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Evaluating the impact of Clinical Librarian Services: a North West Study

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Glossary

CL/CLs	Clinical Librarian(s)
CIT	Critical Incident Technique
CPD	Continuing Professional Development
LoS	Length of Stay
MAP	Making Alignment a Priority
LIHNN	Library and Information Health Network Northwest
QoL	Quality of Life
QIPP	Quality, Innovation, Productivity and Prevention
VfM	Value for Money

Executive Summary

Background

Clinical librarians "provide quality assured information to health professionals at the point of need to support clinical decision making", (Hill, 2008) and in the UK tend to follow an outreach model which delivers services such as literature searching and training across hospital Trusts (Brettle et al 2011). A number of systematic reviews have examined the effectiveness of clinical librarians (Weightman, Urquhart, Spink, & Thomas 2008; Winning & Beverley 2003) but have found them lacking. A review conducted by a group of librarians within the North West; examined methods of evaluating clinical librarian services as well as providing an update of the literature on effectiveness (Brettle et al 2011). This report describes a follow up study to the North West systematic review which seeks to put its recommendations into practice and aims to:

- Undertake a rigorous mixed methods evaluation study on the impact of Clinical Librarian services in the North West health region.

Objectives

- To use a framework that ensures consistent and robust data is collected across all NHS Trusts, providing an increased body of evidence.
- To test the use of the MAP (Making Alignment a Priority) Toolkit in ensuring that evaluations meet organisational objectives.
- To build research capacity amongst a group of clinical librarians

Methods

This evaluation study was based on best available evidence on how to conduct evaluations in this field (Brettle et al 2011). The services provided by Clinical librarians (CLs) are considered a complex intervention made up of a number of elements and wide ranging potential outcomes which are affected by other factors within the organisation. An experimental design to ascertain their effectiveness and impact is inappropriate and would be compromised by a wide range of confounding variables. This study is therefore based on the premise that CLs contribute to a range of outcomes and organisational objectives. A critical incident technique (CIT) was therefore used to understand and collect data on these contributions and their impact using a mixed methods approach.

A regionwide survey linked to organisational outcomes was used to collect data on all uses of the CL service over a 6 month period. This was followed by structured interviews with service users from the subsequent 6 month period to triangulate, illustrate, and illuminate the questionnaire findings.

Built into the design of the study was a capacity building element to improve research and evaluation skills in a group of clinical librarians. The research was undertaken with the librarians who participated in a number of ways e.g. questionnaire design, conducting interviews, analysing data, presenting results, receiving training and using standardised tools as appropriate throughout.

Results

A total of 10 librarians took part, representing 16 Trusts. They sent out 779 questionnaires over a 6 month period (all users of the service in this time). Then 24 interviews were conducted with a purposive sample which covered a range of Trusts and professionals who had used the service in the subsequent 6 month period. Over

340 critical incidents were collected which demonstrated that CLs contribute to a wide range of outcomes. The outcomes were separated into 6 categories which reflected NHS priorities and objectives: Decision making and evidence based practice; Patient centred care and health outcomes; Quality of care; Service development; Continuing professional development (CPD); Efficiency, financial or risk management. Within each of these categories, data on more specific outcomes were collected.

The 10 most reported impacts and the number of times they were reported are listed in the chart below.
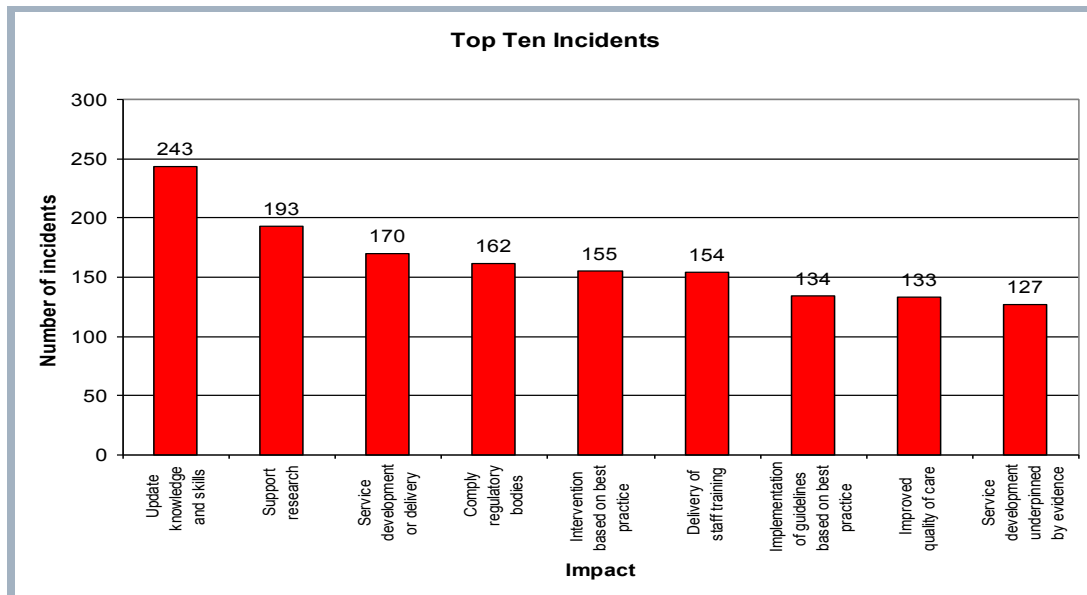
In line with the services traditionally provided by NHS library services the majority of these fall within the Continuing Professional Development and the Decision Making and Evidence Based Practice categories of outcomes. However, it is of significant note that based on responses to the question "Did the service provided contribute to…":

- 1/3 incidents demonstrated that CLs contribute directly to patient outcomes such as diagnosis and choice of intervention or test.

- 1/4 incidents demonstrated that CLs contribute directly to improvements in quality of life, increased patient involvement in decision making and improved access to patient information.

- 1/4 incidents demonstrated that CLs contribute to cost savings and risk management and more specifically 20% in avoiding tests, referrals and readmissions and 14% in reducing length of stay (LoS).

The questionnaires also provided evidence on what outcomes the CLs "may contribute to in the future". The responses to these were even higher, with the interviews suggesting that the reason for this is that much of the information provided will contribute to outcomes over the long term, e.g. guideline development.

The interviews illustrated the complexity of the incidents and the wide range of outcomes to which the CLs contribute from one incident. In addition, the interviews illuminated how these contributions are made.

The questionnaire proved to be a useful tool for collecting outcome data, but feedback from participants and data from the interviews demonstrated that some refinements need to be made.

The study was successful in further developing the research skills of the clinical librarians involved in the project.

Conclusions

Clinical librarians contribute to a wide range of outcomes including those which affect direct patient care and save money within NHS organisations.

The multi-method approach was successful in aligning CL contributions to organisational outcomes and providing more detail about the CL contribution than previous studies.

Recommendations for a revised questionnaire and a common data set are made. Future evaluations are urged to use this approach and collect data on the same outcomes which will further add to the evidence base about the effectiveness and impact of clinical librarians.

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Chapter One: Introduction, Background and Aims

Introduction

Clinical librarians "provide quality assured information to health professionals at the point of need to support clinical decision making" (Hill 2008) and in the UK tend to follow an outreach model which delivers services such as literature searching and training across hospital Trusts (Brettle et al 2011). A number of systematic reviews have been conducted which examine the effectiveness of clinical librarians (Weightman, Urquhart, Spink, & Thomas 2008; Winning & Beverley 2003) and a review conducted by a group of librarians within the North West; examined methods of evaluating clinical librarian services as well as providing an update of the literature on effectiveness (Brettle et al 2011). This report describes a follow up study to the systematic review conducted by Brettle et al (2011). In particular, it seeks to put the recommendations regarding evaluation studies into practice and continues to build the research skills of a group of clinical librarians working in the North West.

Background

Clinical Librarian Services in the North West

There are approximately 20 clinical librarian services within the North West (although this has fluctuated over the last few years) due to service reorganisations. A community of practice exists, the North West Clinical Librarians Group, under the wider umbrella of Library and Information Health Network North West (LIHNN). Any clinical librarian working within the region can join the group which meets quarterly to share ideas and practice; establish common standards and a co-ordinated approach; provide training relevant to the role; and maintain useful resources (http://www.lihnn.nhs.uk/index.php/lihnnhome/lihnn-groups/clinical-librarians). Previous work identified that clinical librarians in the NW operate different models across the region according to the needs and resources of each NHS Trust. They include a static question and answer service; outreach where librarians support a range of initiatives including journal clubs and outreach plus critical appraisal and synthesis (Brettle et al 2011). In common, all the NW CL services provide literature searches although the level of critical appraisal and synthesis of the evidence varies across services as shown in Figure 1 (taken from Brettle et al 2011).

Evidence on Clinical Librarian Services prior to 2005

There are a large number of papers published on clinical librarian services as well as many evaluations. The systematic review which underpins this study (Brettle et al 2011) reviewed the evidence and highlighted 3 systematic reviews which summarised the evidence to 2005 (Winning and Beverley 2003; Wagner and Byrd 2004; Weightman and Williamson 2005) as well as an earlier review of the literature (Cimpl 1985). In summary, these reviews found that CL services were well used and liked by clinicians, but could find little evidence of effectiveness or impact; due mainly to the poor quality of reporting and design of the studies available. Weightman and Williamson (2005) however, did find some indications of impact on patient care, time saved and cost as well as providing some recommendations for improving the quality of evaluations as a result of their review (Weightman et al 2008; Urquhart and Weightman 2008).
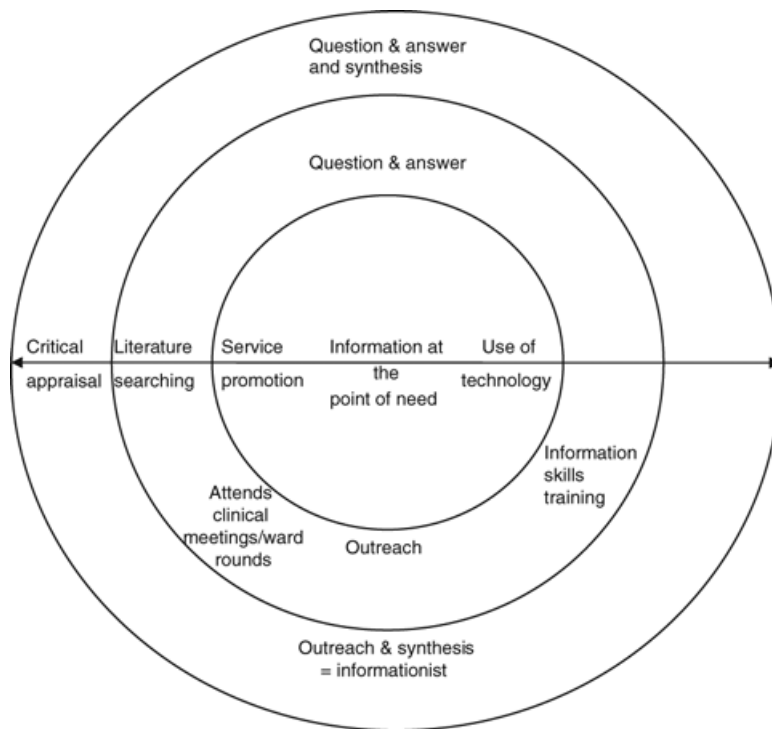
Figure 1: Clinical Librarian Services

Systematic Review on Evaluation of Clinical Librarian Services (Brettle et al, 2011)

Within the UK there was considerable development in CL services post 2005, thus in 2011 it was determined that there was a need to undertake a further review of CL services (Brettle et al 2011). This was undertaken as a group venture and a means of building research and critical appraisal capacity within the NW CL group as well as providing a foundation for this evaluation study. In summary, the review located both published studies and evaluations published within the grey literature and included 18 studies which had been undertaken since 2005. The systematic review found:

- Limited evidence of CLs Impact.
- CLs are effective in saving health professionals time.
- CLs have a positive effect on clinical decision making by contributing to better informed decisions.
- Impact on patient care for diagnosis and the choice of drug or therapy.

However, Brettle et al (2011) also echoed previous reviews in highlighting the poor quality in both the design and reporting of impact studies, especially the inadequate information provided on sample size, data collection instruments, and failure to address sources of bias. Although there was some improvement in the more recent studies it was still evident that more work in the reporting of data collection and analysis was required and the following recommendations were made for conducting future impact studies.

Methods chosen must be robust, adequately conducted, limit bias and reported explicitly. In particular, it was suggested that use was made of previous evaluations and recommendations so that the data collected across studies was more standardised and comparable. This would make it possible to build an evidence base for CL studies. The Toolkit developed by Weightman et al. (2008) provided an ideal starting point to do this; demonstrating direct impact on patient care is extremely difficult to prove. Studies should therefore determine if CLs make a *contribution* to patient care rather than a direct impact. The Critical Incident Technique was highlighted as a useful means of demonstrating evidence of specific instances of impact.

Current studies mainly focus on undefined impact (on patient care) – future studies need to provide evidence of more specific impacts. As well as specific impacts, they need to distinguish between actual impacts and those

that may occur in the future. Now more than ever, library services need to be explicit about the contribution they make towards achieving the organisational objectives of their Trust.

Work in the North West in this field, has included development of an Alignment Toolkit (Pratchett 2010) which enables health libraries to link their work to organisational objectives. Brettle et al (2011) suggested that further research should investigate whether it was possible to use Alignment Toolkits to demonstrate organisational impact of CL services.

Finally Brettle et al (2011) was unique in that it aimed from the outset to develop research and systematic review capacity in a group of librarians and methods for doing this were explicitly built into the methodology of the project. Any further project should seek to build on this base and further develop the research skills of those involved in the original systematic review and begin to develop research skills in a wider group of clinical librarians. This project therefore seeks to build on the previous systematic review in the North West and implement the recommendations in practice. It therefore establishes the following aims and objectives.

Aim

> To undertake a multi-method evaluation study on the impact of Clinical Librarian (CL) services in the North West health region.

Objectives

- To use a framework that ensures consistent and robust data is collected across all Trusts, providing an increased body of evidence.

- To test the use of the MAP (Making Alignment a Priority) Toolkit in ensuring that evaluations measure contribution to organisational objectives.

- To build research capacity amongst a group of clinical librarians.

Chapter Two: Methods

Project Management and Organisation

The project was managed and co-ordinated by a researcher (Alison Brettle) from the School of Nursing, Midwifery, Social Work and Social Sciences at the University of Salford.   Clinical/Outreach Librarians working within the North West region were invited to participate in the project at the levels outlined below.

- Level 1 participation – send out questionnaire to service users and ensure research governance processes have been followed within their particular Trust.
- Level 2 participation - 1 + conduct semi structured interviews of selected service users in a neighbouring Trust
- Level 3 participation – 1&2 + help to conduct a thematic analysis of the interview results.

Clinical librarians selected a level to particiate according to their workloads and their comfort and desire to improve their research skills. Training, guidance and instruction was given at appropriate levels and points throughout the project. Training was given through meetings and information and communication was via email

and a wiki which was used to store and manage data throughout the project. Two Clinical Librarians also became more deeply involved in the questionnaire design and dissemination of the results. Appendix 1 provides details of the librarians involved and their participation.

Data Collection

Data was collected by means of a questionnaire (see Appendix 2) and semi structured interviews (see Appendix 4). This approach was based on the recommendations of Brettle et al (2011) and the guidance provided in the impact Toolkit (Urquhart 2008).

Sample

Each participating librarian recorded details of those using the CL service. Questionnaires were sent to every service user over a 6 month period, approximately 6 weeks following the initial request for information. Questionnaire distribution occurred between January and October 2011, with each service distributing for a 6 month period, within this time frame. The decision to send questionnaires to all service users in this time frame was made following analysis of the number of requests to the CL services over the previous six month period. It was anticipated that this would provide an approximate sample of 1000 responses, providing that the same volume of requests were received. This was considered to be feasible within the time frame of the project and would also enable a significantly larger study to be conducted than previously in the UK.

Questionnaire development

An initial questionnaire, based on the Critical Incident Technique, was developed in Survey Monkey Online Software by the project manager using recommendations from Brettle et al (2011) and the Impact Toolkit (Urquhart 2008). Following discussions at a meeting of all the CLs involved, the questionnaire was revised and then further refined by a core team (the project manager and two additional CLs from the wider team) to ensure the orgnaisational impacts identified in the Alignment Toolkit (Pratchett 2010) were included.

The organisational impacts were added by means of a content analysis of the policy documents contained in the MAP toolkit by one member of the team (CP). Each document was searched for recurring priorities or outcomes until no new themes emerged. Common themes were grouped and incorporated into higher level areas for the questionnaire, as shown in Figure 2. Sub themes were identified to make up individual outcome indicators and the relevant part of each policy document was recorded as shown in Figures 3 and 4. Care was taken to ensure that the language used in the questionnaire mirrored that of the policy documents to ensure that the terminology would be familiar to the stakeholders receiving the questionnaire.

Figure 2: Policy documents and core themes identified from content analysis

- Decision Making and Evidence Based Practice
- Patient centred care
- Quality of care and Improving healthcare outcomes
- Service development
- Efficiency, Financial or Risk Management
- Accountability and transparency

Improved Healthcare Outcomes
Liberating the NHS, 2010, pp.21-22 & 6.7, p.49; DOH Business Plan, Coalition priority 2, p.2 & pp.11-13

Improved quality of life for patient or carers
DOH Business Plan 2011-15, Impact indicator, p.32.

Increased patient involvement / Shared decision making
Liberating the NHS, 2010, 4.a, p.3 & 2.1-4, p.13; DOH Business Plan 2011-15, Action 1.5; NHS Constitution 2009, Principle 4, p. 3, patient and public right, p.7; Operating Framework 2011-12, pp.7&24; An Information Revolution, 2010 ; Hill Report, 2008, Purpose 1; CQUIN National Goals 2011-2012, Goal 2;.

Improved patient care experience
Liberating the NHS, 2010, 4.a, p.3 & 2.1-4, p.13; DOH Business Plan 2011-15, Action 1.3.i, p7-8; NHS Constitution 2009, Value, Improving lives, p.16; Operating Framework 2011-12, 2 of 5 mechanisms, p. 23.;CQUIN National Goals 2011-2012, Goal 2; Monitor's Compliance Framework 2011-12, quality measure for statement of certification.

Improved patient access to information
Liberating the NHS, 2010, pp13 -16; DOH Business Plan 2011-15, Action 1.3., pp.7-8; NHS Constitution 2009, Patient and Public Right p.10; An Information Revolution, 2010; Monitor's Compliance Framework 2011-12, p.49.

9. Did the information contribute to patient centred care and healthcare outcomes?

No contribution

Improved healthcare outcomes
Improved quality of life for patient or carers
Increased patient involvement/shared decision making
Improved patient care experience
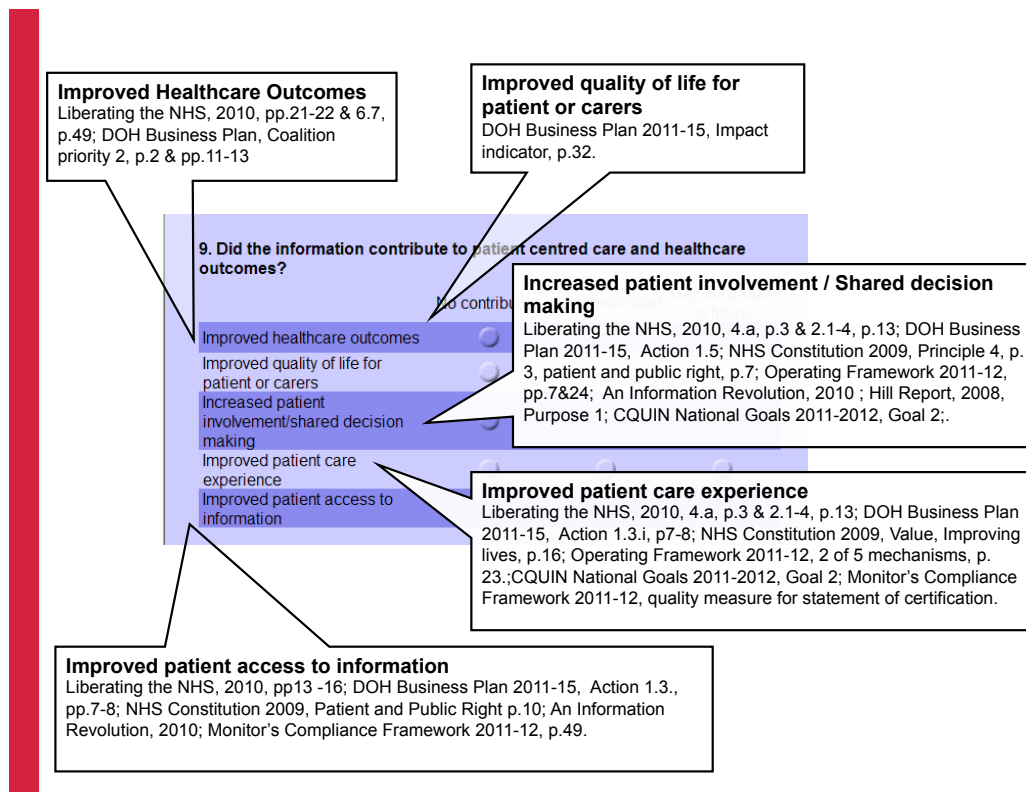Improved patient access to information

Figure 3: Developing the questions from themes

The refined version was piloted by each partcipating CL with up to 5 of their recent users (32 responses), and following this feedback minor changes were made to produce the final version (Appendix 2).
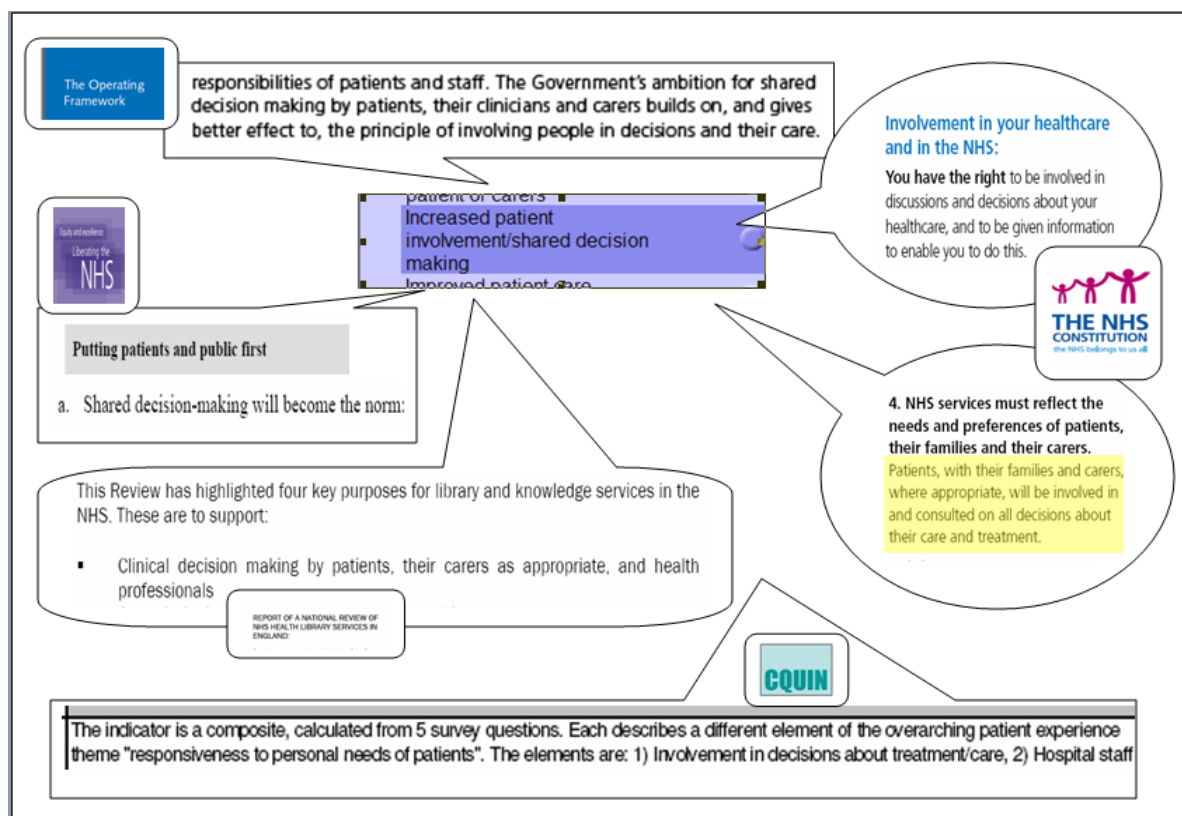
Figure 4: Outcomes identified from the policy documents

Questionnaire distribution

A standard email with a link to the questionnaire (Appendix 3) was distributed by each CL involved in the project, to each service user over a 6 month time period. Responses were collated in SurveyMonkey and accessible only by the project manager and the member of staff analysing the data (not those responsible for providing the service). Reminder emails were sent out approximately 3 weeks following the initial email.

Semi-structured interviews

Semi-structured interviews were conducted by 6 CLs. These originated from a variety of Trusts, providing good coverage both of Trust type (primary, acute, mental health) and geographic distribution across the region. The Trusts who participated included Aintree University Hospitals NHS Trust, Blackpool Teaching Hospitals NHS Foundation Trust, Mersey Care NHS Trust, Liverpool PCT, University Hospitals of Morcambe Bay NHS Trust and Warrington and Halton Hospitals NHS Foundation Trust.

Interviews were conducted according to a standardised schedule (see Appendix 4). A buddy system was implemented where 3 pairs of CLs interviewed staff from a neighbouring Trust on a reciprocal basis. This approach was adopted to reduce bias by ensuring that CLs do not interview their own service users. It had the further advantage of research capacity and confidence building as buddies were able to practise their interview techniques on each other prior to conducting the interviews.

Interview participants were recruited from users of the CL service in the 6 months immediately following the questionnaire distribution. A purposive sampling method was used to ensure that views were captured from a range of professions using the service in order to triangulate the data obtained from the questionnaire. The sample was constructed by the project manager to reduce any potential bias in selecting known or friendly participants. In addition, staff who had received non conventional services (eg running journal clubs) from CLs

were sought to participate in the interview sample. Potential interviewees were sent an email from the clinical librarian in their own Trust (see Appendix 5), those who responded positively were contacted by the "buddy" CL to arrange a convenient meeting and go through information and consent issues. Interviews were conducted either face to face or via telephone. All were recorded and transcribed by an independent transcriber. Guidelines in this area suggest that 20 interviews is an appropriate number for this type of study (Urquhart et al 2008).

Data analysis

Data from the questionaire was initially exported from SurveyMonkey into Excel, which was used to perform descriptive statistics. These are reported as absolute and percentages (to two decimal places) for each outcome. Subsequently the raw data was exported into SPSS for the calculation of inferential statistics. The Chi-squared test was used to determine whether there was any statistically significant differences in responses between the professional groups and between clinical/non-clinical groups.

Data from the interviews was transcribed by an independent transcriber and verified by the librarian who had conducted the interview. Due to the structured nature of the interviews and the complexity and richness of the data obtained; it was not possible to conduct a meaningful thematic analysis. Instead a template was developed by members of the interview analysis team; which summarised the outcomes described in each interview alongside quotes which explained and illuminated the data for each outcome. Each interview is therefore presented as a case in its own right in Appendix 8.

The data gained from the qualitative aspect of the study is used to expand on and clarify issues raised from the quantitative data and is presented in both the results and discussion chapters.

Ways of working and research capacity building

There is a lack of research skills and confidence amongst the CL community to conduct service evaluations themselves. Furthermore, there has been flaws in previous research in this area where small scale evaluations have been conducted using a non standard approach, so that results cannot be compared across studies (or sites). This project has therefore been designed to include the CLs throughout the research process, at a level at which they are comfortable. Furthermore, support was built into the project design to help them carry out the agreed tasks at the same time as developing practical research skills. This included training at various points, buddying of experienced and less experienced members and providing standardised tools for them to use. Communication throughout the project was via a wiki (an approach used successfully in a wide range of NW librarian projects) and a series of face to face meetings. Face to face meetings took place at the outset of the project to set parameters, in questionnaire development and piloting, at the outset of interviews and to train staff in interview procedures for interview analysis training. Regular updates regarding the project were sent via email as well as posted on the wiki. Questionnaire results per Trust were posted on the wiki. All documentation regarding the project was also stored on the wiki. When dissemination opportunities (eg conference presentations) arose, details and ideas were circulated via email for comments and volunteers to present. These were taken up by various team members according to their interests. A list of contributions is presented in Appendix 1 to illustrate the capacity building and individual contribution to the research process.

Ethics

Confirmation was obtained from NHS Ethical approval system that as a service evaluation, full NHS Ethical approval was not needed. Ethical approval was received from the University of Salford and each librarian ensured that research governance procedures were adhered to for their own institution. To facilitate this process a standard information sheet was developed for CLs to provide to their research governance departments (Appendix 6). Individual departments were encouraged to follow up any queries with the project manager. The procedure that was followed in the questionnaire and interview process by each participating CL is described below.

CLs used a standard template to record details of service users during the study period (Appendix 7). Each CL maintained their records which were kept securely. An email sent to service users provided information about the study and a link to the online questionnaire. Informed consent was presumed if a service user accessed the link and returned the questionnaire. For those taking part in interviews informed consent was sought as described above before the interview took place.

Responses to the questionnaires were anonymous. Interview participants were given a unique code and the list kept separate from the interview transcripts. Quotes used in the production of this report have been anonymised. All data which is used in the project was stored on a password protected computer or a locked filing cabinet. Ethical issues were discussed in both training sessions regarding questionnaires and also at interview stage.

Chapter Three: Results

Participants

A total of 10 CLs took part in the study, representing 16 Trusts across the North West Region.

Questionnaire Survey

Over a 6 month period, 779 questionnaires were sent out to all users who received a service from the participating clinical librarians. As the questionnaire was based on a critical incident technique, those who used the service more than once during this time would receive multiple requests to complete a questionnaire, with each request comprising a separate incident. A total of 360 respondents began the survey but only 340 answered the demographic questions and 329 completed each question on the survey. A response rate of 43.6% (based on demographic response) and 42.2% useable responses. Responses were received from participating Trusts as indicated in Figure 5. Over 50% of responses were received from acute or mental health Trusts. The volume of questionnaires sent out by each participating Trust ranged from 7-209, indicating a large variation in the number of "incidents" reported by each Trust. This is understandable as there is a large variation in clinical librarian roles, size of Trusts and number of hours worked by each CL in that role. Furthermore, some CLs provide services for more than one Trust. Response rates for individual Trusts ranged from 20.6%-62.5%. In line with the protocol established at the beginning of the project to show a regionwide picture of the impact of the service and in an attempt to conduct a large study; all of the responses will be presented as a whole rather than per Trust. Each individual librarian has been provided with data for their own Trusts separately and for their own purposes. There has been no attempt to compare and contrast the work of different librarians as part of the study.
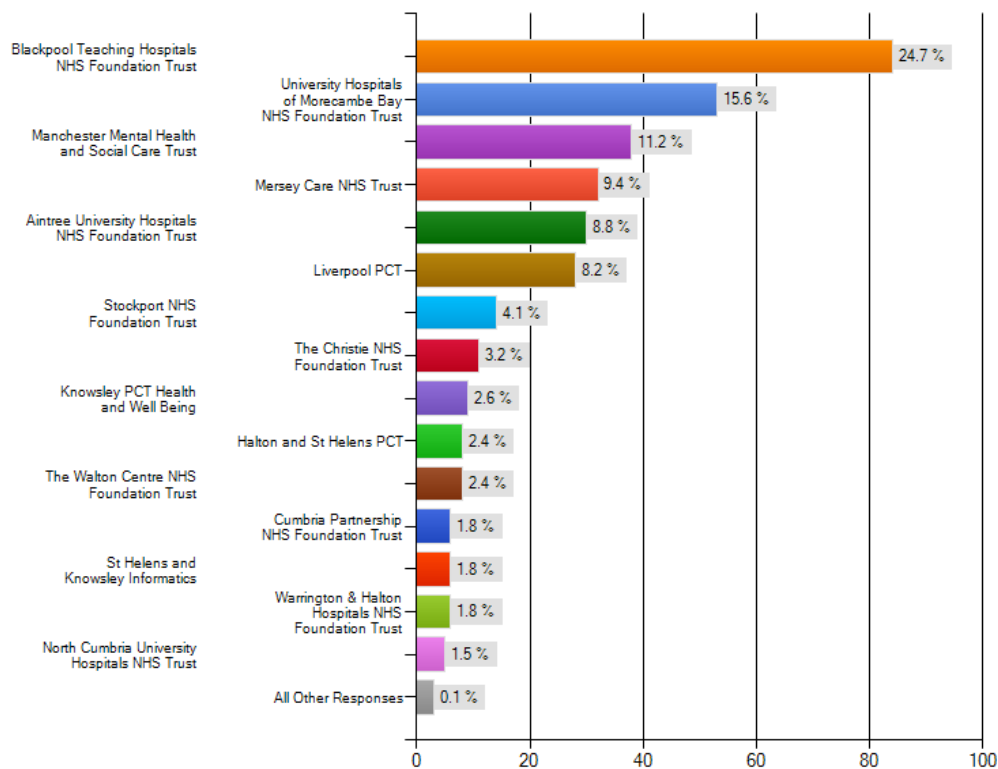
Figure 5: Breakdown of responses per participating Trust

Breakdown by profession

Responses were received from a variety of professional groups, indicating that CLs provide services to a wide range of staff. Nursing, medical and allied health professionals were the largest groupings. However, managers and other administrative support comprised a significant minority of respondents, suggesting that CL services are not limited to direct patient care but support a much wider information agenda.
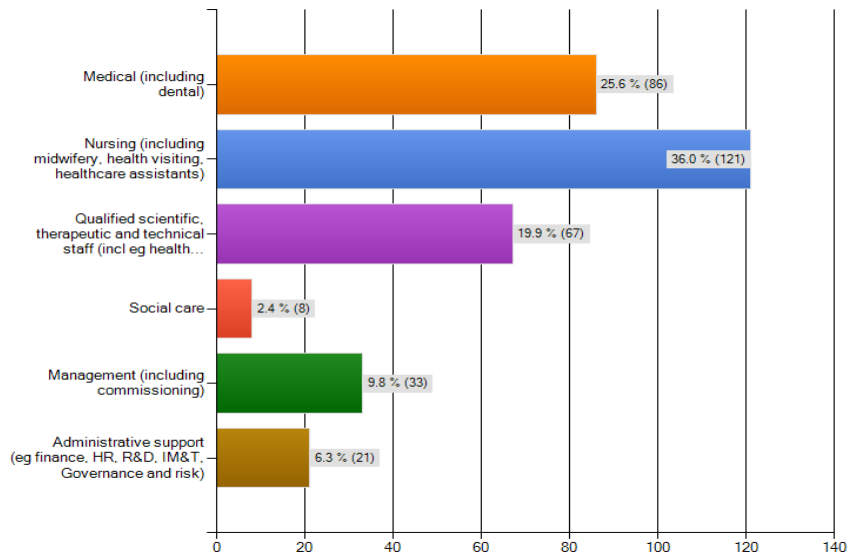
Figure 6: Breakdown of responses by professional group

Services provided by Clinical Librarians

A total of 342 respondents provided details on the type of service they received from the CL service. The vast majority of responses (almost 80%) were from participants who had received a literature search in response to their request. A small group had received critically appraised summaries in answer to their request and this is likely to reflect the different services offered by different librarians. Training is also a significant service provided by clinical librarians and was also mentioned in the "other" category often as a service provided in conjunction with a literature search.
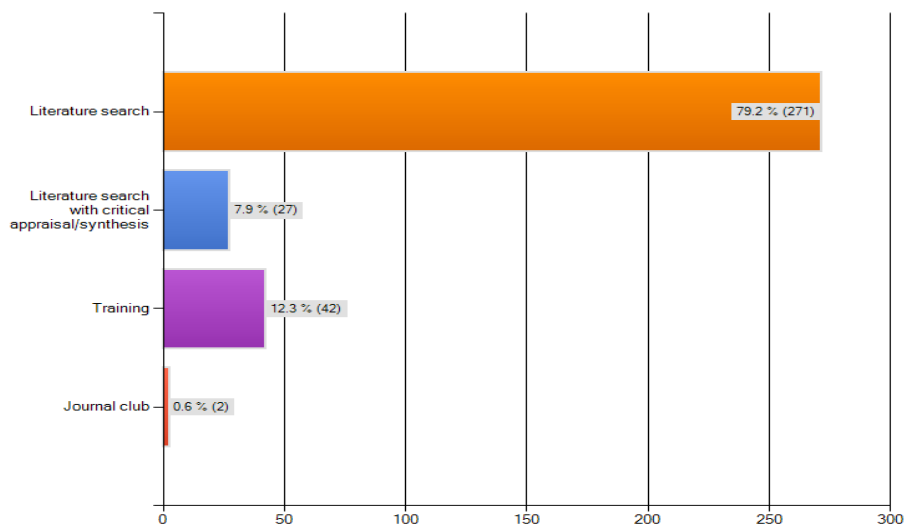
Figure 7: Breakdown of services provided

Some of the clinical librarians are involved in other services, such as journal clubs. In these cases the role is much more than the provision of a literature search. One interview participant described how the Clinical Librarian is involved.

> *"Her role in that team was to do literature searches around the questions devised and circulate the evidence, say 4 or 5 articles to the team to agree on the 2 articles for discussion which were then disseminated to the rest of the potential attendees. We recognized early on from the evidence around journal clubs that some discplines had a lot more experience in critiquing the literature. For the nurses it wasn't part of their professional pre-reg training. We recognized a disparity in the ability to critique the literature so the CL taught some critical appraisal training in the first few weeks. Really useful". (Nurse, Comm 4)*

> *"We asked CL to do a comprehensive literature search for a piece of work we're doing. We're doing a project with other EU members at the moment, this country and 4 other countries. We asked her to do a literature search on employment and MH professionals' involvement in learning products for people with MH difficulties, that type of thing. ["Was this one of the projects CL was involved with"] Yes, and what we also wanted was to look at not only in the UK but also other countries as well in relation to what they are doing around their models as well". (Manager, Comm 6)*

Respondents were asked to give details regarding the "critical incident" to which the remainder of the questionnaire is referring. A full list of incidents is provided in Appendix 7. Themes which recur, but are non specific include: training, information for direct patient care, training to support further study, searches and training to support academic writing, guideline development or quality assurance.

Quality of service provided

Respondents were asked whether the service provided met their needs; 341 replied and the vast majority of these were highly satisfied 78.6% (n=268) believed that the information provided wholly met their needs and 21.1% (n=72) stated that the information partly met their needs. Only 1 case believed that the service provided did not meet their needs at all.

When asked to rate the information provided for relevancy to the original request, 343 responded. On a scale of 1 (low) to 5 (highly relevant), the majority (94.7%, n=325) rated the information as 4 or above indicating that the information provided was relevant to the original request. Similarly the majority of respondents 318 out of 343 believed that the service rated highly on saving time (92.7%). Only 2 respondents believed that using the service had not saved them time.

Impact of Clinical Librarian Services

The study sought to categorise the impact of the CL service in a range of areas; the majority of these are aligned to the MAP toolkit in an attempt to quantify CL impact in areas that are important to organisational goals. Participants were asked whether the information provided contributed to each element, may contribute in future or did not contribute. A not applicable category was not provided, therefore it is not possible to distinguish between those responses which were not applicable and those which did not provide a contribution; this is examined further in the discussion section. The focus on the results is therefore where an impact or potential impact has been noted and data from the survey is further illustrated by examples and quotes from the interviews, which explains how some of the impacts have contributed.

Impact of Clinical Librarians on decision making and evidence based practice

A total of 333 respondents answered this question, providing evidence of the contribution of the CL in this area. The largest impact is on service development or delivery, with over 50% respondents suggesting that the information provided had made a difference to this area. Almost all the interviews highlight current impacts in areas of decision making and evidence based practice. Although the numbers are relatively small, clear evidence is provided where clinical librarians are contributing to reduced costs by impacting on LoS (40 incidents, 12%) and avoidance of referral, tests or readmission (55 incidents, 16%). This contribution to reduced costs is further illuminated in the interviews with staff at Acute Trusts (Acute 3, 4, 10, 12, 13, 15).

The surveys showed 88 incidents (26%) of CL contributions to diagnosis, in the interviews one physiotherapist explained how this contribution was made.

> "Has contributed…Within the literature she sent me, there were some very good articles with 'objective testing'. So if you get a patient in who's got a certain set of symptoms, it tells you exactly what test to do and will differentiate between, like, muscle pull or whether it's [encapsulating?] stability which is saying 'yes, they've probably got a posterior laxity' which can lead to dislocations, so it was specific testing information, so it was ideal". (Physio, Acute 13)

Evidence is also provided of the impact of CLs on choosing tests, interventions and in providing advice to patients or carers.

> "cos part of documentation is the assessment of a patient so it contributes to that. And the way we assess them and look at then writing it, you know, writing it down or documenting it in some format, so yeah, it does contribute to that". (Nurse, Acute 18)

Although the surveys were distributed 6 weeks following the original request, it is possible that there has not been time for the information provided to have an impact. Over one third of respondents suggested that the information provided may contribute to future savings, for example by avoiding readmission or tests or reducing length of stay.
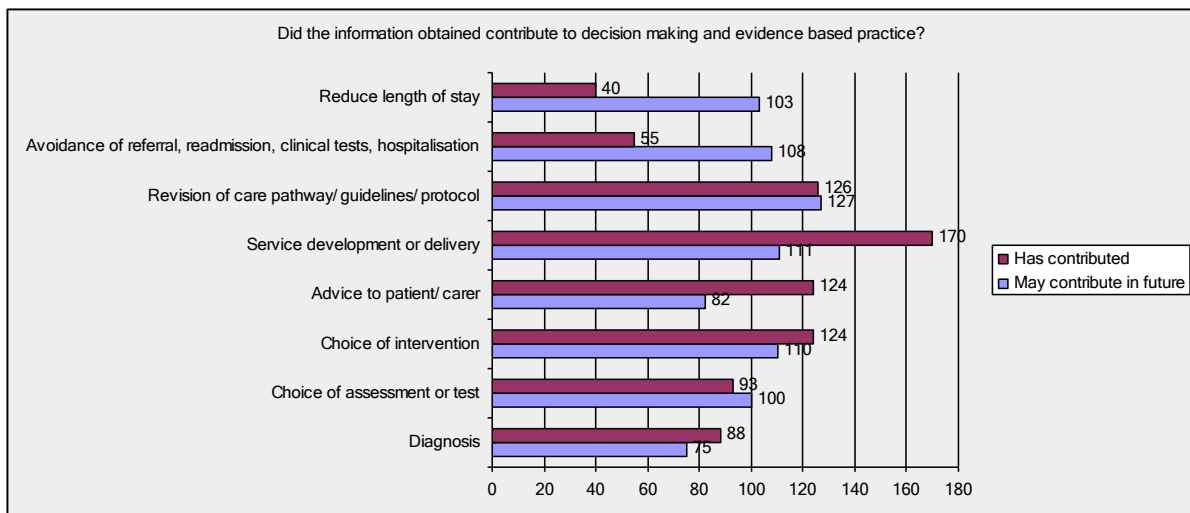

Figure 8: Impact of clinical librarians on decision making and evidence based practice

There were 126 (37%) incidents where CLs contributed immediately to the revision of guidelines and protocols, but most of the impacts from this will be seen in the future.

> *"I mean, it's out for review at the moment." So it has contributed to the revision of it although it's not actually… It's not been published yet". (Nurse, Acute 14)*

Contribution to patient centred care and healthcare outcomes

A total of 328 respondents answered this question and provided evidence of a wide range of contributions. The largest responses were suggesting that rather than have an immediate impact in this area; clinical librarians may contribute to this in the future. Nevertheless, over a quarter of respondents reported immediate contributions to outcomes for improved quality of life (QoL), increased patient involvement in decision making and improved patient access to information.   Furthermore, over 50% respondents noted that the clinical librarian service may contribute to improved quality of life in the future (164 incidents, 48%) and improved health care outcomes (163 incidents, 48%).

The highest contribution to an immediate outcome was 109 incidents (32%) for an improved patient care experience. This was further illuminated by the responses to the interviews which also illustrate some of the complexity involved in collecting data about the impact of CL services. For example, one respondent noted that there was an impact on the patient care experience, but this was not a positive one, *"I warn them that it's going to sting there."…..* and this then impacted on patient involvement in decision making *"Yeah, because I have to warn them about it and they decide if they want the spray or not". (Nurse, Acute10)*

In some cases, due to the nature of the service provided or perhaps the type of Trust where the service was conducted, the wording of the questions needed to be somewhat interpreted, but nevertheless an impact could be seen for that particular outcome, for example an outcome relating to diagnosis

> *"I think it contributed in terms of diagnosing what the state of play or the baseline was in each of the countries involved in the project". (Manager, Comm 6)*

Did the information contribute to patient centred care and healthcare outcomes?

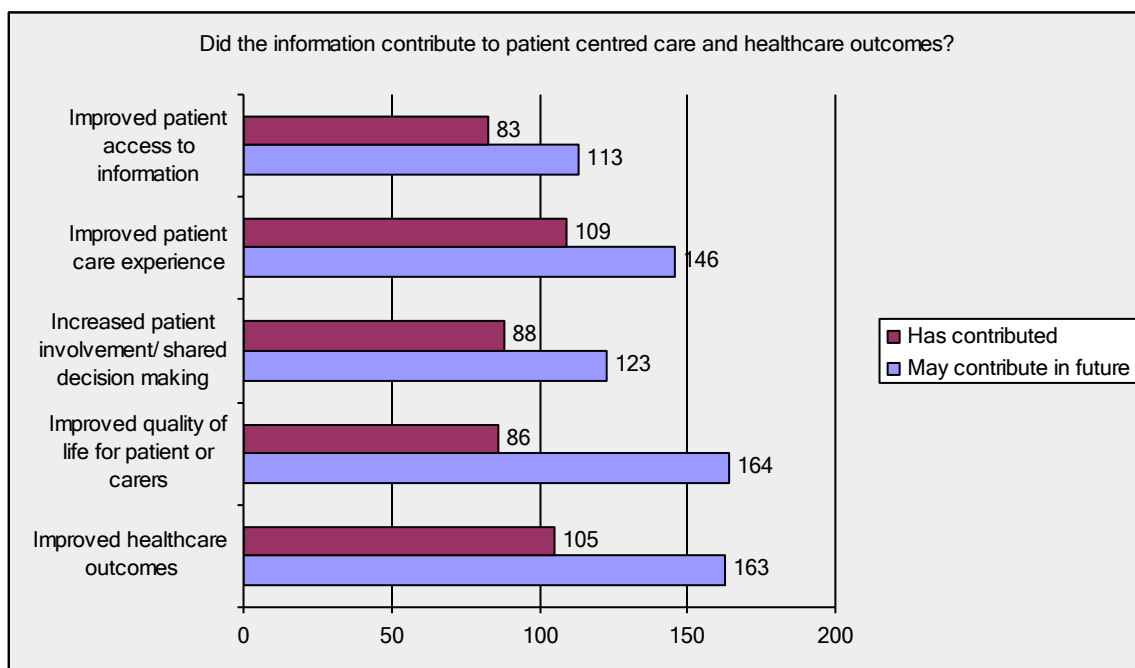| Category	Has contributed	May contribute in future
Improved patient access to information	83	113
Improved patient care experience	109	146
Increased patient involvement/ shared decision making	88	123
Improved quality of life for patient or carers	86	164
Improved healthcare outcomes	105	163

Figure 9: Impact of clinical librarians on patient centred care and healthcare outcomes

One CL was involved in a project group regarding nursing supplies, although some of the impacts were difficult to measure due to the nature of the group and its role, clear contributions could be seen. One example was given on how the information provided via a literature search as part of the project contributed to shared decision making.

> *"Again, have contributed. Simply because we've, via the group, it's meant that we can make, kind of standardised decisions etcetera. So, given the power of that group to actually make decisions on behalf of everyone else within the Trust". (Nurse, Acute 12)*

Quality of care

A total of 324 respondents answered the question regarding quality of care and indicated that this was another area where clinical librarians provide direct and high level impact. Figure 10 shows that the largest area of impact is in the contribution to ensure that interventions are based on best practice or current evidence (155 incidents, 46%). Other areas where clinical librarians make an impact are in implementing guidelines (134 critical incidents, 39%) and improving quality of care (133 critical incidents, 39%).

These three outcomes are summed up in case study Acute 16 which following a request for a literature search on falls assessment in children was identified as having an impact on quality standards and ensuring that interventions are based on current evidence.

> *"Yes. Basically because they say that bedrails shouldn't be used on children under the age of 12, it's made us think about the practice that we actually do, so by looking at how or looking at articles and information around that area, it means that we then are, erm, thinking about what we do and improving it so, and meeting quality standards really". (Nurse, Acute 16)*

Involvement in project teams, such as a nursing supplies group which is responsible for conducting a range of small projects provided an example of how the information provided can impact on guidelines.

> *"Yeah I think this definitely has contributed because we've now got standardised products which we actually use within the hospital and because we're multisite, it's quite difficult to get to that stage. But via the group, it's meant we can set guidelines and also more people about using best practice etcetera". (Nurse, Acute 12)*

A nurse who ran a journal club along with a clinical librarian suggested that the CL intervention impacts on the patient experience in the following way.

> *"I think the above fits into that as well. For example, less use of seclusion. Being able to spot when someone is feeling unsafe and counseled rather than waiting until it becomes such that they respond in an aggressive manner and averting that. I think that the patient experience is being improved by all of this, by improving the knowledge of the staff working closely with them, that's what's come from the JC, rather than improved skills there is something of a change in attitude but I think the most measurable thing is improved knowledge". (Nurse, Comm 4)*

Some areas may well take longer to see the effects of the contribution; such as quality of care and standards. Innovative practice and evaluation or audit were reported as having high potential impacts in the future (159 (47%) and 141 (41%) critical incidents respectively). The case studies demonstrated how these impacts may be realised in the future.

Future contribution to quality of care

> " I think there are, there are implications for the way our staff move between patients in ITU, that will reduce the risk of infection and that will then subsequently improve quality of care because the risk of infection will be reduced and patient transmission will be reduced, so there is still some work that we'll be doing in ITU". (Acute 17)

> "We expect that the…allow us to hit the quality standards for the [emergency?] departments, 95% of patients seen within 4 hours, and it would do that by implementing the best practice. So the information we've already got has been constructed into an action plan and of course the trick then is to put that in place and how we're going to monitor audit. So that's how it will work for that part". (Manager, Acute 10)

Future contribution to health care outcomes

> "It will contribute in the future 'cos at the moment our document…we're still working on the documentation, so you know…it's contributed a little bit, because we've developed a new booklet for documentation, but the main focus of that will be in the future when we start using it and getting it out there on the shop floor". (Nurse Acute 18)

> "It's helped us to keep on top of best practice. We've got a much more critical eye on best practice and what is best practice and how does it compare with the practice we deliver. We're much more up-to-date with current research and literature and actually what we now need to do is evidence better the outcomes of the JC. We're getting there. We're starting to have the impact that was the initial aim but we're just 16mths old with this and so it's taking it's time as with everything in the NHS". (Nurse, Comm 4)

Future contribution to innovative practice

> "I think the JC itself and the input of the library services in establishing the JC is innovative practice initially and then I'd have to say that innovation is pending I think, for example, the patient safety toolkit that is innovative and awaiting approval. Section 17 of the template for discretionary decision-making on the part of nursing staff –the template for them to do that is awaiting governance. There are a couple of innovative things but we're still waiting". (Nurse, Comm 4)

> "Obviously we are trying to produce with our partner organisations, the likes of Spain, Lithuania, Greece and Holland, a standardized training package, DVD and other products for health professionals to use not only in this country but other countries, so we're trying to get an EU approach to delivering this". (Manager, Comm 6)
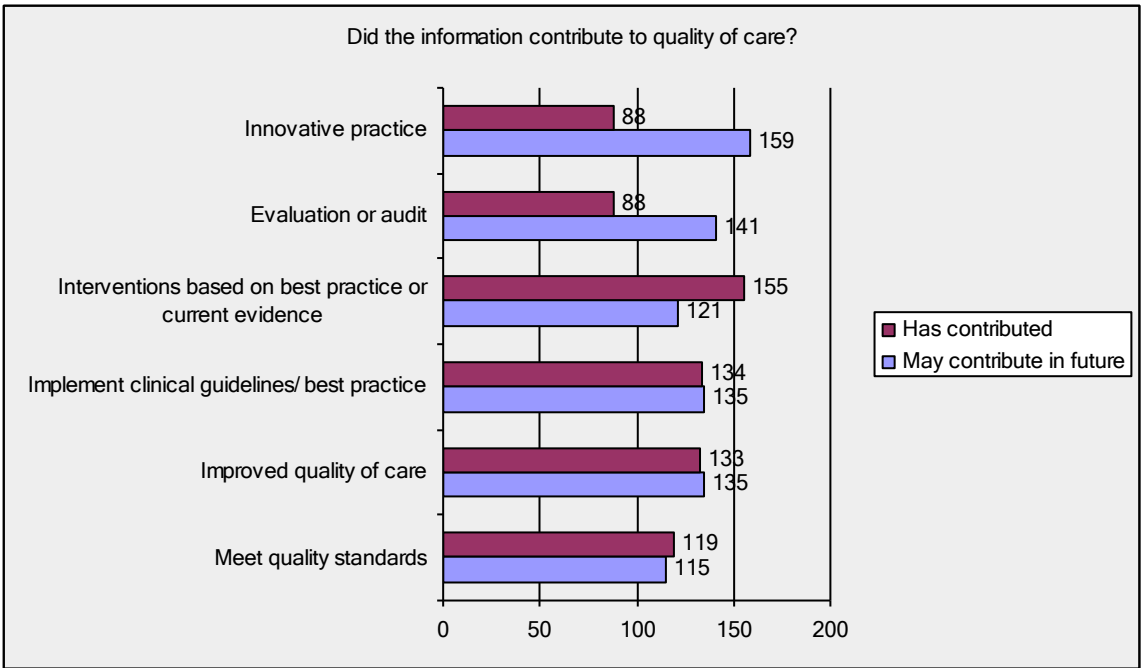
Figure 10: Impact of clinical librarians on quality of care

Contribution to service development

A total of 325 participants responded to this question and given the nature of service development; it was found that the highest responses indicated most impact could be determined as contributing in the future to ensuring that service development is underpinned by the evidence base (139, 41% critical incidents) or the inequalities are addressed (123, 36% critical incidents). However, evidence of more immediate impact was also reported for service development (127, 37% critical incidents) and working with other health and social care providers (99, 29% critical incidents), providing integrated care and addressing inequalities or an unmet need in care. Contributions to immediate service developments were also reported in the interviews across the acute and community sectors (Acute 5, 7, 17, 18 Comm 2, 4, 5, 6).

Figure 11: Impact of clinical librarians on service development

One physiotherapist suggested that because the information had already contributed to the diagnosis, it also contributed to service delivery based on evidence.

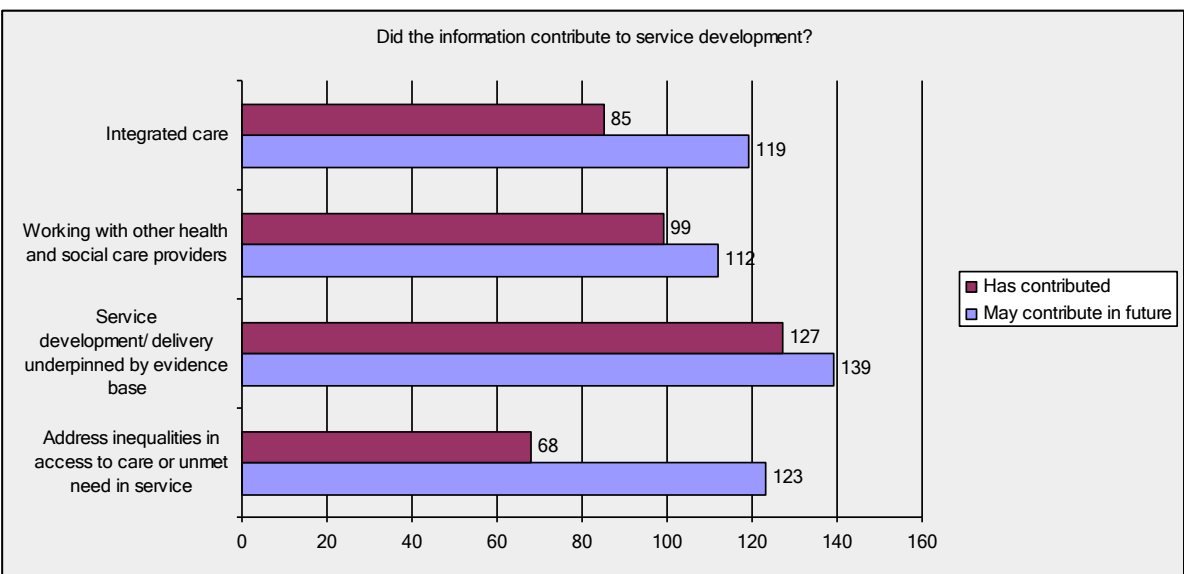> " … because I think the testing is more specific. They're notoriously difficult things to diagnose, so yeah I think, you know, as Clinicians, we're being more effective in our diagnosis, and if you think the diagnosis is right, then the treatment is better". (Physio, Acute 13)

Impact of clinical librarians on continuing professional development

This section of questions was completed by 325 respondents and was an area which demonstrated where clinical librarians have one of the highest impacts. Almost 3/4 respondents reported that CLs have a direct contribution to ensuring their skills and knowledge are updated (243, 71% critical incidents and across all interviews).

A journal club had a number of impacts in this area

> "Definitely we have a lot more staff able to do basic, some can do advanced literature searches but certainly basic literature searches based on keywords, if that's all they can do then that's an improvement. A lot more staff reading at least 2 articles a month, where perhaps they never read any. Reading habits are improved. They're attitude towards the evidence base has improved. They become much more curious about what's out there, what might be out there. They're a lot more critical about their own practice. I kept a register of attendance for journal club, I've not got the figures to hand but attendance would count towards their prep hours. Personally I got a publication out of it. I suppose also the presentation at the forthcoming conferences. With the service users and learning how to literature search, obviously they are not professionals but it certainly developed them. There is certainly a lot more creative thought and practice on the wards as well". (Nurse, Comm 4)

 Large immediate impacts were also noted for supporting research (193, 57% critical incidents) and complying with the requirements of regulatory and professional bodies (162, 48% incidents). These high level impacts are not surprising given the traditional function of hospital libraries in supporting education and research. As well as a direct impact on the member of staff concerned, more indirect impacts can also be seen as 154 respondents (45% incidents) reported using the information to deliver training and educate other staff and 93 (27%) noted that the information was used to supervise or lead staff. Themes which were also seen across the interviews (e.g. Comm 5, 6, 7, Acute 12, 16, 17, 18).
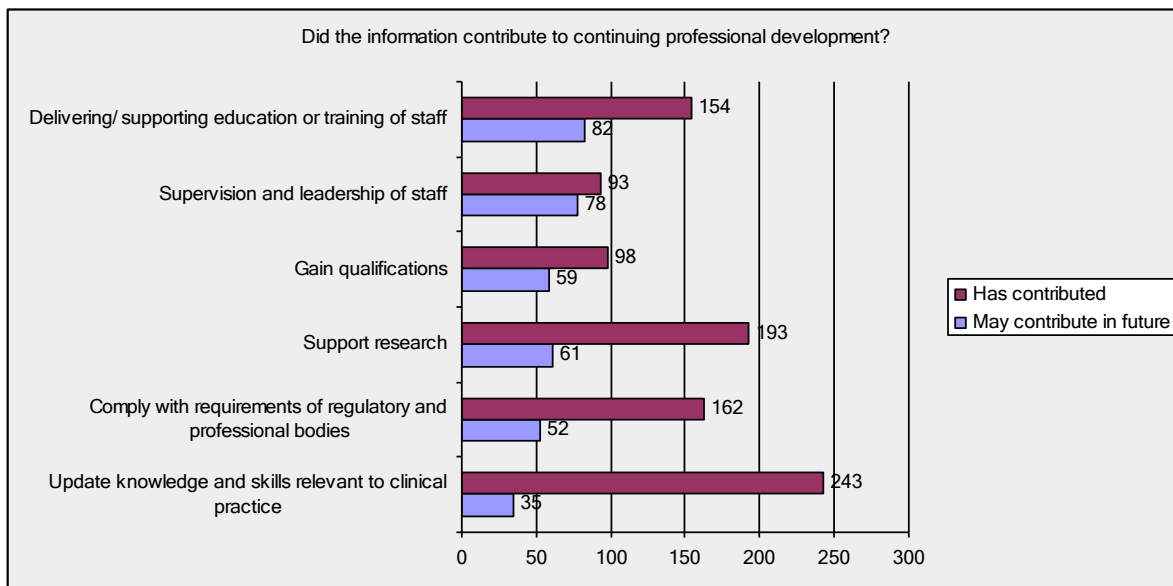
Did the information contribute to continuing professional development?

Category	Has contributed	May contribute in future
Delivering/ supporting education or training of staff	154	82
Supervision and leadership of staff	93	78
Gain qualifications	98	59
Support research	193	61
Comply with requirements of regulatory and professional bodies	162	52
Update knowledge and skills relevant to clinical practice	243	35

Figure 12: Impact of clinical librarians on CPD

One interviewee noted that the information had contributed to many of the outcomes in this area.

> *"Has contributed – definitely". …"I mean it was specifically about a CPD in-service training. It was, the whole purpose of the event was a) for me to learn some more and b) provide the in-service training and it's helped our whole department. You know, it's helped heaps so those questions are very very relevant". (Physio, Acute 13)*

Impact of clinical librarians on efficiency, finance and risk management

This area of potential impact is one which is not traditionally associated with a library contribution, but nevertheless is seen by some as potentially key to survival given the current fiscal climate. Although visible impacts in this area are notably lower than in the others, there is nevertheless clear evidence of impact to be seen.

For example

> *"Yeah, going back to what I mentioned about…the information gave us very specific information with regard to what would work for what patient. So rather than us see a patient trying to get an outcome from physiotherapy, now we know which ones are likely to succeed and which ones aren't. We can refer to the right person straight away, thereby not wasting appointments really". (Physio, Acute 13)*

A total of 315 respondents answered questions in this area. A quarter reported direct impact in improving patient and staff safety (85, 25% critical incidents) as well as in risk management (79, 23% critical incidents, Acute 3, 7, 9, 10, 16, 17, 18, Comm 4).

> *"Yeah. Yes, I would say so because if a child gets their head trapped in a bedrail, then that's going to have a huge impact on the financial situation of the Trust through litigation". (Nurse, Acute 16)*

> *"Yeah, well it's actually for the future because a lot of this is still in the planning stages what we're going to do. So yeah, we're talking a lot of – we're doing the talk at the moment, but it's actually putting the actions into place that are important". (Nurse, Acute 18)*

There are also small (but important, because of the associated income generation or saving money) examples of direct impacts on business development and commissioning or decommissioning of services (29 (8.5%) critical incidents each). Equally encouraging is the number of potential impacts which have been identified for future contributions such as supporting Quality, Innovation, Productivity and Prevention (QIPP) and legal issues.
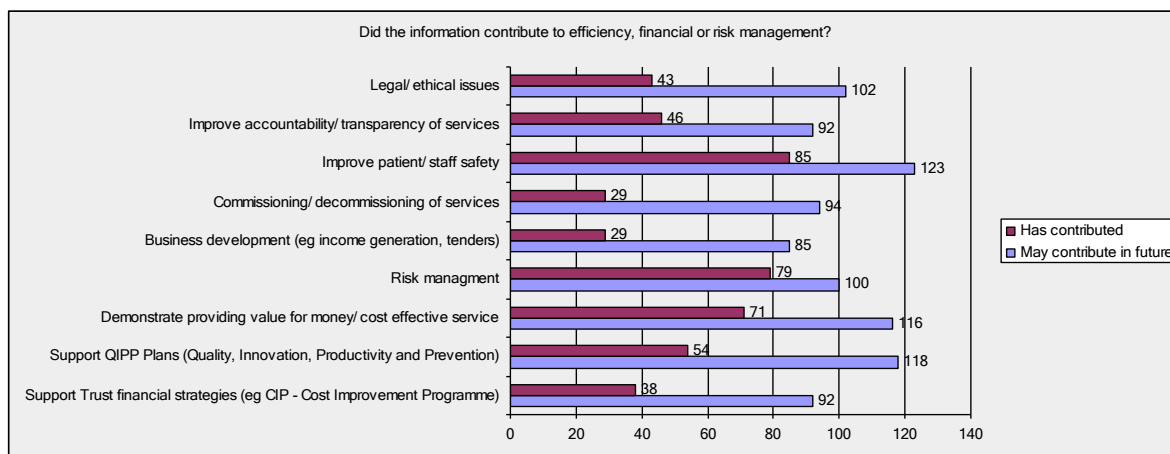

Did the information contribute to efficiency, financial or risk management?

	Has contributed	May contribute in future
Legal/ ethical issues	43	102
Improve accountability/ transparency of services	46	92
Improve patient/ staff safety	85	123
Commissioning/ decommissioning of services	29	94
Business development (eg income generation, tenders)	29	85
Risk managment	79	100
Demonstrate providing value for money/ cost effective service	71	116
Support QIPP Plans (Quality, Innovation, Productivity and Prevention)	54	118
Support Trust financial strategies (eg CIP - Cost Improvement Programme)	38	92

Figure 13: Impact of clinical librarians on finance, efficiency and risk management

There were 71 (21%) examples in the questionnaire results where CLs had directly contributed to the demonstration of value for money (VfM) or a cost effective service. One illustration from the interviews was in relation to the involvement in a nursing supplies group.

> *"Yeah, it definitely has contributed 'cause that's one of the things that I monitor against the nursing supplies group and many of the things we discuss clinically whether it's acceptable, and then obviously the cost implications of making that change etcetera". (Nurse, Acute 12)*

In some cases, for example, where a CL has been involved in providing monthly horizon scanning bulletins, the direct contribution to QIPP could already be seen, the respondent gave an example of the production of a bulletin on length of stay.

> *"Has supported, has contributed. What we hope to do is by reducing length of stay and giving the patient a better experience than what's clinically appropriate, that might lead to a reduction in the bed base which in turn will lead to savings. So it's directly helping with the…hitting the Trust's targets for the QIPP in cost improvement programmes through a fairly lengthy convoluted route where actually the aim is to lower it". (Manager, Acute 11)*

Other areas where complex contributions may be made in the future and may not be traditionally associated with clinical librarians are in legal and ethical issues (43, 13% direct contributions and 103, 30% potential contributions).

> *"Certainly legal, wrt Section 17 leave in the Mental Health Act. Legalities of smoking on NHS premises has also been explored. Wrt ethical considerations I would pin that on patient safety and the ethics around that. You would not expect to be a patient in a hospital and feel unsafe. The ethics around patients feeling unsafe in a hospital, whether that is more of a moral or ethical issue I think maybe both.*

Also the ethical issues around the discretionary powers that nurses have in granting prescribed leave. What we've managed to find is that a lot of the time, leave was withheld by nurses with I'm sure, the best of intention, but it was withheld, illegally and definitely unethically. However, we are constantly aware of that now and constantly monitoring that much better through audit. So we're striving to eradicate those cultures". (Nurse, Comm 4)

Quantitative Analysis

Differences between Professional Groups

Chi-square test was used to determine whether there were any significant findings amongst the professional groups surveyed. Missing data (i.e. unanswered questions) were omitted from the analysis.

Outcome	Chi-square	df	p-value
Diagnosis	15.907	14	0.319
Choice of Assessment	14.427	14	0.418
Choice of Intervention	29.247	14	0.010
Patient Advice	28.094	14	0.014
Service Development	15.251	14	0.361
Guideline Revision	20.746	14	0.108
Avoidance of Readmission	20.441	14	0.117
LoS	20.989	14	0.102
Health Outcome	25.231	14	0.032
QoL	18.224	14	0.197
Patient Involvement	26.010	14	0.026
Patient Experience	30.553	14	0.006
Patient Access to Information	25.163	14	0.033
Quality Standards	25.262	14	0.032
Quality of Care	21.311	14	0.094
Implement Guidelines	14.608	14	0.405
Interventions Based on Best Practice	16.387	14	0.290
Evaluation/Audit	15.463	14	0.347
Innovative Practice	11.598	14	0.639

Address Inequalities	26.810	14	0.020
Service Development Underpinned by Best Evidence	25.949	14	0.026
Work with others	29.651	14	0.009
Integrated Care	22.091	14	0.077
Knowledge and Skills	74.918	14	0.000
Regulatory Bodies	31.841	14	0.004
Research	15.757	14	0.328
Qualifications	17.014	14	0.255
Supervision	26.905	14	0.020
Education	37.438	14	0.001
Financial Strategies	23.475	14	0.053
QIPP	16.004	14	0.313
VfM	21.097	14	0.099
Risk Management	27.337	14	0.017
Business Development	20.605	14	0.112
Commissioning	21.522	14	0.089
Patient Safety	24.736	14	0.037
Accountability	16.713	14	0.272
Legal/Ethical	26.599	14	0.022

Table 1: Difference in purpose for professional group requests

Statistically significant differences (p<0.05) in responses (shown in yellow in Table 2) between the professional groups surveyed were seen in the following areas (top profession demonstrating greater impact) : Choice of intervention (Nurses), Patient Advice (Social), Health Outcome (Nurses), Patient Involvement (Social), Patient Experience (Nurses), Patient Access to Information (Nurses), Address Inequalities (Medics), Service Development Underpinned by Best Evidence (Social), Working with Others (Social), Regulatory Bodies (AHP), Supervision (Nurses), Risk Management (Managers), Patient Safety (Nurses) and Legal/Ethical (Nurses).

Highly statistically significant differences (shown in orange in Table 2) (p<0.001) between professional groups were seen in Knowledge and Skills (AHP), and Education (Medic).

Impact by professional group % response

% has impact (% may impact)

Outcome	Medic	Nurse	AHP	Social	Managers	Admin	p-value
Diagnosis	32.1(32.1)	39.6(24)	24.1(25.9)	14.3(14.3)	30.4(21.7)	23.1(15.4)	0.319
Choice of Assessment	32(36)	38.9(34.7)	33.3(35.1)	14.3(14.3)	20.8(45.8)	15.4(30.8)	0.418
Choice of Intervention	41.8(40.5)	47.6(32.4)	42.9(44.6)	42.9(-)	20.8(41.7)	14.2(35.7)	0.010
Patient Advice	42.1(34.2)	51.2(27.8)	50.9(23.6)	66.7(16.7)	20.8(25)	7.1(35.7)	0.014
Service Development	45.5(37.7)	55.9(38.7)	54.2(32.2)	85.7(14.3)	64.5(29)	42.9(35.7)	0.361
Guideline Revision	40.5(40.5)	47.3(43.6)	31.6(42.1)	57.1(42.9)	42.9(32.1)	28.6(35.7)	0.108
Avoidance of Readmission	26.3(36.8)	22.7(45.4)	9.6(28.8)	16.7(16.7)	16.7(41.7)	7.7(30.8)	0.117
LOS	19.2(32.9)	18.9(45.3)	5.8(32.7)	-(16.7)	8(48)	15.4(23.1)	0.102
Health Outcome	31.7(51.2)	42.1(47.7)	32.8(62.1)	37.5(50)	16(64)	14.3(50)	0.032
QOL	28.2(50)	33(49.1)	26.8(66.1)	15.4(62.5)	15.4(65.4)	13.3(53.3)	0.197
Patient Involvement	30.3(34.2)	36.8(44.3)	27.8(44.4)	42.9(57.1)	12(48)	13.3(46.7)	0.026
Patient Experience	32.9(40.8)	43.1(44)	39.7(51.7)	28.6(57.1)	23.3(66.7)	7.1(50)	0.006
Patient Access to Information	30.3(28.9)	36.9(40.8)	22.2(40.7)	16.7(66.7)	14.8(48.1)	-(46.7)	0.033
Quality Standards	36.8(39.5)	51.5(38.8)	28.3(45.3)	42.9(28.6)	44.4(37)	23.1(23.1)	0.032
Quality of Care	42.1(44.7)	50.5(43.1)	47.2(43.4)	62.5(25)	33.3(55.6)	21.4(57.1)	0.094
Implement Guidelines	43.6(42.3)	50.5(43)	36.4(50.9)	28.6(71.4)	44.4(40.7)	30.8(38.5)	0.405
Interventions Based on Best Practice	50.6(38)	54.7(39.6)	47.4(40.4)	42.9(57.1)	50(35.7)	35.7(42.9)	0.290
Evaluation/Audit	31.2(44.2)	31.4(52)	21.4(53.6)	57.1(28.6)	29.6(44.4)	30.8(23.1)	0.347
Innovative Practice	27(50)	35.6(51.5)	25.9(61.1)	33.3(66.7)	31(58.6)	21.4(57.1)	0.639
Address	32.9(27.6)	26.7(51.5)	12.7(40)	-(66.7)	19.2(50)	14.3(42.9)	0.020

Inequalities							
Service Development Underpinned by Best Evidence	33(38)	40.5(50.5)	42.4(49.2)	57.1(28.6)	48.4(35.5)	38.5(38.5)	0.026
Work with others	28.6(31.2)	44.1(39.2)	31.1(36.4)	42.9(28.6)	22.6(58.1)	21.4(42.9)	0.009
Integrated Care	28.2(32.1)	38.4(41.4)	25.9(44.5)	42.9(28.6)	26.9(46.2)	7.1(57.1)	0.077
Knowledge and Skills	81.7(11)	82.4(9.3)	92.1(6.3)	57.1(28.6)	38.5(26.9)	33.3(-)	0.000
Regulatory Bodies	55.3(10.5)	58.3(21.4)	71.9(14)	33.3(33.3)	36(24)	8.3(25)	0.004
Research	59.5(19)	68.6(20)	67.8(15.3)	62.5(37.5)	46.4(32.1)	46.2(15.4)	0.328
Qualifications	28.4(23)	43.4(20.8)	35.1(17.5)	16.7(16.7)	16.7(16.7)	16.7(16.7)	0.255
Supervision	28.9(25)	43.1(29.4)	29.6(18.5)	42.9(42.9)	11.1(37)	16.7(16.7)	0.020
Education	60(16)	58.1(33.3)	51.8(30.4)	50(50)	23.1(30.8)	46.2(15.4)	0.001
Financial Strategies	13.2(34.2)	11.5(36.5)	1.9(28.8)	16.7(33.3)	37.5(20.8)	25(25)	0.053
QIPP	14.5(34.2)	17.6(47.1)	15.1(43.4)	16.7(33.3)	38.5(38.5)	23.1(30.8)	0.313
VFM	23.4(29.9)	25(44.2)	12.3(45.6)	28.6(28.6)	46.4(32.1)	23.1(30.8)	0.099
Risk Management	24.7(28.6)	35.9(39.8)	11.1(33.3)	-(33.3)	38.5(26.9)	23.1(38.5)	0.017
Business Development	13.2(21.1)	12.2(32.7)	5.7(26.4)	-(50)	16.7(50)	-(50)	0.112
Commissioning	13.5(29.7)	10(33)	3.8(26.9)	14.3(42.9)	23.1(50)	-(50)	0.089
Patient Safety	25.3(45.6)	50.6(44.7)	18.5(38.9)	14.3(28.6)	28.6(35.7)	25(25)	0.037
Accountability	13.3(25.3)	22.4(39.8)	7.5(32.1)	28.6(28.6)	12(32)	16.7(33.3)	0.272
Legal/Ethical	14.7(30.7)	24.5(41.8)	8(30)	-(83.3)	8.3(41.7)	-(33.3)	0.022

Table 2: Impact by professional group

Differences between Clinical versus Non-Clinical Professionals

Chi-square test was used to determine whether there were any significant findings amongst the professional groups surveyed. Missing data (i.e. unanswered questions) were omitted from the analysis.

Outcome	Chi-square	df	p-value
Diagnosis	2.570	2	0.277
Choice of Assessment	2.224	2	0.329
Choice of Intervention	9.556	2	0.008
Patient Advice	19.029	2	0.000
Service Development	0.286	2	0.867
Guideline Revision	4.047	2	0.132
Avoidance of Readmission	1.197	2	0.550
LOS	1.307	2	0.520
Health Outcome	7.560	2	0.023
QOL	2.890	2	0.236
Patient Involvement	11.606	2	0.003
Patient Experience	7.837	2	0.020
Patient Access to Information	7.665	2	0.022
Quality Standards	2.929	2	0.231
Quality of Care	7.342	2	0.025
Implement Guidelines	2.090	2	0.352
Interventions Based on Best Practice	1.608	2	0.448
Evaluation/Audit	3.309	2	0.191
Innovative Practice	0.776	2	0.678
Address Inequalities	1.380	2	0.502
Service Development Underpinned by Best Evidence	1.037	2	0.596
Work with others	4.567	2	0.102
Integrated Care	6.220	2	0.045
Knowledge and Skills	46.176	2	0.000
Regulatory Bodies	12.585	2	0.002

Research	4.974	2	0.083
Qualifications	7.530	2	0.023
Supervision	9.515	2	0.009
Education	20.456	2	0.000
Financial Strategies	12.947	2	0.002
QIPP	6.696	2	0.035
VFM	3.800	2	0.150
Risk Management	0.700	2	0.705
Business Development	3.974	2	0.137
Commissioning	3.997	2	0.136
Patient Safety	3.384	2	0.184
Accountability	0.120	2	0.942
Legal/Ethical	2.458	2	0.293

Table 3: Differences between clinicians and non clinicians

Statistically significant differences (p<0.05) in responses between the professional groups surveyed were seen in the following areas (top profession demonstrating greater impact): Choice of intervention (clinical), Health Outcome (clinical), Patient Involvement (clinical), Patient Experience (clinical), Patient Access to Information (clinical), Quality of Care (clinical), Integrated Care (clinical), Regulatory Bodies clinical), Qualifications (clinical), Financial Strategies (non-clinical) and QIPP (non-clinical).

Highly statistically significant differences (p<0.001) between professional groups were seen in Patient Advice (clinical), Knowledge and Skills (clinical) and Education (clinical).

In summary these results show that between professional groups, highly statistically significant differences (p<0.001) between clinicians (medics, nurses, AHP) and non-clinicians were seen in the Knowledge and Skills, Education and Patient Advice outcomes. This perhaps isn't surprising given the need for clinicians to keep up-to-date with CPD to provide the best patient care and that they are more likely to be the ones advising patients on the best course of action.

Interviews

A total of 24 interviews were conducted by 6 librarians for 6 library services. The sample comprised a mixture of professionals, types of Trust and CL services provided in order to obtain a broad picture of the services and impact provided. In addition to triangulating the data provided from the questionnaire survey, the interviews provided valuable insight into the questionnaire itself, how it was perceived and improvements which were needed.

The interviews are presented in Appendix 8 as individual case studies and have been anonymised. Most of the interviews are descriptions of literature searches and their associated outcomes, however, four cases (Comm 4, 6; Acute 10, 12) describe different roles or indepth projects in which CLs have been involved. These include contribution to a Journal Club (Comm 4), contribution to a project team (Comm 6), monthly bulletins on management issues (Acute 10) and contribution to a nursing supplies group (Acute 12). In these cases the CL contributes to a similar wide range of outcomes, but the interviews demonstrate how the CL was very much an integral and critical part of the projects described. These more indepth responses show the value which a CL can contribute, as well as the complexity in measuring that value. For example

"Her role in that team was to do literature searches around the questions devised and circulate the evidence, say 4 or 5 articles to the team to agree on the 2 articles for discussion which were then disseminated to the rest of the potential attendees. We recognized early on from the evidence around journal clubs that some disciplines had a lot more experience in critiquing the literature. For the nurses it wasn't part of their professional pre-reg training. We recognized a disparity in the ability to critique the literature so the CL taught some critical appraisal training in the first few weeks. Really useful……".

"Yes, I suppose in ways in which I have described really. The National Patient Safety Agenda for example, whether this is a health outcome or not is difficult to distinguish. The National Patient Safety association did a survey of service users and found that over 90% felt unsafe. We're striving to change that however that is one of the things that we're waiting approval on from governance. That is something that we're hoping will impact on patient safety. Now whether that is a health outcome or not is debatable. I'm sure that there will be positive health outcomes from this, because the service users will feel safer, that will impact on their wellbeing and impact on their ability to take part in activities. Looking at the management of violence or aggression there is a lot of things been put in place, just simple things that we got from the journal club, such as proactive measures around management e.g. being very very careful about what colours you choose to paint the walls in the communal areas. Being very careful about what kinds of notices you put up in the patient lounge, should there be any notices in the patient lounge, should there be pictures, should it be more homely. But it's difficult to see set healthcare outcomes from that. I would say that perhaps we use less seclusion but we would need the time to audit adverse incidents, prior and post JC and because of all the stuff the JC generates, we've not had time to do. I think it's difficult to point at specific health outcomes, that's work for the future I think. I'm sure there will be it's just difficult to prove it". (Nurse, Comm 4)

"We realised quite a long time ago that senior managers didn't have a lot of time to research other organisations and Trusts were doing in terms of cost-improvement programmes and so on. So what we decided that I would do would be, work with the CL and produce a monthly bulletin where we actually proofed the information to all the senior managers, in fact anybody in the Trust who's interested. So essentially, every month the CL looks at other Trusts, other organisations, anything she can find, things from journals and so on, and then she and I go through it and evaluate it and decide which ones we're going to horizon scan bulletin." On this occasion look at the bulletin that specialised on 'length of stay" …..

"Supporting QIPP: Has supported, has contributed. What we hope to do is by reducing length of stay and giving the patient a better experience than what's clinically appropriate, that might lead to a reduction in the bed base which in turn will lead to savings. So it's directly helping with the…hitting the Trust's targets for the QIPP in cost improvement programmes through a fairly lengthy convoluted route where actually the aim is to lower it". (Manager, Acute 10)

Due to the structured nature of the interview and the variety, breadth and depth of information provided; it was not possible, nor meaningful to conduct a thematic analysis either across outcomes, professions or types of Trusts. Within each case the actual and potential impacts have been presented, alongside instances where no contribution has been made. The quotes used earlier in the Chapter illustrate how the information provided has made an impact within the NHS organisation or (in some cases) where or how the information did not make a contribution. Table 4 provides a summary of the interviews together with a summary of the short and longer term outcomes.

The interviews confirmed the questionnaire findings that CLs contribute to a wide range of outcomes both immediately and in the future. This is true across different professional groups and across different types of Trusts. Immediate and future impacts were found across all different types of outcomes including Decision Making and Evidence Based Practice, CPD, Service Delivery, Quality of Care and Efficiency Finance and Risk.