#AP

National Confidential Enquiry into Patient Outcome and Death

Treat the Cause

A review of the quality of care provided to patients treated for acute pancreatitis

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Acute pancreatitis

- Management crosses many specialties
- High mortality and morbidity
- Recurrent admissions
- Complex care and specialist input
- Varied implementation of guidelines

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Study population inclusion criteria

Patients aged 16 years or older who were coded for a primary diagnosis of acute pancreatitis and admitted to hospital between 1st January and 30th June 2014

- An inpatient stay of three or more nights
- Admission to critical care
- Death in hospital

Data collection

- Patient identifier spreadsheet
- Clinician questionnaire
- Case notes/peer review
- Organisational questionnaire

Data returns

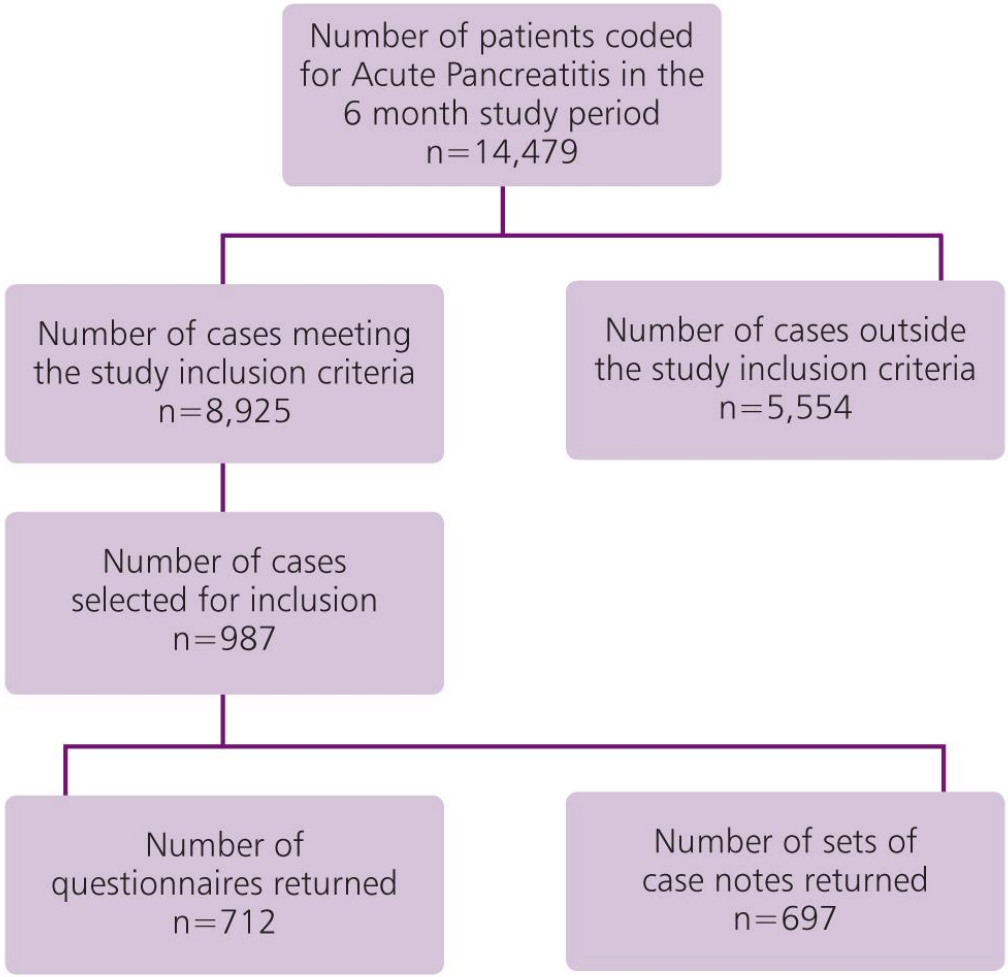

Figure 1.1 Data returns

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Study aim

To identify remediable factors in the quality of care provided to patients treated for acute pancreatitis

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CAUSE & PATIENT CHARACTERISTICS

Cause of AP – study population

- Gallstones 46.5% (322/692)
- Alcohol excess 22% (152/692)
- Post-ERCP 4% (28/692)
- No cause 17.5% (121/692)

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Cause of AP by age

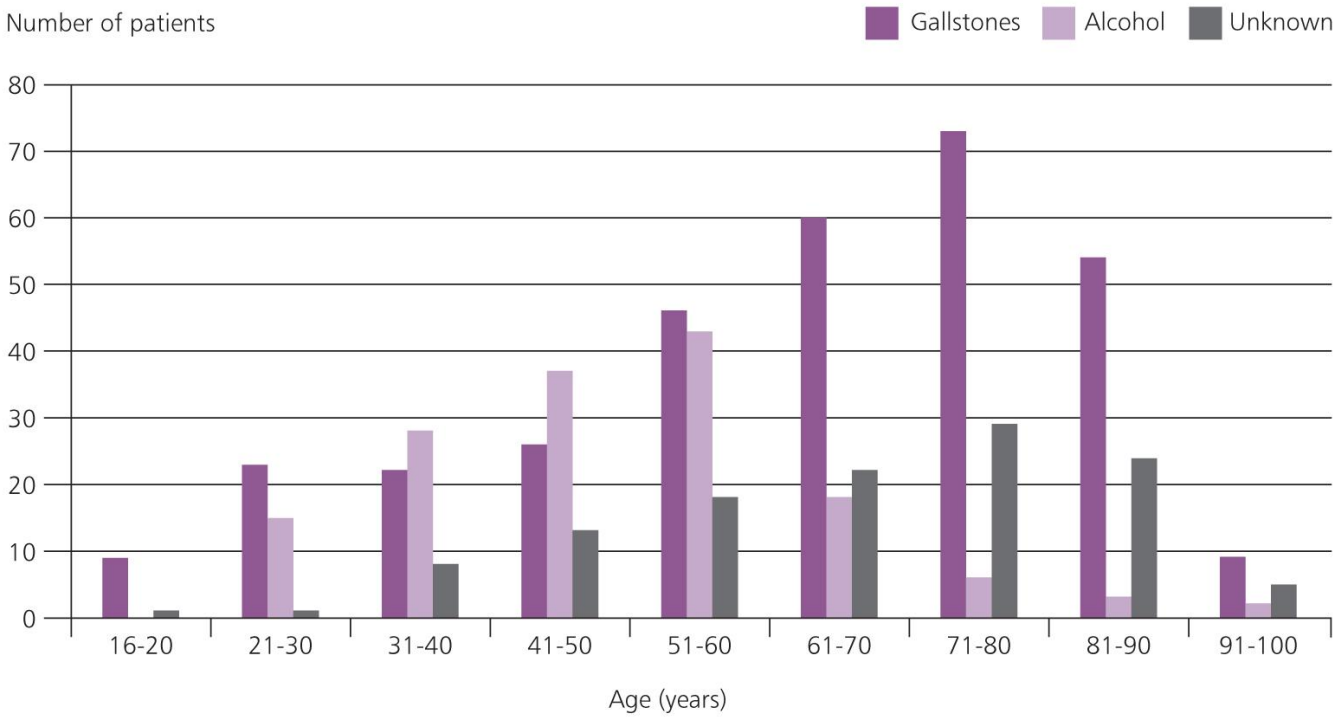

Figure 2.2 Age distributed by cause of acute pancreatitis

Median age = 61 years (17-99)
55% male

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ADMISSION

Initial presentation

- 98.3% (687/699) Emergency
- 79% (551/698) Emergency department
- 21% (147/698) Directly to a ward or level 2/3

Table 3.10 Time since onset of acute pancreatitis

Time since onset of acute pancreatitis	Number of patients	%
< 3 hours	68	10.5
3-6 hours	106	16.4
6-12 hours	113	17.4
12-24 hours	135	20.8
24-48 hours	61	9.4
2-5 days	97	15.0
5-7 days	20	3.1
> 7 days	48	7.4
Subtotal	**648**	
Not recorded/not answered	64	
Total	**712**	

Ward admission

Table 3.8 Location of admission

Location patient admitted	Number of patients	%
Surgical assessment/admissions unit	281	40.0
General surgical	193	27.5
Medical assessment/admissions unit	97	13.8
Other	38	5.4
Level 3	35	5.0
Level 2	31	4.4
Subtotal	**701**	
Not answered	11	
Total	**712**	

- 68.9% (483/701) SAU or surgical ward
- 9.4% HDU/ITU

EARLY WARNING SCORES

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EWS in the emergency department

Table 4.2 Completion of an early warning score in the emergency department

EWS completed in the ED	Number of patients	%
Yes	348	69.3
No	154	30.7
Subtotal	**502**	
Unknown/not answered	49	
Total	**551**	

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EWS in the emergency department

Table 4.3 Early warning score triggered a response

EWS triggered response	Number of patients	%
Yes	85	25.8
No	244	74.2
Subtotal	**329**	
Unknown/not answered	19	
Total	**348**	

Table 4.4 Type of response triggered by the early warning score

Response triggered by EWS	Number of patients
Medical review	42
Increased IV fluids/oxygen	18
Critical care/outreach review	9
Increased monitoring	9
Increased analgesia	5

Answers may be multiple; n=81

EWS on the ward

Table 4.5 Completion of an early warning score on the ward

EWS completed on the ward	Number of patients	%
Yes	571	86.3
No	91	13.7
Subtotal	**662**	
Unknown/not answered	50	
Total	**712**	

Table 4.6 Early warning score triggered a response on the ward

EWS triggered a response	Number of patients	%
Yes	130	23.9
No	414	76.1
Subtotal	**544**	
Unknown/not answered	27	
Total	**571**	

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Early warning scores

- 65.1% (313/481) ED and ward EWS
- 8.7% (42/481) no EWS either location
- 8% (22/285) different EWS

Escalation of care

- 93% (356/383) on going use of EWS

Table 4.9 Escalation triggered by early warning score

Escalation triggered	Number of patients	%
Yes	158	47.3
No	176	52.7
Subtotal	**334**	
Unknown/not answered	22	
Total	**356**	

Most common

- Critical care review
- Other specialty review

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Escalation of care

- 13% (15/115) delayed review

Table 4.13 Patient should have had a critical care review but did not – reviewers' opinion

Should have been reviewed	Number of patients	%
Yes	14	7.5
No	173	92.5
Subtotal	**187**	
Unknown/not answered	27	
Total	**214**	

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Recommendation 4 - early warning scores

An early warning score should be used in the ED and throughout the patient's hospital stay to aid recognition of deterioration. This should be standardised within and across all hospitals.

NCEPOD supports the use of NEWS to facilitate standardisation

Recommendation 5 - early warning scores

All acute hospitals should have local arrangements to ensure an agreed response at each NEWS trigger level including:

- Speed of response
- Clear escalation policy which ensures an appropriate response 24/7
- Seniority and clinical competencies of the responder
- Appropriate setting for on-going acute care and timely access to high dependency care if required
- Frequency of subsequent monitoring

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OXYGENATION & FLUID MANAGEMENT

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Oxygenation and fluid management

Table 4.18 Adequacy of oxygenation – reviewers' opinion

Adequate	Number of patients	%
Yes	385	95.3
No	19	4.7
Subtotal	**404**	
Unknown/not answered	14	
Total	**418**	

Table 4.19 Adequacy of fluid management

	Case reviewers' opinion		Clinicians' opinion	
Adequate	**Number of patients**	**%**	**Number of patients**	**%**
Yes	333	86.9	456	86.2
No	50	13.1	73	13.8
Subtotal	**383**		**529**	
Unknown/Not answered	35		183	
Total	**418**		**712**	

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Acute Kidney Injury

- 21.7% (148/681) AKI
- 6 avoidable

Table 4.21 Appropriate management of renal function – reviewers' opinion

Renal function managed appropriately	Number of patients	%
Yes	361	94.8
No	20	5.2
Subtotal	**381**	
Unknown/not answered	37	
Total	**418**	

IMAGING

Imaging

Establish

- Diagnosis when clinical/biochemical doubt
    - 9.3% (39/418)
- Cause
- Severe AP
    - Confirmation of severity
    - Diagnose complications
    - Guide treatments
    - Monitor resolution

Ultrasound

Table 6.1 Ultrasound scan performed

Underwent ultrasound scan	Number of patients	%
Yes	482	69.8
No	209	30.2
Subtotal	**691**	
Unknown/not answered	21	
Total	**712**	

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No ultrasound

Table 6.3 No ultrasound during admission

Reason	Number of patients
Post ERCP	23
Previous admission	54
ERCP/MRCP	31
CT showed gallstones	17
Planned outpatient investigation for gallstones	11
Died during admission	29
None of above	44
Total	**209**

- 21% (44/209) no reason for no US
- 24/44 alcohol-related AP

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Recommendation 9 - gallstones

Gallstones should be excluded in ALL patients, including those thought to have alcohol-related AP, as gallstones are common in the general population.

Abdominal US is the minimum that should be performed.

CT scans

- 60.1% (416/692) at least one CT
- 17.9% (73/408) necrotising pancreatitis
- 12.7% (52/408) APC or pseudo-cyst
- 13 infected collections

Table 6.9 Number of CTs appropriate

Appropriate	Number of patients	%
Yes	340	93.4
No	24	6.6
Subtotal	**364**	
Unknown/not answered	54	
Total	**418**	

Omitted imaging

Table 6.7 Appropriate use of radiology

Appropriate use of radiology imaging	Number of patients	%
Yes	357	87.5
No	51	12.5
Subtotal	**408**	
Unknown/not answered	10	
Total	**418**	

Table 6.8 Omitted use of radiological investigations

Omitted	Number of patients
MRCP	17
Ultrasound	14
CT	8
Other	3
MRCP and CT	3
Ultrasound and MRCP	2
Ultrasound and CT	1
Subtotal	**48**
Not answered	3
Total	**51**

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Recommendation 17 - AP of unknown cause

After excluding the commoner causes of AP those in whom the cause remains unknown should undergo MRCP and/or endoscopic ultrasound to detect micro-lithiasis, neoplasms and chronic pancreatitis as well as rare morphological abnormalities. A CT of the abdomen should also be considered.

ANTIBIOTIC USE & MISUSE

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Indication for antibiotic use

Table 5.11 Indication for antibiotic use

Indication given by clinicians for first antibiotic prescription	Number of patients
Not specified	85
Pancreatitis	65
Sepsis	60
Biliary sepsis	35
Respiratory infection	28
Raised temperature	24
Raised white cell count	22
Pancreatic necrosis	17
Intra-abdominal sepsis	16
Raised C-reactive protein	13
Infected pancreatic necrosis	8

Appropriateness of antibiotics

Table 5.12 Appropriateness of antimicrobial management

	Case reviewers' opinion		Clinicians' opinion	
Appropriate	**Number of patients**	**%**	**Number of patients**	**%**
Yes	321	81.7	302	80.7
No	72	18.3	72	19.3
Subtotal	**393**		**374**	
Unknown/not answered	25		338	
Total	**418**		**712**	

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Inappropriateness of antibiotics

Table 5.13 Reason for inappropriate antimicrobial use - reviewers' opinion

Reason	Number of patients
Not indicated	54
Not indicated/other	3
Not indicated/inappropriate duration	3
Delay in administering	3
Other	6
Subtotal	**69**
Not answered	3
Total	**72**

Recommendation 7 - antibiotic prophylaxis

Antibiotic prophylaxis is not recommended in acute pancreatitis.

All healthcare providers should ensure that antimicrobial policies are in place including prescription, review and the administration of antimicrobials as part of an antimicrobial stewardship process.

These policies must be accessible, adhered to and frequently reviewed with training provided in their use.

NUTRITION

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Nutrition team availability

Table 5.14 Nutrition team available

Nutrition team available	Number of hospitals	%
Yes	147	87.5
No	21	12.5
Subtotal	**168**	
Not answered	7	
Total	**175**	

Nutritional assessment

Table 5.18 Adequacy of the nutritional assessment

	Case reviewers' opinion		Clinicians' opinion	
Adequate	**Number of patients**	**%**	**Number of patients**	**%**
Yes	280	85.6	421	76.7
No	47	14.4	128	23.3
Subtotal	**327**		**549**	
Unknown/not answered	91		163	
Total	**418**		**712**	

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Dietitian involvement

Table 5.21 Patient seen by a dietitian – reviewers' opinion

Seen by a dietitian	Number of patients	%
Yes	122	33.2
No	245	66.8
Subtotal	**367**	
Unknown/not answered	51	
Total	**418**	

Dietitian involvement

Table 5.22 Patient not seen by a dietitian but should have been – reviewers' opinion

Should have been seen	Number of patients	%
Yes	57	27.1
No	153	72.9
Subtotal	**210**	
Unknown/not answered	35	
Total	**245**	

Overall nutrition management

Table 5.31 Overall management of patient's nutrition adequate – reviewers' opinion

Adequate	Number of patients	%
Yes	281	84.6
No	51	15.4
Subtotal	**332**	
Unknown/not answered	86	
Total	**418**	

Recommendation 8 - nutritional support

All patients admitted to hospital with acute pancreatitis should be assessed for their overall risk of malnutrition.

This could be facilitated by using the Malnutrition Universal Screening Tool (MUST) and provides a basis for appropriate referral to a dietitian or a nutritional support team and subsequent timely and adequate nutrition support.

THE PROBLEM OF RECURRENT ADMISSIONS

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Previous admissions

Table 2.4 Cause of previous episodes of acute pancreatitis compared with the present admission

	Previous admission					
Present admission	**Alcohol**	**Gallstones**	**Unknown**	**Other**	**Drugs/Other**	**Total**
Alcohol	56	1	2	0	0	**59**
Gallstones	1	34	5	0	0	**40**
Unknown	1	4	11	0	0	**16**
Other	0	1	4	7	0	**12**
Drugs/other	0	0	0	0	3	**3**
Total	**58**	**40**	**22**	**7**	**3**	**130**

Definitive gallstone management

Table 7.4 Definitive gallstone management during current admission

Definitive management	Number of patients	%
Yes	61	18.9
No	261	81.1
Subtotal	**322**	
Unknown/not answered	15	
Total	**337**	

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Deferral of cholecystecomy

Table 7.7 Reason for deferral of cholecystectomy – clinicians' opinion

Reason	Number of patients	%
Severe Pancreatitis with ongoing complications	85	33.7
Lack of access to emergency theatres	69	27.4
Medically unfit for cholecystectomy	36	14.3
Lack of access to ERCP	8	3.2
Further investigation planned	15	5.9
Others	39	15.5
Subtotal	**252**	
Not answered	9	
Total	**261**	

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Availability of cholecystectomy

Table 7.1 Priority of cholecystectomies in pancreatitis patients

Priority of cholecystectomies in pancreatitis patients	Number of hospitals	%
During Index admission	41	25.3
During index admission/within 2 weeks	26	16.0
Within 2 weeks of discharge	24	14.8
Prioritised but not within 2 weeks	36	22.2
Post discharge but not prioritised	35	21.6
Subtotal	**162**	
Not answered/Not applicable	13	
Total	**175**	

Recommendation 10 - gallstone pancreatitis

For those patients with an episode of mild acute pancreatitis, early definitive surgery should be undertaken, either during the index admission, as recommended by IAP, or on a planned list, within two weeks.

For those patients with severe acute pancreatitis, cholecystectomy should be undertaken when clinically appropriate after resolution of pancreatitis.

Alcohol-related acute pancreatitis

Table 7.17 Referred to alcohol cessation service

Referral made	Number of patients
Yes	28
No	3
Unknown	21
Subtotal	**52**
Not answered	6
Total	**58**

Alcohol liaison service

Table 7.16 Alcohol liaison service

Available	Number of hospitals	%
Yes	133	80.1
No	33	19.9
Subtotal	**166**	
Not answered	9	
Total	**175**	

Recommendation 13 - alcohol support

All patients with suspected alcohol-related acute pancreatitis should be discussed with the hospital alcohol support service at every admission.

Efforts to deal with this underlying cause of acute pancreatitis should equal those of gallstone acute pancreatitis.

Future clinical guidelines on acute pancreatitis should incorporate this.

NETWORKS FOR THE TREATMENT OF COMPLICATIONS

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Formal network of care

Table 9.1 Hospital part of a formal regional care network

Formal regional care network	Number of hospitals	%
Yes	57	33.7
No	112	66.3
Subtotal	**169**	
Unknown/not answered	6	
Total	**175**	

Informal network of care

Table 9.2 Hospital part of an informal regional care network

Informal regional care network	Number of hospitals	%
Yes	81	75.7
No	26	24.3
Subtotal	**107**	
Unknown/not answered	11	
Total	**118**	

Pancreatic drainage

Table 8.1 Pancreatic drainage 24/7

Pancreatic drainage 24/7	Number of hospitals	%
Yes	47	27.3
No	125	72.7
Subtotal	**172**	
Not answered	3	
Total	**175**	

Availability of specialist surgery

Table 8.3 Surgery for acute pancreatitis complications

Surgery	Number of hospitals	%
Yes	51	30.0
No	119	70.0
Subtotal	**170**	
Unknown/not answered	5	
Total	**175**	

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Interventions performed

Table 8.5 Interventions performed

Intervention	Number of patients	%
Radiological	49	8.0
Surgical	23	3.8
Endoscopic	2	<1
No	539	87.9
Subtotal	**613**	
Unknown/not answered	99	
Total	**712**	

Recommendation 16 - specialist centres

Specialist tertiary centres for acute pancreatitis should be commissioned.

...defined by the IAP as a high volume centre with intensive care facilities, daily access to radiological intervention, interventional endoscopy and surgical expertise in managing necrotising pancreatitis.

An example model to base this on could be the existing ‘Improving Outcomes Guidance’ compliant hepato-pancreato-biliary cancer units.

OUTCOMES & OVERALL QUALITY OF CARE

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Outcomes

Table 10.1 Outcome of hospital episode

Outcome of hospital episode	Number of patients	%
Discharged to previous place of residence	547	79.4
Patient died during the admission	89	12.9
Discharged to other hospital	35	5.1
Other	18	2.6
Subtotal	**689**	
Not answered	23	
Total	**712**	

Overall quality of care

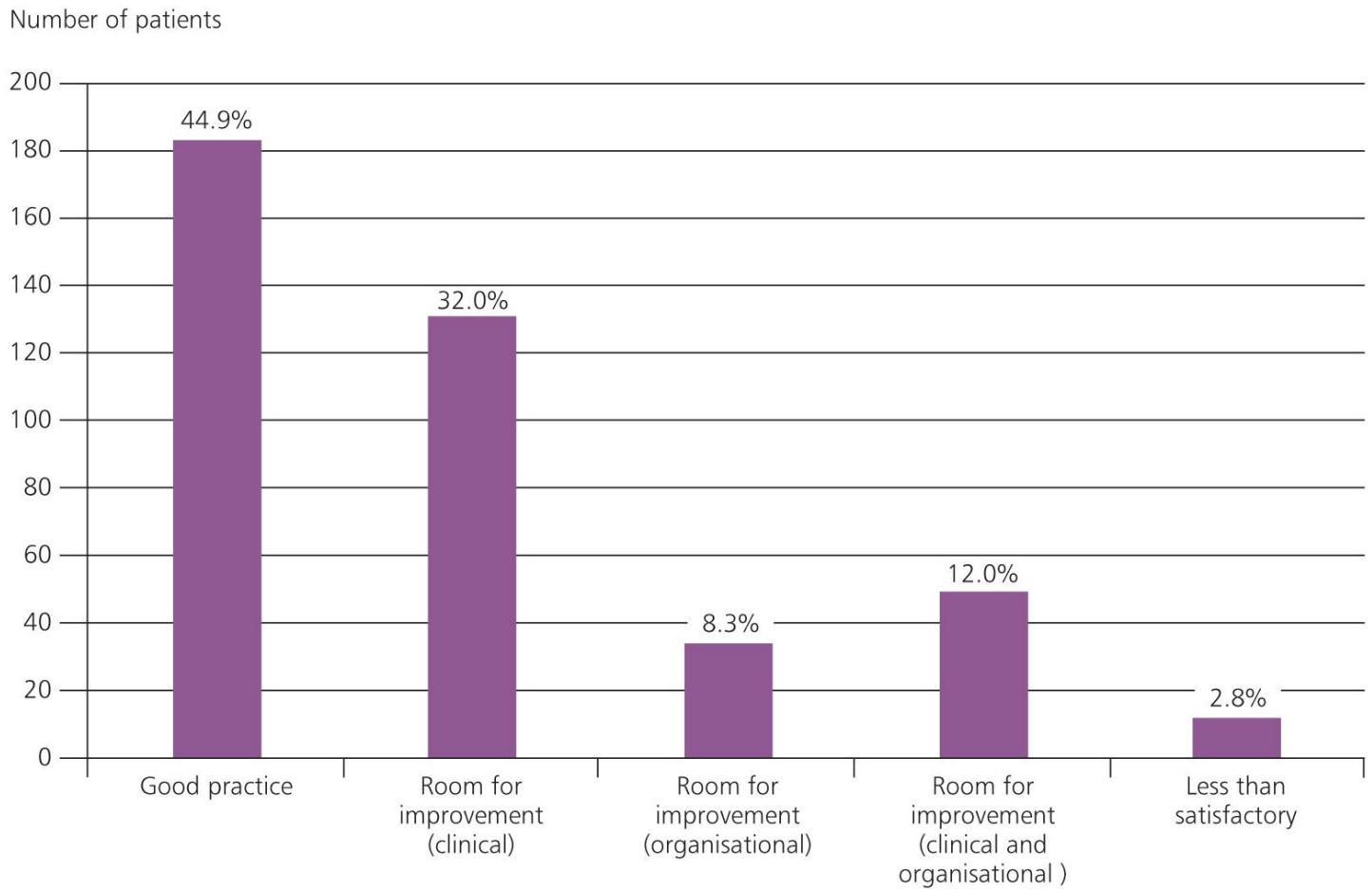

Figure 10.1 Overall assessment of care

Conclusion

Much good news

But the full picture is more complex; there are many areas where we could be doing better

NCEPOD has identified these and produced recommendations for improvement

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THANK YOU

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