



Health Education North West

MANCHESTER ACADEMY FOR HEALTHCARE SCIENTIST EDUCATION

Healthcare Scientist Research and Innovation Survey

Prepared by TRUSTECH





EXECUTIVE SUMMARY

Manchester Academy for Healthcare Scientist Education (MAHSE) is committed to launching a secondment scheme to support the development of research and innovation in the healthcare science workforce within the North West. All healthcare scientists will be eligible to apply for a secondment which will involve a placement within a HEI, commercial enterprise or research active service laboratory or department.

This project was carried out to understand what research and innovation projects are currently being undertaken by healthcare scientists in the North West to inform the development of the MAHSE secondment scheme.

TRUSTECH created an online survey to capture the contact details of Healthcare Scientists involved in research. This was collected in alignment with the development of a database, North West Healthcare Research Directory (NW HeRD), an overview of the research projects taking place in the North West. The respondents were surveyed to establish their experience and understand their training and development needs. Follow up telephone and face to face interviews were carried out to gain further insight.

TRUSTECH identified and contacted 355 Healthcare Scientists across the North West directly. In total 91 respondents took part in the project. Eighty-two respondents completed the survey 10 telephone and 7 face to face interviews (8 respondents had already completed the online survey). Overall, 70 Healthcare Scientists (76.9%) stated they have taken part in a research project in the last 3 years and 21 (23.1%) stated they had not. In total 86 research projects were identified from the project. The majority of those who took part in the project were experienced, senior staff members working in the NHS and mostly represented disciplines from the Life Sciences sector. The great majority of respondents had taken part in research and some of the interviewees were initiators of significant projects.

The report that follows has identified that the responding Healthcare Scientists see research as a key part of their role and are keen to participate in research. The survey gave some important pointers as to how Health Care Scientists as a group can strengthen their involvement in research and encourage a research and innovation culture in their institutions.

Barriers to involvement included:

- Lack of programmed time for participation in research.
- Access to formal support and information on funding.
- Need for a scheme to mentor young scientists through the early stages of a project.

Recommendations arising from the project:

- Organising Regional networking events to encourage the development of new healthcare, academic and industrial collaborations.
- Improving infrastructural support in particular access to research literature and a regional data base of research activities, contacts and resources.
- Assigning programmed time for Health Care Scientists to participate in research.
- Developing a mentoring scheme for trainee scientists.
- Offering a funded secondment scheme to allow Health Care Scientists to participate in research.

CONTENTS

EXECUTIVE SUMMARY	2
INTRODUCTION	4
The Project	4
The Funded Career Development Programme	4
METHODOLOGY	5
Approaching Target Respondents	5
Online Survey	5
Survey Questions	6
Interviews	8
Telephone Interview Questions	8
MAHSE Marketing Coverage	9
North West Healthcare Research Directory (NW HeRD)	13
RESULTS	14
SURVEY	14
Respondent Information	14
Research Projects	
Training and Development	
Survey Outcomes	
INTERVIEWS	40
Respondent Information	
Healthcare Scientists taking Part in Research	
Motivation	
Encouragement	
Barriers	
Links	
Benefits of research	
Support	47
Funded Career Development Programme	49
Fundamentals	
Challenges	50 S
Influence	
Healthcare Scientists that have not been involved in Research	
Possences from the Survey and Interviews	
Key Easters in Pasarch and Innovation Culture	
Research control to role	
Research central to role	
Communication	
Support	
Time	
RECOMMENDATIONS	
Secondment Programme	
Networking	
Access to current scientific journals	
Research process	
Allocated research time	
Participating in a research project	
Mentoring scheme	
Higher Education	
Potential Aligned Activities	59
Network Meetings and Events	59
Online Database	59
Resource Bank	60
Mentorship Scheme	~~
Descende Constant Advise and Constant	60
Research Grant Advice and Support	60 60
CONCLUSIONS	60 60 61
CONCLUSIONS Barriers to involvement.	60 60 61
CONCLUSIONS Barriers to involvement	60 60 61 61

INTRODUCTION

The Project

Manchester Academy for Healthcare Scientist Education (MAHSE) is committed to launching a secondment scheme to support the development of a research and innovation culture, infrastructure, capacity and capability in the healthcare science workforce within the North West. All healthcare scientists will be eligible to apply for a secondment which will involve a placement within a HEI, commercial enterprise or research active service laboratory or department.

In order to achieve this MAHSE has a requirement to understand how research and innovation has developed and expanded within the healthcare science community, identify current centres of excellence, learn from examples of good practice and develop relationships with research and innovation champions across the North West.

Opinions from Healthcare Scientists located in the North West were surveyed to identify what research and innovation projects are currently being undertaken by this group, where activities are being undertaken, by whom and in what disciplines, and if these include any partners. In addition, they were asked about their training and development support needs and preferences.

This information was collected in alignment with the development of a searchable database, North West Healthcare Research Directory (NW HeRD), available for future activities.

The Funded Career Development Programme

A funded career development programme includes both the opportunity for a salaried secondment to another department/trust to develop a research/innovation idea into a practical service solution as well as additional online or face-to-face workshops to develop and refine research and innovation skills.

METHODOLOGY

For this piece of work MAHSE wanted to engage with as many Healthcare Scientists working in the North West as possible. The aim was to both develop a database of research and innovation projects currently being undertaken by Healthcare Scientists and ask what their training and development support needs and preferences are. This information will inform the development of the MAHSE Funded Career Development Programme. The project will also act as a marketing tool to raise awareness of MAHSE and the Funded Career Development Programme that is being developed.

To carry out these objectives TRUSTECH created an online survey using 'Survey Gizmo' to capture the contact details of Healthcare Scientists involved in research, an overview of the research projects taking place in the North West, and survey the respondents to find out their experience and requirements for training and development. The respondents were contacted via personal emails, email bulletins, online news and through NHS Trusts, professional bodies and network communications to engage Healthcare Scientist in the online survey and raise awareness of MAHSE and the Funded Career Development Programme. The contact details and research project information was extracted into the database and the training and development support preferences reviewed. To further discuss training and development responses and any themes developed from the results of the online survey TRUSTECH carried out additional face to face and telephone interviews with both Healthcare Scientists who had and had not taken part in a research project in the last 3 years to maximise the amount of information from the responses.

Approaching Target Respondents

TRUSTECH worked with the North West Healthcare Science Network to understand the target respondents and jointly approach their network of contacts through weekly email bulletins. Desk based research reviewing relevant websites, journals, marketing literature, blogs and news stories, was carried out to produce an additional list of qualified contacts to approach directly from North West organisations and National Associations (Networks, Healthcare, Higher Education Institutes and Commercial) to identify the key stakeholders, opinion leaders and influencers, and also establish contacts to disseminate information about the survey and encourage them to participate. This was considered the most effective way to approach the respondents. TRUSTECH identified and contacted 355 Healthcare Scientists across the North West directly.

Online Survey

A set of questions was developed for the survey to identify what research and innovation projects were currently being undertaken by Healthcare Scientists, where activities were being undertaken, by whom and in what disciplines, and if these included any partners. In addition, they were asked about their training and development support preferences and needs.

Figure 1. Online Survey Screenshot

	Research & Innovation Survey
VEISE	You
	1. THE US BOUT STATE - * Please note this information will only be used to contact you for none information adout your research project, and will not be paysed on to anyone elem-
	First Tame*
Research & Innovation Survey	Banana *
Please take part in our Healthcare Scientist Survey	Crist Address *
The Manchester Academy for Hasthcare Scientist Education (MAH BE) is currently working on developing a funded career development programme.	Contact Number Pleases do sur Rever are spaces)*
Vitra ani inditing you to lake part in this survey to help out. - indeating yourner, resource properties - undeataban bow insurvers and en and innovation is developing - lokeling national points and in advantabane sharepions - Develop nationalism plan in devalution developions	Copension have*
Your feedback will be used to crose a funded research & research & instruction training programme for Healthcare Scientists	- Prose Select - (9)
By considering this survey you will be entered onto the MAHSE North West Healthcare Research Directory (NW HeRD) Your details will not be passed on to anyone obse.	Texts:Chapter *

Survey Questions

(

The following are the questions from the online survey.

Respondent Information

- First Name
- Surname
- Email Address
- Contact Number
- Organisation Name
- Region
- Sector/Discipline
 - Life Science Discipline
 - Physiological Sciences Discipline
 - Physical Science Discipline
 - **Bioinformatic Discipline**
 - What is your discipline?
- How long have you worked in Healthcare Science?
- What type of organisation do you work for?
- Band
- Have you been involved in any research or innovation projects in the last 3 years?

Project Information

- Project name
- Host organisation of the project
- Project start date
- Project end date
- Please can you give a short summary of the research or innovation project, in a couple of sentences?
- What are the main reasons for undertaking this project?
- Which of the following parties are involved?
 - NHS Acute Trust
 - NHS Community Trust
 - NHS Clinical Commissioning Group

- NHS Other
- Private Healthcare
- Higher Education Institution
- Commercial
- Other Not-For-Profit Organisation
- Is the project being undertaken as part of a Master's degree or PhD programme?
- Please specify the name of your degree programme
- Have you received funding?
- Source of funding

Training and Development Information

- Are you aware of any funded career development programmes or similar for healthcare scientists?
- Please specify
- What do you think are the challenges in taking part in a funded career development programme?
 - Finding out about opportunities or available funding
 - Having opportunities available to take part
 - Resources and practical support
 - Time
 - Understanding application processes and regulations
 - Other (Please specify)
- What support do you think is required for healthcare scientists within research and innovation, for example, workshops, online material etc.?
- Do you know how to access existing research and innovation support?
- Where do you currently go for research and innovation support and advice?
 - North West Healthcare Science Network
 - Professional Body
 - Professional Body (Please specify)
 - Organisational Lead
 - Organisational Lead (Please Specify)
 - Organisational Department
 - Organisational Department (Please specify)
 - Other (please specify)
- Who do you consider to have the most influence over research and innovation within the healthcare science community in the North West?

The online survey was designed to be a structured data collection tool, a formal questionnaire to collect contact details and research project information to populate the database using a mix of predetermined sets of responses and some open text fields.

The survey was designed in three sections; respondent data, project details and training and development information. Each respondent had to complete the first section of the survey; entering their contact details and background information to populate the database. The last question in this section asks; *Have you been involved in any research or innovation projects in the last 3 years?* If the respondent answered *Yes* they were asked to enter the projects details in the second section. Once the respondent had completed this or if they answered *No* the respondent was given the option to finish the survey, add additional research projects (up to three separate projects), continue to answer more questions on training and development or take part in a telephone interview.

The purpose of the project was disclosed to all respondents on the landing page of the online survey stating that by completing the survey their details would be entered onto the MAHSE North West Healthcare Research Directory (NW HeRD).

The online survey was open for 7 weeks. Eighty-two respondents completed the survey (2 duplicates were removed), 61 had taken part in research projects in the last 3 years and 21 had not. Six respondents chose to complete the survey via a telephone interview, 9 chose to add further projects and 46 chose to answer more questions on training and development. In total 76 projects were entered into the survey.

Interviews

A further set of questions was developed for the interviews to identify any additional projects that had not been captured by the survey, and what the respondent's experience of taking part in research had been. This exercise aimed to identify in more detail any motivation, support, challenges, or practices that would help launch a career development programme.

Telephone Interview Questions

The following are the questions from the telephone interviews.

Questions for all respondents

- Have you been involved in any research or innovation projects in the last 3 years?
- What more can you tell us about the motivation behind starting this research or innovation project?
- Did you receive encouragement, or incentives to take part in further research? [If so what?]
- Did you receive any additional support during the project [financial, resource, time, professional] that was helpful?
- Were there any challenges or extra support needed during your project where a funded development programme may have helped? [At the start, in the middle, at the end]
- Have you had any links with academia or industry?
- What links would you like to have with academia or industry?
- How has this project helped you, your department, and patients?
- What support do you think is required for healthcare scientists within research and innovation? [For example, workshops, online material]
- What fundamental elements would be helpful in a career development programme?
- What do you think are the challenges in taking part in a funded career development programme, and how would you address them?
- Do you access existing research and innovation support?
- Who do you consider to have the most influence over research and innovation within the healthcare science community in the North West? [Why?]
- Any other feedback or comments based on your experience of taking part in research or innovation, or a development programme?

Additional questions for respondents who have not taken part in research

- What is the main reason you have not taken part in a research projects in the last 3 years?
- What type of research or innovation would you like to be involved in [and why]?
- Are there any obstacles that have stopped you getting in involved in research or innovation?
- What activities would encourage you to get more involved?

To maximise the number of opinions that could be captured, both telephone and face to face interviews were carried out. The questions were asked in a semi-structured interview allowing the interviewer to explore other areas of interest that arose, if appropriate and to provide flexibility in asking questions and tailor them to the individual. The interviewer made notes of the interviewee's responses (paraphrased) during the process and then typed them up immediately after the interview to ensure their accurate representation.

The 6 respondents who chose to take part in a telephone interview were contacted by TRUSTECH. Additional contacts who had not taken part in the survey were also approached to take part in telephone interviews for additional insight. To find out more about the 21 survey respondents who had not taken part in any research projects in the last 3 years, these respondents were also invited to take part in a telephone interview. Interviews were carried out with 17 Healthcare Scientists over a period of 6 weeks totalling 10 telephone and 7 face to face interviews. Eight respondents had completed the online survey, 9 respondents had not. Fifteen had taken part in research projects in the last 3 years, 2 had not. Ten new research projects were identified from the interviews.

Overall 86 research projects were identified from the project.

It should be noted that the survey was carried out using qualitative methods and a small sample size, hence the number of people giving different responses to each question was not considered (the research was not designed to provide quantitative information). Even so, this information is still considered valid and a valuable resource.

MAHSE Marketing Coverage

Email Campaign

The marketing campaign began on the survey launch date. TRUSTECH initiated the campaign by sending a personalised email to the list of qualified healthcare scientists gathered during desk-based research activities. In total, 155 persons were identified and contacted at launch. Alongside this, contact was made with an additional 200 contacts to request assistance in disseminating information about the survey. These contacts were from professional bodies (e.g. Association of Biomedical Healthcare Scientists), higher education institutes, NHS Trusts/organisations, and some industry support networks that might have links with Healthcare Scientists (e.g. Bionow).

Shortly after launch, news of the survey was communicated to more than 1,050 contacts held on the main TRUSTECH

canning an ri	ealthcare Scientists
currently trying thape a new ca entering details ensure that this vill also be on t ater in the year curvey!	Loudenty poor transitions is before Code (werker) is to dentify people or code to are development programme, which has a fund of £280,000. By about your role and the projects you are involved in you can help money goes to the places where it is most needed. Your name the list for notification as soon as the fund is officially launched r. There's also a weekly prize draw for people who complete the
	Complete the survey now
CCG is look	ing for innovative technologies to evaluate
re developing leliver outstand	innovative technologies to improve patient care and health or ding services at a lower cost. The Dragons' Den themed
pportunity to s	ars companies working in the mediech and healthcare sectors the recure a funded evaluation of their innovations within an
manual ato All	HS setting across the Oldham community.
ppropriate re	
ppropriate re	Enter the competition now
opropriate H	Enter the competition now

Opportunities for Innovators

Figure 2. Eshot sent 2nd April

distribution list using an online email marketing service, MailChimp. This list contains individuals with an interest in healthcare innovation from within the NHS, academia and industry. The open rate for the email was 19% with a click rate (number of people who clicked the link to go to the survey) of 3.5% (industry average: 17.1% and 2.8% respectively). Two additional emails were sent using this method: one midway through and another just before the survey closed.

During the survey period a number of reminder emails were sent out at regular intervals to those people on the original lists who had yet to complete the survey and also individuals who had started a survey but had not yet submitted a response.

An incentive to complete the survey was offered in the form of a weekly prize, which was drawn randomly at the end of each week. In the final few weeks after the survey had been extended, the incentive was changed to reward the person who referred the most people to the survey, with the hope of encouraging people to share information about the survey within their networks.

Media Coverage

This section identifies all promotional activities carried out by TRUSTECH and MAHSE and also sources where the story was picked up and promoted by other organisations. Coverage is broken down into two distinct types: owned and earned media.

Owned Media Coverage

Owned media looks at the communication channels that are controlled by the producer of the media.

TRUSTECH ran a featured news story on its website for the duration of the campaign. This means it was highlighted on the homepage for more than 6 weeks. The TRUSTECH website received 1,171 unique visits in March and 1,093 in April. The MAHSE website also ran the same story on its website from the 19th March.

TRUSTECH'

NHS

Figure 3. MAHSE and TRUSTECH Featured News Items

	Home For NHS For Companies For Liverpool News Case Studies	About Us Contact Us
Manchester Academy for Healthcare Scientist Education		
Home Our Programmers For Supervisors For the Public News and Events Contact Us. Advantus	Are you involved in healthcare research in the North West? Would you be interested in further funding?	
	17 March 2015 @ no comments	
New opportunities for Healthcare Scientists The Manham Annual Ann	The literature Academic for Institutes Sciences Education INSERSE in extremely developed a sub- builded scarse development programmer. In this of other Anabace sciences is the North Network processing of the spontulity to become further involved in research and involution becaused project. The spontulity to become further involved in research the North Decademic Institutes and the spontulity to become further involved in research and involution becaused project.	
The programme will be for early Garufard later in 2015.	laboratory or department. The programme will be formerly launched later in 2015.	
Inorder to develop the programme to meet the regulamments of the North West, MidelE is backing to build a North West Healthcare Research Directory. The develop' will depthy active healthcare scientists and research terms in the region, and will help MidelE to:	In order to develop the programme to meet the requirements of the North West, MAHSE is looking to build a North West Healthcare Research Directory. The directory will identify	
vide/trait/bevress/h and invositions a developation if the involtance Scientific utility doorthy conversion and involved on a doorthy outset and science of the sc	active nearnests sciencists and research tiends in the region, and will nep haveture to: - understand how research and innovation is developed in the Healthcare Scientist setting	
The subjustment by paying will evaluate state this became the examples of good practice and develop a community of intervented and active researchers with which they can example with through the funded cover programme.	dentry current introduce projects interving meantains ocernates identry currents of inconstrue activity develop relationships with research and innovation champions within the Healthcare Scientist community.	
	The output from this project will enable MAHSE to learn from examples of good practice	
	and develop a community of interested and active researchers with which they can engage with through the funded career programme.	
The savey which should take approximately \$2 minutes will help or to identify	We need you!	
where invested investments at the lines are their grander taken	We are looking for Healthcare Scientists who are currently involved in innovative research	
trenden souther consumial or academic partners are involved	activities outside the remit of their normal day-to-day role to complete a short survey. The survey, which should take approximately 10 minutes, will help us to identify:	
COMPLETE DVE SUPPEYNOW Tropulsems have regime users 13/2013/2013/04/58 Research Internetion Survey	where innovative research activities are being undertaken in what disciplines by whom whether commercial or academic partners are involved	
Westly price algor	COMPLETE THE SURVEY NOW!	
Each werk one person which is completed the survey will be selected at random to wina \$20.4 masses git washer. The draw will take place on finite attentions while the survey is upon and winners will be confind using the context details provided.	http://www.surveveizmo.com/s3/2014726/MAHSE-Research-Innovation-Survey Weekly prize draw	
That area of leverach can full anywhere or the healthcare meanch spectrum. It on Life Sciences through to Physical and Physiological Sciences. Your data will only be used internally by MAHKE and will not be shared.	Each week one person who has completed the survey will be selected at random to win a £50 Amazon gift voucher. The draw will take place on Friday afternoons whilst the	
Andreine Elithers201 American, NVR New America	survey is open and winners will be notified using the contact details provided.	
STEM Development Manager - Opportunity at the Monour of Science and Industry	Your area of research can fail anywhere on the healthcare research spectrum, from Life Sciences Intrughts for Hysical and Physiological Sciences. Your Data will only be used internally by MAHSE and will not be shared.	
Punded Hild: NaMi Studientalsija - Master of Obiolal Research/MCIn Res programme		
	© 2011 TRUSTECH Disclaimer	Sile by Web Hosled by M

Earned Media Coverage

Earned media is generated when content receives recognition by organisations outside paid (advertising) or owned sources.

The stories listed below were picked up by several of the 200 contacts TRUSTECH requested help from to disseminate information about the survey. A number of NHS Trusts featured news about the survey in their internal communications such as their intranet or newsletters. This type of coverage carries a high impact in terms of the number of people who the communications are sent to and also the fact that the people receiving fit well with the target audience. The Trusts were:

- Central Manchester University Hospitals NHS Foundation Trust
- Salford Royal NHS Foundation Trust
- Wirral University Hospital NHS Foundation Trust
- The Walton Centre NHS Foundation Trust
- Wrightington, Wigan and Leigh NHS Foundation Trust

Figure 4. Extract from Salford Royal R and D Bulletin Newsletter

Figure 5. NWHC Network Email



The North West Healthcare Science Network featured news about the survey in its weekly email newsletter. These newsletters are sent every Friday to a distribution list of around 1,000 Healthcare Scientists from the North West region. The survey featured as an item a number of times during the period it was open, making it another high impact asset for the project.

Other organisations that featured the story in their communications include University of Manchester's Intellectual Property agency (UMIP) and Manchester Metropolitan University, where an email was circulated to "a wide network of clinical embryologists".

Social Media

LinkedIn and Twitter were the two main sources of activity surrounding the marketing campaign. Tweets from TRUSTECH and MAHSE provided content which was subsequently re-tweeted by organisations such as Central Manchester University Hospitals NHS Foundation Trust Research and Innovation Division, University of Manchester Health Science Network, the North West Healthcare Scientist Network, The Nowgen Centre and the Wellcome Trust Clinical Research Facility. Given the dynamic nature of social media it is difficult to monitor all activity, but taking into account the accounts mentioned above, Twitter provided a reach (number of followers) of approximately 4,493 individuals (note: this does not take into account users who may be following one or more of the above organisations).

A member of the TRUSTECH team and active LinkedIn user posted a 'Pulse' communication to her followers in the middle of April. This gathered 30 views and one thumbs up from the community.

TRUSTECH uses a service called Bitly to track clicks of links across social media and other online sources. A single link was used by TRUSTECH and MAHSE to draw people from social media platforms to a news item on the TRUSTECH website which contained full details of the survey and a link to complete it. Bitly reports that this link was clicked 30 times, which means that social media activity could account for a significant proportion of the completed survey responses.

Figure 8. LinkedIn Pulse **UMIP**[®] COMPLETE THE SUBJEY NOW

Figure 6. UMIP Website Figure 7. MAHSE Twitter





1.0

North West Healthcare Research Directory (NW HeRD)

The respondents were informed that by completing the online survey their details would be entered onto the MAHSE North West Healthcare Research Directory (NW HeRD) on the home page of the survey.

The data obtained through the online survey and telephone interviews were used to develop a relational database so that is it fully searchable with multiple tables (organisation, staff, projects, and specialism tables) with the following information for each contact and project.

Project Information:

- Project Name
- Project Summary
- Project Host
- Speciality
- Start Date
- End Date
- Parties involved (NHS, HEI, Commercial, Other non-commercial or NFP)
- Funding stream(s)

Contact Information:

- Name
- Organisation Name
- Role
- E-Mail address
- Market sector (NHS, HEI, Commercial, Other non-commercial or NFP)

Figure 9. MAHSE North West Healthcare Research Directory (NW HeRD)

All Access Objects 💿 «	- person					>
iearch	About th	e Healthcare Scient	tist		Add Person	
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region				Long to the second seco	11111	
speciality			Research projects? Ma			
Queries ×	Designate the	- Haalahaana Calanda	A factoria for a distribution	Add Brolost	-	
Count of projects as per length of s	Projects th	e Healthcare Scientis	t is involved with	Add Project	-	
Count of projects by band	Project Title	Harmonisation of growth horn	none measurement			
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Count of projects by region	Host organisation	multiple organisations	•			
Count of projects per person	Start Date	10/2004 End Date	10/2017			
Count of projects per specialty	Project Summary	To ensure that commerical kit	methods for measurement of growth hormony	give the same		
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person						
💷 projects	Project Reasons	To ensure patients with growt	th hormone disorders get the right diagnosis an	d right treatment		
projects1						
speciality						
Reports x						
Relationships for MAHSE NWHeRD	Other organisations involved	CCG Commercial	masters_phd		-	
		Ingner Education Institution NHS Actute Trust NHS Community Trust NHS Other Other Not-for-Profit Organ Private Healthcare	funding			

RESULTS

SURVEY

Respondent Information

In total 82 individual respondents completed the online survey. Sixty-one stated they have taken part in a research project in the last 3 years and 21 stated they had not. Forty-six respondents chose to go on and complete the additional questions about training and development and 9 chose to submit more than one project. Six chose to complete the survey via a face to face or telephone interview. In total 76 projects were entered into the survey.

The respondents were from across the North West. **The majority, 51 (61%), coming from Greater Manchester**, 27 (32.9%) from Cheshire and Merseyside and 5 (6.1%) from Cumbria and Lancashire (Chart 1. Region).



Chart 1. Region

They were employed by 31 different organisations across the region. **Sixty (73.2%) were NHS Acute Trusts**, 15 (18.3 %) were other NHS organisations, 4 (4.9%) were Universities, 1 (1.2%) was an NHS Community Trust and 2 (2.4%) were commercial organisations. The largest number of respondents were employed by Central Manchester University Hospitals NHS Foundation Trust, 23 (28.1%), and The Royal Liverpool and Broadgreen University Hospitals NHS Trust, 10 (12.2%) (Chart 2. Organisation Name and Chart 3. Type of Organisation).



Chart 3. Type of Organisation



Forty-five specialisms were represented in the survey, out of an approximate 60 healthcare science specialisms ¹. **The largest number of respondents worked in the Life Sciences sector** 43 (52.4%), followed by 22 (26.8%) in the Physiological Sciences, 13 (15.9%) in Physical Sciences, and 4 (4.9%) in Bioinformatic sectors (Chart 4. Sector/Discipline).

¹ www.nhsemployers.org



Each respondent was asked what their speciality was within their discipline. **Within Life Sciences Clinical Biochemistry was the most selected, 6 (14%)**, this was also the most selected speciality out of all the respondents' disciplines. Genetics, 5 (11.9%), Microbiology, 5 (11.9%), and Biomedical Science, 4 (9.5%), followed (Chart 5. Life Science Disciplines).



Chart 5. Life Science Disciplines

Within Physiological Science, Cardiac Science was the most selected, 9 (40.9%), followed by Audiology, 4 (18.2%). In Physical Sciences Biomechanical Engineering, 3 (23.1%), and Nuclear Medicine, 3 (23.1%), were both the most selected and in Bioinformatic Sectors it was Genomics, 2 (50%) (Chart 6. Physiological Science Disciplines, Chart 7. Physical Science Disciplines and Chart 8. Bioinformatic Disciplines).









Chart 8. Bioinformatic Disciplines



Sixteen respondents stated their disciplines were not listed in the survey drop down menu; their responses were included in Table 1. - Additional Disciplines. The majority of the disciplines entered were again from the Life Sciences sector.

Life Sciences	Physiological Sciences	Physical Sciences
Occupational H and S Lead	Research Nurse	Adult Mental Health
Cancer Cell Biology	Older Peoples Mental Health	Medical Physics and Clinical Engineering
Health Care Informatics		
Bariatric Psychology		
Oncology		
Respiratory Medicine		
Anaesthesia		
Transplantation Diagnostics		
Head And Neck Cancer		
Behavioural Safety		
Neuro Radiology		
Psychology		

Table 1. Additional Disciplines

The majority of the respondents had over 11 years' experience working in healthcare science, 39 (47.6%), followed by respondents with 6-10 years' experience, 19 (23.2%). Eleven (13.4%) had 3-5 years and 13 (15.9%) had 0-2 years' experience (Chart 9. Years' Experience in Healthcare Science).

Chart 9. Years' Experience in Healthcare Science



The respondents employed by the NHS were asked to enter which NHS Agenda for Change pay band they were on. This was not compulsory and the question was asked to understand the profile of individuals undertaking research and innovation projects. **The majority of the respondents were on Band 8, 26 (35.6%), Band 7, 13 (17.8%), and Band 6, 18 (24.7%).** There were no respondents on Band 1 (Chart 10. NHS Band).



Chart 10. NHS Band

Research Projects

The majority of the respondents had been involved in research or innovation projects in the last 3 years, 61 (74.4%), 21 (25.6%) had not. Nine respondents entered more than one project into the survey, and 14 additional projects were entered by these respondents. In total 76 projects were entered into the survey (Chart 11. Respondents Involved in Research or Innovation Projects in the Last 3 Years).



Chart 11. Respondents Involved in Research or Innovation Projects in the Last 3 Years

Healthcare Scientists Taking Part in Research

Of the respondents that have taken part in research in the last 3 years, **the majority are from Greater Manchester**, 49 (39%), 22 (18%) are from Cheshire and Merseyside and 5 (4%) are from Cumbria and Lancashire (Chart 12. Region of Respondents Who Have Taken Part in Research).



Chart 12. Region of Respondents Who Have Taken Part in Research

Four respondents working in Higher Education Institutions (100% of the respondents working in Higher Education Institutions) have been involved in research projects in the last 3 years, and 45 respondents working in NHS Acute Trusts (74% of the respondents working in NHS Acute Trusts) and 11 respondents working in other NHS organisations (73.3% of the respondents working in other NHS organisations) have been involved in research projects in the last 3 years (Table 2. Cross Tabulation for Healthcare Scientist involved in Research and Type of Organisation). The respondents are more likely to be involved in research if they are working in Higher Education Institutions.

	What type of organisation do you work for?								
Have you been involved in any research or innovation projects in the last 3 years?	NHS Acute Trust	NHS Community Trust	NHS Clinical Commissioning Group	NHS Other	Private Healthcare	Higher Education Institution	Commercial	Other Not-For- Profit Organisation	Total
Yes	45	0	0	11	0	4	1	0	61
	75.0%	0.0%	0.0%	73.3%	0.0%	100.0%	50.0%	0.0%	
No	15	1	0	4	0	0	1	0	21
	25.0%	100.0%	0.0%	26.7%	0.0%	0.0%	50.0%	0.0%	
Total	60	1	0	15	0	4	2	0	82

Table 2. Cross Tabulation for Healthcare Scientist Involved in Research and Type of Organisation

They were employed by 28 different organisations across the region. The largest number of respondents active in research are employed by Central Manchester University Hospitals NHS Foundation Trust, 19 (25%), and The Royal Liverpool and Broadgreen University Hospitals NHS Trust, 8 (11%) (Chart 13. Organisation Name of Respondents Who Have Taken Part in Research).



Chart 13. Organisation Name of Respondents Who Have Taken Part in Research

Again, of the respondents that have taken part in research in the last 3 years, the majority work within Life Sciences, 42 (55%), with 16 (21%) respondents working in Physiological Sciences, 14 (18%) in Physical Science and 4 (5%) in Bioinformatics (Chart 14. Discipline of Respondents Who Have Taken Part in Research).



Chart 14. Discipline of Respondents Who Have Taken Part in Research

The majority of the respondents that have taken part in research in the last 3 years are on Band 8 of the NHS Agenda for Change pay band, 24 (39%). The remaining respondents taking part in research comprise 7 (11%) respondents on Band 9, 11 (18%) on Band 7, 10 (16%) on Band 6, and 1 (2%) on Band 4 (Chart 15. NHS Band of Respondents Who Have Taken Part in Research).



Chart 15. NHS Band of Respondents Who Have Taken Part in Research

Thirty-four respondents that have worked in Healthcare Science for 11 years or more (87.2% of this group respondents) have been involved in research projects in the last 3 years, and 14 respondents that have worked in Healthcare Science for 6 to 10 years (73.7% of the respondents that have worked in Healthcare Science for 6 to 10 years), 7 respondents that have worked in Healthcare Science for 3 to 5 years (63.6% of the respondents that have worked in Healthcare Science for 3 to 5 years) and 6 respondents that have worked in Healthcare Science for 0 to 2 years (46.2% of the respondents that have worked in Healthcare Science for 0 to 2 years (46.2% of the respondents that have worked in Healthcare Science for 0 to 2 years) have been involved in research projects in the last 3 years. **The longer respondents have worked in Healthcare Science the more likely they are to have taken part in a research project** (Table 3. Cross Tabulation for Healthcare Scientist involved in Research and Years of Experience).

Out of the NHS respondents that disclosed their band, 7 that are on Band 9 (100 % of the respondents that are on Band 9) have been involved in research projects in the last 3 years. 26 on Band 8 (96.3 % of the respondents that are on Band 8), 10 on Band 7 (76.9 % of the respondents that are on Band 7) and 10 on Band 6 (55.6 % of the respondents that are on Band 6) have been involved in research projects in the last 3 years. 100% of the respondents from bands 2, 3 and 5 did not take part in any research. The more senior the member of staff, the more likely they are to have taken part in a research project. (Table 4. Cross Tabulation for Healthcare Scientist involved in Research and NHS Band).

	How long have you worked in Healthcare Science?					
Have you been involved in any research or innovation projects in the last 3 years?	0 - 2 years	3 - 5 years	6 - 10 years	11 years +	Total	
Yes	6	7	14	34	61	
	46.2%	63.6%	73.7%	87.2%		
No	7	4	5	5	21	
	53.8%	36.4%	26.3%	12.8%		
Total	13	11	19	39	82	

Table 3. Cross Tabulation for Healthcare Scientist involved in Research and Years of Experience

	NHS Band									
Have you been involved in any research or innovation projects in the last 3 years?	Band 1	Band 2	Band 3	Band 4	Band 5	Band 6	Band 7	Band 8	Band 9	Total
Yes	0	0	0	1	0	10	10	26	7	54
	0.0%	0.0%	0.0%	100.0%	0.0%	55.6%	76.9%	96.3%	100.0%	
No	0	1	3	0	4	8	3	1	0	20
	0.0%	100.0%	100.0%	0.0%	100.0%	44.4%	23.1%	3.7%	0.0%	
Total	0	1	3	1	4	18	13	27	7	74

Table 4. Cross Tabulation for Healthcare Scientist involved in Research and NHS Band

Each respondent who entered a research project into the survey was asked what the main reasons for undertaking this project was. This was an open text field and the majority of the respondents further described the research projects. Using open text analysis a number of key themes were identified by the respondents'. These reveal a number of key reasons that motivate Healthcare Scientists to take part in research. **The most common themes were service development, 23 (38%), and patient benefit, 22 (37%).** Further themes discussed were cost efficiency, 8 (13%), qualifications, 6 (10%), improve diagnostic pathway, 4 (7%), improve skills and education, 4 (7%) and personal interest and development 3 (5%) (Chart 16. Main Reasons for Undertaking the Research Project – Open Text Analysis).



Chart 16. Main Reasons for Undertaking the Research Project – Open Text Analysis

There were 42 different organisations across the region that hosted a research project in the last 3 years. NHS Acute Trusts, 51 (38%), other NHS organisations, 17 (13%), and Higher Education Institutions, 27 (20%), were the most common parties to be involved in the respondents' research projects. The 25 other organisations are a mix of NHS Trusts, Universities, and private companies that were entered into the survey as a host organisation at least once. Central Manchester University Hospitals NHS Foundation Trust hosted the most projects, 23 (23%), followed by The University of Manchester, 7 (7%), and University Hospital of South Manchester NHS Foundation Trust, 7 (7%). Central Manchester University Hospitals NHS Foundation Trust is a large teaching hospital which runs eight hospitals in Manchester and Trafford, therefore it is expected that they will host more research projects compared to other organisations in the region. However, the Trust is well represented in the survey with 19 (25%) of the respondents that took part in research working at this Trust (Chart 17. Parties Involved in Project and Chart 18. Project Host Organisations).

Chart 17. Parties Involved in Project



Chart 18. Project Host Organisations



Twenty-three (32%) of the respondents were undertaking the research project as part of a Master's Degree or PhD programme (Chart 19. Is the Project Being Undertaken as Part of a Master's Degree or PhD Programme).



Chart 19. Is the Project Being Undertaken as Part of a Master's Degree or PhD Programme

Forty (56%) of the respondents received funding for the research project. From those who entered their source of funding in an open text field, approximately 51 different funding organisations were identified. Of these, **the most common organisations to provide funding are Charities, 19 (33%), and other NHS organisations**. NHS Trusts, 6 (12%), Universities, 3 (6%), Research Councils, 3 (6%), Professional Bodies, 3 (6%), part of a qualification, 2 (4%), and Companies, 2 (4%) also provided funding (Chart 20. Funding Received and Chart 21. Source of Funding). The 7 (14%) other funders are a mix of Academic Health Science Networks (AHSNs), government and European Commission grants or funding not fully disclosed.





Chart 21. Source of Funding



Training and Development

Fifteen (32.6%) respondents were aware of existing career development programmes or similar for Healthcare Scientists. **The majority, 31 (67.4%), were not aware of any existing career development programmes for Healthcare Scientists** (Chart 22. Are Respondents Aware of Funded Career Development Programmes for Healthcare Scientists).





The career development programmes respondents were aware of were entered into an open text field, the responses were categorised into the following programmes; NHS Scientist Training Programme (STP), 6 (42.9%), National Institute for Health Research (NIHR) Fellowship Programmes, 6 (42.9%), NHS Higher Specialist Scientific Training (HSST), 4 (28.6%), NHS Modernising Scientific Careers (MSC), 3 (21.4%), NHS Practitioner Training Programme (PTP), 1(7.1%), and Institute of Biomedical Science (IBMS) Qualifications, 1 (7.1%) (Chart 23. Funded Career Development Programmes for Healthcare Scientists Respondents are Aware of – Open Text Analysis). The respondents were more commonly aware of the NHS Scientist Training Programme (STP) and National Institute for Health Research (NIHR) Fellowship Programmes. Most of the training programmes noted by the respondents were NHS Healthcare Scientists training schemes.





Eight respondents that have worked in Healthcare Science for 6-10 years (80% of the respondents that have worked in Healthcare Science for 6-10 years) were not aware of any funded career development programmes or similar for Healthcare Scientists, 5 respondents that have worked in Healthcare Science for 3-5 years (71.4% of the respondents that have worked in Healthcare Science for 3-5 years) were not aware of any funded career development programmes or similar for Healthcare Science Science for 0-2 years (70% of the respondents that have worked in Healthcare Science for 0-2 years (70% of the respondents that have worked in Healthcare Science for 0-2 years (70% of the respondents that have worked in Healthcare Science for 0-2 years) were not aware of any funded career development programmes or similar for Healthcare Science for 0-2 years (70% of the respondents that have worked in Healthcare Science for 0-2 years) were not aware of any funded career development programmes or similar for Healthcare Science for 0-2 years (70% of the respondents that have worked in Healthcare Science for 11 years or more (57.9% of the respondents that have worked in Healthcare Science for 11 years or more (57.9% of the respondents that have worked in Healthcare Science for 11 years or more (57.9% of the respondents that have worked in Healthcare Science for 11 years or more) were not aware of any funded career development programmes or similar for Healthcare Scienced respondents that have worked in Healthcare Science for 11 years or more) were not aware of any funded career development programmes or similar for Healthcare Scienced respondents that have worked in Healthcare Science for 11 years or more) were not aware of any funded career development programmes. The less experienced respondents were less aware of any development programmes (Table 5. Cross Tabulation for Awareness of Funded Career Development Programmes and Years of Experience).

Table 5. Cross Tabulation for Awareness of Funded Career Development Programmes and Years of Experience



Eight respondents that have not taken part in research (88.9% of the respondents that have not taken part in research) were not aware of any funded career development programmes or similar for Healthcare Scientists. **Respondents are less likely to be involved in research if they are not aware of any funded career development programmes or similar for Healthcare Scientists and vice versa** (Table 6. Cross Tabulation for Awareness of Funded Career Development Programmes and Involvement in Research Projects).

Table 6. Cross Tabulation for Awareness of Funded Career Development Programmes andInvolvement in Research Projects



The main challenges seen in taking part in a career development programme were considered to be finding out about opportunities or available funding, 39 (84.8%), and time, 35 (76.1). All 5 options given to the respondents were popular selections which included; resources and practical support, 31 (67.4%), having opportunities available to take part, 28 (60.9%), and understanding application processes and regulations, 21 (45.7%).

Other challenges noted by the respondents included loss of income, supervision and mentoring infrastructure in departments, time allocation to do a higher education day release course, and a concern that the selection process for career development programmes may be skewed towards bigger centres with stronger academic links (Chart 24. Challenges in Taking Part in a Funded Career Development Programme).



Chart 24. Challenges in Taking Part in a Funded Career Development Programme

The most commonly selected challenges in taking part in a funded career development programme for respondents who have been involved in any research or innovation projects in the last 3 years remained **finding out about opportunities or available funding**, 33 (89.2%), and **time**, 29 (78.4%). However, the most commonly selected challenges in taking part in a funded career development programme for respondents who have not been involved in any research or innovation projects in the last 3 years, were **resources and practical support**, 8 (88.9%), and **having opportunities available to take part**, 7 (77.8%) (Table 7. Cross Tabulation for Healthcare Scientist Involved in Research and Challenges in Taking Part in a Funded Career Development Programme).

Table 7. Cross Tabulation for Healthcare Scientist Involved in Research and Challenges in TakingPart in a Funded Career Development Programme

	Have you been involved	ion projects in the last 3	
What do you think are the challenges in taking part in a funded career development programme? (Please tick all that apply)	Yes	Νο	Total
Finding out about opportunities or available funding	33 89.2%	6 66.7%	39
Having opportunities available to take part	21	7	28
Resources and practical support	23	8	31
Time	62.2% 29	88.9%	35
	78.4%	66.7%	
Understanding application processes and regulations	19 51.4%	2 22.2%	21
Other	4 10.8%	0	4
Total	37	9	46

Respondents who chose to complete the training and development section of the survey were asked what support they think is required for healthcare scientists within research and innovation. This was an open text field and 17 categories were identified in the respondents' answers. **The two most common categories of support identified were workshops**, **14 (33.3%)**, **and communication and awareness of research opportunities**, **12 (28.6%)** (Chart 25. Support Required for Healthcare Scientists within Research and Innovation – Open Text Analysis).

Networking, contacts and research database, 9 (21.4%), protected time allocation, 8 (19.1%), online materials and resources, 7 (16.7%), career development, research process and publication support and advice, 7 (16.7%), and relationships between NHS and Higher Education, 5 (11.9%), were also commonly identified in the responses.

Further categories of support identified were; funding support, 4 (9.5%), encouraging NHS departments to take part and support, 4 (9.5%), access to journals, 3 (7.1%), mentoring, 3 (7.1%), conferences and showcase events, 2 (4.8%), data analysis and statistical support, 2 (4.8%), relationships between NHS and Industry, 2 (4.8%), access to research opportunities, 1 (2.4%), flexible higher education opportunities, 1 (2.4%), and grant application writing, 1 (2.4%).



Chart 25. Support Required for Healthcare Scientists within Research and Innovation – Open Text Analysis

Thirty (66.7%) respondents (the majority) did not know how to access existing research and innovation support (Chart 26. Do Respondents Know How to Access Existing Research and Innovation Support?).

Fifteen (33.3%) respondents did know how to access existing research and innovation support and of these 8 (53.3%) would access support through their department, 6 (40%) would go to their professional body, 5 (33.3%) would go to their organisation's lead, 5 (33.3%) would go to the North West Healthcare Science Network and 3 (20%) would go to other sources, which included Universities and the Research and Innovation Department within an NHS Trust (Chart 27. Where do Respondents Currently go for Research and Innovation Support and Advice?).

Chart 26. Do Respondents Know How to Access Existing Research and Innovation Support?



Chart 27. Where do Respondents Currently go for Research and Innovation Support and Advice?



Ten respondents that have worked in Healthcare Science for 11 years or more (55.6% of the respondents that have worked in Healthcare Science for 11 years or more) did know how to access existing research and innovation support. **Respondents with 11 years or more experience were more likely to know how to access existing research and innovation support compared to those with fewer years of experience** (Table 8. Cross Tabulation for Accessing Research and Innovation Support and Years of Experience).

Six respondents that have worked in Healthcare Science for 3 to 5 years (85.7% of the respondents that have worked in Healthcare Science for 3 to 5 years), 8 respondents that have worked in Healthcare Science for 0 to 2 years (80% of the respondents that have worked in Healthcare Science for 0 to 2 years), and 8 respondents that have worked in Healthcare Science for 6 to 10 years (80% of the respondents that have worked in Healthcare Science for 6 to 10 years (80% of the respondents that have worked in Healthcare Science for 6 to 10 years (80% of the respondents that have worked in Healthcare Science for 6 to 10 years) did not know how to access existing research and innovation support. The majority of Healthcare Scientists with 6 to 10 years' experience did not know how to access existing research and innovation support.





To conclude, respondents were asked who they considered to have the most influence over research and innovation within the healthcare science community in the North West. This was an open text field and 22 categories were identified in the respondents' answers (Chart 28. Influence Over Research and Innovation within the Healthcare Science Community in the North West? – Open Text Analysis).

Six (17.1%) respondents did not know who they considered to have the most influence over research and innovation within the healthcare science community in the North West. **The two most common categories of support identified were NHS Trusts and R and D Departments, 6 (17.1%), and Universities, 5 (14.3%).** The National Institute for Health Research, 4 (11.4%), clinicians, 3 (8.6%), and Financers, 2 (5.7%) were also identified.

Chart 28. Influence Over Research and Innovation within the Healthcare Science Community in the North West? – Open Text Analysis



Survey Outcomes

Overall, the majority of the survey respondents were based in Greater Manchester. The largest number worked in NHS Acute Trusts or other NHS organisations and within the Life Sciences sector. Most had over 11 years' experience working in healthcare science, and those within the NHS were on pay band 8. This is a group of experienced, senior staff members working in the NHS. The majority of these respondents have been involved in research or innovation projects in the last 3 years.

Healthcare Scientists taking part in research or innovation projects in the last 3 years were again more likely to be based in Greater Manchester. The largest number working in NHS Acute Trusts or other NHS organisations and within the Life Sciences sector. Most had over 11 years' experience working in healthcare science, and were on pay band 8.

The respondents were more likely to be involved in research if they are working in Higher Education Institutions, followed by NHS Acute Trusts and other NHS organisations, and the largest number of respondents to take part in research were employed by 2 large teaching hospitals in the region (Central Manchester University Hospitals NHS Foundation Trust and The Royal Liverpool and Broadgreen University Hospitals NHS Trust). NHS Acute Trusts, other NHS organisations, and Higher Education Institutions, were also the most common parties to be involved in research projects. Again, overall the majority of respondents taking part in research are experienced, senior staff members working in the NHS. The longer respondents have worked in Healthcare Science, the higher the respondent's band, therefore the more senior the member of staff, the more likely they are to have taken part in a research project. The most common organisations to provide funding are Charities and other NHS organisations.

Service development and patient benefit were two of the core reasons that motivated the Healthcare Scientists to take part in research. Further motives to take part included cost efficiency, qualifications, improve diagnostic pathway, improve skills and education, and personal interest and development.

The majority of respondents were not aware of any existing career development programmes or similar for Healthcare Scientists. Most of the training programmes noted by the respondents who were aware of an existing programme were NHS Healthcare Scientists training schemes such as the NHS Scientist Training Programme (STP), National Institute for Health Research (NIHR) Fellowship Programmes, and NHS Higher Specialist Scientific Training (HSST).

Those with 11 years or more experience were more aware of development programmes, and respondents are less likely to be involved in research if they are not aware of any funded career development programmes or similar.

Finding out about opportunities or available funding and time are the two main challenges considered by respondents to taking part in a career development programme. Respondents who have not been involved in any research or innovation projects considered resources and practical support, and having opportunities available to take part as the greater challenges. Therefore, those who have not taken part in a research project require more basic support such as resources, practical support, and finding opportunities to take part, whereas, those already involved in research require support to find available funding and securing time allocation to take part in projects. Workshops and communication and awareness of research opportunities were the two key categories of support respondents identified Healthcare Scientists needing.

Currently, **most respondents did not know how to access existing research and innovation support**. Respondents with more experience were more likely to know how to access existing research and innovation support compared to those with less years of experience. Those who did would access support through their department or organisation's lead mostly, or through their professional body. No existing clear signposting was identified.

INTERVIEWS

Respondent Information

Seventeen Healthcare Scientists took part in a mix of face to face (7) and telephone interviews (10). The questions were asked in a semi-structured style allowing the interviewer to explore other areas of interest and tailor them to the individual. Eight of the respondents had completed the online survey, 9 had not. Fifteen had taken part in research projects in the last 3 years, 2 had not. Ten new research projects were identified.

The majority of the interviewee respondents were from Greater Manchester (12, 71%) and the rest from Cheshire and Merseyside (5, 29%). There were no respondents from Cumbria and Lancashire (Chart 29. Interviewees' Regions).



Chart 29. Interviewees' Regions

All the respondents worked for the NHS. The majority, 15 (88%), worked in NHS Acute Trusts and the remainder in other NHS organisations, 2, (12%). Most, 8 (47%) worked for Central Manchester University Hospitals NHS Foundation Trust. The additional respondents were from Liverpool Women's NHS Foundation Trust, 3 (18%), Public Health England, 2 (12%), The Royal Liverpool and Broadgreen University Hospitals NHS Trust, 2 (12%), University Hospital of South Manchester NHS Foundation Trust, 1 (6%), and Wrightington, Wigan and Leigh NHS Foundation Trust, 1 (6%) (Chart 30. Interviewees' Type of Organisations and Chart 31. Interviewees' Organisations).

Chart 30. Interviewees' Type of Organisations



Chart 31. Interviewees' Organisations



Most of the 17 respondents were from the Life Sciences sector, 12 (71%). Three (18%) were from the Physical Sciences sector, 1 (6%) from Physiological Sciences and 1 (6%) from Bioinformatics (Chart 32. Interviewees Sector/Disciplines). Thirteen (76%) had 11 or more years' experience in Healthcare Science, 2 (12%) had 6 - 10 years, 1 (6%) had 3 - 5 years and 1 (6%) had 0 - 2 years' experience (Chart 33. Interviewees' Years' Experience in Healthcare Science).





Chart 33. Interviewees' Years' Experience in Healthcare Science



Of the 17 respondents, 15 had been involved in research or innovation projects in the last 3 years.



Chart 34. Interviewees Involved in Research or Innovation Projects in the Last 3 Years

Healthcare Scientists taking Part in Research

The following subheadings are the key themes identified through interviews with Healthcare Scientist who took part in research within the last 3 years.

Motivation

When the respondents were interviewed in more detail about their motivation to take part in research projects, those who had taken part in research within the last 3 years or longer, largely described themselves as **self-motivated** and showed interest and enthusiasm in taking part.

The majority also saw research and innovation as an important and **integral part of their role as a Healthcare Scientist.** A number of the respondents said that they saw **service improvement** and **evolving practice** as a key motivation behind research and working towards **improving patient benefit** as a core part of their role.

Networking is an important factor behind the motivation to take part in research, not only did respondents note that clinicians approach them as part of their role to assist in research projects due to their skills set, and those interviewed have become involved in a number of research projects this way, a key motivation is trying to engage in collaborative work with others. The main aims are to build relationships, share ideas and discover what research is currently going on. This included meeting with a number of multidisciplinary teams across the Trusts, attending conferences and

submitting abstracts, writing papers collaboratively with colleagues or recommended contacts with shared interests or particular skill sets established through word of mouth and Research Council lead grant application networking days.

Further motivations mentioned reinforced the responses from the online survey included **cost effectiveness, staff training and development**, and **interest in the research area**.

Encouragement

None of the respondents had received any formal incentives to take part in research projects. However, many of the respondents did mention a **culture of research and innovation embedded within their role and their Trusts, departments and colleagues**. Respondents noted that generally research is approached as a team, through a department or developing a collaboration. Many of the respondents who take part in research work in departments that are research active, described a good history of taking part in research. One respondent noted that service development and improvement is part of their job description, and they are encouraged to participate in research, which is discussed in annual performance reviews.

This was not the case for all of the respondents that were involved in research. Some would have liked more formal encouragement to participate in additional research activities.

A number of respondents stated the importance of **encouraging involvement in research as part of the learning experience for junior members of staff.** Many will need to take part in research projects for a master's degree build up experience of the processes involved and recognise how important research is.

A few respondents stated that they had received encouragement through **funding support**. Either through receiving funds to support the project directly and through management support (personnel and project managers, research nurses, and IT support staff), or feeling encouraged after being successful in a funding bid and aspired to compete for larger grants.

Further encouragement received by the respondents included awards, complimentary remarks from their team and department, acknowledgement that they are doing a good job, seeing the benefit of what they are doing, and making a difference.

One respondent noted that one way to encourage Healthcare Scientists to become more involved in research would be to attach professional qualifications to certain aspects of research projects allowing a scientist to attain a formal qualification through research.

Barriers

The most common barrier that respondents discussed was **time**. This is allocating time to take part in research activities alongside or away from daily responsibilities. A number of respondents stated

that participating in research takes up a lot of time. The respondents are all NHS employees and for most delivering their primary services are the priority. A number of respondents also noted that more senior members of staff also have general management responsibility for team members. One stated that **the senior Healthcare Scientist's role is increasingly becoming more of a management role rather than a research lead**, and it can be frustrating not using these skills to do ground breaking research. The same individual knew of departments that have business managers to oversee the operation of the service, releasing the department lead to manage the research portfolio.

Linked to available time to carry out research activities, another common barrier amongst the respondents was **staff constraints**. One respondent noted that they are not able to take part in as much research as they would like due to the limited number of available staff.

Again, linked to available time to carry out research activities, another barrier stated by the respondents was **funding.** To release staff to take part in research the department needed sufficient funding. A number of respondents noted the tight budgets that they have to work within, causing them to choose carefully the research activities they can follow up.

The **administration** of applying for research grants was also an obstacle faced by the respondents who took part in research projects. Collating all the information in the application, including financial details, and getting it sent off in time with all the right information. One of the respondents said that this is not necessarily the scientific part but can be the hardest challenge.

One respondent described general laboratory services as often being reactive to clinically driven initiatives rather than being jointly involved in the conception and design of innovations. A welcome solution would be a specific forum allowing the laboratory to be involved in supporting clinical trials and clinical developments. Acute Care Study Days were seen as a useful opportunity for information exchange and discussion.

One respondent had experienced **conflict** as a barrier while taking part in a collaborative research project, recalling a situation where an individual had personal interests that dominated the bigger picture and risked derailing the project.

One of the respondents, who runs STP and PTP training seminars with the North West Healthcare Science Network, noted that one of the major concerns trainees had was how to start a research project in a department that does not do research. The feedback from the trainees was that there is not enough research going on within different disciplines and where research is taking place, trainees are not given access. The event, hosted for trainees in the North West, attracted national trainees and was attended by approximately 70 people.

Links

A number of the respondents have strong links with both academia and industry.

Several of the respondents are **honorary lecturers** at universities, have colleagues who are, or assist in supervising university MSc student's research projects. One respondent advised that they use the Royal Liverpool and Broadgreen University Hospitals NHS Trust and the University of Liverpool's **joint research office** to assist them when bidding for projects. The office advertises grants to all staff through the internal mail; pooling resources to bid for research that fits in with their research portfolios. Through the HSST programme one of the respondents will receive a University of Manchester leadership diploma.

Of those with links to industry, a number were involved in participating in **product development** research. One respondent has worked with more than one company, which valued working with the hospital department due to the high number of patient procedures and good quality of data. They noted that this happened organically rather than as a structured relationship. Furthermore, they consider it difficult to make links between Healthcare Scientists and industry as there are so many different specialisms and no formal scheme to approach those interested in taking part in research. They thought this may hinder trying to find partners and reduce Healthcare Scientists' opportunities to participate. Another respondent is receiving PhD funding from the manufacturer of the equipment they are performing optimization research on, and have been given payment in kind for their research work with equipment. The benefits to this relationship are that the company understand that they are the clinical end users and do what they can to support their research, while the respondent gets an intimate understanding of the equipment and technology.

One respondent noted that working across both academia and industry provide a number of **networking and engagement opportunities**, sharing and learning how to **improve processes** such as logistics, optimising practices in the most practical and efficient way.

A number of the respondents also see these benefits in **establishing links with academia**.

In more detail, a respondent described the role of a Healthcare Scientist as sitting between the academic and clinical worlds, bringing together multidisciplinary teams for research and innovation.

The key benefits proposed were access to **networking** and **sharing facilities**. Both Universities and Trusts would benefit by collaborating, especially if Universities are looking to recruit more patients through hospital clinics and NHS staff require advanced facilities, which may be available only in Universities. An example of this is the new Translational Medicine Hub being built by the University of Liverpool encouraging projects with direct clinical utility and strengthening links with academic medicine and the Liverpool Health Partners (NHS Trusts).

One of the respondents would like to see a local fellowship scheme set up between Universities and Trusts, associated with industry or an organisation such as MIMIT which links these to industry. These research projects should address clinical needs, sharing expertise from all three parties. Once

the fellowship is complete, a time allocation should remain for the participant to continue to participate in research as part of their role.

Many respondents see similar benefits in **establishing links with industry**. One respondent suggested a 6-week placement in industry for STP trainees. Again, networking can lead to resources and mutually beneficial opportunities for research.

Benefits of research

The respondents saw a number of benefits to taking part in research projects. Most importantly, to learn **new skills**, giving participants an insight into new techniques, new ways of doing things, and to enable the provision of research at a high level. This also improves the skills and knowledge within the department. Respondents also noted that research leads to **improved patient outcomes**.

Additionally, research can generate **income opportunities** and should help cement future research projects and improve the organisation's **reputation**.

Support

A number of the respondents received additional support while undertaking research projects. This included **personnel support**, such as project management, administration, research nurses, data analysis and statistical analysis, and IT support.

One respondent noted that assistance with IT was significant, as not everyone has the basic IT skills required. Respondents also raised the issue of access to additional skills such as data and statistical analysis. One respondent noted that they were able to approach a colleague who is competent with statistics for support. This demonstrates the importance of collaboration when taking part in research projects.

Respondents also found support from their colleagues, departments, and employers, who gave them time to take part in research and were flexible in balancing and prioritizing work time.

The most common type of support the respondents thought would be useful to Healthcare Scientists wanting to take part in research were face to face **workshops** supported by **online resources**. This would provide the opportunity to network and ask questions, and provision of online material to refer back to with additional **signposting** for further information.

More **networking opportunities** and **showcase events** were suggested as additional support required for healthcare scientists wanting to take part in research, providing an introduction to a network of experts and links to potential mentors and collaborators. The respondents' highlighted the benefits of networking as sharing ideas and being exposed to further research, and would encourage networking with multidisciplinary teams to find out what other people are doing both in healthcare and academia.

A number of respondents discussed **mentoring**, particularly for trainees where research is part of their learning outcomes and for junior members of staff starting to go through the research process. Having a pool of people, who have experienced the process to approach for advice, signposting, and even assist in networking, would be valuable.

Many respondents saw the benefit of being able to access a research **database** i.e. a catalogue of all completed research projects all in one place, with the names and institutions of those involved and their contact details for further information. This would enable those interested in taking part in research to find out what projects were taking place in their specialty, or look for collaborators with certain skills or interests.

Several respondents noted that **access to current scientific journals** through NHS libraries was poor, a number of respondents are able to access these through university library accounts, who subscribe to a wider range of publications, but not all respondents were able to do this.

Most of the respondents discussed **time** as an area in which they needed more formal support. They need to be released from their clinical workload to take part in research, and most respondents propose that a formal allocation of research time is granted. One respondent advised that in their previous role there had been a long-standing support system for releasing one person a week to take part in research. This time was allowed for in the department's budget.

Linked to time, respondents would like **more staff** to allow greater flexibility in the time available to take part in research. One respondent advised that engaging Healthcare Scientist staff part-time in research would allow developments to take place that have a direct effect on service. Another mentioned that their department jointly employed an additional member of staff with the Wellcome Trust to assist with research requests from the Trust to the department and start generating more research projects. However, they have been inundated with so many requests for research studies from the Trust that they have not yet been able to generate their own research projects.

Respondents requested **administration support**, particularly when writing **grant applications**, as most advised that they did not have this facility at their Trust. Many advised that in their experience completing high-level applications needs particular expertise, which is not covered in training schemes. A number of respondents received support on collaborations led by other partners, such as universities, or had multidisciplinary networks to access this expertise.

Many of the respondents **did not access any research support**. Those who did largely approached their Trust's research and development department for support in obtaining ethical approval, updates on procedures, logistics of a study, costings, and permissions. A respondent advised that the research and development office is helpful, but primarily exists to ensure compliance with regulation and to contain risks. Other sources approached by respondents included NIHR, Research Councils, European Commission, and the Engineering Council.

Funded Career Development Programme

Fundamentals

When the respondents were interviewed about what fundamental elements they thought should be included in a funded career development programme the majority of the respondents considered **networking** to be important. One respondent noted that networking is a skill, and those with less confidence or newly qualified may find it difficult. Also networking plays an important part in the development of Healthcare Scientists, to develop links with potential collaborators, learn how to apply research to healthcare delivery and expose them to research. Overall, the respondents stated that a funded career development programme should encompass the research process, such as how to conduct a literature review, applying for funding, completing ethics applications and data analysis and statistics. Additionally, supporting the research process with access to scientific journals, allocated research time, networking opportunities and a mentoring scheme. Finally, the programme should include participation in a research project.

These are the key essentials that respondents thought should be included in a funded career development programme:

- Networking
- How to do a literature review and find the latest relevant data
- Access to current scientific journals
- Research process and methodology
- How to find out and apply for research grants
- Ethics applications
- Consent of patients
- Data analysis and statistics
- Writing and publishing a scientific paper
- Understand intellectual property
- Allocated research time
- Participating in a research project
- Mentoring scheme

Furthermore, respondents wanted a development programme to give them access to a higher degree programme or more flexible higher education options to complete part time. One respondent noted that funding scientists to complete a PhD would be useful, at present many staff do not qualify beyond MSc level but a PhD is required to be eligible for most senior leadership positions, one example being for the Fellowship Examination of the Royal College of Pathologists (FRCPath). Another suggested following the training model for Medical Doctors, allowing time out of training for Healthcare Scientists to complete a PhD, supported by a mentoring scheme.

One respondent stated that those undergoing training need to be supported, with the understanding that they will get recruited and mentored onto an on-going wider research project. Ensuring that they get the opportunity to use and practise their research skills.

Challenges

Time was the main concern when respondents were asked what challenges there may be in taking part in a funded career development programme. The majority of the respondents have busy clinical commitments, and need to be released from their role to allow enough time to take part in research activities; they advised that this applies to the majority of healthcare scientists working in the NHS. Additionally, one respondent noted that it is a challenge for staff to participate in higher specialist training whilst continuing sufficient clinical work to maintain their registration. Another respondent noted that supporting those taking part in research should not impinge too much on senior staff time, one respondent noted that senior managers need to be made aware of the importance and benefits of encouraging a funded career development programme as proposed, so they can allow time for their team members to participate. To overcome this, many respondents proposed having additional staff in place, and funding for this, to substitute for those in training.

Influence

A number of the respondents **did not know** who they would consider to have the most influence over research and innovation within the healthcare science community in the North West. A few respondents advised that they did not know a great deal about what else goes on in all corners of the region.

A few of the respondents considered academic **clinicians** are the main drivers of research, rather than healthcare scientists, with the medical community having a stronger voice. Some considered departments, or clinical leads that have strong **links to Universities** to be influential or disciplines identified as key strategic areas for the Trust. Further responses included those who control the **finances**, and the **bodies that govern training** and their influence on research and innovation.

A number of organisations in the region were named. This included the **Academic Health Science Networks**, as being well connected and providing support in the past.

The remainder were NHS organisations or NHS partnerships between Universities and other NHS organisations; Christie's Manchester Cancer Research Centre (MCRC), the North West NHS Genomic Medicine Centres, and NHS Trusts developing a culture of being open to research work including the example of Salford Royal NHS Foundation Trust GSK (GlaxoSmithKline) trial of a drug against Chronic Obstructive Pulmonary Disease (COPD) and Liverpool and Manchester Universities collaborating with their major hospital Trusts.

One respondent named **Manchester Academic Health Science Centre (MAHSC)** as the 'best thing that happened to create an environment for research and innovation; bringing together the Chief Executives of the NHS Trusts in Manchester with the University and creating an effective Institute structure.'

A number of respondents named **individuals** as having the most influence over research and innovation within the healthcare science community, including; Helen Liggett, as a lead Healthcare

Scientist and part of the North West Healthcare Science Network, Angela Douglas, from Liverpool Women's Hospital and winner of Healthcare Scientist of the Year in the 2015 Healthcare Science Awards, Derek Middleton, Head of the Transplantation Laboratory in Liverpool, and Professor Ian Jacobs, former Director of MAHSC.

Healthcare Scientists that have not been involved in Research

To find out more about the survey respondents who had not taken part in any research projects in the last 3 years, they were invited to take part in a telephone interview. The questions were the same as those for the respondents who had taken part in research, with the following additional questions:

- What is the main reason you have not taken part in a research projects in the last 3 years?
- What type of research or innovation would you like to be involved in (and why)?
- Are there any obstacles that have stopped you getting in involved research or innovation?
- What activities would encourage you to get involved more?

Only 3 respondents, from the 21 invited, consented to take part in an interview. All of these respondents first considered that because they had not taken part in any research, they may not be able to provide any useful information. It is possible that more respondents did not take part because they felt the same. Out of the three who did reply, one was in the first year of the STP programme after leaving university and during discussion with the remaining two, one actually had taken part in research projects in the last 3 years, working primarily on academic research projects in their role and the other had taken part in service innovation projects a number of years ago.

Consequently, the responses of the interviewee working primarily on academic research projects was considered as part of the Healthcare Scientists taking Part in Research section, and so only the two remaining interviewee's responses will be reviewed.

Both respondents showed interest and enthusiasm for taking part in research. When asked what the main reason they have not taken part in a research project was, one respondent advised that they were interested in taking part, but **the opportunity had not presented itself and they did not know where to go for support or where to register interest**. They would like a database to register their research interests but are not sure what type of research they would like to take part in.

As an STP student the other respondent was not sure if taking part in research is permitted. They are interested in being involved in a research project, especially in something independent from the STP scheme, including a placement in industry. They were aware that they would be starting their final year MSc research project and would need to learn how to go through the process, including an ethics application with support from their department. As a trainee they have also been automatically added onto the North West Healthcare Science Network mailing list, they receive emails about events but do not understand what they can do to support them.

Activities that would encourage these respondents to get more involved included networking and showcasing events, and research projects addressing topical issues.

SUMMARY

Responses from the Survey and Interviews

Positive feedback was received from respondents about the project to survey Healthcare Scientists to both identify what research and innovation projects are currently being undertaken in the North West, and identify their training and development needs. The marketing communications also lead to a number of enquires about the funded career development programme, which will offer healthcare scientists in the North West region the opportunity to become further involved in research and innovation projects.

In total 91 respondents took part in the project. Seventy (76.9%) stated they have taken part in a research project in the last 3 years and 21 (23.1%) stated they had not. Overall 86 research projects were identified from the project.

The respondents were from across the North West. **The majority, 57 (62.6%), coming from Greater Manchester**, 29 (31.9%) from Cheshire and Merseyside and 5 (5.5%) from Cumbria and Lancashire (Chart 35. Total Respondents' Regions).

The majority of the respondents worked for the NHS. Most, 29 (28.1%) worked for **Central Manchester University Hospitals NHS Foundation Trust**. The additional respondents were from The Royal Liverpool and Broadgreen University Hospitals NHS Trust, 10 (12.2%), The Christie NHS Foundation Trust, 5 (5.5%), Liverpool Women's NHS Foundation Trust, 4 (4.4%) and Mersey Care NHS Trust, 4 (4.4%) (Chart 36. Total Respondents' Type of Organisations and Chart 31. Interviewees' Organisations).

Most of the respondents were from the Life Sciences sector, **51 (56%)**. Twenty-two (24.2%) were from the Physiological Sciences sector, **14 (15.4%)** from Physical Sciences and **4 (4.4%)** from Bioinformatics (Chart 37. Total Respondents' Sectors/Disciplines). Forty-six (**50.5%**) had **11 or more years' experience in Healthcare Science**, **21 (23.1%)** had 6 - 10 years, **11 (12.1%)** had 3 - 5 years and **13 (14.3%)** had 0 - 2 years' experience (Chart 38. Total Respondents' Years' Experience in Healthcare Science).

Chart 35. Total Respondents' Regions



Chart 36. Total Respondents' Organisations





Chart 37. Total Respondents' Sectors/Disciplines

Chart 38. Total Respondents' Years' Experience in Healthcare Science





Chart 39. Total Respondents Involved in Research or Innovation Projects in the Last 3 Years

The majority of those who took part in the survey and interviews were **experienced**, **senior staff members working in the NHS**. The majority had **taken part in a research project in the last 3 years** and **mostly represented disciplines from the Life Sciences sector**. The results of the survey demonstrated that this section of staff are more likely to be involved in research.

Therefore, the majority of the training and development preferences represent this group of more experienced respondents. Consequently, **any recommendations also need to consider the support required by less experienced healthcare scientists** who want to become more involved in research and innovation.

Most respondents did not know how to access existing research and innovation support, especially if they were less experienced and had not previously taken part in research projects. Again the majority of respondents were not aware of any existing career development programmes or similar for Healthcare Scientists, especially if they were less experienced and had not taken part in research projects.

Respondents who had not been involved in any research or innovation projects considered resources, practical support, and having opportunities available to take part as the major challenges. One of the interviewees, stated that, one of the major concerns Healthcare Scientist trainees had was how to start a research project in a department that does not do research. Those already involved in research require guidance to find funding and allocate time to take part in projects.

Overall, workshops, networking and research opportunities were the main types of support the responses identified as important for Healthcare Scientists.

Key Factors in Research and Innovation Culture

Key factors have been highlighted through the survey and interview responses regarding the research and innovation culture. The following subheadings address the key factors identified.

Research central to role

The majority of interview respondents who had taken part in research were aware of a culture of research and innovation embedded within their role, department and Trust. All the respondents that took part in the interviews were also motivated to take part in research as they saw it as an important part of their role as a Healthcare Scientist.

Communication

Communication around research and innovation training, opportunities and support for Healthcare Scientists was inconsistent. No clear signposting was identified. Currently, most respondents did not know how to access existing research and innovation support, and were not aware of any existing career development programmes or similar for Healthcare Scientists. A number of the respondents did not know who they would consider to have the most influence over research and innovation within the healthcare science community in the North West. There was a mixed response and those who named influential individuals, did so as they had been seen to encourage participation in research.

Finding out about opportunities or available funding is one of the main challenges highlighted in the responses. This involves clear and accessible communication of information to Healthcare Scientists via a consistent source. More networking opportunities were also suggested as additional support, enabling healthcare scientists to communicate with potential mentors and collaborators, sharing ideas and being exposed to further research.

Support

As previously discussed a number of the respondents have received additional help while undertaking research projects. Support was a key factor for the respondents to be able to take part in research projects. This came from their colleagues, departments, and employers, who gave them time to take part in research and were flexible in balancing and prioritizing work. The majority of the resource was personnel, to provide additional skills such as project management, data analysis, and IT support. Additional staff resources included administration and research nurse time.

Those who have not taken part in a research project require more basic practical support including finding opportunities to take part, whereas, those already involved in research require support to initiate projects finding available funding and securing time. Workshops supported by online resources, networking and communication of research opportunities were the two key categories of

support respondents identified. The responses demonstrated the importance of collaboration when taking part in research projects.

Time

The most common challenges to participating in research that respondents described were time, staffing constraints and funding. The majority of the respondents were NHS employees and for most delivering their primary services was the priority. Senior members of staff also have general management responsibility for team members. A number of respondents had been able to take part in research due to being released from their day to day role. This requires additional staff cover which in turn requires funding.

Infrastructure

The responses highlighted a number of fundamental requirements to support a training scheme. One of the main proposals was formal links between NHS Trusts with both academia and industry. Participants would be able to enable engage in networking opportunities, learn new skills and work with new technology, improving processes such as logistics, and optimising practices. Participants would have access to shared resources and facilities, such as literature, laboratory facilities not normally available and new research opportunities. Many of the respondents recommended a mentorship scheme to support participants beginning the research process in which trainees and junior members of staff can approach those with experience for coaching and guidance. Another proposition is to secure allocated time to allow participants to be released from their daily responsibilities to take part in research activities. A key concern in taking part in a research training scheme is the availability of time.

RECOMMENDATIONS

The following activities are recommendations to inform the development of the MAHSE career development programme for Healthcare Scientists in the North West.

Secondment Programme

The outcome of the survey and interviews highlight the fundamental elements respondents would like to see included in a funded career development programme. Respondents would like information to be delivered **through face to face workshops supported by online resources**, providing the opportunity to network and ask questions, and the ability to refer back to online material with additional signposting for further information.

Networking

Networking and engagement opportunities could be provided enabling Healthcare Scientists to create multidisciplinary links to experts, share knowledge and learning how to improve practices. The benefits of networking, being exposed to research projects and those participating in research sharing ideas, encourages and supports research participation and communicates the benefits of taking part in research.

Access to current scientific journals

Access to current scientific journals through NHS systems and libraries is not consistent. Improved access to current literature would be valuable to Healthcare Scientists, interested in taking part in research, facilitating their literature reviews and enabling them to find the latest research published in their speciality.

Research process

A training programme should provide guidance on the overall research process. This includes; carrying out a literature review, planning the methodology, finding out about and applying for research grants, submitting an ethics application and consenting patients, understanding intellectual property, data and statistical analysis, and writing and publishing a scientific paper.

Allocated research time

Time release from daily responsibilities is key for participant to be able to take part in a research training programme. This time may need to be funded in order to release the candidates.

Participating in a research project

Health Care Scientists should get the opportunity to use the skills they are learning, supplementing the training programme through participation in a research project. This may be via recruitment onto an on-going research project. Once the fellowship is complete, a time allocation should remain for the participant to continue to participate in research as part of their role.

Mentoring scheme

A mentorship scheme should be available for participants to develop a relationship with a named experienced Healthcare Scientist to guide them through the research process, help them access valuable contacts and resources and expose them to further research.

Higher Education

Once the training programme is complete, participants should be in a better position to access a higher degree programme or funding to complete a PhD, making respondents more eligible for senior leadership positions in the future.

Potential Aligned Activities

The following activities are potential aligned activities open to all Healthcare Scientists in the region to encourage and support their research and innovation participation.

Network Meetings and Events

Networking events could be organised to provide engagement opportunities with multidisciplinary contacts across NHS Trusts, academia and industry. These could include showcasing projects and would provide a forum to submit research abstracts with the aim of encouraging collaborative work and presenting current research to share ideas. Events could be co-hosted with universities, companies, professional bodies, and networks.

Online Database

An online searchable research database could be published. This will provide a catalogue of all completed research projects including the names and institutions of those involved and contact details. This would form a resource that Healthcare Scientists could access to both register their interests, specialism and skills and find out what research is taking place in their specialty, or look for collaborators with certain skills or interests.

Resource Bank

A database of Healthcare Scientists, and their skills, working in the North West who would like to participate in research projects outside their organisation could be collated. Their details would be available for those looking to start a research project and put a team together. A Healthcare Scientist, working in an NHS Trust department that is not currently taking part in research, could work in another NHS Trust, University or Company, to take part in a research project, for a set amount of time per week for the duration of the project. The Healthcare Scientist's time could be funded by the MAHSE Secondment Fund. This could also include the time of additional staff with specialist skills that may be required, such as IT, statistics and research nurses.

This would provide new opportunities for those who are unable to access research from within their own departments. This could be set up in co-ordination with partners including universities, companies, professional bodies, and networks to attract a wide range of expertise. Industry could be invited to use the database to appoint Healthcare Scientists for a fee. This fee could then be used towards funding the Healthcare Scientist's release from their NHS post.

Mentorship Scheme

A mentorship scheme could be initiated particularly aimed at trainees, where research is part of their learning outcomes, and junior members of staff, starting to go through the research process. Having a pool of people, who have experienced the process to approach for advice, signposting, and even assist in networking would be valuable. This could be linked to an online searchable research database. A catalogue of all completed research projects could be collated with the names and institutions of those involved and identifying individuals as a potential mentor or mentee.

Research Grant Advice and Support

Administrative advice should be available for Healthcare Scientists writing grant applications, providing guidance to those that need assistance to collate all the information necessary for the application. Collaborating with Trust and University Research Offices and other partners, such as multidisciplinary networks, to access support amongst those who have experience completing high-level research grant applications.

CONCLUSIONS

The benefits of a healthcare sector active in research are obvious and will strengthen the key Regional Strategy to re-base the North West economy around innovation with the biomedicine sector as a key component.

The survey confirmed that all the responding Healthcare Scientists are interested in participating in research and see this activity as a key part of their role.

The great majority of respondents had taken part in research and some of the interviewees were confirmed as initiators of significant projects - winning funds from major external agencies, acting as key collaborators bridging the academic, healthcare and industry sectors and developing new products bringing benefits to patients.

The survey gave some important pointers as to how Health Care Scientists as a group can strengthen their involvement in research and help foster the research and innovation culture in their institutions.

Barriers to involvement included:

- Lack of programmed time for participation in research and the need to assign resources to allow direct involvement or back-fill support.
- A need for a more formal route to finding information on sources of funding and the support needed to initiate a research project (administration, ethical approval, IT and statistical help).
- A requirement for a scheme to mentor young scientists through the early stages of a project, develop key contacts and collaborators and see their project through to completion to, for example, the award of a higher degree and a research publication.

Recommendations arising from the survey are:

- Organising Regional networking events to encourage the formation of new healthcare, academic and industrial collaborations.
- Improving infrastructural support in particular access to research literature and a regional data base of research activities, contacts and resources.
- Assigning programmed time for Health Care Scientists to participate in research.
- Developing a mentoring scheme for trainee scientists to develop research skills and achieve higher level qualifications.
- Offering a funded secondment scheme to allow Health Care Scientists to participate in research and further the aims outlined above.

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