Measuring the Units

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

NCEPOD

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A report by the National Confidential Enquiry into Patient Outcome and Death (2013)

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Contents

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Foreword

This is a troubling report. There have been so many critical stories about the NHS that one longs for a report that enables us to celebrate the good quality care, evident kindness and competent professionalism that we all believe are the hallmarks of the NHS at its best. NCEPOD always aims to be a candid friend of the Service. Our Advisors are professional colleagues of the doctors whose work they are assessing, and they are only taking part because they want to help their colleagues to do things better. We have no axes to grind.

At the same time we knew this was likely to be a bleak report. All these patients were chosen because they died, so their stories ended badly. One of the sad things about this study is that the patients were a much younger cohort than we usually study: most deaths occurred before the age of 60 years. And since it is reasonable to anticipate that the survivors will continue to drink excessively and carry an increasing burden of physical harm there may be some truth in the suggestion that a vulnerability to cirrhosis is in part genetic, because the rate of death does not continue to increase with age.

We also know that this is a group of people who are difficult to help. But they are still entitled to be treated on their clinical merits and given the care that would bring benefit. Indeed the yield from simple counselling seems to be far from negligible. I fear that there is more than a hint of dismissive attitudes in many of these cases according to the advisors. The illness may be self-inflicted, like so many of the lifestyle diseases that bring patients to their doctors in modern society, and the prospects of a cure for many of these people may not have been propitious for some years. But the present concern about the quality of care delivered in our hospitals is as valid for them as it is for any other group of patients: no decent healthcare system should write people off or deem them less worthy of the best care available to them.

In part this report is an assessment of a work in progress. The national liver plan[1] was published in 2009 and the patients featured in this report were treated two years later. Some of the shortcomings identified could not have been addressed so quickly – indeed the Plan allows until 2016 to recruit more trained hepatologists. But we felt, as did the National Clinical Director for Liver Care, Professor Martin Lombard, that two years would provide a useful interval for NCEPOD to see how things are getting on.

We also knew that this would be a worthwhile study, because these people suffer from complex multi-system disease and it is always informative to see how such patients are handled. Above all, it is an important study to undertake because we are in the midst of a national epidemic of alcoholism: there are some NCEPOD Steering Group discussions at which every specialist present recognises the importance of a proposed study and this was certainly one of them.

The first thing I found surprising was how many of these extremely ill people were admitted under doctors who claimed no specialist knowledge of their disease. And how many of them were not then seen by an appropriate specialist within a reasonable period. Of course we knew that there are comparatively few hepatologists in our healthcare system, only 52 of 191 hospitals claimed to have one. But I expected that the others would employ gastroenterologists with a specialist interest. Yet 45 hospitals admitting seriously ill people who were destined to die of liver disease told us that they had neither a hepatologist nor a gastroenterologist with an interest in the subject, nor did they make arrangements to transfer the patients to hospitals that were so equipped. It is hard to think of any other area of medicine where our hospitals would make such a candid admission.

FOREWORD

That unfortunate starting point could be mitigated if people cared about it. It need not result in such an unacceptable level of care if the patients were managed in accordance with protocols written by specialists, and if the level of care were escalated appropriately. Neither seems to be the case consistently. It may take us a few more years to train a sufficiency of hepatologists to manage a rapidly increasing burden of liver disease, but appropriate protocols and networks can be set up comparatively quickly. That to me is the first take home message from this study. It is depressing, but somehow not surprising that the hospitals dealing with these people without appropriate sub-specialists are also the ones that are most likely to lack guidelines for dealing with alcohol related liver disease.

The second thing that I found dismaying is that many of the criticisms are so basic. It is true that the patients seemed to do much better under specialist care, in that they were for example more likely to have their ascites tapped, but it was also the simple things that were wanting. Appropriate management of renal failure, of fluids and of sepsis do not require a sophisticated knowledge of hepatology, they are intrinsic to the management of acutely ill patients. In that regard, some of the lessons of this report are reminiscent of the findings in our 2009 study of Acute Kidney Injury.[2]

It is also hard to avoid a feeling that these people are failed all the way through their pathway. Looking back before their final illnesses, the clinicians responsible as well as our Advisors identified a high proportion of missed opportunities for the Service to have intervened.

When they came into hospital there were more wrong turnings taken. There were failures to escalate to a higher level of care and failures to refer to specialists. After they died, there was a dearth of Mortality and Morbidity Meetings (in part because so many places still think these are only for surgical deaths) and even when the doctors were uncertain as to the cause of death, there were failures to advise autopsy or report to the coroner. One cannot help wondering if this is not all of a piece.

So at a time when we really wanted to deliver a good news story to an unfairly beleaguered NHS, a story in which we could see steady progress towards the goals of a national plan that has been running for two years, we cannot really claim to have done so. There are green shoots here and there, but few positive buds.

As always my thanks are due to the whole team – from the progenitor of the study, the expert team who guided its genesis, the Local Reporters who gathered in the notes – often of daunting proportions - and the clinicians who identified so many of the weaknesses themselves. Also the Advisors who have done the heavy lifting of identifying the lessons to be learned. By no means least to our authorial team.

We also want to thank our colleagues and commissioners at HQIP whose unflinching support has helped to enable us to continue to contribute to the work of making things better for patients.

Bertie Leigh
NCEPOD Chair

1. *The National Plan for Liver Services UK 2009 http://www.bsg.org.uk/sections/liver-articles/the-national-plan-for-liver-services-uk-2009.html*
2. *Adding Insult to Injury NCEPOD 2009 http://www.ncepod.org.uk/2009report1/Downloads/AKI_report.pdf*

Back to contents

Principal Recommendations

All patients presenting to hospital services should be screened for alcohol misuse. An alcohol history indicating the number of units drunk weekly, drinking patterns, recent drinking behaviour, time of last drink, indicators of dependence and risk of withdrawal should be documented. *(All Doctors)*

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. *(All Doctors)*

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[2,15]. *(Medical Directors)*

A multidisciplinary Alcohol Care Team, led by a consultant with dedicated sessions, should be established in each acute hospital[2,15] and integrated across primary and secondary care. *(Medical Directors)*

All patients admitted with decompensated alcohol-related liver disease should be seen by a specialist gastroenterologist / hepatologist at the earliest opportunity after admission. This should be within 24 hours and no longer than 72 hours after admission to hospital. *(Consultants)*

Escalation of care should be actively pursued for patients with alcohol-related liver disease, 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. *(Consultants)*

2. *Moriarty K J, Alcohol-Related Liver Disease: Meeting the challenge of improved quality of care and improved quality of care and better use of resources. 2010. A Joint Position Paper on behalf of the British Society of Gastroenterology, Alcohol Health Alliance UK, British Association for Study of the Liver http://www.bsg.org.uk/clinical/general/publications.html*

15. *Published on behalf of the British Society of Gastroenterology and Bolton NHS Foundation Trust, Quality and Productivity: Alcohol Care Teams: reducing acute hospital admissions and improving quality of care. 2012. http://www/evidence.nhs.uk/qipp*

Back to contents

Introduction

There have been a number of documents over the last decade highlighting the care of this group of patients, making recommendations to improve outcome. The National Plan for Liver Services[1] in England published in 2009 identified that secondary care of liver disease was poorly organised and suggested that services for liver patients could be improved at relatively little cost to the NHS. In 2010, the British Society of Gastroenterology, Alcohol Health Alliance UK and the British Association for Study of the Liver published a joint position statement on the care of patients with alcohol-related disease[2]. This report made 11 key recommendations about how the average district general hospital could organise its services to improve care for patients with alcohol-related problems. There has been national guidance from the National Institute for Health and Clinical Excellence[3] and reports from the Royal College of Physicians of London[4] and the NHS Confederation[5]. The National end of life care intelligence network[6] has recently documented concerns about end of life care for this group of patients and the variations in that care. The Chief Medical Officer's 2011 report published last year highlighted liver disease as one of the three key areas for population health in England[7].

This report highlights the quality of care provided to patients who died with a diagnosis of alcohol-related liver disease (ARLD). ARLD was previously known as alcoholic liver disease (ALD). The name has changed but have the issues surrounding the care of this patient group?

The recent Atlas of Liver Care for England[8] tells us that there is:
"An 88% rise in age-standardised mortality from chronic liver disease, the only one of the major diseases which is still increasing, of which alcohol-related liver disease is one of the primary causes, along with viral hepatitis. Cirrhosis deaths are rising in England while falling in most other EU countries. And the growing impact of alcohol misuse is estimated to cost the NHS £3.5bn a year. Almost one in four of all adults drink in a way that is potentially or actually harmful."

Data from the Office for National Statistics demonstrated that there were 8,748 alcohol-related liver disease deaths in the UK in 2011[9]. And whilst that was a minor reduction on the previous year the overall trend is seen to be increasing (Figure 1). A recent report by Sheron et al also describes the enormous extent of alcohol-related morbidity and mortality nationally and internationally[10].

ARLD is a disease of the young - whilst mortality from liver disease, has risen steadily, the average age of death is only 59 years and is falling[6]. This is in contrast to other major causes of mortality such as heart and lung disease or stroke where the average age of death is over 80 years and is rising due to improved public health and medical intervention.

In England there is a marked geographic variation in both the incidence and the care of patients admitted with alcohol-related liver disease[8] and the influence of deprivation is well documented. Hospital episode statistics for 2010/11 show a rise in the number of hospital admissions wholly attributable to alcohol to 198,900, this was a 2.1% rise on 2009/10[11] and a 40% increase since 2002/03. Admissions to intensive care for alcohol-related liver disease alone increased 3 fold between 1990 and 2005, accounting for 10,000 bed days in 2005[12] and have seen a further increase between 2005 and 2011[13]. Despite this rise in critical care admissions it is still reported by those caring for this group of patients that there is a reluctance by some health care professionals to admit patients to intensive care for organ support, through what appears to be a pessimistic or negative attitude to patients with ARLD.

Figure 1: Trends in number of deaths from alcohol-related liver disease 2000-2011 by age *Source data: Office for National Statistics*

Specialists who regularly care for patients with alcohol-related liver disease recognise that the treatment options have changed considerably within the last 20 years. Brief intervention has been shown to be effective[14]. For every eight patients offered this type of advice, one will either stop drinking or reduce their alcohol consumption to less harmful levels. However, it is widely believed that intervention is not always coherently or comprehensively implemented.

Other factors recognised as helping to improve outcome for patients with decompensation of alcohol-related liver disease are the early identification (or prevention) and treatment of sepsis, control of fluid status to prevent deterioration in renal function, and aggressive management of variceal haemorrhage.

Patients with ARLD will have often been frequent users of health services. There may be opportunities to intervene at an earlier stage. These opportunities for intervention have the potential to prevent individuals developing the problems encountered in their final admission. A sentiment echoed by the Chief Medical Officer, in her 2011 report[7], where she stated that there should be *"improved detection of the early signs of liver disease through appropriate risk assessment strategies in local populations and the use of appropriate tests to identify liver disease that can be reversed or treated."* There is concern within the specialties that care for this group of patients that these opportunities are not always taken.

The specialists directly involved in the care of patients with ARLD are predominantly gastroenterologists who train in liver disease through subspecialty training. Hepatology has not been recognised as a specialty in its own right. If patients are admitted straight to a specialist unit they are more likely to be admitted under a specialist with a primary interest in liver disease, or at least have access to an early review by a senior specialist in this field. However, most hospital admissions occur via the emergency departments of acute general hospitals. This means that emergency patients with ARLD could be

admitted under any specialty; which makes it ever more important that clinicians from all specialties are alive to the signs and symptoms of ARLD and the complications that might arise from it. A detailed alcohol history taken at admission should facilitate this process, as without it early recognition may be missed. As a minimum, admitting specialties should be able to offer support and advice to those patients in whom early intervention may reduce the chance of future ARLD. Specialist nurses have a key role to play in providing advice and support for patients and co-ordination of care for alcohol withdrawal. Due to their clinical expertise and their regular contact with this group of patients they are often the first to identify the severity of a patient's problems. Well designed alcohol teams can therefore improve the care received by patients[15].

As shown above there is a high volume of recent publications all recognising similar concerns about patients with ARLD. A recent editorial expressed almost identical concerns to the issues raised in this report[16].

The fact that there are so many should highlight the fact that this is an increasing problem. Many of the reports focus on one country/region or liver disease more generally.

The study presented in this report was proposed to examine aspects of the care of a group of patients who died from alcohol-related liver disease in hospital across England, Wales, Northern Ireland, the Channel Islands and the Isle of Man.

Organisational issues along with aspects of clinical practice outlined above were reviewed.

Back to contents

1 – Method and Data Returns

Study aim

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

Expert group

The Expert Group comprised a multidisciplinary group of consultants in: hepatology, gastroenterology, liver surgery, anaesthesia/critical care and addiction medicine.

Objectives

The Expert Group identified four main objectives that would address the primary aim of the study, and these will be addressed throughout the following chapters:

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

Hospital participation

National Health Service hospitals in England, Wales and Northern Ireland were expected to participate as well as hospitals in the independent sector and public hospitals in the Isle of Man, Guernsey and Jersey.

Within each hospital, a named contact, referred to as the NCEPOD Local Reporter, acted as a link between NCEPOD and the hospital staff, facilitating case identification, dissemination of questionnaires and data collation.

Study population

All patients who died in hospital with a diagnosis of alcohol-related liver disease during the six-month study period, 1st January 2011 to 30th June 2011 inclusive. There were no age restrictions for inclusion. The included ICD10 codes were:

K70 Alcoholic liver disease
K70.0 Alcoholic fatty liver
K70.1 Alcoholic hepatitis
K70.2 Alcoholic fibrosis and sclerosis of liver
K70.3 Alcoholic cirrhosis of liver
Alcoholic cirrhosis NOS
K70.4 Alcoholic hepatic failure
Alcoholic hepatic failure:
· no other specified
· acute
· chronic
· subacute
· with or without hepatic coma
K70.9 Alcoholic liver disease, unspecified

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

Patients were identified from all participating hospitals retrospectively via ICD10 coding.

Questionnaires and case notes

Two questionnaires were used to collect data for this study; a clinician questionnaire for each patient and an organisational questionnaire for each hospital participating in the study.

Clinician questionnaire

This questionnaire was sent to the consultant responsible for the patient at the time of their death. Information was requested on the patient's presenting features, alcohol history, investigations/procedures carried out, treatment, continuing care, escalation in care, treatment limitation decisions, cause of death and previous hospital admissions/potential missed opportunities.

Organisational questionnaire

The data requested in this questionnaire included information on the number of ARLD admissions, gastroenterology/liver services, alcohol services, guidelines and treatment pathways relevant to alcohol-related disease.

Case notes

Photocopied case note extracts were requested for each case that was to be peer reviewed:

Final inpatient admission

- All inpatient annotations/medical notes for the patient's final admission
- Nursing notes
- Nutrition/dietitian notes
- Operation notes, anaesthetic charts and consent forms
- Observation charts
- Haematology/biochemistry results
- Fluid balance charts
- DNACPR forms
- Discharge letter/summary
- Postmortem report

Previous hospital admissions (going back two years from the final admission)

- Initial clerking and first 24 hours of inpatient annotations/medical notes
- Admission blood results
- Discharge letter/summary

Advisor group

A multidisciplinary group of Advisors was recruited to peer review the case notes and associated clinician questionnaires. The group of Advisors comprised consultants, associate specialists, trainees and clinical nurse specialists, from the following specialties: hepatology, gasteroenterology, anaesthesia, intensive care medicine, acute medicine, pharmacy and clinical toxicology.

Questionnaires and case notes were anonymised by the non-clinical staff at NCEPOD. All patient identifiers were removed. Neither the Clinical Co-ordinators at NCEPOD, nor the Advisors, had access to patient identifiable information.

After being anonymised, each case was reviewed by at least one Advisor within a multidisciplinary group. At regular intervals throughout the meeting, the Chair allowed a period of discussion for each Advisor to summarise their cases and ask for opinions from other specialties or raise aspects of the case for discussion.

Advisors answered a number of specific questions by direct entry into a database, and were also encouraged to enter free text commentary at various points.

The grading system below was used by the Advisors to grade the overall care each patient received:

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.

Quality and confidentiality

Each case was given a unique NCEPOD number. The data from all questionnaires received were electronically scanned into a preset database. Prior to any analysis taking place, the data were cleaned to ensure that there were no duplicate records and that erroneous data had not been entered during scanning. Any fields that contained data that could not be validated were removed.

Data analysis

Following cleaning of the quantitative data, descriptive data summaries were produced.

The qualitative data collected from the Advisors' opinions and free text answers in the clinician questionnaires were coded, where applicable, according to content to allow quantitative analysis. The data were reviewed by an NCEPOD Clinical Co-ordinator, a Researcher, and a Clinical Researcher, to identify the nature and frequency of recurring themes.

Case studies have been used throughout this report to illustrate particular themes.

All data were analysed using Microsoft Access and Excel by the research staff at NCEPOD.

The findings of the report were reviewed by the Expert Group, Advisors and the NCEPOD Steering Group prior to publication.

Data returns

In total 2454 patients from 218 hospitals were identified as meeting the study inclusion criterion (Figure 1.1). When the sampling criteria of three cases per hospital was applied, 594 cases were selected for inclusion in the main data collection. A total of 520/594 (88%) completed clinician questionnaires and 450 sets of case notes were returned to NCEPOD. The Advisors were able to assess 385 cases, the remainder of the returned case note extracts were either too incomplete for assessment or were returned after the final deadline and last Advisor meeting.

Study sample denominator by chapter

Within this study the denominator will change for each chapter and occasionally within each chapter. This is because data have been taken from different sources depending on the analysis required. For example, in some cases the data presented will be a total from a question taken from the clinician questionnaire only, whereas some analysis may have required the clinician questionnaire and the Advisors' view taken from the case notes.

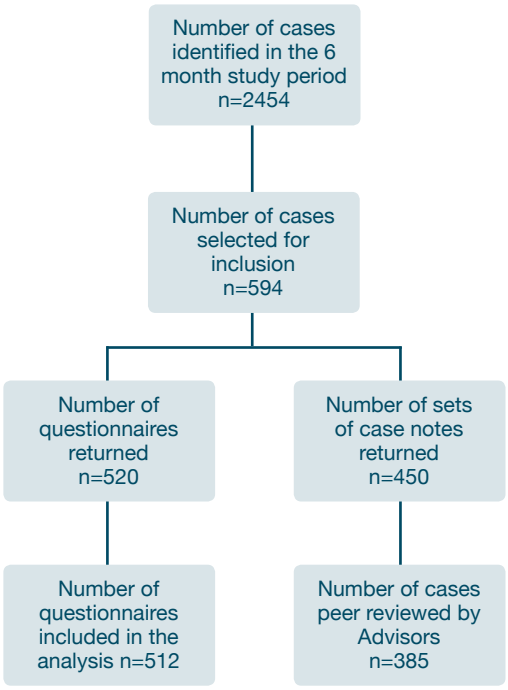

Figure 1.1 Data returns

Back to contents

2 – Demographics

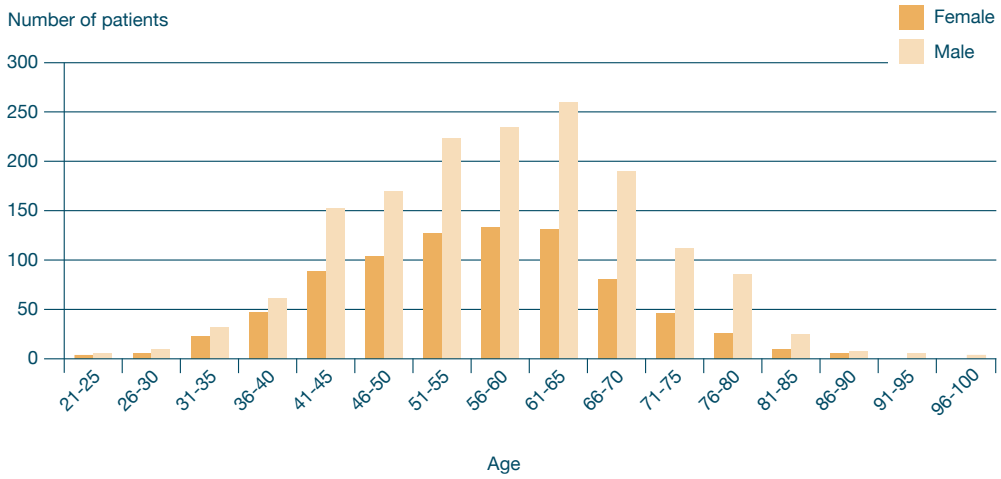

Figure 2.1 Age in years of the whole study population

During the six month study period 2454 patients were identified to NCEPOD as dying with a diagnosis of alcohol-related liver disease (ARLD). The age and sex of the patient was provided for 2418 patients (Figure 2.1), approximately 66% (1584/2418) of all the ARLD deaths identified were male.

Age comparisons for the male and female patients are shown in Table 2.1. The age range, mean, median and mode were all slightly lower for female patients.

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

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

The demographics of the sampled study population were similar to the whole study population (Figure 2.2), with approximately 65% (331/512) of the patients being male and an overall age range of 25 – 87 years. The breakdown of age demographics by gender are shown in Table 2.2.

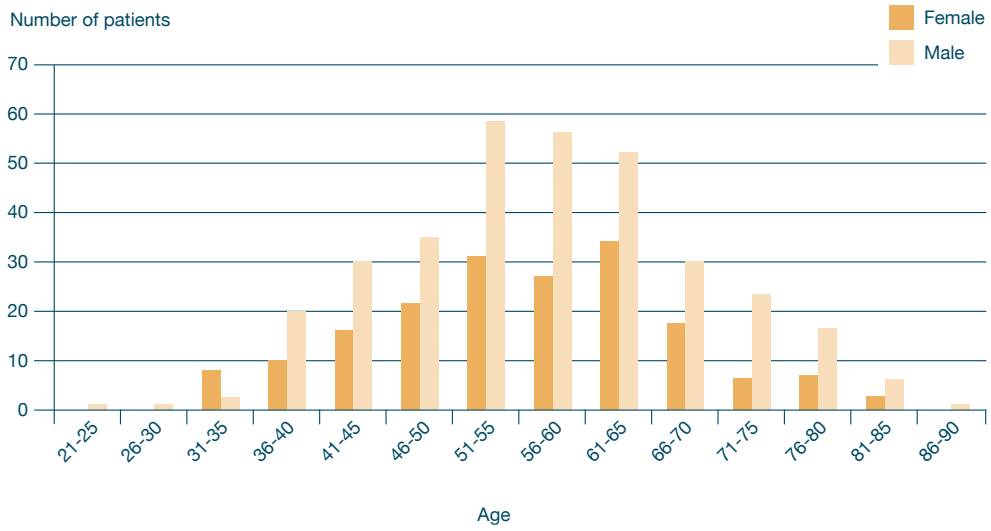

Figure 2.2 Age in years of the sampled study population

The above patient demographics are similar to those described elsewhere for patients dying with a diagnosis of ARLD. This is therefore a relatively young group of patients when compared to mortality caused by other organ specific diseases.

Multiple hospital admissions

It is well documented that many patients whom succumb to ARLD have multiple hospital admissions prior to the episode in which they die. In the current study, 1752/2454 (71%) of the patients identified to NCEPOD had one or more admissions to hospital in the two years prior to the admission in which they died (Table 2.3). This figure may be lower than the actual number of patients with previous admissions as it only relates to admissions to the hospital in which they died.

Similar data were collected from the clinician questionnaire for the sampled population. Approximately three quarters (313/413; 76%) of patients had an admission to the same hospital in which they died, in the five years preceding their final admission (Table 2.4).

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**	

Table 2.4 Previous hospital admissions – sampled study population

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**	

There was also a subgroup of patients that were known to present to other hospitals, in addition to the one in which they died (Table 2.5). Despite the knowledge that patients frequented more than one hospital, the clinician completing the patient care questionnaire could only identify documentation between hospitals in 47/88 cases.

Table 2.5 Patients presented to other hospitals

Known to present to other hospitals	Number of patients	%
Yes	88	18.2
No	395	81.8
Subtotal	**483**	
Not answered	29	
Total	**512**	

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**	

Data were also collected on previous admissions specifically for ARLD. Almost 70% (336/489) of patients were known to have been admitted previously for ARLD (Table 2.6). The interval from the last known admission for ARLD to the admission in which the patient died is shown in Figure 2.3. The interval for 270/336 patients was known and in 87/270 (32%) cases the patient had been admitted within 30 days of their final admission. A further 38 patients were admitted to hospital between one and three months prior to their final admission.

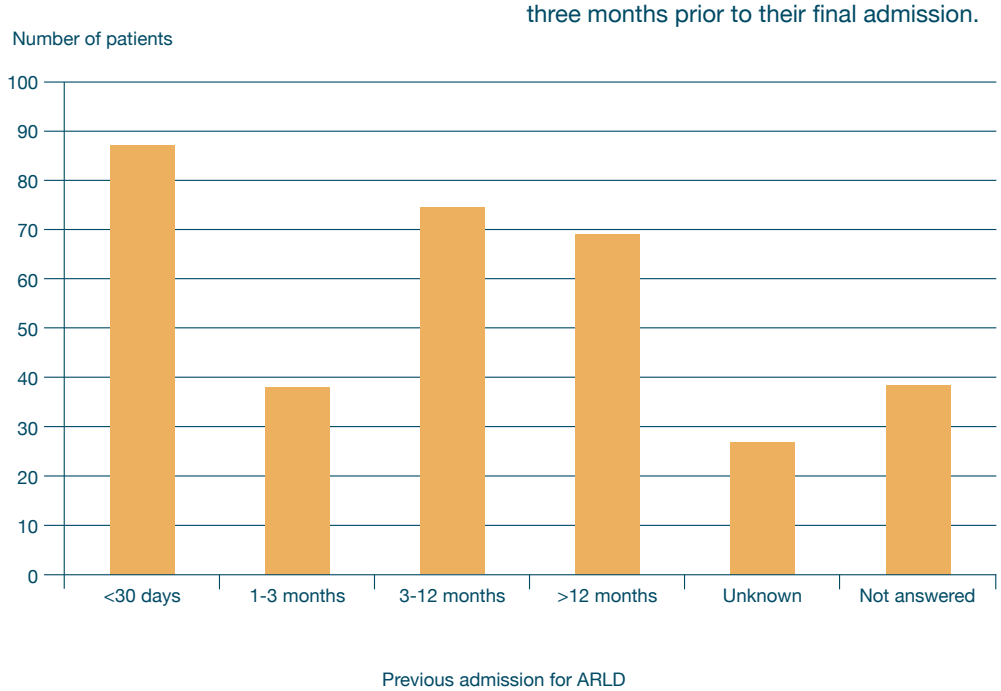

Figure 2.3 Interval from the last known admission for ARLD to the admission in which the patient died

In the whole study population, the 1752 patients who were reported as having one or more previous hospital admission amassed 7656 admissions between them in the last two years (Table 2.7). In approximately half (3248/6749; 48%) of these admissions, a diagnosis code for ARLD was recorded.

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 data were further analysed to determine how many patients the 3248 admissions represented. In total 1082 patients had one or more hospital admissions for ARLD (Table 2.8) in the two years prior to the admission in which they died.

Table 2.8 Previous admissions for ARLD – whole study population

Previous admission for ARLD	Number of patients	%
Yes	1082	61.8
No	551	31.4
Diagnosis unknown	119	6.8
Subtotal	**1752**	
No previous admissions	702	
Total	**2454**	

Key findings

During the six-month study period 2454 patients were identified as dying with a diagnosis of ARLD.

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

The median age at death for females was 56 compared to 58 for males.

71% of patients (1752/2454) had a previous admission to hospital in the two years prior to their final admission.

62% (1082/1752) of patients that had a previous admission to hospital, had an admission in which ARLD was diagnosed.

In the sampled population, 125/270 (46%) patients for which the interval from previous to final admission was known had an ARLD related admission to hospital in the three months prior to the admission in which they died.

18% (88/483) of patients were known to present to additional hospitals. Documentation between hospitals was only identifiable in 47/88 cases.

Recommendation

1. 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 an appropriate support service. This system should be subject to regular audit. *(Clinical Directors and Consultants)*

Back to contents

3 – Organisational Data

An organisational questionnaire was sent to each hospital that could admit a patient with alcohol-related liver disease (ARLD). This section of the report covers the staffing, facilities, policies and procedures in place for services providing care to patients with ARLD.

Types of facility

Table 3.1 shows the types of hospital that returned a completed organisational questionnaire for the study.

Approximately 78% (160/204) of the hospitals participating in the study had a dedicated gastroenterology ward. Those that did not tended to be district general hospitals (DGH) with ≤ 500 beds (Table 3.2). Dedicated hepatology wards were much less common (Table 3.3) with only 42/203 (21%) hospitals indicating that they had one onsite, the majority of which were located at university teaching hospitals (UTH).

Table 3.1 Types of hospital admitting patients with ARLD

Type of hospital	Number of hospitals
District General Hospital ≤ 500 beds	89
District General Hospital > 500 beds	57
University Teaching Hospital	59
Total	**205**

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**

All except 17 hospitals that took part in the study responded that they would admit, diagnose and manage patients with complex liver disease (Table 3.4). Marginally more hospitals (23/204) would not manage patients with recurrent variceal haemorrhage (Table 3.5).

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**

Table 3.4 Hospital to which patients would be admitted and managed with complex liver disease

	Manage patients with complex liver disease						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	78	88.6	10	11.4	**88**	1	**89**
District General Hospital > 500 beds	56	98.2	1	1.8	**57**	0	**57**
University Teaching Hospital	53	89.8	6	10.2	**59**	0	**59**
Total	**187**	**91.7**	**17**	**8.3**	**204**	**1**	**205**

Table 3.5 Hospitals to which patients would be admitted and managed with recurrent variceal haemorrhage

	Manage patients with recurrent variceal haemorrhage						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	75	85.2	13	14.8	**88**	1	**89**
District General Hospital > 500 beds	54	94.7	3	5.3	**57**	0	**57**
University Teaching Hospital	52	88.1	7	11.9	**59**	0	**59**
Total	**181**	**88.7**	**23**	**11.3**	**204**	**1**	**205**

Specialist liver clinics were relatively commonplace with 70% (142/204) of hospitals running this type of clinic (Table 3.6). The figure rose to 49/59, for University Teaching Hospitals.

Although most hospitals managed patients with complex liver disease, much fewer (47/204; 23%) would advise other hospitals on the management of complex liver disease and/or accepted tertiary referrals (41/204; 20%) (Tables 3.7 and 3.8).

Table 3.6 Type of hospital with specialist liver clinics

	Run specialist liver clinics						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	53	60.2	35	39.8	**88**	1	**89**
District General Hospital > 500 beds	40	70.2	17	29.8	**57**	0	**57**
University Teaching Hospital	49	83.1	10	16.9	**59**	0	**59**
Total	**142**	**69.6**	**62**	**30.4**	**204**	**1**	**205**

Table 3.7 Type of hospital that would advise other hospitals on the management of complex liver disease

	Advise other hospitals on the management of complex liver disease						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	5	5.7	83	94.3	**88**	1	**89**
District General Hospital > 500 beds	11	19.3	46	80.7	**57**	0	**57**
University Teaching Hospital	31	52.5	28	47.5	**59**	0	**59**
Total	**47**	**23.0**	**157**	**77.0**	**204**	**1**	**205**

Table 3.8 Type of hospital that would accept tertiary liver referrals

	Accept tertiary liver referrals						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	4	4.5	84	95.5	**88**	1	**89**
District General Hospital > 500 beds	6	10.5	51	89.5	**57**	0	**57**
University Teaching Hospital	31	52.5	28	47.5	**59**	0	**59**
Total	**41**	**20.1**	**163**	**79.9**	**204**	**1**	**205**

A number of interventions for liver disease are not widely available. Transplantation is restricted to a small number of specialist centres.

Transjugular intrahepatic portosystemic shunt procedures (TIPSS) are used to decompress the portal system in patients with recurrent variceal bleeding or refractory ascites. Complications such as encephalopathy occur in a high proportion of patients (30-50%) and as a result this is not a first line procedure[17] and it would not be expected to be available in all hospitals.

In patients with coagulopathy or a low platelet count, transjugular liver biopsy (TJLB) can be used safely, as bleeding following biopsy occurs back into the venous system. For most patients however, when liver biopsy is indicated it can be done safely by the percutaneous route. It is therefore not necessary for TJLB to be available in all hospitals.

Eight hospitals provided a liver transplant service, all of which were University Teaching Hospitals. It should be noted that two of the eight sites did not undertake the operations but had a formal link to their orthotopic liver transplant centre.

Access to transjugular liver biopsies (TJLB) was available onsite in 73/202 (36%) hospitals and at a specialist centre/other hospital in 106/202 (52%) hospitals (Table 3.9). Twenty three hospitals reported that they had no access to TJLB.

The ability to perform transjugular intrahepatic portosystemic shunt onsite was restricted to just 32 hospitals. The majority of hospitals 145/202 (72%) accessed this procedure at a specialist centre/other hospital (Table 3.10).

Just over 60% (125/198) of hospitals had a dedicated gastrointestinal or liver pathologist onsite (Table 3.11). Unsurprisingly the figure was much higher for UTHs with all except two reporting that they had a dedicated gastrointestinal or liver pathologist onsite.

Table 3.9 Access to transjugular liver biopsies (TJLB) was available onsite or at another linked centre

	Access to transjugular liver biopsies					
Type of hospital	Onsite	Specialist centre	Other	No access	Not answered	**Total**
District General Hospital ≤ 500 beds	13	53	9	12	2	**89**
District General Hospital > 500 beds	24	22	4	7	0	**57**
University Teaching Hospital	36	13	5	4	1	**59**
Total	**73**	**88**	**18**	**23**	**3**	**205**

Table 3.10 Ability to perform transjugular intrahepatic portosystemic shunt onsite

	Access to transjugular intrahepatic portosystemic shunt					
Type of hospital	Onsite	Specialist centre	Other	No access	Not answered	**Total**
District General Hospital ≤ 500 beds	0	70	7	11	1	**89**
District General Hospital > 500 beds	6	36	6	9	0	**57**
University Teaching Hospital	26	22	4	5	2	**59**
Total	**32**	**128**	**17**	**25**	**3**	**205**

Table 3.11 Number and type of hospitals with a dedicated gastrointestinal or liver pathologist onsite

	Dedicated GI or liver pathologist						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	38	44.2	48	55.8	**86**	3	**89**
District General Hospital > 500 beds	32	58.2	23	41.8	**55**	2	**57**
University Teaching Hospital	55	96.5	2	3.5	**57**	2	**59**
Total	**125**	**63.1**	**73**	**36.9**	**198**	**7**	**205**

Staffing

Tables 3.12 to 3.14 show the distribution of consultant gastroenterologists and hepatologists. The large majority (191/199; 96%) of hospitals had consultant gastroenterologists amongst the work force. It should be noted that the three University Teaching Hospitals that reported having no gastroenterologists were part of a Trust that had gastroenterologists at an alternative site in close proximity.

When asked whether the gastroenterologists had an interest in liver disease, approximately 64% (117/182) of hospitals recorded that they had one or more consultant with an interest in liver disease (Table 3.13). The presence of consultant hepatologists was restricted to 52 hospitals, 34 of which were UTHs (Table 3.14).

The lower percentage of UTHs with gastroenterologists with an interest in liver disease probably reflects the greater prevalence of consultant hepatologists in these hospitals (Table 3.14).

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**

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**

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.*

When the data regarding consultant gastroenterologists with an interest in liver disease and consultant hepatologists were combined, there was little difference between the three types of hospital (Figure 3.1). 64/87 of small District General Hospitals (DGH ≤ 500 beds), 42/54 of large District General Hospitals (DGH >500 beds) and 44/54 of University Teaching Hospitals had one or more consultants with an interest or specialism in liver disease (Figure 3.1).

Whilst the presence of a consultant with an interest or specialism in liver disease was similar for each type of hospital, the number of whole time equivalents varied substantially (Figures 3.2, 3.3 and 3.4).

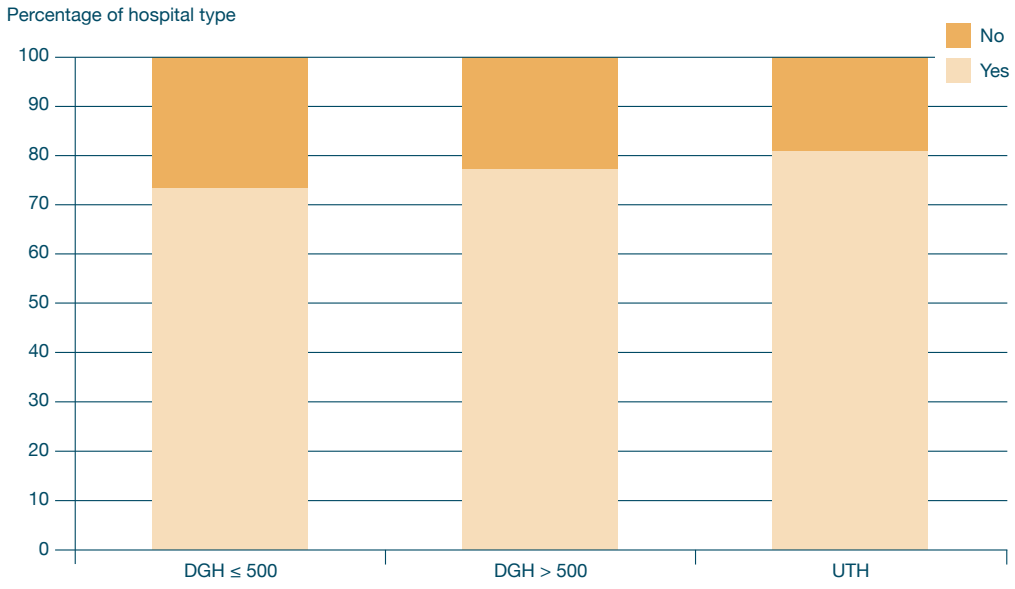

Figure 3.1 Prevalence of consultant gastroenterologists with an interest in liver disease and/or consultant hepatologists

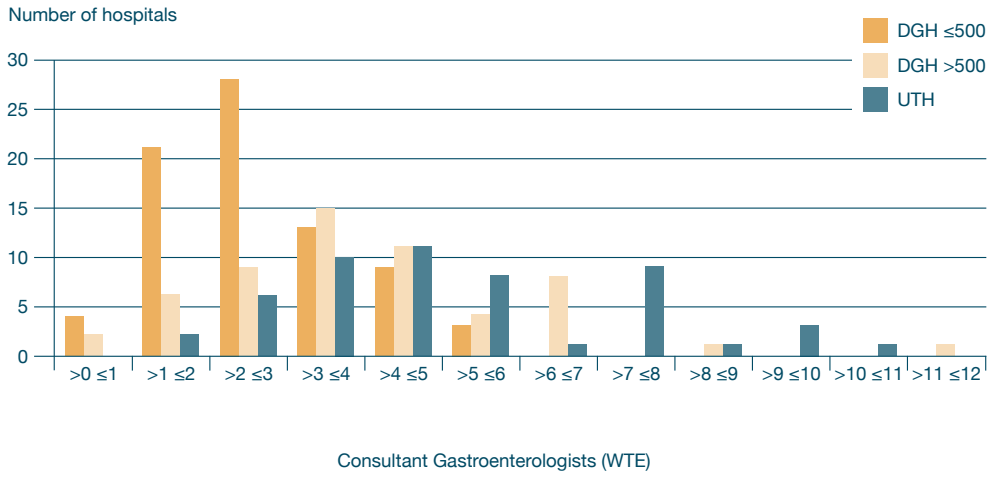

Figure 3.2 The number of whole time equivalent consultant gastroenterologists

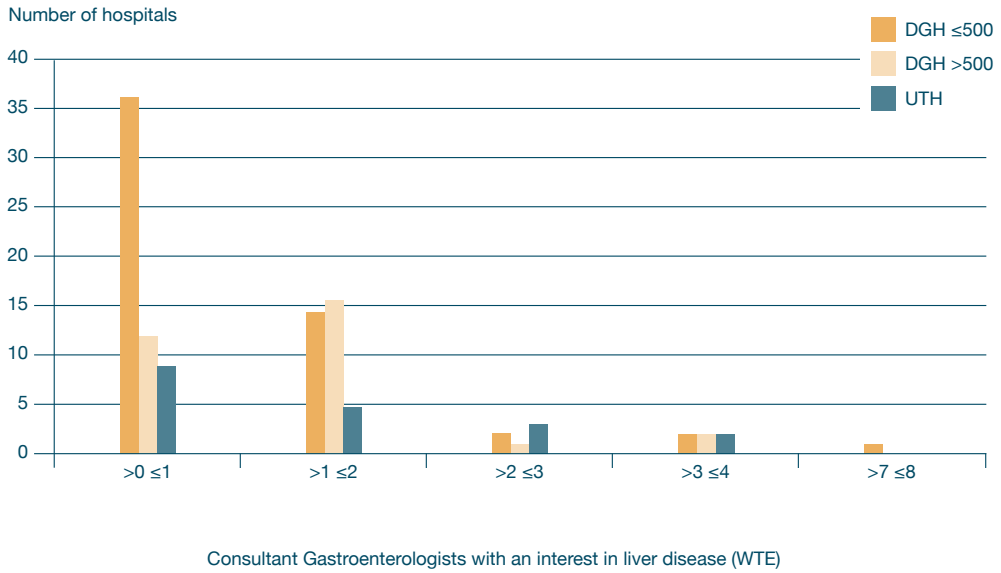

Figure 3.3 The number of whole time equivalent consultant gastroenterologists with an interest in liver disease

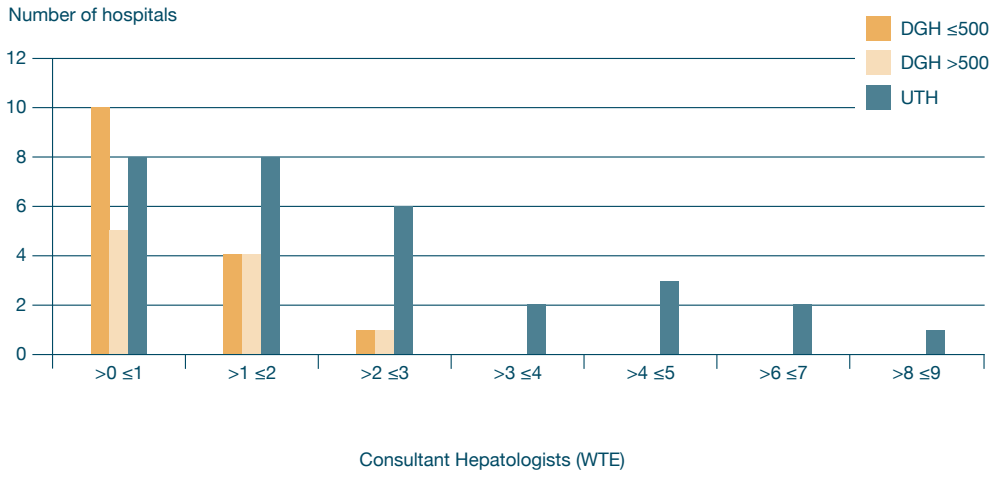

Figure 3.4 The number of whole time equivalent consultant hepatologists

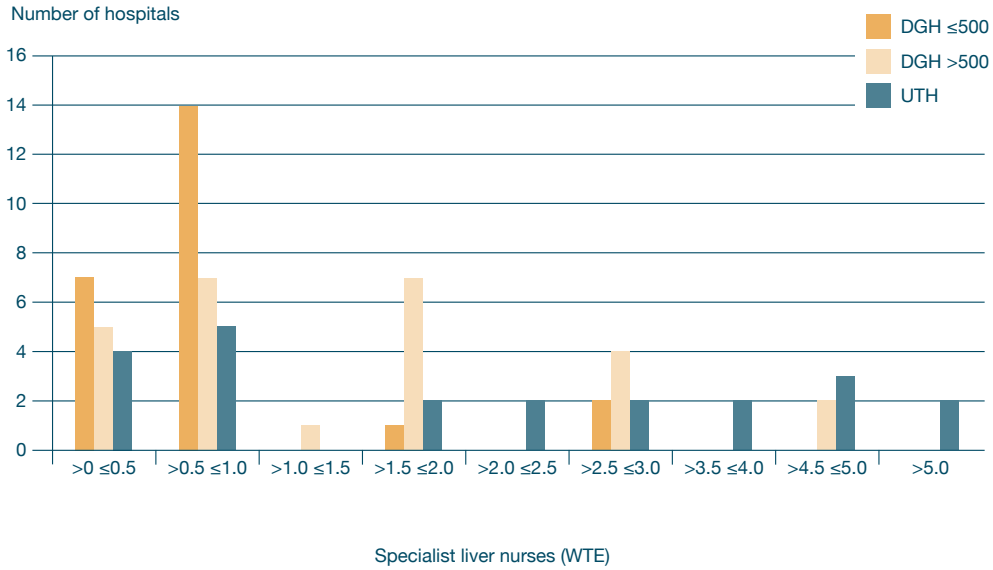

Figure 3.5 The number of whole time equivalent specialist liver nurses

Table 3.15 Specialist liver nurses on the gastroenterology unit

	Specialist liver nurses						
	Yes		No				
Type of hospital	Number of hospitals	%	Number of hospitals	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	34	40.5	50	59.5	**84**	5	**89**
District General Hospital > 500 beds	29	52.7	26	47.3	**55**	2	**57**
University Teaching Hospital	35	67.3	17	32.7	**52**	7	**59**
Total	**98**	**51.3**	**93**	**48.7**	**191**	**14**	**205**

Just over half (98/191) of the hospitals participating in the study had one or more specialist liver nurses on the staff of the gastroenterology unit (Table 3.15 and Figure 3.5).

All except three hospitals had an endoscopy service onsite. For 119/202 (59%) hospitals the endoscopy service was only available during normal working hours (Monday – Friday, 08:00 – 17:59), 24 hospitals reported that the service additionally ran during the day on the weekend. There were only 53 hospitals that offered a 24/7 service (Table 3.17).

Table 3.16 Endoscopy service onsite

Endoscopy service	**Number of hospitals**	**%**
Yes	202	98.5
No	3	1.5
Total	**205**	

Table 3.17 Availability of endoscopy service

	Mon – Fri		**Sat – Sun**	
Availability of endoscopy service	Number of hospitals	%	Number of hospitals	%
Day only	143	70.8	24	11.9
Day & evening	6	3.0	0	0.0
Day, evening & night	53	26.2	53	26.2
Not available	0	0	125	61.9
Total	**202**		**202**	

Information was also collected on the management of out of hours gastrointestinal bleeds. 58% (119/204) of hospitals had a dedicated 24/7 gastrointestinal (GI) bleed rota, but 56 hospitals relied on the on call medical team with or without input from gastrointestinal specialists on a good-will basis depending on availability (Table 3.18).

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**	

Specific data regarding the ability to carry out an emergency endoscopy out of hours was not collected. It is however of note that only one of the 44 hospitals that relied on good-will input from gastrointestinal specialists, had a 24/7 endoscopy service, suggesting that the ability to undertake an out of hours emergency endoscopy in these hospitals may be down to an element of chance.

Alcohol services

Since their report in 2001[4], The Royal college of Physicians have advocated the appointment of a dedicated alcohol Health Worker or an Alcohol Liaison Nurse in each major acute hospital, to work with a named consultant/senior nurse alcohol lead, to provide a focus for:

- 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.

Although these elements are the core service provided, many have extended this role considerably. Approximately 79% (161/205) of hospitals participating in the study reported having an alcohol liaison service (Table 3.19). The large majority of alcohol liaison services (129/155; 83%) only operated during weekday working hours (Monday – Friday, 08:00 – 17:59), but 25 hospitals did provide a service of some description over the weekend (Table 3.20). Only five hospitals had a 24/7 service.

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**

Table 3.20 Availability of an alcohol liaison service

	Mon - Fri		Sat – Sun	
Availability of alcohol liaison service	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**	

A relatively large number of hospitals (46) reported that they did not have alcohol liaison nurses (Figure 3.6).

The British Society of Gastroenterology, Alcohol Health Alliance UK and British Association for Study of the Liver produced a joint position paper entitled *'Meeting the challenge of improved quality of care and better use of resources'*[2].

The principal recommendation made by the paper was for a multidisciplinary 'Alcohol Care Team' in each district hospital, led by a consultant with dedicated sessions, who will also collaborate with public health, Primary Care Trusts, patient groups and key stake holders, to develop and implement an alcohol strategy for the catchment area. This has been more recently supported by a publication reviewing Alcohol Care Teams and reducing acute hospital admissions[15].

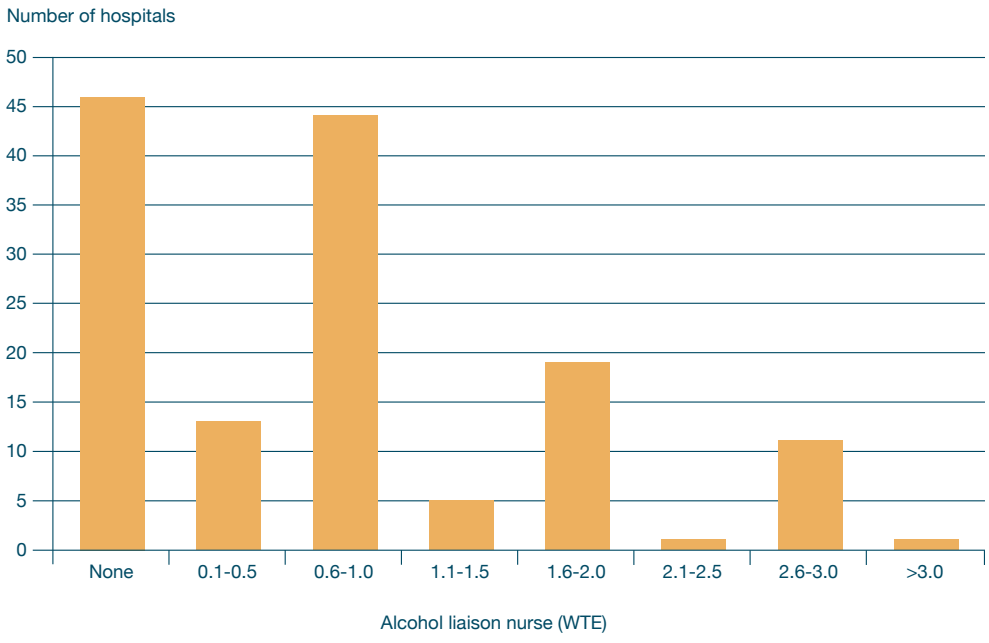

Figure 3.6 Availability of Alcohol Liaison Nurses

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**

The main purpose of the alcohol care teams is to reduce acute hospital admissions and improve the quality of care received by patients with alcohol-related problems. Only 47/203 (23%) of hospitals reported having a multidisciplinary alcohol care team (Table 3.21).

Only 35/204 (17%) hospitals, irrespective of whether or not they had an alcohol care team, reported having a lead consultant with sessions dedicated to alcohol services (Table 3.22).

The majority of lead consultants 24/35 came from a hospital that reported having a multidisciplinary alcohol care team. However, almost half of the hospitals with such a team (23/47), did not have a lead consultant with sessions dedicated to alcohol services (Table 3.23).

Table 3.22 Lead consultant with sessions dedicated to alcohol services

Lead consultant with dedicated sessions	Number of hospitals	%
Yes	35	17.2
No	169	82.8
Subtotal	**204**	
Not answered	1	
Total	**205**	

The deficiencies in alcohol care teams were echoed by the data collected on district alcohol strategies. Only 108/188 (57%) hospitals reported having a district alcohol strategy in place (Table 3.24).

Table 3.23 Multidisciplinary alcohol care team vs. a lead consultant with sessions dedicated to alcohol services

	Lead consultant with dedicated sessions						
Multidisciplinary alcohol care team in hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
Yes	24	51.1	23	48.9	**47**	0	**47**
No	11	7.1	144	92.9	**155**	1	**156**
Subtotal	**35**	**17.3**	**167**	**82.7**	**202**	**1**	**203**
Not answered	0	0.0	2	100.0	**2**	0	**2**
Total	**35**	**17.2**	**169**	**82.8**	**204**	**1**	**205**

Table 3.24 District alcohol strategy

District alcohol strategy	Number of hospitals	%
Yes	108	57.4
No	80	42.6
Subtotal	**188**	
Not answered	17	
Total	**205**	

The large majority (192/204) of hospitals reported that they have guidelines/treatment pathways for the management of alcohol withdrawal (Figure 3.6). Despite such guidelines, the Advisors were of the opinion that 50 patients in the current study did not receive the appropriate treatment in relation to alcohol withdrawal (see Chapter 4).

The use of guidelines/ treatment pathways for the management of patients with alcoholic hepatitis and/ or ARLD, was less common (Figure 3.7) for all types of hospital (Tables 3.25 and 3.26) with only 55% responding that guidelines for these conditions were available. Furthermore, 74 hospitals reported that they had neither type of guidelines (Table 3.27).

Although there were a number of examples where the Advisors felt that an escalation in the level of ward care was required but not received (Chapter 6), nearly all of the hospitals participating in the study informed NCEPOD that their critical care unit accepted ARLD admissions (data not shown).

Table 3.25 Guidelines/treatment pathways for the management of alcoholic hepatitis

	Guidelines/treatment pathways for the management of alcoholic hepatitis						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	47	52.8	42	47.2	**89**	0	**89**
District General Hospital > 500 beds	37	62.7	22	37.3	**59**	0	**59**
University Teaching Hospital	31	55.4	25	44.6	**56**	1	**57**
Total	**115**	**56.4**	**89**	**43.6**	**204**	**1**	**205**

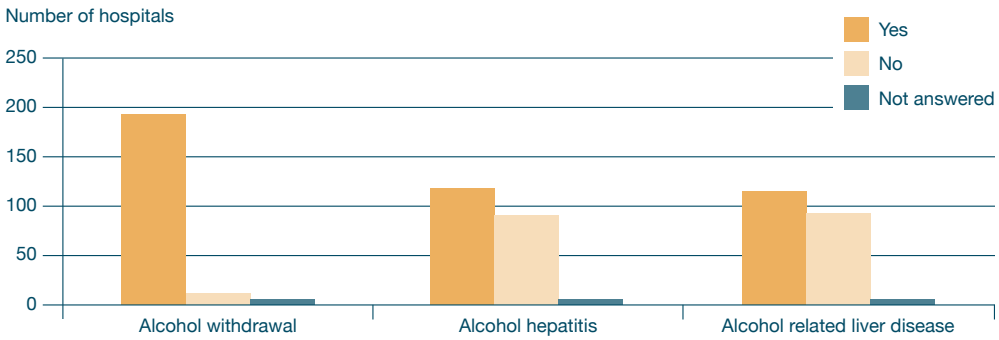

Figure 3.7 Availability of guidelines/treatment pathways

Table 3.26 Guidelines/treatment pathways for the management of ARLD

	Guidelines/treatment pathways for the management of ARLD						
Type of hospital	Yes	%	No	%	**Subtotal**	Not answered	**Total**
District General Hospital ≤ 500 beds	49	55.7	39	44.3	**88**	1	**89**
District General Hospital > 500 beds	37	62.7	22	37.3	**59**	0	**59**
University Teaching Hospital	26	46.4	30	53.6	**56**	1	**57**
Total	**112**	**55.2**	**91**	**44.8**	**203**	**2**	**205**

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**

Key findings

The presence of consultant hepatologists was restricted to 52/191 (28%) hospitals, 34 of which were University Teaching Hospitals.

64/87 of small District General Hospitals, 42/54 of large District General Hospitals and 44/54 of University Teaching Hospitals had one or more consultants with an interest or specialism in liver disease (Figure 3.1).

All except three hospitals had an endoscopy service onsite.

For 119/202 (59%) hospitals an endoscopy service was only available during normal working hours (Monday – Friday, 08:00 – 17:59).

There were only 53 hospitals that offered a 24/7 endoscopy service.

56/204 (27%) hospitals relied on the on call medical team with or without input from gastrointestinal specialists (depending on availability), to manage patients with gastrointestinal bleeds out of hours.

161/205 (79%) hospitals reported having an alcohol liaison service.

Only 47/203 (23%) hospitals reported having a multidisciplinary alcohol care team.

The use of guidelines/ treatment pathways for the management of patients with alcoholic hepatitis and/or alcohol-related liver disease, was limited to 115/204 and 112/204 hospitals respectively.

74/203 (36%) hospitals did not have guidelines/treatment pathways for either alcohol-related liver disease or alcoholic hepatitis.

Recommendations

2. A multidisciplinary Alcohol Care Team, led by a consultant with dedicated sessions, should be established in each acute hospital[2,15] and integrated across primary and secondary care. *(Medical Directors)*

3. 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[2,15]. *(Medical Directors)*

4. 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. *(Medical Directors)*

Back to contents

4 – Admission to hospital

Admissions due to alcohol-related liver disease (ARLD) have risen substantially over the last few decades[9]. Patients with alcohol-related liver disease are complex often with significant organ dysfunction and require specialist input to provide optimal care. Admission to hospital is generally unplanned as patients with decompensation usually present acutely to the emergency department (ED) of their local district general hospital or on the acute medical take. As already noted in Chapter 3, not all hospitals have access to the full range of specialist services required for patients with ARLD. It has already been recognised that organisation of liver services needs to improve in order to provide the best care for patients[1]. This section will examine the process of admission to hospital.

Admission

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**	

There was a spread of admissions across all days of the week with a slightly lower number at weekends (Table 4.1), which is in line with overall numbers of admissions to acute hospitals. The majority of admissions were via the ED (363/495; 73%; Table 4.2) and admission was mostly to general wards (Table 4.3). A minority of patients (67/491; 14%) were admitted directly to a Level 2 or Level 3 bed. In the majority of cases, (459/492; 93%) the clinician responsible felt that the patient was admitted to an appropriate ward (Table 4.4).

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**	

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**	

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**	

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**	

For medical patients newly admitted to hospital, review by a consultant physician within a maximum of 12-14 hours (and ideally within 6-8 hours) of admission is recommended[18,19]. Review within 12 hours has also previously been recommended by NCEPOD[20]. The time of the first consultant review could be identified by the Advisors in 315 patients. The Advisors felt that this review was not sufficiently prompt for the patients' condition in 48/314 cases (15%; Table 4.5). The time of first consultant review was also recorded by the clinicians submitting data and could be identified in 363 patients. In this group, 132 (36.4%) patients had their first consultant review more than 12 hours after hospital admission, 102 patients (28.1%) were seen more than 14 hours after admission.

The admitting doctor was a consultant in more than one in five (100/456) cases and a junior trainee (FY1 or ST1-2) in 49% (222/456) of cases (Table 4.6). Approximately one in five patients (99/489) were admitted directly under the care of a gastroenterologist or hepatologist. This is likely to reflect the frequency with which gastroenterologists support hospital general medical on call rotas. The majority of patients therefore were admitted by specialists in other clinical disciplines. This has significant implications as it means that with current arrangements, the initial care of patients admitted acutely with decompensated liver disease will mostly be provided by specialists whose primary interest is not liver disease.

Patients with liver disease will also sometimes present to non-medical specialties with falls, head injury, gastrointestinal symptoms or following accidents. A small number of the patients in this study presented to surgical specialties (Table 4.7).

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**	

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
Subtotal	**489**	
Not answered	23	
Total	**512**	

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

Presenting features

This was a complex group of patients. The presenting features of their admission describe a high severity of illness. The presence of any one of jaundice, ascites, encephalopathy, renal failure or acute alcoholic hepatitis reflects severe liver disease with a significant risk of death. Patients with any of these serious features would benefit from specialist input. At least one of these features was present in all but 74 patients on admission.

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

The patients in this study had a number of common investigations (Table 4.9). As would be expected, the majority had tests of liver function on admission. Tests of coagulation, which is another marker of liver synthetic function, were also done in the majority of patients.

Over one hundred patients were not recorded as having tests of renal function done on admission. The Advisors however did not report that there was a deficiency in performing these tests in the 385 cases they reviewed. A high percentage (62%) of patients assessed by the Advisors had abnormal renal function on admission. The admitting clinicians reported that a third of patients were admitted with renal failure. In 2009 a previous NCEPOD report recommended that, in order to improve the management of patients with acute kidney injury, all emergency admissions should have tests of renal function on admission to hospital[21]. The findings in this group of patients reinforce the importance of this recommendation.

The Advisors who assessed the cases felt that there was inappropriate delay in investigation in more than one in seven patients (53/362 patients, 14.6%: Table 4.10).

Sepsis is a common cause of decompensation in liver disease. Patients may have normal or minimally elevated inflammatory indices. Sepsis of any cause must therefore be actively excluded on admission.

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**	

Spontaneous bacterial peritonitis (SBP) is one cause of sepsis associated with a high mortality and is present in 15% of patients who present with decompensated liver disease and ascites. SBP is a common cause of occult sepsis. Screening tests for sepsis including blood cultures and ascitic tap are therefore important immediate tests required in assessing patients admitted with deterioration. When it is not clear if ascites were present, abdominal ultrasound is diagnostic and is therefore indicated.

Where inappropriate delay in investigation was noted by the Advisors, this delay was in tapping ascites, obtaining blood cultures and in performing ultrasound examinations.

Case study 1

A 42 year old patient was admitted with abdominal pain and swelling. The patient drank alcohol to excess but was not previously 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. The patient 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.

Management of ascites is described in more detail later (Chapter 5).

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**	

In 23% (89/379) of patients, the Advisors felt there was evidence of under-investigation (Table 4.11). The same tests that were delayed in the cases described above were the ones that tended to be omitted completely. The most common reason for under investigation given by the Advisors was failure to tap ascites which occurred in 25 cases. Ascitic tap is a simple procedure which is performed at the bedside and competence is assessed early in medical training. On several occasions there was delay in tapping ascites due to concern about abnormal coagulation. Published guidelines suggest that ascitic tap is safe in coagulopathic patients and should not be delayed[22].

In 12 cases blood cultures were indicated but were not performed and in 13 cases an ultrasound scan was not requested when it had the potential to provide information that would have influenced treatment of the patient.

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
Subtotal	**123**	
Not applicable	171	
Not answered	91	
Total	**385**	

Case study 2

A 55 year old patient, known to have alcohol-related liver disease was admitted with a three week history of increasing abdominal pain and swelling and oedema. Admission blood tests revealed: bilirubin 413 µmol/L, albumin 27 g/L, sodium 118 mmol/L, INR 3.9 and platelets 94 x 10^9/L. Renal function was normal. The patient had tense painful ascites. The initial plan was made to drain the ascites when the INR had fallen below 2. Vitamin K was administered. The INR remained above 3. Documentation daily in the notes stated that drainage would be done when the INR was below 2. Six days after admission, a gastroenterologist advised drainage of the ascites despite the high INR. This was planned for the following day. Unfortunately the patient suffered a cardiac arrest that night and resuscitation attempts were unsuccessful.

The Advisors' comments were that there was unnecessary delay in investigation and initiating treatment in this patient.

In cases reviewed by the Advisors, the adequacy of investigation of the patient's liver disease both on the final admission and previously was assessed (Table 4.13). In patients with a first presentation of liver disease only 57/123 (46%) patients were assessed as having an adequate screen done (Table 4.13) (for description of liver screen see Appendix 2). For patients with a previous presentation, a similarly high percentage (145/275; 54%; Table 4.12) was felt not to have had an adequate liver screen done. Advisor comments suggest that at least some of this was due to insufficient documentation being available. However, in a substantial number of cases, viral or autoimmune aetiologies were not considered and there was an assumption by the clinicians that because of the patient's level of alcohol intake, this was the aetiology of their disease.

Case study 3

A 45 year old patient presented to hospital for the first time with jaundice and ascites. The patient was reported to drink two litres of strong cider per day and a diagnosis of alcohol-related liver disease was documented. There was no evidence to suggest that other causes of liver disease had been considered.

The Advisors' view was that alternative aetiologies in particular including viral and autoimmune liver disease should have been considered.

Where the clinician was able to give an answer, 42/403 (10%) patients had had a liver biopsy at any stage of their illness.

Admission investigations are sometimes aggregated to provide a 'severity score' which can be used to provide an assessment of mortality risk. Various scores exist for patients with liver disease, and are applicable in different circumstances. Some scores can also be used to make treatment decisions. The overall use of any severity scoring in the cases assessed by the Advisors was low at 24% (90/377 patients; Table 4.14).

Table 4.14 Use of liver severity scores

Severity score	Number of patients	%
Yes	90	23.9
No	287	76.1
Subtotal	**377**	
Not answered	8	
Total	**385**	

Organ dysfunction

On admission, 350/374 (94%) of cases assessed by the Advisors had abnormal liver function (Figure 4.1) and 233/374 (62%) abnormal renal function (Figure 4.2). A high proportion of these patients also had deterioration in liver (226/343; 66%:) and renal (214/341; 63%) function during the admission. Table 4.15 shows that 167 patients had deterioration in both their liver and renal function during the admission and a further 100 patients had deterioration in liver (55 patients) or renal (45 patients) function.

Where deterioration in liver and/or renal function occurred, in 49/257 (19%) cases the Advisors felt that the care provided made a contribution to this deterioration (Table 4.16). In general, deterioration was identified promptly but in 23 cases it was not (Table 4.17). Where there was deterioration in organ function, management

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**

was thought to be inappropriate in a substantial number (41/250; 16%) of cases (Table 4.18). This predominantly referred to management of fluid balance and renal failure (23 patients). The most common Advisor comments referred to delay in or inadequate administration of fluid, delay in stopping diuretics, or reluctance to consider renal replacement therapy.

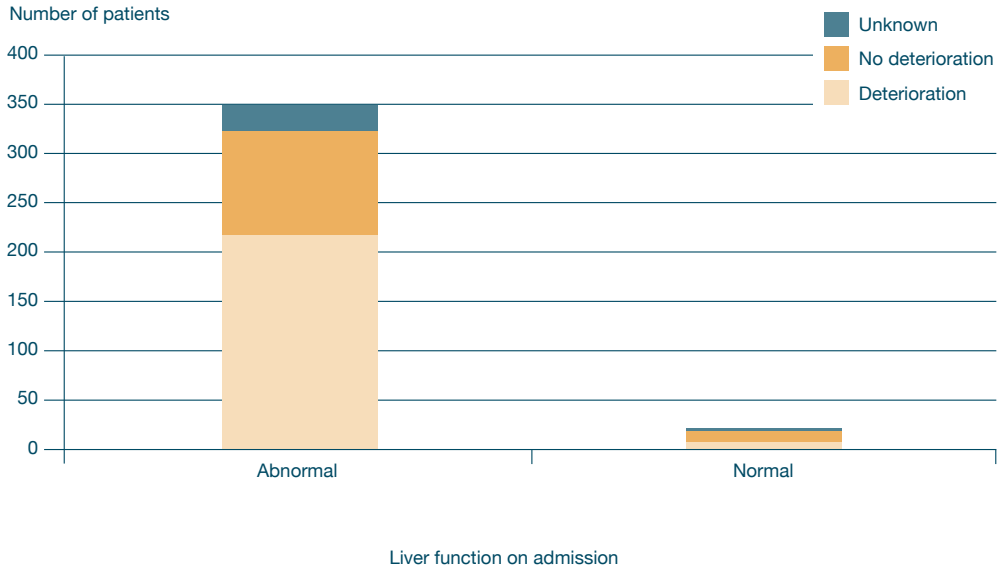

Figure 4.1 Liver function on admission and subsequent deterioration

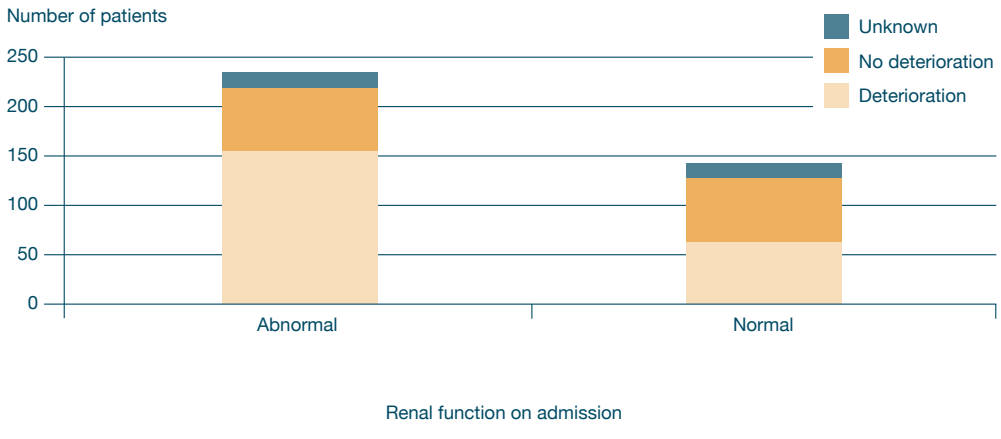

Figure 4.2 Renal function on admission and subsequent deterioration

Case study 4

A 49 year old patient was admitted with jaundice and abdominal swelling. The initial assessment included blood cultures and a diagnostic ascitic tap as part of a screen for sepsis. Initial treatment was appropriate including antibiotics for presumed infection. The patient's renal function was not checked regularly but their 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.

Current guidelines recommend the use of vasoconstrictor drugs such as terlipressin to prevent deterioration in renal function in patients with hepatorenal syndrome[15]. In seven cases, terlipressin was indicated but was not administered. This potentially contributed to the deterioration in renal function.

Early administration of antibiotics in septic patients is an important part of their management and is promoted by international guidelines[23]. In a small number of cases failure to administer antibiotics either at all or quickly enough was felt to have contributed to deterioration in organ function due to worsening of sepsis with an adverse effect on blood pressure and renal function.

Table 4.16 Iatrogenic contribution to deterioration in liver and/or renal function

Iatrogenic contribution	Total	%
Yes	49	19.1
No	208	80.9
Subtotal	**257**	
Not answered	10	
Total	**267**	

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**	

Initial management

Following admission, a clear initial management plan was documented in the majority of cases (349/378; 92%; Table 4.19). In those cases where a plan was documented, it was thought by the Advisors to be inappropriate in 32/334 (9.6%) of cases (Table 4.20). In total the initial management plan was either unclear or inappropriate in 61/363 (16.8%) cases.

Overall the Advisors rated the quality of initial management as good or adequate in 325/375 (87%) of cases and as poor or unacceptable in 50/375 (13%; Table 4.21). Comments relating to the patients rated as being managed poorly mainly related to fluid management, management of renal dysfunction and sepsis, and decisions about escalation of care.

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**	

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**	

Case study 5

A 62 year old patient was admitted with abdominal pain. The patient had a history of excessive alcohol intake. Systolic blood pressure was 85 mmHg and the patient had ascites. Liver function was abnormal with bilirubin 180 µmol/l and INR 4. 500mls of intravenous fluid was administered in six hours. The patient was seen on the post take ward round 10 hours later and their blood pressure had fallen to 60 mmHg. The patient had passed 20ml of urine in 12 hours. The decision on the post take ward round was to commence the Liverpool Care Pathway and the patient died two hours later.

The view of the Advisors was that more aggressive immediate 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.

Alcohol history and withdrawal

Alcohol history

The majority of patients (483/505) were previously known to drink alcohol to excess (Table 4.22). Over three quarters (77%; 388/504) of the study population were known to have a history of ARLD (Table 4.23). A quarter (125/488) of the study population were no longer drinkers (Table 4.24). The range of time the patients had been abstinent is presented in Table 4.25. The majority (78/108; 72%) of this group had been abstinent for six months or more.

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**	

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**	

With brief intervention, one in every eight patients will either stop drinking or reduce their drinking to significantly less harmful levels[15]. Therefore every opportunity should be taken to intervene whenever patients who drink harmfully are in contact with health services. To ensure that this happens, an accurate comprehensive alcohol history must be taken and appropriate advice given. If this is not done an opportunity has been missed to change the course of a patient's drinking habit.

NICE has published guidance[24] recommending that all staff working in the NHS who care for people who potentially misuse alcohol should be competent to identify harmful drinking and alcohol dependence and to assess the need for intervention. If they are not competent they should refer people who misuse alcohol to a service that can assess this need. This guidance recommends the use of assessment tools such as the Alcohol Use Disorders Identification Test (AUDIT; see Appendix 4) to assess the need for comprehensive assessment. This NICE guidance has been summarised recently, for use in the acute hospital[25]. Additional guidance[3] recommends the use of alcohol withdrawal scales such as the Clinical Institute Withdrawal Assessment – Alcohol, revised (CIWA-Ar; see Appendix 5). The Academy of Medical Royal Colleges has also recently produced guidance on core competencies for alcohol and other drugs[26]. This makes recommendations for postgraduate curricula for all doctors including that they should *"be competent to make an assessment of alcohol and other drug use, including taking a history and using validated tools"*.

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**	

The Advisors were asked to assess the adequacy of the alcohol history. A major concern expressed by the Advisors was that an inadequate alcohol history was taken in nearly half (47%; 176/372; Table 4.26) of patients reviewed. There was often no assessment of dependence or the risk of withdrawal. A very limited history was taken in 116 patients and no history was taken in 21 cases. It might be reasonable to expect that patients admitted with encephalopathy would be unable to give an adequate history of alcohol intake. However when the patients admitted with encephalopathy as a presenting feature were excluded from analysis, the alcohol history was thought to be inadequate by the Advisors in 87/198 (43.9%) patients. An example of a model history is shown in Appendix 3.

Data were also collected for alcohol history during previous episodes (Tables 4.27 and 4.28). This was considered to be an opportunity to influence the course of the patient's care at an earlier stage. In almost one in six patients (39/246, 15.9%), an alcohol history was not documented and where it was, it was not adequate in nearly a third of patients (66/201; 32.8%; Table 4.28).

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**	

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**	

Since brief intervention can be effective in reducing alcohol intake to less harmful levels, both the clinicians responsible for the care of the patient and the Advisors were asked whether the patient had been given advice or support to stop drinking and whether they felt this advice was appropriate.

The clinicians responsible for the care of patients found that in 187/499 (38%) cases no advice or support to stop drinking had previously been received (Table 4.29). Of those who had received support, in almost one in eight cases (35/298 patients) this was felt not to be appropriate advice (Table 4.30).

The Advisors reviewed 385 cases and of these 215 (56%) had previously received advice or support to stop drinking. They were unable to comment on this advice in 15 cases. They assessed this advice as not being appropriate in 42 of the remaining 200 cases (21%).

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**	

Alcohol withdrawal

After prolonged excessive alcohol intake, on stopping or reducing drinking, an alcohol withdrawal syndrome consisting of over-activity of the central nervous system can occur. This can result in seizures and delirium. As already noted in Chapter 3, 192/204 hospitals report having guidelines or treatment pathways for the management of alcohol withdrawal. NICE guidance is also available for the management of alcohol withdrawal[3]. This includes a recommendation that an alcohol withdrawal scale (CIWA-Ar) is used as part of this assessment. This helps to assess the risk of the serious complications occurring and can be used to influence treatment decisions. In more than half of the patients, who were currently drinking (141/270; 52%), an assessment of risk of alcohol withdrawal was not made (Table 4.33). In cases where an assessment was made, an alcohol withdrawal scale was used in just over one in five cases (29/129 cases; 22%). This suggests that either local guidelines do not reflect NICE recommendations or that they are not being followed.

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 4.32 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**	

Despite the lack of documented assessment, treatment for alcohol withdrawal was given in 145/346 (42%) patients (Table 4.34). When treatment was given this was felt by the Advisors to be inappropriate in 27/145 patients and when it was omitted, it was felt to be inappropriate in 26/201 cases. Treatment was therefore rated as inappropriate by the Advisors in 53/346 (15%) of cases.

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**	

These data support the concept that formal assessment using an alcohol withdrawal scale is needed to improve treatment for alcohol withdrawal.

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 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 patient with known alcohol-related liver disease was admitted with pneumonia. On admission, no assessment was made of their risk of developing withdrawal symptoms. The patient became agitated on the general ward and was treated with haloperidol and chlordiazepoxide. The patient was hypoxic and required treatment with CPAP which was tolerated poorly. A midazolam infusion was started and soon after this the patient vomited, aspirated and sustained a cardiac arrest and died.

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

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**

Key findings

132/363 (36%) patients admitted to hospital were first reviewed by a consultant more than 12 hours after admission and for 102/363 (28%) patients this review took place more than 14 hours after admission.

Advisors found that first consultant review was insufficiently prompt in 48/314 cases (15%).

There was a high incidence of abnormal renal function (157/513 patients; 30.6%). Despite this tests of renal function were not always done on admission to hospital.

Coagulopathy led to inappropriate delay in sampling ascitic fluid in a significant number of patients.

Tests to exclude sepsis including sampling of ascitic fluid and blood cultures were omitted in almost 10% (37/385) of cases.

In patients admitted with decompensated liver disease who drink potentially harmful amounts of alcohol other causes of liver disease were not considered in 145/275 cases.

The initial management plan was either unclear or inappropriate in one in six (61/363; 17%) patients.

Organ failure occurred commonly and when it did, it was not well managed in 41/275 (15%) of cases.

The initial care of more than one in eight patients (50/375; 13%) assessed by the Advisors was rated as poor or unacceptable.

A quarter (125/488 patients) of the study population were no longer drinkers. The majority (78/108; 72%) of this group had been abstinent for six months or more.

An adequate alcohol history consisting of the number of weekly units drunk, the risk of dependence and of withdrawal was not taken in nearly half (176/372; 47%) of the patients during their final hospital admission and in nearly a third (66/201; 33%) during previous admissions.

Clinicians involved in the care of the patient identified that where advice on alcohol intake was given it was not appropriate in more than one in ten (35/298; 12%) cases. Advisors found evidence that advice and support was not appropriate in more than one in five (42/200; 21%) cases.

Treatment for alcohol withdrawal was felt by the Advisors to be inappropriate in more than one in seven cases (53/346; 15%).

Alcohol withdrawal scales should be used to assess the risk of withdrawal and to guide treatment and were used in a small minority (32/322; 10%) of cases

Recommendations

5. Trusts should ensure that medical patients are reviewed by a consultant within a maximum of 12 hours of admission, as suggested in the Royal College of Physicians London acute care toolkit, Society of Acute Medicine quality standards and previously by NCEPOD. This standard should be the subject of regular audit. *(Clinical Directors and Consultants)*

6. All patients presenting with decompensated alcohol-related liver disease should have blood cultures included in their initial investigations on admission to hospital. *(All Doctors)*

7. All patients admitted as an emergency, regardless of specialty, should have their electrolytes checked routinely on admission and appropriately thereafter. This will help prevent the insidious and unrecognised onset of acute kidney injury[19]. (*Clinical Directors and Medical Directors)*

8. If ascites is present in patients presenting with decompensated alcohol-related liver disease, a diagnostic ascitic tap should be performed as part of their initial assessment. Coagulopathy is not a contraindication to this procedure. *(All Doctors)*

9. Patients who present acutely with decompensated liver disease, and who drink alcohol at a potentially harmful level, should not be assumed to have alcohol-related liver disease. A full assessment to exclude all other potential causes of liver disease should be performed as soon as possible after admission to hospital. *(All Doctors and Consultants)*

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

11. All patients presenting to hospital services should be screened for alcohol misuse. An alcohol history indicating the number of units drunk weekly, drinking patterns, recent drinking behaviour, time of last drink, indicators of dependence and risk of withdrawal should be documented. *(All Doctors)*

12. As recommended by NICE, assessment tools such as the Alcohol Use Disorders Identification Test (AUDIT) and the Clinical Institute Withdrawal Assessment – Alcohol, revised (CIWA-Ar) should be readily available for use by all health care professionals who should be competent in their use. *(Medical Directors and Clinical Directors)*

13. Alcohol withdrawal scales should be used, as suggested in NICE guidance, to guide treatment decisions to prevent the alcohol withdrawal syndrome. *(All Doctors)*

14. Treatment for alcohol withdrawal should be tailored to the individual patient. The presence of encephalopathy, or other features of liver disease, can make the administration of sedatives inappropriate and may indicate the need to consider transfer to a higher level of care. *(All Doctors and Consultants)*

Back to contents

5 – First consultant review and ongoing care

Specialty input

As previously shown in Chapter 4, patients presenting with decompensated liver disease will generally be admitted via the emergency department or on the acute medical take. Most specialist liver services are focussed in a small number of trusts. For the majority of patients who are admitted to district general hospitals, we have shown that they will not be admitted directly under the care of a gastroenterologist or hepatologist.

As this study has also demonstrated, these patients are complex, often with serious organ dysfunction and major medical problems that are specific to liver disease. Specialist input, as early in the course of their illness as possible, has potential to define the best treatment options and to identify the need for escalation in care when this is appropriate. If a patient is admitted out of hours or dies rapidly following admission it is unlikely that they will be reviewed by a liver specialist immediately. This section will describe this issue.

The Figure 5.1 shows the 30 day survival curve for 425 patients in this study. Fourteen patients died rapidly on the day of admission. 38/425 (9%) died within 24 hours, 66 (16%) died within 48 hours and 87 (20%) within 72 hours of admission.

On admission, the first consultant review was by a gastroenterologist or hepatologist in 123/497 patients (25%). In 374 patients who were not initially reviewed by a gastroenterologist or hepatologist, 250 were subsequently reviewed by one during the remainder of their admission.

There was a total of 117 patients who were not reviewed at any stage of their admission by a gastroenterologist/ hepatologist. This was in part explained by a group of patients who died rapidly after their admission to hospital (8 patients) and whose first consultant review was not by a gastroenterologist.

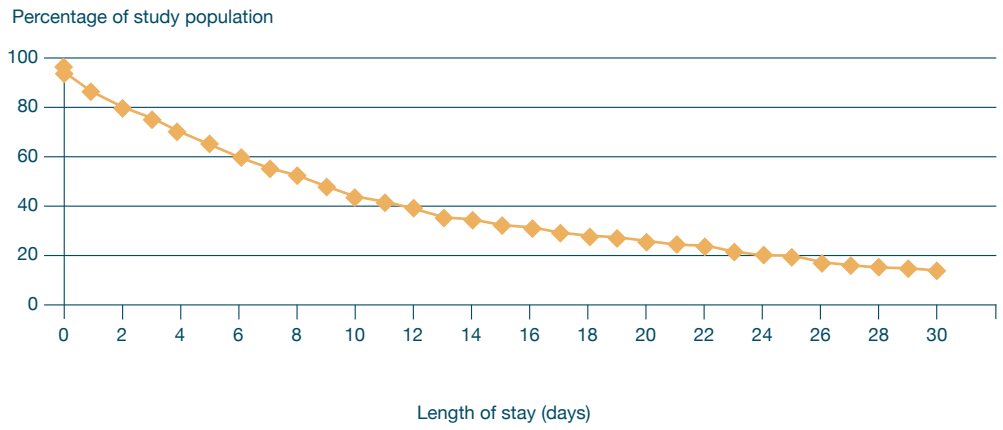

Figure 5.1 Length of stay (time to death) of whole study cohort

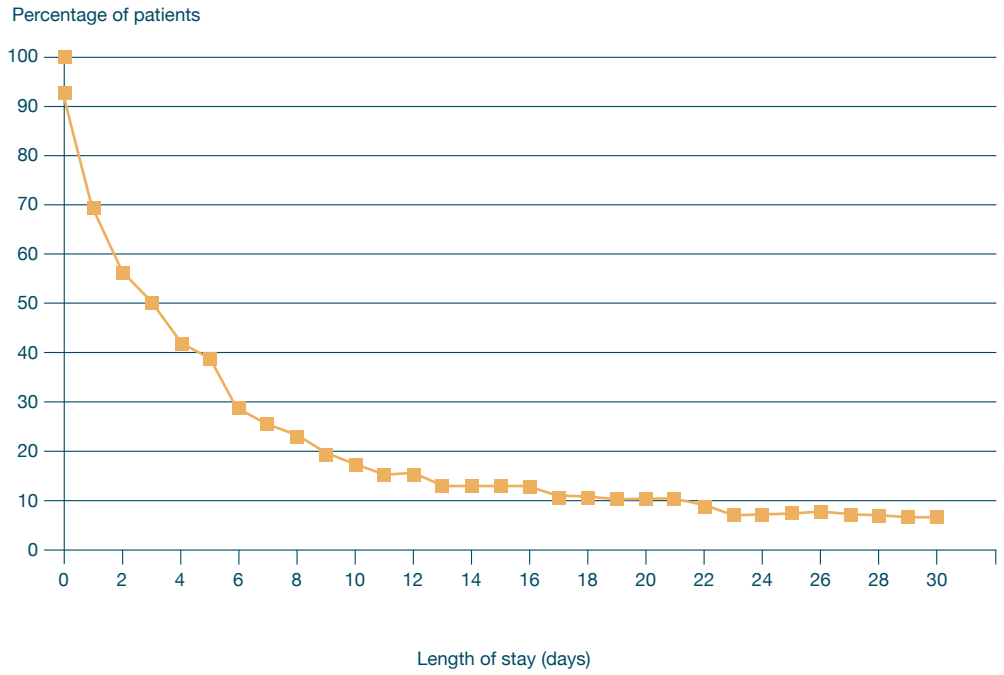

Figure 5.2 Length of stay (time to death) for 117 patients not seen by a gastrointestinal specialist

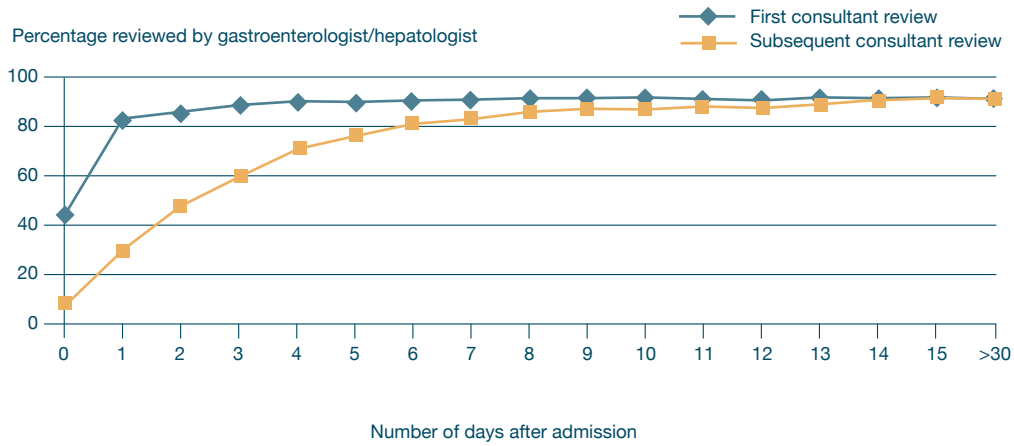

Figure 5.3 Percentage of patients reviewed by gastroenterologist vs. days after admission

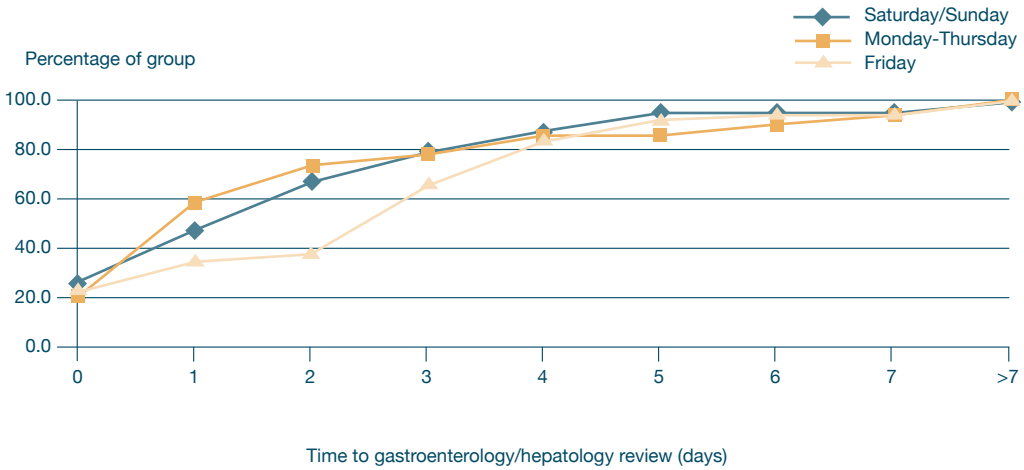

Figure 5.4 Percentage of patients reviewed by gastroenterology/hepatology by admission day: weekday, Friday and weekend

Of the 102 remaining patients with data available, 26 died within 24 hours of admission, 40 within 48 hours, and 47 within 72 hours, 28 patients spent more than a week in hospital and were never reviewed by a gastroenterologist or hepatologist (Figure 5.2).

In a total of 360 patients the time of review by a gastroenterologist or hepatologist either on admission or later in their hospital stay was recorded. When patients were admitted under the care of a gastroenterologist, this review generally took place on the day of admission (Figure 5.3). If patients were not admitted under the care of a gastroenterologist or hepatologist, a third of this group had still not been reviewed three days after admission. This review was delayed by more than three days in 87 patients and there was delay of more than a week in 21.

Figure 5.4 shows the percentage of patients reviewed by a gastroenterologist by admission day of the week. It can be seen that unless patients were actually admitted under the care of a gastroenterologist and therefore seen on the day of admission, patients admitted on a Friday were generally not seen until the following week. This is understandable as most district general hospitals will not run a separate specialist on call rota for gastroenterology advice over weekends.

Clinicians were asked if their hospital had a specialist liver unit. 69/473 patients were admitted to hospitals where the clinician said they did.

140/334 cases assessed by the Advisors were discussed with a liver unit or specialist.

As outlined in Chapter 3, liver specialist nurses were employed in 52% of hospitals and alcohol liaison nurses in 68%. Due to their regular exposure to this group of patients, specialist nurses may be the first to identify the severity of a patient's liver problems. Advisors were asked whether patients were reviewed by a specialist nurse (Table 5.1) during the admission. The majority of patients (317/373; 85%) were not reviewed by one. When they were, this was generally an alcohol liaison nurse.

Case study 8

A 57 year old patient was admitted with abdominal swelling and peripheral oedema and was known to have ARLD. The patient had vomited blood on the day of admission and Hb was 8.1 g/L. INR 1.5. Blood transfusion was given and endoscopy mentioned but not done. An ascitic tap was done on day 3 of admission and antibiotic treatment was started then. A diagnosis of alcoholic hepatitis was considered but no treatment was given for this. On day 4 the patient vomited again and aspirated. The patient deteriorated progressively after this and plans were put in place not to escalate care. The patient died the following day and was never seen by a gastroenterologist.

The Advisors' view was that care was disjointed and there was no clarity of management plan. They felt that involvement of a gastroenterologist would have improved overall management of the case and that with better management the episode of aspiration which led to deterioration might have been prevented.

Table 5.1 Number of patients seen by specialist nurse

Documented evidence that the patient was seen by a specialist nurse	Number of patients	%
Yes - Alcohol liaison nurse	48	12.9
Yes - Hepatology nurse	4	1.1
Yes - Gastroenterology nurse	4	1.1
No	317	85.0
Subtotal	**373**	
Not answered	12	
Total	**385**	

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

Long term alcohol consumption can cause thiamine deficiency. Thiamine is an essential cofactor in carbohydrate metabolism and deficiency can lead to brain disorders. Such disorders can be precipitated by the improved nutrition or administration of carbohydrates that can occur on admission to hospital. Thiamine is therefore an essential treatment in patients admitted to hospital who are currently drinking. Thiamine was given either orally or intravenously in a high number of patients. However, there were 82 patients in the study who did not receive thiamine by either route (Table 5.2). Of these, 39 were current drinkers. This is 11% of the 343 patients who were current drinkers.

The majority of patients received intravenous fluids and as already noted a high proportion either had abnormal renal function on admission or developed this later in the admission. Patients with liver disease have a tendency to retain salt and water resulting in ascites and oedema. This is generally managed in stable patients with salt restriction and diuretics. As a result there is often a reluctance to administer fluids, and in particular saline, in unstable patients. Fluid management was rated as inappropriate in 97/338 (29%) cases (Table 5.3) where it was possible to comment on this. In a similar number of cases (98/344; 28%), documentation of fluid balance (Table 5.4) was rated as inadequate.

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**	

Figure 5.5 shows that fluid management was appropriate in a higher proportion of the patients (88%; 212/242) when fluid balance was documented appropriately. When fluid balance was poorly documented, only 26% (23/87 patients) were assessed as well managed.

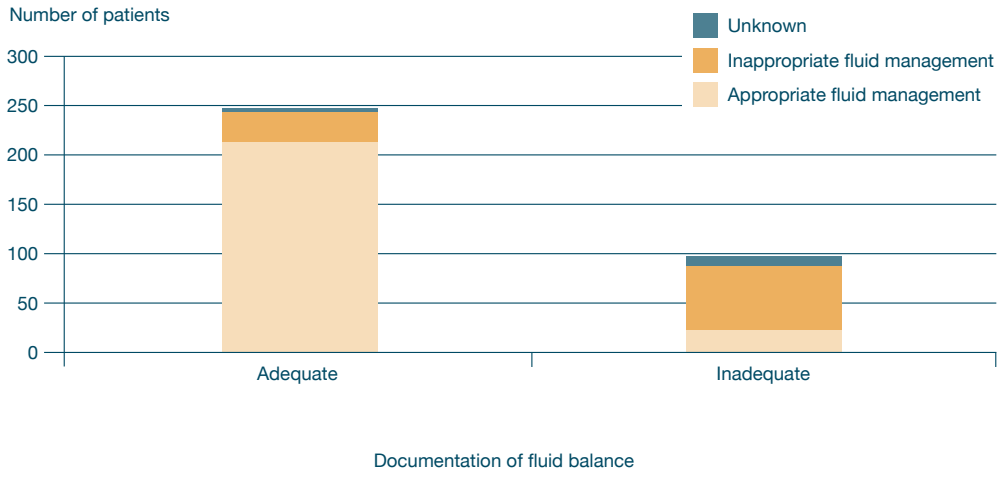

Figure 5.5 Adequacy of documentation and appropriateness of fluid management

Case study 9

A 58 year old patient was admitted to the intensive care unit with an acute kidney injury on the background of known alcohol-related liver disease. The patient improved and was 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 on a regular basis 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.

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**	

Advisors were asked what, if any additional treatment they felt would have been appropriate (Table 5.5). In 70 cases they identified specific issues. The main theme was around escalation to a higher level of care which was identified in 21 of these cases (21/345; 6%). There was a group (13 cases) in whom fluid management was noted to have been inadequate. In all cases this was either inappropriate fluid restriction or inadequate fluid replacement. There were no cases where the Advisors commented on excessive fluid administration.

It was reassuring to find that only three patients in this study received non-steroidal anti-inflammatory drugs which have the potential to cause deterioration in renal function and are contraindicated in patients with cirrhosis.

A high percentage of patients received antibiotics. This would be expected as sepsis is a common cause of decompensation in liver disease. In five cases, failure to administer antibiotics rapidly enough was noted.

In four cases, it was felt that the patient was denied end of life care as their imminent death had not been recognised.

In 129/368 (35%) of cases, their nutritional needs were assessed. Failure to assess was not explained by death early in the admission. An appropriate nutritional plan was only documented in 184/351 (52%) cases.

Management of ascites

In patients admitted with decompensated liver disease and ascites, sampling of the ascitic fluid is an essential investigation on admission and is recommended by current guidelines[22,17]. Testing is undertaken to ascertain the cause of ascites and in particular to exclude spontaneous bacterial peritonitis (SBP). SBP is a frequent precipitant of decompensation and is present in 15% of patients admitted to hospital with ascites. Advisors' opinions on delay in sampling ascites and failure to do so have been discussed earlier.

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**	

Of 480 patients in whom the question was answered, 373 (78%) had ascites present (Table 5.6). Of these patients, only 258/363 (71%) had an ascitic tap. 78% (225/290) of patients who were seen by a gastroenterologist/ hepatologist had an ascitic tap (Figure 5.6). This fell to 46% (29/63) if a gastroenterologist/hepatologist was not involved in the care of the patient.

Ascitic drainage is recommended for patients with symptomatic tense ascites not responding to initial treatment with diuretics[24,26]. This procedure is associated with haemodynamic compromise and renal dysfunction. The incidence of these can be reduced by volume expansion. Administration of intravenous albumin is recommended when large volume (>5 litres) ascitic drainage is undertaken[22,27]. An ascitic drainage was undertaken for 143/337 (42%) patients. 48% (128/268) of patients who were seen by a gastroenterologist/ hepatologist had their ascites drained (Figure 5.7). This fell to 20% (12/60) if a gastroenterologist/hepatologist was not involved in the care of the patient.

Where an ascitic drainage was undertaken this was covered by the administration of albumin in 135/138 (98%) of patients. This is in line with good practice guidance for the drainage of ascites. No data were collected on the volume of fluid drained.

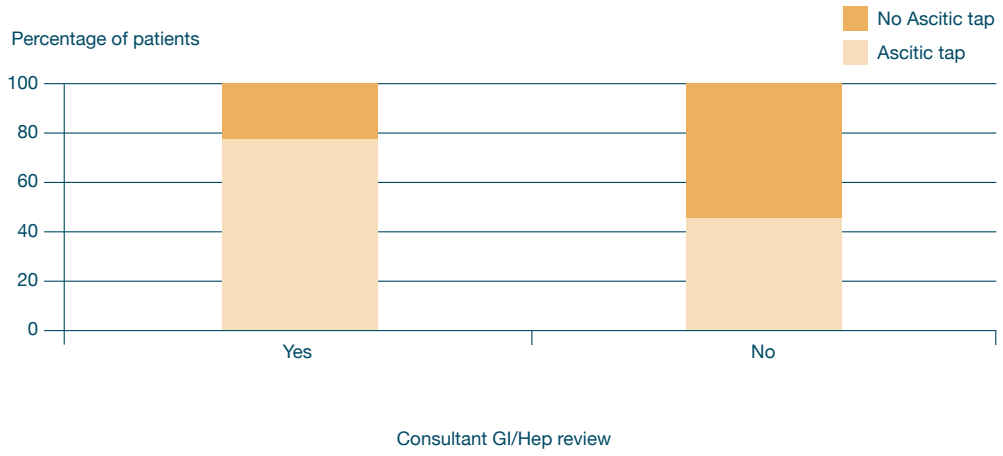

Figure 5.6 Diagnostic ascitic tap comparing patients reviewed or not by specialist gastroenterologist/hepatologist

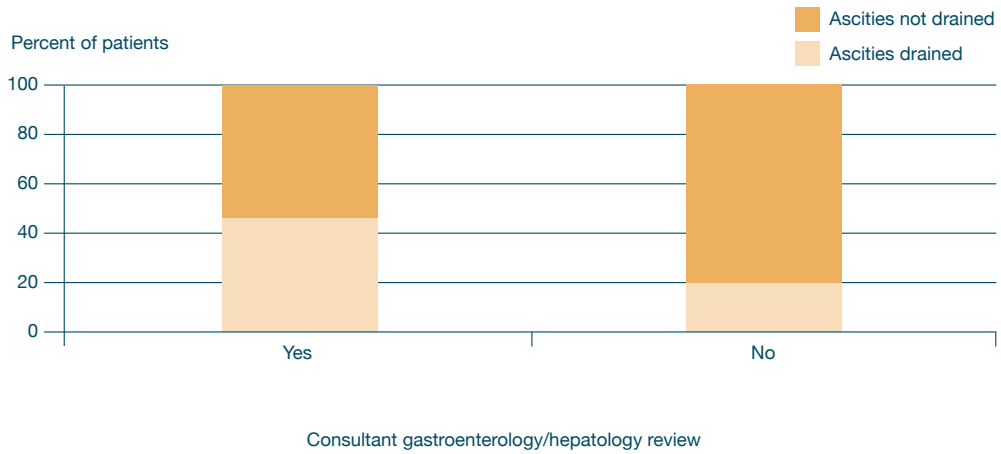

Figure 5.7 Ascitic drainage comparing patients reviewed or not by specialist gastroenterologist/hepatologist

Following initial assessment, as noted earlier, Advisors commented that investigations were delayed in 53/362 (15%) of cases. In half of these cases the delay was in ascitic sampling.

Key findings

One in four patients (25%; 117/467) were never seen by a gastroenterologist or hepatologist.

For 273/360 (76%) patients who were reviewed by a gastroenterologist / hepatologist, this review took place within 72 hours of admission.

For patients admitted on a Friday there was greater delay in review by a gastroenterologist or hepatologist.

Only 15% (56/373) of patients were reviewed by a specialist nurse.

Thiamine, an essential treatment to prevent brain disorders in active drinkers admitted to hospital, was omitted in more than one in ten cases (39/343; 11%).

Nutritional assessments were not made in the majority of patients (239/368, 65%) and in nearly half (167/351; 48%) no appropriate nutritional plan was documented.

Documentation of fluid balance was inadequate in 28% (98/344) of patients.

Fluid management was inadequate in more than one in four (29%; 97/338) cases.

Adequate documentation of fluid balance was more commonly associated with appropriate fluid management (88% vs. 26% of cases).

Ascites were present in over three quarters (78%; 373/480) of patients on admission.

Ascitic drainage was almost always done with albumin cover in line with best practice guidelines (135/138 cases; 98%).

Patients seen by a specialist gastroenterologist/ hepatologist were more likely to have ascites tapped and/ or drained.

Recommendations

15. All patients admitted with decompensated alcohol-related liver disease should be seen by a specialist gastroenterologist / hepatologist at the earliest opportunity after admission. This should be within 24 hours and no longer than 72 hours after admission to hospital. *(Consultants)*

16. Trusts should ensure that all patients admitted with alcohol-related liver disease receive early specialist input from a gastroenterologist / hepatologist and a specialist practitioner in alcohol addiction. *(Medical Directors and Clinical Directors)*

17. All patients with alcohol-related liver disease and a history of current alcohol intake, in excess of recommended limits, should have thiamine (oral or intravenous) administered on admission to hospital. *(All Doctors)*

18. In patients with decompensated alcohol-related liver disease 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. *(All Doctors)*

19. As for all patients, patients with alcohol-related liver disease should have accuate monitoring of fluid balance. Systems to ensure accurate monitoring of fluid balance should be in place in all Trusts. *(Medical Directors and Nursing Directors)*

20. NICE recommends that a nutritional assessment of all patients should be made within the first 48 hours of admission (CG32). This should include patients with alcohol-related liver disease. *(All Health Care Professionals)*

8. If ascites is present in patients presenting with decompensated alcohol-related liver disease, a diagnostic ascitic tap should be performed as part of their initial assessment. Coagulopathy is not a contraindication to this procedure. (As p53) *(All Doctors)*

6 – Endoscopy and gastrointestinal bleeding

A large subgroup of patients in the study had a gastrointestinal bleed and underwent endoscopy. The findings in this group are presented here. A total of 147 patients were reported as having a gastrointestinal bleed (Table 6.1). A total of 129 patients underwent endoscopy (Table 6.2), and 103 of these patients were also reported as having a gastrointestinal bleed. forty four of the patients reported as having a gastrointestinal bleed did not have an endoscopy.

The endoscopy was mainly done in an endoscopy unit or operating theatre and a small number were done in an intensive care unit.

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**	

Table 6.2 Patients that underwent endoscopy

Endoscopy	Number of patients	%
Yes	129	42.7
No	173	57.3
Subtotal	**302**	
Not answered	210	
Total	**512**	

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**

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**

81/129 patients (63%) had a cause of bleeding identified at endoscopy (Table 6.4). The cause of bleeding was as likely to be non-variceal bleeding (52% of cases) as bleeding due to varices (48%). This is important as bleeding in patients with liver disease may be assumed to be due to varices. This has a worse prognosis than non-variceal bleeding and can lead to a reluctance to endoscope patients with alcohol-related liver disease acutely.

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**	

NICE guidance[28] recommends that patients with suspected variceal haemorrhage should be offered both antibiotics and terlipressin on presentation prior to endoscopy. In the 39 patients with variceal bleeding, five did not have terlipressin administered and three were not given antibiotics.

Eighty nine (67.9%) patients who had an endoscopy for a gastrointestinal bleed required correction of coagulopathy. No data were collected to explore whether this resulted in delay in endoscopy.

Blood transfusion was required in 99 (73.3%) patients who had a gastrointestinal bleed.

Deficiencies in organisation of endoscopy services leading to unnecessary delay in endoscopy have previously been identified in a national review[29] and a toolkit for a safer upper gastrointestinal bleeding service was developed by the Academy of Medical Royal Colleges[30] in response to this.

Intervention was delayed in 10% of cases (14/139) of the 147 patients who had a gastrointestinal bleed and where the clinician was able to comment. More detailed data on the timing of endoscopy were not collected in this study.

The Advisors assessed 128 cases who had a gastrointestinal bleed. There were insufficient data available to rate the quality of care in 30 of these cases. In the remaining 98 cases, the care of 18 patients was rated as poor or unacceptable.

Case study 10

A 42 year old patient with known alcohol-related liver disease 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 intensive care unit and endoscopy with variceal banding was undertaken within three hours of admission. When bleeding was not controlled following the endoscopy, 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 delay to intervention in endoscopy identified by the clinician responsible in one in ten cases (14/139; 10%).

44 patients reported as having a gastrointestinal bleed did not have an endoscopy.

The Advisors rated the care of 18/98 (18%) cases who had a gastrointestinal haemorrhage as poor or unacceptable.

Recommendations

21. 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 gastrointestinal bleeding.

22. In line with NICE guidance, unless contraindicated, all patients with alcohol-related liver disease, who present with gastrointestinal bleeding, should be offered antibiotics and terlipressin until the outcome of their endoscopy is known. *(All Doctors and Consultants)*

Back to contents

7 – Escalation and treatment decisions

Escalation of care

Historically patients with decompensated alcohol-related liver disease (ARLD) have been considered to have a poor prognosis if admitted to intensive care for organ support[12]. Up to 21% of gastroenterologists have stated that they have difficulty in getting their intensive care unit to admit patients with decompensated liver disease[1]. This may be due to the tendency for this group of patients to present on multiple occasions and for the problems they have being perceived as self-inflicted. If the care of liver patients is organised in specialist liver units, survival following organ support in intensive care has been quoted as being as good as 50%[1]. Outcome from intensive care admission for patients with decompensated ARLD has recently been subject to systematic review[12]. The authors concluded that outcome was related to the number of organ failures rather than the degree of underlying liver failure. There is likely to be a notable difference in outcome for a patient who has deteriorated over months with a progressive reduction in functional status and a patient who presents with acute decompensation due to sepsis or gastrointestinal haemorrhage.

The need for an escalation in care was assessed by both the clinician responsible for care of the patient and the Advisors. Out of 494 patients, the clinicians responsible noted that 192 (39%) patients received an escalation to a higher level of care (Table 7.1). There were 19 patients (7%) who required escalation of care but did not receive it (Table 7.2).

The Advisors assessed a group of 385 patients. They determined that just over half of patients (196/380, 52%) required an escalation in care (Table 7.3). In the group who required escalation a major concern was that almost a third (59/189; 31%) did not receive this despite the potential to benefit. This was felt by the Advisors reviewing the case notes to reflect the previously documented reluctance to escalate care in these patients.

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**	

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**	

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**

A small number of patients (11) received an escalation in care despite not needing this.

In the 59 cases (Table 7.4) where there was a failure to escalate care, there was often little documentation to explain why this decision was made and the Advisors were of the opinion that this failure to escalate was due to clinicians having a prior view that is was not appropriate to escalate care in patients with ARLD.

Table 7.5 Abnormal renal function

Abnormal renal function on admission	Number of patients	%
Yes	233	62.3
No	141	37.7
Subtotal	**374**	
Insufficient data	11	
Total	**385**	

As already discussed, on page 44, a large number of patients (233/374; 62%) presented with abnormal renal function (Table 7.5). A high number of patients also developed worsening renal function during their admission. Within this group of patients there was a tendency for patients with deterioration in renal function to be labelled as having hepatorenal syndrome, which is associated with a poor prognosis. Studies have shown however that in patients with liver disease who present with renal dysfunction, the final diagnosis is hepatorenal syndrome in only 40% of cases[31]. Hepatorenal syndrome should only be diagnosed if other potential causes of renal failure have been excluded. In this study there were commonly other factors such as nephrotoxic drug treatment, inappropriate fluid management and sepsis that the Advisors thought were likely to be the cause of deterioration of renal function.

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**

Case study 11

A 27 year old patient was admitted with jaundice and abdominal distension. The patient had developed diarrhoea two weeks previously. The patient had a history of excessive alcohol intake and had stopped 4 weeks prior to admission and had no previous hospital admissions related to alcohol. The patient had a tender enlarged liver, normal observations and GCS/15. The patient was treated for decompensation with fluids, pabrinex, thiamine, lactulose and tazocin, and investigated with blood cultures, liver screen and an ultrasound scan. The patient was reviewed on the day of admission by a consultant gastroenterologist. The following night, 13 hours after admission the patient had a seizure presumed due to hyponatraemia (Na 110 mmol/L). Following this the patient was agitated with GCS 13. Respiratory parameters deteriorated over the next 24 hours and the patient was thought to have aspirated. The on call ITU registrar discussed the patient with their consultant and wrote: "currently not for ITU as the patient has end stage liver disease and is still drinking". Care was provided on a general ward. An oropharyngeal airway was required due to airway compromise and the patient died the following day, three days after hospital admission.

On review of the case notes, the clinician responsible noted that there was a missed opportunity as the patient should have received an escalation of care. The Advisors' view was also that the patient may have been post-ictal and escalation of care would have been appropriate.

Case study 12

A 32 year old patient known to have cirrhosis due to alcohol-related liver disease was admitted midweek during normal working hours following a gastrointestinal bleed. The patient was hypothermic, hypotensive, acidotic and in renal failure. The patient had ascites and encephalopathy. Haemoglobin was 6 g/dl. The patient was transfused and actively warmed. There was no attempt made to obtain a gastroenterology review. The patient was referred to critical care but was denied admission. The patient remained oliguric and then had a further massive haematemesis and had a cardiac arrest. Attempts at resuscitation failed.

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

For patients with multiple previous presentations with ARLD, who have previously been offered advice and have continued to drink it might be more understandable to find a reluctance to escalate care. Table 7.6 shows all patients in whom the Advisors felt escalation was required, split by whether they were known to have ARLD. It can be seen that 16/54 first presenters (29.6%) did not receive escalation. For patients with known ARLD 41/126 (32.5%) did not receive escalation. The Advisors stated however that on review of the case notes, all 57 of these cases should have received escalation of care.

End of life and treatment limitation

Nearly a quarter (122/492) of the patients in the study died in an intensive care unit (Level 3; Table 7.7). Cardiopulmonary resuscitation was attempted in a total of 30 patients in the study (Table 7.8). Although no specific questions were asked about palliative care at the end of life, there were a number of patients in whom the Advisors felt that clinical teams had failed to recognise that the patient was reaching the end of their life. 177 patients were put on an end of life pathway. For 31 of these patients the timing of this was thought to be inappropriate. This was split between patients put on an end of life pathway too late and patients where treatment was withdrawn too early (see below). As a result some patients were subjected to invasive procedures and additional investigations that had no potential to affect the outcome. This would possibly have been uncomfortable for the patient. Eight patients received escalation of care when this was judged to be inappropriate.

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**	

Not surprisingly, in a group of patients all of whom died with ARLD, a high percentage (82%; 311/377) of patients had a treatment limitation decision or a decision to withdraw treatment made during their final admission.

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**	

Case Study 13

A 56 year old patient, known to have cirrhosis due to alcohol had undergone endoscopy for variceal banding one year before admission. The patient had abstained from alcohol since. The patient became unwell a few days after review in outpatients and on admission was encephalopathic, not maintaining their airway and was hypoxic. An early decision was made by the admitting consultant on the post take ward round not to escalate care and the patient died 36 hours 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.

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**

It is of concern however to note that the Advisors believed that the decision to limit or withdraw treatment was not appropriate in 52/308 (17%) cases (Table 7.9). Much of this linked with the escalation decisions already discussed. If patients were felt not to be for escalation this was often interpreted as a decision that no further active treatment of any description should be given. While this may be reasonable in some circumstances it is not always the case. Overall the Advisors identified 32 deaths which may have been avoidable (Table 7.10).

Table 7.10 Avoidable deaths

Death avoidable during final admission	**Number of patients**	**%**
Yes	32	10.7
No	266	89.3
Subtotal	**298**	
Unknown	87	
Total	**385**	

Key findings

Both Advisors (57 patients) and clinicians (19 patients) identified patients in whom escalation of care was not received despite it being indicated.

The development of renal failure was often assumed to be due to hepatorenal syndrome without adequate consideration of other causes.

Treatment limitation or withdrawal was found to be inappropriate in 52/308 (17%) cases.

Advisors identified 32 deaths which may have been avoidable.

Recommendations

23. Deterioration in renal function in patients with liver disease should not be assumed to be due to the hepatorenal syndrome, as other potential causes are often present and should be actively excluded. *(All Doctors and Consultants)*

24. Escalation of care should be actively pursued for patients with alcohol-related liver disease, 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. *(Consultants)*

25. When a decision is made not to escalate, or to actively withdraw treatment for a patient with alcohol-related liver disease, this decision should be made by a consultant. The decision making process should involve specialists with appropriate training to identify what interventions are likely to be of benefit to the patient. Such decisions should be discussed with the patient and the patient's representative (if appropriate) and documented clearly. Where there is doubt or disagreement about such decisions, the opinion of a second consultant should be sought, as outlined in guidance issued by the General Medical Council[32]. *(Consultants)*

Back to contents

8 – Missed opportunities

A key question asked in this study was whether there were missed opportunities to alter the final outcome. This might help to identify ways to improve care of patients with alcohol-related liver disease. Advisors were asked to identify missed opportunities following admission, or during previous admissions. Clinicians were also asked to state whether they felt that there were missed opportunities during the whole of the final admission and during previous admissions.

Missed opportunities in the 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**	

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**	

It is striking to note that when clinicians reviewed the notes of their own patients, they felt that more than one in ten patients had identifiable opportunities to alter the outcome during the admission (Table 8.1). During the initial part of the admission, the Advisors found 102 cases (28%) where there were opportunities to alter the outcome (Table 8.2). This often related to poor fluid and sepsis management or a failure to escalate the level of care as discussed earlier. In patients with gastrointestinal haemorrhage, delay in endoscopy for control of bleeding was also seen as a missed opportunity to change the outcome in a number of patients.

The Advisors also commented that earlier involvement of a specialist with an interest in liver disease might have prevented many of these missed opportunities from occurring.

Avoidable complications during the final admission might also be counted as an opportunity to alter the final outcome during the final admission. In over a quarter (85/322; 26%) of cases assessed by the Advisors (Table 8.3) there were unexpected complications during the final admission. Of these complications, nearly half (34/79) were believed to be avoidable (Table 8.4). Comments made by the Advisors were related to three particular themes. These were:

- Poor fluid management
- Inadequate intervention to stop bleeding
- Over-sedation

Poor fluid management was again felt to contribute and alongside this there were specific comments that electrolyte abnormalities were not managed effectively in seven cases. This led to cardiac dysrhythmias or cardiac arrest in four of these patients.

Four patients were felt to have bled significantly without adequate intervention to stop bleeding.

Over-sedation was felt to have contributed to the death of four patients, two of whom developed aspiration pneumonia.

Table 8.3 Unexpected complications

Unexpected complications	Number of patients	%
Yes	85	26.4
No	237	73.6
Subtotal	**322**	
Unknown	63	
Total	**385**	

Table 8.4 Avoidable complications (Advisors' view)

Complications avoidable	Number of patients	%
Yes	34	43.0
No	45	57.0
Subtotal	**79**	
Unknown	6	
Total	**85**	

Missed opportunities prior to the final admission

As patients with ARLD often present on multiple occasions, previous presentations to hospital might represent an opportunity to change the outcome of the final admission by stopping the patient from drinking at an earlier stage or by additional treatments offered at an earlier stage.

Both the clinicians and Advisors were asked to assess whether there were missed opportunities to alter the final outcome prior to the final hospital admission. Clinicians had access to the complete case notes and Advisors were provided with extracts from the case notes from the previous two years.

In the group of patients reported by the clinician responsible, three quarters of patients (313/413; 76%) were reported to have had previous hospital admissions (Table 8.5). A similar proportion, (76.9%) were already known to have ARLD before the final admission (data not shown). For patients both with known liver disease and those with previous admissions (Table 8.6), in just over one in five patients a missed opportunity was reported.

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 8.6 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 patient was seen in outpatients with alcohol-related liver disease. The patient was told to stop drinking but was not referred to any support services. The patient presented to the emergency department three months later following a fall and was again noted to be drinking excessively. No referral for support was made at this stage either. Three months later the patient was admitted with decompensation due to sepsis and the patient 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.

The majority of previous hospital contacts that the Advisors assessed were non-elective admissions or presentations to the emergency department (Table 8.7). In the Advisors opinion there was a very high frequency of reported missed opportunities. These occurred in over a third (47/138; 34%) of patients with a documented history of ARLD and in almost half (27/57; 47%) of the patients where there was not (Table 8.8).

Most commonly the missed opportunity was a failure to refer to alcohol support services which was the reason given in the majority of cases. In a small number of cases, the severity of the patient's illness was not identified and outpatient investigation was arranged when admission would have been more appropriate. There were also patients where the Advisors felt that referral to specialist hepatology services would have been appropriate and some, where referral to palliative care could have prevented the final admission as the patient was continuing to deteriorate despite appropriate treatment. These data suggest a significant opportunity to influence the care of these patients. It is striking that the clinicians themselves were able to identify opportunities to influence care on review of the case notes of their own patients. This suggests that there would be opportunities to improve care by review of cases locally and learning from the issues identified.

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

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**

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 all of which have been described in earlier sections.

Clinicians (in 59 cases) and Advisors (in 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

11. All patients presenting to hospital services should be screened for alcohol misuse. An alcohol history indicating the number of units drunk weekly, drinking patterns, recent drinking behaviour, time of last drink, indicators of dependence and risk of withdrawal should be documented. (As p53) *(All Doctors)*

26. 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. *(All Doctors)*

Back to contents

9 – Autopsy and Morbidity & Mortality meetings

Although the Advisors found significant care issues in this study, one of the striking themes is the frequency with which the clinician responsible for the care of the patient was able to identify deficiencies in care or missed opportunities on review of the notes.

Systems of quality assurance and quality improvement including regular review of the work done by individuals and teams are recommended by the General Medical Council[33]. The Royal Colleges[34,35] also recommend regular participation in mortality and morbidity meetings which provide an opportunity to review and learn from cases seen. Only 30% (110/363) of cases were discussed in a departmental morbidity and mortality meeting (Table 9.1). This may reflect the fact that these meetings have traditionally focussed mainly on surgical deaths. Failure to discuss cases at a local level could also be a missed opportunity to reflect on how cases are managed and to change practice in hospitals.

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**	

Where there is uncertainty as to the cause of death an autopsy is indicated. This may also add to the lessons learned when patients die. After the patient died, a very low number of patients (22/434; 5%) underwent an 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**	

Just over a quarter of cases (113/435; 26%) were discussed with the coroner (Table 9.2). All but one of the post mortem examinations made were requested by the coroner.

There were 36 cases included in the study where the clinician responsible stated that death was not anticipated. In these cases only 11 were discussed with the coroner (20 were not and in 5 cases it was not known whether discussion took place). Of these 36 cases, only seven were discussed in a local morbidity and mortality meeting.

Key findings

A low number of cases (110/363; 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

27. All deaths due to alcohol-related liver disease should be reviewed at a local morbidity and mortality, clinical governance meeting to ensure that lessons are learned and to give assurance that high quality care is being provided. *(Consultants)*

28. Where the cause of death is unclear, or death was not anticipated, this should be discussed with the coroner. *(Consultants)*

Back to contents

10 – Overall assessment of care

The Advisors were asked to assign a grade to the overall care received by each patient in the study (Figure 10.1). This grade relates to the care the patient received during their final admission.

Overall care was graded as good in 172/363 (47%) cases. In a large number of cases, 161/363 (44%) the Advisors' judged that there was room for improvement in the clinical and/or organisational care of the patient. There were 30 patients for which it was felt that the overall care was less than satisfactory.

Summary

This was a study of missed opportunities. The care of patients who died with a diagnosis of alcohol-related liver disease (ARLD) was rated as less than good in more than half of the cases reviewed.

The majority of patients had been to hospital at least once in the two years prior to the admission when they died but not enough was done about their harmful drinking at that time. There was a failure to screen adequately for harmful use of alcohol and even when this was identified, patients were not referred for support. When patients were admitted with signs and symptoms of serious liver damage, there were opportunities to improve their care by doing simple things such as optimising fluid management and screening for or treating sepsis. These were often missed.

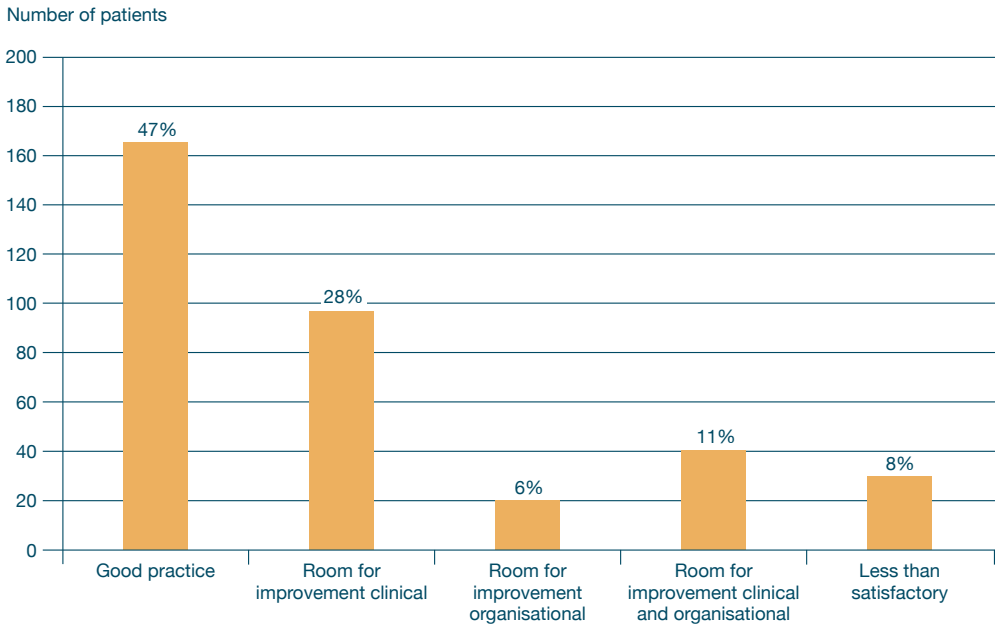

Figure 10.1 overall assessment of care

In a complex group of patients, specialist review would generally have been of benefit to define the best treatment options. This was frequently delayed and sometimes did not happen at all.

When organ failure occurred and an escalation of treatment was indicated, again the additional treatment that was needed was often not given.

Both the Advisors who reviewed the cases and the clinicians who looked after the patients in their own hospitals often agreed that there was room for improvement in care due to these missed opportunities.

These findings should be taken as a further opportunity to improve the care of patients with ARLD. The challenge now is to use this report and its recommendations to organise our services, improve the assessment of patients and to ensure early specialist review and appropriate escalation of care for this complex group of patients.

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Back to contents

Appendices

Appendix 1 - Glossary

Alcohol-related liver disease	When liver disease is caused by excessive drinking.
Ascites	Inside the abdomen there is a membrane called the peritoneum, which has two layers. One layer lines the abdominal wall and the other layer covers the organs inside the abdominal cavity. The peritoneum produces a fluid that acts as a lubricant and allows the abdominal organs to glide smoothly over one another. Sometimes too much of the fluid can build up between the two layers, and this is called ascites.
Ascitic drain	An ascitic drain is a medical procedure where a large volume of the ascites is drained.
Ascitic tap	An ascitic tap is a medical procedure where a needle is used to remove a small volume sample of the ascities.
Cirrhosis	Cirrhosis is scarring of the liver as a result of continuous, long-term liver damage. Scar tissue replaces healthy tissue in the liver and prevents the liver from working properly. The damage caused by cirrhosis is permanent and can't be reversed. Cirrhosis progresses slowly, over many years, gradually causing the liver to stop functioning.
Coagulopathy	Also called clotting disorder and bleeding disorder is a condition in which the blood's ability to clot is impaired.
Decompensation	Liver disease known as cirrhosis commonly occurs in two stages, compensated and decompensated. In first stage of liver damage the liver still has the ability to function normally or compensate for the damage. When extensive damage occurs and the liver can no longer function normally, decompensation occurs.
Endoscopy	Endoscopy means looking inside and typically refers to looking inside the body for medical reasons using an endoscope, an instrument used to examine the interior of a hollow organ or cavity of the body.
Gastroenterology	Gastroenterology refers to the whole of the gut – from the oesophagus or gullet to the colon and to various 'appendages' including the liver, pancreas and gall bladder. Gastroenterologists look after patients with diseases of these organs and are also trained in general medicine.
Gastrointestinal haemorrhage	Also known as gastrointestinal bleeding describes every form of haemorrhage (loss of blood) in the gastrointestinal tract, from the pharynx to the rectum.
Hepatology	This is a branch of medicine that incorporates the study of liver, gallbladder, biliary tree, and pancreas as well as management of their disorders.
Level 1	For patients who are at risk of their condition deteriorating, or those recently relocated from higher levels of care whose needs can be met on an acute ward with additional advice and support from the critical care team.
Level 2	E.g. HDU for patients requiring more detailed observation or intervention including support for a single failing organ system or post operative care, and those stepping down from higher levels of care.
Level 3	E.g. ICU for patients requiring advanced respiratory support alone or basic respiratory support together with support of at least two organs. This level includes all complex patients requiring support for multi-organ failure.

Appendix 1 - Glossary (continued)

Oedema	Also known as dropsy, is the medical term for fluid retention in the body. The build-up of fluid causes affected tissue to become swollen. The swelling can occur in one particular part of the body – for example, as the result of an injury – or it can be more general.
Sepsis	Sepsis is often referred to as either blood poisoning or septicaemia, although it could be argued that both terms are not entirely accurate. Sepsis is not just limited to the blood and can affect the whole body, including the organs. The body's immune system goes into overdrive, setting off a series of reactions that can lead to widespread inflammation (swelling) and blood clotting.
Spontaneous bacterial peritonitis (SBP)	This is the development of peritonitis (infection in the abdominal cavity) despite the absence of an obvious source for the infection. It occurs almost exclusively in people with portal hypertension (increased pressure over the portal vein), usually as a result of cirrhosis of the liver.
Terlipressin	This is used as a vasoactive drug in the management of hypotension (low blood pressure).
Thiamine	This is a water-soluble vitamin of the B complex.
Transjugular liver biopsy (TJLB)	A technique applied to obtain liver specimens.
Transjugular intrahepatic portosystemic shunt procedures (TIPSS)	This is an artificial channel within the liver that establishes communication between the inflow portal vein and the outflow hepatic vein. It is used to treat portal hypertension (which is often due to liver cirrhosis) which frequently leads to intestinal bleeding (oesophageal varices) and the build up of fluid within the abdomen (ascites).
Variceal haemorrhage	Or variceal bleeding refers to bleeding from abnormal vascular connections usually found in the oesophagus or stomach. Varices develop when blood pressure in portal veins becomes greater then 10mmHg so blood gets pushed back through alternative routes in order to reach the heart rather than going through the liver. Bleeding occurs when the pressures become even higher. Variceal bleeding is a life-threatening complication of portal hypertension affecting up to 30% of patients with chronic liver disease such as cirrhosis. Of those patients who bleed, nearly half of patients will die and approximately one third with each subsequent bleed. Nearly all patients who have a variceal bleed will have bleeds again in the future.

Back to contents

Appendix 2 - Liver screen

Hepatology new patient
Alpha-1-antitrypsin
Aspartate aminotransferase (AST)
Autoimmune profile
Clotting screen
FBC
Full lipid profile
Hepatitis Screen (Acute)
Immunoglobulins (IgA IgM IgG)
Liver function test
Random glucose
Ferritin
Thyroid function test
TTG antibodies (coeliac screen)
U&E and creatinine

Appendix 3 - A model alcohol history

The depth of the alcohol history taken will vary with regard to the conditions and the nature of the admission. At a minimum, in a hectic, acute setting the following list should apply:

Taking a Brief Alcohol History

- Consumption in units of alcohol per day/week
- Drinking pattern daily/continuous or episodic/binge drinking
- Drinking behaviour in last week and last 6 months
- When did patient last drink
- Is there a history of withdrawal symptoms e.g. sweating, tremor, nausea/vomiting anxiety, insomnia, seizures, hallucinations, delirium tremens
- Does the patient report a history of morning/relief drinking, change in tolerance, strong compulsion to drink, continued drinking despite problems, priority of drinking over other pursuits/activities?
  All indicative of dependence syndrome

Once a calmer situation is available or for planned admissions a more comprehensive assessment can be undertaken which should include the following:

- Alcohol consumption, dependence and alcohol-related problems
- Co-existing health conditions, including co-existing drug and mental health problems
- Cognitive functioning
- Risk of harm to self and others
- Urgency for treatment
- Motivation and readiness to change
- Socio-demographic data
- Family relationships, social functioning

There are a number of tools available to help with this including:
Short Alcohol Dependence Data Questionnaire [SADD]
Fast Alcohol Screening Test [FAST]
Alcohol Use Disorder Identification Test [AUDIT]

The Alcohol Use Disorder Identification Test [AUDIT] is described in more detail in Appendix 4 as one such example.

Back to contents

Appendix 4 - Audit Alcohol Use Disorders Identification Test (AUDIT)

Questions	Scoring system					Your score
	0	1	2	3	4	
How often do you have a drink containing alcohol?	Never	Monthly or less	2 - 4 times per month	2 - 3 times per week	4+ times per week	
How many units of alcohol do you drink on a typical day when you are drinking?	1 -2	3 - 4	5 - 6	7 - 9	10+	
How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you failed to do what was normally expected from you because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you been unable to remember what happened the night before because you had been drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
Have you or somebody else been injured as a result of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested that you cut down?	No		Yes, but not in the last year		Yes, during the last year	

Scoring:

0 – 7 Lower risk

8 – 15 Increasing risk

16 – 19 Higher risk

20+ Possible dependence

Score

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Back to contents

Appendix 5 - Clinical Institute Withdrawal Assessment Scale for Alcohol, Revised (CIWA-Ar)

Nausea and Vomiting
0 - No nausea or vomiting
1
2
3
4 - Intermittent nausea with dry heaves
5
6
7 - Constant nausea, frequent dry heaves and vomiting

Paroxysmal Sweats
0 - No sweat visible
1 - Barely perceptible sweating, palms moist
2
3
4 - Beads of sweat obvious on forehead
5
6
7 - Drenching sweats

Agitation
0 - Normal activity
1 - Somewhat more than normal activity
2
3
4 - Moderate fidgety and restless
5
6
7 - Paces back and forth during most of the interview or constantly thrashes about

Visual Disturbances
0 - Not present
1 - Very mild photosensitivity
2 - Mild photosensitivity
3 - Moderate photosensitivity
4 - Moderately severe visual hallucinations
5 - Severe visual hallucinations
6 - Extreme severe visual hallucinations
7 - Continuous severe visual hallucinations

Tremor
0 - No tremor
1 - Not visible, but can be felt at finger tips
2
3
4 - Moderate when patient's hands extended
5
6
7 - Severe, even with arms not extended

Tactile Disturbances
0 - None
1 - Very mild paraesthesias
2 - Mild photosensitivity
3 - Moderate paraesthesias
4 - Moderately severe hallucinations
5 - Severe hallucinations
6 - Extremely severe hallucinations
7 - Continuous hallucinations

Headache
0 - Not present
1 - Very mild
2 - Mild
3 - Moderate
4 - Moderately severe
5 - Severe
6 - Very severe
7 - Extremely severe

Auditory Disturbances
0 - Not present
1 - Very mild harshness or ability to frighten
2 - Mild harshness or ability to frighten
3 - Moderate harshness or ability to frighten
4 - Moderately severe hallucinations
5 - Severe hallucinations
6 - Extremely severe hallucinations
7 - Continuous hallucinations

Orientation and Clouding of the Sensorium
0 - Oriented and can do serial additions
1 - Cannot do serial additions
2 - Disoriented for date by no more than 2 calendar days
3 - Disoriented for date by more than 2 calendar days
4 - Disoriented for place/person

Cumulative scoring

Cumulative score	Approach
0 - 8	No medication needed
9 -14	Medication is optional
15 - 20	Definitely needs medication
>20	Increased risk of complications

Back to contents

Appendix 6 - Units of alcohol

What is a unit?

One Unit

1/2 pint of ordinary strength beer, lager or cider

One Unit

1 small glass of wine

One Unit

1 single measure of spirit

One Unit

1 small glass of sherry

One Unit

1 single measure of aperitif

What are the recommended safe limits of alcohol?

- **Men** should drink no more than 21 units of alcohol per week, no more than 4 units in any one day, and have at least two alcohol-free days a week.
- **Women** should drink no more than 14 units of alcohol per week, no more than 3 units in any one day, and have at least two alcohol-free days a week.
- **Pregnant women**. Advice from the Department of Health states that ... “pregnant women or women trying to conceive should not drink alcohol at all. If they do choose to drink, to minimise the risk to the baby, they should not drink more than 1-2 units of alcohol once or twice a week and should not get drunk”.

Where do these recommendations come from?

- The Department of Health recommends that men should not regularly drink more than 3-4 units of alcohol a day and women should not regularly drink more than 2-3 units a day. ‘Regularly’ means drinking every day or most days of the week. And if you do drink more heavily than this on any day, allow 48 alcohol-free hours afterwards to let your body recover.
- The Royal College of Physicians of London advises no more than 21 units per week for men and 14 units per week for women. But also, have 2-3 alcohol-free days a week to allow the liver time to recover after drinking anything but the smallest amount of alcohol.

Back to contents

Appendix 7 - Related organisations

National Strategy bodies

British Society of Gastroenterology
www.bsg.org.uk
Alcohol Health Alliance
www.rcplondon.ac.uk/alcohol
Royal College of Physicians of London
www.rcplondon.ac.uk
British Association for Study of the Liver
www.basl.org.uk
National Institute for Health and Clinical Excellence
www.nice.org.uk
The alcohol education and research council
www.aerc.org.uk

Help with alcohol, drinking and addiction

Alcoholics Anonymous
Telephone 0845 769 7555
Email: helpline@alcoholics-anonymous.org.uk
www.alcoholics-anonymous.org.uk

Al-Anon Family Groups UK & Eire
www.al-anonuk.org.uk
Telephone 020 7403 0888
Northern Ireland 02890 682368

Alcohol Concern
www.alcoholconcern.org.uk

The British Liver Trust
www.britishlivertrust.org.uk/home/support.aspx
Telephone 0800 652 7330

Drink aware
www.drinkaware.co.uk

Wales Drug and Alcohol Helpline
Cyffuriau ac Alcohol Cymru dan247.org.uk
Telephone 0808 808 2234

Northern Ireland: Addiction NI
addictionni.com
Telephone 02890 664434

Drinkline is the national alcohol helpline.
Telephone 0800 917 8282 (weekdays 9am – 8pm, weekends 11am – 4pm).

Addaction
www.addaction.org.uk
Telephone 020 7251 5860

Adfam
www.adfam.org.uk

The National Association for Children of Alcoholics
www.nacoa.org.uk
Telephone 0800 358 3456

Back to contents

Appendix 8 - The role and structure of NCEPOD

The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) is an independent body to which a corporate commitment has been made by the Medical and Surgical Colleges, Associations and Faculties related to its area of activity. Each of these bodies nominates members on to NCEPOD's Steering Group.

The role of NCEPOD is to describe the gap between the care that should be delivered and what actually happens on the ground. In some ways it is a glorious anachronism: an exercise by the professions themselves to criticise the care that they deliver in the cause of improving the quality of the Service.

Steering Group as at 14th June 2012

Dr W Harrop-Griffiths	Association of Anaesthetists of Great Britain and Ireland
Mr F Smith	Association of Surgeons of Great Britain & Ireland
Dr C Mann	College of Emergency Medicine
Vacancy	Faculty of Public Health Medicine
Professor R Mahajan	Royal College of Anaesthetists
Dr A Batchelor	Royal College of Anaesthetists
Vacancy	Royal College of General Practitioners
Mrs J Greaves	Royal College of Nursing
Dr E Morris	Royal College of Obstetricians and Gynaecologists
Mr W Karwatowski	Royal College of Ophthalmologists
Dr I Doughty	Royal College of Paediatrics and Child Health
Dr A McCune	Royal College of Physicians
Dr M Ostermann	Royal College of Physicians
Dr M Cusack	Royal College of Physicians
Dr S McPherson	Royal College of Radiologists
Mr R Lamont	Royal College of Surgeons of England
Mr M Bircher	Royal College of Surgeons of England
Mr K Altman	Faculty of Dental Surgery, Royal College of Surgeons of England
Dr M Osborn	Royal College of Pathologists
Ms S Panizzo	Patient Representative

Observers

Mrs J Mooney	Healthcare Quality in Partnership (HQIP)
Dr R Hunter	Coroners' Society of England and Wales
Mr W Tennant	Royal College of Surgeons of Edinburgh
Dr M Jones	Royal College of Physicians of Edinburgh

NCEPOD is a company, limited by guarantee (Company number: 3019382) and a registered charity (Charity number: 1075588), managed by Trustees.

Trustees

Chairman	Mr Bertie Leigh
Honorary Treasurer	Dr D Justins
	Professor M Britton
	Professor L Regan
	Professor R Endacott
Company Secretary	Dr M Mason

Clinical Co-ordinators

The Steering Group appoint a Lead Clinical Co-ordinator for a defined tenure. In addition there are seven Clinical Co-ordinators who work on each study. All Co-ordinators are engaged in active academic/clinical practice (in the NHS) during their term of office.

Lead Clinical Co-ordinator	Dr G Findlay (Intensive Care)
Clinical Co-ordinators	Dr M Juniper (Medicine)
	Dr K Wilkinson (Anaesthesia)
	Dr A P L Goodwin (Anaesthesia)
	Professor M J Gough (Surgery)

Supporting organisations

The organisations that provided funding to cover the cost of this study:

Heathcare Quality Improvement Partnership on behalf of the Department of Health in England, the Welsh Government and the Department of Health, Social Services and Public Safety in Northern Ireland, States of Guernsey Board of Health, States of Jersey, Health and Social Services and the Isle of Man Health under the Clinical Outcome Review Programme into Medical and Surgical Care.

Aspen Healthcare
Beneden Hospital
BMI Healthcare
BUPA Cromwell
East Kent Medical Services Ltd
Fairfield Independent Hospital
HCA International
Hospital of St John and St Elizabeth
King Edward VII's Hospital Sister Agnes
New Victoria Hospital
Nuffield Health
Ramsay Health Care UK
St Anthony's Hospital
St Joseph's Hospital
The Horder Centre
The London Clinic
Ulster Independent Clinic

Back to contents

Appendix 9 – Hospital participation

Numbers in brackets indicate cases where a reason for non-return was given

Trust Name	Participating sites	Completed organisational questionnaires	Number of cases included	Number of clinician questionnaires returned	Number of sets of case notes returned
Abertawe Bro Morgannwg University Health Board	4	4	10	5	3
Aintree Hospitals NHS Foundation Trust	1	1	3	3	1
Airedale NHS Foundation Trust	1	1	3	3	3
Aneurin Bevan Local Health Board	3	2	7	4	4
Ashford & St Peter's Hospital NHS Trust	2	2	3	3	3
Barking, Havering & Redbridge University Hospitals NHS Trust	2	2	6	6	6
Barnet and Chase Farm Hospitals NHS Trust	2	2	0	0	0
Barnsley Hospital NHS Foundation Trust	1	1	3	2	2
Barts Health NHS Trust	3	3	7	6	4
Basildon & Thurrock University Hospitals NHS FoundationTrust	1	1	2	2	2
Bedford Hospital NHS Trust	1	1	3	3	3
Belfast Health and Social Care Trust	3	3	8	8	3
Betsi Cadwaladr University Local Health Board	3	3	9	6	5
Blackpool Teaching Hospitals NHS Foundation Trust	1	1	3	3	3
Bradford Teaching Hospitals NHS Foundation Trust	1	1	3	3	3
Brighton and Sussex University Hospitals NHS Trust	3	3	5	3 (1)	5
Buckinghamshire Healthcare NHS Trust	2	0	6	6	6
Burton Hospitals NHS Foundation Trust	1	1	3	3	3
Calderdale & Huddersfield NHS Foundation Trust	2	2	6	6	6
Cambridge University Hospitals NHS Foundation Trust	1	1	2	2	2
Cardiff and Vale University Health Board	2	2	6	5	6
Central Manchester University Hospitals NHS Foundation Trust	2	2	6	5	1
Chelsea & Westminster Healthcare NHS Trust	1	0	0	0	0

Numbers in brackets indicate cases where a reason for non-return was given

Trust Name	Participating sites	Completed organisational questionnaires	Number of cases included	Number of clinician questionnaires returned	Number of sets of case notes returned
Chesterfield Royal Hospital NHS Foundation Trust	1	1	3	3	3
City Hospitals Sunderland NHS Foundation Trust	1	1	3	2	2
Colchester Hospital University NHS Foundation Trust	1	1	3	2	2
Countess of Chester Hospital NHS Foundation Trust	1	1	3	3	3
County Durham and Darlington NHS Foundation Trust	2	2	6	6	6
Croydon Health Services NHS Trust	1	1	3	3	3
Cwm Taf Local Health Board	2	2	6	6	6
Dartford & Gravesham NHS Trust	1	1	3	3	2
Derby Hospitals NHS Foundation Trust	1	1	3	2	3
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	2	2	5	4	4
Dorset County Hospital NHS Foundation Trust	1	1	3	3	3
Dorset Healthcare University NHS Foundation Trust	1	1	1	0	0
Ealing Hospital NHS Trust	1	1	3	1	1
East & North Hertfordshire NHS Trust	2	2	3	3	3
East Cheshire NHS Trust	1	1	0	0	0
East Kent Hospitals University NHS Foundation Trust	3	0	9	5	3
East Lancashire Hospitals NHS Trust	1	1	3	2	1
East Sussex Healthcare NHS Trust	2	0	6	5	3
Epsom and St Helier University Hospitals NHS Trust	2	2	4	2	1 (1)
Frimley Park Hospitals NHS Trust	1	1	3	3	3
Gateshead Health NHS Foundation Trust	1	1	3	3	3
George Eliot Hospital NHS Trust	1	1	3	3	3
Gloucestershire Hospitals NHS Foundation Trust	2	2	6	4	2
Great Western Hospitals NHS Foundation Trust	1	1	3	3	3

Appendix 9 – Hospital participation (continued)

Numbers in brackets indicate cases where a reason for non-return was given

Trust Name	Participating sites	Completed organisational questionnaires	Number of cases included	Number of clinician questionnaires returned	Number of sets of case notes returned
Guy's & St Thomas' NHS Foundation Trust	1	1	3	1 (1)	2
Hampshire Hospitals NHS Foundation Trust	2	2	5	4	2
Harrogate and District NHS Foundation Trust	1	1	3	2	2
Heart of England NHS Foundation Trust	3	3	9	9	9
Heatherwood & Wexham Park Hospitals NHS Foundation Trust	1	1	3	3	3
Hillingdon Hospitals NHS Foundation Trust (The)	1	1	3	3	3
Hinchingbrooke Health Care NHS Trust	1	1	3	3	2
Homerton University Hospital NHS Foundation Trust	1	1	3	3	3
Hull and East Yorkshire Hospitals NHS Trust	2	2	5	5	5
Hywel Dda Local Health Board	4	4	8	5	5
Imperial College Healthcare NHS Trust	3	3	7	7	7
Ipswich Hospital NHS Trust	1	1	3	3	3
Isle of Wight NHS Primary Care Trust	1	0	3	2 (1)	3
James Paget Healthcare NHS Trust	1	1	3	3	3
Kettering General Hospital NHS Foundation Trust	1	1	2	2	2
King's College Hospital NHS Foundation Trust	1	1	2	2	2
Kingston Hospital NHS Trust	1	1	3	3	3
Lancashire Teaching Hospitals NHS Foundation Trust	2	1	6	4	3
Leeds Teaching Hospitals NHS Trust (The)	2	2	6	6	6
Lewisham Hospital NHS Trust	1	1	3	3	3
Luton and Dunstable Hospital NHS Foundation Trust	1	1	3	1	1
Maidstone and Tunbridge Wells NHS Trust	2	2	4	4	4
Medway NHS Foundation Trust	1	1	3	3	3

Numbers in brackets indicate cases where a reason for non-return was given

Trust Name	Participating sites	Completed organisational questionnaires	Number of cases included	Number of clinician questionnaires returned	Number of sets of case notes returned
Mid Cheshire Hospitals NHS Foundation Trust	1	1	3	2	3
Mid Essex Hospitals NHS Trust	1	0	0	0	0
Mid Staffordshire NHS Foundation Trust	2	1	4	2	1
Mid Yorkshire Hospitals NHS Trust	2	2	8	5	8
Milton Keynes Hospital NHS Foundation Trust	1	1	3	3	3
Newcastle upon Tyne Hospitals NHS Foundation Trust	2	2	6	6	6
Norfolk & Norwich University Hospital NHS Trust	1	1	3	3	3
North Bristol NHS Trust	2	2	5	5	5
North Cumbria University Hospitals NHS Trust	2	2	6	3	3
North Middlesex University Hospital NHS Trust	1	1	2	2	2
North Tees and Hartlepool NHS Foundation Trust	2	2	6	5	5
North West London Hospitals NHS Trust	2	2	6	6	6
Northampton General Hospital NHS Trust	1	1	2	2	2
Northern Devon Healthcare NHS Trust	2	2	3	3	3
Northern Health & Social CareTrust	2	2	6	3	1
Northern Lincolnshire & Goole Hospitals NHS Foundation Trust	2	2	6	2	0
Northumbria Healthcare NHS Foundation Trust	3	3	7	5	4
Nottingham University Hospitals NHS Trust	2	2	5	5	5
Oxford University Hospitals NHS Trust	3	3	6	6	5
Pennine Acute Hospitals NHS Trust (The)	4	4	10	10	7
Peterborough & Stamford Hospitals NHS Foundation Trust	1	1	2	2	2
Plymouth Hospitals NHS Trust	1	1	3	2	0
Poole Hospital NHS Foundation Trust	1	1	3	3	2

Appendix 9 – Hospital participation (continued)

Numbers in brackets indicate cases where a reason for non-return was given

Trust Name	Participating sites	Completed organisational questionnaires	Number of cases included	Number of clinician questionnaires returned	Number of sets of case notes returned
Portsmouth Hospitals NHS Trust	1	1	3	3	1
Princess Alexandra Hospital NHS Trust	1	1	2	2	2
Queen Victoria Hospital NHS Foundation Trust	1	1	0	0	0
Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust	1	1	1	1	0
Royal Berkshire NHS Foundation Trust	1	1	3	3	3
Royal Bolton Hospital NHS Foundation Trust	1	1	3	3	3
Royal Bournemouth and Christchurch Hospitals NHS Trust	1	1	3	3	3
Royal Cornwall Hospitals NHS Trust	3	3	4	4	4
Royal Devon and Exeter NHS Foundation Trust	1	1	3	3	3
Royal Free London NHS Foundation Trust	1	1	3	3	3
Royal Liverpool & Broadgreen University Hospitals NHS Trust	1	1	3	3	3
Royal Surrey County Hospital NHS Trust	1	1	3	3	3
Royal United Hospital Bath NHS Trust	1	1	3	3	3
Royal Wolverhampton Hospitals NHS Trust (The)	1	1	3	2	1
Salford Royal Hospitals NHS Foundation Trust	1	1	3	3	3
Salisbury NHS FoundationTrust	1	1	3	3	3
Sandwell and West Birmingham Hospitals NHS Trust	2	2	6	6	6
Sheffield Teaching Hospitals NHS Foundation Trust	2	0	6	6	5
Sherwood Forest Hospitals NHS Foundation Trust	1	1	3	3	3
Shrewsbury and Telford Hospitals NHS Trust	2	0	6	6	6
South Devon Healthcare NHS Foundation Trust	1	1	0	0	0

Numbers in brackets indicate cases where a reason for non-return was given

Trust Name	Participating sites	Completed organisational questionnaires	Number of cases included	Number of clinician questionnaires returned	Number of sets of case notes returned
South Eastern Health & Social Care Trust	3	3	4	3	3
South London Healthcare NHS Trust	2	2	6	5	6
South Tees Hospitals NHS Foundation Trust	2	2	5	4 (1)	5
South Tyneside NHS Foundation Trust	1	1	3	2	3
South Warwickshire NHS Foundation Trust	1	1	3	3	3
Southampton University Hospitals NHS Trust	1	1	3	2	2
Southend University Hospital NHS Foundation Trust	1	1	3	1	1
Southern Health & Social Care Trust	2	2	0	0	0
Southport and Ormskirk Hospitals NHS Trust	1	1	3	3	3
St George's Healthcare NHS Trust	1	1	3	2	3
St Helens and Knowsley Teaching Hospitals NHS Trust	1	1	3	3	3
States of Jersey Health & Social Services	1	1	3	1	0
Stockport NHS Foundation Trust	1	1	3	3	3
Surrey & Sussex Healthcare NHS Trust	1	0	3	2	2
Tameside Hospital NHS Foundation Trust	1	1	0	0	0
Taunton & Somerset NHS Foundation Trust	1	1	2	2	2
The Dudley Group NHS Foundation Trust	1	1	3	3	3
The Queen Elizabeth Hospital King's Lynn NHS Trust	1	1	3	3	3
The Rotherham NHS Foundation Trust	1	1	3	3	3
United Lincolnshire Hospitals NHS Trust	3	3	5	5	5
Univ. Hospital of South Manchester NHS Foundation Trust	1	1	3	3	3
University College London Hospitals NHS Foundation Trust	1	1	3	3	3

Appendix 9 – Hospital participation (continued)

Numbers in brackets indicate cases where a reason for non-return was given

Trust Name	Participating sites	Completed organisational questionnaires	Number of cases included	Number of clinician questionnaires returned	Number of sets of case notes returned
University Hospital of North Staffordshire NHS Trust	1	1	2	2	2
University Hospitals Birmingham NHS Foundation Trust	1	1	3	3	3
University Hospitals Coventry and Warwickshire NHS Trust	1	1	3	3	3
University Hospitals of Bristol NHS Foundation Trust	1	1	3	3	3
University Hospitals of Leicester NHS Trust	3	3	6	4	3
University Hospitals of Morecambe Bay NHS Trust	2	2	6	5	6
Walsall Healthcare NHS Trust	1	1	2	1	0
Warrington & Halton Hospitals NHS Foundation Trust	1	1	3	3	3
West Hertfordshire Hospitals NHS Trust	1	1	1	1	1
West Middlesex University Hospital NHS Trust	1	1	3	2	1
West Suffolk NHS Foundation Trust	1	1	3	3	3
Western Health & Social Care Trust	1	1	0	0	0
Western Sussex Hospitals NHS Trust	3	3	6	4	4
Weston Area Health Trust	1	1	3	3	3
Whittington Health	1	1	1	1	1
Wirral University Teaching Hospital NHS Foundation Trust	1	0	3	3	3
Worcestershire Acute Hospitals NHS Trust	2	2	6	2 (1)	2 (1)
Wrightington, Wigan & Leigh NHS Foundation Trust	1	1	3	3	3
Wye Valley NHS Trust	1	1	3	3	3
Yeovil District Hospital NHS Foundation Trust	1	1	3	2 (1)	3
York Teaching Hospitals NHS Foundation Trust	2	2	6	6	5

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