Background

Despite a strong research presence in Lancashire Teaching Hospitals NHS Foundation Trust (LTHTR), Allied Health Professionals are under-represented in developing and publicising research within the organisation inspired by day to day clinical practice and staff experiences. Two departments within the Trust, Library and Knowledge Services (LKS) and Research and Innovation (R&I), came together to enable a group of staff to develop the knowledge and skills they needed to access information and create new "home grown" research.

Case Presentation

A clinical librarian and an academic research nurse created a research engagement programme within the diagnostic radiography department at LTHTR, which included the development, delivery, and evaluation of six workshops. Sixteen individuals took part in these workshops, and data were collected on library usage, self-efficacy in information literacy, and research output before and after their delivery. Library membership increased by 50% in diagnostic radiography staff, literature search requests from this department increased by 133%, and all participants who attended at least one workshop reported an increased Information Literacy Self Efficacy Scale (ILSES) score. An increase in research activity and outputs were also attributed to the programme.

Conclusions

This project has resulted in a set of freely available workshop plans and support resources that can be customized for other healthcare professionals and has won several awards for its innovative use of departmental collaboration. Through our evaluation of the programme from workshop attendees and non-attenders, we have identified impacts, outputs, and barriers to engagement in order to continue to deliver this content to other departments and embed a "home grown" research culture at LTHTR.

BACKGROUND

Research-engaged healthcare professionals are key to providing evidence-based care for patients. A review by Boaz et al found that there '…is some positive evidence…that engagement by clinicians and healthcare organisations in research can improve healthcare performance.' [1] However, a recent report from The Healthcare Improvement Studies (THIS) Institute found that staff working in the National Health Service (NHS) healthcare system in the UK can make valuable contributions at every stage of the research process but their potential has not yet been realised. The report identified 'lack of knowledge, skills and confidence' as a major barrier to staff engaging with research [2]. NHS England has a vision of 'research being everybody's business' [3] and building a culture that values and promotes research and innovation [4]. Despite a strong research presence in Lancashire Teaching Hospitals NHS Foundation Trust (LTHTR), Allied Health Professionals are under-represented in developing and publicising "home grown" research. By "home grown" we mean research developed from within the organisation inspired by day to day clinical practice and staff experiences within the Trust.

Library and Knowledge Services (LKS) and Research and Innovation (R&I) are two independent departments within the Trust that provide services and support for all staff and students. LKS employs 13 staff, with 5 library assistants, 7 librarians and a head of department. There are three

distinct teams within LKS – Operations (staffing the enquiry desk, document delivery, marketing and stock management), Electronic Resources (management of subscriptions, online resources, current awareness and website development), and Clinical Librarians (literature searching, information skills training and outreach work).

R&I is a larger team, comprising 65 staff across management, administrative and clinical roles. The main remit of the department is delivering clinical research projects that are externally designed and funded. Within R&I sits the Clinical Academic Faculty (CAF), a partnership between the University of Central Lancashire (UCLan), which is the local higher education institution. The CAF is a team of three-part time employees who are responsible for increasing nurse, midwife and allied health professional research and innovation capacity and capability, fostering research partnerships, and supporting the growth of locally inspired research and innovation. The CAF team are all nurses by background with an extensive range of clinical, academic and research experience. The CAF service provides a one-stop access point for advice, support and training for individuals and teams wanting to be involved in research along with signposting to relevant research support networks and infrastructure. Working with LKS and external research organisations and partners, CAF offers many options along the research pathway from support with development of research projects, applications for research internships and funding, finding and translating evidence for practice, implementation of evidence into practice and writing for publication support and dissemination.

LKS and the CAF are in a similar position within the wider setting of the Trust, as we are non-clinical departments, occupy physical spaces away from the main hospital building, and are often trying to market our services to the same audiences. LKS at LTHTR have provided a range of training for staff and students, including skills such as literature searching and critical appraisal, but this has generally been delivered on an ad hoc basis, and there was a desire among our departments to move towards tailored training rather than a one size fits all approach. We believed that if the content of a training programme was shaped by the potential participants, attendees would engage with the content and acquire skills and knowledge they identified as necessary, rather than skills and knowledge we thought they needed. To this end, a clinical librarian and an academic research nurse representing LKS and R&I decided to create a training programme that would enable LTHTR staff to develop the knowledge and skills needed to access information and create new evidence.

In the current project, we aimed to develop, deliver and evaluate a research engagement programme for all staff in the diagnostic radiography department at Lancashire Teaching Hospitals NHS Foundation Trust. We attempted to meet these aims by creating a set of workshop plans and support resources customizable to a variety of professional groups within healthcare settings, delivering a workshop series for diagnostic radiography staff, measuring information literacy self-efficacy, library usage and research output before and after the workshops, and evaluating the programme and identifying areas for improvement.

CASE PRESENTATION

We selected the diagnostic radiography department for this programme because of management support and a desire to develop the skill sets within the workforce. The head of the diagnostic radiography department saw our project as an opportunity to expand the skills and knowledge of staff and to raise the visibility of an often overlooked but essential department within the Trust as a whole. Our programme also supported the aims and objectives of the research strategy of the Society and College of Radiographers, particularly to '…Expand UK radiography research capacity through development of skilled and motivated research-active members of the profession'. [5] By linking the rationale of the workshops directly to the aims of the professional body, we provided a wider and more applicable context for participants.

We invited all diagnostic radiography staff (n=141) and students (n=14), regardless of job role or level, to take part. The project team (clinical librarian and academic research nurse) ran two awareness raising sessions introducing the programme, the support we could provide, and the commitment required from them as individuals and a group. In addition to the awareness-raising sessions, we shared information about the programme via e-mail to all members of staff and advertised on posters throughout the department. The head of the diagnostic radiography department, who oversees all staff, discussed the programme with all senior team leaders and requested they encourage attendance from their teams. Potential participants were people who had attended an awareness raising session or contacted one of the facilitators directly and registered an interest in taking part in the programme (n=50).

Development and delivery of workshops

We used Survey Monkey to send a survey to all potential participants about their choice of workshop themes and timings. Each participant was asked to select the six workshops they would most like to be delivered from a list of sixteen options. 21 potential participants (42%) responded to the survey and the following workshops had the most votes:

- **Overcoming barriers to starting research**
- **What to do with your research idea**
- **Planning your research project**
- **Introduction to critical appraisal**
- **An overview of e-journals and databases**
- **Creating a poster**

(For a full list of the workshops offered in the survey, please see Appendix A.)

We tailored the workshops to radiographers by using examples of research proposals, search examples, funding opportunities and bids, and conference posters from other radiographers and from within LTHTR. The workshop content was developed collaboratively with both the research nurse and clinical librarian drawing on their professional experience to decide upon information covered. Each workshop contained at least one interactive element where participants were encouraged to work together, and some of the workshops required activities to be completed between sessions. The workshops took place over a seven month period, with sessions spaced at

approximately four week intervals. Each workshop consisted of an hour long facilitated session delivered twice a week at different time slots to maximise attendance. After every session, a handout was distributed to all diagnostic radiography staff, regardless of whether they had attended, so they could benefit from an overview of the content and links to further information. Anyone could opt out of these emails if they wished, but no one contacted us to request removal from the distribution list. Attendees received a continuing professional development certificate for each session.

Measurement of engagement in research programme

In total, 16 individuals attended our workshops, and each individual attended between one and six. The most well attended session was 'What to do with your research idea' with 11 participants and the least was 'Planning your research project' with 4 participants. In order to capture impact of the project, the following measures were collected before and after the workshops: library usage, research outputs, and self-efficacy in information literacy.

Library Usage

We measured department-wide library usage and research outputs before, during and 12 months after final workshop delivery.

At the start of the workshops, there were 16 library members with diagnostic radiography specific job titles. 12 months after the delivery of the workshops there were 24 library members classified as diagnostic radiography staff, a 50% increase. There were an additional 48 new library members who were radiography students, a 200% increase (although this number could include therapeutic radiography students as well as diagnostic radiography students).

In the 12 months prior to the workshops, there were three requests for literature searches from diagnostic radiography staff. In the seven month period between the delivery of the first and last workshop, there were seven requests for literature searches (a 133% increase), and in the 12 month period after the delivery of the last workshop, there was one literature search request.

Research Outputs

It became evident through the programme that research output was not robustly captured for "home grown" research at LTHTR. According to Trust policies, all research should be registered with R&I; this does not always happen as many research teams identify their projects as service evaluation because of the fear of dealing with additional workload or constraints associated with registration. In reality, registering with R&I allows additional support, especially for novice researchers. This includes access to expert advice, statistical support and widened dissemination opportunities.

As a result, there was no audit of "home grown" research activity in the diagnostic radiography department prior to the programme to allow change over time to be documented. Research outputs such as presentations at conferences or posters were not centrally recorded in the Trust, but work is underway to develop a repository where future activity will be captured. Research activity after the programme was informally captured from participant evaluations.

Self-efficacy in Information Literacy

We utilised the Information Literacy Self Efficacy Scale (ILSES) [6] before and after the series of workshops to measure participants' self-efficacy in relation to information literacy. Participants registered with a 'nickname' to maintain anonymity and elicit authentic answers. They rated 28 statements on a scale of 1 to 7 where 1 was almost never true and 7 was almost always true. An example statement: "I feel confident and competent to decide where and how to find the information I need" [6]. Higher scores therefore indicate higher levels of self-efficacy for information literacy.

23 diagnostic radiography staff members completed the initial ILSES. 14 of those then went on to attend at least one of the six workshops delivered. Ten then completed the final ILSES, which measured information literacy self-efficacy after all of the workshops had been delivered. Given the small number of participants (n=10), we were unable to complete statistical analyses beyond descriptive measures. Initial ILSES scores ranged from 62 to 151, with a mean of 107, and final ILSES scores ranged from 131 to 168 with a mean of 152. All participants who attended at least one workshop had an increased ILSES score, with score increases ranging from 10 to 89 and a mean score increase of 44. The largest increases in scores were for the following categories: use library catalogue, locate useful information sources in the library, and evaluate www sources.

Evaluation of the Programme

The programme was designed with built-in evaluation to allow the authors to examine the work and identify areas for improvement. There were two areas of evaluation: individual workshops and non-attenders. Evaluation was mainly formative, looking at process and implementation, and we also evaluated impact for participants.

<u>Individual Workshops</u>

Three weeks after completion of each workshop, all participants (n=16) were given the opportunity to evaluate the session through the following questions:

- Would you recommend this workshop to others?
- What did you like about the workshop?
- What did you dislike about the workshop?
- Did you take any action as a result of attending the workshop? If yes, what did you do?
- Is there anything else you would like to have covered in this session? If yes, please tell us what.

We sent evaluations to attendees of each workshop; because some of the 16 individual attendees attended multiple workshops, there were 42 total evaluations sent. Of the possible 42 evaluations, 16 were received. 100% of respondents said they would recommend the workshop to others.

Question	**Selected comments**
What did you like about the workshop?	"Practical session which enabled you to carry out exercise to consolidate information which is given out."

	"Informative Fun Made me realise I am not the only person who has felt 'underqualified' for tasks before." "A chance to get away from the workplace and think about a different subject. Relaxed informative atmosphere. Appreciated amount of prep work done by the presenters to make it interesting."
What did you dislike about the workshop?	"Nothing." "Over lunchtime." "Not many attendees so discussion was more limited than it could have been – but still good."
Did you take any action as a result of attending the workshop? If yes, what did you do?	"Went back onto the intranet and tried using the different sources." "Not really, however this was due to lack of time and not inclination. Hopefully will be able to progress in the new year." "Yes, I have spoken to [librarian] about PhD routes, as well as attending a research event at UCLan. I am also arranging to see [librarian] for a literature search."
Is there anything else you would have liked to have covered in this session? If yes, please tell us what.	"No very thorough" "No – very comprehensive"

Table 1: Selected responses from individual workshop evaluations.

Non-attenders

We requested feedback via an anonymous questionnaire given to all staff in the diagnostic radiography department via email and via face-to-face feedback sessions. All respondents completed questionnaires during face-to-face sessions. The aim of collecting feedback was to identify factors that prevented staff members from attending the programme. The authors felt strongly that it was important to identify areas in which participation could be improved with future cohorts. We posed the following questions to non-attenders:

- Do you think that information literacy and research skills are important to your role? And why/why not?
- What prevented you from attending the FARRIL sessions (be as honest and specific as you like)?
- What would you like to see from Research & Innovation and Library Services to support you and/or the department in the future?

Out of 139 non-attenders in the diagnostic radiography department, sixteen people (11%) attended the face-to-face feedback sessions, and eleven questionnaires were completed. 81% (n=9) of respondents thought that information literacy and research skills were important to their role and 19% (n=2) responded they did not think that information literacy and research skills were important to their role. One stated "not for my role as there is no progression opportunities. However, for radiography overall I think it plays an important part". 73% of respondents (n=8) felt information literacy was important in terms of improving clinical practice and the development of diagnostic radiographers as a profession.

Question	Selected comments
What prevented you from attending the FARRIL sessions? (Be as honest and specific as you like.)	"Do not have enough staff to let people attend, during lunch people want to be away from the department." "I am new to the hospital so was not aware of them." "I found it hard to understand and get my head around the topic in general."
What would you like to see from Research & Innovation and Library Services to support you and/or the department in the future?	"Online learning / videos to be able to "dip into" when time is available and perhaps a person to contact if there was queries or assistance needed." "Individual meetings to discuss ideas and ways forward." "Listening to the talks and reading the informations [sic] the research and innovations and library services offer all the support I would need." "Assistance in locating and accessing resources specific to best practice in radiography."

Table 2: Selected responses from non-attender feedback sessions.

Conclusions

Project Impacts & Outputs

Our project was innovative, in that it tackled some of the barriers to delivering information literacy training within a pressurised work environment. The project has resulted in a set of workshop plans and support resources that could be used by other information professionals in a health setting [7], and these were launched at LILAC 2017.[8]

The Project has been showcased at several national LKS and R&I conferences and at UK Radiological and Radiation Oncology Congress (UKRCO) as a poster presentation. Internally, the project won 'Partnership of the Year' at a Trust awards event. It was also voted as the Gold Library and Information Health Network NW (LIHNN) Quality Improvement Award.

The collaboration between LKS and R&I led to several positive impacts within and beyond our project. Partnership working in this context was considered the best approach, as this not only strengthened existing relationships between the two departments and individual staff, it also meant that diagnostic radiography staff and students saw the two departments as connected to each other, demonstrating the expertise that both could contribute to the research journey. This collaboration has been mutually beneficial to all departments involved and has direct implications for patient care, professional development of staff and embedding of a research culture. LKS and R&I are keen for the programme to continue with a different professional group or department. Although external funding secured this project initially, the facilitators are now supported to adapt the existing content to deliver to another professional group at the Trust as part of their existing job roles. A short video has been created to advertise the benefits to other potential future cohorts.[9]

Participant Impacts & Outputs

In the workshop evaluations, participants reported positive experiences of the programme as a whole. They attributed the following tangible outcomes to attendance:

- One participant successfully submitted a poster to UKRCO
- One participant was accepted to the Trusts' new Clinical Academic Trainees programme, and is released from her role one day a week to carry out an evidence based service improvement project
- Two participants created a poster to share the results of a patient satisfaction survey

Following on from the findings that home-grown research activity was poorly captured and audited by R&I, work has been ongoing to improve these processes. There is an awareness that research activity from Allied Health Professionals in particular goes unnoticed, and a conscious effort is being made by both Allied Health Professional (AHP) leads and R&I to rectify this.

Although there has not been an overall increase in the number of literature searches conducted by the clinical librarian for this professional group since the completion of the workshops, there has been an increase in communication between diagnostic radiography staff and LKS in general. The clinical librarian was asked to speak at a regional Radiography study day, to provide an example of how the Trust supports staff with continuing professional development and encourages research activity.

Our project had some limitations. It could well be that the participants increased their ILSES scores because they wanted the researchers to demonstrate that their project had been successful. The researchers had developed camaraderie with the participants as a result of meeting with them on a regular basis over a period of months, and it may be that the participants wanted the researchers to succeed, as described in the Hawthorne effect [10].

The final number of workshop participants was small, representing only 32% of potential participants (those who had registered an interest in taking part) and 10% percent of the diagnostic radiography department as a whole. However, the researchers were fully aware that this project was not going to attract high numbers of participants, and we felt it was more important that those who attended were people that wanted to engage with the programme and its objectives. Two members of staff confided in a senior manager that completion of the ILSES had dissuaded them from taking part in the programme as they were concerned the content would not be at the right level for them.

We were unaware of this until completion of the programme and evaluations; therefore, we were unable to gauge the effect of ILSES completion on attendance.

The programme has since been delivered to therapeutic radiography staff within the Trust, reaching higher numbers (n=28 compared with n=16) within a smaller professional group (n= 93 (81 staff and 12 students) compared with n=155), which is encouraging. Moving forward, there are plans to deliver the programme to other groups, ensuring that senior management buy-in is present in order to enable maximum engagement and participation. As a result of presentations at conferences, several other LKS and a Principal Research Radiographer in the NHS have taken up the workshop plans and support resources and adapted them to use with staff in their organisations. As these resources are publicly available, other organisations may also have adopted them, but we are unable to capture this data from the website where they are hosted.

Overall, the programme was delivered as planned and well received despite smaller participant numbers than hoped. Delivering profession specific training meant that content could be tailored effectively to the participants. Participants not only reported increased knowledge and skills but showed tangible research outputs as a result of being involved in the programme. We would recommend this style of delivery to other organisations who wish to deliver a research engagement programme and welcome individuals or teams to use the resources we developed [7].

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Appendix A

Full list of workshops offered to potential participants at initial planning stage of programme:

Overcoming barriers to starting research

Planning your research project

What to do with your research idea

Finding and applying for sources of funding

An overview of journals and databases

Introduction to searching bibliographic databases

Advanced searching in bibliographic databases

Writing an abstract

Creating a poster

Introduction to interpreting statistics

Introduction to critical appraisal

Writing for publication

Presentation skills

Time management

Managing information and using reference management software

Evaluating information on the web