

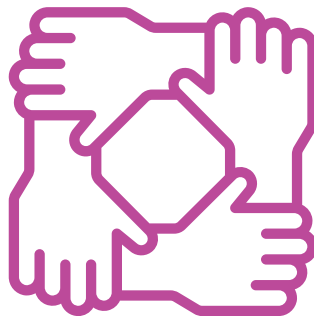


Research & Innovation
Innovation for Children's Health



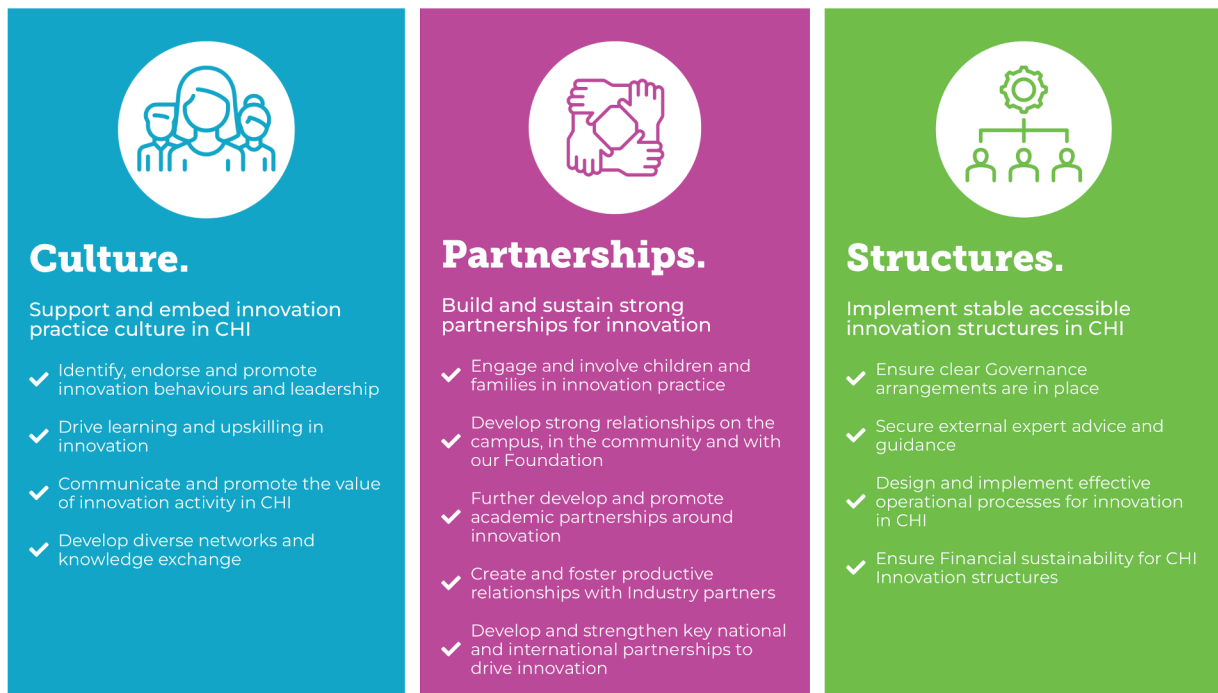
CHI Innovation Strategy

Vision 2022-2025



CHI's vision is for healthier children and young people throughout Ireland. We are a new organisation, established under legislation (Children's Health Act 2018) to provide specialist paediatric services integrated with and driven by research, innovation and training at the centre of a national network of children's health services. One of our core values is progressiveness – we will never stop improving and evolving to meet the needs of children and their families. One of the key ways we will achieve this is through innovation. The CHI Innovation strategy 2022-2025 (our foundation strategy) outlines how we will establish and develop an innovation environment to translate the enormous potential that exists, across CHI and with our partners, into meaningful innovations that improve the health of children and young people.

CHI Innovation Strategy 2022-2025 Themes and Objectives



In the commercial world, innovation can be broadly viewed as encompassing two key areas: Product innovation (new products or services) and process innovation (new ways to produce products or deliver services). From a health system perspective, this can be seen as:

Healthcare systems and process innovation:

This involves improving the way we deliver healthcare and can range from designing more efficient hospital systems and operational management to the design of physical spaces to the direct organisation, delivery and content of clinical care.

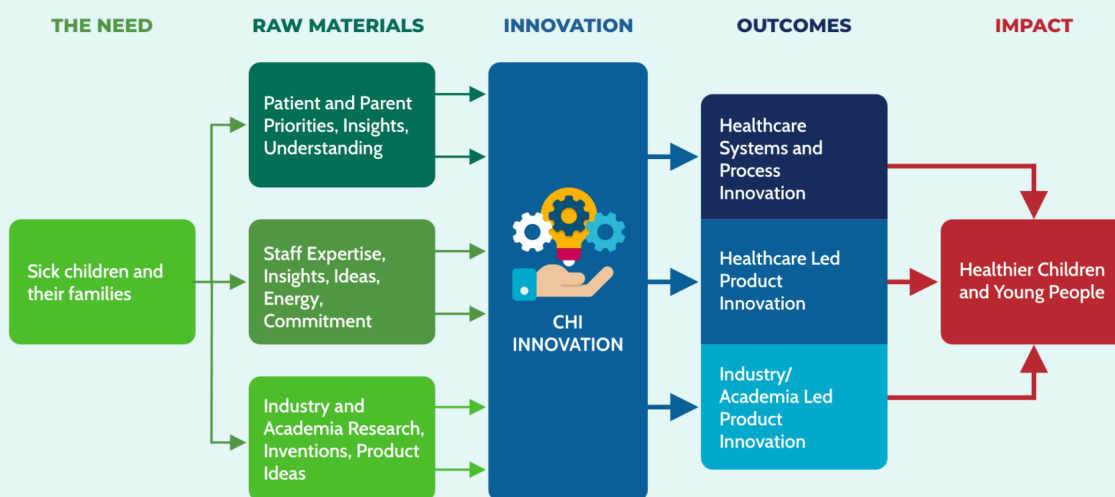
Considerable overlap exists between these areas and similar skills, relationships and structures are required to effectively deliver them. In CHI we will develop integrated capacity and capability in both process and product innovation. This integrated expertise will drive meaningful and comprehensive impacts for children's health.

Healthcare Product Innovation:

The delivery of new products or technologies in healthcare. This can come from patients and healthcare staff seeing and understanding a clinical care need (healthcare led product innovation) or from industry or academic partners with new inventions with the potential to address healthcare needs (industry/academia led product innovation).

In recent times the importance of the voice of the patient (and parent/guardian) has appropriately come into greater focus in healthcare delivery and research. Empathy (effectively listening to the end user) has always been a core part of innovation theory but is often overlooked in practice. We believe that truly impactful innovation only occurs when it starts with empathy. This applies to both process innovation and product innovation. We will ensure that the appropriate end user (child, parent/guardian or staff) is always at the centre of innovation activity in CHI. In particular, we will develop meaningful programmes of engagement with children, parents/guardians and staff designed to keep the child and family at the centre of all we do.

Translating the needs of children into impactful innovations



We are at an exciting time for paediatrics in Ireland. CHI has incorporated the country's leading children's hospitals and is transitioning to world class, fully digital facilities on a large healthcare campus at the centre of a national network for children's health. We are forming an advanced academic health science system with our university partners. We have a strong and supportive Children's Health Foundation (CHF). We now have a robust platform on which to develop world class healthcare innovation for children in Ireland. We have access to some key raw materials to enable this. We have a large workforce of highly educated, motivated and talented staff who are full of enthusiasm and eager to innovate. We have a thriving academic health, pharmaceutical, digital and medical technology sectors in Ireland, all of whom are seeking meaningful innovation partnerships with healthcare delivery organisations like CHI. Through our strategy, we will translate this enormous potential into meaningful innovation that has real impacts for children and their families. Our strategy has three key themes: *Culture, Partnerships and Structures*. We will promote a culture of innovation in CHI through communication, staff engagement, learning and celebration of excellence. We will build strong partnerships with patients and families, local community, our university partners, CHF, industry and key national and international organisations. Finally, we will build, develop and sustain structures within CHI that enable us to consolidate and grow our innovation activity and impact into the future.

2 Foreword Children's Health Ireland Chief Executive

Eilish Hardiman

I am delighted to see this innovation strategy coming to fruition. Prof Paul McNally and the innovation team have engaged with staff, external colleagues and have been planning this for the last year and have set up a good foundation in assembling a very skilled and influential steering group to deliver on this strategy.

Children's Health Ireland (CHI) has six strategic objectives (2021-2025) which have been approved by our board. One of these relates to the provision of excellent care through the development and implementation of an academic healthcare approach to services, education, research and innovation. Innovation is a central element to this strategic objective, and in parallel with research and education will be embedded closely into the clinical care we deliver in our current hospitals, urgent care centre, networked services and our new hospital.

One of our most important values in CHI is child-centeredness. It is easy to talk about this and profess the importance of it, however it can be challenging to put it into practice in a meaningful way in our busy services, in how we educate and train our future professionals and in how we undertake research and innovation. I am delighted to see the importance that is put on empathy in this innovation strategy, and how the child, adolescent and family will be able to truly be partners in improving their own experiences and healthcare outcomes.



Although this is a strategy for CHI, we must recognise how inextricably linked we are with our partners when it comes to delivering excellent care now and particularly in the future with our academic partners in our Paediatric Academic Health Sciences Centre and Network model. Partnerships and networks will be absolutely vital for us if we are to have a meaningful impact on child health in Ireland and internationally. Innovation and the implementation of this strategy will greatly assist in achieving this ultimate goal. Thank you to all who contributed to this innovation strategy and now let us focus to making it happen for our patients and their families.

Foreword by Paul McNally

We are excited to share our first innovation strategy with you. This has come around on foot of a lot of hard work by the innovation strategy steering group (ISSG), to whom I am very grateful. In particular Ann Quinn and Barry McMahon have put a huge amount of time and energy into this process. Prior to the last few years, while we have had lots of new ideas and new developments in CHI, we have had no institutional structures or support designed to drive innovation in our work. Thanks to the vision and determination of the board and executive of CHI we are now well on our way to developing a modern, internationally competitive Paediatric Academic Health Science Centre and Network for children in Ireland, centred around CHI. In terms of innovation, we are starting from a low base across CHI. We have great people with energy and commitment; however, they are not supported by structures, funding, training or opportunity. Over the next several years we want to change this and create an environment that will allow talented people to flourish and translate their efforts into better outcomes for children. Some of the key attributes of innovators include openness, creativity and the ability to rethink – this is how we want to approach the development of innovation services at CHI.



At the centre of everything we do must be the child and family. They are the reason we turn up every day, and while they may not have the same expertise as the staff of the hospital in terms of the delivery of clinical care, they are the experts on what it is like to be unwell or to have an unwell child. They must be our partners if we are to improve their healthcare experiences and outcomes. Engaging meaningfully with children and their parents will be central to our success.

As director of research and innovation in CHI as part of a new PAHSC, I will be particularly focused on the synergy between innovation and research and how we can ensure that innovation, research and education are collectively integrated with every day care in the hospital.

The next number of years will be exciting, challenging and hopefully instructive. At the end of this strategy period we hope to have a robust and still developing innovation culture in CHI with meaningful engagement from children, parents and staff. We hope to have established strong innovation partnerships with our PAHSC universities, industry and other strategically important entities in Ireland and abroad. Lastly we hope to have built solid and stable set of structures across CHI and the PAHSC that will allow us to continue to develop and grow into our next strategy.

4 CHI Values, Vision and Mission

In Living our VALUES, we will be:

Child-centred, Compassionate, Progressive and we will act with Respect, Excellence and Integrity

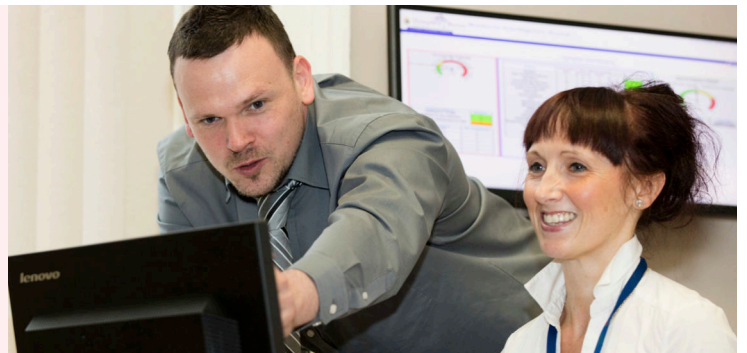


Our VISION is:

Healthier children and young people throughout Ireland

Our MISSION is:

To promote and provide child-centred, research-led and learning informed healthcare, to the highest standards of safety and excellence. We do this in partnership with each other, with children, young people and their families through a network of children's services in Ireland



*CHI Values, Vision and Mission were developed and agreed as part of a Cultural Analysis process with the Boards and staff at the three children's hospitals in 2015

Crumlin | Temple Street | Tallaght | Connolly

What is Innovation?

The term 'innovation' is used in popular language as a noun referring to a new idea, device, or method (countable noun) or the act or process of introducing new ideas, devices or methods (uncountable noun) that add value to a product, service or process. The very broad and general definition introduces difficulties when we try to be specific about innovation in healthcare. A review of the relevant information and literature on innovation in healthcare in the public realm confirms the lack of a standardised definition and wide variation in the effective meaning of the term 'innovation'. For the purposes of this document and our future work in this area it is important that we are clear on what innovation means in our specific context.

Innovation in CHI is taken to refer to new ideas, empathetically generated, that can be implemented to solve healthcare problems.

There are four key aspects to this:



Novelty:

The ideas represent a new way of doing something.



Empathy:

Ideas are generated through collaboration with the end user - usually patients, parents, staff.



Feasibility:

Solutions can be practically implemented into healthcare.

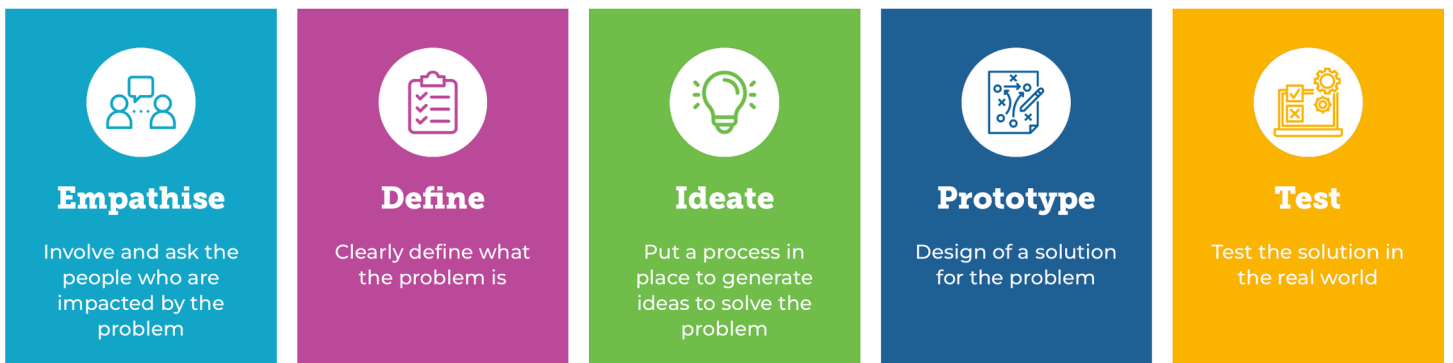


Impact:

The design of solutions should be centred around the impact that they will have on child health and wellbeing.

Innovation is not the same as merely having new ideas or doing new things. To produce an innovation that makes a difference in solving a problem, several steps, based on the principles of design thinking, are required:

Design thinking principles



While some useful new approaches/solutions to healthcare problems can be arrived at without a formal process around innovation, having a structured organisational approach to arriving at an innovation (innovation practice) will encourage more staff to take on innovation projects, increase the likelihood of success for teams trying to solve complex healthcare problems and improve the quality and applicability of the solutions. Principles of innovation practice are relevant no matter what type of innovation is involved, and well organised and structured support services for innovation will ensure that the potential for innovations across an organisation is optimised.

Types of Innovation

In the commercial world, innovation can be broadly viewed as encompassing two key areas: Product innovation (new products or services) and process innovation (new ways to produce products or deliver services). If we look at this from a health system perspective, we can understand the common types of healthcare innovation:

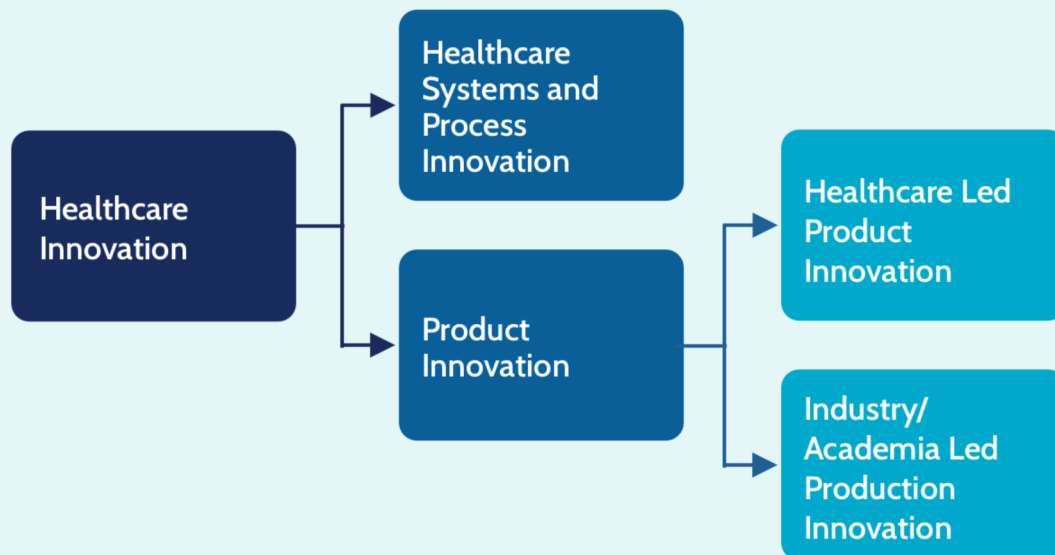
Healthcare systems and process innovation:

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Types of Healthcare Innovation



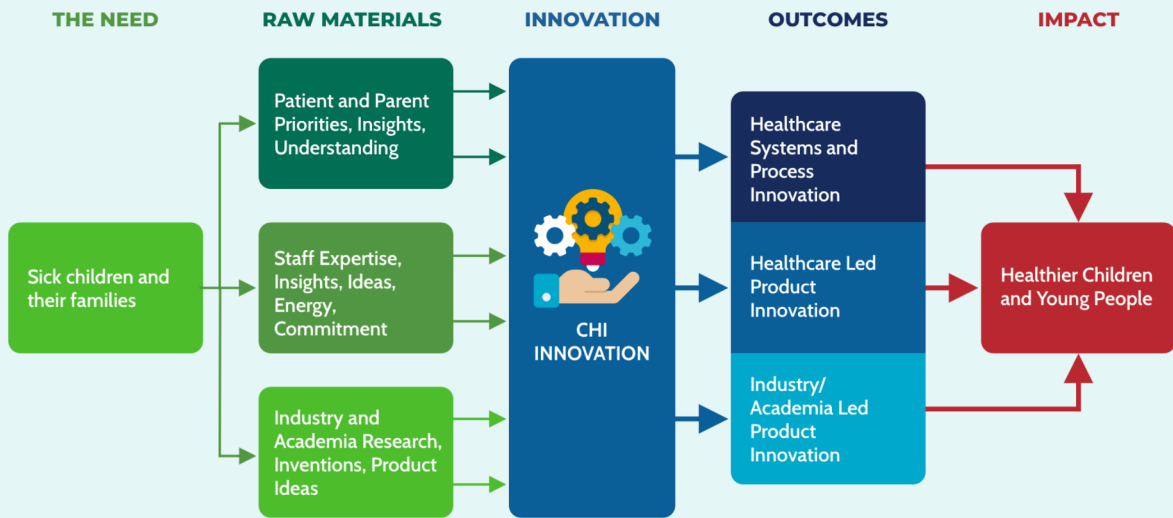
Innovation in Healthcare

It is generally understood that innovation in healthcare is a good thing, that it is valued and sought after by healthcare organisations given its association with improvements in the standard of care delivered to patients. The predominant manifestations in public facing media of innovation in healthcare revolve around product innovations, many of which have been delivered as a result of translation of basic or applied research (generally referred to as technology transfer). While some of these new technologies, devices or treatments have been arrived at by a process involving innovation practice, many have not. The field of technology transfer tends to be well developed in many academic health science organisations, with universities often building considerable expertise in this area given the applicability to many areas outside of medicine and the potential for returns on research investments. This is a vital area for academic teaching hospitals to develop and maintain expertise in.

Process innovation in healthcare, although potentially very impactful for patients and parents receives less focus and attention. Since the problems that process innovations seek to address are often complex and multifaceted areas, one dimensional solutions generally tend to fail or work only temporarily, discouraging continued efforts. In order to successfully put solutions in place, organisations need a supportive innovation culture, access to innovation practice expertise and support, and the willingness and capability to implement solutions.

Process innovation and product innovation are equally important in healthcare. Rather than being distinct entities that are in competition for resources, considerable overlap exists between them, and similar skills, relationships and structures are required to effectively deliver them. In ensuring that all innovation activity is driven by empathy and focused on outcomes, effectively combining product and process innovation within healthcare organisations has the potential for significant impact for patients.

Translating the needs of children into impactful innovations



National Context



While pockets of innovation activity exist in several acute hospitals in Ireland, and universities affiliated with hospitals can provide considerable expertise and support in the area of technology transfer, formal supports for innovation practice within hospitals are uncommon. In particular, we are not aware of any well-developed innovation infrastructures in acute hospitals in Ireland. Interest in the concept of healthcare innovation in Ireland would seem to be increasing as evidenced by the number of funding opportunities for innovation projects and the celebration of innovation through awards and recognition.

A number of national initiatives seek to support innovation in healthcare in Ireland including Health Innovation Hub Ireland (HIHI) and the Spark Programme. HIHI was established by the Department of Business, Enterprise and Innovation and the Department of Health, supported by Enterprise Ireland (EI) and the Health Service Executive (HSE) to drive collaboration between the health service and enterprise. It has 3 locations at Cork, Dublin and Galway but provides supports to all HSE services. HIHI seeks to facilitate access for industry partners to clinical sites and for clinicians with innovative ideas to industry partners. The HSE Spark Programme, initially established in 2017 by the National Doctors in Training Programme (NDTP) to support innovation among non-consultant hospital doctors was recently expanded to include nursing, health and social care professionals (HSCPs) and other healthcare staff. As well as providing a range of information and supports, Spark provides several funding opportunities for health service innovations including the HIHI Spark Ignite programme which also provides access to innovation skills through remote and in person workshops.

Although these various programmes offer useful supports for both industry and individuals with ideas for healthcare solutions, the nature of the supports, being independent of the healthcare organisation delivering the care, raises challenges in terms of buy in and implementation. Considerable opportunity exists at an organisational level to put in place structures to support widespread adoption of innovation practice, ensuring consistency with organisational strategy and policy and taking advantage of external opportunities for collaboration and funding.



Context for CHI

The structures around provision of healthcare services to children in Ireland are undergoing significant changes. The model of care for paediatrics, published in 2016, outlines a national integrated model with acute services for children delivered across a network centred around the new children's hospital. Implementation of this model is ongoing. The new hospital will amalgamate and streamline all services provided by the three existing children's hospitals, and will be supported by two ambulatory and urgent care centres at Connolly (opened 2019) and Tallaght (opened 2021). The new hospital will be fully digital, the first such hospital in Ireland. The access to new fully digital facilities and amalgamation of services will provide many opportunities to rethink the way healthcare services are designed and delivered. As we move to this new chapter in healthcare delivery across CHI, having a clear understanding across the organisation about the pace of innovation in healthcare and clearly accessible, well-defined structures around innovation practice will be vital.

The academic environment around children's health in CHI is evolving considerably. With three hospitals, four partner universities and the National Children's Research Centre (NCRC), an independent research centre funded by the CHI's fundraising partner Children's Health Foundation (CHF), a complex set of relationships existed prior to the establishment of CHI. This is evolving considerably with the formation of the Paediatric Academic Health Science Centre (PAHSC), a formal arrangement between CHI and its four Dublin University partners DCU, RCSI, TCD and UCD. The PAHSC will govern all paediatric education, research and innovation across CHI and the university partners, seeking to integrate research, innovation and training with clinical care and considerably advance the collective quality and impact of this integrated activity. The NCRC will be incorporated into CHI, under the governance of the PAHSC, further consolidating the depth and integration of research and innovation infrastructures within CHI and the PAHSC. This strong and consolidated academic environment is an ideal foundation on which to build a new vision for innovation in children's health.

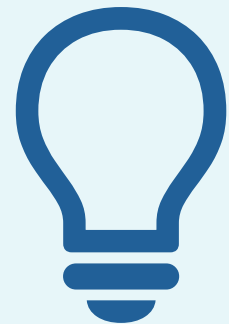
One of the core values of CHI is progressiveness. Rather than standing still or merely following the lead of others, we want to continuously learn, improve and develop so that we can provide the best possible care to children across Ireland. This value of progressiveness has been one of the drivers of activity at board and executive levels that has led to the establishment of the current innovation structures in CHI. Innovation practice in CHI in turn has the potential to be a key future driver of the culture of progressiveness across the organisation.

While CHI is the tertiary children's hospital for Ireland, we are relatively small on an international scale in comparison to some of the leading children's hospitals, who operate at a volume and scale that we never will. This raises two important points that will be vital in ensuring success for us in the future. Firstly, as is the case in so many realms of Irish society given our status as a small island, we need to be acutely aware of the importance of strong international partnerships and building relationships. This will allow us to access important opportunities and continually develop our offering. Secondly, one of the advantages of being smaller is having the capacity to maintain a strong culture and closely support the implementation of important initiatives. An example of this is the focus on empathy in innovation – the centrality of ensuring that the user's voice is at the heart of all innovation. In this context, empathy has a strong association with design principles, in particular, design for human use. In ensuring this, and other important basic principles across research and innovation, we can ensure that the quality and relevance of our practice is of the highest international standards, and in doing so ensure that the outputs are translated into meaningful improvements in the care that we deliver to the children of Ireland. We must be practical, honest and brave in the way we approach innovation to ensure that, rather than engaging in activity that on the surface might seem exciting and novel but is ultimately disconnected from meaningful benefit to children and families, we support only initiatives and approaches that have children and families at the heart of them. A singular focus on quality, relevance and impact is what has the potential to set us apart from other centres and make the greatest difference for Irish children.

This is our first Innovation strategy for CHI. The structures across CHI and with our university partners that will underpin the wider paediatric academic environment (including research and innovation) are currently being established. Through funding from the Children's Hospital Programme, work has already begun in CHI to put basic innovation structures in place to contribute to the integration and rethinking of services across CHI as part of the move to the new hospital, and to plan for the future. Prior to the last year, no formal structures or processes existed in CHI in relation to innovation. This foundation strategy outlines how, from this position, we aim to establish the culture, partnerships and structures necessary to develop a thriving and impactful innovation environment for CHI.

In CHI, we are in the process of moving from a system comprising of three hospitals, with ageing infrastructure and distinct management structures, to a completely new state of the art, fully digital hospital and satellite centres, all governed by a single entity and staff. The challenges associated with this cannot be underestimated. However, in the realignment of prior structures and design of new comes enormous opportunity to completely rethink the way we approach care for children, and in particular how we continually improve that care. The origins of CHI's current innovation structures arrived from two parallel pathways: planning the medical technology requirements of the new hospital and designing future structures for research and innovation. From the outset, the need for innovation on the journey to the new hospital has been recognised and supported by the CHI board and executive who have given considerable support to the establishment and facilitation of the CHI innovation team through funding from the Children's Hospital Programme.

The work to date from the innovation team has revolved around two key areas: Application of innovation practice to address current and future service delivery challenges, and strategic planning for the future of Innovation activity at CHI, including development of this strategy. On the service delivery side, the team worked with CHI's Chief Technology Officer to co-design a methodology for the development of service blueprints for the new hospital. This methodology incorporates elements of design and system thinking, adapting to the specific needs of healthcare as a complex adaptive system. During 2021, this methodology was used to develop a generic service blueprint for our future hospital wards, bringing together 25 multi-disciplinary ward staff from across our hospitals to design future ways of working through a series of innovation workshops, both virtual and in person. Additionally, during this period, a number of innovation workshops were rolled out across CHI employing play techniques, action learning methodologies and for remote work using virtual electronic whiteboards.



Throughout 2022 ongoing workshop activity surrounding the new hospital and future planning for innovation structures continues. In addition, the innovation team will introduce a programme to support staff applications for innovation funding calls. The foundation innovation strategy will be launched in May 2022 and implemented over the following years. As of May 2022, all innovation posts in CHI remain in place in a temporary capacity pending future planning of formal innovation structures.

8 Vision.

Our vision is for a CHI where innovation practice is widespread among a diverse range of staff and is centred on the needs of children and their families. We want to have a culture in CHI of curiosity, creativity and learning, and innovation structures that are understandable, accessible and supportive. This environment will allow the creativity, commitment and energy of our staff and partners to be translated into systems, products and services that create meaningful impact for children and their families. **We would like our partners to describe innovation in CHI as follows:**

Patients



"The people in the hospital ask me what I think when they are figuring out a better way to do things"



"It is obvious that staff in the hospital really do want to make things better for me"



"I feel like my opinion counts and the staff get that its all about us kids who have to deal with illness. I loved being part of the innovation project "



"I have loads of great ideas. Listen Up! "



Parents



"My child attends CHI with a chronic illness"



"I hear a lot about innovation in CHI. It seems very positive"



"I was involved in an Innovation Project. It was a very positive experience"



"It's easy to find out about innovation in CHI - I know what to do if I want to get involved"



"If I see something that needs to be improved there is a way to make it known - I feel listened to"



"I get the sense that the voice of parents is important in CHI, especially when trying to improve things"



Staff Member



"I am a staff member in CHI"



"People in CHI talk about innovation in a positive way"



"Curiosity and creativity are valued in CHI"



"I have heard about lots of exciting innovations in CHI"



"I understand what Innovation is and how to go about it"



"The innovation team in CHI are easy to contact and really helpful"



"I can easily find out new information about innovation in CHI whenever I need to"



"I know what to do if I have an idea for an innovation project"



"I know how to get funding for an innovation project"



University Inventor

- "I am a Academic Researcher in a University. I am developing a potential new therapy"
- "My university Innovation Office has a strong relationship with the CHI Innovation team"
- "The CHI innovation team is easy to deal with and listens to what I need"
- "I know what to expect when I deal with CHI - this information is easy to find"
- "CHI understands research and innovation and how they work together - that helps me"
- "Access to paediatric clinical, research and innovation expertise is seamless"
- "The input from CHI has contributed to the relevance and impact of my invention"
- "I would definitely work with CHI again"



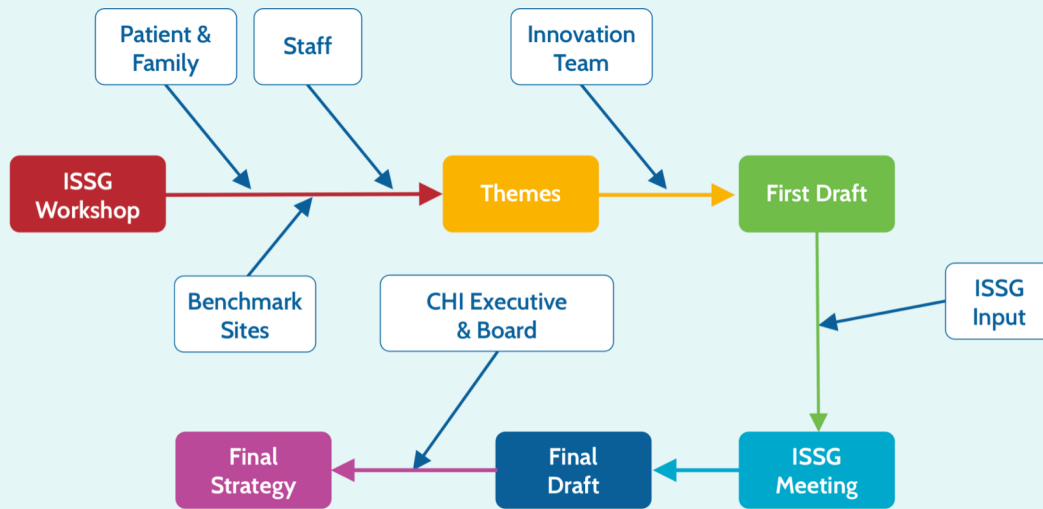
Industry Partner

- "I am a Chief Technology Officer of a Biotech Company"
- "The CHI Innovation team is easy to contact and great to deal with"
- "The pathway for industry partners to access the CHI innovation team is clear"
- "I know what to expect when I deal with CHI - this information is easy to find"
- "CHI helps me and my colleagues with product innovation from the earliest stages"
- "CHI's focus on empathy and impact for children has helped us to develop better products"
- "I was worried about the complexity of dealing with paediatric patients. CHI made this easy"
- "Our team and CHI have learnt lots together about product innovation for children"
- "I would love to work with CHI again"

9 Methodology

From the outset of the development of this strategy, the importance of including a broad range of stakeholder views and perspectives was central to our approach. The steps in the process of development of this document are outlined in Figure 6 below. It should be noted that all of our engagements took place virtually, due to restrictions on in-person meetings at the time of developing this strategy. Workshops were facilitated through video conferencing using a collaborative online white-boarding platform (www.miro.com). Workshop outputs and other aspects of the methodology behind the strategy can be found in the appendices.

Strategy Development Methodology



10.1. Culture

At CHI we are uniquely positioned to consider organisational culture, as we develop our organisation, bringing three established and highly regarded children's hospitals together to think about how we collectively deliver child-centred, compassionate and progressive care.

Our aim is to support and embed a culture of innovation practice across CHI, one where innovation is democratic, distributed and driven in partnership with children, young people and their families. We refer to this as 'Innovation everywhere'. Key to this is an environment that cultivates empathy, curiosity and creativity; one that supports safe experimentation, testing and learning.

There is a growing body of evidence to support the importance of culture and mind-set in fostering and supporting innovation. Increasingly, it is recognised that organisations that innovate and, importantly, those that sustain that innovation over time are those that:

- Place a deliberate focus on innovation culture, nurturing innovative behaviours and values and promoting learning, creativity and problem-solving;
- Encourage leadership role-modelling of innovation behaviours and practice;
- Actively seek out diversity of thinking by involving people with different backgrounds, cultures, age and experience.

We are particularly fortunate in CHI to have talented, motivated and enthusiastic staff who are focused on delivering care in a compassionate and child-centred way. This is the most important raw material for innovation. We are responsible now for harnessing this by helping staff to think differently about complex problems. We will do this by providing training and guidance in innovation practice, by providing practical support for innovation projects, by bringing diverse groups of staff together to think creatively and by celebrating success in innovation.

Objectives

1

Identify, endorse and promote innovation behaviours and leadership

- Identify and agree behaviours that support 'innovation everywhere', linked to our CHI Values
- Partner with HR to align innovation behaviours to induction, competency development, performance review and leadership development
- Ensure visibility of board and executive sponsorship and modelling of innovation behaviours
- Promote and reward innovation practice through annual CHI staff achievement awards

2

Drive learning and upskilling in innovation

- Develop an innovation curriculum for learning and upskilling
- Build a learning repository of innovation tools and resources
- Encourage and nurture further education in innovation practice
- Hold an annual innovation learning/showcase event

3

Communicate and promote the value of innovation activity in CHI

- Develop annual Innovation communications plan and materials
- Showcase impactful innovation in practice throughout CHI
- Promote innovation events and opportunities relevant to CHI staff

4

Develop diverse networks and knowledge exchange

- Create a network of innovation champions across CHI
- Hold regular network events and upskilling opportunities
- Encourage and support peer-to-peer knowledge sharing
- Promote innovation practice among groups with diverse backgrounds, occupations and perspectives

10.2. Partnerships

In order to ensure that innovation projects deliver true improvements in outcomes and experiences for children, meaningful partnerships with families and children are of key importance. In the first instance, at the organisational level, we need to have access to parents and children to advise in relation to structures and standard approaches that are likely to ensure ongoing meaningful reflection of the centrality of the end user in developing innovations. This advisory group will importantly have unique personal insights into receiving care across CHI and will have the opportunity to receive training and education in innovation practice and CHI organisational structures so that they can provide fully informed guidance to CHI Innovation on broad principles and approaches. This structure, however, will not be sufficient to deliver the very specific type of advice and input required on a project-by-project level. This will necessarily need to come from the specific user cohort involved in the activity that is the subject of the innovation project. In these situations, the local child and family participants in innovation projects will need some level of information, training and context in order to contribute meaningfully to the project. This will require some input from the innovation team, from the child and family advisory panel and a set of clear and accessible policies and procedures around how this type of input should be optimised.

The new children's hospital will be located in an area which will have significant capability and capacity for healthcare innovation with St James's Hospital, Smart D8, the Guinness Enterprise Centre (GEC), the Digital Hub and several other organisations in the local area. There is significant potential on the campus, and in the immediate environment for collaborative innovation. With Smart D8 comes an existing network of local and community connections with whom we can work to ensure that CHI innovation can truly impact the local community in a meaningful way. The Children's Health Foundation (CHF) supports CHI to provide the highest quality care to children. In addition to the vital funds raised by CHF to support research and innovation, their work drives strong brand awareness of CHI and community engagement nationally but also in the catchment and local area. CHF is a key partner for CHI in many areas and is key to CHI's drive to deliver 'added value' over and above the routine provision of clinical care. The development of seed funding and collaborative funding pathways for innovation projects will be a key driver of innovation activity in the hospital.

The paediatric Academic Health Science Centre promises to bring a significant positive change to the way healthcare is delivered in CHI. With the highly integrated nature of this arrangement, CHI will have access to new opportunities, relationships, expertise and collaboration with 4 university partners. In the area of innovation, where the universities have developed an important set of skills, this promises to be of great benefit to CHI. Driving forward the marriage of expertise and opportunity across the hospital, universities and industry promises to develop new and exciting innovations. Robust relationships with industry partners are a key requirement for meaningful innovation in healthcare, where clinical staff have access to industry expertise to help develop clinical innovations and where industry can have reliable access to clinical sites and expertise for product development and testing. Establishing and developing these relationships will be important for CHI as we have seen in successful international sites, including our benchmark sites.

Given the underdeveloped nature of hospital-based innovation infrastructures and the small size of Ireland, relationships at a national and international level will be very important for CHI. In light of the overlap with clinical, academic and industry roles in healthcare innovation, we will need to build relationships, alongside our academic and industry partners, with the HSE, Department of Health, Department of Further and Higher Education, Research, Innovation and Science to highlight our efforts, seek appropriate supports and contribute to the drive to develop policy in this area. In a similar vein, relationships with national bodies such as Enterprise Ireland and IDA Ireland, who play an important role in healthcare innovation and technology transfer, will be vital to develop to ensure that the wider innovation community is aware of the capabilities and opportunities available at CHI.

In the same way that the content and delivery of healthcare is very different in children compared to adults, innovation in paediatrics is also unique in many respects. In this niche field, networks and relationships between leading children's centres are very important, particularly for CHI where we are the single specialist children's hospital for Ireland. The relationships we have built to date with other leading children's hospitals in this area will need to be strengthened and broadened for the benefit of CHI and the international paediatric innovation community.

Objectives

1

Engage and Involve Children and Families in Innovation Practice

- Develop an innovation advisory panel of children and parents to advise CHI Innovation on the best ways to incorporate empathy as a core driver for innovation and to stimulate child and family interest and engagement with innovation projects
- Establish standards, policies, procedures, training content and expectations around child and family engagement in innovation activity in CHI
- Develop guidance and training for innovation project leaders in relation to how to engage and work with parents/children to optimise the value of their input to specific projects

2

Develop strong relationships on the campus, in the community and with our Foundation

- Develop focused and productive relationships with innovation partners in our local environment including St James's Hospital, Smart D8, GEC and others
- Collaborate with community health providers and others to provide opportunities for holistic, child focused innovation activity
- Develop partnerships with local community organisations, schools and others to ensure in-reach and outreach for innovation activity
- Formalise pathways and opportunities whereby the Children's Health Foundation can work with CHI to further support impactful innovation

3

Further develop and promote academic partnerships around innovation

- Formalise relationships with the innovation and technology transfer offices of our Paediatric Academic Healthcare Sciences Centre (PAHSC) university partners
- Promote greater engagement and collaboration between academic innovators and CHI staff and patients
- Partake in, and promote in CHI, postgraduate training in innovation provided by our university partners
- Promote and drive the effective integration of impactful research with innovation at CHI

4

Create and foster productive relationships with Industry partners

- Develop, populate and maintain a database of key industry contacts and connections and promote engagement with CHI staff
- Develop formal policies and pathways for industry partners and start-ups to seek collaboration and support in CHI
- Explore opportunities for mutually beneficial commercial innovation activity with established industry partners

5

Develop and strengthen key national and international partnerships to drive innovation

- Establish working relationships with national bodies involved in supporting healthcare innovation
- Establish key contacts in and develop relationships with Government departments of Further and Higher Education, Research, Innovation and Science, Department of Health and the HSE
- Seek out relationships and partnering opportunities with leading international healthcare innovation centres and organisations

10.3. Structures

Without stable structures surrounding innovation in CHI, initiatives to develop culture and partnerships will be transient and fail to have the required long-term effects. Clear governance structures will allow for clear lines of responsibility in terms of leadership, funding, quality and management of risk. While some of the aspects of innovation practice such as empathy and ideation require a free-form unconstrained way of operating to optimise the quality of the outputs, having clear structures around how innovation practice is organised and delivered will help to increase the number and quality of projects that can be delivered. In addition to putting innovation structures in place it is vitally important that these fit into the overall organisational structures in CHI to ensure that innovation has a voice when it comes to decision making in the organisation, and that innovation remains integrated with clinical and other services across CHI. It is very important that organisational priorities are reflected in innovation practice – in particular how the innovation team can support important hospital priorities such as process innovations to reduce waiting times or improve access for example.

The establishment and success of structured innovation functions in acute general hospitals is uncommon, especially in the Irish context, and so we will continue to need to foster international relationships and put formal structures in place to ensure that we have access to external advice and guidance as we grow and develop. In the same way that the absence of infrastructures would preclude us from effectively delivering the strategic objectives in the areas of culture and partnerships, having ideas, initiatives and agreed approaches to innovation without translating these into usable effective operational processes and policies will prevent us from getting value from them. Staff will need certainty and clarity around innovation practice, and this cannot be just in the minds of individual subject matter experts but must be expressed and laid out clearly so that any member of staff can access and understand them, and they don't change over time with changes of personnel. The process itself of developing formal organisational documentation around innovation processes will help to bring focus and clarity in the minds of staff working in innovation to our collective approach.

Given the relatively novel nature of innovation as a function within acute care settings, health funders are not accustomed to funding innovation infrastructures. Much of the funding available for healthcare innovation relates to grants for individual projects rather than funding of innovation structures. In order to maintain innovation services and high standards of delivery, recurring funding, increasing in scope over time, will be required. Without sustainable funding over time innovation activity will struggle to be maintained. Project funding will always be available as it is a simple and clean way of funding specified activity, but without funded structures, projects will struggle to fulfil their potential and their implementation and generalisability will be limited. When looking at non-project specific funding for innovation, a mixed funding model would seem to make most sense in terms of security of supply, potential to expand and contract as needed, and overall growth into the future.

The most challenging, but ultimately most important funding will be recurring state funding for the innovation structures in CHI. This will provide a secure bedrock upon which external funding can be leveraged. Innovation is an area where great potential for leveraged activity-based funding exists. An even spread of funding sources is likely to be the ideal model into the future with a base of recurring funding from the state, commercial income, fundraised income, grants and royalty/licence fees making this up. Considerable work will have to be put in place to ensure funding is continually being sought and received to keep important structures in place to allow us to drive innovation activity.

1

Ensure clear Governance arrangements are in place

- Establish clear reporting and oversight structures within CHI aligned to the PAHSC
- Develop a CHI policy on the management of Intellectual property
- Ensure an integrated innovation structure across CHI sites with equitable access
- Ensure that CHI strategic and operational objectives are reflected in the prioritisation of innovation projects

2

Secure external expert advice and guidance

- Establish an independent External advisory board

3

Design and implement effective operational processes in CHI

- Develop clear sign-posted pathways for staff access to innovation advice, mentoring, training and funding opportunities
- Develop policies and guidelines to support these pathways
- Identify and track performance indicators and outcome measures for innovation practice

4

Ensure Financial sustainability for CHI Innovation structures

- Develop a financial planning/sustainability model linked to our operational and strategic objectives
- Develop processes and mechanisms to source funding/ financial partnerships to support and develop innovation activity and structures in CHI

These key enablers are outside of the direct remit of the CHI innovation team but are nonetheless essential aspects of how we will be able to implement this strategy for innovation.

Children's Research and Innovation Centre (CRIC)

The CRIC will be a purpose-built facility which will enable and facilitate research and innovation on location at the new children's hospital campus. It will be a hub for both research and innovation, and importantly it will ensure that research and innovation activity are integrated and complimentary. The CRIC will also provide meeting rooms, offices spaces learning and teaching spaces and other resources for CHI research and innovation staff. The CRIC will be an important space to bridge paediatric and adult activity on the campus we share with St James's Hospital. The CRIC will be complemented by an Innovation Hub in the main hospital building which will be a dedicated workshop space for innovation and collaborative working.

Paediatric Academic Health Science Centre (PAHSC)

All over the world the best healthcare systems combine clinical service, education (training) of health professionals and research/innovation into formal academic health science centres, usually via partnerships of major hospitals, universities and foundations. The triple mission of service, education and research/innovation serves to attract and train the best staff, retain and continually develop them through research and innovation, whilst delivering clinical service with the best outcomes for patients. Currently, CHI and its Dublin academic partners (DCU, RCSI, TCD, UCD) are planning and developing a paediatric AHSC and will be subsequently be extending its reach on an all-island basis via a PAHS network (PAHSN).

This PAHSC/N is an integral part of Sláintecare implementation, Ireland's medium to long-term health service reform plan. The essence of Sláintecare is the integration of acute and community care in a manner that shifts the focus of healthcare from episodic disease management to health promotion, disease prevention and health maintenance through the life course. As of March 2022 the memorandum of agreement (MOA) for the PAHSC is in the final stages of agreement.

12 High Level Implementation Framework

Culture	2022	2023	2024	2025
Identify, endorse and promote innovation practice and behaviours				
<ul style="list-style-type: none"> Identify and agree behaviours that support 'innovation everywhere', linked to our CHI Values 				
<ul style="list-style-type: none"> Partner with HR to align innovation behaviours to induction, competency development, performance review and leadership development 				
<ul style="list-style-type: none"> Ensure visibility of board and executive sponsorship and modelling of innovation behaviours 				
<ul style="list-style-type: none"> Promote and reward innovation practice through annual CHI staff achievement awards 				
Drive learning and upskilling in innovation				
<ul style="list-style-type: none"> Develop an innovation curriculum for learning and upskilling 				
<ul style="list-style-type: none"> Build a learning repository of innovation tools and resources 				
<ul style="list-style-type: none"> Encourage and nurture further education in innovation practice 				
<ul style="list-style-type: none"> Hold annual innovation learning/showcase event 				
Communicate and promote the value of innovation activity in CHI				
<ul style="list-style-type: none"> Develop annual Innovation communications plan and materials 				
<ul style="list-style-type: none"> Showcase impactful innovation in practice throughout CHI 				
<ul style="list-style-type: none"> Promote innovation events and opportunities relevant to CHI staff 				
Develop diverse networks and knowledge exchange				
<ul style="list-style-type: none"> Create a network of innovation champions across CHI 				
<ul style="list-style-type: none"> Hold regular network events and upskilling opportunities 				
<ul style="list-style-type: none"> Encourage and support peer-to-peer knowledge sharing 				
<ul style="list-style-type: none"> Promote innovation practice among groups with diverse backgrounds, occupations and perspectives 				

Partnerships	2022	2023	2024	2025
Engage and involve Children and Families in innovation practice				
<ul style="list-style-type: none"> Develop an innovation advisory panel of children and parents to advise CHI Innovation on the best ways to incorporate empathy as a core principle of innovation and to stimulate child and family interest and engagement with innovation projects 				
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Structures	2022	2023	2024	2025
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<ul style="list-style-type: none"> Ensure an integrated innovation structure across CHI sites with equitable access 				
<ul style="list-style-type: none"> Ensure that CHI strategic and operational objectives are reflected in the prioritisation of innovation projects 				
Secure external expert advice and guidance				
<ul style="list-style-type: none"> Establish an independent External advisory board 				
Design and implement effective operational processes in CHI				
<ul style="list-style-type: none"> Develop clear sign-posted pathways for staff access to innovation advice, mentoring, training and funding opportunities 				
<ul style="list-style-type: none"> Develop policies and guidelines to support these pathways 				
<ul style="list-style-type: none"> Identify and track performance indicators and outcome measures for innovation practice 				
Ensure Financial sustainability for CHI Innovation structures				
<ul style="list-style-type: none"> Develop a financial planning/sustainability model linked to our operational and strategic objectives 				
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Name	Position	Representation
Alison Wallace	Scheduled Care lead, CHI	CHI Operations
Allan Goldman	Chief Medical Officer, CHI	CHI Executive/ Medical
Ann Quinn	Innovation Manager	CHI Innovation
Barbara Wiseman	Head of Communications, CHI	CHI Communications
Barry McMahon	Innovation Practice Lead, CHI	CHI Innovation
Fran Hegarty	Chief Healthcare Technology Officer	CHI Technology
Neil O'Hare	Chief Information Officer, CHI	CHI Executive/ICT
Paddy Fitzpatrick	Consultant in Paediatric Emergency Medicine	CHI Medical Board
Paul McNally	Director of Research & Innovation, CHI	CHI Research & Innovation
Tracey Wall	Chef Director of Nursing, CHI	CHI Executive/ Nursing
Vivienne Hand	A/Health & Social Clinical Professional Lead	CHI HSCPs
Aoife Gallagher	Head of Innovation, RCSI	Universities
Claire Walsh	Senior Commercialisation Specialist, Enterprise Ireland	Enterprise Business
Deirdre Glenn	Director of Lifesciences, Enterprise Ireland	Enterprise Business
Dara Meldrum	Founder and CEO, VERTIGENIUS	SME Industry
Denise Fitzgerald	Chief Executive, Children's Health Foundation	Children's Health Foundation
Orla Veale	Programme Director, AHSC, St. James Hospital	Campus partner

Benchmark Site Interviews

The purpose of the benchmark site interviews was to identify and learn from established innovation practices at a varied range of organisations in different geographical regions. Although local context is vitally important when looking at innovation practices, important information can be gleaned from the experiences, attitudes and achievements of other centres in different environments. We identified three sites for this process based on knowledge of the international healthcare innovation environment, with a focus on paediatrics. We carried out video conference interviews with the sites based on a proforma. Further informal engagement was held with the innovation team in Alder Hey and a site visit was previously undertaken to Copenhagen for the purposes of learning and collaboration around innovation. A summary of the outputs from the interviews based on the benchmark site proforma is written up below. The three benchmark sites we interviewed were:

Benchmark Sites and Interview Participants:



BørneRiget, the New Copenhagen Children's Hospital, Denmark


(Recently renamed Mary Elizabeth Hospital)

 Dr. Thomas Frandsen, Chief Medical Project Officer




Northwell Health, New York, U.S.A.

 Dr. Kirk Manogue, Vice President, Technology Transfer, The Feinstein Institutes for Medical Research



Alder Hey Children's Hospital, Liverpool, United Kingdom

 Prof. Iain Hennessey, Director of Innovation

Some of the key themes that emerged from the benchmark interviews that have informed this strategy include:

- ✓ The support and input of the board and executive of the organisation is vital if innovation is to thrive and become part of the culture of the organisation
- ✓ Developing expertise in both process innovation in clinical settings and product innovation is vital. Integrating these aspects of practice promises significant opportunity.
- ✓ Having a broader organisational approach to user experience (child and family) is likely to significantly inform innovation practice.
- ✓ Having access to people or knowledge about design and design practices is very important
- ✓ Securing a broad base of funding sources for innovation staff and activity is important. Secure funding (such as state or hospital funding) is key to being able to leverage external funding.
- ✓ Considerable opportunity exists for industry funding of collaborative innovation initiatives.
- ✓ A strong relationship with partner foundations is essential in building an innovation culture and successfully funding and executing projects centred on child and family experience
- ✓ Different models of support for innovation practice exist, either distributed or centralised and these are generally influenced by the funding model.
- ✓ Carrying out innovation activities related to developing new ideas and training in innovation practices could be a source of income and expansion.
- ✓ Upskilling people for innovation through training workshops, developing an innovation champion program and mentoring are also very valuable.
- ✓ Developing good communications skills especially in areas such as social media is very important for engaging with staff and families.

Semi-structured interview format:

1

Section 1 Context for this interview

As part of its commitment to innovation, CHI are in the process of developing a three-year Innovation Strategy. We appreciate you taking the time to meet and share your experience and learning with us.

Children's Health Ireland consists of the three Dublin children's hospitals who are coming together as one organisation in advance of the move to a new state-of-the-art facility in central Dublin. As part of the transition, CHI have also recently opened two new satellite centres providing outpatient and urgent care.

2

Section 2 Innovation Approach

1. Could you give us an overview of your organisational approach to Innovation – what areas are you focusing on and why?
2. What structures have you put in place to support your innovation approach?
3. What other supports have you in place e.g. training, coaching, mentoring?
4. Have you done anything from an organisational perspective to develop a culture and mind-set for innovation?
5. What would you consider to be your key innovation partnerships and how have they supported you?
6. How is your approach to innovation funded e.g. included as part of your organisational budget, run as a business unit (profit/loss) or sponsored/grant-funded?

3

Section 3 Learning & Advice

1. In your experience, how has/will innovation influence or impact the delivery of care/ services in your organisation?
2. What was your greatest learning in getting your innovation strategy off the ground?
3. What advice would you give to us, considering our context?

Close off and thank you.

Outputs from interviews:

1. BørneRiget, the New Copenhagen Children's Hospital, Denmark (By video call February 2022)

Dr. Thomas Frandsen, Chief Medical Project Officer

Dr. Frandsen explained that a lot of their approach was around process improvement with staff and that they anchored a lot of their efforts on the user experience. They employed a number of designers in a team of 8 people and were using this approach to develop solutions to systems problems with staff, families and children. This is the main thrust of their focus.

Alongside this they have a Chief Innovation Officer who is focused on the areas of innovation leading to enterprise and its relationship to intellectual ownership and licensing.

The Hospital will be a new build and is being developed from Children's services at the Rigshospitalet in Copenhagen. Dr. Frandsen explained their approach to mentoring and training. The design team build user experience projects and engage staff in working through the processes with them. They also run a training program to get staff up to speed in their methods in what they call the Forerunners program. Staff are also encouraged to take on innovation projects with a strong focus on the user experience.

2. Northwell Health, New York, U.S.A. (By video call February 2022)

Dr. Kirk Manogue, Vice President, Technology Transfer, The Feinstein Institutes for Medical Research

Dr. Minogue explained that he was responsible for innovation across the Northwell Health group which is now one of the biggest healthcare groups in North America with 23 hospitals. Their approach to innovation was described as being very traditional. Ideas from device technology and biotechnology would normally come from research work. Dr. Manogue's office supports staff coming forward with these ideas and helps to provide technology transfer support including dealing with issues related to intellectual property and funding. The office is mostly resourced from clinical studies being carried out across Northwell Health's hospitals. Typically, these are pharmaceutical drug trails and a percentage of this income helps fund the technology transfer office. He feels they are there to support researchers to develop commercial technologies from their research. They do not provide active training or mentoring in innovation techniques or practices.

3. Alder Hey Children's Hospital, Liverpool, United Kingdom (By video call February 2022)

Prof. Iain Hennessey, Director of Innovation

Alder Hey hospital, which opened in 2015 bears a lot of similarities to CHI and, as it is located in Liverpool, it is the closest Children's hospital to CHI. The innovation department was well funded from the beginning with a large UK NHS grant. Since then the Department has expanded and has nearly 20 people. The hospital has developed niche skills in providing innovation skills and facilities for other healthcare organisations and companies. Their staff are introduced to innovation practice and techniques at induction. They are generating some intellectual property but right now they don't see this as a large part of their work.

Parents and Family Engagement

We hosted online workshops with family members of children who had accessed CHI services (inpatient, day case, ED, outpatient) within the past two years to get their input and advice on innovation in CHI, as well as some of the early themes emerging from the Innovation Strategy Steering Group workshop. Overall, the family members that we spoke to were very interested in innovation practice, seeing direct link with improving the care and experience for children and their families. In speaking about their experiences, they felt there was considerable scope for innovation in the delivery of care. They spoke about the importance of team-working and culture, describing their experience of 'getting a different feel' from different wards and areas of the hospitals they attended. In the words of one parent: 'When you get a good feeling from a ward, you get the feeling that they are pulling together and working to make things better'. They supported the idea of partnerships, particularly with community bodies and agencies. Alongside this, the family members also expressed some concerns and worries about future changes. They spoke of the comfort that they currently experience when seeing familiar staff faces, returning to wards they know and being familiar with how services run. This reconfirmed the importance of involving family members and other service users in the design of new services and environments of care.

“

*Overall, the family members told us that they welcomed the opportunity to share their experience and knowledge – **"It's really nice to be heard"** – and they welcomed the opportunity to influence the innovation strategy for CHI.*

Overall, the family members told us that they welcomed the opportunity to share their experience and knowledge – 'It's really nice to be heard' – and they welcomed the opportunity to influence the innovation strategy for CHI.

Consultation with Children & Young People

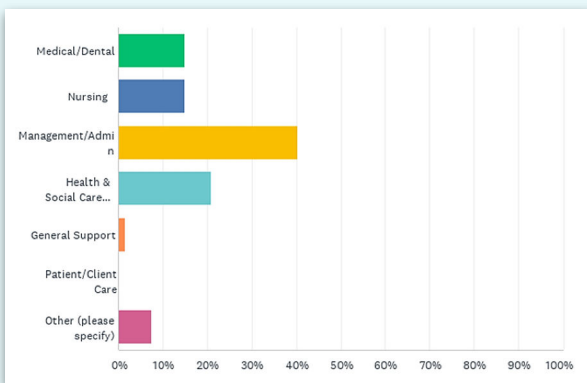
We held a virtual whiteboard workshop with members of the CHI Youth Advisory Council (YAC) to better understand what innovation looks like for them and where they would see opportunities for innovation in children's health services. The Youth Advisory Council is a group of young people (aged 12 – 16) who share their experiences as users of hospital services in order to improve the care children and young people receive in our hospitals and centres. For this group, access to technology and good consistent Wi-Fi was very important. They were keen to look at what could be done differently for older children and young people, feeling that currently the environment is set up for younger children. For example, they talked about outpatient areas with Disney and other cartoon characters on walls and play areas to entertain younger children while there is a lack of facilities that cater for 9-16 year olds. In similar theme to that raised at the parents group, the young people told us that, while they are excited about the new building and technology, what mattered to them most was friendly staff who knew who they were and they didn't want to lose this 'human touch'. They suggested getting young people involved in innovation by making it fun and they suggested providing something that young people could interact with while waiting for appointments, all suggestions that we will be taking on board.



We surveyed CHI staff to get a sense of their views on innovation in CHI and understand more about their current experience. The full breakdown of responses is included below. In general, the responses showed a strong support for innovation practice with 93% either agreeing or strongly agreeing that innovation should be key aspect of the future delivery of healthcare services at CHI. The vast majority considered innovation as relevant to their current role. More than half of the respondents had no experience of being involved in innovative projects and only a small number had undertaken training or education relating to innovation; however, they welcomed opportunities for further training and support. The largest barrier to innovation was perceived as time and resources, with culture and leadership coming out as the most

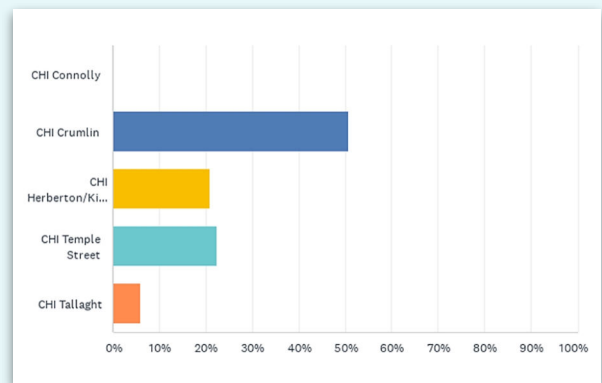
Benchmark Sites and Interview Participants:

Q1



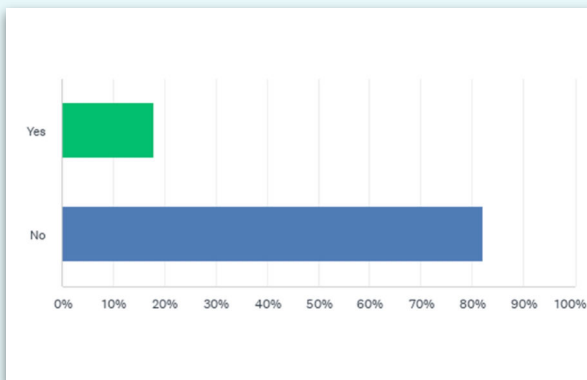
Which HSE Staff Category Best Describes Your Role?

Q2



Where Are You Principally Based?

Q3



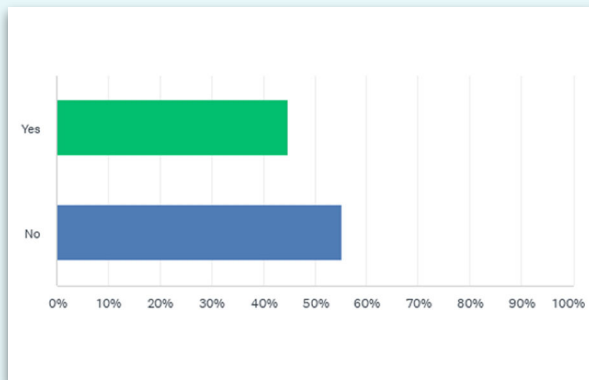
Have you completed training/education relating to Innovation/Innovation Practice?

Q4

If yes, please give further details:

- Translational research to PhD
- I am taking one at the moment as I finally got an opportunity to take trainings I have been waiting for! It's great. Thank you very much.
- Post graduate degree level
- RCSI NHS
- Part of Master Degree
- Lean Healthcare Quality Management Lean Six Sigma
- I have developed videos which have had >1 million views on YouTube
- D4AHS – virtual Design Labs in Healthcare – Human Centred Design. – Transformation Academy for Large Scale Change. – S4CA NHS Horizons.
- PhD. Currently studying is in Artificial Intelligence and Software Innovation
- Lean Six Sigma
- UCD Diploma in Innovation, creativity and leadership
- MSc Education – E-learning MSc Cyberpsychology MA UX Design Process and interactive technologies (completion date August 2022)

Q5



Have you completed training/education relating to Innovation/Innovation Practice?

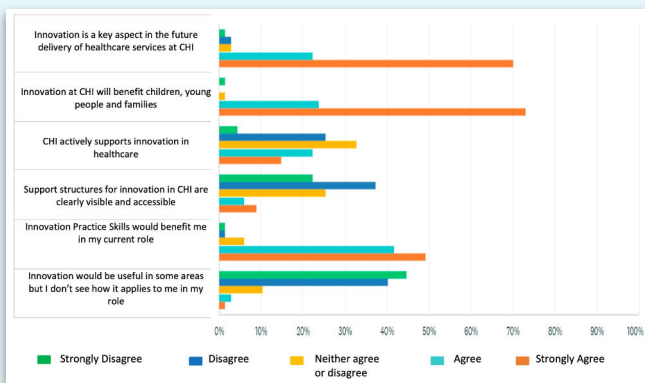
Q6

If yes, please give further details:

- Setting up a new nursing service
- Developing new clinics, new clinic modalities, NTPF initiatives
- Tiny little projects at departmental level – unsupported and not great. We needed more help!
- Smart-pump implementation, expansion of paediatric formulary to new platforms/locations across CHI
- Accessing lab results from other hospitals remotely here in Crumlin using existing Healthlink platform
- Saturday Clinics Food Challenges City West Establishing Attend anywhere clinics in Crumlin Creating special Covid safe clinics Bleep to Sleep project Cross site Anaphylaxis video Email support for national Covid Vaccines sites
- HSE Rainbow Badge, CHI Professionalism
- Tele medical service development
- Redesign of department to increase clinical space
- LOS reduction times initiatives around patient outcomes (first time trail at CHI)
- e-Learning systems, innovations to improve HR SOP
- Multiple world class research projects, ongoing paediatric drug book for Ireland (awaiting PID execution), Intubation checklist and airway trolley across CHI, Ultrasound for PED
- I am currently co-leading an innovative project: Music Therapy assisted Dental procedures for children with complex medical needs.
- Variety of Clinical services, inc development of the initial concept of the 2222 system in Ireland. stock management- Lean stock management in Cath lab -concept further rolled out by Joe Ellis when he came to Crumlin, Coms services and reportage. Patient self-booking systems (swiftqueue's introduction to Crumlin). Introduction of 3D modelling in clinical buildings and services design and consultation with users – later copied in NPH design/consultation processes – Navis works. Clinical education systems – live links between HCCL and lecture theatres in USA and France. Give a man a fish, feed him for a day, teach a man to fish feed him for life- thus bringing the skills of the team in Ireland out to the world. Clinical waste management & education – basically lots of crowning the customer innovations over the years since I 1st “temporarily” came in here to set up the 1st Clinical genetics service based in a paediatric hospital over 25 years ago
- I have liaised with Barry McMahon to do workshops with patient involvement to try and automate our triage process
- Predominantly QI focussed projects at departmental/clinical level.
- Whilst in Temple Street, I developed several bespoke applications some of which include the following: 1. Nursing handover System 2. Outpatient appointment text messaging and patient response mechanism to handle DNAs. 3. Docuport – Application to allow clinical departments easily convert their paper reports to digital format. 4 LabScan – Mechanism to allow external lab reports get scanned and auto inserted as a link within their lab software 5. Several Excel to Web-based data entry applications
- Robotic Process automation Automation of NTPF uploads

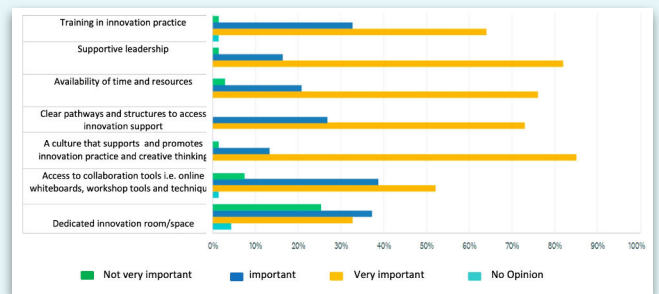
- While traditional in overall approach, the EHR programme at CHI is seeking to enable the transformation of the ways of working of all clinical staff, through innovative use of technology to improve patient experience and outcomes.
- N/A BUT WOULD LOVE TO HAVE THE OPPORTUNITY TO GET INVOLVED
- Clinical Operating Models in 2017/2018/2019
- Community Benefit Programme
- Designing and building interactive touch screen content for children in Temple Street OPD Designing and building eLearning modules Temple Street Designing and producing video content for Digital Signage in Temple Street and Connolly Managing Digital Signage in Temple Street and Connolly – three separate systems Responsible of Social Committee tile on MyChi
- PMO support
- Waiting list
- Like waste management

Q7



Please rate your level of agreement with the following:

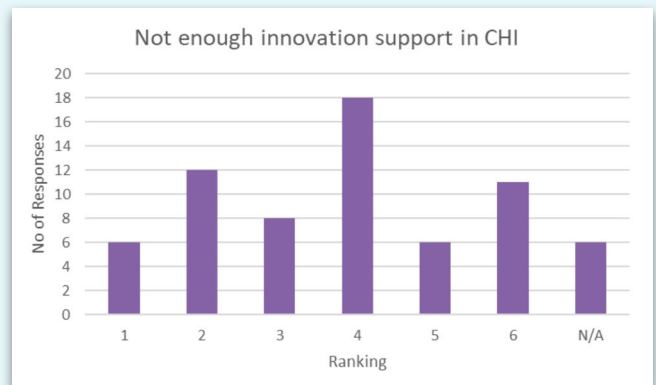
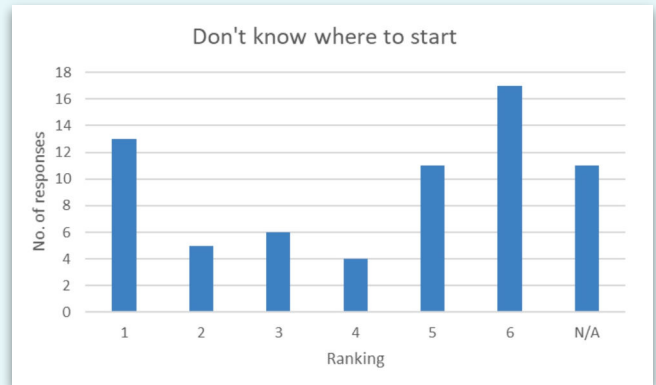
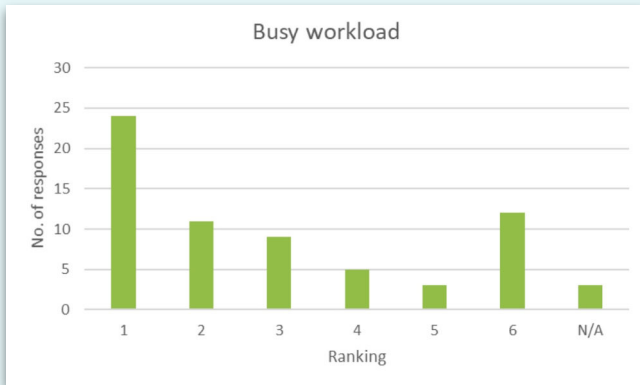
Q8



In your opinion, please rate the following in terms of how important they are for supporting and enabling innovation:

Q9

What would you see as the most likely barrier to you engaging in innovation activity in your current role
(Rank 1-6: 1=greatest,6=least):



Q10

In thinking about an Innovation strategy for CHI, do you any other thoughts or comments?

Long overdue, it's a very welcome start but must be encouraged from ground level upwards. there are lots of people with great ideas who need encouragement and support to bring forward ideas

Just ask their views and start conversations please.

I think that as high performing healthcare professionals we are "bred" to find failure unacceptable. This can stop us from being comfortable in experimenting and being creative. It is so well known in the creative sector that the process of creation involves failure in order to improve and develop a final piece. As HCWs, failure goes against the grain. This requires a cultural shift.

The non-mention of research innovation here is concerning. Otherwise this will be a lightweight entity within CHI that will not be taken seriously internally/externally.

Need specific resources and important to be cross site. Need the basics improved upon first. I.e. not enough computers, not enough phones or very old technology at present, and minimal resources or ability for remote working. Different systems used across CHI meaning information transfer is a huge barrier.

NCHDs are generally an overlooked group when it comes to innovation. Many have worked abroad and have experienced foreign healthcare systems. Engaging these NCHDs would be a great way to use this experience to better the care we provide. Workload is an issue for most NCHDs but in my experience most are really willing to share their experience if asked

Flexibility to allow rapid role out of projects especially during emergencies: COVID/ Cyber-attack. This is when innovation is needed most...learn as you go instead of endless preparation. Innovation leads (go to people) in areas that the clinical staff have less contact: procurement, building, supplies. A massive increase in IT support for innovative digital projects.

I don't think a physical space is necessary especially during the pandemic. An online interactive platform would suit the times we live in now and beyond.

No support whatsoever for innovation in CHI at Temple street, any projects that can seek funding need to have a consultant associated with them which is not always possible

Clinical governance needs to be teased out from project management or innovation development as are not the same thing but many initiatives are at risk of being blocked by clinical leaders working very hard but with less interest in creative or systems thinking.

It's a good idea but without supports for staff initially through a better place to work it is futile. Staff are deflated, mental health is at an all-time low and staff just want to get in do their job and go home. It is a great idea just at the wrong time

I believe innovation should permeate every aspect of our daily work. It is only by constantly peering above the parapet of possibility that we as a whole can advance care and service delivery for all we work for.

Communication, culture and leadership support is crucial for innovation strategy.

I think this is so vital not only for how we work more effectively and efficiently but it is SO important for retention of staff and attraction of staff. We are continuously firefighting with no strategy and innovation should do hand in hand with strategy. We are aiming for a digital hospital and yet we don't have a communicated strategy for business or specifically in my area no strategy at all!

The archaic financial structure, hospital politics, the idea that only consultants can be heard, and very poor IT infrastructure are some of the many things that hinder innovation

There are multiple big projects in PEM that need support. Can you start with them? First up the paediatric emergency drug book.

Wouldn't it be wonderful if there was a certain staff member who you could contact for support and guidance about getting an innovative project up and running? At present the only method that I am aware of to fund innovation comes from the foundation. Having a hospital budget would be wonderful with an application process to ensure high quality outcomes from the service.

Every member of staff has a contribution to make. Encourage them do not exclude them. Current ways of communication in CHI exclude staff that do not have access to IT many do not even have e-mail. They are excluded from many communications. Invite people in to communicate, let them know their input is valued.

Neglect of IT systems results in clinical risk, I spend hours every week triaging because innovation never happens, its talked about but the lack of action is shocking

Innovation requires good ideas, thinking outside the box, the ability to see how things can be done better for patients and resource to drive positive change. A proactive rather than reactive culture needs to be created in CHI to deliver innovation.

Invest in appropriate collaboration technology, once and for all. Reduce cumbersome governance, at least a little to allow for agility.

As per other written comments- I worry that the use of the word 'innovation' would be off putting to many before they would even delve into understanding what it might mean. Innovation may suggest connotations of really new novel care/therapies etc. While CHI will hopefully support that too the notion of improvement or even transformation of service may invite more interest. The research survey circulated previously appeared to be only concerned with clinical trial research & PIs. I understand Innovation to be a sub division/sit within research? Is Education (HEI) considered a separate strand again? & L&D separate under HR? & QI under QRSM? & Change only a programme lifetime! There are so many highly motivated CHI staff (myself included) interested in change & improvement but no singular unifying strategy (function/department) that draws all tribes together with a common focus (I'm thinking Pillar Centre type umbrella) Probably muddled thoughts as I sign off for Christmas- delighted to see dedicated resources for this in CHI & hoping that your strategy & influence will unify healthcare transformation approaches in CHI under a singular umbrella.

The people I'm dealing with in the base hospitals are too busy dealing with the day-to-day to even think about innovations that might save them time.

A centre of Innovation Excellence needs to be established, where research teams can submit ideas to develop into projects
Approved outside training

The best innovations will happen across organisational boundaries. It would be good to purposely bring interested reps from each organisation and location together to brainstorm collaborative innovation ideas.

Collaborative projects

just that I would love the opportunity to get involved. Very excited about the future of CHI.

It would be super if there were regular training days for staff.

A basic course – on HSEland, for example – explaining what innovation is and how it might look at CHI – would be a very helpful start.

Need Lean Management approach for Corporate Functions including Operations and for Management and Admin in particular.

Currently enrolled in a Healthcare Innovation course, it has broadened my view on healthcare innovation opportunities but I feel they are given to those more so in upper management rather than frontline. Frontline staff should be encouraged and given protected time to access and engage with resources available. Many innovative opportunities can be discovered if discussed with frontline staff however can get missed because they don't have time to voice their opinion to the right people.

I hope that CHI is looking to local partners both within and outside healthcare in Ireland for support in this. A lot of the transferable skills required to design and implement this strategy are available nationally and I hope that we're not trying to reinvent the wheel when other institutions have successfully implemented such. I would also like to see more inclusion of both patients' families and non-permanent staff (including NCHD's) included in the implementation of this strategy. Sometimes it needs those who are less embedded in the system to recognise opportunities for innovation and I think those voices are often unheard in CHI structures.

Support from management is the main reason we should get first before taking further steps.

A5 Value of Innovation in Healthcare Literature Review.

There is a wide range of literature examining the value and impact of innovation within organisations generally, and more specifically focusing on innovation in healthcare. In the available literature there is a predominant focus on innovation relating to digital health, technology and medicines with a tendency to focus on efficiency and return on investment as measured outcomes^{1,2}. A smaller number of studies look at service and system innovation with outcomes relating to user experience or quality of care. Although numbers of studies in this area are low, recent years have seen an increase in activity, perhaps influenced by design thinking^{3,4} and an increased focus on public and patient involvement in healthcare policy and design^{5,6}.

Innovation is necessary for organisations wishing to stay agile and responsive in an environment that is increasingly complex, globally networked, technically driven and with an increasingly informed and diverse user population^{7,8}. Whilst evidence of the value of innovation varies and is often subjective to the innovations examined, it has been positively correlated with improvements in patient outcomes, and operational efficiencies such as reduction in lengths of stay, and improvements in patient/user experience^{9,10} and operational efficiencies such as reduction in lengths of stay^{11,12} and improvements in patient/user experience^{9,13}.

Several studies address the important role of culture in healthcare innovation^{14,15}, however there is a tendency to examine this in relation to the adoption, scale and spread of individual innovations over time rather than systematic approaches that support long-range innovation and distributed innovation practice. Several themes emerge in the literature on important enablers of healthcare innovation^{6,14,16,17,18} including:

- Leadership alignment on vision and goals
- Visible leadership behaviours to support and promote innovative practice;
- Collective knowledge-sharing and idea generation through formal structures and informal networks;
- Organisational capacity to absorb learning and to hold spaces for creativity, testing and cycles of change implementation;
- Structures, processes and resources to support and embed innovative practice

Although there are a number of evidence-based models to support innovation adoption and diffusion, the literature in general concurs on the fact that no one solution is going to fit all scenarios^{19,20}. Rather, a wide range of factors, some organisational and some related to specific fields of activity need to be taken into account when considering adoption and diffusion of innovation practice. This goes to the heart of innovation practice – the need to listen carefully to the unique needs of users and devise creative solutions to address problems, rather than implementing set external solutions.

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