

# Research and Innovation Strategy

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## Introduction

This strategy sets out an ambitious vision for a step change in the way research and innovation is delivered at St Andrew's Healthcare. It is aimed to support a significant transition from an organisation where research is not prioritised to one with a research and innovation capability and performance that has both a national and international standing. The strategy is intended to be purposefully ambitious in recognition of the fact that St Andrew's Healthcare is striving for excellence through the development of a strong culture of research and innovation in every part of the organisation, in order to ensure that all staff engage in, support, or consume research and innovation activities or products. It is widely accepted that high quality research carried out within a healthcare organisation is translated into improved patient care (Jonker and Fisher 2018). The achievement of this vision will have beneficial and mutually reinforcing effects on multiple areas of the charity and is designed to clearly identify St Andrew's as a leading force in mental health practice and policy, both in the UK and wider arena.

## Aim

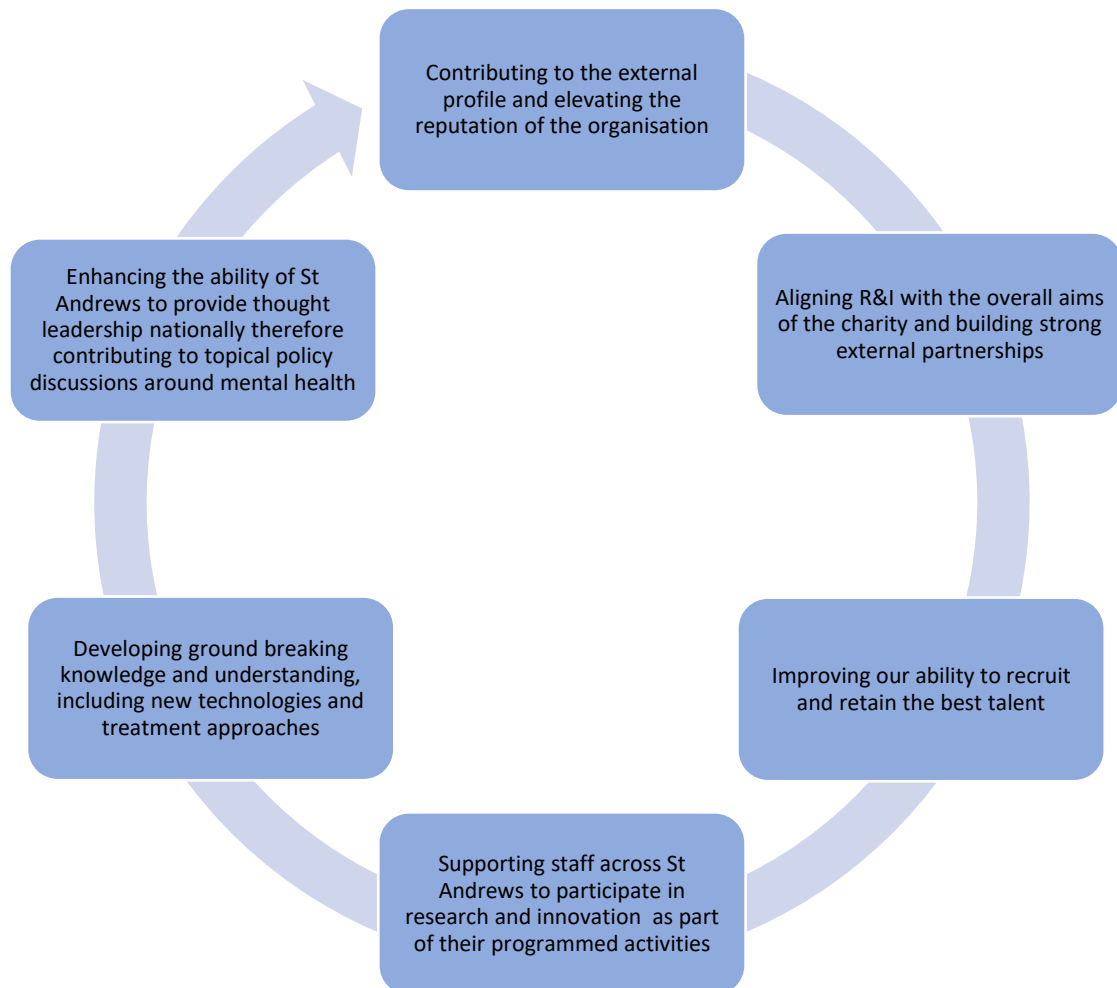
The goal of this research strategy is to move St Andrew's into a position where the charity's name is synonymous with outstanding innovative translational research within the mental health field, so that external audiences automatically associate the charity with being at the forefront of mental health thought leadership, treatment practices and policy.

## Why is research and innovation important to St Andrew's Healthcare - why should the Charity invest in research and innovation?

The development and introduction of the best technology and systems for the treatment of patients with complex mental health disorders requires a solid evidence-based approach. This can only be achieved where there is a strong and cutting-edge research-based culture. The best outcomes for patients are achieved in centres of excellence, where evidence-based care is developed by combining scientific and technological advances. World-class research supports innovation and the development of state-of-the-art mental health therapies through the mechanism of clinical research that will impact positively on patient experiences and outcomes. It also supports the development of an interdisciplinary research approach which can impact on all aspects of a patient's journey while at St Andrew's and the subsequent stages of their healthcare journey. The development of research collaborations with additional experts in the field will facilitate the development of a research culture at St Andrew's; for example through the establishment of joint MSc and PhD studentships that will strengthen specific research themes.

The unique nature of St Andrew's which includes the treatment of patients in care as well as those in the community, means that it is critical for us to be at forefront of the development and introduction of ground-breaking research that will have a direct and tangible evidence-based impact at all stages of a patient's care and transition. It is also important to acknowledge that St Andrew's cannot achieve this alone. By developing a reputation for high quality innovative and translational research, the charity can develop partnerships with other key stakeholder organisations, in the clinical, social, and academic sectors. The longer-term aim is for the charity to be considered as a "go to" mental health facility with whom partnerships can be formed to develop state of the art clinical research programmes. Furthermore, the development of a solid research reputation will attract research-active clinical staff to take up clinical posts, potentially with an academic partner, to expand the research-

based reputation of the organisation. The current global socio-economic situation is changing rapidly and unpredictably. The last year has seen major challenges in the form of a pandemic and rapidly widening inequalities. Considering the current challenges and those that lie ahead, this document argues that building a strong research and innovation capability will have beneficial effects on multiple areas of the Charity and act as a 'virtuous circle' for the organisation, helping to improve its overall effectiveness and corporate resilience as depicted in Fig 1 (Below):



### Transforming the culture

Although research and innovation is present within the charity, is not consistent and significant attention will need to be given to building a research-based culture at all levels of the organisation. This approach also needs to be integrated into other aspects of the organisation, particularly teaching and education. It is envisaged that there will need to be a programme of cultural transformation over an initial five-year period to embed the desired changes. This will require high level support and robust coordination through regular seminars, workshops, conferences, and other forums to improve understanding and engender enthusiasm for and a commitment to, a research and innovation culture. An initial coalition of interested and enthusiastic individuals could start this work with a view to gradually expanding the opportunities and nurture an understanding around the importance of research and innovation throughout the wider organisation. Ultimately R&I must become an integral and valued part of all staff IPDR performance reviews.

## Research and innovation for all

It is vital that research and the uptake of new innovations is not observed as being carried out by a small number of specialist professionals within the organisation but rather as an underpinning principle of everything that we do with an opportunity for all to be involved, either in contributing to the R+I effort or consuming its products. It is critical to nurture curiosity in the charity so that all clinical professionals become consumers of research. Helping everyone to believe that they can participate in research that will translate into benefits for patients and staff will take careful planning. This is a fundamental change in culture and, as such, will require a sufficiently resourced change management plan. Such a plan will be developed at the implementation stage and will include milestones and a solid communication strategy.

## History of research and innovation at St Andrew's

St Andrew's has an extraordinary history. During its first 150 years, the Charity established a formidable reputation for innovative clinical practice and the ethical and humane treatment of patients. Notable examples include: the abolition of mechanical restraint in 1839, treatment advances including the introduction of electrical convulsive therapy in 1941, and more recently, being one of the first hospitals in the UK to offer Dialectical Behaviour Therapy (DBT) in the 1990s. These ground-breaking treatment approaches provided the Charity with a national reputation and a sustainable competitive advantage. St Andrew's has also been at the forefront of the development and validation of numerous clinical rating scales that are now in routine use nationally and internationally. These include HoNOS, START and SASBA and they are frequently used as outcome and risk assessment measures in the evaluation of new therapeutic approaches. More recently the charity has been engaged in the ground-breaking use of virtual reality technology with dementia patients, a multicentre study looking at the use of antipsychotics in personality disorder and a large inequalities project commissioned by NHSE.

## How will we focus on innovation?

Considerable research and literature has accumulated concerning which conditions lead to organisations developing a deep and consistent capability around innovation. It is now generally understood that there are four fundamental facets that need to be in place to nurture innovation (Dyer et al 2011):

- Strong leadership that supports and participates in innovation
- A deep culture of experimentation where everyone in the organisation has a questioning attitude and understands what innovation means and its benefits
- Organisational support that allows staff to have dedicated time to develop innovative ideas
- An infrastructure that allows ideas to feed through and coordinates the available resources to enable the ideas to develop.

Given that these four ingredients articulated by Dyer et al (2011) are generally considered to be the fundamental components of innovation, the question is about how St Andrews can establish these principles to develop a strong capacity around innovation, and will be the subject of separate implementation plan.

## Where do we want to be in in 2026?

- Research and innovation will be considered as underpinning all functions of the organisation and all staff will have a clear understanding of the organisational benefits.
- There will be a clearly enhanced research reputation with St Andrew's viewed by external partners (NHSE, academia, industry etc.) as an innovative organisation that facilitates world-leading research and innovation including the testing of new therapies
- The Charity will be carrying out high-quality research as evidenced in peer-reviewed publications and presentations at national and international meetings
- We will have multiple partnerships in the development of joint posts, thus expanding our research portfolio as well as developing our reputation as an academic research institution
- We will have achieved successful applications for research funding directly from St Andrews and also in collaboration with academic partners
- Our academics in joint posts will participate in NIHR-funded clinical studies in collaboration with key players in the mental health research field
- Self-funding researchers (e.g. NIHR fellowships) will choose to be located at St Andrew's
- Staff throughout the Charity will be provided with an opportunity to carry out research projects, aligned with the charity's research priorities and as part of their programmed activities. There will also be a diverse range of workshops, conferences and other opportunities to learn and become involved in (or consume) research and innovation.
- A robust financial model will be developed including the identification of long-term income streams to ultimately allow the core research activities to become self-financing and sustainable.
- We will be able to clearly evidence the impact of R&I activities on our clinical care and patient recovery.
- The charity will also be regarded as an exemplar institution for co-production practices and patient participation in its R&I activities.

## The relationship between research and education

There is an integral relationship between research and education with the two disciplines have a synergistic connection. A vibrant research and innovation culture within St Andrew's will contribute to, and strengthen, the teaching capacity within the charity. Research will inform undergraduate teaching as well as developing opportunities for postgraduate research opportunities. These will cement research relationships with specific universities, and we already have examples of the successful placement of MSc students from the University of Buckingham enrolled in the Health Psychology course, and four joint PhD students with Loughborough University focusing on physical health and exercise. It is proposed that the research and teaching facilities be combined into a single Academic Centre, nurturing greater strength and overall capability. It would ensure that all students have an opportunity to participate in research and innovation projects as an integral part of their teaching programme and that they can support the programmes that are being developed within the charity. This approach is in line with other similar clinical institutions where there is an active cross-fertilisation between research and teaching. This set up, would also support the mixing of ideas between the two areas and the charity's research reputation would be highlighted through the hosting of joint workshops/conferences with professional bodies. Furthermore, as teaching is a source of income for the charity the integration with research and innovation will provide a key opportunity for research to ultimately become self-financing and sustainable.

## The relationship between research and recruitment and retention

The development of a research and innovation culture at St Andrew's will ensure that all staff are provided with an opportunity to engage in research programmes or support the infrastructure that underpins the research. Protected programmed activities for clinicians who are interested in research will also help to attract and retain high calibre research-active individuals who are keen to pursue research careers alongside their clinical duties but currently cannot do so due to the unavailability of options with the charity. This will contribute to the 'virtuous cycle' as depicted above in Fig 1.

## Research and Innovation supporting the wider charity strategy

A new Charity strategy (2021 – 2026) has been produced following a comprehensive board level strategic review. The renewed purpose of the charity is to 'promote wellbeing, give hope and enable recovery'. Research and innovation is one of the seven 'strategic priorities' and as such forms an important driver for strategic success. As with the other six strategic priorities, research and innovation will contribute directly to delivering the Charity's purpose through two of the stated enablers of 'building a diversified portfolio' and 'inventing the future':

- Helping to build a diversified portfolio - expanding research and innovation activities, building R&I capability and creating new and exciting academic, industry and state partnerships will contribute substantially to a renewed and modern charitable portfolio in keeping with the charity's vision.
- Supporting the Charity to invent the future – a stronger research and innovation capability will provide substantial support to the Charity's vision to 'invent the future' by engaging in innovation, championing improved understanding, contributing to ground breaking research leading to treatment advances and providing high-level thought leadership in the areas of mental health, developmental disabilities and neuropsychiatry.

## Capabilities and resources assessment

- The charity has an existing IT capability that will support the intended research and innovation vision, although there may be a requirement for additional capacity
- We have a diverse range of clinical expertise that can be drawn upon for specialist research projects
- St Andrew's has one of the largest cohorts of patients suffering with severe mental health problems in the country which represents a considerable research asset.
- The charity has a dedicated research and innovation team with knowledge and experience.

## Resources required

- A combined academic centre and research and innovation function to maximise the synergetic opportunities of research and education and ensure a unified approach throughout the charity.
- Joint academic posts, with clinical roles where appropriate, to support the priority research areas. It is envisaged that the joint clinical-academic research posts should be recruited on a staggered basis over an initial three-year period however, this will be subject to an implementation plan.

- A number of clinical secondment positions will be available on a rolling basis for staff members who have a particular interest in research that aligns with the charity's research strategy. This will be highlighted as part of the recruitment process for future clinical posts.

### How we will choose the areas of focus for research

To ensure that the research at St Andrew's is focused, yet sufficiently adaptable to embrace innovative areas, the following cross-cutting areas have been proposed based upon:

- Areas in which St Andrew's has a specific research history or has developed strong research collaborations
- Areas that are likely to have the greatest benefit for St Andrew's patients
- An analysis of existing St Andrew's research strengths (SWOT)
- Discussion with key stakeholders about the areas that are most likely to provide a return on investment for St Andrew's
- An analysis of both national and international drivers for research and innovation (PESTLE)
- Areas of innovation in which St Andrew's can develop as a leader in innovative applied clinical research

These will be discussed as part of a future internal and external consultation process in order to finalise the key research focus areas. These areas should also align with the charity's overall strategic objectives including an increase in the provision of community services. Five potential research areas are considered below, although they may change following consultation with key stakeholders. It must also be considered that there should be a flexibility to allow adaptation to changes in the external landscape and the charity's clinical strategy.

### Cross cutting area 1 (Physical healthcare and physical activity)

#### **The problem...**

The importance of physical health in mental health has been highlighted as an urgent national priority. We know from numerous studies that those people with a severe mental illness (SMI) are at much greater risk of poor overall healthcare outcomes and premature death (dying on average 15-20 years before those without SMI). There is an urgent need to research and address this major health inequality.

#### **Why St Andrew's...**

St Andrew's treats one of the largest cohorts of patient with SMI in the UK. Our patient group is particularly complex, and it is only through a multi-faceted approach that we can optimise their treatment to minimise their time with us and ensure that they are best prepared for the next stage of their recovery journey. Understanding, and therefore improving, the physical health outcomes of our patients would have a major impact on our patients' wellbeing and longevity and contribute to the national debate in this area. The charity already has developed strong research collaborations in this area and it has been identified as a priority area.

#### **Our approach...**

We want to see sustained improvements in our patients' health outcomes. To this end, we will prioritise research into new ways to improve our patients' physical health; for example, though research into physical health treatments, sleep, exercise, screening programs and innovative physical health pathways designed for patients with SMI.

## Cross cutting area 2 (Trauma focused care)

### **The problem...**

Traumatic events can occur at any age and cause lasting harm. There is a huge unmet need for trauma-informed care in the UK and more research is desperately needed to develop effective therapies and interventions to alleviate the mental health consequences of traumatic experiences. Moreover, the recent pandemic has left large swathes of the population with enduring emotional distress which will require innovative treatment pathways.

### **Why St Andrew's...**

The charity cares for many patients with a history of the most severe trauma ranging from adverse childhood experiences, PTSD, complex PTSD, and survivors of abuse. St Andrew's has a record of accomplishment in the production of high-quality studies on trauma and expertise in its management and treatment. It also has a particular strengths and competitive advantage in DBT skills and therapy where the charity is considered as a leader in the field.

### **Our approach...**

We want to provide innovative trauma therapy and trauma informed services to our patients and contribute to the wider literature on this subject. Prioritisation will be given to researching the impact of early trauma, the intersectionality of trauma and other important determinants (ethnicity, diagnosis, gender). Exploring the outcomes of different therapeutic approaches and partnering with multiple national and international groups will be pivotal in developing this area.

## Cross cutting area 3 (Community Mental Health)

### **The problem...**

There is a strong socio-political shift towards providing care closer to home and away from hospitals. Community mental health services are therefore playing an increasingly important role in delivering mental health care across the UK. The NHS Long Term Plan and NHS Mental Health implementation plan 2019/20 – 2023/24 both set out a wide-ranging vision to transform the provision of community mental health care for adults with severe mental illness to enable faster and more equitable care to be delivered closer to home.

### **Why St Andrew's...**

St Andrews already provides community care services (outpatients, veterans, ATS etc.) and has a large number of patients who are discharged into the community each year from the group's hospitals. Focusing on research which provides innovative and ground-breaking care solutions for those receiving mental health care in the community would align with the Charity's core purpose. Moreover, focusing on research which seeks to understand how we can reduce the length of stay for our patients whilst attaining the same outcomes and improving the efficiency and experience of discharge will have a substantial benefit. St Andrews could also investigate novel community treatment solutions (e.g. telemedicine or semi/fully automated therapies such as computerised CBT) which have the potential to generate new

### **Our approach...**

We will build on our existing strengths in this area and align with the national impetus to develop and expand community mental health care solutions. St Andrews already has several community services in operation (veteran's service, outpatients, ATS etc.) these will provide a firm foundation for further research and innovation. We will continue to encourage and develop projects which seek to understand the barriers to discharge and length of stay such as the current collaboration with Prof Jon Glasby's team at the University of Birmingham seeking to understand barriers to discharge for our ASD/LD patient.

revenue streams with corollary societal benefits.

#### Cross cutting area 4 (Technology-assisted therapies)

##### **The problem...**

The development of technology-based therapies is evolving rapidly. These are innovative and can be targeted at groups of, or individual, patients. The challenge is that many of the people who are involved in the development do not have a clinical background and are interested in developing collaborative partnerships.

##### **Why St Andrew's...**

St Andrew's has already been involved in the development of virtual reality-based therapies through the provision of expert clinical input into research partnerships. These have included treatments for people with dementia, in addition to those with social avoidance problems. The charity has developed collaborations with the University of Kent and Oxford (including the spin-off company Oxford VR). We are working with them to optimise the therapies, including the use of the therapy to treat some of our out-patient groups. These could be used externally in other patient groups. Other researchers have approached us to consider future collaborations, based upon our research reputation in this area.

##### **Our approach...**

The aim is to further develop this research area, as it is a rapidly developing area where we have demonstrated that it can have a real clinical benefit for some of our patients. Partnering with researchers who have expertise in the development of emerging technologies, such as virtual reality, will ensure that they are developed with a clear clinical focus and identify St Andrew's as a leader in this field.

#### Cross cutting area 5 (Precision medicine)

##### **The problem...**

Precision medicine is a pivotal area of clinical research which ensures that patients receive the optimal therapy for their condition. The patients at St Andrew's have complex mental health conditions which need to be treated on a case-by-case basis. This requires a detailed understanding of their individual conditions. This can be achieved at both genetic and epigenetic levels. The use of data has been identified as a key mechanism of understanding complex conditions. Genetics is another tool to identify disease subtypes which, in combination with

##### **Why St Andrew's...**

The charity has access to a large internal clinical dataset which has enormous potential to be used to understand mental health. There is the potential for a more coordinated use, especially with external researchers. Previous collaborations with UCL have demonstrated that large, anonymised datasets can be generated to carry out mathematical modelling of patient groups. Furthermore, St Andrew's have built up collaborations with Meomics (University of Cardiff), Genomics England and Psychiatric Genetic Testing (Maudsley Hospital), all of

##### **Our approach...**

We will build upon our existing collaborations, focussing on data-driven approaches and genomics as these are strengths in which the charity has an opportunity to enhance our reputation. By understanding our patient population, we have the best opportunity to focus specific therapeutic approaches to minimise their time with us and ensure that they are best prepared for the next stage of their recovery journey.

symptomatic data, will provide a powerful tool to understand specific conditions and develop an approach to provide a more targeted, individualised therapy.

which demonstrate the viability of using a genomic approach for the development of precision medicine. The charity is a member of the AKRIVIA collaborative which provides access to healthcare records from over 10 Trusts which allows large-scale data analysis.

## Implementation

Well planned and methodical implementation of the strategy is a key component of its success. Once this strategy has been agreed, a full and detailed implementation plan will be delivered including costing, required roles, governance arrangements and KPI's. As noted above a cultural change plan will also be required.

## Conclusion

This strategy sets out a substantial category change for research and innovation at St Andrews Healthcare. Its aim is to place St Andrews at the forefront of research and innovation both nationally and internationally within five years. The strategy is ambitious in its scope however, it does not underestimate the challenges ahead. With robust planning and adequate resource the vision contained within these pages can become a reality with all of the attendant benefits.

## Appendix

## SWOT

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• CEC &amp; Board recognise that research can support other areas of the charity, e.g. funded clinical secondments.</li> <li>• Governance procedures (R&amp;I Policy &amp; Research Wiki)</li> <li>• Expertise of AMD, Research and Committee Chair/NED for Research</li> <li>• Unique clinical population and setting</li> <li>• Clinical data</li> <li>• Academic expertise (PhD student supervision)</li> <li>• Communicative research team</li> <li>• Long history of research and innovation in the Charity (with national reputation)</li> <li>• Knowledgeable staff motivated to engage in research.</li> <li>• External service evaluations</li> <li>• Technology</li> </ul>	<ul style="list-style-type: none"> <li>• Current research budget</li> <li>• Small number of dedicated research posts (1 x research associate and 0 x research assistants) and recruitment difficulty</li> <li>• Lack of dedicated time for staff to do research and capacity for translation into practice.</li> <li>• Little current in-house “research”: lack of clinician-led projects</li> <li>• No R&amp;I staff with joint university posts, limiting access to certain funding streams.</li> <li>• Inability to attract charity funding due to reputation and external perception of STAH wealth.</li> <li>• Recruitment difficulties: 2 x unrecruited secondments and repeated rounds of research associate recruitment</li> <li>• No appetite for strategic alignment with other departments (CQI, Academic Centre, trauma etc.)</li> <li>• Financial uncertainty for longer-term research</li> <li>• Uncertainty about the role of research within the charity</li> <li>• PPI often ineffective; staffing levels on wards does not support additional research activity.</li> <li>• IT support for research</li> <li>• Research not a recruitment criterion</li> <li>• Data quality/missing data</li> <li>• Inability to get free ethics approval (IRAS)</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Rewarding place to work providing research time and projects has ability to improve clinician wellbeing and decrease risk of burnout, while also improving opportunities to translate into practice. <ul style="list-style-type: none"> <li>○ Make research a recruitment criterion.</li> <li>○ Include in IPDR</li> </ul> </li> <li>• Unrecruited clinical secondment posts allows strategy-specific recruitment.</li> <li>• Collaborations: <ul style="list-style-type: none"> <li>○ Alignment with others, e.g., CQI &amp; Academic Centre to complete translation into practice circle</li> <li>○ Industry</li> <li>○ Jointly funded clinical/academic posts – become a “University Medical School”</li> <li>○ Community partnerships</li> <li>○ NHFT collaboration</li> </ul> </li> <li>• Potential for well-defined priority areas – opportunity to develop reputation; selection of topics that lend themselves to translation.</li> <li>• New IT strategy has more focus on research.</li> <li>• Akrivia Platform – maximise use of data; wider charity usefulness (BI, Clinical Audit)</li> <li>• Innovation (Genomics, VR etc.)</li> <li>• Staff training in research</li> <li>• USP – patients</li> <li>• MH &amp; COVID <ul style="list-style-type: none"> <li>○ Interest in mental health research</li> <li>○ Acceptance of working from home</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Interdependent areas are not achieving their aims/running effectively</li> <li>• Financial position of charity – funding withdrawn or not guaranteed for long enough to get established. <ul style="list-style-type: none"> <li>○ Decreasing patient numbers and income levels – prioritisation of research?</li> </ul> </li> <li>• CQC ratings and reputation – reputational effect on ability to engage collaborators, funding.</li> <li>• Ability to recruit ‘star’ academics/joint posts – supporting structures required</li> <li>• Geographical location of hospital</li> <li>• Capacity to obtain research funding (only as part of university collaborations)</li> <li>• Clinical secondees cannot deliver in 2 days a week.</li> <li>• STAH bureaucracy prevents technology projects from developing.</li> <li>• Conflicting organisational interests/messages</li> <li>• Difficulties in evidencing impact</li> <li>• External research environment (e.g., COVID)</li> </ul>

## PESTLE

<b>POLITICAL</b>	<ul style="list-style-type: none"> <li>The Secretary of State for Health has recently announced a major investment in Research and Innovation as a basis for sustainable healthcare across the UK (NHSE 2021)</li> <li>The Academy of Medical Royal Colleges and a consortium of healthcare organizations across the UK are encouraging the development of 'Research for all' in organisations; this report heavily promotes research and innovation as a catalyst for quality improvement (Academy of Medical Royal Colleges 2019)</li> <li>New Care Models and provider collaboratives means there is a political direction to provide care closer to home; collaboration also means access to wider patient group and focus on partnerships not competition (joint posts)</li> </ul>
<b>ECONOMIC</b>	<ul style="list-style-type: none"> <li>Multiple reports have indicated the growing importance of Research and Innovation as a driver for revenue generation and providing a basis for sustained competitive advantage (Mckinsey 2021)</li> <li>Trend to reduce grant giving due to impact of COVID on fundraising in the charitable sector.</li> </ul>
<b>SOCIAL</b>	<ul style="list-style-type: none"> <li>The growing concept of 'Shared Value' is gaining traction meaning that an organisation's strategy is increasingly being aligned with complementary social activities and partnerships in the wider community (Porter 2016)</li> <li>Importance of PPI in research engagement, and outcome identification and evaluation</li> </ul>
<b>TECHNOLOGICAL</b>	<ul style="list-style-type: none"> <li>There is enormous technological change occurring in society with the acceleration of interconnectivity, the dawn of artificial intelligence and global automation; the recent pandemic has accelerated such uptake.</li> <li>Recognition of the importance of clinical data analytics</li> <li>National Data Opt-Out could impact on data available.</li> </ul>
<b>ENVIRONMENTAL</b>	<ul style="list-style-type: none"> <li>Society increasingly recognises that organisations need to provide leadership in creating 'environmentally sustainable workplaces' (Bratton 2020:378)</li> <li>There is a growing trend towards the promotion of pro-environmental behaviours and encouraging employee voice around sustainable practices, such as 'Low Carbon Work Systems' (Bratton 2020)</li> </ul>
<b>LEGAL</b>	<ul style="list-style-type: none"> <li>The healthcare regulator (Care Quality Commission) has recently introduced 'well led inspections' – part of the Inspection Framework specifically focuses on Research and Innovation, meaning that such activity will be increasingly scrutinised from the regulatory perspective (CQC 2020)</li> </ul>

## Current Resources

Staffing	Associate Medical Director (0.5 WT), Head of Research & Innovation (1.0 WTE) Senior Research Project Manager (1.0 WTE), Research Administrator (0.8 WTE), Research Associate (1.0 WTE – currently vacant), Research Assistant (1.0 WTE – fixed term until March 2022)
Tangible assets	Access to the MRI scanner at Three Shires (fees apply), large unused space in the Main Building, computer hardware and software, telecommunications equipment.
Intangible assets	None currently (no patents etc.)

## References

- Dyer, J. Gregerson, H. Christenson, C. (2011) the innovators DNA: Mastering the five skills of disruptive innovators. Harvard Business Review Press.
- Jonker, L. Fisher, S. (2018). The correlation between National Health Service Trusts' clinical trial activity and both mortality rates and Care Quality Commission ratings: a retrospective cross sectional study, Public Health 187:1-6

3. Royal College of Physicians (2019) 'delivering research for all: expectations and aspirations for the NHS in England'
4. Royal college of Physicians (2016) Research for all: building a research active medical workforce
5. Scott, A. Cobban. P. Nair, R. Painchaud, N. (2019). Breaking down the barriers to Innovation. Harvard Business Review. Nov-Dec 2019.