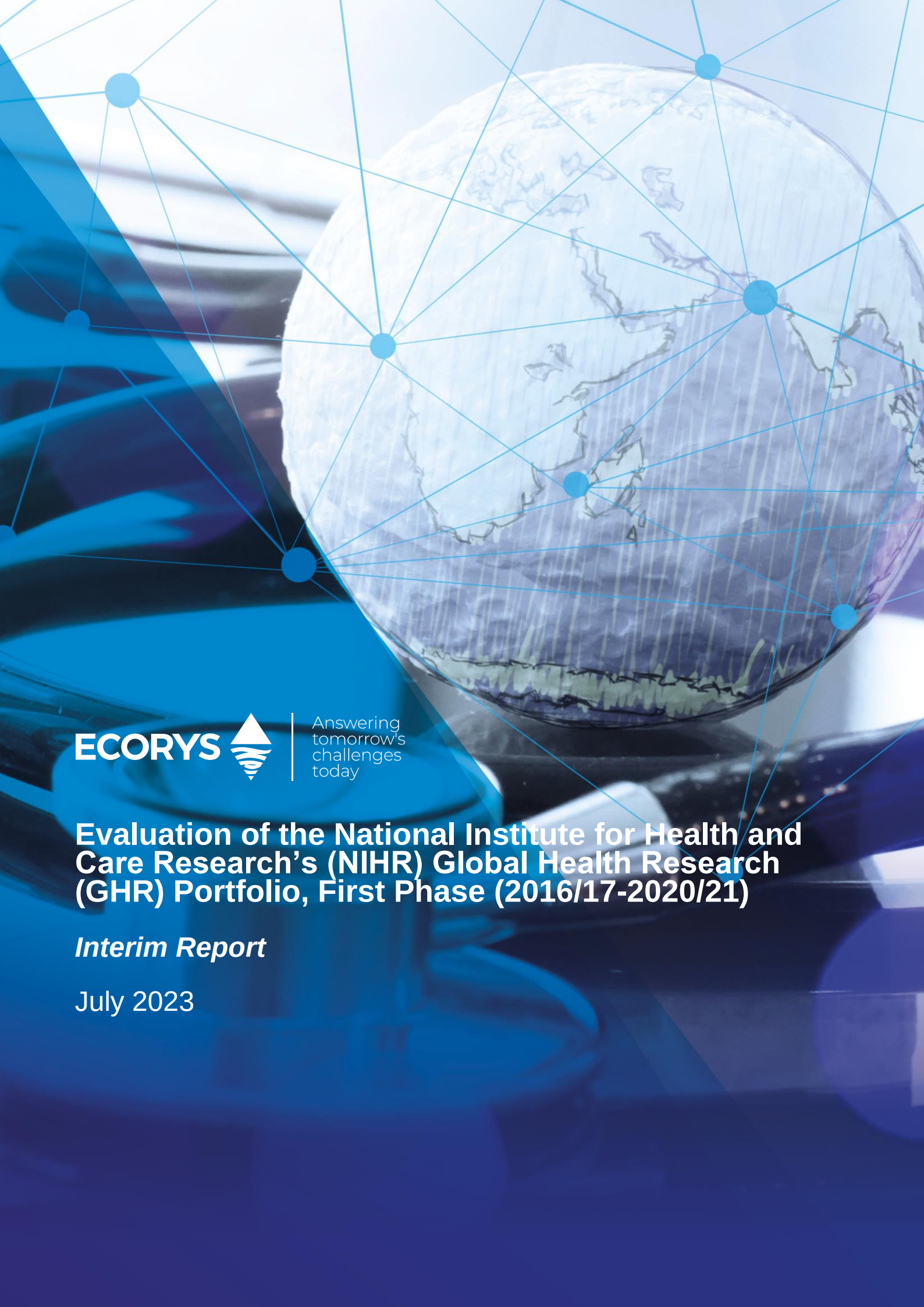

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Evaluation of the National Institute for Health and Care Research's (NIHR) Global Health Research (GHR) Portfolio, First Phase (2016/17-2020/21)

Interim Report

July 2023

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Abbreviations list

AMR	Antimicrobial Resistance
BA	Bibliometric Analysis
BMJ	British Medical Journal
CA	Contribution Analysis
CADA	Cohort Academic Development Award
CEI	Community Engagement and Involvement
CEPI	Coalition for Epidemic Preparedness Innovation
DFID	Department for International Development
DHSC	Department for Health and Social Care
ECR	Early Career Researcher
EDCTP	European and Developing Countries Clinical Trials Partnership
EF	Evaluation Framework
EID	Emerging Infectious Disease
EQ	Evaluation Question
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
FAF	Financial Assurance Funds
FCDO	Foreign, Commonwealth and Development Office
FGD	Focus Group Discussion
GACD	Global Alliance for Chronic Diseases
GARDP	Global Antibiotic Research and Development Partnership
GCC	Grand Challenges Canada
GECO	Global Effort on COVID-19
GESI	Gender, Equality and Social Inclusion
GHR	Global Health Research
GRP	Global Research Professorships
HPSR	Health Policy and Systems Research
ISAG	Independent Scientific Advisory Group
JGHTI	Joint Global Health Trials Initiative
KII	Key Informant Interview
LMIC	Low- and Middle-Income Countries
MEL	Monitoring, Evaluation and Learning
MNH	Maternal and Neonatal Health
MRC	Medical Research Council
NCD	Non-Communicable Disease
NHS	National Health Service
NIHR	National Institute for Health and Care Research
NIHRCC	National Institute for Health and Care Research Coordinating Centre
OECD DAC	Organisation for Economic Co-operation and Development's Development Assistance Committee
ODA	Official Development Assistance
PI	Principal Investigator
PPI	Patient and Public Involvement
RCS	Research Capacity Strengthening
RIGHT	Research and Innovation for Global Health Transformation
RSTMH	Royal Society of Tropical Medicine and Hygiene
R&D	Research & Development
SDG	Sustainable Development Goals
SMT	Senior Management Team
SNA	Social Network Analysis
SORT IT	Structured Operational Research and Training Initiative
SRE	Science Research & Evidence
SSSD	Severe Stigmatising Skin Disease
HEI	Higher Education Institution
ELHRA	Enhancing Learning and Research for Humanitarian Assistance
HMG	Research Governance Framework
COVAX	COVID-19 Vaccines Global Access
TDR	Special Programme for Research and Training in Tropical Diseases
NAO	National Audit Office
TB	Tuberculosis
ToC	Theory of Change
TOR	Terms of Reference
UKCDR	UK Collaborative on Development Research
UKRI	UK Research and Innovation
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VfM	Value for Money
WHO	World Health Organisation

Authorship and Disclaimer

Authorship

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There are no conflicts of interest.

Executive Summary

Background

The Department for Health and Social Care (DHSC) and National Institute for Health and Care Research (NIHR) established the Global Health Research (GHR) portfolio following the 2015 UK Aid Strategy. Its purpose is to support applied health research and training in low- and middle-income countries (LMICs), addressing unmet needs and strengthening research capabilities. An initial budget of £429.5m was allocated for the first phase of the portfolio (2016/17 – 2020/21), complementing other Official Development Assistance (ODA) research funders and evolving over time to include 30 programmes that NIHR or external partners manage. The portfolio is diverse in terms of its health focus, geographical scope, and funding size and emphasises the NIHR's operating principles of impact, excellence, effectiveness, inclusion, and collaboration, as well as strengthening research capacity, equitable partnerships and community engagement and involvement (CEI). It has grown to encompass 17 thematic areas, operate in over 50 LMICs, and has funded 616 awards in the first phase.

The GHR Portfolio's Theory of Change (ToC) outlines the NIHR's ambition to improve global health outcomes. It recognises that it may take 3-10 years for research outputs to influence policy, practice, and behaviour changes and 10-25 years for these changes to lead to strengthened health systems and increased capacity for health promotion and disease prevention.

The Evaluation

The DHSC commissioned Ecorys through the NIHR in December 2021 to undertake an evaluation of its first phase of activities (2016/17-20/21). The portfolio evaluation is delivered in four stages: inception, interim evaluation, final evaluation (due in December 2023) and a dissemination phase (due to be completed by March 2024). The evaluation utilises a theory-based approach to assess the contributions of the GHR Portfolio to the intended outputs, outcomes, and likely impact of investments. It focuses on assessing whether the portfolio is on track to deliver the expected results given the long-term nature of the research impact. The evaluation process involves testing the portfolio's ToC, including its assumptions and causal links, to determine the validity of the underlying theory using a contribution analysis (CA) approach.

CA is an approach that allows recognition of the complexities of attribution, given a whole wide range of enabling and hindering factors (internal and external) producing a result. Findings are assessed against two dimensions:

- Strength of evidence – how well triangulated a finding is and how much evidence there is to support it.
- Plausibility of contribution - how likely is it that these activities and outputs will lead to the outcomes in the theory of change.

Based on this, throughout the narrative, findings are expressed in terms of their strength of evidence (strong, moderate, limited, poor), but it should be noted that this relates to how much evidence the evaluators found to support a finding, rather than a judgement on the result.

The evaluation framework and questions are organized around the Organisation for Economic Co-operation and Development's Development Assistance Committee (OECD-DAC) evaluation criteria, grouped into three pillars: relevance and coherence, effectiveness and efficiency, and sustainability and impact. The framework also includes questions related to adaptability and learning, community engagement and involvement (CEI), and value for money (VfM).

The key methods comprise portfolio, programme and award documentation and data review; interviews with stakeholders at portfolio, programme and award levels; an online survey to all funded awards; a Social Network Analysis (SNA) to assess networks and interactions between funded institutions; and a Bibliometric Analysis (BA) to examine research collaboration to be conducted in the final evaluation phase. A purposive sampling approach to programmes and awards for in-depth review provides rich learning and insights against the Evaluation Questions (EQs).

This report presents the interim findings of the evaluation of the first phase of the NIHR's GHR Portfolio. It provides early recommendations for improving the portfolio's impact and sustainability.

Findings

Relevance: To what extent is the GHR Portfolio addressing priority areas of health research in LMICs where there is unmet need identified by government and/or civil society in the relevant countries?

The GHR Portfolio is clearly addressing priority areas of health in LMICs. The GHR Portfolio strives to ensure relevance by focusing on thematic areas underserved by other funders but considered high priorities in LMICs. The Ecorys analysis aimed to identify evidence that health inequalities were given priority, and efforts were made to understand the underlying causes of these disparities. The Ecorys assessment also sought evidence that the funding aligns with country contexts, government interests, and the interests of civil society and enabled meaningful involvement of researchers from LMICs.

The findings indicate moderate evidence of the GHR Portfolio's success in ensuring the relevance of its investments although more could be done to ensure policymakers' involvement at design stage. There is strong evidence that the portfolio addresses priority areas in health research within LMICs. In some programmes, a researcher-led approach facilitates this. Unmet needs were identified through consultations with UK and international partners experienced in global health research and through calls for researchers from UK and LMIC Higher Education Institutions or Research Institutes, who understood neglected thematic areas.

While there is moderate evidence that researchers and key country stakeholders were consulted during the design and development of the portfolio's initial phase, the level and quality of engagement of LMIC researchers and other stakeholders could be improved. Involvement of government and civil society actors representing marginalised populations in the early stages of the portfolio was limited, but there are indications of increased involvement over time, particularly where researchers have obtained subsequent awards to continue and expand their research.

The findings suggest that a more focused approach to addressing priority areas of health research and consulting with LMIC researchers and other key stakeholders may be beneficial going forwards.

Coherence: To what extent is the GHR Portfolio a coherent funding mechanism to meet its stated outcomes?

NIHR has successfully designed the GHR Portfolio to complement existing government research funding mechanisms and avoid duplication with other UK and global health funders. Early assessment of initial applications helped identify areas with a demand for research funding, and NIHR consistently funded programmes aligned with the most common thematic research priorities.

There has been an effort to increase internal harmonisation within the GHR Portfolio. The alignment between the portfolio-level ToC and individual programmes' thematic focus and outputs has been improved. Many programmes have been aligned with DHSC's results framework to harmonise reporting though this remains a challenge in some partnerships co-funded by NIHR.

Internal coordination across programmes and awards varies and could be improved to leverage complementarity and enhance results. External coordination and collaboration with other UK, partner country and global health research initiatives also vary at both the programme and award levels. While some programmes have demonstrated strong to moderate engagement with other funders and initiatives, NIHR's role in driving and facilitating this process and integrating awards more meaningfully has been less apparent.

Effectiveness: How effective has the GHR Portfolio been in achieving its intended interim results?

The GHR Portfolio has made good progress in achieving its intended interim results. The GHR Portfolio strives to be effective by generating high-quality research outputs relevant to policy, increasing research capacity, establishing equitable partnerships, and promoting CEI. The findings suggest that the portfolio has successfully funded programmes and awards that have made significant progress in these areas and produced a wide range of relevant outputs.

There is strong evidence of the portfolio's success in individual research capacity strengthening, including career progression of researchers. There is moderate evidence of progress in strengthening the capacity and career development of female researchers, as well as of institutional capacity including among LMIC research partner institutions. However, evidence of system-level capacity changes is more limited at this stage.

The portfolio has made good progress in developing equitable partnerships. However, addressing barriers to the equitable participation of LMIC institutes is a complex task that requires time and goes beyond the scope of individual awards. Further, while the development of strategic guidance on CEI and embedding effective CEI processes in awards have improved over time and demonstrates a drive to towards more equitable engagement of LMIC researchers at contracting stage, a more systematic analysis of needs is necessary to enhance effectiveness in this area.

The CA indicates that it is highly plausible that portfolio outputs will contribute to policy and institutional changes. However, due to challenges in being able to establish a truly comprehensive monitoring system that captures the progress of the portfolio's outcomes across all of its funded projects, such changes cannot easily be measured.

Overall, the portfolio has shown promise in achieving its effectiveness goals, but there is room for improvement in monitoring, evaluation and learning, addressing system-level capacity changes, and further enhancing CEI processes.

Efficiency: Has the GHR Portfolio and its delivery partners been able to convert inputs into outputs in a timely and effective way?

The GHR Portfolio has performed efficiently in the first phase of its delivery and is therefore delivering VfM. There is moderate evidence of GHR Portfolio success across the portfolio in converting inputs into outputs in an efficient manner. This includes sampled awards which have demonstrated efficient delivery, including ability to reduce costs while maintaining research quality, even in the face of external challenges such as the COVID-19 pandemic and political contexts in LMICs. The portfolio and programme structures have provided flexibility for awards to adapt to changing circumstances, and the support, feedback, and responsiveness of NIHR and its partners have been valued by award holders, facilitating timely and effective research. There is also positive evidence on other aspects of VfM (economy, effectiveness, and equity), although the GHR Portfolio currently lacks an overall framework for organising its approach to achieving VfM.

NIHR's delivery partners have relevant relationships, expertise, and systems in global health research funding, which are leveraged to enhance operational effectiveness and efficiency. Leveraging partners' expertise in LMICs, including within awards, and involving key stakeholders, including policymakers and communities, are also important enablers of efficiency.

However, there is a recognised potential for more effective and systematic monitoring processes to assess the extent to which CEI is achieved across the portfolio, as monitoring and learning processes do not currently include data collection from communities. It is not possible to verify what the awards are reporting, or to understand the changes that are occurring as a result of awards' CEI efforts, limiting the generation of timely learnings and identification of areas for improvements. Furthermore, the management and reporting processes and contractual requirements for NIHR-led programmes can be burdensome, particularly for LMIC research partners, which can pose challenges to the efficiency of research as well as the achievement of equitable partnerships.

Adaptability and learning: How well is the GHR Portfolio adapting and embedding learning?

The NIHR has demonstrated a strong learning culture across the portfolio. Learning has been a central aspect of the GHR Portfolio, enabling funded award teams to adapt to exceptional circumstances, particularly the challenges posed by COVID-19, in a flexible manner. The portfolio has demonstrated its ability to incorporate iterative learning, allowing for adjustments and improvements based on changing needs and circumstances. However, there is potential for learning to be more fully connected between awards within programmes, and across programmes, including both NIHR-led and partner-led. This is particularly relevant for those operating in similar thematic areas or contexts to strengthen the portfolio's effectiveness and impact.

Impact: Is there any early evidence that funded research and capacity strengthening activities are on track to/have the potential to contribute towards 3-10 year anticipated impacts?

The NIHR has built the foundations for longer-term impact through the GHR Portfolio activities. While it is too early to assess the long-term impact of the GHR Portfolio, which is expected to materialise in 10-25 years from the start of the portfolio, there is moderate evidence of positive progress towards mid-term outcomes. The portfolio's research and capacity-strengthening activities show the potential to influence health policy and practice and strengthen health systems in LMICs. There are also early signs that the portfolio has begun to successfully raise awareness of research topics and influence access to research findings among policymakers, practitioners, and the public in LMICs.

The establishment of networks and structures for meaningful engagement with government, communities, and global stakeholders has played a crucial role in achieving these outcomes. There is also moderate evidence of strengthened institutional capacity to further deliver quality research and training in LMICs, particularly when researchers secure subsequent grants to continue their work beyond the initial award period.

Overall, while it is too early to assess long-term impact, the GHR Portfolio has shown promising early signs of progress towards mid-term outcomes and has taken steps to address important considerations such as CEI, equitable partnerships, and coordination with other stakeholders.

Sustainability: To what extent will the net benefits of the GHR Portfolio continue, or likely continue, beyond the funded period?

The NIHR has made good progress in developing sustainable research capacity across the GHR Portfolio. There are examples at both the programme and award levels showcasing research impact and gains in individual capacity strengthening and their contributions to wider health systems that have the potential to be sustained beyond the funding period. Relevant linkages and partnerships contribute to sustainability through shaping further collaboration and funding opportunities. However, issues with availability of subsequent implementation funding for continuing and expanding the research funded by NIHR GHR raise questions about long-term gains as first awards often only address initial research needs. However, due to the early stage of the portfolio and the long timescale required for sustainability effects to materialise, data and insights on sustainable net benefits are limited.

It will be important to continue monitoring and evaluating the long-term sustainability of the portfolio's outcomes and impacts to gain a comprehensive understanding of its effectiveness in driving enduring changes in health systems.

Conclusions

The GHR Portfolio has delivered early positive results in producing relevant research outputs, strengthening research capacity, and promoting equity in partnerships. The NIHR has gained recognition in the global health research field. While the portfolio is relatively new and impacted by COVID-19, its full impact is expected over a 25-year period. The evaluation provides indicative progress towards intended outcomes and highlights the need for ongoing monitoring and evaluation.

The GHR Portfolio addresses underfunded health research areas in LMICs, leveraging relationships with delivery partners and promoting a researcher-led approach. Efforts have been made to strengthen internal capacity and engage LMIC stakeholders. NIHR maintains a strong commitment to CEI in its investments, although there is a need to strengthen processes to engage with marginalised groups and track changes at the community level. The evaluation identifies limited evidence of explicit discussions about gender equality, intersectionality, and power dynamics in relation to CEI and research processes and outcomes. While the GHR Portfolio's programmes are relevant to underfunded health research areas in LMICs and have built effective partnerships and networks, there is room for a more deliberate strategic approach that focuses on research that is more likely to be taken up by policymakers and promotes greater collaboration within and beyond the portfolio.

There is moderate evidence of progress towards shorter-term outcomes and a plausible potential for mid-term outcomes related to policy and practice influence. The portfolio also exhibits strengths in its allocative and technical efficiencies, contributing to its progress towards outcomes and therefore the GHR's VfM. For example, it has demonstrated efficiency in converting inputs to outputs in a timely and effective way, supported by operational structures, processes, expertise, and partnerships built by NIHR and jointly leveraged from its delivery partners. However, while the GHR Portfolio prioritises VfM, it lacks a centralised definition tailored to its specific context. In addition, the portfolio lacks comprehensive systems and processes to monitor results effectively across the portfolio as the annual reports do not include all programmes and may not include inputs from LMIC research partners. This limits the assessment of overall effectiveness and the ability to identify areas for improvement. There are also heavy financial reporting burdens and a lack of feedback mechanisms from LMIC award holders on operational issues, which may hinder further improvements.

Collaboration, partnership and learning within the GHR Portfolio are moderately efficient but need improvement to address the needs of LMIC research partners and reduce power imbalances. Strengthening learning systems can enhance the reach and impact of the portfolio and leverage LMIC expertise. Consideration of follow-on funding is also essential for sustainability and maximising the impact of investments in the GHR Portfolio. The evaluation highlights the need for a clear sustainability strategy, supporting award holders in long-term planning. Collaborative efforts with other funders can enhance sustainability and leverage the expertise gained within the NIHR.

Recommendations

It should be noted that these are early considerations that will be further explored in the final evaluation phase and discussed with DHSC and NIHR for feasibility and acceptability. Therefore, they are likely to evolve.

1. **Future Strategic Direction:** The NIHR should review the strategic priorities defined for the period 2022-2025 for the GHR Portfolio and decide if there is a need for a more focused approach. This should be agreed in consultation with key funding partners to ensure ongoing complementarity. This could involve maintaining a wide range of themes and partners or focusing on a smaller number of thematic areas where substantial progress has been made, there is explicit buy-in from LMIC policymakers and the greatest impact is expected.

2. **Robust Systems and Processes:** Further improve systems and processes for tracking all investments, including data management systems to fully capture key indicators and enhance monitoring of progress across the portfolio.

3. **Strategic Learning and Knowledge Exchange:** Invest in opportunities for strategic learning, in-person networking, and knowledge exchange to enhance research impact and capacity strengthening and further embed the CEI approach. Conduct a scoping exercise to identify areas where cross-award learning can add the most value.

4. **Deeper understanding of CEI approaches:** Engage NIHR's CEI advisers more deliberately and in more direct communication with awards to better understand emerging pathways of change and which approaches are proving effective in achieving research-, capacity- and empowerment-related objectives.

5. **Support for LMIC research partners:** Help LMIC research partners overcome operational challenges and build management capacity by simplifying application and financial reporting processes, providing mentoring support, and considering additional funding for wider research implementation aspects. Conduct a scoping exercise to gather feedback on existing funding models.

6. **VfM Framework:** Develop an overarching VfM framework and guidance for all programmes and awards to track and assess the value created by investments. Adapt existing VfM frameworks used by other UK funders to ensure alignment of ODA resources.

7. **Sustainability Strategy:** Develop a sustainability strategy aligned with the timeline of expected medium-term outcomes outlined in the ToC. This strategy should support LMICs in planning for sustainability from the start, include advocacy training and support, and facilitate connections with other funders for scaling up support.

1.0 Introduction

1.1 Purpose of this report

This report presents the interim findings from Ecorys' evaluation of the first phase of the National Institute for Health and Care Research (NIHR)'s Global Health Research GHR Portfolio (2016/17–2020/21). It provides evidence of the relevance, coherence, effectiveness, efficiency and sustainability of the GHR Portfolio, as well as findings on community engagement and involvement (CEI), emerging impacts and adaptability and learning. Conclusions and recommendations are presented for areas that work well and areas that could be improved with a view to enhancing prospects for impact and sustainability.

The DHSC established the GHR Portfolio in 2016 to support the objectives of the UK Aid Strategy 2015 and the United Nations' Sustainable Development Goals (SDGs). An initial budget of £429.5m was allocated for the first phase (2016/17-2020/21) to fund applied global health research in low- and middle-income countries (LMICs) eligible to receive Official Development Assistance (ODA). The purpose of the GHR Portfolio is to support high quality applied health research and training to address unmet needs in ODA-eligible countries by generating evidence for the direct benefit of people in these countries. It also aims to strengthen research capacity, further develop equitable partnerships between UK and LMIC research institutions, overcome barriers to health research uptake and ensure that the research itself is undertaken in collaboration with the communities most likely to be affected by the research outcomes.

1.2 Evaluation aims and scope

The purpose of this evaluation is to assess the design, implementation and emerging outcomes of the GHR Portfolio during its first phase and inform its future development and delivery of the GHR Portfolio. The evaluation aims outlined in the Research Commissioning Brief (Annex 1) are:

a. Assess the suitability of the design and implementation of the first phase of the NIHR GHR Portfolio (2016/17-2020/21) for achieving its intended outcomes and impacts and identify any learning which can inform the development and delivery of the second phase of the GHR Portfolio.

b. Provide accountability for the GHR Portfolio performance to date – to include assessing the GHR Portfolio's contribution towards emerging outcomes (for whom, in what contexts, how and why), whether the GHR Portfolio is on track to achieve its desired outcomes and impact and the Value for Money (VfM) of investments to date.

As cross-cutting themes, the evaluation team have assessed CEI, and adaptability and learning across the GHR Portfolio. Given the complexities of undertaking CEI in low resource settings, the importance of contextualised and adaptive approaches, and the limited evidence base on what works, the EQs seek to identify the portfolio's learnings about what works for different groups in different conditions and contexts. It further seeks to understand how NIHR has supported partners to strengthen their CEI approaches. Alongside this interim report, the final evaluation is being designed to include further award-level assessments, interviews with GHR Portfolio-level stakeholders and a Bibliometric Analysis (BA) to explore the reach and impact of funded research.

1.3 Audience for this report

While the direct recipient of this interim evaluation report is DHSC, its conclusions and recommendations will be relevant to all NIHR programme and award-level stakeholders, as well researchers in the wider public. Evidence and learning generated by this evaluation is intended to be used to help guide current decision-making and future investment across the GHR Portfolio.

1.4 Evaluation team

The evaluation was carried out by Ecorys[1] with research partners from four regions relevant to the NIHR GHR Portfolio. The partners are the Aurum Institute, South Africa; ABH Partners, Ethiopia; PopTrends, Brazil; and Access Health International, India. Partners have been instrumental in shaping and agreeing emerging findings and key learnings, and ensuring evaluation findings are properly contextualised and can meaningfully

[1] See Annex 2 for an Ecorys evaluation team organogram.

contribute to capacity development. As outlined in the Dissemination and Uptake plan, they will lead key dissemination activities, primarily in their regions (see Annex 3).

Box 1. Definition of key terms used in the report

GHR Portfolio: The entirety of NIHR's GHR collection of programmes and awards.

Programme: A range of research initiatives which fund and manage research and capacity strengthening awards in LMICs responding to various thematic areas. These include NIHR-led and a wide range of partner-led programmes.

Award: Research and capacity building projects that are directly funded by the NIHR GHR programmes.

Award-holder: UK and LMIC researchers that receive funds through NIHR GHR programme funding. The evaluation uses this term without differentiating between lead and downstream partners.

Delivery Partners: Lead organisations directly contracted by DHSC to manage the overall delivery of a specific Programme.

Equitable Partnerships: Partnerships between UK and LMIC researchers in which there is mutual participation, trust and respect, with mutual benefit and equal value placed on each partners' contribution during both the design and implementation of the research.

Community Engagement and Involvement: A range of strategies to meaningfully involve patients, communities, community leaders, civil society organisations and government officials in research that affects them.

Early Career Researcher (ECR): Researchers starting their careers in the public or global health sector within 8 years of their PhD award, or equivalent training.

1.5 Report structure

The remainder of this report is structured as follows:

- **Section 2.0 NIHR GHR Portfolio Context** describes the background and rationale for the GHR Portfolio and its evolution to date. It includes an overview of the GHR governance structure, funded programmes and the GHR Portfolio's Theory of Change (ToC).
- **Section 3.0 Evaluation Approach and Method** provides an overview of the evaluation approach and conceptual framework, and the methodology including the approach to data collection at the portfolio, programme and award levels. The approach to data triangulation across the Contribution Analysis (CA), Social Network Analysis (SNA), Bibliometric Analysis (BA) and thematic deep dives is also presented in this section, alongside methodological limitations and mitigations, and ethics and safeguarding relevant to evaluation design and delivery.
- **Sections 4.0 - 10.0 Findings** presents an assessment of the strength of evidence against overall findings under each Evaluation Question (EQ) and set of Sub-Evaluation Questions (sub-EQs) relating to Relevance, Coherence, Effectiveness, Efficiency, Learning and Adaptability, Impact and Sustainability. Due to the cross-cutting nature of CEI, equitable partnerships and Value for Money (VfM), these findings are presented against all relevant EQs and sub-EQs. Assumptions from the ToC are also explored and linked to overarching key findings.
- **Section 11.0 Conclusions** provides key conclusions drawn from an assessment of all findings against the EQs.
- **Section 12.0 Early Recommendations and lessons** present a summary of key recommendations and lessons learned, drawn from the findings and conclusions of this evaluation. This section also presents the next steps for the Final Evaluation Wave, as a basis for discussion and agreement with DHSC.

2.0 NIHR's GHR Portfolio context

The DHSC and NIHR established the GHR Portfolio in 2016, following the publication of the 2015 UK Aid Strategy and to support the United Nations' Sustainable Development Goals (SDGs). It aims to address the diverse health needs of people in LMICs by supporting high quality applied health research and training in areas where there is an unmet need, generating evidence, and strengthening LMIC and UK research capabilities and expertise in global health. As part of the 2015 spending review, an initial ODA budget of £429.5m was allocated for the first phase of the GHR Portfolio to contribute to improvement in global health outcomes in LMICs. It was intended that all funded activities would be underpinned by the following two principles:

- Builds on NIHR's operating principles of impact, excellence, effectiveness, inclusion and collaboration.
- Strengthens research capability and training through equitable partnerships between UK and LMIC research institutes.

There has been a growing effort across the global health research sector to build applied research and innovation in LMICs on the basis of equitable partnerships, nurture and develop research talent in LMICs and maximise the impact of research to address health challenges faced by LMICs. Further, a key principle behind these efforts is that research is directly and primarily of benefit to people living in LMICs. The GHR Portfolio intended to complement such efforts from other ODA research programmes running at the time of its inception, such as the Global Challenges Research Fund and the Newton Fund.

By the end of the first phase, the GHR Portfolio had evolved to comprise 30 distinct programmes[2], with most of them funding awards to individual researchers or consortia of researchers and institutions in LMICs and the UK. Programme delivery is managed by either NIHR or external partners. The NIHR-led programmes (7) are managed by the NIHR Coordinating Centre (NIHRCC), and the partner-led programmes (23) are managed by various UK and international partners and multi-funder initiatives. This division was not pre-determined at the GHR Portfolio's inception, but rather evolved in line with learning acquired during the initial delivery period. The aim was to grow the portfolio programmes to address the core NIHR GHR principles and objectives by leveraging existing expertise and maximising the use of resources. Some thematic areas feature across programmes, such as non-communicable diseases (including mental health), surgery, injuries and accidents, comorbidity, health systems research, maternal and neonatal health, and COVID-19. The GHR Portfolio also includes a range of initiatives focused on career development, training and research opportunities which complement the capacity strengthening objectives that are embedded as a key principle across all programmes.

Programmes in the GHR Portfolio are remarkably diverse in terms of their health focus, geographical scope, and, approximate spend[3]. Since its launch, and as of September 2022, the GHR Portfolio had grown to include 17 thematic areas[4], with research activities being conducted in over 50 LMICs across Africa, Asia and Latin America. In Phase 1, NIHR funded over 616 awards ranging from £500 to several million pounds[5]. Funding to the largest programmes was initiated in 2017 and grew over time to include GHR Groups (£90m), GHR Units (£84m) and European and Developing Countries Clinical Trials Partnership (EDCTP) (£79m). The smallest programmes include the Global and Maternal Neonatal Health programme (£0.5m), Royal Society of Tropical Medicine and Hygiene (RSTMH) small early career grants to individual researchers (£0.75m), and the Biomedical Resources Grant (£0.9m). Diversity within the GHR Portfolio is also reflected in the approximate number and different types of awards[6] per programme, ranging from 231 awards funded by RSTMH, 96 funded by the Joint Global Health Trials Initiative (JGHTI), 2 funded by the Antimicrobial Resistance (AMR) Cross-Council Initiative, and 1 funded by the Biomedical Resources Grant. Figure 1 displays the geographical spread of research institutes funded by the GHR Portfolio.

[2] See Annex 4 for a summary of the programmes in the GHR portfolio, in terms of delivery partners, approximate number of awards, and approximate spend in Phase 1.

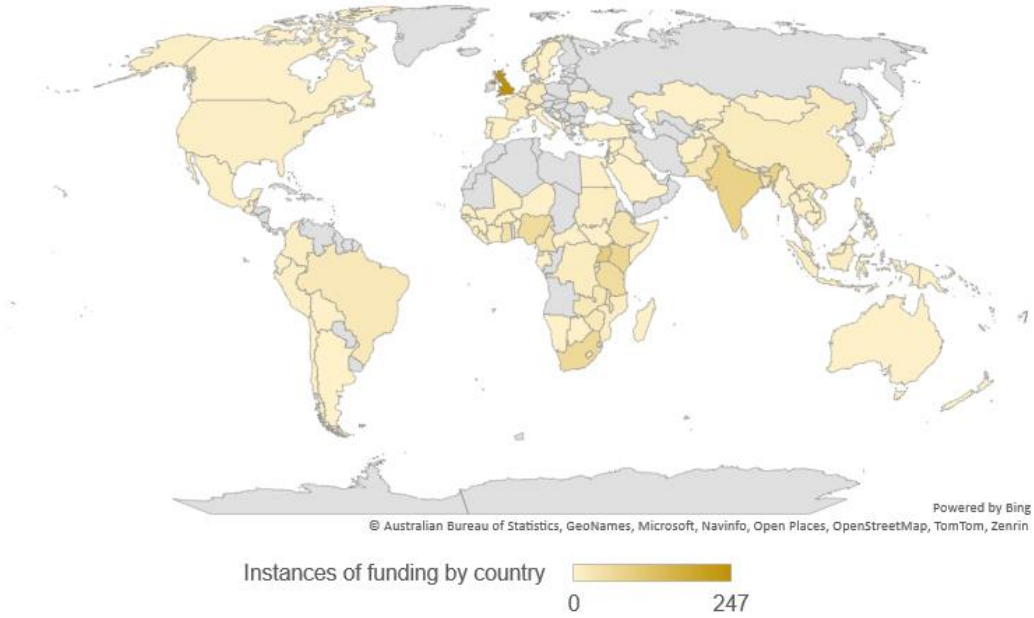
[3] For NIHR-led programmes, these figures represent approximate spend in Phase 1 (figures retrieved from published information in links). For partner-led programmes, these figures represent total disbursement to date (figures retrieved from partner databases shared, and links directing to general programme information).

[4] Key thematic areas are listedby NIHR as follows: Blood, Cancer, CardiovascularGeneric Health Relevance, Infection, Inflammatory and Immune System, Injuries and Accidents, Mental Health, Metabolic and Endocrine, Musculoskeletal, Neurological, Oral and Gastrointestinal, Other, Reproductive Health and Childbirth, Respiratory, Skin, Stroke

[5] These figures were taken from the 'NIHR Global Health Research Evaluation - Research Commissioning Brief, June 2021' which is no longer available online. Please refer to all funded projects delivered by the NIHRCC (https://fundingawards.nihr.ac.uk/search/funder/NIHR%20(ODA)) and individual websites of Partner-led projects for more detail.

[6] Based on the datasets shared by the respective programme leads. 'N/A' shows programmes which did not present datasets.

Figure 1. Country coverage map of instances of funding[7]



Of the **610 awards** that are in scope of the evaluation (4 April 2016 and 4 April 2021), and have the complete data (institution name and start date), **297 awards are contracted to LMIC institutions**. This means approximately **49% of GHR Phase 1 portfolio awards were contracted to LMIC institutions**.

However, **296 of these institutions are awarded under Partnerships (99.6%)** and **only 1 institution funded via NIHR-led Programmes.** This is mainly driven by smaller awards, particularly funded under RSTMH. Broken down, these are:

- **EDCTP**: 7
- **ELHRA**: 12
- **GCC**: 12
- **JGHTI**: 20
- **MRC**: 13
- **NIHR-led:** 1
- **RSTMH**: 215[8]
- **WELLCOME**: 17

Over time, **this has increased from 1 LMIC contracted institution in 2016 to 108 contracted institutions in 2021**, with this peaking in 2020 at 130 institutions during the period of evaluation. A breakdown across the years is provided below:

- **2016**: 1
- **2017**: 8
- **2018**: 7
- **2019**: 43
- **2020**: 130
- **2021**: 108

The GHR Portfolio governance structure aims to ensure that the GHR team has appropriate opportunities to consult with, and seek information and approval from a series of entities. The Independent Scientific Advisory Group (ISAG) provides independent strategic and scientific advice on the development of the GHR Portfolio with the intention of ensuring that the GHR strategy and programmes remain coherent. The GHR Programme Board oversees the GHR Portfolio's direction with the intention of this being consistent with its strategic mandate and makes key decisions and recommendations to support and ensure delivery of the GHR

[7] This figure represents the number of instances (out of 1349) a funded research institute has been located in a particular country; not to be confused with the number of funded research institutes per country. The numbers used are approximate and based on the datasets sent by NIHR and partnership leads, compiled in September 2022; datasets for some programmes are missing.

[8] Funding to LMIC institutions is classified as where the lead institution was in an LMIC country, irrespective of the nationality of the lead researcher or where they were based. So for RSTMH, while the lead researcher may be from an LMIC country, some are associated to an HIC institution, so those are not classified as direct funding to LMIC institution.

Portfolio. The team reports to the Science Research & Evidence (SRE) Senior Management Team (SMT) and the Chief Scientific Advisor for approval, which oversee operational issues across the Directorate and NIHR, setting strategy and policy, and providing assurance on all business management, finance, risk and audit requirements from the SRE Directorate.

The GHR Portfolio incorporates collaboration with a wide range of partners. When the GHR Portfolio was launched in 2016, DHSC initially prioritised working with partners who were already well established in the global health research space, such as the Medical Research Council (MRC) and the Wellcome Trust. The GHR team worked with these funders to create partnership opportunities and proposals for funding allocations based on collaborative identification of critical gaps in global health research. NIHR simultaneously built up its internal capacity to issue calls for research applications from UK institutes with LMIC research partnerships based on LMIC health research priorities. The NIHR GHR team grew from a small core group comprising a few individuals to a more extensive team with wider global health expertise. In May 2023, DHSC appointed Professor Kara Hanson as the first Director for NIHR's GHR Portfolio. This role is expected to provide scientific oversight of the entire GHR Portfolio, enhance coherence across all programmes, and monitor, centralise and embed GHR Portfolio-wide learning into future phases. In a 2019 analysis of transparency of aid spend across the UK government, DHSC's ODA was scored 'Very Good' against the Aid Transparency Index scoring criteria. Given this was the first assessment of its type and the relative immaturity of the ODA portfolio within DHSC, this is a significant achievement.[9]

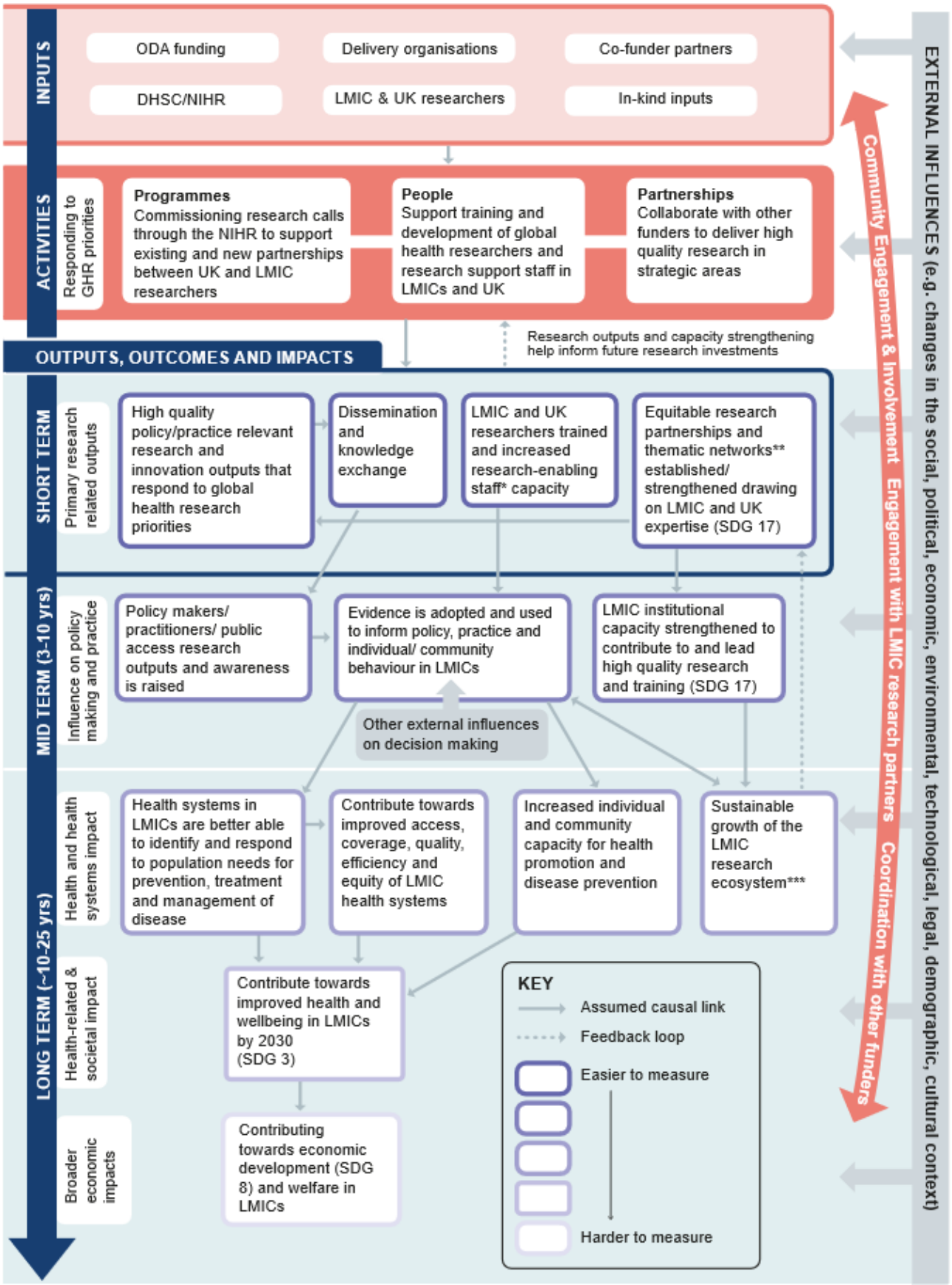
The GHR Portfolio ToC, developed by the DHSC GHR Team, NIHRCC and other strategic partners, sets out the ambition for the GHR Portfolio's contribution to global health outcomes. The GHR ToC visually represents how the GHR Portfolio's funded activities and outputs are intended to contribute to long-term positive changes in health and health systems. The ToC identifies anticipated causal links drawing on theory from literature on health research impact and acknowledges that it may require 10-25 years for changes in policy, practice and behaviour (outcomes) to contribute towards strengthened health systems and increased individual and community capacity for health promotion and disease prevention (impacts). Causal links become harder to measure over time as a result of a wide range of external factors, including changes in the social, political or economic context, and are therefore based on a set of assumptions, detailed in Section 3. The ToC is composed of the following elements:

- **Outputs (short-term):** Funded activities in the GHR Portfolio are expected to produce tangible and measurable products in the short-term. The ToC outlines 4 results at output level, including high-quality policy or practice relevant research and innovation outputs that respond to global health research priorities, dissemination and knowledge exchange, LMIC and UK research capacity strengthening (RCS) activities and new or strengthened equitable research partnerships and thematic networks.
- **Outcomes (mid-term, 3-10 years):** Outputs are intended to contribute to mid-term outcomes that influence policy, practice, and individual / community behaviour in LMICs. The ToC envisages short term dissemination and knowledge exchange activities contributing towards policymakers, practitioners and the public accessing research findings and awareness being raised. As evidence is increasingly used to inform policy, practice and behaviour, LMIC institutional capacity is expected to strengthen and contribute to high-quality research and training.
- **Impact (long-term, 10-25 years):** Changes in policy, practice and behaviour are expected to lead to longer-term impact on health systems and population health, and social and broader economic impacts. The ToC envisages that impacts will include stronger health systems in LMICs that are better able to identify and respond to population health needs, improved access, coverage, quality, efficiency and equity of LMIC health systems, increased individual and community capacity for health promotion and disease prevention, and sustainable growth of the LMIC research ecosystem.
- **Cross-cutting issues:** Several cross-cutting themes that apply across every stage of the ToC are expected to support progress towards the intended outcomes and impacts. These include community engagement and involvement, equitable partnerships and coordination amongst funders to encourage locally-informed research, enhance impact and minimise duplication of activities.
- **Assumptions:** Central to the ToC for the GHR Portfolio are nine assumptions which state the conditions necessary for activities to lead outcomes and ultimately long-term impacts. The evaluation's approach to testing these assumptions and hence the validity of the ToC is discussed in section 3.1.

The ToC is a key reference point for the development of the evaluation approach and methodology, as set out in Section 3.

[9] Publish What You Fund, 2020, 'How Transparent is UK Aid? A review of ODA spending departments': https://www.publishwhatyoufund.org/app/uploads/dlm_uploads/2020/01/How-Transparent-is-UK-Aid_Digital.pdf

Figure 2. NIHR's GHR Portfolio Theory of Change



3.0 Evaluation approach and method

3.1 Evaluation framework

The evaluation uses a theory-based approach to assess evidence of the GHR Portfolio's contributions to date towards its intended outputs, outcomes, and impact[10]. This process involves testing the GHR Portfolio's ToC (see Section 2), its assumptions and causal links to assess the extent to which the theory underpinning the GHR Portfolio's design is holding true. The evaluation of the first phase of the GHR Portfolio considers its potential contribution to research impact over the long-term and, therefore, assesses evidence on the basis of whether the GHR Portfolio is on track to delivering the expected results.

The ToC informed the development of the Evaluation Framework (EF)[11]. As appropriate for an evaluation of a UK Aid-funded GHR Portfolio, the EQs are organised around the OECD-DAC evaluation criteria, grouped in three pillars: i) Relevance and Coherence ii) Efficiency and Effectiveness iii) Sustainability and Impact. The Findings section also includes:

- Findings for Eqs on adaptability and learning of the GHR Portfolio.
- Findings on the approach to CEI and VfM integrated throughout.

A workshop conducted by Ecorys during the inception phase to examine the ToC indicated DHSC's anticipated causal pathways from inputs and activities to outputs, outcomes and impact remained valid. The evaluation team unpacked all ToC assumptions and mapped them against the EF. These assumptions have been examined and tested during the interim evaluation phase, and our findings on the extent to which they are holding true are reported as described in Table 1 below.

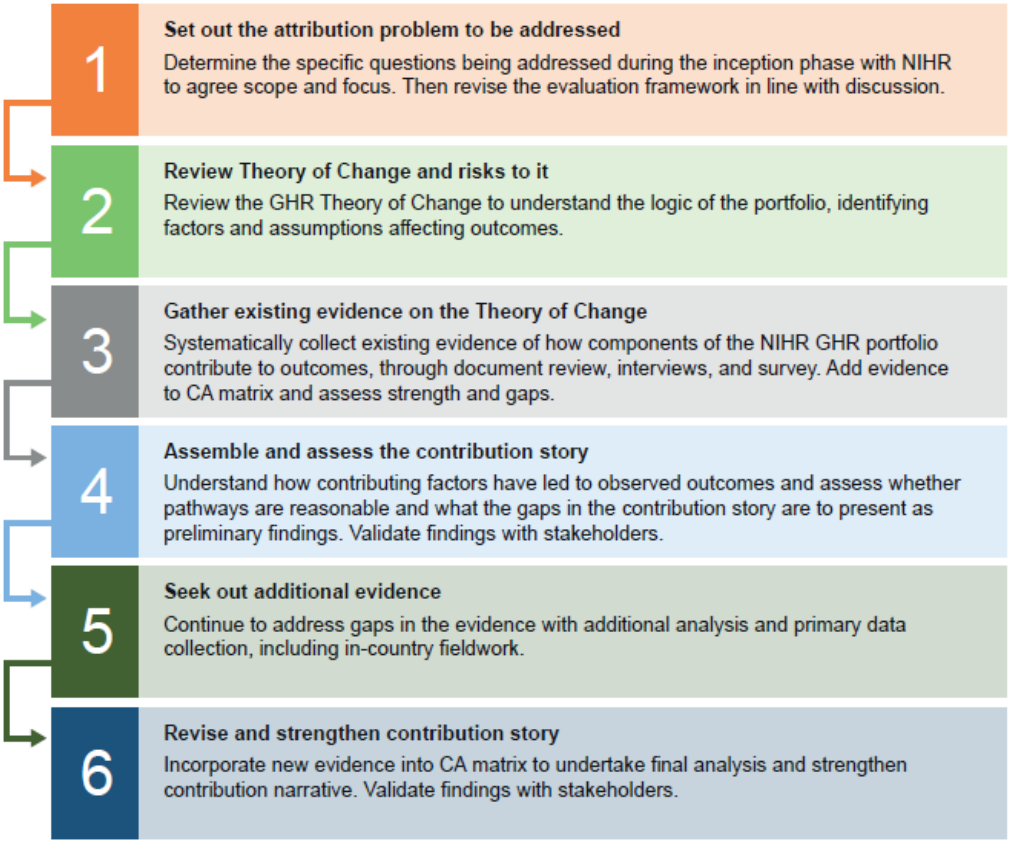
Table 1. Summary mapping of ToC assumptions to the EF

No.	Assumption	Link to EF (EQ)
1.	Areas of investment reflect LMIC priorities (i.e., the mechanisms for identifying global health research priorities / engaging with LMIC policy-makers and practitioners are effective).	Relevance (1.1 & 1.2)
2.	Global health research funders continue funding at present rate.	Relevance (1.1.), Coherence (2.2)
3.	Funding supports LMIC leadership.	Coherence (2.2), Effectiveness (3.2 & 3.3)
4.	Research outputs consider access, coverage, quality, efficiency, equity.	Effectiveness (3.3), Efficiency (4.1)
5.	Activities are efficient and contribute to VfM, maximising the resources available to them.	Efficiency (4.1)
6.	Researchers have skills, knowledge and networks to disseminate findings effectively to policy-makers/ practitioners	Effectiveness (3.1), Efficiency (4.1)
7.	Policymakers / practitioners have the resources and ability to understand and use research.	Impact (5.1)
8.	Individuals who participate in training are retained in domestic research system.	Efficiency (4.1), Impact (5.1)
9.	NIHR funded activities will have a sustainable long-lasting legacy.	Sustainability (6.1)

[10] A theory based design was pursued from the outset, recognising that a counterfactual evaluation would not be feasible.
[11] See Annex 5 for the full Evaluation Framework.

The ToC provides the basis for the evaluation's analytical framework and contribution analysis (CA) approach. The CA method and analytical tools provide a way to structure and build up evidence about GHR Portfolio activities and their potential contribution to supporting short, medium, and long-term change in health and health systems, as well as to test the ToC and suggest amendments. Figure 3 presents an overview of the steps followed in this analysis, with steps 1-4 being covered during this Interim Evaluation Phase and the remaining two steps being covered in the final phase.

Figure 3. Overview of the approach to CA

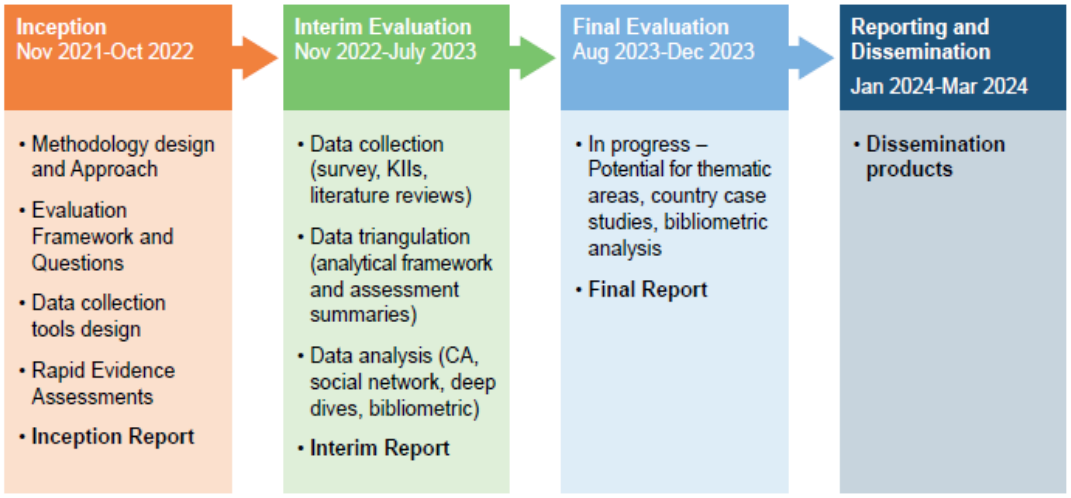


The evaluation team has employed a mixed methods approach to gathering evidence for the CA, using both quantitative and qualitative data collection and several analytical methods to answer the Eqs. The research methods described below are designed to provide consistent and systematic evidence across all programmes. The evaluation design also incorporates case studies on critical aspects of the ToC (RCS and CEI) drawn from a sub-set of awards. All evidence has been aggregated to the GHR Portfolio level to ensure findings support recommendations and learning at the broadest level.

3.2 Evaluation Phases

The GHR Portfolio evaluation is delivered in 4 phases, covering inception, interim evaluation, final evaluation (due in December 2023) and dissemination (ending in March 2024), as presented in Figure 4. This interim report builds on the activities conducted during the inception and the interim evaluation phases.

Figure 4. Overview of evaluation activities timeline



During the **inception phase**, the evaluation team designed the methodology, Eqs and data collection tools. In-country partners were engaged to support key inception tasks, including stakeholder mapping and 4 rapid evidence assessments (REAs) in India, Brazil, Ethiopia and South Africa. The REAs helped to identify key information about health systems, situate our evaluation findings in country contexts, and assess relevance to national health priorities.

During the **interim evaluation phase**, a series of GHR Portfolio-, programme- and award-level research tasks were completed, including case study research (documentary review and interviews) for selected awards from a sample of programmes. As illustrated in Figure 4, research tasks followed a 3-step approach: starting with data collection (January-May 2023), data triangulation (May 2023) and data analysis (May-June 2023). The evidence at all levels has informed the overall GHR Portfolio findings reported in Sections 4-10. In the **final evaluation phase**, the findings from this interim evaluation report will be updated and complemented, and further programme level research will be completed. The planned final evaluation activities and next steps are outlined in Section 12.

The **dissemination phase** will be discussed and agreed with DHSC and NIHR stakeholders from August 2023. The evaluation team will prioritise extracting findings and lessons for the GHR Portfolio and a wider policy audience relating to: (a) the extent to which researchers are engaged in effective knowledge mobilisation (and what types of support or interventions encourage the transfer of knowledge), and (b) the extent to which CEI meaningfully and sustainably leads to higher quality research and intended impacts. A series of tailored dissemination outputs including a summary report, learning briefs, workshops and webinars have been proposed in the Dissemination and Uptake Plan (see Annex 3).

3.3 Methodology Overview

3.3.1 Data Collection

Data collection was carried out at 3 levels, namely GHR Portfolio-, programme-, and award-level[12]. Each level requires a distinct set of tools to collect the necessary evidence base for next stage analysis, as summarised in Table 2.

Table 2. Overview of approach to data collection for interim evaluation

Level	Documents	Interviews / FGDs	Survey
Portfolio	High-level 5 documents	Sample of 12 stakeholders, 11 internal and one external	-
Programme	Selection of 74 documents	All programme lead stakeholders; 41 interviewees in total	-
Award	Selection of 64 documents	Sample of award-level stakeholders across 12 programmes (8 covered in the interim evaluation, 4 pending in the final evaluation); 124 interviewees in total	Aggregated findings from survey to all award-holders; 293 respondents in total

GHR Portfolio-level data collection includes all programmes and involves a document review and stakeholder interviews. The document review included materials related to governance, CEI strategy and guidance, and a DHSC Annual Review. Following a stakeholder mapping activity, a sample of stakeholders with knowledge of the GHR Portfolio and/or the wider policy and operational context were selected for interview. Internal stakeholders were selected based on their function across relevant GHR governance and management structures, and included lead staff on partnerships, operations, governance, VfM and CEI. The sample of external stakeholders was selected on the basis of diverse expertise and knowledge relevant to the rationale of the GHR Portfolio and synergies with wider research relevant to global health. As displayed in Table 3, 12 interviews have been conducted to date including with government stakeholders and UK Research and Innovation (UKRI). External stakeholder interviews are planned as part of the final evaluation, to support the validation of the findings of the CA.

Table 3. Overview of planned and completed GHR Portfolio-level interviews

Name	Organisation	Total No. Interviews	Interview Details				
			Interim Evaluation	Final Evaluation (Pending)	Female	Male	TBC
Internal	DHSC	13	11	2	8	4	1
External	LSHTM	2	0	2	1	1	0
	UKRI	1	1	0	0	1	0
	UKCDR	1	0	1	1	0	0
	UCL	1	0	1	0	1	0
	USAID	1	0	1	0	1	0

[12] See Annex 6 for more detail on the full sampling approach across the 3 levels.

Name	Organisation	Total No. Interviews	Interview Details				
			Interim Evaluation	Final Evaluation (Pending)	Female	Male	TBC
	WHO	2	0	2	1	1	0
Total		**21**	**12**	**9**	**11**	**9**	**1**

Programme-level data collection includes the 27 programmes in scope[13] and involves a document review and stakeholder interviews. The document review at the programme level has included a selection of approximately 3-5 documents per programme, with priority given to business cases, Call Guidance, NIHR Annual Reviews, and monitoring reports. Documents were systematically reviewed against the EF, and this supported the identification of topics to probe during the stakeholder interviews. A total of 74 documents have been reviewed across all programmes. Annex 7 contains the full bibliography. Programme stakeholder interviews were conducted with programme leads from 27 programmes (some stakeholders lead various programmes simultaneously), as well as other relevant programme managers and experts in the programmes recommended by leads. A total of 41 interviewees participated in 24 interviews.

Award-level data collection includes a survey, a review of documentation from selected awards, and consultations and interviews or focus group discussions (FGDs) with research teams and stakeholders of selected awards.

Awards survey: Award-holders in 21 programmes under the GHR Portfolio[14] were included in the survey. As most programme leads only had contact details for Principal Investigators (Pis), Pis were asked to distribute the survey to other relevant team members to ensure a wider range of views were captured. The survey remained open from October 2022 to January 2023 and collected responses to 30 closed and 2 open-ended questions. The former covered the focus areas of the EF, while the latter focused on the programmes' strengths and areas for improvement. Responses were aggregated at the GHR Portfolio-level to ensure consistency with other analyses in the evaluation. From an estimated 590 people who were invited to participate, 293 people responded (~50% response rate). Due to small sample sizes and lack of representativeness, statistical significance testing was not conducted for the survey. Noteworthy differences have instead been highlighted in the analysis based on the evaluators' judgement.

Awards sampled for assessment: Our evaluation benefits from evidence gained from deeper investigation into a sample of awards of the GHR Portfolio. In light of such diversity within and among the programmes and awards, the sample was not intended to be representative of the entire GHR Portfolio and rather offered an opportunity to explore some of the causal pathways and assumptions in the ToC in detail. Such an approach also provided a more nuanced understanding of the progress towards outputs and outcomes. The purposive approach to sampling involved first identifying 12 programmes[15] that provided a spread across thematic areas, size, duration, and partners. From these 12, 8 programmes (and 15 awards) were selected for the interim evaluation, as shown below in Figure 5. This sample reflects different characteristics relating to completion status, award size, health thematic area, award duration and number of award partners. Award-level sampling for the interim evaluation was finalised through wider consultation with NIHR programme leads, the Research Steering Group, and two stakeholder meetings on emerging findings held in March / April 2023 with DHSC, NIHR and partners leading the sampled awards. A selection of awards from the remaining four programmes will be decided in July 2023 in consultation with DHSC.

[13] 3 of the 30 programmes were excluded from the scope of this evaluation during the inception phase: MMV and FIND had a specific purpose in the earlier part of Phase 1 that is less relevant to the future development of the GHR portfolio; GPSC was a sub-community within a broader network where project staff and stakeholders were no longer accessible through DHSC.

[14] All 27 programmes assessed in the GHR portfolio, except Global Research Professorships, FAF, SPARC, Biomedical Resources Grant, CEPI and GFGP. Rationale for exclusion explained in Annex 6. Complete award-level survey findings in Annex 8.

[15] The 12 programmes include: (i) NIHR-led: GHR Units, GHR Groups,Global Research Professorships, Global HPSR, RIGHT; (ii) partner-led: EDCTP, GACD/MRC, AMR-SORT IT, NIHR-GHR Wellcome Partnership, RSTMH, Global Mental Health-GCC, GECO/MRC.

Figure 5. Overview of award-level sampling approach

Document reviews and interviews at award-level: For each of the awards sampled in the evaluation phases, document reviews and interviews are conducted. Given the broad range of award-specific documents, we have reviewed and will continue to review a selection of approximately 2-4 documents per award, prioritising applications, annual reports, monitoring reports and end of award reports where available. These are reviewed prior to conducting consultations and interviews to inform the tailoring of the topic guides. A total of 64 documents were reviewed across all sampled awards for the interim evaluation.

To guide the interviews / FGDs, the evaluation team conduct an initial consultation with the PIs, aiming to introduce the evaluation, and obtain an overview of the award's status, any missing documents and suggestions on award-specific stakeholders to interview. These are then followed up with interviews or FGDs across all awards. During the interim evaluation phase, we conducted a total of 95 interviews / FGDs with 124 participants from early April to early June 2023. The team tailored topic guides to stakeholders and where necessary adapted these to their language requirements, conducting interviews in English, Spanish, French and Urdu. Interviews were 1 hour long and conducted mostly online. However, benefiting from the local presence of our evaluation consortium, the team also carried out in-person fieldwork for three awards, in Chennai (India), Karachi (Pakistan), and Cape Town (South Africa) in May 2023.

Table 4 presents a breakdown of interviews conducted and documents reviewed at award-level for the interim evaluation.

Table 4. Overview of award-level documents reviewed and interviews conducted

Awards – Programme	No. Documents	No. Interviews	No. Participant	Gender		Type of Stakeholders								LMIC	
				Female	Male	PI	Co-PI / LMIC Lead	Policy-maker[16]	Other Researcher[17]	CEI Lead	Early Career Researcher	Community Representive	Research Managers	Non-LMIC	LMIC
CLEAN-AIR(Africa) – Groups	4	7	8	4	4	1	3	1	0	1	2	0	0	3	5
Neurotrauma – Groups	7	8	9	2	7	1	6	0	0	1	1	0	0	4	5
Stillbirth Prevention and Management in SSA – Groups	6	5	8	7	1	1	1	0	2	2	2	0	0	3	5
Prevention and management of NCDs and HIV-infection in Africa – Groups	6	7	9	2	7	1	2	0	1	0	3	2	0	2	7
Global Surgery – Units	4	10	13	5	8	1	2	0	2	2	1	0	5	4	9
Health System Strengthening in Sub-Saharan Africa – Units	4	6	7	5	2	1	4	1	0	0	0	0	1	1	6
Safe systems approach to road safety in Nepal – Global HPSR Development Awards	5	5	5	3	2	1	0	0	0	0	1	2	1	2	3
The INTE-COMM study – Global HPSR Commissioned Awards	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[16] Includes government officials and health facility managers.
[17] Includes programme managers, regional coordinators or steering committee members.

Awards – Programme	No. Documents	No. Interviews	No. Participant	Gender		Type of Stakeholders								LMIC	
				Female	Male	PI	Co-PI / LMIC Lead	Policy-maker[16]	Other Researcher[17]	CEI Lead	Early Career Researcher	Community Representive	Research Managers	Non-LMIC	LMIC
PIECEs – Improving outcomes for people with psychosis in Pakistan and India – RIGHT	7	12	26	19	7	1	3	4	0	4	8	3	3	2	24
REDRESS – Reducing the Burden of Severe Stigmatising Skin Diseases (SSSD)– RIGHT	6	8	10	6	4	1	2	1	1	1	0	2	2	4	6
A Unit for Health Evidence and Policy Ethiopia – Wellcome partnership	2	5	5	1	4	1	0	0	3	0	1	0	0	1	4
Improving AMR Surveillance Sierra Leone – AMR-SORT IT	3	4	4	0	4	1	0	1	2	0	0	0	0	1	3
RSTMH	0	11	11	6	5	0	0	0	1	0	10	0	0	1	10
Wellcome Fellowships	0	3	5	2	3	0	0	0	0	0	5	0	0	0	5
Global Research Professorships	10	4	4	2	2	0	0	0	4	0	0	0	0	0	4
Totals	**64**	**95**	**124**	**64**	**60**	**11**	**23**	**8**	**16**	**11**	**34**	**9**	**12**	**28**	**96**
				52%	**48%**	**9%**	**19%**	**6%**	**13%**	**9%**	**27%**	**7%**	**10%**	**23%**	**77%**

3.3.2 Data triangulation and analysis

All data collected through document reviews, interviews and the survey has been coded by each EQ in our **EF**, ensuring comprehensive coverage and a consistent approach to minimise bias. This process has been used at the award, programme and GHR Portfolio levels to support synthesis and generation of findings by EQ area. **Assessment summaries** were produced for each EQ, aggregating all evidence streams at GHR Portfolio, programme and award-levels to allow for subsequent overall analysis. An internal emerging findings meeting to ensure all evidence streams and data collected were cross validated internally and triangulated was held with the evaluation team in May 2023, before initiating report writing. As presented in Figure 6, four different data analysis methods have been used.

Figure 6. Overview of the data analysis process

- **Contribution Analysis (CA):** The CA method allows for a systematic assessment of the GHR Portfolio outputs and their potential contribution to the GHR Portfolio's expected outcomes, as reflected in the ToC.

  This method uses qualitative data from programme and award-level interviews, document reviews, and the survey analysis as evidence for its analysis. This analysis has been conducted using the EF and a CA matrix.

- **Evaluation Framework (EF)**: We have assessed all evidence at programme- and award-levels from a strength of evidence perspective, following the rubric presented in Figure 7. These assessments were collated at the GHR Portfolio level to summarise the volume and quality of data sources contributing to the evidence. As the ToC assumptions have been mapped against the EF, these have also been tested where relevant and are presented in Sections 4-10.

Figure 7. Key for Strength of Evidence

Strength of Evidence (1 to 4)	**Strong (4)** The finding is supported by data and/or documentation which is 15pproach15d15 as being of good quality by the evaluators (final version that has been shared/published to intended audience), and the finding is supported by the majority of interviews (including all critical stakeholders) and documents, with relevant consultee base for the specific issues at hand	**Moderate (3)** The finding is supported by majority of the data and or documentation with a mix of good and poor quality and/or The finding is supported by majority of the consultation responses (i.e., some documents and interviews, including all critical stakeholders)	**Limited (2)** The finding is supported by some of the data and or documentation which is 15pproach15d15 as being of poor quality or The finding is supported by some consultations as well as a few sources being used for comparison (i.e., just documentation or interview not both)	**Poor (1)** The finding is supported by various data and/or documents of poor quality or The finding is supported by some/few reports only and not by any of the data and/or documents being used for comparison or The finding is supported only by a few consultations or contradictory consultations	**No evidence**

- **CA matrix**: To respond to the effectiveness questions in depth, we have developed a CA matrix which maps the GHR Portfolio ToC outputs against its outcomes; see Figure 13 in Section 6 for reference. We have not mapped outputs to impacts at this stage, given the complex and multi-factored relationship between the two. Each cell linking outputs with outcomes includes an assessment of the strength of evidence and plausibility of contribution (see Figure 7 and Figure 8). For the interim evaluation phase, an individual CA matrix has been completed per award sampled and per programme in the GHR Portfolio, allowing for a detailed assessment before aggregating scores onto award- and programme-wide matrices. These CA ratings have then informed the GHR Portfolio-level findings provided in Section 6, which present the strength of evidence and plausibility of contribution of the GHR Portfolio towards its intended outcomes.

Figure 8. Key for plausibility of contribution

Plausibility of contribution (1 to 4)	**Highly plausible (4)** Clear, direct causal association between specific NIHR inputs/activities and outputs and outcomes, with detailed reference and examples as to how the programme supported change, and the particular mechanisms at work (actualized only)	**Plausible (3)** Indication of causal association between specific NIHR GHR inputs/activities and outputs and outcomes, although the link is inferred rather than concrete with some reference and examples provided as to how the programme supported change (16pproach16d or anticipated)	**Somewhat plausible (2)** Some indication of causal association between specific NIHR GHR inputs/activities and outcomes, but limited examples provided as to how the programme has supported change. (16pproach16d or anticipated)	**Not clear (1)** Very limited or no information to form judgements about the pathway between NIHR GHR inputs, activities and outputs and outcomes**.** (16pproach16d or anticipated)	**No evidence**

- **Social Network Analysis (SNA): The evaluation has used SNA (see Annex 9) to supplement the EF on aspects related to the effectiveness of networks funded by the GHR Portfolio, whether there is coherence with other health research funders, and the approaches that the networks use to disseminate evidence and improve their accessibility**. Award-level datasets were used to identify the relationships between institutions in award partnerships formed under the GHR Portfolio. Survey data was used as a supplementary source of additional information, and Researchfish data from NIHR was considered for potential Units and Groups sub-analysis, depending on consistency and coverage. Data on actors and their relationships has been extracted and formatted to explore three levels: (i) GHR Portfolio and (ii) NIHR-led or partner-led, and (iii) within specific programmes if appropriate.
- **Deep Dives: The evaluation team has used award-level findings to explore some of the causal pathways and assumptions in the ToC in more detail and provide a more nuanced understanding of progress towards outputs and outcomes.** During the interim evaluation phase, the team built on the award-level analysis to develop specific reviews of CEI and RCS at individual, institutional, and systems levels, exploring both barriers and enablers to planned outputs and outcomes. These reviews will be submitted separately to DHSC.
- **Bibliometric Analysis (BA): The evaluation team will conduct a BA as part of the final evaluation phase, to explore the reach and impact of NIHR-funded research, including publications and other research outputs where possible.** It will form a key component of our evaluation of the GHR Portfolio's effectiveness, including the scientific importance and policy relevance of research outputs through performance metrics and citation analysis, as well as insights into equitable partnerships through co-authorship analysis. While quantitative insights from the BA will reveal the outputs of NIHR research, this can only serve as a proxy for quality. Our findings will be triangulated with qualitative data to nuance evidence on whether research is scientifically important, policy relevant, and delivering research impact. The16pproachh to BA is outlined in Annex 10.

Finally, we triangulated from across the research to conduct a strategic assessment of VfM at the portfolio level in terms of allocative efficiency, technical efficiency and value/results, investigating:

- Whether GHR (and its delivery partners) funded the right activities and the right mix of activities? (Allocative efficiency)
- Whether the GHR Portfolio managed is well, turning the inputs into outputs in an efficient and effective way (Technical efficiency)
- The likelihood of research outputs translating into sustainable outcomes and impact? (Value/Results)

3.4 Limitations and mitigations

The following limitations have been encountered and mitigated as far as possible.

Table 5. Encountered and mitigated limitations

Limitation	Mitigation
Availability and quality of data: The availability and quality of secondary data across the programmes and awards is not centralised and is inconsistent (particularly between partner-led programmes); this has lowered scores on strength of evidence for findings across some Eqs. For instance, there is insufficient data available on VfM or expenditure to conduct a rigorous analysis at this stage. In the survey, small sample sizes in some programmes prevented programme-level analysis. SNA was also limited by few monitoring datasets and survey data capturing the relationships between institutions.	Where there have been gaps in secondary data, we have supplemented through primary data sources, such as stakeholder interviews at programme and award-levels and through survey findings. This has helped validate our qualitative findings and increase confidence in the plausibility of contribution. Where there have been gaps in survey responses, we have addressed these with evidence from interviews and document reviews.
Respondent bias: All documents reviewed are self-reported and risk reflecting a potential respondent bias, in favour of unrealistic positive outcomes, and from a particular perspective. It was not feasible to carry out comprehensive research with patients or community-level beneficiaries on the ground across all awards and programmes, and therefore to validate findings with all stakeholders at this stage. Some interviewee perspectives are also under-represented due to low response rates; particularly among policymakers. With only 15 awards reviewed in depth, we cannot achieve statistical representativeness of the overall GHR Portfolio. Inconsistent survey data coverage across the GHR Portfolio, including an oversampling of PIs, has also limited representativeness.	Under-representativeness of certain views and respondent bias was mitigated by interviewing a broad range of stakeholders, representing a diversity of experiences and geographies. Tailoring topic guides based on document reviews and interviews supported probing on the gaps and triangulation of opinions. Strength of evidence assessments indicated the number of times a finding was referred to and the quality of the sources. Engagement with strategic stakeholders external to DHSC is planned for the final evaluation to capture their missing perspectives. Despite limited opportunities for representative sampling, a purposive sampling approach for programmes and awards has meant the sample includes rich learning and insights against the Eqs.
Time-lag in observing impact: Many of the impacts sought will take many years to realise and thus fall beyond the lifetime of the evaluation; for instance, achieving health systems strengthening in LMICs to identify and respond to population needs for management of disease. A theory-based evaluation approach enables us to measure progress along causal pathways towards outcomes. Given the ongoing nature of the evaluation, and the different start dates of programmes within it, findings are limited in terms of presenting a comprehensive overview of the GHR Portfolio and its longer term results.	While the GHR Portfolio is ongoing, the evaluation seeks to assess the progress made towards achievements of its outcomes and is timed to inform future activity of the GHR Portfolio. The CA method selected is also expected to contribute to refining the GHR Portfolio-level ToC, testing the assumptions and strengthening the contribution story and pathways of change / impact.

3.5 Ethics and safeguarding

This evaluation strived for high ethical standards, based on a person-centred Do No Harm approach, and in compliance with DHSC guidelines. Our approach adheres to HMG's Research Governance Framework, the Government Social Research Code and the Foreign, Commonwealth & Development Office (FCDO)'s Ethics principles for research and evaluation. All team members and research partners adhere to the Ecorys Safeguarding Code of Conduct. The evaluation's methodology is assessed from a safeguarding perspective to ensure it is ethically sound and addresses all circumstances where safeguarding risks may occur. Data collection processes requiring in-person and virtual interactions are informed by the following considerations in order to ensure confidentiality and anonymity:

- The evaluation team asked all interviewees to read an information sheet regarding how personal data will be stored and protected and confirm consent to participating in the interview. Consent was included in topic guides and sought before all interviews.
- The evaluation team was briefed prior to primary data collection on how to use research tools to ensure familiarity with the information sheet, and knowledge on how to obtain consent and communicate data privacy details. The team participated in biweekly debriefs during primary data collection to raise issues or concerns.
- All survey data collected was anonymous and personal or potentially identifiable data has been treated as confidential. Respondents were presented with the terms and conditions of the survey and were asked to provide their consent before proceeding.

The evaluation team also engaged with patient associations, hospital community board members and other community groups. The following actions were taken to ensure safeguarding standards were upheld and to mitigate potential harm:

- The evaluation team participated in a pre-fieldwork briefing meeting which emphasised Ecorys' and FCDO's Safeguarding Codes of Conduct to ensure participants' welfare is at the forefront of the evaluation.
- Interviewers were selected on the basis of their CEI / Gender Equality and Social Inclusion (GESI) expertise. Our CEI / GESI Lead, alongside local researchers, conducted primary data collection for awards and deep dives related to CEI or requiring engagement with marginalised groups.
- The evaluation only engaged with citizens that already have a relationship with the research institute / PI for each award. The PI acted as a "gatekeeper" for data collection activities with wider community stakeholders or interlocutors, identifying and / or clarifying any issues or sensitivities.

4.0 Findings: Relevance

4.1 To what extent is the GHR Portfolio addressing priority areas of health research in LMICs where there is unmet need as identified by government and/or civil society in the relevant countries?

The GHR Portfolio aims to be relevant by ensuring a focus on thematic areas that are not well addressed by other funders but considered a high priority in LMICs. Our analysis for this was based on finding evidence that health inequalities were prioritised, and efforts were made to understand the drivers and root causes of these disparities. We also looked for evidence that funding aligns with country contexts and the interests of country governments and civil society, and that researchers in LMICs were meaningfully involved in influencing this. Overall, there is moderate evidence that the GHR Portfolio has been successful in ensuring the relevance of its investments although more could be done to ensure policymakers' involvement at design stage. There is strong evidence that the GHR Portfolio is addressing priority areas of health research in LMICs, and this was facilitated by a researcher-led approach that complemented the commissioned calls. Unmet needs were identified through various means, including consultation with other UK and international partners already highly experienced in GHR, and through calls for research from UK and LMIC institutes based on their understanding of neglected thematic areas. There is moderate evidence across the GHR Portfolio that researchers and key country stakeholders were consulted in the design and development of the GHR Portfolio's first phase, but the degree and quality of engagement of LMIC researchers and other stakeholders could be improved. There is limited evidence of direct involvement of government and civil society actors representing marginalised populations in the early stages of the first phase of the GHR Portfolio but signs that this increased over time, particularly where researchers have obtained follow-on awards to continue or expand their research. Our findings indicate that a more consolidated approach may now be beneficial.

4.2 To what extent was the design/development of the GHR Portfolio and funding allocations guided by evidence of priority areas of health and health research in LMICs?

There is strong evidence that the GHR Portfolio responds to global health priorities that constitute a high burden of mortality and morbidity in LMICs and are underfunded. Funding allocations were initially guided by engagement with experienced partners who collaborated with the NIHR to identify critical gaps in GHR and helped channel funding. At the same time, the NIHR quickly built up its own capacity to issue calls for research proposals that required applications from UK institutes with LMIC research partnerships based on LMIC priorities.

There is strong evidence that relevant global literature and inputs from UK and international GHR researchers and their LMIC research partners guided the conceptualisation and funding allocations of programmes and awards and pointed to neglected thematic areas of high burden in LMICs. Non-communicable disease (NCD) was highlighted as a key priority as the burden is increasing dramatically in LMICs. Early partnerships that reflect this focus include the JGHTI and Global Alliance for Chronic Diseases (GACD) (both delivered by MRC on behalf of DHSC) and Grand Challenges Canada's Global Mental Health programme (GCC GMH). JGHTI received approximately £32m from DHSC in late 2016 when the focus of JGHTI calls had shifted from infectious disease to mental health research; GACD supports research that addresses the prevention and management of mental disorders, hypertension and diabetes, and GCC GMH focuses on the mental health needs of young people in LMICs. Between 2017 and 2021, DHSC also contributed almost £80m to EDCTP, a partnership focused on prevention and treatment of poverty-related diseases and emerging and re-emerging infectious diseases affecting sub-Saharan Africa. Other critical areas identified by LMIC research partners under the Units and Groups programmes include neglected themes such as stigmatising skin disease, snake bites, stillbirth, accidents and injuries, and surgery. Funding allocations to these two programmes were approximately £174m. The Research and Innovation for Global Health Transformation (RIGHT) programme (£51m) has continued to reflect on and evolve its approach and Call 7, launched in 2023, was based on an analysis and comparison of data on global burden of diseases against what is being funded, uncovering areas of unmet needs. The award-level review provided moderate evidence that earlier research in partner countries was used to identify local needs and fed into the design of the awards. The vast majority (97%) of survey respondents agreed that the research was informed by unmet needs.

Experienced partners played a crucial role in helping to identify priority themes, supporting the early roll-out of activities, and leveraging their LMIC networks. During the design and launch of GHR in 2016, there

were only two DHSC staff members and limited institutional experience in global health research within NIHR. NIHR also faced pressures to meet spending requirements within a short timeframe. Therefore, an intensive engagement exercise was undertaken to collaborate with more experienced global health partners, namely the Department for International Development (DFID, since integrated into FCDO), MRC and Wellcome Trust in the UK, as well as global and regional partners such as GCC and the European Union. Individuals from these organisations brought specific expertise and networks into the engagement process, which helped to establish the foundation for the subsequent development of the GHR Portfolio and ensure relevant funding flows. For example, EDCTP involves 44 African and 19 European countries, thus providing a vast network of LMIC connections and forming a substantial part of the GHR Portfolio. RSTMH, the Wellcome Global Health Partnerships programme and the Global Research Professorships (GRP) programme have together enabled around 275 researchers to develop their individual research capacity and careers.

NIHR rapidly built up its internal expertise, bringing in new staff with strong experience in GHR and developing of a ToC. During the first phase, NIHR quickly strengthened its internal capacity to manage research calls which enabled a gradual shift in funding allocations from partner-led to NIHR-led programmes. In 2018, NIHR developed a ToC in collaboration with key partners to promote alignment of investments and reflect DHSC / NIHR's emerging principles, particularly in the areas of LMIC-led priorities, equitable partnerships, and CEI. Many programmes now have strict criteria for how awards adhere to these principles and guidance for research calls has evolved accordingly. The Theory of Change provided an overarching framework that aimed to capture the wide diversity of initiatives. Over time, the NIHR has moved to target investments to programmes that align well with the framework and lack sufficient funding from other sources.

NIHR aimed to respond to changing contexts, emerging priorities, and the needs of researchers on the ground and in LMICs. In addition to the focus on NCDs and other neglected themes which many programmes address, some programmes were borne out of or evolved to meet the need for a rapid response to the COVID-19 pandemic and its impact on LMICs. This was clearly a significant global priority that emerged during the first phase of the GHR Portfolio. For example, the Global Effort on COVID-19 (GECO) programme with MRC aligned with the WHO's COVID-19 roadmap and supported applied health research to fill knowledge gaps in LMICs. The Coalition for Epidemic Preparedness Innovation (CEPI) was created as an international coalition to accelerate the development of vaccines against emerging infectious diseases (EIDs) and enable equitable access to these vaccines for affected populations during outbreaks. During the pandemic, it evolved to support equitable access to COVID-19 vaccines and co-led COVAX. An independent outcome evaluation[18] found that CEPI has strongly validated its need and concept.

The overall approach to allow the GHR Portfolio to evolve somewhat organically worked well in the first phase but may have spread resources too thinly, potentially limiting the ability to have deeper impact in core areas. The first phase of the GHR Portfolio grew to include 30 programmes or initiatives and some of these have reportedly been challenging to monitor. Programmes cover more than 100 countries and 16 health themes from the 21 health categories in the UK health research classification system[19] including the generic health research category that captures research that is relevant to all diseases and conditions or to general health and well-being. Several stakeholders at the GHR Portfolio level expressed concern that while the GHR Portfolio met a clear need in its first phase, it may be too wide-ranging and not sufficiently strategically defined going forward. As outlined in Section 6 (Effectiveness), while our SNA indicated that the GHR network had significant reach, there is a tipping point beyond which larger and more widely spread networks are less effective. Our analysis suggests that GHR Portfolio has been successful in responding to LMIC priorities through both its commissioned calls and its researcher-led calls, and wide partner engagement but could now benefit from consolidating its approach to focus on the highest impact areas while still enabling responsiveness to local needs and innovations.

4.3 To what extent were researchers and key country stakeholders consulted in the design/development of the GHR Portfolio where relevant?

Across the GHR Portfolio, there is moderate evidence of programmes ensuring a focus on responding to nationally relevant research priorities, integrating the research agenda into national plans, and facilitating endorsement of research outputs. Programmes displayed differing levels of country-level engagement with stakeholders other than the direct award partners. Some programmes were firmly embedded in national plans, for example, AMR-Structured Operational Research and Training Initiative (SORT IT) worked through national AMR committees, and EDCTP has strong links with WHO country offices. An independent review of the JGHTI scheme

[18] https://cepi.net/news_cepi/cepi-publishes-independent-outcome-evaluation-of-cepi-1-0/
[19] https://hrcsonline.net/health-categories/

published in November 2019 found very positive collaboration with policymakers and key stakeholders. It showed that the scheme was delivering on its core aim and has achieved tangible outcomes and impacts, and that JGHTI-funded research has generated new knowledge about interventions which in turn are starting to contribute to improving health in LMICs.[20] As shown in later sections of the report, there is moderate evidence of a broad range of policy-relevant outputs and publications which have been widely disseminated, despite COVID-19 delays, some of which are already influencing national and global initiatives, thus indicating their relevance to LMICs.

However, there is limited evidence of a focus on, and inclusion of socio-economically disadvantaged groups. While this was an explicit aim in some programmes, it was either not explicit or absent in others. Private sector engagement was also noticeably absent. Even where awards were able to identify certain social groups as being particularly disadvantaged regarding their ability to access the benefits of the research intervention in question, they did not undertake a formal analysis of their needs or explicitly include them in design or implementation. There is also limited evidence that awards focused on the health facility level sought to understand the experiences of individuals not accessing the health system at all. The survey confirms that whilst most respondents agreed that their research aligned with country health priorities (91%), responds to health inequalities (86%) and engages relevant groups (88%), only 51% of LMIC respondents agreed that the research is consulting women and marginalised groups, versus 76% of non-LMIC respondents. Likewise, 57% of LMIC respondents agreed that the research responds to inequality and discrimination issues, whereas 80% of non-LMIC respondents agreed. Male and female respondents also differed somewhat on this issue, with 64% of female respondents agreeing, compared to 70% of male respondents. While NIHR-led programmes encourage reporting on reaching marginalised groups, they acknowledge that they are also still learning what good practice looks like, and what their expectations should be. Private sector relevance and engagement did not feature widely across the GHR Portfolio, despite the potential of private sector actors to contribute significantly to capacity building and the development of stronger health systems. This observation was borne out in the survey findings, with only half of the respondents agreeing that the research is relevant to the private sector and 9% disagreeing.

Strategic level LMIC involvement was more limited at the start of the GHR Portfolio and grew over time as NIHR's capacity in GHR management increased. Mechanisms were gradually put in place to strengthen engagement and encourage wider and more meaningful involvement of LMIC stakeholders and leverage the networks of partners. At the strategic level, this included representation on the ISAG of 3-4 LMIC members out of a total of 5 or 6 at any time. In addition, the guidance developed by the NIHR for award calls was refined over time to reflect a greater emphasis on LMIC involvement. Some stakeholders noted that LMIC representation on review panels was not always sufficient. It was suggested that this might be partly due to a lack of thematic expertise. However, if themes are supposed to be based on LMIC priorities, this seems rather unlikely. At the programme level, NIHR-led programmes (and GCC MNH) include CEI specialists and people with lived experience on review panels. However, the geographic breadth of the NIHR GHR Portfolio is a challenge, and NIHR acknowledge that their pool of CEI representatives cannot bring lived or specialist knowledge of all geographic areas, and in those programmes which are not call-specific, of all thematic areas. More recently, some NIHR-led programmes have recognised that they could be doing more to engage communities in the design of their schemes, thematic areas and calls, and RIGHT are currently exploring ways of integrating CEI in the process of identifying priority areas for Call 7.

There is moderate evidence that LMIC stakeholders were involved in the implementation stage of research awards but less so in the design, although this improved in follow-on awards. Almost all programmes provide evidence of LMIC research partner engagement, and the survey findings corroborate this. Most respondents agreed that they were able to influence the design (82%), implementation (87%), and outputs of the research (85%). However, when the results were disaggregated by LMIC versus non-LMIC respondents, the survey showed that 76% of the former felt able to influence design compared to 90% of the latter, and 80% versus 90%, respectively, felt able to influence outputs. For implementation, the proportions were more similar (85% LMIC versus 87% non-LMIC). The award-level reviews provided similar evidence. Although there were many examples of engagement with country-level stakeholders, including research partners, ministries of health and other relevant sectors, and in some cases, civil society, several LMIC stakeholders commented that UK institutes largely drove awards and LMIC voices were not adequately prioritised. This is a missed opportunity to benefit from LMIC research partners' depth of experience in high-burden conditions, and promote truly equitable partnerships. There was also limited evidence of policy makers being involved in the early stages which may constrain uptake of research outputs if there is not buy-in from the start. However, there was moderate evidence across the award-level review that this improved where there were follow-on awards, with many being co-led by LMIC research partners.

[20] Varnai, P. et al, 2019, 'Review of the Joint Global Health Trials funding scheme: Final report', Technopolis: https://www.ukri.org/wp-content/uploads/2021/11/MRC-301121-JGHTReview-FinalReport.pdf

Amongst the awards in our sample that are focused on women's health, or where women have been understood to be particularly vulnerable to adverse health outcomes, there is moderate evidence that awards are ensuring that formative research and CEI activities involve women and developing research interventions that respond to gender-related barriers and social norms. These awards research and community engagement activities have also shed light on the ways in which stigma, trauma, cultural perspectives, experiences of disrespectful care, and gender-based violence at the household and facility level affect women's access to care, as well as the intersectional disadvantages faced by, for example, older women, rural residents, lower income groups, and women-headed households. This information and feedback have informed awards' testing of different models of service delivery, the development of training for health workers, establishment of community-level support initiatives, and the design of awareness raising activities. There is only very limited evidence that awards are collecting data on the effect of research interventions on women's empowerment.

The award-level review indicates that initial engagement between UK and LMIC research partners was largely driven by previous relationships and direct connections. While this is a practical approach, it risks excluding researchers and institutes that are less well-connected but may have good potential. Early career researchers also reported fewer opportunities for engagement as senior colleagues often take this role. Nonetheless, there was moderate evidence across the GHR Portfolio that partnerships have led to new connections being forged and multiple cross-country initiatives and learning.

5.0 Findings: Coherence

5.1 To what extent is the GHR Portfolio a coherent funding mechanism to meet its stated outcomes? (i.e. supportive of complementarity, harmonisation and co-ordination within the GHR Portfolio and externally)

The GHR Portfolio aims to contribute to overall efforts to address global health research needs. This ideally requires coordination and collaboration internally within the GHR Portfolio, and externally with other UK and global funding initiatives and country-level research initiatives to avoid duplication and promote efficiency. NIHR successfully designed the GHR Portfolio to complement existing government research funding mechanisms and avoid duplication with other UK (ODA) and global health funders. Where demand for research funding in specific areas was highlighted through early assessment of initial applications, NIHR continued to identify and fund programmes that aligned with its most common thematic research priority areas. NIHR have generally increased harmonisation internally between GHR's portfolio level ToC and programmes' thematic foci and outputs. While the ToC was developed mid-way through Phase 1, NIHR has broadly aligned most programmes with DHSC's results framework to harmonise reporting. Internal coordination across both programmes and awards is variable and could be improved to leverage complementarity and enhance results. External coordination and collaboration with other UK (ODA-funded) partner country and global health research initiatives is also variable at both programme and award-level. While some programmes have demonstrated strong to moderate levels of engagement with additional funders and initiatives (often proactively and effectively within their own existing academic and professional networks) NIHR's direct role in driving and facilitating this process and integrating awards more meaningfully into the wider NIHR 'vision' has been less apparent.

5.2 To what extent do the selected delivery mechanisms and funded awards of the GHR Portfolio synergise and contribute to achieving the overall objectives as outlined in the ToC and results framework

Within the GHR Portfolio, there is strong evidence that NIHR-led and some Partner-led programmes were well aligned to NIHR's ToC and wider GHR aims and objectives. As discussed in Section 2, NIHR-led programmes (managed by the NIHRCC) and partner-led programmes (managed by UK, international and multi-funder initiatives) were not pre-determined delivery mechanisms at the start of the GHR Portfolio, and their alignment with the ToC evolved over time. While monitoring of all activities under programmes is variable and could be strengthened, RIGHT, Groups and Units are well aligned with the ToC and results framework, with application criteria focused on underfunded areas to avoid duplication of funding between programmes and ODA funding. The objectives of GHR outlined in the ToC are reflected fully in Groups' objectives to fund researchers to undertake high quality policy applied health research relevant to the needs of LMICs, develop new equitable partnerships with researchers in LMICs, strengthen capacity, promote the engagement of key stakeholders and demonstrate pathways to impact policy. Units similarly aims to foster high-quality policy/practice relevant research focused on health priorities of LMICs, support staff capacity strengthening, and strengthen equitable research partnerships and networks between LMIC and UK institutions, with a view to ultimately providing evidence to inform decision-making by public health officials and policy-makers in developing countries. CEI requirements have also become increasingly strongly embedded in Units and Groups calls. GHR selection criteria for RIGHT, Global Health Policy and Systems Research (HPSR) and Global Research Professorships (GRP) have adapted to increase alignment with the ToC (including embedding CEI into panel selection processes and including guidance to encourage applicants to develop their own to allow a clear assessment of how the research is filling a 'gap'). The NIHRCC have invested time in identifying and addressing duplication between programmes. This is particularly noted for Groups, which was decoupled from Units to help strengthen differing aims and coherence, as well as to clearly signal to potential applicants which funding scheme would be most appropriate for their proposed research. NIHR is designed to be researcher-led which means the GHR Portfolio has evolved to respond to research demand via applications, increasingly addressing key gaps and duplications. This demonstrates positive evidence for the second assumption of the ToC, that GHR continues funding at the present rate, and that long term engagement with funders helps to identify the most relevant research to fund.

There is moderate evidence of coordination between NIHR and programmes to achieve operational harmonisation and complementarity with the results framework. In practice, some programmes were already being implemented when the framework indicators were finalised in January 2020, and therefore could not be

applied retrospectively. NIHR assessed (in consultation with delivery partners and UK and LMIC award-holders) which indicators were already being tracked in existing reporting processes and determined on a case-by-case basis whether additional information could be collected against gaps. EDCTP, which sought GHR funding to cover a significant budgetary shortfall for projects in two clinical research calls to detect, treat and prevent poverty-related infectious diseases in sub-Saharan Africa, retained a strong collaborative approach with NIHR. DHSC worked closely with the programme to assess synergies with existing reporting structures, using core and optional indicators to draw out findings at the output, outcome and impact levels. However, there is less harmonisation between NIHR and some larger, more established partners and smaller partners that are focused specifically on RCS. The Engineering and Physical Sciences Research Council (EPSRC) processes, for example, are still internally driven, and there is limited interaction with NIHR overall. While there are clear synergies with NIHR in terms of thematic foci, MRC and Wellcome Trust similarly follow their own reporting processes and accountability mechanisms. While it is not reasonable to expect all partners (especially those not reliant on NIHR funding) to adapt reporting processes, such parallel processes have sometimes created challenges in terms of standardised reporting and data sharing against indicators.

There is moderate evidence that synergies have been drawn internally between global and domestic NIHR for some programmes. Global Research Professorships (GRP), for example, drew on the long-established successes and existing systems of the flagship UK-focused NIHR Research Professorships to fund research leaders to promote effective translation of research. The existing networks, human resource, and operational processes and procedures required for running a successful competition have been transferred to the global model. This offers consistency and ensures that the review process benefits from wider institutional expertise, that applications are meeting core criteria, and that feedback is provided to applicants in a standardised way. Involvement of staff from UK Research Professorships also provides opportunities for lesson learning from completed domestic awards, such as expanding part-time working protocols or contractual amendments. NIHR's approach to CEI has also been informed by its UK-focused Patient and Public Involvement (PPI) approach.

There is strong evidence that NIHR's central facilitation of cross-award interactions is limited. The evaluation found that there is no central mechanism or formal guidance in place to support cross-award collaboration or facilitate thematic complementarity. Some programmes, such RIGHT, Groups and Unitshave facilitated learning across awards by organising panels and in-person networking events. For others, this is largely driven by award-holders themselves who have proactively established Working Groups and utilised their own existing academic networks. Some award-level survey respondents reported that NIHR does not sufficiently encourage and support interaction with other awards to benefit mutual learning, knowledge exchange and networking between researchers, particularly those working in similar thematic areas. RSTMH and GRP award-holders have reported limited collaboration between awards and with the wider NIHR GHR Portfolio, expressing desire for funding or co-funding for in-person meetings, in part to achieve greater integration in NIHR's overall strategy and vision, and to better understand how their own research functions within it[21]. There is also strong evidence of openness and commitment to learning on CEI at the GHR Portfolio, programme and award-levels, and award-holders almost uniformly noted that they would benefit from greater access to experience and learning from across the GHR Portfolio and more regular learning initiatives as a key way of improving their CEI practice going forward. Although NIHR team members involved in CEI are sometimes engaged in monitoring discussions, NIHR-led programmes' Single Point of Contact approach means that NIHR's experienced CEI leads do not routinely engage directly with the awards, making it difficult to support learning and knowledge exchange. The recent CEI learning event and NIHR plans for forming a CEI network amongst award-holders were widely welcomed across our sample.

5.3 How far is the GHR Portfolio coordinating and collaborating with other UK (ODA-funded), partner country and global health research initiatives?

At the GHR Portfolio level, there is strong evidence that NIHR worked closely and collaboratively with other UK funders during the design phase and has expanded engagement with organisations such as UKRI and UK Collaborative on Development Research (UKCDR) during implementation. NIHR established early partnerships and working relationships with MRC, Wellcome Trust, and FCDO which enabled greater global coordination, improved understanding of unmet research needs in LMICs, and identification of funding gaps to avoid duplication in health areas already being covered. Contracting directly with MRC and Wellcome also allowed the GHR Portfolio to work in LMICs with high burden of mortality and morbidity relevant to NIHR's thematic priorities. For example, MRC's Maternal and Neonatal Health (MNH) programme complemented awards on MNH-

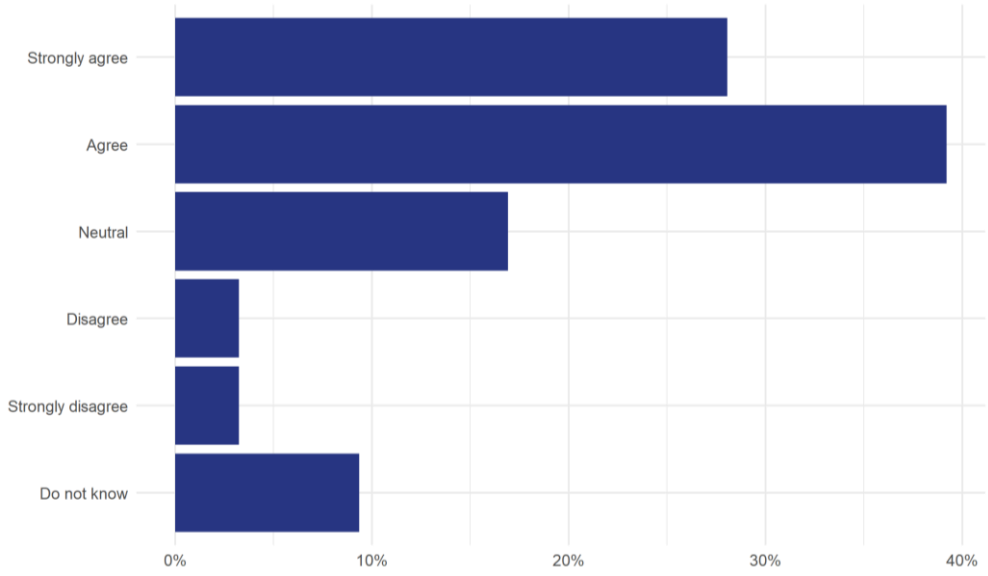
[21] Since Phase 1, RSTMH has included measure to help facilitate more networking, such as welcome webinars and check-ins

related research funded through other NIHR programmes and partnerships, enabling NIHR to work in LMICs with high MNH burdens. MRC's GACD award also enabled global coordination between 14 major funders (representing 80% of public health research funding worldwide), coordinating applications and processes in order to ensure alignment and synergies. Further, early engagement with UKCDR provided a coordinating mechanism for facilitating ODA spend and bringing partners together in Working Groups. Strategic partners have observer status in the ISAG, and consultations on forward plans and timelines allow them to co-determine whether themes are better delivered independently or in partnership. Monthly and ad hoc meetings with UKRI were established early on and have continued to provide an important space for sharing knowledge and capturing best practice.

There is moderate evidence of internal collaboration between GHR award-holders in partner countries in both the design and implementation stages of research awards. This has largely been achieved through design workshops, knowledge sharing webinars, and two-way skills training opportunities which have helped to build and strengthen networks for new research in follow-on awards, amplify the reach and results of funded research, and strengthen knowledge sharing on topics such as NIHR reporting, and more recently, how to approach CEI. PIs and research teams generally reported a high level of collaboration throughout award implementation with learning shared across multiple country teams. This is supported by the findings in the award-level survey which indicated that many award-level survey respondents were collaborating with related country-level initiatives (68%) as well as regional-level initiatives. While awards are generally collaborating to encourage coherence of research with practice and policy, cross-funder collaboration is not generally embedded in the design or agreed budgets. This means collaborations often remain limited to partner countries' own networks, ongoing initiatives and additional research activities, or amongst awards belonging to larger programmes which facilitate access to global platforms. Further, some LMIC award-holders reported difficulties in obtaining funding if they did not operate in global networks or in highest disease burden settings and reported capacity issues related to inability to focus on dissemination to other funders when clinical duties took precedence.

There is strong evidence of collaboration between awards and wider global health initiatives, although NIHR's role in directly facilitating this is limited. Internal collaboration between GHR award-holders in partner countries in both the design and implementation stages of research awards has often resulted in knowledge sharing and improved processes relating to, for example, ODA research management and CEI within LMIC institutions. This demonstrates positive evidence for Assumption 3, that funding supports LMIC leadership and equitable partnerships through meaningful engagement, coordination and collaboration. There are multiple examples of awards working collaboratively with global health initiatives and leveraging further funding, in part by linking up with other research programmes. Units awards, for example, are generally well linked to partner country health initiatives in some contexts, aided by country level engagement with Ministries of Health, zonal health officials, health facility managers, health workers, community advisory boards and NGOs. Groups and AMR-SORT IT awards also have demonstrated strong links with WHO on global NCD control and platforms through TDR's sponsors including United Nations Children's Fund (UNICEF), United Nations Development Programme (UNDP) and the World Bank. This collaboration is supported by survey findings, as illustrated in Figure 9 below.

Figure 9. Survey responses on opportunities to collaborate with other GHR-funded awards within a programme



While NIHR have directly supported some networking activities (such as Director's meetings, and funding for finance training through FAF awards), there are some key barriers to awards feeling included in wider NIHR [25]

strategizing and networking events or forming new networks outside their own university, institution, or award. These barriers include limited capacity within research institutions and ineligible costs under NIHR agreements, such networking grants or flexible use of indirect costs once funding has been granted. It should be noted that, since Phase 1, NIHR have offered GHR Cohort Academic Development Awards (CADA) to support PIs and other researchers (primarily based in LMICs) to tailor research activities to career development needs, and support collaborative relationships within and across awards and relevant networks. CADA provides up to £30,000 funding for fees for speakers or facilitators, accommodation, travel, subsistence and other expenses for participating in dissemination or networking events.

6.0 Findings: Effectiveness

6.1 How effective has the GHR Portfolio been in achieving its intended interim results?

The GHR Portfolio aims to be effective by producing and disseminating high quality, policy-relevant research outputs that respond to GHR priorities, increasing the research capacity of individuals and institutions, and establishing equitable partnerships and functional networks. In addition, CEI is considered a key principle that is expected to contribute to greater effectiveness by ensuring deeper responsiveness to those populations bearing the highest burden of mortality and morbidity. We found that the GHR Portfolio has funded programmes and awards that have progressed well in their delivery and produced a wide range of relevant outputs. While still early to see, it is highly plausible that NIHR is contributing to outcomes relating to policy and institutional change. There is strong evidence of individual RCS (moderate for female researchers), moderate evidence of institutional strengthening and more limited evidence of systems-level capacity changes. There has been good progress towards development of equitable partnerships. However, it is acknowledged that tackling barriers to equitable participation of LMIC institutes in research is complex and requires time beyond the scope of individual awards. Likewise, the development of strategic guidance on CEI and embedding of effective CEI processes in awards has improved over time but to be more effective, would require a more systematic analysis of needs.

6.2 To what extent has the GHR Portfolio resulted in the production and dissemination of scientifically important and policy-relevant outputs?

The NIHR GHR Portfolio aims to deliver applied research awards that produce findings to support LMIC needs and, as part of this, encourages appropriate publication and dissemination to influence policy and practice, but does not have defined GHR Portfolio-wide requirements. New programmes and award applicants are required to demonstrate evidence of need at the design or application stage, aiming to ensure scientific and policy relevance (see Section 5). Programmes and awards are varied in their approach to production and dissemination of outputs, and there is flexibility for each to be designed individually rather than according to a set GHR Portfolio guidance or requirements. Calls for proposals, such as for Units and Groups, emphasise the importance of communicating research directly to policy-makers, practitioners, and users, as well as through traditional publication routes. The awards' design and approach to Calls is expected to be reflected in work programmes and dissemination plans. NIHR also stipulates that research data will be made available for analysis and re-use. Programmes that are focused on RCS have firmer timescales and expectations for publication (e.g., AMR-SORT IT requires submission of a paper to a peer-reviewed journal within 4 weeks of the end of module 3) as this is linked to the primary goals of the programme.

The NIHR GHR programmes and associated awards are producing and disseminating scientifically important and policy-relevant outputs that contribute to the health evidence base for policy and practice and that are closely linked to LMIC needs. There is moderate evidence of a broad range of policy-relevant outputs and publications which have been widely disseminated, despite COVID-19 delays, some of which are already influencing national and global initiatives. These include peer reviewed publications with some in high-impact journals such as the Lancet and the British Medical Journal (BMJ), policy briefs, press releases, public information documents, clinical guidelines, webinars, Working Groups, and international conference presentations. There are also examples of medical and scientific breakthroughs that have implications for global clinical practice and the potential to improve patient outcomes. Annex 11 highlights the number of research outputs produced per programme. This is an estimation of the numbers of outputs where available, drawn from various programme-level data sources from a range of points in time. This will be triangulated through by the BA to be undertaken in the final evaluation.

Award activities include targeted engagement of relevant policy-makers and practitioners, and there is strong evidence for reviewed awards of effective dissemination, engagement with, and influencing of, policymakers, practitioners, and civil society. Policy making is a complex and lengthy process, and so there is stronger evidence for effective engagement of practitioners than with policy stakeholders. The co-development of awards with key stakeholders, and the integration of strong CEI and dissemination frameworks from inception, particularly within follow-on grants, has enabled awards to develop outputs influencing national and global clinical guidelines. Partnering with LMIC institutes has been essential for strengthening engagement with local policymakers, healthcare providers and communities, particularly during COVID-19. This has promoted buy-in of

research outputs, and increased reach and language accessibility. NIHR's reputation has also helped partner institutes deepen their influence nationally and globally.

There is moderate evidence that outputs are reaching intended audiences, although there are cases where this could be increased or deepened. Through the GHR Portfolio, NIHR and its partners have reached[22] 1,158 institutions from 108 countries, with 72% of institutions in the GHR Portfolio network from LMICs compared to 28% of non-LMIC institutions (see Figure 10).[23] This is substantial progress, and indicates that NIHR has successfully and actively established global collaborations with a wide range of institutions within the global health research community. Awards are contributing to delivering research output objectives, despite COVID-19 and other contextual challenges (e.g., conflict, political and economic crises, health worker strikes) being cited as contributing to delays. The limited continued funding at the end of grants for translation into other languages and to continue research aims has also limited awards' ability to influence stakeholders more widely.

NIHR has systems and processes in place to monitor some outputs across programmes, but they are not sufficient to systematically monitor outputs comprehensively across such a large and complex portfolio. The lack of a central mechanism to monitor the production and dissemination of research outputs across all programmes is understandable where existing protocols, processes and accountability mechanisms exist for partner organisations, in particular those from partner-led programmes. The evaluation team has been able to access limited data on outputs, which makes it challenging to establish the extent to which NIHR have oversight of outputs at the GHR Portfolio level.

Figure 10. Distribution of LMIC and non-LMIC institutions in the GHR Portfolio network

[22] SNA
[23] This considers both primary and secondary networks identified using available data.

6.3 How effective has the GHR Portfolio been in achieving its intended RCS outputs and outcomes at individual, institutional and systems levels and to what extent has this prioritised gender equity and social inclusion?

There is strong evidence that the GHR Portfolio has supported the capacity strengthening and career progression of researchers. Awards have strengthened the knowledge, skills, confidence, and visibility of early and senior career researchers through a combination of approaches, including funding research fellows, 'on-the-job' training (i.e., involvement in all stages of complex research activities), formal research training, needs-based training (proposal writing, leadership, communications, financial planning, etc.) and coaching and mentoring. Awards held directly by LMIC ECRs, such as through RSTMH grants and Wellcome Fellowships have been particularly transformational, in terms of enhancing researchers' status and opportunities, as well as their research skills. Respondents to the survey were in strong agreement that the research is helping build their skills and confidence (91% agreed / strongly agreed) and that they have expanded their networks for knowledge exchange though the research (96%). Most respondents also agreed / strongly agreed that the research has helped build the skills and confidence of other researchers (89%), measures have been put in place to ensure that researchers develop skills (89%), the research has provided opportunities for skills to be applied practically (88%), and the skills they are developing align with country-level health priorities (81%). However, there was slightly less agreement (although still the majority) in terms of the research providing training opportunities (71% agreed / strongly agreed).

There is moderate evidence that awards across the sample have emphasised the career development of female researchers. The survey indicates that 76% of women respondents agreed that the research is supporting female researchers (compared to 70% of male respondents). There is evidence of efforts to ensure that authorship and presentation opportunities are provided to early career researchers, in particular women from LMIC institutes. The GACD final report, for example, stated that 41% of their publications include female authorship, but also noted that the level of seniority of those female authors tends to be lower. There is strong evidence available about the extent to which women are accessing the training opportunities provided across NIHR. 73% of women respondents agreed / strongly agreed that they had access to training opportunities through the research (compared to 69% of male respondents). Data from the Units programme shows that 37% of the Units NIHR Academy members who reported their sex are women (however 24% of members did not report) and 59% of the Groups NIHR Academy members are women. In their 2021 Annual Report, EDCTP reported that 83% of MSc, 50% of PhD and 26% of postdoctoral candidates being supported by NIHR award funding across their GHR Portfolio were female. EDCTP also reported an increase in female award-holders of their fellowship grants from 20% to 40% across Calls. AMR-SORT IT have established quotas on gender and urban/ rural location and reported in 2021 that 47% of selected frontline workers were women. However, there was poor evidence that programmes or individual awards have developed a more systematic understanding of the institutional barriers facing women in science and academia, and how gender discrimination and stereotypes can constrain women's career progression and leadership.

There is moderate evidence on institutional capacity strengthening, with the sampled awards providing various examples of how effective institutional capacity has been supported, and well-received by LMIC research partner institutions. Where the context has allowed, awards have engaged in administrative, contracting, financial, grant and programme management trainings, as well as trainings in thematic health areas and CEI. There is strong evidence to show that partner institutions have gone on to develop their own proposals and secure further funding. As expected, however, it is still too early to assess effectiveness across all awards. The role played by the Financial Assurance Fund (FAF) was well-received, with documentation on its effectiveness. Although the volume of evidence from the award-level is limited, one survey respondent considered the FAF "*an incredible investment to strengthen partner research capacity and resilience in global health.*" Further, NIHR contributed £0.5m to the Good Financial Grants Practice (GFGP) to develop an independent standard for financial controls in high-risk settings in order support LMIC research partners to improve their research grant management and to encourage sharing of audits. During Phase 1, NIHR's finance guidance encouraged applicants to use GFGP to identify gaps in financial capacity, governance, and systems. Information on the process for using GFGP was shared some programme leads with applicants after initial contracting and commissioning. However, the evaluation was unable to determine how GFGP was used specifically by individual awards. It should be noted that there are examples of LMIC researchers taking up positions overseas as their expertise has developed (mitigated where possible with follow-on grants), creating risks of 'brain drain'. As is to be expected at this stage of implementation, there was just moderate evidence at the programme and GHR Portfolio levels about institutional capacity strengthening, however GHR Portfolio level stakeholders acknowledged the challenges involved, and expressed a need to be somewhat selective and strategic in targeting their efforts. Supporting stronger LMIC institutions to cascade RCS efforts was also seen as an appropriate approach and one that could help mitigate NIHR limitations in funding institutional capacity. Programme level respondents indicated

progress towards stronger institutional capacity through needs assessments and training (e.g., Global HPSR Development Awards include capacity needs assessments and workshops on both academic and administrative / research support elements), human resources (e.g., GCC GMH support the hiring of senior financial officers that support building financial sustainability and strong forecasting) and mentorship / coaching.

At this early stage, evidence of systems-level capacity changes is limited but there are some examples of this emerging. Awards provided some limited evidence of non-academic stakeholders such as health workers, government officials and community representatives accessing training, accreditation schemes, and degree programmes, as well as engaging in research committees and networks. There are cases, such as AMR-SORT IT, where programmes or awards are embedded within health systems, and this is likely to increase systemic capacity. The Global HPSR programme has also been exploring how best to communicate expectations around systems approaches to awards and have moved from talking about 'health systems' to referring to 'the wider elements of a system'.

6.4 To what extent has the GHR Portfolio built equitable partnerships and thematic networks in global health research and influenced good practice more broadly?

The GHR Portfolio has ambitious and clearly defined aims for equitable partnerships and has facilitated fruitful partnerships and collaborations which have yielded mutual benefits. Equitable partnerships are cited as being at the heart of NIHR GHR's values and approaches by those involved in strategy development at the programme and GHR Portfolio levels and there is the expectation that this is monitored by programmes. However, portfolio- and programme-level respondents also recognised the complexities and challenges in ensuring equity and addressing unequal power dynamics. Award-level reviews provided moderate evidence that equitable partnerships have been developed and identified a range of enabling factors and barriers. Most awards have made genuine efforts to ensure equity and encourage local partners to drive their own research agendas. Mechanisms to facilitate this include site visits, regular meetings, joint Working Groups and coordination platforms in multiple languages, mutual training opportunities, and co-authorship publication strategies. The sampled awards also demonstrated a degree of recognition and understanding of LMIC research partner needs, trust and commitment, and efforts to support co-creation and provide space for reflection and adaptation. Equitable partnering practices were more developed in awards where the partners already knew each other or belonged to a wider programme / network. Future progress is expected, as LMIC researchers become Co-PIs / PIs in follow-on grants. The awards survey also reflects generally positive views about equitable partnerships. There was particular agreement with statements relating to benefits being distributed equally (82%), having measures in place to build mutual trust (80%), that roles are defined in a participatory way (80%), that all partners are involved in the research design (80%), that all partners needs are considered (79%), and that the research supports training and capacity strengthening (79%).

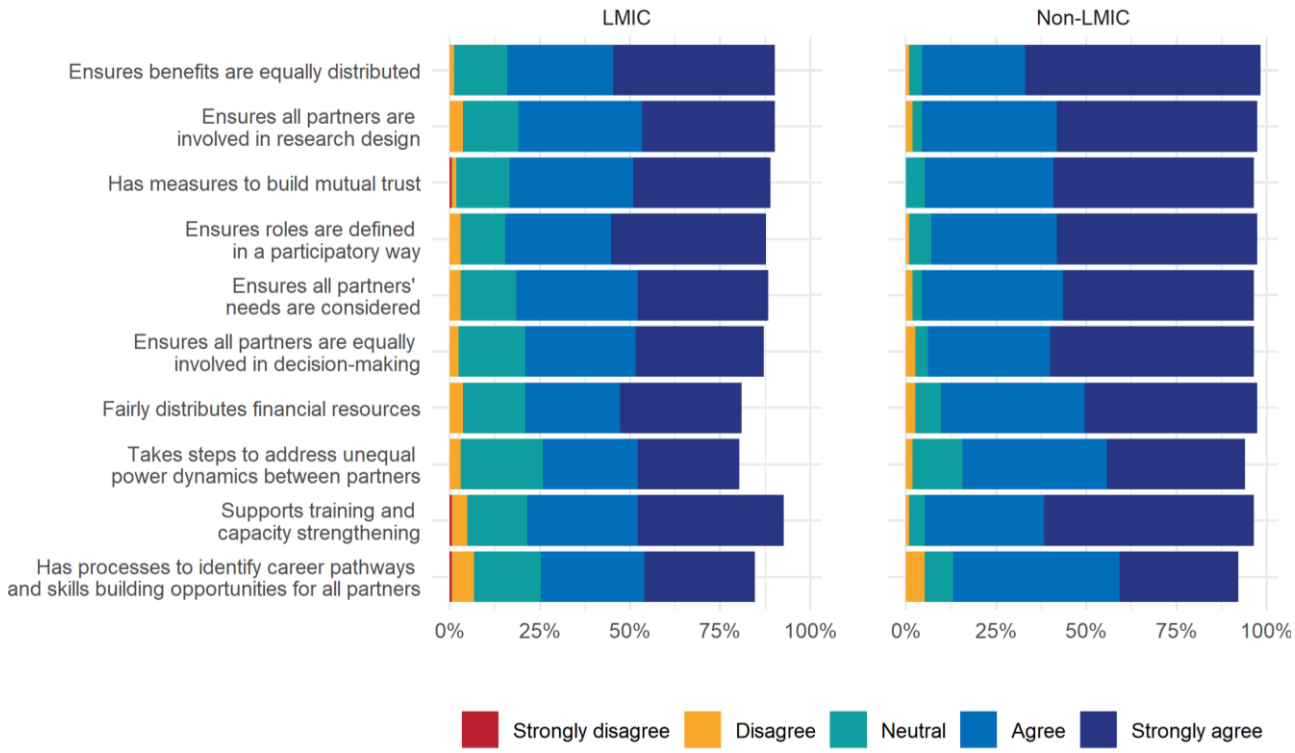
Programmes have taken various approaches to supporting equitable partnerships. All programmes' monitoring approach to equitable partnerships includes attention to the wording of collaboration agreements, evidence of joint leadership, locations of key personnel, and LMIC representation on advisory groups. A key objective of the Global HPSR's Development Awards is to support the establishment of equitable partnerships that can then go on to develop full research proposals for NIHR or other funders. The GECO programme encouraged LMIC-led proposals, and 8 of its 21 grants are led by LMICs. GECO programme managers highlighted their learnings on the need to provide clearer eligibility guidance on equitable partnerships at the application stage. In Groups awards LMIC research partners are leading recruitment of research staff, sharing management and decision-making responsibilities, and contributing to designing plans for future research.

Operational / administrative restrictions limited the development of equitable partnerships in practice and these structural issues exacerbated power imbalances between LMIC and non-LMIC institutions. Some of the key barriers in this respect include LMIC research partners' perception that NIHR did not cover certain overheads as part of indirect costs, lack of familiarity with report writing, burdensome reporting and due diligence requirements, and lack of support for frontline workers with clinical priorities. The survey showed that only 72% of award-level respondents agreed that there is equitable distribution of financial resources, 76% agreed that all partners are involved in equitable decision-making, and only 64% agreed that the research has taken steps to address unequal power dynamics amongst partners. Similarly, the SNA indicates that while the majority of institutions in the GHR Portfolio network are from LMICs (72%), evidence from the programme- and award-level suggests that UK institutions dominate in their importance, influence, and ability to connect with other influential

actors, and continue to play a significant role in connecting LMIC institutions to NIHR or partner funding.[24] These are all barriers to equitable partnerships that need to be considered and further addressed.

The development of equitable partnerships involves complexities that take time to progress, and the issue of LMIC institutions' leadership role and visibility appears to require particular attention. At the award-level, various LMIC stakeholders reported that research priorities are still determined by UK institutes. When the responses on equitable partnerships are disaggregated by LMIC and non-LMIC researchers, the survey shows a marked difference between the views of the two groups. LMIC researchers do not consider partnerships to be as equal as non-LMIC respondents do. For example, LMIC respondents gave less agreement that benefits are distributed equally (74% agreement compared to 94% among non-LMIC respondents), resources are fairly distributed (60% compared to 88%), roles are defined in a participatory way (72% compared to 90%), all partners are involved in equitable decision making (66% compared to 90%) and the research has measures in place to address unequal dynamics between partners (55% compared to 78%).

Figure 11. Survey responses on equitable partnerships by LMICs and non-LMICs



6.5 To what extent, and in what ways has the GHR Portfolio supported community engagement throughout the research cycle through approaches that have supported the empowerment of communities, including women and marginalised groups?

NIHR has evolved a flexible approach to supporting appropriate and feasible CEI strategies which build on existing models and approaches in LMIC contexts. Community engagement is a complex and diffuse area, includes a wide range of approaches, requires contextualised strategies and is challenging to define, implement and assess. Having implemented PPI approaches in the UK since 2006, NIHR applied this learning in the GHR Portfolio, building their understanding about what was appropriate, feasible and effective in a global health context, with NIHR programmes adapting their requirements across different calls. NIHR's Vision and Goals Statement on CEI emphasises that research projects must move beyond seeing communities as 'beneficiaries' and involve them in priority setting, planning, implementation and evaluation. The Statement acknowledges that within the global context, projects will have to engage with issues of inequality, discrimination and complex power dynamics, and

[24] Centrality metrics, including degree, betweenness and eigenvector centrality, were triangulated to produce this finding.

thus CEI approaches must go beyond engaging with patient groups, to working with a wider range of stakeholders as well as taking measures to support the most marginalised voices.[25] The core GHR guidance notes that there is no standard model for CEI, and that applicants should demonstrate that their approach is appropriate and effective for the local context and study design in question.

Increasingly rigorous assessment of applicants' CEI approaches, and the integration of CEI specialists and people with lived experience as reviewers of applications has been a key focus of NIHR-led programmes' approach to integrating CEI into their funded research. NIHR-led programmes have invested in recruiting CEI specialists and people with lived experiences to their review committees and panels, training them in NIHR's CEI approach and how to apply this to LMIC contexts, building their sense of being valued alongside academic reviewers, and training other reviewers on how to engage with the inputs of CEI members. NIHR's core and programme-specific Call Guidance, technical resources, pre- and post-award workshops and webinars provide detailed information on expectations from applications, and award-level CEI strategies.

There is strong evidence from across the sampled awards of high levels of commitment to CEI, as well as progressive improvement in the extent to which awards are actively involving communities in setting the research agenda, adapting their research approaches to context, and using participatory approaches. To some extent this is due to NIHR's own learning and increasingly rigorous selection criteria and requirements over successive calls. For example, the Call 1 guidance for Units included a brief reference to consultation with communities. By Call 2, the guidance included stakeholder and community involvement as a key criterion for funding, and soon after the core guidance with detailed guidance on NIHR's CEI expectations, was developed. RIGHT's Call 1 had a stronger emphasis on CEI but successive Calls similarly reflected its increasing importance. Most of the sampled Units and Groups awards and both RIGHT awards have CEI leads, CEI strategies and distinct CEI workstreams in place. There was strong evidence from across our sample that awards appreciated NIHR's emphasis on CEI, as this encouraged them to engage with communities in ways they would not otherwise have done, often unlocking new understandings about community level barriers and needs, dissemination opportunities and change pathways. Awards' CEI approaches also tend to evolve and mature over the lifetime of the project, or across several awards if additional NIHR funding has been achieved, as community relationships and trust become more established, awards' CEI experience and workstreams became more embedded, and communities become more actively involved. Figure 12 illustrates some of the most notable approaches that awards have taken to involve communities across different stages of the research cycle.

[25] 'NIHR's vision and goals for community engagement and involvement in global health research', July 2021: https://www.nihr.ac.uk/documents/nihrs-vision-and-goals-for-community-engagement-and-involvement-in-global-health-research/28271

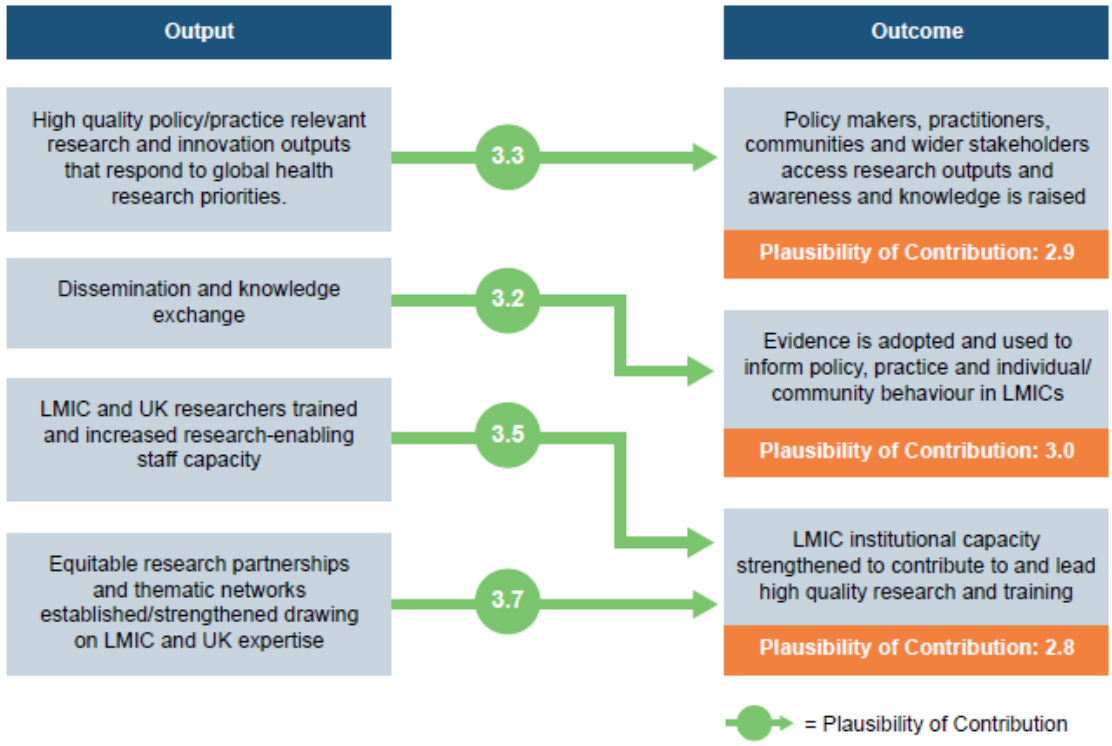
Figure 12. Approaches taken to involve communities across stages of the research cycle.

There is moderate evidence that award-holders recognised the need to engage with marginalised groups, and those that tried to reach them, did so through unplanned efforts, and rarely based on an explicit analysis of their needs. Some awards have engaged with people with Severe Stigmatising Skin Disease (SSSDs), mental health service users, and pregnant women from low-income groups as key study populations for the health condition in question, as well as rural communities, urban communities, pregnant women from low socio-economic groups, migrant populations, disabled people, and minority ethnic groups. Measures to support the meaningful engagement of marginalised groups have included working with people with lived experience to raise awareness and gain community feedback, using participatory methods for data collection, implementing arts-based approaches, and holding community discussions in venues such as local community centres and places of worship. There is only limited evidence of explicit discussion amongst GHR Portfolio, programme or award-level stakeholders about gender equality, intersectionality and unequal power dynamics, and how CEI initiatives can respond to these, and how they are shaped by them.

6.5.1 Assessment of GHR Portfolio's contribution to results

The figure below presents our assessment on the plausibility of the GHR Portfolio's contributions to intended outcomes. The plausibility of output to outcome linkages (represented by arrows in Figure 13) is based on in-depth evidence from across our award-level sample. The plausibility of contribution of the overall NIHR GHR Portfolio to outcomes (represented under each outcome in Figure 13) is based on representative GHR Portfolio-level evidence triangulated from multiple methodologies, including programme assessments, survey, and strategic stakeholder interviews. This diagram indicates how likely it is that an output will lead to its intended outcome, and in general we are seeing high plausibility, given that the numerical values are between 3.2 and 3.7 for the pathways (based on award-level data) and between 2.8 and 3.0 for the outcomes (based on portfolio level data).

Figure 13. Plausibility of the GHR Portfolio's contributions to intended outcomes



While it is too early to expect to observe results at the outcome level, the CA approach enables us to assess the plausibility of funded activities' contribution to longer-term results and the strength of evidence to support these, considering the likelihood that the GHR Portfolio's results will progress from output level results to outcome and beyond. The plausibility of contribution is presented in the diagram above and in the following paragraphs we assess plausibility of contribution to each outcome.

1. **Policymakers, practitioners, communities and wider stakeholders access research outputs and awareness and knowledge is raised.** Signs of progress towards this include award-level research structures which embed research activities in relevant systems and involve practitioners and those close to policy making. The research also includes broad dissemination activities (networks, workshops, conferences, etc.), that seem to support access to findings and that are likely to raise awareness and knowledge of relevant stakeholders. This assessment is based on limited evidence, which would be strengthened by further feedback from policymakers, practitioners or communities in LMICs about the extent to which they have accessed and learned from GHR-supported research outputs.

2. **Evidence is adopted and used to inform policy, practice and individual / community behaviour in LMICs.** Based on cited examples, it is highly plausible that the research outputs generated by NIHR will feed into changes in policy, practice and community behaviour. This assessment is based on limited evidence, which would be strengthened by further evidence from policymakers, practitioners or communities in LMICs on their use of GHR-supported research outputs.

3. **LMIC institutional capacity strengthened to contribute to and lead high quality research and training (SDG 17).** It is highly plausible that NIHR GHR is contributing to institutions' capacity being strengthened in relation to the technical components of research as well as management and financial capacity. This assessment is based on moderate evidence, which would be strengthened by further evidence from policymakers, practitioners and communities in LMICs on the extent to which the research is contributing to improved training and practice.

The table below summarises findings related to the extent to which each assumption linked to the programme's effectiveness in the ToC is holding.

Table 6. Assessment of assumptions

No.	Assumption	Link to EF (EQ)
1.	Areas of investment reflect LMIC priorities (i.e., the mechanisms for identifying global health research priorities / engaging with LMIC policy-makers and practitioners are effective).	Relevance (1.1 & 1.2). There is strong evidence that GHR funded activities are relevant to unmet needs.
2.	Global health research funders continue funding at present rate.	Relevance (1.1.), Coherence (2.2). NIHR is continuing funding to the GHR Portfolio and coordinating with other funders to promote complementarity. However, some funding streams have been stopped, e.g.. the JGHT Initiative, despite an acknowledgement of its effectiveness.
3.	Funding supports LMIC leadership.	Coherence (2.2), Effectiveness (3.2 & 3.3). Equitable partnerships is a key value of the GHR Portfolio and the RCS in NIHR GHR Portfolio aims to support this. However, there are various operational constraints to LMIC leadership including most awards being led by non-LMIC research partners, and so there is still progress to be made on this.
4.	Research outputs consider access, coverage, quality, efficiency, equity.	Effectiveness (3.3), Efficiency (4.1). This assumption is complex and can be reformulated to better reflect each component and relationship with the different pathways of the ToC: The structures and processes established to distribute funding are efficient and well-designed to achieve outputs that support the objectives of the GHR Portfolio. Processes are burdensome for award-holders which may result in inefficiencies. The GHR Portfolio has a comprehensive coverage of health themes relevant to LMIC countries. There is commitment to making research outputs accessible. But a need to improve processes for sharing research outputs and dissemination. There is strong evidence of a commitment to equitable partnerships at programme level and award-level, with more attention needed to LMIC leadership and visibility.
5.	Activities are efficient and contribute to VfM, maximising the resources available to them.	Efficiency (4.1). There is evidence that activities are efficient and contribute to VfM. However, there are some areas with potential for increased efficiencies including the approach to monitoring results.
6.	Researchers have skills, knowledge and networks to disseminate findings effectively to policy-makers/ practitioners	Effectiveness (3.1). Efficiency (4.1). There is positive evidence of activity dissemination although there are limited funds and technical support dedicated for public engagement, knowledge exchange and dissemination to support the translation of research to facilitate research impact.
7.	Policymakers / practitioners have the resources and ability to understand and use research.	Impact (5.1). The research outputs produced by awards are understood to be relevant, accessible, tailored appropriately to the different audiences and disseminated through appropriate channels and opportunities. Evidence of policy-makers'/practitioners' ability to engage with these is currently limited given the timing of this evaluation as it is too early to tell.
8.	Individuals who participate in training are retained in domestic research system.	Efficiency (4.1). Impact (5.1). There is some evidence of brain drain and this evaluation examines a relatively short time period, but for the most part researchers seem to be retained on awards.
9.	NIHR funded activities will have a sustainable long-lasting legacy.	Sustainability (6.1). It is too early to assess robustly, but there are indications that funded research will have some sustained effects, particularly in terms of individual capacity and contribution of these individuals to wider systems.

Overall, the first phase of the GHR Portfolio is making progress against the intended outputs and outcomes in the ToC, but also experiencing some challenges related to assumptions. Mitigation strategies are proposed in the recommendations section of this report. The relatively early timing of the evaluation limits our ability to deeply assess all assumptions, but it will be important to continue to monitor and address any challenges related to assumptions to ensure higher level results (outcomes and impacts) are fully achieved.

7.0 Findings: Efficiency

7.1 Has the GHR Portfolio and its delivery partners been able to convert inputs into outputs in a timely and effective way?

There is evidence that the structures and processes put in place by DHSC and partners support efficient delivery. The GHR programme and its delivery partners have been able to convert inputs into outputs in a timely and effective way. Operational structures, processes, expertise and relationships built by NIHR and jointly leveraged from its delivery partners have supported this process. However, there are a number of barriers which limit potential efficiency gains from being realised. These include limited monitoring processes to understand whether awards across the GHR Portfolio are delivering timely outputs and the extent to which these achieved intended results, including monitoring and learning from CEI efforts; limited funds and technical support dedicated for public engagement, knowledge exchange and dissemination; no central mechanisms for award-holders to provide feedback on management practices, particularly from LMIC institutions; and burdensome management and reporting processes for NIHR-led programmes which do not consistently match the needs and resources of LMIC research partners. There is also positive evidence on other aspects of VfM (economy, effectiveness and equity), although the GHR Portfolio currently lacks an overall framework for organising its approach to achieving VfM.

7.2 Have the operational structures, processes, expertise, relationships etc. enabled GHR and its delivery partners to convert inputs into outputs in a timely and effective way?

There is moderate evidence of the GHR Portfolio's efficiency, i.e., success in turning the inputs into outputs in an efficient way. NIHR and its partners have implemented clear and consistent management practices, with designations of responsibility between partners which enable efficiencies in design and delivery. NIHR and partners have established multiple mechanisms to promote efficiency within their own GHR Portfolios and programmes of research. This includes cross-programme learning, additional training opportunities, and supportive administration activities in financing and management, such as through NIHR FAF for GHR Units, Groups and RIGHT awards and providing suitable amounts of funding for recruitment of a financial or grants manager, although this is more challenging for smaller grants, such as RSTMH. NIHR has thorough and regular financial and progress reporting structures and processes in place, including quarterly financial and monitoring reports, expenditure verification spot checks of transaction listings, and checks of invoices and receipts to ensure financial consistency. These help to assess progress and enable NIHR to anticipate performance issues and identify weaknesses in financial management. Alignment in management practices between NIHR and partners is aided by long-standing working relationships and previous co-funding arrangements between DHSC and other global health research funders, such as the MRC and Wellcome Trust.

NIHR's delivery partners have relevant relationships, expertise and systems in global health research funding, which NIHR uses to leverage efficiencies and enhance operational effectiveness of their investments, building upon long-term working relationships. Leveraging partners' existing and well-established management, operational and reporting mechanisms allows funders to divide funding, synergise efforts among programmatic operations, and leverage partners' experience and expertise in global health research. In the early stages of the GHR Portfolio, this allowed NIHR to spend at an early stage before its own contracting and other operational processes were established, such as in partnership-led programmes with the MRC. There is strong evidence that NIHR's engagement with partners has helped to attract the best research applicants, although this has been more challenging for smaller partners who have more limited visibility in the global health funding space, such as GACD (MRC), or who face greater operational challenges compared to larger partners in grant management, such as RSTMH. The GHR Portfolio has also been able to conduct rigorous project selection processes by accessing partners' advisory groups, expert committees and / or review panels such as with the Tuberculosis (TB) Alliance and the Global Antibiotic Research and Development Partnership (GARDP), and in fewer cases to promote dissemination and the translation of research results into policies and practices through dedicated mechanisms to accelerate research & development (R&D) or pursue calls for proposals on research translation such as those run by EDCTP. Accessing partners' wider secondary networks has also enabled NIHR to establish broader and richer reach beyond its own connections. One particular area NIHR effectively leveraged was some partners' ability, particularly the MRC, to fund LMIC institutions directly as a result of their funding rules, grant management staff and protocols, expertise and relationships. This provided important lessons for NIHR's efforts to better support and promote direct-to-LMIC grants in the GHR Portfolio.

Leveraging LMIC research partners' expertise and the involvement of key stakeholders, both policymakers and communities, are key interrelated enablers of efficiency, supporting a key assumption of the ToC. LMIC research partners involved in funded research across programmes provide contextual knowledge, expertise and relationships and help coordinate in-country stakeholders to enable efficient and locally embedded delivery of research. In some cases, the establishment of Community Advisory Boards or Working Groups with Ministries of Health, has helped ensure contextually relevant research prioritisation processes. The ability to work closely with stakeholders to discuss and agree priorities, ensure openness and transparency, and enable continuous review of activities enables efficient and operationally effective research. LMIC research partners' ability to embed engagement with stakeholders and relevant organisations in the research, and their links with networking and dissemination platforms enhanced awards' ability to disseminate evidence and enhance research uptake to influence practice and policy more efficiently.

There is strong evidence that our sampled awards were delivered efficiently, despite changes in the external environment including COVID-19 and LMICs' political contexts. Awards spent their funds largely as planned and demonstrated positive short-term results. Survey results across GHR programmes showed that award-holders appreciated the major volume and rapid disbursement of funding to conduct research, highlighting the value of funding specific areas of global health research, such as in health systems strengthening, as well as providing funding for LMIC institutions. This helped enable the delivery of multi-country research and policy engagements, and a foundation for potentially impactful research. NIHR funding also allowed for the development and sustainment of efficient partnerships, with streamlined ways of working that enable the delivery of effective research.

GHR Portfolio and programme structures have enabled sufficient flexibility for awards to adapt to changing and unforeseen circumstances, particularly during COVID-19, supporting awards' efficiency and operational effectiveness. This is complemented by awards' proactiveness in repurposing and re-budgeting their activities in response to emerging opportunities. COVID-19 slowed down research implementation and resulted in many awards across programmes in the GHR Portfolio not spending as forecasted, such as in GHR Units and Groups, RIGHT, Global Research Professorships, and GCC MNH. However, across our sample of awards, there is strong evidence that award-holders repurposed and re-budgeted research activities and leveraged unexpected cost savings to address and deliver on new challenges posed by the pandemic, supported by GHR programmes' own administrative flexibility. No-cost extensions are also a key feature of NIHR's grant management approaches to enable flexibility, particularly during COVID-19, and allowed awards to efficiently deliver on and achieve intended milestones. However, in some cases, this created budgetary constraints and required awards to leverage alternative funding streams, often through lead UK institutions, to financially sustain award activities over the extension periods. Despite positive adaptations which enable an efficient and effective use of funding, awards' ability to operate efficiently can be interrupted by events beyond their control, especially where there is a complex operating environment. This includes situations of national elections, conflict, and other security issues, which can halt field visits and data collection, such as research funded in Ethiopia in recent years.

The support, feedback and responsiveness of NIHR and its partners is widely valued by award-holders and enables awards to conduct research in a timely and effective way. There is widespread appreciation for the NIHR programme team and their support to award-holders to increase the quality of their research approach and provide an enabling environment for work progression and dissemination. This includes providing timely and clear feedback, support and guidance on improving efficiencies, such as helping address administrative issues, monitoring research progress and providing autonomy to awards to conduct research independently. NIHR also facilitates wider networking and shared learning across research cohorts, particularly in Units and Groups, by facilitating engagement between researchers, and supporting the development of research consortia and themed networks. However, knowledge sharing processes which support the enabling environment for research are not systematically undertaken across the GHR Portfolio, and there is a stated need for more technical support on increasing the effectiveness of research, including in public engagement, knowledge exchange and dissemination; and more detailed feedback on outputs to enable efficient and effective research. For example, EDCTP ran a series of calls for proposals dedicated to maximising research impact by supporting actions to facilitate the translation of research results of medical interventions into policies and practices. Overall, most respondents received somewhat helpful or significantly helpful feedback (59%), while 20% did not receive any feedback of significance. In addition, most respondents said they had some or significant opportunities to engage with the funder (57%), while 24% said they had no opportunities. There was limited evidence of mechanisms to feedback on NIHR's management practices and the issues that may arise for award-holders, and more generally limited evidence on programmes in the GHR Portfolio systematically seeking and processing feedback from LMICs on their needs, and how this is incorporated into decision-making.

Monitoring processes across programmes have remained challenging to systematise due to the breadth of partnerships but could be refined and standardised to understand whether awards across the GHR Portfolio are delivering timely outputs and the extent to which these achieved intended results. This is

particularly true for partner-led programmes, where there is much less visibility on the results of funded research. For example, incomplete and inconsistent information is often reported to Researchfish, and there is limited capability to systematically collate data from partner-led programmes in an efficient manner. Despite consistencies between NIHR-led and partner-led programmes' aims and objectives, reporting needs and processes often differ between DHSC and some partners which can explain the variability in the level of detail across the GHR Portfolio.

On the other hand, **management and reporting processes for NIHR-led programmes can be burdensome, especially for LMIC research partners. This can create challenges for equitable partnerships when the burden is felt most by LMIC research partners in research partnerships.** Across all sources of evidence, some administrative and reporting requirements set by the NIHR are viewed as burdensome for award-holders, constraining the time and resources of delivery teams to conduct research in comparison to other funders such as the Wellcome Trust or UKRI. These can be particularly pronounced for shorter and smaller awards. Due diligence processes, log sheets, quarterly financial reporting requirements, quarterly milestone and deliverable reporting, annual narrative-based reporting and issues in transferring funds to or between LMIC research partners were all cited as demanding or challenging processes for award-holders. Transaction-based reporting and obligations to provide receipts for individual transactions to NIHR are cited as particularly onerous and inefficient in the context of LMICs. Management and administrative processes implemented by NIHR are viewed by some award-holders as heavily UK-centric, and less appropriate for the reality of many LMIC countries. Scaled down and simplified reporting processes, as well as greater administrative and financial flexibility to shift between budget lines, activities and deliverables, were suggested as key ways in which NIHR processes can support and improve the accessibility, efficiency and effectiveness of research.

The Units, Groups, RIGHT and Global HPSR programmes require reporting on CEI, yet monitoring and learning processes do not include gaining data from communities. Without feedback from communities, it is not possible to verify what the awards are reporting, or to understand the changes that are occurring as a result of awards' CEI efforts, and to generate learnings and identify improvements. In addition, it can be difficult to understand progress from reporting alone, particularly given the complex social dynamics that underpin CEI initiatives. This is especially so where the information provided is brief or is written by the PI who is not directly involved in implementing CEI activities. It is possible to see that the wide range of activities that are encompassed by CEI, and the range of changes and outcomes they are expected to support make it difficult to establish generalisable indicators. It is also clear that lighter touch monitoring reflects the trust that NIHR have in awards that have undergone a rigorous selection process, and in PIs who are often considered experts in their area or context, and also to lessen the monitoring and reporting burden on LMIC research partners. However, many of the award-level interviews, and particularly the three fieldwork country visits revealed a depth of CEI activity which was not evident from their reports.

While NIHR's CEI principles and guidance have influenced the research funded by partner-led programmes, there is limited evidence (beyond providing co-funding in a finance-implementer relationship) regarding how the principles are systematically applied at award level. This is despite opportunities in some cases to implement improvements in joint governance and monitoring to enhance efficiency and operational effectiveness. While joint processes between partners are clear, consistent and delivering efficiency gains, such as those outlined in Memorandums of Understanding between NIHR and the MRC or EPSRC; there is limited evidence on how these processes are fully integrated into research delivery. Factors contributing to this are suggested as the number of co-founders investing into a programme, the experience and expertise of global health research funders (e.g., TB Alliance), and limited capacity within the NIHR team to integrate principles and influence partners' operations (e.g., Economic and Social Research Council [ESRC]'s AMR Cross-council Initiative).

Awards took opportunities to reduce costs while maintaining research quality, contributing to economy. For example, awards within programmes including NIHR Groups and Units, AMR-SORT IT and GCC MNH demonstrated evidence of utilising their own infrastructure where possible, including in procurement of partners and hiring staff, organising joint purpose activities such as multipurpose meetings or visits, and economical practices such as price matching, bulk purchasing, and the use of matched funding where possible to efficiently use NIHR funds. While COVID-19 brought challenges, it also resulted in unexpected cost savings because of reduced travel, in-person fieldwork and shifts to hybrid ways of working. Reported underspends across awards are mainly a result of delays experienced during the award cycle, including initial start-up processes including contracting and due diligence, the transfer of funds to LMIC research partners, delays in ethics approvals for studies, and delays in recruiting staff members. They have also been driven by the pandemic and unexpected contextual challenges which have impacted implementation of research activities.

8.0 Findings: Adaptability and learning

8.1 How well is the GHR Portfolio adapting and embedding learning?

Learning has been a central and evolving part of the GHR Portfolio. The incorporation of iterative learning has allowed GHR programmes to adapt to exceptional circumstances (especially COVID-19) in a flexible manner. There are processes at the GHR Portfolio, programme and award-level to ensure that lessons are learnt, and best practice is incorporated. However, there is still work to do to ensure that learning is fully joined up between awards, especially those in similar thematic areas or contexts but in different programmes. There could also be more consistency across the various partner-led programmes. Overall, the evidence collected across the survey, interviews and documentary analysis demonstrates that the GHR Portfolio is adaptable and embeds learning in its design and implementation of activities.

8.2 To what extent have learning processes been embedded in the GHR Portfolio design and implementation of activities?

There is strong evidence at the GHR Portfolio level that NIHR incorporated iterative learning to ensure the first phase of the GHR Portfolio was adaptive to emerging needs. Learning has been integrated by NIHR throughout, allowing for adjustments to selection criteria and CEI practices to better align with the realities in LMICs. From the inception of the GHR Portfolio, DHSC was cognisant of their novel position as a funder of ODA-supported global health research. As such, NIHR were open to learning as the GHR Portfolio developed. Top-down, portfolio-wide learning was facilitated by participation in wider discussions on the role of ODA in health systems development with partners such as UKRI, DFID / FCDO, MRC and Wellcome Trust, and this was very useful in helping NIHR move into the GHR space. Bottom-up, award-level learning was also supported by partners. This occurred though UK-LMIC academic knowledge transfer, government access and CEI activities. Several key learning processes were integrated during the first phase of the GHR Portfolio, including establishing an enhanced quarterly reporting system, improving the Call Guidance based on feedback from After Action Reviews and Annual Reports as well as informal feedback from partners, establishing Working Groups to enable better sharing of learning, and setting up coordination meetings to ensure there was appropriate understanding across calls about which organisations were applying so that they could avoid skewing towards those putting in multiple applications. The establishment of the MEL Adviser post was seen as critical to improving the capacity to generate evidence from implementation and integrate learning. NIHR's emphasis on interdisciplinary approaches, which enabled recognition of the importance of societal issues in applied research, was also seen as very positive and innovative compared to more traditional funders. The most important factor in achieving learning was ensuring the right people with appropriate knowledge, skills or experiences were engaged and listened to. However, there is some evidence that learning can be siloed within the GHR Portfolio. 82% of researchers responding to the survey exchanged learning with colleagues in their awards, 60% of awardees can give feedback to / learn from their funder but only 48% learned from / with other award-holders (14% disagreed). That a majority of those who responded to the survey failed to learn from other awards within the GHR Portfolio, despite likely thematic or contextual similarities displays a lack of linkages across the GHR Portfolio at a programme or award-level.

There is moderate evidence that learning is embedded across the different programmes and awards, with potential for greater consistency in learning practices. Stakeholder interviews and documentary analysis demonstrated variety in the extent to which NIHR-funded programmes and award integrated learning. There was strong evidence that NIHR-led awards and AMR-SORT IT demonstrated good appetite for learning, with proven efforts to embed learning processes across operations. Learning occurred informally through group discussions and ongoing interactions between research teams (including when based in different countries) and through more formal monitoring and reporting structures. There was more varied evidence across the partnerships. Long-standing programmes, like EDCTP, have fully developed and integrated learning processes. Others, like CEPI, carried out frequent internal and external reviews to ensure key learnings were identified. Alternatively, some partnerships provided little evidence of formal learning processes outside of award check-in calls. Early careers grant programmes operated on a smaller scale, learning was more responsive, and there was limited evidence of cross-awardee learning. The GRP programme, for example, regularly request involvement of PIs in the interview process for shortlisted awards and to speak with Selection Committees to feedback on processes and provide further guidance and direction regarding relevant of criteria or decisions in relation to a specific LMIC context. Across the GHR Portfolio, learning is captured from coordination between NIHR programmes via Global Health Coordinating Groups and Working Groups. The Working Groups help to identify 'strategic topics' concerning

applications. Many programmes had some form of inter-award learning-opportunities like webinars and face-to-face events, which could facilitate spaces for dialogue between awardees.

However, NIHR could be more proactive in ensuring consistency across the GHR Portfolio whilst accommodating the needs of LMIC research partners across the GHR Portfolio. Conferences and knowledge-sharing events were valued by awards as important platforms for learning. There were suggestions that NIHR should facilitate more opportunities for knowledge exchange across awards and ensure accessibility for LMIC research partner LMIC research partners. This could perhaps be done through regional or thematic workshops and events, and if these are occurring, they need to be better advertised / publicised to ensure wider awareness and participation.

8.3 To what extent has the GHR Portfolio managed to adapt to learning and changes in the external environment (e.g., COVID-19)?

The GHR Portfolio was able to adapt to different contexts and challenging circumstances alike, but more could be done to reduce barriers to LMIC leadership. As mentioned earlier, NIHR has been open to learning throughout the first wave of GHR. This has enabled the GHR Portfolio to be flexible and adapt to LMIC needs where appropriate. For example, Groups project workplans were adapted to include an extra year in response to learning that a research project that can be delivered in 3 years in the UK may take 4 years in LMICs. Further, some GRPs have also successfully sought opportunities to fully adapt in relation to progressing national Covid-19 efforts, while still utilising the research team's clinical capacity. One PI who was seconded to the Ministry of Health provided modelling data and clinical advice directly to government and supported the drafting of Covid-19 guidelines that were subsequently published and incorporated into national policy. The first-round of GHR funding also coincided with the COVID-19 pandemic, which significantly disrupted many research activities within the GHR Portfolio. Award-holders are highly appreciative of NIHR's flexibility during the pandemic. For example, NIHR advised award-holders that funding would continue, even where staff temporarily could no longer work and where some activities needed to pause. Furthermore, NIHR offered many no-cost extensions and allowed researchers to request alterations to initial deadlines and scope. This enabled most awards to complete their research and, in some cases, pivot to incorporate relevant COVID-related activities to support wider efforts in their countries. NIHR processes are generally quite adaptable and responsive, so new calls are issued quicker than other funders. As such, most respondents to the survey showed confidence (85% agreed / strongly agreed) in being able to adapt research, especially in response to changes in the external environment.

9.0 Findings: Impact

9.1 Is there any early evidence that funded research and capacity strengthening activities are on track to/have the potential to contribute towards 3-10 year anticipated impacts?

Although it is too early to measure long-term impact, only foreseen in 10-25 years, there are moderate indications of positive progress towards mid-term outcomes resulting from GHR's research and capacity strengthening activities which will have the potential to influence health policy and practice and strengthen LMIC health systems. Early signs suggest that the GHR Portfolio has contributed to raising awareness of research topics and influencing policymakers, practitioners and the public accessing research findings in LMICs. Building networks and establishing structures for more meaningful engagement with government, communities, and global stakeholder groups have been crucial to this success. Additionally, there are moderate indications of strengthened research capacity, particularly when researchers secure subsequent grants to continue their work beyond the award period. However, there is more limited monitoring of progress regarding equitable partnerships, CEI, and gender equality and inclusion, making formal measurement challenging. Nonetheless, consistent efforts have been made to enhance CEI, foster equitable partnerships, and improve coordination with other funders, aiming to maximise the impact of NIHR investments in RCS.

9.2 Is there any early evidence of improved evidence-informed decision making (individual, community, health practitioner, health policy-maker) as a result of GHR funded research as well as development of institutional research capacity?

It is too early to expect impacts from the first phase of GHR Portfolio. However, there is moderate evidence of emerging short- and medium-term outcomes, as indicated by examples of country-level and global policy changes and the strengthening of individual and institutional research capacity and reputation resulting in the attainment of additional funding. The first phase of the GHR Portfolio started less than 7 years ago and was affected by the COVID-19 pandemic and the UK economic downturn during this time. Most sampled awards in the 27 programmes in scope for the evaluation were either recently completed or are still underway, and many are still publishing research outputs. Nevertheless, in around half of all programmes, progress was reported towards changes that indicate promising signs for future impact.

There is moderate evidence of emerging outcomes on influencing policy, practice, and individual and community behaviour in LMICs. According to the ToC, the expected mid-term impact (approximately 3-10 years) is evidence of policymakers, practitioners and the public accessing research findings and awareness being raised, resulting in findings influencing policy, practice, and individual and community behaviour in LMICs. For all the larger programmes (those over £10m) and some smaller ones the evaluation revealed evidence of achievements in disseminating research outputs and raising awareness among key stakeholders. The survey respondents were optimistic about the impact of the research, with 88% agreeing that the research outputs are accessible to relevant audiences and are increasing the level of actionable knowledge of key stakeholders. Perspectives were more positive amongst non-LMIC versus LMIC respondents (95% compared to 83%). Respondents also overwhelmingly agreed (92%) that GHR-funded activities are helping inform decision-making processes.

At the very least, there is moderate evidence of appropriate progress toward building networks and establishing structures supporting policy engagement and driving impact. Researchers cited deep engagement with ministries of health and other key sectors, and global entities such as the World Health Organisation (WHO). Through these links, there were examples of evidence of contribution to systemic changes and the wider policy environment. Nevertheless, the findings confirm it is generally too early to expect evidence of theme-specific policy, practice or community behaviour outcomes that are attributable to efforts being made by the award-holders. Examples provided referred to improvements in health facility performance, improved data collection, or better community practices but were usually limited to the scope of the individual award rather than at a national scaled-up level.

There is strong evidence from NIHR led awards that their engagement with CEI activities has led to greater awareness amongst researchers about the value of involving communities to their projects. Award-holders noted that embedding CEI throughout the research from the outset supported researchers' better understanding of community needs, strengthened awards' multi-disciplinary approaches, and exposed researchers and

particularly clinicians to the value of listening to patients and communities. Awards CEI efforts have also supported greater access to communities, helped with recruitment to trials, supported community receptivity to healthcare interventions and hence their delivery, and surfaced new types of dissemination opportunities. Several awards noted that they believed the involvement of communities will support sustainability, for example by building higher expectations on quality of care and supporting community advocates who can raise awareness of health issues, continue to engage with government and demand better services.

There is limited but promising evidence of changes at the community level, but this is not systematically measured or collected, nor is it embedded in an understanding of empowerment, social inclusion or social and behaviour change frameworks. NIHR-led programmes acknowledge that outcomes for CEI are often process-related, intangible and hard to measure. A small number of awards in our sample are collecting data or planning evaluations to understand the links between demand side factors and women's empowerment and their research interventions but beyond this there was weak evidence of award-level efforts to investigate community-level processes. Across our sampled awards and the survey, there were multiple references to changes in communities' awareness of prevention and / or treatment of conditions, health seeking behaviours, greater trust of researchers, and a sense of empowerment and ownership of the research. There was strong evidence from across our sample that the different types of groups supported or created by the awards provided a safe space within which people could talk about their experiences, build confidence (particularly among women), and develop a critical perspective on the relevant issues so that they could contribute to the development of research interventions. Being in regular meetings and dialogue with health providers, community leaders, hospital managers and government officials has also been found to be empowering for people with lived experiences. People with lived experience who have been engaged as researchers and facilitators are committed to using the skills they have developed in advocating to communities and the health system. One award noted an upsurge in community solidarity and support for people experiencing stigmatised and previously invisible conditions as a result of their CEI efforts.

There is moderate evidence across the GHR Portfolio of positive developments in strengthened capacity within LMIC institutions to contribute to and lead high-quality research and training. The evidence to support this includes examples of researchers who have gone on to have successful careers, including some who have become distinguished professors or joined prestigious institutes. Regional networks of excellence have been established because of the reputation built up under awards funded by the NIHR. Most stakeholders representing the fellowship initiatives commented on their potential to improve the research environment that adds to an LMIC's international competitiveness as a place to do health research. The survey findings support this view, with 92% of respondents agreeing that GHR-funded activities are enhancing the international reputation of LMIC institutions. So far, there is only limited evidence to back this up.

The review of awards provided moderate evidence of early impact because of the GHR-funded research due to strengthened research capacity, especially where researchers had obtained subsequent grants to continue the work. Examples of where awards are generating impact include contributions to changes in policy, reducing the stigma associated with certain themes or conditions, development of local and global guidelines, changing practices in health facilities, and strengthening community-level platforms and initiatives. However, some awards are not yet complete, therefore, not all outputs have been achieved. In addition, there is no clear pathway to achieving impact as research awards are relatively short-term, and there is no specific mechanism to attain additional funding, even for clearly successful results. This was noted as a source of frustration for some researchers who expressed awareness that alternative funders may undermine the NIHR's investments by claiming attribution to later outcomes and impacts Nevertheless, many researchers interviewed had attracted additional funding and won new grants, albeit sometimes after a struggle. There were also many reports of progression in careers and the building up of regional and national hubs and centres of excellence. These are the building blocks of future LMIC and regional capacity.

Unsurprisingly, there is limited evidence of progress towards the expected long-term impact of strengthened health systems and increased individual and community capacity for health promotion and disease prevention. The long-term impact foreseen in approximately 10-25 years is evidence of changes in policy, practice and behaviour contributing towards strengthened health systems and increased individual and community capacity for health promotion and disease prevention. This aspect of the Theory of Change is beyond the scope of this evaluation in view of the timeline. However, while there is no evidence of these changes, it is plausible that the NIHR-funded research would contribute to such impact, provided there is continued investment in LMICs to embed further and operationalise changes in policy and practice. Nevertheless, survey respondents were highly optimistic in this regard, with 90% agreeing that GHR-funded activities do contribute to more efficient health systems in LMICs. There were similar results from LMIC and non-LMIC respondents.

There is moderate evidence that the efforts to strengthen CEI, develop equitable partnerships and improve coordination with other funders will enhance the impact of the NIHR investments in RCS. The cross-cutting activities supported by the NIHR are expected to contribute towards the likelihood and speed of achieving the

intended outcomes and impacts. These include CEI, equitable partnerships and coordination with other funders to drive coherence and minimise duplication of activities. The relevant sections in this report highlight successes and challenges in these areas that will have an influence on the wider impact of the research and indicate how they will contribute to sustainability.

10.0 Findings: Sustainability

10.1 To what extent will the net benefits of the GHR Portfolio continue, or likely continue, beyond the funded period?

The GHR Portfolio is making progress towards sustainability, and there are programme- and award-specific examples of research impact and individual capacity strengthening gains and contributions to wider institutional systems that may be sustained after funding ceases. However, data and insights on sustainable net benefits of the programmes are limited by the stage of the GHR Portfolio, the timescale of sustainability effects to be realised and by the limited availability of certain sustainability monitoring data. Evidence of sustained influence of GHR research on policy and practice was limited but there are positive signs of progress towards this being achieved.

10.2 To what extent will achievements and research impact continue beyond the funding period?

NIHR's GHR Portfolio approach and ToC are based on a long-term ToC with impacts envisaged within a 25-year time horizon. NIHR GHR aims to support research with the potential to make a long-term difference to populations and health systems without creating funding dependency. Indeed, the desire is for changes to be embedded within government systems and / or researchers to have skills that allow them to successfully obtain funding from other sources. Sustainability and long-term implementation are key to achieving the overarching objectives of the GHR Portfolio, which are closely linked to sustainable systems change, particularly in terms of institutional capacity strengthening and ensuring that organisations have the right research ecosystem to take forward the research and implementation. However, ODA funding operates in general in short-term cycles and is subject to macro-economic and political pressures that mean the GHR Portfolio is operating within parameters of uncertainty. While this can be viewed as an inevitable part of the funding environment, participants at programme- and award-levels had concerns over the extent to which NIHR's funding structure was able to foster sustainability.

It is too early to robustly explore and measure sustainability, but there are indications that funded research will have some sustained effects, particularly in terms of individual capacity and contribution of these individuals to wider systems. Awards contributed to strengthening countries' research environment by embedding individual / institutional capacity and best practice, which awards considered as conducive to sustainable impact. Fellowships (Wellcome and RSTMH) and GRP have been a good starting point for the projection of LMIC early career researchers, but additional mentorship and opportunities are likely needed to sustain careers in their next stages. The survey showed there are very positive views about the sustainability of LMIC capacity building: 91% of survey respondents agreed or strongly agreed that the award research activities have or will build the skills and capacities in LMICs which will be sustained. However, this was felt somewhat more strongly by non-LMIC respondents (96%) than by those based in LMICs (87%), suggesting the need to keep tracking this small discrepancy, given that those in LMICs are likely closer to the work and its uptake.

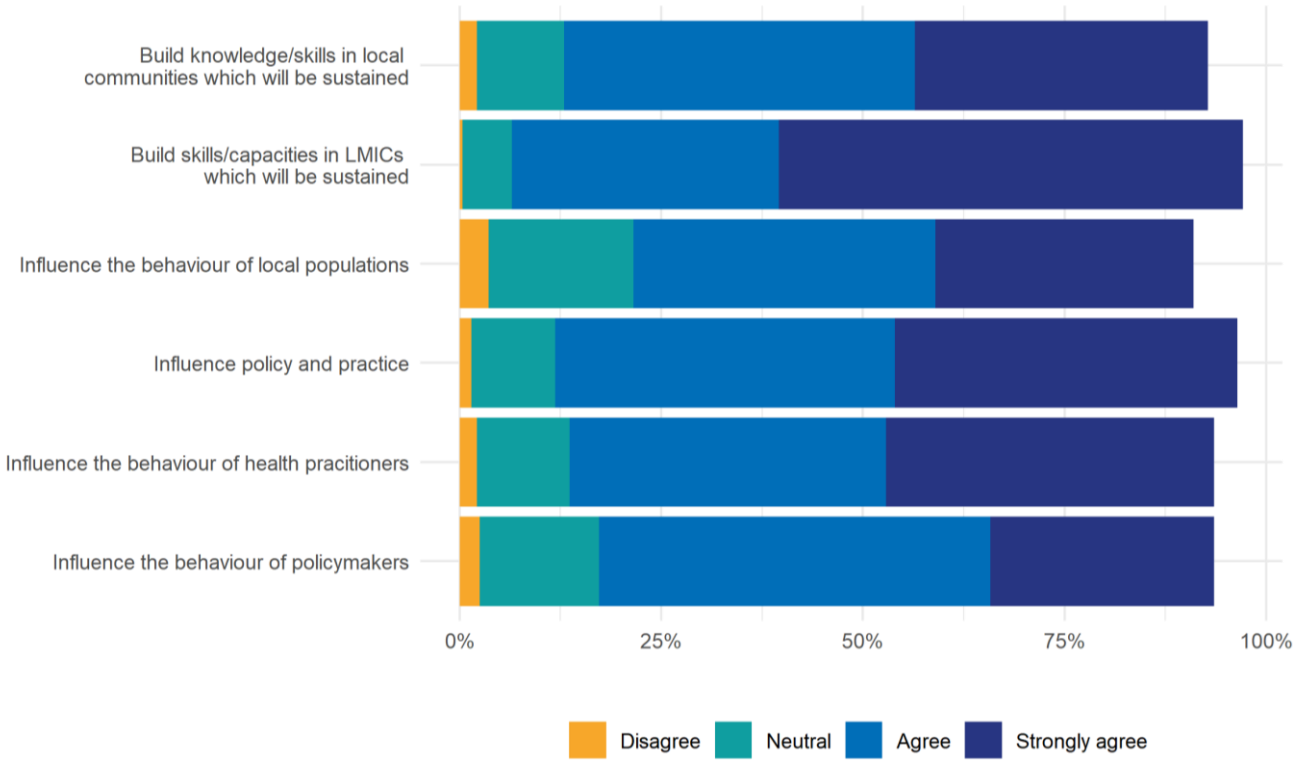
Specific research capacity including on methodological approaches, research management and key linkages and networks will continue to be applied institutionally (in academic and/or clinical settings) as well as on continuation of specific projects. There were also indications that the confidence and skills gained will help researchers to access further grants in the future. For instance, there was evidence of awards training local researchers in to applying for local and international funding. For ECRs involved in NIHR GHR awards, they have been gaining understanding in how to apply for and manage such grants, as well as gaining insights and confidence in obtaining funding from a range of sources in future.

Evidence of sustained influence of the funded research on policy and practice was limited but there are positive signs of progress towards this, particularly if activities are continued. There is moderate evidence that the skills, linkages and networks developed through the programmes and awards are the most sustainable elements. Particularly where research is embedded in clinical settings, either through clinicians themselves conducting the research or through strong research and practice partnerships and dissemination links, there is strong evidence of uptake and practice change. Given the complexity of influencing policy, this is where least sustainable change has been made. In addition to award-level case study data, these findings are supported by the award-holder survey responses:

- 85% of respondents agreed or strongly agreed that the award has or will influence policy and practice
- 80% agreed or strongly agreed that the award has or will build knowledge / skills in local communities which will be sustained, as well as influence the behaviour of health practitioners

- 76% of respondents agreed or strongly agreed that the award has or will influence the behaviour of policymakers
- Least positive about influencing the behaviour of local populations (69%)

Figure 14. Survey responses on the sustainability of impacts



Relevant linkages and partnerships will contribute to sustainability through shaping collaborations and funding opportunities. There was moderate evidence at award-level that the policy and practice linkages that have been developed may aid translation of research into policy, for example, being able to secure a partnership with a governmental stakeholder will help ensure the sustainability of the research. However, for many awards, more work is needed to ensure that results and outputs are taken up by policymakers.

Award-holder survey respondents gave overall positive views in terms of the likelihood for future collaboration between individuals, institutions and other stakeholders:

- 87% agreed / strongly agreed that individuals will continue to collaborate with external stakeholders
- 85% agreed / strongly agreed that individuals will continue to work on global health research together
- 85% agreed / strongly agreed that institutions will continue to collaborate
- 79% agreed / strongly agreed that individuals will continue to work on global health research independently

There is limited evidence of funded awards securing follow-on funding. Several awards have been successful in leveraging additional funding from local and international sources, which is expected to support the sustainment and upscaling of activities. Follow-on funding is being secured by some (particularly smaller scale research, such as those under RSTMH) but for many this is a challenge. In the absence of systematic GHR Portfolio-wide monitoring of sustainability or longitudinal awardee follow ups, it is not currently possible to obtain an accurate, overall picture of this.

Issues with availability of follow-on implementation funding for the research awards funded by NIHR GHR may reduce sustainability of long-term results. This is particularly relevant since NIHR has been putting notable efforts into funding areas of unmet needs, which means that if no other funding is available through NIHR and partners, it is difficult to ensure the continuity and sustainability of the research. In cases where future funding has not yet been secured, there is an active risk that achievements and research impact will not be sufficiently embedded to be sustained over the long-term. Considering the long-term objectives of the ToC on improving health systems and health research, the timelines of grants are too short and the inability to secure further funding – irrespective of the quality of the results achieved – has a severe impact on the sustainability of the long-term results and implementation. One CEI award-holder also raised concerns that the projectised approach of funding

programmes means they cannot guarantee long term engagement with community stakeholders and secure the sustainability of CEI efforts. There was no evidence from awards across our sample that they are partnering with civil society or community-based organisations that could sustain community engagement. It is possible this could (re)create community mistrust and disengagement (including with future projects), particularly where projects are not able to reach the point where they can demonstrate impact and clear benefits to the community. GHR Portfolio level respondents recognised this issue and the challenges in being able to provide assurance of long-term funding.

11.0 Conclusions

The NIHR GHR Portfolio has delivered research activities with an initial budget of £429.5m across 30 programmes and initiatives over its first phase from 2016/17 to 2020/21. During this time the NIHR has established itself as a respected and significant player in the GHR space in the UK and the international community. The GHR Portfolio activities have responded to priority needs of health research in LMICs, built the research capacity of individuals and institutions in the UK and LMICs, fostered equitable partnerships, and raised the visibility of community engagement as an integral part of global health research. However, as it is less than 7 years into implementation and was greatly affected by COVID-19, this is a very short timeframe to observe changes in policy and practice which would be expected to contribute to strengthened health systems and improved health outcomes. These results are foreseen over a 25-year period. As expected, this evaluation has therefore only been able to assess indicative progress towards achieving intended outcomes and impact. Our findings suggest that this is an appropriate time for the NIHR to take stock of all the learnings over the first phase and develop a more strategic approach to ensure that the investments will yield the greatest impact possible.

The GHR Portfolio's programmes are relevant to underfunded health research areas in LMICs, a key driver of allocative efficiency and effectiveness. This is aided by NIHR's relationships with other delivery partners, who also play a crucial role in identifying priority themes and allow NIHR to leverage their expertise and LMIC networks. Deliberate efforts to promote a researcher-led approach have enabled research to be responsive, although the degree and quality of engagement with LMIC researchers and other stakeholders could be improved**.** Over time, NIHR has made strong efforts to build up its internal capacity to ensure that it is a key decision-maker in the allocation of funding, building internal capacity to manage NIHR-led research calls and strengthening the engagement and meaningful involvement of LMIC stakeholders. In addition, the development of the ToC in collaboration with key partners promotes alignment of investments between partners with a focus on areas which lack sufficient funding from other sources and ensures the emerging principles of NIHR are reflected in its investments, including LMIC-led priorities, equitable partnerships and CEI. In particular, NIHR maintains a strong commitment to CEI in its investments, including with other funding partners.

A more deliberate strategic approach and greater collaboration within and across programmes in the GHR Portfolio and beyond may offer greater potential to leverage synergies. The diverse funding partnerships added huge value in the first phase and enabled the NIHR to deliver a wide range of activities and grow quickly. Some partnerships fell away during the phase while others have grown and expanded. Now is a good time to take stock of progress, decide on the future focus of the GHR Portfolio and select the most appropriate partners to help deliver desired results. There is potential to ensure more learning from, and promote greater synergies with, the other major UK funders (FCDO, MRC and Wellcome) and international partners in this process so that all investments are more consistently aligned, effective, and complementary. At the same time, the NIHR's unique approach to enabling a strong researcher-led agenda adds value to the GHR Portfolio and should be maintained. However, internal coordination across both programmes and awards could be improved.

The GHR Portfolio has demonstrated its ability to drive technical efficiencies, which have enabled NIHR to turn inputs into outputs in an efficient way. GHR's operational structures, processes, expertise and relationships built by NIHR and jointly leveraged from its delivery partners have supported this. However, there are weaknesses in the ability to monitor and adaptively manage investments to deliver results, with both limitations in consistency in monitoring across the GHR Portfolio and some concerns about the burden of reporting, especially for LMIC research partners. There are few central mechanisms for award-holders to provide feedback on management practices, particularly from LMIC institutions, to improve technical efficiencies based on lived experiences.

There is moderate evidence that the GHR Portfolio is on track to achieving shorter-term outcomes and our CA found that mid-term outcomes (i.e., influence on policy or practice) are plausible. Programmes have progressed well in their delivery and are largely effective in terms of disseminating important findings, strengthening research capacity and award management skills, and progressing towards equitable partnerships. However, the lack of consistent monitoring across the GHR Portfolio limits the ability to assess overall effectiveness and identify areas of weaker performance and improve effectiveness accordingly as the annual reports do not capture all programmes. It also inhibits learning on strategic yet complex areas such as CEI. There are limited funds and technical support dedicated for public engagement, knowledge exchange and dissemination to support the translation of research to facilitate research impact and to sustain equitable partnerships.

The NIHR's strong commitment to CEI is resulting in a more streamlined and strategic approach that has influenced other funding partners, supported progressively well-developed approaches at the award-level, and incorporated learning from LMIC experience. However, processes to engage with marginalised groups and understand changes at the community level need strengthening. The NIHR has promoted CEI as a core

principle and although there are promising signs of changes at the community level, gaining community feedback is not embedded within awards, and the changes that are discernible are not embedded in an understanding of empowerment, collective action or social and behaviour change frameworks. There is only limited evidence of explicit discussion amongst GHR Portfolio, programme or award-level stakeholders about gender equality, intersectionality, and unequal power dynamics and how these shape CEI and research processes and outcomes.

The approach to collaboration, partnership and learning has resulted in a GHR Portfolio that is working reasonably efficiently. However, more could be done to support LMICs and strengthen the equitable partnership approach. The GHR Portfolio structures have enabled sufficient flexibility for programmes and awards to adapt to changing and unforeseen circumstances, particularly during COVID-19, supporting overall efficiency and operational effectiveness. However, some processes do not consistently match the needs and resources of LMIC research partners, creating an additional burden for them and challenges for equitable partnerships, and potentially even exacerbating power imbalances between LMIC and non-LMIC institutions.

Despite the huge learning that has taken place within NIHR during the first phase, this has not always translated effectively into learning for and from award-holders and programme leads across the GHR Portfolio. There are opportunities to strengthen knowledge exchange and learning systems so that award-holders and programme managers can avail greater support to increase the reach and impact of their work. In addition, there is a high level of willingness to contribute more to the learning agenda, particularly from LMIC research partners. Greater leveraging of this by NIHR would not only enhance the overall effectiveness of the research outputs but would also strengthen equitable partnerships and contextualised approaches to CEI.

VfM is a principle upheld by NIHR and its partners to scrutinise investments, including in overall governance and management structures of the GHR Portfolio and programmes as well as guidance to applicants and project selection criteria. However, the GHR Portfolio's approach does not benefit from a tailored VfM framework and lacks criteria for the 3 Es used in the National Audit Office's (NAO) VfM framework (economy, efficiency, effectiveness) as well as equity. This background means that VfM is not systematically monitored across the GHR Portfolio to support actionable decisions with respect to GHR inputs and management.

Constraints in securing additional funding to continue research and follow-on activities raises questions about the long-term gains of NIHR investments. A sustainability or exit strategy would be helpful to clarify expectations from the start and support award-holders in planning longer-term approaches. The NIHR has invested considerable effort and resources into funding areas of unmet need, where availability of funding is required for the continuity and sustainability of research. This creates risks to VfM, where inability to secure further funding as well as limited efforts to help secure further funding, among award-holders can inhibit achievements and progress made towards research impact and the long-term objectives of NIHR's investments.

12.0 Early recommendations and lessons

It should be noted that these are early considerations that will be further explored in the final evaluation phase and discussed with DHSC and NIHR for feasibility and acceptability. Therefore, they are likely to evolve.

12.1 Recommendations

1. **The NIHR should consider the future strategic direction of the GHR Portfolio and decide, in consultation with its key funding partners, where the NIHR can add the most value going forwards.**

The NIHR should decide to what extent it wants to continue with the leveraging approach with other funding partners and maintain a wide range of themes, geographic areas, and UK and LMIC research partners. Alternatively, it could focus on a smaller number of thematic areas, maintaining the highly appreciated researcher-driven approach, but honing in on themes where it has made substantial progress during the first phase and is most likely to see the greatest impact over the next 5-10 years. This could include themes where there is very clear and explicit interest and commitment from policymakers in LMICs. This process has already begun with the appointment of a programme director and a refinement of the strategic priorities for the period 2022-2025.[26] However, the priorities remain broad and may warrant further reflection. Decisions should be taken in close collaboration with other funders looking for areas of comparative advantage and especially on where there are still longer-term critical funding gaps. Subsequent partnerships with current and potential new funders and implementing partners in the UK and internationally should reflect this strategic focus. If this is the approach taken, the ToC would need to be reviewed to ensure it remains valid and relevant.

2. **NIHR should consider options for strengthening systems and processes for improved tracking of all investments across such a complex and diverse portfolio.**

While it is not reasonable to expect all partnerships to adjust their systems to align fully with NIHR, key metrics should be established, and MEL processes enhanced, to capture data on progress and performance across all programmes and awards and facilitate improved oversight of emerging results. While award-holders within some programmes (Units, Groups, Global HPSR) can provide feedback and updates on governance and oversight mechanisms via reporting or ad hoc requests for feedback by programme teams, NIHR could strengthen these mechanisms for award-holders on management practices, particularly from LMIC institutions, to improve technical efficiencies based on lived experiences.

3. **NIHR can enhance the value of research impact and RCS by further investing in opportunities for strategic learning, in-person networking and knowledge exchange.**

Award-holders have strongly valued knowledge exchange and learning between awards, and it is evident that greater emphasis on, and direct operational and financial support for, learning activities will allow NIHR to strengthen the relevance, effectiveness and sustainability of research capacity building. On CEI, for example, greater investment in supporting knowledge exchange and learning between awards, and technical engagement between NIHR programmes and a sample of awards will allow NIHR to strengthen its understanding of the settings, organisational contexts, approaches, barriers, enabling factors and change pathways that shape awards' CEI work. Award-holders are also keen to feel more involved in and knowledgeable about NIHR's overall vision and how their own research fits into this. NIHR could establish mechanisms to facilitate this already at the application stage. NIHR have acknowledged the need for wider knowledge exchange and are already planning learning events in person (some of which had not initially taken place due to COVID-19). Communities of practice led by award-holders, either within or between aligned programmes (e.g., as with Groups and Units), focused on global health priorities or GHR objectives such as policy uptake, equitable partnerships, capacity strengthening and/or CEI could serve as useful forums for awards to independently discuss and share their experiences, and share feedback with NIHR. While NIHR have already established[27] funding to cover Open Access costs of articles published in line with the criteria of the Open Access policy, programmes may wish to include further flexibility in how indirect costs could be used (e.g., as a contingency budget specifically for dissemination activities both across programmes and awards and with other GHR initiatives). If NIHR are unable to provide contingency funding, guidance could be expanded to include options for applicants / institutions to contribute to a shared 'pool' of funds directly provided by applicant institutions themselves, allowing them to option to utilise this approved budget for dissemination

[26] https://www.nihr.ac.uk/explore-nihr/funding-programmes/global-health.htm
[27] https://www.nihr.ac.uk/documents/nihr-open-access-publications-funding-guidance/30210

activities deemed most relevant or valuable to the award in question. Regional or thematic workshops and events could be supported directly by NIHR to ensure wider awareness and participation across awards.

4. **NIHR should take steps to better understand the extent to which CEI approaches are proving effective in achieving research-, capacity- and empowerment-related objectives, and the contextualised pathways of change that are emerging.**

As part of their learning strategy, NIHR programmes could consider engaging their CEI advisers in more direct interaction with awards. Based on their review of reporting and any additional documentation, the CEI advisers could select awards where there are indications of challenges, achievements or promising practice and engage with them directly, to provide technical advice and support directly, learn more about awards' approaches and progress, and where appropriate, undertake learning visits and engage with the award's wider team and stakeholders. This would allow NIHR to strengthen its own understanding of the settings, organisational contexts, approaches, barriers, enabling factors and change pathways that shape awards' CEI work. This could in turn feed into more targeted knowledge exchange and learning efforts that aim to engage awards around key challenges, ideas and innovations, and platform a broader range of experience at the award level.

NIHR should also encourage awards to ensure that ongoing feedback loops which aim to shape the research as well as the relationship and empowerment context are embedded within their CEI efforts. This should include proactive and ongoing dialogue with community stakeholders about how they are experiencing the CEI activities, the changes and benefits that are emerging, and what aspects should be strengthened, improved or changed. Those awards with more well-developed CEI approaches could be encouraged and supported to work with their community partners to co-design and co-implement community-led monitoring and learning strategies. This would enhance the effectiveness of the awards' CEI approach and research, surface areas for improvement, strengthen the sense of partnership, and also contribute to the sustainability of community engagement structures and processes. Given the breadth of the global portfolio, the highly contextualised and dynamic nature of CEI, and concerns about an already heavy reporting burden that have been documented earlier in this report we will explore the feasibility of these learning-focused approaches with NIHR stakeholders during the final evaluation stage.

5. **The NIHR should further enhance the efficiency of the GHR Portfolio by helping LMIC research partners to access more support that builds their management capacity taking into account their local context and operational challenges and helping them to overcome barriers.**

The NIHR could simplify application, management, and reporting processes for LMIC institutes without compromising on accountability and quality. Options to achieve this could include more mentoring support from UK partners in the field, further grant- and report-writing opportunities, and less burdensome accounting processes, especially with institutes that have an existing relationship and degree of trust. Better performing LMIC institutes could also support their neighbours in regional collaborations. The NIHR funding model could be reconsidered or expanded beyond key staff costs and specified indirect costs to ensure there is money for wider aspects of research implementation, such as producing and processing samples, obtaining additional research equipment, unexpected travel for researchers and other expenses. A scoping exercise seeking feedback directly from PIs regarding challenges to the existing funding model could be considered and potentially incorporated more explicitly into the Call Guidance.

6. **The GHR Portfolio should have an overarching VfM framework that can be applied to all programmes and awards.**

A GHR Portfolio wide VfM framework and guidance for all partners would enable more systematic tracking of how the investments are creating value. The NIHR could adapt other UK fund examples to ensure alignment of ODA resources and comparability.

7. **The NIHR should develop a sustainability strategy in line with its ToC timeline of expected medium-term outcomes.**

This does not mean the NIHR has to guarantee follow-on funding, but it should have a plan to support LMICs to think about sustainability from the start and build in appropriate measures into funding opportunities that will maximise the potential to reach intended results. This process could benefit from the learning and experience developed within the NIHR and be facilitated at various points throughout the implementation of awards. Options could include building in more advocacy training and support to help influence national government and other local partners, including the private sector. Additional learning platforms could move beyond sharing of research outputs to help share success stories and pathways to impact. NIHR could also facilitate contacts to other funders that may be more appropriate for scaling up support.

12.2 Next steps and final evaluation

From July 2023, the evaluation team will work closely with DHSC to finalise the workplan for the final evaluation due to completed in December 2023 and dissemination due to be completed by February 2024. The evaluation team will present proposals to the Research Steering Committee in July 2023 to elicit feedback.

During the Inception phase, the evaluation team proposed an indicative breakdown of the number of awards per programme to be evaluated at the interim and final stages. The rationale for programme selection was outlined in the Inception Report. NIHR-led programmes and programmes with a RCS focus were prioritised for the interim report in consultation with DHSC. Award selection for the four remaining Partnership-led programmes will be finalised in July 2023: *EDCTP (£79m) - 2 awards; GACD-MRC (£2m) - 1 award; Global Mental Health-GCC (£2.5m) - 1 award; GECO/MRC (£2m) - 1 award*.

As described in the concept note included in Annex 6, the final evaluation will also draw on a planned BA to explore the reach and impact of NIHR-funded research, including publications and other research outputs where possible. It will add further evidence to the evaluation's assessment of the portfolio's effectiveness, including the scientific importance and policy relevance of research outputs through performance metrics and citation analysis (EQ 3.1), as well as insights into equitable partnerships through co-authorship analysis (EQ 3.3). While quantitative insights from the BA will reveal the output of NIHR research, it serves as a proxy for quality. Therefore, to improve understanding of the quality of funded research, our findings will be triangulated with qualitative evidence collected during the evaluation to provide nuanced evidence on research is scientifically important, policy relevant, and delivering research impact.

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Answering tomorrow's challenges today

Evaluation of the National Institute for Health and Care Research's (NIHR) Global Health Research (GHR) Portfolio, First Phase (2016/17-2020/21)

Annexes

June 2023

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NIHR Global Health Research Evaluation - Research Commissioning Brief

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Introduction

The NIHR Global Health Research (GHR) portfolio was established in 2016 by the Department of Health and Social Care (DHSC). The GHR portfolio is funded through Official Development Assistance (ODA) and invests in applied health research relevant to the unmet needs of low and middle-income country (LMIC) communities, health system priorities and the evolving global burden of disease.

This research commissioning brief is for the delivery of a process and performance evaluation of the first phase of the NIHR GHR portfolio (2016/17 to 2020/21) to assess the design, implementation and emerging outcomes of the portfolio and to inform the development and delivery of the next phase of the portfolio.

This project will be commissioned through the NIHR Policy Research Programme (PRP) and will be managed by the NIHR Central Commissioning Facility (CCF).

The formal recipient for the evaluation will be DHSC.

Eligibility

This call is open to teams of researchers/evaluators with demonstrable experience in evaluating programme and portfolio level research impact and familiarity with the global health research funding landscape and ODA-funded programmes. Diversity and gender balance are required within the evaluation team and we would expect the evaluation team to work with local/ national evaluators where appropriate.

To ensure the independence of the evaluation, investigators who are currently directly funded through the NIHR Global Health Research portfolio will not be eligible to apply for this opportunity. As the evaluation scope focuses on the first phase of the NIHR GHR portfolio (2016/17-2020/21), the successful applicant's eligibility to apply to future NIHR Global Health Research portfolio funding opportunities will not be affected.

Background to the NIHR GHR portfolio

GHR portfolio objectives

In the 2015 Spending Review, DHSC was allocated £941.5m of ODA funding over the period 2016/17 to 2020/21, including £429.5m to establish the GHR portfolio. The GHR portfolio:

- supports high-quality applied health research and training in areas where there is an unmet need,
- generates evidence for the direct and primary benefit of people in LMICs, supporting progressing towards achieving the Sustainable Development Goals, and
- strengthens UK and LMIC research capabilities and expertise.

NIHR has collaboratively developed a Theory of Change (and accompanying narrative) to visually represent the Global Health Research Portfolio and the logic through which the portfolio aims to bring about its intended outcomes and impacts.

GHR portfolio delivery mechanisms

The GHR portfolio is delivered through two mechanisms:

1. Programmes – direct funding initiatives led by NIHR Coordinating Centres

2. Partnerships - working with established UK andglobalfunders of health research to support existing, high-quality partnership schemes and co-create new ones in research areas where there is an established and/or unmet need. These include with:
    1. Other UK funders
    2. International partners
    3. Multi-funder initiatives
    4. Multi-funder initiatives – Product Development Partnerships

Detailed information on each of these delivery mechanisms and the funding schemes that sit beneath them is included in Supplementary Annex B.

GHR Research Portfolio

The GHR portfolio (£429.5 million) is complex and diverse, comprising of:

- more than 20 delivery partners
- a mixture of open researcher-led calls, commissioned calls focused on specific thematic areas and product development partnerships operating across different timeframes
- c650 funding awards which range from £5,000 up to several million pounds in scale.
- Research activities taking place across more than 50 LMICs across Africa, Asia and Latin America.

See Supplementary Annex C for a full breakdown of funding scheme characteristics.

Evaluation aims

The purpose of this evaluation is to:

a. Assess the suitability of the design and implementation of the first phase of the NIHR GHR portfolio (2016/17-2020/21) for achieving its intended outcomes and impacts and identify any learning which can inform the development and delivery of the second phase of the portfolio (2021/22 onwards).
b. Provide accountability for the GHR portfolio performance to date – to include identifying the portfolio's contribution towards emerging outcomes (for whom, in what contexts, how and why), to assess whether the portfolio is on track to achieve its desired outcomes and impact and to assess the Value for Money of investments to date.

Evidence and learning generated through this evaluation will inform wider understanding of what works, for whom and in what contexts, and will be used to inform decision making across the portfolio. The evaluation findings (shared through various communication activities) will also support accountability and transparency about how public money is being spent and will develop an evidence base of effectiveness and Value for Money to respond to scrutiny from public accountability bodies, and to inform the design of and Value for Money case for future funds.

Scope

The NIHR invites proposals to undertake a process and performance evaluation of the GHR portfolio. As new awards are being added to the GHR portfolio on an ongoing basis and recognising the diversity and diffuseness of research impact pathways, **the scope of the evaluation will be focused on activities funded between FY2016/2017 and FY2020/2021**. **New activities contracted after 1 April 2021** (the second phase of the GHR portfolio) **will be outside of scope**, however applicants will be expected to **consider how evaluation findings** can be used to **support continuous learning and improvement** in ongoing portfolio development and delivery.

Evaluation questions

To meet the evaluation aims, the successful applicant will be required to answer Key Evaluation Questions (KEQs - outlined in Table 1) which have been developed in consultation with key stakeholders around the following considerations:

a. Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee's (DAC) criteria for evaluating development assistance (Relevance, Coherence, Effectiveness, Efficiency, Impact, Sustainability). We have added an additional category focused on Process, adaptability and learning.
b. GHR portfolio Theory of Change - to ensure the evaluation generates the evidence to test whether the logic and assumptions contained in our Theory of Change are valid.
c. NIHR operating principles (Impact, Excellence, Inclusion, Collaboration and Effectiveness) - to test how effectively these are being implemented.
d. GHR specific core principles (including research capacity strengthening, equitable partnerships, Community Engagement and Involvement,

safeguarding, transparency, equity (levelling the playing field)) - to test how effectively these are being implemented.

Table 1: Key Evaluation Questions

Key Evaluation Question			Indicative sub-questions
Relevance	1a	To what extent is the GHR portfolio funding LMIC priority areas of health research where there is an unmet need?	How have underfunded areas of research or unmet needs been identified?
	1b		To what extent have research questions and activities been framed around and adapted to the needs of local communities (including the most vulnerable and at-risk groups within specific research contexts)?
Coherence	2a	How effective is our approach to coordinating and collaborating with UK and global funders of health research at adding value as a funder and avoiding duplication in efforts to address SDG3?	What are the synergies and interlinkages with other funders of health research? What role does NIHR play within the wider system? What is distinctive about its contribution as a funder? What has been the value (or not) of NIHR working in partnership with other funders (both UK and non UK)? Have there been any challenges/compromises in operating principles, and in what circumstances? Are there any areas where NIHR could improve its approach to coordination

			and collaboration to maximise collective impact? How internally coherent is the NIHR GHR portfolio with NIHR domestic activities?
	2b		How coordinated are the funded research activities with other related activities (e.g. other health research, health implementation, non-health research) taking place in that LMIC context? To include coordination with other UK-funded research activities.
Effectiveness	3a	How effective has the GHR portfolio been in a) generating high quality policy/practice relevant research and innovation outputs* b) mobilising this generated knowledge to maximise accessibility and use by their intended evidence users? (Defined in line with IDRC's RQ+ framework to encompass scientific credibility and social validity with intended evidence users.)*	[Note that the assessment of this may need to be staggered to account for varying durations of funding] To what extent are funded researchers reaching and engaging relevant stakeholders (policy makers, practitioners, public) who can affect change at the national or international level? What have been the cumulative measurable intermediate outputs and outcomes (assessed against the Theory of Change) of our investment in specific thematic areas? What have been the enablers and barriers to achieving intended outputs and outcomes? What approaches have worked well or less well and in which contexts? Have there been any unintended outputs or outcomes (both positive and negative)? Have there been any other outputs or outcomes with

			indirect/secondary benefits to the UK?
	3b	How effective has the GHR portfolio been in achieving its intended research capacity strengthening outputs and outcomes?	How effective have funded training and development opportunities been in strengthening capacity amongst LMIC and UK researchers and research managers? How effective are pre-award funding schemes (PPDAs/HPSR Development Awards) at achieving their aims? How effective has the GHR portfolio been in establishing/strengthening equitable North-South and South-South research partnerships (including community representatives), thematic networks and multidisciplinary collaborations (including facilitating learning opportunities)? See the Integrated Review objective to build a strong and varied network of international science and technology partnerships. What have been the enablers and barriers to achieving intended outputs and outcomes? What approaches have worked well or less well and in which contexts? Have there been any unintended outputs or outcomes (both positive and negative)? Have there been any other outputs or outcomes with indirect/secondary benefits to the UK?
Sustainability	4	To what extent will the net benefits of the portfolio continue, or are likely to	What proportion of funded R&I outputs are open access? What is the evidence that intended evidence users (including policy makers,

		continue beyond the funded period?	practitioners and the public) are a) accessing findings and b) evidence is being used to inform policy, practice and behaviour in LMICs? What have been the next steps for early career researchers funded through the GHR portfolio? What evidence is there that funded partnerships, networks and collaborations (including new entrants to global health research) will continue beyond the duration of GHR funding? Is there any preliminary evidence that GHR portfolio activities are contributing towards strengthening LMIC institutional capacity to contribute to and lead high quality research and training (beyond the duration of GHR funding)? Is there any preliminary evidence that GHR portfolio activities are contributing towards creating the enabling environment for a thriving science and technology ecosystem in the UK?
Value for Money	5	To what extent is the GHR portfolio ensuring value for money in how research activities are being undertaken in line with the 4Es approach (economy, efficiency, effectiveness, equity)?	What early measures have been adopted to accelerate the translation of research outputs into benefits for LMIC health systems and LMIC communities? Are there any other measures that NIHR could adopt to accelerate its contribution towards impact? How is equality diversity and inclusion being considered and addressed at the awardholder/research

			team level? How effective has the portfolio been at ensuring that research benefits vulnerable groups (including those with Protected Characteristics) to improve the health outcomes of those who are left behind? How could value for money be improved?
Impact	6	What early evidence is there that the outcomes of the funded research and capacity strengthening activities have contributed towards (or are on track to/have the potential to contribute towards) intended and unintended impacts?	Intended impacts include: a) strengthened LMIC health systems to identify and respond to population needs for prevention, treatment and management of disease (in line with the Integrated Review objective of Building resilience at home and overseas), b) improved access, coverage, quality, efficiency and equity of LMIC health systems, c) increased individual/community capacity for health promotion, disease prevention and management, d) strengthened LMIC research ecosystem and e) improved health and wellbeing in LMICs (in line with SDG3)? f) sustaining the UK's strategic advantage through science and technology (Integrated Review 2021) What have been the enablers and barriers to achieving any impacts to date? What approaches have worked well or less well and in which contexts? Have there been any unintended impacts (both positive and negative)?

Process, adaptability and learning	7a	How effectively are GHR principles being implemented across the portfolio funding lifecycle (including at funding scheme and award holder level)?	GHR principles include Community Engagement and Involvement (CEI), equity (at the award holder level/within research teams/wider community engagement activities), levelling the playing field How effective has the portfolio been in facilitating new UK/LMIC entrants to global health research? Are researchers/LMIC communities being reached as intended? What has worked well and less well? What have been the barriers? Is there any evidence of spillover effects (i.e. GHR principles adopted beyond NIHR-funded work)?
	7b	How well is the portfolio adapting and embedding learning?	What changes or adjustments have been made to facilitate improved design and delivery? How well is the portfolio adapting and embedding learning on CEI at sub-national, national and international levels? How successful has the portfolio been at feeding emerging findings on economic, efficient, effective and equitable practice into portfolio delivery? How responsive has the portfolio been to changes in the broader environmental contexts (E.g. COVID)? Any lessons learnt that could be transferred to other parts of the portfolio? Have there been any examples of innovation in how the portfolio has been managed/delivered?

Evaluation approach, methodology and sampling considerations

Evaluation approach

Applicants are expected to outline their evaluation approach and how they will manage the challenges inherent in evaluating research impact. Applicants should be aware of the need for a balanced approach between capturing short and medium term outcomes and longer term impacts (which may require proxy measures given the time lags between conducting research and achieving impact - see Technopolis, 2019). Proposals will also be assessed on their ability to mobilise a wide range of expertise and to ground the evaluation in strong conceptual and theoretical frameworks, which should be clearly explained.

Evaluation timeline

As the majority of activities funded during the first phase of the portfolio will draw to a close within the next two-three years (see Supplementary Annex C for funding scheme start and end dates), and recognising that outcomes and impacts will continue to emerge beyond funding completion, **it is anticipated that this will comprise of a multi-year and multi-staged evaluation with deliverables at the end of each stage**. An indicative timeline for stages and deliverables is outlined in Table 2 – Applicants may propose amendments to this indicative timeline provided that these can be justified and all Key Evaluation Questions are answered.

Table 2: Indicative Timeline of Deliverables

Stage	Deliverable	Due Date
Inception Stage	End of inception workshop	Within 5 months of award of contract
	Inception report	Within 6 months of

		award of contract
Interim stage	End of interim stage fieldwork workshop	Within 10 months after contract signature
	Interim stage report	Within 12 months after contract signature
Final stage	End of final stage fieldwork workshop	Within 22 months after contract signature
	Final stage report	Within 24 months after contract signature
	Communication and uptake of key evaluation findings with key stakeholders	Within 25 months after contract signature
	Final summary report delivered, along with the anonymised data, sampling frames and research instruments	Within 26 months after contract signature

Methodology

Applicants will need to consider the most appropriate methods for responding to the evaluation questions and engaging with the following key stakeholders:

- DHSC GHR team
- Independent Scientific Advisory Group
- Co-funders (organisations financially contributing to the funding scheme)
- Delivery partners (organisations responsible for administering the funding schemes on behalf of DHSC – these may also be co-funders)

- Funding committee members
- Funding applicants
- Research teams
- Research participants
- LMIC academic institutional authorities
- Evidence users (LMIC policy makers, LMIC health practitioners, LMIC community members)

Applicants will need to specify which methods they intend to use to respond to the evaluation questions. A list of potential methods follows, but we are open to additional and/or innovative methods.

- Review of key portfolio documentation – including accountability and transparency reports, MEL strategy (including the GHR portfolio results framework – see Supplementary annex C), funding applications, monitoring data (collected through either annual reporting or Researchfish), annual and final project reports, project communications materials, annual and programme completion reviews, previous evaluation reports.
- Review of secondary literature to identify LMIC priority areas of health research e.g. national/regional strategic plans, policy documents
- Rapid evidence review/systematic review
- Bibliometric analysis – including data science techniques to assess how research outputs have been used to inform evidence-based policy making (see Wellcome Data Labs Reach and Wellcome Trust GitHub)
- Social network analysis e.g. across awards, within countries/themes
- Economic evaluation, Return on Investment analysis and Value for Money assessments in research for development
- Primary data collection: Surveys
- Primary data collection: Interviews/focus group discussions
- Primary data collection: Study site visits
- Primary data collection: Case studies

Sampling considerations

Recognising the complexity of the GHR portfolio, we expect the successful applicant to use the inception period to develop an appropriate sampling approach. Applicants will be expected to make it clear in their proposals which KEQs and sub-questions they intend to respond to on the basis of all funded activities, and which KEQs and sub-questions they intend to respond to on the basis of a sub-sample of funded activities (although the specific sample characteristics may be developed during the inception period).

Key sampling considerations include (but are not limited to):

- Duration of funding
- Funding level – the successful applicant will need to ensure that they sample across the full range of award funding levels. For example, in order to enable comparisons between funding schemes with similar objectives but differing budgets.
- Funding type – the successful applicant will need to ensure that all grant-funded activities are represented within the sample. These include FIND, GCC, R2HC and RSTMH.
- To avoid duplication, we would advise excluding activities from primary data collection activities that have previously been or are currently subject to independent evaluation (e.g.JGHTs, GFGP, CEPI, GACD, certain aspects of R2HC – Please see Background Documents below) although the successful applicant will be expected to incorporate the interim and final evaluation reports within the documentation review.

The Requirements

Deliverables

The successful applicant will be expected to deliver the following outputs within the agreed timescales and standards. Further detail will be clarified during the inception stage of the contract.

a. End of inception workshop
b. Inception report
c. End of interim stage fieldwork workshop
d. Interim stage report (2022-2023) based on findings from Interim stage primary data collection

e. End of final stage fieldwork workshop
f. Final stage report (2023-2024) based on findings from Final stage primary data collection (including annexed impact case studies)
g. Summary report of key findings and recommendations across Interim and Final reports and an updated Theory of Change (diagram and evidence-based narrative).
h. Communication and uptake materials of evaluation findings with key stakeholders
i. Provide DHSC with unlimited access to all materials produced, including anonymised and quality assured research data (including survey data and interview/focus group transcripts), sampling frames and research instruments.

Assessment criteria

Applicants are expected to include in their application relevant information in line with the assessment criteria outlined below.

a) Evidence of understanding subject area

a.1. Does the application demonstrate an awareness and understanding of the global health research funding landscape and ODA funded programmes?
a.2. Does the application demonstrate an awareness and understanding of previous relevant research and evidence in the area of health research impact pathways?

b) Quality of the research design

b.1. How appropriate is the proposed research design and methodology for responding to the Key Evaluation Questions?
b.2. To what extent is the proposed design and methodology (including proposed sampling approach for capturing the diversity of projects and indicative sample sizes) for all elements of the research well defined, appropriate, fully justified, valid and feasible within the timeframe and resources requested?

c) Quality of the work plan and proposed management arrangements

c.1. How appropriate are the work plan and management arrangements? Have clear milestones and breakpoints been proposed? How likely is it that these will be met within the specified timeframe and budget?
c.2. How appropriate are the levels of staffing,

management roles and responsibilities, plan for engaging with DHSC and processes for quality assurance?
c.3. Have the applicants identified key risks to delivery? Have these been adequately addressed?
c.4. Are governance and data management arrangements robust?
c.5. Has appropriate consideration of ethical and data protection issues, their potential impact on the research being undertaken and evidence of compliance with DHSC guidelines
c.6. Has the applicant confirmed that they have capability to manage their Duty of Care responsibilities throughout the life of the contract - including responding to the questions outlined in the duty of care section?
c.7. Has the applicant acknowledged that they have reviewed the T&Cs of the PRP contract and that these are acceptable?

d) Skill, experience and evaluation team composition requirements

d.1. Does the Principal Investigator appear suitably qualified and experienced to lead the proposed work? Are the leadership and management arrangements convincing and coherent?
d.2. Are the roles and responsibilities of the team members clearly described? For consortia applications, applicants should clearly outline the roles and responsibilities of the different organisations and working arrangements.
d.3. Does the research team provide the necessary breadth and depth of expertise (as outlined in the application form and in attached CVs of the core evaluation team) to deliver the proposed work? To include demonstrable experience in:

i. the specific evaluation approaches and methods proposed for evaluating research impact.
ii. working with relevant stakeholders/populations - securing engagement and conducting evaluations with a range of international stakeholders including global health research funders and delivery partners, academia, research participants, LMIC policy makers and health practitioners, and LMIC community members
iii. effectively managing and delivering similar-scale high quality international portfolio

evaluations (including ODA funded) on time and to budget

d.4. Does the evaluation team meet the requirement for diversity and gender balance and propose to work with local/national evaluators where appropriate?

e) Impact of the proposed work

e.1. Are dissemination and stakeholder engagement plans clearly described and credible? Are the identified audiences appropriate and their needs considered? Are there specific resources and competencies dedicated to these activities?

f) Value for money

f.1. Has the applicant provided a detailed breakdown of costs for each task?
f.2. Has the applicant confirmed that the submitted costs will be valid for 150 days?
f.3. Does the proposal sufficiently justify the resources required to deliver the proposed work?
f.4. Do the proposed costs demonstrate value for money?
f.5. Is the time committed by the applicants realistic to ensure delivery?

Risks

Applicants should outline anticipated risks in their proposal and related mitigating strategies.

Use and Influence

Applicants should consider the full range of potential audiences (outlined below) and describe how the research findings could be disseminated most effectively to ensure that the lessons inform the development and delivery of the next phase of the portfolio.

The successful applicant should be prepared to deliver approximately 2 dissemination presentations (or workshops) per Stage to DHSC and other key stakeholders. This will be reviewed throughout the project, working with the DHSC project manager, to ensure that communication and dissemination is delivered only when appropriate and where this adds value.

The primary audiences for the evaluation findings are the DHSC GHR team, co-funding partners and delivery partners (including NIHR Coordinating Centres and any transferable learning for domestic programmes). As the Phase 1 evaluation will be running in parallel to new funding schemes and calls being launched under Phase 2 of the portfolio, findings will need to be fed in on a timely basis to inform strategic decision making and future programming, and to improve our processes.

Additional audiences include other ODA spending R&I teams (both within DHSC and across government) and other UK and global funders of health research to increase understanding of DHSC/NIHR's role as a global health research funder, facilitate coordination and collaboration, and to share lessons learnt regarding what does and does not work in ODA-funded Research and Innovation.

The performance evaluation findings on understanding the effectiveness of spend to date will be of interest to DHSC Permanent Secretary and Ministers, HMT, ICAI and other scrutiny bodies, and ultimately provide accountability to UK taxpayers and the wider LMIC public (for whom the portfolio is intended to be of direct and primary benefit).

Other potential audiences include research participants and the wider research community, evaluation consultancies and NGOS, who could learn from any findings relating to increased understanding of research impact mechanisms.

Timeframe and Break points

This evaluation is expected to run from November 2021 – January 2024, subject to successful delivery of milestones and interim products. Applicants are asked to propose meaningful breakpoints in their research plan which will enable the review of key milestones/deliverables, take stock of key learning and refine plans for subsequent stages. Note that continuation following breakpoints is also subject to DHSC's decision on the practicality and value of further stages.

Evaluation management, working arrangements and governance

Evaluation management – roles and responsibilities

A project manager within the DHSC GHR team will act as the formal point of contact between DHSC and the successful applicant.

DHSC responsibilities:

DHSC will be responsible for enabling access to internal portfolio documentation and introducing the evaluation team to relevant participants within the DHSC GHR team, Independent Scientific Advisory Group, co-funders and delivery partners.

As GHR awards are delivered through delivery partners, DHSC expects the successful applicant to work directly with them to achieve the evaluation objectives. DHSC will send a blanket email to all partners introducing the evaluation and the successful applicant (in line with evaluation clauses included within existing partnership agreements). The successful applicant is expected to contact delivery partners directly and recruit the required sample for the evaluation – DHSC can support this process by drafting an introductory email, to encourage engagement with the evaluation.

DHSC will review and comment on the proposed approach, research instruments, sample design and draft reports. The interim and final reports will be subject to internal review and quality assurance by DHSC, and any reports to be published may be independently quality assured. DHSC will provide additional guidance on report format and length, and provide a reporting style guide to the successful applicant. Publication of PRP-commissioned research is subject to the conditions set out in the PRP contract.

Successful applicant's responsibilities:

In their proposal, applicants should explain how their team will be structured, the anticipated roles and responsibilities, and be clear on leadership and points of contact.

Following introductions of the evaluation team by DHSC to relevant participants within the DHSC GHR team, Independent Scientific Advisory Group, co-funders and

delivery partners, the successful applicant will then be responsible for:

- engaging those stakeholders within evaluation activities,
- through co-funders and delivery partners, identifying participants from the following stakeholder groups: funding committee members; funding applicants; research teams
- through research teams, identifying participants from the following stakeholder groups: research participants, LMIC policy makers, LMIC health practitioners, LMIC community members

Applications should set out how quality will be assured throughout the evaluation and in all outputs (before delivery of drafts). Sign-off for the quality assurance must be done by someone of sufficient seniority to be able take responsibility for the work done. All analysis and interpretation must be documented and findings should be fully triangulated between sources. The evidence base for findings must be clearly and consistently stated (although anonymised), and traceable to their source. The quality assurance plan must consider and include as minimum standards those measures detailed in the Government Social Research Code, The Green Book, The Magenta Book, FCDO's Ethics principles for research and evaluation and FCDO's approach to value for money.

All outputs must be in the format and of the length agreed following the award of the contract, and must have been subject to thorough quality assurance by the successful applicant prior to being submitted to DHSC.

Note that all reports should be of suitable quality and standard to be made publicly available. The successful applicant should account for two rounds of substantial review and therefore three rounds of drafting before sign-off.

Publication of PRP-commissioned research is subject to the conditions set out in the PRP contract.

DHSC-successful applicant working arrangements

DHSC expects close interaction between the DHSC project manager and the successful applicant throughout the duration of the contract to ensure that DHSC are kept updated on progress and emerging issues are dealt with promptly.

The successful applicant will be required to:

- participate in a Project Initiation Meeting
- maintain fortnightly contact with the DHSC project manager during the inception period
- provide brief monthly written updates to DHSC outlining the progress of the evaluation
- followed by monthly project management meetings
- facilitate workshops in advance of delivering each written output.

Evaluation governance

DHSC proposes to establish an Evaluation Steering Group to oversee and be consulted at key decision and review points throughout the lifetime of the evaluation. The purpose of the Evaluation Steering Group will be to ensure that the evaluation and any outputs are relevant to key stakeholder needs. This group will include individuals responsible for implementing any evaluation recommendations.

The Evaluation Steering Group will be made up of members including:

- Head of Research Programmes
- Head of Global Health Research Programmes (or G7 to deputise)
- Head of Global Health Research Partnerships (or G7 to deputise)
- DHSC GHR Programme Manager
- DHSC GHR MEL Lead
- ISAG representatives
- DHSC may invite other co-funders and delivery partners to nominate a representative, with discretion to also invite a research impact/evaluation specialist to attend.

GDPR, data security and data transfer

The successful applicant will be compliant with the Data Protection Legislation, as defined in the Call of Contract. Guidance can be found in the General Data

Protection Regulation (GDPR) published by the Information Commissioner's Office.

The successful applicant will be required to safely and securely hold any information relating to this project and maintain confidentiality on the details of the project. Any data from research must not be shared with any third parties.

The successful applicant must ensure that any data transferred to DHSC is anonymised and, where access should be restricted, encrypted.

Ethical considerations

The responsibility for ethical conduct during the research lies with the successful applicant.

Proposals should outline their view of the ethical considerations for this evaluation and spell out how they plan to address these (including whether external ethics approval is needed) in accordance with the 'Do no harm' principle. Applicants are requested to be particularly alert to ethical considerations in relation to any engagement with research participants and LMIC communities, and are requested to consider principles of respect, participation, inclusion and feedback at each stage of the evaluation.

Applicants will be expected to have an ethics policy/code (consistent with the Social Research Association Research/Ethical Guidelines, Government Social Research Ethics checklist, and FCDO's Ethical guidance for research, evaluation and monitoring activities (.PDF)) and apply ethical clearance protocols, where appropriate. Applicants will also need to conform to FCDO's guidance on safeguarding: Enhanced Due Diligence – Safeguarding for External Partners.

Applications should set out how they propose to ensure the confidential treatment of project documentation and data collected throughout the evaluation.

Budget

The GHR portfolio contract has a budget of up to a maximum of £1m excluding VAT but including any applicable international taxes and expenses. Applicants must provide a cost estimate for their proposed work broken down by method, any bid over £1m (excluding

VAT) will be deemed non-compliant and will not be evaluated.

DHSC will not pay any travel and subsistence costs in addition to the costs accepted as part of this quotation. The cost estimate (exclusive of VAT) must be inclusive of any travel and subsistence costs.

Contractors should provide a full and detailed breakdown of costs for each task. This should include staff (and day rate) allocated to specific tasks. We also expect details about staffing costs e.g. travel and accommodation etc.

We recognise that cost allocation may change as a result of the inception phase, and applicants may want to factor this into their cost estimates to account for changes in costs as the research project progresses, noting that the maximum budget of up to £1m will remain the limit.

DHSC reserves the right to amend the contract to increase the scope of activities required of the Supplier, so long as the budget permits this and any additional activities meet the objectives of the GHR portfolio evaluation project. Contract amendments would be managed by a formal variation process.

DHSC also reserves the right to reduce project activities and subsequently the value of the contract, and will work with the Supplier to revise costs and activities, which will be formalised as a variation to the Call off Contract.

Applicants will be required to confirm in writing that their price proposal will be valid for a minimum of 150 calendar days from the date of submission. This should be adequate time for the contract to be awarded to the Supplier.

All Applicants should consider value for money when preparing their proposals, as well as – if selected – throughout the implementation of the programme. Applicants are expected to show wherever possible how they can deliver the same for less and achieve savings.

Location

This project will take place remotely, and at any locations deemed necessary to conduct this work. We would anticipate that this would include primary data collection across a range of LMICs.

Meetings/workshops will be either hosted at DHSC 39 Victoria Street, London, conducted via video conference, or a combination of the two. The evaluation team may use video conferencing for some participation, but should

budget for core members to attend a minimum of one meeting and one workshop per year.

Duty of care

All personnel (including their employees, sub-contractors or agents) who provide services under a DHSC contract will come under the Duty of Care of the lead applicant named in that DHSC contract. The lead applicant is responsible for the safety and well-being of their personnel, and any third parties affected by their activities, including appropriate security arrangements. Travel advice is available on the Foreign, Commonwealth and Development Office (FCDO) website and the contracted team must ensure that they are up to date with the latest position. The lead applicant will also be responsible for the provision of suitable security arrangements for their domestic and business property.

Applicants must comply with the general responsibilities and duties under relevant health and safety law including appropriate risk assessments, adequate information, instruction, training and supervision, and appropriate emergency procedures. These responsibilities must be applied in the context of the specific requirements the Supplier will be contracted to deliver.

Applicants must develop their proposal on the basis of being fully responsible for Duty of Care in line with the details provided above. Applicants must confirm in the proposal that they have capability to manage their Duty of Care responsibilities throughout the life of the contract. Applicants should consider the following questions in this regard:

- Have you completed an initial assessment of potential risks that demonstrates your knowledge and understanding, and are you satisfied that you understand the risk management implications?
- Have you prepared an outline plan that you consider appropriate to manage these risks at this stage (or will you do so if you are awarded the contract) and are you confident/comfortable that you can implement this effectively?
- Have you ensured or will you ensure that your staff (if any), are appropriately trained (including specialist training where required) before they are deployed and will you ensure that on-going training is provided where necessary?

- Have you an appropriate mechanism in place to monitor risk on a live / on-going basis (or will you put one in place if you are awarded the contract)?

- Have you ensured or will you ensure that your staff (if any) are provided with and have access to suitable equipment and will you ensure that this is reviewed and provided on an on-going basis?

- Have you appropriate systems in place to manage an emergency / incident if one arises?

Background documents

- NIHR has collaboratively developed a Theory of Change (and accompanying narrative) to visually represent the Global Health Research Portfolio and the logic through which the portfolio aims to bring about its intended outcomes and impacts. On the basis of this Theory of Change, NIHR has also developed a results framework to track inputs, activities, outputs and outcomes. See Supplementary Annex D.

- Cabinet Office: The Integrated Review 2021

- NIHR Open Data – note that this covers directly funded Programme strand awards but excludes Partnership strand awards

- Please see documentation available for the GHR portfolio on Development Tracker - this includes annual reviews (which illustrate our monitoring approach). For example, Global Health Research Units and Groups Call 1, EDCTP, and Grand Challenges Canada Global Mental Health.

- Previous evaluations of schemes within the GHR portfolio include:
    - Technopolis, Review of Joint Global Health Trials evaluation, 2019

    - Review of Good Financial Grants Practice, 2021 (to be shared with the successful applicant)

    - CEPI, Mid-term Review and COVID-19 Response Review, 2021 (.PDF)

    - GACD, forthcoming 2021

    - R2HC - These include a Learning Paper commissioned on the role of research evidence on informing humanitarian decision-making and improving humanitarian

programmes and interventions (see Consultancy: Use of research evidence in changing humanitarian practice) and a process evaluation of the R2HC Responsive Mechanism (see Evaluation of the R2HC Responsive Mechanism (Closed))

- Other external evaluations and approaches to measuring research impact which may be relevant include:
  - IDRC RQ+
  - Global Challenges Research Fund Evaluation Foundation Stage (.PDF), 2018
  - Newton Fund evaluation reports
  - Wellcome Trust Success Framework report, 2020

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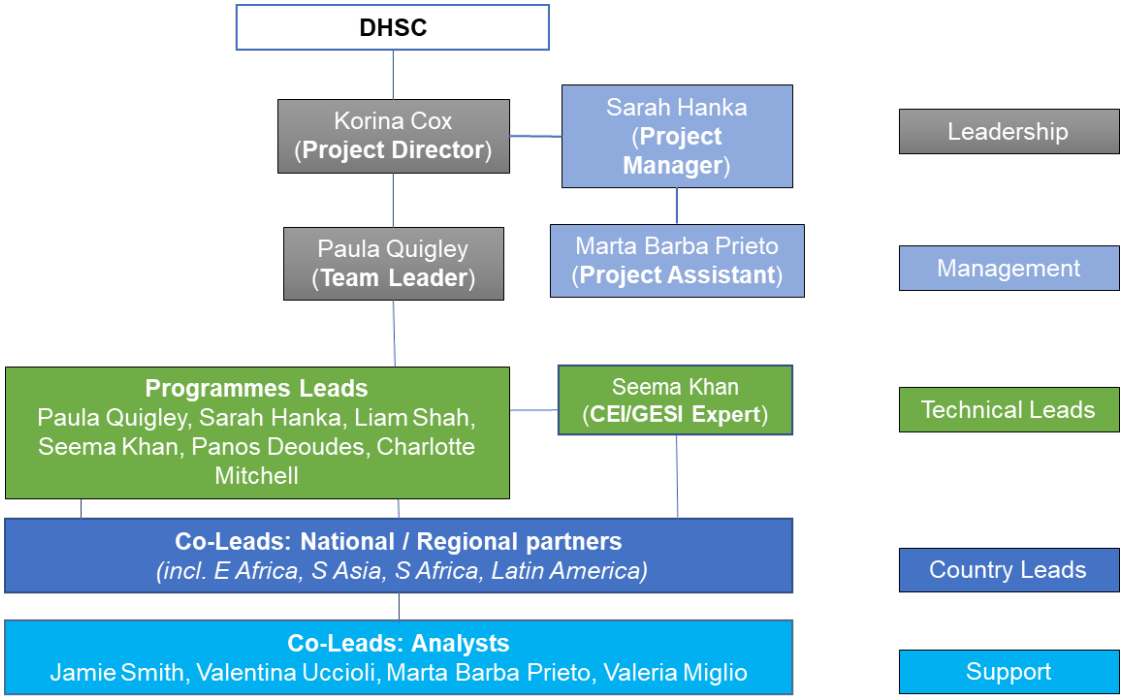
2. Evaluation team organogram

The organogram sets out the composition and reporting relationships of the evaluation team.

Figure 1. Composition and reporting relationships of the evaluation team



3. Dissemination and uptake plan

3.1 Introduction

This dissemination and uptake plan describes how the evaluation team will communicate results of the evaluation, with a specific focus on outlining target audiences and strategies for evidence uptake. The overall aim of dissemination is to ensure that evaluation users can access and benefit from the evidence on health research capacity building, partnerships and CEI generated during the first phase of the GHR portfolio. The following objectives have been identified:

1. Increase awareness and understanding among policymakers, researchers, and healthcare professionals regarding the importance and impact of health research capacity building, partnerships, and CEI in GHR portfolio

2. Inform policy and practice by disseminating evaluation findings that inform evidence-based decision-making and encourage the adoption of effective strategies and interventions in health research capacity building, partnerships, and CEI

3. Forster collaborations and knowledge exchange among stakeholders involved in health research capacity building, partnerships, and CEI, both with GHR portfolio and across relevant sectors and organisations.

To achieve these objectives, the following principles will guide engagement and dissemination:

- Impact – The evaluation team will work closely with DHSC and NIHR to ensure that communication and dissemination is delivered only when appropriate and where it adds value. The team has leveraged knowledge on NIHR networks and institutional linkages via the Social Network Analysis to inform the development of targeted knowledge products and events that respond to the specific needs and priorities of different stakeholder categories. To increase engagement of the wider policy audience, the evaluation team will convene knowledge exchange events through established platforms (e.g., UKCDR).

- Inclusion – The evaluation team will aim to minimise access barriers to dissemination outputs, including by tailoring languages and formats of knowledge products and events to reflect target audiences. In-country partners will support dissemination and learning to help ensure voices of local communities are captured, well-reflected and are at the forefront of knowledge products.

- Collaboration – Throughout the evaluation, Ecorys has established and maintained contact with key stakeholders at portfolio, programme, and award levels and provided opportunities for feedback and interaction as needed to ensure that the process is responsive and helpful to key stakeholders. The team will ensure that this feedback is integrated in the process of extracting findings and lessons for dissemination.

A variety of written outputs will be produced, including learning briefs and social network analysis infographics. Regional partners within the evaluation will lead delivery of in-country workshops and the wider evaluation team will deliver at least one webinar/conference event.

The following sections provide detail on our planned approach, target audiences, communication tools and channels, and dissemination timelines. The scope and content of this plan is subject to further discussion and refinement with DHSC, as part of the finalisation of the final evaluation phase workplan in July 2023.

3.2 Target audiences

The specific target audiences for dissemination may vary based on the context (from country or research), objectives and stakeholders involved in the research project. At the inception stage, the evaluation team completed a mapping of stakeholders to understand the full range of potential audiences and tailor research tools and dissemination outputs accordingly. Table 1. outlines the key categories of stakeholders identified and their expected use of evaluation findings.

Table 1. Key stakeholders for the dissemination of evaluation findings

Category	Stakeholders	Examples from stakeholder mapping	Use and Influence
Primary audiences	NIHR partners	▶ DHSC GHR team ▶ NIHR Academy ▶ CCF ▶ NETSCC	Use evaluation findings and outputs to guide reflection and learning around the suitability of the design and implementation of the first phase of the GHR award in achieving its intended results and identify key learning to inform the development and delivery of the portfolio's second phase.
	Co-funding and delivery partners	▶ EDCTP ▶ MRC ▶ FCDO ▶ ELRHA/Save the Children UK ▶ EPSRC ▶ MMV ▶ World Bank ▶ WHO ▶ Tuberculosis (TB) Alliance ▶ GARDP ▶ Wellcome ▶ ESRC ▶ GCC ▶ FIND ▶ AAS ▶ RSTMH	

Additional audiences	ODA spending Research and Innovation teams both within DHSC and across HMG		Use evaluation findings and learnings to develop an increased understanding of DHSC/NIHR's role as a global health research funder, facilitate coordination and collaboration, and to share lessons learnt regarding what does and does not work in ODA-funded Research and Innovation.
	Research participants and the wider research community, evaluation consultancies and NGOs		Access and learn from any findings relating to increased understanding of research impact mechanisms.
	DHSC Permanent Secretary and Ministers, HMT, ICAI and other scrutiny bodies		Understand the effectiveness of spend to date to provide accountability to UK taxpayers and the wider LMIC public

3.3 Dissemination activities

By utilising a variety of dissemination channels, the evaluation team will ensure the results are accessible, engaging, and relevant to both GHR portfolio and a wider policy audience. Specific activities and their format and audience are proposed in the table below.

Table 2. Communication and dissemination plan

When	Communication and Dissemination Activity			
	Activity / Product	**Content**	**Dissemination format**	**Audience**
January 2024	**NIHR & DHSC Stakeholder Workshop**	Discussion on findings and recommendations from the evaluation and their implications for the future of the portfolio and the GHR sector. Presentation of refined theory of change	Remote workshop plus recording and minutes shared by email for participants who could not attend live	DHSC GHR team
January 2024	**Summary Evaluation Report**	Concise evaluation summary including key findings and recommendations. This can include recommendations for an updated ToC relevant to the second phase of the GHR portfolio	Summary evaluation report, circulated by email to GHR team, co-funding, and delivery partners; published more broadly on NIHR Open Research and disseminated via social media (e.g., @NIHRglobal on Twitter, LinkedIn)	NIHR partners, co-funding and delivery partners, ODA R&I teams, scrutiny bodies, health research and policy community

January 2024	**Learning Briefs**	4-6 tailored knowledge products, which draw on programme case studies and highlight key findings through 'impact stories' and social network analysis infographics as well as lessons for global health research across each cross-cutting theme of the portfolio. Thematic and geographic areas of focus decided with DHSC in the final evaluation.	Learning briefs circulated by email to GHR team, co-funding, and delivery partners; published more broadly on NIHR Open Research and disseminated via social media (e.g., @NIHRglobal on Twitter, LinkedIn)	NIHR partners, co-funding and delivery partners, ODA R&I teams, scrutiny bodies, health research and policy community
February 2024	**Country Workshops**	Context-specific findings and learnings	In-person or hybrid workshops plus recording and minutes shared by email for participants who could not attend live	In-country delivery partners, research participants, local NGOs
February 2024	**Global Webinar**	Findings of relevance to the global health sector	In-person workshop plus recording and minutes shared by email for participants who could not attend live	Global health research community
February 2024	**Global Health Community Conference**	Sessions focused on the NIHR GHR portfolio, specifically around health research capacity building, partnerships and CEI.	One-day in-person or hybrid conference held at UKCDR, plus promotional social media posts / blogs.	Global health research community

4. GHR Portfolio overview

The table below summarises all 30 programmes in the portfolio, including details on the delivery partners, and approximate number of awards during the first phase.

Table 3. GHR Portfolio overview

GHR Programme		Delivery Partner	App. Awards[1]
1.	Global Health Research (GHR) Groups	NETSCC	40
2.	Global Health Research (GHR) Units	NETSCC	13
3.	Research & Innovation for Global Health Transformation (RIGHT)	CCF	14
4.	Global Health Policy and Systems research (HPSR) Development Awards	NETSCC	22
5.	Global Professorships	NIHR Academy	5
6.	Financial Assurance Fund (FAF) for Call 1 GHR Units and Call 1 and 2 GHR Groups	NIHR Academy	N/A
7.	Global Health Research Short Placement Award for Research Collaboration (SPARC)	NIHR Academy	N/A
8.	European and Developing Countries Clinical Trials Partnership (EDCTP)[2]	EDCTP	23
9.	Joint Global Health Trials Initiative (JGHTI)[3]	MRC	96
10.	Coalition for Epidemic Preparedness Innovations (CEPI)	Multi-donor trust fund managed by International Bank for Reconstruction and Development (IBRD) as Trustee of the CEPI Trust Fund	N/A
11.	Research for Health in Humanitarian Crises (R2HC)[4]	ELRHA/Save the Children UK	46
12.	Diagnostics, Prosthetics and Orthotics to Tackle Health Challenges in Developing Countries	EPSRC	13

[1] Based on the datasets shared by the respective programme leads. 'N/A' shows programmes which did not present datasets.
[2] EDCTP 2016 workplan, EDCTP 2017 workplan, EDCTP 2018 workplan, EDCTP 2020 workplan
[3] JGHTI Calls 1-6 /MRC, JGHTI Calls 7-11 /MRC
[4] R2HC Phase III/ Save the Children UK, R2HC Phase 4/ ELRHA

13.	Anti-Microbial Resistance (AMR) in a Global Context	MRC	N/A
14.	Research to improve Adolescent Health In Low- and Middle-income Countries (LMIC)[5]	MRC	29
15.	Global Road Safety Facility (GRSF)	World Bank	N/A
16.	Structured Operational Research and Training Initiative on building sustainable operational research capacity on AMR in LMICs (AMR-SORT IT)	WHO TDR	N/A
17.	Global Alliance TB Drug Development	TB Alliance	N/A
18.	Global Antibiotic Research and Development Partnership (GARDP)'s Neonatal Sepsis Programme	GARDP	5
19.	NIHR-Wellcome Global Health Research Partnership	Wellcome	33
20.	Antimicrobial Resistance (AMR) Cross-Council Initiative: Behaviour Within and Beyond the Healthcare Setting	ESRC	2
21.	Grand Challenges Canada (GCC)'s Global Mental Health	GCC	22
22.	Global Effort on COVID-19 (GECO) Health Research	MRC	21
23.	Global Alliance for Chronic Diseases (GACD)[6]	MRC	9
24.	Biomedical Resources Grant	Wellcome	1
25.	Royal Society of Tropical Medicine and Hygiene (RSTMH)'s Early Career Researcher Grants Scheme (previously known as 'Small grants scheme')[7]	RSTMH	231
26.	Good Financial Grants Practice (GFGP)	AAS	N/A
27.	Global Maternal and Neonatal Health	MRC	22
28.	Medicines for Malaria Venture (MMV)	MMV	N/A
29.	Global Patient Safety Collaborative (GPSC)	WHO	N/A
30.	Foundation for Innovative New Diagnostics (FIND)	FIND	N/A

[5] Adolescent Health Call 2/MRC, Adolescent Health Call 3/MRC, Adolescent Health Call 4/MRC
[6] GACD Mental Health, GACD Hypertension / Diabetes
[7] Small grants 2019/RSTMH, Small grants 2020/RSTMH

5. Final evaluation framework

EVALUATION QUESTIONS	PRINCIPAL JUDGEMENT CRITERIA	ANALYTICAL APPROACH	INDICATIVE DATA SOURCES
1. RELEVANCE: To what extent is the GHR portfolio addressing priority areas of health research in LMICs where there is unmet need as identified by government and/or civil society in the relevant countries?			
1.1. To what extent was the design/development of the portfolio and funding allocations guided by evidence of priority areas of health and health research in LMICs?	**JC1.** Extent to which DHSC sought and applied existing and emerging evidence and information to inform the design of the portfolio and its programming and funding decisions. **JC2.** Extent to which evidence on health inequalities and population groups/geographies with health needs and socio-economic disadvantages was prioritised and whether efforts were made to understand drivers and root causes of health inequalities. **JC3.** Quality of data collection, monitoring and analysis of priority areas of health research to inform funding decisions (including whether consultations with government or civil society took place at award level stage). **JC4.** Extent to which at the award level stage funding aligns with country contexts (including gender and inclusion context) and the interests of the country governments and civil society.	**A1. Rapid Evidence Assessments (REAs):** Review of academic literature to understand global, regional and country health needs and priorities. **A2. Portfolio assessment:** Assessment of the GHR portfolio's design and the extent to which the portfolio aligns with priorities of health research in LMICs as identified in recent evidence or by countries. **A3. Delivery mechanism assessment:** Assessment of the relevance of delivery mechanisms to meet the health research needs in LMICs. **4. Funding call assessments:** Extent to which funding calls and awards align with health policies in LMICs.	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, funding calls ▶ Award document review: Funding applications, research plans, relevant award reports, Outcome letter with Committee feedback ▶ External documentation: Academic literature related to global and regional health needs and priorities, grey literature **Primary data:** ▶ Strategic interviews: KIIs with key portfolio stakeholders and external stakeholders to understand the extent to which funding decisions are guided by evidence ▶ Case study interviews: KIIs and FGDs with case study stakeholders to provide more in-depth analysis on

			whether there is variation across the portfolio on whether funded research aligns with country contexts ▶ Survey data: Portfolio-wide data to assess perceptions on how far stakeholders believe funding allocations are guided by evidence
1.2. To what extent were researchers and key country stakeholders consulted in the design/development of the GHR portfolio where relevant?	**JC5.** Extent to which researchers, other funders and policy makers in the UK (e.g., DHSC international directorate, FCDO) and LMICs were involved in the design of the portfolio. **JC6.** Extent to which researchers in LMICs feel that they were meaningfully involved in ensuring funded activities meet health needs and policy makers' requirements	**A5. Portfolio assessment:** Assessment of the extent to which a diverse range of UK and LMIC researchers and country stakeholders (those engaged with issues for specific populations, women, marginalised groups, those from different disciplines) informed the design/ongoing development of the portfolio where relevant. **A6. Delivery mechanism assessment:** Assessment of the extent to which researchers informed the design of the various delivery mechanisms of the portfolio where relevant. **A7. Award level assessment:** Assessment of degree to which researchers, policy makers and community stakeholders feel funding is meeting the health needs of LMICs, and the delivery mechanisms support the building of equitable partnerships and effective community engagement and involvement.	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, externa evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, funding calls ▶ Award document review: Funding applications, research plans, relevant award reports ▶ **Primary data:** ▶ Strategic interviews: KIIs with key portfolio stakeholders and key policymakers to understand whether consultations were held to inform the design of the portfolio ▶ Case study interviews: KIIs and FGDs with country level and regional level researchers, policymakers, and civil society organisations to understand whether there was opportunity to feed into the design of the portfolio of calls and/ or funding awards ▶ Survey data: portfolio wide data to assess perceptions on how far stakeholders believe the portfolio of calls and/or awards was informed by views of researchers and key country stakeholders, including communities and how this changed over time

2. COHERENCE: To what extent is the portfolio a coherent funding mechanism to meet its stated outcomes? (i.e., supportive of complementarity, harmonisation and co-ordination within the portfolio and externally)			
2.1. To what extent do the selected delivery mechanisms and funded awards of the portfolio synergise and contribute to achieving the overall objectives as outlined in the ToC and results framework?	**JC7.** Degree to which the portfolio and funded activities are complementary and fitting with the programme's aims and objectives? **JC8.** Extent to which there are opportunities for coordination and collaboration across funded activities, to promote synergies and make the "sum greater than the parts".	**A8. Portfolio assessment:** Assessment of the plausibility of funded activities contributing towards ToC objectives. **A9. Delivery mechanism assessment:** Extent to which the delivery mechanisms align with and contribute to the overall portfolio. Extent to which there is internal coordination and collaboration across the delivery mechanisms. **A10. Award level assessment**: Assessment of whether there are opportunities for coordination and collaboration across funded activities within an award or across related awards.	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, call documentation ▶ Award document review: Funding applications, research plans, relevant award reports, dissemination strategies Primary data: ▶ Strategic interviews: KIIs with key portfolio stakeholders to understand whether there are mechanisms that allow for internal coordination and collaboration of funded activities ▶ Case study interviews: KIIs and FGDs with case study stakeholders to understand fit of the parts of the portfolio into the overall programme ToC, and assess whether coordination and collaboration between funded activities occurs at any level. ▶ Survey data: Portfolio-wide data to understand perceptions on the extent of internal coordination and collaboration and obtain examples.
2.2. How far is the portfolio coordinating and collaborating with other UK (ODA-funded), partner	**JC9**. Degree to which the portfolio engages and collaborates with other UK and global health research funding initiatives.	**A11. Portfolio assessment:** Assessment of the GHR portfolio's approach to coordination and collaboration with other UK and	**Secondary data:** ▶ Portfolio document review: Theory of Change, MEL documents, annual reviews, external evaluations

country and global health research initiatives?	**JC10**. Degree to which the portfolio coordinates with country level research initiatives. **JC11**. Degree to which the portfolio ensures engagement with other funders to mitigate duplication and promote efficiency.	global health research funding initiatives and comparison where feasible to other initiatives. **A12. Portfolio assessment:** Investigation of the extent to which the GHR portfolio adds value vis-à-vis related initiatives. **A13. Delivery mechanism assessment:** Assessment of how delivery mechanisms collaborate and coordinate with other funding initiatives on similar topics and how co-funders (Partnerships) are integrated into the design of funding GHR programmes. **A14. Award level assessment:** Assessment of coordination between GHR awards and other related research. A focus will include the added value of having multi-funder awards.	▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, funding calls ▶ Award document review: Funding applications, research plans, relevant award reports ▶ External documentation: Relevant partner country and regional level policies and documentation on relevant research initiatives, grey literature **Primary data:** ▶ Strategic interviews: KIIs with key portfolio stakeholders and key policymakers to assess the extent the portfolio is coordinating and collaborating with relevant research initiatives globally, regionally and nationally ▶ Case study interviews: KIIs and FGDs with case study stakeholders to understand whether coordination and collaboration with other relevant research initiatives occurs and any results of this ▶ Survey data: Portfolio-wide data to assess perceptions on how far the portfolio coordinates and collaborates with relevant research initiatives globally, regionally and nationally
3. EFFECTIVENESS: How effective has the GHR portfolio been in achieving its intended interim results?			
3.1. To what extent has the GHR portfolio resulted in the production and dissemination of scientifically important and policy-relevant outputs?	**JC12.** Number of research outputs produced across the portfolio.[11] **JC 13**. Scientific importance and policy relevance of outputs as self-reported in the GHR results framework question 3.0	**A15: Delivery mechanism assessment:** Number of research products per delivery mechanism. **A16. Delivery mechanism assessment:** Extent to which	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations

	and triangulated and considering whether i) the research results are significant breakthroughs or unprecedented progress or ii) a departure from expectations/ standard to date. **JC14.** Evidence of engagement with and/or influence of policy makers, practitioners, civil society and/or the public (e.g., participating in meetings with policy makers/practitioners/community; research cited in policy debates, policy documentation, legislation, clinical guidelines, health professional education material, patient advocacy publications, media citations). **JC15**. Evidence that GHR-funded research outputs reached intended audiences, including communities, through engagement events at sub-national, national and/or international level.	research outputs per delivery mechanism are reaching intended audiences. **A17**. **Award level assessment:** Investigation into whether research awards have undertaken audience mapping exercises that are inclusive, understand who the intended audiences are, and have strategies to engage them throughout all the research stages. **A18.** Award level assessment: Assessment of the extent to which GHR awards have generated scientifically important research outputs with the potential to be relevant to the needs of target audiences (conceptual impact).	▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL documentation, funding calls ▶ Award document review: Funding applications, research plans, relevant award reports, MEL documentation **Primary data:** ▶ Strategic interviews: KIIs with key portfolio stakeholders to assess the extent to which the portfolio is funding high-quality, relevant research outputs in LMICs ▶ Case study interviews: KIIs and FGDs with case study stakeholders to assess the extent to which high-quality, relevant research outputs are funded by GHR portfolio ▶ Survey data: Portfolio wide data to understand the extent to which the portfolio is funding high-quality, relevant research outputs in LMICs
3.2. How effective has the GHR portfolio been in achieving its intended research capacity strengthening outputs and outcomes at individual, institutional and systems levels and to what extent has this prioritised gender equity and social inclusion?	**JC16**. Extent to which GHR portfolio has built health research capacity in LMICs, building on Cooke's (2005) conceptual framework (and other relevant frameworks) for evaluating research capacity strengthening in healthcare: **JC17.** Developing skills and confidence in individuals: Extent to which funded activities build local skills and confidence (including of women researchers, researchers from marginalised groups, and junior researchers, and community/ peer researchers) through training,	**A19. Portfolio level assessment**: Assessment of the extent to which the portfolio effectively builds research capacity including among female researchers, researchers from marginalised groups, and diverse institutions in LMICs and improves the research environment in LMICs. **A20. Delivery mechanism assessment**: Assessment of degree to which capacity building	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL documentation, funding calls, capacity strengthening approaches ▶ Award document review: Funding applications, research plans, relevant award reports, MEL

	involvement in community engagement and involvement activities, and creating opportunities to apply skills. **JC18. Ensuring research is 'close to practice':** Extent to which funded activities develop research knowledge (including of women researchers, and researchers from marginalised groups) that is useful and relevant for each context. **JC19. Building institutional capacity:** e.g., around financial management (e.g., through FAF and GFGP) (institutional capacity also captured under 3.3). **JC20. Investing in capacity building infrastructure:** Extent to which skills needed to sustain research capacity are aligned with national country priorities for health research. **JC21. Building elements of sustainability and continuity (systemic strengthening):** Extent to which funded activities provide opportunities for skills developed to be applied practically and independently by researchers, communities, civil society organisations, government officials and policy makers.	activities are embedded in design of delivery mechanisms. Investigation into the effectiveness and inclusiveness of capacity building approaches per mechanism. **A21. Delivery mechanism assessment:** Level of capacity built, including among female researchers, researchers from marginalised groups, and diverse institutions through GHR funding at delivery mechanism level. **A22. Award level assessment:** Assessment of the extent to which GHR funded activities help to build health research capacity of diverse award holders in relation to external factors, building on Cooke's (2005) conceptual framework.	documentation, dissemination plans, capacity strengthening approaches **Primary data:** ▶ Strategic interviews: KIIs with key portfolio stakeholders to understand how capacity building activities are embedded in the portfolio and how far gender equality and inclusion is a key consideration ▶ Case study interviews: KIIs and FGDs with case study stakeholders to assess the extent to which capacity building was targeted to the needs of LMICs researchers, including women researchers, and researchers from marginalised groups ▶ Survey data: Portfolio wide data to assess perceptions on capacity building activities and extent to which this is guided by gender equality and inclusion considerations
3.3. To what extent has the GHR portfolio built equitable partnerships and thematic networks in global health research and influenced good practice more broadly?	**JC22.** Assessment of GHR portfolio's ability to create equitable South-South and North-South partnerships utilising Zaman et al.'s (2020) framework (and other relevant frameworks) for evaluating equitable partnerships: **JC23. Co-creation**: Level of engagement of LMIC research partners and diverse researchers in the research design,	**A23. Social Network Analysis (portfolio, delivery mechanism and award level):** Assessment of the extent to which effective partnerships are formed or expanded through research funded by the portfolio, new opportunities for knowledge exchange are created, and	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL

	delivery and dissemination, with recognition and mitigation of unequal power dynamics. **JC24. Communication**: Level of recognition and understanding of social, cultural and gender norms in respective countries. **JC25. Commitment**: Extent to which partnership is founded on trust and long-term commitment, commitment to ethical and equitable partnering practices with opportunities for equitable capacity building. **JC26. Continuous reviews**: Extent to which space is made for listening, adaptation and reflection in relation to internal and external changes, as well community feedback with LMIC/UK partners to meet the needs of LMICs. **JC27. Supporting linkages, equitable partnerships and community engagement and involvement:** Extent to which funded activities build partnerships for knowledge exchange and collaboration. ► If and how the GHR programme has influenced other research funders and partners to embrace these key principles. ► The extent to which award holders received any additional research and infrastructure awards secured by LMIC partners during this NIHR funding.	whether outputs are disseminated effectively to increase access and usage. **A24. Delivery mechanism assessment:** Investigation into the level of knowledge exchange within delivery mechanisms, and how inclusive of women and other marginalised groups the knowledge exchange is. **A25. Award level assessment:** Investigation of whether equitable partnerships are formed through GHR funding, utilising Zaman et al.'s framework.	documentation, funding calls, partnership documentation ► Award document review: Funding applications, research plans, relevant award reports, MEL documentation, dissemination plans, partnership and engagement documentation **Primary data:** ► Strategic interviews: KIIs with key portfolio stakeholders to assess the approach to equitable partnerships and whether these are formed ► Case study interviews: KIIs and FGDs with case study stakeholders to assess how and whether equitable partnerships are formed ► Survey data: Portfolio wide data to assess perceptions on the portfolio's approach to equitable partnerships
4. EFFICIENCY: Has the GHR programme and its delivery partners been able to convert inputs into outputs in a timely and effective way?			

4.1. Efficiency and operational effectiveness: Have the operational structures, processes, expertise, relationships etc. enabled GHR and its delivery partners to convert inputs into outputs in a timely and effective way?	**JC28.** To what extent has the delivery partner/award holder been able to spend according to forecasts, to account for the expenditure, and to demonstrate results? **JC29.** Whether there are clear and consistent portfolio management practices, including with regard to peer-review, decision-making, budget and expenditure review, coordination and oversight, systematically seeking and processing feedback from LMICs on their needs and incorporating this into funding decision-making. **JC30.** Whether the delivery partner has relevant relationships, expertise, and systems for attracting the best research applicants, conducting rigorous award selection processes, for facilitating the progression of award holders through the research process, and for facilitating dissemination and policy impact? Is there evidence of measures adopted to improve any of these aspects or to speed up the R&D process and/or knowledge translation? **JC31.** To what extent do delivery partners' services (admin, technical oversight, financial/performance reporting, running competitions, training activities etc) provide good value for money? **JC32.** Evidence of working together/ leveraging contributions alongside other funders/partners, or private sector - e.g.	**A26.** Portfolio level assessment: Assessment of efficiency and operational effectiveness at the GHR level (review of processes and systems to enable this) as well as any improvements **A27.** Delivery mechanism assessment: Assessment of efficiency and operational effectiveness at the delivery partner level (review of processes and systems to enable this) as well as any improvements **A28.** Award level assessment: Assessment of efficiency and operational effectiveness at the sub-award holder level (review of processes and systems to enable this) as well as any improvements	**Secondary data:** ► Results framework, MEL documents, annual reviews, external evaluations **Primary data:** ► Interview: KIIs to assess efficiency, operational effectiveness at different levels (review of processes and systems to enable this) as well as any improvements

	collaboration with other award holders to reduce costs or share activities (training events) leverage in-kind inputs or pre-existing systems - to make the overall programme of work possible, support joint activities and minimise duplication. **JC33.** Evidence of the influence of GHR portfolio principles on partner ways of working (towards greater efficiency and operational effectiveness) compared to counterfactuals/ways of working prior to this support. **JC34.** Evidence that clinically orientated research passes stage gates at appropriate speed and cost. **JC35**. What opportunities have been taken to reduce costs while maintaining quality? e.g., through processes to ensure that funding is spent on best value inputs & equipment and supplies purchased at competitive rates		
5. IMPACT: Is there any early evidence that funded research and capacity strengthening activities are on track to/have the potential to contribute towards 3–10-year anticipated impacts?			
5.1. Is there any early evidence of improved evidence-informed decision making (individual, community, health practitioner, health policy maker) as a result of GHR funded research as well as development of institutional research capacity?	**JC36.** Evidence of causal linkages between GHR funded research process or results and changes in behaviours, policy or practice amongst policy makers, service providers, and researchers **JC37.** Any early evidence of GHR research activities leading to attracting, retaining and supporting the training and development of the best female and male	**A29.** Portfolio level, delivery mechanism and award level assessment: Counterfactual analysis: What would have been the likely situation (research adoption and capacity strengthening) in the absence of any GHR programme funding? Investigation into whether the GHR funded research has resulted in i) more/additional ii)	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL documentation, funding calls

	clinical, health service and public health professionals in LMICs. **JC38.** Any early evidence of creating the research environment that adds to an LMIC's international competitiveness as a place to do health research.	improved/fairer iii) unique iv) faster and v) new/innovative aspects – or the opposite (e.g., slower, fewer).	▶ Award document review: Funding applications, research plans, relevant award reports, MEL documentation, dissemination plans **Primary data:** ▶ Strategic interviews: KIIs with key portfolio stakeholders to understand how funded research reaches intended audiences ▶ Case study interviews: KIIs and FGDs with case study stakeholders to assess research dissemination and engagement plans and whether outputs are reaching intended audiences ▶ Survey data: Portfolio wide data to assess perceptions on how far stakeholders believe research outputs reach intended audiences
6. SUSTAINABILITY: To what extent will the net benefits of the portfolio continue, or likely continue, beyond the funded period?			
6.1. To what extent will achievements and research impact continue beyond the funding period?	**JC39.** Extent to which partnerships and networks and research to policy/practice linkages created by GHR funding are equitable, effective and sustainable **JC40**. Extent to which GHR-funded activities help to build research capacities in LMICs and extent the skills/confidence will be sustained beyond programme lifetime (refer to JC21). **JC41.** Is there evidence of any intangible - not readily quantifiable - benefits to the entire health research ecosystem arising from GHR funding, e.g. political goodwill and relationships forged between	**A30. Portfolio assessment:** Assessment of whether outcomes achieved will continue, or likely to continue, beyond funding. **A31. Delivery mechanism assessment:** Assessment of whether outcomes achieved will continue, or likely to continue, beyond funding. **A32. Award level assessment:** Assessment of whether outcomes achieved will continue, or likely to continue, beyond funding.	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL documentation, funding calls, dissemination strategies, partnership and engagement documentation ▶ Award document review: Funding applications, research plans, relevant award reports, MEL documentation, dissemination plans, partnership and

	countries, individuals and organisations that may produce continued future value and/or influencing partner research process through GHR's emphasis on its portfolio principles, its safeguarding requirements?		engagement documentation, Annual reviews/ final reports; partnership and engagement documentation e.g., strategic advisory group meetings or award level annual partner meetings **Primary data:** ▶ Strategic interviews: KIIs with key portfolio and external stakeholders to understand the extent to which funded research has sustainable outcomes ▶ Case study interviews: KIIs and FGDs with case study stakeholders to assess whether funded research has sustainable outcomes ▶ Survey data: Portfolio wide data to assess perceptions on the sustainability of impact of funded research
7. COMMUNITY ENGAGEMENT AND INVOLVEMENT: To what extent, and in what ways, has the portfolio supported inclusive and meaningful community engagement and involvement?			
7.1. To what extent, and in what ways has the portfolio supported community engagement and involvement throughout the research cycle through approaches that have improved the relevance and impact of research, and supported the empowerment of communities, including women and marginalised groups?	**JC42**. Extent to which award holders have made efforts to understand and engage with existing community capacities, organisations and initiatives, as well as, where appropriate, government-facilitated processes for community engagement and involvement **JC43**. Extent to which, and in what ways communities have been involved in analysis, priority-setting, defining the research questions, design, implementation, and dissemination of the research, and the extent to which research activities have been adapted in response to community input	**A33. Portfolio level assessment:** Assessment of the extent to which CEI is reflected in the design of the programme. **A34. Delivery mechanism assessment**: Assessment of the degree to which CEI is embedded in the design of the GHR programmes, and of the ways in which programme level CEI measures are implemented **A35. Award level assessment:** Assessment of how the objectives of community engagement and involvement in health research have been defined, and the extent	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL documentation, funding calls, partnership documentation ▶ Award document review: Funding applications, research plans, relevant award reports, MEL documentation, dissemination plans, partnership and engagement documentation **Primary data:**

	JC44. Extent to which the approaches and strategies used supported effective and meaningful community engagement and involvement, and included efforts to identify and engage women and marginalised groups - including clear, two-way communication, participatory approaches, addressing unequal power dynamics, and working adaptively **JC45**. Extent to which award holders have the relevant expertise, relationships and systems – including in relation to community mobilisation and communication, participatory methods, engaging with different types of knowledge, engaging with their own biases and positionality, and supporting collective learning – for planning, budgeting, partnering for, and implementing inclusive community engagement and involvement activities. **JC46**. Evidence of changes at the community level, including for women and marginalised groups, such as improved health knowledge, attitudes and practices, increased confidence, skills, social capital and relationships, and collective action to demand better service delivery. **JC47**. The extent to which NIHR's requirements and guidance on CEI and other supporting mechanisms have shaped award holders' community engagement and involvement approaches, including attention to women	to which contextualised and inclusive strategies for community involvement in the analysis, priority-setting design, implementation, and dissemination of research have been developed and implemented. **A36. Award level assessment:** Extent to which there is any early evidence of changes in the knowledge, attitudes and practices of communities, researchers and research institutions. **A37. Award level assessment.** Assessment of how portfolio level requirements and guidance, as well as other supporting mechanisms, on CEI have shaped award holders' CEI approaches, and the extent to which programme level requirements, funding modalities, timeframes and budget parameters have shaped the effectiveness and inclusiveness of award holders' CEI approaches.	▶ Strategic interviews: KIIs with key portfolio stakeholders to assess the approach to community engagement and involvement and how this is being implemented across the portfolio ▶ Case study interviews: KIIs and FGDs with research teams to assess how community engagement and involvement is understood and implemented; and with community/ patient organisations and leaders (including those representing women and marginalised groups) to understand how they have experienced awards' CEI approaches ▶ Survey data: Portfolio wide data to assess perceptions on the portfolio's approach to community engagement and involvement

	and marginalised groups, and influenced NIHR internally, implementing partners and the wider research community		
8. ADAPTABILITY AND LEARNING: How well is the portfolio adapting and embedding learning?			
8.1. To what extent have learning processes been embedded in the portfolio design and implementation of activities?	**JC48.** Extent to which the GHR portfolio's design was open to learning, how learning processes were integrated by DHSC over time and how this changed or influenced DHSC in subsequent stages of design **JC49.** Extent to which award holders are exposed to learning and are required to include learning processes in applications/ during lifetime of research awards/ final reports. **JC50.** Degree to which learning occurs between award holders and how this influences implementation of awards. **JC51.** Degree to which learning occurs between partners in the partnerships programme and how this influences partnerships.	**A38. Portfolio assessment:** Assessment of the key learning, how this was captured and the extent to which learning processes are embedded in the GHR portfolio's design and share with other research funders to influence practice. **A39. Delivery mechanism assessment:** Assessment of key learning across delivery mechanisms and how learning processes were integrated. **A40. Delivery mechanism assessment:** Assessment of learning processes between partners across the different mechanisms and how this influenced implementation. **A41. Award level assessment:** Assessment of the extent to which award holders embed learning processes in research activities and capture further learning. **A42. Award level assessment:** Assessment of the extent to which	**Secondary data:** ► Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ► Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL documentation, funding calls ► Award document review: Funding applications, research plans, relevant award reports, MEL documentation, dissemination plans **Primary data:** ► Strategic interviews**:** KIIs with key portfolio stakeholders to understand how learning is captured and the extent to which learning is embedded into the portfolio, as well as how the GHR programme has influenced other research funders to adopt key principles and good practice ► Case study interviews: KIIs and FGDs with case study stakeholders to assess level of learning between award holders and partners

		award holders communicate and learn from one another and build learning into ongoing implementation.	▶ Survey data: Portfolio wide data to assess perceptions on how far the portfolio embeds and encourages learning
8.2. To what extent has the portfolio managed to adapt to learning and changes in the external environment (e.g., COVID-19)?	**JC52.** Extent to which the portfolio's design is flexible to enable it to adapt to learning, stakeholder feedback and changes in the external environment. **JC53.** Degree to which award holders have been flexible in responding to learning, stakeholder feedback and changes in the external environment (e.g., COVID-19).	**A43. Portfolio assessment:** Assessment of the extent to the portfolio is able to adapt based on learning and changes in the external environment. **A44. Delivery mechanism assessment:** Assessment of flexibility of delivery mechanisms to respond to learning to shape funding calls and decision-making. **A45. Award level assessment:** Assessment of the extent to which award holders are required to embed adaptive processes in research plan and are flexible to respond to learning and changes in external environment.	**Secondary data:** ▶ Portfolio document review: Theory of Change, results framework, MEL documents, annual reviews, external evaluations ▶ Delivery mechanism document review: Nested Theories of Change, strategic documentation, MEL documentation, funding calls ▶ Award document review: Funding applications, research plans, relevant award reports, MEL documentation, dissemination plans, Costed extensions to existing awards or non-funded time extensions; COVID-19 activity reports in QSTOX **Primary data:** ▶ Strategic interviews: KIIs with key portfolio stakeholders to understand the extent to which the portfolio can adapt to learning and external changes ▶ Case study interviews: KIIs and FGDs with case study stakeholders to assess level of adaptability of research processes ▶ Survey data: Portfolio wide data to assess perceptions on the level of adaptability of the portfolio

6. Sampling approach

Overall, considering the diversity and complexity of the GHR portfolio, our approach to sampling programmes and awards for the Evaluation is purposive, involving a combination of selection by specific criteria related to the profile of the GHR portfolio and areas identified as having potential for rich evidence (i.e., where there is likely to be important data/information) as indicated by our research to date.

6.1 GHR portfolio level sampling

The evaluation team has collected evidence from across the whole portfolio as follows:

- Distributed a survey to all award holders, which provides data for all evaluation questions and supports social network analysis.
- Conducted programme-level assessments based on document and data reviews and in-depth semi-structured interviews with one or two key stakeholders from each programme (NIHR-led and partner-led).
- Conducted interviews with key portfolio stakeholders.

A small number of programmes were excluded either entirely from portfolio-level analyses or from some research components following consultation with DHSC, as shown in Table 4:

Table 4. Portfolio level sampling

Programme	In scope for evaluation	In scope for survey	In scope for programme interviews	In scope for award interviews	Comments on exclusion
Medicines for Malaria Venture (MMV)	No	-	-	-	This Product Development Partnership is internationally led and had a specific purpose in antimalarial drug research in the earlier part of Phase 1 that is less relevant to the future development of the GHR portfolio.
Global Patient Safety Collaborative (GPSC)	No	-	-	-	GPSC was established as a sub-community within the broader Global Patient Safety (GPS) Network in WHO and closed very early in Phase 1. Project staff and stakeholders are no longer accessible through DHSC. It was therefore recommended by DHSC that we exclude this partnership from the evaluation.
Foundation for Innovative New Diagnostics (FIND)	No	-	-	-	This Product Development Partnership is internationally led and had a specific purpose in diagnostics, relevant to the early stage of Phase 1 but less relevant to the future development of the GHR portfolio.
Professorships	Yes	No	Yes	Yes	Global Professorships are set apart from other NIHR programmes due to their focus on individual capacity building and supporting career and research leadership trajectory of future leaders over a period of 5 years. It was agreed with DHSC that distributing the survey to individual PIs under professorships would not be appropriate or relevant due to the narrow focus of the grants, the fact that no professorship has yet been completed, and the likelihood that researchers would lack familiarity with wider NIHR programmes, processes or the portfolio. Given the priority to sufficiently cover capacity building from a deeper dive
Coalition for Epidemic Preparedness Innovations (CEPI)	Yes	No	Yes	No	
Research for Health in Humanitarian Crises (R2HC)	Yes	Yes	No	No	

					perspective, the evaluation team considered it more valuable to include all 5 awards through interviews rather than the survey. This is an is internationally led Product Development Partnership between public, private, philanthropic, and civil society organisations where funding essentially goes into one pot and is strategically distributed according to CEPI's own global health security strategy (assessed to align with the GHR portfolio strategy in the business case). There are therefore no award holders or individual recipients that could be attributed to activities under DHSC's funding contribution. As per guidance in NIHR GHR portfolio evaluation Terms of Reference, an internal evaluation for R2HC will commence in 2023 and it would therefore be considered duplicative and create a parallel burden to undertake primary data collection for this programme. The decision to exclude R2HC from the interviews was also proposed also by R2HC staff). However, award holders were engaged via the survey.

6.2 Programme and award sampling

From the portfolio-level assessment we collected data in relation to the following areas of our evaluation framework: Relevance, coherence, efficiency. This relates largely to activity and input level of the ToC.

Award-level assessment for a sample of awards was carried out to explore whether some of the higher pathways for change hold. We focused this assessment on gather deeper data on results/short-term outputs but also on the cross-cutting themes of equitable partnerships, different perceptions on RCS, CEI, and likelihood of achieving medium-term outcomes and sustainability.

We used two levels of purposive sampling to select awards for this exercise, with a focus on programmes and awards intending to make a strong contribution to research capacity building (this being a central pathway of the ToC).

At the programme level we selected all five programmes that are NIHR-led and have a strong focus on research capacity building, and four partner-led programmes.

Research capacity strengthening is key to the portfolio achieving its aims, as demonstrated by the ToC, so we are prioritising research into this aspect of the ToC at this stage. A successful research environment has various interlinked elements and stages to it, as reflected in the NIHR GHR portfolio ToC, and it is important for there to be capacity at all stages of the research process and all levels of maturity of the researchers and associated institutions. People need to progress from ECR to established researchers and senior research leaders and do so by developing capacity in the different elements of conducting research and ensuring its uptake. Programmes need to conceptualise, design, and deliver high quality research, need to have strong dissemination, but also ways of linking and engaging with policy makers, communities, and other stakeholders to ensure the relevance and uptake of findings into practice. Institutions and partnerships need the ability to develop and maintain the people and research. The programme selection spans all the research elements and stages, from RSTMH small grants programme supporting ECRs to AMR-SORT IT's implementation research and policy engagement mechanisms.

Programme and award selection is outlined in the table below.

Table 5. Programme selections

Programme	Lead Organisation	Approach to Award Deep Dive
Interim Evaluation		
Units	NIHR	Two awards
Groups	NIHR	Four awards
Global Health Policy and Systems Research (HPSR)	NIHR	Two awards
RIGHT	NIHR	Two awards

Professorships	NIHR	Individual interviews of five Professorship awardees
RSTMH small grants	RSTMH	Two online focus group discussion with six participants each
Wellcome Fellowships and Awards	Wellcome	One online focus group discussion of six participants for Wellcome Fellowships, plus one selected award deep dive
AMR-SORT IT	TDR	One country
Final Evaluation (award selection pending)		
EDCTP	EDCTP	Two awards
GACD	MRC	One award
GECO	MRC	One award
Global Mental Health	GCC	One award

We sampled awards using the following criteria:

- Country was a key selection criterion, because geographic, contextual and cultural factors (e.g., differences in values or practices along tribal, ethnic, religious or other lines) will shape different experiences of implementing awards. We selected a sample that includes:
- Country income. At least one award from each category of upper-middle income, lower-middle income and low-income countries. These categories also serve as a proxy for research capacity, as research3 indicates these are strongly linked.
- Geography. At least one award from Africa, Asia, and South America.
- In-country evaluation presence. At least one award in each of our evaluation partners' countries (India, Brazil, South Africa, Ethiopia), which will allow for face-to-face engagement and therefore an additional level of depth and richness of data collected.
- Fragile setting and/or focus on marginalisation. At least one award reflecting these characteristics.
- Health theme. We chose awards to optimise coverage of different health themes from the NIHR categories. This is to ensure sufficient thematic diversity and exploration of different areas and their higher-level results.
- Maturity/timing of any included award to ensure that they are close to completion, so they are more likely be at the stage of contributing to outputs and impacts.
- Size/value – aiming for a spread of sizes given that award data from the selected programmes shows these vary in size from under £500 to near £7 million. The very different sizes of awards will have very different experiences.

Within the parameters of the sampling criteria above, we selected awards where evidence from our portfolio-level research indicates there are rich learning and insights. DHSC, NIHR and the Research Steering Committee were consulted on the sampling strategy and selected awards.

6.3 Award-level – Sampling of Individuals for Interviews

The approach to each award-level assessment in the interim evaluation phase was tailored, based on the type/structure of the award and the range of stakeholders involved, initially informed by the NIHR Programme Lead and subsequently by PIs. The evaluation team interviewed a variety of stakeholders including, PIs, Co-PIs / LMIC Leads, Policymakers, Early Career Researchers, CEI Leads, Research Managers, and Community Representatives. The full list of stakeholder categories and number of interviewees is included in the main body of the Interim report, in Section 3.3.1.

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8. Award survey findings

A summary of the award survey findings is outlined below. The key types of analyses conducted include: (i) Descriptive statistics on the characteristics of respondents; (ii) Survey questions analysis, reporting frequencies and percentages; (iii) Sub-group analysis on questions relating to research capacity strengthening, equitable partnerships and CEI have been disaggregated by PI versus non-PI, country income, and gender. Quantitative findings have been analysed through RStudio and Excel, and are reported in tables and data visualisations (e.g., bar charts).

8.1 Findings by evaluation questions

Qualitative responses have been analysed thematically and incorporated into relevant sections of the evaluation framework, as follows:

Relevance:

- Survey respondents expressed positive views in terms of how well informed and relevant the research is
- Survey respondents expressed positive views in terms of relevance of the research to key audiences
- Survey respondents were confident in terms of their ability to influence the design, implementation and output of the research, although some differences were identified in the level of confidence among LMIC/non-LMIC respondents (the former showing lower levels of confidence)

Coherence:

- Survey respondents mostly agreed the research aligns with aims and objectives of the programme
- Survey results suggested there were opportunities for collaboration among researchers, although more internally (within country and with relevant regional initiatives), as opposed to with other UK/ GHR funding initiatives
- Survey results suggested research activities were adding value to other initiatives

Effectiveness:

- Survey respondents expressed positive views in terms of the GHR portfolio contributing to skills and capacity strengthening, with very positive views coming from LMIC respondents
- Positive views among respondents about equitable partnerships, although the most notable differences were identified between LMIC/non-LMIC respondents in this EQ (20 percentage points difference on average); LMIC respondents agreed that partnerships are overall equitable but to a much lesser extent than non-LMIC respondents

Efficiency:

- Most survey respondents received helpful feedback on their application, and had some or significant opportunities to engage with funder to increase the quality of their research approach

- Survey respondents expressed positive views in terms of the funder providing enabling environment for work progression as well as dissemination of the research
- Qualitative evidence collected through the survey suggested mixed views among respondents: although many positive responses in terms of the operational efficiency, engagement, and support from the NIHR team, this was the EQ with the most areas for improvement (namely reducing reporting and administrative burdens, and improving quantity and flexibility of funding and salaries)

Impact:

- Survey respondents expressed positive views regarding the outputs of the funded research and the impact of this on relevant audiences (key stakeholders, communities, etc.)
- Survey respondents expressed positive views in terms of the contribution of funded research activities (enhancing reputation of LMIC institutions, informing decision-making processes, efficient health systems in LMICs, and empowerment through CEI activities); LMIC and non-LMIC respondents shared similar levels of agreement on this

Sustainability:

- Survey respondents expressed positive views in terms of the likelihood for future collaboration between individuals, institutions and other stakeholders
- Survey respondents expressed positive views about the sustainability of LMIC capacity building; positive that LMIC/non-LMIC respondents share the same levels of agreement
- Qualitative survey evidence suggested that the lack of follow-up funding is potentially the biggest obstacle to sustainability of health system strengthening outcomes, as well as the lack of opportunities to secure further funding based on the results of the research

Learning and adaptability:

- Different levels of knowledge exchange were reported, suggesting there was more internal (within-award) collaboration compared to external, i.e., mostly with partners within awards, but less so with the funder and other award holders
- Survey respondents expressed positive views in terms of adaptability/ flexibility to respond to changes in external environment, internal learning, and community inputs.

8.2 Background of respondents

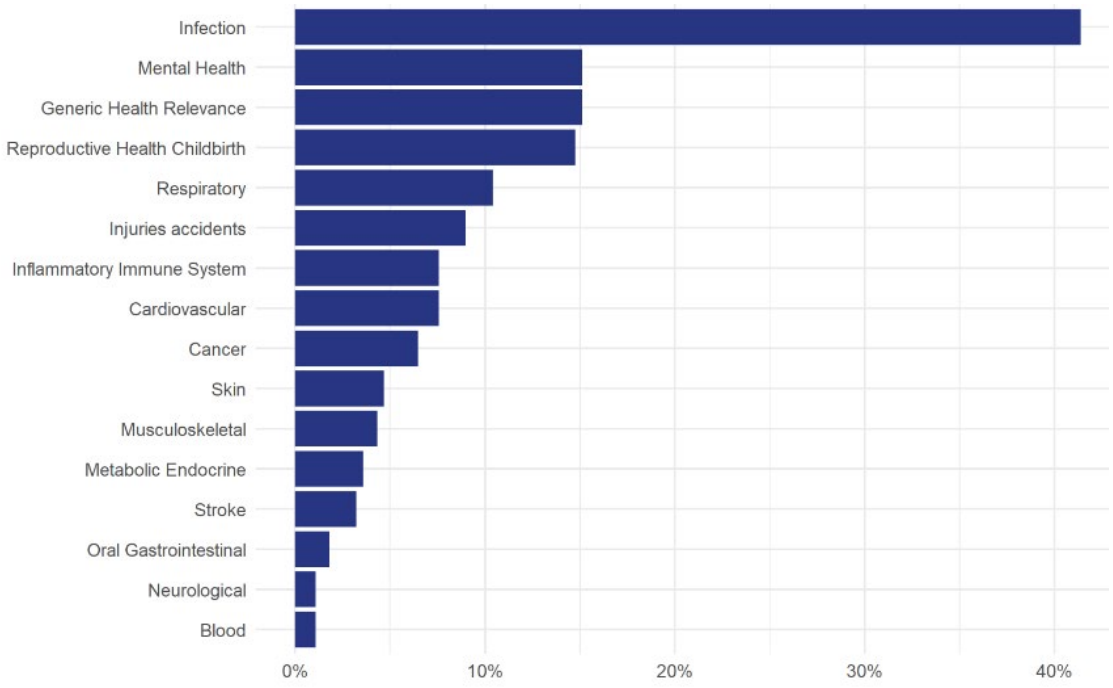
We outline below the key findings regarding the background of survey respondents:

- Most respondents (63%) were lead researchers/PIs
- There was an approximately equal gender distribution in the portfolio-level sample, as 51% identified as female and 48% as male
- The survey collected responses from a total of 176 organisations across the world: 58% of those were Higher Education institutions (HEI), 21% research institutions, 10% NGOs, and 7% hospitals

- The survey collected responses from more than 50 countries: 59% of responses came from LMICs and 41% from non-LMICs (32% from UK)
- Most responses came from Africa (38%) and Europe (37%), while 14% came from Asia, 6% from Latin America, and 3% from North America
- Respondents reported being engaged with various health themes across awards, with the most common theme reported being infection (41%)
- Most respondents (57%) were involved in already completed awards at the time of the survey, while 30% were involved in active awards, and 10% in active awards requesting extension
- Most respondents (62%) had been involved 1-3 years with their award, 31% more than 3 years, and 7% less than 3 years

The following bar chart shows the frequency of health themes mentioned across awards by survey respondents. It is worth noting that the respondents were asked to select all the themes that applied to their research (if multiple), hence the numbers in this chart do not add up to 100%.

Figure 2. Health themes across awards



9. Social Network Analysis results

9.1 Introduction

This annex presents the findings of the social network analysis, structured by three main aspects that can be used to examine and understand the characteristics and dynamics of the network:

1. **Shape**: The overall structure or topology of the network, analysing patterns of connections and relationships between institutions (nodes) within the network. This includes identifying the size of the network, characteristics of the core (inner centre) and periphery (outer edges) of the network, the density of the network and identifying clusters or 'communities' of densely connected institutions.

2. **Centrality**: The importance of individual institutions (nodes) within the network, identifying institutions in central positions who may have an impact on the flow of information, collaboration or influence; and therefore, those who may be key actors or knowledge brokers. This includes degree, betweenness and eigenvector centrality.

3. **Attributes**: The characteristics or properties associated with individual institutions (node attributes) or their connections to each other (edge attributes), which can help understand the composition of the network. For example, a node attribute could be institutions' countries or LMIC status, while an edge attribute could be which funded award two institutions belong to or whether their connection is a primary (directly funded) or secondary (indirectly funded or reached beyond the formal GHR partnership). However, the full extent of 'attributes' analysis was not possible due to data limitations (see Section 9.5).

The foundations of the GHR portfolio network, which includes institutions (nodes) and their connections (edges), were mapped using the following data sources:

- **Award-level datasets provided by DHSC** allowed the team to identify the primary institutions involved in research partnerships across each funded award. We term this the **primary network.** We define this as the connections between lead institutions and downstream partners in award partnerships formed directly under the GHR portfolio.

- **Survey data collected by Ecorys** allowed the team to identify other institutions that survey respondents were connected to beyond formal research partnerships. For example, this could include other research institutions that were onboarded after inception of funded research projects, or linkages with government ministries, international organisations, or private sector actors. We term this the **secondary network.**

The social network analysis provides supporting evidence against the following areas of our evaluation framework:

- **Coherence:** To what extent is the portfolio a coherent funding mechanism to meet its stated outcomes? (i.e., supportive of complementarity, harmonisation and co-ordination within the portfolio and externally)
  - ▷ The extent to which effective partnerships are formed or expanded through research funded by the portfolio.
- **Effectiveness**: How effective has the GHR portfolio been in achieving its intended interim results?
  - ▷ The extent to which opportunities for knowledge exchange are likely to be created.
- **Impact**: Is there any early evidence that funded research and capacity strengthening activities are on track to/have the potential to contribute towards 3-10 year anticipated impacts?

▷ The extent to which outputs can be disseminated effectively to increase access and usage.

9.2 Methodology

Below, we outline the key steps undertaken in the social network analysis process. Due to the nature of the data and the extensive cleaning required, the reproducibility of this approach to the SNA is unfortunately limited. However, the bibliometric analysis forthcoming provides network analysis capabilities and has been designed to be a highly reproducible approach for use within NIHR.

1. Award-level datasets provided by DHSC include data for both NIHR-led[8] and Partner-led[9] awards. These included data such as institution names and countries involved in each award, and their respective programmes and funders. This allowed us to identify which institutions are connected to each other in partnerships, and therefore map the connections between them. This information provided a foundational block to understanding aspects of the network, mainly 'centrality' and 'shape'.

2. Survey data collected was a source of supplementary information. The survey collected a total of 293 responses across programmes,[10] which means an estimated response rate of 50%. Due to incomplete data (see Section 9.5), only survey data on respondents' secondary networks was used compared to other attributes. Of the 293 responses, we have received 226 responses detailing institutions outside of respondents' formal partnerships which they have engaged with during the research, which is higher than expected.

3. To identify further attribute data, we identified additional datasets that may be relevant to the social network analysis, including ResearchFish and other results data that may be available. However, due to inconsistency in data (see Section 9.5), we did not include this in the analysis.

4. Award-level and survey data relevant to the social network analysis was compiled into specific data format using Microsoft Excel, creating 'node lists'[11] and 'edge lists'[12] to ensure the data clearly identifies actors and their relationships, and therefore can be translated into a graph object to conduct appropriate analysis.

5. We then undertook exploratory analysis and visualisation of the network using R at the overall GHR portfolio[13] and by NIHR programmes and Partnerships. We ran analysis to build an understanding of the three main aspects of the network, looking at the 'centrality', 'shape' and 'attributes' and their respective measures.

6. After the exploratory analysis, having identified key areas of interest in our findings, we refined our network visualisations using R to present evidence that supported our evaluation of the portfolio. For example, we

[8] Global Health Policy and Systems Research (HPSR) Commissioned Awards (5) and Development Awards (17), Global Health Research Units (13) and Groups (40), Global Health Professorships (5), and Research and Innovation for Global Health Transformation (RIGHT) (14).
[9] ESRC (2), EDCTP (23), EPSRC (13), MRC (85), GARDP (5), GCC (22), JGHTI (96), R2HC (ELHRA) (46), RSMTH (231), Wellcome (34). Based on the survey data, we observed that we do not have award-level data from DHSC on AMR-SORT IT (TDR, WHO) and Global Road Safety Fund (World Bank).
[10] **NIHR-led**: RIGHT, HPSR, Units and Groups. Professorships was not collected under the survey. **Partner-led**: ESRC, EDCTP, EPSRC, MRC, GARDP, GCC, JGHTI, R2HC, RSMTH, Wellcome, Global Road Safety Fund (World Bank), AMR SORT-IT.
[11] A node list is a dataframe with the primary variable being the name of the 'nodes', or in this case institutions. Other variables in the dataframe then represent 'node attributes', such as the institutions' country, LMIC status, type of institution and so on.
[12] An edge list, in this case, is also a data frame with the primary two variables being 'To' and 'From', representing the connections between two nodes. Edgelists can also be in the form of an adjacency matrix. The connections between every two nodes can then be further qualified with 'edge attributes', including which award, programme and funder the connection is associated with, and whether the connection is a primary network or secondary network connection.
[13] Award-level data covering both NIHR-led and Partner-led programmes will be suitable to generate an overall network of the GHR portfolio.

visualised the central and effective nodes within the network, including those that are more or less connected, those that influence flows of information, and those who may have greatest influence in the network.

9.3 Overall results

The GHR network has successfully and actively established global health collaborations with a wide range of institutions within the global health research community, including many LMIC institutions and other key stakeholders in global, regional, national and local contexts. However, while the majority of institutions are from LMICs in the portfolio, UK institutions tend to dominate in terms of their importance, influence, ability to connect with other influential actors, and play a significant role in connecting other institutions to NIHR or partner funding. They may also be more influential in shaping the flow of knowledge and other resources within the GHR network. However, there are a small number of important and influential LMIC institutions in Africa in addition to UK institutions.

Despite the number of institutions and connections between them; information, resources, and other knowledge sharing on NIHR and Partnership grants and funded research are less likely to spread, and there may be low degrees of cohesion, collaboration or interaction between funded institutions. However, there are strong opportunities for collaboration and the exchange of knowledge in funded global health research, within large, tight-knitted communities of institutions connected to one another. NIHR-led programmes, in comparison to Partnerships, perform stronger in these regards, however. Evidence suggests that NIHR-led networks allow information, resources and other knowledge sharing to spread more easily, although still low, and institutions funded directly by NIHR may be more closely related in research interests, expertise, or geographic proximity, with stronger opportunities for cross-collaboration and knowledge exchange.

9.4 Main findings

- [EQ 1.2, EQ 2.2, EQ 3.1, EQ 6.1] The GHR network, representing the reach of NIHR funding as per available data, shows that NIHR and its partners have reached 1,158 institutions from 108 countries, with 72% of institutions in the GHR portfolio network from LMICs compared to 28% of non-LMIC institutions.[14] While this is a likely underestimate (considering secondary networks), and since reach is difficult to benchmark compared to other global health research funder networks, this can be considered substantial, indicating NIHR has successfully and actively established global collaborations with a wide range of institutions within the global health research community. When considering the primary network funded directly by NIHR and its partners through awards, it has reached 770 institutions. NIHR has directly reached 335 primary institutions, while Partnerships have directly reached 532 primary institutions. When considering secondary networks which NIHR and its partners funded or influenced as a result of awards' additional connections made during the conduct of research, which is an underestimate in our data, it has reached an additional 388 institutions (which have 595 connections with primary institutions in the GHR network), including other research institutes, academic and public hospitals, government ministries, national and regional associations, intergovernmental organisations and the private sector. For example, our data on secondary networks shows connections with 65 different government entities in LMICs. The most commonly represented countries of institutions in the GHR portfolio network include the United Kingdom (11%), followed by Kenya (6%), India (6%), Uganda (5%), Nigeria (4%) and the United States (4%).

[14] This considers both primary and secondary networks identified using available data.

- [EQ 3.1, EQ 8.1] There is limited evidence that information, resources and other knowledge sharing on NIHR grants and funded research are likely to spread easily or quickly through the network, including low degrees of cohesion, collaboration or interaction between funded institutions beyond their awards. However, when disaggregated between NIHR and Partnerships, evidence suggests that this is more likely to occur under NIHR compared to Partnerships.[15] This is as expected, given the NIHR-led portfolio is managed under the NIHR, compared to Partnerships which comprise programmes or calls for research operated by a multitude of different global health research funders. However, caution is required given the network solely captures funded partner relations and does not consider connections that may be formed from intentional knowledge sharing exercises.

- [EQ 3.2] While the majority of institutions in the GHR portfolio network are from LMICs (72%), evidence suggests that UK institutions tend to dominate in their importance, influence, ability to connect with other influential actors, and play a significant role in connecting other institutions to NIHR or partner funding.[16] It also suggests that they are more influential in shaping the flow of knowledge and other resources in the GHR portfolio. However, there are a small number of important and influential LMIC institutions in Africa. There does not appear to be representative well-connected or influential LMIC institutions in South and Southeast Asia, or Latin America in the network. Social network metrics suggest that UK institutions in the network are more important, influential, are able to connect with other influential institutions in the network, and play a significant role in connecting other institutions to funding in comparison to LMIC institutions. In particular, these include the London School for Hygiene and Tropical Medicine (LSHTM) as the most significant overall, followed by Liverpool School of Tropical Medicine and University College of London. Within the NIHR-led programmes, Liverpool School of Tropical Medicine is the most important and influential institution, compared to LSHTM among Partnerships. However, evidence suggests there are a number of LMIC institutions which also play an important and influential role in the network, although to lesser degrees, including Makerere University in Uganda, University of Cape Town in South Africa, and Addis Ababa University in Ethiopia. Despite Indian institutions representing a large proportion of institutions in the GHR network, they are not systematically identified as important or influential institutions, except Christian Medical College Vellore in some instances. This may be due to their geographical region, compared to Africa with many neighbouring countries and more translatable research in terms of context.

- [EQ 2.1, EQ 8.1] There are large communities[17] of institutions within the overall GHR network, which include important and influential institutions. While it is not clear that these institutions within communities interact with one another in practice, it suggests there are strong opportunities for collaboration and the exchange / dissemination of knowledge in NIHR-funded global health research. However, this is much stronger among NIHR-led programmes, where there are a smaller and concentrated number of community groups, which suggests that institutions funded directly by NIHR may be more closely related in research interests, expertise, or geographic proximity, in addition to stronger opportunities for cross-collaboration and knowledge exchange within the NIHR portfolio. Community detection for the overall portfolio generated many different communities (162 communities) but did not provide clearly interpretable results given its breadth and size. However, we

[15] This is calculated using density metrics on the primary network of the portfolio – the institutions directly funded by the NIHR or its partners. Density measure the proportion of realized connections among all possible connections within a network. It can help to provide insights into the level of cohesion, collaboration, and information flow within the network.
[16] Centrality metrics, including degree, betweenness and eigenvector centrality, were triangulated to produce this finding.
[17] A 'community' in network analysis refers to a group of institutions (nodes) within the network that are densely connected to each other and have relatively weaker connections with institutions outside the 'community'. Community detection is a method used to identify and delineate these cohesive subgroups within a network based on the patterns of connections and interactions among the nodes. The concept of communities in network analysis is grounded in the idea that nodes within a community tend to share similar characteristics, interests, or goals and are more likely to collaborate and interact with each other. In the context of GHR, it can help uncover hidden collaborations, identify clusters of organizations working on similar research areas, and reveal potential knowledge-sharing hubs.

found that there are large communities – the largest consisting of 155 institutions. This suggests that there are opportunities for a significant number of institutions funded under the GHR portfolio to interact, form connections with each other, collaborate and exchange information across a diverse range of expertise and experience. However, when disaggregated, we found that Partnerships have a much larger number of communities, with 190 different community groups. While there are also a large number of institutions within some communities (e.g., 78 institutions in the largest community), the number of communities suggests a complex and diverse network with less coherent opportunities. Community detection within NIHR found a more concentrated set of communities (16 communities), the largest community consisting of 85 institutions, which include those identified as important and influential. A smaller number of communities suggests that the NIHR network suggests not only that there are strong opportunities for cross-collaboration and knowledge exchange, but that institutions may be more closely related in research interests, expertise, or geographic proximity.

9.5 Limitations

- **Attribute data was difficult to incorporate.** The majority of survey data was not fruitful or feasible to map as 'attributes' to the GHR network. This is due to incomplete coverage and variability across programmes. Researchfish data was also explored as additional 'attribute' data, however this too provided incomplete coverage of the network, given it was limited to Groups and Units, but also within these programmes data was inconsistent. Therefore, these factors made it difficult to integrate data and develop meaningful analytical insights which added value to the survey analysis and other components of the network analysis.

  Mitigation: This analysis is supplemented by a vast quantity of qualitative analysis from award-, programme- and portfolio-level, as well as the survey analysis.

- **Data used is based on funded partner relationships captured using award-level monitoring data.** As a result, the network does not capture live connections that have formed from intentional knowledge sharing exercises and other activities that may result in new connections and flows of resources, information, and expertise, among others.

  Mitigation: This analysis is supplemented by a vast quantity of qualitative analysis from award-, programme- and portfolio-level, as well as the survey analysis, which bring additional insights into how connections between institutions are formed and play out in practice.

- **Award-level data does not capture the full nuances of connections between funded institutions.** This is because award-level data identifies which institutions are involved in the same partnerships, but now 'how' they are connected to one another more specifically. This is also true for survey data, which does not qualify how respondents judge their relationships specific to each institution they are connected with, as this requires more advanced and dedicated survey tools. As a result, an assumption of equitable partnerships was integrated, so that all institutions within a given research award were all connected to one another. However, secondary networks identified using survey data are specific and attached to the respondent institution in the primary network.

  Mitigation: This does not impact the overall analysis, as while this increases the number of connections in the overall network, the assumption has been applied equally across the primary network and therefore does not bias the overall computation of centrality metrics.

9.6 Visualisations

Figure 3. GHR portfolio network by primary and secondary connections

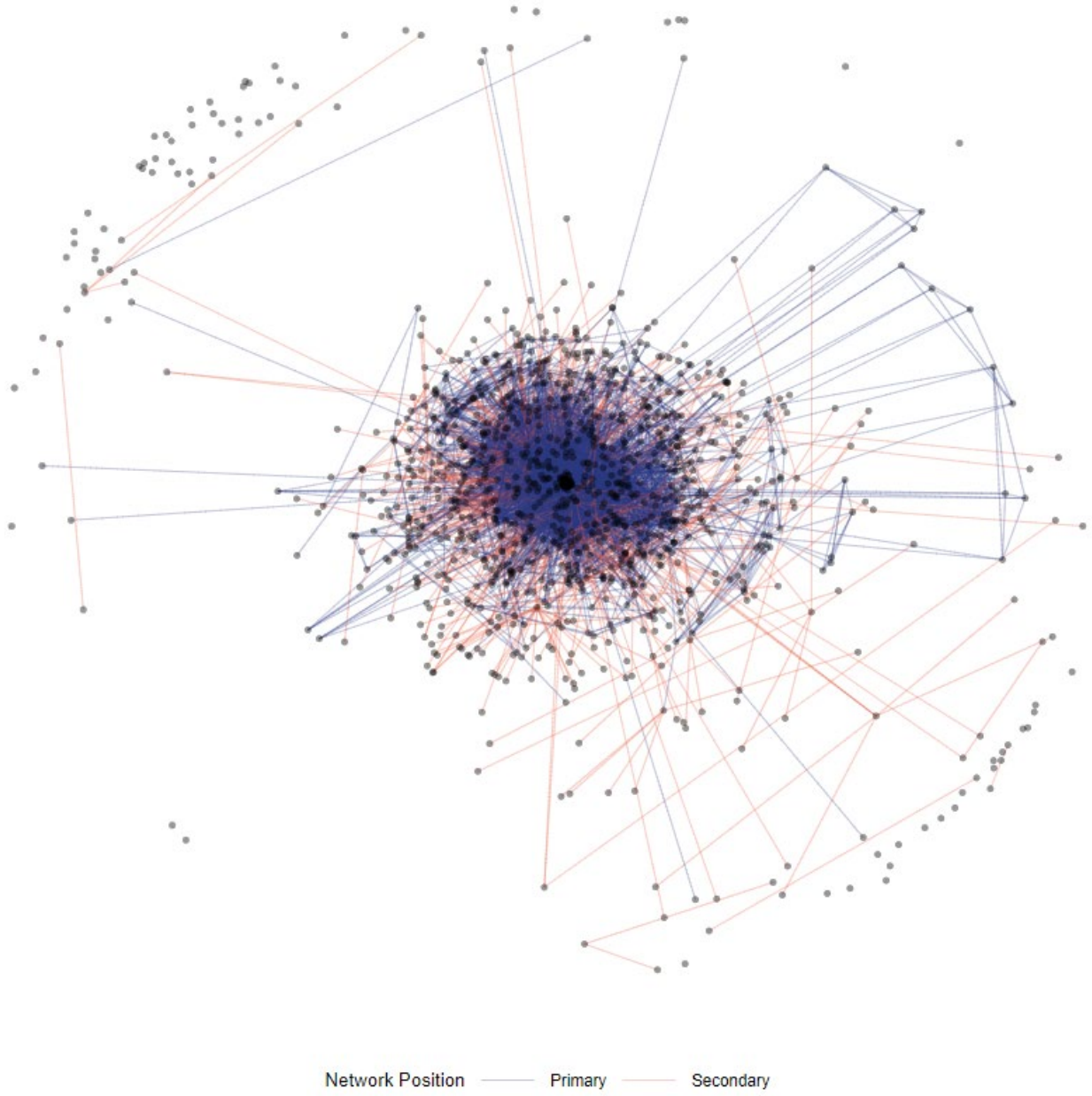


Figure 4. Distribution of LMIC and non-LMIC institutions in the GHR portfolio network by degree centrality

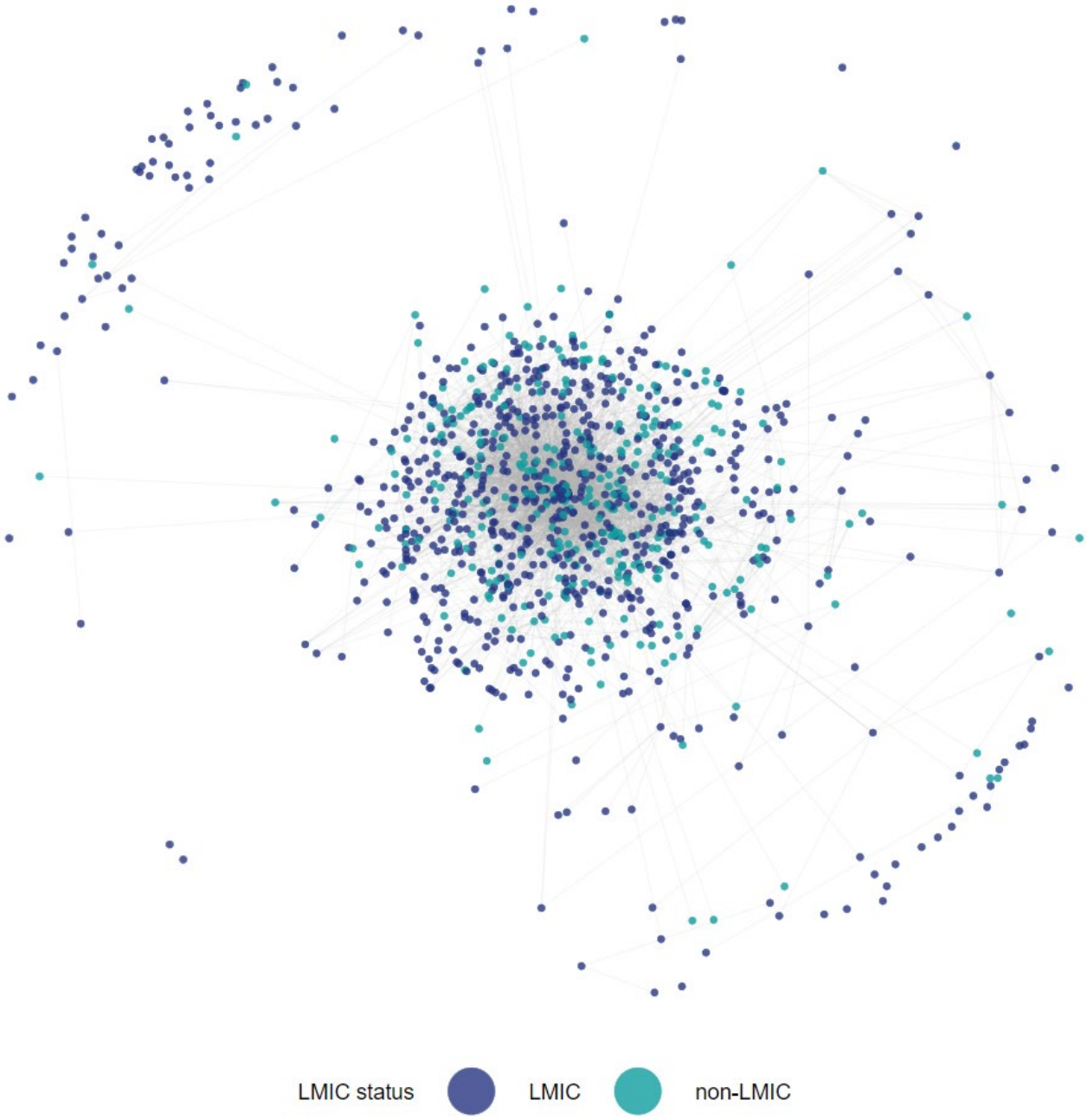


Figure 5. Distribution of LMIC and non-LMIC institutions in the GHR portfolio network by degree centrality

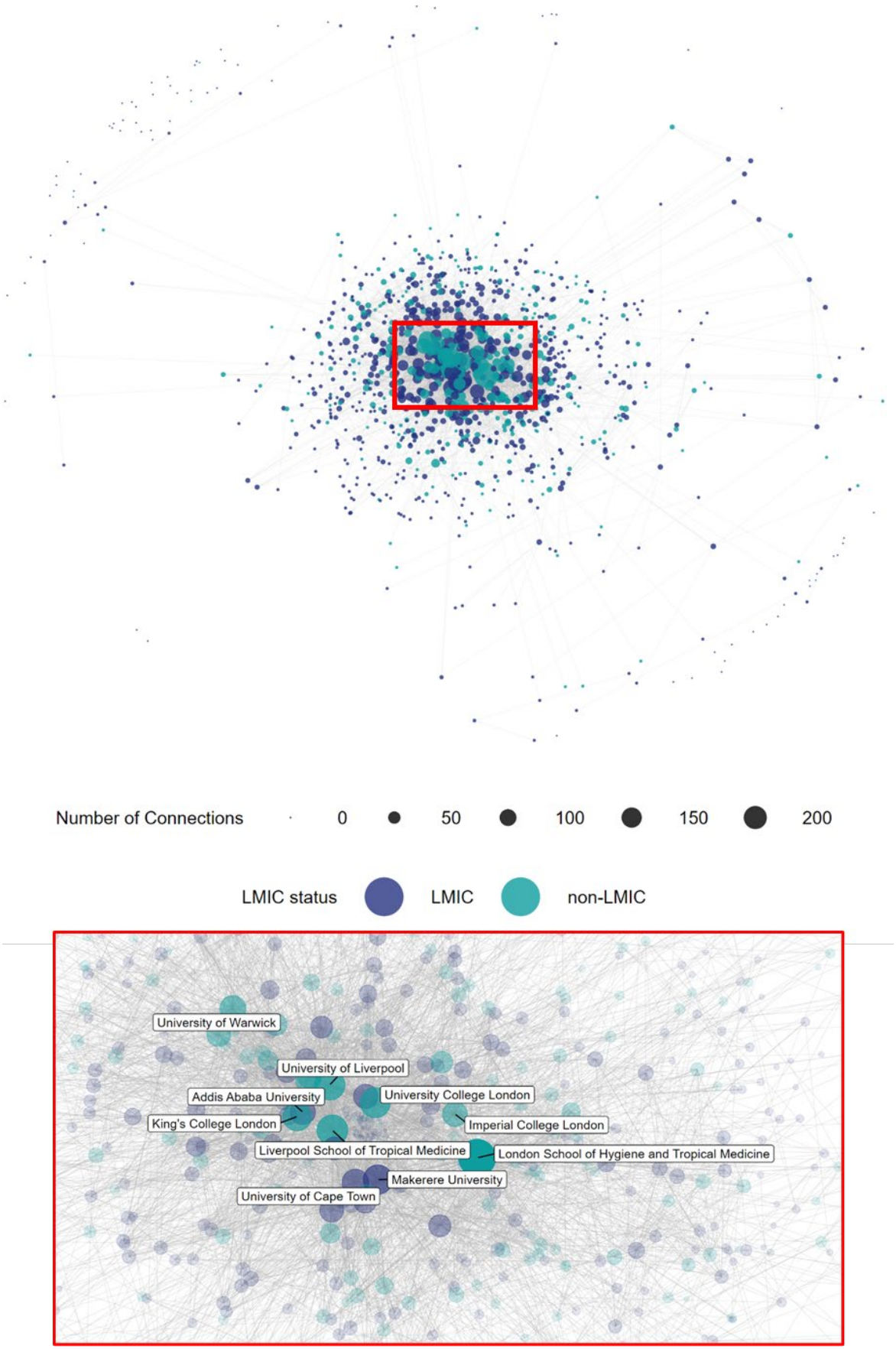


Figure 6. NIHR-led network – overall

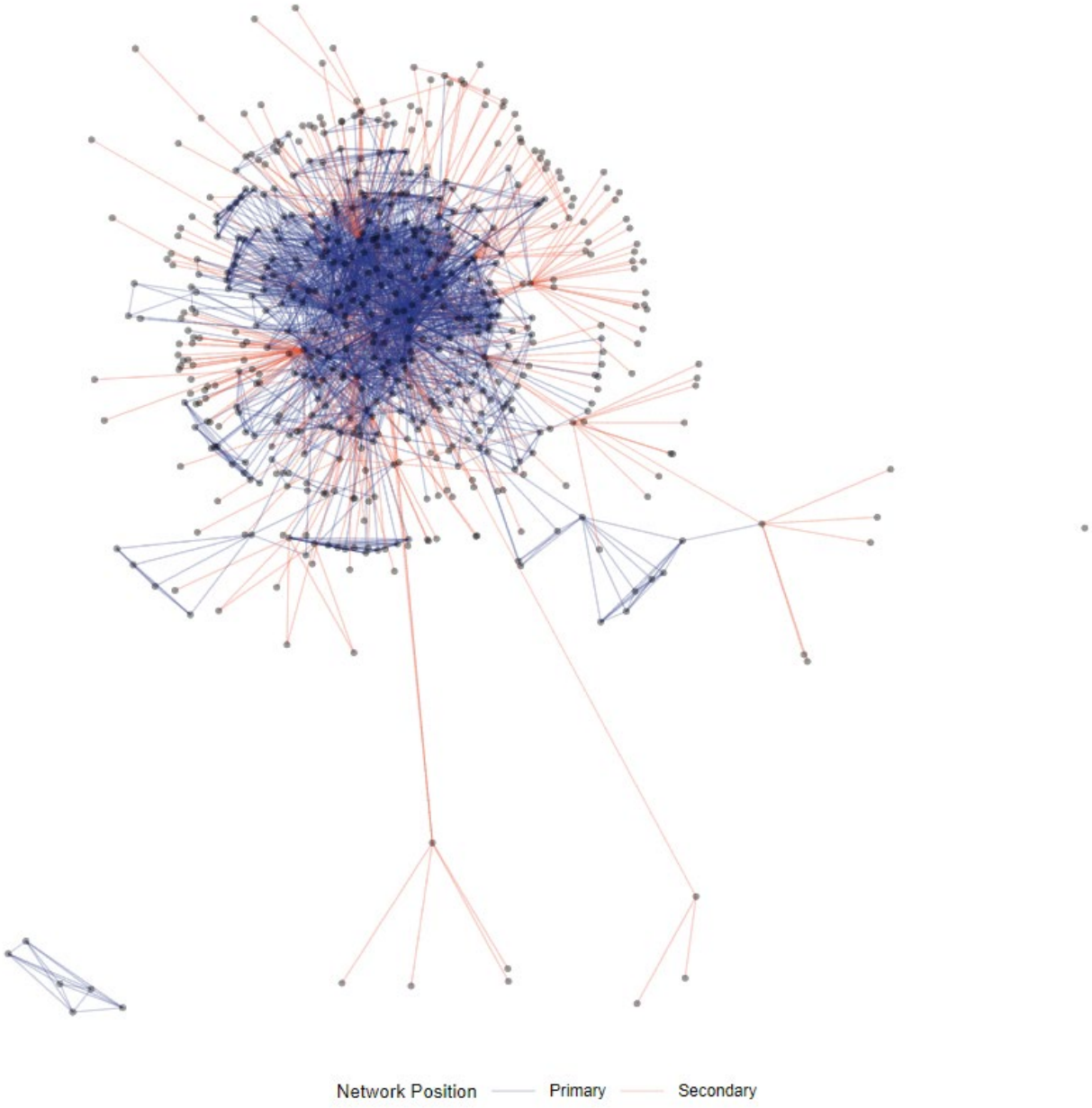


Figure 7. NIHR-led network – by programme

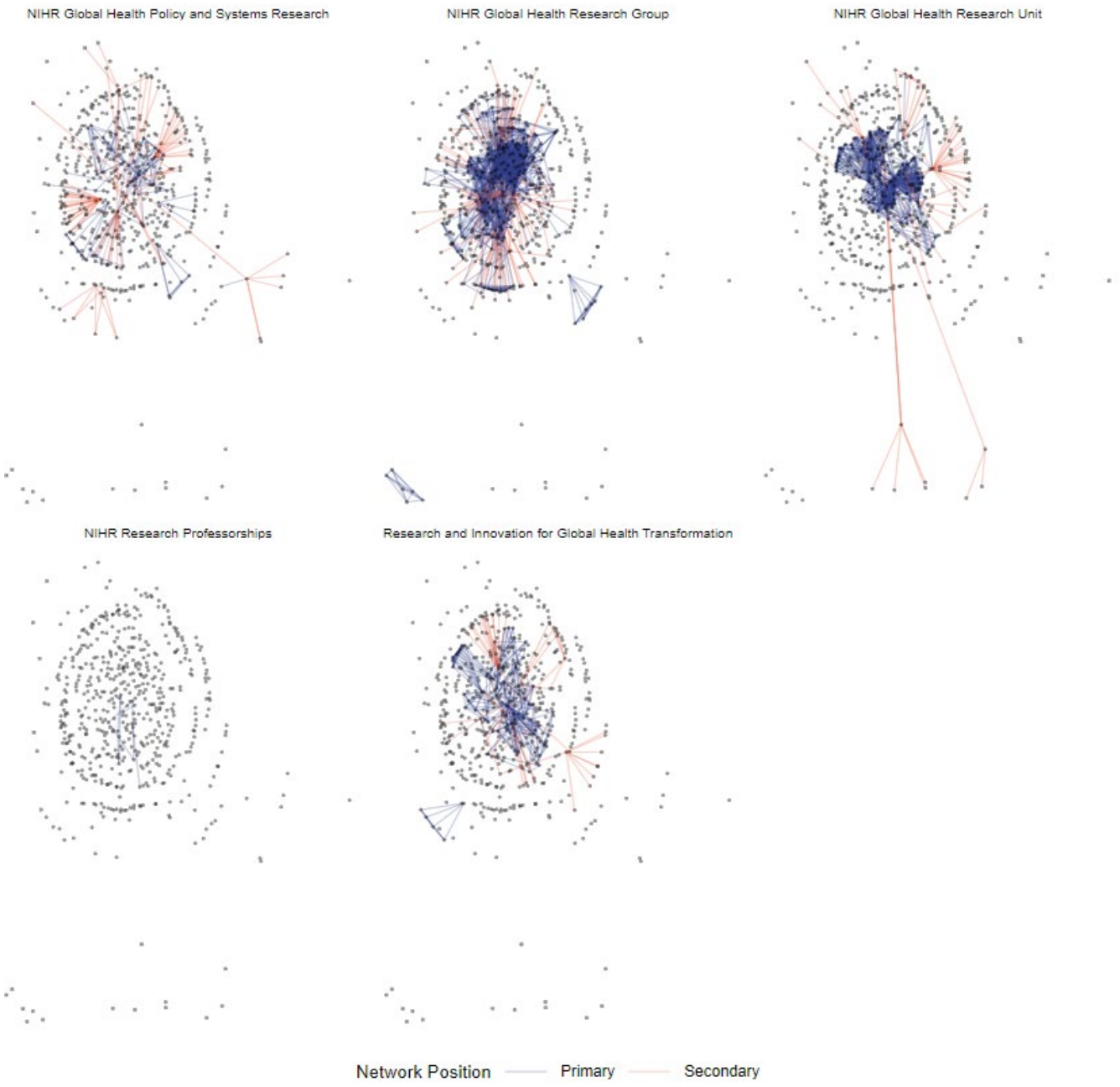


Figure 8. Partnerships network – overall

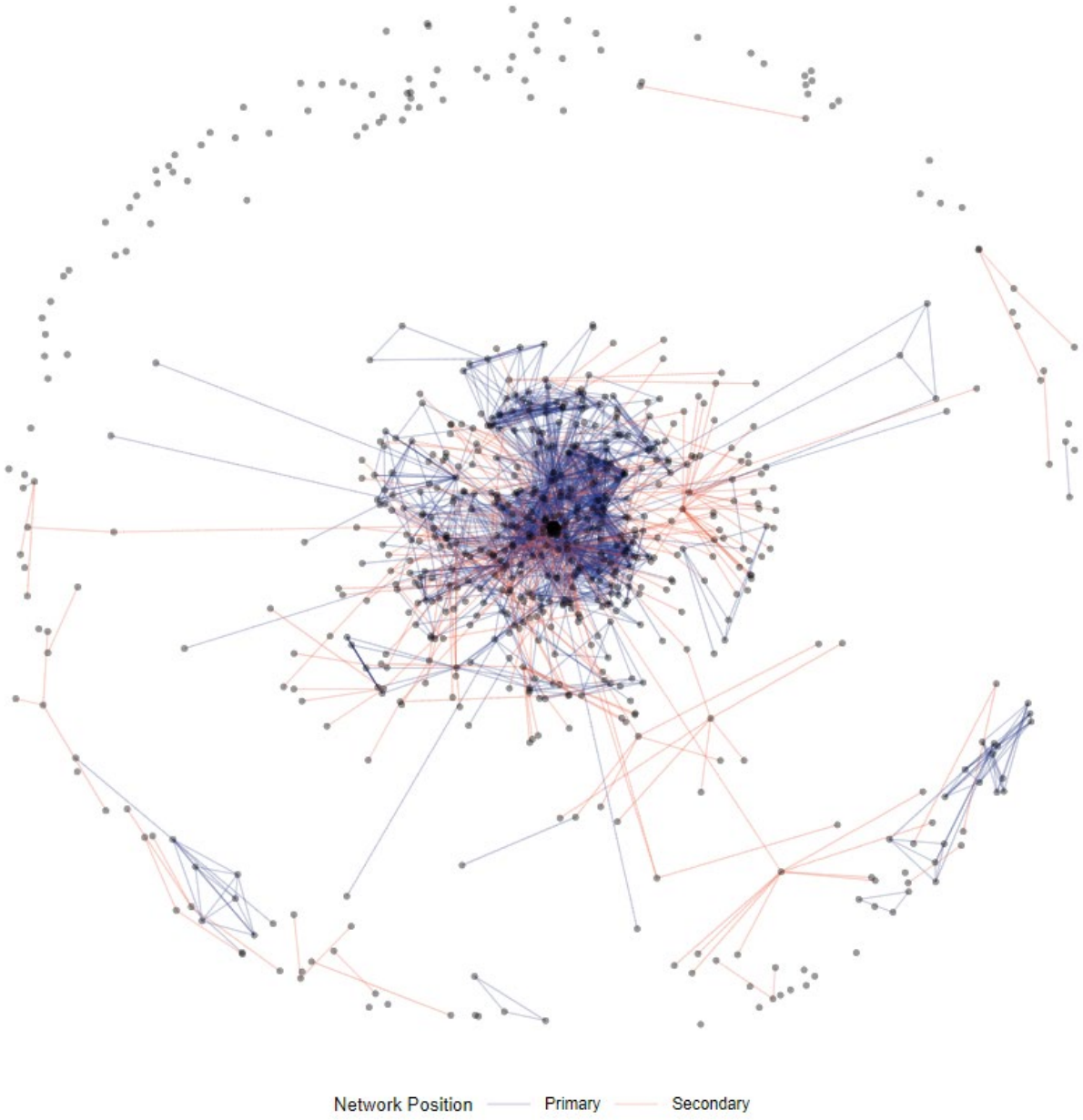


Figure 9. Partnerships network – by programme

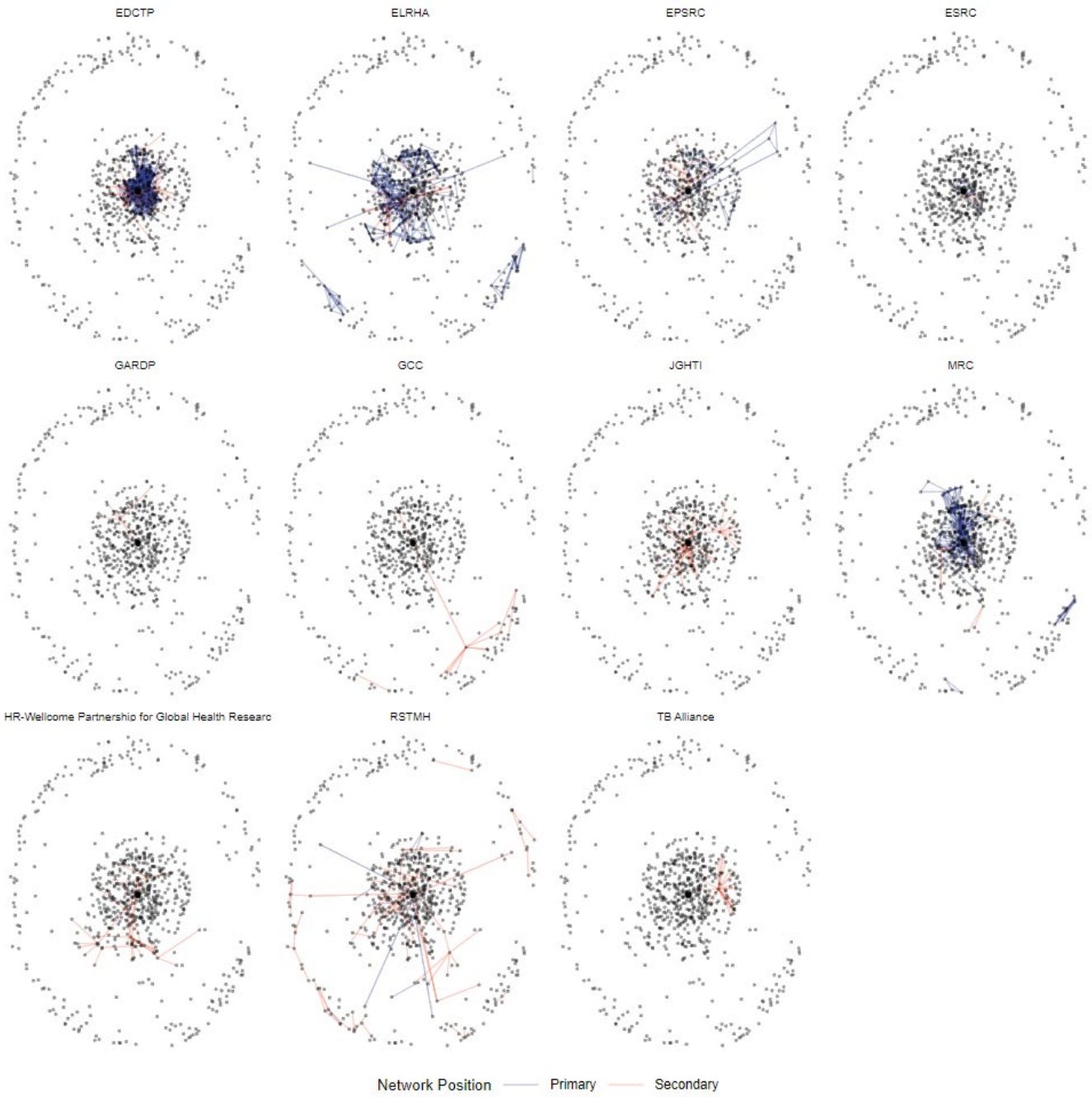
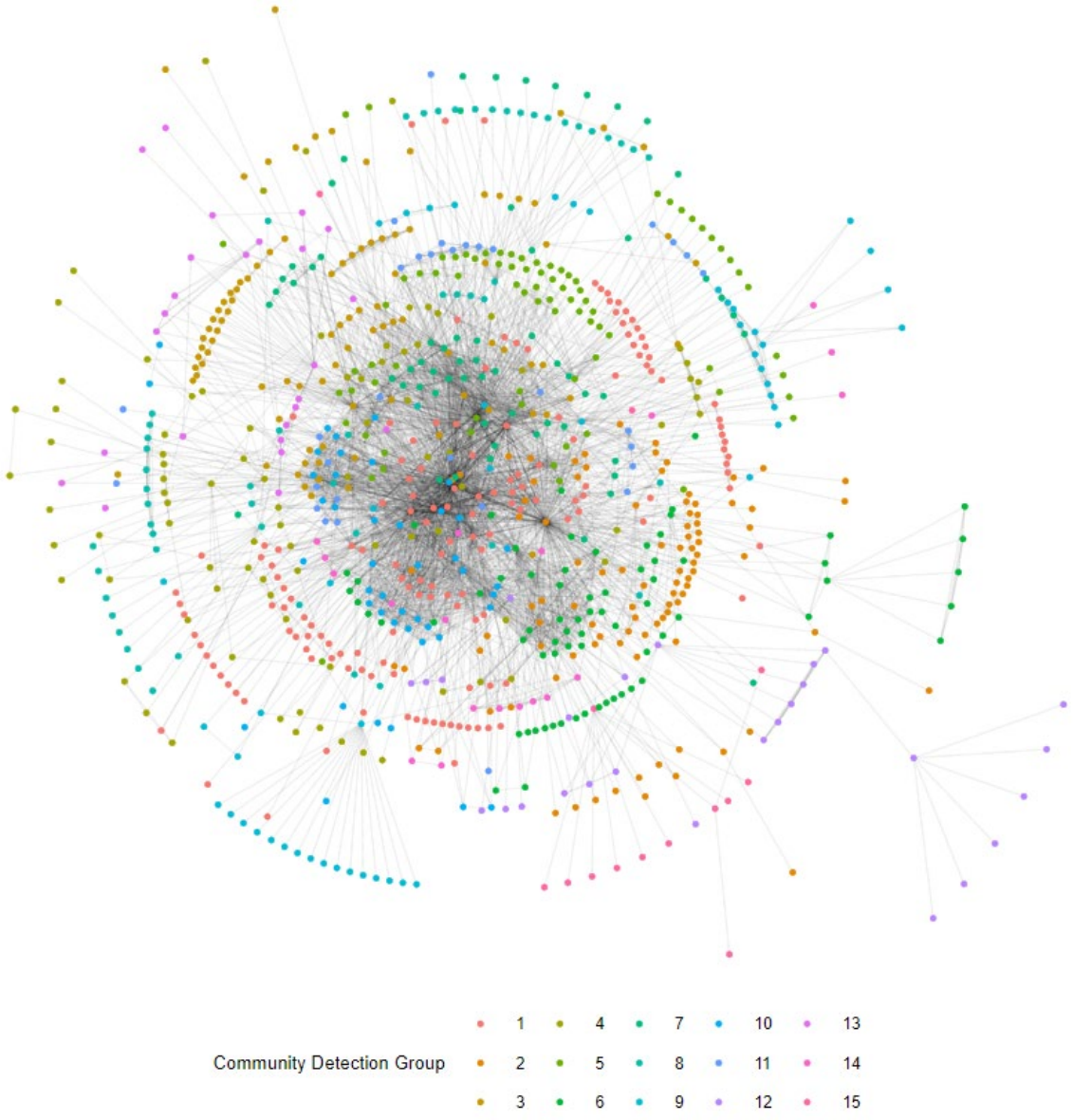


Figure 10. GHR portfolio network communities detected[18]



[18] The overall GHR portfolio network has 162 distinct community groups, caused by isolated nodes. As a result, the network presented here is a subgraph of the overall network, showing only the nodes in the first 15 community groups. These are also shown in Section 9.8 on the Community Detection analysis, which lists which institutions are in these groups.

Figure 11. NIHR-led network communities detected

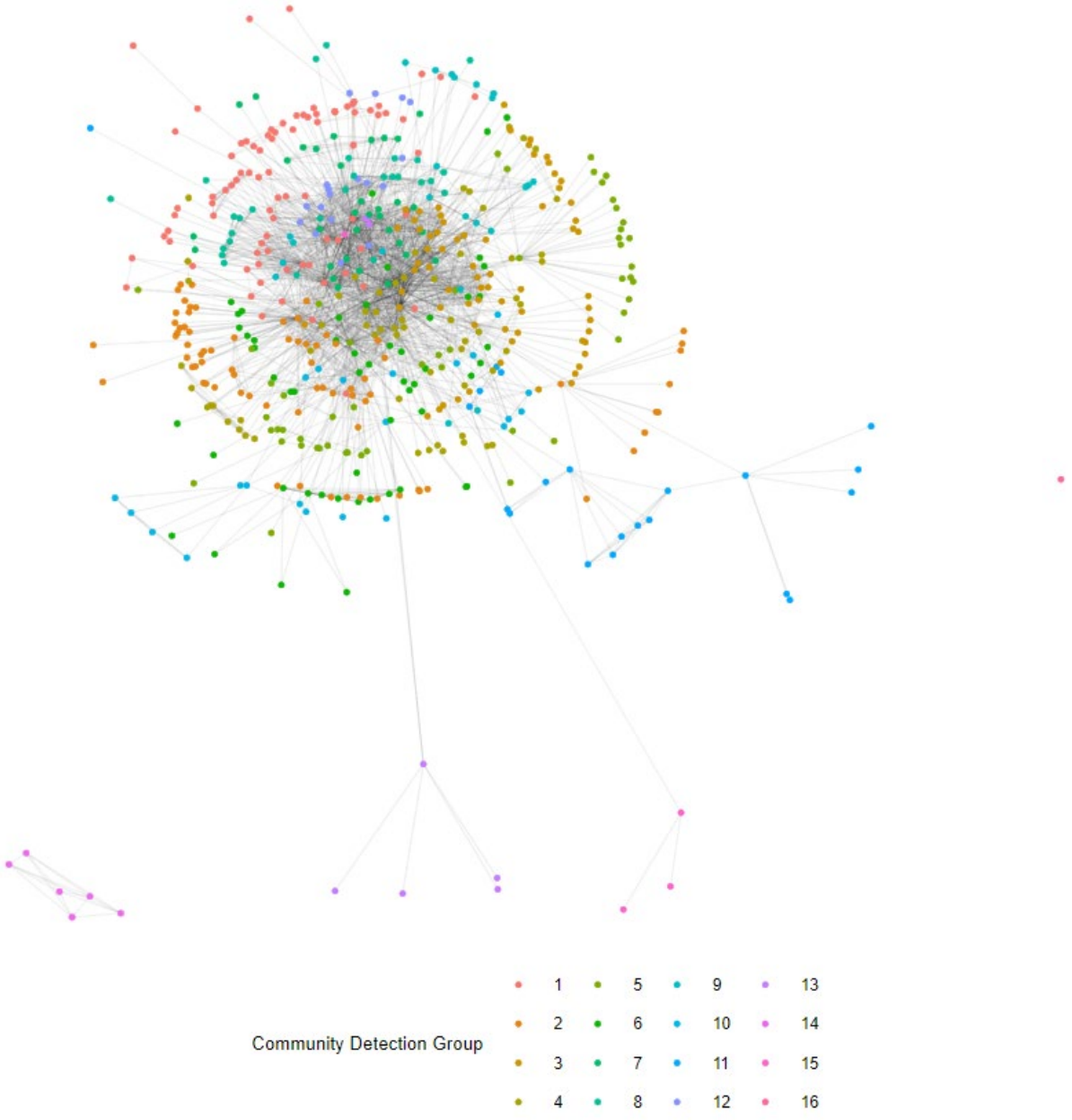
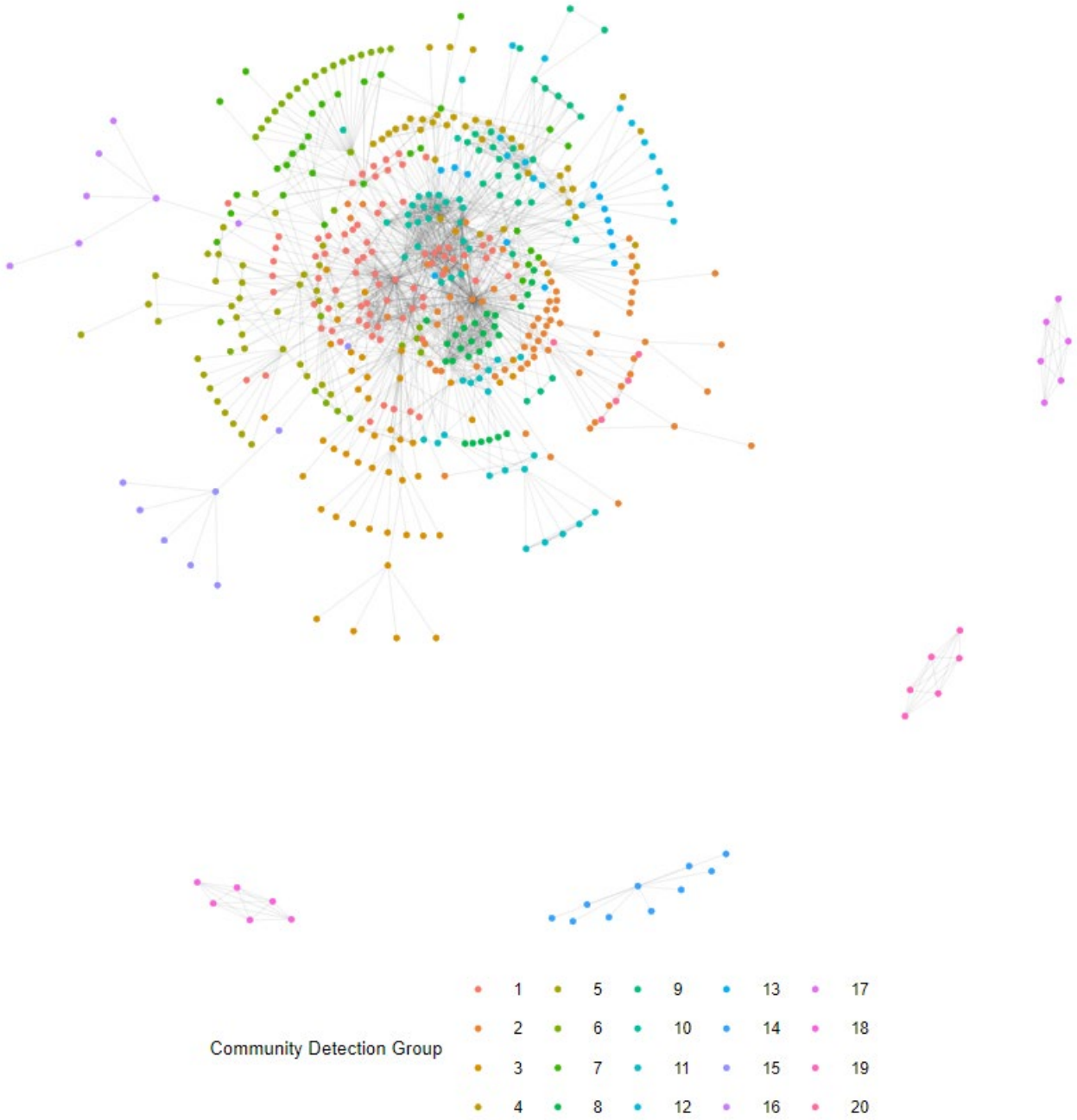


Figure 12. Partnerships network communities detected[19]



[19] The overall Partnerships network has 190 distinct community groups, caused by isolated nodes. This comes mainly from Partnerships funding smaller award which are granted to a single organisation. As a result, the network presented here is a subgraph of the overall network, showing only the nodes in the first 15 community groups. These are also shown in Section 9.8 on the Community Detection analysis, which lists which institutions are in these groups.

9.7 Full details of analysis

9.7.1 Shape, centrality, attributes

Shape

Extensive data cleaning and formatting of this data into network matrices has revealed a GHR portfolio network consisting of **1,158 unique institutions/entities and 4,618 node-to-node connections.[20] There are 401 isolated nodes.[21]**

Institution characteristics

- 71% of institutions in the GHR portfolio network are from LMICs, compared to 29% of non-LMIC institutions.
- The network includes institutions from 107 countries. The most commonly represented countries of institutions in the GHR portfolio network are the United Kingdom (11%), followed by India (6%), Kenya (6%), Uganda (5%), Nigeria (4%) and the United States (4%).

Edge-level

- 57% of connections mapped in the GHR portfolio network are from NIHR-led programmes, compared to 43% of Partnership-led programmes. However, despite NIHR-led programmes having a greater proportion of overall connections, there are only 555 unique institutions in the NIHR networks' connections compared to 740 unique institutions in the Partnerships networks' connections.[22]
- Connections are categorised into primary and secondary connections,[23] and the GHR portfolio network analysis has identified 4,024 primary connections (directly funded) and 594 additional secondary connections (either funded or influenced).
- Of NIHR-led connections, 89% are primary connections and 11% are secondary connections. For Partnerships connections, 85% are primary connections and 15% are secondary connections.

Density

Density metrics specifically measure the proportion of realized connections among all possible connections within a network. It can help to provide insights into the level of cohesion, collaboration, and information flow within the network, and can be used to compare different networks. Density values range between 0 and 1, and a higher density value suggests a greater level of collaboration and interconnectedness within the network. However, density metrics are often lower in larger networks, such as the GHR networks, given the number of possible connections that could be made, therefore comparing relative density between networks improves interpretation of findings.

[20] Node-to-node connections are connections between two nodes. This is likely a lower bound measure, given that our exercise did not cover the full portfolio of NIHR-funded research, nor does it cover the vast secondary networks unreported by other institutions that did not take part in our survey. However, we have assumed a connection between all partners in a funded research partnership, which has also contributed to the number of connections overall.
[21] Isolated nodes are nodes which are not connected to another node. This is often the case for smaller awards, which often involve only one institution.
[22] The total of both NIHR and Partnerships' unique institutions or entities does not sum up to the total of 1,158 due to overlap in institutions present in each sub-network.
[23] We define 'primary connections' as the links between institutions funded directly under a GHR award, captured using award-level data. We define 'secondary connections' as the additional links established beyond formal award-level partnerships directly funded by GHR.

- Density of the overall GHR network, considering only the primary network directly funded or involved in NIHR or partner funding, is low, signalling a degree of disconnection or isolation.
- However, when comparing NIHR's network with Partnerships, the density is relatively higher, suggesting that NIHR-led programmes achieve greater likelihood of cohesion, collaboration or interaction among institutions in the network than compared to Partnerships.

Level	Density coefficient
GHR Portfolio	0.0205
NIHR-led programmes	**0.0420**
Partner-led programmes	0.0253

9.8 Community detection

Community detection helps to identify and understand the patterns of collaboration within the global health research community in the portfolio. In particular, it identifies groups or clusters of nodes within a network that are densely connected to each other but have fewer connections to nodes outside their group. This can help reveal subgroups of institutions that are more likely to work together and share resources, expertise, and knowledge.

Our community detection analysis shows that the NIHR has a much smaller number of distinct communities (16 communities) compared to Partnerships (190 communities). This is due to Partnerships being a more fragmented set of programmes compared to NIHR-led programmes, as well as Partnerships granting smaller awards operated by single organisations without cooperation with other institutions according to the data. In addition, we also observe that Partnerships communities eventually become removed from the rest of the network, with isolated communities with less institutions that act as bridges to other parts of the network. The overall GHR portfolio has 162 communities.

A list of all identified communities for the GHR portfolio, considering connections within and between NIHR-led and Partnerships programmes, has been sent to DHSC separately.

9.9 Centrality

Degree centrality

Degree centrality assigns an importance score based on the number of connections held by each node. These indicate institutions which are likely to be influential compared to those they are directly connected with, and can quickly connect with the wider network. We have identified significant degree centrality as those with 50 or more connections, allowing us to find less connected yet important institutions, such as those in LMICs.

- **Within the overall GHR portfolio, UK institutions constitute the majority of well-connected institutions in the GHR network,** particularly the LSHTM, Liverpool School of Tropical Medicine, University College of London and University of Liverpool. However, there is evidence of a number of well-connected LMIC

institutions in the GHR portfolio network, such as Makerere University in Uganda and the University of Cape Town in South Africa, as well as Addis Ababa University in Ethiopia.

Table 6. GHR Portfolio network degree centrality with over 50 connections

	Institution	Country	Number of connections
1	London School of Hygiene and Tropical Medicine	United Kingdom	228
2	Liverpool School of Tropical Medicine	United Kingdom	151
3	University of Liverpool	United Kingdom	147
4	University College London	United Kingdom	144
5	Makerere University	Uganda	136
6	King's College London	United Kingdom	130
7	University of Cape Town	South Africa	110
8	University of Warwick	United Kingdom	104
9	Addis Ababa University	Ethiopia	95
10	Imperial College London	United Kingdom	93
11	University of Oxford	United Kingdom	90
12	University of Edinburgh	United Kingdom	90
13	Malawi Liverpool Wellcome Trust Clinical Research Programme	Malawi	88
14	National Institute for Medical Research (NIMR)	Tanzania	84
15	University of Birmingham	United Kingdom	81
16	University of Ghana	Ghana	76
17	University of Zimbabwe	Zimbabwe	75
18	Kwame Nkrumah University of Science and Technology (KNUST)	Ghana	71
19	Christian Medical College Vellore	India	70
20	Kenya Medical Research Institute (KEMRI)	Kenya	67
21	University of Southampton	United Kingdom	67
22	University of York	United Kingdom	67
23	National Institute of Mental Health and Neurosciences	India	54
24	St George's University of London	United Kingdom	53

25	African Institute for Development Policy (AFIDEP)	Kenya	51
26	London School of Economics and Political Science (LSE)	United Kingdom	50

- **Within the NIHR-led network, UK institutions constitute the majority of well-connected institutions in the GHR network,** particularly Liverpool School of Tropical Medicine, University of Warwick and University of Liverpool. However, there is evidence of a number of well-connected LMIC institutions in the GHR portfolio network, such as University of Cape Town in South Africa, Addis Ababa University in Ethiopia, the Malawi Liverpool Wellcome Trust Clinical Research Programme and the Kenya Medical Research Institute (KEMRI).

Table 7. NIHR network degree centrality with over 40 connections

	Institution	Country	Number of connections
1	Liverpool School of Tropical Medicine	United Kingdom	110
2	University of Warwick	United Kingdom	104
3	University of Liverpool	United Kingdom	94
4	Kings' College London	United Kingdom	92
5	University of Cape Town	South Africa	88
6	Addis Ababa University	Ethiopia	85
7	London School of Hygiene and Tropical Medicine	United Kingdom	82
8	University of Birmingham	United Kingdom	81
9	Malawi Liverpool Wellcome Trust Clinical Research Programme	Malawi	79
10	University of Edinburgh	United Kingdom	78
11	University College London	United Kingdom	71
12	Kenya Medical Research Institute (KEMRI)	Kenya	67
13	Christian Medical College Vellore	India	62
14	University of York	United Kingdom	57
15	University of Oxford	United Kingdom	52
16	African Institute for Development Policy (AFIDEP)	Kenya	51
17	University of Zimbabwe	Zimbabwe	51
18	University of Southampton	United Kingdom	50

19	Imperial College London	United Kingdom	48
20	Makerere University	Uganda	47
21	University of Ghana	Ghana	45
22	All India Institute of Medical Sciences	India	44
23	Douala General Hospital	Cameroon	42
24	National Institute of Mental Health and Neurosciences (NIMHANS)	India	40

- **Within the Partnerships network, while UK and other non-LMIC institutions are among the most connected overall, there is a diverse mix of non-LMIC and LMIC institutions in the network, likely due to the more fragmented nature of the Partnerships programme**. The London School of Hygiene and Tropical Medicine is the most significant institution in the Partnership network, likely to be influential compared to those they are directly connected with, and is likely able to quickly connect with the wider network. However, Makerere University is a strong example of a LMIC institution with similar capabilities across funding it has received.

Table 8. Partner network degree centrality with over 40 connections

	Institution	Country	Number of connections
1	London School of Hygiene and Tropical Medicine	United Kingdom	146
2	Makerere University	Uganda	89
3	University College London	United Kingdom	73
4	University of Liverpool	United Kingdom	53
5	National Institute for Medical Research – Tanzania (NIMR)	Tanzania	48
6	Bernhard-Nocht-Institut für Tropenmedizin	Germany	45
7	Imperial College London	United Kingdom	45
8	St George's University of London	United Kingdom	42
9	Kwame Nkrumah University of Science and Technology (KNUST)	Ghana	42
10	Liverpool School of Tropical Medicine	United Kingdom	41
11	Uganda National Health Research Organisation (UNHRO)	Uganda	41

Eigenvector centrality

Eigenvector centrality measures an institution's influence based on the number of links it has to other institutions in the network. However, it also takes into account how well connected an institution is, and how many links their connections have, and so on throughout the entire network. It helps to identify institutions that may have influence over the whole network, not just those directly connected to it, as a result of factoring in their connections with other influential institutions. The values generated indicate the relative importance of each node, with higher values indicating greater centrality.

- Within the overall GHR portfolio, eigenvector centrality demonstrated a more diverse picture compared to degree centrality measures, demonstrating a mix of UK and LMIC institutions as connected institutions in the overall GHR network. However, London School of Hygiene and Tropical Medicine ranks most significantly, followed by University of Liverpool and Liverpool School of Tropical Medicine in the network. African institutions are well connected, including University of Cape Town, Makerere University, Malawi Liverpool Wellcome Trust Clinical Research Programme, Addis Ababa University, Kenya Medical Research Institute and National Institute for Medical Research Tanzania, among others. These findings signal these institutions' importance and ability to influence the whole network, as they are more likely connected to other important or influential institutions. However, it does not always capture other forms of centrality or influence, such as the dynamics that can exist between UK and LMIC institutions and the extent to which these are equitable.

Table 9. GHR portfolio network Eigenvector centrality

	Institution	Country	Eigenvector
1	London School of Hygiene and Tropical Medicine	United Kingdom	1.00
2	University of Liverpool	United Kingdom	0.87
3	Liverpool School of Tropical Medicine	United Kingdom	0.84
4	University College London	United Kingdom	0.75
5	University of Cape Town	South Africa	0.71
6	Makerere University	Uganda	0.71
7	Malawi Liverpool Wellcome Trust Clinical Research Programme	Malawi	9.66
8	Kings' College London	United Kingdom	0.56
9	University of Oxford	United Kingdom	0.52
10	University of Edinburgh	United Kingdom	0.51
11	Addis Ababa University	Ethiopia	0.47
12	Kenya Medical Research Institute (KEMRI)	Kenya	0.45
13	National Institute for Medical Research – Tanzania (NIMR)	Tanzania	0.44
14	University of Zimbabwe	Zimbabwe	0.43
15	Imperial College London	United Kingdom	0.42
16	University of Warwick	United Kingdom	0.41
17	Kwame Nkrumah University of Science and Technology (KNUST)	Ghana	0.39
18	University of Malawi College of Medicine	Malawi	0.38
19	University of Birmingham	United Kingdom	0.37
20	University of Southampton	United Kingdom	0.36

21	Christian Medical College Vellore		0.34
22	National Institute of Mental Health and Neurosciences (NIMHANS)		0.32
23	Aga Khan University Pakistan		0.31
24	University of Ghana		0.31
25	St George's University of London		0.31

- Within the NIHR-led programmes, eigenvector centrality shows a mix of influential UK and LMIC institutions as those who are most connected but also most connected to other influential institutions in the network. In particular, the Liverpool School of Tropical Medicine is ranked highest, likewise for degree centrality, providing stronger evidence that the Liverpool School of Tropical Medicine is one of the most central and influential nodes among NIHR-led programmes. This is followed by the Malawi Liverpool Wellcome Trust Clinical Research Programme, University of Cape Town and Addis Ababa University. These findings signal their importance and ability to influence the whole network, as they are more likely connected to other important or influential institutions. Importantly, for LMIC institutions, these signal important and influential institutions in their regions who are able to connect to funding and therefore involve or share knowledge with other institutions.

Table 10. NIHR network Eigenvector centrality

	Institution	Country	Eigenvector
1	Liverpool School of Tropical Medicine	United Kingdom	1.00
2	Malawi Liverpool Wellcome Trust Clinical Research Programme	Malawi	0.91
3	University of Cape Town	South Africa	0.82
4	Addis Ababa University	Ethiopia	0.74
5	University of Warwick	United Kingdom	0.72
6	University of Liverpool	United Kingdom	0.71
7	Kenya Medical Research Institute (KEMRI)	Kenya	0.68
8	University of Birmingham	United Kingdom	0.65
9	University of Edinburgh	United Kingdom	0.65
10	London School of Hygiene and Tropical Medicine	United Kingdom	0.55
11	University College London	United Kingdom	0.51
12	Christian Medical College Vellore	India	0.49

13	African Institute for Development Policy (AFIDEP)	Kenya	0.48
14	Douala General Hospital	Cameroon	0.48
15	University of Oxford	United Kingdom	0.44
16	Makerere University	Uganda	0.43
17	Kings' College London	United Kingdom	9,42
18	University of the Witwatersrand	South Africa	0.41
19	University of Zimbabwe	Zimbabwe	0.41
20	University of Southampton	United Kingdom	0.41
21	National Institute of Mental Health and Neurosciences (NIMHANS)	India	0.39
22	National Institute for Medical Research – Tanzania (NIMR)	Tanzania	0.38
23	Stellenbosch University	South Africa	0.37
24	University of York	United Kingdom	0.35
25	Kwame Nkrumah University of Science and Technology (KNUST)	Ghana	0.35
26	Imperial College London	United Kingdom	0.34
27	Lancaster University	United Kingdom	0.31

- Within the Partnerships network, eigenvector centrality shows little difference compared to degree centrality, demonstrating a consistency of centrality measures. This suggests that these institutions are both central (i.e., most connected) and influential nodes (well-connected to other important nodes) in the Partnerships network. In particular, the London School of Hygiene and Tropical Medicine are the most important and influential node in the Partnerships network.

Table 11. Partner network degree centrality

	Institution	Country	Eigenvector
1	London School of Hygiene and Tropical Medicine	United Kingdom	1.00
2	Makerere University	Uganda	0.58
3	University College London	United Kingdom	0.55
4	Bernhard-Nocht-Institut für Tropenmedizin	Germany	0.52
5	Kwame Nkrumah University of Science and Technology (KNUST)	Ghana	0.50
6	Uganda National Health Research Organisation (UNHRO)	Uganda	0.50
7	University of Liverpool	United Kingdom	0.47
8	Imperial College London	United Kingdom	0.42
9	National Institute for Medical Research – Tanzania (NIMR)	Tanzania	0.41

10	Association PAC-CI	Cote D'Ivoire	0.38
11	The Alliance for International Medical Action (ALIMA)	Senegal	0.36
12	University of Ghana	Ghana	0.36
13	St George's University of London	United Kingdom	0.35
14	HerpeZ Limited (HerpeZ)	Zambia	0.35
15	Institut Pasteur de Cote D'Ivoire	Cote D'Ivoire	0.35
16	Centre Pasteur du Cameroun	Cameroon	0.35
17	The Chancellor the Masters and the Scholars of the University of Oxford (UOXF)	United Kingdom	0.34
18	Institut National de Recherche Biomédicale (INRB)	Democratic Republic of Congo	0.33
19	King's College London	United Kingdom	0.33

Betweenness centrality

Betweenness centrality measures the number of times an institution lies on the shortest path between other institutions. In other words, it identifies the institutions that act as 'bridges' in the network, finding those who may be able to influence the flow of information or other resources around a system. The higher the betweenness centrality score, the more likely the institution acts as a bridge or intermediary between others.

- Within the overall GHR portfolio, including NIHR and Partnerships, evidence shows that UK institutions funded play a significant role in connecting other institutions to funding. In particular, the London School of Hygiene and Tropical Medicine is the most significant institution in the overall network in this regard, acting as an important bridge between other institutions and a high ability to enable connections with institutions in different parts of the network. There are a very limited LMIC institutions who can possibly have a similar role, including Makerere University, National Institute for Medical Research Tanzania (NIMR), and University of Cape Town.

Table 12. GHR portfolio network Betweenness

	Institution	Country	Betweenness coefficient
1	London School of Hygiene and Tropical Medicine	United Kingdom	110352
2	Kings' College London	United Kingdom	56721
3	University of Liverpool	United Kingdom	51216
4	Makerere University	Uganda	46205
5	Liverpool School of Tropical Medicine	United Kingdom	43370
6	University College London	United Kingdom	40181

7	University of Warwick	United Kingdom	38761
8	Imperial College London	United Kingdom	37530
9	University of Oxford	United Kingdom	27370
10	University of Southampton	United Kingdom	25006
11	National Institute for Medical Research – Tanzania (NIMR)	Tanzania	22571
12	World Health Organisation	Switzerland	20024
13	University of Cape Town	South Africa	18562
14	Agrosavia	Colombia	16869
15	University of Edinburgh	United Kingdom	16636
16	University of Bristol	United Kingdom	16471
17	African Population and Health Research Centre (APHRC)	Kenya	15570
18	University of York	United Kingdom	15510
19	TB Alliance	United States	15351

- Within the NIHR-led portfolio, evidence shows that UK institutions funded by the NIHR play a significant role in connecting other institutions to NIHR funding. In particular, coefficients reveal that the Liverpool School of Tropical Medicine, University of Liverpool and Kings' College London play a significant role in connecting other institutions to NIHR funding, acting as bridges with a high ability to enable connections with institutions in different parts of the network. There are a few LMIC institutions that also signal a strong ability to act as 'bridges' in the network, including the University of Cape Town in South Africa, the African Institute for Development Policy in Kenya, and Addis Ababa University in Ethiopia. Betweenness coefficients range between 3 and 23,887.

Table 13. NIHR-led network Betweenness

	Institution	Country	Betweenness coefficient
1	Liverpool School of Tropical Medicine	United Kingdom	23821
2	University of Liverpool	United Kingdom	21829
3	Kings' College London	United Kingdom	21596
4	University of Warwick	United Kingdom	18061
5	London School of Hygiene and Tropical Medicine	United Kingdom	14912

6	Imperial College London	United Kingdom	12909
7	Agrosavia[24]	Colombia	9730
8	University College London	United Kingdom	9721
9	University of Birmingham	United Kingdom	8959
10	Queen Margaret University Edinburgh	United Kingdom	8929
11	University of Edinburgh	United Kingdom	8239
12	University of Cape Town	South Africa	7733
13	University of York	United Kingdom	7605
14	African Institute for Development Policy (AFIDEP)	Kenya	7504
15	Addis Ababa University	Ethiopia	7306
16	University of Sciences Techniques and Technologies of Bamako	Mali	6851
17	University of Bristol	United Kingdom	6691
18	University of Southampton	United Kingdom	6634
19	University of Oxford	United Kingdom	6273
20	Malawi Liverpool Wellcome Trust Clinical Research Programme	Malawi	6225
21	University of Central Lancashire	United Kingdom	5870

- Within the Partnerships network, evidence shows that UK institutions and other global platforms play a significant role in connecting other institutions to funding, such as the London School of Hygiene and Tropical Medicine, University College London and the University of Oxford. However, like with NIHR programmes, there is an overlap in terms of the LMIC institutions who could possibly play this role as bridges for other organisations. These include Makerere University in Uganda and the National Institute for Medical Research in Tanzania.

Table 14. Partnerships network Betweenness

	Institution	Country	Betweenness coefficient
1	London School of Hygiene and Tropical Medicine	United Kingdom	46564
2	Makerere University	Uganda	26940

[24] Agrosavia has high betweenness due to the number of secondary connections it has nationally in Colombia.

3	University College London	United Kingdom	19259
4	National Institute for Medical Research – Tanzania (NIMR)	Tanzania	10815
5	World Health Organisation	Switzerland	10601
6	University of Oxford	United Kingdom	9568
7	Global TB Alliance	United States	8394
8	Liverpool School of Tropical Medicine	United Kingdom	7556
9	University of Southampton	United Kingdom	6867
10	University of Liverpool	United Kingdom	6482
11	St George's University of London	United Kingdom	6392
12	Imperial College London	United Kingdom	5829
13	International Rescue Committee	United Kingdom	5453
14	Johns Hopkins University	United States	5242
15	King's College London	United Kingdom	5044

10. Bibliometric Analysis plan

10.1 Introduction

This concept note explains the purpose of bibliometric analysis and how Ecorys intends to use this method to evaluate the Global Health Research (GHR) portfolio. This includes a brief overview of NIHR GHR guidelines on reporting and publishing research, and the purpose, aims and approach to bibliometric analysis for the GHR portfolio evaluation.

10.2 NIHR GHR guidelines on research outputs and publications

The NIHR, including the GHR portfolio, have various requirements for award holders in reporting and publishing their research outputs, but also provide support to enable GHR awards to publish in open access journals.

To demonstrate the value and impact of the research NIHR funds, the NIHR uses Researchfish to collect information on the research activities undertaken by award holders, requesting them to submit data on their outputs, outcomes and impacts on an annual basis. This enables NIHR to provide a strong evidence base to support continued funding of global health research, improve quality of reporting research outcomes, and maintain a longer-term relationship with award holders to capture new developments and impacts from research.[25] We understand that Units, Groups, and Health Policy and Systems Research (HPSR) awards within the GHR portfolio, as well as some Partnerships, are requested to submit data to Researchfish, although this data is inconsistent.[26]

NIHR provides an Open Access publications funding envelope allocated to eligible research award contracts under the GHR portfolio, enabling researchers to publish NIHR funded articles in fully Open Access journals and platforms as well as in subscription journals where the publisher provides a compliant paid open access option. These Open Access funds can be used for up to 2 years after awards' completion date. Open Access funding envelopes were automatically allocated to successful research awards issued from 1 April 2022, which meant researchers no longer were required to predict their Open Access costs. However, awards with contracts issued before 1 June 2022 would continue using the Open Access budget included in their overall research costs. This applies to HPSR, Units, Groups, RIGHT and Global Health Research Centres, however, does not apply to the time period of our evaluation of the GHR portfolio.[27]

NIHR requires awarded researchers funded by NIHR GHR to acknowledge NIHR in research outputs, which allow publication-level monitoring to take place against existing sources of publication data. All research outputs should acknowledge the NIHR funding in full, and include a unique award identifier assigned to awards (e.g., NIHR10001) to enable NIHR to automatically identify and pull information from publishers.[28]

Award holders are also required to notify NIHR on the publication of upcoming research outputs to promote early identification of outputs and promote dissemination, particularly of awards and outputs deemed particularly

[25] NIHR Researchfish guidance, link.
[26] NIHR research outputs and publications guidance, link.
[27] NIHR Open Access publications funding guidance, link.
[28] NIHR research outputs and publications guidance, link.

newsworthy, impactful or sensitive identified using a set of criteria. Awards are required to send details of media activity and copies of accepted journal articles to the NIHR coordinating centre team.[29]

GHR are also planning to launch their own journal, which will publish research resulting from work funded by the GHR portfolio that is of sufficiently high scientific quality that directly addresses the diverse health needs of people in low- and middle-income countries. The NIHR is the world's first health research funder to publish comprehensive accounts of its commissioned research within its own publicly and permanently available journal series. The GHR journal is expected to cover publications within strategic priority areas of global health research, including addressing the shifting global burden of disease, developing health systems to identify and respond to population needs, build resilience to tackling future global health threats, and strengthening research capacity in LMICs through equitable partnerships between LMIC and UK researchers. This journal is due to be launched in 2023, with no evidence of developments emerging yet.[30]

10.3 The purpose of bibliometric analysis, and how Ecorys will use it to evaluate the GHR portfolio?

Bibliometric analysis is a common and thorough technique for evaluating research collaboration across scholars and institutions. It uses statistical methods to explore the output and quality of vast quantities of academic publications/research across a variety of disciplines and domains. These are often visually presented.[31]

Ecorys will use bibliometric analysis to explore the reach and impact of NIHR-funded research, including publications and other research outputs where possible. It will form a key component of our evaluation of the NIHR GHR portfolio's effectiveness, including the scientific importance and policy relevance of research outputs through performance metrics and citation analysis (EQ 3.1), as well as insights into equitable partnerships through co-authorship analysis (EQ 3.3). While quantitative insights from the bibliometric analysis will reveal the output of NIHR research, it serves as a proxy for quality. Therefore, to improve understanding of the quality of funded research, our findings will be triangulated with qualitative evidence collected during the evaluation to provide nuanced evidence on research is scientifically important, policy relevant, and delivering research impact.

There are different types of bibliometric analyses that can be run, which can be triangulated together, to help understand the output and proxies of quality of funded research. Introductory information can be found here. To summarise, these include:

- **Performance analysis**: This analysis examines the contributions of research constituents, defined as authors, institutions, countries and journals; in a given field. These include a variety of metrics, including publication-related metrics, citation-related metrics, and both. Commonly used metrics can be found in Table 16 at the end of this document.
- **Science mapping**: This analysis examines the relationships between research constituents. These include different analyses, including citation analysis, co-citation analysis, and co-authorship analysis. These can be combined with network analysis approaches to visualise the bibliometric relationships. Types of analyses can be found in Table 17 at the end of this document.

[29] NIHR research outputs and publications guidance, link.
[30] Global Health Research Journal, link.
[31] This can be in the form of a simple descriptive graphs, such as bar charts and trends, to more advanced visualisations, such as network maps and geographic displays of information (e.g., on a world map).

There are 4 main steps to the bibliometric analysis we will undertake to evaluate the GHR portfolio. These are outlined below with specific reference to how we will implement each step with the resources and tools available to us. We will use 'bibliometrix', an R package, to import, clean and analyse the bibliometric data.[32]

- **Using a suitable data repository for bibliometric research.** We will use Dimensions as our data source, which is a large citation and abstract database that covers all subject areas and provides free access to citations from research publications. NIHR has access to Dimensions Plus, which is fee-based subscription to access additional features, and we will discuss with NIHR on how we can leverage their access to support our analysis. In particular, we will look to discuss the following:
  - The youth labour market in the EU was severely affected by the economic recession between 2008 and 2013. Although the share of unemployed youth has decreased since, many young people are still finding it challenging to find and retain sustainable employment, and the youth labour market has not yet returned to its pre-crisis situation in 2007.
  - For what purposes is Dimensions currently used for within NIHR GHR? What experience does NIHR GHR have of using Dimensions data?
  - What access can we get to Dimensions data? How will it be shared with us?
  - To support identification of NIHR attributable articles in Dimensions, what is the extent of grant referencing of NIHR GHR-funded research in academic publications? How is this approached for research co-funded by NIHR under Partnerships?
  - Based on NIHR GHR's experience, where can Ecorys offer added value to NIHR?

While a relatively younger database among other bibliographic databases (see Table 15),[33] it is inclusive of the broader set of research outputs and use cases that academics now face. Dimensions is the only database that links publications and citations with grants, patents, clinical trials, datasets, and policy papers where possible. Data on the interconnections between research enhances analysis options for the whole research lifecycle of NIHR GHR's funded research. The use of Dimensions also helps us to generate reproducible analysis scripts for NIHR to enable the GHR team to undertake their own future analyses of the GHR portfolio in-house.

Table 15. Bibliometric databases

Bibliometric database	Description
Dimensions	Dimensions is a linked research knowledge system which maps the entire research lifecycle, bringing together grants, publications, citations, alternative metrics, clinical trials, patents and policy documents to deliver a platform that enables users to find, analyse and gather insights on the academic and broader outcomes of research.
Web of Science (WoS)	Web of Science is a paid-access platform that provides access to multiple databases that provide reference and citation data from academic journals, conference proceedings, and other documents in various academic disciplines.

[32] *bibliometrix: An R-tool for comprehensive science mapping analysis*, link.
[33] As a general note, disparities may exist between different databases for a number of reasons, including coverage of different databases, date ranges, or the inclusion criteria on the types of content (e.g., peer-reviewed journals).

Scopus	Scopus is an abstract and citation database of peer-reviewed literature including scientific journals, books, and conference proceedings. Scopus provides an overview of worldwide research output in the fields of science, technology, medicine, social sciences, and arts and humanities.
CrossRef	CrossRef is a nonprofit organization that provides a digital infrastructure for scholarly content, facilitating the discovery and linking of academic publications through the assignment of unique DOIs (Digital Object Identifiers). This includes establishing connections between non-journal content, book chapters, conference papers, dissertations, peer review reports, organizations, research grants, and conferences.
Open Alex	OpenAlex is a free, open-source index of hundreds of millions of interconnected entities across the global research system, including academic articles, conference papers, preprints, and other scholarly publications.

- **Identifying whether relevant metrics can be generated.** Metrics generated by Dimensions are suitable for performance analysis, and include publication citations, recent citations, altmetric attention score,[34] relative citation ratio, field citation ratio, and patent citations. It also provides the appropriate data for our team to undertake science mapping, including citation, co-citation, and co-authorship analyses.[35]

- **Article-level data collection.** To collect the right article-level data to analyse the GHR portfolio, we will define a search query that sets the parameters targeting NIHR-funded research in Dimensions. This includes the NIHR and Partnerships unique award identifier codes to help isolate the NIHR-attributable funded research outputs OR other parameters including year, keywords, award name, institution, and other identifiable award characteristics in order to collect the maximum amount of data possible. This will allow us to export attributable data on publications and citations, and where observed, the linkages of NIHR-funded research to clinical trials, patents and policy papers.

- **Data cleaning.** Once data is exported from Dimensions, we will pre-process and clean the data using the `bibliometrix` package in R. This will include ensuring data is attributable to the NIHR GHR portfolio, identifying and removing potential duplicates, and tidying up affiliations and references data.

- **Data analysis and visualisation.** With a cleaned dataset attributable to NIHR GHR-funded research, we will be able to run our analysis, including using performance metrics and science mapping analysis techniques. We will undertake a performance analysis of metrics identified earlier, such as publication citations, altmetric attention scores,[36] and relative citation ratio to understand the influence and impact of funded research. We will also have appropriate data to undertake science mapping, including citation analysis to understand influential publications and co-authorship analysis to help understand the links between individual researchers, the degree of international collaboration and insights into equitable partnerships.[37]

[34] Altmetric attention scores are a weighted count of all of the online attention Altmetric have found for an individual research output. This includes mentions public policy documents and references in Wikipedia, the mainstream news, social networks, blogs and more.
[35] *Which indicators are used in Dimensions and how can these be viewed?,* link.
[36] Altmetric attention scores are a weighted count of all of the online attention Altmetric have found for an individual research output. This includes mentions in public policy documents and references in Wikipedia, the mainstream news, social networks, blogs and more.
[37] For example, UKCDR recently commissioned a similar analysis, carried our by Anthony Bridgen and Pauline Rose on Cambridge Global Challenges. *A new Dimension for understanding international collaboration: Mapping as a tool for assessing equitable partnerships,* link.

10.4 Supplementary metrics and analyses

Table 16. Performance analysis metrics

Type of metric	Metric	Description
Publication-related	Total publications	The total number of publications produced by researchers.
Citation-related	Citation counts	The number of times a publication has been cited by other research. It is a commonly used metric to measure the impact of research publications and the influence.
	Average citations	The average citation count per publication, per year or per period.
	Field citations ratio / field-weighted citation impact	How often a publication is cited compared to other research of the same age in the same subject area. It is a measure of the impact of research publications within a particular field.
	Citation recency	How many times the publication has been cited in the last 2 years. This is helpful for seeing how fast a publication is accumulating citations.
	Highly cited indicator	If a publication has ever been in the top 10% of like-for-like cited publications, and when.
Publication- and citation-related	h-index	A measure of the productivity and impact of a researcher, calculated by counting the number of publications (h) that have received at least h citations.
	g-index	A variation of the h-index, used to measure the impact of a researcher's publications based on the distribution of citations received by those publications. It is considered a more robust measure of research impact because it accounts for both the number of highly cited papers and the distribution of citations across publications.
	Altmetrics	These are alternative metrics that measure the impact of research publications beyond traditional citation metrics, helping identify where research has been widely discussed and shared. For example, Dimensions offers a weighted count of the online 'mentions' a publication has received.

Table 17. Science mapping analyses

Type of analysis	Description
Citation analysis	Analysis of the relationships among publications by identifying the publications' degree of influence. Unit of analysis is documents.
Co-citation analysis	Analysis of the relationships among cited publications, which can help to identify clusters of research. Unit of analysis is documents.
Co-authorship analysis	Analysis of the relationships among authors and their affiliations and equivalent impacts in research. Unit of analysis are author affiliations.

11. Research outputs

The table below compiles available data on research outputs for each GHR programme. This includes, where possible, a distinction between published journal articles and other outputs. Given monitoring data limitations, this is an estimation of numbers of outputs where available, drawn from various programme level data sources from a range of points in time. This will be triangulated by the bibliometric analysis to be undertaken in the final evaluation.

Table 18. Research outputs for each GHR programme

Programme	No. journal articles	No. other outputs	Total outputs	Notes
Units	212	618	830	Docs only specify to number of presentations (n=126) and conference posters (n=102). [Source: Units Call 1, Annual Review (Year 3)]
Groups	298	1457	1755	[Source: DHSC Annual Review – Groups Call 2 (Year 3), DHSC Annual Review – Groups Call 1 (Year 3)]
EDCTP	42	43	85	[Source: DHSC Annual Review 2018-2020, DHSC Annual Review 2021-2022]
GACD-MRC	-	-	405	Information does not specify the type of outputs [Source: Evaluation of the Global Alliance for Chronic Diseases – Final Report (Technopolis, 2021)]
AMR-SORT IT	35	-	-	Documents do not specify other outputs [Source: 2021 WHO TDR AMR SORTIT Annual Report and Review]
Professorships	62	35	97	[Source: Professorships, Annual Review 2022-23]
Wellcome Partnership	-	-	73	Documents do not specify the type of outputs [Source: Arch Knowledge Hub - https://arch.tghn.org/]
RIGHT	-	-	168	Documents do not specify the type of outputs [Source: RIGHT Call 1, Annual Review 2020-2021]
JGHTI	772	-	-	338 of these publications were from one award [Source: Review of the Joint Global Health Trials funding scheme]
Global Road Safety Facility	15	43	58	[Source: GRSF Annual Review 2022]
GARDP	2	10	-	This is unlikely to be full number as also mentions other outputs with no quantification [Source: Final Report Narrative for Department of Health and Social Care Global Antibiotic Research & Development Partnership (GARDP)]

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