The Science Behind Prudent Healthcare

Healthcare Science in NHS Wales

Looking Forward

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Executive Summary

Healthcare science represents a broad range of professions that act within the health arena. The health service is a continuum from public health, through primary to secondary and tertiary care. This reflects the journey that we will each travel in our lives from good health to poor health; from self-management, presentation, assessment, diagnosis, treatment to recovery – healthcare science plays an important role for patients in each of these phases. Whether patient facing, within the laboratory or other setting healthcare scientists play an integral role in determining and providing care. Healthcare science professions represent a rich and diverse group of over 50 disciplines. The profession continues to evolve in response to emerging innovations through new scientific techniques and discoveries, and as new care pathways and service models are developed and commissioned. Healthcare scientists have a significant role to play in introducing bold new models of seamless care, harnessing innovation using evidence to drive redesign and increasing value for patients and the wider system. Healthcare scientists have a significant role in leading, defining, designing, developing and delivering multi-professional collaborative high quality applied research in the NHS. As expert practitioners, healthcare scientists contribute to the education and training of other healthcare professionals, adding to the knowledge base and understanding of the NHS workforce facilitating improved care and better outcomes for patients and better value from NHS resources. The healthcare scientist of the future will undoubtedly have a more influential role and continue to make an ever-increasing contribution to all aspects of healthcare planning and delivery in NHS Wales.

A transformation of our workforce is required in order to adapt to service and societal challenges such as an aging population, financial pressures and increased service demand. Innovation and technological progress sits at the core of the healthcare science disciplines. Society is riding high on the wave of a fourth industrial revolution that is driven by data and rapid technological advancement. Healthcare scientists, alongside other healthcare professionals will be responsible for ensuring that the health service is not left behind and realises the potential arising from new and emerging technologies. It is difficult to imagine the full impact that robotics, artificial intelligence, informatics, 3D printing, genomics, regenerative medicine including cell

and gene therapy, precision medicine, wearable technologies, molecular diagnostics, imaging and nuclear medicine will have on the health and care system. The complexities of service transformation work best when all professional groups, including healthcare scientists, work together to develop more prudent, clinically effective patient care pathways and models of care. What is certain is that NHS Wales needs the best and brightest minds to create science driven step changes in the system to address the challenges that we face.

Our ambition is to create a workforce model where more people can reap the benefits of healthcare science based interventions, driven by individuals who can pursue exciting and enriching careers across different scientific pathways. We need to build an environment where healthcare scientists can thrive and work to adapt and improve the system through introducing and spreading evidence and value based practices, reducing inappropriate variation and avoiding harm, improving patient experience and outcomes, and helping the people of Wales to live happy, healthy and productive lives. Successful implementation of the plan will require significant system leadership, cross-disciplinary and multiple stakeholder engagement to address identified challenges within healthcare science.

This framework will also contribute to other NHS facing plans and programmes e.g. 10 year NHS Wales workforce strategy; healthy and active. It is also aligned with important Welsh Government policies such as the Future Generations Act and Prudent healthcare. It also helps to address the challenges and recommendations set out in the Parliamentary Review of Health and Social Care.

Vaughan Gething AC
Cabinet Secretary for Health and Social Services

1. Introduction

'Releasing and harnessing the potential of the healthcare science workforce'

This framework sets out the vision and direction of travel for the healthcare science workforce in Wales, and discusses some of the challenges currently faced by this diverse, system spanning professional group. It sets out a series of actions that will need to be implemented to address short, medium and long-term challenges, which in turn will enable NHS Wales to be safer, more sustainable, and provide increased value in the future. The development and implementation of a workforce framework that has the capacity to harness and release the full potential of the healthcare science workforce will be key to supporting NHS Wales to develop a world-leading health and care system.

This framework also sets out how the skills and knowledge of the healthcare scientist can make a major contribution to the changing landscape of healthcare, through integrated service planning and delivery, research, innovation, improvement, education and system leadership.

The highly specialised scientific knowledge and skill base of the healthcare science workforce is considerable and includes: capturing and data analytics, performing controlled investigations, leading and delivering clinical services to patients, undertaking and publishing research; introducing and evaluating innovative technologies, developing and delivering new education and training programmes; improving quality and safety; working collaboratively; redesigning; transforming and introducing new clinical pathways and care models as well as clinical and system leadership. Whilst more senior healthcare scientists have experience of management of clinical resources, typically more so than medical colleagues, they have not progressed substantially into influential leadership or executive roles. It is considered that the healthcare science workforce remains an untapped resource.

By addressing workforce challenges, enhancing skill-sets, communicating effectively with other professions, raising the professional profile and working collaboratively, healthcare scientists can support the transformation of services by using evidence and value based approaches.

From 2015-2017 there was a minus 2% change in number of healthcare scientists in NHS Wales compared to 6% increase for consultants, 5% increase for allied health professionals. Whilst commissioning figures for training has increased over this period by 42% there is more to be done to address work force demands and address system level challenges that were identified in the Parliamentary Review of Health and Social Care [link to report].

The healthcare science workforce of NHS Wales is rich and diverse; they are involved in over 80% all clinical diagnoses that directly impact upon patient care[1]. Healthcare scientists provide diagnostic, rehabilitative and therapeutic services in areas such as nuclear medicine, clinical physiology, biomedical engineering, laboratory sciences, imaging, bioinformatics and rehabilitation sciences. They inform clinical decisions by generating and interpreting a wide variety of complex data, delivering early disease diagnosis, rehabilitative interventions, improved reproductive health and fertility, developing advanced therapeutics, managing medical equipment and devices, and formulating disease prevention strategies. Healthcare scientists also introduce, evaluate and operate new and emerging health technologies in order to continually improve patient care and outcomes, and lead on the analysis and synthesis that underpins innovative 'whole system' service improvements. There are approximately 5000 healthcare science professionals within NHS Wales, who practice in over 50 different scientific disciplines (see Annex 1).

Harnessing and releasing the potential of healthcare science through an ambitious and strategic NHS workforce framework and model, will enable an increased contribution to clinical service planning and delivery. For example, there are significant demand gaps in the medical workforce e.g. 31% vacancy rate for histopathologists[2], 13.1% vacancy rate for radiologists[3]. This is one example that highlights the need for developing new prudent workforce models. Enhancing and extending the role of the healthcare science workforce and by working together as multidisciplinary teams will help to address these challenges. There are many other opportunities for clinical physiologists, physical scientists and biomedical engineers to help mitigate workforce challenges.

Access to high quality education and training opportunities alongside continuous professional development are vital to the successful implementation of the framework. Working closely with Health Education and Improvement Wales (HEIW) is vital to deliver appropriate and accessible education and training programmes. These range from apprenticeship frameworks, through to Medical Royal College accredited career pathways. This will both broaden access to healthcare science jobs, and facilitate career progression. Recruitment strategies will also attract the brightest and best talent to healthcare science in NHS Wales. The framework will also need to identify opportunities for wider professional development through closer collaborative working and joint appointments with academic partners in the life sciences sector.

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[1] http://www.nhsemployers.org/~/media/Employers/Publications/Healthcare%20scientists%20in%20the%20NHS%2013%20April%20final.pdf
[2] Royal College of Pathologists Wales Regional Council
[3] https://www.rcr.ac.uk/system/files/publication/field_publication_files/cr_workforce_census_2016_report_0.pdf

The continued introduction of new and emerging technologies into healthcare and the adoption of new ways of working will not only improve patient outcomes and to deliver greater value, it will also facilitate the recognition of healthcare science in Wales as a global leader in the life sciences and health care sectors.

2. Background

'The case for change'

In Wales, and in other developed countries, we have an aging workforce and society. By 2030 it is predicted that there will be 25% more people over 65 living in Wales with significant numbers of the healthcare science workforce also retiring[4]. Older people require more care, and this is likely to have significant impact on the healthcare system. This has been recognised in Wales by the move to treat people closer to home and provide the right care, at the right time, in the right place.

The cost of the health service to the public purse similarly increases each year, and future budgets are unlikely to meet the increased demand. There is a clear commitment in Wales to ensure that what we do drives greater value in patient experience and outcomes. We also have to find ways of increasing value through wider adoption of novel and frequently disruptive technologies, changing our culture and working smarter – we cannot continue to take the same approach and expect different results.

Who should read this document?

The intended audience for this document is:

- Welsh university health boards and trusts, Health Education and Improvement Wales (HEIW), NHS Shared Services, Higher and Further Education institutions, Professional Bodies, life sciences sector, Local Government, Welsh Government and Third Sector social services providers.

How will the actions be delivered?

Accountability, Progress and Pace'

This framework recognises the need for cross-disciplinary and multiple stakeholder engagement to address the identified challenges. The framework also bridges

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[4] https://statswales.gov.wales/Catalogue/Population-and-Migration/Population/Projections/National/2014-Based

thematic modernisation programmes such as genomics for precision medicine, imaging, pathology and cell and gene therapy. A Healthcare Science Network, led by Executive Directors of Therapies and Health Science (DoTHS), will be established to support, promote, develop and represent the healthcare science workforce in NHS Wales which is comprised of over 50 disciplines across the broad divisions of healthcare in Wales (Annex 1).

- Laboratory Sciences
- Physiological sciences
- Physical sciences and biomedical engineering
- Health Informatics/Bioinformatics
- Imaging Sciences

The Network will rely upon working in partnership with a range of organisations both inside and outside NHS Wales, including the Academy for Healthcare Science (AHCS) that represents all of the professional bodies within healthcare science, the National School of Healthcare Science (NSHCS) that oversees healthcare science training and education, and close links to the Royal Colleges associated with Medicine and Nursing. The Network will also provide an opportunity for individuals to engage and influence regional and local policies, and have a clear and coherent voice that contributes towards scientific strategy at UK level. Smaller implementation groups, working to the Healthcare Science Network will function as task and finish groups to take forward specific actions. The development of a dedicated healthcare science website (Healthcare Science One) will support the Network and act as a focal point for the healthcare science community in NHS Wales. A yearly progress report will be produced by the Healthcare Science Network, which will be signed off by DoTHS and shared with NHS Chief Executives, Welsh Government and published via Healthcare Science One. The report will describe progress against each action contained within this document. In NHS Wales, healthcare science is fortunate to have executive level representation within university health boards with DoTHS providing strategic and system level leadership for the professions. As well as chairing the Healthcare Science Network, DoTHs will act in an advisory capacity to review and monitor progress of implementation of the plan and provide guidance and ascent where required (see Figure 1).
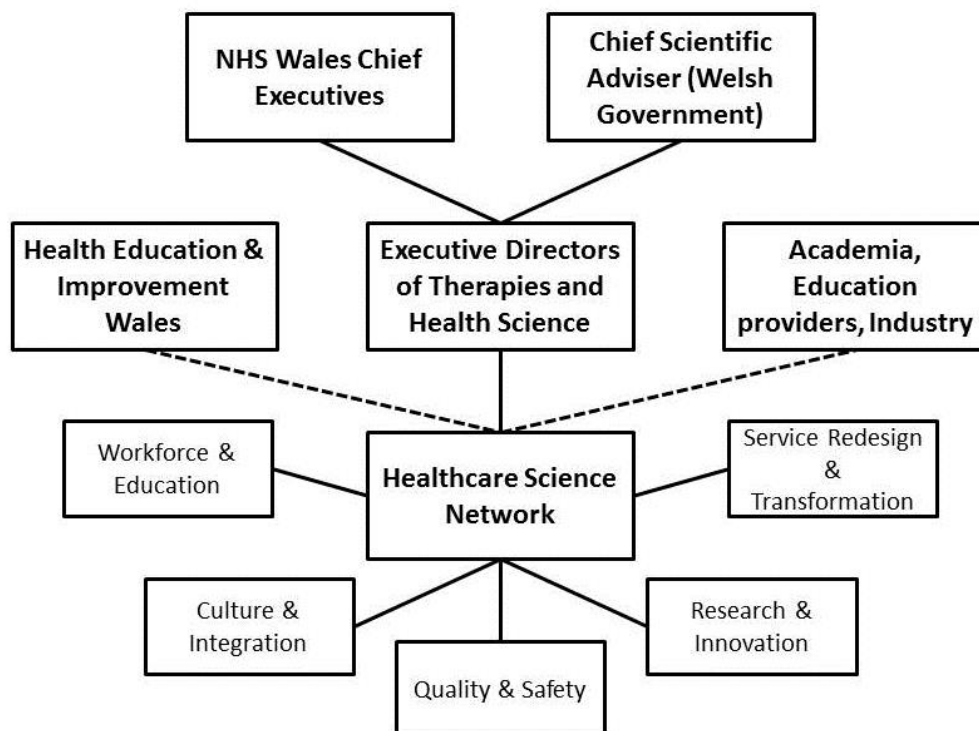
Figure 1. *Healthcare Science Organogram*

Who is included in this document?

Healthcare scientists represent a diverse workforce; there are approximately 5,000 healthcare scientists in post in NHS Wales (Annex 1). The list of disciplines encapsulated by 'healthcare science' is continually evolving and these changes reflect the integration of new scientific methodologies and techniques in the NHS.

This framework covers the Career Framework (CF) Bands 5-9 NHS healthcare science workforce and the supporting Career Framework CF Bands 2-4 workforce [5]. This includes Health and Care Professional Council (HCPC) regulated professions: Biomedical Scientists, Radiographers and Clinical Scientists; other professionals who are regulated via assured voluntary registers as well as non-regulated professions. The framework also covers diagnostic and therapeutic Radiographers. In NHS Wales, the Radiography workforce is included within healthcare science rather than Allied Health Professions (AHPs).

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[5] https://www.healthcareers.nhs.uk/sites/default/files/documents/Careers%20in%20Healthcare%20Science%20%28final%29.pdf (Page 20)

Overarching principles

The framework is underpinned by the four prudent healthcare principles:

- To improve health and wellbeing with the public, patients and professionals as equal partners through co-production;
- To care for those with the greatest health need first, making the most effective use of all skills and resources;
- To do only what is needed, no more, no less; and do no harm.
- To reduce inappropriate variation using evidence based best practices consistently and transparently.

Alongside the four prudent healthcare principles, The Well-Being of Future Generations Act (2015) is a world leading statutory framework designed to improve the wellbeing of people living in Wales. This document will also support the implementation of the Act and the delivery of the well-being goals so that the long-lasting, positive change to current and future generations are realised for healthcare science and NHS Wales.

This document is also aligned with the recommendations made by the Parliamentary Review of Health and Social Care, 2018 in delivering the Quadruple Aim in improving health outcomes including Public Health, improving patient experience and quality of care and increasing value by creating an environment that empowers and engages professionals.

This document reflects the ambition of 'Taking Wales Forward' and seeks to contribute to the delivery of the priorities within 'Prosperity for All: the national strategy'; such as:

- Healthy and active - improving health and wellbeing in Wales; for individual families and communities; shifting our approach from treatment to prevention

Annex 2 illustrates how the actions identified within the main document are aligned with the priorities identified in these Welsh government policies.

How to use this document

Healthcare Science in NHS Wales – Looking Forward is a high level strategic framework that contains a series of discrete actions designed to address specific challenges and Welsh government priorities as described above. Actions in the main report can be cross-referenced to Annex II, which contains a detailed description of

how the actions will address the challenges, and includes indicators of success to measure specific outcomes. Annex III contains a driver diagram that illustrates the five overarching thematic areas together with a number of associated action areas.

3. Workforce

'A Health and Care System that is Always Learning'

Many healthcare scientific cohorts are small and highly specialised, several feature on the UK Government's 'Shortage Occupation' list and other larger professional groups also face current local retention and recruitment issues sometimes driven by career inequalities within NHS Wales. Retention and recruitment is made difficult when services are fragmented and competitive, and scientific careers are not well understood by employers or the public. There is a risk that certain occupational areas can become unattractive locally or nationally, and talent is either lost or not attracted to the professions.

Some larger cohorts of healthcare scientists such as radiographers and the laboratory based professions have different challenges regarding recruitment, retention, retirement etc. These discipline areas are also impacted by significant demand gaps in some medical professions (e.g. Radiologists, Pathologists, Medical Microbiologists, General Practitioners etc.). These challenges are recognised in parallel service modernisation work programmes (e.g. imaging and pathology). There is a need to develop a detailed workforce strategy to address these issues in order to develop a modern sustainable prudent workforce of the future.

One way in which healthcare science can address these known occupational shortages is by developing advanced and extended practice that is adaptive to the modern multidisciplinary environment (e.g. reporting Radiographers, dissecting and reporting Biomedical Scientists, Consultant Clinical Scientists in life sciences and advanced practice audiologists in primary care). By empowering healthcare scientists to work at the top of their professional license and competence through education, training, service redesign and transformation, these shortfalls can be addressed e.g. by giving people the opportunity to embrace or embody prudent healthcare within their own specialism. By extending and developing their skills, healthcare scientists can adopt new ways of working system wide to address workforce shortfalls, improve cost effectiveness and drive greater value, improve recruitment, retention and patient care pathways whilst maintaining the highest quality.

Educational changes in England can impact upon Wales; England's drive to develop apprenticeships poses a risk for the recruitment of healthcare scientists as well as the way that training is commissioned from England. Although there are different drivers for Wales to adopt healthcare science apprenticeships more broadly, there is a requirement for the development of new flexible career pathways; all of which require strategic forward planning and interoperation between broader NHS workforce framework.

'A Great Place to Work'

To make NHS Wales a more attractive and successful environment for workplace learning, supporting and developing training and education in the workplace requires investment in the training infrastructure, high quality placements and the sharing of good practice across disciplines, professions and organisations. It also requires the creation of exciting opportunities for healthcare scientists to take up senior leadership and strategic roles within the NHS, which may traditionally have been delivered by other healthcare professionals, to deliver better value based health outcomes. In parallel, healthcare scientists must oversee the transition of roles and tasks traditionally delivered by them to other healthcare professionals who can safely deliver better value based outcomes. Health organisations in Wales already feature Executive board level posts designated for healthcare scientists, but this needs to be exploited by the development of individuals into these roles of strategic influence. In addition the development of joint academic and clinical posts for healthcare scientists and honorary academic titles will provide an opportunity for healthcare scientists with teaching and research skills to maintain their clinical practice and impart their knowledge to the healthcare scientists of the future.

The benefits of addressing recruitment, retention and skill-mixing of healthcare scientists in a multi-disciplinary system such as NHS Wales are several-fold. These include: improvement in diagnostic services with decreased reporting times, improved patient safety, decreased variation in service quality, improved patient outcomes and experience, providing for a more efficient skill mix within services and enhanced value. Key to achieving these outcomes is closer working partnerships between NHS organisations, academic partners and other key stakeholders to enable the delivery of flexible education and training routes (e.g. widening access, distance learning) that facilitate career progression for in-service staff, and broaden access to healthcare science careers so that they become more attractive to potential recruits. There is also a need to support wider career and continuous professional development through exploiting opportunities for working more closely with the life sciences sector through secondments and project based placements.

There is a need to bring the diverse specialisms of healthcare science together so that they can speak with one voice. Not only will this help inform policy in a more coordinated manner but importantly raise the profile of healthcare science, increasing the visibility of all the professions in Wales and beyond. The Healthcare Science Network will connect the diverse scientific specialisms of healthcare science in NHS Wales, and act as a conduit for workforce advice and policy developments.

Actions

The All-Wales Healthcare Science Network will work in collaboration with Welsh Government, Health Education and Improvement Wales, NHS university health boards and Trusts, the education sector (higher, further, secondary & primary), industry and the public to:

- Address workforce challenges by leading, communicating and collaborating to support workforce development championing prudent and value based healthcare approaches.
- Develop a workforce action plan, aligned to the 10 year plan for the NHS workforce, that addresses service level challenges by highlighting opportunities for workforce sustainability, recruitment and retention issues, career progression and support for equivalence, apprenticeships etc.
- Develop integrated multi-professional education and training provision and programmes that can adapt and respond to the changing skill set of the healthcare scientists, to ensure the delivery of new and improved ways of working.
- Strengthen and develop the MSC education and training career framework for the healthcare science workforce to include specific education, training and clear career pathways from Healthcare Science Associate through to HSST (Consultant) level.
- Inform and support workforce development for the current and future healthcare science professions, through reviewing areas of extending scope of practice, enabling transferability of knowledge and skills to allow diversification within the scientific and wider clinical sector.
- Champion broadening access to healthcare science (e.g. flexible approaches to learning) and enhance career progression pathways (e.g. through widening access, equivalence, recognition of prior learning) to support flexible entry into the professions, career progression and retention of staff. Work together to facilitate healthcare science role redesign extending scope of practice e.g. audiology in primary care; as well as defining new roles for healthcare science e.g. point of care testing in the community, clinical/biomedical scientists in cellular pathology, non-medical prescribing, clinical/rehabilitation engineers in Technology Enabled Care Services (TECS) etc.
- Collaborate strategically with other stakeholders e.g. with universities and national work groups (e.g. genomics, cell and gene therapy) to identify new education solutions that will meet evolving service needs and highlight any education provision that may be at risk.
- Coordinate with strategic national work groups (e.g. genomics, cell and gene therapy) to identify new education solutions that will address service level challenges and highlight any education provision that may be at risk.

- Raise profile of healthcare science in Wales and promote career opportunities within a workforce strategy.
- Showcase and provide contextual examples of career pathways for the public, and both current and future NHS Wales healthcare scientists.
- Develop and promote the role of Clinical Academic posts for healthcare scientists between NHS and university partners.
- Work collaboratively with the life sciences sector to provide developmental opportunities outside the NHS to harness innovation and accelerate technological and non-technological development.
- Consider introduction of an advisory process to guide health organisations in their recruitment of healthcare scientists.

4. Applied Research and Innovation for Service Improvement

'Harness innovation and accelerate Technology in Infrastructure Development'

Applied research and innovation are at the core of healthcare science – exploring and integrating new and improved ways of working to address service challenges is of fundamental importance. New knowledge concerning optimal service delivery along with global developments in automation, precision medicine, digitalisation, artificial intelligence/machine learning, 3D tissue printing, advanced therapeutics and internet technology will have profound impacts on the health service. Non-technology driven applied research also plays a role in service redesign and transformation e.g. skills-mixing, leadership, new care models etc. In order for service challenges to be effectively addressed through research, technological and non-technological innovation, a coordinated and collaborative approach is required to obtain the necessary evidence base needed to change clinical practice, through robust research and improvement methodologies and evaluations. Healthcare Science Network will champion and advocate the applied research, innovation that will deliver prudent and value based healthcare agenda and focuses on service challenges for the betterment of NHS Wales.

Healthcare scientists have a significant role to play in leading, defining, designing, developing and delivering multi-professional collaborative high quality applied research in the NHS. Wales has a well-developed and coordinated research infrastructure for healthcare research through Health and Care Research Wales and the National Institute for Health research (NIHR). Health and Care Research Wales and NIHR have various programmes to support new and experienced researchers working in the NHS in Wales. Healthcare scientists are involved in many applications to these research programmes either for their own research or as a co-applicant or support for other healthcare professionals. In addition, healthcare scientists can be involved in applied research studies stemming from the local research and development programmes sponsored by the university health boards. Wales also has a thriving academic and industry led research environment with many shining examples of internationally renowned best practice.

Healthcare scientists, with their skill set, are well positioned to lead and support high quality applied research in many specialties, where projects are suitable for adoption onto the Clinical Research Portfolio. This is achieved through working in partnership with other healthcare professionals, academia and industry and being involved in idea generation, study design, research governance, recruitment, data analysis, publication of findings and knowledge translation and mobilisation. In addition, healthcare scientists can provide high quality supervision, support and mentoring of other healthcare scientists and healthcare professionals undertaking applied research. Healthcare scientist research support therefore facilitates career

development of other healthcare professionals and can also increase income generation for the NHS through commercial research activity, grant funding and development of intellectual property.

The rapid adoption of new and emerging technologies and other innovations into the service is dependent on a range of factors such as: evidence, policy direction, agreement and support of stakeholders, cultural change, resources, education and leadership. Where new technologies and innovations are introduced, disinvestment in less valuable services must also occur for the system to remain balanced. The complex engagement and participation of multiple stakeholders including the public sector, third sector and private sectors across Wales will drive new ways of working and new ways of thinking. A coordinated and evidence led approach is required in order to identify and address service level challenges through the rapid evaluation and deployment of new and emerging technologies and innovative ideas.

There are many opportunities for healthcare scientists to engage and participate in innovative activities that take place within the university health boards and trusts as well as across the wider healthcare system. Healthcare scientists can engage with projects funded through Innovate UK and the Efficiency Through Technology Fund (ETTF) that seek to support the adoption and scale up of innovative technologies that will drive service transformation and improve patient outcomes. Similarly the Bevan Health Technology Exemplars programme supports NHS Wales staff to work in partnership with an industry partner to rapidly introduce and evaluate an innovative health technology product or service within a clinical pathway. Both NICE and Health Technology Wales are set up to evaluate the impact of new technologies and healthcare scientists are well placed to support the assessment of new technologies in the health service. In addition, healthcare scientists are able to engage in other initiatives such as the Welsh Wound Innovation Centre that aims to develop clinical excellence in the prevention, treatment and management of wounds.

A key driver for success is facilitating healthcare scientists to engage and participate in the research and innovation activities driven by the university health boards and to form strategic partnerships with Higher Education Institutions (HEI's) and industry. The Healthcare Science Network will also seek to support and inform the development of annual R&D and Innovation work programmes and funding calls (e.g. ETTF, HCRW). The Healthcare Science Network will support funding applications, and where required, manage a coordinated response by healthcare scientists to new funding calls in Wales and beyond.

Actions

The All-Wales Healthcare Science Network will work in collaboration with Welsh Government, Health Education and Improvement Wales, NHS university health boards and Trusts, Health and Care Research Wales, the education sector (higher, further, secondary & primary) and the public to:

- Support and promote healthcare scientists to increase their active participation and engagement in applied research and innovation programmes and projects in university health boards across Wales and beyond. The Healthcare Science Network will monitor and report on healthcare science participation in applied research programmes to:
    a) Identify healthcare scientists in an applied research leadership role and those conducting research projects.
    b) Identify successful grant submissions led by (or have co-applicant) healthcare scientists.
    c) Identify publications with healthcare scientist authorship / co-authorship.
- Support University Health Boards and work in partnership with NHS R&D Directors to develop strategic plans for prudent and value based research, development, and innovation.
- To develop strategic plans for research, development, and innovation.
- To help shape and inform applied research and innovation programmes and initiatives in Wales.
- To develop a horizon scanning for new and emerging innovations and technologies that can be shared with healthcare scientists through Healthcare Science One.
- Working with University Health Boards, Trusts and HEIW to develop job plans for healthcare scientists to support research and development and associated national/strategic contributions.
- To maximise and raise awareness of opportunities for healthcare scientists to undertake research.
- Provide a research mentoring and development scheme for healthcare scientists throughout their careers and provide support to other professionals who are engaged in health science research and innovation activities.

5. Service Redesign and Transformation

'*Bold Models of Seamless Care, National Principles, Local Delivery*'

As described by ['The Interim Parliamentary Review of Health and Social Care in Wales, 2017'](#):

"The case for change is compelling. Wales can attain better health and wellbeing outcomes for its citizens and meet the goals of the Wellbeing of Future Generations (Wales) Act 2015, but to do so we will need to speed up how the health and social care system adapts to the changing needs of the population and other major challenges".

Healthcare science is one significant asset that can be used more effectively to support this transformational change and pursue continuous service quality improvement. The prudent healthcare principles and value-based healthcare are used by this professional group to effect necessary change. The complexities of change management work best when all professional groups, including healthcare scientists, work together to develop more prudent, clinically effective patient care pathways and models of care. Capturing the value of the expert input from the appropriate healthcare scientist will help facilitate that change. Healthcare scientists are well skilled in developing, trialling and evaluating new techniques and ways of working. It is important that an environment is created where healthcare science has a greater influence in system design, implementation and development of new models of care; to do this we must provide space and protected time for healthcare scientists to engage and participate in this process and for their expertise to be fully utilised.

'One Seamless System for Wales'

Effective new models of care require evidence to support transformation – much of this evidence will be provided from new digital initiatives where information is captured and analysed systematically. Specific examples of current system level changes that are underway include commitments to promote independence through self-management and remote monitoring, provide care closer to home, earlier disease diagnosis, reducing variation, quality value adding consolidation of services and adoption of new and emerging technologies e.g. regenerative medicine, precision medicine and genomics. The healthcare science workforce can assist with the transformation by ensuring that the Healthcare Science Network contributes to national working groups in Wales and England e.g. non-medical prescribing, the transformation of diagnostic services such as pathology imaging etc. The Healthcare Science Network can ensure whole system thinking by coordinating action between strategies where the workforce has a key involvement. The need for evidence-based decision-making is central to effective service redesign and transformation. Whether

technological or non-technological, R&I is an intrinsic component of service improvement. Healthcare science must therefore adopt a more systematic approach to research and innovation through to implementation at scale. There is complementarity between actions between research and innovation and service transformation.

Actions

The Healthcare Science Network will work in collaboration with Welsh Government, NHS university health boards and Trusts, the education sector (higher, further, secondary and primary), industry and the public to:

- Ensure that there is healthcare science representation on relevant national (UK & Wales), regional and local service transformation programmes in policy development in the fields of health, education and industry, e.g. primary care, genomics, acute kidney injury, laboratory information system, Technology Enabled Care Services (TECS) etc.
- Engage early in UK and Welsh Government and NHS discussions for digital transformation; including service needs and system specifications, training and implementation.
- Work with NHS Wales and Welsh Government to prioritise and support the prudent and value based healthcare agenda for healthcare science in addressing service challenges
- Support the development of evidence based decision making through the systematic collection and analysis of data.
- Champion the benefits of active co-production and multi-professional approach in the design, implementation, evaluation and subsequent development of new models of care and care pathways.
- Work with University Health Boards, Trusts and HEIW to develop job plans for healthcare scientists to support service re-design and transformation including associated national/strategic contributions.

6. Culture and Integration

'Capacity to Transform, Dynamic Leadership, Unprecedented Cooperation'

Good leadership is vitally important in order to realise a vision for healthcare science that supports both the development of the profession and addresses service challenges. Healthcare scientists already hold senior leadership roles in NHS Wales but there has been no clear route to hold lead roles in the current 'divisional' management structures within university health boards and trusts, without leaving expert clinical practice. In Wales many examples already exist of services which are Consultant Clinical Scientist led; they include Genetics, Medical Physics, Rehabilitation Engineering, Biochemistry, Audiology and Newborn Screening. Consultant Clinical Scientists provide clinical and scientific expertise as well as strategic leadership, therefore it is important that the role of Consultant Clinical Scientist is supported in order to develop the pathway to enhance system level leadership. National pathways and programmes for succession planning and access to senior healthcare science positions require strategic intervention by NHS Wales to ensure a strong professional leadership of healthcare science in NHS Wales.

The healthcare science workforce is dispersed throughout university health boards and trusts as a consequence the professions sometimes lack system level coherence and have little visibility. Therefore healthcare scientists are not always sufficiently well positioned, and sometimes lack profile or authority to affect local decision making and authority to influence planning decisions. Compared to other health professions healthcare science has sometimes not engaged effectively and can thus have a reduced input to healthcare planning decisions. For their part, individual health organisations in Wales cannot necessarily see the strategic picture associated with small specialty health science services, such that sustainability and foundations for development of such services are at risk of being compromised.

Sometimes scientists are confined to clinical silos which can limit service improvement to their own clinical specialties. It can also affect whole system change when each integral part of the pathway is not identified or recognised and therefore not considered. Culturally there is a need for all professions to identify and recognize the contribution of each of the professions and ensure that all are involved in the development and decision making for the NHS to transform effectively. This is a two way process requiring each party to promote their roles with other healthcare professionals and for each role to recognize each others function as an important contributory factor of success. The healthcare science workforce problem solving skill set is a relatively under utilised resource in system level service design but it can often provide a unique opportunity to look at the challenges faced by NHS Wales with fresh eyes and to bring a different perspective. Involving the appropriate

healthcare scientist in any system level change should increase the chances of success. The added value for the inclusion of healthcare scientists is to harness how they think, and not just what they know.

Healthcare science is a global activity and evidence of best and better practice will exist in discrete pockets of the world. Recognition of the need to send our best and brightest healthcare scientists to explore, meet with and engage with healthcare professionals from other countries should be supported at the highest levels if we are to bring home new ideas, partnerships and collaborations to address our own service challenges.

Educating and engaging with future generations of healthcare scientists through outreach programmes requires further promotion in order to support the grass roots engagement with healthcare science. A more systematic and strategic approach to meeting the leadership ambition of outreach needs to be realised to support our future leaders. It is also important that healthcare scientists are also actively engaged in the education and training of other health professionals to increase awareness of healthcare science, and support multidisciplinary team working.

Actions

The Healthcare Science Network will work in collaboration with Welsh Government, Health Education and Improvement Wales, NHS university health boards and Trusts, the education sector (higher, further, secondary & primary) and the public to:

- Develop a healthcare science website (Healthcare Science One) for Wales that will bring together information for workforce development in Wales, and act as a focal point for healthcare science. Healthcare Science One will seek to attract new talent to Wales, inform the current workforce about training, learning and career opportunities, highlight current trends and stories from Wales, support policy development, provide a focal point and discussion forum for healthcare science disciplines (via an online secure platform).
- To exploit opportunities where multi-disciplinary programmes can be developed e.g. leadership, value based healthcare, informatics etc.
- Promote coherence and identity of the healthcare science community, with a series of workshops held in Wales.
- Work with national professional bodies to highlight the roles of the healthcare scientist in the NHS.
- Share good practice and celebrate successes of healthcare scientists in addressing service challenges.

- Promote the use of 'one voice' to communicate with the healthcare science profession and collaborate on important issues with others.
- Develop a national leadership plan and programme for healthcare science.
- Develop a travel fellowships programme for healthcare scientists.
- Work with educational programmes on a national and regional basis (e.g. STEMNET) to develop a culture of outreach in university health boards and trusts to support the uptake of science and healthcare learning.
- Promote a culture and schemes where senior healthcare scientists are responsible for mentoring and supporting junior healthcare scientists and all healthcare professionals on their career journey.
- Work with University Health Boards, Trusts and HEIW to develop job plans for healthcare scientists to improve culture and integration, including associated national/strategic contributions.

7. Quality and Service Improvement

'The Quadruple Aim for All'

The Triple Aim is a quality system based on securing better outcomes, better user experience and better value to provide a safe, effective, patient-centered, timely, efficient and equitable care with an engaged and productive workforce. Quadruple Aim differs from the Triple Aim by explicitly introducing the workforce into the equation by 'improving the experience of delivering care'. Putting patient safety first is something that everyone working in the NHS has a duty to do. NHS Wales also must recognise that its main asset is its workforce and an engaged workforce is one that can help transform the system and deliver even better care.

Healthcare can be very complex so we need to do all we can to reduce risks that can cause harm. Sometimes things do not go as planned so we need to recognise when errors happen so that measures can be taken to prevent the same errors reoccurring in the future. As a profession, healthcare science continually drives the reduction in incidents and avoidable harm by putting measures in place. The use of objective evidence helps to create an open and honest environment. Healthcare science is well-placed to lead and support service improvement through the use of evidence.

There is variation amongst healthcare science-led services that may or may not be accredited by recognised national systems. Similarly, there is variation in the application of professional regulation across healthcare science. These issues have been recognised nationally and there is ongoing work to address this.

Comprehensive good quality data is essential to provide safe and effective healthcare services. Through their clinical activities, healthcare scientists handle vast amounts of data relating to individuals and the administration and running of health systems. It is important that healthcare scientists understand the responsibility of handling data; recognise benefits of using data to drive service improvements and inform health policy, and are adequately skilled to collect and use data in a meaningful way.

Actions

The Healthcare Science Network will work in collaboration with Welsh Government, Health Education and Improvement Wales, NHS university health boards and Trusts, the education sector (higher, further, secondary & primary) and the public to:

- Provide national leadership and voice for healthcare science for non-devolved legislative changes e.g. ionizing radiation, non-medical prescribing etc.
- Work collaboratively at UK level informing and implementing the regulatory and registration requirements for healthcare scientists.

- Link with relevant sub-committee or Specialist Advisory Groups (SAGs) to ensure coordinated high level plans are developed relating to quality and safety.
- Monitor and report on accreditation of healthcare science-led services.
- Work with professional leads to develop a national accreditation plan for healthcare science-led services and work with UKAS at a national level towards more accredited services.
- Act as a focal point and forum for healthcare science sustainability issues. Collect information on healthcare science staffing levels across University Health Boards and Trusts and identify risks that can be escalated to DoTHS or relevant bodies, and networked regional solutions to sustainability issues can be promoted by the network.
- Support the prudent healthcare agenda and help improve services by driving the use of data and evidence to reduce unwarranted variation.
- Collaborate with WG and NHS Wales in taking forward areas prioritised in the Digital Statement of Intent e.g. by evaluating informatics training needs for healthcare science.
- Work strategically with education and informatics providers to support the development of education to enable healthcare scientists to use data for service improvement purposes and facilitate evidence-based outcomes.
- Act as a forum to discuss audit and benchmarking reports and propagate these to DoTHS peer group and other stakeholders.
- Monitor the number of senior healthcare scientists in the system, and proactively support recruitment and investments in these positions.
- Engage with Welsh Government and NHS colleagues to embed value based healthcare in service plans.
- Actively develop prudent health care approaches where service challenges exist; develop prudent healthcare science champions.
- Engage with Bevan exemplars and fellows in service improvement, monitoring and recording uptake in healthcare science across NHS Wales.
- Promote improvement champions.
- Work with University Health Boards, Trusts and HEIW to develop job plans for healthcare scientists to support quality and service improvement, including associated national/strategic contributions.

8. Conclusion

Releasing and harnessing the potential of the healthcare science workforce is of fundamental importance if we are to address the challenges that face NHS Wales in the future. The ambition is to create an environment in NHS Wales where healthcare science can flourish by establishing universal recognition of the profession, and by promoting its diverse array of rewarding and fulfilling career choices that can make a real difference to the lives of others. Science, technology and evidence based practice will play a significant role in driving improvement, increasing value, reducing service pressures and enhancing patient outcomes and experiences in years to come. The intent of the healthcare science community is to create a system using science and evidence that is fit for future generations and continues to develop the reputation of NHS Wales for world class healthcare science and healthcare scientists that are integral to the delivery of the highest standards of patient care.

Annex 1: Healthcare Science Divisions and Disciplines

Laboratory Sciences

Analytical toxicology

Anatomical pathology

Blood transfusion science /transplantation
Clinical biochemistry

Clinical embryology and andrology

Clinical Immunology

Cytopathology including cervical cytology

Electron microscopy

External quality assurance

Genomic including Genomic Counselling

Haematology

Haemostasis and thrombosis

Histocompatibility and immunogenetics
Histopathology

Microbiology inc. infection control & epidemiology, decontamination science virology, bacteriology, mycology and parasitology

Paediatric metabolic biochemistry

Tissue banking

Physiological Sciences

Audiology

Autonomic neurovascular function

Cardiac physiology

Clinical perfusion

Critical care technology

Gastrointestinal physiology

Neurophysiology

Ophthalmic and vision science

Respiratory physiology

Sleep physiology

Urodynamics and urological measurements
Vascular technology

Vision Science

Bioinformatics including

Clinical bioinformatics and genomics

Computer science and modelling

Health Informatics

Physical sciences and biomedical engineering

Physical Sciences and Biomedical Engineering

Biomechanical engineering

Clinical measurement

Diagnostic radiology

Equipment management and clinical engineering
Magnetic resonance imaging

Maxillofacial prosthetics and reconstruction

Medical electronics and instrumentation
Medical engineering design

Medical illustration and clinical photography

Non ionising radiation

Nuclear medicine

Radiation protection and monitoring

Radiopharmacy

Radiotherapy physics

Rehabilitation engineering

Renal dialysis technology

Ultrasound

Imaging Sciences
Radiographer - diagnostic
Radiographer – therapeutic

The Healthcare Science Network and DoTHS will work in collaboration with Welsh Government, Health Education and Improvement Wales, Professional Bodies, NHS local health boards and Trusts, education sector (higher, further, secondary & primary) and the public to:

Action	Delivery*	Indicators		
		Process	Output	Outcome
Address workforce challenges by leading, communicating and collaborating to support workforce development championing prudent and value based healthcare approaches.	Short-Long	ToR of Healthcare Science Network	Annual report of Healthcare Science Network activities	Stable balanced workforce, more coordinated planning measured by workforce demographics
Develop a workforce action plan, aligned to the 10 year plan for the NHS workforce, that addresses service level challenges by highlighting opportunities for workforce sustainability, recruitment and retention issues, career progression and support for equivalence, apprenticeships etc.	Short-Medium	Task and Finish Group working with HEIW and Workforce & Operational Directors (WODS)	Workforce strategy	Stable balanced workforce, more coordinated planning measured by workforce demographics
Strengthen and develop the MSC education and training career framework for the healthcare science workforce to include specific education, training and clear career pathways from Healthcare Science Associate through to HSST (Consultant) level.	Short - Medium	Work with HEIW, HEI's and WODS	Workforce strategy with job planning section. A clear and cohesive career framework published	Improved recruitment, retention and progression figures. Greater access and mobility for new and existing healthcare scientists
Inform and support workforce development for the current and future healthcare science professions, through reviewing areas of	Short - Long	The Healthcare Science Network will link to other NHS Wales prority policy	Workforce strategy; section on extended and advanced practice.	Agreement and recognition of extended and advanced practice roles in healthcare science in NHS Wales. Number of healthcare scientists

extending scope of practice, enabling transferability of knowledge and skills to allow diversification within the scientific and clinical sector.		areas e.g. imaging, pathology, genomics clinical physiology and Technology Enabled Care Services (TECS)		working in advanced practice or in extended roles. Annual Report.
Identify both new education routes and current education provision at risk to ensure future sustainability.	Short - Long	The Healthcare Science Network will link to other NHS Wales pririty policy areas e.g. imaging, pathology, genomics and clinical physiology	Annual report Data fed into WG educational commsioning discussions	Comissioning of education and training programmes to better reflect service level needs
Champion broadening access to healthcare science (e.g. flexible approaches to learning) and enhance career progression pathways (e.g. through apprenticeships, equivalence, recognition of prior learning) to support flexible entry into the professions, career progression and retention of staff.	Short - Long	Healthcare Science Network will work with HEIW, WODS, FEI's, HEI's to develop a position paper.	Section in workforce strategy on broadening access to healthcare science.	Demographic data Broadened access to healthcare science training and education pathways.
Showcase and provide contextual examples of career pathways for the public, and both current and future NHS Wales healthcare scientists.	Short - Medium	Working with HEIW to provide case studies for HCS careers to be published on HCS One	Publication of career pathways on HCS One.	Monitoring of metatdata from HCS One. Increase in application for healthcare science training.
Develop and promote the role of Clinical Academic posts for healthcare scientists between NHS and university partners	Short- Long	HCS Network to work with HCRW, HEI's and RCBC	Workforce strategy with job planning section. Agreement on job plans for healthcare scientists in NHS Wales.	More healthcare scienstistengaged with R&D, national representation and teaching

Applied Research and Innovation for Service Improvement

Action	Delivery	Indicators		
		Process	Output	Outcome
The Healthcare Science Network will monitor and report on healthcare science participation in research programmes.	Short - Long	Healthcare Science Network will work with NHS Wales, HCRW, HEI's to develop an approach for evaluating active healthcare science involvement in R&I.	Paper on HCS R&I evaluation Section in healthcare science R&I strategy Annual report	Agreed set of measures and framework to evaluate healthcare science R&I impact
Support Health Boards and work in partnership with NHS R&D Directors to develop strategic plans for prudent and value based research, development, and innovation.	Short - Long	Deliver workshop with HCS, R&D directors HCRW to support development of R& I strategy for HCS	Production of R&I straegy for prudent and value based healthcare science Report on R&I in healthcare science	HCS R&I in prudent and value based healthcare objectives embedded in IMTP of UHBs and Trusts
Working with scientific advisory groups, the Life Sciences Hub and Health Technology Wales to develop horizon scanning for new innovations and technologies that can be shared with healthcare scientists through Healthcare Science One.	Short - Long	Workshop and paper with the Life Sciences Hub, HTW and WSAC	Agreed mechanism to identify and share information on emerging scientific and technological advances for HCS	Metadata from HCS One Increased number of R&I applications from HCS

Working with Health Boards, Trusts and HEIW to develop job plans for healthcare scientists to support research, development and innovation	Short - Long	See actions relating to Workforce plan		
Working with Health and Care Research Wales to maximise and raise awareness of opportunities for healthcare scientists to undertake research.	Short - Long	Through HCS One	Opportunities for R&I funding opportunities posted through HCS One.	HCS One Metadata
Provide a research mentoring and development scheme for healthcare scientists throughout their careers and provide support to other professionals who are engaged in health science research and innovation activities.	Short - Long	Healthcare Science Network will develop a mentoring scheme for health science in NHS Wales	Functioning mentoring scheme	More enagement with HCS R&I schemes in NHS Wales, with outcomes measured as described in the first action of this section.

Service Redesign and Transformation

Action	Delivery	Indicators		
		Process	Output	Outcome
Ensure that there is healthcare science representation on relevant national (UK & Wales), regional and local service transformation programmes and policies e.g. primary care, genomics, acute kidney injury, laboratory information systems, Technology Enabled Care Services (TECS) etc.	Short - Long	Identify leaders to partcipate in groups and feedback to networks. Within the ToR of the HCS Network; discussed on a quarterly basis and reported annually	Annual report highlighting HCS involvement in service transformation programmes e.g. audiology in primary care	Change in service models whereby healthcare scientists are working at the top of their licence to address service challenges
Engage early with UK, Welsh Government and NHS discussions for digital transformation; including service needs and system specifications, training and implementation.	Short - Long	Identify leaders to partcipate in groups and feedback to networks. Within the ToR of the HCS Network; discussed on a quarterly basis and reported annually	Relaying information from DOTHs to network to inform the planning process e.g. IMTP	Workforce engaged in digital transformation agenda
Work with NHS Wales and Welsh Government to prioritise and support the prudent and value based healthcare agenda for healthcare science in addressing service challenges.	Short - Long	HCS Network will work with the National Clinical Lead to develop a prudent and value based healthcare science strategic plan	Annual report and strategic plan on prudent and value based healthcare science.	Prudent and value based approaches embededded into all health science service transformation and redesign plans.
Support the development of evidence based decision making through the systematic collection and analysis of data.	Short - Long	HCS Netwrok led multi-disciplinary stakeholder workshop on use of evidence and data in service redesign. Education and learning development	Paper from workshop on use of evidence from data.	Reduction in varitaion through the use of evidence consistently and transparently.

		Support other staff groups to access and use system information and data to support service redesign		
Champion the benefits of active co-production and multi-professional approach in the design, implementation, evaluation and subsequent development of new models of care.	Short - Long	ToR from Healthcare Science Network	Annual report HCS Network	Number of HCS involved in service redesign

Culture and Integration

Action	Delivery	Indicators		
		Process	Output	Outcome
Develop a healthcare science website (Healthcare Science One) for Wales that will bring together information for workforce development in Wales, and act as a focal point for the healthcare science.	Short - Medium	Workshop to agree content and secure domain name, develop web content	Website	Metadata and user feedback
Collaborate with HEIW to exploit opportunities where multi-disciplinary programmes can be developed e.g. leadership, value based healthcare, informatics etc.	Short – Medium	ToR of the Healthcare Science Network	Annual report	HCS integrated into multidisciplinary training and education programmes
Promote healthcare scientist delivery of training and education of under and post graduates for all healthcare professions	Short - Long	ToR Healthcare Science Network	Annual report	HCS integrated into multidisciplinary training and education programmes
Promote coherence and identity of the healthcare science community, with a series of workshops across Wales.	Short - Medium	Workshops	Report on engagement and co-production	Increased numbers of HCS in HCS Network members
Work with national professional bodies to highlight the roles of the healthcare scientists in the NHS Wales.	Short - Long	Links with other HCS bodies e.g. AHCS	Annual report	Greater engagement of NHS Wales healthcare scientists with UK professional bodies.

Share good practice and celebrate successes of Healthcare Scientists in addressing service challenges and driving quality and improvement; championing prudent and value based healthcare.	Short - Long	Highlight and publish HCS success stories. Support	Annual report. Publish on HCS One	Awards, publications, media of HCS success in NHS Wales , Honours
Promote the use of 'one voice' to communicate with the healthcare science profession and collaborate on important issues.	Short - Long	Highlight and publish HCS success stories. Support	Annual report. Publish on HCS One. ToR HCS Network.	Awards, publications, media of HCS success in NHS Wales , Honours. Increased engagement and representation of the smaller professions
Develop a national leadership plan and programme for healthcare science.	Short - Medium	Workshop with senior healthcare scientists and HEIW	Devise a plan for meeting leadership needs of healthcare science	Training programme for HCS and number of healthcare scientists undertaking training
Develop a travel fellowships programme for healthcare scientists.	Short - Long	Develop a travel fellowship programme	10 travel fellowships per annum	Reports on prudent and value based practices for publishing on HCS One and proposals submitted to HCRW or ETTF programmes.
Work with educational programmes on a national and regional basis (e.g. STEMNET) to develop a culture of outreach in Health Boards and Trusts to support the uptake of science and healthcare learning.	Short - Long	Stakeholder workshop Including (health and education) co-ordinated programme to develop a national plan for HCS outreach activities	Co-ordinated outreach programme for healthcare science in NHS Wales	Increase in student applications to healthcare science
Promote a culture where senior healthcare scientists are responsible for mentoring and supporting junior healthcare scientists and all healthcare professionals on their career journey.	Short - Long	Engagement with healthcare scientists and workforce to develop the national mentoring framework for health science	Section in workforce strategy	Supported health science mentoring

Quality & Service Improvement

Action	Delivery	Indicators		
		Process	Output	Outcome
Provide national leadership and voice for healthcare science for non-devolved legislative changes e.g. ionizing radiation, non-medical prescribing etc.	Short - Long	Nominated leads from Healthcare Science Network	Annual report listing leads	Greater influence from NHS Wales on UK programmes Enhanced leadership opportunitues for healthcare science
Work collaboratively at UK level informing and implementing the regulatory and registration requirements for healthcare scientists.	Short - Long	Healthcare Science Network engagement with UK bodies	Annual report	Increase the number of accredited services, professions and healthcare csientiosts
Link with relevant sub-committee or Specialist Advisory Groups (SAGs) to ensure coordinated high level plans are developed relating to quality and safety	Short - Long	Healthcare Science Network engagement through WSAC annual report	Annual report	Joint papers from HCS Network and WSAC
Monitor and report on accreditation of healthcare science-led services.	Short - Long	HCS Network ToR	Annual report	Increase in accredited HCS led services in NHS Wales
Work with professional leads to develop a national accreditation plan for healthcare science-led services and work with UKAS at a national level towards more accredited	Short – Medium	Task and finish group	Accreditation plan	Endorsement and delivery of plan with an increase of accredited services in NHS Wales

services.				
Act as a focal point and forum for healthcare science sustainability issues. Collect information on healthcare science staffing levels across Health Boards and Trusts and identify risks that can be escalated to DoTHS or relevant bodies, and networked regional solutions to sustainability issues can be promoted by the network.	Short - Long	ToR Healthcare Science Network Engagement with HEIW on training and commisoning	Papers	Reduction in demand healthcare science gaps Increase in regional solutions for service sustainability
Support the prudent and value-based healthcare agenda and help improve services by driving the use of data and evidence to reduce unwarranted variation. Improve and transform services by adopting prudent and value based healthcare principles.	Short - Long	ToR Healthcare Science Network	Annual report Papers on prudent and value based healthcare	Increase in healthcare science led services with prudent and value based practice
Collaborate with WG and NHS Wales in taking forward areas prioritised in the Digital Statement of Intent e.g. by evaluating informatics training needs for healthcare science.	Short - Medium	Healthcare Network engagement with WG Digital Strategy	Annual report (and digital strategy outputs)	Outcomes linked to digital strategy indicators
Work strategically with education	Short - Long	See workforce action	Section in	Number of scientists undergoing training and

			workforce strategy on health informatics education and training	increase in applications.
Act as a forum to discuss audit and benchmarking reports and propagate these to DoTHS peer group and other stakeholders.	Short - Long	ToR HCS Network	Annual report HCS Network activities	Use of national audit and benchmarking reports to drive quality and service improvement
Monitor the number of senior healthcare scientists in the system, and proactively support recruitment and investments in these positions.	Short - Long	See Culture and intergration leadership plan action 7	Leadership plan and annual report from HCS activities	Increase number of senior healthcare scientists
Engage with Welsh Government and NHS colleagues to embed value-based healthcare in service plans.	Short - Long	HCS Network will work with the National Clinical Lead to develop a prudent and value based healthcare science strategic plan	Annual report and strategic plan on prudent and value based healthcare science.	Prudent and value based approaches embededded into all health science service transformation and redesign plans.
Engage with Bevan exemplars and fellows in service improvement, monitoring and recording uptake in healthcare science across NHS Wales.	Short - Medium	Healthcare Science Network will work with WG and Bevan programme to evaluate healthcare csience involvement in Bevan Technology Exemplar programme	Section in HCS Network annual report	Increase in number of healthcare scientists involved in Bevan Technology Exemplar programme.

Promote and recognise improvement champions	Short - Long	See Culture and Integration section	Annual report. Publish on HCS One	Awards, publications, media of HCS success in NHS Wales, Honours

*Delivery

Short	1 year
Medium	1-3 years
Long	1-10 years

Culture and Integration
- Careers and Outreach
- Leadeship
- Multi Discipline
- Collaborative Working

Service Redesign and Transformation
- Value Based Healthcare
- National Working
- Digital Transformation
- Whole System Thinking
- Direct Patient Care
- Co-Production

Workforce
- Service Planning (IMTP)
- Recruitment and Retention
- Education and Retention
- Career Progression
- Widening Access
- Role Redesign

Value and Excellence in Prudent Healthcare Science

Research and Innovation
- Evidence base
- New Technologies
- New Diagnostics
- New Therapeutics

Quality and Safety
- Clinical Audit
- Accreditation
- Sustainability
- Service Improvement
- Unwarranted Variation