GUIDELINE FOR THE ROUTINE INVESTIGATION OF FOODBOURNE INFECTIONS

TARGET AUDIENCE	NHSL WIDE, Acute, Health and Social Care Partnerships
PATIENT GROUP	All in patients and outpatients

Clinical Guidelines Summary

- This guideline outlines the steps in routine investigation of foodborne infections.
- This guideline aims to ensure that systems are in place to prevent and control infection and communicable disease.
- The goal of this guideline is to protect patients, staff and the public by effective prevention and control of foodborne infections.

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INTRODUCTION

This guideline has been developed for use in NHS Lanarkshire (NHSL) as part of the National Infection Prevention and Control Manual (NIPCM):

- Chapter 1: Standard Infection Control Precautions (SICPS)
- Chapter 2: Transmission Based Precautions: (TBPS)
- Chapter 3: Healthcare Infection Incidents, Outbreak and data exceedance
- Chapter 4: Infection Control in the Built Environment and Decontamination
- Addendum for Infection Prevention and Control within Neonatal Settings (NNU)

Aim, purpose and outcome

- This guideline outlines the steps in routine investigation of foodborne infections.
- This guideline aims to ensure that systems are in place to prevent and control infection and communicable disease.
- The goal of this guideline is to protect patients, staff and the public by effective prevention and control of foodborne infections.

Scope

This guideline is aimed at all healthcare staff working in NHS Lanarkshire.

This guideline is derived from the Epidemiological Investigation Protocol for the purpose of surveillance of infectious intestinal disease (2015), which was written in conjunction with North and South Lanarkshire Council, and so the guideline also applies to staff within the councils, particularly Environmental Health Officers.

Principle content

Notification

Notifications of cases of infectious intestinal disease (Appendix 1) mainly come from the local NHS microbiology departments. The Health Protection Team (HPT) then notifies the appropriate Environmental / Protective Services Department.

The HPT will inform the patient by letter that an Environmental Health Officer (EHO) will be in contact with them to complete the Epidemiological Questionnaire.

In all cases the relevant microbiology laboratory will inform general practitioners about positive results as per laboratory protocol. It would be good practice for the test result to be provided by the GP or a clinician prior to contacting the patient to complete the Epidemiological Questionnaire; however, this might not always be possible. Undertaking actions to prevent any risk to Public Health would be a priority.

Response

The Epidemiological Questionnaire will be completed by the EHO if community based and HPT if hospital based. Agencies will attempt to ensure that the case is contacted and interviewed and if necessary visited on the basis of the following criteria:

• ***Immediately:*** *(including weekends)* *If contact cannot be made on the same day this must be discussed with the HPT.*	If it is presumptive positive and/or confirmed microbiologically that a case has *E.coli* / VTEC or typhoid or paratyphoid or if there is a suspected or confirmed outbreak.
• ***Within one working day:*** *If there are problems obtaining a completed form, a status report should be given to the HPT after 7 days (inclusive of weekends)*	If a case has another enteric pathogen isolated.

If a case has a campylobacter infection, a member of the HPT will notify the case directly by mail of the result and provide a leaflet explaining the likely cause and nature of the infection. If there is evidence of an confirmed or suspected outbreak an epidemiological interview will be undertaken.

These criteria will be the subject of regular review.

Epidemiological Investigation

The person interviewing and / or visiting the case will carry out the following:

- *Complete an epidemiological interview* using the Infectious Intestinal Disease Surveillance Programme Epidemiological Questionnaire (See Appendix 2). A full history about symptoms, duration and possible source of the infection (including a general impression of hygiene awareness), and a full food history should be recorded. However for E. coli O157 or VTEC a National Questionnaire must be completed (http://www.hps.scot.nhs.uk/giz/publicationsdetail.aspx?id=65981)

- *Give advice on food and personal hygiene* (with the assistance of a leaflet). Preventing spread from one person to another and safe food handling in the home and at work should be discussed.

- All persons with diarrhoea or vomiting should be advised to remain off work, school or nursery until at least 48 hours after last episode of diarrhoea and or vomiting. Please refer to Appendix 2.

- *Assess the risk of further transmission of the infection*. Cases and close contacts should be assessed to see if they belong to groups who are at higher risk (see Appendix 2 and 3). If so they may need to be formally excluded from nursery, school or work. In these circumstances the EHO should explain to the family that the Health Protection

Nurse (HPN) and/or Consultant in Public Health Medicine (CPHM) will be in contact with them by telephone and/or letter. Details should be passed to the HPT as soon as possible.

- *Make arrangements for stool specimens* by completing one stool specimen kit (including labelling the pot and filling in details on the laboratory form). EHOs will leave stool kits for:
    - those considered to be at higher risk of transmitting the infection and who therefore will or may be excluded by the CPHM;
    - individuals involved in an outbreak.

Any member of the family with symptoms should be advised to attend their GP. All those receiving kits should be asked to take them to their own General Practitioner (GP) (leave a copy of "Guidance for Collecting Stool Samples" - see Appendix 4). The case or contact will be asked to phone the GP after one week to obtain the result or sooner if dealing with E. coli or an outbreak situation.

If the index case is a child and/or is unable to give a reliable history, it is better to interview the parents, carer or other authorized person. In the event of the EHO finding it difficult to interview a case, the EHO may wish to phone the Consultant in Public Health Medicine (Health Protection) so that assistance can be sought.

In general, the professional undertaking the epidemiological interview should act as the main contact with a case. However, in certain circumstances, others may need to be contacted for additional information. In such a situation the main professional should be kept informed.

Reporting

The EHO will send a copy of the Infectious Intestinal Disease Surveillance Programme Epidemiological Questionnaire to the Department of Public Health immediately; secure email to the following email account (i.e. from your gsx or gcsx email account) to : CDEH@lanarkshire.scot.nhs.uk

This should be followed by a telephone call to the HPT to confirm the email has been sent.

During out of hours and in circumstances where the EHO feels that immediate action to prevent further spread of the disease is required or where there is evidence of unusual features such as an apparent outbreak, the EHO should telephone the CPHM immediately, to discuss this further.

When a patient in hospital or care home and/or their parents or carers have been interviewed by a member of the HPT, a copy of the surveillance form should be sent by secure email to the appropriate Environmental Services Department for information. Any relevant information indicating the need for further action by the Environmental/Protective Services Department should be discussed by telephone.

Further Action

After reporting, if required, close liaison will be maintained between the CPHM and the EHO concerned. On receiving reports on stool specimens from relevant family members, the Department of Public Health will initiate any action required.

Exclusion procedures and the surveillance of high-risk groups of patients or contacts will be the responsibility of the CPHM working in close collaboration with the EHO and GP concerned (see Appendix 3).

In certain circumstances, the CPHM can request that the Environmental/Protective Services Department inspects the kitchen in premises directly relevant to the investigation and assesses the toilet and hand washing facilities in non-health care settings e.g. facilities at school and other establishments. Food handlers may also be interviewed. The HPT will assess the toilet and hand-washing facilities in healthcare establishments.

Data from the completed questionnaires will be reviewed by a member of the HPT to detect any clustering of cases, as well as possible sources indicating the actual or likely occurrence of an outbreak.

In the event of being unable to establish contact with the case, a letter should be sent to the G.P. after 7 days, advising them of the situation and any further actions required would be assessed on a case by case basis by the HPN/CPHM.

Review

This guidelineguideline is based on 'Epidemiological Investigation Protocol for the purpose of the surveillance of infectious intestinal disease'. The Epidemiological Investigation Protocol will be the subject of a joint biennial (or more often if needed) review and modification as required and agreed by NHSL, NLC and SLC. Therefore this guideline will need to be updated in line with the Epidemiological Investigation Protocol.

Roles and responsibilities

All staff are responsible for implementing and following the information provided in this guidelineguideline.

Resource implications

There are no resource implications.

Communication plan

This guideline is available on the NHS Lanarkshire intranet and NHS Lanarkshire external website. A copy of this guideline has also been distributed to Environmental Health Officers and Care Homes.

Changes to guideline or guidance will be communicated to key personnel via:

- Email
- Discussion at departmental meetings
- Note on staff briefing on Firstport
- Educational sessions

Summary or frequently asked questions (FAQ's)

If you have any questions about this guideline or how to implement it, please contact the HPT to discuss your query on **01698 752952**

References

NHS Lanarkshire, North Lanarkshire Council, South Lanarkshire Council (December 2015) Epidemiological Investigation Protocol for the purpose of the surveillance of infectious intestinal disease, 1-23.

List of appendices

Appendix 1:
List of confirmed/suspected cases that require epidemiological investigation

All Microbiologically confirmed and other significant suspected cases requiring Epidemiological Investigation as part of Infectious Intestinal Disease Surveillance Programme.

The following should be investigated:

Amoebic species e.g. *Entamoeba histolytica*
Cryptosporidiosis
E. coli O157 (confirmed or suspected) or verotoxic *E. Coli*
Other entero-haemorrhagic *E. Coli*
Giardia
Salmonella species
Shigella species
Vibrio cholera
Helminthic Infections (excepting enterobius)
Viral (if indicated by CPHM)

Other enteric pathogens including: • Hepatitis A • Bacillus cereus • Clostridium perfringens (when there is a probability of a food association) • Staphylococcus aureus • Clostridium botulinum
Haemolytic Uraemic Syndrome or Thrombotic Thrombocytopaenic Purpura thought to be associated with VTEC infection
Non microbiologically confirmed severe bloody diarrhoea
Toxic forms of foodborne disease including scombroid
Other cases involved in an actual or suspected outbreak or other circumstances as indicated by the CPHM

Surveillance of Campylobacter infections will be carried out using notification data and will be supplemented by an epidemiological interview if a case is associated with a potential outbreak.

Appendix 2:
Epidemiological questionnaire

Infectious Intestinal Disease

Surveillance Programme

Epidemiological Questionnaire

SECTION A: QUESTIONNAIRE DETAILS

Interviewer name: _____ Interview date: ☐☐ / ☐☐ / ☐☐☐☐

Designation: _____ Interviewer Telephone : _____

Organisation: NLC ☐ SLC ☐ NHSL ☐ Other ☐ (Please state): _____

Name of person(s) interviewed: _____

Relationship to case: Case ☐ Mother ☐ Father ☐ Other ☐ (Please state): _____

Contact details: Tel. (H): _____ Tel. (M): _____

SECTION B: CASE CLASSIFICATION

Is the case: Possible ☐ Probable ☐ Confirmed ☐

If Confirmed is this case: Primary ☐ Co-primary ☐ Secondary ☐ Not Sure ☐ Asymptomatic ☐

If secondary, name of primary case: _____

Investigation is: Ongoing ☐ Complete ☐

Outcome *(select all that apply)*: Recovered ☐ Still ill ☐ HUS/TTP ☐ Hospitalised ☐ Died☐ Date of death / /

SECTION C: PERSONAL DETAILS

First Name:		Family Name:			
Address:					
Postcode:		Tel. (H):		Tel. (M):	
Email:					
Sex:	M ☐ F ☐	Date of Birth:	/ /	CHI:	
Age:		GP Name:		GP Tel:	
GP Address:					
Council of Residence:	NLC ☐ SLC ☐ Other ☐ (specify):				
Ethnicity:	White ☐ Mixed ☐ Asian/Asian British ☐ Black/Black British ☐ Chinese ☐ Other:				
Are there any children living in the household (other than the case):	Yes ☐ No ☐ Unknown ☐				
Pathogen/toxin or disease notified *(including serotype, phage type if known)* :					
Occupation(s) / Main Activity - (include all voluntary, part/full time work, college/university or state unemployed):					
Name of Employer/School/College:					
Address:					
Postcode:		Date of last attendance:	/ /	Did Case attend whilst symptomatic: Y / N	

If a child, number of Pre-schools/Nurseries/Clubs etc. that child attends (e.g. 0, 1, 2 etc) : _____

Please list the name, address and phone number of each:

№	Name	Address	Telephone
1.			
2.			
3.			

Appendix 3:
Advice on Infection Prevention and Control and Exclusion from Work, School, Nursery or Other Communal Establishments

Assessment of risk

The Local Authority or NHS Board officer visiting a person notified as suffering from a gastro-intestinal infection should always assess the risk of the infected individual spreading the infection. The assessment of risk should take into account the following:

- whether the person continues with symptoms;
- the infecting organism and its infectivity;
- the age, intellectual capacity and hygiene standards of the case and/or his/her family;
- the exact nature of the case's work or whether he/she attends nursery or school or whether in an older person, he/she suffers from dementia, a confusional state, incontinence of faeces and attends a communal establishment e.g. care home, day centre;
- the facilities available for hygiene at work, home, nursery or other establishment;
- if there is a household contact who may present a risk of further spread of the infection.

The case
Persons with diarrhoea present a far greater risk of spreading infection than do known symptom-free cases who continue to excrete. Clinically well cases that continue to excrete and have normal formed stools and good personal hygiene standards present a minimal risk. However symptom-free excreters who have been cases and who have poor or doubtful standards of personal hygiene can pose a risk.

Particular cases have been identified as presenting a *higher risk of spreading infection.* These persons may in some circumstances be excluded from attending work, school, nursery or other communal establishment, until they clear the infecting organism. These cases belong to the following groups:

Group A: Any person with doubtful personal hygiene or with unsatisfactory toilet, hand washing or hand drying facilities at home, work or school.

Group B: Children who attend pre-school or nursery.

Group C: People whose work involves preparing or serving unwrapped foods not subjected to further heating.

Group D: Clinical and social care staff in high risk facilities who have direct contact with highly susceptible patients or persons in whom a gastrointestinal infection would have particularly serious consequences.

The decision to exclude takes into consideration the causative organism. Details are provided in Table 1.

Based on an individual assessment of risk the Health Board or Local Authority officer should advise the case one or more of the following:

- If the case continues to have diarrhoea or other relevant symptoms, he / she should be advised to remain off work, nursery, school or other communal establishment until 48 hours after clinical recovery.

- If the case has been assessed as being of higher risk he / she may require to be formally excluded from work by the CPHM.

- If the case has been assessed as being of higher risk he/she may require to be excluded from nursery or equivalent.

NHS Lanarkshire has statutory responsibility to make compensation payments to the excluded worker and parents / carers of those excluded from nursery, however, these payments are normally covered by statutory sick pay or other welfare payment arrangements.

Household Contacts

The exclusion of symptom-free contacts other than those of typhoid/paratyphoid fever or E. coli O157 is seldom justified but advice on the necessity for good personal hygiene should always be given particularly if contacts fall into any of the risk groups.

If an individual is in the groups A to D and is a household contact of a case, an assessment of risk should be carried out which takes into consideration the type of organism causing gastro-enteritis in the case. Based on this, the contact may require to be excluded from work or nursery by the CPHM. Details of when this is appropriate are provided in Table 1.

Table 1: Infectious intestinal, foodborne and faeco-orally spread diseases or pathogens requiring exclusion based on microbiological clearance.

Disease or pathogen	Categories of case or contact	Nature of microbiological clearance
Verocytotoxin producing *Escherichia coli* (VTEC) including O157	Risk Groups A-D	Exclude cases and contacts until they provide 2 negative faecal samples at an interval of at least 24hr. In cases, clearance samples should not be taken until 24hr after symptoms have ceased. For more detailed guidance refer to Guidance for the public health Management of infection with Verotoxigenic Escherichia coli (VTEC). https://publichealthscotland.scot/media/19099/2018-shpn-guidance-ecoli-shiga-stec.pdf
Salmonella typhi Salmonella paratyphi (enteric fever)	Risk Groups A-D	Exclude confirmed and probable cases and contacts until they provide 3 consecutive negative stools at 48 hour intervals, commencing a week after the case completed their course of antibiotics For more detailed guidance refer to: CIEH/HPA Public health operational guidelines for typhoid and paratyphoid (enteric fever). http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317132464189
Shigella flexneri, *boydii*, & *dysenteriae* (bacillary dysentery)	Risk Groups A-D	Exclude cases until they have provided 2 consecutive negative stools at 48 hour intervals. No exclusion necessary for contacts.
Vibrio cholerae O1 and O139 (cholera)	Risk Groups A-D	Exclude cases until they have provided 2 consecutive negative stools at 24 hour intervals. No exclusion necessary for contacts.
Entamoeba histolytica	Risk Group C (food handlers)	Exclude cases until they have provided 1 negative faecal sample taken at least 1 week after the end of treatment. No exclusion necessary for contacts.

Taenia solium	Risk Group C (food handlers)	Exclude cases until they have provided 2 negative stools at 1 and 2 weeks post treatment. No exclusion necessary for contacts.

Cases of infection with these pathogens who are not in high risk groups should be excluded from work/school/childcare settings until 48 hr after diarrhoea and/or vomiting have ceased.

Note: Infection Prevention and Control for Childcare Settings guidance has been recently updated:
Cryptosporidiosis: Exclusion from swimming is advisable for two weeks after the diarrhoea has settled.
Hepatitis A: Exclude until seven days after onset of jaundice (or seven days after symptom onset if no jaundice). This would also apply for Hepatitis E infection.

Source: Scottish CPHM Working Group Good Practice Statement on the management of cases and contacts of infectious intestinal disease including foodborne disease

PUBLIC HEALTH ETC (SCOTLAND) ACT 2008: EXCLUSION ORDER

Exclusion of a food-handler or healthcare worker

After informing the case or contact that exclusion may be a possibility, the visiting officer should contact the CPHM and provide details of the case or contact. If it is agreed that a formal exclusion is required, the person concerned should be informed by the EHO verbally that he/she should stay off work. A letter and exclusion certificate confirming this will be sent to all relevant persons by the Department of Public Health. When it is deemed safe for the case or contact to return to work, a further letter and certificate will be sent.

Some employers, particularly in the food industry, continue to be reluctant to reinstate staff who have been cleared by the CPHM as being fit (on public health grounds) to return to work. In these circumstances, it is up to the employers to pay compensation to their staff rather than the NHS Board / Local Authority.

Exclusion of others

In the case of a child attending a nursery or an older person attending a communal establishment, the family of the case and/or the case him/herself will be informed of the requirement not to attend the facility. A letter will also be sent to the person in charge and child's GP, as appropriate by the Department of Public Health. With regard to nurseries, the manager has no legal powers to exclude but may be required to do so by the registering authority if it is written into their regulations.

Occasionally a case may require to be excluded from primary or secondary school. In particular, this may occur when there is concern about the personal hygiene of a child who is in the first years of primary school and is a case of *E. coli* O157 infection. In these cases, the head-teacher has the legal powers to exclude the child. The CPHM will discuss such cases on an individual basis with the head teacher of the school concerned.

On occasions when a case in a school or nursery may generate anxiety among parents and/or when there is a possible outbreak, a letter will be sent to parents after full discussion with the person in charge of the nursery or school. Due regard to confidentiality will always be maintained.

Appendix 4: Guidance for Collecting Stool Samples

You have been asked to provide a stool sample (bowel motion) for testing.

1. Check that your name and the date on which the specimen has been taken, has been written on the label attached to the pot.

2. Check that your name, date of birth and the name of your GP have been written in the spaces provided on the form. The form may have been filled in already for you.

3. Use a disposable clean container recently washed in hot soapy water then dried (such as a margarine tub, ice cream container, polystyrene or foil container or a child's potty) to catch part of your bowel motion next time you need to go to the toilet.

4. Unscrew the lid of the specimen pot provided. Pour or scoop the sample into the pot. Avoid contaminating the outside of the pot. Replace the lid firmly.

5. Discard any remaining stool into the toilet.

6. The empty container should be wrapped up well in newspaper, placed into a plastic carrier bag and disposed of into the dustbin. A child's potty should be emptied and washed out well using a detergent.

7. Place the specimen pot into the sealable part of the plastic bag provided and close the pocket. Make sure the outside of the bag is clean.

8. **Thoroughly wash and dry your hands.**

9. EITHER: Return the specimen pot and form without delay to your GP surgery, Monday to Friday before 11.00 am so that it will reach the laboratory quickly.

10. OR: As directed by the Environmental Health Officer.

11. **Do not return your specimen by post.**

12. Remember to thoroughly wash your hands well using warm water and soap. Thoroughly dry your hands on a towel kept exclusively for your own use each time you go to the toilet.

13. Remember if a member of the family is ill that:
    a. Toilets should be cleaned frequently using diluted household bleach (follow dilution instructions on bottle), especially the toilet flush handle and wash hand basin taps.
    b. The ill person should not prepare food for others.
    c. If the ill person is baby a using nappies, care should be taken when changing them. good hand hygiene and proper disposal of nappies is essential.

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