Health Informatics Career Pathways Project

Report A: Summary Report

Report commissioned by the national
Building a Digital Ready Workforce Programme

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Executive summary

Background

The focus on digital, technology and data within healthcare continues to rise and for the purposes of researching this work we have used the term health informatics. More than ever, there is a significant need to ensure we have a workforce who are both skilled and knowledgeable alongside creating the conditions to ensure individuals can put those skills and knowledge to good use and have the confidence they can progress with a career should they wish to do so. Without a better understanding of this, the NHS will continue to face recruitment and retention problems in this area, and individuals risk continuing to languish in unhelpful roles not putting their skills to good use.

Our overall aim was to understand how recruitment and retention (including progression) for health informatics can be improved by learning from the experiences of our existing workforce. The recommendations are primarily aimed at those who have national or local responsibility for the informatics workforce. We also hope that this research will guide CIOs and boards to develop the profession within their own organisations with nationally focused recommendations to support and enable this. The full report will likely make interesting reading to anyone within the profession.

Methods

While various surveys are available focusing on a point in time and individual anecdotes are aplenty, there appeared to be little work done at scale to understand the collective journey the health informatics workforce has been on. We undertook an online survey using a mixture of quantitative and qualitative questions to capture information on the following four areas: contextual information, mapping career pathways, reflections and looking to the future.

Results

507 individuals participated in the survey. We captured information about 855 individual roles including 627 unique job titles. All roles were coded by seniority and specialist career area enabling us to build a career pathway heatmap, plotting movements where possible. This activity was challenging; many job titles were vague and difficult to code. It was evident that roles tended to be more specialist early on, becoming broader with seniority.

Individuals had mixed opinions about the usefulness of the terminology *health informatics* in the modern workplace and offered a variety of interpretations around its scope. The challenges presented by individuals tended to focus on national, organisational or cultural issues such as their profession being underappreciated and lack of clear career pathways. The enablers tended to focus on personal qualities where people had carved out their own opportunities or had access to positive support networks or appropriate training. Individuals were able to articulate what they wanted going forwards to help them on their career paths, some of which are things that are already available yet were either unknown or access was perceived as difficult, sometimes due to lack of funding.

Recommendations

We have structured our report to present our five areas requiring improvement. For each area we have included narrative on what needs to change based on the findings from our survey results, alongside some practical recommendations.

Articulating health informatics career pathways across the NHS: There is a need to agree and articulate the specialist areas within health informatics alongside skill requirements. Job titles and descriptions need to be in line with industry standards and be meaningful. This is not about dictating a particular career path but enabling individuals to be aware of the opportunities and make informed choices about their future. Increased consistency in terminology will also enable us to measure and improve diversity in specific specialist areas as well as ensuring individuals seeking work are able to locate opportunities. Inspirational case studies would be welcome and existing initiatives should be considered such as the HEE careers function to promote this.

Nationally supported recruitment and retention: We have identified three career levels where glass ceilings can hinder progression between them. Entry level roles require an improved foundation potentially with a basic education package to avoid being specialised too early on and gaining a better understanding as to how their specialism fits into the wider NHS. Mid-career roles need support to build specialist skills and be able to use them in practice. Senior managers require more knowledge and leadership support as their portfolios broaden. Leadership skills are required at all levels including those who do not wish to become managers. Individuals external to the NHS may need an orientation to the NHS initially but must not be automatically disregarded. The apprentice levy can support some of this but it is not clear if that is being utilised from these survey results.

Define the professional body offer and understand health informatics network opportunities: Individuals were not always clear what the professional bodies were offering, what the overlap was and how they could benefit. There is real potential for the professional bodies and local training networks to support individuals in realising their goals; however until we can articulate with consistent language what we are striving to achieve, this is difficult to match up. The professional bodies and training networks also have an opportunity to support organisations with understanding their profiles and developing meaningful succession planning, while supporting individuals with careers advice and development. There is a need to ensure that there is more consistency in training and support available and this is not down to luck or being in the right organisation.

Regional/System approaches to developing an informatics workforce: There are opportunities for organisations to tackle workforce challenges together at scale. This includes developing joint initiatives to enable staff to gain exposure through rotational, placement or secondments in system wide projects, developing new skills and experience valuable to the local system without the costs of unplanned succession planning and recruitment. Structured activities around networking, mentoring and coaching should also be encouraged as part of this to build up individuals' support networks. This should be linked closely with local training networks providing specialist training and linked to Regional Talent Boards to ensure this is considered as part of the mainstream and future proofing the local workforce. We believe that the roles of professional bodies and informatics networks and regional/system workforce approaches are complimentary with the former providing advice and services, the latter identifying local supply and demand requirements.

What can senior leaders do now?: This section considers the cultural changes that all leaders can explore with their organisation including the importance of executives understanding what health informatics staff need in order to do their jobs effectively. Part of this is ensuring health informatics has a voice and is seen as integral to service transformation, rather than becoming a scapegoat and suffering from blame cultures. Those in a recruiting or line manager capacity can also do more to support and signpost their direct reports.

How to use this report

We have focused on the five areas above which we believe need to be acted on now based on the evidence collated. As the response rate exceeded our expectations, there is the potential to undertake additional work beyond recruitment and retention. We have made available the full results (aggregated) in *Document B – Full Survey Findings*. This contains a fuller breakdown of the survey results and methodology. We hope this evidence can support further initiatives as well as being a thank you to those who participated.

Acknowledgements

Background and <u>the why</u>

Aims

The overall aim of this project was to understand how we can improve recruitment and retention (including the route to progression) for health informatics by learning from the experiences of our existing workforce. Its outputs will be key to understanding how we can attract and grow our health informatics leadership. We also aspired to create a health informatics career pathways heatmap to visually present the variety of job roles individuals had alongside identified movement between roles.

Audience

The recommendations of this report are primarily aimed at those who have responsibility for the informatics workforce; either in a national capacity or within a local system or organisational recruiting capacity. This research should also be able to guide CIOs and boards to develop the profession within their own organisations, with nationally focused recommendations to support and enable this. The full report will likely make interesting reading to anyone within the profession, including those considering it as their future career move.

Context

The spotlight on data and technology in healthcare continues to increase. At the time of writing, Integrated Care Systems (ICSs) in the NHS are developing their five year plans in response to the [NHS Long Term Plan](#) and areas such as Population Health Management and a Primary Care Digital Front Door are just two examples at the forefront. There have also been a number of high profile reports focused partly or totally around the health informatics workforce, including the [Wachter review](#) (2016), "[The Future of Healthcare: our vision for digital, data and technology in health and care](#)" (Department of Health, 2018), the Topol review (2018), "[Achieving a digital NHS: lessons for national policy from the acute sector](#)" (Nuffield Trust, 2019), "[Untapped potential: investing in health and analytics](#)" (The Health Foundation, 2019), and "[Wants & Challenges of Health Technologists](#)" (OneHealthTech, 2019).

We need leaders who are capable of representing health informatics on boards with the experience and capacity to lead digital transformation across health and care. Without this, the NHS is going to struggle with its ambitious plans for digital and data. At a time while these skills are greatly needed, recruitment and retention remains a key issue within health informatics. Without a better understanding of this area, there is a danger that staff will be lost to the profession or languish in unhelpful positions early on in their careers, not putting their skills to use or leaving the profession. High staff turnover is expensive and unproductive; in some cases this includes the NHS losing those it has invested in through targeted programmes and schemes. We need to get better at supporting individuals with progression, established training and a reduction in variable quality. We need to attract new talent and encourage existing talent.

There is therefore no denying the need to develop and maintain the health informatics workforce. There are a number of leadership schemes available to blend formal education, specialist skills and leadership training. This includes the NHS Graduate Management Training Scheme (GMTS) and the Scientist Training Programme, the NHS Digital Academy (recently established in response to the Wachter review), CHIME and the Digital Health Women's Leaders Programme. What remains uncertain is how the majority of individuals who have not had access to these opportunities can progress and develop. In addition there is not a clear route to becoming a CIO or other senior leadership roles in the profession. Lack of career pathways can make it difficult to match what training, skills and knowledge one needs.

While census type activities have been identified, both internationally and closer to home (North West Informatics Skills Development Network), they have mainly focused on where people are at a fixed point in time or sometimes looking to the future. In parallel, many have shared their personal stories, reflections and anecdotes in blogs, conferences and informal conversations. To our knowledge, this is this is the first attempt to bring the two together. This is an attempt to explore career pathways, learning from the past and aggregating that information into findings and recommendations for the future.

This project was undertaken by South, Central and West (SCW) on behalf of the national Building a Digital Ready Workforce programme (BDRW). This is a joint programme between Heath Education England, NHS England & Improvement and NHS Digital and aims to develop the digital capacity and capability of the health and care workforce and improve the use of data, information and technology to support better patient care.

The project started as a research proposal while the main author was completing a Health Informatics MSc at the UCL Institute of Health Informatics, having experienced first-hand the difficulty of trying to be a leader without knowing what options were available. Funding was secured from the Building a Digital Ready Workforce (BDRW) programme which allowed more extensive research to take place. SCW continued to work closely with Professor Paul Taylor and Dr Henry Potts from UCL who provided expertise around data collection and coding in the early part of this project, as well as sense checking later themes to ensure the study reached full potential.

We would like to acknowledge two limitations upfront in this report. Firstly career pathways up until now may no longer be appropriate to directly lift and shift into a new framework due to the evolving nature of the landscape. We may not be comparing like for like. In addition, for the purpose of this project the terminology "health informatics" has been used although we recognise not everyone may identify with it. This is explored further below. Despite these two limitations, we offer this report as a good starting point for building a much needed evidence base.

Health Informatics as a terminology

We have considered the terminology Health Informatics inclusive of health care, social health and public health and have used the term throughout this project. Throughout the research we had conversations with individuals who felt they did not identify with this term, and within the responses itself it was not always favourable.

"Informatics is too much related with IT. If you mean data or information call it just that or analysis".

We invited participants to describe health informatics. Our aim was not to try and agree a definition but to shine a light on why opinions may be varied. We ended up with over 300 individual definitions, from which we took a sample, which we then segmented into broad categories using a Venn diagram to understand any overlap. The three key elements of descriptions were (i) data/information (ii) technology and (iii) change/outcomes (i.e. doing something with information and/or technology). What this highlights is that we lack coherence about what the term means and the consequence is that interpretations of what we are asking will differ immensely. The targets of who individuals felt they were trying to help also varied including references to patients, clinicians, NHS organisations or the health and care system as a whole.

"Working with and presenting health data"

"The discipline concerned with the use of data, information and IT within the health service sector"

Analytics / Data Focused

"Data used to improve and monitor health and care"

"Digital technology used in the health service"

"The use of high quality information and technology to support, evidence and improve patient care"

Technology Focused

Change / Action Focused

"Using digital technology to improve patient outcomes and deliver health & care more efficiently"

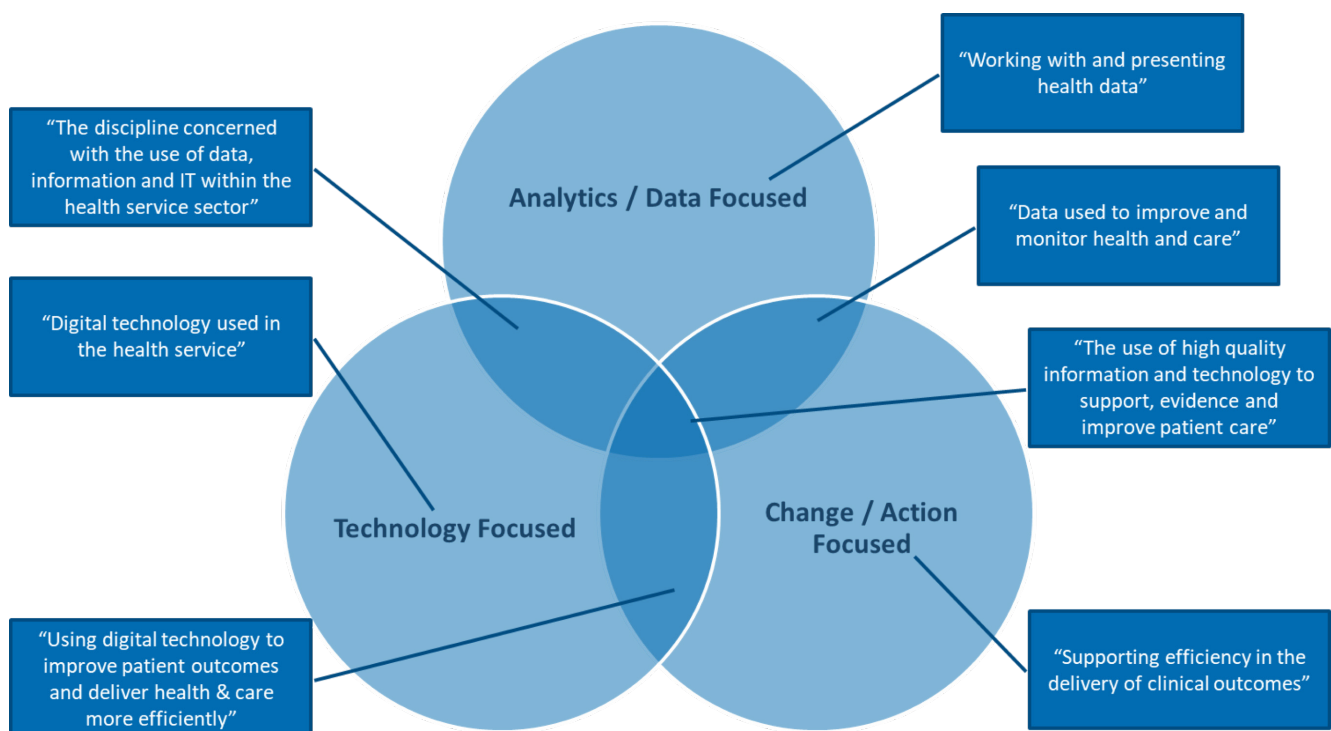"Supporting efficiency in the delivery of clinical outcomes"

Diagram 1: Health Informatics descriptors Venn diagram

More information about health informatics as a terminology can be found in Report B from page 10.

Methodology overview

The project team undertook a high level literature review and engaged with known contacts while reaching out to others using social media and online forums. We also engaged with the professional bodies (AphA, BCS, CILIP, FEDIP, IHRIM, SOCITM) for as well as CHIME and the Faculty of Clinical Informatics for ideas. The main author then developed a survey with expertise from University College London after identifying key areas of interest. The survey was piloted and then launched in April 2019.

The survey had four component parts. The first was a general overview and contextual information. The second part explored their career pathway. The third section focused on reflections around their career pathway up to date including exploring enablers and blockers. The final section looked to the future, including what future training should look like and exploring the concept of licensing within health informatics. The full list of questions can be found in Report B, Appendix A (from page 40).

The survey was mainly promoted via Twitter but also on the Digital Health forum (discourse), via professional body newsletters, local communication bulletins and circulated within networks including the Digital Academy, the NHS Graduate Management Training Scheme via the NHS Leadership Academy, and the Informatics Skills Development Network.

Individuals were invited to participate if they identified as being part of the non-clinical health informatics workforce in the UK and Ireland. Social care colleagues were encouraged to participate, alongside those who did not work in the public sector. The reason clinical specific roles were out of scope was due to our interest in recruitment and retention from early careers; while clinicians will have overlap they will likely have a different path early on. There are separate projects reviewing clinical pathways and we will share this report with those we are aware of. We also needed to keep the scope of this piece manageable.

507 participants in total completed the survey in a three week window. The initial survey findings and recommendations were presented at the UK Health Show (June 2018) and Digital Health Summer School (July 2019) and input from that has also helped to shape the final discussion and recommendations.

We have remained GDPR compliant throughout this piece of work. We have had to exercise additional caution whereby there is an added complexity that career pathways are potentially identifiable due to their individuality. Names and email addresses have only been stored, separately from the main dataset, to support follow up questions and dissemination of results where participants consented to being contacted for those purposes; all personal information will be deleted by 31 March 2020.

We have used thematic analysis, content analysis and basic quantitative methods to present the majority of the survey results. More information about the methodology and detail behind the coding frame for career pathways can be found in Report B.

Health Informatics careers heatmap

Approach

Participants were asked for the following information about the five most recent roles on their own career path: job title, team type, reporting to, organisation, banding and number of years in role. The majority of participants provided information for their current or most recent role (83.0%) but this continued to drop for each additional role and significantly by the fifth role (10.3%). We collected information about 855 roles in total and 73.3% (627/855) of the job titles given were unique.

The project team opted to allow free text for job titles and teams rather than restricting them into categories from the outset knowing these inconsistencies likely existed. A coding frame was developed iteratively as survey results came in. We looked to existing frameworks for inspiration too, including the Health Informatics Career Framework[1] (HICF) and the Government Digital Services Digital Data and Technology Profession Capability Framework (DDaT). Every role was placed on the coding frame based on (a) level of seniority indicated and (b) specialist career pathway.

The levels of seniority identified were: Executive, Director or CXIO, Assistant or Deputy Director or CXIO, Head of Service, Clinical Front Line, Deputy Head of Service or Senior Manager, Senior or Specialist Role, Manager, Standard Role, Support & Administrative Roles, Graduate Trainees & Apprenticeships. We acknowledge that hierarchies are not always helpful and that some of these levels of seniority will differ between specialisms, however we needed a way to capture and map them. Additionally, the categories we have opted to use may not be mutually exclusive.

We identified the following specialist career pathway areas: Clinical Leadership & Support, Clinical Systems, Education & Training, Library & Knowledge Services, Clinical Audit & Quality Improvement (QI), Clinical Coding, Health Records, Information Governance & Data Quality, Business Intelligence & Analysis, Data Warehousing, Health Informatics (generic), IT / ICT / IM&T (generic), Systems & Software Development, Networks & Infrastructure, Portfolio & Programme Management, Project Management, Business Analysis & Change, User Research.

We used this coding frame to map movements individuals had undertaken between roles on their own journeys where they had provided information for two or more roles. Please refer to the Document C (Informatics Career Pathways Heatmap). We were able to plot 435 movements in total.

Diagram 2: Career pathway heatmap (circles denote a move to 'same code')

One of the original questions we originally set out to answer was whether there were common career pathways. We have explored this a little but it was challenging given the ambiguity around senior job titles. There is the potential to do further work in this area

We have presented an example below to give a visual representation using groupings of career pathway areas.

Clinical Informatics	
Library & Knowledge Services / Training & Education	
Clinical Audit, Clinical Coding & Health Records Management	
Data, Information & IG	
Data Warehousing	
Generic Areas	
Software / Hardware Technical Expertise	
Projects & Programmes / Change & Engagement	
Other	
No data available for role	n/a

52 individuals gave information on five roles and we have visually mapped this using high level groupings.
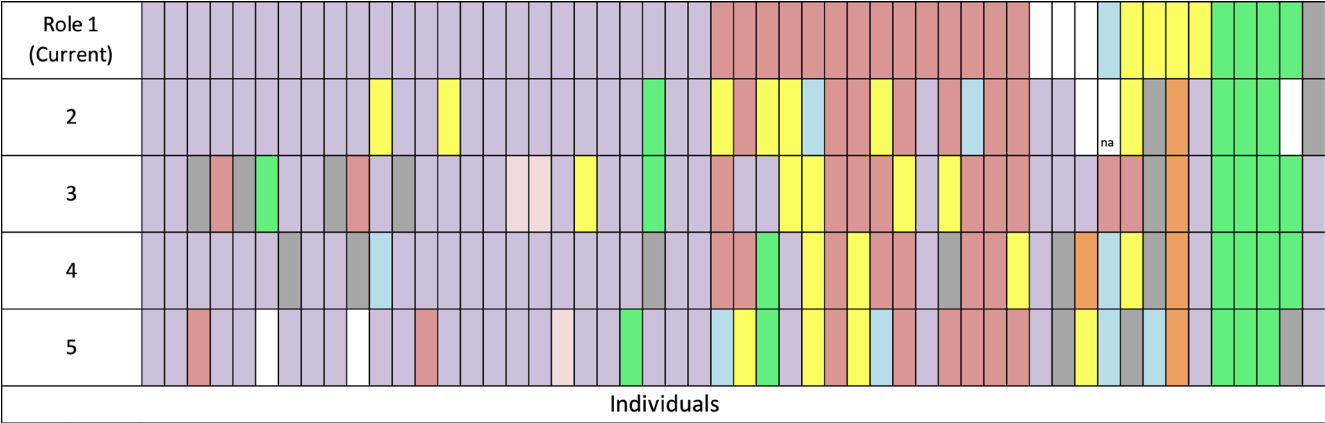

Diagram 3: 52 'complete' pathways and themes

We did attempt to repeat this exercise for those currently in a CXIO, Executive or Director role but there was not much data. The information we did have was hard to code and tended to be vague generic roles. The findings are however available in Report B (page 19). This highlights why career pathways to very senior roles may feel unclear and nebulous.

This analysis highlighted some key findings:

- Many entry level roles are specialist from the start which is different to other disciplines such as medicine or finance for example
- Many roles were hard to code as the job titles were so vague; this became harder with seniority. It is likely many of these roles are not mutually exclusive.
- When plotting individual movements, the heatmap demonstrates a lot of movement across specialist areas. Due to how participants responded the majority of these movements are between their current or most recent role and the one before that.
- However when we looked at the 52 complete career pathways, this indicates much higher levels of stability and remaining within specialist areas.

A little about our participants

Current or most recent role

The majority of participants worked in NHS organisations based on their current or most recent role. Using the coding methodology previously discussed the breakdowns are as follows for participants current or most recent roles, where that information was available. A table showing the crossover can be found in Report B page 5.
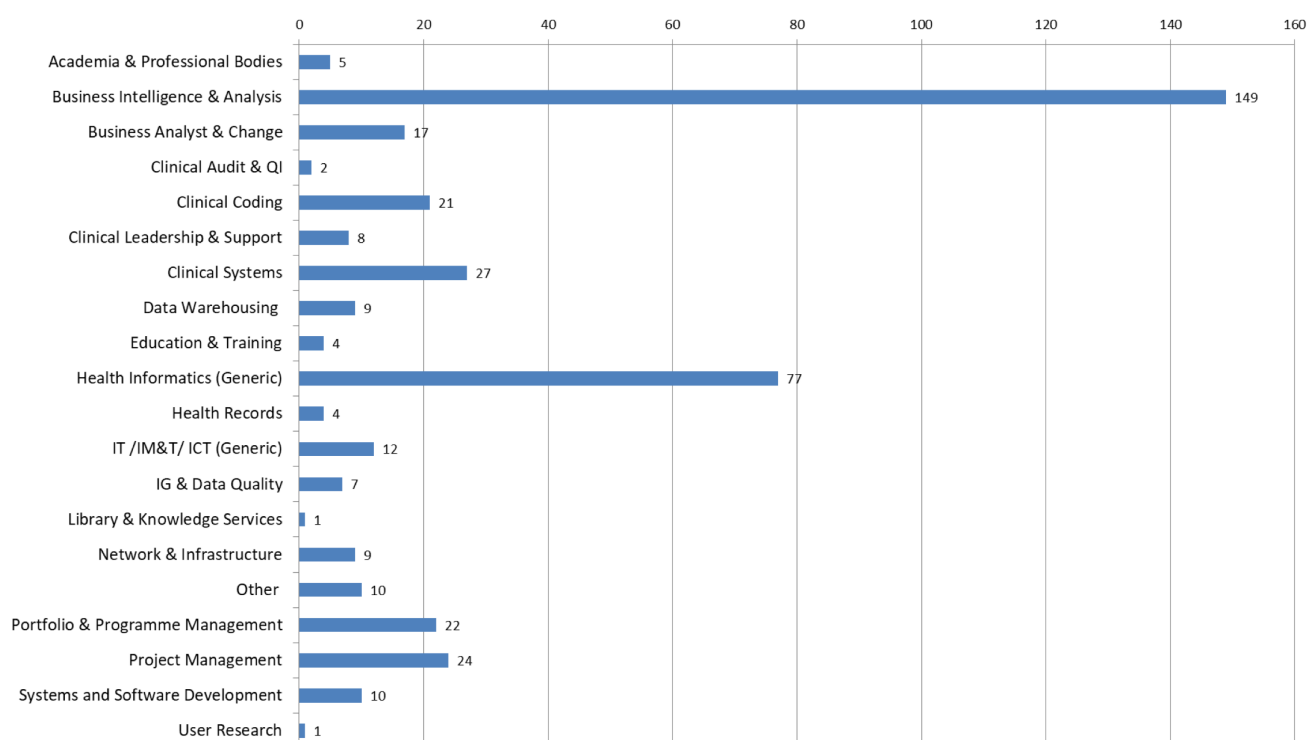
Graph 1: Health Informatics Career Pathways – specialist areas (current or most recent role)

Executive, Director or CXIO	12.2%
Assistant or Deputy Director or CXIO	2.9%
Head of Service (& Clinical Front Line Roles)	12.4%
Deputy Head of Service or Senior Manager	5.5%
Senior or Specialist role	27.0%
Manager	11.5%
Standard Role	21.0%
Support & Administrative Roles	5.5%
Graduate Trainees & Apprenticeships	1.9%
Clinical Front Line Role	0.2%

Table 2: Seniority of participants (current or most recent role)

7.3% of participants were currently on or had completed a graduate training scheme including the National Graduate Management Training Scheme (GMTS), the Scientist Training Programme and the Graduates Into Health scheme. The majority were current or recent alumni of the GMTS Health Informatics specialism. Between 2012-2016, our response rate only captured 12.9% of GMTS Health Informatics alumni based in national intake data (see Report B from page 6 for more).

5.6% of participants were currently on Cohort 1 or Cohort 2 of the NHS Digital Academy and 7.6% of participants indicated that they represent informatics on the boards of their organisation. This question stimulated some debate as to whether informatics was represented appropriately or not and whether a one size fits all approach is suitable (see Report B from page 8).

We did not explicitly ask for and capture information around demographics in this survey but some themes are explored throughout the report.

31.0% of participants were a member of a professional body or in the process of applying to be a member. A further 18.8% were interested in this. The Association of Professional Healthcare Analysts (APHA) and British Computer Society (BCS) were most frequently referenced. Some individuals belonged to multiple groups, usually when they were part of a larger or overarching body too such as the Federation for Health Informatics Professionals (FEDIP) or College of Healthcare Information Management Executives (CHIME) (See Report B - Page 9 for more).

When it came to qualifications and professional registrations, the majority of participants either held these or were actively working towards them (41.3%) or were interested in doing so (43.8%). Throughout the study we captured nearly 500 individual responses around qualifications, training and professional registration. (See Report B – page 10 for more).

Finally, participants had used a range of tools for benchmarking purposes, both at individual level but also at an organisational or system level. (See Report B – page 11 for more). The sheer quantity of options around training, professional body membership and registration, qualifications and benchmarking highlights how much resource is out there to be navigated.

We now present the five areas we feel require improvement as a priority based on the evidence collected from the survey.

Area 1: Articulating health informatics career pathways across the NHS

We heard that health informatics career pathways were unclear both in terms of the specialist component parts that make it up, but also the skills required for progression within each and meaningless job titles.

"Being new to informatics it took a long time to become fully aware of the scope of the informatics field, the different types of jobs that are available. Now it is trying to work out the required skills and depth of technical knowledge needed to obtain the positions I desire".

There needs to be more consistency in terminology used. Terminology must be in line with the 21st century and industry standards. ***"I would like to see more inclusion of terms like data scientists, statisticians and analysts as these are terms used outside of the NHS. I work in the NHS and I couldn't say what health informatics is."*** Some specialisms are changing more than others as things become paperless or automated, and others evolve. Cyber security for example is an area of rapid development for both the NHS but also industry.

Individuals expressed concern around conflict between different teams within their organisations due to unclear remits, overlapping responsibilities (some referred to themselves as "jack of all trades, master of none") or being unaware of the contribution each specialist area could offer. Until we can articulate consistently what we are talking about and trying to improve, we risk having mismatched expectations around what we are trying to achieve. This was highlighted by our difficulty in coding the vast array of job titles. This also makes it very difficult to nationally measure how we improve diversity in this field. Although we did not specifically ask about this, it was highlighted that individuals had been overlooked for advancement due to gender, race or age. Much of this focused on women still working in a 'male dominated environment' and challenges around maternity leave or caring responsibilities, although it was noted that this was improving. OneHealthTech and the SHURI Network are specifically tackling and championing diversity in health tech.

When reflecting on their career paths, 37.9% of participants were dissatisfied or very dissatisfied that their career path was clear (compared to 30.8% satisfied / very satisfied and the remainder neutral). Although participants were more positive about future moves, 28.8% were still unconfident or very unconfident about their potential next move. For some participants they may have been happy not to progress which is absolutely fine too. Some individuals explicitly highlighted the different needs at different stages of their lives which included taking on a less pressurised role; this was not always about becoming more senior.

There is clearly some emerging and supportive infrastructure in place but supporting individuals to map their future career journeys must be a pre-requisite to this. While some individuals highlighted their own curiosity, drive and ambition had enabled them to create their own opportunities despite a framework lacking, this will not come naturally to everyone and we need to give our workforce the navigation tools they require.

It may be that each specialist area requires individual in depth review following agreement about which specialist areas are in the current landscape. As part of this it would be useful to examine the use of umbrella terminology used within current job descriptions and adverts for example health informatics, digital, data, technology. In a simple test we did on NHS Jobs, digital (243) returned many more vacancies than informatics[2] (16).

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2. Search done on 10/09/2019 based on 50 miles from RG1

"There's no one-size-fits-all solution or skills matrix. You can't lump software engineering, data analysis, clinical coding, strategic management, project management, hardware & infrastructure support, and customer services into a single "profession" or training regime".

Reviewing each specialist area should be co-produced and then driven nationally using existing functions such as HEE career functions. This is not about creating linear specialist specific pathways but a much broader suite of roles and inspirational case studies to inform individuals how to navigate their options and determine their goals. We should avoid special and unique NHS terminology and we should take up the opportunity to ask those who participated in this study to become a community of practice to drive this piece of work. Indeed individuals did not want to lose the fluidity and diversity within the broader field. It is clear there is a fine balance here between both articulating clear pathways but celebrating the diversity and opportunity to move between specialisms.

Recommendations

1. The Building a Digital Ready Workforce programme should address the issues raised above, utilising this evidence base where necessary to support the business case for change and funding

2. BDRW should invite the survey participants to join a community of practice with the ambition to co-create terminology, role descriptions and case studies

Area 2: Nationally supported recruitment and retention

We believe our evidence supports the need to have different recruitment and retention strategies at different career stages: early and entry level careers, specialist careers and senior leaders. We explore some themes below and how they apply to the three stages. The majority of our participants were in the specialist careers and senior leadership space.

The majority of participants did not set out to have a career in 'health informatics'. The various motivations included working in a stimulating environment, wanting to work in healthcare and or data/technology/digital, feeling they had transferable skills, following exposure to health informatics as part of wider project and random life events. (see Report B from page 28 for more information on this).

We also asked graduate trainees (current and alumni) where they had heard about their graduate programme. Reponses included already working in the NHS, graduate job searches, colleagues, newspaper adverts, word of mouth, university events, university careers services, internet searches (with reference made to NHS graduate scheme rankings), NHS jobs, generally online, at a conference, NHS staff family member and websites e.g. the GMTS website or NHS jobs.

The motivations collectively highlight that individuals tend to have optimism and positivity initially; it should not in theory be difficult to attract people into roles from the outset, especially with early careers and entry level roles. The danger comes with retention when they wish to progress and further develop their skills, or attracting individuals into specialist or senior roles due to constraints around NHS Agenda for Change (this is explored shortly).

Data collected on roles indicated that individuals are specialised quite early on. There are two main problems with this. Firstly they may become pigeon holed down a linear career pathway and not be exposed to wider opportunities as they fail to understand their transferrable skills. This can cause stagnation in their current specialism, either due to reaching an end point or languishing in role that is not matched to their strengths. Secondly, early specialisation can increase silos between teams in organisations where there is lack of awareness or appreciation for the contribution each team makes.

We recommend an orientation to health informatics should be considered for all staff and this may be a basic education module or tool using something like the e-Learning for Healthcare platform. An orientation should be available to all staff at all stages of their career; and the consistent terminology explored in the previous section should support this.

There is also the need to consider a module for all NHS staff to ensure they have sufficient grounding in health informatics, especially the areas that will impact them. This risks becoming a tick box exercise. The current focus tends to be focused on Information Governance compliance. We also heard that individuals struggled to keep up with the changes in the external environment including who was responsible for what nationally. The How Does the NHS in England Work videos by the Kings Fund have been popular and something similar could be considered for this profession.

There was feedback that more needs to be done to support those external to the NHS in specialist and more senior roles without them needing to "start from the bottom". Improving consistent terminology is a good starting point but the key issue was that transferrable skills and industry knowledge should not be overlooked simply due to lack of NHS experience which can be taught. There are various free videos and tools available to get individuals up to speed. Indeed we should encourage our staff to gain different experiences.

"The experiences outside the NHS are highly valuable in forming my NHS roles. Would suggest you assume a career path that can step back and forth between private and public sectors - and we absolutely must not build something that de facto excludes those who have built a career outside the NHS from steeping in with their valuable experiences at a later stage (just because they don't have the right bit of paper)"

Agenda for Change is the national pay system for all NHS staff (with the exception of doctors, dentists and most senior managers). Our survey findings concluded AfC can be a constraint for health informatics roles, identifying two key issues. Firstly, it can be difficult to attract and offer additional incentives to colleagues beyond AfC conditions. This is a particular issue for those who do not wish to be managers. Flexible working was one example of how to improve the offer and improve diversity in the workplace although it was generally felt more needed to be done around AfC itself.

"Intangible benefits help to a degree but are not enough anymore to provide a balance to this situation".

Some referenced a glass ceiling around the Band 7/8A area and in order to progress without taking on management responsibilities (due to AfC constraints) they needed to become a contractor. While many simply wanted to remain highly skilled in a specialist area, for some management roles were not deemed to add value. This also indicates some cultural issues where staff may not respect and value their own managers if they do not understand what they do.

"Training at all levels to guide through the career paths, not just focussed on people who want to be leaders. Not everyone wants to lead they just want to be better at what they do".

The second Issue identified with AfC was that many roles are still categorised as administrative and clerical. This combined with inconsistency around the use of umbrella terms may not help individuals to locate roles even if they are interested. For the quick NHS jobs search we did mentioned above, the majority of these were under administrative and clerical, exceptions tended to be for clinical informatics roles.

Access to training was highlighted as an issue and it was not clear from the research we undertook whether organisations were fully aware of or utilising their apprentice levy to support the recruitment and ongoing development of their health informatics workforce so there may be a national role to play here too. There is an opportunity to learn from the Wales Institute of Digital Information (WIDI) around their work in this area as part of this.

Finally, while there is clearly a workforce demand beyond the scope of what initiatives such as the NHS Graduate Management Training Scheme and Digital Academy can sensibly provide, we are not necessarily benefiting as a system from those who have undertaken this training. The significantly low response rate for Health Informatics alumni from the national graduate scheme is worrying and there is a need to understand retention rates and return on investment. There is currently an evaluation taking place of the Fast Track Information Management and Technology *Graduates into Health Scheme* and something similar should be done for the national scheme.

Recommendations

1. BDRW to lead on developing online resource to support an orientation to health informatics. This should include an explanation of the national landscape
2. BDRW to undertake a Graduate Management Training Scheme retention study with the NHS Leadership Academy
3. Review of the use of NHS Jobs and flexibility with Agenda for Change

Area 3: Define the professional body offer and understand health informatics network opportunities

There were mixed views regarding whether health informatics professionals should require a license to practice going forwards. Some were sceptical about making this a reality or concerned we would further exacerbate issues explored previously around attracting external candidates into roles. Some were highly supportive.

"Clinical staff need to take part in continuous revalidation so why shouldn't other supporting disciplines?"

One concern was trying to license the whole breadth of health informatics in a 'one size fits all' approach and that it would be dependent on specialty area. It could be argued professional body registrations already support this, however it was highlighted remit and overlap was not always clear. Previous attempts to align the professional bodies were noted. While participants were largely positive about professional body membership, it should be noted we likely had a high proportion of respondents already in professional bodies due to them supporting dissemination of the survey.

Not everyone, however, was able to see the benefits of professional membership. Internal organisational factors may have an impact here too and our evidence identified two main reasons. Firstly, we had strong feedback that individuals were not taken seriously with their efforts to professionalise facing a lack of respect both around their individual professionalisation and skills but also what their team had to offer their organisation. Secondly there was not always an opportunity to apply newly learnt skills. This was a combination of time to learn alongside not having the tools to do their jobs in a modern way.

"Time to learn – this no longer exists as the pressure to get things done and quickly is too big."

A number of our participants were also from the North West Informatics Skills Development Network which is another mechanism to provide specialist specific training at scale. The role of the professional bodies and training networks should be explored further. We have focused more on specialist specific training in this section while exploring leadership training in the next section but these should be closely aligned.

What was evident from our research is that there is no shortage of training available in this area but it is not always clear how on how to navigate or access the options. There is a need to ensure specialism specific training opportunities are transparent, consistent and useful so access and benefits are not down to luck or are blocked by one individual with the budget. In addition at an organisational level there are numerous benchmarking tools to undertake team or organisational role profiling.

We believe that the professional bodies and informatics training networks have an opportunity to support two key areas; local variation may apply depending on set up. Firstly, they can assist with role profiling and succession planning, helping organisations to understand what their gaps are now so they can train for the future. This will support progression but hopefully with the aim of organisational buy in so individuals feel supported. We also believe they have a role in providing careers advice.

"I think as you embark on a new role there should be a set of training courses available that should be linked to each role which staff can partake in as part of their development. With options on where the role could take you in terms of progression which you can then aim towards once the training link to your current role has been completed."

Secondly a key issue raised is that NHS organisations do not always have appropriate careers advice available to staff. Individuals did not always know where to go for advice on broadening their career paths and understanding options outside their team with feelings of being unprepared and how changing roles and skills can keep up with and align to the future.

Recommendations

1. Map the current roles and responsibilities of professional bodies and skills development networks that provide informatics support to identify overlap and gaps

2. Explore how a nationally consistent but locally owned career development and signposting function could be developed for both individuals and organisations

Area 4: Regional / System approaches to developing an informatics workforce

Professional bodies and informatics skills development networks explored in the previous section likely have more of a role in provision of advice and services including benchmarking, training and career development. Local systems and regions need to take action on developing local leadership and ensuring there is capacity in the system to meet future needs. We do not believe that the recommendations outlined in sections three and four are mutually exclusive and need to be closely linked.

There are opportunities to work at scale across Integrated Care Systems or Regional areas when it comes to the health informatics workforce. This project has indicated a potential high staff turnover rate within the NHS where individuals change organisations in order to progress. While exposure to different NHS organisations is an advantage and retaining people within the wider NHS is a positive, disadvantages include recruitment costs and training costs (including understanding individual organisations technical systems). At the other extreme there are incidents of "dead man's shoes" where roles are randomly filled rather than with appropriate skills and knowledge. Skills were often lost where proactive succession planning did not take place.

There is a huge opportunity to develop rotations and secondments throughout systems or regions to develop the skills and experience of the local workforce. This is not only potentially cost saving but will support building a local pool of talent and encourage cross organisational learning and relationships. From an individual perspective this presents an opportunity to develop personal and professional skills in a structured format.

Local systems should consider opportunities to work with organisations beyond the NHS both in wider health and social care but also academia and industry. This should also consider opportunities to work with national bodies to further expand skillsets. "Getting outside of the NHS echo chamber" was welcome and there are opportunities to learn from clearer career pathways in commercial pathways. If we do this systematically, it may make individuals more likely to return rather than parting on bad terms where individuals have become fed up. Doing this collaboratively as a system also presents an opportunity for individual organisations to potentially own and focus on specific areas.

"We can I think however offer excellent training and career progression in a complex, fast moving and fascinating industry but are expected as individual units to try and do this as opposed to medical/nurse training."

Rotational opportunities could be structured at all three levels previously identified: early careers, specialists and senior managers. GMTS already undertakes this for early careers. In order to be embedded within wider system working and be seen as valuable, Regional Talent Boards and the local leadership academy leading on such programmes will be helpful for some geographical areas. There is also an opportunity to consider demand and capacity planning at scale so systems can identify what skills are required from graduate trainees and apprenticeships in the local area rather than haphazard and random placements.

Another key opportunity for regions and systems is supporting local leadership development. Some of this could draw from national or regionally available programmes, but also development of local programmes. Leadership skills were mentioned throughout the survey and this ranged from being able to navigate political landscapes to having good communication skills. While leadership is important at all stages of a career, in particular leadership skills appear to be a glass ceiling for those who want to progress into more senior roles.

"No formal NHS training or obvious ways of preparing for more senior roles other than googling stuff".

Last but not least, support networks were the strongest enabler when individuals referenced their career paths. This included mentoring and coaching, action learning, access to good senior leadership and peers, access to skills development networks and the ability to attend networking events. Systems and regions should understand if there are current gaps in their systems to providing this.

Local systems are currently writing their long term plan responses and there are various restructures ongoing. Some areas may feel not ready to consider this opportunity, but we would argue it should be considered upfront as part of future proofing local systems.

Recommendations

1. BDRW to have a formal role in reviewing long term plan responses and provide support with development of a rotation model which regions and/or systems could use to support local demand and capacity This should be done working with the regions alongside mechanisms such as Regional Talent Boards where appropriate.

Area 5: What senior leaders can do now

This final section aims to highlight some take-homes for senior leaders, both those working within a health informatics role but also executives with or without direct accountability for informatics. We believe these areas have an impact on individual satisfaction and wellbeing, thus supporting retention in the NHS.

At an executive or board level the following need to be considered:

- Ensure governance structures and decision making forums have active executive support to enable your teams to navigate potential blockers
- Ensure your organisational culture is not leading to blame and scapegoating of individual informatics team(s). This includes teams within the health informatics umbrella having conflict with one another
- Invest in them so they have the tools they need to do their jobs, both in terms of personal and professional development but also fit for purpose infrastructure
- Ensure your health informatics teams feel valued and integral to service transformation. If you do not buy into this yourself, ask yourself why and build relationships with your informatics colleagues including shadowing them
- Ask yourself whether health informatics has an appropriate voice at board level; and where necessary are the component parts of health informatics fairly represented?
- Explore the system and/or regional opportunities outlined in section four locally

For all those with a recruitment or line management responsibility at any level of seniority:

- Listen to your colleagues, understand what they are interested in and support them with opportunities to be curious and learn
- Ensure that your team have appropriate peer support access. Signpost them to existing networks or consider setting up your own where this is a gap

"NHS Informatics managers need to set aside time to ask the type of questions included in this questionnaire, in 1-2-1s with their staff. In 10 NHS jobs in the last ten years, no manager has ever done this (with me). Unbelievably bad management.".

Recommendations

1. Individuals to consider what they can do differently locally as per their roles and responsibilities

Appendix: Contents to Report B (full survey findings)