NHS
Health Education England

HEE Workforce Planning and Strategic Framework (Framework 15)

2015/16 Call for Evidence

In 2015/16 we are inviting organisations for submissions which address not only immediate workforce planning and education commissioning but which look further ahead and cover wider workforce strategy. For this reason the 2015/16 form covers not only 'conventional' supply and demand concerns, but invites organisations to comment on the wider context of drivers of change and the strategic response. It is organised as follows:

Section 1: Current and future workforce demand and supply

Section 2: Drivers of service demand change

Section 3: Patients and population

Section 4: Models of care

Section 5: Future workforce characteristics

Section 6: Any other evidence

Submissions should be completed and returned to HEE, using this form, by 30th June 2015 (see below for more information).

We acknowledge that this is a bigger task than in previous years, and it may entail a higher level of internal deliberation and consultation for your organisation. This is deliberate: we want to learn as much as we can about what organisations are thinking about the long term and the big picture, while simultaneously gathering thinking about the here and now and the more immediate future which will be influenced directly by HEE's commissions in the short term.

Making your submission

- We ask that, to maximise input, your submission is completed and returned to HEE by **30th June 2015**
- To submit your evidence please, complete this form. You can provide extracts of reports into the free text boxes below, or submit whole reports. Where an extract is provided, please reference the source.
- In submitting evidence you are invited to take into account the following:

HEE's workforce planning guidance	HEE Planning Guidance. Due to the restrictions around the election we have not yet received permission to put the planning guidance on our web site. It has been widely circulated but please contact mandy.knowles1@nhs.net if you do not have a copy.
HEE's strategic framework (Framework 15)	http://hee.nhs.uk/2014/06/03/framework-15-health-education-england-strategic-framework-2014-29/
The NHS Five Year Forward view	http://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

- Once you have completed the form and/or prepared your 'pack', please embed it in an email and return it to hee.workforceplanning1@nhs.net and in the subject heading please use this convention:

HEE CFE 2015/16 from [your organisation's name in full – avoid acronyms] [Sub version x]

- Please note, it is not *compulsory* to complete all sections for you to submit a response, but **in order to maximise the value of your submission in informing HEE's 2015/16 education commissions, section 1 should completed and returned by the 30th June 2015.** Later submissions are not wasted as we draw on Caff for Evidence returns throughout the year for a variety of purposes.

Your contact details

Before completing the form below please submit your contact details here:

Name	Dr Anne Thorpe
Job title/role in organisation	Chair of the Specialty Advisory Committee in Cellular Pathology
Organisation (in full please)	Royal College of Pathologists
Contact email	anne.thorpe@wmuh.nhs.uk / Fiona.addiscott@rcpath.org
Contact number	0208 321 5860 / 020 7451 6726
Submission version (if you resubmit at any point)	2
Date	24/7/15

Data Protection and Freedom of Information

The information you send us may be made available to wider partners, referred to in future published workforce returns or other reports and may be stored on our internal evidence database.

Any information contained in your response may be subject to publication or disclosure if requested under the Freedom of Information Act 2000. By providing personal information for this review it is understood that you consent to its disclosure and publication. If this is not the case, you should limit any personal information provided or remove it completely.

Section 1 – Current and future workforce demand and supply

Use this section to input evidence into the forecasting of future workforce numbers. Report here your perspectives on either;

i) the high level indicators; supply, demand, and any forecast under / over supply

or if available

ii) the more granular components of these three components e.g. retirement rates, output from education relative to attrition

1.1 Summary forecasts

- Forecast Workforce Demand
- Forecast Workforce Supply and Turnover
- Forecast Under / Over Supply

The discipline of cellular pathology serves all areas of practice where it is required to establish a diagnosis and provide clinical advice on management based upon examination of tissue taken from a patient. These services lie at the heart of the health care services provided to patients and are essential to the delivery of many of the national priorities and targets for the NHS. In delivering the service over 13 million histopathology slides and 4 million cytology slides are examined each year. (Independent Review of Pathology Services - Carter). Several national cancer screening programmes are reliant upon services delivered by cellular pathology, especially cytopathology. Service units are based in NHS Trusts with the majority being run by NHS organisations. A minority of the service is provided by independent organisations.
Cellular pathology also provides a national autopsy service to legal authorities as well as supporting mortuary services in NHS organisations.

The number of medical trainees in cellular pathology was reduced by one in 2014 but with increasing pressures this should be reversed and receive a marginal increase to deal with capacity in the next 5 years together with a linked initiative to fund and develop a role for non-medical clinical scientists taking on some of the work in reporting cellular pathology under clinical supervision, to manage longer term structures. Review and development of capacity for support of research, clinical trials, training and education is a priority in the College's Research Strategy. Workforce planning to sustain a national autopsy service needs urgent review as this is service is under increasing pressure.

- Patients and the public expect a pathology service that provides reliable and timely results that meet the clinical requirement for information that guides patient management. Indirectly, tax payers require a service that is cost effective i.e. the community as a whole wants more activity at lower cost.
- The NHS Improving Outcomes: A Strategy for Cancer (2011) emphasises the need for early diagnosis as well as access to new therapies. Histopathology is central to delivery of this strategy linked to
    - increasing the uptake of cancer screening
    - increasing early diagnosis of cancer
    - ensuring that all patients have access to the best possible treatment
- The development of sub specialist cellular pathology is well developed to meet the needs of service users as follows. Breast Pathology, Cytopathology. Cardiac Pathology. Cytopathology, Dermatopathology, Endocrine Pathology, Head and Neck Pathology. Forensic Pathology. Gastrointestinal Pathology , Gynaecological Pathology, Haematopathology, Liver Pathology, Neuropathology, Non-Forensic Autopsy Pathology, Ophthalmic Pathology, Oral and Maxillofacial Pathology, Osteoarticular Pathology, Pulmonary and Thoracic Pathology, Renal Pathology, Urological Pathology

- It is anticipated that there will be a workload impact flowing from a major review of quality in pathology services published in January 2014. This concluded that
    - the current system is focused on minimal acceptable standards and relies almost entirely on professionalism and goodwill.
    - it was not designed to provide public assurance to patients, nor to assist boards and commissioners in fulfilling their statutory duties
    - There is variation between pathology services, and a lack of harmonisation and standards, which is unacceptable to patients and service users
- Key performance (assurance) indicators are now in place and will start to feed the quality and improvement agenda linked to robust laboratory accreditation and increased detail required for ISO15189-2012 accreditation standard. Many laboratories do not meet these standards and this will be a workforce driver.
- There is constant pressure to reduce turnaround times to meet service expectations. A shorter turnaround time can only be achieved 100% of the time if staffing levels are sufficient to accommodate fluctuations in workload i.e. staff level to cope with maximum workload rather than minimum or average workload.
- Workload in terms of crude sample numbers or requests is increasing by 1-3% each year (Keele benchmarking datasets) and varies between different services (no. requests and no. specimens). This crude increase belies the greater real increase in actual workload as scientific advances in our understanding of disease and the wider range of therapeutic options, mean that more detailed work is required on more specimens. This crude increase is not distributed evenly within all areas of cellular pathology and there are no reliable data to inform workforce planning. The latest information available to us for Keele datasets suggest around 50% year-on year increase in sections and stains being performed 2010/11-11/12
- This increasing complexity of reports, for example as evidenced in cancer dataset publications is an indirect measure of quality and clinical need.
- There is only limited scope for demand management in cellular pathology, although the use of agreed datasets for reporting is valuable in containing clinical expectations.
- Demand is driven by the increasing complexity of medical investigation requiring more accurate diagnosis before treatment, and the increasing range of options for targeted drug therapies (molecular genetic characterisation of disease) linked to personalised medicine agenda. There are some illustrative examples later in this response document.
- Increasing numbers of cases now require consensus reporting and/or tertiary referral for specialist cellular pathology opinion – reflects increasing sophistication of diagnostic process and a risk-averse culture. There are emerging audits that suggest a possible 10% change in diagnosis, affecting immediate management decisions. This creates problems with availability and capacity of trained specialists. This is seen as a risk area and is likely to cause a rapid shift in the locus of activity for reporting cases. The demand for this type of review is likely to increase.
- More objective assessment is now required for some types of specimen to give reproducible assessments to determine patient treatment e.g. image analysis for Immunohistochemistry (IHC) results that act as the threshold for giving a therapy.
- While it is clear that next generation gene sequencing will refine approaches to diagnostic and prognostic information, it still requires the right tissue to be put into the right pathway to provide prognostic and predictive information. This new technology does not replace diagnostic cell pathology which will still be needed to triage material into this route. It is expected that cellular pathologists will be the main deliverers of integrated reporting that combine traditional and molecular genetic information; this requires both training in the new modalities and working time to provide the integrated reports (potentially doubling the time required to report diagnostic and prognostic information on some cases).

Training and Education

- NHS Pathology services are increasingly the dominant supplier of specialist expertise and content delivery for undergraduate and postgraduate education in all medical and dental specialties (and other healthcare professions). There appears to be general acknowledgement that basic undergraduate pathology teaching has been relatively neglected in recent years – as this position is rectified as medical schools accommodate the

model curriculum (published September 2014), the demand for expertise will increase. It has been estimated that in each NHS provider associated with a medical school this could equate to 1 WTE activity.
- Consideration of capacity building for academic cellular pathology should be a priority.

Support for research and clinical trials
- NHS Pathology services are increasingly required to provide specialist input for translational research and tissue banking – in principle; this should guarantee the quality of material used in research, the diagnostic integrity of a project and the ability to integrate traditional pathology and molecular data. The requirement for capacity from cellular pathology again is estimated to be at least 1 WTE in major centres associated with medical school or university research structures.
- Consideration of capacity building for academic cellular pathology should be a priority.

Autopsy services
- NHS pathology services provide the capacity to deliver the majority of investigations for HM Coroner and modelling suggests that the number of autopsy-active pathologists will decline to such an extent that a national service will be compromised by 2020.
- There are serious concerns for provision of expertise in niche areas to support investigations in the criminal justice system, notably paediatric pathology, musculo-skeletal pathology, forensic ophthalmic pathology, forensic neuropathology.

Future Service Models
- Increasing collaboration and partnership between organisations is an inevitable consequence of the requirement to ensure high quality (robust quality management systems and availability of specialist opinions, where appropriate). Specialist expertise (expensive) needs to be shared for best effect.
- Increased automation within laboratories (processing, embedding, sectioning, digitisation, molecular) requires investment in equipment that is only cost effective when used on large scale. Although there are major advantages from pathologists and scientific staff being co-located, particularly for more complex activities e.g. molecular work, the full implications of automation in cellular pathology have yet to be understood so that the right people meet in the right places to do appropriate tasks.
- Adjacency to clinical teams is important to minimise risks to patients and there is a need to understand better the options for remote working arising from videoconferencing and telepathology so that the right balance is achieved.
- Adjacency to molecular diagnostic services is important to ensure that the full benefits of genomic and proteomic data are realised through interdisciplinary working.
- Adjacency to academic centres is important for education (undergraduate and postgraduate), training and research within pathology and for other clinical and academic areas.
- Digital pathology is a disruptive technology with great potential to drive laboratory reorganisation within and between hospitals. It has the potential to make pathologists working lives more efficient (according to the suppliers), facilitates intra- and inter-departmental consultations, education and training. The business models can incorporate the centralisation of some technical services with digital distribution to wherever the pathologist happens to be, and there is also the opportunity to use central digital diagnostic expertise to provide (and charge for) specialist advice for other hospitals in the UK and internationally.
- As 7 day working becomes more normal for laboratory services, increasing numbers of staff (clinical, scientific and support staff) will be required to support the current weekday level of intensity of working over all 7 days.
- Review and rationalisation of cellular pathology services will only partially address workforce needs. While such rationalisation will help with service

resilience (cover for leave, illness), and efficiency (optimal use of equipment), increasing demand is unlikely to be met.

Future Workforce Models

- Traditionally cellular pathology has been a Consultant based service with very little direct service provision from other clinical staff or scientists. This is perceived as minimising risk to patients. The current situation by growth of consultant numbers is unsustainable. There is need for agreement on which work needs to be done by Consultants and which can be done with minimal risk by other pathologists or by clinical scientists. Biomedical scientists now provide cut-up with minimal pathologist supervision with consultants making contributions in order to maintain their own competency. There is a need to develop formal qualification frameworks, models for clinical supervision and career pathways for clinical scientists in cellular pathology who would report a proportion of cell pathology work under consultant clinical supervision as part of a multiprofessional team. Consultants are needed:
    - as clinical diagnosticians providing a clinical opinion in conjunction with other clinical and scientific service areas
    - to make decisions in the face of uncertainty
    - to ensure overall clinical quality assurance of the diagnostic process
    - to prioritise need and manage workflows

  Advanced roles for biomedical scientists in specimen cutup are now well established. RCPath and IBMS are carrying out a pilot of BMS reporting in histopathology in which the first cohort of scientist will complete the initial programme in 2015/16. Additional healthcare scientist training posts will be required to provide sufficient additional scientists to carry out this role. The impact on the medical workforce is not clear yet and it is highly unlikely that there will be any impact in the next 2-3 years. In the 5-10 year window, BMS reporting practitioners may mitigate some of the need for consultant expansion related to year-on-year increase in workload.

  There is a particular need to develop ultrastructural pathology (electron microscopy) which retains a central place in the diagnosis of certain pathological processes. However, the current state of electron microscopy services in the UK is parlous, as many electron microscopes are reaching the end of their usable lifespan and many electron microscopists are similarly approaching the end of careers. Some rationalisation of service has happened, but at present electron microscopy is not an attractive career option. The College is developing a formal curriculum for ultrastructural pathology that should provide a career structure for appropriate scientists. The required investment is in healthcare scientist training positions that are not currently in the system to support additional posts.

- Intelligence around how technology/investigations impacts on workforce numbers is limited – cellular pathology typically introduces new investigations as an addition to current work rather than to replace current work. Hence overall workload increases.
- Molecular testing and integrated reporting is an important priority area that requires service redesign. There is a possibility that some molecular testing could replace established immunohistochemistry but will likely be part of a triage of diagnostic material, not a full replacement. It is uncertain how far or how quickly this will develop – or in which circumstances it will be cost effective.
- Service reconfiguration provides an opportunity to refine/redefine workforce models but there is little evidence for an effect on cellular pathology given the dominance of the current Consultant-based model of service delivery. Consolidation of services is likely to provide greater opportunities for BMS cut-up and clinical scientist reporting (there needs to be a critical number of people engaged in any such activity to ensure continuity of service). Purely specialist-based reporting creates difficulties during periods of leave or when someone retires; it is likely that a mixed economy of specialist specialists and specialist generalists will be most efficient. There is a need to consider in detail the training and assessment requirements for different groups of career-grade staff as well as the possibilities for movement between groups.

- Molecular training and expertise is vital to the new generation of cellular pathologists. Such training can only be delivered in major centres. It follows that most if not all cellular pathology will (and should) be delivered from major regional centres in the not-so-distant future.
- It is predicted that centralisation of pathology services will be linked to an increase in overall workload (linked to sophistication of investigation); this centralisation has started and is still in progress, and this trend will increase further with anticipated trends for personalised medicine depending on results of diagnostic testing. This requires sub-specialist pathologists in centres, and a support network of less specialised pathologists.

The planning assumptions published by CfWI remain appropriate. The estimated increase in consultants in histopathology moving to 2020, greater than the level based on population growth, is likely to be negated by factors other than demographic & epidemiological mentioned in Part 1. These include geographical inequalities, trainees not commencing consultant posts within 1 year of obtaining their CCT, and a small attrition rate.

AAC appointments in 2014 showed regional selectivity in proportion of successful appointments as follows. Trends suggest that there is a developing inability to recruit to consultant posts, following the ending of a period of uncertainty around laboratory configuration. The contribution of cellular pathology to a timely patient pathway, often providing the clinical information that directs a patient to a specific pathway, is now evident as a service constraint and consultant expansion has been required to meet needs.

Cellular Pathology	Successful recruitment	Not successful
East Midlands	6	3
East of England	10	4
Kent, Surrey & Sussex	6	6
North East	1	1
North West	14	5
North West London	3	3
North, Central & East London	11	1
South London	14	0
South West	5	7
Thames Valley	6	1
Wessex	5	7
West Midlands	10	4
Yorkshire & T Humber	8	2
TOTAL	**99**	**44**

There will be an issue for small subspecialties in cellular pathology in securing adequate recruitment from those who acquire their CCT. There is little if any accurate workforce data regarding sub-specialty needs at current consultant level. A more reliable way of predicting need might be to develop and adopt a pragmatic model of WTE cellular pathologists that are required for clinical service units. This could then be used in commissioning and quality review specifications.

A proportion of sub-specialist pathologists in the past have been employed by Universities because they also have education roles. However, prioritising

clinical academic appointments to research areas make universities reluctant to fund clinical academics who work much of their time in the NHS. Posts are being frozen and not reappointed. Such academic posts made major contributions to highly specialised pathology service provision within cellular pathology, including referral practice.

Assumption of average retirement age of 63 is likely to be inaccurate, with increasing numbers of senior consultants considering retirement at 60 (College data); the impact of this may be in part tempered if individuals return part time following retirement. There are few incentives for this especially for those who have been in receipt of a clinical excellence award. This is wasteful.

In cellular pathology there will be an increased trend for sub-specialist reporting. Overall forecast for consultants in histopathology is not going to be the key factor for recruitment to small subspecialties, though if the forecast is incorrect, and there is a shortfall, small subspecialties will be more vulnerable.

It is important to highlight that a specific issue relates to autopsy-active pathologists as a sub-set of the whole where with retirements there is a predicted shortfall in autopsy-active pathologists that will cause a compromise to the delivery of Coronial services by about 2020. The reason for this is that newly qualified consultant pathologists are less likely than previous generations to be autopsy active.

NICE guidance on early cancer diagnosis and GP direct access to rapid cancer diagnostics will increase the numbers of cancer and non-cancer biopsies coming from patients undergoing imaging and endoscopic assessments.

1.2 Detailed / Component forecasts

Forecast Workforce Demand

- Service Demand drivers
- Change in use of temporary staff
- Addressing historic vacancies
- Skill Mix / New Roles
- Workforce Productivity

Demand for cellular pathology

- ~5% increase in case requests annually depending on speciality area
- Increased requirement for sophistication of investigation per case
- Quality Improvement agendas
- KPIs require faster turnaround times
- A higher proportion of cases require secondary or tertiary specialist pathology review

Productivity of consultant cellular pathologists can be improved if some work could be taken on by BMS (cut up) or clinical scientists (reporting) or administrative staff (meeting preparation)

Anecdotally there is a tendency for Trusts to omit or ignore histopathology services when developing new clinical posts or services. For example, a new gastroenterological or surgical consultant post or a proposed plan for new work to be transferred from another Trust is not necessarily accompanied by additional histopathology consultant PAs, support staff, or laboratory staff. Accordingly the increases in demand and workload often become apparent after they have happened. This makes any form of planning, let alone sensible prediction of appropriate trainee numbers in histopathology or its subspecialty areas, extremely difficult.

It would be useful to have a national guideline advising Trusts to include pathology and imaging support routinely in all their business plans from the outset, rather than as an afterthought or not at all.

Productivity in cellular pathology is notoriously difficult to measure; numbers of requests or specimens do not correlate with the time and effort required to provide a clinical opinion for each patient. College guidance on workload assessment provides data that is generally equitable across specialties, although it works better at Departmental level rather than for individuals. Laboratory IT systems are not sufficiently sophisticated to automatically calculate workload/productivity using this sort of metric. Pathologists' work also involves much more than providing a clinical opinion e.g. attendance at clinics and MDT meetings, clinical management.

There is a significant opportunity to develop clinical scientist roles for reporting cellular pathology cases under clinical supervision as part of a multidisciplinary team. This will need a coordinated training route together with a clear career structure for qualified clinical scientists in cellular pathology.

Some examples of demand issues as they pertain to selected sub-specialist areas are provided. Other sub-specialties have similar pressures on increasing numbers of cases of increasing complexity.

Gastrointestinal disease

An increase in cancer incidence will occur in an ageing population (as identified in DOH documents). This will impact particularly heavily on gastrointestinal (GI) pathology which encompasses several of the commonest cancers, including many resectable cases: colorectal (2nd commonest cause of cancer death), pancreatic (5th), oesophageal (6th) and gastric (7th) (CRUK data). In combination, GI cancers are the largest cancer burden of all.

Also, there has been a consistent and significant increase in the incidence of pancreatic cancer, oesophageal adenocarcinoma, and oesophagogastric junction tumours in the UK - both in absolute terms and relative to other cancer types. This will probably continue.

The bowel cancer screening programme (BCSP) is operational; age extension is almost complete. Additional one-time flexible sigmoidoscopy for 50-60 year olds is now being piloted. A major future impact on GI pathology is well recognised, affecting medical, technical and administrative work. The impact will probably be about 1200 additional specimens (i.e., 50% of a consultant) per million population per annum (NE Thames data). Incidental lesions discovered as a result of the BCSP, e.g., inflammatory bowel disease, will also impact on histopathology in the medium term. The patient awareness campaign associated with the BCSP has also had an impact and will continue to do so: patients who are not eligible for screening nevertheless recognise symptoms of bowel cancer, and may then undergo endoscopic examination and biopsy.

Eosinophilic oesophagitis has been recognised increasingly in the past few years. International consensus guidelines recommend biopsies of proximal, middle and lower oesophagus in all patients who could have this diagnosis. If this advice is followed, which it should be, the number of oesophageal biopsies will increase very significantly. Histopathology is the only reliable way to diagnose this entity.

The number of biopsies recommended for diagnosing coeliac disease has also increased, and this advice is steadily being adopted (RCPath GI tissue pathway). Newer recommendations suggest additional biopsies from multiple small bowel sites.

Liver disease

Liver pathology has important epidemiological and public health changes due to increase fatty liver disease and related effects on transplantation and liver cancer. Medical liver biopsy interpretation is very dependent on integration of many facets of medical and pathology knowledge, and requires integrated working with clinicians. So not an area which would be impacted by workforce reconfiguration.

Clarification of the role and indications for biopsy (RCR/clinical/RCPath guidance) and NICE clinical guidelines will improve the appropriateness of biopsy; most think it unlikely that it will have an effect on number of biopsies performed (more case finding, smaller proportion need biopsy).

Primary liver cancer incidence is increasing rapidly, with future role for typing of molecular pathology

Complex medical (requiring biopsy), transplant and oncology cases are likely to be increasingly localised in main centres - succession planning for the hepatopathologists is important, in small specialty with limited exposure during training.

Gynaecological pathology
There are increasing numbers of prophylactic specimens in gynaecological pathology, for example prophylactic bilateral salpingo-oophorectomy in patients with BRCA1/2 mutation or a family history of breast or ovarian carcinoma, and prophylactic hysterectomy and bilateral salpingo-oophorectomy in patients with Lynch syndrome. These specimens require extensive pathological sampling, often with embedding of the entire specimen.

Endometrial carcinomas are common in patients with Lynch syndrome. There is an exponential increase in the number of cases of endometrial carcinoma where immunohistochemistry for mismatch repair proteins (MMR IHC) is requested by clinicians or performed at the initiative of the pathologist. There are no national recommended guidelines but MMR IHC is often performed in young patients, those with a positive family history or in tumours with morphology suggestive of MMR abnormalities. It is possible that in the future, MMR IHC will be performed in all newly diagnosed endometrial carcinomas.

Immunohistochemistry is increasingly used in the classification of gynaecological malignancies. New markers continue to be developed. There will be a requirement for these to be available in laboratories dealing with such specimens.

Ophthalmic pathology
Cases are getting more complex; with a 60% increase in number of large/complex specimens and a 40% drop in number of small/simple specimens in past year. Consolidation of the national service is important, together with establishing training routes into this small specialty area.

Breast pathology
There still exists a relative shortage nationally at Consultant level to support clinical services

Breast cancer has been and will continue for the foreseeable future to be a focus for molecularly targeted therapy. It is likely that multiplex/ comprehensive molecular methods based on deep sequencing will play an increasing role in breast (and other) cancers. Pathologists are likely to play a lead role in integration of cancer related data for therapeutic use.

Going forward, there is likely to increased demands due to age extension of the breast cancer screening programme, increased detection of cancers, and changing demographics with an ageing population.

Complex oncoplastic surgical procedures and increased use of neoadjuvant therapy make it more time consuming to deal with increasing the burden on pathologists.

CRUK and other research organisations have raised concerns that there are fewer pathologists available or interested in supporting research and clinical trials

Thoracic pathololgy
Although the incidences of thoracic diseases are slowly changing over time, information suggests that the number of specimens per year remains relatively constant. However practitioners state that they are increasingly struggling due to the increased complexity of managing these samples, especially for lung cancer cases.
This complexity is due to:

- Increased immunohistochemistry - Whilst most cases of lung cancer a decade ago were simply divided into non-small cell lung carcinoma (NSCLC) and small cell carcinoma (NSCLC), there is now a need in most specimens to undertake immunohistochemistry in order to identify the phenotype, as the type of chemotherapy is dependent on accurate subtyping, particularly in NSCLC which is the majority of specimens (evidence for this is within the recent HQIP audit of UK thoracic pathology practice). On average, a pathologist would be looking at 5-6 slides rather than just 1-2 slides.
- Molecular testing - NICE guidelines in 2010 have meant that the majority of NSCLCs (i.e. those with advanced disease) should be assessed for EGFR mutations, the administration of which falls to the pathologist as we are the guardians of the samples. Furthermore, international guidelines now recommend screening for EML4-ALK translocations, with several other treatment-related genetic tests e.g. PLA, are already being requested sporadically in addition to other tests. This approach to personalised medicine will increase substantially in the next few years.
- More labour intensive specimens - the advent of new techniques, such as transbronchial needle aspiration (TBNA) reduces the cost and patient discomfort in relation to obtaining tumour samples. However these require much more detailed assessment (screening cytology) that those used previously (mediastinoscopy specimens). Furthermore, the number of samples per specimen has increased, with the requirement for more thorough staging and, with a need for immunohistochemistry and molecular testing, there is typically a doubling of the number of samples as additional preparation of cellblocks is required.

The 2015 Cancer Strategy sets out to reduce mortality from cancer. Aspects of the strategy will place increased demand on Cellular Pathology services. Earlier diagnosis is emphasised, “including a step-change in capacity and a shift in culture around investigative testing”. All cancers require a tissue diagnosis, not only to confirm the presence and the type of cancer, but increasingly to predict which treatments are likely to be effective and to give a prognosis. The proposed “step-change” will inevitably lead to a lowering of the threshold for requesting biopsies and an increased number of specimens for cellular pathology departments.

The Cancer Taskforce proposes efforts to increase the uptake of screening programs. There are currently programmes for cervical, bowel and breast cancers. Improved uptake and expansion of the programmes will generate more biopsies.

New NICE guidelines will reduce the threshold of suspicion to trigger a referral with cancer symptoms from General Practice.

Attendance at multidisciplinary meetings - the number of meetings per week is increasing, with different clinical groups now asking for pathology support (e.g. in relation to inflammatory bowel disease, interstitial lung disease and mesothelioma)

1.3 Forecast Supply from HEE commissioned education

- Assumed training levels
- Under recruitment
- Attrition
- Employment on completion of training

Taking service demand and drivers presented in earlier sections the numbers in training are seen to be generally adequate to allow for immediate capacity provided that there is a paired initiative to fund and develop a clinical scientist role in cellular pathology.

The training of future pathologists needs to acknowledge the increasing scientific and clinical complexity of the work as well as any required competencies for their roles in teaching and management.

Changes envisaged in the Greenaway report may have an adverse impact on cellular pathology if there is a mandatory increase in general medical experience before specialising (cellular pathologists need awareness of clinical work but not necessarily medical competency) and even shorter time to acquire specialist competencies. The College supports the view of the Academy that there should not be a reduction in training time. The Greenway report may provide some benefits through flexibility of training experience and credentialing for specialist practice, but core pathology training time will need to be maintained (expected CCT after 5 years training).

Small specialist areas could face serious disruption if the anticipated rates of recruitment to subspecialty areas are interrupted by a change in training (potentially cellular pathology recruitment as a whole (60-70 per year) could be seriously challenged by a small reduction in good quality applicants – this was seen few years ago when there was a move to national recruitment without thinking through all the implications of overly restrictive entry criteria.

There are areas in the country with long standing vacant posts with a shortage of local trained people to fill them. Trainees seem increasingly to tend to stay fairly close to where they were trained when they look for Consultant posts. Hence, the need for population weighted data on numbers of pathologists, since we need to ensure local training numbers are sufficient to fill most of the projected vacancies.

There may changes in trends for mobility of the scientific and medical workforce – it seems to be less than it was 10-20 years ago.

Potentially, 7 day working will create difficulties for many pathologists in balancing work/family life. In itself, 7 day working will require more trained pathologists.

Training numbers are difficult to assess for specific subspecialty areas of histopathology, as trainees do not specialise until quite late in their training, as a rule.

1.4 Forecast Supply – Other Supply and Turnover

- From other education supply
- To/from the devolved administrations
- To/from private and LA health and social care employers
- To/from the international labour market
- To/from other sectors / career breaks and 'return to practice'
- To/from other professions (e.g. to HV or to management)
- Increased / decreased participation rates (more or less part time working)
- Retirement

There is a need to consider the problems of HEFCE funded posts, where clinical academic staff have a proportion of their time allocated to service delivery. Service delivery is at risk if the academic component is successful ('excessive' time devoted to research) and also if the posts become vacant but the University choses to remove funding (priorities elsewhere). This has created gaps in service delivery nationally as the clinical service commitment of pathologists has to be picked up from NHS budgets (Medical schools council datasets)
Specific concerns on the lack of capacity in academic pathology have been made by the Medical Schools Council publication "Survey of Staffing Levels of Medical Clinical Academics in UK Medical Schools on 31 July 2013". This describes a 58.8% reduction in Clinical Academic Consultants posts in Pathology between 2000 and 2013.

Forensic pathology
There are special considerations that need to apply to service provision for forensic pathology in the United Kingdom which is currently almost completely out with the Health Service planning process, although there is a possibility (see below) that this may change in the future. In Scotland, the forensic pathology and medico-legal autopsy services are funded by the Crown Office and provided almost completely by consultant forensic pathologists employed by the Universities of Glasgow (6 all in post), Edinburgh (5 all in post), Dundee (2 but possibly only 1.5 in post) and Aberdeen (2 with1 in post). From discussions with Dr Marjorie Turner (Head of Department in Glasgow) the workload remains stable but high in Scotland. There are 2 Specialty Trainees currently in post in Scotland (1 Glasgow, 1 Edinburgh). The situation in Scotland both in terms of funding of training and of consultant posts appears stable.

In Northern Ireland, the forensic pathology and medico-legal services are funded by the Department of Justice and provided by 4 consultant forensic pathologists working in the State Pathologist's Office in Belfast. The State Pathologist's post is currently vacant following the retirement of Professor Jack Crane, who is providing cover until the post is filled. A specialty registrar has recently completed training and is also assisting with consultant work. The situation is again considered stable providing a new State Pathologist is appointed.

The position in England and Wales is less clear for a number of reasons not least because of the variable employment status. The large majority of the 35 consultant forensic pathologists on the Home Office Register are now independent and self employed. 2.5 pathologists are employed by the NHS and 8 by the Universities of Cardiff, Leicester and Newcastle (all posts now filled). The consultants are directly, indirectly, or partially funded by the Police. Specialty training occurs in 4 centres (Newcastle, Liverpool, Leicester and Cardiff) and currently there are 2 STRs in post in Liverpool, 2 in Leicester and 2 in Newcastle. All of the posts are fully funded by the Home Office who also provide additional funding to the centres to support the training. The trainee numbers are considered sufficient to meet likely consultant openings based on current workload demands (but see below).

Potential Issues:
Retaining trained forensic pathologists is difficult due to the lack of NHS and University employed posts in England and Wales, a national drop in forensic autopsy numbers (at least partly due to funding cuts) and recruitment to well paid posts in Australasia and Canada. A significant shift in national non-forensic autopsy arrangements (with or without scanning) may mean a necessary and rapid increase in numbers of forensic pathologists if the specialty is envisaged to be more involved in non-suspicious death investigation. The recently published Hutton Review of forensic pathology services proposes the development of a national forensic pathology led death investigation service, which if adopted by government, would require the training of a large number of additional forensic and autopsy pathologists. This could not be met easily by the existing training centres without considerable central support. Forensic pathology training will need to be considered further once the government's response to the review becomes known.

Trainees in Forensic Pathology are drawn from run-through training in Cellular Pathology, either part of the way through, or at the end of, their cellular pathology training. In some areas, the transfer of trainees from cellular to forensic pathology curricula has impacted on planned progression in cellular pathology but given the small numbers of forensic pathology trainees this is not considered a significant issue. The future needs of Forensic pathology should be integrated into the general workforce planning for cellular pathology.

Section 2 - Drivers of service demand change

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
We believe that our population is **getting older**, and that for our workforce, preferences for a change in patterns in working is increasing.	The service will fail unless training numbers (medical and scientific) increase. Such an increase needs to be managed alongside a funded strategy to develop clinical scientist roles in the discipline of cellular and molecular pathology. As the skilled workforce approaches retirement, there is currently a tendency to retire at the earliest opportunity. There need to be strategies in place to retain expertise and engagement, possibly on a part time basis, to ensure capacity is sustained.	Cellular Pathology is a clinical service that needs to work in harmony with clinical teams in hospitals and the community. As the demands (activity and 7 day working) increase, more staff will be required. There are limited compensations from technical developments and changes in skill mix (which will require changes in training and expectations of staff within and outside laboratories). As the skilled workforce approaches retirement, there is currently a tendency to retire at the earliest opportunity. There need to be strategies in place to retain expertise and engagement, possibly on a part time basis, to ensure capacity is sustained.

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
The influence of technology is growing in healthcare and beyond, with staff and patients using it to **increase personalisation and control** in their life. What will be its possible impact in healthcare in the years ahead? The influence of **genomics and research** will also play a vital part.	The use of genomics is increasing the work per cancer case in cellular pathology. The recognition that the individual genetic make-up of tumours should guide the specifics of treatment means greatly increased use of immunohistochemistry. The prototype of this approach was the use of immunohistochemistry to determine hormonal receptor status and over-expression of Her2 in breast cancer to predict response to various therapeutic options. Since then, this approach has become important in other common cancers, such as lung and bowel, as well as less common cancers such as soft tissue and bone. In addition, the use of time-consuming in situ hybridisation techniques (ISH) to enable visualisation of the genes themselves has become common place (such as determining Her2 gene amplification in breast cancer). Molecular diagnostic testing techniques are burgeoning. Even when the test is carried out in a molecular pathology department, the result must be integrated into a complete interpretive cellular pathology report.	Investment in IT systems is essential to make best use of pathologists' time; there are some efficiencies within departments from changing workflows, changing skill mix and implementation of digital pathology. The move to paperless systems of working will require time and investment to ensure that quality control is maintained. The 100,000 genomes project has dramatically reinforced the view that genomic medicine has arrived and that investment is required n information technology and staff to support the analysis and interpretation of the vast amount of new information that is becoming available for clinical management.

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
Wider factors are creating global pressures to **constrain the cost** of publicly funded healthcare, with the wider concept of wellness increasingly taking root which people will expect health service to respond to.	Any reduction in the high throughput/low complexity cases will increase baseline costs to departments (which would be spread over fewer, more complex cases), so that the provision of specialist reporting and training will be perceived as becoming more costly.	There may be interest from service providers outside the NHS in contributing to provision. It is likely that services will be offered on a purely clinical reporting basis without due regard for essential interactions with clinical teams and the education and training that are both essential and rewarding for more senior staff. If this happens, then the 'add-on' work will become concentrated in fewer centres making them even less efficient in the eyes of commissioners, unless there is additional ring-fenced funding for education and training to compensate for perceived 'loss of productivity'.
Patients are going to want **high quality services anytime, any place, anywhere**, with a more equal (and challenging) relationship with staff, but one still based on care and a better work life balance.	Possible future need for autopsy services at weekend with patient demand. As pathology reports will become increasingly available to patients, there may be a need for increased medical capacity to deal with queries on interpretation coming directly from the public.	Possible future need for autopsy services at weekend with patient demand. As pathology reports will become increasingly available to patients, there may be a need for increased medical capacity to deal with queries on interpretation coming directly from the public.

Section 3 – Patients and population

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
With people living longer with more people living with **multiple and complex conditions** (and with our workforce being currently predominantly trained to treat distinct and different disease in isolation after a health crisis has occurred). How can we educate/train the workforce to support the prevention of ill health and, where ill health occurs, support staff to work across organisational boundaries to support high quality care for people with a range of health needs (across physical, mental health and social care)?	The number of Multidisciplinary meetings continues to increase and cellular pathologists provide essential inputs for patient management, not simply providing a 'report on a test' New guidelines from the clinical specialty groups strongly emphasise the continuing need for clinicopathological meetings for cancer work such as inflammatory bowel disease. Such meetings have often been identified (wrongly) as areas for cost savings by managers: it is likely that this situation will have to change unless quality and care are compromised and guideline advice is ignored. As services have adapted to the recommendations in the Carter Reports, service reconfiguration and transformation means that laboratories are already used to working across primary and secondary care organisation and will often serve several secondary and tertiary care providers. The optimal size of a cellular pathology service has yet to be determined (larger is not always better) neither has the optimal balance between generalist and specialist reporting practice within a large department.	The number of Multidisciplinary meetings continues to increase and cellular pathologists provide essential inputs for patient management, not simply providing a 'report on a test' New guidelines from the clinical specialty groups strongly emphasise the continuing need for clinicopathological meetings for-cancer work such as inflammatory bowel disease. Such meetings have often been identified (wrongly) as areas for cost savings by managers: it is likely that this situation will have to change unless quality and care are compromised and guideline advice is ignored. As services have adapted to the recommendations in the Carter Reports, service reconfiguration and transformation means that laboratories are already used to working across primary and secondary care organisation and will often serve several secondary and tertiary care providers.

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
Our patients and population are likely to be at different stages of being **informed, active and engaged** in their own healthcare (including using for example, data and online records), with our challenge being to support the development of a workforce which can support high quality care for all patients.	Consultants need to ensure reports are phrased in such a way as to be suitable to be read by patients and healthcare providers. If the Government opens patient records to the patients, it is inevitable that there would be a huge uptake.	Consultants need to ensure reports are phrased in such a way as to be suitable to be read by patients and healthcare providers. If the Government opens patient records to the patients, it is inevitable that there would be a huge uptake.
Patients will increasingly be members of a **community of health,** with the number of carers projected to rise significantly in the years ahead**.** Five Year Forward View highlights four ways in which we can engage with communities and citizens in new ways, to build on the energy and compassion that exists in communities across England, namely: • better support for carers • creating new options for health-related volunteering • designing easier ways for voluntary organisations to work alongside the NHS • using the role of the NHS as an employer to achieve wider health goals	Encourage staff to be involved in the community of health/encourage links to voluntary sector with a view to ensuring that the role and impact of cellular pathology is recognised by patients	Encourage staff to be involved in the community of health/encourage links to voluntary sector with a view to ensuring that the role and impact of cellular pathology is recognised by patients
Developing **substantial community provision** to bring about a substantial reduction in the numbers of people with learning disabilities placed inappropriately in institutional care is a central part of Sir Stephen Bubb's report in 2014 ('*Winterbourne View – time for change*).	Unlikely to affect Cellular Pathology	Unlikely to affect Cellular Pathology

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
Parity of esteem for Mental Health will be supported through delivering improvements in areas such as integration, waiting and access targets and in the area of psychiatry liaison	Unlikely to affect Cellular Pathology	Unlikely to affect Cellular Pathology
Five year forward view draws attention to the NHS being committed to making **substantial progress** in ensuring that the boards and leadership of NHS organisations better reflect the diversity of the local communities they serve, and that the NHS provides supportive and non-discriminatory ladders of opportunity for all its staff, including those from black and minority ethnic backgrounds.	Equality and diversity and non-discriminatory ladders of opportunity are integral to our workplaces and to RCPath.	Equality and diversity and non-discriminatory ladders of opportunity are integral to our workplaces and to RCPath.

Section 4 – Models of care

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
Five Year forward View outlines a number of possible future service models including • multispecialty community providers (MCPs), which may include a number of variants • integrated primary and acute care systems (PACS) • additional approaches to creating viable smaller hospitals • models of enhanced health in care homes The **expertise to support** the piloting and introduction of these models need to be considered. Existing NHS services and areas of the healthcare workforce may work with others in new and different ways (e.g. community pharmacy).	It should be emphasised that pathologists have to be considered an integral part of clinical teams. A successful surgical, medical, oncological team, needs appropriate scientific and pathology support – mapping of demand for pathologists has to be integrated with anticipated developments in other clinical specialties. As services have adapted to the recommendations in the Carter Reports, service reconfiguration and transformation means that laboratories are already used to working across primary and secondary care organisation and will often serve several secondary and tertiary care providers. Pathology services may be a source of expertise to other services that are considering reconfiguration	It should be emphasised that pathologists have to be considered an integral part of clinical teams. A successful surgical, medical, oncological team, needs appropriate scientific and pathology support – mapping of demand for pathologists has to be integrated with anticipated developments in other clinical specialties. As services have adapted to the recommendations in the Carter Reports, service reconfiguration and transformation means that laboratories are already used to working across primary and secondary care organisation and will often serve several secondary and tertiary care providers. Pathology services may be a source of expertise to other services that are considering reconfiguration

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
	Are you aware of any new evidence which impacts in the light of this - do you think there is the need for a different message for Framework 15? Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term**, specifically:
Services are likely to become **increasingly integrated** in the future, enhanced through policies such as the Devolution of Local health and social care budgets, the integrated care pilots and integrated personal commissioning. Partnerships will become increasingly important, including with partners beyond NHS and social care.	It should be emphasised that pathologists have to be considered an integral part of clinical teams. A successful surgical, medical, oncological team, needs appropriate scientific and pathology support – mapping of demand for pathologists has to be integrated with anticipated developments in other clinical specialties. As services have adapted to the recommendations in the Carter Reports, service reconfiguration and transformation means that laboratories are already used to working across primary and secondary care organisation and will often serve several secondary and tertiary care providers. Pathology services may be a source of expertise to other services that are considering reconfiguration	It should be emphasised that pathologists have to be considered an integral part of clinical teams. A successful surgical, medical, oncological team, needs appropriate scientific and pathology support – mapping of demand for pathologists has to be integrated with anticipated developments in other clinical specialties. As services have adapted to the recommendations in the Carter Reports, service reconfiguration and transformation means that laboratories are already used to working across primary and secondary care organisation and will often serve several secondary and tertiary care providers. Pathology services may be a source of expertise to other services that are considering reconfiguration
We may increasingly see **centres of specialisation** in some specialties in some areas.	Unlikely to affect Cellular Pathology	Unlikely to affect Cellular Pathology
We will see the ongoing development of services in the area of **urgent and emergency care**	Unlikely to affect Cellular Pathology except through use of autopsy to monitor outcomes	Unlikely to affect Cellular Pathology except through use of autopsy to monitor outcomes
Five Year Forward View highlights new developments such as the **evidence based diabetes prevention service** and **encouraging new capacity in under doctored areas.**	Unlikely to affect Cellular Pathology	Unlikely to affect Cellular Pathology

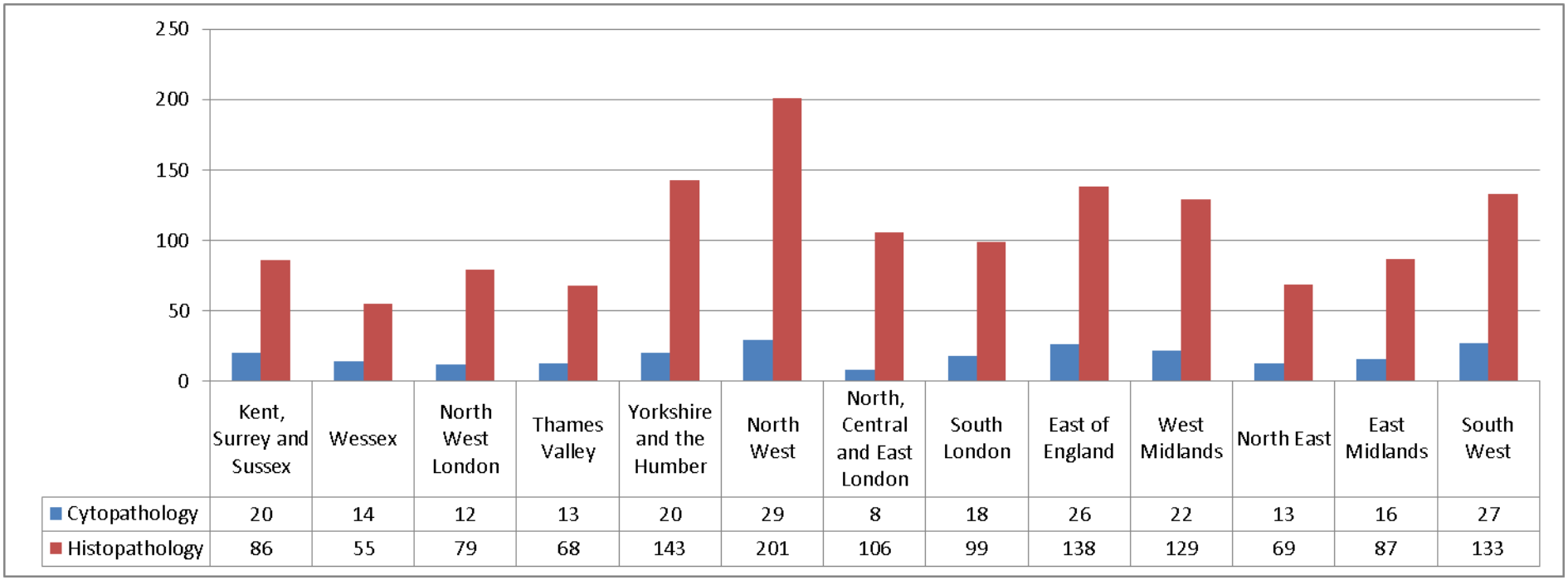
Section 5 – Future workforce characteristics

Timescale/time horizon		
Framework 15 message:	**Longer term – to 15 years**	**Shorter term to 5 years**
Below are the 5 future workforce characteristics set out in Framework 15	In your evidence please highlight any or all of the following: - Are these workforce characteristics still valid? - Any evidence you are aware of work which is underway and which contributes to the achievement of the workforce characteristics - Any gaps you are aware of Please detail your evidence about the **longer term**	Please detail your evidence about the **shorter term** education and training needs required for the current workforce to meet these characteristics:
The workforce will include the informal support that helps people prevent ill health and manage their own care as appropriate.	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health
Have the skills, values and behaviours required to provide co-productive and traditional models of care as appropriate.	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health
Have adaptable skills responsive to evidence and innovation to enable 'whole person' care, with specialisation driven by patient rather than professional needs.	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health
Have the skills, values, behaviours and support to provide safe, high quality care wherever and whenever the patient is, at all times and in all settings.	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health	Unlikely to affect Cellular Pathology directly (in terms of workload), but staff should be ambassadors in the community of health
Deliver the NHS Constitution: be able to bring the highest levels of knowledge and skill at times of basic human need when care and compassion are what matters most.	Care around bereavement important, to deliver this will require adequate time allocation. General staff awareness of importance of maintaining quality standards in service delivery in cellular pathology	Care around bereavement important, to deliver this will require adequate time allocation General staff awareness of importance of maintaining quality standards in service delivery in cellular pathology

Section 6 – Any other evidence not included elsewhere

Figure 1

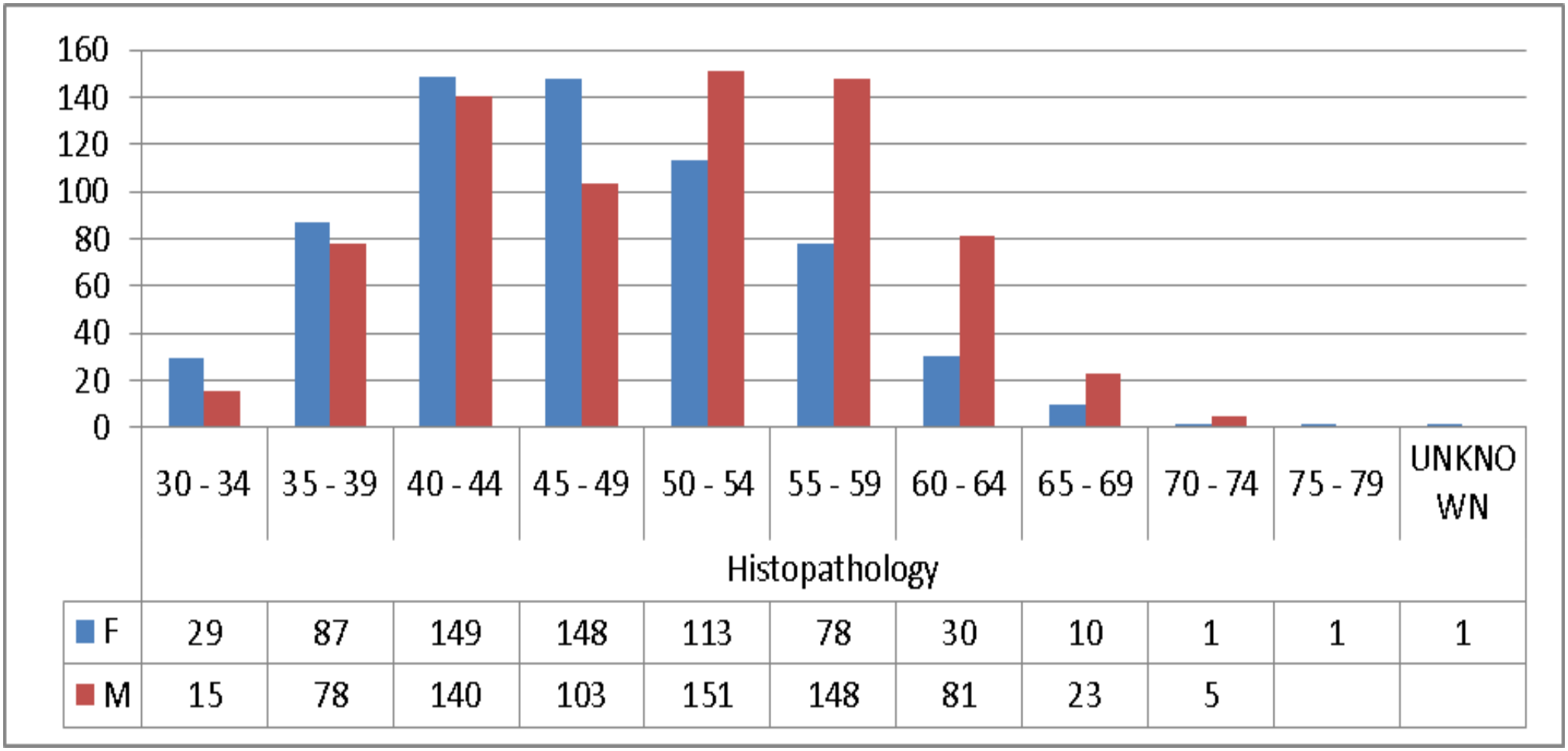
Consultant total by region



	Kent, Surrey and Sussex	Wessex	North West London	Thames Valley	Yorkshire and the Humber	North West	North, Central and East London	South London	East of England	West Midlands	North East	East Midlands	South West
Cytopathology	20	14	12	13	20	29	8	18	26	22	13	16	27
Histopathology	86	55	79	68	143	201	106	99	138	129	69	87	133

Figure 2

Consultant total by age and gender



	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	UNKNOWN
F	29	87	149	148	113	78	30	10	1	1	1
M	15	78	140	103	151	148	81	23	5		

Figure 3

Registered trainees in England