



Guidance for obtaining faecal specimens from patients with diarrhoea (Background information)

Version 1.0

Date of Issue: January 2009

Review Date: January 2010

Contents

1. Introduction	3
1.1 Aims and Objectives	3
2. Rationale for this guidance	5
2.1 Epidemiology	5
2.2 Modes of transmission	6
2.3 Risk factors for diarrhoea	6
3. Key recommendations	7
3.1 Early diagnosis	7
3.2 Increase in cases of diarrhoea in the clinical area	7
3.3 When and how to collect faecal specimens	7
3.4 Infection prevention and control	7
Glossary	9
Bibliography	10

1. Introduction

This guidance has been developed by Health Protection Scotland (HPS) at the request of the Scottish Government Healthcare Associated Infection (HAI*) Task Force. The guidance was produced by an expert working group to improve patient safety by ensuring early detection of infectious agents causing diarrhoea*, which may occur in the healthcare environment resulting in healthcare associated infections*.

This guidance provides advice to those involved in the:

- diagnosis, prevention and control of infectious diarrhoea, provision of appropriate equipment and staff training in the NHS.

This includes all Healthcare Workers and management in NHSScotland.

The need for this guidance was identified through validation studies used to assess the efficacy of the 'National *Clostridium difficile* associated disease (CDAD) Mandatory Surveillance Programme'. These showed that in some hospitals there was a tendency to oversample patients, whether or not the patient displayed symptoms of diarrhoea. However, it is important to recognise that undersampling may also pose a significant problem, with early detection of an infectious agent considered paramount in terms of patient safety and infection prevention and control. This guidance aims to address these issues and reduce variation in practice.

Definition of diarrhoea:

For the purpose of this document diarrhoea is defined as *the passage of 3 or more loose or liquid stools per day, **or more frequently than is normal for the individual**. This is usually a symptom of gastrointestinal infection*, which can be caused by a variety of bacterial, viral and parasitic organisms.* [World Health Organisation (WHO), 2005]

*(NB the **frequent passing of formed stools is not diarrhoea.**)*

Further information on diarrhoea can be obtained at <http://www.who.int/topics/diarrhoea/en>

1.1 Aims and Objectives

The overall aim of this guidance is to improve patient safety by early detection of infectious agents that can cause diarrhoea in patients.

Specific objectives are:

- To promote consistency in obtaining faecal specimens from patients with diarrhoea.
- To promote the standardisation and quality of faecal specimens taken from patients with diarrhoea taken across NHS Scotland.
- To support infection prevention and control programmes by early diagnosis of infectious agents that may occur as a result of contact exposure* in healthcare premises.

This guidance does not provide:

- Clinical advice on treating patients with diarrhoea of any origin.
- Advice on faecal sampling when an infectious aetiology is not suspected.
- Advice when public health or food safety legislation overrides this guidance.
- Advice on the management of outbreaks.
- Advice on laboratory procedures.

2. Rationale for this guidance

The rationale for this guidance is as follows: many patients are admitted to hospital with gastrointestinal infections causing diarrhoea. Early diagnosis of these infections can reduce the severity of the disease, and result in the prompt introduction of appropriate treatment and implementation of infection control precautions. The early introduction of infection control precautions will reduce the risk of onward transmission of infectious agents. Early diagnosis is dependent on obtaining faecal specimens as soon as symptoms begin.

2.1 Epidemiology

In Scotland the actual incidence of infectious diarrhoea is unknown as most episodes are undiagnosed. In addition, the vast majority of cases are self limiting with no lasting negative health effects.

The most commonly reported infections that cause diarrhoea in Scotland are listed in the table below.

Infectious agents		
<u>Bacterial</u> <i>Clostridium difficile</i> (6430) Campylobacter (5192) Salmonella (1030) <i>Escherichia coli</i> 0157 (243) Shigella (166)	<u>Viral</u> Norovirus (2043) Rotavirus (1307)	<u>Parasitic</u> Cryptosporidium (510) Giardia (220)

(Figures in brackets indicate number of cases reported to HPS in 2007.)

The number of reported *Clostridium difficile* (*C. difficile*) toxin positive results has increased considerably in Scotland in the period 1996-2005 (Figure 1). This has led to the introduction of mandatory surveillance of *Clostridium difficile* associated disease (CDAD) in patients aged 65 or over since the end of 2006. Other gastrointestinal diseases are reported to HPS on a voluntary basis.

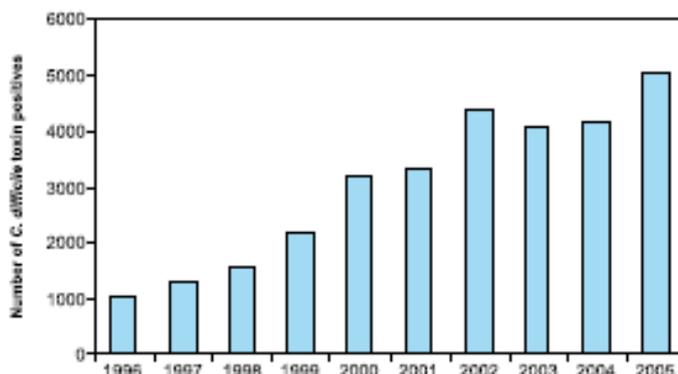


Figure 1. The number of reports of *C. difficile* toxin positives received by HPS in the period 1996-2005.

Further information is available on the HPS website at <http://www.hps.scot.nhs.uk/haic/amr/spotlightdetail.aspx?id=172>.

2.2 Modes of transmission

The infectious agents that cause diarrhoea can be transmitted via indirect or direct contact transmission from an infected individual or contaminated equipment used by the individual. As gastrointestinal infections can be spread through contaminated food or drinking water, or from person to person as a result of poor hygiene, it is important that contact precautions are adopted whilst nursing individuals with diarrhoea suspected or known to be of infectious aetiology. Further information is available at <http://www.hps.scot.nhs.uk/haic/ic/modelinfectioncontrolpolicies.aspx>.

2.3 Risk factors for diarrhoea

The following factors adapted from WHO, (2005) are associated with increased risk of diarrhoea from an HAI.

These risk factors are:

- **Agent:** the disease agent may become more virulent or increasingly resistant to available antibiotics. In addition, the risk is greater if there is an increase in communicability or incidence of a disease (e.g. norovirus).
- **Environment:** overcrowding and insufficient facilities (e.g. availability of single rooms, inadequate cleaning and infection control measures, contaminated food or water supply or sharing toilet/hygiene facilities).
- **Host:** inability to maintain personal hygiene, poor nutritional status, immunocompromised, co-morbidity, vulnerable populations (e.g. young/elderly) and chemotherapy such as antibiotic usage.

The use of risk assessment should be applied when assessing the requirement for precautions and further specialist advice should be sought from local Infection Control/Health Protection Teams.

3. Key recommendations

This section of the guidance gives key recommendations on obtaining a faecal specimen from a patient with diarrhoea.

3.1 Early diagnosis

Persons who have diarrhoea in a healthcare facility may contaminate the environment/equipment from where the infectious agent can be acquired by other patients. Infectious diarrhoea can cause serious health problems in already vulnerable patient populations (e.g. young children, elderly and immunocompromised patients). Therefore early recognition of symptoms is important for the appropriate management of the disease. To prevent spread of infection, early recognition, diagnosis and notification to the Health Protection/Infection Control Team (if required) is important. Early testing of faecal specimens will result in early diagnosis and prompt treatment.

Audit/ Practice Point

A faecal sample from a patient with diarrhoea should be sent to the Microbiology Laboratory within 24 hours following onset of symptoms.

NB. A negative test result does not necessarily exclude infection especially if clinical symptoms are highly suggestive. These cases should be discussed with the Consultant Medical Microbiologist or Infection Control Doctor.

3.2 Increase in cases of diarrhoea in the clinical area

Healthcare workers should be aware of changes in the incidence (or frequency) of patients with potentially infectious diarrhoea in their clinical area. Any sudden increase of diarrhoeal symptoms within a clinical/ward area should be reported as soon as possible to Infection Control or Health Protection staff for further advice.

3.3 When and how to collect faecal specimens

The Healthcare worker should follow the [‘When and how to obtain a faecal specimen from a patient – Information for healthcare workers’](#). In addition, patients who are self sampling should follow [‘How to collect a faecal specimen at home – Information for patients or Carers’](#).

3.4 Infection prevention and control (<http://www.hps.scot.nhs.uk/haic/ic/index.aspx>)

All specimens collected by healthcare workers must be obtained while following Standard Infection Control Precautions* (SICPs) (i.e. use of gloves and disposable plastic apron, and washing and drying of hands before and after the procedure). In addition, when a patient/client is known or suspected to be infected/colonised with an infectious agent that can be spread via direct or indirect contact, Transmission Based Precautions (TBPs) – Contact Precautions - should be used. Examples of infectious agents and those of HAI concern that can be spread by diarrhoea are norovirus or *Clostridium difficile*.

Local or national policies on SICPs and TBPs (Contact precautions) should be followed to prevent the transmission of these and other infectious agents.

HPS model policy on Standard Infection Control Precautions (SICPs) is available at:

<http://www.hps.scot.nhs.uk/haic/ic/standardinfectioncontrolprecautions-sicps.aspx>

HPS Contact precaution policy and procedure - Transmission Based Precautions* (TBP)

is available at: <http://www.hps.scot.nhs.uk/haic/ic/guidancedetail.aspx?id=37303>

Glossary

Contact Precautions – This is one of the elements of Transmission Based Precautions. Transmission Based Precautions, in addition to Standard Infection Control Precautions (SICPs), are a set of measures that should be implemented when patients/clients are either suspected or known to be infected with a specific infectious agent, when aiming to prevent and control spread, particularly in relation to healthcare associated infections (HAI). Transmission Based Precautions are categorised according to the route of transmission of the infectious agent such as droplet, contact and/or airborne.

Diarrhoea – The passage of 3 or more loose or liquid stools per day, or more frequently than is normal for the individual. This is usually a symptom of gastrointestinal infection, which can be caused by a variety of bacterial, viral and parasitic organisms.

Gastrointestinal Infection – Gastrointestinal Infection (Infectious Intestinal Disease) is defined as disease producing gastrointestinal symptoms (e.g. diarrhoea, vomiting) due to infectious agents.

Healthcare Associated Infection (HAI) – Those that occur as a result of contact with the healthcare system in its widest sense from care provided in the home, to primary care, care homes or acute hospital care.

Standard Infection Control Precautions - These are the minimum precautions necessary to reduce the risk of transmission of microorganisms from both recognised and unrecognised sources of infectious agents that may be present in blood, other body fluids, secretions, excretions, non intact skin and mucous membranes. These must be used by ALL health and social care workers in ALL situations involving the care of patients/clients in order to prevent spread of infectious agents to other non intact skin and/or mucous membranes (this includes sharp injuries). They should also be applied when dealing with the immediate patient/client environment which might be contaminated with blood, other body fluids, etc. There are nine elements to SICPs and they are essential in preventing and controlling HAI. The Nine Elements of SICP are hand hygiene, personal protective equipment, management of care equipment, control of the environment, safe management of linen, safe disposal of waste, patient placement, occupational exposure management, management of blood and other body fluid spillages.

These are available at

<http://www.hps.scot.nhs.uk/haic/ic/modelinfectioncontrolpolicies.aspx>.

Bibliography

This document has been produced by scoping the evidence from the scientific literature and an extensive review of published guidance on procedures for faecal sampling and is therefore evidence-informed. There was also contribution of expert opinion by members of the Guidance Development Group and by wider consultation throughout NHS Scotland. The literature and guidance reviewed in the making of this document is listed below:

Alberta Clinical Practice Guidelines Program Working Group (2002) Laboratory Guideline for Ordering Stool Test for Investigation of Suspected Infectious Diarrhea.

Bern C, Martines J, de Zoya I, Glass RI. (1992) The magnitude of the global problem of diarrhoeal disease: a ten-year update. *Bulletin of the World Health Organization* 70, 705-14.

Cairn Smith Report (2006). *Guidance on the investigation and control of outbreaks of foodborne disease in Scotland* FSA/SEHD.

<http://www.food.gov.uk/multimedia/pdfs/fooddisease23jun06.pdf>

Centres for Disease Prevention & Control (1990) Recommendations for the Collection of Laboratory Specimens Associated with Outbreaks of Gastroenteritis, CDC, Atlanta.

Hawker et al (2005) Communicable Disease Control Handbook. 2nd edition. Blackwell Publishing. London.

Health Protection Agency (2007) Gastroenteritis: Sporadic cases - National Standard Method VSOP2 (Issue 5), HPA, London.

Health Protection Agency (2007) Gastroenteritis: Outbreaks - National Standard Method VSOP3 (Issue 6), HPA, London.

Health Protection Agency (2007) Investigation of faecal specimens for bacterial pathogens - National Standard Method BSOP30 (Issue 6), HPA, London.

Health Protection Agency (2008) Processing faeces for *Clostridium difficile* - National Standard Method BSOP10 (Issue 1.2), HPA, London.

Health Protection Agency (2007) Infectious Diarrhoea – The Role of Microbiological Examination of Faeces Quick Reference Guide for Primary Care, HPA, London.

Health Protection Scotland (2008a) Standard Infection Control Precautions, HPS, Glasgow
<http://www.hps.scot.nhs.uk/haic/ic/standardinfectioncontrolprecautions-sicps.aspx>.

Health Protection Scotland (2008b) Transmission Based Precautions, HPS, Glasgow
<http://www.hps.scot.nhs.uk/haic/ic/transmissionbasedprecautions.aspx>.

Kujiper, EJ., Coignard, B. and Tull, P. (2006) Emergence of *Clostridium difficile* associated disease in North America and Europe. *Clinical Microbiological Infection*, 12, 2-18

Scottish Executive Health Department (2002) The Watt Group Report, SEHD, Edinburgh

Scottish Government (2008). Healthcare associated infection – management of incidents and outbreaks, Scottish Government, Edinburgh

World Health Organisation (2008) Foodborne disease outbreaks: Guidelines for investigation and control, WHO, Geneva

World Health Organisation (2005) Detection, Confirmation and Management of a Dysentery Outbreak Caused by *Shigellae* Species, WHO, Geneva