surveillance Centre (HPSC) and European Centre for Disease Control (ECDC) when it is necessary to do so to protect public health. In general users will be informed in advance of sharing the source laboratory information with these agencies. These bodies may then require further information from the client laboratories.

If users wish to use data from the NSSLRL in publications they must contact the laboratory director at martin.cormican@hse.ie or in his absence one of the scientific staff.

Salmonella - Serotyping and antimicrobial susceptibility testing (AST)
- Analysis of Whole Genome Sequences

Shigella - Biochemical identification
Serotyping and antimicrobial susceptibility testing (AST)
- Analysis of Whole Genome Sequences

Listeria - Biochemical identification
- Serotyping
- Analysis of Whole Genome Sequences

Ninety-five percent of samples will be reported within 15 days and specimens that are identified by telephone call as urgent will be prioritized. The average turnaround time for *Salmonella* typing is approximately 5 days.

Opening times

Mon – Fri 9:00am- 5:00pm (lunch from 1:00 – 2:00pm)

Out of hours work

This is performed at the discretion of the Consultant Microbiologist or the laboratory scientific staff on urgent samples, e.g. during an outbreak investigation.

Specimen Rejection Policy

Specimens sent to the NSSLRL will be rejected if:

- isolates are sent on agar plates, plastic universals or large bijoux
- specimens contain a mixed bacterial culture
- specimen slope is broken
- specimen form and/or slope are unlabelled, mismatched or incomplete
- transportation of samples to the NSSLRL is not followed correctly, i.e.
    - slopes not enclosed in a crushproof container
    - external packaging not labeled correctly
- if for any other reason the specimen is not in a safe condition for processing and/or can not be clearly identified.

- Repeat isolates from patients from the same site (e.g. faeces) received within two weeks of the initial isolate.
- If isolates are received from multiple sites from the same patient the invasive isolates, e.g. blood, will be fully processed while only serotyping will be performed on isolates from the other sites.
- Laboratories should send only one nutrient agar slope per patient site. If a laboratory sends two slopes only one will be processed. The second slope will be held and processed only if there is a problem with the first slope, e.g. no growth or growth of a non-*Salmonella*/*Shigella*/*Listeria* isolate.

Minimum requirements for completion of NSSLRL request forms

NSSLRL request forms must be completed in legible handwriting or typing and all details must be entered.

- Human isolates
  - The patient name and referring lab number and/or date of birth must be on both the form and side of slope.
  - If there is reason to suspect the isolate could be a *Salmonella* Typhi or *Salmonella* Paratyphi, e.g. patient from an endemic country, this must be noted on the form.
  - If the isolate is suspected to be part of an outbreak this must be noted on the form.

- Non-human isolates
  - The referring lab number and isolate source must be on both the form and side of slope
  - Isolate source must be clearly stated, e.g. pork, chicken, beef, otherwise a report will not be issued.

Transportation of samples

Slopes must be packaged and transported according to ADR (Carriage of Dangerous Goods by Road) regulations.

- Grow isolate overnight on a small nutrient agar slope and remove any fluid accumulating at the bottom of the slope using a sterile Pasteur pipette.
- Place slope(s) into an inner crushproof hard plastic container and place this into a cardboard box or envelope.
- Label with an emergency contact number for the sender and an Infectious substance label.
- Label box with UN3373 and add sticker with "BIOLOGICAL SUBSTANCE, CATEGORY B".
- This can be then sent to the Reference laboratory via a courier company, e.g. Hays DX (01-8421088), Capital Freight (01-8852064), Biomnis (1800-252967) or Nightline couriers (091-795100).
- A number of slopes may be sent in each crush-proof container but each slope must be individually wrapped in an adsorbent material to prevent breakage during transit.

Retention times

Additional examinations may be requested during specimen storage time by telephoning the NSSLRL. Agar slopes (apart from CL3 isolates) are kept for a minimum of 6 weeks while isolates are stored at -25^{o}C for 5 years.

Analytical failures

In the event of a specimen being unsuitable for processing or where there is an analytical failure, the laboratory will be informed by phone or in writing.

Discussion of reports

Please contact Prof. M.Cormican at martin.cormican@hse.ie, Dr. Deirbhile Keady at deirbhile.keady@hse.ie, Dr.Una NiRiain at una.niriain@hse.ie, Dr. Eithne McCarthy at eithne.mccarthy@hse.ie , Dr. Teck Wee Boo at teck.boo@hse.ie or Dr Marianne Nolan at marianneB.noland@hse.ie .

Confidentiality Policy

It is the responsibility of all staff, as defined in their contract of employment, to ensure that all information which they have access to as part of their work is treated in the strictest confidence and protected from unauthorised access. All staff are asked to sign a confidentiality agreement during their laboratory induction programme.

Service Level Agreement

The request form for the NSSLRL serves as the formal 'Service Level Agreement' between the National *Salmonella*, *Shigella* & *Listeria* Reference Laboratory [NSSLRL], Diagnostics Directorate, Galway University Hospital (GUH) and the Service user.

Complaints

Consumer Affairs and the National Advocacy Unit, Quality and Patient Safety Directorate have responsibility for developing and implementing best practice models of customer care within the HSE and promotes service user involvement across the organisation through the concept of "Your Service Your Say".

Note: If users have a complaint or feel that any part of the service is unsatisfactory or could be improved on in any way they should contact the laboratory.