

## **Embedded Librarian in an Emergency Department: A service evaluation**

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### **Abstract**

Clinical librarians, knowledge specialists and informationists have been working closely with medical faculties and hospital departments for some years with the aim of mobilizing evidenced-based medical research in the healthcare workplace. However, evidence of the effectiveness of these interventions is limited. This paper describes the initial findings of an embedded clinical librarian project in an emergency department (ED) of a rural NHS hospital. During the trial period 54 information requests were made by ED staff to the librarian and the librarian spent a total of 2600 minutes answering queries representing a considerable time and cost saving to ED department staff. The librarian was able to effectively mobilise evidence at the point-of-need, supporting evidence-based decision making, Continuing Professional Development (CPD) and staff learning. Staff satisfaction with the embedded librarian service was consistently high.

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## Introduction

The Health and Social Care Act 2012 states that the Secretary of State for Health has a duty to ensure “the use in the health service of evidence obtained from research”. In addition, National Health Service (NHS) Library and Knowledge Services (LKS) Policy has the following objectives: to mobilize evidence in order to underpin decision-making in healthcare, to enable easy access for NHS staff to LKS services and the requirement that LKS be focussed on the knowledge needs of NHS staff (Bryant, 2016). Access to the latest evidence to inform medical decision-making was also a key driver of the recent CILIP and HEE joint campaign “A Million Decisions” (Chartered Institute of Library and Information Professionals [CILIP] & Health Education England [HEE], 2016)

“Clinical” and/or “outreach” librarians have been employed for some years to work closely with medical departments outside of the library setting with some librarians being ‘embedded’ in teams, for example multidisciplinary teams (MDT), cancer teams or the intensive care unit (ICU), on hand to undertake searches to support diagnosis and treatment at the point-of-care (Brettle, Maden & Payne, 2016; Coats, Sutton, Vorwerk, & Cooke, 2008; Esparza, Shi, McLarty, Comegys, & Banks, 2013; Keating et al, 2004; Lappa, 2005; McGowan et al., 2009; Shokraneh, 2017).

While the advantages of having immediate access to clinical librarian services may seem obvious, a review of the literature only provided limited evidence in demonstrating their impact. There is very little evidence conclusively demonstrating a positive benefit of embedded clinical librarian services, perhaps due in part to the acknowledged difficulties in devising accurate

measures of improvement to patient care or outcomes when a clinical librarian is part of the healthcare team (Brettell, Maden & Payne, 2016; Esparza, Shi, McLarty, Comegys, & Banks, 2013).

A lack of consistency in the terms used to describe ‘knowledge mobilization’ is a source of further confusion, both in terms of finding relevant evidence in the literature and in communicating with potential stakeholders (Ward, 2016).

### **Aims**

The aim of this service evaluation was to understand the effects of placing a clinical outreach librarian in the emergency department (ED). The data from this evaluation will be used to inform further research on the impact of embedded librarian services on staff working practices. Given the recognised importance of mobilizing evidence in healthcare decision-making, it is of particular relevance to investigate whether ED staff having immediate access to library services resulted in any measurable improvements to the care of patients, cost or time savings.

### **Methodology**

The librarian attended ED in order to undertake searches of the evidence in support of the diagnosis and/or treatment of patients at the point-of-need, and to inform staff practice. These searches took place either in the department or in the library if the searches were more in-depth. The librarian observed how the service developed over the course of the trial and recording staff information needs.

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While stationed in ED the librarian gathered qualitative and quantitative data by recording the type and number of information requests and using a feedback form to gauge staff satisfaction. Some selected case studies are to be followed up by individual staff interview.

The librarian was also on hand to answer any other library, knowledge or information queries staff had, in order to support their learning and continuing professional development (CPD).

## **Results**

During the trial period, 54 information requests were made by ED staff to the librarian. These were categorised according to two sets of criteria: the 'type of query' and the 'type of information' requested. The type of query considered the service from the librarians' point of view and attempted to categorise requests according to the way in which the question was posed or the process the librarian went through in order to answer the question. (Table 1) The type of information looked at the same requests from the user's point of view and categorised requests according to the information the user needed. (Table 2)

<b>Type of Query</b>	<b>Definition</b>	<b>Number of requests</b>
Point of need question/ short query	Information requests requiring immediate response and/or taking less than 20 minutes	8
Literature search	Information requests requiring searching of medical literature/databases	18
Help with IT/wifi/apps	Assistance accessing data on electronic devices	10
Supplying resources	Sourcing books, articles, guidelines, infographics etc.	11
Other information	Requests not covered above or outside librarian's area of expertise	7

*Table 1: Information requests grouped by the type of query as dealt with by the librarian.*

<b>Type of information</b>	<b>Definition</b>	<b>Number of requests</b>
Research/Evidence based medicine	Evidence-base for medical treatments and latest medical research	16
Learning/CPD	Resources for training or professional interest	12
Clinical guidelines/ treatment protocols	National and International Guidance (NICE etc)	9
IT access	Passwords and instructions to access online content/ electronic resources available	10
Case studies	In medical literature and other trusts publications	3
Stats/patient data	Anonymized data from Public Health Profiles and Office for National Statistics, Yellow Card data. (No patient records were accessed.)	4

*Table 2: Information requests grouped by the type of information requested by Emergency Department staff members*

A third of the information requests were for literature searches. IT help and supplying resources each represented one-fifth of requests, and point-of-need or short answer questions and miscellaneous queries each accounted for about one sixth of the total requests made. (Figure 1)

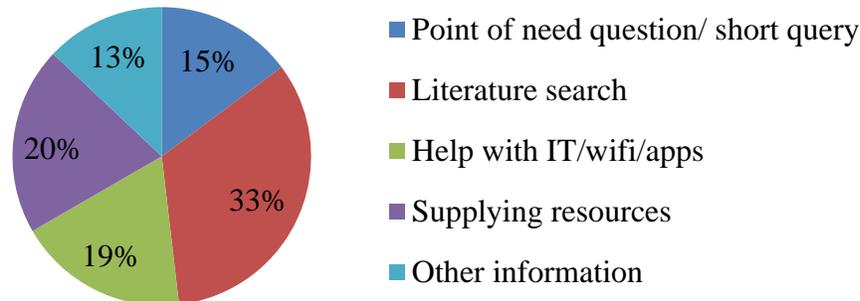


Figure 1: Percentage of all information requests made to the librarian for each type of query.

Current medical research and the evidence base for diagnosis and treatment accounted for 30% of the requests. Information to support learning and CPD accounted for 22% and guidelines 17%. (Figure 2)

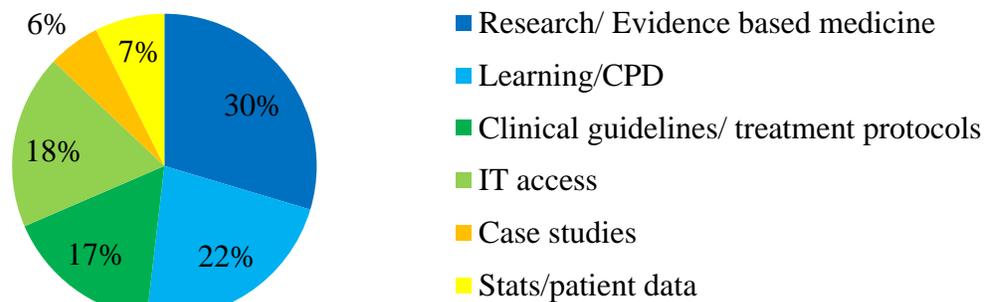


Figure 2 Percentage of all requests made by staff (of all job roles) for each type of information.

*Time taken*

The majority of the time taken to fulfill requests was taken up in literature searching; literature searches were completed in 100 minutes (on average) while point-of-need questions were generally completed in under 20 minutes and IT help in under 9 minutes. (Figures 3 & 4)

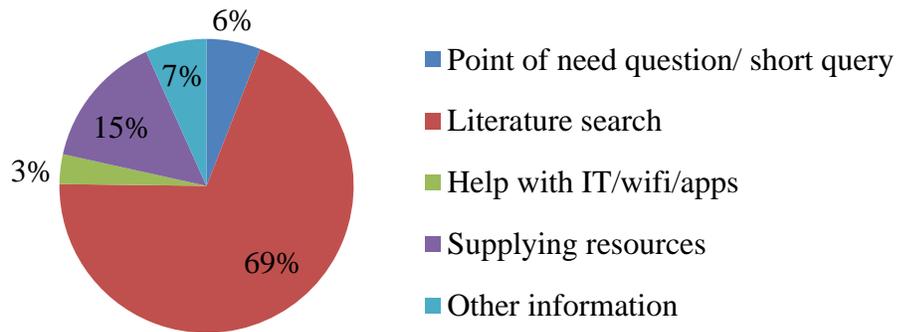


Figure 3 Percentage of the total time spent by the librarian on each type of query

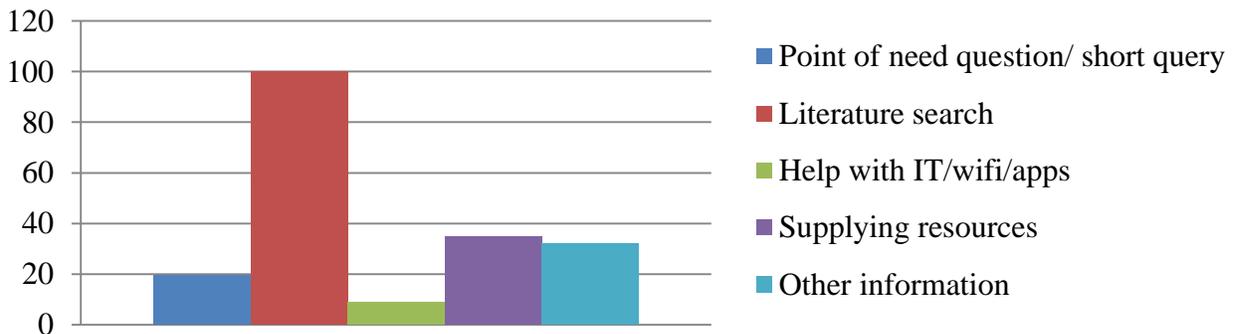


Figure 4 Average time taken by the librarian to complete each type of query.

The most requested type of information, research and evidence-based medicine, also took up the largest amount of time at 47%, with an average response time of 77 minutes. (Figures 5 & 6)

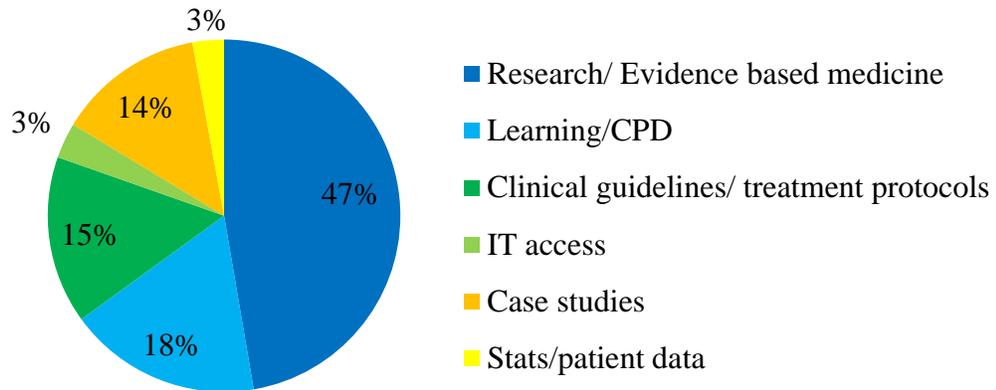


Figure 5: Percentage of the total time spent answering each type of information request

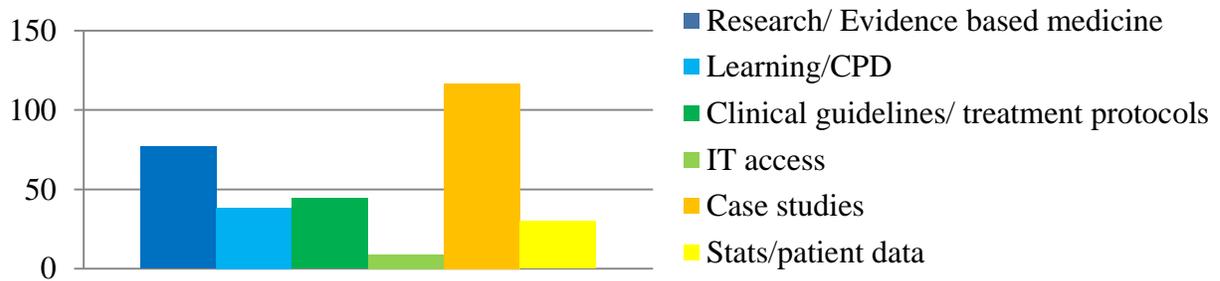


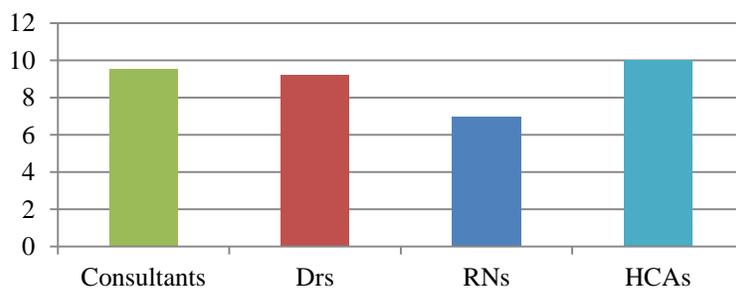
Figure 6: Average time taken by the librarian to answer information requests by the type of information requested

Timings include the time taken for the requestor to communicate the question (either orally or in writing), the librarian to research the answer, and the time taken to communicate the results to the requestor.

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### *Satisfaction with the service*

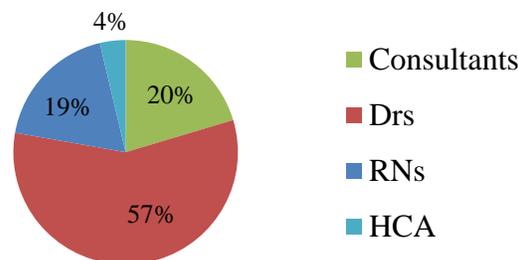
Satisfaction with the service was generally high (72% of staff users provided feedback on the service) with 60% giving a satisfaction score of 10/10. No staff member gave less than 7/10 and the average score was 9.2%. (Figure 7)



*Figure 7: Satisfaction score by Job Role*

### *Information needs of the different staff groups*

The majority of staff who used the service were doctors and consultants, who together accounted for three quarters of the information requests made to the librarian, with the remainder coming from nurses and health care assistants (HCAs). (Figure 8)



*Figure 8: Staff users of the embedded librarian service in each job role*

Literature searches were most popular with the doctors and consultants with 28% being conducted for consultants (compared to 20% of all requests from consultants) and 61% for all other Doctor grades (compared with 57% of all other doctor requests made). Requests for help with IT, apps or wifi were more common from nurses at 40% (compared to 19% of all nurses' requests) and slightly less common from doctors at 40% (compared to 57% of all requests). Case studies were of most interest to nurses at 66% (compared to 19%) but only doctors requested statistical or patient data. Clinical guidelines and treatment protocols were requested most often by doctors at 77% (compared to 57%) while evidence-based medicine and research questions were asked more frequently by doctors at 68% (compared to 57%) and less commonly by nurses at 13% (compared to 19%). Information supporting learning and CPD was most popular amongst the consultants at 42%, of less interest to other doctor grades at 33% and of little interest to nurses who only accounted for 8% of these requests. The two information requests made by HCAs were both in support of learning and CPD. (Tables 3&4; Figures 9&10)

Job Role	Type of Query				
	Point of need question/ short query	Literature search	Help with IT/wifi/apps	Supplying resources	Other information
Consultant Dr.	0	5	2	4	5
Doctor (all other grades)	6	11	4	5	0
Student Dr.	0	0	0	0	0
Paramedic	0	0	0	0	0
RN	0	2	4	2	2
HCAs	2	0	0	0	0

*Table 3: Information requests for each type of query grouped by job role*

Job Role	Type of information					
	Research/ Evidence based medicine	Learning/CPD	Clinical guidelines / treatment protocols	IT access	Case studies	Stats/patien t data
Consultant Dr.	3	5	1	2	0	0
Doctor (all other grades)	11	4	7	4	1	4
Student Dr.	0	0	0	0	0	0
Paramedic	0	0	0	0	0	0
RN	2	1	1	4	2	0
HCA's	0	2	0	0	0	0

Table 4: Information needs of staff grouped by job role

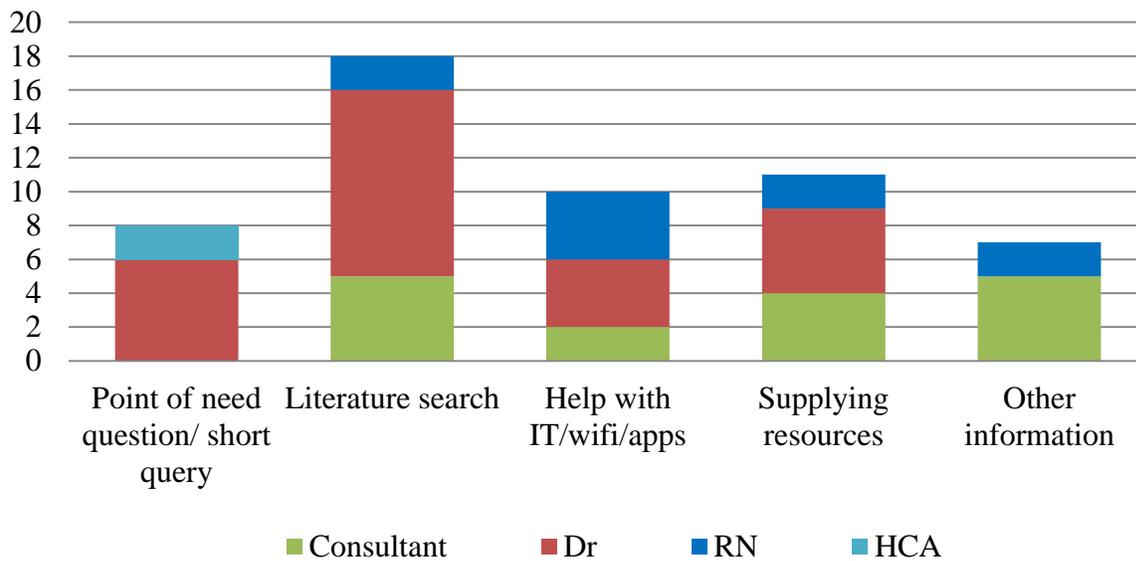


Figure 9: Type of query by job role

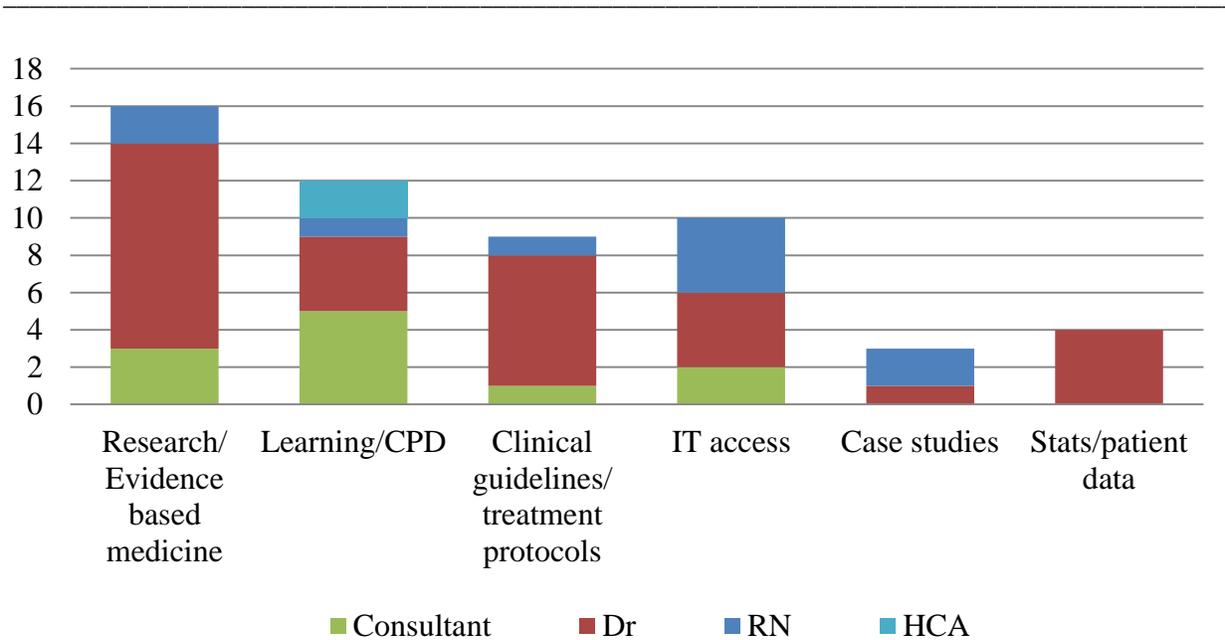


Figure 10: Information needs of staff by job role

## Discussion

Before the commencement of this project, it was not known what type of information or questions staff might pose to the clinical librarian, or how much use staff would make of the service. In spite of support from a senior consultant in the department, staff take-up was initially quite slow, and limited to staff to which the librarian had been formally introduced.

Posters and signs indicating the purpose of the librarian were used, but the librarian was frequently asked to explain their presence in the department, and some staff mistook the librarian for a doctor. To avoid confusion, the librarian started wearing a bright red “LIBRARIAN” monitor style badge in addition to their NHS Trust staff identification badge. Once the librarian

service was explained, staff were generally happy to use the service and often asked complex questions for the librarian to research.

Being a regular visible presence in ED was considered to be an essential component in developing a professional relationship with ED staff and, once the librarian became better known amongst staff, the frequency of information requests increased considerably. The librarian was also invited to attend staff training in ED which was a useful means of communicating the service to new staff members. Attending training sessions also enabled the librarian to become familiar with some of the medical terminology and conditions commonly encountered in the emergency department, and to apply this learning to improve their own search skills.

It was often necessary for the librarian to proactively volunteer information. For example, they became well practiced in offering to quickly look up the latest guidelines or protocols on a condition under discussion.

### *Categorising the Data*

Categorising the different information requests according to the type of query and the type of information allowed the librarian to measure both the information needs of ED staff and the demand on library resources. Coding requests according to staff grade or job role allowed the information needs of different staff groups to be identified.

### *Staff Information Needs*

The majority of the information requests were for research and/or evidence-based medicine and learning and/or CPD, which staff did not have time to look up themselves,

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demonstrating the importance of providing clinical librarian services to ED staff in their workplace. Information requests for research or evidence-based medicine accounted for 1230 hours (47%), successfully demonstrating the value of the librarian's contribution to mobilising the evidence base in the workplace.

Examining the differing information needs of staff groups was more difficult given the small sample sizes of each individual staff group. While the results do show some variation in the information needs of different staff groups, a larger sample size would be needed to confirm if these differences are statistically significant. A further flaw is that no Paramedics or Students made use of the service.

#### *Time Saving*

A total of 2600 hours were logged by the librarian during the trial period, 1800 of which were dedicated to literature searches<sup>1</sup> (Figures 11 & 12) If one considers that literature searching is a specialist skill in its own right, the time saved by the librarian could be argued to be greater than that stated, as a clinician may take longer to find the same information.

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<sup>1</sup> Not all of this time was spent in ED. For more complicated search requests the librarian would complete the search after returning to the library and email the results to the requestor.

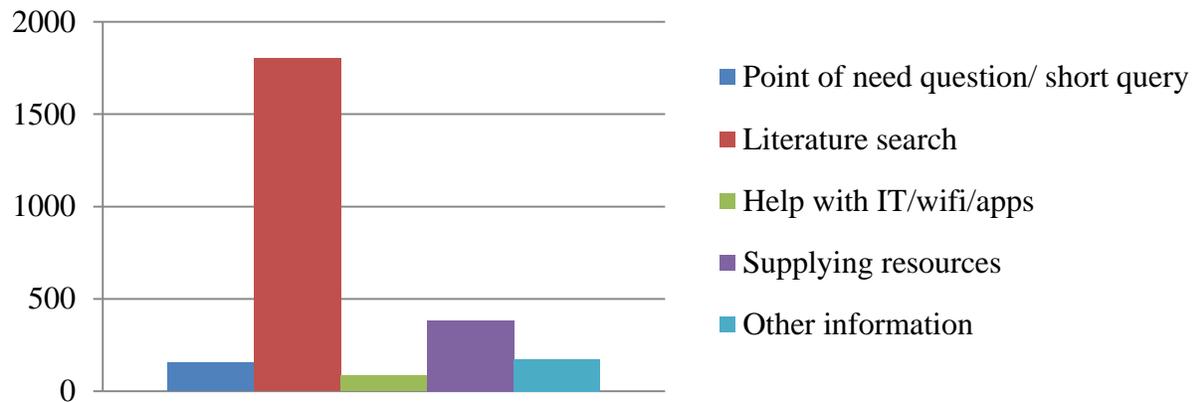


Figure 11: Total time spent on each type of query

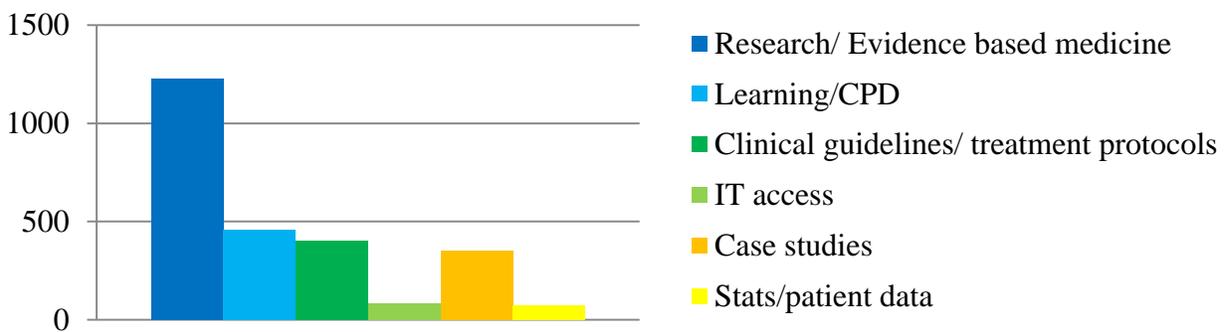


Figure 12: Total time spent on each type of information

### Cost Benefit

The cost benefit must also be considered. The majority of information requests were made by doctors and consultants and most of the literature searches were conducted for the same group. As these staff members are on a much higher pay grade than the librarian, both the time saved in providing a quicker turnaround of searches and the clinician time freed up by instructing the librarian represents a considerable financial benefit of the embedded librarian service.

## Conclusion

Feedback from clinicians and medical staff was overwhelmingly positive with the majority of information requests scored as either high or very high. The following proposed benefits of the project have been demonstrated in practice:

- saving of clinician time,
- supporting evidence-based decision-making,
- longer-term procedure and pathway consideration,
- supporting clinicians' continued professional development (CPD).

Clinical librarians are trained to access information and can generally do so more quickly than clinicians. Further research is needed to estimate the total equivalent clinician time and total time saving, but the results so far demonstrate it would be a cost saving to pay a librarian to do searches instead of a clinician. Other potential benefits, such as improved patient outcomes, or financial savings relating to patient care, have yet to be conclusively demonstrated and further work is needed to develop methods for measuring these.

This service evaluation demonstrates the potential for utilising librarians and knowledge specialists to provide relevant and timely evidence-based research and learning to staff directly in the workplace, but needs further evidence and a more robust research method to improve the reliability and transferability of this study. It is proposed to analyse the above results using grounded theory to inform the design of further research with the aim of contributing to the body of evidence in this area. By extending the Embedded Librarian in the ED project and including

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data from the participants, interviews, questionnaires and case studies, this could build a robust model of embedded librarian practice and staff information needs that can be used to demonstrate the needs and plans for future service provision.

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