National Confidential Enquiry into Patient Outcome and Death

Measuring the Units

A review of patients who died with alcohol-related liver disease

NCEPOD

Method
Neil Smith

Introduction

- Admissions and deaths due to alcohol are increasing
- 8748 ARLD deaths in UK 2011
- Over 200,000 hospital admissions wholly attributable to alcohol (May 2013 data)
- Average age of death 59 years and falling
- National Plan for Liver Disease 2009
  - Secondary care of liver disease poorly organised
- 2010 BSG / BASL / Alcohol Health Alliance UK joint position statement
  - 11 recommendations for organisation of hospital services to improve care of patients with alcohol related problems

Introduction

Treatment options have improved

- Brief intervention to reduce harmful alcohol consumption
- Early identification / treatment of sepsis
- Control of fluid status
- Aggressive management of variceal haemorrhage

Introduction

Opportunities to intervene

- Patients are often frequent attenders
- Provision of care by specialists
- Organ support where indicated

Aim

To identify remediable factors in the quality of care provided to patients with a diagnosis of alcohol-related liver disease.

Objectives – expert group

- Recognition of degree of sickness and early intervention
- Involvement of support services
- Missed opportunities during the final admission
- Missed opportunities during previous admissions

Study population

- All patients who died in hospital with a diagnosis of alcohol-related liver disease between 1st January 2011 and 30th June 2011 inclusive

- The number of cases for which questionnaire completion and photocopied case notes were requested, was limited to a maximum of three per hospital

Case ascertainment

- Patient identifier spreadsheet
  - Patients were identified retrospectively via ICD10 coding
  - Details of final and previous admissions (2 years)
  - Details of responsible consultant
- Clinician questionnaire
  - Consultant responsible for patient at time of death
  - Information on presenting features, alcohol history, investigations, treatment, escalation in care, treatment limitation decisions.
  - Previous admissions and potential missed opportunities

Case ascertainment

- Peer review data
  - Case notes for the final admission and extracts from previous admissions
  - Focussed assessment form
  - Opinion on aspects of care and treatment decisions
- Organisational questionnaire
  - Number of ARLD admissions
  - Gastroenterology/liver services, alcohol services
  - Guidelines and treatment pathways

Overall assessment of care

Good practice: A standard that you would accept from yourself, your trainees and your institution.

Room for improvement: Aspects of **clinical** care that could have been better.

Room for improvement: Aspects of **organisational** care that could have been better.

Room for improvement: Aspects of both **clinical and organisational** care that could have been better.

Less than satisfactory: Several aspects of **clinical and/or organisational** care that were well below that you would accept from yourself, your trainees and your institution.

Insufficient data: Insufficient information submitted to NCEPOD to assess the quality of care.

Data returns

88% (520/594) of clinician questionnaires returned

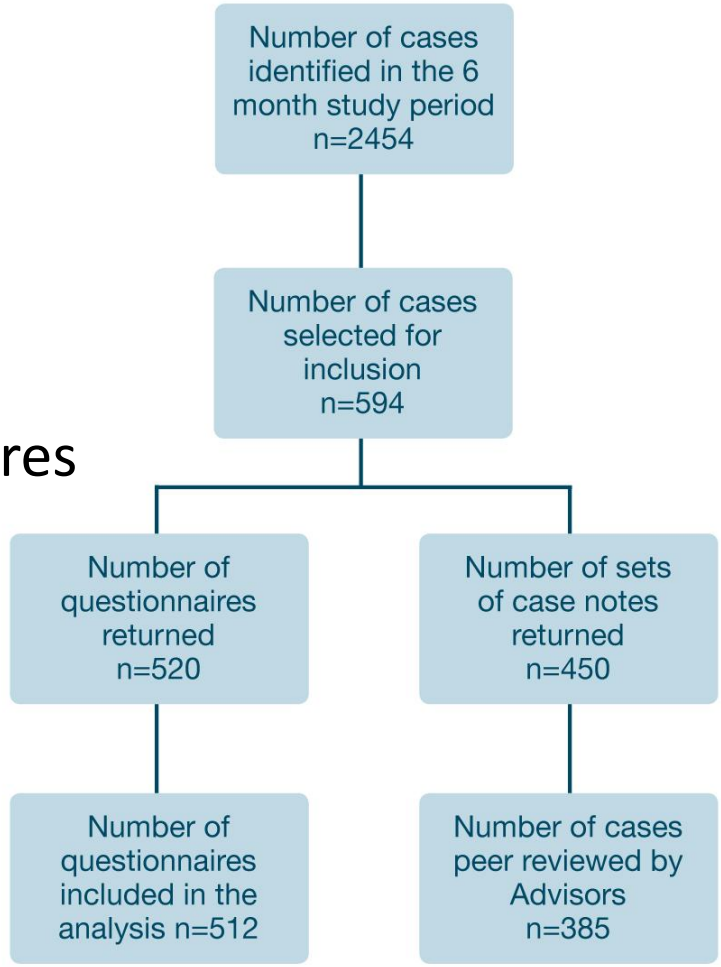

Figure 1.1 Data returns

Demographics

Age – whole population

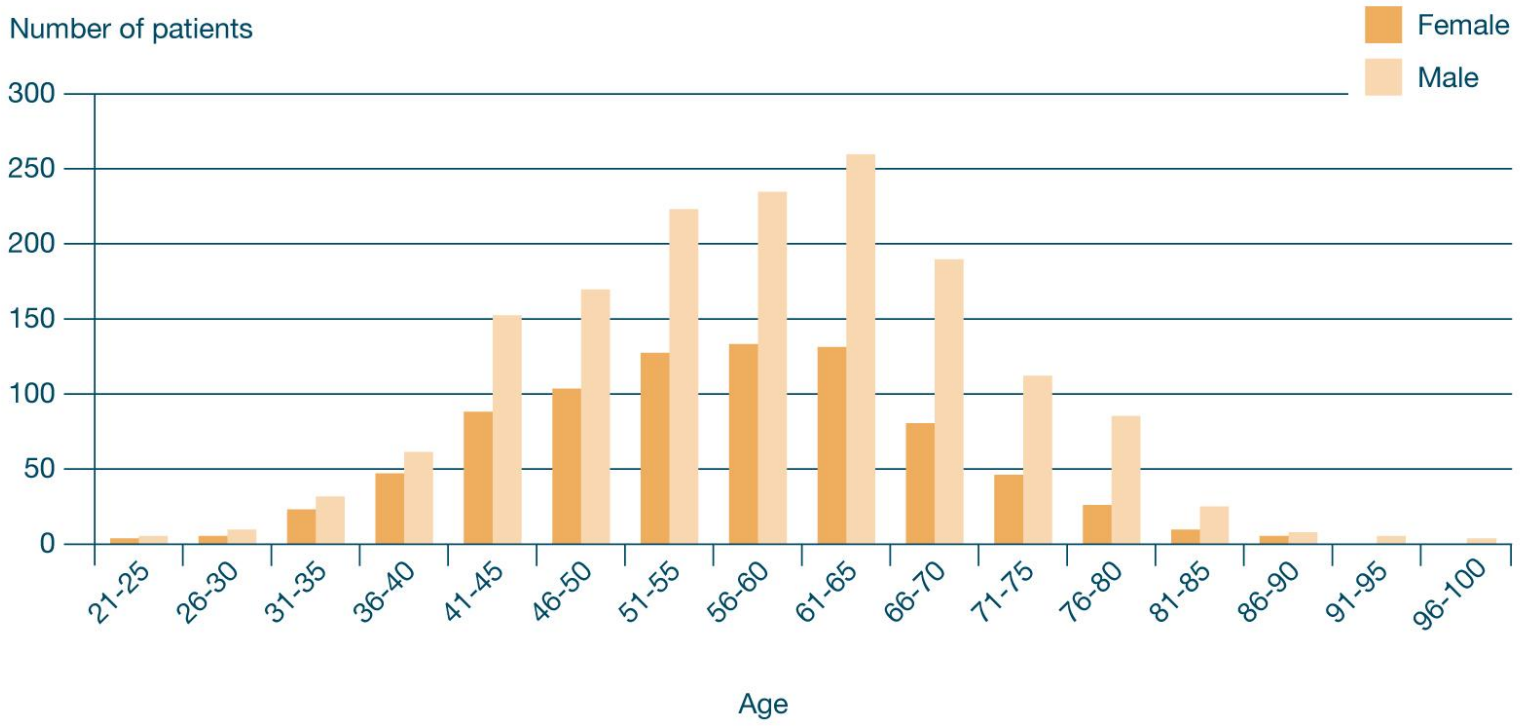

Figure 2.1 Age in years of the whole study population

66% (1584/2418) of the ARLD deaths were male

Age – whole population

Table 2.1 Age in years of the whole study population

Age	Female	Male
Range	22 – 88	24 – 97
Mean	56.1	58.0
Median	56	58
Mode	59	63
Number of patients	834	1584

Age – sampled population

Table 2.2 Age in years of the sampled study population

Age	Female	Male
Range	31 – 83	25 – 87
Mean	56.0	57.3
Median	56	57
Mode	55	51
Number of patients	181	331

Multiple hospital admissions

Table 2.3 Previous hospital admissions – whole patient sample

Previous hospital admissions (in the 2 years prior to death)	Number of patients	%
Yes	1752	71.4
No	702	28.6
Total	**2454**	

71% of the study population had 1 or more hospital admission in the 2 years prior to the admission in which they died

Previous admissions for ARLD

Table 2.7 Previous admissions for ARLD – whole study population

Previous admission for ARLD	Number of admissions	%
Yes	3248	48.1
No	3501	51.9
Subtotal	**6749**	
Not answered	907	
Total	**7656**	

The 1752 patients had 7656 previous admissions, half of which were for ARLD

Previous admissions for ARLD – sampled population

Table 2.6 Previous admissions for ARLD – sampled study population

Previous admission for ARLD	Number of patients	%
Yes	336	68.7
No	153	31.3
Subtotal	**489**	
Not answered	23	
Total	**512**	

Previous admissions for ARLD – sampled population

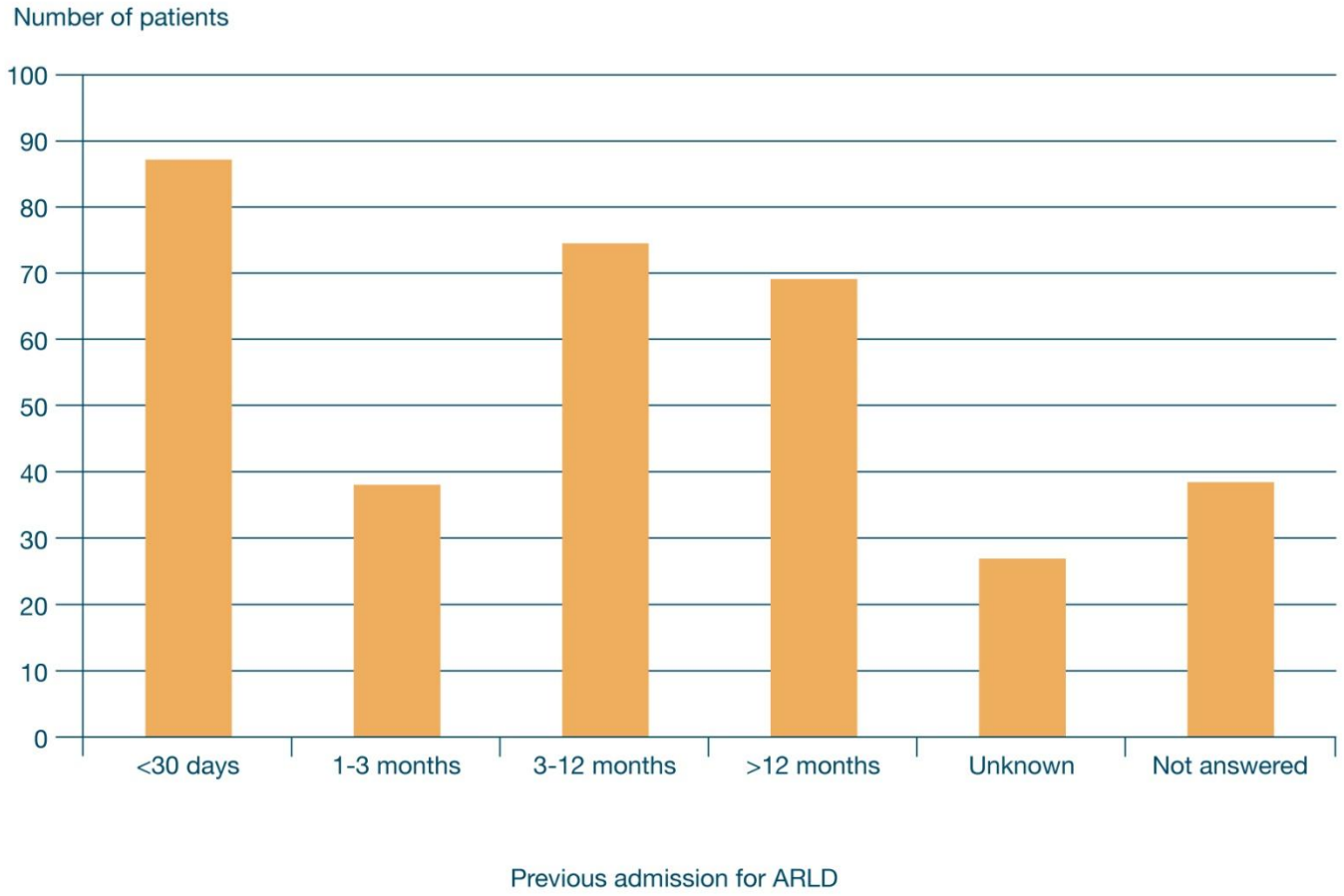

Figure 2.3 Interval from the last known admission for ARLD to the admission in which the patient died

Key findings

- 2454 patients were identified as dying with ARLD during the 6 month study period
- 66% (1584/2418) of the ARLD deaths were male
- The median age for death was 56 and 58 for females and males respectively
- 71% (1753/2454) had a previous admission to hospital in the 2 years prior to their final admission
- 62% (1082) of patients that had a previous admission to hospital had an admission in which ARLD was diagnosed

Recommendation

- A system should be in place to ensure that all patients admitted to hospital and subsequently identified as being at risk from an alcohol-related disease, are promptly referred to appropriate support service. This system should be subject to regular audit.

Admission to Hospital
Mark Juniper

When were patients admitted?

Table 4.1 Admission by day of the week

Day of admission	Number of patients	%
Monday	70	14.1
Tuesday	75	15.1
Wednesday	81	16.3
Thursday	79	15.9
Friday	85	17.1
Saturday	54	10.9
Sunday	53	10.7
Total	**497**	

How did patients arrive in hospital?

Table 4.2 Mode of admission

Admission type	Number of patients	%
Via the ED	363	73.3
Direct from GP	87	17.6
Following outpatients	18	3.6
Hospital transfer	15	3.0
Other	12	2.4
Subtotal	**495**	
Not answered	13	
Unknown	4	
Total	**512**	

What ward were they admitted to?

Table 4.3 Admission ward location

Ward	Number of patients	%
Level 0	233	47.5
Level 1	191	38.9
Level 2	26	5.3
Level 3	41	8.4
Subtotal	**491**	
Unknown	8	
Not answered	13	
Total	**512**	

Was this appropriate?

Table 4.4 Clinicians' view on ward of admission

Appropriate location	Number of patients	%
Yes	459	93.3
No	33	6.7
Subtotal	**492**	
Not answered	20	
Total	**512**	

Who saw the patients?

Table 4.6 Grade of admitting clinician

Admitting clinician grade	Number of patients	%
ST 1-2	188	41.2
Consultant	100	21.9
Pre CCT	67	14.7
Career Registrar	44	9.6
FY1	34	7.5
Post CCT	17	3.7
Associate Specialist	6	1.3
Subtotal	**456**	
Not answered	56	
Total	**512**	

What was their specialty?

Table 4.7 Specialty of admitting clinician

Specialty of admitting clinician	Number of patients	%
General medicine	236	48.3
Gastroenterology	85	17.4
Geriatric medicine	31	6.3
Respiratory medicine	24	4.9
Critical/intensive care medicine	15	3.1
Endocrinology	17	3.5
Hepatology	14	2.9
General surgery	12	2.5
Emergency medicine	8	1.6
Trauma & Orthopaedics	8	1.6
Other	39	8.0

Time to senior review: Advisors' view

- 363 patients time of review available from clinician questionnaire
- 132 (36.4%) patients reviewed > 12 hours after admission
- 102 (28.1%) review > 14 hours after admission

Table 4.5 Timeliness of first consultant review – Advisors' opinion

Timely consultant review	Number of patients	%
Yes	266	84.7
No	48	15.3
Subtotal	**314**	
Not answered	1	
Total	**315**	

Presenting features

Table 4.8 Presenting features *(answers may be multiple n/512)*

Presenting feature	Number of patients	%
Ascites	285	55.7
Jaundice	251	49.0
Chronic liver disease	238	46.5
Evidence of encephalopathy	227	44.3
Sepsis	174	34.0
Renal failure	157	30.7
Acute alcoholic hepatitis	147	28.7
Other	151	29.5
GI bleeding	106	20.7
Chronic pancreatitis	17	3.3
Acute pancreatitis	6	1.2

Complex patient group

Risk of death increased if (any of):

- Jaundice
- Ascites
- Encephalopathy
- Renal failure
- Acute alcoholic hepatitis

At least one of these features present in 438/512 patients (85%)

Investigations

Table 4.9 Investigations – reported by the clinician caring for the patient *(answers may be multiple n/512)*

Investigations	Number of patients	%
Full blood count	492	96.1
Clotting screen	488	95.3
Liver function tests	481	93.9
Chest X-ray	456	89.1
Urea and electrolytes	384	75.0
Ultrasound scan	284	55.5
CT	185	36.1
Hepatitis B screen	154	30.1
Hepatitis C screen	153	29.9
Other	149	29.1
MRI	14	2.7

Liver function / clotting screen usually checked

Tests of kidney function not reported in 128/512

Investigation of liver disease

Table 4.12 Had alternative causes of liver disease previously been excluded?

Other causes of liver disease adequately excluded	Total	%
Yes	130	47.3
No	145	52.7
Subtotal	**275**	
Not applicable	91	
Not answered	19	
Total	**385**	

Table 4.13 First presentation: was an adequate liver screen done

Adequate liver screen	Total	%
Yes	57	46.3
No	66	53.7

Advisor comments:

Documentation not always available for previous admissions

When high alcohol intake documented, assumed that alcohol was cause

Investigation of decompensation

- Sepsis common cause of decompensation
- Inflammatory indices often not elevated
- Spontaneous bacterial peritonitis in 15% with decompensation and ascites
- Cultures of blood and ascites important first line investigations

Ascitic tap

- Small volume sample sent for culture / cell count
- Simple bedside procedure
- Important immediate investigation
- Coagulopathy not a contraindication

Were investigations done quickly enough?

Table 4.10 Advisor assessment of timeliness of investigations

Investigations timely	Total	%
Yes	309	85.4
No	53	14.6
Subtotal	**362**	
Not answered	23	
Total	**385**	

1 in 7 patients delays:

- Ascitic tap
- Blood cultures
- Ultrasound

Were the right investigations done?

Table 4.11 Advisor opinion of appropriateness of investigations

Evidence of over or under investigation	Number of patients	%
No	285	75.2
Over investigation	5	1.3
Under investigation	89	23.5
Subtotal	**379**	
Not answered	6	
Total	**385**	

1 in 5 patients, investigations not done:

- Ascitic tap (25 cases)
- Blood cultures (12 cases)
- Ultrasound (13 cases)

Case studies

Case study 1

A 42 year old patient was admitted with abdominal pain and swelling. The patient drank alcohol to excess but was not known to have liver disease. Liver function was deranged. An ascitic tap was done but the results were not documented. Blood cultures were not sent and the patient was not treated with antibiotics. They deteriorated with worsening encephalopathy and renal failure and died two days later.

The Advisors felt that insufficient effort was made to exclude or treat sepsis

Case study 2

A 55 year old patient with ARLD was admitted with abdominal pain, swelling and oedema. Liver function was deranged including INR 3.9 and platelets 94 x 10^9. Vitamin K was given. Ascitic tap / drainage was delayed due to concern over coagulation. After six days, a gastroenterologist advised drainage. Unfortunately the patient suffered a cardiac arrest and died prior to this procedure

The Advisors commented that there was unnecessary delay in investigation and initiating treatment in this patient

Organ dysfunction

Organ dysfunction

- Commonly present on admission in cases Advisors reviewed
  - 350/374 (94%) abnormal liver function; 66% deteriorated further
  - 233/374 (62%) abnormal renal function; 63% deteriorated further
- 49/257 cases (19%) care contributed to deterioration

Table 4.15 Deterioration in organ function (liver and renal) during final admission

	Deterioration in renal function				
Deterioration in liver function	Yes	No	**Subtotal**	Not answered	**Total**
Yes	167	55	**222**	4	**226**
No	45	69	**114**	4	**118**
Subtotal	**212**	**124**	**336**	**8**	**344**
Unknown	4	3	**7**	34	**41**
Total	**216**	**127**	**343**	**42**	**385**

Management of deterioration

Table 4.17 Evidence of deterioration identified promptly

Deterioration identified promptly	Number of patients	%
Yes	229	90.9
No	23	9.1
Subtotal	**252**	
Unknown	15	
Total	**267**	

Table 4.18 Deterioration managed appropriately

Deterioration managed appropriately	Number of patients	%
Yes	209	83.6
No	41	16.4
Subtotal	**250**	
Unknown	17	
Total	**267**	

Main theme renal deterioration:

- Delayed / inadequate fluids (23 patients)
- Delay stopping diuretics
- Reluctance to consider renal replacement
- Terlipressin indicated but not administered (7 cases)

Case study 4

A 49 year old patient was admitted with jaundice and abdominal swelling. Initial assessment included blood cultures and diagnostic ascitic tap to screen for sepsis. Initial treatment was appropriate including antibiotics for presumed infection.
The patient's renal function was not checked regularly but urine output was low and no fluid challenge was given. Renal function then deteriorated and at no point was fluid resuscitation given or escalation of care offered

It was the view of the Advisors that early fluid administration might have prevented the deterioration in renal function and that escalation of care may have been beneficial

Case study 5

A 62 year old was admitted with abdominal pain. They had a history of excessive alcohol intake. The patient had ascites. Liver function was abnormal. Systolic BP was 85mmHg.
500mls of i.v. fluid was administered over 6hrs. The patient was seen on the PTWR 10hrs later and BP was 60mmHg. They had passed 20mls urine in 12hrs. The decision was made on the PTWR to commence the Liverpool Care Pathway and the patient died two hours later

The view of the Advisors was that more aggressive fluid resuscitation should have been given, that an opportunity to escalate care had clearly been missed by the time the consultant review occurred and that earlier consultant review would have been appropriate

Initial management plan

Table 4.19 Clear management/monitoring plan

Clear management/ monitoring plan documented	Number of patients	%
Yes	349	92.3
No	29	7.7
Subtotal	**378**	
Not answered	7	
Total	**385**	

Table 4.20 In the 349 patients with a plan, was this appropriate?

Appropriate management/ monitoring plan	Number of patients	%
Yes	302	90.4
No	32	9.6
Subtotal	**334**	
Not answered	15	
Total	**349**	

Unclear or inappropriate in 61/363 (16.8%) cases

Initial management: overall assessment

Table 4.21 Advisors assessment of initial management:

Initial management	Number of patients	%
Good	185	49.3
Adequate	140	37.3
Poor	47	12.5
Unacceptable	3	0.8
Subtotal	**375**	
Not answered	10	
Total	**385**	

Alcohol History and Withdrawal

Alcohol use

Table 4.22 Known to drink alcohol to excess

Known to drink alcohol to excess	Number of patients	%
Yes	483	95.6
No	22	4.4
Subtotal	**505**	
Not answered	7	
Total	**512**	

Table 4.23 Patients previously known to have ARLD

Known to have ARLD	Number of patients	%
Yes	388	77.0
No	116	23.0
Subtotal	**504**	
Not answered	8	
Total	**512**	

Drinking status

Table 4.24 Current drinking status

Current drinker	Number of patients	%
Yes	363	74.4
No	125	25.6
Subtotal	**488**	
Unknown	20	
Not answered	4	
Total	**512**	

Table 4.25 Duration of abstinence from alcohol:

Stopped drinking	Number of patients	%
1 months	30	27.8
6 months	40	37.0
12 months	8	7.4
> 12 months	30	27.8
Subtotal	**108**	
Unknown	16	
Not answered	1	
Total	**125**	

Recording of alcohol history

Final admission

Table 4.26 Alcohol history documented (Advisors' opinion)

History adequately documented	Number of patients	%
Yes	196	52.7
No	176	47.3
Subtotal	**372**	
Not answered	13	
Total	**385**	

- Very limited in 116
- Not recorded in 21

Previous admissions

Table 4.27 Alcohol history during previous episodes

Alcohol history documented	Number of patients	%
Yes	207	84.1
No	39	15.9
Subtotal	**246**	
Insufficient data	6	
Total	**252**	

Table 4.28 Adequacy of alcohol history for previous episodes

Alcohol history adequate	Number of patients	%
Yes	135	67.2
No	66	32.8
Subtotal	**201**	
Insufficient data	6	
Total	**207**	

Advice / support given

Clinicians' view

Table 4.29 Evidence of previous advice/support provided

Evidence of previous advice/support	Number of patients	%
Yes	312	62.5
No	187	37.5
Subtotal	**499**	
Not answered	13	
Total	**512**	

Table 4.30 Previous advice/support appropriate

Previous advice/support appropriate	Number of patients	%
Yes	263	88.3
No	35	11.7
Subtotal	**298**	
Not answered	14	
Total	**312**	

Advisors' assessment

- 215/385 (56%) had received advice/support
- 42/200 (21%) advice not appropriate

Risk of alcohol withdrawal syndrome

Table 4.31 Assessment of risk of alcohol withdrawal (all patients)

Assessment of alcohol withdrawal	Number of patients	%
Yes	156	41.4
No	221	58.6
Subtotal	**377**	
Not answered	8	
Total	**385**	

Table 4.33 Withdrawal risk assessment in current drinkers

Assessment of alcohol withdrawal	Number of patients	%
Yes	129	47.8
No	141	52.2
Subtotal	**270**	
Not answered	6	
Total	**276**	

Withdrawal scales

Table 4.32 Use of alcohol withdrawal scale (all patients)

Alcohol withdrawal scale used	Number of patients	%
Yes	32	9.9
No	290	90.1
Subtotal	**322**	
Not applicable	51	
Not answered	12	
Total	**385**	

- Withdrawal scales assess risk and guide treatment
- NICE guidance recommends use (CIWA-Ar)
- Most (192/204) hospitals have guidelines/pathways for management of alcohol withdrawal
- Treatment for withdrawal given in 145/346 (42%)

Was withdrawal treatment appropriate?

Table 4.34 Advisors' view of the appropriateness of treatment given for alcohol withdrawal

	Appropriate treatment				
Treatment given	Yes	No	**Subtotal**	Not answered	**Total**
Yes	118	27	**145**	4	**149**
No	175	26	**201**	22	**223**
Subtotal	**293**	**53**	**346**	**26**	**372**
Not answered	0	0	**0**	13	**13**
Total	**293**	**53**	**346**	**39**	**385**

- Withdrawal treatment inappropriate in 53/346 (15%)
- Inappropriate both when used and when not
- Use of withdrawal scales/guidelines inadequate

Case study 6

A 52 year old patient had a series of 22 alcohol-related admissions over a two year period. The documentation on each occasion made detailed assessment of the patient's alcohol intake including the risk of withdrawal. Assessment tools were used. There was good documentation of continued offers of support and referral to support services presented in a language that was easy to understand

The Advisors' view was that this was an example of good practice. The notes reflected teams who maintained good standards of care and tried very hard on behalf of the patient who despite this continued to drink

Case study 7

A 49 year old with ARLD was admitted with pneumonia. On admission, no assessment was made of their risk of withdrawal. The patient became agitated on the ward and was treated with haloperidol and chlordiazepoxide. They became hypoxic and required CPAP which was tolerated poorly. A midazolam infusion was started and soon after this the patient vomited, aspirated, sustained a cardiac arrest and died

The Advisors' opinion was that inappropriate sedation was given. If the risk of withdrawal had been identified earlier, more appropriate treatment would have been given and escalation of care could have been sought avoiding the complication of aspiration that proved fatal

Key findings - general

- Consultant review >12hrs in 36% of patients, >14hrs in 28%
- Consultant review insufficiently prompt in 15%
- Organ failure common, not well managed in 15%
- High incidence of abnormal renal function (30.6%). Tests of renal function not always done on admission
- Initial management plan either unclear or inappropriate in one in six patients
- Initial care of more than one in eight patients (13%) rated as poor or unacceptable

Key findings - ARLD

- Inappropriate delay in sampling ascites due to coagulopathy in a significant number of patients
- Tests to exclude sepsis omitted in almost 10%
- In patients with decompensated liver disease who drank potentially harmful amounts of alcohol other causes of liver disease were not considered in 53% of cases

Key findings - alcohol

- Adequate alcohol history not taken in nearly half (47%) during final admission and a third (33%) during previous admissions
- Clinicians identified advice given on alcohol intake was not appropriate in more than one in ten cases. Advisors found it was not appropriate in more than one in five
- Advisors felt treatment for alcohol withdrawal was inappropriate in more than one in seven cases (15%)
- Alcohol withdrawal scales were used in a small minority (10%) of cases

Recommendations - general

- Consultant review of medical patients within 12 hours of admission
- Routine U+E in all emergency admissions
- NICE guidance
  - Assessment tools such as AUDIT and CIWA-Ar
- Full liver screen in patients with potentially harmful drinking

Recommendations – initial management

- All patients presenting with decompensated ARLD should have blood cultures included in their initial investigations on admission to hospital

- If ascites is present in patients presenting with decompensated ARLD, a diagnostic ascitic tap should be performed as part of their initial assessment. Coagulopathy is not a contraindication to this procedure

- A toolkit for the management of patients admitted with decompensated ARLD should be developed and made widely available to all physicians / doctors involved in the care of patients admitted to acute hospitals

Recommendations – alcohol history

- All patients presenting to hospital services should be screened for alcohol misuse. An alcohol history including:
  - number of units drunk weekly
  - drinking patterns
  - recent drinking behaviour
  - time of last drink
  - indicators of dependence
  - risk of withdrawal should be documented

Organisational data

Dedicated wards

Table 3.2 Dedicated gastroenterology ward

	Dedicated gastroenterology ward						
	Yes		No				
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	62	69.7	27	30.3	**89**	0	**89**
District General Hospital > 500 beds	50	89.3	6	10.7	**56**	1	**57**
University Teaching Hospital	48	81.4	11	18.6	**59**	0	**59**
Total	**160**	**78.4**	**44**	**21.6**	**204**	**1**	**205**

78% (160/204) of hospitals had a dedicated gastroenterology ward

Dedicated wards

Table 3.3 Dedicated hepatology ward

	Dedicated hepatology ward						
	Yes		No				
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	11	12.4	78	87.6	**89**	0	**89**
District General Hospital > 500 beds	7	12.5	49	87.5	**56**	1	**57**
University Teaching Hospital	24	41.4	34	58.6	**58**	1	**59**
Total	**42**	**21.2**	**161**	**78.8**	**203**	**2**	**205**

21% (42/203) of hospitals had a dedicated hepatology ward

Consultant gastroenterologists

Table 3.12 Type and number of hospitals with consultant gastroenterologists

	Consultant gastroenterologists						
	Yes		No				
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	83	95.4	4	4.6	**87**	2	**89**
District General Hospital > 500 beds	55	98.2	1	1.8	**56**	1	**57**
University Teaching Hospital	53	94.6	3	5.4	**56**	3	**59**
Total	**191**	**96.0**	**8**	**4.0**	**199**	**6**	**205**

All bar 8 hospitals had 1 or more consultant gastroenterologist

Consultant gastroenterologists

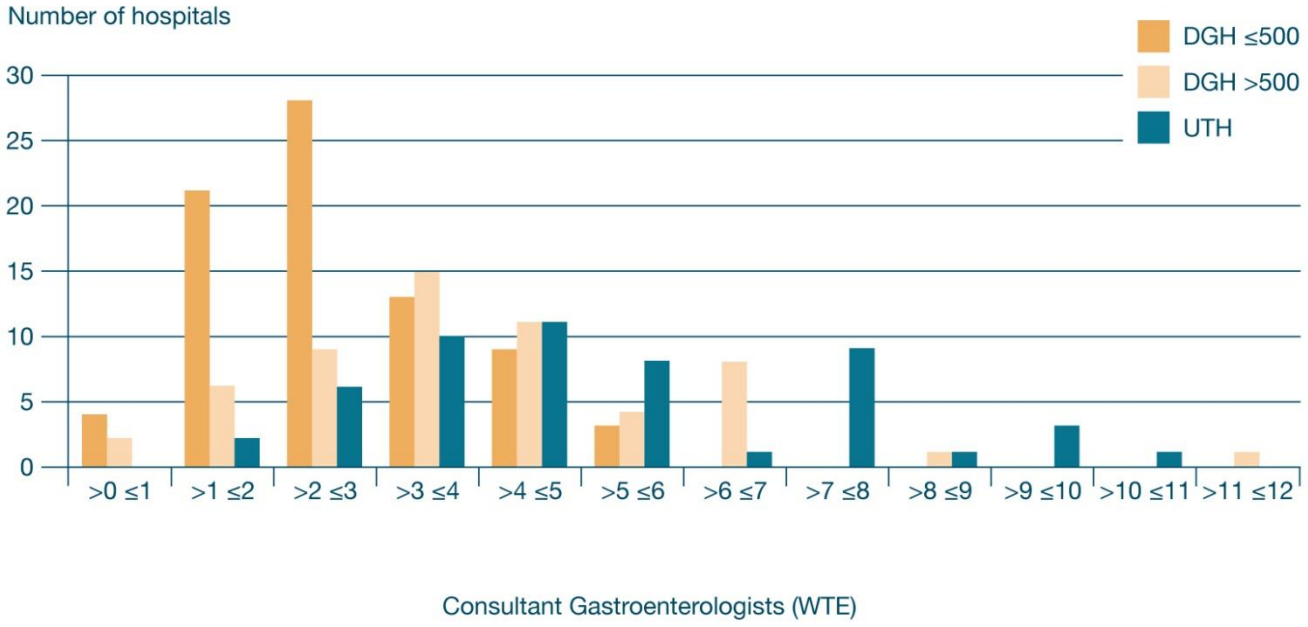

Figure 3.2 The number of whole time equivalent consultant gastroenterologists

Consultant gastroenterologists with an interest in liver disease

Table 3.13 Type and number of hospitals with consultant gastroenterologists with an interest in liver disease

	Consultant gastroenterologists with interest in liver disease						
	Yes		No				
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	60	71.4	24	28.6	**84**	5	**89**
District General Hospital > 500 beds	34	69.4	15	30.6	**49**	8	**57**
University Teaching Hospital	23	46.9	26	53.1	**49**	10	**59**
Total	**117**	**64.3**	**65**	**35.7**	**182**	**23**	**205**

64% (160/204) of hospitals had a one or more consultant gastroenterologist with an interest in liver disease

Consultant hepatologists

Table 3.14 Type and number of hospitals with consultant hepatologists

	Consultant hepatologists*						
	Yes		No				
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	9	10.8	74	89.2	**83**	6	**89**
District General Hospital > 500 beds	9	17.0	44	83.0	**53**	4	**57**
University Teaching Hospital	34	61.8	21	38.2	**55**	4	**59**
Total	**52**	**27.2**	**139**	**72.8**	**191**	**14**	**205**

**Hepatologist defined as a consultant who spends more than 50% of their time in liver practice.*

Management of OOH GI bleeds

Table 3.18 Management of out of hours GI bleeds

Management of out of hours GI bleeds	Number of hospitals	%
24/7 GI bleed rota	119	58.3
On call medical team with GI input on good-will basis	44	21.6
Managed by surgeons on call rota	15	7.4
Transferred to other unit	14	6.9
On call medical team	12	5.9
Subtotal	**204**	
Not answered	1	
Total	**205**	

56 hospitals relied on the on call medical team with or without input from GI specialists

Alcohol liaison services

- Medical management of patients with alcohol problems within the hospital
- Liaison with community alcohol and other specialist services
- Education and support for other healthcare workers in the hospital
- Implementation of case-finding strategy and delivery of brief advice within the hospital

Alcohol liaison services

Table 3.19 Alcohol liaison service

	Alcohol liaison service				
	Yes		No		
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Total**
District General Hospital ≤ 500 beds	63	70.8	26	29.2	**89**
District General Hospital > 500 beds	45	78.9	12	21.1	**57**
University Teaching Hospital	53	89.8	6	10.2	**59**
Total	**161**	**78.5**	**44**	**21.5**	**205**

78% (161/205) of hospitals reported having some form of alcohol liaison service

Alcohol liaison services

Table 3.20 Availability of an alcohol liaison service

Availability of alcohol liaison service	Mon - Fri		Sat – Sun	
	Number of hospitals	%	Number of hospitals	%
Day only	146	94.2	17	10.6
Day & evening	2	1.3	3	1.9
Day, evening & night	7	4.5	5	3.1
Not available	0	0.0	135	84.4
Subtotal	**155**		**160**	
Not answered	6		1	
Total	**161**		**161**	

The majority (129) only operated during weekday working hours

Alcohol liaison nurses

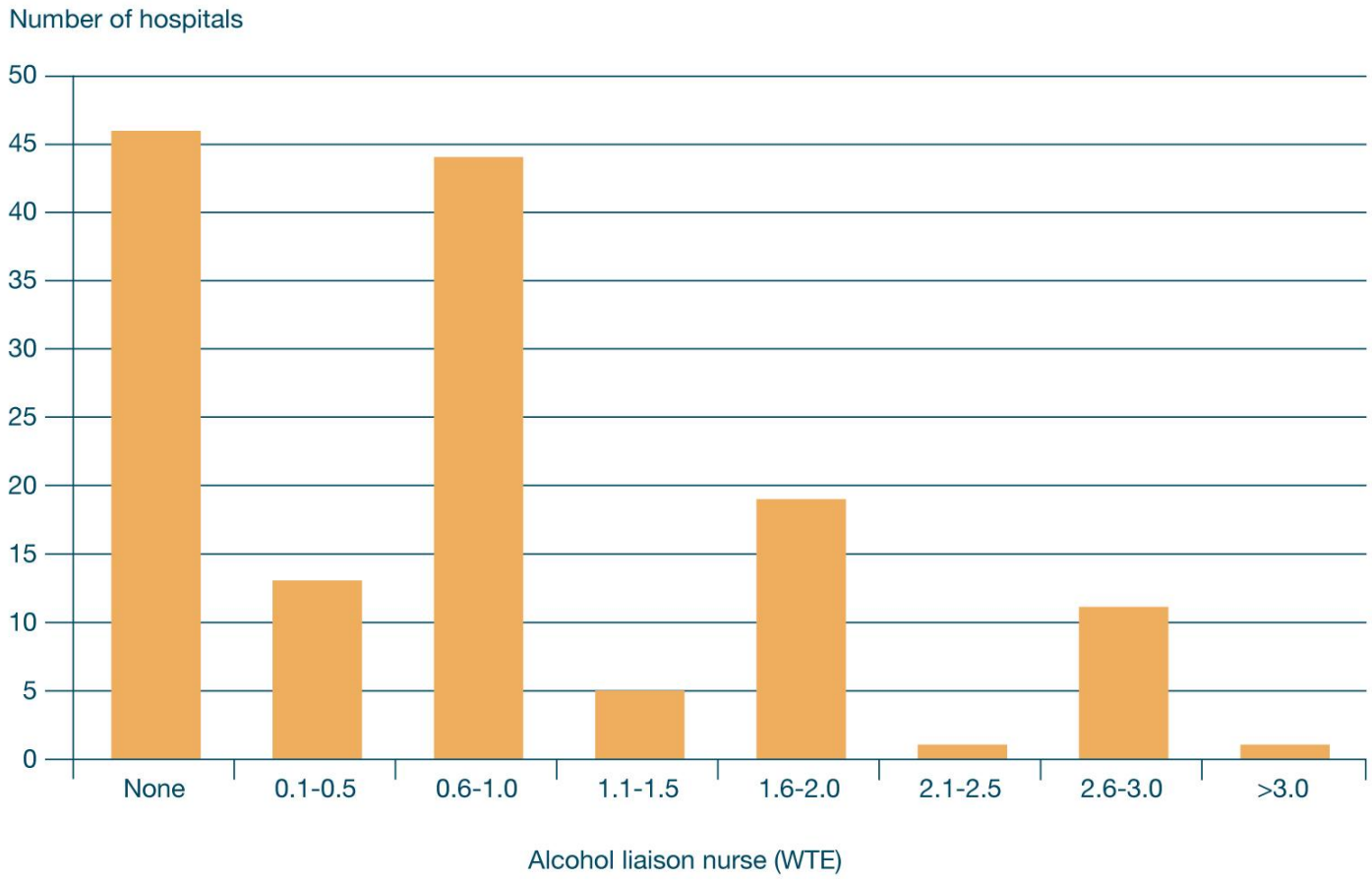

Figure 3.6 Availability of Alcohol Liaison Nurses

Alcohol care teams

Table 3.21 Multidisciplinary alcohol care team

	Multidisciplinary alcohol care team						
	Yes		No				
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	17	19.3	71	80.7	**88**	1	**89**
District General Hospital > 500 beds	11	19.6	45	80.4	**56**	1	**57**
University Teaching Hospital	19	32.2	40	67.8	**59**	0	**59**
Total	**47**	**23.2**	**156**	**76.8**	**203**	**2**	**205**

2010 joint paper from the BSG, AHA UK and BASL recommended a multidisciplinary 'Alcohol Care Team' in each district hospital.

Guidelines

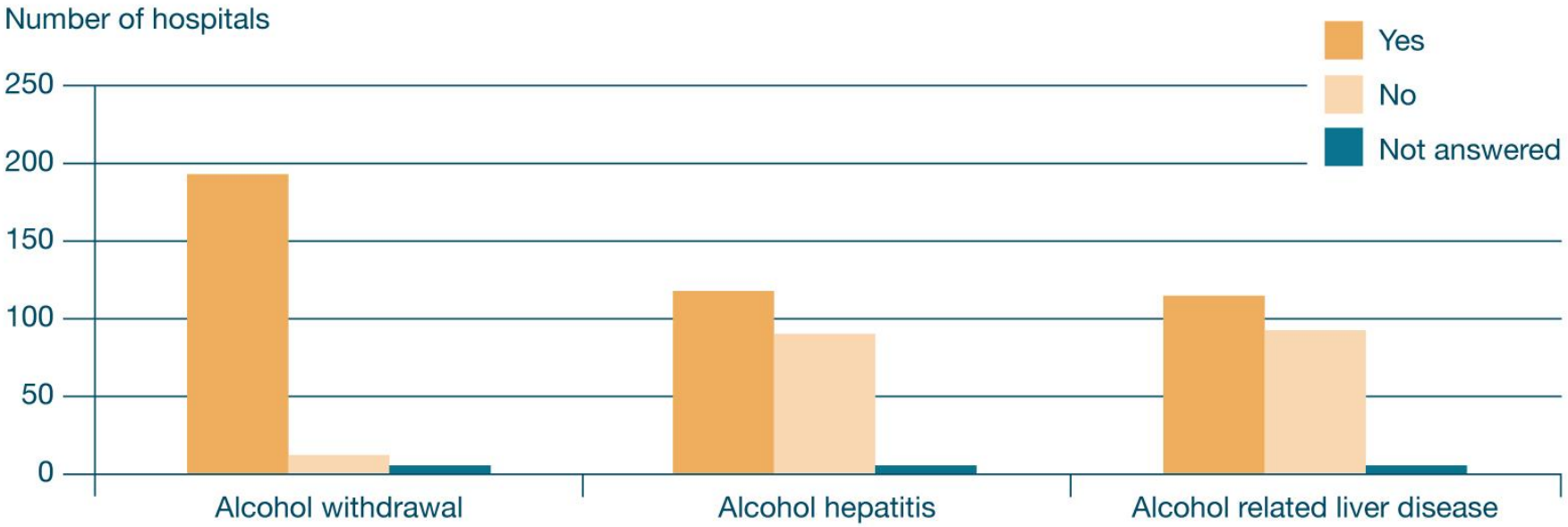

Figure 3.7 Availability of guidelines/treatment pathways

Large majority of hospitals had guidelines or treatment pathways for alcohol withdrawal, data suggests not followed

Guidelines

Table 3.27 Alcoholic Hepatitis guidelines vs. ARLD guidelines

	Alcoholic hepatitis guidelines				
Alcohol-related liver disease guidelines	Yes	No	**Subtotal**	Not answered	**Total**
Yes	98	14	**112**	0	**112**
No	17	74	**91**	0	**91**
Subtotal	**115**	**88**	**203**	**0**	**203**
Not answered	0	1	**1**	1	**2**
Total	**115**	**89**	**204**	**1**	**205**

74 hospitals did not have guidelines for the management of either ARLD or alcoholic hepatitis.

Key findings

- The presence of consultant hepatologists was restricted to 52/191 (28%) of hospitals.
- 27% (56/204) of hospitals relied on the on call medical team with or without input from GI specialists , to manage patients with GI bleeds out of hours
- 79% (161/205) hospitals reported having an alcohol liaison service but most restricted to weekday working hours
- Only 23% (47/203) of hospitals reported having a multidisciplinary alcohol care team

Key findings

- The use of guidelines/treatment pathways for the management of patients with alcoholic hepatitis and/or ARLD was limited to 115/204 and 112/204 hospitals respectively. 74 hospitals had neither guideline

Recommendations

- A multidisciplinary Alcohol Care Team, led by a consultant with dedicated sessions, should be established in each acute hospital and integrated across primary and secondary care.

Recommendations

- Each hospital should have a 7-day Alcohol Specialist Nurse Service, with a skill mix of liver specialist and psychiatry liaison nurses to provide comprehensive physical and mental assessments, Brief Interventions and access to services within 24 hours of admission.

Recommendations

- Robust guidelines should be available to every unit admitting patients with alcohol-related liver disease. All physicians managing such patients should be familiar with those guidelines and trained in their use.

First Consultant Review and On-going Care

Overall survival

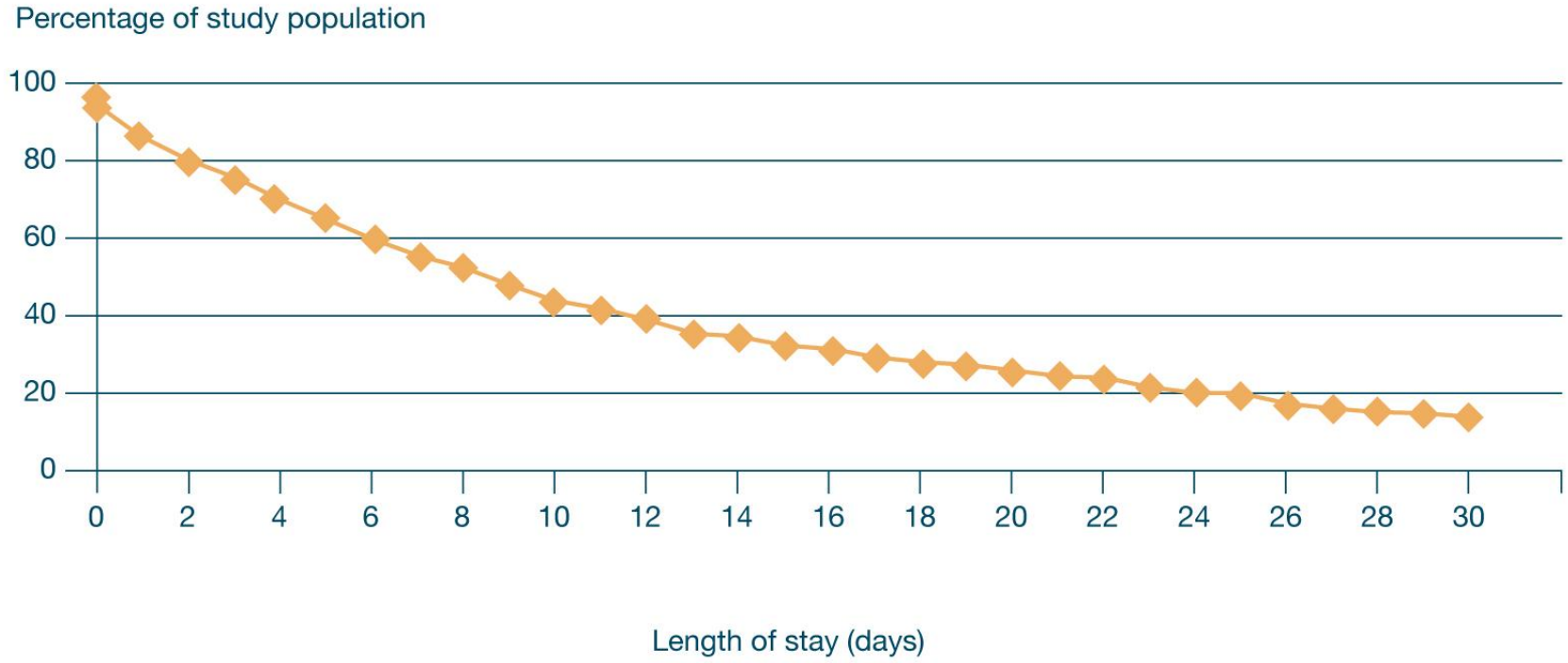

Figure 5.1 Length of stay (time to death) of whole study cohort

- 425 patients
- 14 died on day of admission
- 38 (9%) <24 hrs; 66 (16%) <48 hrs; 87 (20%) <72 hrs

Specialist review and care

- Complex patient group
- Serious organ dysfunction common
- Liver specialist input can:
  - Define best treatment – likely to optimise outcome
  - Identify the need for escalation of care
- 69/473 patients admitted to hospitals with a liver unit
- 140/334 cases assessed by Advisors were discussed with a liver unit / specialist
- 56/373 (15%) patients were reviewed by a specialist nurse

Time to review by GI / liver specialist

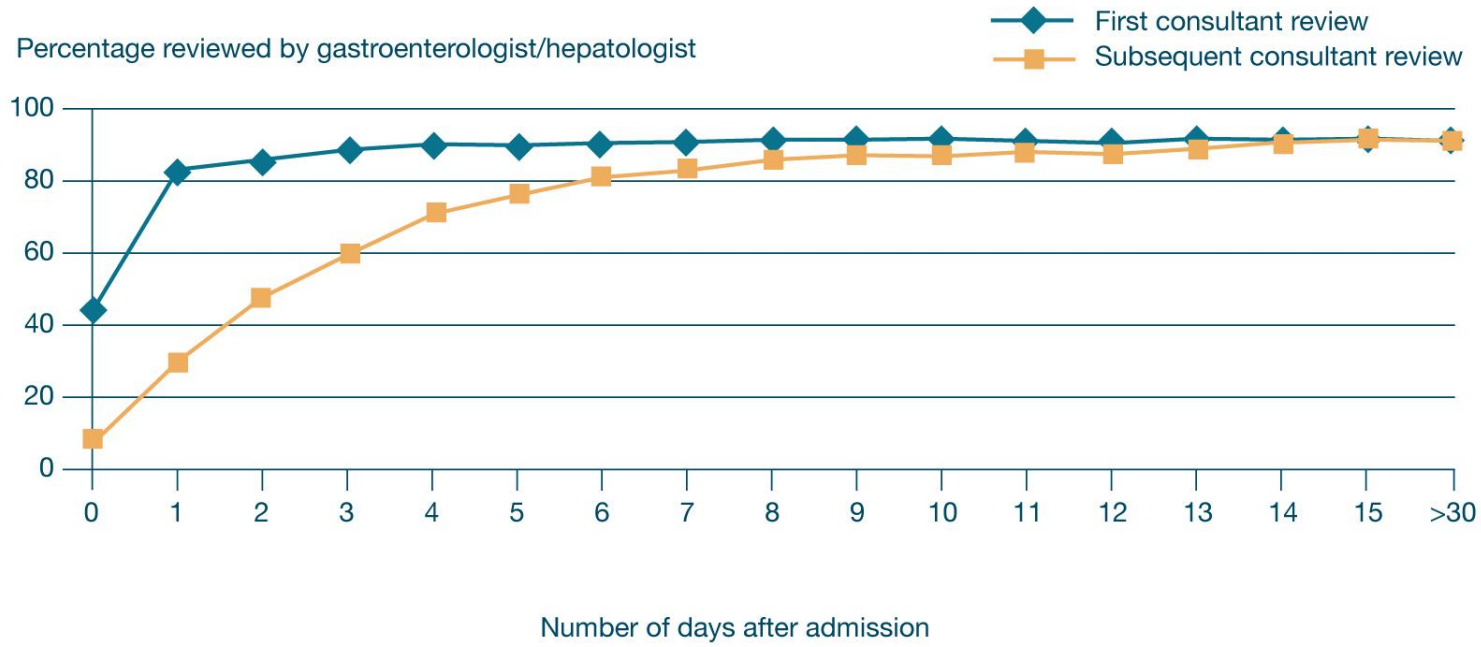

Figure 5.3 Percentage of patients reviewed by gastroenterologist vs. days after admission

- If admitted under gastroenterology, usually seen on day of admission
- If not, delay > 3 days in 87 cases and > 7 days in 21
- 117 patients not reviewed by specialist gastroenterologist

Patients not reviewed by gastroenterologist

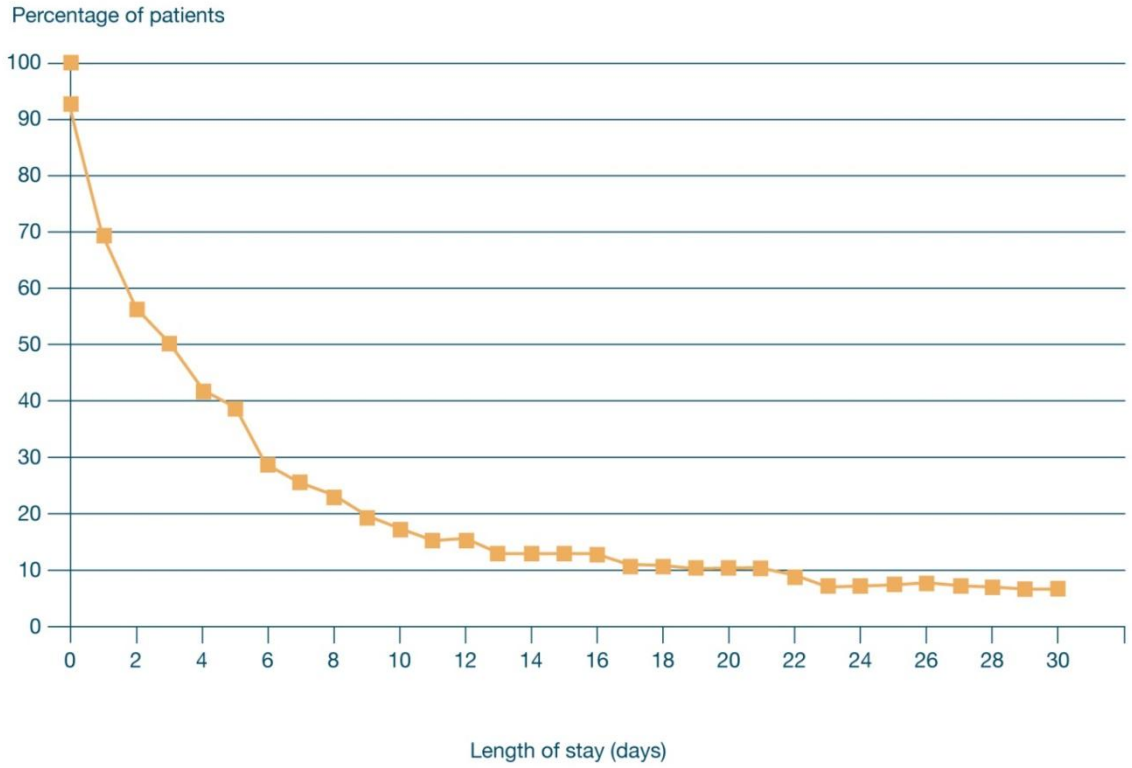

Figure 5.2 Length of stay (time to death) for 117 patients not seen by a gastrointestinal specialist

Deaths

- 8 died rapidly
- 26 < 24 hrs
- 40 < 48 hrs
- 47 < 72 hrs
- 28 > 7 days

Delay in review due to day of admission

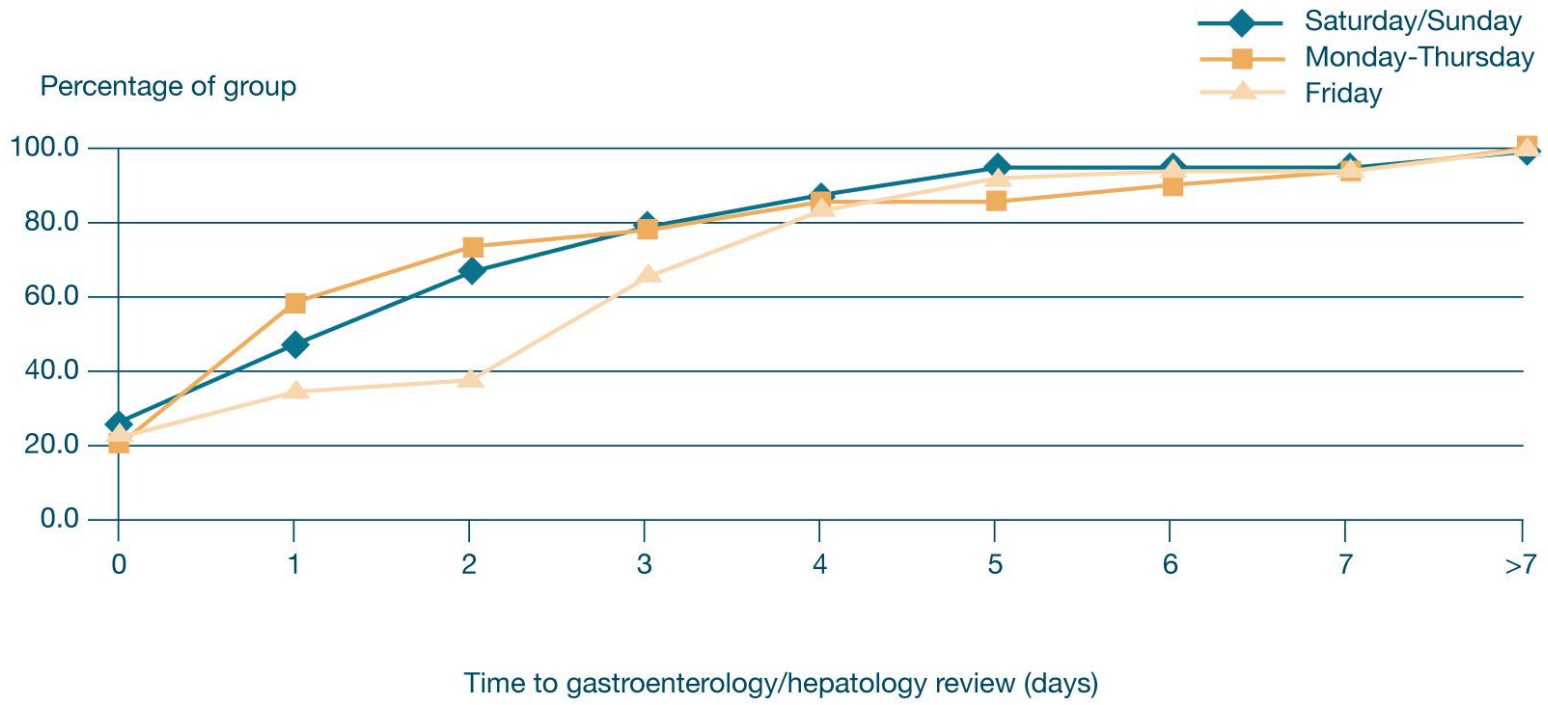

Figure 5.4 Percentage of patients reviewed by gastroenterology/hepatology by admission day: weekday, Friday and weekend

- Overall 20% had died within 72 hours

Case study 8

A 57 year old with ARLD was admitted with abdominal swelling and oedema. They vomited blood on the day of admission. Hb 8.1g/l, INR 1.5. Blood was transfused and endoscopy mentioned but not done. Ascitic tap was done on day 3 and antibiotics were started then. Alcoholic hepatitis was considered but no treatment was given. On day 4 they vomited again, aspirated and deteriorated progressively. Plans were put in place not to escalate care. The patient died the following day. They never saw a gastroenterologist

The Advisors' view was that care was disjointed with no clear management plan. Involvement of a gastroenterologist would have improved overall management and that the aspiration that led to deterioration might have been prevented

Nutritional assessment

- NICE recommends nutritional assessment within 48 hours of admission
- Malnutrition common in this group of patients
- Nutritional assessment in only 129/368 (35%)
- Appropriate nutritional plan documented in 184/351 (52%) cases

Treatment received

Table 5.2 All treatments received *(answers may be multiple n/512)*

Treatment	Number of patients	%
IV thiamine	348	68.0
Antibiotics as general prophylactic	315	61.5
Fluids	318	62.1
Lactulose	297	58.0
Vitamin K	253	49.4
Albumin	226	44.1
Oral thiamine	204	39.8
Diuretics	197	38.5
Detoxification (to prevent withdrawal)	189	36.9
Other	155	30.3
Opioid analgesia	91	17.8
Sedation	91	17.8
Steroids	81	15.8
Antibiotics (at the time of procedure)	56	10.9
Pentoxifylline	42	8.2
Methadone	7	1.4
NSAIDs	3	0.6

Antibiotics / fluid management

- Majority of patients

Thiamine

- 82 patients did not receive
- 39/343 (11%) current drinkers did not receive

“Never events”

- Opiates 91 patients
- NSAIDs 3 patients

Further treatment appropriate?

Table 5.5 Appropriateness of further treatment

Further treatment appropriate	Number of patients	%
Yes	70	20.3
No	275	79.7
Subtotal	**345**	
Unknown	40	
Total	**385**	

- Escalation of care (21/345; 6%)
- Fluid management 13 cases – no case of excessive administration

Fluid management

- i.v. fluids 318 (62%)
- Diuretics 197 (38.5%)
- Renal failure 157 (30.7%)

Table 5.3 Appropriateness of fluid management

Fluid management appropriate	Number of patients	%
Yes	241	71.3
No	97	28.7
Subtotal	**338**	
Not answered	47	
Total	**385**	

Table 5.4 Documentation of fluid balance

Fluid balance documented adequately	Number of patients	%
Yes	246	71.5
No	98	28.5
Subtotal	**344**	
Not answered	41	
Total	**385**	

Fluid management

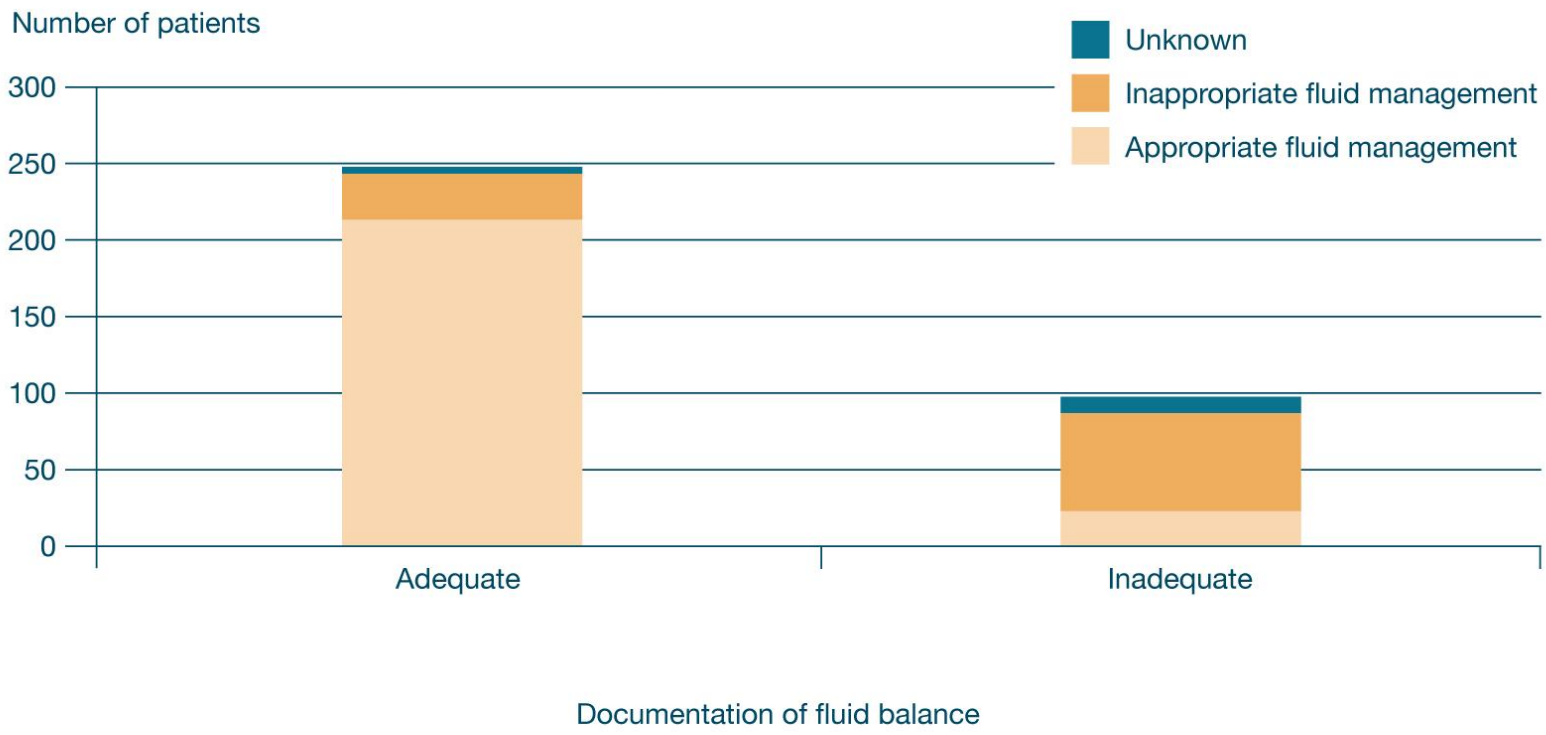

Figure 5.5 Adequacy of documentation and appropriateness of fluid management

- Documentation adequate; 88% appropriate management
- Documentation inadequate; 26% rated as appropriate

Case study 9

A 58 year old was admitted to ICU with an acute kidney injury on the background of ARLD. They improved and were discharged to the ward. The critical care outreach team reviewed them daily and for three days requested monitoring of fluid balance. This was not done regularly and urine output was not documented. The patient's renal function and general condition deteriorated over the next few days and further escalation was thought to be inappropriate

The Advisors felt that monitoring of fluid balance was unsatisfactory and that better monitoring had the potential to prevent the deterioration that occurred

Management of ascites

Table 5.6 Number of patients with ascites

Ascites	Number of patients	%
Yes	373	77.7
No	107	22.3
Subtotal	**480**	
Unknown	20	
Not answered	12	
Total	**512**	

- Common complication
- Ascitic tap essential part of infection screen

Specialist input: ascitic tap

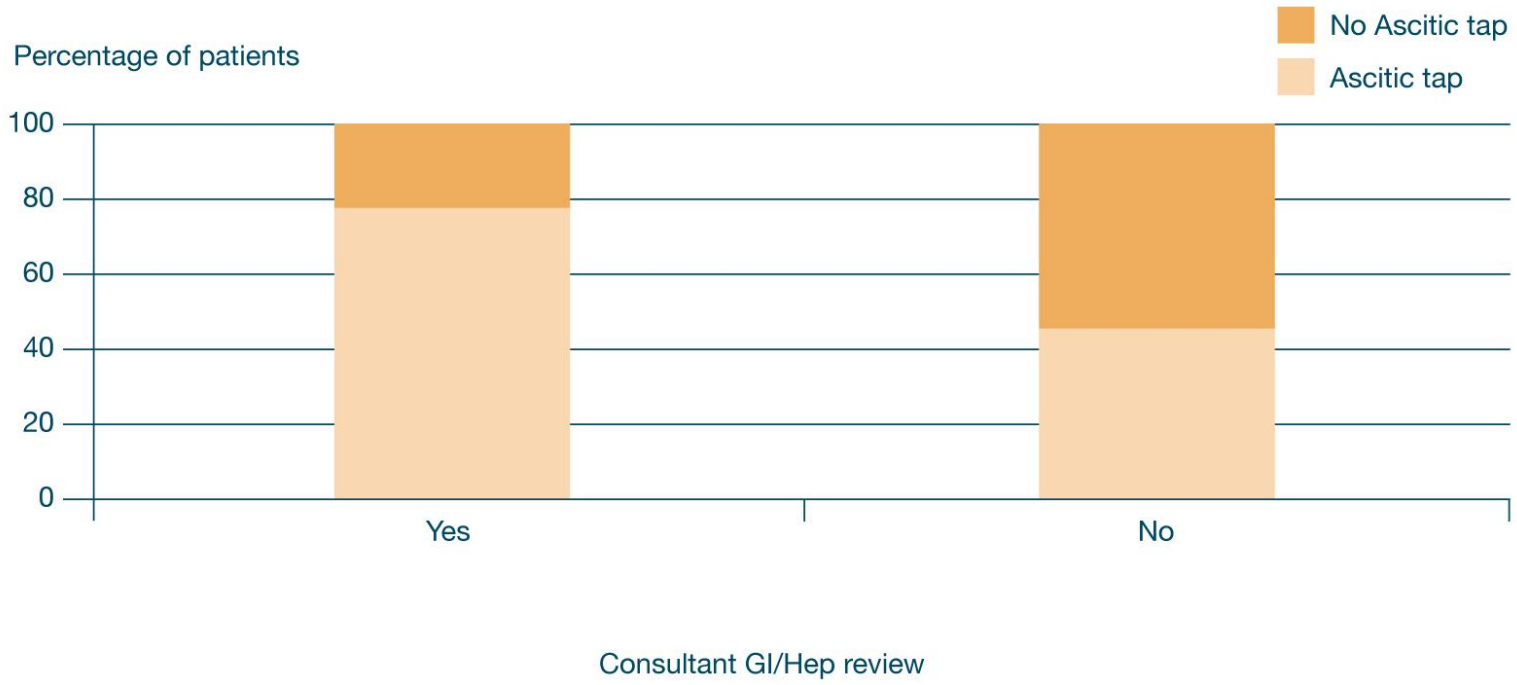

Figure 5.6 Diagnostic ascitic tap comparing patients reviewed or not by specialist gastroenterologist/hepatologist

78% vs 46%

Specialist input: ascitic drainage

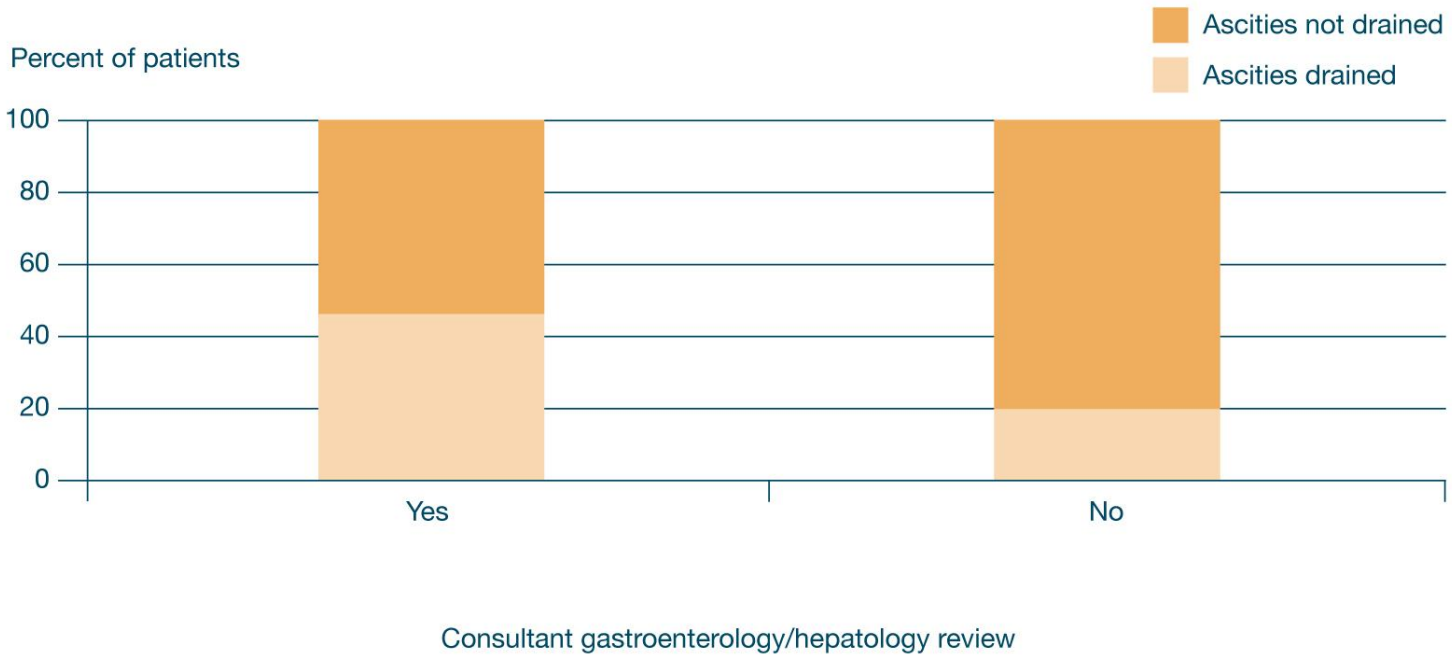

Figure 5.7 Ascitic drainage comparing patients reviewed or not by specialist gastroenterologist/hepatologist

48% vs 20%

- Albumin cover was used in 98% of cases

Key findings – specialist review

- One in four patients were never seen by a gastroenterologist/hepatologist
- Only 15% of patients were reviewed by a specialist nurse
- For 76% patients who were reviewed by a GI specialist this took place within 72 hours of admission
- For patients admitted on a Friday there was a greater delay in review by a gastroenterologist/hepatologist
- Patients seen by a gastroenterologist/hepatologist were more likely to have their ascites tapped and/or drained

Key findings - treatment

- Both documentation of fluid balance and fluid management were inadequate in one in four cases
- Adequate documentation of fluid balance was more commonly associated with appropriate management (88% vs 26% of cases)
- Thiamine, an essential treatment to prevent brain disorders in active drinkers, was omitted in more than one in ten cases

Recommendations

- Nutritional assessment of all patients should be made within the first 48 hours of admission (NICE). Includes patients with ARLD
- All patients with ARLD and a history of current alcohol intake, in excess of recommended limits should have thiamine administered on admission to hospital

Recommendations - fluids

- Systems to ensure accurate monitoring of fluid balance should be in place in all trusts
- In patients with decompensated ARLD and deteriorating renal function, diuretics should be stopped and intravenous fluid administered to improve renal function, even if the patient has ascites and peripheral oedema

Recommendations – specialist review

- Trusts should ensure that all patients admitted with ARLD receive early specialist input from a gastroenterologist/hepatologist and a specialist practitioner in alcohol addiction
- All patients with ***decompensated*** ARLD should be seen by a GI specialist at the earliest opportunity after admission. This should be within 24 hours and no longer than 72 hours after admission

Endoscopy and Gastrointestinal Bleeding

Endoscopy / GI bleeding

Table 6.1 Patients with gastrointestinal bleeding

Gastrointestinal bleed	Number of patients	%
Yes	147	35.3
No	269	64.7
Subtotal	**416**	
Unknown	9	
Not answered	87	
Total	**512**	

Endoscopy

Table 6.3 Location of endoscopy

Location	Number of patients
Endoscopy unit	80
Theatre	23
Level 3	20
Level 2	2
Level 1	1
Unknown	3
Total	**129**

GI Bleed vs Endoscopy

- 44 patients reported as having a GI bleed did not have an endoscopy
- Only 103 of 129 patients who had an endoscopy were reported as having a GI bleed
- 63% of patients who had an endoscopy had a cause of bleeding identified

Endoscopy

Table 6.4 Endoscopy findings

Endoscopy findings	Number of patients
Variceal bleeding	39
Non variceal bleeding	42
Non diagnostic/no bleeding found	39
Not answered	9
Total	**129**

Variceal bleeding

- Equal incidence of non-variceal bleeding
- Terlipressin in 34/39
- Antibiotics in 36/39

Endoscopy delays

Table 6.5 Clinician reported delay to intervention

Delay to intervention	Number of patients	%
Yes	14	10.1
No	125	89.9
Subtotal	**139**	
Unknown	3	
Not answered	5	
Total	**147**	

Case study 10

A 42 year old with known ARLD was admitted with haematemesis and melaena presumed to be due to variceal bleeding. Antibiotics and terlipressin were administered prior to endoscopy. The patient was admitted to the ICU and endoscopy with variceal banding was undertaken within 3 hours of admission. When bleeding was not controlled a TIPSS procedure was arranged. Printed multidisciplinary records were available for review and demonstrated excellent care throughout the admission. The patient died later during the admission

The Advisors' view was that this represented an excellent standard of care and documentation

Key findings

- There was a delay to intervention in endoscopy identified by the clinician responsible in one in ten cases
- 44 patients reported as having a GI bleed did not have an endoscopy
- The Advisors rated the care of 18% of cases who had a GI haemorrhage as poor or unacceptable

Recommendations

- The findings in this small group of patients suggest that a larger study is indicated to identify areas for improvement in the care of patients undergoing endoscopy for GI bleeding
- In line with NICE guidance, unless contraindicated, all patients with ARLD, who present with GI bleeding, should be offered antibiotics and terlipressin until the outcome of their endoscopy is known

Escalation and Treatment Decisions

Escalation of care

Table 7.1 Escalation of care received (clinicians' view)

Escalation of care received	Number of patients	%
Yes	192	38.9
No	302	61.1
Subtotal	**494**	
Unknown	3	
Not answered	15	
Total	**512**	

Table 7.2 Escalation required but not received (clinicians' view)

Escalation of care required	Number of patients	%
Yes	19	6.9
No	256	93.1
Subtotal	**275**	
Unknown	6	
Not answered	21	
Total	**302**	

Clinicians identified failure to escalate when required in 7% of cases

Advisors view on escalation

Table 7.3 Advisors' opinion of requirement for escalation

Ward transfer to higher care area required?	Number of patients	%
Yes	196	51.6
No	184	48.4
Subtotal	**380**	
Not answered	5	
Total	**385**	

Majority of cases reviewed by Advisors required escalation

Was the required escalation received?

Table 7.4 Advisors opinion of requirement for escalation vs. whether received

	Ward transfer received				
Ward transfer required	Yes	No	**Subtotal**	Not answered	**Total**
Yes	130	59	**189**	7	**196**
No	11	150	**161**	23	**184**
Subtotal	**141**	**209**	**350**	**30**	**380**
Not answered	0	1	**1**	4	**5**
Total	**141**	**210**	**351**	**34**	**385**

- Almost a third (31%) who stood to benefit from a higher level of care did not receive it
- Reluctance to escalate has previously been documented for this patient group
- Tendency for abnormal renal function to be labelled as hepatorenal syndrome

Was failure to escalate due to recurrent admissions?

Table 7.6 Escalation in first presentation of ARLD

	Ward transfer received				
Known to have ARLD	Yes	No	**Subtotal**	Unknown	**Total**
Yes	85	41	**126**	3	**129**
No	38	16	**54**	4	**58**
Subtotal	**123**	**57**	**180**	**7**	**187**
Unknown	4	0	**4**	0	**4**
Total	**127**	**57**	**184**	**7**	**191**

Failure to escalate when required as common in first presentation of ARLD (16/54 cases; 29.6%)

Case study 11

27 year old admitted with jaundice, abdominal distension. They had diarrhoea 2/52 previously. History of excessive alcohol intake stopping 4/52 before. No previous admissions. Tender liver, normal observations, GCS 15. Treated with fluids, pabrinex, thiamine, lactulose, tazocin. Blood cultures, liver screen, USS done. Consultant gastroenterologist saw on admission. 13hrs later seizure (Na^+ 110mmol/l): became agitated, GCS 13. Breathing deteriorated: thought to have aspirated

Case study 11 (continued)

ICU registrar d/w consultant “not for ITU as has end stage liver disease and is still drinking”. Care was provided on a general ward including oropharyngeal airway. Died next day 3/7 after admission

Clinician responsible noted missed opportunity as should have received escalation.

Advisors’ view was may have been post-ictal and escalation would have been appropriate

Case study 12

A 32 year old with cirrhosis due to ARLD was admitted midweek in normal working hours with a GI bleed. They were hypothermic, hypotensive, acidotic and in renal failure. They had ascites and encephalopthy. Hb was 6g/dl. They were transfused and actively warmed. No attempt was made to obtain gastroenterology review. They were referred to ICU but denied admission. They remained oliguric, had a further massive haematemesis and had a cardiac arrest and died

The Advisors' view was that more aggressive treatment of the bleed including endoscopy was indicated and that critical care admission was turned down inappropriately

End of Life and Treatment Limitation

Ward location at time of death

Table 7.7 Ward location of death

Ward where patient died	Number of patients	%
Level 0	199	40.4
Level 1	136	27.6
Level 2	35	7.1
Level 3	122	24.8
Subtotal	**492**	
Unknown	2	
Not answered	18	
Total	**512**	

Treatment limitation/withdrawal

Table 7.8 Treatment was limited or withdrawn

Treatment limited or withdrawn	Number of patients	%
Yes	311	82.5
No	66	17.5
Subtotal	**377**	
Unknown	8	
Total	**385**	

Was treatment limitation appropriate?

Table 7.9 Treatment withdrawal

	Appropriate decision				
Treatment limited or withdrawn	Yes	No	**Subtotal**	Not answered	**Total**
Yes	256	52	**308**	3	**311**
No	36	3	**39**	27	**66**
Subtotal	**292**	**55**	**347**	**30**	**377**
Not answered	0	0	**0**	8	**8**
Total	**292**	**55**	**347**	**38**	**385**

- 52/308 cases (17%) withdrawal not appropriate
- Not for escalation often interpreted as not for further treatment
- Overall 32 cases identified where death may have been avoidable

Case study 13

A 56 year old with cirrhosis due to alcohol had undergone endoscopy for variceal banding a year previously. They had been abstinent since. A few days after review in outpatients they were admitted having become encephalopathic, not maintaining airway and hypoxic. An early decision was made by the admitting consultant on the PTWR not to escalate care and the patient died 36hrs later

The Advisors' view was that a greater attempt should have been made to exclude reversible causes of the patient's illness, and that escalation would have been appropriate while doing this. There was little documented evidence to justify the decision that was made and they were surprised that this decision had not been questioned

Key findings

- Both Advisors and clinicians identified patients in whom escalation of care was not received despite it being indicated
- Treatment limitation or withdrawal was found to be inappropriate in 17% cases
- Advisors identified 32 deaths that may have been avoidable

Recommendations – escalation/withdrawal

- Escalation of care should be actively pursued for patients with ARLD who deteriorate acutely and whose background functional status is good. There should be close liaison between the medical and critical care teams when making escalation decisions

- When a decision is made not to escalate/to actively withdraw treatment for a patient with ARLD, this decision should be made by a consultant. Decision making should involve specialists with appropriate training to identify what interventions are likely to be of benefit. Decisions should be discussed with the patient/representative and documented. If there is doubt, the opinion of a second consultant should be sought

Missed Opportunities

Final admission

Table 8.1 Missed opportunities in final admission (Clinicians' response)

Missed opportunities	Number of patients	%
Yes	52	10.6
No	438	89.4
Subtotal	**490**	
Unknown	9	
Not answered	13	
Total	**512**	

Early missed opportunities

Table 8.2 Missed opportunities immediately following admission (Advisors' view)

Missed opportunities	Number of patients	%
Yes	102	27.9
No	264	72.1
Subtotal	**366**	
Not answered	19	
Total	**385**	

Delay in specialist review resulting in deficiencies in

- Fluid administration
- Sepsis management
- Failure to escalate when indicated
- Delay in endoscopy for GI bleeding

Previous admissions

- Majority had previous hospital contact
- Generally acute presentation

Table 8.5 Clinician reported previous admissions

Previous hospital admissions (in the 5 years prior to death)	Number of patients	%
Yes	313	75.8
No	100	24.2
Subtotal	**413**	
Unknown	67	
Not answered	32	
Total	**512**	

Table 8.7 Previous hospital contact

Previous hospital contact	Number of patients
Non-elective	139
Emergency department	57
Outpatient	35
Elective	19
Other	7
Total	257

Previous missed opportunities

Table 8.8 Missed opportunities in previous admissions (Advisors' view)

	Missed opportunities - Advisors' opinion				
Documented as having ARLD	Yes	No	**Subtotal**	Unknown	**Total**
Yes	47	91	**138**	30	**168**
No	27	30	**57**	17	**74**
Subtotal	**74**	**121**	**195**	**47**	**242**
Insufficient data	1	3	**4**	11	**15**
Total	**75**	**124**	**199**	**58**	**257**

- Known ARLD 34%
- Not known ARLD 47%

Clinician and Advisor agreement

Table 8.6 Clinician reported missed opportunities in patients with previous admissions

Missed opportunities	Number of patients	%
Yes	59	21.1
No	221	78.9
Subtotal	**280**	
Not answered	27	
Total	**313**	

Case study 14

A 50 year old was seen in outpatients with ARLD. They were told to stop drinking but not referred to any support services. The patient presented to the emergency department 3/12 later after falling and was again noted to drink excessively. No referral for support was made at this stage either. Three months later the patient was admitted with decompensation due to sepsis and died during this admission

The Advisors' view was that this represented two opportunities to intervene that had been missed and that a more systematic approach to referral for support was needed

Key findings

- Opportunities to change the outcome occurred frequently in the final admission and were mainly related to management of fluids and sepsis and failure to escalate care
- Clinicians (in 59 cases) and Advisors (75 cases) found opportunities that had been missed in previous admissions that had the potential to influence outcome
- The main opportunity to change the outcome in previous admissions was by referral to alcohol support services

Recommendations

- Screening hospital patients for alcohol misuse/alcohol history (as previously)
- All patients presenting to acute services with a history of potentially harmful drinking, should be referred to alcohol support services for a comprehensive physical and mental assessment. The referral and outcomes should be documented in the notes and communicated to the patient's general practitioner

Autopsy and Morbidity & Mortality Meetings

Autopsy and M&M meetings

- Clinicians often found areas for improvement when reviewing their cases for this study
- M+M provides opportunity to learn and improve
- Autopsy indicated where there is uncertainty as to the cause of death

M & M discussion

Table 9.1 Morbidity and mortality meeting undertaken

M & M meeting undertaken	Number of patients	%
Yes	110	30.3
No	253	69.7
Subtotal	**363**	
Unknown	105	
Not answered	44	
Total	**512**	

Coroner and Autopsy

Table 9.2 Number of cases reported to a coroner

Reported to coroner	Number of patients	%
Yes	113	26.0
No	322	74.0
Subtotal	**435**	
Unknown	50	
Not answered	27	
Total	**512**	

- 22/434 (5%) underwent autopsy
- 36 cases clinician stated death not anticipated
  - 11 discussed with coroner
  - 7 discussed in M & M meeting

Key findings

- A low number of cases (30%) were the subject of review in a morbidity and mortality meeting
- Only 11 of 36 cases where death was not anticipated were discussed with the coroner

Recommendations

- All deaths due to ARLD should be reviewed at a local M&M, clinical governance meeting to ensure that lessons are learned and to give assurance that high quality care is being provided
- Where the cause of death is unclear, or death was not anticipated, this should be discussed with the coroner

Overall Assessment of Care

Overall assessment of care

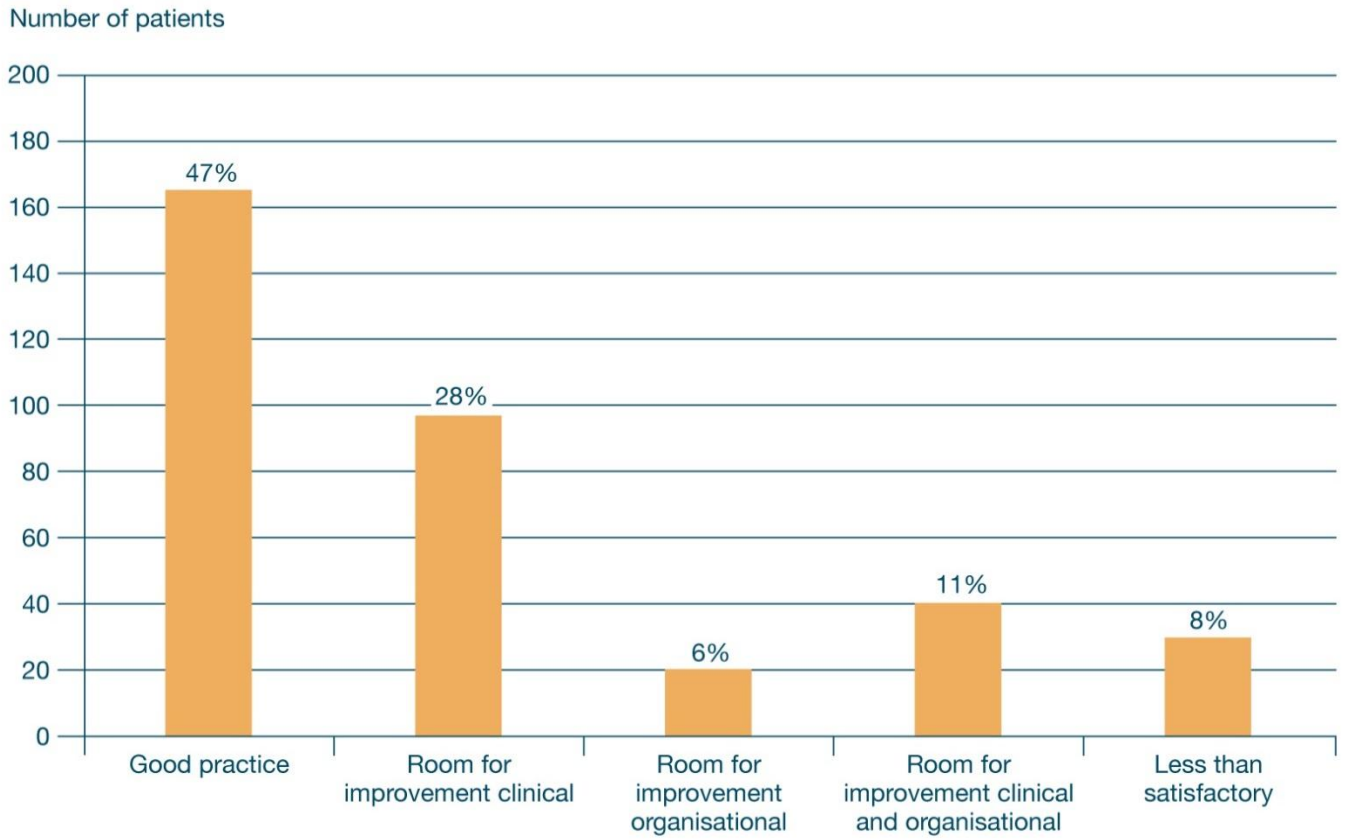

Figure 10.1 overall assessment of care

Summary

- Complex group of patients
- Majority admitted at least once in two years prior to final admission
- Care less than good in more than half of cases reviewed

Summary

- Missed opportunities
  - Screening for alcohol use when patients present to hospital
  - Referral for support
  - Optimising fluid management
  - Screening for sepsis
  - Specialist review
  - Escalation of treatment

Summary

- Clear opportunities to improve care:
  - Organisation of services
    - Alcohol care teams
    - 7 day alcohol specialist nurse service
  - Assessment of patients
    - Screening hospital patients for alcohol misuse and referral for support
  - Specialist review
    - Within 24 hours for admissions with decompensated ARLD
  - Escalation of care
    - Actively pursued for acute deterioration

National Confidential Enquiry into Patient Outcome and Death

Measuring the Units

A review of patients who died with alcohol-related liver disease

www.ncepod.org.uk

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