Health and Care Research Wales Position Paper

Future Initiatives in Experimental and Precision Medicine

Introduction

The Division for Social Care and Health Research (DSCHR) is the Welsh Government division that leads on strategy and policy for health and social care research and development in Wales. Our vision is for Wales to be internationally recognised for its excellent health and social care research that has a positive impact on the health, well being and prosperity of the people in Wales.

Through our investment in translational research, the work currently underway in experimental and precision medicine is integral to this vision. The strong academic and industrial research base ensures that Wales has an important part to play in the development of therapies and interventions that are targeted and effective and, by doing so, speaks clearly to the principles of prudent healthcare: Do what is needed, no more, no less; and do no harm.\(^1\)

Building on the work already underway, this paper highlights the proposed strategic direction for experimental and precision medicine for the next five years and sets out a vision that incentivises and promotes joined up working across sectors, smarter use of routine data and an open innovation culture that will benefit the people of Wales.

Background

Health and Care Research Wales supports translational research with a particular focus on applied and public health research as described in the Cooksey Report.\(^2\) This includes research into the prevention, detection and diagnosis of disease; the development and evaluation of interventions; the provision of health and social care services; and the implementation of research findings into practice.

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\(^1\) www.prudenthealthcare.org.uk/

Experimental and precision medicine represent important components of the research pathway to develop and evaluate new diagnostics and interventions for disease and it is clear that these growing areas of research will have an increasing role to play in the future.

**Experimental medicine**

Experimental medicine is a term used for studies which drive the translation of discoveries from basic science and clinical medicine into benefits for human health. This includes the study of mechanisms underlying disease in human tissue samples and/or patients and phase I/IIa trials to demonstrate proof-of-concept evidence for the validity and importance of new discoveries or treatments. Health and Care Research Wales also considers pre-clinical (animal) studies to investigate the mechanisms underlying disease and/or to demonstrate the effectiveness of new therapies to fall under the umbrella of experimental medicine, provided these studies are part of a larger body of work which includes the investigation of mechanisms underlying disease or novel treatments in humans.

Experimental medicine precedes and informs the development of late phase clinical trials. Effective translation of results from experimental medicine studies into later phase clinical research is an important outcome of experimental medicine, as is the generation of new ideas to be explored in the laboratory (otherwise known as reverse translation).
**Precision medicine**

Precision medicine is a rapidly developing area which aims to optimise the diagnosis and treatment of diseases through developing targeted diagnostics and treatments for individuals rather than the population as a whole. Tools (including, ‘biomarkers’, and clinical and other phenotypic characteristics) are developed which enable researchers to stratify patients into groups based on the specific pathways underlying disease(s) to aid the development of matching treatments and optimal treatments for the patient groups – often described as ensuring the right patient receives the right treatment at the right time. Health and Care Research Wales considers that any study where methods are applied to stratify patients into groups based on biomarkers or detailed clinical/phenotypic characteristics would fall under the umbrella of precision medicine.

Experimental medicine can overlap with precision medicine and/or genetic/genomic medicine. The relationship between the three areas can be visualised as follows:

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**Proposed strategic direction**

We aim, in partnership with other areas of Welsh Government, to develop a programme of work that places Wales at the international forefront of health and social care research thereby contributing to job creation, economic growth and improved health outcomes for the people of Wales. The programme will:

- Build on the significant strengths of Wales by supporting research in precision medicine, enabling experimental studies to progress to multi centre trials and onto applied health research for the benefit of patients in Wales. This would be underpinned by the core values of prudent healthcare: reduce harm, improve patient outcomes and deliver a better patient experience.
 Build on the Health and Care Research Wales research infrastructure, which provides an excellent foundation for Welsh experimental /precision medicine research and capitalise on existing strengths (e.g. in digital data linkage, a single, joined up healthcare system, tissue banking capabilities and diagnostics) to prepare Welsh HEIs and LHBs to become potential leaders in experimental /precision medicine in the future.

 Harness the functions of Healthwise Wales³ as an appropriate mechanism to enable researchers to access routinely collected data and consented biological samples, and investigate ways of adding value to these samples through genomic sequencing.

 Investigate the possibility of adding value to existing schemes by providing new doctoral-level funding opportunities for healthcare professionals and clinical scientists in collaboration with key diagnostic companies and the Department for Economy, Science and Transport. This would focus around validation of companion diagnostics to create a thriving experimental / precision medicine research environment that attracts students and researchers to Wales.

 Facilitate and promote partnership working across HEIs, NHS, industry and relevant charities by raising the profile of collaborative funding calls available within the UK and Europe. This would include developing a ‘precision medicine network’ and linking to specific UK groups, e.g. the UK Stratified medicines KTN which supports collaborative research with industry.

 Ensure that the full benefit of public money invested in tissue banking resources is realised, through supporting Welsh tissue banks to develop high standards for the collection and storage of tissue samples and make these discoverable and freely accessible for high quality precision medicine and experimental medicine studies in Wales and beyond.

 Ensure that HEIs and LHBs / Trusts in Wales are able to maximise opportunities to obtain funding from key UK biomedical funders by supporting them to comply with the expectations of the UKCRC Funders of Human Tissue Resources Vision in their collection, storage and dissemination of tissue samples.

 Investigate the link between precision medicine and person-centred care in the social care arena by considering opening up new PhD funding opportunities (allied to the proposed scheme highlighted above) to support research to determine if individuals exhibit specific personalised social/community care needs that can inform a stratified approach to care.

³ www.healthwisewales.gov.wales/
Building for the Future

The ultimate goal of diagnosing and treating disease on the basis of detailed personal information calls for a step change in collaborative working. The proposed programme of work outlined above aims not only to build on the success already achieved in areas of experimental and precision medicine, but embraces new ways of working to address the challenges we face now and in the future, to positively impact on the health, wellbeing and prosperity of the people in Wales.

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