**Attachment 1: BRC Theme Lead EoI – Supplementary information**

**Manchester NIHR BRC Contractual Obligations**

All BRC Partners have signed a subcontract which reflects the terms and conditions of the main NIHR contract (held by Manchester University NHS Foundation Trust) and all Theme Leads must familiarise themself with the details of this contract.

**Management and Governance Arrangements**

Manchester BRC is hosted by **Manchester University NHS Foundation Trust (MFT)**, in partnership with **The University of Manchester (UoM)**. This partnership successfully managed the transition of our Musculoskeletal Biomedical Research Unit (£5.5m) to our current Manchester BRC (£28.5m); and are founding partners in the Manchester Academic Health Science Centre (MAHSC - re-designated April 2020). MFT is the legal host for our Academic Health Science System - Health Innovation Manchester (HInM) – and established the Greater Manchester NIHR Oversight Board to ensure our research and innovation capabilities align and provide excellence and value for money for NIHR. MFT’s sub-contracting model, proven in our current BRC, ensures that all our partners deliver against NIHR/DHSC requirements and provides for robust financial and strategic accountability.

The **BRC Governance Board** will integrate new regional partners and refresh our established Terms of Reference. It will initially meet monthly to establish new structures and processes and four-monthly thereafter. The Governance Board holds the BRC’s leadership to account for delivery of overall strategic objectives and financial performance and monitors the BRC using the Ulysees risk management system within MFT’s Trust-Wide Risk Management Strategy. Significant changes to the BRC budget and/or Themes require Governance Board approval, exemplified by pivoting BRC resources to support COVID-19 Urgent Public Health research.

The **BRC** **Governance Board**, attended by the BRC Director, is chaired by the MFT Chief Executive. Membership includes senior representatives from UoM (including the President and Dean of the Faculty of Biology, Medicine and Health), NHS North West, the Executive Chair of HInM, the Medicines Discovery Catapult CEO, two public/patient representatives, MFT/UoM EDI Leads and the Chair of our International Scientific Advisory Board (ISAB). This ensures Manchester BRC is strategically aligned to all key stakeholders to maximise patient benefit across our region.

The BRC Director chairs the **BRC Strategic Executive** that includes Cluster Board Chairs, the Manchester Clinical Research Facility Director, Leads for our Strategic Core Delivery areas (**Figure 1**) as well as public/patient representatives, Translation Manchester, leads for EDI, communications, children/young adults and our Inclusive Research Oversight Board. Meeting monthly, it will drive delivery of a cohesive scientific strategy across all our partners, promote and invest in cross-Theme scientific programmes and champion equal and inclusive support for new researchers. The Strategic Executive will co-ordinate external relations, including with other BRCs, NIHR-funded programmes and collaborations.

Our thirteen Themes are grouped into four Clusters each overseen by a newly formed **Cluster Board** that meets monthly. Membership includes constituent Themes, Cluster Managers and a Theme Lead from each of the other three Clusters. Cluster Boards will drive further integration across BRC Themes, use our established portfolio management systems to track progress of NIHR BRC majority-funded projects, and foster collaborations to facilitate multidisciplinary proposals.

**Theme Leads** have responsibility for Theme management and progress towards delivery of strategy, SMART objectives and financial performance. Each co-Theme Lead will assume oversight for the Theme on assigned strategic activities (PPIEP, partnerships, EDI, capacity building). Performance reviews for Theme Leads use established NHS/university processes.

Our **ISAB** critically assesses and advises on scientific strategy, ambitions and progress. Chaired by Professor Dermot Kelleher (Dean of the Faculty of Medicine, University of British Columbia), ISAB members are clinical, academic and industrial experts in BRC research areas. The ISAB provides annual independent feedback to ensure that we remain internationally leading. An ISAB-led formal ‘mid-term’ review (24 months) will advise on prioritisation and deprioritisation of BRC programmes.

Figure 1 – Governance Arrangements

 

**Management of funding and research prioritisation**

The **BRC Director** is responsible for and has authority over BRC funding, is accountable for financial performance to the Governance Board, and through this to the MFT Board. Theme Leads will manage their funding and Clusters will support Themes to maximise value for money and patient benefit. Disinvestment/reinvestment recommendations are made to the BRC Strategic Executive Group for approval and will be informed by project and Theme-level data on achieving milestones and objectives.

Supported by MAHSC and informed by our public and civic contributors, BRC investigators will identify local, regional and national research and health priorities for their Themes and Clusters. Through this, alongside input from our ISAB, the Strategic Executive will prioritise core challenges and unmet needs for strategic investment and funding calls that will be targeted to involve at least two Clusters and a new collaborator in HInM or a partner Trust. Strategic Executive support acceleration of key projects towards late-stage development.

**Capacity Building, Intellectual Property (IP) and Communications**

Our Capacity Building Leadsits on our Strategic Executive and leads a multidisciplinary **Capacity and Training Group** representing key BRC professional and methodological groups. It will co-ordinate strategic investment in training and capacity building and monitor delivery. Working with our EDI leads, NHS/University partners and the NIHR Academy it will ensure we focus on supporting diverse talent and equality of access whilst widening training opportunities across Greater Manchester (GM), Lancashire and South Cumbria localities.

Manchester BRC benefits from a comprehensive IP and commercialisation support infrastructure across the MFT-UoM partnership. This includes joint Strategic Oversight and Operational groups across UoM and partner Trusts, a Memorandum of Understanding around jointly developed IP, and agreed processes for IP capture and commercial assessment. Annual audits of our portfolio with the NIHR IP Team enables identification of commercially attractive research for further support and investment. The BRC Industry Lead is a member of our Strategic Executive and our Industry Team, in collaboration with UoM and partner Trusts, ensures effective management of our commercial partners across organisations.

The Manchester BRC communications team reports to the Strategic Executive and is part of a GM-wide communications network co-ordinated through local and regional partners. With our PPIEP partners, we will co-design clear and accessible communications and lay summaries for key research outputs. We have well-established links to NIHR and other national funding partners, we publish regular newsletters and blogs to key stakeholders, and maintain an active social media presence (Twitter @ManchesterBRC had 2.1m impressions and 18k engagements since 2017). Peer-review publications will be Open Access and we link with Policy@Manchester to widen impact for our key academic outputs.

**BRC Strategy**

**The proposed NIHR BRC’s overall strategy for supporting early translational and experimental medicine research aimed at translating findings from discovery sciences into clinical research.**

Manchester BRC’s **vision** is to drive **personalised health and care for all.** We willdeliver innovative translational research that addresses important health and care priorities across Greater Manchester, Lancashire and South Cumbria. We will transform disease prevention and management, at pace and scale but with equity in our integrated, devolved health and care system. Patients, public and practitioners will be involved throughout the research cycle to support a cohesive translational research workforce and a Team Science approach. Manchester BRC will be a national exemplar of how an integrated regional system can deliver innovations that serve the needs of the whole population and be the collaborator of choice for strategic research funders and investors.

GM, Lancashire and South Cumbria have eleven of England’s twenty most deprived areas. Manchester and Blackpool have England’s highest rates of treatable male mortality, cardiovascular and respiratory mortality, lung cancer and mental health burdens. The GM Health and Social Care Partnership (GMHSCP) enables closer integration of research capabilities with clinical provision in our city-region. GM is also a Marmot City-Region committed to ‘Building Back Fairer’ to address health inequalities. Health Innovation Manchester (HInM) sits within GMHSCP to discover, develop and deploy innovations that improve health and wellbeing. Manchester BRC (designated 2017) is embedded within the Manchester Academic Health Science Centre (MAHSC) at the translational focal point of HInM (Section 6.1 Figure).

We are already demonstrating progression of early translational research towards late stage developments and clinical impact including:

* Early lung cancer detection in our most deprived communities though our Community Lung Health Checks,
* Prevention of antibiotic-induced hearing loss in babies through point-of-care pharmacogenetic testing,
* Transforming clinical trials of cough therapies with a validated cough measurement system.

In the next five years, Manchester BRC will:

* Show a year-on-year increase in diversity and geographical reach of study participants;
* Demonstrate a culture change in workforce diversity and promoting equality of opportunities;
* Deliver at least three projects per year to the MAHSC Accelerator Project for late-stage development;
* Increase five-fold overall grant income from initial funding, and industry partnerships by 25%.

Building on our track-record of excellence with value for money Manchester BRC will support the national priority for ‘Levelling Up’ by addressing the most immediate healthcare challenges in localities most disadvantaged.

**Aims:**

1. **Embed** early translational research further into our communities and localities in GM, Lancashire and South Cumbria by deepening the meaningful involvement of patients, public and civic partners, to understand and prioritise health and care needs, particularly in the context of high deprivation (Objectives 1.1-1.6).
2. **Build** a unique national powerhouse for innovation by combining the world-leading discovery and translational science capabilities of our partnership with a strong research culture centred on a committed, diverse and inclusive workforce, to narrow health inequities across our urban, rural and coastal settings (Objectives 2.1-2.7).
3. **Accelerate** at scale, the impact of our research through our mature and integrated innovation pipeline, to achieve measurable improvements in health and wellbeing across all sections of society in our region and beyond (Objectives 3.1-3.5).

**Key research areas**

Our established core infrastructure will support scientific programmes aligned with MAHSC’s three grand challenges:

* Basic mechanisms of disease. Our discovery platforms and data science strengths will drive deeper understanding of disease complexity, endotypes and multi-morbidity clusters, whilst integrating inclusive research principles, to understand how social factors influence biology in common disease processes. Key UoM infrastructure including the Cancer Research UK Manchester Institute (CRUK-MI), The Lydia Becker Institute for Immunology and Inflammation (LBIII) and The Wellcome Trust Centre for Cell-Matrix Research (WTCCR) alongside UK Biobank (Manchester) and the Medicines Discovery Catapult (MDC) (Cheshire) will accelerate this discovery-validation pathway.
* Prevention and early detection. Building on our international leadership (International Alliance for Cancer Early Detection), and prioritising deprived communities and localities, we will translate insights across all Themes to predict and prevent disease and co-morbidities. Co-production with local, regional and international industry leaders in integrated diagnostics will provide a global outlet for innovations.
* Person-centred therapies, interventions and care pathways. We are in the vanguard of the discovery and early development of next generation therapies, including advanced materials and nanomedicine (Henry Royce Institute and The National Graphene Institute) and cell and gene therapies (iMATCH Advanced Therapy Treatment Centre). With the Christabel Pankhurst Institute (digital technology and advanced materials) technology trial platforms, we will widen access to and participation in translational medicine.

Equality, diversity and inclusion (EDI) arecentral tenets of Manchester BRC built on our world-leading track-record of social responsibility (UoM first in the world in the Times Higher Education Social Impact Rankings, 2021). We have established an Inclusive Research Oversight Board (IROB) that includes patients, citizens, public health, methodologists and GMHSCP. Patient and public voices from across our diverse region co-produced our vision and aims and are embedded into our scientific and governance structures. We will bring people and place into the heart of our research so that it is better delivered, more informed and serves diverse communities, including those considered as disadvantaged or overlooked. Through meaningful engagement, we will understand the complex and diverse experience and perspectives of our communities, promoting a more health research confident population.

To address patient need and respond with agility to changing circumstance, our academic and workforce training programmes will embrace the diversity of people, skills, values and behaviours required for Team Science in biomedical research. We will develop and support a diverse workforce through our recruitment, working practices and operational planning, taking bold actions to address under-representation and tackle systemic bias.

 **Outline of Themes**

All thirteen BRC Themes have internationally-leading research strengths and address major unmet clinical needs so that we will have local, national and global impact. Themes will collaborate in four Clusters to maximise cohesion and encompass a wider geographical reach and mission.

**Advanced Diagnostics and Therapeutics Catalyst Cluster**

* Next Generation Phenotyping and Diagnostics
* Next Generation Therapeutics

The aim of the Advanced Diagnostics and Therapeutics Catalyst Cluster is to develop and apply a variety of new methods and tests that can better diagnose and identify people at risk of disease. This will deliver more precise diagnoses and more personalised care for patients, reducing the burden of ineffective treatments.

**Inflammation**

* Rheumatic and Musculoskeletal Disease (RMD)
* Respiratory Medicine
* Dermatology: Cutaneous Disorders and Wound Healing
* Integrative Cardiovascular Medicine

We have basic science excellence in genomics (Versus Arthritis Centre of Excellence), immunology and inflammation (LBIII) and fibrosis (WTCCR). This Cluster addresses several of the most common causes of death and disability in our region and nationally in which prognosis is strongly influenced by deprivation and adverse social determinants. Themes will deepen understanding of the common and individual processes driving disease evolution, co-morbidities and therapeutic responses and translate these to precision trials in patients across the life course to reduce morbidity and mortality.

**Cancer**

* Cancer Prevention and Early Detection
* Cancer Precision Medicine
* Advanced Radiotherapy
* Living with and Beyond Cancer

Manchester is one of four CRUK Major Centres. This Cluster is addressing emerging challenges and opportunities to improve the lives of all cancer patients. It provides a comprehensive approach to the whole patient/person journey by addressing prevention and early detection, key modes of cancer therapies (Advanced Radiotherapy and Precision Medicine) and addressing MLTCs in cancer survivors, all to provide new trials for complex patients and reduce the overall impact of cancer.

**High-burden Under-researched Conditions (HUC)**

* Hearing Health
* Mental Health
* Rare Conditions.

A national priority is to address conditions that cause significant morbidity and disability, but which traditionally have less per-patient research funding. Across this Cluster are examples of unmet need for people with protected characteristics and hidden disabilities including neurodiversity. This Cluster will focus on prevention and early diagnosis to reduce long-term disease burden and use novel approaches including gene therapies, digital interventions and devices to transform the lives of patients.

**Delivery of overall objectives:**

All Themes will **embed** their research across our region and communities, **build** their best science together with a diverse and inclusive research workforce, to **accelerate** innovations at pace and scale for patient benefit. They will:

* Work with IROB to ensure that research follows patient need, is inclusive of localities of high deprivation and is informed by local public health and healthcare data. We will use rapid cycle evaluations to ensure we can “fail fast”, disseminate good practice and provide early evidence for reducing inequalities (Objectives 1.1-1.6).
* Identify and nurture diverse talent to support inclusive research leaders of the future; foster new partnerships to expand research programmes and co-develop solutions that will maintain us at the internationally leading edge of translational research, leverage additional income and increase capacity across the North-West region (Objectives 2.1-2.7).
* Participate in MAHSC Domains and HInM pipeline reviews so that the most promising and high human value innovations are supported through this accelerated access process (Objectives 3.1-3.5).

Our Operations Lead coordinates the **BRC Core Team.** Project Managers support academic leads for Capacity Building, Partnerships, PPIEP, Inclusive Research and EDI to ensure common practice across Manchester BRC. We will integrate new partners (see below) into our governance and operational structure, and disseminate best practice. Our Core Team supports Themes, Clusters and strategic areas to monitor progress against SMART objectives, providing regular assessment of scientific progress and financial performance. All Red and Amber projects/finances will receive peer support. Further decision-making is escalated through Clusters to the Strategic Executive (see Governance). Our MAHSC-led innovation pipeline will accelerate development of successful projects and programmes.

**Additional Partners**

MFT and UoM work together within HInM and co-Chair the GM NIHR Oversight Board that guarantees a coherent strategy to accelerate research and innovation into improved clinical care**.** Our key GM partner Trusts (SRFT/NCA, GMMH and The Christie) play an active role within this infrastructure as part of our ‘One Greater Manchester’ approach. Key clinical research hubs to support our BRC are provided by partner Trusts including GMMH (3rd highest recruiting mental health Trust in England) and SRFT/NCA (rheumatology, dermatology and neurosciences and nephrology). In addition, The Christie hosts the new Paterson Institute for Cancer Research (£150m); a dynamic interface for researchers co-located with clinical services. Blackpool and Lancashire Teaching Hospital Foundation Trusts (BTH, LTHTr) will widen this model across our region and provide additional expertise improving access to translational research for diverse populations with high disease burdens and inequities.

**Strategic Partners**

GM is building a global network of strategic partners that share our values and with whom we co-develop solutions. We are at the heart of a city-region with an economic vision to generate £7bn of inward investment and 100,000 jobs to deliver a fairer, greener and more productive local economy. Innovation GM will drive this vision and establish Innovation Zones (including Innovation District Manchester, £1.5bn). Through our Industry Advisory Board and partnerships team, we will expand collaboration and co-development opportunities by attracting and embedding pharma and SMEs into our city-region. We will also seek additional partnerships to optimise commercialisation and further develop our research capacity.

Our long-standing partnerships with charities will enable us to influence and inform strategy and attract investment to accelerate translation (e.g. Wellcome Trust Translational Partnership Award), build capacity (CRUK and Kennedy Trust (inflammation) MB-PhD programmes), and support the work of Clusters (CRUK Major Centre, CRUK-MI, the Paterson Institute and Versus Arthritis Centres)

We continue to expand our links with the other BRCs, NIHR BioResource and Translational Research Collaborations (Section 6.3). Furthermore, our researchers have honorary contracts with the Office for Health Improvement and Disparities, the UK Health Security Agency, and act as experts for WHO, UN-Habitat.

We have extended our reach across the UK with Queen’s University Belfast, in several areas of research. Globally, our work with Kenya brings innovations in cancer (Radiotherapy, Prevention and Early Detection) to the Global South to support sustainable health and care solutions and International Development.