A Strategy for Research and Innovation

2020 – 2025

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Research and Innovation Strategy
Betsi Cadwaladr University Health Board
2020-2025

1. Background

1.1 The BCUHB Clinical Research and Development (R&D) three year Strategy ends in December 2019 and the Health Board is developing a Research and Innovation (R&I) Strategy for the next five years. The achievements of the R&D Strategy are summarised in a closure report and include the development of the North Wales Clinical Research Centre, an increase in the number of patients given the opportunity to be involved in research, and an increase in the number of Chief Investigators, Principal Investigators and other research active staff.

1.2 There are now more collaborations than ever before and we have raised awareness of research activities across the Health Board. Notably, we have out-performed the rest of Wales and UK in a number of portfolio studies and co-developed a Community of Scholars for new and novice researchers.

1.3 However, there is much more to do. We are aware that we must learn lessons from the previous strategy and build on this moving forward. We know that the future strategy is also an enabler for recruitment and retention of high calibre staff and has the potential to become a sustainable income generator to support delivery of high quality health and care services for the region.

1.4 To really gain collective benefit, we must ensure the future R&I Strategy integrates research, improvement and innovation and becomes meaningful and engaging to staff and public.

2. Local and national context

2.1 R&I is integral to the delivery of the Health Board purpose, vision and strategic goals including in particular:

Goal 1
'*Improve health and well bring for all and reduce inequalities*'
and
Goal 7
'*Use resources wisely, transforming services through innovation and research*'.

The R&I Strategy will support achievement of local population priorities and it will be jointly shared with our key stakeholders and partners.

2.2 There is recognition that R&I is key to unlocking the development of solutions to many of the challenges faced across the Health Board, bringing new knowledge, evidence based technology and income. Further, the positive impact of R&I for the workforce is being increasingly recognised[1] and a research active system means that the workforce have better access to education and learning, career pathways and leadership development.

2.3 The majority of research activities in BCUHB are funded centrally from Welsh Government allocation. This is further supplemented by opportunistic additional income generation through such activities as commercial research. Additionally, North Wales Clinical Research Centre staff are funded by BCUHB. However, developing innovation activities will require future infrastructure and funding to fully achieve the benefits it can bring.

2.4 Recent Welsh Government publications including *A Healthier Wales[2],* and *Prosperity for All[3]* and the Health Board strategies *Living Healthier, Staying Well[4], Together for Mental Health[5]* and Quality Improvement and Workforce strategies have informed this integrated strategy to ensure that it is fit for purpose and future proofed (Fig. 1).

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[1] Hanney et al (2013) Engagement in Research: an innovative three stage review of the benefits of health care-performance *Health Service & Delivery Research publication* http://bit.ly/2nisLOg

[2] A Healthier Wales: our plan for health and social care (2018) http://bit.ly/2pGBhY8

[3] Prosperity for All: The national strategy; taking Wales forward (2017) http://bit.ly/2oR0KgR

[4] Living Healthier, Staying Well: Our strategy for the future, improving health, wellbeing and health care in North Wales http://bit.ly/2oOHQHs

[5] Together for Mental Health: A strategy for Mental Health wellbeing in Wales (Updated 2018) http://bit.ly/2M69hok

Fig.1 Alignment with national and local policy drivers

Strategy	Alignment with objectives
A Healthier Wales (2018)	• Bring together research, innovation and improvement activity within each region • Focus on supporting innovation and partnerships which drive toward new models of care.
Prosperity for All: The national strategy; taking Wales forward (2017)	• Prosperous and secure • Delivery of quality health services
Living Healthier, Staying Well: Improving health, well being and health care in North Wales (2018 – 2021)	• Use what we have wisely, explore new ideas and learn from research • Use good quality research and best practice to improve services.
Together for Mental Health Plan (2016-19)	• Mental health as a key research area across Wales • Embed research and share best practice
BCUHB Quality Improvement Strategy (2017-2020)	• Implementing best practice and innovation in Quality and Safety • Encourage and promote innovation
BCUHB Workforce Strategy (2019-2022)	• Explore shared learning and innovation Find innovative ways to deliver services in a changing environment

3. Enablers

3.1 R&I will act as enablers to support the delivery of other strategies, both internal and external. They can do this, for example, by either directly contributing to the evidence base of delivering care or indirectly by making the work environment more interesting and attractive, supporting recruitment and retention.

4. Co-production and engagement

4.1 The R&I Strategy was developed following a region wide engagement process where we listened to views on challenges and opportunities for Research and Innovation in order to ensure:

- that the strategy has been co-produced by stakeholders
- that there is ownership for the strategy across the system
- that we understand the opportunities this strategy can bring

A separate report of the process of engagement and list of stakeholders involved is available and a summary can be found at Appendix 1.

5. A continuum of methods of inquiry for the purpose of improved healthcare

5.1 There are a continuum of methods of inquiry and discovery, from empirical research methods to disruptive innovation. Each approach stands on its own merit and each moves us further forward to finding solutions to a range of problems

identified. This continuum demands a proportionate and agile governance structure that enables translation of research into practice at pace (Fig.2).

Fig 2. Continuum of methods of inquiry
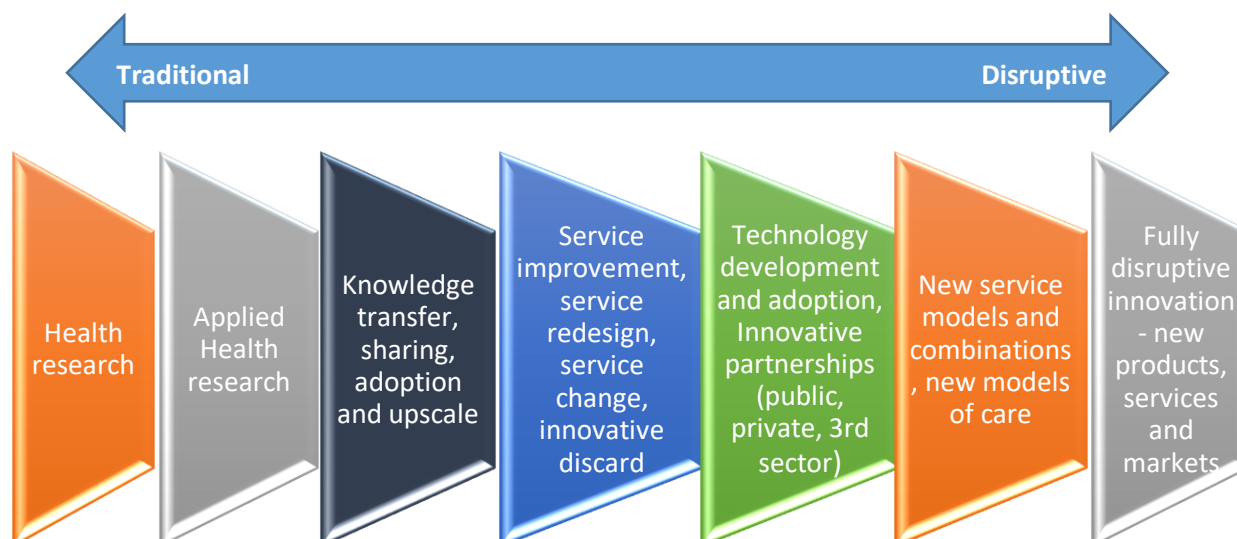
1.2 In order to achieve agile governance, the R&I Strategy recognises that partnership working is necessary to fully integrate its component parts.

6. Our partners

6.1 Our partners include Universities, Local Authorities, Health and Care providers, Welsh Government, 3rd Sector, Industry and Citizens of North Wales. We will support collaborative working and be guided by the Strategic Partnership Group to ensure the pathway, from research idea to implementation, works well. All partners will work to ensure that hand-offs between the disparate parts of the system are understood and act to remove any barriers that prevent synergies between what we discover and it being implemented at scale. In the future, this partnership may benefit from a more formal organisational form as it matures.

6.2 The success of this strategy requires the 'system', to work well so that problems can be defined, priorities set for research, funding identified, people recruited to research studies, innovations developed, adopted and implemented at scale, and commercialised where appropriate.

6.3 To reflect the vision set out in Healthier Wales, this Health Board R&I Strategy must be considered within the wider health and care system. Over the first year of the strategy, it is envisaged that further work will be undertaken, facilitated and led by the newly formed Research, Improvement and Innovation Regional Hub, to refresh this

strategy into a Regional Partnership Research, Improvement and Innovation Strategy supported by the delivery plans of partners.

7. Interfaces

7.1 The R&I Strategy is the Health Board's strategy and is an enabler to operational and clinical excellence. It will be closely aligned to the clinical and digital strategies, and dependent on communications, estates, workforce and organisational development for success.

Fig 3. Interfaces
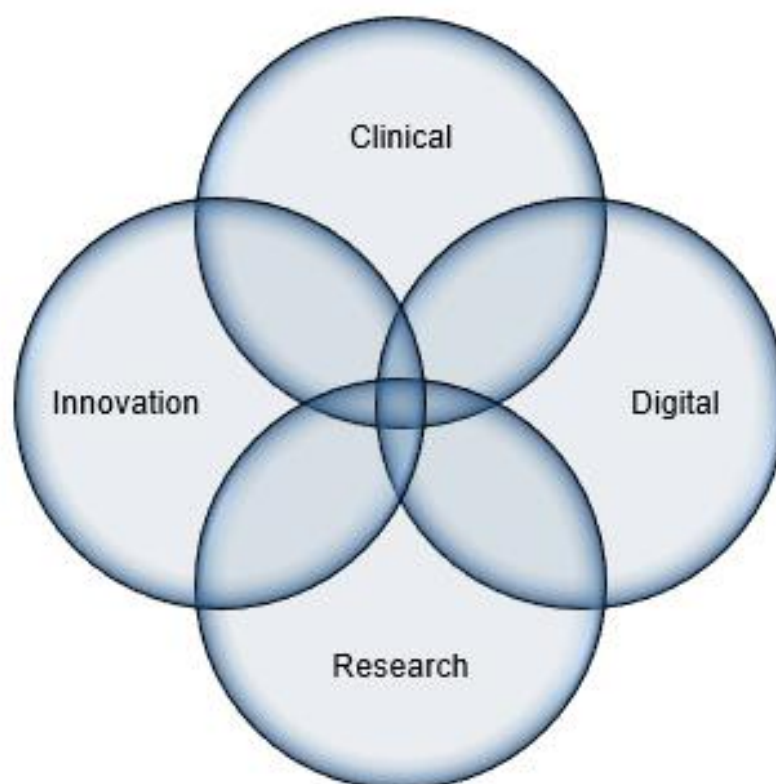
7.2 As the strategy matures, we would expect to see visible support for delivery of the strategy embedded in all the operational divisions of the Health Board. These will be measured by Key Performance Indicators, including the number of primary investigators, research studies, recruitment to research studies, adoption and spread of innovations, training and development and attracting talent, with targets set for each of the clinical and operational departments.

7.3 During year one of this Health Board R&I strategy we will review the strategy with a view to ensuring that we are fully benefitting from a wider partnership approach. We intend to use the Regional Research, Improvement and Innovation Hub to facilitate this work, and would expect any future regional strategy to be endorsed and approved

by the Regional Partnership Board, supported by an operational delivery plan for each organisation.

7.4 The BCUHB R&I Strategy will be reviewed during the period 2020 – 2025 and the new iteration will be informed by the regional direction being planned.

8. Listening to the views of stakeholders

8.1 A comprehensive stakeholder engagement activity was carried out from April to September 2019. The engagement process provided invaluable information from a wide range of stakeholders across North Wales and beyond which has informed this strategy.

9. SWOT Analysis

9.1 Findings from stakeholder engagement have been summarised into a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis (Fig.4)
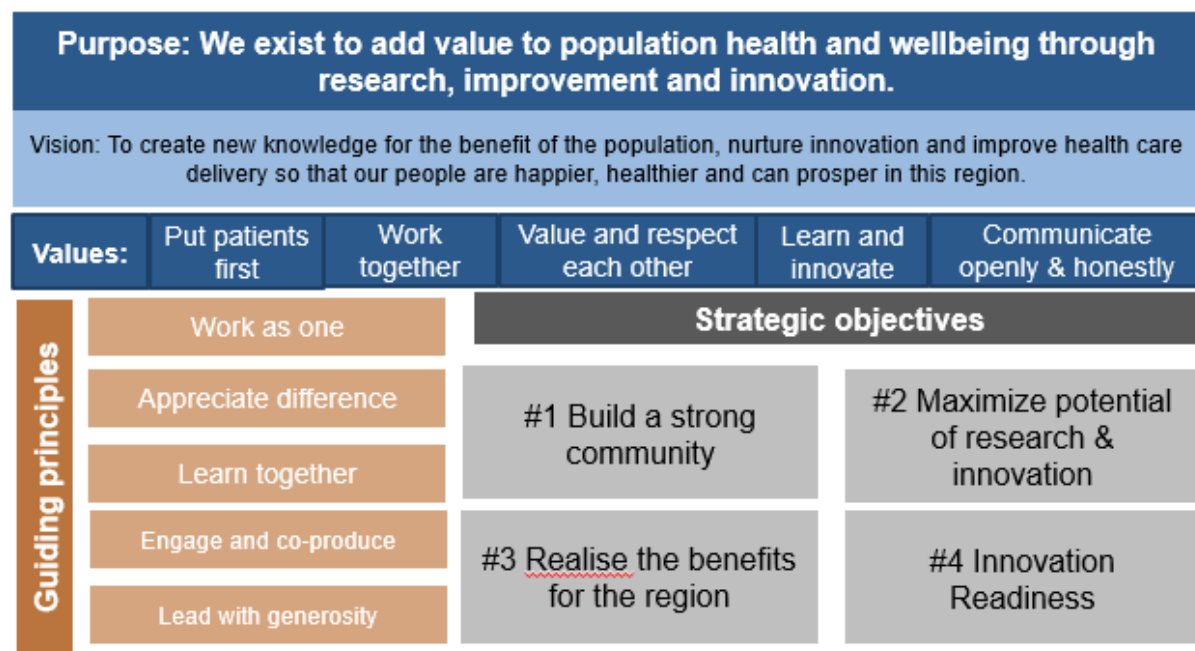
Fig. 4 SWOT Analysis

Strengths	Weaknesses
Bevan commission, exemplars and advocates Two Universities Culture for R&I Workforce skills and expertise An intrinsic motivation to do well for citizens	Competing for time and resources whilst delivering frontline services Lack of shared understanding of goals of the system No integration with clinical objectives Lack of visibility of the whole community Risk averse system Need explicit permissions
Opportunities	Threats
Partnership and joint working Understand the R&I continuum Community identity Use digital in a more profound way Define and communicate	Governance structures Tribes and competition Lack of investment Time poor Bid writing capacity

9.2 The SWOT analysis identified a mature response from a system with an appetite for partnership and improvement and that recognises a need for system change.

10. Research and Innovation Strategy Overview

10.1 The strategy sets out a purpose and vision to create new knowledge and support innovation for the benefit of the population health. It is driven by the shared values of BCUHB and shaped by five principles that will drive the R&I community to achieve four strategic objectives (Fig 5.)

Fig. 5 Strategy overview

Purpose: We exist to add value to population health and wellbeing through research, improvement and innovation.				
Vision: To create new knowledge for the benefit of the population, nurture innovation and improve health care delivery so that our people are happier, healthier and can prosper in this region.				
Values: Put patients first	Work together	Value and respect each other	Learn and innovate	Communicate openly & honestly

Guiding principles: Work as one · Appreciate difference · Learn together · Engage and co-produce · Lead with generosity

Strategic objectives

#1 Build a strong community

#2 Maximize potential of research & innovation

#3 Realise the benefits for the region

#4 Innovation Readiness

11. Purpose, Vision, Values and Principles

11.1 Our Purpose

We exist to add value[6] to the health and wellbeing of the population of North Wales through excellence in research, improvement and innovation.

11.2 Our Vision

To create new knowledge for the benefit of the population, nurture innovation, improve health care delivery so that our people are happier, healthier, and can prosper in this region.

11.3 Our Values

- Put patients first
- Work together
- Value and respect each other
- Learn and Innovate

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[6] Value defined as = improved population health + better experience of care + efficient use of resources (Institute of Healthcare Improvement) http://bit.ly/2AHrnYm

- Communicate openly and honestly

11.4 The Principles that will shape the R&I community across North Wales

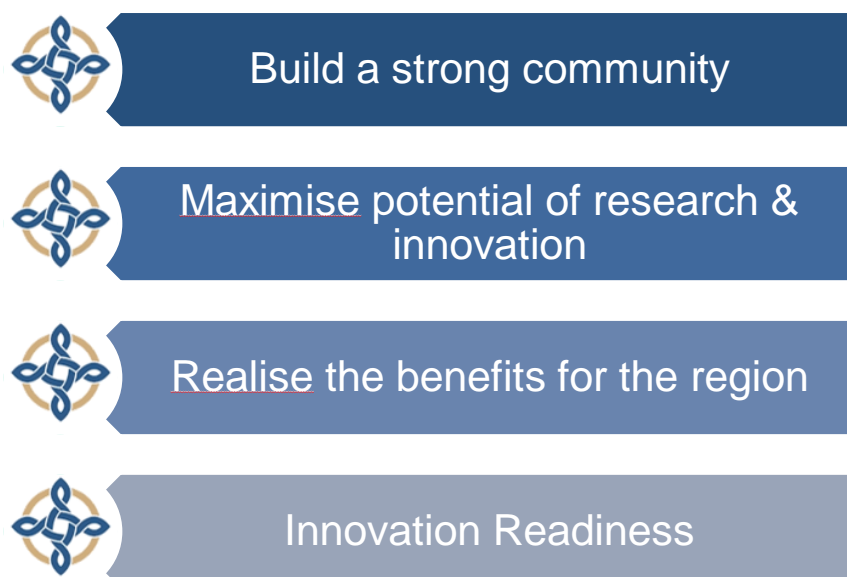|	
Work together as one system	Develop strong connections and understand the whole R&I system.
Appreciate differences	In approaches to research, improvement and innovation
Learn together	Be inquisitive, experimental, entrepreneurial and learn from failure
Engage and co-produce	With Academia, Health and Care providers, Local Authority, business and citizens
Lead with generosity	Appreciate insights gained from the wider system, network across boundaries, create alliances.

12. Strategic objectives

12.1 The strategy emphasises the importance of connecting the disparate parts of the whole to maximise the benefits of a research and innovation active health and care system.

12.2 It sets out how we will build on existing culture for research and innovation and optimise the assets available so that we can increase research activity, identify and access alternative funding streams and generate income.

12.3 In addition, the strategy focusses on the benefits of research and innovation for the region, enhancing opportunities for using new technologies, improving health and care services, and developing our people.

12.4 Finally, this strategy shines a light on the opportunities that innovation can bring, supporting innovators, entrepreneurs as well as local SMEs with programmes and communities of practice. Thus, together we can navigate NHS systems to collaborate with us to create solutions to health and care problems.

Fig. 6 Strategic Objectives

Build a strong community

Maximise potential of research & innovation

Realise the benefits for the region

Innovation Readiness

Strategic Aim 1. Build a strong community

We will work as one, harnessing collective potential through partnerships whilst valuing individual contributions. We will appreciate differences whilst connecting the whole for greater impact.

Strategic Aim 2. Maximise the impact of Research and Innovation

We will increase research and innovation activities and generate income. We will support research and innovation into practice.

Strategic Aim 3. Realise the benefits for the region

We will optimise collective assets available, translate research into practice, implement digital first, gather data to improve what we do and develop our people.

Strategic Aim 4. Innovation Readiness

We will develop a culture for innovation, supporting innovators and clinical entrepreneurs, defining the system innovation pathway from idea to commercialisation, bringing jobs to the region.

13. Risks to delivering the strategy

13.1 The risks can be categorised into culture, resource availability and system support. This strategy is dependent on cross partnership working, with Universities, Local Authorities, Welsh Government, Clinicians, 3rd Sector, Citizen Groups and Industry. This is a cultural challenge which will take time to achieve as we move from organisational behaviours to system behaviours.

13.2 It will also take time to develop the system incentives and rewards required. There is also a risk of being drawn into short term financial pressures, rather than

prioritising R&I developments, nurturing new partnerships and entering new opportunities that can bring growth.

13.3 On a practical level, key risks include:

- Ensuring sufficient workforce capacity to support R&I activities
- Engendering ownership of KPIs to meet ambitious R&I activity targets in each clinical and operational division.
- Financial pressures of the Health Board, meeting immediate priorities

13.4 Risks will be reviewed and mitigations put in place to optimise successful delivery of this strategy.

Research and Innovation Strategy 2 year delivery plan

		Research and Innovation Strategy – Delivery Plan 2020 - 2021	
Year 1 DEFINE	**Task**	**How to get there**	**Measures**
Build a strong community	A formal learning system	• Set up a core steering group for a learning system focussed on Research and Innovation competencies, and to direct learning processes and activities • Plan for bi- annual system wide learning events • Facilitate quarterly webinars to provide an opportunity to connect, update and shine a light of the work that is being done. • Develop R&I pathway and publish • Collaborating regionally, internationally on spread and scale initiatives, i.e. Spread Academy, Bevan Adopt and Spread initiative.	Steering group established Bi-annual events No. of attendees Quarterly webinars & engagements R&I pathway published Communications strategy in place Academy proposal developed
	A single brand identity	• Review and develop a shared regional strategy working with the Research Innovation and Improvement Hub • Develop brand identity for R&I partnership, work with communications function in partner organisations. • Utilise internal and external communication methods inclusive of social media platforms.	An agreed brand for the R&I partners Communications internally and externally
	Incentivise research and innovation	• Build an awards and rewards system for innovation, collaborations and individual activities • Create divisional KPIs and targets for R&I activity	No. of awards A suite of KPIs for R&I activity in each division
	Develop system leadership	• Provide opportunities for the development of system leaders. • Support the development of partnership working.	No. of leaders developed No. of collaborative projects increased

Maximise impact of research and innovation	Produce new knowledge	• Work with internal and external stakeholders to explore funding opportunities. • Develop research prioritisation process with the Strategic Partnership Group. • Prioritise research that aligns with population health needs, policy drivers and clinical strategy • Integrate and align with clinical strategy • Review activity in the North Wales Clinical Research Centre, identify opportunities for increased activity. • Support increased use of the research, innovation and improvement hubs, develop and spread the strategy	No. of research trials and activity Income generated Annual prioritisation process An integrated strategy Increased activity NWCRC An integrated Clinical and R&I strategy A spread strategy for upscaling innovation and improvements KPIs agreed for R&I activity in divisions and targets set.
	Share research findings	• Share research findings with each other and wider sectors • Work closely with the Research, Innovation and Improvement Hub	Communications strategy No. of publications, conferences, blogs and webinars
	Develop the workforce	• Develop research capacity and training both opportunistic (within existing training packages) and bespoke. • Create an R&I pathway, demonstrate how to step on and off the pathway and how to get involved.	No. of training opportunities No. of staff A R&I pathway published
Realise the benefits for the region	Shared access to system assets and facilities	• Increase collaboration between partners, buildings and human resources, including providing opportunities for staff and students where there are shared aims. • Work closely with Research, Innovation and Improvement Hub – work towards regional R&I strategy	No. of joint funding applications
	Reduce variation and digitise our information systems	• Streamline reporting systems, develop plan for digitising the system.	A digitised system

		• Integrate with digital strategy, drive optimisation of data from digital technology.	
	Implement evidence based care	• Identify translational research projects • Improve translation of research into practice, develop change management capabilities, capture learning from success and failure.	No. of translational research projects No. of successful efforts to implement evidence based care.
Innovation Readiness	Improvement and innovation hubs	• Support evidenced approaches from Bevan Exemplars and improvement activity. • Define the innovation pathway, from idea to commercialisation. • Develop competencies in innovation approaches, e.g. human centred design • Create a platform and network of people to bring solutions to areas of need in health and care services • Create categories of innovation against needs identified to make it simpler to discover innovations and improvements	No. of innovation and improvement spread and by how much An innovation pathway defined A competency framework for Innovation skills A platform for Innovation Exchange An innovation exchange network A suite of categories with innovations grouped
	Create living lab	• To experiment, model and explore innovative approaches and technologies	A living lab
	Communities of practice	• Support our Community of Scholars for researchers • Develop Innovation Scouts community, to support identification and support uptake of innovation. • Provide a programme of support for clinical entrepreneurs and local SMEs.	No. of active participants in communities of practice. Programmed activities for SMEs and Clinical Entrepreneurs
	Support growth	• In the region, engage with SMEs and industry, clarify procurement pathways, work to commercialise innovative ideas and technology for the benefit of health and care services.	No. of SMEs engaged Clarification of procurement pathway

Research and Innovation Strategy – Delivery Plan 2021 - 2022			
Year 2 Develop	**Task**	**How to get there**	**Measures**
Build a strong community	Develop joint governance and planning	• Define roles in partnership and offers • Create governance for partnership working • Develop options appraisal for organisational form for partnership working	A governance structure Options appraisal paper
	Pooled assets and resources	• Identify opportunities for pooling assets and resources • Options for strengthening links with Improvement and Innovation hubs	No. of opportunities for pooled assets and resources Strategy for integrating Research, Improvement and Innovation hubs developed.
Maximise impact of R&I	Research priorities aligned	• Priorities identified and shared • Applications made for joint and individual funding • Research activity targets implemented in each clinical division • Collaborations and partnerships across boundaries • Cross sector research and alliances created	No. research trials and activity increased Income generated Activity data increased in each division No. collaborations increased
	Integrate with clinical and digital strategies	• Identify areas of synergy with strategies	No. of clinical research activity
Realise benefits for the region	Digitise our systems	• Implement digital first approach to research activity, use paperless systems. • Consider use of technology to gather data; i.e. wearables, sensor tech, AI	No. of digital research activity
	Develop our people as change agents	• Increase capabilities in the R&I community for implementing change • Develop leadership for change programmes	No. opportunities for development
Innovation Readiness	Evaluate innovation pathway	• Define the innovation pathway, where do people get ideas, where do they go with good ideas? • Develop push and pull mechanism for innovation across the Health Board, how do we find	A repository for ideas A pathway of support for innovation No. innovations spread

		innovation and improvements that work and how to we share innovations that we know work. • Spread a number of Innovations across North Wales • Support SMEs in the region to develop	Case studies of innovation projects.

During Year 1 the Regional Partnership Board will be asked to endorse the development of a Regional Research, Innovation and Improvement Strategy (facilitated by the Regional Research, Innovation and Improvement Hub).

The Health Board delivery plan will be reviewed at the end of Year 2 and a further plan will be produced to take us through to Year 5

Appendix 1 - Methodology

A Strategy for Research and Innovation Methodology

Authors: Juliette Kumar, Jane O'Neill, Carole Spencer, Innovation Agency (Academic Health Science Network for the North West Coast)

Background

Research and innovation (R&I) is integral to the delivery of the Health Board purpose, vision and strategic goals. Achieving the vision and goals requires the resourcing and co-ordination of a whole system of R&I activities across a geographically challenging area. The following report provides a summary of the wide engagement work which has informed the R&I Strategy for BCUHB. The work was led by the Innovation Agency, as an independent body, who worked with the Associate Director of Research and Innovation to inform the process of engagement and content development for the strategy. The agreed deliverables for this work were:

- A strategy led and developed by a credible and independent body - avoiding any accusations of bias should it arise.
- A strategy that has been co-designed by all stakeholders (customers) – engendering ownership that will support delivery of objectives.
- A strategy that aligns with priorities and needs as identified by the health board.
- A strategy that is comprehensive and provides clarity on the strategic relationship and interfaces between identified need, research and innovation.
- Clear measures of success for each part of the strategy.

Method

The process started in November 2018 with a facilitated workshop with the Research and Innovation Strategic Partnership Group to establish vision, mission and objectives for R&I activity across North Wales. The outcomes / objectives they stated they wanted from the R&I Strategy were:

- Better outcomes in population health.
- Contribute to services, social and economic sustainability.
- Deliver workforce benefits.
- Enhance the reputation and profile of North Wales.
- Achieve economic growth by making this region attractive to investors, SME's, digital and technological companies.
- Develop clinical entrepreneurs and improve outcomes though innovation.
- Adopt best practice at scale and engender continuous improvement in our systems.
- Increase involvement of citizens in research.

An interview schedule was co-developed to ensure information gathered was relevant based on 6 key themes;

1. Use of R&I in Operational Practice
2. Benefits for the region
3. Setting priorities
4. Translating research into practice
5. Adoption & Spread
6. Support from the system

The questionnaire was designed to identify key themes that were deemed important, these included the use of R&I in operational practice, the benefits for the region, priority setting, research into practice, adoption and spread and support from the system. Questionnaires were administered using a mixed method approach of qualitative interviews both face to face and by telephone, online questionnaire and focus groups.

A full list of stakeholders approached can be found in Table 1. In addition to the interviews, desktop research of other organisations strategy documents, nationally and internationally were carried out to offer a benchmark in relation to content of the strategy, as well as to set ambition along with an understanding of the local and strategic context.

Analysis

Thematic analysis of the interview and questionnaire data gathered was presented in a SWOT analysis, and McKinsey's 7s Framework was designed to support successful strategy development. The findings from the engagement work were used to populate the framework and to organise the information meaningfully.

Results

Assimilation of the engagement activities took place and this was presented as summary findings and recommendations in the form of a Theory of Change model. Purpose, vision, guiding principles and key strategic goals have been recommended, along with an initial 2 year delivery plan. The delivery plan will be reviewed at the end of year 2 and a further plan will be produced to take us to year 5 in 2022.

Table 1 **Stakeholders invited to contribute**

Face to Face	Local researchers	Research and Innovation Regional Group (West)	10
	R&D Delivery Team	R&D Team	25
	Local researchers	Research and Innovation Regional Group (Central)	8
	Professor Mandy Robbins	Associate Dean for Research, Glyndwr University	1
	Kathryn Chester	Researcher, BCUHB	1
	Wyn Jones	Design Reality	1
	Stephen Hughes	Research and Innovation Regional Group (East)	1
	Deborah Carter	Executive Director of Nursing and Midwifery (Acting)	1
	Arpan Guha	Deputy Medical Director	1
Skype/ Telephone Call	Nicky Williams	Director HCRW	1
	Carys Thomas	Interim Head of R&D Welsh Government	1
	Nicky Callow, Dean Health Sciences	Dean Health Sciences, Bangor University	1
	Paul Brocklehurst Director NWORTH	Director NWORTH, Bangor University	1
	Gill Harris	Deputy Chief Executive	1
	David Fearnley	Medical Director	1
	Adrian Thomas	Executive Director Therapies	1
Survey		Principal and Chief Investigators	73
		Bevan Exemplars	21
	Zoe McLaren, Rheumatologist	Researchers	1
	Lally DeSoysa, Haematologist		1
	Waleed Sayeed, COTE/stroke		1
	Iqbal Shergill, Urologist		1
	Pasq Innominato, Oncologist		1
	Dan Menzies, Respiratory physician		1
	Pharmacy, Research pharmacist		1
	Chris Stockport, Exec Director Primary Care		1
	Michaela Swales, Psychologist		1
	Mahdi Jibani, Physician		1
	Cath Bale, Oncologist		1
	Jim Seale, Haematologist		1
	Anna Mullard, Oncologist		1
	Gary Doherty	Chief Executive	1
	Pat Evans	Chair Cancer Patient Forum	1

QI Hub Members		
Lynne Grundy	Associate Director Research & Innovation	1
Melanie Maxwell	Senior Associate Medical Director	1
Ifan Evans	Director Technology, Digital & Transformation, Welsh Government	1
Tom James	Innovation Lead, Welsh Government	1
Marlise Poolman	Researcher/clinician, PRIME Centre	1
Robyn Davies	Head of Innovation, Cardiff and Vale	1
Richard Walker	Head of Information	1
Kate Clarke	Secondary Care Medical Director	1
Andy Roach/ Sean Page / Steve Forsyth	MH&LD	1
Sue Green	Executive Director WOD	1
Geoff Lang	Transformation Director	1
Mark Wilkinson	Executive Director of Planning and Performance	1
Chris Stockport	Executive Director Primary care	1
Debbie Laubach	Mediwales	1