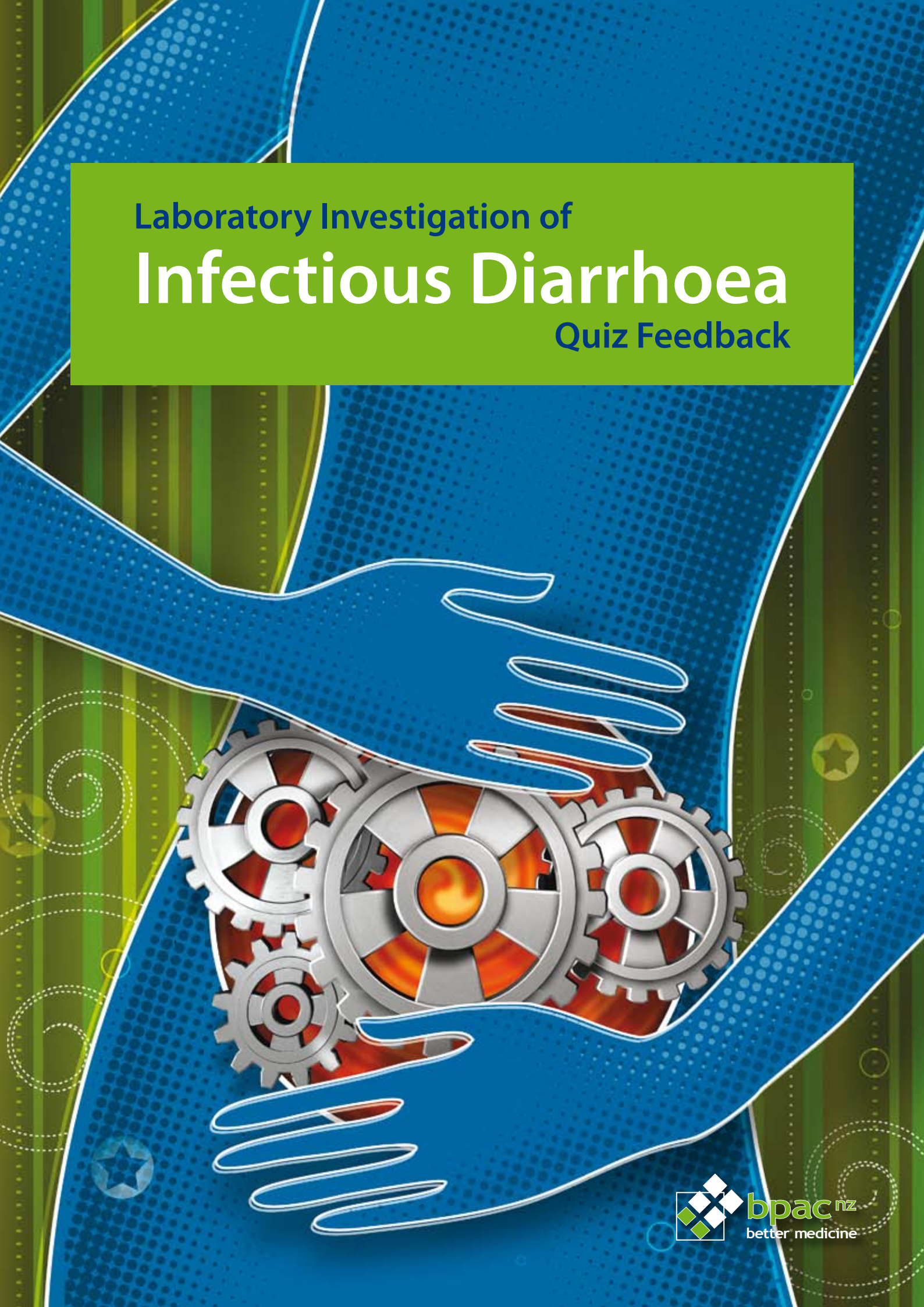
Laboratory Investigation of Infectious Diarrhoea

Quiz Feedback



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Introduction

This series of scenarios was designed as an opportunity to revisit some of the main points covered in the bpac document "Laboratory Investigation of Infectious Diarrhoea". The key points presented in this programme were:

- Laboratory investigations are not routinely required for most patients with acute diarrhoea
- If laboratory testing is indicated, a single stool specimen for faecal culture is usually appropriate
- Tests for giardia and cryptosporidium should only be requested if there are risk factors
- Testing for "ova and parasites" is rarely indicated
- Notification to the Medical Officer of Health is required if the case may be part of an outbreak

This copy of the quiz feedback includes the responses from all GPs that completed this quiz, comments from the GP review group and specialist commentary from Dr Rosemary Ikram. GPs that complete the quiz receive personalised feedback.

All GPs who respond to this quiz will receive CME points. These points will be "direct credited" into your "record of learning". The quiz can still be completed online, after the closing date.

Currently there are approximately 20 interactive case studies and quizzes available allowing you to participate in endorsed CME at your convenience. These are available from: **www.bpac.org.nz**.

Laboratory Investigation of Infectious Diarrhoea Quiz

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Due date: 22 February 2008

1. A 9 month old child is brought into the surgery by his mother. He has had diarrhoea since first thing this morning. Which option(s) from the following list would you recommend?

- ☐ Manage symptomatically, suggest returning if not resolved in 2-3 days
- ☐ Request faecal culture
- ☐ Request Giardia/Cryptosporidium
- ☐ Request ova and cysts
- ☐ Request Rotavirus

2. A 28 year old man presents with diarrhoea which he has had for the last 48 hours. He mentions he went tramping 2 weeks ago and drank water from the streams. Which option(s) from the following list would you recommend?

- ☐ Manage symptomatically, suggest returning if not resolved in 2-3 days
- ☐ Request faecal culture
- ☐ Request Giardia/Cryptosporidium
- ☐ Request ova and cysts
- ☐ Request Clostridium difficile toxin

3. An 83 year old woman presents with diarrhoea that she has had for the last 5 days. She has recently been discharged from hospital. What do you recommend?

- ☐ Manage symptomatically, suggests she returns if not resolved in 2-3 days
- ☐ Request faecal culture
- ☐ Request Giardia/Cryptosporidium
- ☐ Request ova and cysts
- ☐ Request Clostridium difficile toxin

4. A 17 year old woman presents with diarrhoea. She tells you she was collecting seafood in the weekend and some was eaten raw, you think this may be the cause the diarrhoea. What do you recommend?

- ☐ Request faecal culture
- ☐ Request Giardia/Cryptosporidium
- ☐ Request ova and cysts
- ☐ Ring the lab to check the name of the pathogen to write on the request form
- ☐ Write "consumption of raw seafood" on the request form

5. Which of the following statements are true about collecting a sample for faecal culture?

- ☐ Deliver to the lab as soon as possible
- ☐ If unable to deliver immediately, sample is stable for up to a week if frozen
- ☐ Keep at 4°C and deliver to lab within 24 hours
- ☐ A faeces sample with faecal fixative added, can also be used for faecal culture

6. On which of the following situations should you request Giardia and Cryptosporidium for someone with diarrhoea?

- ☐ Child attending childcare facility
- ☐ Bloody diarrhoea
- ☐ Recent antibiotics
- ☐ Exposure to untreated water supply
- ☐ Age over 70 years

7. On which of following situations is more than one faecal sample appropriate?

- ☐ Diarrhoea persisting for more than 14 days
- ☐ Diarrhoea in someone who has recently travelled to an undeveloped country
- ☐ Clearance for work for food handler with salmonella infection
- ☐ Diarrhoea when Giardia is detected
- ☐ Presentation of diarrhoea in a food handler

8. On which of the following situations should you request "ova and parasites" for someone with diarrhoea?

- ☐ Child under five years
- ☐ Someone recently returned from tramping trip
- ☐ An immunocompromised person
- ☐ Food handler
- ☐ Diarrhoea persisting for more than 14 days

9. On which of the following situations would you order Clostridium difficile for someone with diarrhoea?

- ☐ Recent antibiotic use
- ☐ Recent hospitalisation
- ☐ Age over 70 years
- ☐ Bloody diarrhoea

10. Which of the following gastroenteritis presentations would prompt referral to public health?

- ☐ Two or more presentations from the same source
- ☐ Staff member from childcare facility presenting to GP with acute diarrhoea
- ☐ Campylobacter identified in stool culture
- ☐ Patient with diarrhoea who is systemically unwell
- ☐ Stool positive for Rotavirus

Name: _____

NZMC: _____

Practice: _____

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Quiz feedback: Infectious Diarrhoea

1. A 9 month old child is brought into the surgery by his mother. He has had diarrhoea since first thing this morning. Which option(s) from the following list would you recommend?

	You	Your Peers	GP Panel
Manage symptomatically, suggest returning if not resolved in 2-3 days		85%	•
Request faecal culture		26%	
Request Giardia/Cryptosporidium		<1%	
Request ova and cysts		0%	
Request Rotavirus		5%	

GP panel

The panel noted a young child presenting with diarrhoea is a common consultation, and is often managed well by the practice nurse via phone consultation. It is assumed that the child is well and causes other than infectious diarrhoea have been reasonably excluded. They would advise on maintaining adequate hydration, good hygiene to minimize transfer to other members of the family, and returning in 2–3 days if the child is no better. They would not usually request a culture at the first consultation, and were surprised that so many respondents indicated they would. It may be useful to give the patient a 'back pocket request' form. A specimen can then be collected and sent to the laboratory if the diarrhoea has not resolved in "a few days".

The panel did acknowledge that the responses given to short case scenarios on a issue with a fairly narrow focus are not always going to be completely representative of decisions made during consultations, when GPs will be looking at the wider picture.

Specialist comment

It is difficult to estimate rates of significant diarrhoea especially at the early stage when this child presents. A study from the USA in the 1970s looking at acute attacks of diarrhoea was a rate of 2.46 per person year for the 0–3 year age group and 1.95 per person year for the 4–9 year age group. Symptomatic management is the best course of action with a review period.

2. A 28 year old man presents with diarrhoea which he has had for the last 48 hours. He mentions he went tramping 2 weeks ago and drank water from the streams. Which option(s) from the following list would you recommend?

	You	Your Peers	GP Panel
Manage symptomatically, suggest returning if not resolved in 2-3 days		45%	
Request faecal culture		44%	•
Request Giardia/Cryptosporidium		80%	•
Request ova and cysts		2%	
Request Clostridium difficile toxin		<1%	

GP panel

Although this patient has risk factors suggesting Giardia, the panel would also request culture because of the possibility of one of the other common causes. Patients occasionally present requesting treatment for giardia without stool testing. The panel sometimes adopt a pragmatic approach knowing that the gold standard of test then treat is not always what the patient wants or practical in all circumstances (such as where follow up is difficult).

It is useful to advise the patient that while they have diarrhoea, they can assume they are infectious. It would be worthwhile discussing with the patient good general hygiene rules to help avoid transmitting the possible infection to other people.

The panel has seen few cases of infectious diarrhoea caused by cryptosporidium and queried how common the pathogen is.

Specialist comment

Cryptosporidium was found as an aetiological agent of diarrhoea in AIDS patients but it was found to cause diarrhoea in the immunocompetent as well. It is often acquired from animal contact, several outbreaks associated with “petting zoos” have been described as well as the well know association with contaminated swimming pools. In our study of diarrhoeal stools at Medlab South Ltd cryptosporidium was as common as giardia ie found in 4% of samples. It was more common in the 0–4 year group (10%) and 5–19 year group (7%), mainly found in spring and relatively less common in the older age groups (0% in >70 year age group). Most laboratories will be using a combined test for giardia and cryptosporidium, therefore a request for either will generate a result for the other. In our study 50% of cases would have been missed by testing for giardia only when requested.

In this scenario a request for culture is also advisable, as bacterial pathogens are also potentially waterborne.

3. An 83 year old woman presents with diarrhoea that she has had for the last 5 days. She has recently been discharged from hospital. What do you recommend?

	You	Your Peers	GP Panel
Manage symptomatically, suggest returning if not resolved in 2–3 days		23%	
Request faecal culture		65%	•
Request Giardia/Cryptosporidium		1%	
Request ova and cysts		0%	
Request *Clostridium difficile* toxin		95%	•

GP panel

Because of both the woman's age and because she has had diarrhoea for 5 days, the panel would begin investigations at this stage. She is probably also at higher risk of complications. While it is tempting in the context of this quiz to tick *Clostridium difficile* only, the panel thinks in a true consultation a much broader view would be taken. Frequently patients are discharged from hospital with a number of new problems and it is important to look at the wider picture. The panel would be concerned about other causes such as malignancy or adverse effects from medication.

Specialist comment

Clostridium difficile is a common cause of diarrhoea in the > 70 year age group. With the patient leaving hospital so recently it is not likely that the culture would add much. In a situation where the person has been in the community for a longer time or has not been in hospital a culture is advisable.

4. A 17 year old woman presents with diarrhoea. She tells you she was collecting seafood in the weekend and some was eaten raw, you think this may be the cause the diarrhoea. What do you recommend?

	You	Your Peers	GP Panel
Request faecal culture		82%	•
Request Giardia/Cryptosporidium		2%	
Request ova and cysts		1%	
Ring the lab to check the name of the pathogen to write on the request form		4%	
Write "consumption of raw seafood" on the request form		88%	•

GP panel

Vibrio parahaemolyticus is not a pathogen the panel has ever encountered in their day-to-day practice. The panel would be interested in more details about the prevalence and significance of vibrio infection.

It is reassuring the vast majority of respondents would write the relevant clinical details on the form.

Specialist comment

The clinical information "eaten raw seafood" is sufficient to alert the laboratory that a selective media to detect vibrios is required. The prevalence of this organism is relatively low and therefore selective media to detect is not routine.

Clinically this organism causes acute diarrhoea often associated with abdominal pain about 24 hours after ingesting the seafood. In our study of 1200 stools it was isolated from one patient ie 0.08%; hence the requirement for relevant clinical information.

5. Which of the following statements are true about collecting a sample for faecal culture?

	You	Your Peers	GP Panel
Deliver to the lab as soon as possible		81%	•
If unable to deliver immediately, sample is stable for up to a week if frozen		<1%	
Keep at 4°C and deliver to lab within 24 hours		93%	•
A faeces sample with faecal fixative added, can also be used for faecal culture		6%	

GP panel

The panel acknowledged in most situations instruction for specimen collection is not provided by them: instead it is usually given by the practice nurse, or obtained from information leaflets from the laboratories, or not given at all! It is useful for GPs to be familiar with how samples should be collected as there will be some patients who feel more comfortable talking about this with their GP. The panel appreciated the practical advice in the bpac resource.

6. On which of the following situations should you request Giardia and Cryptosporidium for someone with diarrhoea?

	You	Your Peers	GP Panel
Child attending childcare facility		85%	+/–
Bloody diarrhoea		4%	
Recent antibiotics		<1%	
Exposure to untreated water supply		93%	•
Age over 70 years		3%	

GP panel

The panel were familiar with the risk of Giardia and Cryptosporidium from untreated water, but questioned whether all children attending childcare who develop diarrhoea really need testing for these two protozoa. The panel commented "...most children attend childcare, but most children don't have Giardia...". Prior to this bpac programme the panel would not have requested Giardia and Cryptosporidium in the first instance for children attending childcare, and they may still not unless they are aware of any additional risk factors.

Specialist comment

Association of giardia infection with childcare is well described. Asymptomatic cyst carriage is common and spread is facilitated in groups with poor faecal oral hygiene ie daycare and men who have sex with men. Of 100 people ingesting Giardia cysts: 5–15 become asymptomatic cyst carriers, 25–50 are symptomatic and 35–70 have no trace of infection. Therefore there is a public health risk and treatment is usually curative.

In our study of 1200 diarrhoea stools 4% were positive for giardia. This constituted 4% in all age groups from 0–70 years. There was no significant seasonality, however in those with a rural address the yield was 6%.

7. On which of following situations is more than one faecal sample appropriate?

	You	Your Peers	GP Panel
Diarrhoea persisting for more than 14 days		60%	+/–
Diarrhoea in someone who has recently travelled to an undeveloped country		72%	
Clearance for work for food handler with salmonella infection		82%	•
Diarrhoea when Giardia is detected		3%	
Presentation of diarrhoea in a food handler		24%	

GP panel

The panel was unsure if this scenario meant situations when more than one faecal sample is collected on the first presentation, or if it meant extra tests being added following the results of the initial tests.

In a person with diarrhoea, who has recently travelled to an undeveloped country, ova and parasites would be indicated. The number of specimens recommended for this varies from 1–3 dependent upon individual laboratories.

For a food handler with confirmed salmonella, two consecutive negative faecal specimens are required, but it is reassuring that this will be managed by public health.

In a person presenting who had diarrhoea lasting for longer than 14 days the panel would consider a number of other non-infective causes. Laboratory testing would often be done to exclude infective causes.

Specialist comment

In a patient with ongoing symptoms who has not left New Zealand it would be worth excluding *Dientamoeba fragilis*. The laboratory would prepare stained films as part of the ova and parasites examination. This would require up to three stools collected into fixative. In an older patient, ie > 65 years, it is worth excluding *C. difficile*.

Those who have travelled overseas should have a full work up at presentation ie: culture; giardia and cryptosporidium antigen test; and ova and parasites (NB: 3 samples for ova and parasites only).

8. On which of the following situations should you request "ova and parasites" for someone with diarrhoea?

	You	Your Peers	GP Panel
Child under five years		2%	
Someone recently returned from tramping trip		14%	
An immunocompromised person		92%	•
Food handler		2%	
Diarrhoea persisting for more than 14 days		73%	+/–

GP panel

The panel was unsure of the recommendation of testing ova and parasites in a person with persisting diarrhoea with no risk factors. For example: for a person who has not travelled overseas and has no other risk factors, the panel thinks a stepwise approach which involved testing giardia and cryptosporidium before ova and parasites would be more appropriate.

Specialist comment

The protozoa *Dientamoeba fragilis* is commonly considered to be a commensal but has been implicated as a cause of persistent diarrhoea in some cases. *Dientamoeba fragilis* is relatively common in some areas, estimated at about 2–4%. Therefore it seems reasonable to leave as a second line test when other causes have been excluded.

9. On which of the following situations would you order *Clostridium difficile* for someone with diarrhoea?

	You	Your Peers	GP Panel
Recent antibiotic use		97%	•
Recent hospitalisation		96%	•
Age over 70 years		91%	•
Bloody diarrhoea		5%	

GP panel

The panel saw a number of cases of diarrhoea following antibiotic use, but if transient it is assumed to be a result of the antibiotic itself, rather than *Clostridium difficile* infection. A definition of "recent" antibiotic use would be helpful, as the panel were unsure how long the association between antibiotic use and *Clostridium difficile* infection would last.

Specialist comment

C. difficile may be considered as a cause of diarrhoea in people who have had antibiotics in the last 5–10 days (typically) but this association may last up to 10 weeks.

10. Which of the following gastroenteritis presentations would prompt referral to public health?

	You	Your Peers	GP Panel
Two or more presentations from the same source		89%	•
Staff member from childcare facility presenting to GP with acute diarrhoea		40%	
Campylobacter identified in stool culture		91%	•
Patient with diarrhoea who is systemically unwell		4%	
Stool positive for Rotavirus		2%	

GP panel

The panel discussed how an "outbreak" would be defined. The public health recommendations define it as two or more cases from the same source, but in practice this might not be so straightforward. For example one family member may develop infectious diarrhoea, and then pass it to the rest of the family. This could easily be labelled as "two or more cases from the same source", but is this an outbreak?

High risk individuals such as food handlers, infants or staff at a childcare centre, or health care workers, do not need to be reported to public health unless they have a notifiable disease. Reporting to public health is not clearcut and the panel would take a pragmatic approach.

Specialist comment

Campylobacter is much more common in New Zealand than other industrialised countries. In the last few months the number of cases has started to decrease but is still relatively high. A study has been done by the ESR and the results should be available soon and questions relating to the local situation should be clarified.

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