

1 **NATIONAL INSTITUTE FOR HEALTH AND CARE**
2 **EXCELLENCE**

3 **Guideline**

4 **Diverticular disease: diagnosis and**
5 **management**

6 **Draft for consultation, June 2019**

This guideline covers

This guideline covers the diagnosis and management of diverticular disease in people aged 18 years and over. It includes symptoms and signs of diverticular disease, diagnosing acute diverticulitis, and managing complications of complicated acute diverticulitis. It also covers information and advice for people with the disease.

Who is it for?

- Healthcare professionals in primary care
- Healthcare professionals in secondary care
- People with diverticular disease, their families and carers, and the public

This draft guideline contains:

- the draft recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the recommendations and how they might affect practice
- the guideline context.

Information about how the guideline was developed is on the [guideline's page](#) on the NICE website. This includes the evidence reviews, the scope, and details of the committee and any declarations of interest.

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1 Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in [your care](#).

[Making decisions using NICE guidelines](#) explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

2 1.1 *Diverticulosis*

3 Management and advice

4 1.1.1 Tell people with [diverticulosis](#) that the condition is asymptomatic and no
5 specific treatments are needed.

6 1.1.2 Advise people to eat a healthy, balanced diet including whole grains, fruit
7 and vegetables. Tell them that:

- 8 • there is no need to avoid seeds, nuts or fruit skins
- 9 • if they have constipation and a low-fibre diet, increasing their fibre
10 intake gradually may minimise flatulence and bloating.

11 1.1.3 Advise people to drink adequate fluid if they are increasing their fibre
12 intake, especially if there is a risk of dehydration.

13 1.1.4 Consider bulk-forming laxatives for people with constipation.

14 1.1.5 Tell people about the benefits of exercise, and weight loss if they are
15 overweight or obese, in reducing the risk of developing acute diverticulitis
16 and symptomatic disease.

To find out why the committee made the recommendations on diverticulosis management and advice and how they might affect practice, see [rationale and impact](#).

1 **1.2 Diverticular disease**

2 **Symptoms and signs**

3 1.2.1 Suspect [diverticular disease](#) if a person presents with one or both of the
4 following:

- 5 • intermittent abdominal pain in the left lower quadrant with constipation,
6 diarrhoea or occasional large rectal bleeds (the pain may be triggered
7 by eating and relieved by the passage of stool or flatus)
- 8 • tenderness in the left lower quadrant on abdominal examination.

9 Be aware that in a minority of people and in people of Asian origin, pain
10 and tenderness may be localised in the right lower quadrant.

To find out why the committee made the recommendation on symptoms and signs of diverticular disease and how it might affect practice, see [rationale and impact](#).

11 **Investigations and referral**

12 1.2.2 For people with suspected diverticular disease:

- 13 • consider organising routine endoscopic and/or radiological
14 investigations from primary care **or**
- 15 • follow the routine local referral pathway to secondary care.

16 1.2.3 If the person meets the criteria for a suspected cancer pathway, refer by
17 this route (see NICE's guideline on [suspected cancer: recognition and](#)
18 [referral](#)).

To find out why the committee made the recommendations on investigations and referral for people with suspected diverticular disease and how they might affect practice, see [rationale and impact](#)

19 **Management and advice**

20 1.2.4 Do not offer antibiotics to people with diverticular disease.

- 1 1.2.5 For advice on diet, fluid intake, weight loss and exercise, follow the
2 recommendations on diverticulosis.
- 3 1.2.6 Advise people that:
- 4 • the benefits of increasing dietary fibre may take several weeks to
5 achieve
- 6 • a high-fibre diet should be maintained for life.
- 7 1.2.7 Consider bulk-forming laxatives if:
- 8 • a high-fibre diet is unacceptable to the person or it is not tolerated **or**
9 • the person has persistent constipation or diarrhoea.
- 10 1.2.8 Consider analgesia, for example paracetamol, as needed if the person
11 has ongoing abdominal pain.
- 12 1.2.9 Advise people to avoid nonsteroidal anti-inflammatory drugs and opioid
13 analgesia if possible, because they may increase the risk of diverticular
14 perforation.
- 15 1.2.10 Consider an antispasmodic if the person has abdominal cramping.
- 16 1.2.11 If the person has persistent symptoms or symptoms that do not respond
17 to treatment, consider alternative causes and investigate and manage
18 appropriately.

To find out why the committee made the recommendations on management and advice for people with diverticular disease and how they might affect practice, see [rationale and impact](#)

19 **1.3 Acute diverticulitis**

20 **Symptoms and signs of acute diverticulitis**

- 21 1.3.1 Suspect [acute diverticulitis](#) if a person presents with constant abdominal
22 pain, usually severe and localising in the left lower quadrant, with any of
23 the following:

- 1 • fever **or**
- 2 • a change in bowel habit and significant rectal bleeding or passage of
- 3 mucous per rectum **or**
- 4 • tenderness in the left lower quadrant, a palpable abdominal mass or
- 5 distention on abdominal examination, with a previous history of
- 6 diverticulosis or diverticulitis.

7 Be aware that in a minority of people and in people of Asian origin, pain
8 and tenderness may be localised in the right lower quadrant.

To find out why the committee made the recommendation on symptoms and signs of acute diverticulitis and how it might affect practice, see [rationale and impact](#).

9 **Symptoms and signs of [complicated acute diverticulitis](#)**

10 1.3.2 Suspect a complication of acute diverticulitis and refer for same-day
11 hospital assessment if the person has uncontrolled abdominal pain and
12 any of the features in table 1.

13 **Table 1 Symptoms and signs that suggest a complication of acute diverticulitis**

Symptom or sign	Possible complication
Abdominal mass on examination or peri-rectal fullness on digital rectal examination	Intra-abdominal abscess
Abdominal rigidity, guarding and rebound tenderness on examination	Bowel perforation and peritonitis
Altered mental state, raised respiratory rate, low systolic blood pressure, raised heart rate, low tympanic temperature, no urine output or skin discolouration	Sepsis
Faecaluria, pneumaturia or pyuria	Fistula
Colicky abdominal pain, absolute constipation (passage of no flatus or stool), vomiting or abdominal distention	Intestinal obstruction

14

To find out why the committee made the recommendation on symptoms and signs of complicated acute diverticulitis and how it might affect practice, see [rationale and impact](#).

1 **Investigation of suspected acute diverticulitis**

2 ***Primary care***

3 1.3.3 For people with suspected acute diverticulitis who are not referred for
4 same-day hospital assessment:

- 5 • reassess in primary care if their symptoms persist or worsen **and**
- 6 • consider referral to secondary care for further assessment.

7 ***Secondary care***

8 1.3.4 Offer a full blood count and C-reactive protein test to people with
9 suspected complicated acute diverticulitis who have been referred for
10 same-day hospital assessment.

11 1.3.5 If the person with suspected complicated acute diverticulitis has raised
12 inflammatory markers, offer a contrast CT scan within 48 hours of hospital
13 admission to confirm diagnosis and help plan management.

- 14 • If contrast CT is contraindicated perform a non-contrast CT if indicated.
- 15 • If CT is contraindicated, consider MRI or ultrasound scan depending on
16 local expertise.

17 1.3.6 If inflammatory markers are not raised, think about the possibility of
18 alternative diagnoses.

To find out why the committee made the recommendations on investigation of suspected acute diverticulitis and how they might affect practice, see [rationale and impact](#).

19 **Non-surgical management of acute diverticulitis**

20 1.3.7 Consider a no antibiotic prescribing strategy (with watchful waiting) for
21 people with acute diverticulitis if the person is systemically well.

22 1.3.8 Offer an antibiotic prescribing strategy if the person with acute diverticulitis
23 is systemically unwell, is immunosuppressed or has significant
24 comorbidity.

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- 1 1.3.9 For guidance on the management of suspected sepsis see the NICE
2 guideline on [sepsis](#).
- 3 1.3.10 Offer intravenous antibiotics to people admitted to secondary care with
4 suspected complicated acute diverticulitis.
- 5 1.3.11 Review intravenous antibiotics within 48 hours or after scanning if sooner
6 (see recommendation 1.3.5) and consider stepping down to oral
7 antibiotics where possible.
- 8 1.3.12 If the person has CT-confirmed uncomplicated acute diverticulitis, review
9 the need for antibiotics and discharge them depending on any co-existing
10 medical conditions.
- 11 1.3.13 When prescribing an antibiotic for suspected or confirmed acute
12 diverticulitis, follow the advice in table 2.

1 **Table 2 Antibiotics for adults aged 18 years and over with suspected or**
 2 **confirmed acute diverticulitis**

Antibiotic ¹	Dosage and course length ²
First-choice oral antibiotic for suspected or confirmed uncomplicated acute diverticulitis	
Co-amoxiclav	500/125 mg three times a day for 5 days
Alternative first-choice oral antibiotics if penicillin allergy or co-amoxiclav unsuitable	
Cefalexin <i>with</i>	500 mg twice or three times a day (up to 1 to 1.5 g three or four times a day for severe infection) for 5 days
Metronidazole	400 mg three times a day for 5 days
Trimethoprim <i>with</i>	200 mg twice a day for 5 days
Metronidazole	400 mg three times a day for 5 days
First-choice intravenous antibiotics³ for suspected or confirmed complicated acute diverticulitis	
Co-amoxiclav	1.2 g three times a day
Cefuroxime <i>with</i>	750 mg three or four times a day (increased to 1.5 g three or four times a day if severe infection)
Metronidazole	500 mg three times a day
Amoxicillin <i>with</i>	500 mg three times a day (increased to 1 g four times a day if severe infection)
Gentamicin <i>and</i>	Initially 5 to 7 mg/kg once a day, subsequent doses adjusted according to serum gentamicin concentration ⁴
Metronidazole	500 mg three times a day
Ciprofloxacin ⁵ <i>with</i>	400 mg twice or three times a day
Metronidazole	500 mg three times a day
Alternative intravenous antibiotics	
Consult local microbiologist	
<p>¹See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breast-feeding and administering intravenous antibiotics.</p> <p>²A longer course may be needed based on clinical assessment. Continue antibiotics for up to 14 days in people with CT-confirmed diverticular abscess.</p> <p>³Review intravenous antibiotics within 48 hours or after scanning if sooner and consider stepping down to oral antibiotics where possible.</p> <p>⁴Therapeutic drug monitoring and assessment of renal function is required (BNF, May 2019).</p> <p>⁵Only in people with allergy to penicillins and cephalosporins. See MHRA advice for restrictions and precautions for using fluoroquinolones due to very rare reports of disabling and potentially long-lasting or irreversible side effects (March 2019).</p>	

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To find out why the committee made the recommendations on the non-surgical management of acute diverticulitis and how they might affect practice, see [rationale and impact](#).

1 **Emergency management of complicated acute diverticulitis**

2 ***Management of abscesses***

3 1.3.14 For people presenting in secondary care with complicated acute
4 diverticulitis and suspected diverticular abscess, assess and manage in
5 line with the NICE guideline on [sepsis](#).

6 1.3.15 When prescribing an antibiotic for diverticular abscess, follow the advice
7 in [table 2](#).

8 1.3.16 Offer intravenous antibiotics and a contrast CT scan to people with
9 complicated acute diverticulitis and suspected diverticular abscess.

- 10 • If contrast CT is contraindicated perform a non-contrast CT if indicated.
- 11 • If CT is contraindicated consider MRI or ultrasound scan depending on
12 local expertise.

13 1.3.17 Review intravenous antibiotics within 48 hours or after scanning if sooner
14 and consider stepping down to oral antibiotics where possible.

15 1.3.18 Use the scan results to guide treatment based on the size and location of
16 the abscess.

17 1.3.19 If a person does not have confirmed diverticular abscess, review their
18 need for antibiotics.

19 1.3.20 Consider either percutaneous drainage (if anatomically feasible) or
20 surgery for abscesses greater than 3 cm.

21 1.3.21 Send samples of pus from the abscess (if it has been drained) to the
22 microbiology laboratory to enable antibiotic therapy to be tailored to
23 sensitivities.

- 1 1.3.22 For abscesses less than 3 cm switch to oral antibiotics when possible.
- 2 1.3.23 In people with a CT-confirmed diverticular abscess, if the condition does
- 3 not improve clinically or there is deterioration, consider re-imaging to
- 4 inform the management strategy.

To find out why the committee made the recommendations on the management of abscesses and how they might affect practice, see [rationale and impact](#).

5 ***Management of bowel perforations***

- 6 1.3.24 Offer either laparoscopic lavage or resectional surgery to people with
- 7 diverticular perforation with generalised peritonitis after discussing the
- 8 risks and benefits of the 2 options with them (see table 3). If faecal
- 9 peritonitis is identified intraoperatively, proceed to resectional surgery.

1 **Table 3 Factors to take into account when deciding whether to have lavage or**
 2 **resection for diverticular perforation with generalised peritonitis**

	Laparoscopic lavage	Resectional surgery
What the procedure involves	In diverticulitis this involves washing the abdominal cavity and colon with water or solution using keyhole surgery.	The surgical removal of the diseased colon followed by either reattaching the remaining segments of the colon or forming an end stoma.
Effect on quality of life	There was no significant difference in quality of life scores reported for lavage and surgery.	
Mortality	Although there was some benefit seen in mortality for lavage, this evidence was very uncertain.	
Needing a stoma (where the bowel is connected surgically to an opening in the abdomen and stools are collected in a bag or pouch)	A stoma is not needed.	A stoma may be needed.
Pain	Less likely to relieve pain than resectional surgery.	More likely to relieve pain than lavage because the damaged bowel has been removed.
Recurrent diverticulitis	Fewer people had recurrent diverticulitis after surgery than after lavage because the diseased bowel is removed. However, the evidence was very uncertain.	
Needing more operations	Evidence comparing unplanned surgery with lavage showed that fewer people needed reoperations after surgery than after lavage. Evidence that included unplanned surgery and planned surgery (scheduled stoma reversal after resectional surgery) showed that fewer people needed reoperations after lavage. However, in both cases the evidence was very uncertain.	
Postoperative complications	There was no difference in the number of infections or in the need for further intervention between lavage and surgery. People who had surgery had a greater reduction in post-surgical abscesses than those who had lavage, but this evidence was of low quality.	

3

To find out why the committee made the recommendation on the management of bowel perforations and how it might affect practice, see [rationale and impact](#).

4 **Anastomosis and colectomy for people with complicated acute diverticulitis**
 5 **(elective and emergency surgery)**

6 1.3.25 Offer people with complicated acute diverticulitis:

- 1 • primary anastomosis with or without diverting stoma **or**
2 • Hartmann's procedure.

3 Take into account the patient's age, any other conditions they have and
4 how well they can carry out everyday activities (WHO performance
5 status).

- 6 1.3.26 In people undergoing resection of the colon, consider resecting back to
7 the compliant bowel.

To find out why the committee made the recommendation on anastomosis for people with complicated acute diverticulitis and it might affect practice, see [rationale and impact](#).

To find out why the committee made the recommendation on colectomy for people with complicated acute diverticulitis and it might affect practice, see [rationale and impact](#).

8 **Elective surgical management after resolution of complicated acute**
9 **diverticulitis**

- 10 1.3.27 Consider open or laparoscopic resection for elective surgery for people
11 who have recovered from complicated acute diverticulitis but have
12 continuing symptoms.

To find out why the committee made the recommendation on the elective surgical management after resolution of complicated acute diverticulitis and how it might affect practice, see [rationale and impact](#).

13 **Management of recurrent acute diverticulitis**

- 14 1.3.28 Do not offer an aminosaliclylate or antibiotics to prevent recurrent acute
15 diverticulitis.

To find out why the committee made the recommendation on the management of recurrent acute diverticulitis and how it might affect practice, see [rationale and impact](#).

1 **1.4 Information**

2 **Diverticulosis**

3 1.4.1 Give people with diverticulosis, and their families and carers where
4 appropriate, verbal and written information on:

- 5
- 6 • diet and lifestyle
 - 7 • the course of diverticulosis and the likelihood of progression
 - 8 • symptoms that indicate complications or progression to diverticular disease.

9 **Diverticular disease**

10 1.4.2 Give people with diverticular disease, and their families and carers where
11 appropriate, verbal and written information on:

- 12
- 13 • diet and lifestyle
 - 14 • the course of diverticular disease and the likelihood of progression
 - 15 • symptoms and symptom management
 - 16 • when to seek medical advice.

16 **Acute diverticulitis**

17 1.4.3 Give people with acute diverticulitis, and their families and carers where
18 appropriate, verbal and written information on:

- 19
- 20 • diet and lifestyle
 - 21 • the course of acute diverticulitis and likelihood of complicated disease or recurrent episodes
 - 22 • symptoms
 - 23 • when and how to seek further medical advice
 - 24 • possible investigations and treatments

- 1 • risks of interventions and treatments, including antibiotic resistance,
2 and how invasive these are
- 3 • role of surgery and outcomes (postoperative bowel function and
4 symptoms).

To find out why the committee made the recommendations on information for people with diverticulosis, diverticular disease and acute diverticulitis, and how they might affect practice, see [rationale and impact](#).

5 ***Terms used in this guideline***

6 **Acute diverticulitis**

7 Inflammation or infection associated with diverticula. Symptoms include constant
8 abdominal pain, usually severe and localising in the left lower quadrant. Other
9 features, including fever, may also be present.

10 **Complicated acute diverticulitis**

11 The presence of complications associated with inflamed or infected diverticula.
12 These complications may include abscess, fistula, stricture perforation and sepsis.

13 **Diverticular disease**

14 The presence of diverticula with mild abdominal pain or tenderness and no systemic
15 symptoms.

16 **Diverticulosis**

17 The presence of diverticula without symptoms.

18 **Recommendations for research**

19 The guideline committee has made the following recommendations for research.

20 **Key recommendations for research**

21 ***1 Non-surgical management of acute diverticulitis***

22 What is the clinical and cost effectiveness of antibiotics for the management of acute
23 complicated diverticulitis in primary care?

1 To find out why the committee made the research recommendation on the risk
2 factors associated with the progression of diverticulosis to diverticular disease see
3 [rationale and impact](#).

4 ***2 Conservative management for preventing diverticular disease***

5 What is the most clinically and cost-effective conservative management for
6 preventing diverticular disease in people with diverticulosis?

7 To find out why the committee made the research recommendation on preventing
8 diverticular disease in people with diverticulosis see [rationale and impact](#).

9 ***3 Managing diverticular disease***

10 What is the most clinically and cost-effective treatment for diverticular disease?

11 To find out why the committee made the research recommendation on management
12 of diverticular disease see [rationale and impact](#).

13 ***4 Information and support***

14 What information and support do people with diverticulosis, diverticular disease or
15 acute diverticulitis need?

16 To find out why the committee made the research recommendation on information
17 and support see [rationale and impact](#).

18 ***5 Timing of surgery for complicated acute diverticulitis***

19 What are the clinically and cost effective surgical approaches to managing
20 complicated acute diverticulitis, including timing of surgery (elective or emergency)?

21 To find out why the committee made the research recommendation on timing of
22 surgery for complicated acute diverticulitis see [rationale and impact](#).

23 ***Other recommendations for research***

24 **Risk factors for diverticular disease for people with diverticulosis**

25 What are the risk factors for diverticulosis progressing to diverticular disease in
26 people with known diverticulosis?

1 **Rationale and impact**

2 These sections briefly explain why the committee made the recommendations and
3 how they might affect practice. They link to details of the evidence and a full
4 description of the committee's discussion.

5 ***Diverticulosis management and advice***

6 Recommendations [1.1.1 to 1.1.5](#)

7 **Why the committee made the recommendations**

8 Diverticulosis is asymptomatic and there are no specific treatments for it. The
9 committee therefore considered making a recommendation about lifestyle and
10 dietary advice to address the common questions asked by newly diagnosed patients
11 about these factors to prevent progression of the disease. However, although some
12 evidence was found on the management of diverticulosis, it did not meet the criteria
13 for including in the review on what is the most clinically and cost-effective
14 management strategy for preventing diverticular disease in people with diverticulosis.
15 The committee were aware of evidence (which did not meet the review criteria) that
16 vigorous exercise was associated with a reduction in risk of developing acute
17 diverticulitis. Increased body mass index was also associated with an increased risk
18 of symptomatic disease. In the absence of evidence that could be used to draft
19 recommendations, formal consensus methods and the knowledge and experience of
20 the committee were used instead. The recommendations should be straightforward
21 to implement and may reduce the possibility of developing diverticular disease.

22 In light of the lack of evidence on this topic, and the need to know what factors might
23 increase the risk of diverticulosis progressing to diverticular disease, the committee
24 considered this an important area for research. It made research recommendations
25 on [risk factors for diverticular disease](#) and on [conservative management for](#)
26 [preventing diverticular disease](#).

27 **How the recommendations might affect practice**

28 The recommendation reflects current practice.

1 Full details of the evidence and the committee's discussion are in: [Evidence Review](#)
2 [A. Prevention of diverticular disease in people with diverticulosis.](#)

3 [Return to recommendations](#)

4 ***Diverticular disease***

5 **Symptoms and signs**

6 Recommendation [1.2.1](#)

7 ***Why the committee made the recommendation***

8 The evidence on symptoms and signs comprised a single study with no clinically
9 important outcomes and was based on a population with diverticulitis rather than
10 diverticular disease. Because of a lack of evidence, recommendations were made
11 using formal consensus methods and the knowledge and expertise of the committee
12 on the most common presentation of diverticular disease. Most people experience
13 pain on the left side of the abdomen where the diverticula most often occur in the
14 sigmoid colon. For this reason people are often tender in the left lower quadrant.
15 However, it was important to highlight that people of Asian origin may experience
16 right-sided symptoms. Other symptoms are variable but people experience
17 constipation, diarrhoea or both with occasional rectal bleeds. The symptoms alone
18 are not specific enough to indicate diverticular disease but should be considered in
19 conjunction with intermittent abdominal pain.

20 ***How the recommendation might affect practice***

21 The recommendation reflects current practice.

22 Full details of the evidence and the committee's discussion are in: [Evidence review](#)
23 [B. Symptoms and signs of diverticular disease.](#)

24 [Return to recommendations](#)

25 **Investigations and referral**

26 Recommendations [1.2.2-1.2.3](#)

1 ***Why the committee made the recommendations***

2 There was no evidence on diagnosing diverticular disease so the guideline
3 committee made recommendations based on their knowledge of current best
4 practice. Where diverticular disease is suspected current practice is to use imaging
5 or endoscopy to confirm the presence of diverticula or exclude other diseases such
6 as cancer. Patients will often have their bowel investigated by either endoscopy with
7 a flexible sigmoidoscopy or colonoscopy or a CT virtual colonoscopy.

8 ***How the recommendations might affect practice***

9 The recommendations reflect current practice.

10 Full details of the evidence and the committee's discussion are in [Evidence review](#)
11 [C: Diagnosis of diverticular disease](#).

12 [Return to recommendations](#)

13 **Management and advice**

14 Recommendations [1.2.4–1.2.11](#)

15 ***Why the committee made the recommendations***

16 Very limited evidence was identified on a high fibre diet, antibiotics, aminosalicylates,
17 probiotics, symbiotics and laxatives and there was no evidence on non-steroidal anti-
18 inflammatory drugs (NSAIDs). The evidence that was available didn't help the
19 committee to understand the impact of these interventions on the progression of
20 disease or people's quality of life. The committee used formal consensus methods
21 together with their expertise and knowledge to make recommendations on diet and
22 lifestyle advice and how to manage pain and cramping.

23 Bulk-forming laxatives are effective as they help to soften the stool and can also help
24 to solidify loose stools in people with constipation. Paracetamol is indicated for pain
25 and the committee highlighted the importance of avoiding NSAIDs and opioid
26 analgesia because of the risk of diverticular perforation. Some people experience
27 abdominal cramping and anti-spasmodics may help with this.

28 In line with best practice in antimicrobial stewardship, the committee made a
29 recommendation not to use antibiotics in the absence of acute diverticulitis.

1 Having a greater understanding of how best to manage symptoms and prevent the
2 disease developing into acute diverticular disease could have a positive impact on a
3 person's health and wellbeing. It could also help avoid potential subsequent
4 treatment costs. The committee therefore made a [research recommendation](#) in this
5 area.

6 These recommendations are about managing the symptoms of diverticular disease
7 rather than preventing progression to acute diverticulitis. However, the development
8 of acute diverticulitis was included as an outcome in this review and in the research
9 recommendation that was developed as it was considered by the committee to be a
10 critical factor for decision-making. The committee noted the importance of
11 considering alternative causes and further investigations in people with persistent
12 symptoms or who do not respond to treatment.

13 ***How the recommendations might affect practice***

14 The recommendations reflect current practice.

15 Full details of the evidence and the committee's discussion are in: [Evidence review](#)
16 [D: Management of diverticular disease](#).

17 [Return to recommendations](#)

18 ***Acute diverticulitis***

19 **Symptoms and signs of acute diverticulitis**

20 Recommendation [1.3.1](#)

21 ***Why the committee made the recommendation***

22 There was no relevant evidence on the symptoms and signs of acute diverticulitis, so
23 recommendations were made using formal consensus methods. The committee
24 thought that clearly defining the symptoms and signs of acute diverticulitis, along
25 with its associated complications, would help clinicians and patients in clearly
26 differentiating these distinct clinical conditions. Committee members thought that
27 often diverticular disease, symptomatic diverticular disease and acute diverticulitis
28 are used interchangeably, creating confusion about which condition the patient has
29 and therefore what management is appropriate. The recommendation focused on

1 symptoms and signs that were specific to acute diverticulitis and is consistent with
2 current practice. It is aimed at primary care to support the identification of the
3 condition.

4 ***How the recommendation might affect practice***

5 The recommendation reflects current practice.

6 Full details of the evidence and the committee's discussion are in [Evidence review F:
7 Referral criteria for acute diverticulitis.](#)

8 [Return to recommendations](#)

9 **Symptoms and signs of complicated acute diverticulitis**

10 Recommendation [1.3.2](#)

11 ***Why the committee made the recommendation***

12 There was no relevant evidence on symptoms and signs of complicated acute
13 diverticulitis, so a recommendation was made using formal consensus methods. The
14 recommendation focused on symptoms and signs that differentiated uncomplicated
15 from complicated acute diverticulitis; if any of these symptoms and signs are present,
16 same-day hospital assessment is necessary. This recommendation is consistent with
17 current practice.

18 ***How the recommendation might affect practice***

19 The recommendation reflects current practice.

20 Full details of the evidence and the committee's discussion are in [Evidence review I:
21 Indications for surgery.](#)

22 [Return to recommendations](#)

23 **Investigation of suspected acute diverticulitis**

24 Recommendations [1.3.3–1.3.6](#)

25 ***Why the committee made the recommendations***

26 There was insufficient evidence available on diagnostic tests for people who are not
27 referred for same-day hospital assessment. The committee highlighted the

1 importance of reassessment or referral if the person's symptoms persist or worsen,
2 as this could indicate complicated acute diverticulitis or an alternative diagnosis.

3 For people with suspected complications of acute diverticulitis referred for urgent
4 same-day hospital assessment, the committee agreed that less costly clinical tests of
5 full blood count and C-reactive protein (CRP) should be offered initially to identify
6 inflammation. This could inform the decision making and help decide which patients
7 should undergo further investigation for acute diverticulitis. The committee
8 acknowledged that contrast CT is recognised as the gold standard diagnostic test for
9 acute diverticulitis and its complications. It agreed that having an early CT scan to
10 assess for acute diverticulitis would mean that complications could be identified
11 sooner. This would subsequently reduce length of hospital stay and the number of
12 later colonoscopies. In addition, having the scan within 48 hours of admission would
13 also help guide treatment planning – for example, to identify people with
14 uncomplicated diverticular disease who can be given oral antibiotics and discharged.

15 The committee agreed that MRI or ultrasound are accepted alternatives to CT where
16 CT is contraindicated. The choice should depend on the availability of local
17 expertise. Ultrasound may not be able to diagnose diverticulitis in isolation, but it
18 may identify factors such as colonic wall thickening and inflammation. Therefore, it
19 can be considered where CT is contraindicated. Ultrasound may be used as an
20 adjunct to rule out other disease.

21 There was no evidence for colonoscopy and sigmoidoscopy in diagnosing acute
22 diverticulitis. The committee were aware of the risk of perforation and agreed that
23 these procedures should not be offered for acute diverticulitis.

24 ***How the recommendations might affect practice***

25 Full blood count and CRP are routinely used to assess for inflammation and
26 indication of acute diverticulitis. This reflects current best practice but is not used
27 across all NHS settings. Therefore implementing this recommendation will mean a
28 change in practice for some providers.

29 Currently, 60% of people with acute diverticulitis undergo CT examination to confirm
30 the diagnosis. This recommendation will increase the use of CT scanning. However,
31 the increase in cost associated with this will be offset by a decrease in hospital stay,

1 along with a decrease in use of intravenous antibiotics and potentially further
2 endoscopy. Evidence shows that performing a CT can reduce the use of subsequent
3 endoscopy.

4 Full details of the evidence and the committee's discussion are in [Evidence review](#)
5 [G: Diagnostic tests for acute diverticulitis](#).

6 [Return to recommendations](#)

7 **Non-surgical management of acute diverticulitis**

8 Recommendations [1.3.7–1.3.13](#)

9 ***Why the committee made the recommendations***

10 For people with suspected acute diverticulitis who are not referred for urgent same-
11 day hospital assessment, the committee agreed that watchful waiting is an option if
12 the person is systemically well and has no co-morbidities that increase the risk of
13 infection. This decision would be in the context of shared decision making. Oral
14 antibiotics are appropriate if the person is systemically unwell but does not meet the
15 criteria for referral with suspected complicated acute diverticulitis.

16 The evidence supports current practice of treating an acute episode of diverticulitis
17 with intravenous antibiotics in secondary care. If CT confirms uncomplicated acute
18 diverticulitis, switching to oral antibiotics does not affect outcomes. The committee
19 recommended antibiotics for this group because they were aware of evidence that
20 watchful waiting could increase recurrence rates and the probability of further
21 surgery. In support of antibiotic stewardship and to avoid antibiotic resistance the
22 committee recommended that the person should be reassessed if necessary and the
23 need for antibiotic therapy should be reviewed.

24 The need for intravenous antibiotics should be reviewed within 48 hours in line with
25 current good practice on antibiotic prescribing or after the CT scan. The CT will
26 confirm if the person has an abscess or not. The total course of antibiotic treatment
27 should be for a maximum of 5 days and then reviewed. The duration of antibiotics
28 used in the studies was variable and 5 days was based on current clinical practice
29 and the knowledge and expertise of the committee.

1 In light of the lack of evidence on this topic, and the need to prevent antibiotic
2 resistance, the committee considered this an important area for research. It made a
3 [research recommendation](#) on antibiotics for people with acute diverticulitis managed
4 in primary care.

5 ***How the recommendations might affect practice***

6 The recommendation to offer an initial treatment of intravenous antibiotics before CT
7 scanning for confirmation reflects current practice, so the committee agreed there
8 should be no change in practice. Using oral antibiotics beyond this point in place of
9 intravenous antibiotics may reduce the resource requirement in caring for people
10 with acute diverticulitis.

11 Full details of the evidence and the committee's discussion are in [Evidence review](#)
12 [H: Non-surgical management of acute diverticulitis](#).

13 [Return to recommendations](#)

14 **Timing of surgery for complicated acute diverticulitis**

15 ***Why the committee did not make any recommendations***

16 In the studies in the evidence reviewed people were offered an intervention based on
17 demographic and clinical characteristics meaning it was difficult to assess the true
18 effect of interventions on patient outcomes. Therefore the committee decided not to
19 make any practice recommendations.

20 The committee thought this was an area that needed further research and therefore
21 have developed a [research recommendation](#).

22 Full details of the evidence and the committee's discussion are in [Evidence review J:](#)
23 [Timing of surgery for complicated acute diverticulitis](#).

24 [Return to recommendations](#)

25 **Management of abscesses**

26 Recommendations [1.3.14–1.3.23](#)

1 ***Why the committee made the recommendations***

2 The quality of the evidence for this topic meant that it was not possible to
3 demonstrate greater effectiveness of one intervention over another. The results
4 showed harms as well as benefits of treatment. The committee therefore made
5 recommendations based on a combination of their clinical expertise and the
6 approaches taken in the studies. The committee highlighted the risk of sepsis and
7 agreed it was important to refer people with suspected diverticular abscess to
8 secondary care for same day assessment to receive intravenous antibiotics in line
9 with the NICE [sepsis](#) guideline. This was considered to be standard practice.

10 The need for intravenous antibiotics should be reviewed within 48 hours in line with
11 current good practice on antibiotic prescribing or after the CT scan. The CT will
12 confirm if the person has an abscess or not.

13 The committee agreed that offering a CT scan for people with suspected diverticular
14 abscess may help to determine the most appropriate treatment for each person
15 based on the characteristics of the abscesses, such as size and location. This was
16 based on clinical experience and the fact that most of the included studies used CT
17 scan to confirm and assess abscesses. MRI or ultrasound should be offered if CT is
18 contraindicated.

19 The committee also decided that only abscesses greater than 3 cm should be
20 considered for percutaneous drainage because of technical difficulties in performing
21 this procedure on smaller abscesses. This was based on clinical expertise and was
22 the approach taken by most of the included studies and is consistent with the
23 committee's knowledge and experience.

24 The committee agreed that if percutaneous drainage is an anatomically feasible
25 option this could be considered alongside a discussion with the patient about the
26 risks and benefits of surgery. In people with a CT-confirmed diverticular abscess, re-
27 imaging may be considered if the condition does not improve clinically or if there is
28 deterioration. This will guide the management strategy – for example, if further
29 surgery is needed or if a previous collection that was not drainable percutaneously
30 (for example because it was too small) is now drainable.

1 ***How the recommendations might affect practice***

2 The recommendations reflect current practice and make reference to the NICE
3 guideline on [sepsis](#).

4 Full details of the evidence and the committee's discussion are in [Evidence review](#)
5 [N: Percutaneous drainage versus resectional surgery for the management of](#)
6 [abscesses](#).

7 [Return to recommendations](#)

8 **Management of bowel perforations**

9 Recommendations [1.3.24](#)

10 ***Why the committee made the recommendation***

11 The committee noted that, based on the evidence, there appeared to be few
12 differences between resection of the bowel and lavage in terms of patient outcomes.
13 The committee agreed that for people with diverticular perforations with generalised
14 peritonitis both options should be discussed and a decision made based on patient
15 preferences. A patient decision table has been developed to support this discussion.

16 No evidence was found for the treatment of faecal peritonitis (also known as Hinchey
17 stage IV perforation). But the committee agreed that resection of the bowel was
18 better than lavage because this was the only way to prevent further faecal
19 contamination of the peritoneal cavity. This is because of the more serious nature of
20 this condition indicated by the presence of faeces in the peritoneal cavity.

21 ***How the recommendation might affect practice***

22 The committee considered that the use of lavage is currently not common in the UK
23 for treating diverticular perforation and that implementing this recommendation may
24 therefore require a change from current practice by the majority of providers.

25 Full details of the evidence and the committee's discussion are in [Evidence review](#)
26 [O: Laparoscopic lavage for the management of bowel perforations](#).

27 [Return to recommendations](#)

1 **Anastomosis for people with complicated acute diverticulitis**

2 Recommendation [1.3.25](#)

3 ***Why the committee made the recommendation***

4 The committee agreed that there was too much uncertainty surrounding most of the
5 evidence to recommend one intervention over the other for complicated acute
6 diverticulitis. Very few outcomes indicated a clinical benefit of either primary
7 anastomosis or temporary stoma. For this reason, the committee concluded that
8 both primary anastomosis (which is a join in the bowel, with or without diverting
9 stoma) and Hartmann's procedure should be options for people admitted to surgery
10 for this condition. Based on the expertise and knowledge of the committee, surgeon
11 experience, the patient's age, any other conditions the patient has and how well they
12 can carry out everyday activities and patient condition should be considered. In the
13 emergency setting frail patients with multiple medical problems who are septic at the
14 time of surgery may benefit from a Hartmann's procedure instead of a primary
15 anastomosis (with or without diverting stoma) as this removes the risk of a
16 subsequent anastomotic leak. However, the committee recognised that those
17 patients having a stoma in this setting often find these are permanent and not
18 reversed.

19 ***How the recommendations might affect practice***

20 The recommendation reflects current practice.

21 Full details of the evidence and the committee's discussion are in [Evidence review](#)
22 [M: Primary versus secondary anastomosis \(timing of anastomosis\) in complicated](#)
23 [acute diverticulitis.](#)

24 [Return to recommendations](#)

25 **Colectomy for people with complicated acute diverticulitis**

26 Recommendation [1.3.26](#)

27 ***Why the committee made the recommendations***

28 No evidence was found on the extent of colectomy for people with acute diverticulitis.
29 A recommendation was developed based on the experience of the surgeons on the

1 committee. Committee members discussed the difference between resecting back to
2 normal bowel and resecting back to compliant bowel. The committee agreed that
3 'normal bowel' could be interpreted by some as bowel without diverticula, rather than
4 bowel with normal structure. To avoid this confusion, resecting back to compliant
5 bowel, which refers to bowel that is functional and is not restricted in terms of
6 movement, was included in the consensus recommendation and reflects the current
7 advice by national bodies.

8 ***How the recommendation might affect practice***

9 The recommendation reflects current practice.

10 Full details of the evidence and the committee's discussion are in [Evidence review L:
11 Management of complicated acute diverticulitis - extent of colectomy.](#)

12 [Return to recommendations](#)

13 **Elective surgical management after resolution of complicated acute 14 diverticulitis**

15 Recommendation [1.3.27](#)

16 ***Why the committee made the recommendation***

17 The committee concluded that there was insufficient evidence to say whether
18 laparoscopic resection or open resection was the better management option for
19 people who have recovered from complicated acute diverticulitis but who have
20 continuing symptoms.

21 ***How the recommendations might affect practice***

22 The recommendation reflects current practice.

23 Full details of the evidence and the committee's discussion are in [Evidence review K:
24 Laparoscopic versus open sigmoid resection for acute diverticulitis.](#)

25 [Return to recommendations](#)

26 **Management of recurrent acute diverticulitis**

27 Recommendation [1.3.28](#)

1 ***Why the committee made the recommendation***

2 The committee noted that the evidence supported current practice of not using an
3 aminosalicylate in managing recurrent diverticulitis. Aminosalicylates are not
4 licensed to treat diverticulitis in the UK and there is little evidence to support their use
5 in this area.

6 The committee agreed that there was insufficient evidence to support the use of
7 antibiotics to prevent recurrent diverticular disease. In support of antibiotic
8 stewardship and to avoid antibiotic resistance the committee recommended not
9 offering antibiotic therapy.

10 ***How the recommendation might affect practice***

11 The recommendation to not offer an aminosalicylate or antibiotics for the prevention
12 of recurrent diverticulitis reflects current practice. Therefore the committee agreed
13 there should be no change in practice.

14 Full details of the evidence and the committee's discussion are in [Evidence review P:
15 Management of recurrent acute diverticulitis.](#)

16 [Return to recommendations](#)

17 ***Information***

18 Recommendations [1.4.1–1.4.3](#)

19 ***Why the committee made the recommendations***

20 There was limited evidence on the support and information needed for people with
21 diverticulosis, diverticular disease and diverticulitis and their families and carers. The
22 evidence was from a symptom-based questionnaire and reported on the timing and
23 success of surgery and symptoms. The committee agreed that it was important for
24 those affected to have relevant information on these topics, but also used its
25 knowledge and experience to expand on these topics in the recommendations.

26 The committee decided that given the limited evidence, this was an area that needed
27 further research to inform the type of information people want. Therefore they made
28 a [research recommendation](#).

1 **How the recommendations might affect practice**

2 The recommendation reflects current practice.

3 Full details of the evidence and the committee's discussion are in [Evidence review](#)

4 [Q: Information and support](#)

5 [Return to recommendations](#)

6 **Context**

7 Diverticulosis is a digestive condition characterised by small pouches (diverticula)
8 that protrude from the walls of the large intestine.

9 The true prevalence of diverticular disease is difficult to define because most
10 patients are asymptomatic. It is age dependent and relatively uncommon in people
11 under 40 years, although in recent years there has been a dramatic rise in the
12 prevalence in this age group. In people aged over 65 years the prevalence increases
13 up to 65%.

14 About 80–85% of people affected by diverticular disease remain asymptomatic while
15 10–15% develops symptomatic diverticular disease including acute diverticulitis and
16 its complications (perforation, abscess formation, haemorrhage, fistula and
17 obstruction). Key aspects of this guideline include the management of diverticulosis,
18 diagnosis and management of diverticular disease, acute diverticulitis and
19 complicated acute diverticulitis

20 Areas of the guideline with the potential for the greatest impact on practice include
21 CT scanning for acute diverticulitis and offering resection or lavage for bowel
22 perforations.

23 **Finding more information and resources**

24 To find out what NICE has said on topics related to this guideline, see our web page
25 on [digestive tract conditions](#).

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