RESEARCH

Maintaining clinical governance when giving telephone advice

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ABSTRACT

Objective Delivering excellent healthcare depends on accurate communication between professionals who may be in different locations. Frequently, the first point of contact with the liver unit at King's College Hospital (KCH) is through a telephone call to a specialist registrar or liver fellow, for whom no case notes are available in which to record information. The aim of this study was to improve the clinical governance of telephone referrals and to generate contemporaneous records that could be easily retrieved and audited.

Design An electronic database for telephone referrals and advice was designed and made securely available to registrars in our unit.

Setting Service development in a tertiary liver centre that receives referrals from across the UK and Europe.

Main outcome measures Demographic and clinical data were recorded prospectively and analysed retrospectively.

Results Data from 350 calls were entered during 5 months. The information included the nature and origin of the call (200 from 75 different institutions), disease burden and severity of disease among the patients discussed with KCH, and outcome of the call. The majority of cases were discussed with consultants or arrangements were made for formal review at KCH.

Conclusions A telephone referrals and advice database provides clinical governance, serves as a quality indicator and forms a contemporaneous record at the referral centre. Activity data and knowledge of disease burden help to tailor services to the needs of referrers and commissioners. We recommend implementation of similar models in other centres that give extramural verbal advice.

INTRODUCTION

Good patient care depends upon effective interprofessional communication¹ which

can often take the form of a telephone call. Given that the professional who gives telephone advice is in a different area (and often in a different geographical location), the task of documentation of the patient's records falls to the receiving professional. Discrepancies between verbal advice and its documentation in patient records are very likely to occur.² Telephone advice presents numerous clinical governance challenges with potential risks to patients and professionals. However, this area of interprofessional communication receives little attention at most medical schools and junior doctor training programmes.³ The Academy of Medical Royal Colleges' two-part Guide to Records Standards^{4 5} does not contain any guidance on how to document telephone advice.

In the absence of a permanent written record, it can be difficult for the advice that has been given to be reviewed. Where continued involvement in a case is required, current paper-based systems make it difficult for effective handover to colleagues. The majority of calls are taken by doctors in training grades and a large number of educational opportunities arising from such calls are frequently missed. The time spent contributing to the care of patients in other institutions can be considerable, but often there is no means of accounting for this activity. Finally, in the absence of a searchable format for telephone advice records, it is impossible to evaluate—and therefore improve—the service given to colleagues at different sites.

The care of the patient with severe liver disease often involves input from specialists at other centres.⁶ King's College Hospital (KCH) is a major hepatology centre that receives requests for

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advice from multiple sources. The first point of contact with the unit is typically through a telephone call to a specialist registrar, for whom no case notes are available in which to record information. Until recently, referrals were recorded on paper and filed in a secure office in the department. We introduced and piloted an electronic database system to record a standardised dataset from each call in order to improve clinical governance and to generate contemporaneous records that could be easily retrieved and audited. We present our experience.

METHODS

A database referral recording tool was designed in Microsoft Access by modifying the 'Desktop Call Tracker' template. The database was available on two computers in the hepatology ward office and accessible on the login of individual rather than generic login accounts. The file was password-protected and the system was approved by the IT department and by KCH Foundation Trust's Caldicott Guardian.

Instructions as to which calls were to be recorded in the database were kept to a minimum. Registrars were encouraged to record all referrals and enquiries. The consultant body was encouraged to integrate the tool into aspects of their clinical practice, such as ward rounds and answering questions about cases from junior doctors. Data were entered 'in real time' over 5 months. Calls taken at the liver intensive therapy unit (LITU) by consultants, clinical nurse specialists and senior house officers/junior fellows were excluded.

Data that were recorded related to the call itself (date of call, grade of caller, KCH consultant, person taking call, the nature of the call and the clinical service to which the call was made), patient demographics (patient identifiers, referring hospital, referring consultant, contact details) and clinical data (priority, whether the patient had signs of chronic liver diseases, had a diagnosis of cirrhosis, encephalopathy, or ascites and laboratory values for bilirubin, INR, albumin, creatine, sodium, lactate, white cell count, haemoglobin, platelet count, alanine aminotransferase (ALT), aspartate transaminase (AST), alkaline phosphatase and γ -glutamyltransferase (GGT), and the outcome of the call (patient disposition)). In addition, there was a large section for free text to record any details of the case.

RESULTS

A total of 350 calls to the liver registrars at KCH were recorded in the database (figure 1). The source of the call was recorded in 345 cases. A large proportion ($n=125$, 36%) were from KCH and a further 20 were from general practitioners or patients themselves. The remaining 200 calls came from 75 different institutions across the UK. Of 306 calls made from a hospital and where the grade of the caller was recorded, 47% ($n=143$) were made by a registrar, 38% ($n=115$) by a senior house officer, 11% ($n=35$) by a house officer, 4% ($n=11$) by a consultant and <1% ($n=2$) by a nurse (figure 2A). In all, 24 of the 35 calls made by a house officer were internal calls from KCH.

The screenshot shows a Microsoft Access form titled 'Call Details' with a date of 02 April 2013. The form is organized into several sections:

- Patient Information:** Patient Surname, Patient Forename, Patient DOB, ID (New).
- Referral Information:** Referring Hospital, Referring Consultant, Contact Details, Type of Call (Referral), Service, Cirrhosis, Encephalopathy, Ascites, Lactate, WCC, Hb, Platelets, Alk Phos, GGT, ALT, AST, Signs of CLD.
- Call Details:** Grade of Caller, KCH Consultant, Person taking call, Call Date (02-Apr-13), Priority, Disposition, Call Closed (No), Discussed with Consultant (checkbox).
- Clinical Data:** Bilirubin, INR, Albumin, Creatinine, Sodium.
- Call Notes:** A large text area for free text notes.

The bottom of the form shows a status bar with 'Record: 14', '1 of 1', and a search bar.

Figure 1 Screenshot of database template. Image taken from Microsoft Access.

Figure 2 Calls to liver unit. (A) Grade of professional making the call to the liver unit. (B) Priority of call determined by registrar receiving the call. (C) Flow of patients designated 'Emergency' priority showing origin of calls (King's College Hospital (KCH)) and outcome of call (liver intensive therapy unit (LITU) at KCH). Figures in brackets represent the number of patients.

At KCH, patients requiring Level 3 care (and all cases of acute liver failure (ALF)) should be directed to the LITU. The majority of calls received by the

ward team were to the general hepatology service (82%; n=286) or the transplant service (15%, n=52). The receiving registrar was asked to determine the

Table 1 Number of cases in which blood test values were recorded

Blood test	Number recorded
Bilirubin	247
Transaminases	230
GGT	109
Albumin	169
INR	208
Haemoglobin	159
White cell count	112
Platelet count	156
Sodium	146
Creatine	186
Lactate	30

GGT, [γ]-glutamyltransferase

priority of each call. This was recorded in 331 calls, of which 41% were 'Routine' (n=137), 44% were 'Urgent' (n=144) and 15% were 'Emergency' (n=50) (figure 2B). Of the 50 'Emergency' calls, 35 were from 24 other hospitals. Of these 35, 12 were transferred to KCH (five directly to LITU), 11 were discussed with LITU and the remainder were managed at their referring hospital with continuing input from the teams at KCH. Of the 15 from KCH, the majority (n=13) were managed on the referring ward and two were transferred to LITU (figure 2C).

Of the 200 calls made from outside KCH, 63 resulted in formal follow-up at KCH, transfer as an inpatient (n=32), review as an out-patient (n=27) or discussion at a multidisciplinary team (MDT) meeting (n=4). In the majority of all cases, there was a recorded discussion with a consultant (n=236, 67%). Of the 114 where no discussion with a consultant was documented, 41 were internal calls and 11 were referred to LITU. Arrangement was made for review in outpatients (n=13) or an MDT (n=3). Six were transferred to KCH, and in 23 cases there was continuing input by telephone advice from one of the teams at KCH. Only 17 extramural cases (8.5%) were 'closed' without documentation of a discussion with a consultant.

Fields were available for 13 different blood test values to be recorded. In 30 cases, additional blood test values that had not recorded in the designated

(searchable) fields were included in the free text section of the record. The blood test fields included lactate and both ALT and AST. Knowledge of the serum lactate is not necessarily relevant to all cases and, in the majority of hospitals, either ALT or AST (but not both) is included in a standard 'liver function test' biochemistry panel. Therefore, we considered the blood result record to be 'complete' if all values apart from lactate and either ALT or AST were recorded. A complete dataset was recorded in 43 cases, and the total number of cases in which each blood test was recorded is shown in table 1.

Overall, 121 patients referred to the general hepatology service had been diagnosed with cirrhosis (42%). Sufficient data were recorded to calculate the Child–Pugh (C-P) score in 64 patients (53%); mean C-P score 10.1 (Class C, table 2). In the majority of cases, the aetiology was alcohol alone (n=34; 28%), viral hepatitis (n=34; 28%) or both (n=6; 5%). The distribution of aetiologies is shown in figure 3.

In the 165 non-cirrhotic patients referred to the general hepatology service, the distribution of aetiologies was much broader (figure 4). The most common reason for calling was to discuss abnormal liver function tests (including jaundice). This accounted for 40 calls, of which 14 (35%) were from haematologists. Viral hepatitis (n=20; 12%), alcohol (n=20; 12%) and drug-induced liver injury (including 14 with paracetamol overdose (POD); n=22; 13%) were the next most frequent aetiologies in the non-cirrhotic group.

Five patients with ALF of unknown aetiology and 14 patients with POD were discussed with general hepatology. Three of the patients with ALF and nine patients with POD were transferred to KCH and in the remainder regular contact was maintained with the referring team either by the hepatology registrar or by the LITU. One patient had been admitted to the LITU with POD and was referred to general hepatology with a gastrointestinal bleed.

Eleven patients had hepatocellular carcinoma, one of whom was a non-cirrhotic patient with hepatitis C virus (HCV) infection. The remaining 10 patients had cirrhosis due to viral hepatitis (hepatitis B virus n=2; HCV n=2), alcohol (n=3), non-alcoholic fatty liver disease (n=1), cryptogenic cirrhosis (n=1) and in one patient the aetiology was not recorded.

A total of 52 calls about transplant recipients were recorded. Of these, the vast majority (n=43; 83%) were from a different hospital. Referrals were received from 27 different hospitals. One call was from a patient and four from general practitioners. The four referrals from KCH were regarding patients who had been admitted with non-liver problems under another specialist team requesting a review of the patient. The indications for first liver transplantation for these 52 patients are shown in figure 5. The mean time from transplantation for these patients was 6.7 years (range 3 months–20 years). Of the 47 extramural transplant

Table 2 Child–Pugh score in patients with cirrhosis

Child–Pugh Score	HE	Ascites	Bilirubin	INR	Albumin
1	40	12	21	42	5
2	17	9	8	13	28
3	7	43	35	9	31

The number of patients who received each score in each component of the Child–Pugh score is shown. Overall mean score 10.2 (SEM=0.26).

HE, hepatic encephalopathy. INR, international normalised ratio

Figure 3 Aetiology of cirrhosis in patients referred to general hepatology service. Light grey bar shows an additional six patients in whom both alcohol and hepatitis B virus (HBV) ($n=1$) or hepatitis C virus (HCV) ($n=4$) or HBV-HCV co-infection ($n=1$) is the cause of liver disease. PSC, primary sclerosing cholangitis; PBC, primary biliary cirrhosis; NRH, nodular regenerative hyperplasia; NAFLD, non-alcoholic fatty liver disease; CVO, chronic venous obstruction; CHF, congenital hepatic fibrosis; CF, cystic fibrosis; AIH, autoimmune hepatitis.

calls, 15 were seen in person at KCH: nine in outpatients, four were admitted to KCH and two were transferred to the LITU.

DISCUSSION

Patients suffering from complex disease processes benefit from the input of specialists at different geographical locations. We set out to show that it is both beneficial and feasible to record this advice in a searchable format for a variety of benefits to the patient, the referring physicians and to the institution giving this advice. We therefore introduced a new clinical documentation tool to support the work of the hepatologists at KCH.

Calls to the Liver Registrar at KCH are mostly made by trainees and pertain to a general hepatology patient of 'urgent' priority. This priority is reflected in the high proportion of patients who are cirrhotic (45%) in whom the majority had significantly advanced disease (mean C-P score 10.1). It is not surprising, therefore, that even in a centre where the majority of registrars are senior (ST5 or above), only 7.5% of cases were 'closed' without documented discussion with a consultant. The high rate of consultant involvement is a surrogate marker for the training and supervision offered to the trainees at KCH but we

have not formally assessed the registrars' experience of this training opportunity.⁷

KCH is a tertiary referral centre for a number of specialties including haematology and the large number of internal referrals from this unit with abnormal LFTs probably also reflects its complex case load. Although a third of calls come from KCH, a similar proportion of the 'Emergency' calls from KCH (2/15; 13%) to those from other hospitals (5/35; 14%) were transferred directly to LITU.

In this introductory phase of implementing the database, use was largely restricted to the day registrars because of limited availability of the application (two terminals in one office). For the same reason we did not feel it would be appropriate to mandate database use, and registrars were allowed to use their discretion as to what constituted a 'call'. However, the inclusion of 350 records strongly suggests that registrars found the system beneficial and easy to use. This was confirmed in informal discussions although we did not formally collect anonymous feedback from users.

The limited availability of the database was the key frustration with the system that was raised by the registrars and was seen as a barrier to universal use and implementation. It is highly likely, therefore, that

Non-Cirrhotic Referrals to General Hepatology by Aetiology

Figure 4 Aetiology of liver disease in non-cirrhotic patients referred to general hepatology service. Light grey bar shows an additional 14 patients referred with abnormal liver function tests (LFTs) from the haematology. VOD, veno-occlusive disease; PVT, portal venous thrombosis; PSC, primary sclerosing cholangitis; POD, paracetamol overdose; PHT, portal hypertension; PBC, primary biliary cirrhosis; NRH, nodular regenerative hyperplasia; NAFLD, non-alcoholic fatty liver disease; MDR3, MDR3 mutation; DILI, drug-induced liver injury; CHF, congenital hepatic fibrosis; ALF, acute liver failure; AIH, autoimmune hepatitis.

Transplant Referrals by Aetiology

Figure 5 Aetiology of disease in patients referred to transplant service. Light grey bar shows an additional two patients in whom both alcohol and hepatitis B virus (n=1) or hepatitis C virus (n=1) is the cause of liver disease. PSC, primary sclerosing cholangitis; PBC, primary biliary cirrhosis; ALF, acute liver failure; AIH, autoimmune hepatitis.

350 calls are an underestimate of the referral-based workload at KCH. This is exemplified by the six cases in which a patient was transferred into KCH but no discussion with a consultant was documented. Hospital policy is such that a patient cannot be transferred without discussion with and approval by a consultant, indicating that registrars did not always return to the database to update their records in this regard. We are currently investigating Caldicott-compliant methods to facilitate data capture including tablet-based systems that can be carried by the on-call registrars.

The primary function of this database is to assist the record keeping of busy clinical registrars (albeit the potential for research and audit is significant). Therefore, we did not include any 'mandatory' fields within our database. Despite this, blood test data were recorded in over 80% of cases suggesting that these blood results were deemed important by the clinician taking the call. This demonstrates that even in the absence of proscriptive rules or instruction, registrars will incorporate the database into their decision-making algorithms.

The clear and effective communication upon which telephone advice depends is the basis for the clinical governance issues that subsequently arise. The professionals usually do not know each other and are unaware of each other's expertise, working practices or local environment (including distractions and other pressures on time and attention). Incomplete information about the case may be given and omissions of clinical or laboratory findings may be mistaken for normality. Therefore, where complex advice is given following this exchange of information, it may be hurriedly or incompletely communicated, understood or implemented. During the current pilot study, database-derived information was used to resolve queries raised about the advice given by KCH team, although we did not record this formally.

Advice given over the telephone is an essential component of modern healthcare, yet documentation of this advice has received scant attention to date and there is no formal guidance on the subject. Comprehensive review of the literature has not revealed any publications regarding documenting interprofessional advice, especially by telephone albeit the importance of teaching effective interprofessional communication⁸ and the benefits of telephone consultation between professionals and patients have been studied.^{9–11} The General Medical Council has published guidance on delegation and referral¹² but neither this nor the guidance on documentation in 'Good Medical Practice'¹³ specifically mention discussions between doctors. While the guidance on communicating effectively within and between teams mentions 'colleagues in other services with which you work',¹⁴ there is no mention of how to document this.

We have developed an electronic tool to facilitate clinical governance of telephone advice and we recommend the implementation of similar databases in other units that give verbal advice to colleagues outside their own institution. In the new era of commissioning in the NHS, should the ability to document and retrieve records of verbal advice be considered an indicator of quality and innovation?

What is already known on this subject

- ▶ Advice given over the telephone is an essential component of modern healthcare.
- ▶ Documentation of this advice has received scant attention to date.
- ▶ There is no formal guidance on the subject.

What this study adds

- ▶ Prospectively recorded clinical and demographic data from a telephone referrals and advice database provides clinical governance.
- ▶ Accurately recorded activity and clinical data can serve as a quality indicator be used to tailor services.
- ▶ An electronic database forms a contemporaneous record at the referral centre.
- ▶ How it might impact on clinical practice in the foreseeable future.
- ▶ We recommend implementation of a telephone referrals and advice database in other centres that give extramural verbal advice.

Contributors All authors were involved in conceiving the database. WA designed and implemented it with significant intellectual input from KA, AS, VA and MH. WA performed the primary data analysis and all authors have been involved in data presentation and in producing the manuscript.

Competing interests None.

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