



CENTRE
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WORKFORCE
INTELLIGENCE

The public health knowledge and intelligence workforce

A CfWI study



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Executive summary

Background

The Centre for Workforce Intelligence (CfWI) was commissioned by Public Health England (PHE), Health Education England (HEE) and the Department of Health (DH) to provide a clearer understanding of the **public health knowledge and intelligence workforce within PHE and local authorities**. To achieve this, the project aimed to:

- provide a better understanding of the skills, competencies and training pathways of the existing workforce;
- consider the factors driving the demand and supply of public health knowledge and intelligence staff;
- identify key areas where workforce planning will be required to facilitate a sustainable and skilled workforce over the coming five to 10 years; and
- identify what staff planning and development techniques could be used to maximise the benefits to PHE and local authorities arising from their knowledge and intelligence workforce.

The CfWI has assumed this workforce as **those who fulfil the knowledge and intelligence function in support of three main domains of public health: health protection; health improvement; and healthcare public health**. These are staff employed primarily in data analysis, informatics, and presentation of public health information; and who are responsible for collation, management, analysis, interpretation and dissemination of data and information from a wide range of primary and secondary health, social, economic and demographic data sources. Our definition aligns with the Faculty of Public Health (FPH) definition of public health intelligence as the:

‘surveillance, monitoring and assessment of health and the determinants of health, plus the development of the public health evidence base and knowledge’ (FPH, 2014b).

The report outlines:

- The policy context surrounding the public health knowledge and intelligence workforce
- The current workforce, in terms of education and training, skills, competencies, staff numbers, delivery of services and career progression
- The current issues and priorities affecting this workforce
- How skills and career pathways may need to change in future, based on consultation with a range of people working in public health
- What possible actions could better support the public health knowledge and intelligence workforce within PHE and local authorities

The policy context

Although there is increasing consensus around the activities of the public health knowledge and intelligence workforce (including those who work in PHE and local authorities), there are still a number of different definitions which cover what this workforce does. However, there is increased recognition of the role this workforce plays in providing and developing a strong evidence base in public health matters.

Given the increased focus on this workforce, a clearer understanding of what it represents is important for not only ensuring effective delivery of public health services, but also understanding the size of the workforce, where staff are located and what their current and future professional needs are.

Numbers in the current workforce

The CfWI estimates that there are between **1,070 and 1,370 people working in PHE and local authorities. This assumes approximately 430 staff working in PHE (according to HR data), and approximately between 640 and 940 staff working in local authorities.** There are also public health knowledge and intelligence staff working in the NHS and academia, but numbers are too small to count cost-effectively.

The figures provided are consistent with the CfWI's earlier 2014 estimate in *Mapping the Core Public Health Workforce* of between 1,000 and 1,300 staff (CfWI, 2014), but provide a more robust basis for the estimate.

Career pathways and professional development

Although a number of career routes exist, in terms of professional accreditation and training, there is no single specific route nationally for the public health knowledge and intelligence function. The future for professional development may lie less in formal qualifications (credible routes exist and could be developed further, such as that of CILIP¹ or, at a higher level, specialty training or the UKPHR²'s practitioner route), but rather in training courses or schemes that develop professionals throughout their careers.

Another key message relates to the clarity of career trajectory for knowledge and intelligence professionals up to consultant and specialist level – and the lack of clarity beyond that point.

Promoting career progression and workforce mobility between different organisations could help to mitigate against the possible risk of career stagnation, and will enable professionals to gain experience elsewhere where desired. This could be addressed through a mixture of informal means (such as increased promotion of courses and job opportunities) and more formal means (such as secondments or through current projects to develop a public health skills passport).

Considerations for the future

Overall, there are a number of positive observations to make with regards to public health knowledge and intelligence staff:

- **the favourable positioning of public health knowledge and intelligence teams**, holds potential for local teams, in particular, to support local authorities in improving public health and to influence decision-making more directly
- **the increased profile of public health knowledge and intelligence work**, as a result of the *Five Year Forward View* (CQC et al, 2014)
- **the appreciation of services offered by public health knowledge and intelligence teams**, by local authority staff and others.

¹ The Chartered Institute of Library and Information Professionals

² UK Public Health Register

These are encouraging starting points for future development, and should not be forgotten when considering possible actions to address this workforce in the future.

There are three areas clearly identified in the CfWI's work for the public health knowledge and intelligence profession as a whole to address:

1. **Uncertainty surrounding public health knowledge and intelligence** – specifically within local authorities, as teams are reorganised and previously ring-fenced public health funding is potentially removed. There is also some uncertainty around existing numbers of posts.
2. **Career progression and workforce mobility** – including opportunities to develop, and transfer between PHE, local authorities and the NHS as part of career progression.
3. **National support for local public health knowledge and intelligence teams** – to provide greater support to local authority public health knowledge and intelligence staff and, therefore, help increase the impact of this workforce.

Suggested actions

A number of activities are already in hand to address these issues, including:

- Existing work to create a national minimum dataset in public health (NMDS-PH), and on ensuring multidisciplinary public health teams within local authorities
- Development of a skills passport in public health to facilitate workforce mobility
- Continued PHE support for local authorities, where appropriate, in resolving identified data access issues.

The CfWI suggests that the following further actions be considered by PHE, local authorities and other organisations:

- **A review of PHE's role in providing greater practical support to local public health knowledge and intelligence teams**, following the National Audit Office (NAO)'s recommendations in its 2014 report (NAO, 2014) on PHE. This could improve the impact of PHE, local authority and other teams in public health knowledge and intelligence.
- **The development of a national professional network and an identifiable 'Head of Profession' for staff working in public health knowledge and intelligence functions within both PHE and local authorities, to provide greater visibility and to foster a stronger sense of community across this diverse workforce.** These could build on existing structures such as the Local Authority Research and Intelligence Association (LARIA) and PHE's existing knowledge and intelligence teams (KITs) structure.
- **Promotion of greater workforce mobility between PHE, local authorities and the NHS through job exchanges, secondments and other similar means.** This will enable professionals to gain experience and mitigate against the possible risk of career stagnation.
- **An audit or survey of both PHE and local authority teams to confirm numbers working in this function**, in order to fully establish a numerical benchmark for this profession pending full implementation of the NMDS-PH. An audit/survey would require investment from organisations across the public health system.

Finally, the CfWI suggests that another review of this workforce take place within the next five years, upon full implementation of the NMDS-PH and further embedding of the new public health system. This would enable monitoring of numbers, as well as assessment of any actions carried out subsequent to this report. It is,

however, for PHE in consultation with local authorities and others to decide how best to respond to the issues identified in this report.

We would like to thank all contributors to the project for their support, while also noting that our conclusions and suggestions may not necessarily reflect those of the individuals and organisations consulted. For a full list of people and organisations involved, please refer to the Acknowledgements at the back of this report. The CfWI public health team can be contacted with any queries at publichealth@cfwi.org.uk.

1. Introduction

1.1 Background to the project

Public health as a broad discipline is about helping people to stay healthy, and protecting them from threats to their health. The Faculty of Public Health (FPH)³ defines it as:

‘the science and art of promoting and protecting health and well-being, preventing ill-health and prolonging life through the organised efforts of society’ (FPH 2014a; Acheson, 1998).

In addition, the Health and Social Care Act 2012 defines the legal duties of the Secretary of State for Health in health protection as steps that are:

‘... appropriate for the purpose of protecting the public in England from disease or other dangers to health’ (Health and Social Care Act 2012, clause 11).

This project focuses on one of the critical functions of public health: **public health knowledge and intelligence**. The aims of this project were to:

- Provide a better understanding of the skills, competencies and training pathways of the existing workforce;
- Consider the factors driving the demand and supply of public health knowledge and intelligence staff;
- Identify key areas where workforce planning will be required to facilitate a sustainable and skilled workforce over the coming five to 10 years;
- Identify what staff planning and development techniques could be used to maximise the benefits to PHE and local authorities arising from their knowledge and intelligence workforce.

A major motivation for this project was the changes to the public health landscape in 2013 as a result of the Health and Social Care Act 2012, following the Government’s 2010 White Paper *Healthy Lives, Healthy People* (Health and Social Care Act, 2012; DH, 2010a). Whereas public health had previously been the responsibility of primary care trusts (PCTs) and strategic health authorities (SHAs) in the NHS, responsibility now lies primarily with, Public Health England (PHE), an executive agency of the Department of Health (DH) and with local authorities. As of 2015, most staff in public health are either local authority employees, or civil servants. In the case of public health knowledge and intelligence, staff have moved from PCTs, SHAs, regional Public Health Observatories (PHOs) and the Health Protection Agency (HPA) primarily to national and regional teams in PHE and local authority teams, with small numbers remaining in the NHS (usually in commissioning support units (CSUs), clinical commissioning groups (CCGs) and individual trusts).

This separation between different organisations is reflected in current funding arrangements for public health, as explained by the (NAO) (NAO, 2014). In the 2014/15 year, the DH allocated a total of £5.9 billion, of which:

- £3.6 billion went to PHE, with £2.8 billion ring-fenced as a grant to local authorities;

³ The Faculty of Public Health (FPH) is nominally part of the Royal College of Physicians. In practice, the FPH is an independent organisation, acting as the primary representative body of consultants, specialists and trainees working in public health.

- £2.3 billion went to NHS England, with £1.9 billion ring-fenced for specific public health activities (such as screening and immunisations) (NAO, 2014)

For the purposes of this project, this report has assumed that public health knowledge and intelligence services will be funded either by direct allocation of funding to PHE from the DH (for PHE teams) or by PHE's ring-fenced grant to local authorities (for local authority teams). For this reason, this project has primarily focused on teams within PHE and local authorities, with other staff from other organisations out of scope except where directly relevant to the work of these teams. We nonetheless acknowledge the role that other staff play in public health knowledge and intelligence, notably those in NHS organisations and those working in academic public health.

1.2 Methodology

For this study, we used a combination of desk research, semi-structured interviews with knowledge and intelligence staff and others, four workshops with PHE and local authority staff, and a data gathering exercise of local authority directors of public health using a survey tool to ascertain staffing numbers and models of delivery within local authorities.

As well as current issues, project participants helped identify the potential challenges, opportunities and likely future developments which could influence planning of this workforce.

1.3 Report content

Given the project's objectives, this report contains the following sections:

- **the policy context** surrounding the public health knowledge and intelligence function
- **the current workforce**, which describes the numbers of staff working in PHE and local authorities
- **skills and career pathways**, including education and training, skills, competencies, numbers, delivery of services and career progression
- **current issues and priorities** affecting this workforce
- **how skills and career pathways may need to change in future**, based on consultation with project participants
- **possible actions to better support the public health knowledge and intelligence workforce.**

2. Policy context

The purpose of this section is to explain how public health knowledge and intelligence is commonly understood by professionals working in public health. It also sets out the key policy drivers that have affected this workforce in recent years and the main historical factors that have driven demand and supply for this workforce.

2.1 What is public health knowledge and intelligence?

A useful starting point is the FPH definition of the public health intelligence function as involving the:

‘...surveillance, monitoring and assessment of health and the determinants of health, plus the development of the public health evidence base and knowledge’ (FPH, 2014b).

The FPH definition of the public health intelligence function, focuses primarily on local delivery, involving five key activities:

- assessing the health and health needs of the local population;
- interpreting intelligence about health outcomes;
- carrying out health equity audits and health impact assessments (in order to help develop appropriate recommendations for action, policy decisions and service commissioning);
- ensuring access to health intelligence;
- improving the quality of health data.

Nationally, the Government’s 2013 document *Healthy Lives, Healthy People: A Public Health Workforce Strategy* (thereafter ‘*Public Health Workforce Strategy*’) states that:

‘The public health knowledge and intelligence function underpins the delivery of public health practice... This function concerns the management of knowledge needed to inform action, including: analysis of data and statistics; learning from practical experience and sharing best practice; and implementing new knowledge gleaned through research. Staff working in knowledge and intelligence roles have a wide range of skills, spanning analysis, statistics and epidemiology, alongside knowledge management, library and information services, as well as interpretation and evaluation’ (DH, LGA & PHE, 2013).

The *Public Health Skills and Knowledge Framework* defines ‘public health intelligence’ as involving the *‘collection, generation, synthesis, appraisal, analysis, interpretation and communication of intelligence that assesses, measures and describes the health and wellbeing, risks, needs and health outcomes of defined populations’* (Skills for Health, 2008a).

Finally, HEE’s December 2014 strategy *Knowledge for healthcare: A Development Framework* identifies staff working in healthcare library and knowledge services as delivering the following activities:

- Information consultancy
- Information skills training
- Document delivery
- Current awareness and alerts
- Digital and print collection management

- Advice on knowledge management.

Public health knowledge and intelligence, nationally and locally, covers a wide range of areas and skills in both developing and maintaining an evidence base for public health, and should be understood as providing the theoretical means to underpin practical actions in health protection, health improvement and health services commissioning. The diversity of the public health knowledge and intelligence function and workforce reflects the multidisciplinary nature of public health as a whole. The function will often require a wide knowledge base to include all domains of public health, from communicable diseases through to health policymaking. Analysis of data and statistics requires a thorough and up-to-date knowledge of relevant information sources, proficiency in modelling, forecasting, tools and software in those areas, as well as communicating appropriate and evidence-based recommendations to a range of key partners. Staff working in this field in local authorities must also contribute to healthcare public health, through supporting NHS commissioning within their respective CCGs. These activities take place through a range of local agreements and memorandums of understanding. Knowledge and intelligence staff also help to provide public health expertise and advice to CCGs to support them in delivering their objectives to improve the health of their local population, as specified in DH guidance on how healthcare public health would be provided from 2013 (DH, 2012a).

2.2 Who delivers public health knowledge and intelligence?

The DH in its 2012 consultation document *Healthy Lives, Healthy People: Towards a Workforce Strategy for the Public Health System* highlighted the lack of certainty regarding the scope of the public health knowledge and intelligence workforce, stating that:

‘...this is not a homogenous, easily defined group. The historic lack of career pathways and academic training provision means that professional qualifications specific to this field of work are largely non-existent; training tends to be ad hoc’ (DH, 2012b).

A 2012 joint collaboration between the Association of Directors of Public Health (ADPH) and the FPH examined delivery of functions at a local level, and the specific roles that a local authority team should have available when delivering them (ADPH & FPH, 2012). For knowledge and intelligence, the ADPH and FPH (2012) included:

- | | |
|---|---------------------------|
| ▪ A Director of Public Health | ▪ Knowledge managers |
| ▪ Public health consultants and specialists | ▪ Information specialists |
| ▪ Public health analysts | ▪ Librarians. |

The Public Health Workforce Strategy (DH, LGA & PHE, 2013) provided further helpful parameters in understanding this workforce, in identifying both local public health teams and PHE’s knowledge and intelligence service, and specifying that a ‘number of specialist staff, including analysts, knowledge managers and public health specialists, [would] transfer to local authorities from the NHS’ in 2013.

These brief lists give an idea of the number of roles and disciplines typically required to deliver public health knowledge and intelligence, from knowledge managers and analysts to consultants and the Director of Public Health.

However, they also give an indication as to the potential difficulty of coding, with a number of roles that could be counted as public health knowledge and intelligence. This was acknowledged by PHE in an unpublished 2014 internal document (PHE, 2014a). According to the report:

'no formal or tight definitions exist of the most widely used terms in the field such as 'analyst', 'epidemiologist', 'intelligence', 'information', 'knowledge', 'statistics' etc. This makes defining the workforce very difficult' (PHE, 2014a)

The Centre for Workforce Intelligence (CfWI), in *Mapping the Core Public Health Workforce (CfWI, 2014)*, categorised knowledge and intelligence professionals as:

'Staff who fulfil the knowledge and intelligence function in support of three main domains of public health (health protection, health improvement, healthcare public health), at levels 5 to 9 of the Public Health Skills and Knowledge Framework' (CfWI, 2014).

These staff collate, analyse, manage, interpret and disseminate data and information from a wide range of sources (CfWI, 2014). These people tend to be employed within local authority teams and within PHE, either as epidemiologists in health protection, or as intelligence specialists within intelligence teams and networks (CfWI, 2014).

The CfWI has assumed that the majority of staff working in this function largely operate at levels 5 and above of the *Public Health Skills and Knowledge Framework*. Based on further consultation with project participants, it is clear that this is a discrete workforce responsible for collecting data and information related to health and wellbeing, as well as managing, assuring and analysing data sets and research resources.

Scope

In this report, we have assumed that almost all of staff delivering this function will be based in the following organisations and teams:

- PHE's Chief Knowledge Officer (CKO) Directorate, which includes central staff, teams working in regional KITs, and teams working in specific intelligence networks
- local authority public health teams, usually located within a specific public health team in a local authority directorate.

We have assumed that the majority of staff will be delivering 'intelligence' (analysis, interpretation, and presentation of data) rather than 'knowledge' (which focuses more on maintenance and management of evidence and knowledge resources in public health, usually in the form of libraries). However, the CfWI believes that while numbers delivering 'knowledge' are small, they play an important role in knowledge management and therefore supporting the system.

Similarly, we have assumed that there are staff working in PHE's health protection directorate — primarily within PHE's Field Epidemiology Service — who have a role in delivering public health knowledge and intelligence, but whose primary function relates to more specialist research and scientific activities, including intelligence gathering, surveillance and primary data collection. These also play a role in knowledge and intelligence through the requirement for more advanced skills in epidemiology, statistics and scientific research.

The CfWI acknowledges that there will be a small number of additional staff delivering this function and working elsewhere including within:

- other PHE teams, for example, in PHE centres and other directorates such as Health Improvement
- NHS organisations, including library and knowledge services, clinical commissioning groups, commissioning support units and even individual trusts and hospitals.

2.3 Policy drivers affecting this workforce

This section outlines the key policy drivers that have affected the public health knowledge and intelligence workforce in recent years. Although this workforce has not always been well understood, a number of recent policy initiatives have shaped both awareness and development of this workforce. This reflects not only the scale of the changes in April 2013 (as a result of the Health and Social Care Act 2012) and the need to better understand the public health workforce, but also the recognition that public health knowledge and intelligence has a vital role to play in wider health services and commissioning and therefore should be given adequate provision and attention.

2.3.1 The origins of public health knowledge and intelligence: Public Health Observatories

The development of public health knowledge and intelligence as an underpinning function began with the concept of the regional 'Public Health Observatory', the first in England opening at the University of Liverpool's Medical School in 1990. The move towards 'Observatories' was driven by a shift within public health away from purely protecting against threats to health, towards a greater focus on health improvement and reducing health inequalities (Hemmings and Wilkinson, 2003). The idea of the Public Health Observatory originated from France and Italy, where observatories were regional centres used for description, analysis, forecasting and surveillance and to focus on forming health policies in a particular area (Ashton, 2000; Hemmings and Wilkinson, 2003). First originating in the Île-de-France region in France in 1974, these now exist in every region of France; observatories exist too at national level in France, Italy and Switzerland, and at province level in Canada (Ashton, 2000; Pournalek, 2012).

The success of the Liverpool Observatory in areas such as drug and alcohol abuse, coronary heart disease and strokes and family planning led to the Government's recommendation in 1999 to '*ensure there is a Public Health Observatory in each... region of the country*' (Ashton, 2000; Hemmings and Wilkinson, 2003). The regional Public Health Observatories have since been subsumed into PHE, existing in the form of eight regional knowledge and intelligence teams (KITs)⁴.

2.3.2 National public health policy

A major catalyst for public health knowledge and intelligence in England was Sir Derek Wanless' 2004 report ***Securing Good Health for the Whole Population***, which argued that good information was essential for early identification of issues affecting population health and therefore for developing the case for change and greater investment in the NHS (Wanless, 2004). The DH's 2007 paper ***Informing Healthier Choices: Information and Intelligence for Healthy Populations*** followed on from the 2004 Wanless report in wishing to improve the quality of health information and intelligence in order to tackle ill-health and health inequalities (DH, 2007). The report advocated greater '*harmonisation of approaches*' with local government, in highlighting existing work going on within local authorities and, in particular, the then growing trend of closer working arrangements between local PCTs and local authorities. The paper also discussed the need for access to well-trained analysts and information specialists and improving workforce capacity through better workforce development, new career and competency frameworks and new training and curriculum courses (DH, 2007).

⁴ These regions are: East, East Midlands, London, North West, Northern and Yorkshire (covering the North East, and Yorkshire and the Humber), South East, South West and West Midlands.

Between 2010 and 2015, the two major policy drivers were the Government's 2010 White Paper ***Equity and Excellence: Liberating the NHS*** and the public health strategy ***Healthy Lives, Healthy People*** (DH, 2010b; DH, 2010a). *Equity and Excellence* was largely implemented through the Health and Social Care Act 2012, and included provisions such as the establishment of a national public health service (PHE), the transfer of responsibilities for local health improvement to local authorities, the abolition of primary care trusts, and the creation of GP-led commissioning consortia⁵, an independent NHS Commissioning Board⁶ and local authority health and wellbeing boards (DH, 2010e). *Healthy Lives, Healthy People* meanwhile confirmed the commitments of *Equity and Excellence*, including delegating responsibility for overall information and intelligence to a new organisation in PHE (DH, 2010d).

A major future driver will be the 2014 ***Five Year Forward View***, a joint collaboration between the Care Quality Commission, Health Education England, Monitor, NHS England, the NHS Trust Development Authority and PHE (CQC et al, 2014). One of the key messages from the report was that '*the future health of millions of children, the sustainability of the NHS, and the economic prosperity depend on a radical upgrade in prevention and public health*', and that in response the NHS would back '*hard hitting national action on obesity, smoking, alcohol and other major public health risks*', as well as '*stronger public health related powers for local government and elected mayors*' (CQC et al, 2014). This message was significant, because it came from a collaboration between national bodies responsible for inspection, education and workforce planning, regulation and funding within the health and social care system. Although public health knowledge and intelligence was not mentioned explicitly, its future role is likely to increase, given the clear signal that promoting and improving health will be a national priority for a number of health and social care organisations, and the need for a strong evidence base to support actions and policies in this area.

2.3.3 ***Healthy Lives, Healthy People: A Public Health Workforce Strategy (2013 & 2014)***

The major development relating specifically to the public health workforce has been the ***Public Health Workforce Strategy***, which was published jointly in 2013 by the DH, PHE and the Local Government Association (DH, LGA & PHE, 2013). This strategy was the workforce response to both *Equity and Excellence* and *Healthy Lives, Healthy People*. With regard to public health knowledge and intelligence, the strategy emphasised the leading role of both PHE and the LGA in '*leading the development of the knowledge and information workforce at national and local level*', with commitments to:

- review the scope and definition of public health knowledge and intelligence, and the competencies needed in the context of the changing needs of the public health system in England – in conjunction with the wider review of the *Public Health Skills and Career Framework*⁷
- develop and update, in partnership with the FPH, the current public health knowledge and intelligence traineeship schemes
- strengthen the professional network of public health knowledge and intelligence practitioners in England
- ensuring relevant continued professional development opportunities are available to all public health knowledge and intelligence professionals

⁵ Later, local clinical commissioning groups (CCGs)

⁶ Later, NHS England.

⁷ Now *Public Health Skills and Knowledge Framework* (PHSKF), following a 2013 update.

- describing career pathways for public health knowledge and intelligence staff and developing support mechanisms that allow individual members of the workforce to follow their preferred route (DH, LGA & PHE, 2013).

More generally, the strategy also committed to the development of a National Minimum Data Set for public health (NMDS-PH) to improve the quality of workforce data within the system, as well as a 'public health skills passport' (thereafter 'skills passport') to encourage greater movement of staff across the public health system (DH, LGA & PHE, 2013). Both commitments, once fully implemented, may affect both the recording and the mobility of public health knowledge and intelligence staff.

A 2014 update of the *Public Health Workforce Strategy* (DH, LGA & PHE, 2014) outlined progress on achieving the strategy commitments, and also provided greater clarity around how these commitments would be met. The main consideration raised in the updated strategy was whether a common skills framework could be applied across public health for knowledge and intelligence staff (DH, LGA & PHE, 2014); this informed some of the milestones to be met in the near future, namely:

- a common skills framework for staff across the public health system, in parallel with the project above, to produce a strategy by March 2015
- delivery of training to local authority analysts and other staff as part of the 'local contribution' of PHE's knowledge and intelligence teams (KITs)
- a project to trial secondment opportunities for analysts
- a knowledge and intelligence workforce strategy to '*ensure that K&I is available wherever it is needed and that the best people are recruited, retained and developed by making it an attractive career*' (DH, LGA & PHE, 2014).

The updated strategy also confirmed continued work towards the minimum dataset and the skills passport, the establishment of a public health advisory group to support HEE, plans to introduce legislation on regulation of non-medical public health specialists by 2015, and further activity to coordinate talent management schemes across public health (DH, LGA & PHE, 2014). Based on the updated strategy, the current priorities for the Government relating to knowledge and intelligence lie in better understanding of the skills, competencies and training pathways of the workforce, identifying what elements of staff planning may be required in future to facilitate a sustainable and skilled workforce, and facilitating greater staff mobility across the system.

2.3.4 Health information and knowledge management

Three major drivers relating specifically to knowledge and intelligence within health include the Government's 2010 NHS information consultation *Liberating the NHS: An Information Revolution* (DH, 2010c), PHE's *Knowledge strategy: harnessing the power of information to improve the public's health* (PHE, 2013a), and HEE's *Knowledge for healthcare: a development framework* for library and knowledge services (HEE, 2014).

In *Liberating the NHS: An Information Revolution*, key proposals centred around creating a more open market in information and intelligence, including making the then NHS Information Centre⁸ a single national repository of data, greater access to data to a wider range of suppliers, and moves toward voluntary accreditation and standards of good practice (DH, 2010f). However, the consultation made little reference to library and knowledge services (DH, 2010f).

⁸ Now the Health and Social Care Information Centre (HSCIC).

PHE's *Knowledge Strategy* meanwhile was initially published in 2013 as a consultation document (PHE, 2013a), with a final version published in 2014 (PHE, 2014b). The purpose of the knowledge strategy was to outline how PHE would lead on informatics in public health, through six commitments:

- Support openness and innovation
- Understand and meet public needs for knowledge
- Provide tools to enable public health professionals to do their jobs
- Develop cross-system networks, tools and services to share intelligence, expertise and experience
- Efficient working with others
- Ensuring positive impact and value for money.

In particular, the strategy emphasised PHE's leadership role in knowledge and intelligence, particularly in addressing new areas of concerns, leading communities of practice and intelligence networks, and supporting local authority knowledge and intelligence teams and local commissioning teams. The strategy also committed to establish strategies for digitalisation, national health surveillance and research, as well as frameworks for knowledge management and information governance.

PHE's *Knowledge Strategy* followed on from, among other documents, a 2012 audit of Public Health Library and Knowledge Services (Tran, 2012), which identified a number of issues, including: a geographical inequity and long term vulnerability of service provision, a lack of capacity, uncertainty around future funding, and duplication of effort. The audit, in response, identified a need to ensure continuity of support, as well as a general lack of understanding among commissioners that library and knowledge services were needed for commissioning. Most significantly, the audit advocated stronger professional development opportunities and support for this workforce group, as well as increased recognition of their role in both public health and informatics (Tran, 2012). While the audit took place in 2012, the report clearly indicated a number of challenges for the workforce, as well as the need for stronger recognition of library and knowledge services staff as a distinct workforce.

More recently, HEE's *Knowledge for Healthcare* development framework also made a number of recommendations in terms of strengthening and redesigning library and knowledge services within the NHS in order to help NHS staff:

'use the right knowledge and evidence at the right time, in the right place, enabling high quality decision-making, learning, research and innovation to achieve excellent healthcare and health improvement' (HEE, 2014).

In response to factors identified during consultation on the strategy (HEE, 2014), HEE concluded that five criteria were crucial for redesign of library and knowledge services:

- Generating economies of scale
- Assuring local knowledge
- Developing nationwide functions
- Seizing opportunities for standardisation
- Assuring specialist skills in library and knowledge services.

In terms of the workforce, the strategy identified the need for effective national and regional leadership and talent management, as well as a redesign of staff roles to help develop an appropriately skilled workforce. In terms of specific interventions, measures proposed included a national staff survey and career structure, establishment of core and specialist competencies for staff, and a national training programme. Although HEE's strategy related primarily to NHS library and knowledge services, it is likely that it will have implications

for staff working in these services in public health. HEE itself stated that it would ‘look forward to early engagement’ with PHE, to ‘ensure that the whole public health workforce, whether working at a national or local authority level, has access to quality resources and services and that public health information is available to the public and patients’ (HEE, 2014).

2.3.5 Guidance relating to local authorities

With local government gaining responsibilities for improving health under the Health and Social Care Act 2012, practical guidance on how local authorities should deliver public health knowledge and intelligence was vital, and, through a 2012 series of factsheets, the DH provided guidance to support local authorities in developing that public health function (DH, 2012c). Issues identified for local authorities to consider included ensuring appropriate IT governance arrangements, appropriately skilled public health intelligence staff, sufficiently good relationships with NHS organisations to ensure access to relevant data, and in particular, whether confidential data would be required for specific purposes (DH, 2012c).

The factsheets emphasised the crucial role of local authorities in improving the health of local populations through working with CCGs, CSUs and health and wellbeing boards (HWBs), not least in commissioning and ensuring sufficient evidence and intelligence to inform decision-making (DH, 2012c). The factsheets made clear that local authorities would have to decide how best to deliver intelligence services (for example, whether to keep them in-house, to outsource, or to share functions with other local authorities or commissioning units), but that they would need to liaise with CCGs and CSUs to ensure access to data, and that some tasks such as benchmarking and health economics modelling would likely be left to PHE (DH, 2012c). These factsheets may continue to influence how local authorities deliver public health knowledge and intelligence services.

In August 2014, the ADPH, the FPH, the LGA and PHE published guidance for ensuring effective multidisciplinary teams within local authorities (ADPH et al, 2014), which emphasised the importance of employing a suitably skilled mix of medically and non-medically qualified specialists, as well as practical considerations for doing this (notably around equal pay and moving around the system). This guidance may have implications for how local authorities may employ and recruit public health knowledge and intelligence specialists in future.

2.3.6 Proposed regulation of public health specialists from a non-medical background

The **Public Health Workforce Strategy in 2013** announced that public health specialists from a non-medical background would have to register with the Health and Care Professions Council (HCPC) in order to practice (DH, PHE and LGA, 2013). This followed a 2010 DH review by Dr Gabriel Scally on non-medical public health specialists, which recommended this action in order to guarantee standards of specialist practice (DH, 2010d). Under the proposal, public health specialists would have to meet the same registration requirements of other health and social care professions such as allied health professionals, healthcare scientists, psychologists and social workers. In September 2014, the Government announced a consultation on a proposed order to enshrine this into law, with key points and proposals including:

- transferring outstanding UK Public Health Register (UKPHR) fitness to practise cases transferring to the HCPC
- a ‘grandparenting’ period of two years to allow time for non-medical public health specialists to register with the HCPC
- protection of the title ‘public health specialist’ by the HCPC
- discussion around whether defined specialists should be retained or removed (DH, 2014)

The Government's response to this consultation was published in January 2015, confirming the decision to regulate public health specialists with the HCPC, using the title 'registered public health specialist' (DH, 2015). Once implemented, a two year 'grandparenting' period will be in place to allow as many non-medical public health specialists to register with the HCPC; the Government also decided to establish a single HCPC register for all specialists, and to exempt those already registered with the Nursing and Midwifery Council (NMC) and General Pharmaceutical Council (GPC) from registering with the HCPC (instead, recognising their specialist public health qualification through an annotation) (DH, 2015). It is likely that the order will be implemented in 2015, and it may have implications for people working in knowledge and intelligence (especially as many registered specialists working in knowledge and intelligence have tended to register as 'defined specialists').

2.4 Implications

Two significant findings follow from this section:

- While there is increasing consensus around the activities the public health knowledge and intelligence workforce carry out, there is no single standard definition which covers what this workforce does. This ambiguity has, in part, shaped the development of the workforce, not least in terms of the variety of services carried out by this workforce, and the training available to it.
- However, there has been increased awareness in policy terms around the work this workforce and similar workforces carries out, with the provision and development of a strong evidence base now considered by policymakers to be vital for supporting decision-making.

A clearer understanding of what this workforce represents may therefore be necessary for not only ensuring effective delivery of these services, but also understanding the number of staff there are, where they are located and what their current and future professional needs are.

The CfWI, in response, considers this workforce to be those who *fulfil the knowledge and intelligence function in support of three main domains of public health: health protection, health improvement, healthcare public health*. In practice, these are staff employed primarily in data analysis, informatics, and presentation of public health information; and who are responsible for collation, management, analysis, interpretation and dissemination of data and information from a wide range of primary and secondary health, social, economic and demographic data sources. People in the field mostly work on intelligence functions such as data entry, reporting, analysis and interpretation related to more chronic conditions within PHE and local authorities. However a small number also work in: knowledge management, as well as in epidemiology of infectious diseases; NHS organisations; the private sector and academia.

3. Numbers in the current workforce

This section outlines previous historical numbers and estimates in this workforce, and provides an estimate for numbers working for the primary employers, namely PHE and local authorities. This will help towards understanding what this workforce looks like in terms of estimated numbers and provide a grounding for understanding demand and supply; skills, competencies and training pathways; and finally what actions could help PHE, local authorities and other employers gain the maximum benefit from their knowledge and intelligence workforces.

3.1 Historical numbers and estimates

There has been limited success in estimating exact workforce numbers for public health knowledge and intelligence staff, as a result of both the lack of clarity surrounding knowledge and intelligence functions generally, and the shift of public health to PHE and local authorities.

Although NHS occupation codes previously included some specific public health roles (such as public health consultants), staff working in knowledge and intelligence were not immediately identifiable through means used by the NHS, such as the Electronic Staff Record (ESR) (CfWI, 2014). This suggests that this and other comparable workforces have been difficult to pin down in terms of numbers.

In recent times, a number of papers have attempted to estimate workforce numbers. The Workforce Review Team⁹ estimated 626 WTE working in the NHS in 2008 (WRT, 2008), while Jenner estimated approximately 550 staff working in PCTs and PHOs in 2010 (Jenner, 2010). More recent assessments by the DH and PHE have produced estimates of approximately 1,000 people working in public health knowledge and intelligence (PHE, 2013b; PHE, 2014a).

Table 1: Previous estimates of the knowledge and intelligence workforce in the public health system

Author (year)	Number
Knowledge and Intelligence	
Workforce Review Team (2008)	626 WTE in the NHS
Jenner (2010)	500 to 600 in PHOs and PCTs
Department of Health (2012a)	Approximately 1,000
Public Health England (2013b)	Just over 1,000
Public Health England (2014a)	Approximately 1,000

Source: WRT (2008); Jenner (2010); DH (2012a); PHE (2013b); PHE (2014a)

⁹ The Workforce Review Team (WRT) was a team of healthcare workforce planners who provided modelling, analysis and evidence based recommendations to the NHS and other organisations. Many WRT services and staff became part of the Centre for Workforce Intelligence in 2010.

The most recent estimate of numbers was provided by the CfWI in September 2014, of roughly 1,000 to 1,300 people working in public health knowledge and intelligence in England¹⁰. The CfWI's 2014 estimate of 36,000–41,000 staff in the core public health workforce, suggests that approximately 2.4 per cent of the core public health workforce work in public health knowledge and intelligence.

However, as the CfWI acknowledged in its report, this 2014 figure was an estimate based on a 'moderate degree' of confidence, as there was some data available to support the estimate, but no definitive dataset available from a regulatory body or the HSCIC.

3.2 Estimate of current numbers

Estimated workforce numbers are presented below for PHE and local authorities.

3.2.1 Public Health England

In a 2014 internal review of its analytical capability, PHE estimated that it employed between 280 and 430 'analytical' staff, depending on how job roles are recorded and analysed. This equates to between 4.9 and 7.5 per cent of PHE's total workforce. This estimate is based on:

- 227 staff classified by PHE as 'analytical' staff, plus another 57 staff classed as 'scientific/analytical' — giving a total of 284 official 'analytical staff'
- 429 staff whose job title involves the terms 'data', 'intelligence', 'analy-' or 'epidemiology' (PHE, 2014c).

These two numbers reflect issues of coding in PHE's HR data, and that many staff working in analytical roles in PHE joined from a number of organisations, including the Health Protection Agency, Public Health Observatories and individual trusts.

The original PHE classification of roles (including those as 'analytical'), as recognised by its internal review, may be of limited value because a number of roles were coded using more generic classifications such as 'clerical' or 'other admin and clerical staff', so the 284 figure excludes a number of roles that could be analytical in nature but not reflected as such in existing coding.

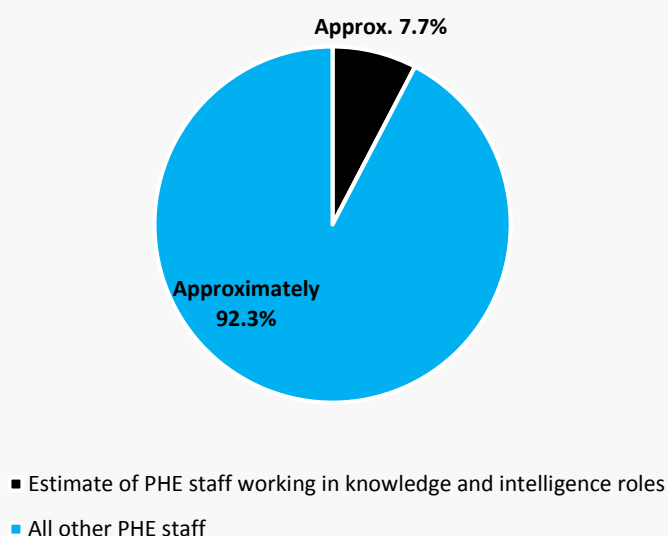
Counting staff where the job title indicates knowledge and intelligence function (by job title 'data', 'intelligence', 'analy-' or 'epidemiology') by contrast may capture the majority of people considered in the scope of this report. This would assume that most people would work in data, intelligence, analysis or epidemiological roles. However, the 429 figure indicated above includes epidemiologists who work in both scientist and knowledge and intelligence roles, but may also not include those whose work is specifically 'knowledge' based, for example as knowledge managers.

On the basis of the available evidence, the CfWI has concluded that the higher figure of 429 is the best estimate, as counting according to job roles better reflects the actual numbers contributing to delivery of public health knowledge and intelligence. For the purposes of this report, the CfWI has therefore assumed an approximate total of **430** people deliver public health knowledge and intelligence within PHE.

¹⁰ A more detailed discussion and justification of this estimate can be found in the CfWI 2014 report *Mapping the Core Public Health Workforce* (CfWI, 2014)

Figure 1: Analytical staff as a proportion of PHE's workforce

Depending on how 'analytical' capability is counted, between 4.9 and 7.7 per cent of PHE's total workforce are analytical staff. However, the CfWI estimates that there is more likely to be approximately 430 people delivering knowledge and intelligence in PHE, which would suggest that 7.7 of PHE staff work in these roles.

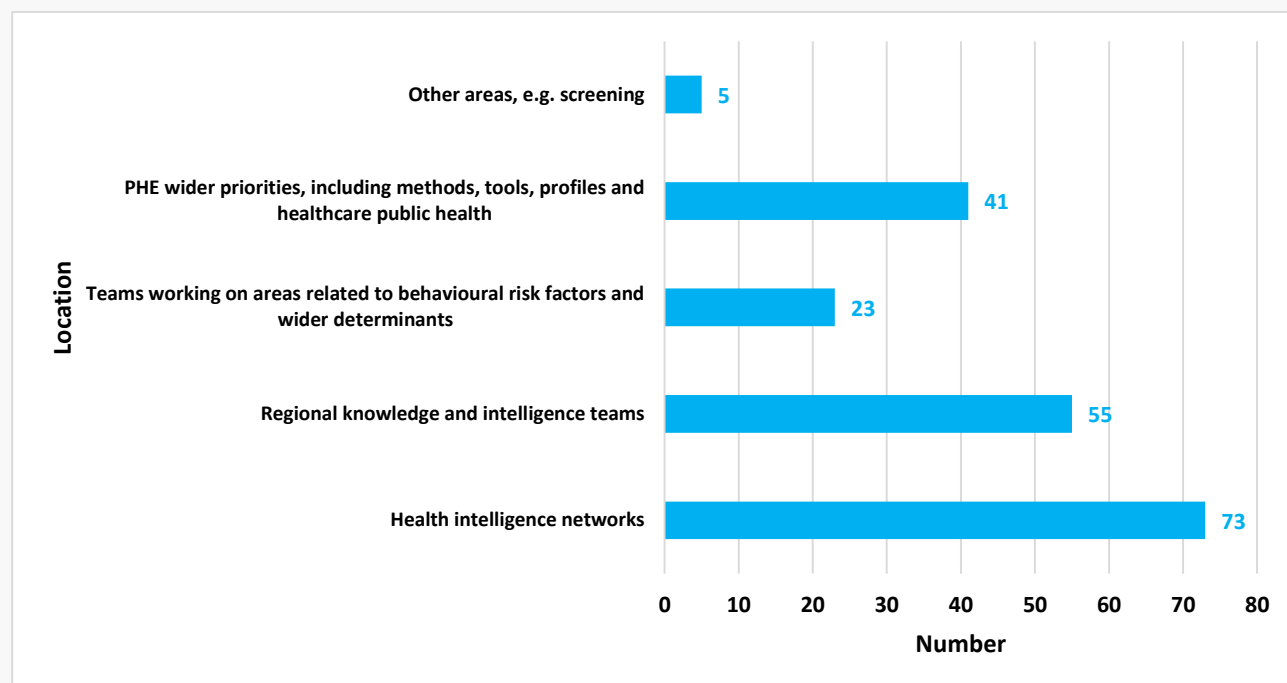


Source: PHE (2014c)

Of the 430 staff as approximated by PHE, the majority of staff meeting this definition were within the Chief Knowledge Officer's directorate, with a number of staff also in the health and wellbeing, health protection, chief operating officer and corporate directorates.

Figure 2: Location of PHE analytical staff within the Chief Knowledge Officer's directorate in 2014

Most analytical staff within PHE are located within either the health intelligence networks or the eight regional knowledge and intelligence teams.



Source: PHE (2014c)

PHE's review also estimated that there were 101 WTE staff in total working in the field epidemiology service, of which 29 were at executive officer (EO) or higher executive officer (HEO) grades, equivalent of NHS Agenda for Change grades 5 and 6. The responsibilities of these officers include producing routine surveillance reports and data to support investigation of outbreaks or incidents, as well as responding to data requests and liaising with the NHS and laboratories (PHE, 2014c). These activities were thought by PHE to represent 80 per cent of HEO work and 50 per cent of EO work. However, it is useful to note that a lot of epidemiologists would work in both scientist and knowledge and intelligence roles.

Further consultation with PHE staff also identified 18 WTEs working within library and knowledge services within PHE — confirming that out of all possible knowledge and intelligence staff in PHE, library and knowledge services professionals represent a small proportion of the workforce. All these figures are included in the PHE estimate provided above.

The internal review revealed approximately as many junior positions (for example, executive officers, higher executive officers and senior executive officers) as senior positions (grades 6 and 7, senior civil service). In terms of geographical location, there were slightly more analytical staff in the CKO in the North of England and London compared to the average, and slightly fewer in the Midlands and East and in the South of England.

The main observation from the PHE's internal review of its analytical capability is that there is considerable uncertainty around the precise number of people involved in delivering knowledge and intelligence services

within PHE, although it is known that many work within the CKO and health protection directorates and with some in other directorates such as health and wellbeing.

Further consultation with staff in PHE suggests that this reflected a number of factors, including:

- existing fragmentation within the workforce, with staff working in this function coming from a large number of predecessor organisations, including the Health Protection Agency, Public Health Observatories, intelligence networks and NHS trusts¹¹
- limited training schemes exist for this workforce, compared to consultants and specialists, nurses and (to a lesser extent) scientists
- the need for a 'common currency' or 'common language', and the current lack thereof.

The main implication is that if demographic data such as age, grade, length of service and location, are not readily and clearly available for this particular workforce, it may continue to be challenging for PHE to fully measure and manage staff, careers and succession planning for an important function within the public health system.

The CfWI has estimated that approximately 430 people deliver public health knowledge and intelligence within PHE.

3.2.2 Local authorities

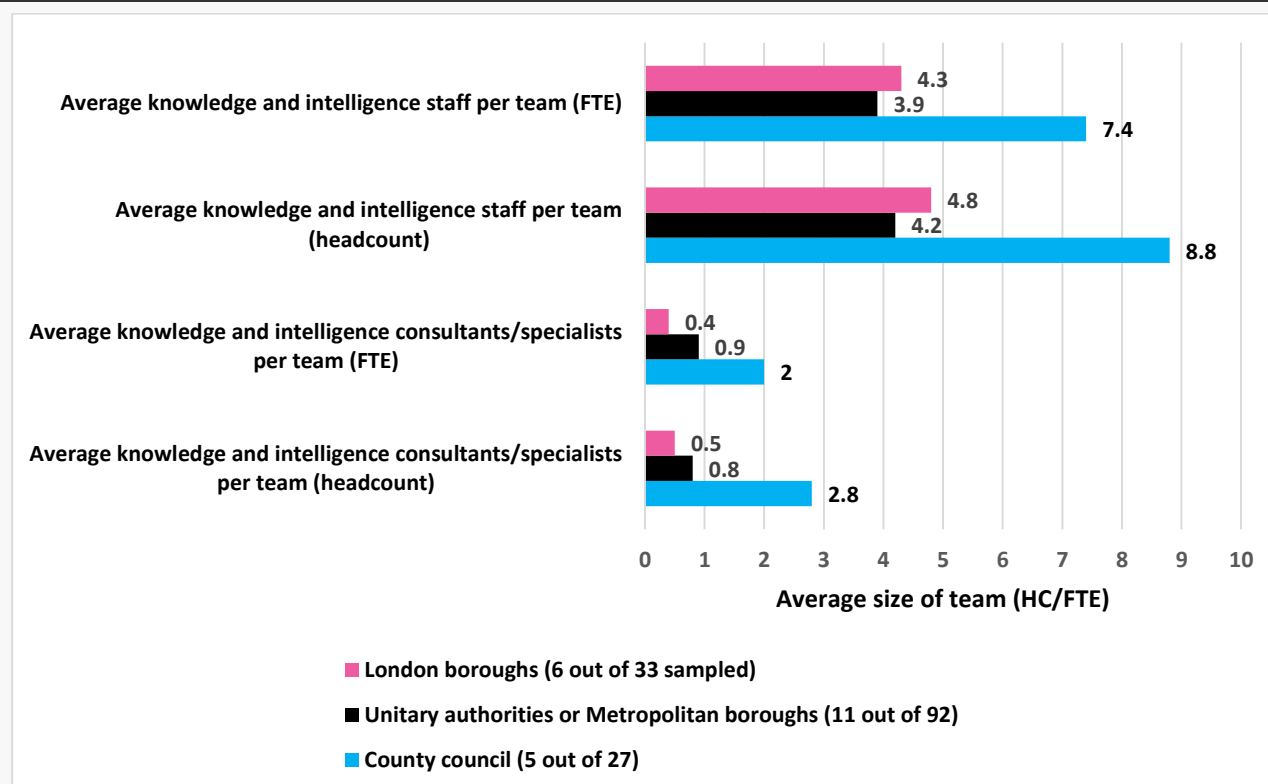
At present there is no single centralised data source for local authority public health staff.

To gauge numbers of staff working in local authorities in England, and given the limited information available on public health professionals working within local authorities, the CfWI (working with ADPH) conducted a data gathering exercise of local authority directors of public health using a survey tool to gauge how knowledge and intelligence professionals were employed and utilised within public health teams. The CfWI received 21 responses from DsPH, representing 22 local authorities, of which 5 were county councils (out of a total of 27 county councils), 11 were unitary or metropolitan borough councils (out of 92 metropolitan boroughs), and 6 were London boroughs (out of 33 London boroughs) (CfWI, 2015). The first thing to emphasise, therefore, is that the figures provided below are indicative, reflecting both the sample size (22 out of 152 local authorities) and the fact that the sample was not random (DsPH) (CfWI, 2015).

¹¹ In this case, staff identified a difference between those working in health protection who had previously worked in the Health Protection Agency and who focus on communicable diseases and rapid response; and those working in Public Health Observatories who work primarily on chronic diseases and where emphasis is on developing an evidence base over time.

Figure 3: Average indicative size of local authority public health knowledge and intelligence teams, by headcount and full time equivalent staff

County councils appear to have much larger public health knowledge and intelligence teams than unitary authorities, metropolitan boroughs and London boroughs, both in terms of consultants/specialists employed and overall staff. This may be reflective of county councils serving larger populations.



Source: CfWI analysis

In total, the CfWI counted 26 (21.25 FTE) consultants and specialists, and 119 (106 FTE) staff in the 22 local authorities sampled (CfWI, 2015).

The figure above shows how many consultants/specialists and other staff are employed in each team. As might be expected, teams are larger in county councils. This reflects the fact that county councils serve larger populations (with all 5 sampled representing populations of over 400,000) compared to others (with only 2 out of the 17 sampled having populations over 400,000) (CfWI, 2015). London boroughs also appear to have fewer consultants/specialists compared to unitary authorities and metropolitan boroughs (CfWI, 2015). Teams vary in size with county councils having 1 to 8 consultants and a total of 4 to 12 staff in the team. By contrast unitary, metropolitan and London councils typically had either none or one consultant with 4 out of the 16 councils in this category having fewer than 2 staff in the team and 4 out of the 16 having over 5 staff – only one of the 16 councils sampled had two consultants. One metropolitan borough council counted a team of 12 (10 WTE), while a team of 17 staff was counted in London (albeit shared between two councils). This demonstrates both the wide variation within local authority teams, and that county councils are more likely to have greater numbers of consultants and staff than unitary, metropolitan and London councils (although some larger teams can, and do, exist in these types of council).

Table 2 shows how this could be scaled up nationally across all 152 local authorities, assuming the councils in the sample are representative of the other authorities.

Table 2: Indicative numbers of consultant/specialists and public health knowledge and intelligence staff by type of local authority

Type of council (number sampled)	Total	Average indicative number of consultants and specialists, headcount (FTE)	Average indicative number of K&I staff, headcount (FTE)	Adjusted approx. total of consultants and specialists, headcount (FTE)	Adjusted approx. total of K&I staff, headcount (FTE)
County council (5)	27	2.8 (2.0)	8.8 (7.4)	76 (54)	238 (200)
Unitary/metropolitan borough (11)	92	0.8 (0.9)	4.3 (4.0)	74 (83)	396 (368)
London borough (6)	33	0.5 (0.4)	4.8 (4.3)	17 (13)	158 (142)
Total indicative number for all authorities				167 (150)	792 (710)
Indicative range – headcount (FTE)				135 to 199 (121 to 179)	638 to 945 (572 to 847)

Source: CfWI (2015)

The evidence suggests that there may be an estimated 167 (150 FTE) consultants/specialists, out of an estimated total of 792 (710 FTE) staff working in knowledge and intelligence in local authorities.

However, as the survey sample was not random and was based only on the responses of 22 local authorities, it may be that this figure for local authorities is considerably smaller or higher, due to unaccounted for bias. At the 95 per cent confidence level, to take into account the sample of 21 out of 132 DsPH, a reasonable assumption could be that there are potentially 135 to 199 (121 to 179 FTE) consultants/specialists and a total of 638 to 945 staff (572 to 847 FTE) working in local authority public health knowledge and intelligence teams.

Again, as for PHE, there is uncertainty around numbers in the workforce. A possible implication is that it may be challenging for the system as a whole to fully measure and understand total numbers of staff, especially with limited data available in the public domain.

3.3 Models of workforce organisation

Alternative public health knowledge and information team structures are presented below for PHE and local authorities.

3.3.1 Public Health England

There is little variation in terms of organisational structure across comparable teams within PHE, with many epidemiologists in health protection transferring directly from the Health Protection Agency, and with staff in

regional teams coming from Public Health Observatories. Nonetheless, there does appear to be some variation in the number of staff located within PHE's regional teams, as shown in Table 3 below (teams within three example KITs, East Midlands, London and South East):

Table 3: Composition of PHE regional knowledge and intelligence teams

East Midlands KIT	London KIT	South East KIT
1 Director 2 Deputy/Associate Directors 7 Senior/Principal Intelligence Analysts 3 Managers (including one on knowledge management) 4 Analysts	1 (Interim) Director 1 Head of Intelligence 5 Senior/Principal Intelligence Analysts 4 Managers 10 Analysts 1 Epidemiologist 1 lecturer	1 Director 2 Consultants 8 Senior/Principal Intelligence Analysts 2 Manager 3 Analysts

Source: PHE KIT EM, 2015b; PHE KIT London, 2015b; PHE KIT SE, 2015b

Although these are only three examples out of PHE's eight regional teams, what the table shows is that these teams currently tend to have at least:

- **One director**
- **1-2 other leadership staff** — either deputy directors (London, East Midlands), Consultants (South East) or equivalent
- **An analytical capacity of at least 10** (both East Midlands and the South East KITs had 11 analysts, London had 15 plus one lecturer and one epidemiologist).
(Levels of seniority appear to differ with London having a 1:2 split between more experienced senior/principal intelligence analysts and analysts, while by contrast East Midlands and the South East KITs employ a higher proportion of senior/principal intelligence analysts: 7:4 East Midlands; 8:3 South East)
- **At least two managers delivering primarily management/project management functions.**

3.3.2 Local authorities

As might be expected, there is considerable variation across 152 local authorities with public health responsibilities.

Some research has sought to understand how public health has been delivered locally. A joint 2014 report by the LGA and PHE *Public health transformation nine months on: bedding in and reaching out* (LGA & PHE, 2014) outlined a number of examples of how public health services have been delivered within local authorities. Models of delivery touching on public health intelligence include:

- a core public health intelligence team shared between Bedford, Central Bedfordshire, and Milton Keynes supporting individual activities within the local authorities
- an intelligence team within an integrated commissioning service for public health and adults and children's services in Blackburn with Darwen
- one single commissioning intelligence group to develop JSNAs across Dorset (Bournemouth, Poole, and Dorset)

- a 'hub and spoke model' in North Lincolnshire, with a DPH and three consultants at the centre and accountable to the three main directorates (People, Places, and Policy and Resources). The public health intelligence team works alongside health improvement and substance misuse teams within the Places Directorate, and provides additional support to the council's research and intelligence function;
- the public health intelligence team sitting within an integrated intelligence team alongside Customer Insight staff in Staffordshire (LGA & PHE, 2014).

An unpublished study of 10 local authority public health intelligence teams (mostly in the North West) in 2014 suggested similar variation, with seven having their intelligence teams within core public health teams, two becoming amalgamated with the local authority's existing research and intelligence function, and one being under review (Bendel, 2014).

PHE's 2012 audit on library and knowledge services in public health in England also highlighted similar models with staff part of:

- a public health team within a primary care trusts or local authority (with or without a collection)
- a sector-wide commissioning support service
- a multidisciplinary service, with specialist outreach librarian
- a multidisciplinary service, with a specialist collection
- a multidisciplinary service, with a specialist collection and a specialist librarian
- a Trust's well-being service (Tran, 2012).

Although applicable to 2012, Tran's audit suggests that even before the 2013 changes, services tended to reflect local circumstances and needs.

The above evidence suggests that public health knowledge and intelligence teams, at least within local authorities, have in recent times either been located within:

- a core public health team led by a DPH (who may be accountable to a Chief Executive or in some cases another senior director such as a director of adult social services), or
- a corporate intelligence unit, where all the council's research and intelligence functions are combined.

The CfWI sought to provide further clarification on how services were delivered within local authorities. In a workshop with staff representatives from London, participants were asked how public health knowledge and intelligence teams were organised within their local authorities. **Overall, three types of organisation within London were identified:**

- A core public health team led by a DPH, accountable to the chief executive
- A core public health team led by a DPH accountable to another senior local authority director (for example, a director of adult social services or equivalent). This appeared to be the majority of the London boroughs
- A general business intelligence unit or equivalent.

The above evidence suggested that within London at least, the majority of public health knowledge and intelligence teams are located within a core public health team, led by a DPH accountable to a senior figure in a local authority other than the chief executive.

Using a survey instrument, the CfWI also asked DsPH across England to explain how their knowledge and intelligence teams were organised locally (CfWI, 2015). Of the 22 responses representing local authorities:

- 17 were from local authorities with the public health knowledge and intelligence team within the core public health team;
- 4 were from local authorities with the public health knowledge and intelligence team within a separate corporate team;
- 1 response came from a local authority where the public health knowledge and intelligence team are part of a corporate team within the social care directorate.

Although indicative, the CfWI's own research appears to confirm that as of 2014, local authority public health knowledge and intelligence teams have mostly remained part of their public health team; however some local authorities have chosen to amalgamate the public health knowledge and intelligence function with other research and intelligence functions.

3.4 Implications

The CfWI estimates that there are: approximately between **1,070 and 1,370 people working in PHE and local authorities in knowledge and intelligence roles, assuming approximately 430 staff in PHE and approximately between 640 and 940 working in local authority teams.**

However, this estimate is an indicative range, based on the available data obtained during this project. These figures are consistent with the CfWI's earlier 2014 estimate in *Mapping the Core Public Health Workforce*, of between 1,000 and 1,300 staff (CfWI, 2014).

A summary table covering the possible range of public health knowledge and intelligence staff in local authorities is provided below. The table assumes 429 staff in PHE, as well as local authority estimates for 638, 792 and 945 staff. For local authorities, the medium estimate is the estimated figure of 792 staff in local authorities, based on estimated average sizes of local teams as found in the CfWI's survey. The low and high estimates of 638 and 945 staff reflect a reasonable margin of error accounted for by the small sample of local authorities. The implications are that the number of knowledge and intelligence staff in PHE and local authorities is approximately between 1,070 and 1,370.

Table 4: Range of total public health knowledge and intelligence staff working in PHE and local authorities

Local authority estimate	Total number of staff in PHE and local authorities, assuming PHE n =429
Low local authority staff estimate (n=638)	1067
Medium local authority staff estimate (n=792)	1221
High local authority staff estimate (n=945)	1374

Source: CfWI analysis

It is clear that there is still considerable uncertainty around numbers in this workforce overall, although this report has sought to provide a more robust estimate, especially for local authorities. This may have implications for future planning and career development of public health knowledge and intelligence staff, if essential data relating to this workforce is not clear and if there is a lack of clarity around what this workforce is in terms of numbers.

Notably, there is variation between how different regional teams within PHE and different local authorities employ staff and deliver services. While this may necessarily reflect responses to different local circumstances, it underlines the importance of understanding how, where and what services are delivered, not least in understanding how to provide the most appropriate level of training and other career management support.

Work is already in hand to increase understanding of the number of staff involved in public health, with the development of the NMDS-PH to support workforce planning for both specialists and the wider workforce (DH, LGA & PHE, 2013). Once implemented, the NMDS-PH may in future help improve understanding of who works in public health knowledge and intelligence, and where. Ongoing revalidation for medically qualified consultants and specialists, and future registration for all non-medical public health specialists with the HCPC, may also result in a better grasp of numbers at consultant and specialist level.

However, possible suggestions for PHE and local authorities are to consider:

- **whether a national professional network for staff working in public health knowledge and intelligence functions within both PHE and local authorities could be beneficial**, to provide both greater visibility and a stronger sense of community for this workforce. These could build on and complement existing structures such as the Local Authority Research and Intelligence Association (LARIA) and PHE's existing regional arrangements.
- **whether a Head of Profession or equivalent is needed for knowledge and intelligence**, both to act as an advocate for staff and to be a clearly defined Senior Responsible Officer for the workforce [this could be the existing Chief Knowledge Officer, or a Head of Knowledge and Intelligence, DPH, or equivalent]

- **in conjunction with the above and pending implementation of the NMDS-PH, whether an audit or survey of both PHE and local authority teams may be needed** to confirm numbers working in this function [this might need to be financed through PHE, in their system leadership capacity].

4. Career pathways, education and training

Having established what this workforce looks like and does, and estimated numbers within PHE and local authorities, the purpose of this section is to explain the skills, competencies and training pathways of this workforce. This section will outline the current issues driving demand and supply of this workforce, as well as the areas which may need greater consideration in ensuring a sustainable and skilled workforce over the next five to 10 years.

4.1 Overview of current education, training and accreditation routes

At present there are no fixed training or registration routes for public health knowledge and intelligence that are comparable to the specialty training route (CfWI, 2014).

However, in practice there are a number of routes already in place which support career development in this field. The development of both PHORCAST's website and the Public Health Skills and Careers Framework has also provided greater clarity around what knowledge and intelligence staff do and what specific training requirements are necessary to deliver a knowledge and intelligence service (Skills for Health, 2008a).

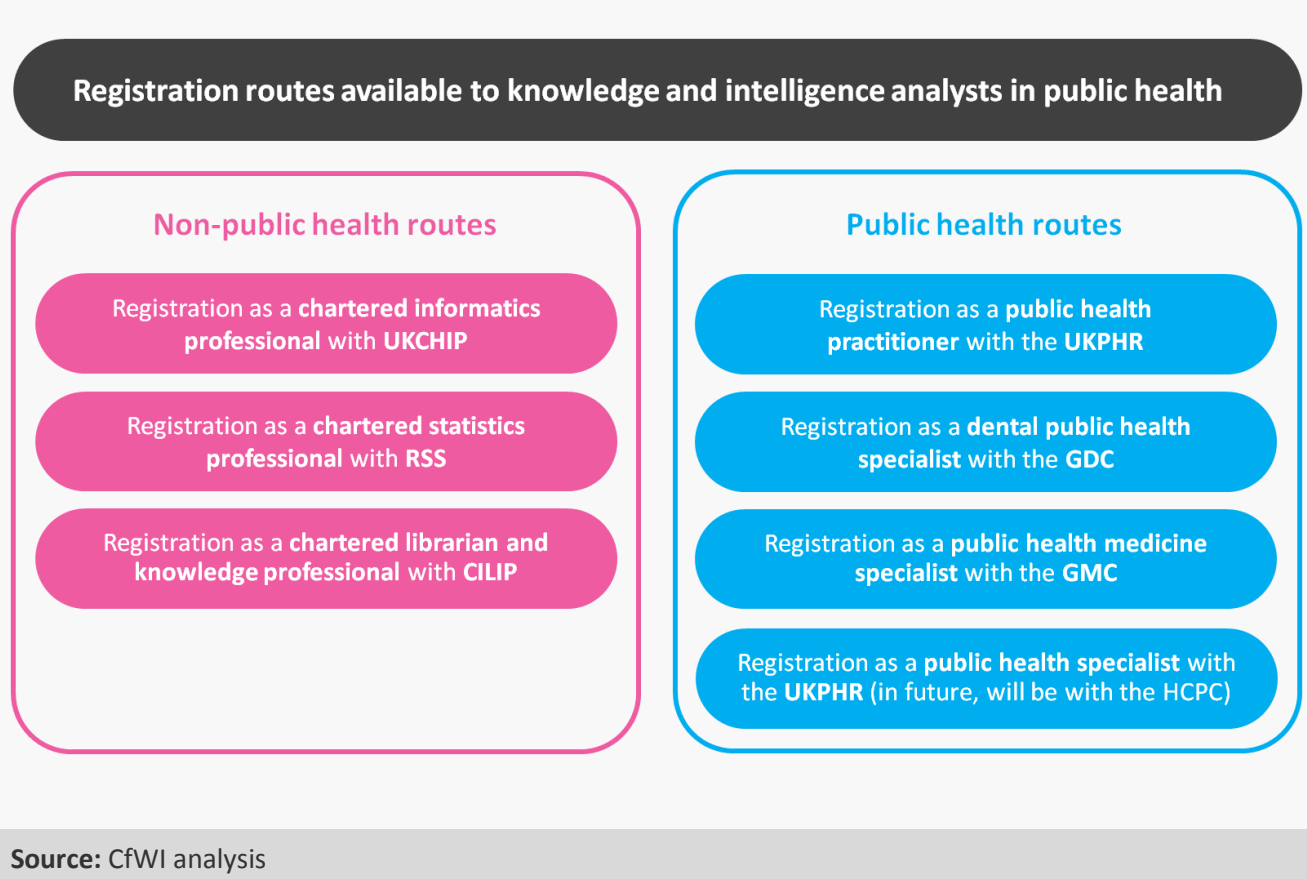
Most of the evidence is based on consultation with project participants in interview; references are provided where it is a written source.

4.2 Formal registration options

The primary routes into public health knowledge and intelligence involving formal registration are shown below.

Figure 4: Summary of formal accreditation routes available to those in public health knowledge and intelligence

This diagram summarises the accreditation routes towards registration available to people working in public health knowledge, both in public health and outside of it.



4.2.1 Registration as a chartered professional

Staff working in public health library and knowledge services are usually already qualified as **chartered library and knowledge professionals** through membership of the Chartered Institute of Library and Information Professionals (CILIP). Chartered membership and fellowship with CILIP requires achieving skills in traditional librarianship areas such as cataloguing, collections management, advanced search, knowledge management and information architecture (Tran, 2012). Further information on the key skills required by CILIP can be found later in this section.

Health informatics professionals can choose to register with the UK Council of Health Informatics Professionals (UKCHIP), on condition of achieving specific competencies in informatics (UKCHIP, 2014).

Statistics professionals can choose to register with the Royal Statistical Society as a Graduate Statistician (for those gaining a UK honours degree in statistics or a degree with substantial statistical content) or as a Chartered Statistician (for those with a UK honours degree, plus at least five years approved professional training and experience) (RSS, 2015).

All routes defined above require continuous professional development and/or regular revalidation (for example, for a Chartered Statistician this is every five years).

4.2.2 Registration as a public health practitioner

Staff working in public health intelligence can choose to register with the UKPHR as a **public health practitioner** within nine local areas in the UK, provided they meet required standards (UKPHR, 2013b). Some schemes are also developing ‘advanced practitioner’ roles requiring greater levels of expertise and leadership (with one scheme already established in the West Midlands¹²). Registrants must demonstrate they meet a set of 12 standards (UKPHR, 2013c) at level 5 of the PHSKF (Skills for Health, 2008b) within the following four areas:

- professional and ethical practice
- technical competencies in public health
- application of public health competencies to public health work, and
- underpinning skills and knowledge (UKPHR, 2013b).

4.2.3 Registration as a public health specialist

Those practising in **consultant** roles must be registered with either the General Medical Council (GMC) in public health medicine, the General Dental Council (GDC) in dental public health, or with the UKPHR as a public health specialist; they must also meet revalidation requirements annually (CfWI, 2014). This is, in most cases, after completing specialty training in public health. Alternatively, one can also present a portfolio of experience for assessment, demonstrating comparable experience to those who have completed specialty training. Upon acceptance of a portfolio by the GMC or the UKPHR, specialists can choose to register with the UKPHR (UKPHR, 2013a; CfWI, 2014). A consultant leading an intelligence team or specialising in knowledge or intelligence would therefore have taken this route.

By contrast, ‘**specialist**’ is not protected as a title, but public health specialists (in this case, a specialist in a public health intelligence team) can currently choose to gain accreditation and register as a specialist voluntarily through taking the portfolio route, as explained above (UKPHR, 2013a; CfWI, 2014). . At present, the UKPHR has two main registers: one for ‘generalist specialists’ (i.e. those where expertise is across all domains of public health), and one for ‘defined specialists’ (i.e. where expertise is defined in a particular area). For knowledge and intelligence, this will most likely be as a ‘defined specialist’, for whom the knowledge base is comparable to those completing specialty training, and with expertise defined in a number of relevant areas at a higher level.

¹² The West Midlands Advanced Practitioner scheme, for instance, consists of support via a bespoke training programme delivered to enable practitioners to undertake the Faculty of Public Health’s Part A exam, with only practitioners having completed the West Midlands’ Public Health Practitioner Development Scheme and registered with the UKPHR eligible to apply to the Advanced Practitioner Scheme. Advanced practitioners, in theory, will then be eligible to enter the third year of the Public Health Higher Speciality Training Programme, this entry at ST3 level is also being trialled in the West Midlands (CfWI, 2014).

However in future, specialists in public health including those in knowledge and intelligence will be expected to register and revalidate, in order to practise as a professional. The *Public Health Workforce Strategy* announced that non-medically qualified public health specialists would have to register with the HCPC; this was subject to government consultation in 2014 (DH, PHE and LGA, 2013). The Government's response came in January 2015, and confirmed that those wishing to practice as a public health specialist would have to register with the HCPC as a 'registered public health specialist', unless already registered with the NMC as a registered nurse or the GPC as a registered pharmacist (DH, 2015). This would be through one register for all non-medical public health specialists, with no distinction between 'generalist specialists' and 'defined specialists'.

4.3 Typical career pathways

The diversity of pathways in public health knowledge and intelligence was reflected in interviews for this project. This section focuses on three areas: **points of entry**, **key skills**, and **career trajectories**.

4.3.1 Points of entry

Interviews in the course of this study underlined the diverse ways people had entered the profession. Interviewees generally emphasised that undergraduate degrees in areas such as geography, maths and social science were all useful, but that staff working in PHE were slightly more likely to have had a background in epidemiology, with a number of staff coming over from the Health Protection Agency (which focused on epidemiology).

Interviews also reveal that staff come from a variety of backgrounds. For example, in one local authority team, this ranged from working in the Health Protection Agency in surveillance; being a programmer working in commissioning; working in a regional authority before doing a Masters in Public Health; and monitoring and commissioning roles before completing a computer science degree and working in public health intelligence within a local trust. Overall, interviews suggested that people were able to learn on the job and gain experience, usually starting off as an analyst at a pay grade comparable to the NHS' Agenda for Change 5 banding.

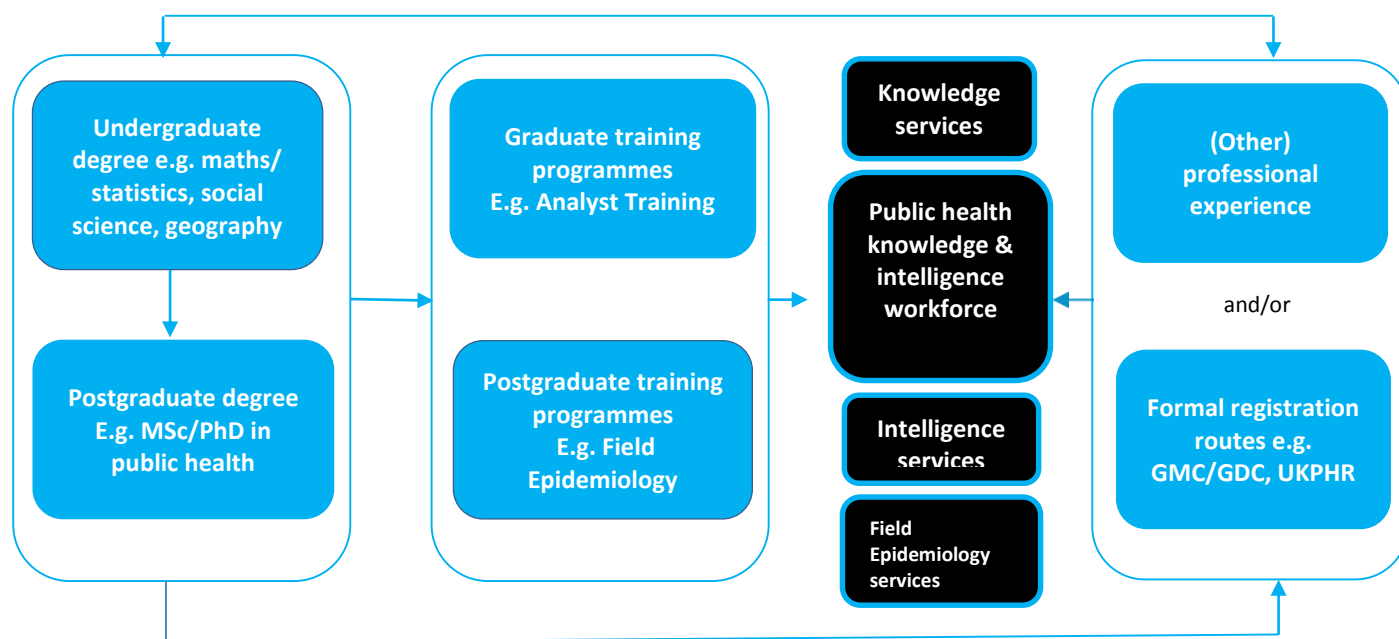
Interviewees considered generally that staff tended to originate in three different ways, depending on how they joined:

- **Staff joining at entry level** tended to enter through the NHS or sometimes through specific postgraduate trainee courses in public health intelligence, typically as a research assistant or analyst and going from a data or performance analyst to a public health analyst. In future, it was felt that more entrants would need to come through local authority recruitment.
- **Staff joining mid-career** tend to come through experience gained in other areas, before joining as a specialist or generalist. Development then would come through routes such as university modules or a Masters in Public Health.
- **More senior team members** may also have registered or qualified as a specialist, with a few registered with the UKPHR as 'defined specialists'. These have tended to be small in number due to the length of time required to complete specialty training or a portfolio for approval by the UKPHR, and uncertainty around future registration arrangements.

Figure 5 summarises the multiple points of entry to a career in public health knowledge and intelligence.

Figure 5: Entering the public health knowledge and intelligence workforce

This diagram is a summary of the main entry points into the public health knowledge and intelligence workforce. Staff may join graduate/post graduate training schemes or be recruited directly to specific posts with appropriate graduate or postgraduate qualifications. More senior staff are often recruited with other relevant professional experience (e.g. roles in the NHS, PHE or local authorities) and/or formal registration with an appropriate body.



Source: CfWI analysis

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- **Staff joining at entry level** tended to enter through the NHS or sometimes through specific postgraduate trainee courses in public health intelligence, typically as a research assistant or analyst and going from a data or performance analyst to a public health analyst. In future, it was felt that more entrants would need to come through local authority recruitment.
- **Staff joining mid-career** tend to come through experience gained in other areas, before joining as a specialist or generalist. Development then would come through routes such as university modules or a Masters in Public Health.
- **More senior team members** may also have registered or qualified as a specialist, with a few registered with the UKPHR as 'defined specialists'. These have tended to be small in number due to the length of time required to complete specialty training or a portfolio for approval by the UKPHR, and uncertainty around future registration arrangements.

However, apparent in interviews for this study was the lack of a systematic national entry route into public health knowledge and intelligence comparable, for example, to the specialty training scheme (although various schemes and training programmes, mostly at regional level, exist). Some interviewees stated that the traditional mode of entry has been through the NHS as a data analyst, starting off on routine work such as data cleaning and basic analysis.

Some took the view that this entry route will be superseded by other schemes in the future, with PHE and local authorities now the main employers and with local authorities in particular having their own recruitment arrangements. Jenner et al in 2010 found that six of the nine existing PHO areas offered traineeship schemes to provide new entrants with a foundation of knowledge and skills, with a scheme offered in the North West highlighted as the largest (Jenner et al, 2010).

Two trainee schemes for the public health knowledge and intelligence function within PHE exist as of 2015. PHE's team in the South West runs a similar trainee scheme with two trainees, as well as providing short courses in intelligence (PHE KIT SW, 2014). PHE's North West KIT also offers a graduate traineeship scheme, which in January 2015 had two posts available, lasting for a duration of 22 months. An advertisement for the scheme is shown in Figure 6.

Figure 6: Sample job advertisement: Public Health North West Knowledge and Intelligence Team Intelligence Analyst Traineeship Scheme, January 2015

Public Health England (PHE) is an executive agency of the Department of Health providing; strategic leadership, research, advice and support for Government, local authorities and the NHS in the protection and improvement the nation's health. This exciting programme has been designed to provide an opportunity for dynamic graduates from a scientific discipline to develop into skilled and experienced public health information analysts.

PHE, the NHS, local government, and other organisations collect a huge amount of data. This needs to be collated, analysed and presented in user friendly formats to enable policy makers, commissioners, managers, specialists, practitioners and the public to make evidence based decisions about public health and health care.

Demand for staff with the analytical knowledge and skills to interpret the data is high, so expertise can often be stretched. In order to build capacity and capability and support the public health system, a new graduate training opportunity has been developed in the North West of England.

The programme will last for 22 months, and following a comprehensive induction period, be structured around a number of work placements, as part of an experiential learning environment where specific real life work issues will be tackled.

Phase 1: 6 – 12 months

From a base in Liverpool, integrated within the PHE Knowledge and Intelligence Team North West (KIT NW), individuals will complete the Introduction to Public Health outline programme which includes:

- What is Public Health?
- Public health intelligence basics: data sources
- Protecting information (including Civil Service learning course)
- Basic statistics and analytic techniques
- Applied public health intelligence (the Joint Strategic Needs Assessment - JSNA)
- Advanced statistics
- Surveys and modelling
- Presenting data and transferring knowledge

Phase 2: 6 months

From bases within local authority offices in the North West, individuals will experience 2 placements, each of three months duration in a public health analysis role. They will apply and extend the skills acquired in the KIT NW, and gain hands-on experience in a public health setting. The ethos of shared learning is central to the programme, and peer support and guidance will be provided during the placement. There will also be opportunities for mentoring support from the established public health intelligence networks in the North West.

Phase 3: 4 months

Returning to the KIT (NW) base in Liverpool, individuals will be supported to develop competencies in project management and collaborative working. They will consolidate their learning, contributing to the KIT NW business plan.

These posts have been designed with support from Health Education England and in consultation with the local public health intelligence networks.

Source: NHS Jobs (2015)

Other regional teams, such as those in London, the South East, the East of England and East Midlands, primarily offer training through bespoke, publicly available courses of 1-2 week duration available for training and development of local analysts (PHE KIT London, 2015a; PHE KIT SE, 2015a; PHE KIT EoE, 2015; PHE KIT EM, 2015a). These courses tend to focus on introducing staff to work in public health, understanding data sources and techniques, applying them in practical settings, and (in the case of London) managerial skills. All the regional teams within PHE have established intelligence networks, with strong emphasis on information sharing. Therefore, much learning takes place through initial training programmes followed by learning on the job rather than formal 'graduate schemes' such as run in the North West and South West; this suggests that

future career development may need to build on existing training and networks first and foremost, especially with the number of staff spread thinly across local authorities.

PHE's Field Epidemiological Service (FES) offers a two year postgraduate training programme, which aims to provide state of the art training to those who already have public health experience and who want to work in field epidemiology (PHE, 2015). Most of the learning takes place on the job, but at least 10 per cent of the time is dedicated to taught courses as specified by the European Programme for Intervention Epidemiology Training (EPIET) (PHE, 2015). Training is provided on a variety of sites across the United Kingdom, with trainees working within national teams, field epidemiology service teams and local health protection teams. By contrast with local intelligence schemes, this programme is national, and based on competencies agreed at transnational level, with the five key areas around working on epidemiology of infectious diseases: investigation of outbreaks; applied epidemiology; surveillance; communication; and teaching and learning (PHE, 2015). Emphasis is also placed on public health, biostatistics, applied informatics, management, capacity development and ethics (PHE, 2015). While reflective of the fact that core competencies in epidemiology are subject to greater levels of national and international standardisation, the Field Epidemiology Training Programme offers a potential template for a national training scheme in public health knowledge and intelligence, with emphasis on training on the job as well as learning in set competencies. However, they also reflect the fact that working for the FES requires a higher level of skills and experience in epidemiology, statistics and scientific research, and that although FES epidemiologists do have a role to play in knowledge and intelligence, the main objective is to meet capacity needs for specific health protection services which often require a rapid response. Nonetheless, the FES's training programme could be a potential pathway for those who wish to gain experience and expertise in handling epidemiological issues, and should be given due consideration when examining careers in knowledge and intelligence.

While schemes for knowledge and intelligence teams working in health improvement and healthcare public health may need to reflect local variation, all the schemes and training courses outlined above suggest a common core curriculum that could be developed: for example, around core data sources and techniques, application of skills to different settings, and communication skills. The **Government Statistical Service** already exists in the civil service and devolved administrations as a community, including statisticians, economists, social researchers and communicators (GSS, 2015). To become a member of the GSS it is necessary to meet professional and entry standards set by the National Statistician's Office covering recruitment, qualifications, competence and training; once employed in the GSS, the focus is on developing statistical and operational skills (GSS, 2015). The GSS is now a viable career pathway or part of a career pathway for knowledge and intelligence staff working in PHE, as PHE staff are now employed as civil servants courtesy of PHE's status as an executive agency, and so could use the GSS in terms of objective setting and career progression. The presence of the GSS could encourage greater interchange of staff between PHE and the wider civil service, through making it easier for staff to join PHE from other government departments, as well as for PHE staff to work in other government departments. However, this arrangement is specific to the civil service, and may not be easy to replicate within local authorities (although graduate schemes within local authorities exist). The GSS route, if embraced by PHE staff, would necessarily lead to greater emphasis on more general skills than public health specific skills, to reflect the different needs of statistical staff within different government departments.

4.3.2 Key skills

What are the skills people working in public health knowledge and intelligence are expected to have?

An interesting point of departure is to consider the fundamental skills expected of one starting out as a trainee analyst. Using PHE's earlier North West KIT job description from 2015 as an example, key skills include (NHS Jobs, 2015):

- Education to first degree level or equivalent relevant experience, preferably in a numerate discipline (e.g. social sciences, statistics)
- Familiarity with quantitative and analytical methods, and experience of manipulating and analysing quantitative data
- Awareness of population level health issues, and interest in public health issues and methods
- High levels of numeracy and literacy
- Competence in Microsoft Office tools
- Ability to analyse, interpret and present quantitative work, work effectively as part of a team as well as independently

Similar requirements exist for PHE's postgraduate Field Epidemiology Training Programme, where emphasis is on existing skills and experience, especially in epidemiology. This reflects the need for epidemiologists working in health protection to have more advanced skills, and the emphasis on surveillance and obtaining primary data within epidemiology. Essential criteria include (PHE, 2015):

- Master's degree in Epidemiology or Public Health (or for specialty trainees, completion of exams required for training, i.e. Parts A and B of the Faculty of Public Health examination)
- Experience in working within public health, health protection or epidemiology
- Experience in interpreting and evaluating epidemiological data
- Experience of strong verbal, numerical and IT skills
- Subject matter knowledge and understanding, especially around PHE or the NHS, health protection and epidemiology/statistics.

Project participants in interviews emphasised that the public health knowledge and intelligence profession generally was an accessible profession to join, with emphasis on having good general intelligence, investigative skills and understanding data rather than on specific knowledge expertise:

- “ Some of the most essential skills are things like common sense; not just technical skills like being able to use SPSS, GIS and statistical methods. What is important is being able to always relate back to what is meaningful, and step back. ”
- “ An investigative mind is important, as is an interest in relationships, and having a good understanding of numbers, weights and percentages. You need to be organised and structured; it is important to maintain and interrogate data, and look at reasons which explain the data. ”
- “ I suppose it comes down to three things: a robust professional basis in methods; being strategic and very aware of the policy environment; and being self-aware, not embarrassed to challenge, and prepared to adopt new methodologies. ”

As the above examples show, staff working in public health knowledge and intelligence should not just be proficient in technical skills such as statistics (though these are vital), but also be to understand and communicate the implications of the data. Other useful references include the PHSKF, FPH's 2014 document looking at delivery of public health functions within local authorities, and the charter of LARIA, which represents research teams in local authorities.

Table 5 on the next two pages provides a summary of the skills emphasised by each of the different frameworks.

Table 5: Skills for public health knowledge and intelligence professionals emphasised in career frameworks

Framework	Analytical and technical skills	General skills
Public Health Skills and Knowledge Framework (Skills for Health, 2008b)	- Collecting data on defined populations - Cleaning raw data in preparation for analysis - Managing and interrogating data sets - Analysing and interpreting data - Assuring the quality of data collection, collation, analysis and communication - Designing, managing and advising on health intelligence strategies and systems - Identifying health intelligence needs and initiating/negotiating solutions to meet these needs	- Communicating and disseminating health data and intelligence - Translating findings into appropriate recommendations - Supporting others to undertake data collection, collation and analysis - Championing the benefits of using good health data and withstanding challenges to health intelligence
Faculty of Public Health, Functions of the public health system (2014b)	- Assessing and disseminating the health needs of the local population by carrying out Health Needs Assessments - Identifying the causes and distribution of ill health and interpret the results, reporting on their implications - Producing a Joint Strategic Needs Assessment that provides a comprehensive analysis of the local area, drawing on a wide range of data sources, including qualitative information - Mapping health needs against health indicators - Providing robust, quality assured intelligence about outcomes using both quantitative and qualitative data - Ensuring a document library that includes both national and local sources of policy, is made accessible across the public sector - Continually reviewing the health data and intelligence systems to ensure fitness for purpose	- Producing the DPH Annual Report, an independent report on the health of the population, progress on improving health and reducing inequalities, with recommendations - Translating the findings of health needs assessments into appropriate: - recommendations for action - policy decisions - service commissioning and delivery - Developing and apply robust prioritisation frameworks - Drawing valid inferences from Health Impact Assessments to influence the setting of policy and priorities, and the performance of health systems - Ensuring best evidence and evidence of effectiveness are made available to all decision makers - Developing tools and frameworks to help people analyse information robustly and consistently

Framework	Analytical and technical skills	General skills
LARIA, Full Member Charter (2015)	Deliver professional research, intelligence and policy by: - Defining the issue or problem to address and specifying the research question - Designing an appropriate and replicable research, intelligence and policy methodology (or methodologies) to use - Managing their own workload and support the team they work with - Acting ethically and with integrity in compliance with relevant statutory, regulatory and organisation requirements - Analysing the information gathered to a high standard to provide robust conclusions and intelligence - Practically implement an effective research method to each specific situation.	Support robust evidence-based decisions by: - Identifying the needs of decision makers - Presenting information and intelligence as required by the final audience - Helping others, including partner organisations, to understand and use the information and intelligence gathered - Making the case for research and intelligence to be at the heart of policy development Develop a broad understanding of issues and methodologies by: - Understanding the broader social, political and economic context of the needs of the local people and local areas they serve - Understanding the strategic needs of the organisation they work for - Having an awareness of a broad range of specialities and research, intelligence and policy techniques.
CILIP, Professional Knowledge and Skills Base (2015)	- Organising Knowledge and Information - Knowledge and Information Management - Using and Exploiting Knowledge and Information - Research Skills - Information Governance and Compliance - Records Management and Archiving - Collection Management and Development - Libraries and Learning	- Leadership and Advocacy - Strategy Planning and Management - Customer Focus, Service Design and Marketing - IT and Communication

Source: Skills for Health (2008b), FPH (2014b), LARIA (2014b), CILIP (2015)

All four examples from the PHSKF, FPH, LARIA and CILIP show a broad consensus on what key skills are necessary for a career in public health knowledge and intelligence.

All highlight a balance of **core analytical and technical skills** and **experience in knowing, understanding and using different data sources**, but also **skills in communication and presentation, reflecting the growing importance of the need to inform different audiences** (notably civil servants and managers/members within local authorities).

A sound methodological and research base is considered throughout the frameworks and by interviewees to be essential, to ensure that robust results appropriate to the research question at hand are obtained, especially in terms of analysing and using data. These include strong competences in managing and conducting data analysis to ensure robust intelligence, especially at the local level. A good knowledge of methodologies is also vital, especially to LARIA and to the Skills and Knowledge Framework, where flexibility of approaches features prominently.

Clearly, having the right skills for rigorous analysis is crucial, and it is thus not surprising that this is emphasised in the four frameworks above, as well as by those working in the field. Yet equally, public health knowledge and intelligence staff increasingly need to have good communication skills in order to share research and present information to their audiences in an appropriate manner – and in particular to understand how best to respond to the needs of the community and local elected members they support. This was made clear in interviews, and also in the frameworks above, where there is emphasis on communication, translating findings into actions and understanding the needs of organisations. This is especially apparent in LARIA's charter, where emphasis on communicating findings is strong, and also within the 2008 Public Health Skills and Knowledge Framework. However, interviews suggested that with the new policy environment of working primarily in the civil service or local authorities, communicating findings and the policy implications of these findings had become more important compared to being in the NHS (where the emphasis was slightly more on identifying the clinical implications).

The balance of these skills may need to vary, depending on their level of seniority: a more junior analyst may have less exposure to stakeholder engagement and be focused on specific technical tasks, while by contrast more senior staff focus increasingly on the communications side. The challenge, therefore, appears to be: ensuring that staff have the fundamental skills in analysis and understanding and using evidence, but can also be flexible and translate their findings into relevant actions for elected members and to colleagues working in other teams and at differing levels of seniority.

4.3.3 Career trajectories

Interviewees generally explained that the main posts within public health knowledge and intelligence were:

- **Junior analysts or equivalent:** typically employed at NHS Agenda for Change (AfC) 5 or equivalent and recruited directly from university, these tend to do more of the simpler stuff such as data cleaning and basic analysis
- **Information officers or equivalent:** typically employed at NHS AfC 6 or equivalent; these are individuals more competent in analytical work
- **Project managers or equivalent:** typically employed at AfC 7 or equivalent, these are more involved in the design of analysis, quality assurance and review of evidence
- **Senior Analysts or equivalent:** typically employed at AfC 8 or equivalent, these usually have or have gained specialist experience advanced statistics and programming; they may also focus more on official-level analysis and programme management

- **Head of Intelligence:** in charge of the team, these focus primarily on management, strategic oversight and business development opportunities.

A career in library and knowledge services differs slightly, in that many staff will have a core set of qualifications in librarianship and other related areas such as digital management; a strong emphasis is on continuous professional development, which is a prerequisite for maintaining CILIP membership. A typical pathway would be similar to that of an analyst, but relating to librarianship: starting off as an assistant, then a librarian, a head librarian and then becoming a manager.

For a career in field epidemiology, the career pathway was broadly similar, although there was a requirement to have a Masters in Public Health or Epidemiology and/or equivalent level experience. By contrast, the typical route would be to work as an Analyst at entry level (typically AfC grades 5 or 6), before either leaving the profession, to become an Information Manager (i.e. in charge of managing systems and surveillance) or to become a scientist, epidemiologist or consultant in public health.

It was felt that the trajectory was reasonably clear for someone joining as a graduate: start as a junior analyst, rise to a more senior post upon gaining experience and/or relevant qualifications, and then eventually graduate to a Head of Intelligence or equivalent within PHE, the NHS or a local authority. In the past, the route would be to start on hospital data and 'cut one's teeth on analysis skills' before 'stepping to analysis in public health', with public health intelligence work having traditionally strong prestige due to having more varied, challenging and interesting data. However, interviewees cautioned that career progression — especially within local authorities — was dependent on the size of the team. Progression from a graduate to a senior post was felt to be much easier within a larger team (such as that in a county council, or a larger unitary/metropolitan borough) than in a smaller team. With some local authorities having as few as one or no people working in knowledge and intelligence, this could conceivably have implications for career progression and planning: for example, while someone in a larger team could progress up the ranks, a staff member working in a smaller team would have fewer chances of progression without changing career pathway or changing employer.

There was also a view that there is considerable interchange of staff at all levels between public health knowledge and intelligence and similar areas of work such as statistics, health informatics, academia and other intelligence within local authorities (notably in social care, and other local authority areas of responsibility such as housing). For instance, some people working in public health knowledge and intelligence had started off working in organisations such as the Office of National Statistics and the HSCIC, and in NHS posts; similarly staff working in public health knowledge and intelligence were noted as leaving the profession to take up similar roles in other areas, for example in academia, field epidemiology or wider public health. This reflects both that having good analytical and communicational skills are useful for working in a large number of careers and that there is no regulatory prerequisite for working in public health knowledge and intelligence roles (unlike for public health consultant or nursing roles).

However, upon reaching a senior role such as Head of Intelligence, interviewees considered that there was much less clarity and that careers could potentially plateau, with few options available other than taking specialty training, or at present submitting a portfolio to the UKPHR to register as a practitioner or specialist¹³. Practitioner and advanced practitioner registration was considered by some as a possible approach for acknowledging fundamental skills in public health and boosting staff's confidence in their own abilities and skills; however interviewees cautioned that at present taking these routes required much effort and time on

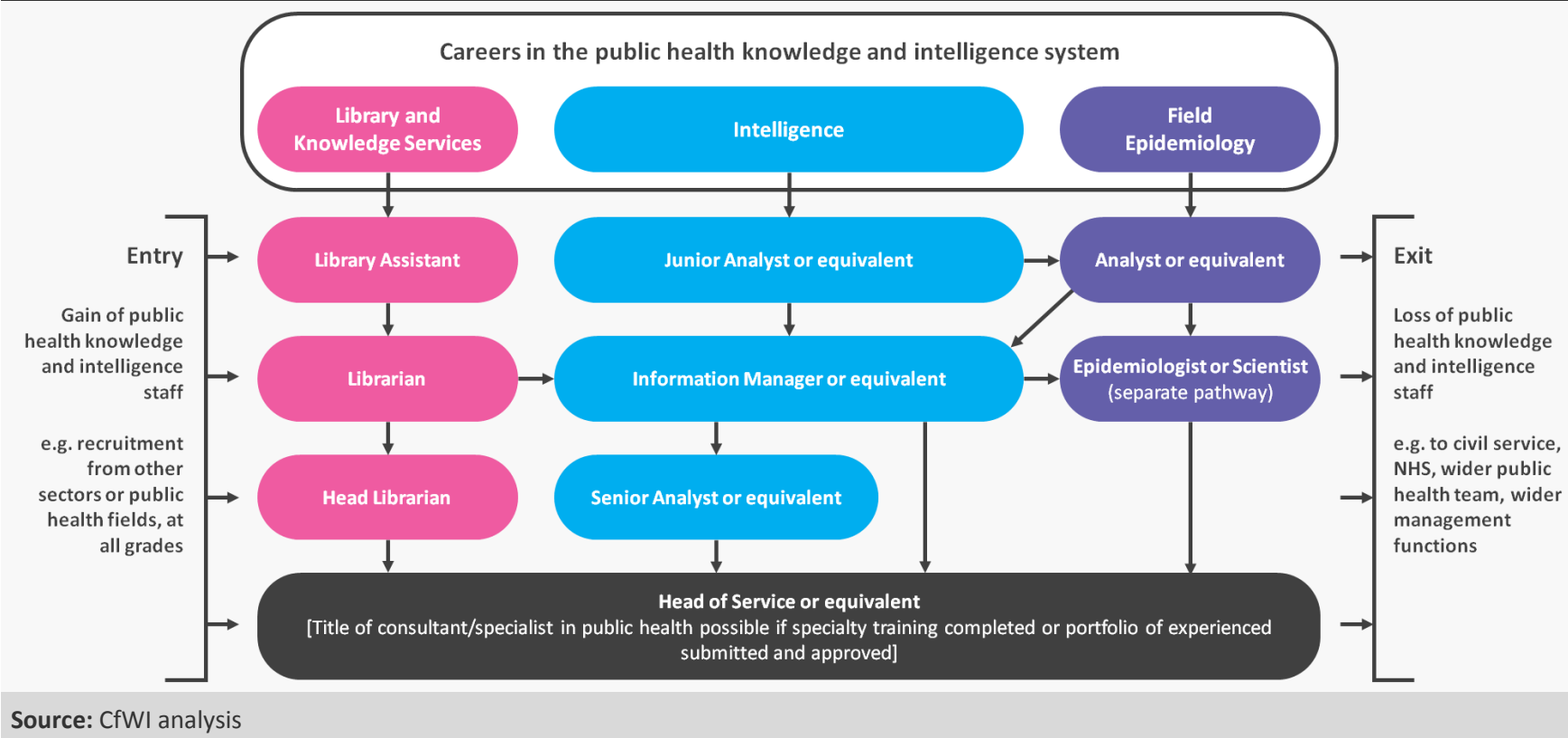
¹³ In future, registration as a non-medical specialist will be with the HCPC (unless already registered as a nurse or midwife with the NMC, or with the GPC as a pharmacist).

the part of the individual. Similarly, in field epidemiology, it was felt that there was a lack of analytical capability at senior levels, with few options available to analysts beyond junior analyst/information manager type roles, with few information manager and scientific posts available within PHE and with few equivalent epidemiology posts available in local authorities. This was of particular concern to field epidemiology staff within PHE, who are especially keen that the role of field epidemiology in knowledge and intelligence is recognised, even if knowledge and intelligence work per se is not the primary function of the FES. Certainly, field epidemiologists are keen that the updated Field Epidemiology Training programme (PHE, 2015) is given due consideration and recognition in potential career pathways in public health, including for knowledge and intelligence. In library and knowledge services, career progression was felt to be clearer, but that in future the role would change, with PHE in particular keen to clarify its role with regard to local authorities (where library and knowledge staff are not always available to public health teams).

A summary diagram is shown in Figure 7 on the next page. This illustrates a variety of possible career pathways, recognising there is some loss of knowledge and intelligence staff to other fields and continuing training and development activity.

Figure 7: Typical career pathways in public health knowledge and intelligence

The below diagram show typical career pathways in public health knowledge and intelligence. There is some movement between public health knowledge and intelligence, and similar roles in the NHS, local authorities, civil service and academia. At present, a number of staff feel there is a clear pathway up to Head of Intelligence level: after which it is less certain, with staff usually either having to become a public health consultant or specialist, or else be potentially lost to the function through taking another role elsewhere.



4.4 Implications

At present, there is no clear career pathway for public health knowledge and intelligence professionals, a situation that may reflect both the historic lack of consensus around what the workforce is, and the recent policy turn towards knowledge and intelligence in public health. In practice as discussed above, a number of formal accreditation routes exist, as well as some well-known training schemes: notably PHE's national Field Epidemiology Training Programme, existing analyst training scheme and programmes, and CILIP's route for librarian professionals.

However, many emphasise the importance of 'learning on the job': namely, having sufficiently good numerical, written and communications skills to develop and emerge as potential analysts, with less emphasis on having the technical skills upfront. This is also reflected in a number of relevant skills frameworks, which emphasise a strong analytical base (for example, in elements of epidemiology and statistics) allied with strong communications skills. This might suggest that a key for professional development may lie less in formal qualifications (unless a credible route could be developed), but rather in training courses or schemes that develop professionals from graduation. Whatever the start point, there is a clear set of core skills expected to be gained throughout training and career development: notably in technical skills around statistics, understanding data sources, data analysis, interpretation and management, and in more general skills such as applying skills in different settings, communicating findings, and project and change management.

Other key messages include the clarity of career trajectory for knowledge and intelligence professionals up to consultant and specialist level, and the lack of clarity beyond that point, and the perceived relationship between size of team and career progression. While a professional could conceivably remain in a team and become a head of intelligence with time and experience, interviewees felt that there were often few options beyond those roles, especially if in a smaller local authority where career progression opportunities may be fewer and further between. This may suggest that promoting career progression and workforce mobility between different organisations could be beneficial, to mitigate against the possible risk of career stagnation and enable people to gain experiences elsewhere where desired. This point is addressed later in the report, but could involve a mixture of informal means (such as increased promotion of courses and job opportunities) and more formal means (for example, such as secondments or current projects to develop a skills passport).

5. Current issues and priorities

This section outlines the main current considerations affecting the public health knowledge and intelligence workforce, both in terms of what have been the main achievements since 2013 and where there are areas for development. The main findings came from a series of four two-hour CfWI workshops with the support of PHE that took place between October and December 2014 in Cambridge, Derby, London and Manchester. These workshops were organised by CfWI using PHE's existing analyst networks in the North West, East Midlands, East of England and London regions, and were chosen in order to ensure a reasonable geographical spread.

This part of the research aimed to identify current achievements and issues affecting the public health knowledge and intelligence workforce. The outcomes of the workshops were complemented by findings obtained from a number of semi-structured interviews with other interviewees.

5.1 Current achievements within the system

There was much optimism from workshop participants, as outlined below, around the potential contribution of public health knowledge and intelligence, especially within local authorities. This augurs well for the future development of the system. Positive achievements cited in workshops include:

- **An opportunity to start afresh.** People noted that the changes to the public health system offered a chance to start afresh, take in new thinking and review previous priorities. This was considered by many to be a positive step.
- **Following the changes, public health knowledge and intelligence is well placed to provide useful information to councils.** People were of the view that there was a lot of potential for public health knowledge and intelligence teams to have impact, especially locally through providing clear information to local councillors via the DPH's Annual Report, Joint Strategic Needs Assessments and other means. With increased emphasis locally on supporting high quality clinical commissioning and integration of care, public health knowledge and intelligence teams, through their presence within the wider council team, were very well placed to support local priorities.
- **Public health knowledge and intelligence services are in demand, and largely appreciated by local authorities.** People reported that local authorities were happy with the services that knowledge and intelligence teams locally offered, with local authorities and NHS organisations appreciative of the skills offered by teams, notably around rigour of analysis and providing new insights to council services in areas relating to public health, such as housing.
- **There is more scope for public health knowledge and intelligence services to provide high quality analysis, especially within local authorities.** Many felt that their work was intellectually stimulating, with interesting and varied matter. With the opportunity to better influence wider determinants of health through working in areas such as housing and planning and good access to national data and comparison tools developed by PHE, staff working in local authorities felt that there was a lot of potential to use and develop skills beyond those from a typical analyst, notably in terms of providing policy advice to senior officers and councillors.
- **Overall, people felt there was – and will continue to be – more potential to directly affect delivery of services.** Many in the field felt that the data they were providing was influencing decision-making, and welcomed the opportunity to see the effects of these changes.

Interviews elsewhere supported the findings identified in the workshops. In particular, the biggest achievement highlighted by interviewees was **the opportunity to deal much more effectively with issues relating to the wider determinants of public health, as a result of many teams going into local authorities. Interviewees revealed that this helped persuade colleagues of their value, especially in terms of supporting local authority priorities and developing joint strategic needs assessments:**

- “ On the plus side, the public health team has been welcomed by the local authority, as the council now has greater capacity to deal with the wider determinants of public health, for example in areas such as housing, environment, planning, employment. It is good to have the ability to have conversations in these areas. There is strong potential for public health to have a linkage role in so many things, and have a positive impact on health and wellbeing. ”
- “ Our biggest achievement has been getting the JSNA agreed with other teams: it is now slicker, better presented, online, and has better impact due to wider dissemination. ”
- “ Public health intelligence teams have made a good start: they proactively understand what councils need, while keeping their robustness and their skills set — and local government does need them. ”

These are encouraging findings, as they show that a number of interviewees feel that being in a local authority has enabled their work to have meaningful impact in terms of supporting local priorities.

PHE teams were particularly praised for the level of support they provided, another finding which is encouraging for future system development:

- “ PHE for us plays a good role, they produce a range of information around the three ‘pillars’ of public health, and they do get the information out there. They provide really useful information which has helped us and our colleagues. ”

Overall, as a Head of Research and Intelligence within a local authority stated in interview:

- “ Local authorities ultimately need information to make better decisions. Intelligence teams are your navigators, trying to help local authorities in making these decisions. Local authorities are going down a most difficult road, why then would you get rid of your navigators? ”

Public health intelligence teams therefore appear to have consolidated themselves well in the new system — and as difficult decisions relating to delivery of national and local services will need to be made in future years, the potential is for public health intelligence teams to be the ‘navigators’ that help inform decision-making. Under the *Five Year Forward View* (CQC et al, 2014), providing this evidence base will be crucial, in order to help ensure better public health and inform ‘*hard hitting national action on obesity, smoking, alcohol and other major public health risks*’ (CQC et al, 2014).

5.2 Current areas for development

There were a number of areas of development that emerged during consultation, relating primarily to practical considerations. This may suggest that whilst there is optimism among public health knowledge and intelligence staff about what they could deliver, there remain a number of issues which may need resolution, especially at a local authority level. Resolution of the issues outlined below should be beneficial in improving delivery of public health knowledge and intelligence services.

The main areas of development that emerged from the workshops were:

- **Access to data and IT governance.** Participants felt that limited access to NHS data — through difficulties in agreeing access to datasets, such as Hospital Episodes Statistics, with NHS organisations — had had major effects on their work since the transition in April 2013, especially within local authorities. Many saw these issues as limiting the work that could be done by staff locally, with staff feeling they were only ‘catching up’ with big data after being ‘streets ahead’ four to five years previously. Staff felt that access to data had taken a retrograde step, particularly as in local authorities they still only had access to older software; others also mentioned that there was often limited support for resolving IT issues.
- **A lack of clarity around professional development.** Many felt that there was limited clarity around how best to pursue career development and individual training, with the lack of a well-defined career path. Linked to this was a shift towards acquiring generalist analysis and commissioning skills at the expense of specific public health knowledge, with the implication that a dilution of the current skills set of staff was taking place.
- **Difficulties in recruitment and retention.** Workshop participants outlined that at present it was currently difficult to attract staff and retain them, and as a result there was a lot of dependence on interim staff, especially at senior management level. Many identified that in a number of areas staff had been lost, with the result that teams in local authorities were being downsized and in some cases had no staff. People highlighted a sense of fragility and vulnerability, given the current local government context of reorganisation and prospective reductions in spending, as well as a concern of an emerging imbalance between what was expected from councils and what could be delivered by staff.
- **Uncertainty around and fragmentation of the workforce.** Workshop participants emphasised that issues relating to local authority governance had affected their work, underlining the need for them to have greater political awareness compared to when they worked in the NHS. This had resulted in differences in how intelligence was generated. In addition, workshop participants highlighted the growing divergence of knowledge and intelligence staff, with the function now dispersed across a variety of organisations, primarily PHE and local authorities, but also parts of NHS England, and some CSUs and CCGs. This had had implications for delivery, and had also led to increased distance from specialists and consultants, and problems of communicating and translating national and regional intelligence to local public health teams and CCGs.
- **Overall, there is some perceived uncertainty among knowledge and intelligence staff around the future value of their function.** People overall suggested a lack of clarity and direction around the future of the profession, and in particular its status within organisations such as local authorities. Workshop participants highlighted the need to convince local authority officers of the value of their work and therefore justify their existence. Allied with other issues identified above, workshop participants highlighted that staff morale had fallen, in particular as a result of uncertainty around the profession and concerns of a mismatch between available and required resources to do their job. They also highlighted that the changes had resulted in reductions of the knowledge and intelligence

function locally, with local authorities largely moving towards greater centralisation and amalgamation of functions.

Separate interviews supported the findings identified in the workshops.

A common issue raised was lack of access to data, with concerns that this was limiting the work knowledge and intelligence staff could do:

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- “ It is really important to crack the data issue, as many professionals can’t really do anything too special at the moment. In theory, public health could do so much more: especially around data linkage, management and judgement of sources. ”
 - “ We could have worked more collaboratively, but that has been stunted. That makes it difficult when you go to meetings, where you can’t get the data because of information governance issues... it makes us seem uncooperative’. ”

The role of PHE was also raised by interviewees. In particular, there was a sense from interviewees that while PHE provided useful resources they could be doing more to support local authority teams, especially given their position in the system:

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- “ The links with PHE have been quite one-way... PHE think they can do everything, and that means they may have disregarded the importance of the local level team. We really could do with support. ”

One possible area of development raised by interviewees was fragmentation of PHE’s analytical capacity, with a lack of consensus around the number of staff responsible for delivering that function. As one interviewee put it, the relationship between local authorities and PHE is ‘an interesting conundrum’.

The sense from other interviewees was that local authorities saw PHE as having an authoritative role, especially in areas such as providing training and identifying the expertise required to shape change locally.

Uncertainty around both the future of specific public health knowledge and intelligence teams, and future workforce capacity of these teams were also raised by interviewees:

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- “ Public health analysts are so hard to come by, and hard to locate. Posts are competitive, and they are hard to replace. There is an assumption that corporate intelligence could fill in the gaps, which isn’t the case. ”
 - “ Public health intelligence in local authorities is vulnerable, as local authorities have the view that you could use ‘one of our analysts’. This is deskilling the public health intelligence function, and it is a fight to say that basic analyst skills are not enough for public health intelligence to be delivered effectively. ”

A CfWI survey of DsPH found some evidence of vacancies, with a quarter of those responding highlighting the existence of vacancies in their team, and three respondents highlighting posts that had been vacant for longer than six months (CfWI, 2015). However, only four of the 22 respondents reported decreases in the number of knowledge and intelligence staff in their team since April 2013; with 8 reporting increases and 10 reporting no change (CfWI, 2015). Looking ahead, 4 out of 22 DsPH reported that their teams were likely to reduce in size in future, compared to six reporting likely increases and eleven no change (CfWI, 2015). These findings indicate

some evidence to suggest reductions in team size in future, supporting the points made by many interviewees, but the picture is unclear and the survey suggests as many teams may increase in size.

Workforce mobility and career progression are also concerns, with differences in terms and conditions and fear of losing benefits cited as a contributing factor:

“ Portability of qualifications and mobility are major issues too, because of uncertainty around terms and conditions and no mutual recognition of experience and skills. The team could transfer back to the NHS to maintain terms and conditions but there are no posts, but can’t transfer to PHE or other councils without losing terms and conditions. It is therefore difficult for staff with some experience to move, and it is therefore a potential hole in the road for future development. ”

Overall, **staff recognised that more needed to be done to persuade decision-makers of the value of public health knowledge and intelligence as a specific function**:

“ The big challenge is actually winning the politicians round, through consistently, logically and rationally pulling the evidence together. You need to make it clear that public health outcomes are visibly bad in order to make a difference. But it shouldn’t be a battle with the local authority, you need staff to fulfil the role in public health intelligence, and it takes years of evidence to make a case. ”

5.3 Implications

Overall, there is a sense among people working in the field that public health knowledge and intelligence is currently well positioned to respond to modern challenges, with strong demand for their services: especially among local authorities, which welcome their ability to provide high quality analysis on issues relating to the wider determinants of health.

However, project participants feel more could be done in a number of areas. Project participants identified challenges around information governance, professional development, and recruitment and retention, observing that in places it was difficult to attract staff. Participants explored what more could be done in terms of providing greater clarity around available career opportunities, and what more could be done in supporting staff in moving between different organisations. These points were especially relevant, with many staff now working in new organisations. The CfWI, through a survey of DsPH (CfWI, 2015) also found some evidence to indicate vacancies and recent or future downsizing in local authorities, though less evidence to suggest that these were widespread.

A possible implication is that further work on this workforce may focus on better explaining the opportunities available to knowledge and intelligence staff, as well as make it easier for staff to move around different parts of the workforce.

With staff working in a number of different organisations with potentially differing priorities, emphasising the common skills required as well as what skills may differ may also be beneficial, with signs that there is a growing emphasis around much stronger communication skills, to support more effective working in PHE and local authorities. Such activity could be achieved by both existing work — for example, work on multidisciplinary teams and the skills passport — as well as new means to strengthen both understanding and the voice of the profession as a whole.

6. Thinking about the future

This section outlines some possible areas of development for the public health knowledge and intelligence workforce over the next 10 years up to 2025.

Observations were obtained from semi-structured individual interviews, as well as a series of four two-hour CfWI workshops in conjunction with the support of PHE that took place between October and December 2014 in Cambridge, Derby, London and Manchester (see previous section). The majority of this section is informed by these individual interviews; a summary of the scenario clusters developed in the four workshops is provided towards the end of the section, with more detailed explanations of these in the annex at the back of the report.

6.1 Areas of future development identified in interviews

When asked to consider the future, a number of people interviewed individually considered the **political and financial context** as crucial for future development, with continuing policies expected to have an impact on skills:

- “ Budget cuts will be a big driver on future development: if there are cuts over the next couple of years, even with ring-fencing there will be an effect as other departments will get more money that might have gone to us. The key skill then will be ‘doing more with less’. ”
- “ How public health adapts to being in local authorities will be crucial. The big picture is of reduced budgets and therefore possible reduced resources for teams; public health teams will therefore need to get out of the NHS mind-set, and get used to different settings and data. ”

Ways of working were considered as likely to change, although there were differing options, with a number foreseeing closer working between and within different organisational teams, and others foreseeing a growing divergence between local authorities and PHE, and even between different authorities:

- “ The wider determinants of the public health agenda will be important. This may mean a greater move towards working with other teams, and to an extent partnership working already happens in areas such as worklessness and sexual health. ”
- “ In future, careers will likely become more holistic, with greater emphasis on evidence-based decision-making across wider determinants of public health. It’s therefore important to emphasise that public health needs to work across the whole council... but also retain separate public health intelligence as specialist. ”
- “ There is a real possibility of a divergence between PHE and local authorities, and specialised public health intelligence may not get maintained in local authorities if people leave. ”

Greater emphasis on ‘soft skills’ such as communicating information to different audiences and greater awareness of a wider range of policy issues were identified by interviewees. This was highlighted as especially relevant if public health teams in local authorities were to survive:

- “ Teams will need to be a lot more confident around policy issues and local authority politics: for example, a lot more aware of developments such as the Care Act [2014], and how intelligence can support local authorities in dealing with these issues. There will also need to be much more emphasis on messaging, it will have to be more than just the pie-chart or the graph. ”
- “ There will need to be greater leadership in terms of skills — staff need better understanding of the political system, and the LGA is already providing good guidance on this. This has been less relevant in the NHS, due to more focus on clinical leadership. ”

Interviewees indicated a hope that there would be greater awareness and recognition of the knowledge and intelligence function, which would thereby facilitate greater professional development and workforce mobility:

- “ We could make public health intelligence a separate branch of a Masters or separate career pathway; we could have a separate working party into careers in public health intelligence. ”
- “ [A separate pathway to accreditation] might help enable movement around the system, and get round the reality that some people may have PhDs, and others may just have A-levels. You could work closely with universities on accrediting courses/degrees; it could even not be specific to public health but rather be a framework for analysts which would support moves towards wider integration of services in health and social care. ”
- “ There needs to be clear recognition of the profession, and clear professional development similar to that provided by the civil service and the ONS... there is a need for professional guidance on development, ideally for PHE. It is not just about grinding numbers, it's important to understand experience of data flows as even subtle changes in coding can have considerable implications. ”

Some expressed the view that secondments might also be a way forward in addressing existing issues and promoting greater cohesion within the workforce:

- “ Secondments could be used to address shortages, for example in London, you could replace dependence on interim analysts. ”

Interviewees felt that PHE could play a stronger leadership role in future:

- “ PHE could play a stronger role in professional leadership, as well as to have a role in national advocacy, leading the system and ensuring sufficient quality of local services. ”
- “ PHE needs to be clearer about the role it wants to play, and who in PHE leads on it. Until the governance on this issue is resolved, it will be very difficult to get clarity — currently there is a division between a number of groups, for example, KITs, health protection, human resources. ”

Overall, interviewees thought that public health knowledge and intelligence as a whole needed to make a stronger case for its existence, especially given the increasing political context:

- “ Public health intelligence can make the case that it has a strengthened role in the political environment, but it will depend on what councils want and the strength of people within public health teams, and hard choices will need to be made and will be hard to predict. ”
- “ There will be greater emphasis ...on understanding the wider business of councils. Public health intelligence needs to make the case for how it can contribute to councils' work, because if it does it is more likely councils will want teams to remain. ”

6.2 Areas of future development identified in workshops

Further findings emerged from a series of four two-hour workshops that took place between October and December 2014 in Cambridge, Derby, London and Manchester and organised through four local PHE KIT networks.

The aim of the workshops was to help develop a 10-year outlook on the public health knowledge and intelligence workforce, encompassing the strategic environment and associated pressures on PHE, local authorities and the wider knowledge and intelligence community. The focal question captured this in terms of the influences and challenges affecting the demand and supply of skills and competencies in public health knowledge and intelligence:

*‘Thinking up to the year 2025, what **driving forces** (both pre-determined and uncertain) may influence:*

- *Skills requirements of the future public health knowledge and intelligence workforce?*
- *Numbers relating to the public health knowledge and intelligence workforce?’*

Workshop participants were asked to make ‘clusters’ of these driving forces that showed how they related to each other. The groups were asked to help develop a set of future outcomes considering how these futures may play out, by considering extreme but plausible outcomes and how the factors related to each other.

The clusters generated at the workshop provide:

- Initial identification and clustering of the key factors and driving forces affecting the public health knowledge and intelligence workforce to 2025.
- An indication of the possible outcomes for each cluster, developed on the day by participants
- An indicative ranking of impact and uncertainty of these clusters.

Each of the clusters developed at the workshops are explained in more detail in the Annex; however, a summary of the main scenario clusters developed are outlined below.

The five main sets of future clusters that emerged from the workshops related to:

- **Improved access to data and technology:** workshop participants either foresaw a future informed by more open access to data and new technology, or increasingly closed and reduced access to data and technology
- **The question of accredited pathways for the profession in the future:** workshop participants either foresaw a future of greater support for career development, or with career development largely left to individual staff
- **The impact of reorganisation within local authorities:** workshop participants were of the view that this could either grow public health knowledge and intelligence services, reduce their scope, or result in continued reorganisation and reform of these services
- **Interconnectivity between different public health teams:** workshop participants either foresaw a future of increased interconnectivity between different teams, or increased ‘silo-isation’ of working
- **The role of public health intelligence within local authorities:** workshop participants either foresaw a future informed by increased attractiveness of the profession, or reduced attractiveness of the profession.

These clusters confirmed similar issues and findings to those identified in interviews with others working in public health knowledge and intelligence, as well as areas for actions relating to the future of this workforce over the next five to 10 years. These have potential implications for skills and education and training: especially in terms of both ensuring core technical skills (for example, new datasets and technology; education and training) and better interpersonal skills (for example, the extent to which public health can connect with other teams; and their influence within local authorities). Overall, what role public health knowledge and intelligence will serve in the future is uncertain.

6.3 Implications

Both during interviews and in the four workshops, people working in the field identified a number of key areas which employers, commissioners and planners will need to take into consideration over the next five to 10 years, especially in supporting future staff planning and development.

The political and financial context was considered crucial in shaping future development, most likely in terms of how teams engaged with new organisations and in potentially having to do more with fewer resources.

In particular, good communications skills were considered crucial, if public health knowledge and intelligence was to thrive successfully within new organisations: especially in understanding what new organisations (e.g. local authorities) needed, in working more closely within and between different organisations, and ultimately in making a positive case of the specific benefits they offer (for example, around core analytical skills).

In terms of skills development, the challenge was one of maintaining fundamental analytical skills, but also gaining stronger presentational skills to benefit fully from new changes in technology and the opportunity to work with other teams and organisations.

Overall, people working in the field argued that greater recognition of the profession (for example, through clear awareness of what their profession offered to the system, and what career opportunities were available) and stronger leadership from PHE in supporting local teams (in exercising system leadership capacity) would be helpful in strengthening the position of knowledge and intelligence within the public health system. Secondments were considered as one possible step of achieving both: in enabling staff (especially within local authorities) to move more freely around the system and gain additional expertise, while equally recognising the different needs and priorities of local and national organisations.

Positive steps, therefore, for developing the workforce in the future could centre around the extent to which PHE can provide more practical support to local authority teams: for example training courses, secondments and more tailored support, or developing a national network or 'Head of Profession' to strengthen the cohesion of this workforce.

Such proposals could help strengthen the voice of the profession, as well as help knowledge and intelligence professionals have both the fundamental analysis skills and the strong communications skills required to work in a variety of policy environments.

7. Conclusions and suggested actions

This report has explained the following:

- The **policy context** surrounding public health knowledge and intelligence since 2013
- The **current workforce**, in terms of education and training, skills, competencies, numbers, delivery of services and career progression
- **Current issues and priorities** affecting this workforce, based on consultation with project participants, which may affect demand and supply for this workforce
- **Possible areas for how skills and career pathways may need to change or could change in future**, based on consultation with project participants.

There are a number of positives to build on within the system, notably around the following points:

- **The favourable positioning of public health knowledge and intelligence teams**, with the potential for local teams in particular to support local authorities in improving public health locally and to inform decision-making more directly
- **The potentially exciting nature of public health knowledge and intelligence work**, through the increased profile of public health in the NHS's *Five Year Forward View* (CQC et al, 2014)
- **The recognised value of services offered by public health knowledge and intelligence teams**, especially within local authorities.

These are encouraging starting points for future development, and should not be forgotten when considering possible actions to address this workforce in the future.

However, our work has identified three main areas for the public health knowledge and intelligence profession as a whole to address, and these are:

- **Uncertainty surrounding the public health knowledge and intelligence profession** — especially within local authorities, as teams are reorganised and previously ring-fenced public health funding is potentially removed. There is also some uncertainty around numbers currently in this workforce nationally, and around even who should be counted as knowledge and intelligence staff
- **Career progression and workforce mobility** — including opportunities to develop, and transfer between PHE, local authorities and other employers as part of career progression
- **National support for local public health knowledge and intelligence teams** — local authority public health knowledge and intelligence teams would welcome greater support from PHE to help increase the impact of this workforce.

Addressing all three areas would be beneficial in terms of:

- Addressing both current issues driving demand and supply and likely areas of development in public health knowledge and intelligence over the next five to 10 years;
- Better understanding of this workforce, especially in terms of numbers and in differing career pathways in public health knowledge and intelligence;
- PHE and local authorities putting in place the necessary actions to better support their public health knowledge and intelligence workforce.

The CfWI has suggested **short term actions** (those which could be implemented within the next 12 months and/or build on existing work), and **longer term actions** (those which could feasibly be implemented over the next five to 10 years, but may need more concerted and co-ordinated action across the public health system to develop and implement). Ultimately, it is for PHE and local authorities in consultation with others to decide how best to address the points raised in this report.

7.1 Short term actions

The CfWI supports the continuation of the following projects already underway in public health knowledge and intelligence:

- **Existing work on multidisciplinary teams**

The ADPH, the FPH, the LGA and PHE jointly published in August 2014 *Public Health in the 21st Century: organising and managing multidisciplinary teams in a local government context*, which was designed to provide guidance to local authorities in employing consultants, specialists and Directors of Public Health registered with either the GMC, GDC or UKPHR (ADPH et al, 2014). The guidance considered areas such as ensuring a good mix of skills within the local authority at consultant and specialist level, approaches to addressing terms and conditions of employment, and issues surrounding terms and conditions and equal pay (ADPH et al, 2014). The working group now exists as a standing group.

The CfWI welcomes the work carried out by this standing group, and suggests that the group consider knowledge and intelligence staff in any future work it conducts on local authority teams. Based on its consultation with project participants, the CfWI has identified possible concerns around uncertainty of the profession, especially in areas such as the future role of the profession within local authorities, workforce mobility and recruitment and retention of staff. Any specific guidance would be welcomed by people working in knowledge and intelligence, could provide greater certainty in what is increasingly a volatile policy environment, and could be feasible within the next 12 months. In doing so, the value and profile of public health evidence and intelligence among local authority officers could also be raised. It should encourage greater local and national innovation in services, through providing greater clarity and information around how public health knowledge and intelligence has been delivered since the April 2013 reforms.

- **Existing work on developing a public health skills passport**

The *Public Health Workforce Strategy* (DH, PHE and LGA, 2013) proposed the development of a national public health skills passport to record individual training, education and vocational experience and to provide a structure and mechanism for career and workforce development. The intention of the skills passport is to help facilitate career development, through making it easier for public health professionals to transfer between different kinds of organisation (for example, PHE, local authorities, universities and the NHS).

Work is currently underway, with more detailed proposals likely later in 2015. If fully implemented, this skills passport could promote further positive actions such as stronger networks, closer working on training, and better tailoring and awareness of training courses to meet particular competencies (CfWI, 2014). Allied to the *Skills and Knowledge Framework*, which sets out expected skills and knowledge for different levels of posts, the skills passport may also provide better clarity around career progression, as well as produce better awareness of skills, competences and available courses for public health knowledge and intelligence staff, and thereby reduce barriers between different employers.

The CfWI welcomes the work already being carried out in this area, and would advise that the knowledge and intelligence function be given due consideration in both the development of the skills passport and any future updates to the *Public Health Skills and Knowledge Framework*.

- **Continue development of a National Minimum Data Set for public health (NMDS-PH), which takes into account both roles and functions in public health**

Improved understanding through the NMDS-PH of how many people work in specific roles and functions in public health — particularly within PHE and local authorities— would improve both planning and commissioning of staff delivering public health knowledge and intelligence. It may also help promote greater understanding and awareness of the workforce as a whole. This is especially so given past challenges of defining the function, and who works in the field.

The CfWI acknowledges and welcomes the work already in hand in this area (CfWI, 2014), and has supported the working group tasked with this activity following the 2013 *Public Health Workforce Strategy* (DH, LGA & PHE, 2013). However, the CfWI recognises that the dataset will need to work effectively for local authorities and others outside the NHS, and in particular ensure the collection of information does not impose too significant a burden on resources.

- **Continue to support, where appropriate, local authorities in resolving identified issues in data access**

While data governance per se was not within the scope of this study, a common issue raised by project participants — especially by those working in local authorities — was access to relevant NHS data in order to carry out their functions effectively. However, many also acknowledged recent improvements in this area. PHE, local authorities and others need to be aware of this issue, and ensure that, where possible and appropriate, staff have the relevant datasets and technology to support them in their work.

7.2 Longer term actions

The CfWI suggests the following actions for consideration by PHE, local authorities and other employers to support public health knowledge and intelligence in the future:

- **A review of PHE's role in providing greater practical support to local public health knowledge and intelligence teams**

The NAO's 2014 report into PHE (NAO, 2014) identified a '*gap in expectations between the support local authorities want from the [PHE] knowledge and intelligence teams, and the support they get*' (NAO, 2014). The NAO recommended that PHE should review how it can best provide stronger support for public health staff in local authorities, and in particular seek to:

- improve the responsiveness of its knowledge and intelligence teams to local authority requests for support
- help local authority teams build up their own knowledge and evidence skills
- act swiftly on the findings of PHE's strategic review to further strengthen how PHE operates
- improve advice to local authorities on their support to clinical commissioning groups
- help local authority teams understand the evidence base and cost implications of different public health interventions, including sharing best practice (NAO, 2014).

The CfWI identified in this study similar concerns to the NAO, in particular around uncertainty within the public health system and the extent to which local teams felt supported by PHE. Local teams indicated that they would welcome greater support and national leadership from PHE to support their delivery of public health knowledge and intelligence services.

PHE in its creation was intended to provide an authoritative voice on public health matters. Concrete proposals to strengthen support and leadership provided to the variety of organisations now delivering public health knowledge and intelligence services — for example, through provision of training courses, secondments and more explicit and tailored support to local knowledge and intelligence teams — should therefore benefit the system, in improving the impact of not only PHE but also local authorities. Such actions should lead to better recognition of public health knowledge and intelligence as a career, and in turn should stimulate increased innovation and increased numbers joining the profession.

- **The development of a national professional network and an identifiable ‘Head of Profession’ for staff working in public health knowledge and intelligence functions within both PHE and local authorities, to provide greater visibility and to foster a stronger sense of community across this diverse workforce**

Stronger identification and sharing of good practice and greater access to professional networks and mentors should help increase awareness of new methods and approaches, and in understanding how different staff working in different organisations operate.

This could happen through informal mentoring arrangements established between different organisations as appropriate. Alternatively, current intelligence networks such as LARIA and those organised by PHE provide useful mechanisms for providing mentoring and informal learning.

The CfWI suggests that establishing a national network for knowledge and intelligence may provide greater visibility, cohesion and coordination for a diverse workforce, and may bring existing networks in PHE and local authorities closer together. PHE, in consultation with others including local authorities, may also wish to identify a clearly defined national Head of Profession or equivalent for knowledge and intelligence, both to act as an advocate for staff and to be a clearly defined Senior Responsible Officer across what is a diverse workforce. This could conceivably be the existing PHE Chief Knowledge Officer, a Head of Knowledge and Intelligence from a regional PHE team, a local authority DPH, or another new post.

- **The promotion of greater mobility of knowledge and intelligence staff between employers, to support career development**

People engaged during this project raised concerns about both the lack of a defined career pathway and current difficulties in moving between different organisations. Reducing barriers between different employers would mean staff could transfer between them during their careers more easily and thereby enable them to gain the necessary experience required for working effectively at higher level posts (such as consultant or DPH). Moreover, initiatives supporting greater mobility of staff could be implemented through a variety of means, and without necessarily needing changes to legislation or terms and conditions.

As outlined in its *Knowledge Strategy* (PHE, 2014b), PHE is already committed to providing placements and secondments (including through new structured training programmes in collaboration with local organisations), as well as supporting training and development of local authority teams. Secondments or ‘job exchanges’ — whereby an employee of one organisation could work in another organisation for

a defined period of time — would also help give staff working in public health knowledge and intelligence the opportunity to experience a wider set of professional challenges, while imposing fewer risks on either the employee (e.g. loss of benefits) or the organisation (e.g. vacancies, turnover). Secondments, as suggested by some in interview, would also promote better cooperation and innovation: for example, someone working in PHE could gain exposure to how national public health datasets are used to create local intelligence, while someone in a local authority could gain experience in a different local authority, or in understanding how national datasets are developed within PHE.

- **An audit or survey of both PHE and local authority teams to confirm numbers working in public health knowledge and intelligence**

Although the CfWI has sought to establish how many people are involved in delivering this function in both PHE and local authorities to provide additional context on how this workforce may need to develop in future, it is clear from the evidence provided that understanding numbers of staff — both within PHE and in local authorities — remains challenging nationally.

Until the NMDS-PH with agreed coding is fully operational, it will continue to be difficult to provide a clear and definitive answer on national numbers. However, without some degree of measurement, managing future careers for this workforce will remain uncertain and without rigour, and this may result in continued uncertainty in the system. One solution may be an audit or survey of PHE and local authority teams, to help establish a benchmark for this workforce (ideally, pending implementation of the NMDS-PH), and thereby understand whether more systematic planning for this workforce will be required in future. However, this would require appropriate funding for this to happen. As many staff work in local authorities, it would also require the involvement of representative organisations to facilitate the work.

Finally, the CfWI suggests that another review of this workforce take place within the next five years, upon full implementation of the NMDS-PH and further embedding of the new public health system. This will allow others to update this research, and assess whether the issues raised have been addressed.

The CfWI acknowledges that longer term actions may take some time to emerge and develop. In addition, PHE will also need to consider the autonomy of local authorities in this area.

It is therefore for PHE, working with others across the system, to determine how best to exercise leadership over the system, and how to implement these suggested actions.

Annex – future clusters of development

The CfWI ran a series of four two-hour workshops that took place between October and December 2014 in Cambridge, Derby, London and Manchester and organised through four local PHE KIT networks. Attendees came from PHE and local authorities, with approximately 15-20 at each workshop.

This part of the research borrowed elements from the CfWI's horizon scanning (identifying future drivers) and scenario generation methodologies in order to identify qualitatively areas of future development for this workforce.

The aim of the workshops was to help develop a 10-year outlook on the public health knowledge and intelligence workforce, encompassing the strategic environment and associated pressures on Public Health England, local authorities and the wider knowledge and intelligence community. The focal question captured this in terms of the influences and challenges affecting the demand and supply of skills and competencies in public health knowledge and intelligence:

*'Thinking up to the year 2025, what **driving forces** (both pre-determined and uncertain) may influence:*

- *Skills requirements of the future public health knowledge and intelligence workforce?*
- *Numbers relating to the public health knowledge and intelligence workforce?'*

Workshop participants were asked to make 'clusters' of these driving forces that showed how they related to each other.

The clusters generated at the workshop provide:

- Initial identification and clustering of the key factors and driving forces affecting the public health knowledge and intelligence workforce to 2025
- An indication of the possible outcomes for each cluster, developed on the day by participants
- An indicative ranking of impact and uncertainty of these clusters.

The groups were asked to help develop a set of future outcomes considering how these futures may play out, by considering two extreme but plausible outcomes and how the factors related to each other.

The five main sets of future clusters that emerged in the workshops related to:

- **Improved access to data and technology**
- **The question of accredited pathways for the profession in the future**
- **The impact of reorganisation within local authorities**
- **Interconnectivity between different public health teams**
- **The role of public health intelligence within local authorities.**

Each of the clusters developed at the workshops are presented below.

The influence of improved access to data and technology in the future

Improved access to data and technology was recognised throughout the workshops as having medium uncertainty and medium impact. Of particular concern to workshop participants was whether access to relevant data and technology for public health knowledge and intelligence would improve, or worsen. Key factors identified by workshop participants included:

- Legislation and standards to determine access to data
- Access to new technology
- Access to new analytical methods and approaches
- Emergence of 'big data'
- Attitudes towards data sharing
- Commercialisation of data/increased competition from private sector
- Positioning, influence and role of public health in local authorities
- Working relationships with other organisations, e.g. clinical commissioning groups
- Specialist versus generic workforce
- Presentation of data
- Centralisation of analysis
- Focus on qualitative data
- Development of modelling and analysis techniques
- Demand for data and intelligence

Workshop participants saw this either resulting in **more open access to data and new technology**, or **increasingly closed and reduced access**.

Improved access to data and new technology — driven by positive attitudes towards data sharing and more user friendly technology — was thought to lead to better access to data in a timely manner, and therefore enable a greater level of analytical work to be conducted through greater combination of datasets. Maintenance of and/or increase from current staffing levels and skills was thought by workshop participants to be required, in order to understand the sheer amount of data available and in providing value-added analysis of multiple datasets in collaboration with providers. Some thought that improved access to data and technology could increase the importance of the public health knowledge and intelligence workforce, due to increased need to improve and assess the quality of data available in a more competitive market, especially if fewer information governance restrictions were in place. However, some equally thought that increased data and technology could reduce the need for a skilled workforce to analyse data, if more data is available.

By contrast, **reduced access to data and new technology** — driven by negative attitudes towards sharing — was thought to lead to a need for greater understanding of data security and information governance, due to greater reliance on national products and external data sources. This was thought by workshop participants to potentially limit the level of analysis that could be conducted, due to fewer opportunities to link up confidential data — with the potential implication that this could limit influence of knowledge and intelligence teams within individual organisations, and with potential implications for staff numbers. In response, workshop participants thought that staff would need to work more closely with colleagues in other organisations to fully realise the benefit of available data, as well as have more technical skills in areas such as handling anonymised data and information governance arrangements.

The question of accredited pathways for the profession in the future

The question of **future accreditation for the profession** was recognised throughout the workshops as having medium uncertainty and medium impact. This cluster related to changes to service demand, and how it would relate to changes to career pathways in knowledge and intelligence in the future. Factors cited include:

- Increased number of people living longer with long term conditions/ageing population
- Lifestyle choices among different population groups
- Epidemiological changes within the population
- Greater reliance on health services
- Influence of public health (on improving the public's health)
- Existing career development pathways
- Opportunities for personal development (for staff)
- Job descriptions
- Terms and conditions
- Qualifications/standards for public health knowledge and intelligence staff

Workshop participants saw this either resulting in **more supported career development for staff in future**, or with **career development largely left to the individual**.

Supported career development was considered by workshop participants to occur through the development of clearly defined job descriptions and salary scales, especially within local authorities, in order to mitigate the risk of competition between different organisations for staff. Increasingly, public health knowledge and intelligence staff therefore become seen as public health professionals first and foremost, rather than generic analysts, and this is recognised in required standards for staff which emerge, especially around methodology. This helps promote clear and accredited career pathways for public health knowledge and intelligence, and therefore personal development for individual staff. The end result is a clear career pathway and methodology for public health knowledge and intelligence, which is valued and respected within key organisations and by workshop participants, centred around strategic thinking and strong methodological understanding (especially around statistics). Public health knowledge and intelligence is therefore appreciated as a highly qualified and appropriately rewarded specialty.

By contrast, **career development largely left to the individual** may happen whereby clearly defined job descriptions and salary scales are not developed for organisations and no standard accreditation emerges, and so competition and variation between organisations in terms of staff employed may persist. Increasingly, public health knowledge and intelligence may be seen as no different from existing analysts within local authorities. The lack of a clearly defined career pathway persists, and personal development continues to be left to the individual. Public health analysts increasingly may be replaced with generic analysts or analysts with skill sets not specific to public health, and with less emphasis around specific methodologies relevant to public health. Public health knowledge and intelligence is therefore less appreciated as a highly qualified specialty, and increasingly pay and other benefits become less competitive compared to other sectors (notably the private sector). The end result is less certainty around whether the future workforce will gain necessary qualifications and learn the relevant skills, with career development essentially left to the individual and the discretion of the employer.

Changes to local authority teams and impact on services

Changes to local government organisation was highlighted as a cluster over the next decade, and specifically the implications for public health knowledge and intelligence locally. Factors cited include:

- Changing political climate
- Changes in priorities, for example, the London health commissions
- Increased understanding of wider determinants of public health
- Increased recognition of importance of public health by politicians
- Increased sharing of public health knowledge and intelligence expertise
- Funding for public health intelligence
- Increased demand for public health analysis
- Funding for public health (ring-fencing)
- Increased gap in skills
- Need for evidence-based policy
- Uncertainty of future public health budgets
- Funding for local councils
- Government economic policy (e.g. 'austerity')
- Reforms to the NHS
- Separation of public health from the NHS
- Policy foci of local councils (e.g. front line services)

Three outcomes of the cluster were identified by attendees: **growth in public health knowledge and intelligence services**, **reduced scope of these services**, and **continued reorganisation of these services**. These were considered by workshop attendees to be of both **high uncertainty and high impact**.

Growth assumes a move towards greater understanding of the wider determinants of public health as key drivers in improving the public's health, as well as ongoing changes in the political climate. Political representatives — especially at a local level — increasingly understand the importance of public health, and in particular the 'value add' that public health in general provides. The importance of public health is accentuated by an increased need for evidence-based policy, given a continuing uncertain financial climate (and especially the likelihood of further major cuts to the budgets of local councils). Consequently, there is a move towards increased sharing of knowledge and intelligence expertise locally, and therefore increased funding for public health knowledge and intelligence functions. Increased funding in turns leads to increased influence over policy, as well as more demand for public health knowledge and intelligence. Increased recruitment and training takes place to address existing skills gaps between demand and supply, strengthening the profession.

Reduction assumes less or no change in understanding of wider determinants in public health, as well as continued changes to the political climate. However, in this scenario political representatives – especially at a local level – fail to anticipate this growth in importance, and so demand to share public health knowledge and intelligence locally falls and teams continue to work in silos. This results in overall reduced funding for public health knowledge and intelligence services. Political influence therefore falls, and combined with possible cuts to local council budgets results in both reduced demand for public health knowledge and intelligence skills and also a skills gap as services needed for evidence-based policy are not met. With falling recruitment and training, the end results are a smaller and less skilled team, and a lack of leadership in this area.

Finally, **reorganisation** focuses on the continuing legacy of reforms to the NHS and public health, and continued restraint on funding for both councils and public health. Political understanding of the importance of public health and the knowledge and intelligence function is informed by legacy of the 2013 reforms and the separation of public health from the NHS, as well as increased focus on front line services by councils rather than the wider determinants of public health. The scenario assumes likely reduced council funding; this may result in reduced council budgets and councils needing to decide where to prioritise spending. The end result is possible further changes to the size of the team and further reconfigurations of local teams, informed by the priority to which political representatives give to public health and knowledge and intelligence.

Greater connectivity between public health knowledge and intelligence teams

Over the next 10 to 15 years, access to technology and groups involved in delivering public health is expected to change. Although intelligence capability may be small, in practice these are not the 'total intelligence assets', with information from other organisations and groups including academia, elected members, other public sector organisations, industry, community enterprises and the private sector, also available. The main questions of direction of travel are whether public health intelligence teams can connect with other organisations, and whether this perception achieves sufficient buy-in. Factors cited include:

- The move towards integrated care
- The move towards self-care
- Fiscal and policy constraints on local authorities
- Size of the local authority workforce
- Priority given to public health
- Service delivery within local authorities, e.g. shift towards integrated or commissioned services
- Shift towards evidence-based decision-making
- What service users require

Two possible cluster outcomes were identified: one where there is **greater interconnectivity**, and one where **'a silo mentality' persists**.

Greater interconnectivity was seen as occurring where closer working emerged between core public health staff and other stakeholders within and beyond organisations, allowing for both retention of knowledge and improved access to different sources of information. The result is a shared 'cloud' of thinking, in which data obtained from a wider array of sources is not only available, but is trusted and recognised as the best source of information for developing policy. Consequently, work becomes redefined as a result of ever closer working between organisations both locally and regionally, with more 'jointly owned work' that positively impacts the population as a whole and which has high credibility. This work results in better use of sources of information, as well improved integration of services and promotion of self-care.

By contrast, **a silo mentality may persist** where core public health staff continue to work in silos and do not make the best use of information available from other sources, such as elected members in local authorities, other council directorates or the wider NHS. The result is that information is not shared widely and decisions are made which may not be widely trusted and recognised by others, including the public. The result is business as usual, but connections between different sources of information do not occur as often, and there is much less 'jointly owned' work that could have potential impact for the population as a whole. There is a risk that knowledge and intelligence is lost as different organisations and groups change and restructure over time. This may also result in less well integrated services, and challenges in promoting better self-care.

The role of public health knowledge and intelligence

Finally, the **future role of public health intelligence** was considered by attendees as affecting the attractiveness of it as a career and therefore the future of the profession. Factors influencing how this will affect the future public health knowledge and intelligence workforce include:

- Terms and conditions
- Attractiveness of jobs in the private sector
- Flexible working
- Demand for analytical skills
- New developments in analysis
- Level of training provided
- Priority given to specialist analysis.

Two outcomes were identified by workshop participants: **a vicious circle whereby public health intelligence becomes less attractive as a career, and a virtuous circle whereby public health intelligence becomes more attractive as a career.**

Public health intelligence may become less attractive as a specialist career, if unfavourable terms and conditions remain, a negative perception of working within both a local authority and the public sector persists, if there is still no recognised pathway or training courses for public health intelligence, and if specialist staff able to pass on training, knowledge and experience are lost, for example through retirement. The result may be fewer new starters into the profession and less recognition as an attractive specialist career, resulting in reduced numbers and skills in the profession, and therefore patchy and fragmented services, more gaps picked up by general analysts, and less recognition of the value of specific public health intelligence teams. In this case, a risk may be that health and wellbeing boards become insufficiently informed about public health matters, due to a loss in capacity.

By contrast, **public health intelligence becomes recognised as an attractive specialist career**, if appropriate and flexible terms and conditions are agreed; working locally and/or in the public sector becomes perceived as more positive; a recognised training pathway emerges, and; staff numbers remain the same or increase. The result is a greater number of people choosing public health intelligence as a career, with increased numbers of training courses to reflect this growth in demand. Public health intelligence grows as a specialty, as does the skills base with new techniques which help to add value to this area of work. Local authorities recognise public health intelligence as a specialism in its own right, and become more willing to invest in a specialist workforce. The results are a larger public health intelligence workforce, greater recognition of public health intelligence as a specialism, and better and more effective local analysis in public health.

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ii. [Groups consulted during the project](#)

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References

- Acheson, D. (1998)**, *Independent Inquiry into Inequalities in Health Report*, <http://www.archive.official-documents.co.uk/document/doh/ih/contents.htm> [Accessed January 2015]
- Ashton, J. (2000)**, "Public Health Observatories- the key to timely public health intelligence in the new century", *Journal of Epidemiological Community Health* (2000): 54: 724-725
- Association of Directors of Public Health, Faculty of Public Health, Local Government Association & Public Health England (2014)**, *Public Health in the 21st Century: Organising and managing multidisciplinary teams in a local government context*, <https://www.gov.uk/government/publications/public-health-in-the-21st-century-organising-and-managing-multidisciplinary-teams-in-a-local-government-context> [Accessed January 2015]
- Association of Directors of Public Health & Faculty of Public Health (2012)**, *Standards for Effective Public Health Teams*, <http://www.fph.org.uk/uploads/Public%20health%20teams%20%20resourcing%20Draft%2010%20-%20Jan2012%20%282%29.pdf> [Accessed January 2015]
- Association for Informatics Professionals in Health and Social Care**, <http://www.bcs.org/category/7898> [Accessed January 2015]
- Bendel, N. (2014)**, *State of Public Health Intelligence ("situation analysis")* [unpublished] [Accessed January 2015]
- Care Quality Commission, Health Education England, Monitor, NHS England, the NHS Trust Development Authority & Public Health England (2014)**, *Five Year Forward View*, <http://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf> [Accessed January 2015]
- Centre for Workforce Intelligence (2014)**, *Mapping the core public health workforce*, <http://www.cfwi.org.uk/news/the-cfwi-publishes-report-and-visualisations-to-help-map-the-core-public-health-workforce> [Accessed January 2015]
- Centre for Workforce Intelligence (2015)**, *Local authority public health knowledge and intelligence survey* [unpublished dataset] [Accessed January 2015]
- Department of Health (2007)**, *Informing Healthier Choices: Information and Intelligence for Healthy Populations*, http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publichealth/Choosinghealth/DH_075162 [Accessed January 2015]
- Department of Health (2010a)**, *Healthy Lives, Healthy People: our Strategy for Public Health in England*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216096/dh_127424.pdf [Accessed January 2015]
- Department of Health (2010b)**, *Modernising Scientific Careers: the England action plan*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/139529/dh_115144.pdf [Accessed January 2015]

Department of Health (2010c), *Equity and Excellence: Liberating the NHS*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213823/dh_117794.pdf
[Accessed January 2015]

Department of Health (2010c), *Liberating the NHS: An Information Revolution— Consultation on Proposals*
http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_120080 [Accessed January 2015]

Department of Health (2010d), *Review of the Regulation of Public Health Professionals*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216095/dh_122237.pdf
[Accessed January 2015]

Department of Health (2012a), *Healthcare Public Health Advice Service to Clinical Commissioning Groups: Guidance to support the provision of healthcare public health advice to CCGs*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216835/Healthcare-Public-Health-Advice-Service-Guidance-FINAL.pdf [Accessed January 2015]

Department of Health (2012b), *Healthy Lives, Healthy People: Towards a Workforce Strategy for the Public Health System- Consultation Document*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/164228/consultation_doc.pdf [Accessed January 2015]

Department of Health (2012c), *Local public health intelligence*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/212959/Public-health-intelligence-all-factsheets.pdf [Accessed January 2015]

Department of Health (2014), *The Health and Care Professions (Public Health Specialists and Miscellaneous Amendments) Order 2015: A Consultation*, <https://www.gov.uk/government/consultations/public-health-specialists-regulation> [Accessed January 2015]

Department of Health (2015), *The Health and Care Professions (Public Health Specialists and Miscellaneous Amendments) Order 2015: Government response to the consultation*,
<https://www.gov.uk/government/consultations/public-health-specialists-regulation> [Accessed January, 2015]

Department of Health, Local Government Association, & Public Health England (2013), *Healthy Lives, Healthy People: A public health workforce strategy*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204792/2900899_28781_Healthy_lives_v0.8.pdf [Accessed January 2015]

Department of Health, Local Government Association, and Public Health England (2014), *Healthy Lives, Healthy People: Update on the public health workforce strategy*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/324989/workforce_strategy.pdf [Accessed January 2015]

Faculty of Public Health (2010), 'Public Health Training Pathway', http://www.fph.org.uk/content_of_training
[Accessed January 2015]

Faculty of Public Health (2013), *Written evidence from the UK Faculty of Public Health (PHE 0020), November 2013*, <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/health-committee/public-health-england/written/3489.html> [Accessed January 2015]

Faculty of Public Health (2014a), 'What is public health', http://www.fph.org.uk/what_is_public_health [Accessed January 2015]

Faculty of Public Health (2014b), *Functions of the public health system*, http://www.fph.org.uk/functions_of_the_local_public_health_system [Accessed January 2015]

Faculty of Public Health (2014c), 'Curriculum review', http://www.fph.org.uk/curriculum_review [Accessed January 2015]

Faculty of Public Health (2015), "National Treasure Application: Public Health England Field Epidemiology Training Programme", http://www.fph.org.uk/uploads/15_Public%20Health%20England_Field%20Epidemiology_2014.pdf [Accessed January 2015]

Government Statistical Service (2015), "About the Government Statistical Service", <https://gss.civilservice.gov.uk/about/> [Accessed January 2015]

Health and Social Care Act (2012), <http://www.legislation.gov.uk/ukpga/2012/7/contents/enacted> [Accessed January 2015]

Health Education England (2014), *Knowledge for healthcare: a development framework*, <http://hee.nhs.uk/wp-content/blogs.dir/321/files/2014/12/Knowledge-for-healthcare-framework.pdf> [Accessed January 2015]

Hemmings, J. & Wilkinson, J. (2003), "What is a public health observatory?" *Journal of Epidemiological Community Health*, 57, 324-326

Jenner, D et al (2010), "Developing the public health intelligence workforce in the UK", *Public Health*, 124 (5), 248-252

Local Area Research and Intelligence Association (2015), "Full member charter", <http://laria.org.uk/about-us/who-we-are/laria-charter/> [Accessed January 2015]

Local Government Association & Public Health England (2014), *Public health transformation nine months on: bedding in and reaching out*, <http://www.local.gov.uk/documents/10180/5854661/Public+health+transformation+nine+months+on+-+bedding+in+and+reaching+out+-+publication/ce0b8b36-c81d-44f7-ba91-b0836a9b4822> [Accessed January 2015]

NHS Jobs (2015), https://www.jobs.nhs.uk/xi/search_vacancy/60c010d129992fc6ae479ba93b04e495/ [Search, 12 January 2015]

National Audit Office (2014), *Public Health England's Grant to Local Authorities*, <http://www.nao.org.uk/wp-content/uploads/2014/12/Public-health-england%E2%80%99s-grant-to-local-authorities.pdf> [Accessed January 2015]

Pourmalek, F. (2012), "National health observatories: need for stepped up action", *The Health*, 3(3), 2012, 63-64

Public Health England (2013a), *Knowledge Strategy: Harnessing the Power of Information to Improve the Public's Health* (consultative version),
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/248820/PHE_Knowledge_strategy_October_2013.pdf [Accessed January 2015]

Public Health England (2013b), *Written evidence from PHE (PHE 0002)*, November 2013,
<http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/health-committee/public-health-england/written/3318.html> [Accessed January 2015]

Public Health England (2013c), *Knowledge and intelligence: Public Health England's local contribution to the work of local government and the NHS*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/232030/PHE_local_contribution_to_the_work_of_local_government_and_the_NHS_flyer.pdf [Accessed January 2015]

Public Health England (2014a), *Developing the public health knowledge and intelligence workforce* [unpublished]

Public Health England (2014b), *Knowledge Strategy: Harnessing the Power of Information to Improve the Public's Health* (final version),
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/320506/PHE_Knowledge_Strategy.pdf [Accessed January 2015]

Public Health England (2014c), *An Overview of Analytical Resources in Public Health England* [unpublished] [Accessed January 2015]

Public Health England (2015), *Field Epidemiology Training Programme*, <https://www.gov.uk/field-epidemiology-training-programme-fetp#areas-of-work-covered-by-the-programme> [Accessed January 2015]

PHE East Midlands Knowledge and Intelligence Team (2015a), "Training and development of analysts",
<http://www.empho.org.uk/ContactUs/ContactEMKIT.aspx> [Accessed January 2015]

PHE East Midlands Knowledge and Intelligence Team (2015b), "Contact the Knowledge and Intelligence Team (East Midlands)", <http://www.empho.org.uk/ContactUs/ContactEMKIT.aspx> [Accessed January 2015]

PHE East of England Knowledge and Intelligence Team (2015), "Analyst Course",
<http://www.erpho.org.uk/phit/analyst.aspx> [Accessed January 2015]

PHE London Knowledge and Intelligence Team (2015a), "Public health intelligence and training",
<http://www.lho.org.uk/events/KnowledgeIntelligence.aspx> [Accessed January 2015]

PHE London Knowledge and Intelligence Team (2015b), "Staff List",
<http://www.lho.org.uk/AboutUs/ContactUs.aspx> [Accessed January 2015]

PHE South East Knowledge and Intelligence Team (2015a), "Public health intelligence and training",
<http://www.sepho.org.uk/ContactUs.aspx> [Accessed January 2015]

PHE South East Knowledge and Intelligence Team (2015b), "Contact Us",
<http://www.sepho.org.uk/ContactUs.aspx> [Accessed January 2015]

PHORCaST (Public Health Online Resource for Careers, Skills and Training) (2014), “Working with information (public health intelligence)”, http://www.phorcast.org.uk/page.php?page_id=36 [Accessed January 2015]

Royal Statistical Society (2015), “Gain a professional accreditation”, http://www.rss.org.uk/RSS/pro_dev/pro_awards/RSS/pro_dev/pro_awards/Gain_a_professional_accreditation.aspx?hkey=5c7f0f42-f9b0-40f7-ac39-08986cf09662 [Accessed January 2015]

Shape of Training Review (2013), led by Greenaway, D. et al, *Shape of training: securing the future of excellent patient care*, http://www.shapeoftraining.co.uk/static/documents/content/Shape_of_training_FINAL_Report.pdf_53977887.pdf [Accessed January 2015]

Skills for Health (2008a), Introduction to the Public Health Skills and Career Framework (UKPHSCF), www.phorcast.org.uk/document_store/1367423598_MyBF_introduction_to_the_phskf.doc [Accessed January 2015]

Skills for Health (2008b), Guidance and Use of the Public Health Skills and Career Framework (UKPHSCF), www.phorcast.org.uk/document_store/1367423598_PLjr_guidance_and_use_of_the_phskf.doc [Accessed January 2015]

Tran, A. (2012), *Public Health Library and Knowledge Services: Audit Report*, <http://www.apho.org.uk/resource/view.aspx?RID=119057> [Accessed January 2015]

UK Council for Health Information Professionals (2014), “Registration levels”, http://www.ukchip.org/?page_id=3167 [Accessed January 2015]

UK Public Health Register (2013a), “Specialist”, <http://www.publichealthregister.org.uk/specialist> [Accessed January 2015]

UK Public Health Register (2013b), “Practitioner”, <http://www.publichealthregister.org.uk/practitioner> [Accessed January 2015]

UK Public Health Register (2013c), *UKPHR update on revalidation of registrants- June 2013*, http://www.publichealthregister.org.uk/sites/default/files/Press%20release%2031%20Statement%20on%20Revalidation%20June%202013_0.pdf [Accessed January 2015]

Wanless, D. (2004), *Securing Good Health for the Whole Population*, http://webarchive.nationalarchives.gov.uk/20130129110402/http://www.hm-treasury.gov.uk/consult_wanless04_final.htm [Accessed January 2015]

Workforce Review Team (2008), “Public Health Benchmarking Tool”, <http://www.cfwi.org.uk/resources/tools/public-health-benchmarking-tool-2008> [Accessed January 2015]

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