



CENTRE
FOR
WORKFORCE
INTELLIGENCE

Review of the infection prevention and control nurse workforce



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Table of contents

1. Introduction	3
Context	
Structure of this project	6
2. Infection prevention and control nursing.....	7
2.1 Infection prevention and control in England	7
2.2 Definition of an IPC nurse.....	10
2.3 What does an IPC nurse do?	10
2.4 Training and qualification requirements.....	11
2.5 Where does an IPC nurse work?	11
2.6 International comparisons of IPC services	13
2.7 Commissioning of IPC services	13
2.8 Data	16
3. Infection prevention and control interviews – key themes	18
3.1 Interviews	18
3.2 IPC workshop.....	21
4. Modelling demand and supply	Error! Bookmark not defined.
4.1 Supply	Error! Bookmark not defined.
4.2 Demand	Error! Bookmark not defined.
4.3 Summary	Error! Bookmark not defined.
5. Infection prevention and control – next steps.....	23
5.1 Data collection.....	33
5.2 Suggestions for our commissioners	33
6. References	35
7. Appendix A: stakeholder lists	39
8. Appendix B: interview questions	41
9. Appendix C: team structures derived from interviews	42
10. Appendix D: International comparisons of IPC services and incidence	43
11. Appendix E: Data	45

Executive summary

The Centre for Workforce Intelligence (CfWI) has been commissioned by Public Health England (PHE), the Department of Health (DH) and Health Education England (HEE) to improve PHE's and HEE's understanding of the current infection prevention and control (IPC) nursing workforce, and identify workforce planning and development activities required to develop a fit-for-purpose IPC nursing workforce in England over the next 15 years.

Context for this review

IPC nurses work across multiple sectors, meaning there is little central visibility of numbers and staffing related matters. However, there is an increasing incidence of antimicrobial resistance (AMR) in England and so a growing need for the skills this workforce possess.

This project supports the *NHS Five Year Forward View* (NHS, 2014), the *UK five year antimicrobial resistance strategy* and PHE's seven priorities for the five years 2014 to 2019, one of which is **tackling the growth in AMR** (PHE, 2014a).

Project approach

Each phase of the project is outlined below:

1. **Data:** The CfWI has undertaken data collection and desk research on the profession.
2. **Interviews:** The CfWI carried out a total of 19 interviews with healthcare professionals within the field of IPC nursing, to look at the way that this profession works. The findings reflected upon factors such as training pathways, team structures and management support.
3. **Horizon scanning:** The CfWI ran a Horizon Scanning workshop with approximately 10 healthcare professionals. Here, the CfWI gathered the factors and driving forces which affect the demand for IPC nurses.
4. **Skeleton model:** The CfWI created a skeleton model for IPC nursing, showcasing the data needed in order to make future supply forecasts up to 2029.

Key findings

The following reflects the key findings resulting from stakeholder interviews, the horizon scanning workshop and desk research:

- IPC nurses are situated in different organisations, which have different remits and responsibilities for IPC nurses.
- There is no uniformity in person specifications or core competencies for IPC nurses.
- There is no clear defined pathway into IPC nursing and there is no 'set' baseline qualification for IPC.
- There is substantial variability in team structures and IPC service delivery models.

- It is difficult to count the number of IPC nurses within care homes. IPC leads in individual homes are not necessarily IPC nurses, therefore IPC in this care setting requires more in-depth investigation. There is currently no formal national network for IPC nursing.

Summary of suggestions for commissioners

The following are short term suggestions for commissioners to give consideration to, **for the next one to three years**:

- **To review core competencies/leadership:** Core competencies and IPC nursing bandings are inconsistent across employers. It would be beneficial to look at the competencies of IPC nurses across bandings currently, and work towards a uniform set of core competencies for England. This will require looking at the skills of the wider nursing and midwifery workforce. There is a need to build upon existing leadership, ensuring it is cohesive and has clear direction.
- **To introduce a formal national IPC network:** It may be useful for the CfWI's commissioners to work with a professional body to provide a formal national IPC network. This may be useful for IPC nurses to communicate and share ideas, and provide a 'go to' centre for career development news and advice. A formal national IPC network may also help to foster a sense of belonging and professional support for the IPC nursing workforce, and enable revalidation.
- **To undertake a census for IPC nurses:** There is a lack of data for this workforce. It may be useful to either undertake a one-off census for IPC nurses, include a code for IPC nurses on the electronic staff record (ESR) to improve workforce management, or look at compulsory registration to gain better data.
- **To review the wider IPC health and care staff:** There is potential to extend this review to the IPC workforce in general, such as microbiologists and support staff, to investigate how IPC is managed as a whole, and to review issues such as AMR and stewardship.
- **To review IPC across the wider health and social care sector:** For example, there is variation in how IPC is managed within the different sectors, such as how IPC audits are carried out. Further work could also involve a one-off review, by an independent body, of IPC in nursing homes, with the specific objective of identifying the providers of IPC advice to nursing homes and the IPC leads within nursing homes.

The following is a long term suggestion for commissioners to consider **for the next three to five years**:

- **A clearer training route into IPC nursing:** A clearer pathway, including set training requirements and assessment (leading potentially to registration) into IPC nursing would provide certainty about expectations, and perhaps give the workforce a better sense of professional identity.

1. Introduction

Context

The Centre for Workforce Intelligence (CfWI) has been commissioned by Public Health England (PHE), Health Education England (HEE) and the Department of Health (DH) to undertake a review of the infection prevention and control (IPC) nurse workforce in England.

IPC nurses work across multiple sectors, meaning there is little central visibility of numbers and staffing-related matters. However, there is an increasing incidence of antimicrobial resistance (AMR) in England and so a growing need for the skills this workforce possess. Effective IPC practice will minimise the risk of infection and negate the need for antibiotics.

The objectives of this project are to:

1. *Improve DH's, PHE's and HEE's understanding of the current IPC nurse workforce.*
2. *Identify workforce planning and development activities required to develop a fit-for-purpose IPC nurse workforce over the next 15 years.*

The *NHS Five Year Forward View*, published in October 2014 (NHS, 2014), has a focus on prevention:

“ The first argument we make in this Forward View is that the future health of millions of children, the sustainability of the NHS, and the economic prosperity of Britain all now depend on a **radical upgrade in prevention and public health**. Twelve years ago Derek Wanless' health review warned that unless the country took prevention seriously we would be faced with a sharply rising burden of avoidable illness. That warning has not been heeded – and the NHS is on the hook for the consequences. ”

PHE recently published its strategic document, *From evidence into action: Opportunities to protect and improve the nation's health* (PHE, 2014a). This document reveals where PHE will focus on securing improvements against seven priorities over the next five years, which are:

- tackling obesity particularly among children
- reducing smoking and stopping children starting
- reducing harmful drinking and alcohol-related hospital admissions
- ensuring every child has the best start in life
- reducing the risk of dementia, its incidence and prevalence in 65- to 75-year-olds
- **tackling the growth in AMR**
- achieving a year-on-year decline in TB incidence.

This current review is relevant to the second to last bullet point of PHE's seven priorities.

This report also supports the *UK Five Year Antimicrobial Resistance Strategy 2013 to 2018* (DH, 2013a), which brings together multiple agencies, looking at AMR from a global perspective, including the links between animal and human health, supporting and linking in with work from the World Health Organization (WHO) such as the draft global action plan for antimicrobial resistance to the 68th World Health Assembly in May 2015

(WHO, 2015). The UK's commitment to tackle AMR focuses on the following seven key areas for future action (DH, 2013a):

1. improving infection prevention and control practices
2. optimising prescribing practice
3. improving professional education, training and public engagement
4. developing new drugs, treatments and diagnostics
5. better access to and use of surveillance data
6. better identification and prioritisation of AMR research needs
7. strengthened international collaboration.

Structure of this project

This document is the final report which concludes the work undertaken by the CfWI to review the IPC nurse workforce. Each phase of the project is outlined below, and the outcomes from each of these phases have been incorporated into this current report.

1. **Data:** The CfWI has undertaken data collection and desk research on the profession.
2. **Interviews:** The CfWI carried out a total of 19 interviews with healthcare professionals within the field of IPC nursing, to look at the way that this profession works. The findings reflected upon factors such as training pathways, team structures and management support.
3. **Horizon scanning:** The CfWI ran a Horizon Scanning workshop with nine healthcare professionals. Here, the CfWI gathered the factors and driving forces which affect the demand for the specialism, and subsequently grouped these into the key themes affecting the workforce. The workshop investigated both the current and future demand, looking forward to the year 2029.
4. **Skeleton model:** The CfWI created a skeleton model for the specialism, showcasing data needed in order to make future supply forecasts up to 2029.

2. Infection prevention and control nursing

2.1 Infection prevention and control in England

Clinically effective IPC practice has a central role in health care, social care and public health services. Patients receiving health and social care are at risk of developing an infection due to their potentially compromised state of health, underlying medical conditions, or contact with health care interventions such as surgery, diagnostic testing or invasive devices. In addition, health and social care settings can provide ideal conditions for micro-organisms to be transmitted between those who receive and give care. The close proximity and contact between each party and the continuous contact in a shared working and living environment can contribute to transmission.

There are two main IPC areas of concern within health and social care and these are healthcare associated infections (HCAIs) and antimicrobial resistance (AMR). These are receiving growing attention from organisations such as the NHS and PHE, as an increasing threat to the population's health and a growing strain upon England's healthcare system.

Healthcare associated infections (HCAIs)

The term HCAI covers a wide range of infections and micro-organisms. The most well-known include those caused by meticillin-resistant *Staphylococcus aureus* (MRSA), meticillin-sensitive *Staphylococcus aureus* (MSSA), *Clostridium difficile* (*C.difficile*) and *Escherichia coli* (*E. coli*). HCAIs cover any infection contracted:

- as a direct result of treatment in, or contact with, a health or social care setting
- as a direct result of healthcare delivery in the community
- as a result of an infection originally acquired outside a healthcare setting (for example, in the community) and brought into a healthcare setting by patients, staff or visitors and transmitted to others within that setting (for example, norovirus).

Therefore HCAIs can develop either as a direct result of healthcare interventions such as medical or surgical treatment, or from patients, staff or visitors being in contact with a healthcare setting. HCAIs pose a serious risk to patients, clients, staff and visitors to health and social care premises. They can result in significant costs for the NHS and others; an estimated cost to the NHS is at least one billion pounds annually (NAO, 2009), and they cause significant morbidity and mortality for those infected. In 2007, HCAIs affected more than 300,000 patients in England and *C. difficile* infections alone were recorded as causing 9,000 deaths (NAO, 2009). Across Europe, around 25,000 people die each year as a result of hospital infections caused by resistant bacteria, adding €1.5 billion to hospital, treatment and societal costs (EMEA-ECDC, 2009).

IPC is a key priority for the NHS, and PHE has a responsibility to advise and support the NHS and others in their efforts to prevent HCAIs and any associated risks to health. Preventing and reducing rates of HCAI involves IPC and using evidence-based interventions; and reducing HCAIs remains high on the Government's safety and quality agenda and the public's expectations for quality care (DH, 2013a). All health and social care organisations have to demonstrate how they comply with the 10 criteria against which the CQC will judge the

registered provider on how they comply with the cleanliness and infection prevention requirements as set out in the *Code of Practice* within the Health and Social Care Act 2008 (DH, 2010), the regulations of which have since been updated¹. Furthermore, the Infection Prevention Society (IPS) and Royal College of Nursing (RCN)'s joint report: *Infection prevention and control within health and social care*, a report focused on commissioning, highlights the key national agencies and the current IPC policy priorities, which include a focus on preventing HCAs (RCN, 2015).

Some key policies and programmes for helping to meet the challenge of reducing and sustaining the reduction in HCAs include:

- the NHS mandate (DH, 2013b)
- the UK five-year antimicrobial resistance strategy 2013-2018 (DH, 2013a)
- Care Quality Commission (CQC) registration requirements (CQC, 2009)
- risk assessment framework (Monitor, 2013)
- Everyone counts: planning for patients 2014/15 to 2018/19 (NHSE, 2013a)
- Commissioning for quality and innovation (CQUIN): 2013/14 guidance (NHSE, 2013b)
- health building notes, technical memoranda and the Choice Framework for local Policy and Procedures (CFPP) that form a suite of evidence-based policy and guidance documents on the management and decontamination of reusable medical devices (DH, 2013b)
- the Quality, Innovation, Productivity and Prevention (QIPP) collection of case studies designed as a resource and examples of good practice
- National Institute for Health and Clinical Excellence (NICE) guidelines or quality statements e.g. NICE Quality Standard - Infection prevention and control

Also of importance are the recommendations to come out of the Francis Report (recommendations 106,107 and 108), which reflect the importance of performance management for HCAs and adequate management of HCAs to ensure the safety of patients and the public (Mid Staffordshire NHS Foundation Trust, 2013).

Important to consider is that more care is being delivered in community settings including people's homes and less through long stays in acute hospitals (NHS, 2014). This has implications for both the transmission and management of infectious diseases. **As this focus changes, prevention and management strategies also have to change, as the importance of infection control in home care and community care increases.**

PHE centres have a strategic role. They monitor the numbers of certain infections that occur in healthcare settings through routine surveillance programmes, and may advise on how to prevent and control infection in establishments such as hospitals, care homes and schools, but they do not provide routine IPC advice. Surveillance programmes are important as they provide essential information on what and where the problems are, and how control measures are working. PHE centres also have a responsive role (for example responding to outbreaks of infections) and a role in providing written guidance (for example briefing papers).

The *Annual Report of the Chief Medical Officer, 2011* (DH, 2012) explains that there has been much success in reducing mortality and morbidity from HCAs over the last two decades. There have been marked reductions in the incidence of two bacteria responsible for some HCAs, *C. difficile* and MRSA, which have been part of the mandatory national surveillance programme. The Office for National Statistics (ONS) reports that the number of death certificates mentioning MRSA in England and Wales decreased from 1,230 in 2008 to 292 in 2012

¹ <http://www.legislation.gov.uk/ukdsi/2014/9780111117613/regulation/12>

(ONS, 2013a). The ONS reports that the number of death certificates mentioning *C. difficile* in England and Wales have decreased from 5,931 in 2008 to 1,646 in 2012 (ONS, 2013b). By the end of March 2008 the NHS had achieved a 57 per cent reduction in MRSA bloodstream infections against the 50 per cent national target set in 2004 (NAO, 2009). This has been due in part to initiatives such as better control of antibiotic prescribing, hand-washing and hygiene protocols and consistent, meticulous, intravenous central line care. However the *Annual Report of the Chief Medical Officer* acknowledges that a lot more still needs to be done (DH, 2012) and policy needs to focus from a concentration on MRSA and *C. difficile*, towards the inclusion of other significant infections.

Antimicrobial resistance

Antimicrobial resistance (AMR) is resistance of a micro-organism to an antimicrobial drug that was originally effective for treatment of infections caused by it. AMR hampers the control of infectious diseases so patients remain infectious for a longer time, increasing the risk of spreading resistant micro-organisms to others. It also increases the cost of healthcare, jeopardises healthcare gains to society and has the potential to threaten health security, and damage trade and economies.

Infections caused by resistant organisms are becoming increasingly difficult to treat. The increase in infections caused by multi-drug resistant (MDR) bacteria means that we could be close to reaching a point where we may not be able to prevent or treat everyday infections or diseases. Coupled to this, the development pipeline for new antibiotics is at an all-time low (DH, 2013a).

The *UK Five Year AMR Strategy* (DH, 2013a) highlights that the system needs to get to a point where:

- good infection prevention and control measures to help prevent infections occurring become the norm in all sectors of human and animal health
- infections can be diagnosed quickly and the right treatment used
- patients fully understand the importance of antibiotic treatment regimens and adhere to them
- surveillance is in place which quickly identifies new threats or changing patterns in resistance
- there is a sustainable supply of new, effective antimicrobials.

On European Antibiotic Awareness Day (18 November 2014), NHS England's Director of Patient Safety, Dr Mike Durkin, highlighted the need to respond to the threat that AMR presents to the future of global healthcare (NHSE, 2014). He explained that:

- Healthcare workers have a vital role to play in preserving the effectiveness of antimicrobials and in controlling and preventing the spread of infections that require antibiotic treatment. The more that can be done to prevent infections and control their spread, the less need there is for antibiotics and there is less opportunity for antimicrobial resistant strains to develop.
- Antibiotic prescribing and antibiotic resistance are inextricably linked; overuse and incorrect use of antibiotics are major drivers of resistance. However, where infections do occur, quick diagnosis and the appropriate use of antibiotics is vital, particularly in the urgent treatment of life threatening conditions such as sepsis.
- There are a range of tools and guidance available to assist healthcare providers and their staff with IPC and antibiotic prescribing.
- For commissioners, such as NHS England, it is essential that they are doing all that they can to drive improvement in IPC practices and antimicrobial stewardship programmes that reduce HCAs and AMR.
- Commissioners must ensure they have access to specialist IPC advice and that they work closely with local authorities and PHE centres which provide a wealth of local intelligence on services, such as

timeliness and completeness of mandatory surveillance and voluntary reporting of antibiotic susceptibility data.

Furthermore, the RCN has published a position statement on the contribution of nursing to AMR (RCN, 2014a). Their publication describes the contribution that nurses and nursing can make at an international, national and local level to reduce the risk of AMR.

2.2 Definition of an IPC nurse

All nurses must be registered with the Nursing and Midwifery Council (NMC), enabling them to practice. An IPC nurse is a registered nurse working as an IPC nurse either full time or part time. There are no additional set qualifications beyond nursing training and registration. Currently, there is no national definition of what an IPC nurse does, so it is difficult to describe the full remit of what an IPC nurse may do, but outlined below is an overview. Due to lack of data, the number of IPC nurses currently working within England is not known.

2.3 What does an IPC nurse do?

An IPC nurse has an enabling role in ensuring that IPC is addressed in all areas of the medical/social care setting and reflected throughout all activity related to care provision. They also support and educate others. Nurses ensure risks of infection are identified throughout all departments and monitor and prevent the acquisition and spread of infection throughout the hospital/other setting. Although IPC nurses have a leadership role and do lead programmes, they cannot be held responsible for an organisation's success or otherwise. The organisation is responsible for improvements in IPC as it is reflective of their culture. IPC nurses may also be involved with the collection and collation of data relating to HCAs, including MRSA and *C. difficile*. They may review infection control policies, analysing ways that they can be improved upon. The Infection Prevention Society (IPS) provides information on competencies for the role of IPC practitioners, however this is not specific to IPC nurses (IPS, 2011).

Band 5, 6 and 7 nurses have the more operational role. These nurses typically review data to identify new or recurrent cases of infections, for example *C. difficile*. They liaise with other nurses and conduct audits and infection control training. Band 6 and 7 nurses have a more strategic role. For example, they may provide guidelines for their organisations and develop strategies for organisations and public enquiry papers. Band 8 nurses tend to have a managerial role and support more at the strategic level, and some roles may be combined with other roles such as deputy or assistant director of nursing. IPC nurses may also work as IPC nurse consultants or within national strategic roles (such as the PHE operational HCAI lead nurse and the RCN professional lead in IPC). Within CCGs, the leads for quality will generally be a nurse, and in some circumstances this will be someone with IPC knowledge/experience.

Public Health England (PHE)

Health protection (HP) nurses work within PHE and can have an IPC function. This is a strategic and reactive role, and includes service planning, development and implementation of policies, protocols, procedures and guidelines, and reactive responses. HP nurses oversee the processes for contact tracing, follow up and control, in the context of outbreaks, and other health protection incidents. They also play a major role in the management and control of complex/major outbreaks of communicable disease led by consultant colleagues. In addition, they may work as advisors to organisations where specific infections may have occurred, such as some HCAs, supporting and advising other staff members. The CfWI included HP nurses within this review, as they may have a background in IPC, and elements of IPC and antimicrobial resistance may be included within

an HP nurse's remit. However it is important to note that there is a clear difference between an IPC nurse and an HP nurse.

Emergency responses

HP/IPC nursing staff are also needed for emergency preparation and response to possibly threatening infections, such as MERS-CoV (Middle East Respiratory Syndrome Coronavirus; a viral respiratory disease), and most recently the Ebola outbreak in March 2014, as led by PHE. The WHO has since produced an *Infection Prevention and Control guidance document for Ebola* in August 2014 (PHE, 2014b). PHE also issued the *EBOLA Guidance for Emergency Departments* updated in December 2014 (PHE, 2014c) and the *Communicable Disease Outbreak Management*, August 2014 (PHE, 2014d). PHE's emergency response system needs to be fluid so that it can access a bank of experienced IPC nurses when needed, as there are limited IPC nurses within PHE. The UK response system may benefit from offering IPC nurses outside of PHE the opportunities to be deployed internationally. In order to cater for emergency responses, it is also important that there is an awareness of where IPC nurses work and their numbers and demographics both now and in the future.

2.4 Training and qualification requirements

There is no clear defined pathway into IPC nursing and no 'set' or baseline qualification for IPC nursing. An IPC nurse must be registered with the NMC, enabling them to practice, but there are no additional mandatory qualifications beyond nursing training and registration. There is also no person specification or standard job description for IPC nurses. There are however various optional courses and modules available, aimed at IPC nurses to increase their knowledge. This may be at a Masters or PhD level, or through gaining 60 credits in level two undergraduate modules. Experience in management is also seen as important for IPC nursing. Educational courses vary and are undertaken based on individual need, funding and availability.

Dependent on funding, continuing professional development (CPD) courses may be offered to IPC nurses by their organisation. The IPS hosts some information on its website², but there may be discrepancies on the list as at December 2014. For example, the University of Chester no longer runs the course advertised at this time (CfWI, 2014b). The IPS list (IPS, 2015) may also not feature all the courses which are available, since the IPS makes contact with course organisers and only those that want to be advertised on the website are then featured.

2.5 Where does an IPC nurse work?

IPC nurse expertise is needed in a variety of settings in health and social care including, but not limited to, primary care, acute, mental health and ambulance Trusts, and care home settings. It is difficult to know how many IPC nurses work where, since IPC nurses cannot be identified specifically on the NMC register or the electronic staff record (ESR), and they work in a wide variety of settings, often managed by different organisations. For example, it is difficult to count the number of IPC nurses within care homes since the IPC leads there are not necessarily IPC nurses. There is a requirement in the *Code of Practice* for nursing homes and other non-secondary-care providers to have a nominated IPC lead (DH, 2010). This is not always an experienced IPC nurse and many providers use link nurses to fulfil this role. Link nurses may not have direct access to an experienced IPC nurse for specialist advice; it is more likely that they would have access within a

² <http://www.ips.uk.net/>

Trust than within a care home, reflecting the different ways of working in primary and community care. There are currently no data available in relation to this and therefore the demand for IPC specialist knowledge/expertise in primary care settings.

Structure of teams

Where applicable, IPC stakeholders and other healthcare professionals interviewed during the course of this study gave information about the structure of the IPC team in which they worked. Limited national guidelines for team structures exist, and from the information gathered from stakeholders, there does not appear to be a 'typical' team structure, but each is dependent upon the size and structure of the organisation. Previous guidance was included in the Cooke report (DH, 1995) but this has never been updated. Guidelines on team structures would be useful for under-resourced trusts.

Generally, each team will feature a lead/senior nurse (band 8), however the rest of the team (which may include a range of other roles such as infection control doctor, medical microbiologist, surveillance/audit nurse, data entry clerk and admin support) will depend solely on the organisation. The Director of Infection Prevention and Control (DIPC) is a role required by all registered NHS care providers under the Health and Social Care Act 2008. Interviewees tell us that a DIPC can come from various backgrounds – for example, they may be a microbiologist, nurse, or a director of nursing, and so on. IPC nurse representatives within clinical commissioning group (CCG) boards are not mandatory, it is only mandatory for a nurse to be part of one.

The CfWI's interviews showed that variation in team size is observable, and some IPC nurses worked on their own within organisations. More information about the team structures of the people interviewed for this project is available in Appendix C.

Link nurses

Link nurses (LNs) can be part of the IPC team structure. LNs are traditionally defined as 'practising nurses with an expressed interest in a specialty and a formal link to specialist team members' (MacArthur, 1998). In addition to LNs having an interest in particular specialist areas, such staff are often known through their leadership at the local clinical level as an acknowledged 'link' or 'contact person' (RCN, 2012).

They actively nurture relationships between their relevant specialist team and those working in the local clinical environment (ward, department, care home or other setting) and undertake specific tasks or roles, as required, within their sphere of responsibility. Recognised by colleagues for their unique function and contribution, and with support from their managers, such voluntary roles have the potential to support patient safety strategies through the dissemination of knowledge and best practice in healthcare settings. LNs are commonly used to support many areas of specialist nursing practice within the UK. Practice areas which utilise LNs include diabetes, tissue viability, pain, nutrition and **IPC**.

The LN role can be used variably within hospital and community settings in the NHS and the independent sector. Variability can occur in the title used for such a role; for example they may also be known as a champion, nurse, practitioner, liaison or support person. Similarly, there is variability in the prerequisites for undertaking the role, including nursing role/grade or qualification (registered or unregistered nurse and completion or undertaking of a predefined educational course). It would be useful to investigate the role of the LN within IPC in more detail.

2.6 International comparisons of IPC services

As part of this project the CfWI undertook desk research to investigate international comparisons of IPC practice in other nations, where they could be identified. The CfWI found that Canada and the United States (US) are notable since they offer certification for staff working within IPC, which in turn means a clearer career pathway. An effective strategy to improve IPC in England could well benefit from these international examples, be tailored to England's particular epidemiology and health system, and build on current examples of good practice. A full analysis of IPC in Canada and the US is provided in Appendix D.

2.7 Commissioning of IPC services

Interviews with stakeholders for this project suggest that there are difficulties in the different commissioning arrangements as they are not uniform across England, and are particularly problematic within the community setting. IPC is not commissioned separately – it is included within the NHS 'standard contract' between provider and commissioner. This ties in with IPC nurses within different areas and organisations carrying out different work, e.g. some areas do not undertake surveillance work, and concentrate more on audits, others concentrate more on GP settings, and different areas can be seen to provide different levels of resource. One example provided from an interviewee was that an IPC nurse working within a local authority will be undertaking an audit of all the care homes in their area over the next two years. This was not because it was a requirement, but because they personally felt it was important to do so. The ways that IPC is commissioned are outlined below:

- **Local authorities** commission IPC in care homes without nursing, and this is capped financially. The NHS will pay for IPC staffing specifically for people in care homes that have 'health needs'. Interviewees suggest that sometimes there is a lack of IPC knowledge and expertise in local authorities, as commissioning support units (CSUs) can only offer support to CCGs. These different funding pathways lead to financial and commissioning complexity. Occasionally an IPC audit is undertaken in a care home, if the CCG quality manager or quality officer identify infection control issues.
- **NHS England** commissions IPC in dental surgeries, GP practices, pharmacies, community optometrist practices and other community healthcare organisations.
- **CCGs** commission IPC services within secondary care, community services, mental health services and rehabilitative services.

Many CCGs will not have an IPC nurse and there is no duty placed upon them to do so. As mentioned in section 2.3, the leads for quality tend to be nurses who would then also lead on IPC. Interviews undertaken by the CfWI suggest that where there is no IPC representative within the CCG, it can be difficult to get the right advice locally. The importance of IPC varies amongst CCGs. For instance, one interviewee explained their CCG has plans to ensure robust HCAI control. However, other CCGs do not have this sort of arrangement (see RCN, 2015).

Some interviewees felt that if all IPC nurses working within different sectors were commissioned by a single commissioner, then it would be unmanageable, since there are many services over a wide range of organisations. Many interviewees feel that IPC is a very specialist role. The main focus should instead be keeping **key expertise** available within commissioning, which may be because of the loss of the traditional Primary Care Trust (PCT) provider's infection control nurse role. PCTs used to be part of the NHS in England from 2001 until 31 March 2013 when they were abolished under the Health and Social Care Act 2012, and

their work taken over by CCGs. PCTs were largely administrative bodies, responsible for the commissioning of primary, community and secondary health services from providers, and until 31 May 2011 also provided community health services directly.

NHS providers are regulated by the CQC and commission NHS services which are compliant with CQC registration requirements and deliver services in line with standards outlined in the *Code of Practice* (DH, 2010). GP and care services are also regulated by the CQC and have similar requirements but these are proportional recognising the difference between primary and secondary providers and risk. Commissioning services may wish to assure themselves that the services that they commission are meeting expected requirements, and this may involve contract monitoring of the service. In doing so, commissioners must make it clear to the provider that this does not replace or duplicate the regulatory role of the CQC.

The Care Quality Commission (CQC) and IPC in adult social care

Early in 2013, the CQC set out its vision, strategy and direction for the three years to 2016, in a report entitled *A new start* (CQC, 2013). This guidance describes the new approach to inspection of health and social care services from October 2014. The new operating model for inspections involves the exploration of five key questions, which are:

1. Is the service safe?
2. Is the service effective?
3. Is the service well led?
4. Is the service caring?
5. Is the service responsive?

The guidance describes the model for adult social care, and the operating model for dentistry is expected to be similar (CQC, 2014). The CQC (2013) is working with health and social care providers to define what the questions mean for each sector.

The CQC (2014a) describes the key lines of enquiry (KLOE) under each key question in relation to adult social care. IPC falls under the key question: 'Is the service safe?', which applies to the following areas to be inspected:

1. How people are protected from bullying (S1)
2. How risks to individuals are managed (S2)
3. How the services make sure there are sufficient staff (S3)
4. How people's medicines are managed (S4)
5. How well are people protected by the prevention of infection (S5)

KLOE S1-S4 are mandatory and inspectors must look at these areas each time they conduct an inspection. **KLOE S5, prevention of infection, is not mandatory and inspectors do not have to inspect this area.**

These changes in CQC's approach raise the following issues for IPC:

- The adequate monitoring of IPC standards in adult social care.
- Dental practices: these may be left several years before being inspected by CQC, as the approach for dental inspections has yet to be published. **However**, commissioners are responsible for ensuring NHS-commissioned dental services meet the *Code of Practice* (DH, 2010) requirements.

- Occupational health checks: this area in the past has not been reviewed during CQC inspections and is critical for IPC (e.g. sharp injuries, Hep B vaccination). However no change has been suggested by the CQC to improve inspections in this area.

Monitor

Monitor is the sector regulator for health services in England and its job is to make the health sector work better for patients. As well as ensuring that independent NHS foundation trusts are well led so that they can deliver quality care on a sustainable basis, Monitor also works to ensure that:

- essential services are maintained if a provider gets into serious difficulties
- the NHS payment system promotes quality and efficiency
- patients do not lose out through restrictions on their rights to make choices, through poor purchasing on their behalf, or through inappropriate anti-competitive behaviour by providers or commissioners.

Monitor's role as sector regulator includes overseeing governance at NHS foundation trusts. As part of this, it uses a specified set of national metrics as proxies for overall standards of governance, including rates of *C. difficile* infection. Where third parties bring information to the regulator, such as infection outbreaks, it will consider whether it is evidence of underlying governance issues. Monitor considers it a matter of routine reporting for trusts to highlight any risk to achieving their targets, including those relating to infection control.

The NHS Trust Development Authority (NHS TDA)

The NHS Trust Development Authority (NHS TDA) provides support, oversight and governance for all NHS Trusts on their journey to delivering what patients want: high quality services today, secure for tomorrow. The range of services provided by NHS Trusts covers the whole spectrum of healthcare, including acute hospitals, ambulance services, and mental health and community providers. The goal of the NHS TDA is to help each NHS Trust improve the services they provide for their patients.

Their key functions include:

- Monitoring the performance of NHS Trusts, and providing support to help them improve the quality and sustainability of their services
- Assurance of clinical quality, governance and risk in NHS Trusts
- Supporting the transition of NHS Trusts to Foundation Trust status
- Appointments to NHS Trusts of chairs and non-executive members and trustees for NHS charities where the Secretary of State has a power to appoint.

The NHS TDA Quality Team provide day-to-day support and advice on safety through their established work on IPC. Their regional infection leads continue to work closely with organisations providing day-to-day advice and routine information on emerging issues, linking in to key networks such as DIPC forums, or more hands-on support visits to NHS Trusts, working in close collaboration with key partners such as CCGs, NHS England and PHE.

2.8 Data

The number of IPC nurses is currently unclear, but we can look to a number of sources to gain rough estimates.

Nursing and Midwifery Council (NMC)

The NMC could only provide the CfWI with qualification data for 2002–2003 taken from qualification codes from its predecessor body the English National Board (which became the NMC in 2002). These data also include double counting as staff may have more than one qualification. There were 577 staff with qualifications in infection control in the year 2002–2003, however this is unlikely to be reflective of current numbers as it is now very out of date. Please see Appendix E for more details.

IPC staff by Primary Care Trust

The number of IPC staff (not specifically IPC nurses) employed by PCT trusts across England in November 2012 (before the transition of the Health Protection Agency (HPA) to PHE and the re-organisation of the health and social care system in England) has been provided by PHE. This count was undertaken to see which staff were transferring to another organisation after April 2013, under the re-organised system.

Of the 66 respondents that completed the section on who would be transferring, 70 per cent said they would not be transferring compared with 30 per cent who said they would be. Of the transferring respondents who stated their new place of work, more than half said they would be moving to a CCG (56 per cent), some to the local authority (17 per cent) and the remainder to either PHE, a county council or within community services (combined 6 per cent). This indicates the potential fragmentation of the workforce resulting from the transmission, although the sample size for this survey is small and may therefore not be a reliable indicator for destination.

The recently published *Infection prevention and control within health and social care: commissioning, performance management, and regulation arrangements* (RCN, 2015), shows concerns of ‘loss of experience and fragmentation’ for the IPC nurse workforce, as a result of restructuring following implementation of the Health and Social Care Act 2012. The IPS and RCN acknowledge that many specialist IPC nurse posts were lost as a result of transfers to a variety of employing organisations, for example NHS England, CCGs, LAs, CSUs, etc. No data or guidance on the level of current specialist IPC support required is available to these employing organisations. Concerns remain relating to how effective communication is between multiple organisations involved in commissioning and assurance of safety.

Infection Prevention Society (IPS)

In October 2014, there were 1,589 UK members of the IPS (IPS, 2014) and 1,285 England members. However the IPS register does not include the total IPC workforce – annual membership cost £70 in 2015. The IPS was formed in 2006 from the Infection Control Nurses Association (ICNA), where the membership was expanded to include any health professionals employed in the field of IPC. The IPS has a charitable status and its main focus is education. It also works to develop a clear strategy for all those with an interest in IPC. Further to this, it informs, promotes and sustains expert infection prevention policy and practice in the pursuit of patient or service user and staff safety wherever care is delivered.

Skills for Care

Skills for Care, the employer-led workforce development body for adult social care in England, has recorded the number of nursing staff within care homes with nursing that have 'Infection Control' as one of their training categories. These data are stored on the National Minimum Data Set for Social Care (NMDS-SC) which provides information for approximately 25,000 care-providing establishments and 750,000 workers in England.

The NMDS-SC dashboards show there were 2,401 nurses who self-reported as being trained in 'Infection Control' within care homes as at November 2014. Table 1 below shows the number of incidences/sessions of infection control each nurse has undertaken. This is greater than the number of workers, since a nurse can undertake more than one session in Infection Control.

Table 1: Infection Control training of registered nurses in care homes with nursing by sector

	Number of incidences/session	Number of workers
Total	4,578	3,929
Statutory local authority	2	2
Private sector	4,241	3,653
Voluntary or third sector	272	225
Other	63	49

Source: NMDS-SC, November 2014

Whilst these data are not a full picture (data for the NMDS-SC accounts for around 55-60 per cent of all care home establishments and workers), it does shed some light on the potential number of IPC nursing staff within care home establishments that include nursing. Although the number of IPC nurses is not known. Breakdowns by age and gender are available in Appendix E.

Potential risks/gaps in the data

The number of IPC nurses in England is currently unknown, since registration is not mandatory. The Health and Social Care Information Centre (HSCIC) does not hold specific data relating to job roles or occupation codes that currently allow for separate identification of IPC nurses working in the NHS or elsewhere. Other data that have been accessed by the CfWI are not up-to-date, and it is difficult to know for certain how many people are in the IPC nurse workforce since training routes and qualifications are unclear.

IPC is not considered a speciality area at a wider European level. However, the European Centre for Disease Control (ECDC) has published core competencies for infection control and hospital hygiene professionals in the European Union and has published a tender on the development of an educational strategy for IPC in Europe, due in 2016 (ECDC, 2013).

3. Infection prevention and control interviews – key themes

3.1 Interviews

A total of 19 interviews were conducted with IPC nurse representatives. A list of all the people interviewed is available in Appendix A. The interviews were semi-structured. A list of the main questions are available in Appendix B.

Various themes and points have been picked out from the detailed responses gained from these interviews. Below is a list of the themes which the CfWI understands to be the most prominent from the interviews undertaken.

No definitive career pathway/no qualifications needed

Everyone interviewed for this project said that there is no typical career route and person specification for this role. National guidelines for competencies and a minimum criteria for the job, in terms of qualifications, would be helpful in addition to European competencies. Relevant to this point, but external to the interviews is *The Vale of Leven Hospital Enquiry Report (2014)*. This report, into a serious outbreak of HCAI in West Dunbartonshire, was published on 24 November 2014. The enquiry report, alongside the Stoke Mandeville report (Healthcare Commission, 2006) and the Francis report recommendations (The Mid Staffordshire NHS Foundation Trust, 2013) outline the need for qualified IPC nurses.

Whilst specific qualifications are not needed, relevant experience is. Managerial experience is also beneficial within IPC nursing. Whilst post-registration education and practice (PREP) is mandatory for all nurses, CPD is not offered for all practitioners within IPC nursing; it is reliant on healthcare/hospital trusts funding the courses. One interviewee mentioned that more leadership courses are needed for band 8 nurses, as these bandings are not necessarily receiving the most workforce development.

Uncertainty regarding required qualifications can often act as a barrier to recruitment into the workforce. There are a limited number of diploma level courses covering IPC, so generally anyone interested in this area of nursing will need to be trained accordingly. CPD is largely offered during working hours for this profession, though funding can limit the opportunities offered. More consistent training pathways may make this career more attractive and increase workforce morale which, in turn, may improve patient outcomes.

Lack of staffing

Our interviewees explain that several trusts have frozen IPC nurse posts, advertised posts at lower grades, or filled posts with agency staff. There is a lack of IPC doctors in trusts due to budget constraints. Teams are viewed as getting smaller and IPC is seen as a job role that is 'going out of fashion'. For lead IPC nurses, most hospital trusts need to attract band 8a/b grade nurses but will find they have to 'grow their own' instead of finding them externally. Our interviewees also tell us that there has been a significant reduction in IPC nurse posts from 2013, with few posts transferring to CCGs, particularly in London. Some nurses also carry out all their own administration work, due to cuts to admin staff.

Greater PHE support

Some interviewees felt they no longer have the support of PHE that is needed. One suggested that IPC services should be more public health focused.

Antimicrobial resistance (AMR)

AMR continues to be a threat internationally which could increase the demand for this role. IPC nurse requirements may increase as a result of higher incidences of blood borne viruses, AMR and drug resistant TB. Correct prescribing and administering of antibiotics is key, with stakeholders expressing concern over the inappropriate prescribing of antibiotics in some instances. Our interviewees also told us that it is difficult to measure prevention and infection measures e.g. infection rates. The RCN has published a position statement on the contribution of nursing to AMR (RCN, 2014a), and the *UK Five Year AMR Strategy 2013 to 2018* (DH, 2013a) lays out the impact of AMR on IPC practice.

Lack of leadership and national forums

Interviewees told the CfWI it would be beneficial if NHS, PHE and the CQC had joint forums where they could meet quarterly, or something similar to the Patient Experience Network (PEN) previously hosted by the NHS Institute for Innovation and Improvement, which closed on 31 March 2013. There are several London IPC networks, but it varies across the country. The RCN has a virtual IPC network for any member that has an interest in infection prevention, regardless of practice setting or role. Through its informal structure, the network allows members to participate according to their need and availability. Although this may be a useful resource for IPC nurses, it is not a professional network run by IPC nurses.

There is a need for more visible leadership at a national level. Currently, interviewees tell us there are few conferences where the focus is on infection prevention and control. However, the IPS has an annual conference and regional study days, PHE has an annual conference and so too does the Federation of Infection Societies. This may suggest that there is a need for conferences to be better advertised to IPC nurses.

IPC staff work across many different areas

One of the main issues is that IPC nurses are situated in varying organisations, which all have contrasting remits and responsibilities. Each organisation will have a different remit for what staff are allowed to do, so as IPC nurses are all managed by different people, with varying approaches on how things should be done, it is hard to set a common goal.

The Commissioning Toolkit (RCN, 2014b) provides indicators which aim to help organisations understand, compare, predict outcomes and improve care, and this is currently being updated. Organisations should align contractual requirements to compliance with *The Operating Framework for the NHS in England 2012-13* (DH, 2011), used to assist in the delivery of the *Public health outcomes framework* (DH, 2013c). Indicators should reflect requirements to implement best practice guidance set at national, regional and local levels, and to ensure that the priorities for IPC are in the contracts. The establishment of separate national guidelines, with contribution from the Infection Prevention Society, may be helpful.

When issues are raised in relation to private practices such as private dentists, the IPC role is less clear, although private practices still have to demonstrate compliance with the *Code of Practice* (DH, 2010). Changes in NHS systems mean there is a slight gap around governance. IPC staff should contribute to part of the quality

assurance framework, reporting to the Director of Public Health in a local authority. This structure works where providers are contracted by the NHS, however it is not as clear with private providers as there is no mandate governing this. Interviewees say that if there is a problem then there is an expectation that the CQC will get involved.

The report *Infection prevention and control within health and social care: commissioning, performance management, and regulation arrangements* recently published by RCN and IPS (2015) is principally concerned with the commissioning of IPC across organisations, but acknowledges that there is disparity amongst organisations in the way IPC is managed. The RCN and IPS express concerns that ‘there may be inconsistencies across organisations on their approaches to IPC simply because so many different organisations have a role to play in IPC’. Important to note is that this is in regards to IPC as a whole and not specifically IPC nurses.

Local authorities and county councils work differently to the NHS/PHE

One interviewee explained that local authorities and county councils pay less than the NHS for health protection roles – which would benefit from better, more uniform job descriptions. It is believed that such roles also need to be better established, but there are a lack of people entering them to ‘establish’ them. Lone working in community local authorities was also commonplace to some interviewees. Further differences are noted by another interviewee; IPC nurses that sit within the council are not able to access a patient’s medical notes unless they have explicit consent from the patient, unlike a nurse based within a hospital.

There is a view that the DH and government advise that every local authority and every county council have an expert in health protection and infection prevention, to ensure the development of the role. The interviewees expressed that it would be beneficial if each council were to fulfil the health protection role in public health by employing a clinically trained nurse or doctor.

IPC management in the care sector is varied

The Registered Nursing Home Association (RNHA) in England regularly reminds its members to have an IPC lead within their conferences. However, how this works in practise is hard to know. Privately owned versus corporately owned nursing homes do not always work together unless engaging in conferences. Anecdotally, corporate nursing homes (nursing homes which are part of a chain or group) have regional management approaches to IPC, using software systems. In singular owned/independent care homes, IPC management sits with the owner or the registered provider.

One interviewee expressed that services like care homes may increasingly ‘buy in’ IPC expertise when needed, so consultancy staff would do IPC roles within the local authorities. Another interviewee expressed that within the care sector, there is a lot of variation in how IPC audits are carried out.

The Health and Social Care Act 2008 outlines the ‘Code of Practice’ for all healthcare and adult social care providers, on the prevention and control of infections (DH, 2010). This sets out the 10 criteria against which a registered provider will be judged on how they comply with the registration requirement for cleanliness and infection control. Not all criteria will apply to every regulated activity, and some parts of the document will help registered providers interpret the criteria and develop their own risk assessments. The RNHA, for instance, has compiled its own manual for IPC, which is available on CD.

Inconsistent approaches to management and priority of IPC across different organisations

As highlighted by the three above themes, and by the report *Infection prevention and control within health and social care: commissioning, performance management, and regulation arrangements* (RCN, 2015), there are inconsistencies with prioritisation, leadership and practice of IPC. One of the concerns highlighted within this report was that providers and commissioners must decide the priority that they place on IPC. Which ‘targets’ are incentivising behaviour is currently unknown. The paper further sets out the following proposals which should be considered, which the CfWI supports:

1. Commissioning of IPC and the provision of specialist IPC advice should be considered by PHE as a core element of any future national IPC national strategy and to support reductions in AMR.
2. All commissioning organisations should have in place a formal process to provide assurance to their respective boards of the level of infection prevention support available to them and to what extent this meets the organisation’s needs. This assurance should be provided to the DH and health and wellbeing boards locally. Where necessary, risks relating to IPC resources should be placed on commissioning organisations’ risk registers.
3. Information should be detailed by each provider organisation within their annual report on how budgets and resources relating to IPC are set and utilised (including information on how the number or WTE/FTE posts within teams is set according to need) so that improvements in performance and incidence of infection can be compared and monitored over time.
4. A system to support local authorities to assess the strength of local IPC services and risks associated with information, communication, and availability or provision of specialist advice should be explored.

3.2 IPC workshop

As mentioned in the introduction to this report, part of this review included running a Horizon Scanning workshop to gather the factors which are seen to affect the IPC nurse workforce in terms of its demand. These key factors have been grouped together to form ‘clusters’ which represent the main themes affecting the workforce over the next 15 years. These clusters are then ranked in terms of their impact and uncertainty.

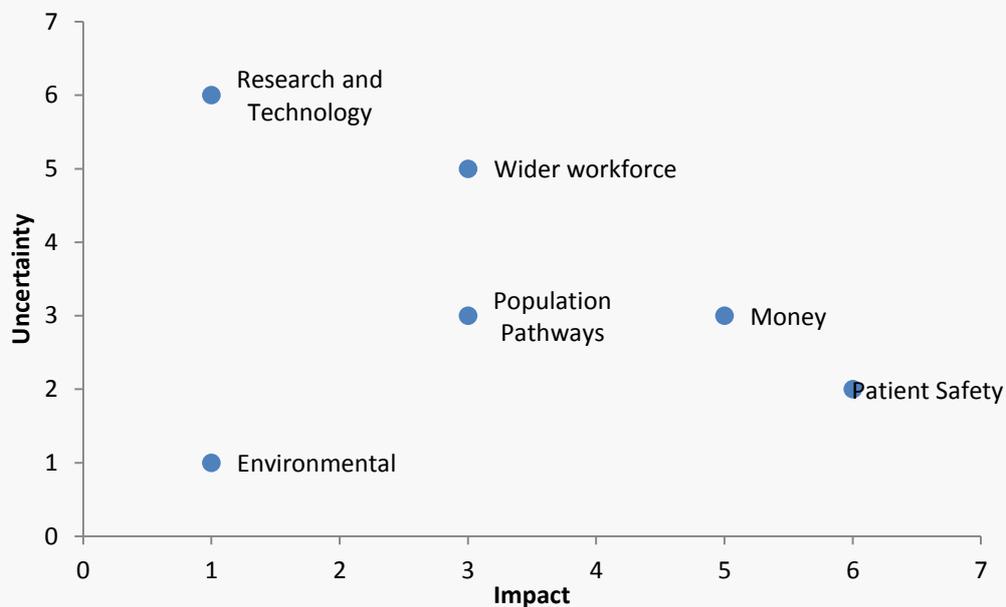
The CfWI held its IPC workshop on 3 February 2015. Nine representatives from the IPC nursing workforce in England attended this workshop. For a full list of stakeholders involved in this project please see Appendix A. The group size was appropriate for the CfWI’s elicitation process.

The themes that the participants felt affected the demand for IPC nurses were: patient safety, money, population pathways, wider workforce, research and technology and environment. The ranking of each theme and its values are relative rather than absolute. **It should therefore not be assumed that a theme ranks higher or lower overall in impact and uncertainty, but rather that it ranks higher or lower in relation to the other themes.**

Figure 1 below shows that the clusters which ranked highest in terms of impact and uncertainty were ‘**Money**’, ‘**Patient Safety**’ and ‘**Wider Workforce**’. So, money (e.g. funding or the economy), meeting the safety needs of patients and the impact of the wider workforce will hold the most uncertainty, but also the most impact up until 2029. These findings complement the main themes affecting IPC nurses. National targets are linked to performance and finance, and the growing rate of private healthcare will also influence the workforce in terms of finances. Workshop participants linked patient safety to the need for standardised policies within audit processes which will, in turn, lead to more consistent practice, better skills, better patient outcomes and patient safety regulation. Fundamental to patient safety is the competence of IPC practitioners and

standardisations of training. **‘Research and technology’** was ranked highest in terms of uncertainty, relying largely on uncertainties around funding.

Figure 1: Workshop outcomes, impact and uncertainty



Source: CfWI IPC workshop, 3 February 2015

Themes from the workshop

Some of the themes to emerge from the workshop were consistent with the findings mentioned within the CfWI’s international comparisons and the themes that emerged from the interviews. To summarise, the workshop attendees expressed the importance of:

- standardised policies for IPC that sit in one place, and consistent models of care
- audit processes which need to be consistent across the system
- mandatory training in IPC
- an IPC network which is free to access and can provide support to nurses and others
- research and technology, environment and population needs
- services needing to focus on the local needs/ or to be community based.

The detailed outcomes of this workshop are available within a separate document to this report.

4. Modelling demand and supply

The CfWI regularly produces models for medical specialties and similar workforces. These models are based on a number of typical demand and supply factors. For CfWI models, demand is the number of skilled people required to deliver the level of service expected – in this case, the number of IPC nurses required. Supply is defined as the number of people with the required skills and competencies in the workforce in question – in this case, the number of IPC nurses employed. There are insufficient data and metrics available to robustly and explicitly model demand or supply for this workforce. This section details what is possible for demand and supply modelling if data were available and what data are required to model this workforce.

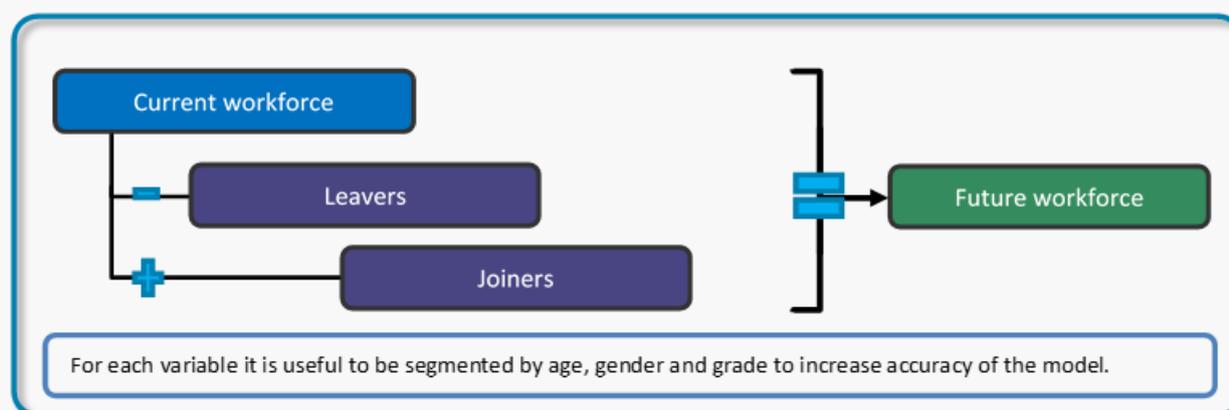
4.1 Supply

The CfWI uses stock and flow modelling for complex systems such as workforce modelling. Due to the lack of data and a clear training pathway for the IPC nurse workforce, stock and flow modelling is not appropriate. However the principles behind such modelling are still useful to help provide valuable insights into the future supply of this occupation.

The main components required for a basic workforce supply model are illustrated below in Figure 2. Future workforce supply is projected from the current supply and is adjusted for joiners to, and leavers from, the workforce. The majority of joiners to the workforce are typically from a training pipeline, and the majority of leavers are due to retirement. The numbers joining or leaving the workforce for other reasons are captured through analysis. This is done using the historical rates of leavers and joiners and continuing these rates in the future, therefore accounting for factors such as international joiners and leavers or a nurse returning to practice, in the absence of explicit data.

Typically, for workforce planning, ‘stocks’ of people can be segmented by age and gender where data exist to increase the accuracy of supply forecasting. A breakdown of these variables is provided below.

Figure 2: High-level overview of a stock-and-flow model



Source: CfWI

Research indicates that data for IPC nurses is limited. It could be possible to make some estimates of supply through a series of assumptions, however any workforce numbers provided for IPC nurses as a result, are estimates and as such any forecasts would be indicative only.

The lack of data suggests details such as age profiles, gender ratios and geographical breakdown (for example by region, local education and training board (LETB), local authority etc.) is not possible. As a result it is not possible to create a rigorous in-depth supply model for this workforce. Data available about the workforce is detailed in Appendix E.

The following sections provide a detailed description of each variable with proposed elements and possible data sources.

Current workforce

Where data are available this should be segmented by age, gender and grade. Data for both headcount (HC) and whole time equivalent (WTE) – also referred to as whole time equivalent (WTE) – are necessary to understand participation rate of the workforce. This is a measure of the amount of part time working, defined as WTE/HC. Historic data for WTE and HC can indicate if there is a trend in the participation rate of the workforce.

No reliable current data exist that details the number of IPC nurses. There are data around the IPC workforce in general but with no granularity to identify what proportion are nurses. Data also exists around registered nurses in care homes, who have some form of training in IPC, but these data do not include all care home establishments.

Table 2 below shows some statistics around the total number of IPC staff in England.

Table 2: Estimates of IPC staff in England

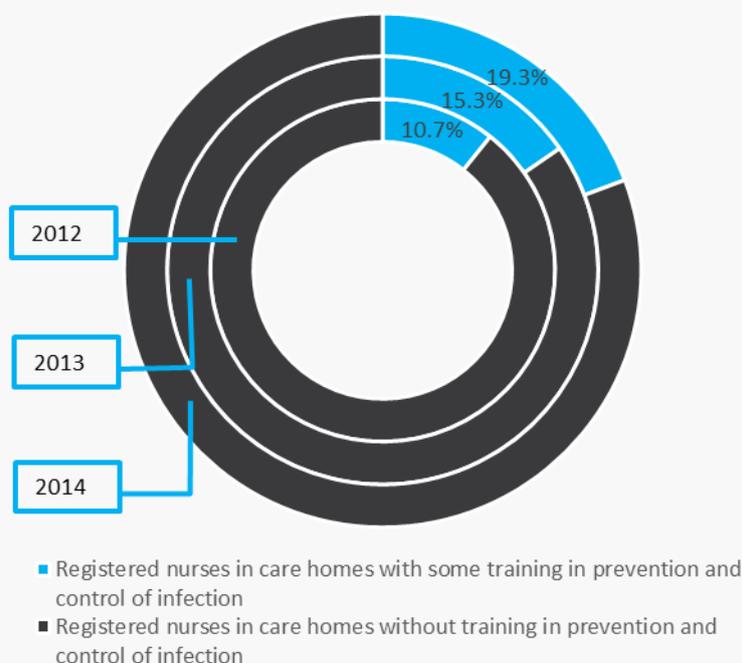
Data	Source	Number (HC)	Possible estimate of nurses
IPS members, England	IPS (IPS, 2014)	1,285 Only represents those that have paid for membership.	Cannot establish what proportion are IPC nurses.
Nurses with IPC training in social care, England	Skills for Care (SfC, 2015)	3,990 Only represent around 55-60 per cent of care home establishments and workers.	6,650 – 7,254 (HC) of nurses with IPC training, not necessarily IPC nurses.

Number of people joining the workforce per year

This is an estimate for future years based on historical data and stakeholder intelligence. The CfWI would normally estimate this number by assessing the numbers entering compulsory training prior to entering the workforce. Due to the lack of this clear training pathway and commissioned training places for IPC nursing, it is not possible to model the number of new joiners to the workforce via training.

There are many optional IPC courses and modules available for the CPD of IPC nurses, but this is available once nurses are already in the workforce. The NMDS-SC can provide an estimate for the number of registered nurses working in care homes that have some training in IPC, as shown in Figure 3. These data show an uptake of IPC training by registered nurses in care homes, but the data provision are not mandatory, representing 55-60 per cent of the actual nursing workforce in care homes.

Figure 3: Percentage of registered nurses in care homes that have some form of IPC training



Source: Skills for Care, NMDS-SC 2015

There is no minimum requirement for training that a registered nurse has to complete to become an IPC nurse. It is therefore important to estimate the inflow into the IPC nurse workforce using another method.

This method could focus on estimating the number of new joiners to the workforce based on historical trends and any plans for future commissioning of training places. However, due to the lack of data on the current workforce, and lack of data for the recent historical workforce, this may not be possible.

As part of this review, the CfWI made best efforts to source all possible data through a series of interviews with workforce representatives, CfWI research and a call for data through the Foundation Trust Network, but very little data was available.

Implementing a clearer training pipeline and career pathway could help motivate more people to join this workforce. Given that there is no clear national guideline around how many IPC nurses should be employed, the number of people joining the workforce is largely determined at a hospital trust level. The decisions behind this may be influenced by finances, assessed need or by other factors.

Number of people leaving the workforce per year

This variable is defined as the proportion of the workforce that is leaving, which is made up of a retirement profile and a net attrition rate. The majority of leavers are usually due to retirement.

The estimate for future years is based on historical data. The historical net leavers' data are used to build a picture of the likelihood of a nurse leaving the workforce at a given age. The net leavers refers to the number of people leaving the workforce offset by the number of people joining the workforce during the same period by single year age bands. Therefore a shaped probability profile can be calculated based on the historical net leavers' data to forecast the age at which nurses will leave the workforce. This profile highlights from what age significant numbers of nurses begin to leave the workforce. The majority of leavers who are older are assumed to leave due to retirement.

For non-retirement attrition, a net attrition rate is calculated from the historic year-on-year total headcount, the historic estimate of the number of new IPC nurses each year, and the historic number of retirements each year.

Due to the lack of current workforce data and necessary historical data, establishing trends for attrition and retirement is not possible. Data from other similar workforces can be used as a proxy, using intelligence derived from research with employers as to their expectations and plans.

Other joiners/leavers to the workforce

This additional variable looks at the number of IPC nurses that are joining the workforce via other routes, and leaving the workforce, for reasons other than retirement, that have not been explicitly looked at in the main joiners and leavers variables. Other possible routes into the workforce include international joiners, and those re-joining the workforce as a result of the HEE 'Come Back' campaign encouraging nurses to return to practice (HEE, 2014).

Where these figures are not considered explicitly, due to lack of data, they are incorporated in the non-retirement net attrition rate, continuing historic trends.

Table 3 highlights data required for a supply model, and where gaps exist, with possible solutions/assumptions that can be made to address these gaps.

Table 3: Required data for supply model

Variable	Possible source of data	Data/Assumption
Current workforce HC	None	
Current workforce FTE	None	A proxy participation rate can possibly be used to calculate FTE.

Variable	Possible source of data	Data/Assumption
Historic workforce HC	None	Required for leavers analysis.
Historic workforce FTE	None	
Current workforce age profile and gender breakdown	Nursing age profile from the HSCIC.	<p>At present, the NHS occupation code manual specifies the following codes for nurses for control of infection:</p> <p>N6A Other 1st Level (Level 1 – Sub Part 1) Acute, Elderly & General</p> <p>N7A Other 2nd Level (Level 2 – Sub Part 2) Acute, Elderly & General</p> <p>N1A Children’s Nurse: Acute, Elderly & General</p> <p>These codes are not specific to IPC nurses and include a range of nursing, midwifery and health visiting staff. Using these codes as a proxy assumes that the IPC nurse workforce has a similar age profile to other nurses in these codes, however this may not be the case. For example, nurses may enter IPC later in their career, resulting in a skewed age profile.</p>
Historic workforce age profile and gender breakdown	Nursing age profile from the HSCIC.	A similar approach as above can be done for a proxy, however, any leavers profiles created as a result will be indicative only and may not be indicative of reality if the age profile does not represent the workforce. For example, using a consistently normally distributed age profile could indicate a stable number of leavers, however in reality an older workforce would have a higher number of leavers due to retirement. As a result, any workforce modelling based on this would have low certainty.
Joiners to the workforce	Possibly from organisations/hospital trusts	This variable is dependent on the employer and their decision to hire more IPC nurses. It may also depend on the trust providing training/career pathway for the nurses with local HEIs for CPD modules in IPC.

4.2 Demand

CfWI demand modelling uses a framework from a Canadian research programme on health human resources (Birch, et al., 2011). This framework estimates the change in demand from current levels. The framework separates out four key elements of demand:

- **Population** – the size of the population being served, by age and gender.
- **Level of need** – the needs of the population given the distribution of health and illness, and future risk factors.
- **Level of service** – the service planned to be provided according to the population’s level of need.
- **Productivity** – the ability of the workforce to deliver the necessary services, taking into account factors such as skill mix and technology.

Productivity is estimated using Office for National Statistics (ONS) productivity estimates for healthcare.

Change in demand from current levels does not consider if current demand is being met. Possible ways to identify whether there is unmet demand currently, and to quantify future level of need and service, is through elicitation methods that rely upon a panel of specialists to estimate key uncertainties, taking into account a combination of factors.

4.2.1 Demand

The CfWI’s standard demand calculation driven by clinical need is not applicable to the IPC nurse workforce. IPC nursing is a proactive role therefore drivers of the IPC nurse workforce are different from other health and social care workforces which are driven by clinical need. Our initial research indicates that IPC nurses have a more strategic role within hospitals. From our interviews and workshops it is clear they encompass a variety of duties to ensure IPC processes are being implemented and constantly reviewed. To establish what drives IPC nurse levels, the CfWI needs to understand how NHS provider organisations and other providers have interpreted and implemented the requirements of IPC within healthcare, as set out under the Health and Social Care Act 2008. The *Code of Practice* (DH, 2010) outlines guidance on the types of IPC systems that should be demonstrated with an appointed DIPC and/or IPC lead. An IPC lead tends to be a nurse, but not necessarily so. Other factors will also need to be established to understand demand for IPC nurses, such as:

- policy tackling antimicrobial resistance
- prevalence of healthcare associated infections, and
- overall changes to infection control policy.

A recurring influence on the demand for IPC nurses, as identified in the stakeholder interviews, is the risk of new and emerging threats and viruses. The above factors were discussed in stakeholder interviews with a suggestion that recent successes in tackling MRSA are an indication that increased attention to AMR and other MDR bacteria will help push demand for IPC teams.

Current demand

One suggested way of quantifying demand is by determining the baseline requirements for an organisation. Official guidance provided in the *Code of Practice* (DH, 2010), states that NHS provider organisations should appoint a DIPC who reports directly to the Chief Executive and the Board. In organisations that have created a deputy DIPC role, the most senior IPC nurse in the organisation will often undertake this role.

In Appendix C there is an example of the variation between IPC teams, one team has 14 IPC nurses and another has two, at various bands and skill level. There is no typical structure for an IPC team for any type of organisation. Table 4 below shows an example of the variation in IPC nurse to staff ratio based on different organisations.

Table 4: Example of IPC nurse ratios based on sample organisations

Type of organisation	Number of nurses	Estimated number of total staff	Estimated ratio of IPC nurses to staff	Estimated number of IPC nurses needed for England
Mental Health Trust	2	2,800	1:1,400	850
NHS Foundation Trust	14	8,200	1:580	2,060
Acute and community joined trust	5	4,300	1:860	1,390
CCG*	2	2,020	1:1,010	180 for CCGs

*CCG total staff numbers differ to other organisations above as CCG estimated total staff is for GP and practice staff numbers.
Number of nurses have been provided from interviews with IPC nurse representatives. Estimated number of total staff are from published HSCIC tables.

Column four in Table 4 provides the estimated staff ratios of IPC nurses to all other staff within the organisation, a varying ratio from one IPC nurse for every 580 staff members to one IPC nurse for every 1,400 staff members. While these estimates are based on single organisations, these may be indicative of the range of current demand. The final column in Table 4 shows the estimated national demand for IPC nurses if these ratios were held across all 1.2 million NHS staff (for hospital and community health services) (HSCIC, 2014a) or 180,000 GP and practice staff (HSCIC, 2014b) in England. This is one example of how current demand could be calculated.

The last CCG, with two IPC nurses, produces a staff ratio very different from the other organisations. This is because IPC nurses within a CCG fulfil a different role compared to those working within another organisation. This includes covering a wide area of IPC for GPs and community services available in a CCG. Therefore the estimated number of required IPC nurses is for CCGs only.

This type of calculation is based on some key assumptions:

- Using any one of the ratios above against the total number of people employed will assume that every organisation has the same IPC needs. This may not necessarily be the case. For example, the requirement for IPC skills in a hospital is different to that of a care home.
- This type of calculation does not consider job overlap. An example would be when an IPC nurse doubles as an immunisation coordinator.
- This type of calculation does not consider skill mix and multi-disciplinary teams. For example, larger organisations can afford to have a team of IPC staff which could require fewer IPC nurses, but more staff members trained in IPC in general, which an IPC nurse can lead.
- That having an IPC nurse is mandatory. However, this may not be the case; in smaller organisations, there may not be an IPC nurse implementing IPC policy. A DIPC or IPC lead is required for all organisations, but this doesn't necessarily have to be a nurse.

Our research has highlighted a lack of consistency in the way IPC is implemented and managed across various sized organisations, settings and patient levels. These indicative data around typical team structures would be useful to have for NHS and other providers such as adult social care, primary, dental and medical care and

independent sector ambulance providers. Establishing these criteria and safe levels of IPC nurses to other staff ratios could provide an estimate of demand by individual organisation.

This type of information is currently not available, and without it, modelling demand will not be robust. The number of IPC nurses and IPC staff by band for every organisation, as well as the total workforce numbers and type of organisation, are the type of data required. Since this level of detailed data are not collected, a mandatory survey is one example of going forward.

Population

Factors influencing demand for IPC nurses by 2029 in relation to population change include:

- **A general increase in the population**
A natural increase in the population may result in more NHS staff and NHS provider organisations, and adult social care, primary, dental and medical care and independent sector ambulance providers. This will require more DIPC, IPC leads and IPC teams to implement IPC policy.
- **Migration**
Short term and long term migration creates an increased risk of spread of infections across borders. This includes increased international recruitment and more global travel. As mentioned previously migration is difficult to forecast and is linked to the economic, political and legal situation of England and the rest of the world. An increase in risk does not necessarily mean the levels of infection in England will change, so it is not clear whether migration would change the demand for IPC nurses.

Level of need

Factors influencing demand for IPC nurses in relation to the relative level of need for the population include:

- **New and more complex cases of AMR (or MDR bacteria)**
IPC nurses oversee processes for health protection incidents which include contact tracing. As new and more complex cases of AMR occur, there will be greater demand for IPC nurses to tackle and control these new bacteria to stop infection and spread of infection.
- **Control of HCAI**
Similarly with AMR, the more complex the HCAI, the more IPC nurse time could be needed to monitor and prevent the acquisition and spread of infection throughout the organisation and to other settings.
- **Advances in technology and research makes identification and control of infection quicker**
This factor could result in a decrease in demand for IPC nurse time, especially nurses with a more operational role, that look at data and carry out audits, as the time taken to complete these tasks could reduce due to efficiencies because of technology and research.
- **Skill mix of IPC teams**
Currently there is no statutory necessity for DIPC or IPC leads to be IPC nurses, although from intelligence gathered through the CfWI interviews, they tend to be IPC nurses. As awareness of IPC increases, and the CPD of other nurses and workforces increases, particularly with IPC training, there could be a decrease in demand for IPC nurses as the skills required may be available in other roles. Furthermore, wider quality teams may be required to meet future needs, of which IPC would be expected to play a part.

Environmental changes

As per NICE guidelines (NICE, 2011), IPC teams are involved in the planning, design, commissioning, completion and maintenance of services and facilities used by trusts. Increasing levels of pollution, especially in city centres, makes IPC within hospitals more complex. For example, this ties in with the ability to open a window to let in fresh air, which can be affected by pollution levels.

Level of service

Factors that could influence demand for IPC nurses, according to population level need, and due to possible changes in planned service provision, include changes as a result of the *UK Five Year AMR Strategy 2013 to 2018 (DH, 2013a)*. This strategy could result in a greater need for IPC nurses to implement the actions. The strategy builds on the proactive approach of IPC teams to slow the development and spread of AMR. This includes moves to: improve knowledge and understanding of AMR; conserve and steward the effectiveness of existing treatments; and stimulate the development of new antibiotics, diagnostics and novel therapies. The seven key areas for action presented in the strategy are:

- **Improving infection prevention and control practices**
This action includes, but is not limited to, embedding strong infection prevention practices and ensuring adherence to guidelines for preventing HCAs and clinical best practice guidance for infections caused by managing MDR organisms. This could increase demand for IPC nurses as infection control training and auditing is part of their role.
- **Optimising prescribing practice**
This action includes, but is not limited to, developing enhanced education and training in prescribing and administration of antibiotics, and recording and analysing data on antibiotic use, resistance and clinical outcomes. In the short term this could see an increase in demand for IPC nurses with operational roles to educate staff in the administration of antibiotics as well as analyse data on antibiotic use.
- **Improving professional education, training and public engagement**
- **Developing new drugs, treatments and diagnostics**
This action includes, but is not limited to, encouraging innovation and providing an impetus for improved collaborative action to develop rapid diagnostics and new treatments and vaccines. In the long term, further than 2018 (the scope of the five year AMR strategy), this could result in a decrease in demand for IPC nurses as some aspects of their roles will gain efficiencies as a result of this research.
- **Better access to and use of surveillance data**
This action includes, but is not limited to, improving the quality and standardisation of routine antibiotic testing and interpretation of results as well as making better use of surveillance data to improve diagnosis and treatment of infections. Depending on how this is actioned, this could result in an increase in demand for IPC nurses as it is part of their role to review infection control policies and how they can be improved on.
- **Better identification and prioritisation of AMR research needs**
- **Strengthened international collaboration**

4.3 Summary

Demand for the heterogeneous IPC nurse workforce is complex, but if the factors laid out in the above sections are measured, the demand is calculable. Quantifying the future level of need and service can be carried out through elicitation methods that rely on a panel of specialists to estimate key uncertainties, taking into account the demand drivers.

Data collection around the IPC nurse workforce needs to be improved. Despite the CfWI's best efforts to source data, there are significant gaps in the data available around this workforce, as highlighted in Table 4. As a result of the lack of information around the current and historic workforce, forecasting supply robustly is not possible.

It is clear from our analysis, interviews and workshops that supply is inherently driven by demand for the workforce and could be influenced by other factors such as finances and government policy. Without a training pipeline or mandatory qualification level (beyond registered nursing), most nurses have the potential to be recruited into the IPC workforce, depending on the level of demand the organisation or trust has.

5. Infection prevention and control – next steps

5.1 Data collection

As a recap, the objectives of this project are to:

1. *Improve DH's, PHE's and HEE's understanding of the current infection prevention and control nurse workforce*
2. *Identify workforce planning and development activities required to develop a fit-for-purpose infection prevention and control nurse workforce over the next 15 years.*

Both these points rely on having a reasonable amount of data. However, the major issue and area of uncertainty within this review is the *lack* of available data for IPC nurses. If the CfWI's commissioners wish to engage in workforce planning for the medical IPC nurse workforce, then they may want to work with the National Minimum Data Set (NMDS) and HSCIC to introduce a workforce code for this profession. This would enable better data and workforce planning in future years.

5.2 Suggestions for our commissioners

This review has highlighted some key points to consider for IPC nurses, and changes that would benefit the workforce.

The following are short term suggestions for commissioners to give consideration to, **for the next one to three years**:

- **To review core competencies/leadership:** Core competencies and IPC nurse bandings are inconsistent across employers. It would be beneficial to look at the competencies of IPC nurses across bandings currently, and work towards a uniform set of core competencies for England. This will require looking at the skills of the wider nursing and midwifery workforce. There is a need to build upon existing leadership, ensuring it is cohesive and has clear direction.
- **To introduce a formal national IPC network:** It may be useful for the CfWI's commissioners to work with a professional body to provide a formal national IPC network. This may be useful for IPC nurses to communicate and share ideas, and provide a 'go to' centre for career development news and advice. A formal national IPC network may also help to foster a sense of belonging and professional support for the IPC nurse workforce, and enable revalidation.
- **To undertake a census for IPC nurses:** There is a lack of data for this workforce. It may be useful to either undertake a one-off census for IPC nurses, include a code for IPC nurses on the electronic staff record (ESR) to improve workforce management, or look at compulsory registration to gain better data.

- **To review the wider IPC health and care staff:** There is potential to extend this review to the IPC workforce in general, such as microbiologists and support staff, to investigate how IPC is managed as a whole, and to review issues such as AMR and stewardship.
- **To review IPC across the wider health and social care sector:** For example, there is variation in how IPC is managed within the different sectors, such as how IPC audits are carried out. Further work could also involve a one-off review, by an independent body, of IPC in nursing homes, with the specific objective of identifying the providers of IPC advice to nursing homes and the IPC leads within nursing homes.

The following is a long term suggestion for commissioners to consider **for the next three to five years:**

- **A clearer training route into IPC nursing:** A clearer pathway, including set training requirements and assessment (leading potentially to registration) into IPC nursing would provide certainty about expectations, and perhaps give the workforce a better sense of professional identity.

This report has highlighted the vital role of the IPC nurse workforce in reducing HCAs and AMR in England. Their work, alongside the wider IPC workforce, is essential to help meet the government's efforts to improve IPC in general. We hope that this report will provide a better understanding of IPC nurses, and that our suggestions will better support this workforce to deliver their important functions.

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7. Appendix A: Stakeholder lists

The following people were interviewed for their insight into IPC nursing:

Name and organisation	Job role
Debra Adams (NHS)	Head of Infection Prevention and Control (Midlands and East)
Fiona Branton (Local Authority)	Head of Infection Prevention and Control (Nottingham)
Martin Bruce (NHS)	IPC Matron (London)
Esther Dias (Local Authority)	Health Protection/Infection Prevention Lead (London)
Gaynor Evans (NHS)	Head of Infection Prevention and Control (North of England)
Rose Gallagher (RCN)	Nurse Advisor Infection Prevention and Control (National)
Rachel Harrison (PHE)	Health Protection Nurse (West Midlands East)
Lisa Johnson (NHS)	Nurse Consultant Director of Infection Prevention & Control (Kernow CCG)
Kaylash Juggernaut (NHS)	Infection Control Nurse (London)
Anne Kerrane (NHS)	Lead Nurse/Assistant Director for Infection Prevention and Control (Rotherham)
Sally Kingsland (NHS)	Lead Infection Nurse and Decontamination Lead (London)
Andrew Kingsley (NHS)	Lead Nurse Healthcare Associated Infections (Northern Eastern and Western Devon CCG)
Nikki Littlewood (NHS)	Lead Infection Prevention and Control Nurse (Sheffield CCG)
Kate Morrow (NHS)	National Patient Safety Lead
Brid Nicholson (PHE secondment)	Health protection Programme Manager (London)
Marie Noelle-Vieu (Public Health)	Public Health Consultant (London)
Sam Perkins (PHE)	Senior Health Protection Specialist (London)
Susie Singleton (PHE)	Senior Specialist Health Protection / Consultant Nurse HCAI and IPC (National Lead)
Frank Ursell	Chief Executive Officer at Registered Nursing Home Association

The following people were involved in the CfWI's IPC Horizon Scanning workshop:

Name and organisation	Job role
Martina Cummins (NHS)	Deputy Director for Infection Prevention and Control, London
Joanne Shackleton (NHS)	Matron for Infection Prevention and Control, London
Sheila Howard (NHS)	Senior Matron for Infection Prevention and Control, London
Helen Bosley (NHS)	Infection Prevention and Control Matron, Oxford
Yvonne Carter (NHS)	Interim Deputy Director for Infection Prevention and Control, London
David Tucker (NHS)	Deputy Director for Infection Prevention and Control, London
Deirdre Malone (NHS)	Specialist Expert for Infection Prevention and Control, London
Karen Shaw	Head of Infection Prevention and Control, London
Annette Jeanes (NHS)	Director of Infection Prevention and control, London

8. Appendix B: Interview questions

Although the interviews carried out were semi-structured, a list of the focal questions are outlined below.

1. Can you describe how you got to where you are now (qualifications, work experience)?
2. Was it your intention to follow a career in IPC nursing, or was it a role you 'fell into'?
3. Is what you did quite typical of careers in IPC nursing?
4. What is the typical route into a career into IPC nursing?
5. How long have you been in your current job?
6. Who currently employs you and what department are you in?
7. What are the training requirements for IPC nursing?
8. In what sector does your team work? (NHS trust, community trust, independent sector?)
9. How is the team structured? Is there strong leadership and hierarchy within the team? (please provide details)
10. Are nurse consultants and senior nurses part of the IPC nurse team you work in? If so, how many are there?
11. Do you have a DIPC (Director of Infection Prevention and Control) in your team? Are you aware of what they do?
12. Are you well supported by management? If not, where can you get that support?
13. Is continuing professional development (CPD) offered, and if so, is this within working hours?
14. What is the size of your workload? Do you think the workload differs in regards to where an IPC nurse is based (e.g. London vs a rural village)?
15. Are you aware of different service delivery models for IPC nursing? Can you describe them and where they operate?
16. Are you aware of an IPC representative within the CCG board(s)?
17. What are the workforce issues, if any, for the IPC nursing workforce?
18. What changes do you expect to happen to the demand for this role in the next 15 years?
19. Can you point us to any evidence about this workforce that you feel we should be aware of?
20. Would you recommend a career in IPC nursing to your friends and family if they expressed an interest?
21. Is there anything else you would like to talk about today?

9. Appendix C: Team structures derived from interviews

Table A: IPC team structures from CfWI interviews

Table A: IPC nurse team structures (WTE) from CfWI interviews										
Interviews	Band 3	Band 4	Band 5	Band 6	Band 7	Band 8a	Band 8b	Director of IPC (DIPC)	Admin staff	Other
Mental Health Trust (London)						1.5 x nurse			0.25 x nurse	
NHS Foundation Trust (London)	1 x nurse	1 x nurse		2 x nurse	8 x nurse	1 x nurse		1 x nurse		1 x project manager 1 x PA to the DIPC
Acute and community joined trust (Rotherham)				3 x nurse	2 x nurse					14 hours admin support (band 2)
Independent contractor, Local Authority (Nottingham)			1 x nurse	2.28 x nurse	1.6 x nurse	1 x nurse				
CCG (Sheffield)				1 x nurse	1 x nurse				Shared amongst team for equivalent of 1 day a week	

Source: CfWI Stakeholder interviews, 2014

Furthermore, one health protection nurse in West Midlands East, explained that they worked with: six consultants, three nurses, three practitioners, and five admin staff.

10. Appendix D: International comparisons of IPC services and incidence

A requirement of the desk research undertaken for this project was to investigate international comparisons of IPC practice in other nations, where they could be identified. This is summarised below, providing comparisons for Canada and the United States (US).

Canada and the US are notable since they offer certification for staff working within IPC, which in turn means a clearer career pathway. An effective strategy to improve IPC in England will need to learn from these international examples, be tailored to our particular epidemiology and health system, and build on current examples of good practice.

Canada

Education is an important aspect of infection prevention and control in Canada. Infection Prevention and Control (IPAC) Canada is a national multidisciplinary professional organisation that facilitates communication, education and representation for professionals engaging in the prevention and control of infections. The organisation was founded in 1976 and is a strong supporter of the certification of its members. Members of the IPAC can become certified through the Certification Board of Infection Control & Epidemiology (CBIC) (CBIC, 2014).

CBIC is an affiliate of the Association for Professionals in Infection Control and Epidemiology (APIC). CIBC certification is accredited by the National Commission for Certifying Agencies (NCCA) and is recognised by APIC and IPAC Canada as the standard for certification in infection control (CBIC, 2015). It is cited as being the only standardised measurement of the knowledge, skills and abilities needed of an infection prevention and control professional.

Below is a list taken from the CBIC website of the 2015 requirements needed to be eligible for initial certification:

- Infection prevention and control activities and or management must be one of the primary roles in the employee's current position AND,
- The person is a licensed or certified healthcare professional (including but not limited to, registered nurse, licensed/registered practical nurse, nurse practitioner, physician, medical technologist, respiratory therapist) with current registration/certification in good standing with the appropriate licensing board/certification/governing body (e.g. state/provincial medical licensure; state/provincial nursing association or board, etc.) or have a minimum of a Bachelor's degree AND,
- Currently work in a healthcare setting AND,
- Have had sufficient experience in infection prevention and control, **which must include active roles in 1 and 2 below:**
 1. Collection, analysis and interpretation of infection prevention outcome data; AND
 2. Investigation and surveillance of suspected outbreaks of infection; AND

At least three of the following additional activities:

- Planning, implementation and evaluation of infection prevention and control measures;

- Education of individuals about infection prevention and control;
- Development and revision of infection prevention and control policies and procedures;
- Management of infection prevention and control activities;
- Consultation on infection prevention and control risk assessment, and prevention and control strategies.

Two years of full time experience in infection prevention and control is normally looked for in professionals doing the examination.

United States

Similar to Canada, the US has a certification board for infectious diseases. The Certification Board of Infection Control and Epidemiology is cited as providing speciality certification for infectious disease nursing. The requirements to be admitted are the same as stated in Canada as the organisation works in both countries.

The organisation has developed a competency model for infection preventionists and offers a variety of clinical educational resources related to the stages in their careers and practice settings. The competency model of the APIC outlines the skills needed to advance the infection prevention field and was created to help direct the IP's professional development. The APIC covers the US as well as Canada.

11. Appendix E: Data

Table B below shows the NMDS-SC data received from Skills for Care (November 2014).

Table B: NMDS-SC data from Skills for Care, November 2014		
	Number of incidences	Number of workers
Sector		
Total	4,578	3,929
Statutory local authority	2	2
Private sector	4,241	3,653
Voluntary or third sector	272	225
Other	63	49
Age group of worker		
Total	4,550	3,901
Under 18	0	0
18 to 19	1	1
20 to 24	63	57
25 to 29	292	259
30 to 34	297	262
35 to 39	466	420
40 to 44	613	540
45 to 49	618	523
50 to 54	653	554
55 to 59	722	613
60 to 64	494	394

65 to 69	235	200
Over 70	96	78
	Number of incidences	Number of workers
Ethnic group of worker		
Total	3,774	3,147
White	2,421	2,021
Mixed / Multiple ethnic group	93	77
Asian / Asian British	649	543
Black / African / Caribbean / Black British	525	440
Other	86	66
Gender of worker		
Total	4,468	3,819
Male	557	494
Female	3,911	3,325
Nationality		
Total	4,374	3,734
Non-EEA	1,147	991
EEA (non-British)	372	329
British	2,841	2,403
Non-British (nationality not known)	14	11

Table C below shows the infection control data received by the NMC (November 2014)

Table C: NMC Infection control qualifications, 2002-2003

Year	Qualification Code	Qualification	Count
2002–2003	PDIC	Diploma in Infection Control Nursing	99
2002–2003	PICN	Diploma in Infection Control Nursing	7
2002–2003	P329	Foundation Programme in Infection Control Nursing	421
2002–2003	L910	Principles of Infection Control Nursing	33
2002–2003	SPIC	Specialist Practitioner (Infection Control)	17

Source: NMC data, 2002-2003

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