The Academy of Medical Sciences

# Strengthening clinical research career pathways in low- and middle-income countries

## Evidence, challenges, and policy opportunities

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# Executive summary

**For all countries, strengthening capacity to conduct clinical research is critically important. This is especially true for low- and middle-income countries (LMICs), where disease and mortality burdens are highest and the potential gains for improved health are greatest. Formalised and locally embedded clinical research career pathways (CRCPs) create a vital building block for wider research capacity strengthening. CRCPs provide an integrated, structured and recognised career structure that can be followed by all health professionals who actively participate or have an interest in research. This should include a defined progression of roles, training and responsibilities, supported and sustained by the healthcare system and academic institutions working together to promote flexible and integrated career paths.**

Clinical researchers play a pivotal role in the production of high-quality, impactful and relevant research. However, in many parts of the world, major barriers can hinder the development of a clinical research career. Across many LMICs in Africa, Asia and Latin America, the formalisation, recognition and accreditation of a CRCP is more limited. As a result, clinical researchers in these settings have varying and complex career trajectories.

This report was undertaken to understand the career pipeline for clinical researchers in LMICs, including barriers to and facilitators for accessing, pursuing and maintaining a CRCP. Strengthening research capacity has been the focus of numerous studies and programmes over the past two decades. However, this initiative is distinct because it emphasises the **critical need for investment and structural change at institutional and national levels in the research ecosystem in order to strengthen CRCPs**, rather than focusing solely on individual researchers. Individual researchers thrive when they have a supportive system – one that provides clear pathways, resources and recognition.

The report has been informed by an expert international working group, a series of evidence-gathering workshops in Africa, Asia and Latin America, and research conducted by the Centre for Capacity Research at Liverpool School of Tropical Medicine. This report highlights key factors that strongly influence institutional and individual progression within the research ecosystem and which often impede clinical researchers' development in LMICs. At the same time, it identifies multiple examples of good practices that could be replicated in other contexts to address these challenges.

While LMICs are highly diverse, the report highlights stark similarities in the main barriers to clinical research pathways across Asia, Africa and Latin America, with country-specific nuances depending on levels of development and government support. Institutional support is vital for individuals pursuing clinical research pathways, and institutions themselves are tied to the broader regulatory and funding environment in which they operate. Although some of the major barriers identified were expected, others were not anticipated. For example, current regulatory and ethics systems were identified as a major barrier to young researchers' careers. While essential in providing oversight and ensuring the safety and scientific integrity of research, the complexity of these systems and their often burdensome processes can deter young investigators from starting a career in clinical research. Although this project did not systematically examine these challenges, we recommend further work to explore barriers and solutions, and to identify best practices that can streamline regulatory and ethics systems without compromising rigour.

Discussions during the project identified several key opportunities to strengthen CRCPs including:

- Academic institutions and health services (including hospitals) must formally recognise clinical research as a career pathway with defined yet flexible structures.
- Opportunities must exist for the integration of clinical practice and research, with protected time and funding that allow clinicians to pursue research alongside clinical training or practice.
- Clinical research needs to be introduced as a career opportunity early on in health professionals' education, to encourage engagement and interest.
- Funding schemes for clinicians should offer flexibility in timing and entry points along the CRCP.
- Mentorship and supervision are essential and should be promoted and formally recognised as key components of career development.
- More resource availability is required, including competitive research funding for clinicians at national, regional and institutional levels.

**There is an urgent need to formalise CRCPs at institutional and national levels, supported by funding from governments and from international agencies.** Beyond the societal benefits, the economic returns from better population health are well documented and represent a key investment opportunity for every government. Clinical research serves as the cornerstone of evaluating the effectiveness of existing medical and public health interventions and of developing new and better treatments for the future.

Investing in clinical research is therefore highly cost-beneficial and should be considered an essential rather than a luxury, particularly in today's political climate where every country must strive to meet its own health needs and priorities, and cannot rely on aid and support from other nations.

**Underpinning all the recommendations and themes in the report is the recognition that clinical research pathways involve a wide array of stakeholders, whose roles and influence vary across countries and regions. This report and its recommendations are a starting point for the appropriate stakeholders in each context to act. Urgent efforts are needed to map these key stakeholders in each context, foster collaboration and drive context-specific solutions. This work needs to begin now.**

## Recommendations

### Recommendation 1

This recommendation is targeted at the following key stakeholders: academic institutions, health system policymakers and government ministries.

**Clinical research should be recognised as a formal career pathway. To achieve this, we recommend improved collaboration between academic institutions and health systems to develop clear and defined policies for CRCPs that strengthen integration between research and clinical practice. Such policies should be supported by relevant government ministries and should aim to achieve the following.**

- Be flexible in structure, recognising the complexities of existing career pathways, acknowledging the multiple approaches to pursuing a clinical research career, and allowing for clinical practice and research to interchange and co-exist with integrated training.
- Implement steps for improved collaboration between health systems and academic organisations, to formalise and highlight the value of research within health systems and better acknowledge the huge burden of clinical demands and its impact on the time required to undertake research. Healthcare organisations and academic institutions should be encouraged to jointly allocate strictly protected research time for clinical researchers.

- Develop flexible approaches to clinical and research training through new or modified funding mechanisms to ensure clinical researchers have mobility between academic, research and clinical environments and to ensure alignment between salary structures across both areas.
- Encourage joint appointments that enable clinical researchers to hold joint positions across academia and healthcare organisations; to enable this, clinical research needs to be formally recognised as an essential entity within the public health system, supported by the creation of specific roles and posts.

## Recommendation 2

This recommendation is targeted at academic institutions.

**To create and promote an enabling environment for clinical research, we recommend the development and implementation of the following actions by academic institutions that can facilitate interest in and better support career progression for clinical researchers.**

- Formally embed clinical research as a structured module or elective in basic medical training at the undergraduate stage.
- Promote and formalise structured mentorship schemes, with individual roles as mentors included in academic promotion and annual performance reviews.
- Develop institutional key performance indicators to monitor and evaluate researcher career development and incentivise and promote time spent undertaking research beyond academic teaching duties.
- Increase resource availability by leveraging regional, national and institutional funds for research training and early-career support.
- Promote adherence to, and a culture of, good clinical research practice. Implement guidance, support and policies to discourage research misconduct and promote high-quality and relevant research that actively contributes to clinical practice guidelines or improving patient outcomes.

## Recommendation 3

This recommendation is targeted at international and domestic funders.

**We recommend that international and domestic funders establish new, or modify existing, funding schemes for clinicians to offer flexibility around the time and stage that people enter the CRCP. Funders should consider the following actions.**

- Recognise that clinical academic career progression may be slower, due to dual responsibilities of research and clinical practice, and work to ensure parity of salaries between the two.
- Develop tailored funding schemes that allow for flexibility and mobility between academic and clinical settings, to include allowing for clinical and research training alongside each other.
- Broaden eligibility criteria for existing funding programmes, particularly those that require a PhD, to allow clinicians to apply for fellowships or training opportunities without holding a doctoral degree – recognising that many clinicians gain substantial research experience outside of formal PhD programmes.
- Recognise that funding durations may need to be longer for clinical research, to allow time for regulatory and ethics approvals that are highly variable across regions and the specifics of the research involved.

## Recommendation 4

This recommendation is targeted at regulatory and ethics stakeholders.

**We recommend placing a particular focus on the impact of current lengthy and complex regulatory and ethical approval processes on clinical academics, particularly early-career researchers. To achieve this, a study should be commissioned to explore this and identify barriers and best practices. In the short term, streamlining ethical and regulatory approval processes within and across countries should be prioritised. To achieve this recommendation, work of this nature should include the following.**

- Give focus to the impact of current regulatory and ethics systems as a major barrier to young researchers' careers, and to the disproportionate costs of ethics reviews for clinical fellows with small research budgets.
- Consider how to increase collaboration between researchers, institutions and regulatory bodies to streamline processes, particularly for low-risk research.
- Streamline approval processes and limit costs, complexity and wait times for clinical researchers; limit the number of reviews and approvals required from multiple ethics bodies (implementing a 'one-door review' process).
- Understand diverse stakeholder perceptions of current policies and governance systems related to the CRCP.
- Promote the role of research governance integration in the CRCP and consider how to ensure a narrative that conveys the positive benefits of clinical research.
- Integrate with other initiatives happening in research governance (e.g. Africa Vaccine Regulatory Forum, https://www.afro.who.int/health-topics/immunization/avaref).

## Next steps

This project took a global approach to collecting evidence and developing recommendations that provide a broad and useful overview of the current career pipeline for clinical researchers, and the barriers and opportunities that exist globally. However, to facilitate targeted action in each individual context, the project and its recommendations would require more context specificity. **As such, the recommendations should be considered as a starting point for generating tailored and targeted solutions for context-specific challenges associated with CRCPs.** Follow-up work is crucial to building on the project findings, and identifying the correct stakeholders to take forward each recommendation in each setting is a vital next step. A key finding of this project is the diverse and vast number of stakeholders involved in CRCPs. Key stakeholders differ across countries and regions, and further analysis is required to identify those best placed to strengthen the CRCP in each context.

# Introduction

**Clinical research is an economic and public health necessity for all countries. The returns on investing in health and research at international and national levels, including economic growth and improved health outcomes, are staggering.**

For example, at a global level, every US$1 invested in neglected disease research and development (R&D) generates a societal return of US$405, accompanied by up to 40.7 million lives saved and 2.83 billion disability-adjusted life years (DALYs) averted between 2000 and 2040.[1] Increasing investment in global R&D has contributed to significant population health improvements across the globe, and is estimated to have reached US$2.475 trillion in 2022.[1,2] This includes the total global disease burden dropping by 14.2% between 2010 and 2019, and global life expectancy increasing by 6.2 years since 1990.[3] Clinical research is a powerful contributor to these returns, through its critical role in improving health outcomes and addressing priority health challenges. This includes the identification of novel treatments and diagnostics, cost-effective approaches, safer interventions, providing high-quality evidence to inform policymaking, and reducing health inequities.

Building strong clinical research capabilities within countries, supported by sustained national support for clinical research infrastructure, is essential to attracting greater investment and enhancing clinical research globally. Ongoing geographical shifts in clinical trial activity suggest greater use of low- and middle-income countries (LMICs) for clinical trials, with Asia emerging as one of the fastest growing regions for clinical research.[4] Malaysia, for example, has been increasing its presence as a regional hub for clinical research, underpinned by strengthening the research ecosystem and strategic prioritisation of clinical research through Clinical Research Malaysia.[5] Numerous pharmaceutical companies have been scaling up their local operations, with sponsored clinical research contributing up to RM1.16 billion to the national income since 2012.[5] Domestic prioritisation and investment in healthcare, research and infrastructure can enable countries to attract diverse investment that contributes to long-term sustainable growth, while simultaneously contributing to increased health and wellbeing gains within the population.

Currently, research and health budgets are under increasing strain, due to recent shifts in international funding. Between 2024 and 2025, high-income countries in Europe began declaring cuts to overseas development assistance (ODA), and this was exacerbated by US funding freezes to foreign aid – hitting global health budgets hardest.[6] These cuts threaten decades of progress, with the impact of United States Agency for International Development (USAID) cuts projected to potentially lead to more than 14 million deaths.[7] International funding has yielded substantial returns that are of global benefit. High levels of USAID funding, particularly targeting LMICs, was associated with a 15% reduction in mortality and a 32% reduction in mortality in children aged under 5 years. In a similar trajectory, the UK provides £3.05 billion in investment in neglected disease R&D funding, generating global societal returns worth £1.39 trillion.[8] Between 2000 and 2025, this resulted in 380,000 lives saved, 31.6 million DALYs averted, and 26 million cases of disease prevented.[8] Moreover, it is estimated that the economic impact within the UK from these investments amounts to nearly £7.7 billion in additional economic activity.[8]


1. Impact Global Health and Policy Cures Research (2024). *The impact of global health R&D*. https://cdn.impactglobalhealth.org/media/The%20Impact%20of%20Global%20Health%20R&D%20Report.pdf
2. Statista (2025). *Total global spending on research and development (R&D) from 1996 to 2022*. https://www.statista.com/statistics/1105959/total-research-and-development-spending-worldwide-ppp-usd/
3. Institute for Health Metrics and Evaluation, University of Washington (2024). *Global burden of disease 2021*. https://www.healthdata.org/sites/default/files/2024-05/GBD_2021_Booklet_FINAL_2024.05.16.pdf
4. KPMG and OUCRU (2025). *Roadmap to the future of clinical trials in Vietnam*. https://assets.kpmg.com/content/dam/kpmg/vn/pdf/2025/05/roadmap-clinical-trials-in-vietnam-en.pdf
5. Chang D & Thum S (2024). *Clinical research investment: new lifeblood for the economy*. The Edge Malaysia, 26 June. https://clinicalresearch.my/wp-content/uploads/2024/08/Clinical-Research-Investment-New-lifeblood-for-the-economy.pdf
6. Callaway A (2025). *'It is chaos': US funding freezes are endangering global health*. Nature, 6 February. https://www.nature.com/articles/d41586-025-00385-9
7. Medeiros Cavalcanti D, *et al*. (2025). *Evaluating the impact of two decades of USAID interventions and projecting the effects of defunding on mortality up to 2030: a retrospective impact evaluation and forecasting analysis*. The Lancet **406(10500)**, 283–94.
8. Impact Global Health (2025). *A stronger and safer United Kingdom through global health R&D investment*. https://www.impactglobalhealth.org/insights/report-library/a-stronger-and-safer-united-kingdom-through-global-health-rd-investment

Changes in international funding leave the future uncertain for many countries, particularly LMICs, where a substantial proportion of health and research funding is derived from external sources. Given the current funding environment, it is essential that limited research and health budgets are spent effectively, reliably and efficiently. Simultaneously, research is becoming increasingly important for identifying novel treatments and cost-effective approaches and for improving public health outcomes. As such, priority must be given to research and health within government spending. Shifting to domestic-led financing for health and research would ensure that funding and subsequent research is directed by country voices, priorities and context-specific challenges. This would facilitate the strengthening of linkages between the health and finance sectors, and enabling locally led research and analysis to inform new funding models that better promote equity.[9] Moreover, countries that choose to focus on sustained health investments could reduce the likelihood of premature death in their populations by up to 50%.[10]

## The critical role of clinical researchers and the clinical research career pathway

Clinical researchers play a pivotal role in ensuring high-quality, impactful and relevant research. However, in many parts of the world there are major barriers to the development of a clinical research career. A clinical research career presents unique challenges when compared to that of a non-clinical researcher or a clinical health professional. A clinical researcher's primary role is to conduct research in a clinical setting, whereas a clinician health professional will primarily see patients, even though they may be involved in individual research studies.

For the purpose of this project and report, the scope of a clinical researcher has included researchers at various stages of the career pathway who play an active and leading role in the research process, including early-, mid- and late-career researchers with high research literacy. This includes a wide range of health professionals such as doctors, nurses, midwives and pharmacists.

A clinical research career pathway (CRCP) provides an integrated, structured and recognised career structure for all health professionals who actively participate or have an interest in research to follow. This should include a defined progression of roles, training and responsibilities that are supported and sustained by the healthcare system and academic institutions working together to promote flexible and integrated career progression paths.[11] In many high-income country settings such as the UK, CRCPs are much more formal, structured and sequential, with clear progression paths (see Figure 1 on page 11). However, barriers do still impact CRCPs in high-income country settings, together with a decline in clinical academics, and key stakeholders are working to address this.[12]

9. Moser, F (2025). *Why challenging global health funding cuts are an opportunity for reform*. Wellcome, 2 July. https://wellcome.org/news/why-challenging-global-health-funding-cuts-are-opportunity-reform#looking-ahead-ae6f
10. Jamison DT, *et al*. (2024). *Global health 2050: the path to halving premature death by mid-century*. The Lancet **404(10462)**, 1561–614.
11. NHS Health Education England (2018). *Clinical Academic Careers Framework: a framework for optimising clinical academic careers across healthcare professions*. https://www.hee.nhs.uk/sites/default/files/documents/2018-02%20CAC%20Framework.pdf
12. Council of Deans of Health, Medical Research Council (n.d.) *Clinical researchers in the United Kingdom: building capacity to improve population health and promote economic growth*. https://www.ukri.org/wp-content/uploads/2025/07/MRC-250605-250515-MRC_Clincial-Researcher-Nursing_8.pdf

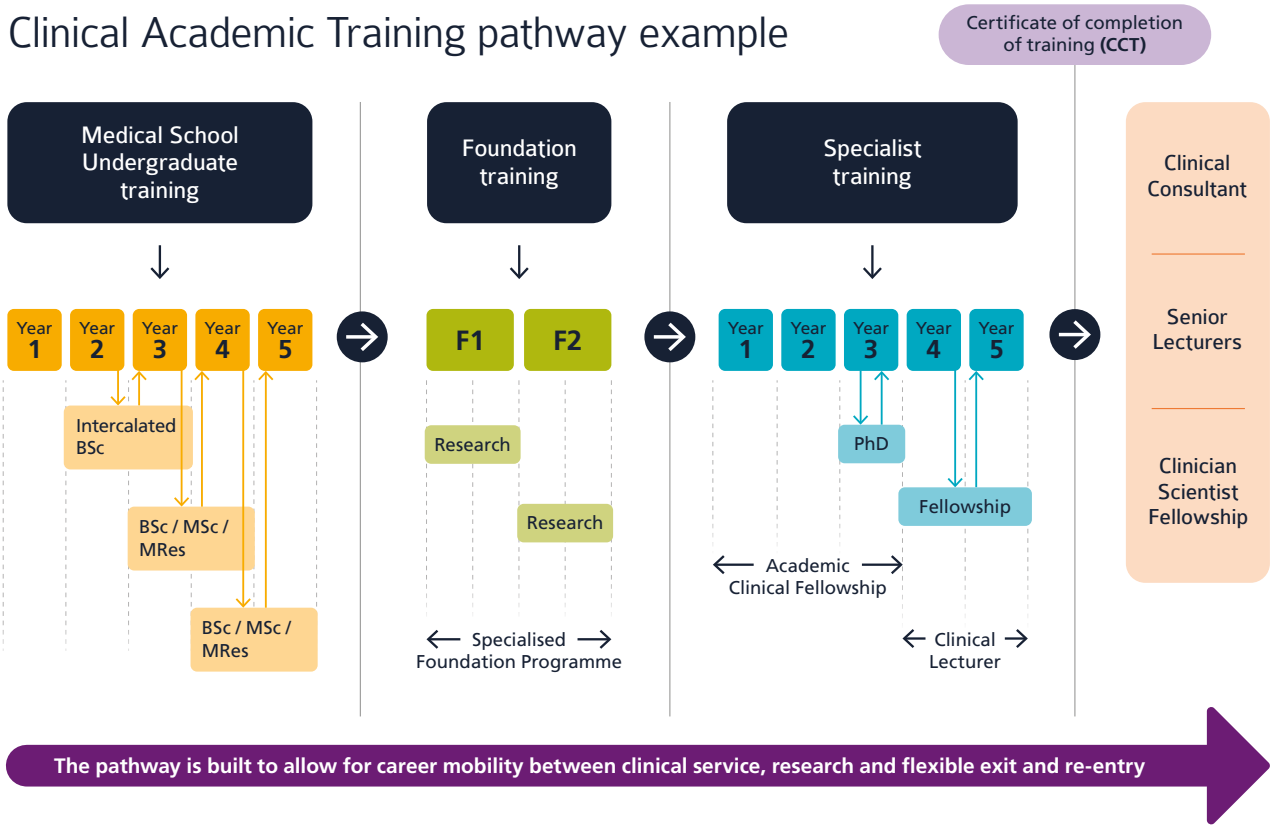


***Figure 1. An example of the Clinical Academic Training pathway for medics in the UK (not non-medical allied health professionals)***

Across many LMICs in Africa, Asia and Latin America, the formalisation, recognition and accreditation of a CRCP is more limited. As a result, clinical researchers in these settings have varying and complex career trajectories, depending on the starting point at which they become exposed to research, their country of practice, and the institution in which they hold a position. Given this more limited formalisation in LMICs, this report has defined a CRCP according to three key stages:

| Key stages of the career pathway | Definition and elements |
|---|---|
| **Accessing a CRCP** | The point at which researchers are gaining the foundational skills needed to become eligible to enter the field of clinical research and begin their career. This includes:<br><br>• gaining relevant training, educational attainment and research exposure<br>• securing positions within institutions and establishing their research supported by clear institutional policies and recognition of the value of clinical research from executive leadership<br>• securing early-career grants<br>• gaining structured career guidance, inspiration and help navigating barriers to entry through mentorship |
| **Pursuing a CRCP** | This refers to the point at which researchers are increasing their responsibilities and research independence and are actively progressing in their field. This includes:<br><br>• building key skills in grant writing, research development and leadership<br>• securing small grants<br>• beginning to establish themselves as an independent researcher<br>• learning to balance research with clinical duties and administrative responsibilities arising from university roles<br>• building networks and research collaborations |
| **Maintaining a CRCP** | This refers to the point at which researchers have committed to long-term participation in the field. Researchers are well established, with a diverse research portfolio and sustained funding. This includes:<br><br>• involvement in larger-scale projects, including as Principal Investigator (PI) or co-Principal investigator (co-PI)<br>• undertaking leadership positions<br>• balancing heavy clinical duties with research commitments, teaching and administrative work<br>• securing consistent funding for research |

## The need for institutional support for clinical researchers

Strengthening the career pathway for clinical researchers is a crucial building block of broader research capacity strengthening efforts in LMICs. Research capacity strengthening targets the three interconnected levels of research systems, all of which play a crucial role in strengthening CRCPs (individual level, institutional level and environmental/societal level). Institutions play a pivotal role in supporting and sustaining CRCPs through strong, tailored and integrated institutional policies and programmes for career development, and effective resource allocations for research, leadership, infrastructure and facilities, as well as well-established research cultures.[13]

Ensuring that clinical researchers within institutions have a supportive research environment and resources to thrive and advance their career is critical to establishing replicable and formalised CRCPs. Institutions that actively support CRCPs benefit from high-quality research outputs, stronger academic–clinical partnerships, and enhanced healthcare outcomes.[14] However, institutional challenges such as fragmented policies, insufficient funding mechanisms and inconsistent leadership support for CRCPs currently hinder CRCP development.[14]

13. LSTM (2024). *Effective research capacity strengthening: a quick guide for funders*. https://www.lstmed.ac.uk/projects/effective-research-capacity-strengthening-a-quick-guide-for-funders
14. Centre for Capacity Research, Liverpool of Tropical Medicine and Academy of Medical Sciences (2025). Recommendations for strengthening global clinical research careers pathways. https://www.acmedsci.ac.uk/academy-clinical-research-pathways-external-analysis

It is equally important to recognise that institutions are closely connected to the wider research ecosystem, including the adequate prioritisation and funding of research-focused institutions by national-level actors. However, in many LMICs, these enabling environments do not always exist, hindering CRCP development. It is therefore imperative that institutions and key stakeholders within the research ecosystem, such as government ministries, equally prioritise and promote policies that support clinical researchers.

## Project outline

This project has been delivered in partnership with six national academies, including:

1. Academy of Science of South Africa
2. The African Academy of Sciences
3. Academy of Sciences in Malawi
4. National Academy of Medicine, Brazil and Brazilian Academy of Sciences
5. National Academy of Science and Technology, the Philippines
6. Indonesian Academy of Sciences

To help strengthen and formalise CRCPs in LMICs, this project has aimed to understand the career pipeline for clinical researchers, including challenges and opportunities, and the role of institutions within this. **As such, the main goal of this report is to make policy recommendations aimed at strengthening CRCPs in LMICs, with a particular focus on the institutional level of the research ecosystem.**

As will become clear throughout this report, the number and diversity of stakeholders with an active role in CRCPs is extensive and varies significantly across countries and regions. This report and its recommendations should therefore be of interest to academic institutions, health systems, relevant government ministries, funding bodies, regulators, and any other organisation with an active interest and role in clinical research.

## Project and report methodology

Taking a global approach, evidence has been gathered from a range of researchers at varying career stages across LMICs in Africa, Asia and Latin America, through a series of evidence-gathering policy workshops (further details on this can be found in **Annexe 1**).

Alongside this, the Centre for Capacity Research at Liverpool School of Tropical Medicine (LSTM) was commissioned to generate new evidence on the role of institutions in supporting CRCPs across LMICs and to identify mechanisms to strengthen these pathways. A mixed-methods approach was employed, incorporating surveys and semi-structured interviews at individual and institutional levels. The surveys captured quantitative and qualitative data on CRCP support mechanisms, while interviews provided in-depth perspectives from clinical researchers and institutional representatives. The study engaged 36 survey respondents and 14 interview participants, ensuring a broad representation of experiences from Africa, Asia and Latin America.

The evidence gathered through the policy workshops and commissioned research formed the basis of this work and report. Section 2 consists of evidence from the policy workshops, commissioned research and desk-based research. Section 3 consists of evidence from the policy workshops and desk-based research.

Additional references were sought through desk-based research. While these efforts were comprehensive, a formal academic literature search has not been undertaken and the references provided in this work should not be considered exhaustive. More details regarding the project's processes and timeline are provided in **Annexe 1**.

This policy project and its report was led by three co-chairs and a working group of international experts. The working group was jointly nominated by all partner academies. **Annexe 2** lists the members of the working group.

# Accessing, pursuing and maintaining a clinical research career pathway within LMIC institutions

## Accessing a clinical research career pathway

An important finding from the project's evidence gathering was that the point at which an individual enters the clinical research pathway varies widely across LMICs in Africa, Asia and Latin America. As a result, it is often unusual for a clinician to begin conducting or being involved in research from the outset of their career in the majority of LMIC contexts.

### Training, education and research exposure

Across Africa, Asia and Latin America, the point at which an individual enters or begins to access a CRCP is dependent on several factors. This includes the stage in their career at which they become exposed to research, the availability of funding, and the facilitators and barriers for clinical research in their respective country. All individuals who may go on to follow a CRCP will have undergone undergraduate training, most of whom are expected to go on to work in a clinical setting. This stems from an increased demand for in-country clinical skills against a perceived low demand for research skills.

In some cases, an individual may become exposed to research during university clinical training and may enter the pathway at this early stage – but this is extremely rare for many clinical researchers. While there is a definite push to increase the number of individuals exposed to research during undergraduate clinical training, opportunities to engage in research are limited. This is due to a variety of reasons, ranging from staffing and funding to time pressures. The visibility of established academic clinicians or scientists is not as prominent as it could be for students undertaking clinical training at universities. This again stems from the lack of formalised CRCPs. This not only further limits the potential for developing an interest in clinical research among students, but it also prevents clinical research from being viewed as a viable career path.

There are also fewer opportunities to nurture further interest and experience in research at the postgraduate level, with limited funding for Master's or PhD research, as many countries are not investing in this type of training. As a result, researchers who have gained a PhD will often have done so overseas via scholarships. In Peru, researchers wishing to obtain a Master's or PhD often have to self-fund. As a result, most of the programmes take place on a part-time basis as individuals must work to fund their tuition. The impact of this is two-fold: researchers delay pursuing postgraduate education to prioritise working, and PhDs are rarely pursued.

**As a result, there must be recognition that few clinical researchers across LMICs will have a PhD, and that this has profound impacts on an individual's ability to pursue and maintain a career in clinical research (see Recommendations 1 and 3).**

Expanding integrated clinical and research training is a key opportunity to strengthen CRCPs. Intercalated MD/PhD programmes that allow students to pursue research alongside clinical training, or alternatively pause clinical training to explore research, have demonstrated success in enabling researchers to develop dual expertise. Examples from high-income settings, such as the Integrated Clinical Academic Training pathway, demonstrate how structured integration of clinical and research training can develop clinical researchers early in their career. Currently, intercalated training models are limited in LMICs. As such, this is a key area for development, to aid the creation of more flexible training pathways. With strategic support, particularly funding for increased research costs and stipends associated with training clinical researchers, this is a lever for building a critical mass of clinical researchers.[15]

15. Barreto-Duarte B, *et al*. (2025). *What it takes to become a physician scientist in a low- and middle-income country.* PLOS Global Public Health **5**, e0004234

## Case study: Intercalated programme at the University of Cape Town[16]

The University of Cape Town's Clinician-Scientist Training Programme, launched in 2011, became the largest of its kind nationally, and has been used as a model for similar initiatives at other institutions. It offered a flexible training pathway consisting of an intercalated BMedSci Hons/MBChB and integrated MBChB/MSc/PhD, and ensures students engage in laboratory-based research early in their clinical training.

**Key lessons and impacts**

- **Growing interest in clinical research:** increases in class sizes between 2011 and 2019 reflect growing enthusiasm and awareness of clinical scientists and clinical research as a career path.
- **Flexibility:** offering students the flexibility to pursue a standalone BMedSci with optional MSc/PhD programmes is crucial, to allow students to choose the most suitable path for them.
- **Research outcomes:** graduates produced significant research outputs, and the majority of graduates remained actively engaged in research following graduation.
- **Barriers remain for participation:** concerns around the financial impact of delaying clinical qualifications, including lack of flexibility with bursary schemes and repaying student loans, are deterrents to pursuing the programme.
- **Targeted support:** tuition costs and living expenses during the intercalated honours degree and for those pursuing MSc and PhD degrees were covered by the programme to try and mitigate the above.
- **Mentorship is key:** providing mentoring is essential, to nurture and assist students in navigating barriers to participation.

In some settings, clinical research is pursued as an alternative pathway to clinical specialisation after completion of medical, nursing or pharmacy training. This model represents an opportunity to attract a greater number of individuals interested in research but is currently not formalised as an accredited career pathway in most settings. Where this model is not present, those intending to be clinical researchers must find a role within a research institution or engage in part-time research alongside clinical duties.

In most cases, however, individuals become exposed to research much later in their clinical career, often encountering a research project by chance, or by taking a clinical role within a research unit. To fully acknowledge this, the 'access' point of any clinical research pathway should not be primarily focused on those in early training but should also consider people who did not have the opportunity to develop an interest in research during undergraduate training and may wish to pursue clinical research much later in their career trajectory. Ensuring that the CRCP offers multiple entry points beyond early training and exposure is a key opportunity to enable a more dynamic and flexible pathway.

> It is very hard to join a research project without prior research experience. But usually that individual is either a nurse or similar, a microbiologist. There are some medical doctors who stumble upon a research project and become principal investigators, and they start working in that pathway, but it's rare.

**Institutional representative[14]**

16. Burman RJ, *et al.*(2019). *Training South African clinician-scientists: Lessons from the University of Cape Town's intercalated programme.* South African Medical Journal **109(12)**, 914-918

The creation of structured entry points for clinical researchers can be supported by reconsidering requirements for entry-level roles. Default requirements for up to two-years' experience are challenging for recent graduates to meet, and redesigning this could ensure that clinical researchers can better access a CRCP, and also allows for a wider pool of talented graduates to progress. Institutions have a key role in ensuring clinical academic posts reflect the unique nuances associated with pursuing a CRCP. Clinical academic roles offer an opportunity for re-development to better balance teaching, clinical work and research more effectively.

Importantly, rural and primary care settings offer significant potential to expand clinical research beyond formal university and hospital environments. In Asia, researchers noted that primary care practices are often not linked into training opportunities, and very few opportunities exist to pursue a CRCP outside of academic institutions. In some settings, bias towards laboratory and hospital research makes community clinical research particularly challenging. This is a key opportunity to expand and strengthen links between research and community-level practice and build local-level clinical research workforces.

## Initial institutional support

Upon securing a position within an institution, the initial support provided to researchers to help them establish their career is a critical component in ensuring they can access the CRCP and continue along the pathway. Often, researchers document a lack of support and direction in establishing their research due to an insufficiently clear (or absent) institutional CRCP and corresponding policies. This was a consistent theme emphasised across Africa, Asia and Latin America as a major barrier impacting young researchers' careers.

> Here, the career of a clinical researcher or physician scientist, it's not here yet, it's not clear. This position does not exist. Here, you cannot go to a hospital, and be like, 'oh, I want to be a clinical researcher, is there an opportunity for physician scientists?' This does not exist.
>
> **Individual researcher[14]**

Researchers felt that the absence of clear CRCP support is tied to a fundamental lack of recognition of clinical research as a viable career path following clinical training. This is also visible at the institutional level, often evidenced through limited strategic planning for CRCPs in institutions. Firstly, this can lead to an absence of distinct CRCP policies and an absence of university research policies that can be translated to affiliated teaching hospitals to increase exposure to research. In addition, a lack of strategic planning for CRCPs results in unclear salary expectations tied to progression along the CRCP, and remuneration that is not tied to research excellence. Taken together, this leads to uncertainty in terms of progression and discourages aspiring professionals from viewing clinical research as an exciting, fulfilling and adaptable career option.

> I was even wondering if a 'clinical researcher pathway' exists as an entity in itself, or people just sort of arrive there? I know that in the US it's probably an established career path, and maybe in the UK, but in my country, we just have people who end up as academics and are also doing clinical research; it doesn't exist as a distinct career path. The pressing need that I see in the region, and I've been doing this for over 15 years, I see the need to professionalise the profession of being a clinical researcher. In other words, it's not a recognised profession yet in the same way as in the United States and Europe.

So, we have a medical school at the university, as well as a teaching hospital. Teaching hospitals are where you have the training resident doctors conducting clinical research, but this is actually separate from the main university and the other research going on at the university.

**Individual researcher[14]**

At the institutional level, strategic planning and leadership engagement should be used to strengthen the CRCP. Limited formal recognition and awareness of clinical research roles at the leadership level are a key barrier for CRCPs within institutions. **Executive leadership support is therefore crucial to creating a structured and supportive research environment that offers a clear CRCP for researchers to access (see Recommendation 2).** Promisingly, **survey data indicate a shift in recognition of the value of clinical research roles.** Most institutional survey respondents (75%) noted that their institution recognises the importance of clinical research roles, and 87.5% noted that their institution has plans to expand CRCP capacity in the next three years.[14]

Every year we have a recognition award for all the researchers at my institution, and most often it goes to clinical researchers. They are the top, both in terms of productivity and outputs in papers and all that.

**Institutional representative[14]**

Increased CRCP capacity and formalised career structures will facilitate ongoing advocacy for regional policies that standardise research career structures and licensing. In some cases, clinical researchers may not be able to practise in other countries, due to differing regulations around clinical and academic qualifications and accompanying career structures, with the former posing a particular challenge. At the institutional level, there are ongoing efforts in Africa to bring countries together in forums to try and standardise these types of policies. Standardisation will be critical to facilitating the mobility of clinical researchers globally (see **Recommendation 1**).

Support for early-career clinical researchers can be further strengthened through consistent and timely communication around funding opportunities. Securing funding at this early career stage is critical to continuing along the CRCP, and dedicated research support offices within institutions are best placed to support this. Notably, 58.6% of survey respondents reported that they did not have adequate access to institutional funding opportunities and resources when they began their clinical career.[14] The presence of research support offices was identified as a key enabler of CRCP strengthening, with researchers noting the impact of them in terms of dissemination of funding opportunities, grant support, and facilitating connections with senior researchers that have successfully secured similar funding opportunities.

There is a further opportunity to strengthen seed and bridge funding availability. Seed funding enables early-stage exploratory work to develop ideas that may attract larger grants in the future. Bridge funding covers gaps in funding to maintain research until new funding is secured. This is particularly important to support the post-PhD transition. As outlined previously, it is rare for a clinician to have a PhD in many LMIC settings, and it is unrealistic for grants targeting LMIC clinical researchers or clinicians looking to move into research to ask for this as a specific academic credential. This is a prominent issue transcending all career stages for clinical researchers and preventing progression and promotion.

So, for health professionals, we don't actually require a PhD to develop our research portfolio, so I never felt the need to do a PhD. But then when I applied for this project, there were multiple categories, and the criteria was having a PhD – the PI had to be a PhD holder. So, I was unable to apply.

**Individual researcher[14]**

Expanding access to small-scale, entry-level grants is vital to better supporting clinical researchers. Often, opportunities for small 'starter' grants are predominantly available from international funding calls and many researchers struggle with language barriers when completing applications. Such opportunities are often limited further by country ineligibility for certain grants. Improving access through targeted support with translation, simplified application processes, and stipend and salary support is key to ensuring researchers continue along the CRCP, and that it is viewed as a viable career pathway.

> We are a French-speaking country so there is a language barrier. You might see some good people who have bright ideas, but translating these ideas into English is challenging for them.
>
> **Institutional representative[14]**

## Early mentorship exposure

Across all settings, mentorship was highlighted as a key factor in ensuring researchers access and go on to maintain a CRCP. Critically, mentorship should not be confused with supervision, as the two serve different purposes (see **Table 2**). Researchers frequently reported that mentorship and supervision are often used interchangeably despite being distinct, but acknowledged that there are overlapping elements. This is a barrier to institutionalising research mentorship, as there is limited guidance on the formal role of a mentor; often there is only an institutionalised policy for the role of a supervisor.

| Key elements | Differences |
|---|---|
| **Mentorship** | Personalised, long-term and 'holistic' (providing support not only on career aspects but also personal support). No direct dependence between mentee and mentor. Mentees frequently choose their mentor or are matched. |
| **Supervision** | Task-orientated/goal-orientated, dependency between supervisor and supervisee (because the person being supervised depends on them for their project completion), top-down approach. Students choose project topics by interest, but do not have the freedom to change PIs or supervisors. |

***Table 2. Outline of key elements and differences between mentorship and supervision[17,18]***

Access to early mentorship during academic training, as well as engagement in international research networks, provides invaluable support to researchers carving out their research career. Mentorship during the early career stage is critical to:

- assist clinical researchers to clearly define goals for their career development and trajectory
- learn and share experiences from an experienced mentor, particularly in relation to daunting aspects of research, including ethics applications, and provide motivation for competing for research funding or opportunities
- establish links with the professional world through networking and collaborative opportunities
- aid the mentee in staying informed about emerging trends, novel research approaches and evolving needs in the clinical research field
- offer guidance on how to balance clinical and research careers
- inspire the mentee

17. Gould J (2021). *Mentoring, coaching, supervising: what's the difference?* Nature podcast, 29 September. https://www.nature.com/articles/d41586-021-02656-7
18. Ong J & Swift C (2018). *Mentoring and supervision in academia: establishing distinctions to manage expectations*. Hepatology Communications **2(12)**, 1419–20.

> Being an active member of research founders and recently established Research Foundation and collaboration with Critical Care Asia-Africa Network, there were senior researchers and colleagues who continuously guided me, supporting my interest in a research career and then encouraging me into that pathway.

**Individual researcher**[14]

Institutional mentorship schemes offer an opportunity to significantly shape the career development of clinical researchers. Currently, many institutions lack formalised mentorship structures and programmes, despite the impact of early and sustained exposure to mentorship on early clinical researchers' career progression.[14] Structured guidance is essential to helping researchers to navigate complex funding and regulatory structures, with many researchers crediting long-term mentorship as a critical enabler of their progression. Expanding mentorship capacity by fostering a diverse pool of mentors is essential to support upcoming researchers. A shift from supervision-focused or informal mentorship to tailored mentorship models that reflect the nuances of clinical research offers significant potential to strengthen the CRCP.

## Best practice guidance

**Best practice guidance for institutionalising research mentorship: A TDR Global practical guide to spur mentorship institutionalisation** (available at: https://iris.who.int/bitstream/handle/10665/363381/9789240058675-eng.pdf?sequence=1)

**Best practice for mentoring schemes: African Academy of Sciences (AAS) mentorship scheme** (find out more at: Mentorship-Scheme | The AAS)

### Opportunities to strengthen the 'accessing' phase of the clinical research career pathway

#### Short term

- Promote Memorandums of Understanding (MoUs) between hospitals and academic institutions offering Master's and PhD programmes.
- Increase the visibility of clinical academics in undergraduate training during university clinical training.
- Increase the availability of seed funding to enable early-career researchers to pilot research to then be able to apply for larger grants.
- Promote institutional policies for bridging funding to support upcoming researchers and for reintegration onto the CRCP following training.
- Introduce regular assessments at the institutional level to identify gaps in institutional support.
- Define the differing roles and responsibilities of a supervisor and mentor for early-career researchers.
- Increase awareness and formal recognition of the value of mentorship among senior leadership.
- Move away from requirements for a mentor or supervisor to hold a PhD and recognise direct research experience as a valuable alternative.

### Medium term

- Introduce hybrid programmes for eligible individuals in geographically distant areas and those living in conflict settings.
- Introduce incentive systems for entering the CRCP (including seed grants, rewards for grant acquisition, and recognition of brilliant young researchers).
- Explore further options for integrating research training and research degrees with postgraduate clinical training.
- Ensure flexibility to move in and out of research training from postgraduate clinical training.
- Formally integrate CRCPs into institutional planning and policy to expand institutional CRCP capacity.
- Address the dominance of grants and institutional positions requiring a PhD.
- Implement measurement and evaluation frameworks at the institutional level for mentorship capacity.

### Long term

- Establish intercalated degree programmes for clinician scientists, drawing on best practice models and learning from other settings.
- Create a clinical research training pathway in formal medical residency or specialist training programmes in high-income countries, targeted to LMIC clinicians who move abroad for higher education, giving them an option to become a clinical academic in the future.
- Standardise research career structures and licensing across regions to help with the mobility of researchers between regions and institutions.

## Pursuing a clinical research career pathway

Researchers in the 'pursuing' stage of a CRCP are typically beginning to establish themselves as an independent researcher, building skills in grant writing, research development and research leadership while securing small grants. Many will begin to balance research with clinical duties and escalating administrative tasks from university roles, viewed as one of the greatest challenges to navigating the career pathway at this stage. This is often compounded by limited recognition of the complexities of being a clinical researcher.

### Protected time for research

Researchers across Africa, Asia and Latin America consistently placed prominence on the vital need for protected time for research amidst the demands of clinical practice. Ensuring clinical researchers have dedicated time to conduct research alongside clinical, teaching and administrative duties is instrumental to the CRCP. Seventy-four percent of researchers interviewed indicated that clinical duties interfered with their ability to engage in research (with 18.5% reporting significant interference and 11.1% reporting complete interference). Current workloads, compounded by no clear institutional structure or policy that defines the time allocation for balancing clinical, teaching and research responsibilities, is ultimately limiting research productivity and career development.

Some institutions have established policies on protected time for research, recognising the demands of both clinical practice and of research. Ensuring such policies are implemented both within and across a greater number of institutions offers significant potential for supporting the retention and productivity of clinical researchers.

> Generally, on paper, the institution talks a lot about research. When I was first employed, they said I would do 1/3 research, 1/3 teaching, and 1/3 clinical work. But that's not true in practice. What you are expected to do in practice is 100% clinical work, and the remaining time for research is left up to you to find. Also, although the official guidelines are very good, my job description doesn't even mention clinical work, even though most of what I do is clinical. This gap between policy and practice is a major challenge.
>
> **Individual researcher**[14]

To promote protected research time, institutional understanding of the importance of clinical researchers engaging in both clinical duties and research is critical, accompanied by recognition of the nuances that uniquely affect clinical research. Across Africa, Asia and Latin America, this lack of understanding leads to researchers feeling demotivated by an institutional culture that does not value research or recognise research achievements. Demotivation is often coupled with low salaries for research compared to clinical work. The cost of living is, compared to earnings, relatively high in many settings and results in most clinicians needing to work extra time to engage in research to earn their living.

> The second way my institution could support me is by giving recognition for research. For instance, I went to [a European conference] and received first prize for my abstract – a really big achievement. But when I got back home, I expected at least my immediate supervisor to congratulate me. No one did. It's very demotivating. It makes it easier to just do private practice, where recognition is more visible. One of the main barriers is that the people who run the hospitals, the administrative people, don't really care about research.
>
> **Individual researcher**[14]

## Mobility and flexibility for clinical researchers

Critically, mobility and flexibility for clinical researchers to move between academic and clinical roles are fundamental for sustainable CRCPs. The durations of funding and projects must accommodate this critical part of the pathway and thus should be extended and modified for clinicians who intend to move between academic and clinical roles. This could be facilitated by pre-existing funding components, such as no-cost extensions or grace periods. Encouraging joint posts between academic organisations and clinical organisations with clear time splits is critical to further aiding mobility and flexibility.

> At the beginning, the hospital saw the investment in research – in clinical research training – as a waste of time. But now that they are seeing how some of us are applying this knowledge to improve patient care and outcomes. They now appreciate why they should support such endeavours.
>
> **Individual researcher**[14]

## Case study: Clinical research leadership programme WHO-TDR[19]

For the clinical research leadership programme, a flexible placement can be arranged for candidates with young families, including a mix of remote and on-site training at the home institution with intensive and well-structured mentoring. In addition, to support women in overcoming any professional and personal challenges linked to this fellowship, TDR has made previous women fellows available as mentors.

### Gender inequity in the career pathway

Across Africa and Asia, gender inequity in CRCPs was highlighted as a significant barrier impacting the opportunities and progression available to women within institutions when pursing a clinical research career. There have been and continue to be discrepancies in clinical research career progression between men and women, with gender inequities in research and academia unfairly disadvantaging women. This is also compounded by limited ring-fenced opportunities for women. In addition, limited flexibility in CRCPs, which does not allow for exit and re-entry for caregiving responsibilities or moving to a part-time post, further exacerbates the lack of career progression opportunities. Ultimately, this leads to a lack of critical mass of women in senior clinical research positions who can offer mentoring for early-career researchers, and advocate for more gender-responsive institutional policies.

## Case study: Bridging the gender gap in health research across sub-Saharan Africa[20]

The European and Developing Countries Clinical Trials Partnership (EDCTP) and the UK's Department of Health and Social Care collaborated on a Participating States Initiated Activity to address gender disparities in research by supporting female health researchers across sub-Saharan Africa. This leveraged the existing EDCTP Regional Networks of Excellence as training hubs for early-career women researchers. The initiative comprised four regional programmes to build research capacity and promote gender equity:

- the East African Consortium for Clinical Research (EACCR) network launched the CAFÉ-SEA programme
- the TAGENDI programme, nested within the Trials of Excellence in Southern Africa (TESA)
- the TALENT programme of the West African Network for Tuberculosis, AIDS and Malaria (WANETAM)
- the Central African Network on TB, HIV and malaria (CANTAM) leads the WISE programme

**Key learning outcomes**

- **Dedicated PhD programmes for women:** these directly target gender imbalances in training and education and will increase the number of locally embedded women researchers.
- **Utilise existing regional networks and infrastructure:** this can foster multi-country and cross-institutional learning using strong existing networks. This was particularly impactful when working with researchers from under-represented countries to build critical skills in clinical research. Moreover, this ensures training and outputs are context-specific, relevant, and have regional ownership.
- **Address context-specific challenges:** some of the programmes (e.g. the TAGENDI programme) prioritised training on under-served health research disciplines, with the WISE programme supporting PhD candidates with a strong focus on immunology to fill a regional gap in this discipline.

19. TDR (n.d.). *Clinical Research Leadership programme*. https://tdr.who.int/home/our-work/strengthening-research-capacity/clinical-research-and-development-fellowship
20. EDCTP (2025). *Advancing equity in health research: addressing gender disparities in sub-Saharan Africa*. EDCTP eMagazine, January. https://publications.edctp.org/emagazine-january-2025/advancing-equity-in-health-research

- **Mentorship and post-training support:** programmes such as WISE and TALENT are strengthening the mentorship programmes for women researchers. Additionally, the programmes provide targeted support for the post-PhD transition, a key stage in the career pathway. At the end of their academic training, the TALENT PhD fellows will be supported in transitioning into a post-doctoral stream through researcher leadership development efforts.
- **Multidisciplinary approaches:** the TALENT programme applied a multidisciplinary approach to combine technical and scientific training with soft skills and leadership development. This enhanced the ability of graduates to transition into post-doctoral leadership roles, to strengthen institutional research capacity.
- **Stakeholder engagement:** the WISE programme engaged national decision-makers to promote the contribution of women in health sciences, fostering an enabling environment for women to pursue research.

## Case study: Promoting gender equity in access to training programmes at the Consortium for Advanced Research Training in Africa (CARTA)[21]

CARTA promotes gender equity through the following initiatives:

- **Promote flexibility in the allocation of CARTA early-career researchers' fellowships and opportunities, including:**
  - application of a differential maximum age limit for selection into CARTA doctoral fellowships – 45 years for female applicants and 40 years for male applicants
  - flexibility in post-doctoral opportunities (re-entry grants and split/full-time post-doctoral fellowships) to facilitate spending a significant amount of time close to or at the home institution
- **Proactively identifying and addressing gender-related issues that may impede the progress of CARTA fellows, including consideration of childcare support.**
- **Ensuring fellows fully benefit from CARTA opportunities through:**
  - consideration of a leave of absence for pregnant women
  - provision of support to mothers with children under 14 months to attend residential training sessions with their babies and a childminder
  - consideration of child support for fellows to mitigate advanced effects on the progression of their fellowships
  - emphasis on respect for the rights of men, women and those of other genders, in the way we act and in the training offered
  - deployment of a gender lens on key performance indicators that track, monitor and report on application and admissions processes every year, as well as engagement and retention for female researchers to determine the quality and impact of gender-related policies and projects
  - upholding an equal pay policy (stipends and research funds) for all researchers, regardless of background

21. The Consortium for Advanced Research Training in Africa (n.d.). *CARTA gender position*. https://cartafrica.org/carta-gender-position/

## Securing funding

Improving access to funding and reducing the administrative burden on clinical researchers offers significant potential for strengthening career progression along a CRCP. Most survey respondents (60.7%) reported that they had not had sufficient access to funding opportunities and resources during their pursuit of a clinical research career.[14] As outlined earlier in this report, enhancing institutional support to aid researchers to secure funding, mainly through the existence and expansion of research support offices and staff, is a key opportunity. Promisingly, some institutions are developing guidelines to help researchers to source funding, to draft research grants, and to promote awareness of research integrity and responsibilities.

> I think the greatest barrier to effectively doing this is that we do not have significant research support [...]. We've just tried to build a business case for the university to have dedicated research professionals who really support us to do this better.
>
> **Institutional representative[14]**

Aiding clinical researchers to secure long-term funding is a critical pillar to ensuring that researchers can maintain a CRCP. Concerningly, 65.5% of survey respondents reported difficulty in securing sustained grant funding or resources to continue their clinical research projects.[14] This highlights a timely opportunity to ensure consistency in funding and to promote diversified funding models. Importantly, there has been a positive shift in the international funding landscape. Previously, funding had prioritised infectious disease research in LMICs, but there has been an increased recognition of the importance of expanding funding to cover non-communicable disease research – aiding the diversification of funding options for clinical researchers.

Increasing the availability of domestic and institutional funding opportunities is critical from now on. Currently, most institutional representatives (62.5%) noted that limited funding opportunities are a 'very significant' barrier in CRCPs, and that their institution does not have adequate internal funding opportunities for clinicians on a CRCP. Developing more targeted domestic and institutional funding mechanisms would significantly reduce the dependency on short-term grants, and bridge funding gaps, creating a more enabling environment to conduct research.

Developing more sustainable institutional funding mechanisms is also key to ensuring there are adequate training and development opportunities for clinical researchers. Areas that are essential to clinical research, such as research and clinical integrity training, certificate and diploma training, formal graduate training, and leadership and management skills, should be consistently offered within institutions. In the future, structured institutional training programmes could enhance career progression and research quality – with institutions playing a key role in developing this.

## Institutional partnerships

Researchers within institutions who hold cross-country partnerships and/or networks benefit greatly in terms of increased exposure to new skills, particularly partnerships that feature an integration of academic and clinical infrastructure. They can access opportunities to hold joint positions and can undertake interdisciplinary research. From an institutional perspective, representatives highlighted the lack of reciprocal partnerships between hospitals and universities as a major barrier. There is an opportunity to strengthen partnerships that both increase early exposure to research for students and aid the balancing of clinical and research duties for those pursuing a CRCP through dual appointments. Currently, some hospitals do have partnerships with universities; however, these usually consist of university students who visit hospitals to receive training (although this is rarely research-related), rather than healthcare professionals simultaneously visiting the university to be exposed to research.

> We are doing this not only within my institution but across the network that I lead. I have several research projects which have site leads from different teaching hospitals. Some are paediatricians, some of them are haematologists, and we spent the last six years just doing skills development for research, with respect to database development, clinical research itself and multidisciplinary disease-specific management of specific diseases.
>
> I will emphasise the need to partner with industry to obtain more funding. If you as an institution rely on government grants or grants from non-profit organisations [...] it's going to be very difficult to have economic and financial sustainability in your institution.
>
> Industry sponsorship of clinical trials feed the research that is created within this institution, and that's something that needs to be pushed more in the region.
>
> **Institutional representative**[14]

When strong institutional partnerships and collaborations are coupled with the presence of a strong mentor, researchers can leverage increased access to partnerships and collaborations through a mentor's existing contacts. Mentorship therefore provides a dual benefit in the pursuit of a CRCP by exposing a researcher to partnerships and collaborations and by increasing agency to pursue these, while also building skills and fostering development.

## Opportunities to strengthen the 'pursuing' phase of the clinical research career pathway

### Short term

- Identify best practices and opportunities for promoting flexibility for research and clinical work simultaneously.
- Ensure that career breaks are recognised in criteria for progression and internal funding.
- Ensure gender-based promotion and internal funding panels.
- Promote bridge funding for career breaks or to keep research going.
- Strengthen the relationship and dialogue between institutions and funders to enable targeted training to support and assist researchers trying to secure grants.
- Increase the availability of institutionalised mentorship programmes with embedded career-tracking mechanisms.

### Medium term

- Promote reciprocal relationships and MoUs between hospitals and universities to increase dual positions and aid the balancing of clinical and research duties.
- Explore opportunities for internal funding that support carers to undertake research, e.g. dedicated funding pots for childcare costs to support clinical researchers attending conferences and funder events, or to enable a family member to provide childcare.
- Introduce an institutional mentorship framework and guidelines that recognise the contributions of the mentor (e.g. mentoring considered during promotional reviews).

### Long term

- Establish policies in universities and Ministries of Health to ensure protected time for research.
- Incentivise research to ensure research effort is remunerated on a level that can compete with clinical remuneration.

## Maintaining a clinical research career pathway

At the 'maintaining' phase of the CRCP, researchers are well established and begin developing a diverse research portfolio, either individually or as part of a team. Well-established progression pathways in high-income countries usually see researchers progress from a Research Fellow position to Assistant Professor and undertaking research independently or as a team, before becoming an Associate Professor. At this stage, they will be a PI or co-PI, or undertake a leadership position.

Importantly, the formalised progression described above is less common in many LMIC institutions. As researchers work to maintain a CRCP, they encounter more opportunities for expanding their involvement in large-scale research projects and for moving into leadership roles. These opportunities are accompanied by increased research responsibilities alongside clinical duties that are already quite heavy. Many researchers reported a greater sense of personal agency in balancing research and clinical duties within senior roles. This is often credited to early mentorship, which provides essential guidance on navigating the competing demands of research and clinical practice. This reaffirms the importance of strengthening mentorship within the CRCP, given that institutional policies on protected research time are often still limited in this career phase.

> My mentor taught me to be your own boss and to demand protected time for my research – even if it means sometimes making enemies with supervisors by saying, 'I have a paper to write, I've got a grant deadline; I won't come into the ward today.' This has helped me navigate my career pathway.
>
> **Individual researcher**[14]

### Career progression

The lack of institutionalised career pathway again poses significant barriers for researchers as they struggle to navigate complex and unclear progression and promotion structures. There is a significant opportunity at the institutional level to create clear and formalised guidelines on the division of research, clinical work, teaching and administration responsibilities, to better support progression structures for clinical researchers. This is particularly important to ensure that promotional criteria recognise the nuances and unique contributions of clinical researchers. Typically, promotion criteria focus on publications and grant funding – with researchers highlighting broadening these criteria as a key area for development. Currently, several institutions require publications to be published in journals with high-impact factors, which poses many barriers to LMIC researchers. This is due to the extremely competitive nature of getting published in high-impact journals, plus Article Processing Charges, fees which are often beyond the reach of many LMIC researchers. Institutions could work to better recognise more diverse forms of research quality and impact, including promoting good health research practices, increasing the openness and availability of research, and the societal impact of research.

As highlighted throughout this report, ongoing challenges related to PhD requirements must be addressed, particularly when considering readiness for senior roles during the maintaining phase of the CRCP. Across all regions, researchers outlined frustrations at many institutions demanding a clinical researcher to have a PhD to progress to professorship,

which can result in a significant number of researchers stalling in their career and being unable to move into senior positions, despite significant research experience. There is potential for institutions to consider broader and more flexible criteria that recognise other forms of research expertise and experience for those in clinical research roles. Re-evaluating the progression to professorship, beyond the traditional criterion of a PhD qualification, is critical for more inclusive progression models that recognise the diverse expertise of those with both clinical and research roles.

### Financial incentives

Strengthening incentives and support for those on a CRCP is highlighted as an important policy consideration. Increasing the number of long-term funding schemes alongside financial remuneration models that offer greater flexibility and alignment with performance could help improve the attractiveness of a CRCP. Currently, researchers expressed that remuneration that is fixed by the institution does not incentivise increased research work alongside clinical practice. In many institutions, there are additional discrepancies in institutional salary scales for researchers compared to grant salaries. Some institutions are already working to address this through adapted incentive policies, including offering 'top-up' salaries linked to research grants.

> It is hard to earn a living. People cannot go into a research career because of interest if they do not have any financial support or institutional support.
>
> In my setting, the remuneration doesn't really change, regardless of whether I do more clinical work or more research work – it's kind of fixed.
>
> **Individual researcher**[14]

### Opportunities to strengthen the 'maintaining' phase of the clinical research career pathway

#### Short term

- Identify best practices in implementing formal agreements on the division of research, teaching, clinical and managerial time.
- Promote longitudinal research grants for institutions with active research rather than one-off or short-lived grants (e.g. NIH-R01 grants, which are for 5 years with an opportunity for renewal).

#### Medium term

- Promote institutional policies to ensure fair distribution of funded projects across faculty members (e.g. not just to those in leadership positions).
- Develop additional and/or alternative metrics to measure performance for promotion (e.g. engagement in mentorship, research impact, promoting open research).
- Reduce teaching commitments for successful researchers.
- Allow salary top-ups from research grants.
- Link pay scales to successful research.
- Provide parity with clinical salaries where appropriate.

## Building supportive institutions to create sustainable clinical research career pathways

Evidence-gathering activities highlighted a significant number of initiatives led by institutions, or networks of institutions, which are working to improve support and career progression for researchers on CRCPs. This includes creating a defined clinical research pathway through development frameworks, leveraging strategic partnerships amid limited funding, and strengthening localised funding for institutions and research. Case studies from across Africa, Asia and Latin America are outlined below.

### Case study: Strengthening and formalising a defined CRCP within institutions for aspiring professionals to access and pursue in Africa at the MRC Unit The Gambia[22]

LSHTM/MRC Unit The Gambia (MRCG) has a strategic approach for identifying, training and developing researchers within institutions, focused on:

- developing talents through supported pathways
- technical and research support skills development
- research leadership development programme
- sub-regional and international capacity-building initiatives

The establishment of a strong and replicable pathway for clinical academics allows clinicians to explore and maximise their research interests, while being able to maintain clinical practice. As part of this, they have access to a dedicated mentor and supervisor for consistent support. This pathway allows them to define an area of interest supported by an ad hoc MSc course or MRCG PhD or project-based PhD.

MRCG takes a proactive approach to embed research leadership skills early in the career pathway to ensure it is most impactful. Through its Research Leadership Development Programme, clinicians are supported from doctoral level onwards to prepare them to lead research, including training in:

- formulating innovative research questions and methodologies
- grant and manuscript writing
- fostering a research culture and environment – including mentorship, research management, ethics and career development
- identifying a research niche

The post-PhD period is a critical fall-off point for many researchers, due to limited transitional support. MRCG has developed a Research Development Framework, which both recognises and supports the challenges associated with this transition, to ensure that researchers continue on the pathway. This includes:

- support for candidates to progress onto a research support pathway with career options including bioinformatics, lab manager or clinical trial coordinator, or a research path via the post-doctoral pathway to become a senior scientist
- post-PhD bridging funds and mentorship
- access to resources for personal development and evaluation (including the UK's Vitae Researcher Development Framework programme and the BMJ's Research to Publication programme)
- support for transferable skills such as grant and manuscript writing
- mobility support, including MRC Honorary Fellowships
- a formal post-PhD institutional career development framework

22. Jaye A (2024). Supporting the identification, training, and development of researchers within institutions, AAS-AMS Evidence Gathering Workshop, Nairobi, 15–16 October 2024.

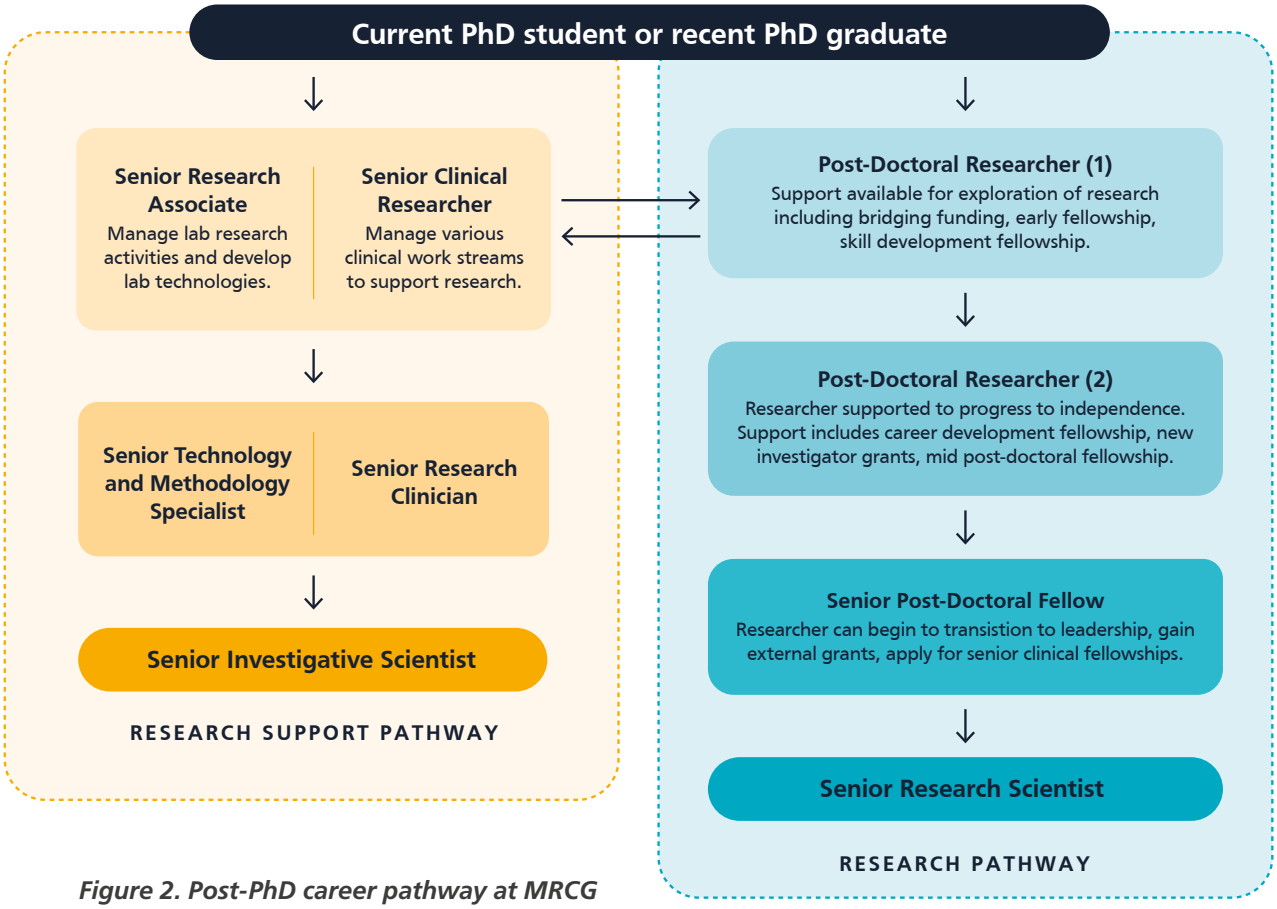


*Figure 2. Post-PhD career pathway at MRCG*

## Case study: Strengthening institutions within the Consortium for Advanced Research Training in Africa (CARTA)[23]

CARTA is an Africa-led initiative to strengthen the capacity of African institutions to train and support researchers. Through a consortium of eight partner universities, four research institutions, and eight non-African partner institutions, CARTA aims to strengthen institutional capacity and create research-supportive environments for researchers.

### Key approaches and learning

- **Research hubs:** CARTA supports the establishment of research hubs at partner institutions. These provide researchers, particularly early-career researchers, with administrative and grant management support, mentorship and multidisciplinary research collaboration exposure. In addition, the hubs aim to align with national and regional priorities to help facilitate evidence use.
- **Diverse capacity-building interventions:** interventions such as supervisor workshops, training-of-trainer workshops, administrative staff seminars, and encouraging South–South institutional mentorship to promote regional learning and support target key challenges across institutions within the research ecosystem.
- **Engaging leadership:** CARTA ensures consistent engagement with leadership teams within institutions to ensure buy-in and promote interventions within institutional policies and practices.

23. The Consortium for Advanced Research Training in Africa (n.d.). *CARTA's phases over time.* https://cartafrica.org/cartas-phases-over-time/

## Case study: DBT/Wellcome Trust India Alliance: strengthening localised funding across the career pathway and enabling strong institutional support for researchers[24,25]

Co-funded by India's Department of Biotechnology (DBT) and the Wellcome Trust, the India Alliance is a model for localised funding across the career pathway and increasing national ownership of research priorities. Considering the impact and value of this initiative, DBT increased its investment, shifting the funding ratio to 2:1 in favour of domestic funding.

**Key learning and impact**

- **Provide targeted funding schemes and structured support across the career pathway:** the Clinical and Public Health Fellowship Programme supports clinical researchers at the early-, mid- and late-career stages. This includes:
  - targeted support and recognition of the demands of conducting research alongside clinical practice
  - flexibility for entry to and exit from the pathway through consideration of career breaks and removing age restrictions in applications
  - fostering equitable opportunities in research for women and researchers from under-represented areas
- **Establish strong research centres:** through the development of clinical and public health research centres. These are research-orientated centres that can involve multiple institutions. The centres train early-career clinicians in research and build research capacity and infrastructure. An example of the impact of the centres includes reaching under-represented regions in northeast India. This includes the Centre for Training, Research and Innovation in Tribal Health, which has now expanded to multiple tribal communities across India to address the unique health challenges of this population.
- **Develop early-career clinical researchers:** as part of the clinical and public health research centres, a Clinical Research Training Programme has been embedded to develop clinical researchers. Institutions hosting this programme must detail and commit to structured training plans, mentorship and collaboration – ideally with institutions from under-served regions. Training other allied health professionals is also actively encouraged. The programme funds fellowships to:
  - integrate basic and clinical/public health research
  - provide mentored research training in research design, ethics and analysis
  - provide training opportunities in diverse research areas relevant to India's health priorities
  - provide knowledge and skills to prepare trainees for careers in health research

This approach highlights key opportunities to strengthen research ecosystems through locally led and directed funding, targeted institutional support and development, and aligning individual and institutional-level initiatives to strengthen the career pathway.

24. India Alliance (n.d.). *Advancing Discovery & Innovation to Improve Health*. https://indiaalliance.org/
25. Aslanyan G, *et al*. (2022). *Four approaches to supporting equitable research partnerships*. UKCDR, 20 September. https://ukcdr.org.uk/publication/four-approaches-to-supporting-equitable-research-partnerships/

## Case study: Building a clinical research ecosystem through strategic partnerships at Hospital Escuela, Honduras[26,27]

Hospital Escuela, the main public hospital and teaching facility in Honduras, has used institutional strengthening and collaboration to develop a clinical research ecosystem, despite the absence of a formal research career track.

**Key learning and impact**

- Utilising partnerships for institutional strengthening: collaborations between Hospital Escuela and Instituto Antonio Vidal led to the hospital's integration into Global Health Network Latin America and the Caribbean Consortium. Through this alliance, Hospital Escuela was designated as the Country Centre for Honduras, enabling the implementation of strategies to progressively involve clinical professionals, faculty and students in context-sensitive research activities. This initiative has strengthened the technical and methodological competencies of hospital staff and contributed to shaping an institutional culture that recognises research as a strategic pillar of the health system.
- **Integration of research into public hospital systems:** Hospital Escuela established the Unidad de Investigación y Gestión Académica, which became formally integrated into the hospital's structure. This allowed for the structural coordination of clinical and hospital research efforts, and led to the creation of the institutional review board (IRB), which responded to a long-standing institutional need for a permanent body to ensure the ethical review of research studies.
- **Creating an institutional culture favourable to knowledge generation:** dedicated spaces have been established to enable clinical professionals to engage in research activities without stepping away from their daily clinical responsibilities, recognising the value of continuous learning and collaborative work. Within this framework, initiatives such as data clinics, research clubs, supported learning sessions, and a research mentorship programme have been implemented to develop methodological competencies tailored to the hospital setting.

Despite challenges such as time constraints, limited resources and high staff turnover – factors that heighten the vulnerability of the ecosystem – the model implemented has maintained a long-term strategic vision. Local ownership of initiatives, the active commitment of healthcare staff, and collaboration with external partners have been key to sustaining operations and advancing the institutionalisation of clinical research.

## Summary: institutional mechanisms to strengthen clinical research career pathways

Based on the project's external analysis findings and evidence-gathering workshops, in order to strengthen CRCPs institutions should:[14]

- **Develop clear CRCP policies –** recognising CRCPs as formal career pathways with defined structures.
- **Enhance training and development –** implement structured mentorship programmes, interdisciplinary training opportunities and flexible learning models.
- **Increase internal funding and resource availability –** reduce dependence on external grants by allocating institutional funds for research training and early-career support.
- **Improve career progression tracking –** develop institutional key performance indicators to monitor and evaluate researcher career development.

26. Maradiaga EJ, *et al.* (2023). *Producción científica del Instituto Antonio Vidal, Honduras: análisis bibliométrico 1993–2023*. Revista Médica Hondureña **91(2)**, 112–8.
27. Alger J (2024). *The Global Health Network Latinoamérica y el Caribe: primer año fortaleciendo capacidades en investigación sanitaria*. Revista Médica Hondureña **92(2)**, 99–100.

**External support for institutional strengthening of CRCPs**

- **Funding agencies and policy advocacy –** develop sustainable funding models that provide long-term support tailored to clinician-researchers.
- **Regional and international networks –** facilitate global collaborations to enhance mentorship and funding accessibility.

**Enhancing academic and health sector integration**

- **Formalise research within healthcare systems –** encourage hospitals to allocate protected research time for clinical researchers.
- **Encourage joint appointments –** enable clinical researchers to hold joint positions across academia and healthcare institutions.
- **Align policy frameworks across regions –** advocate for the standardisation of licensing and research career structures across LMICs, to facilitate mobility and career stability.
- **Strengthen institutional partnerships –** foster reciprocal collaborations between universities and healthcare institutions to enhance research integration within clinical practice.
- **Standardise policies across regions –** advocate for regional policies that standardise licensing and research career structures to facilitate mobility of clinical researchers globally.

## Exploring the building blocks of strong, replicable and locally embedded clinical research career pathways within institutions

For a strong and formalised CRCP to exist within institutions, there must be foundational 'building blocks' in the wider research ecosystem that allow clinical researchers to conduct research. The project identified these as research infrastructure, domestic and international funding, and research governance.

This section consists only of evidence collected from the evidence-gathering workshops, supplemented with desk-based research.

## Research infrastructure

Across the project's evidence-gathering activities in Africa, Asia and Latin America, clinical research infrastructure was highlighted as a key building block underpinning strong CRCPs in institutions.

The presence of a robust research infrastructure system is fundamental to building strong and formalised clinical research pathways. Moreover, building and strengthening clinical research infrastructure within countries promotes increased and long-term capacity to conduct and produce high-quality research. Importantly, this will allow the development of local and regional clinical research capacities that can simultaneously address local research needs and attract increased funding. For sustainable clinical research pathways to exist, it is important to promote and strengthen:

- dedicated clinical research units – institutions should integrate clinical research units within hospitals and medical universities to facilitate investigator-led studies
- digital infrastructure – well-developed electronic health records, research databases and centralised clinical trial registries are necessary for efficient data collection and analysis
- funding mechanisms – sustained government support, private sector investments and regional funding mechanisms ensure financial stability for research projects
- qualified research personnel – trained clinical researchers, data managers, research administrators and regulatory specialists are required to manage studies effectively
- multi-centre and international collaborations – establishing regional research networks promotes resource-sharing and capacity building

## Optimal physical space, equipment and technology to support research

Ideally, all researchers should operate in environments with optimal physical space, equipment and technology that are conducive to producing high-quality research. While the availability and quality of research infrastructure varies both within and between regions, many countries lack adequate infrastructure capacity, which limits opportunities for researchers, including those on a CRCP.

In Africa, researchers voiced that infrastructure limitations are centred around inadequate technology resources (particularly bioinformatics and laboratory systems), and low availability of laboratory equipment and supplies. This is exacerbated in more rural settings by a lack of dedicated space to conduct research, combined with often unreliable power, water supply and waste management. Additional challenges include a lack of biobanking facilities, and long lead times in shipping lab supplies, which limits the time they can be used before expiry. When research and laboratory equipment are available, it is often duplicated across and within institutions. This reflects a need to promote resource-sharing within and between institutions, supported by policies, to improve the timely availability of supplies and researcher mobility between institutions to access equipment.

In Latin America, researchers emphasised the need for recognition that infrastructure needs are dependent on the type of study you are conducting (e.g. retrospective studies versus clinical trials). The lack of in-person environments and adequate facilities for conducting research is also a challenge for researchers in Latin America, and is often coupled with limited human resources to assist in studies. Currently, the infrastructure is not yet strong enough to support many study types, particularly intervention research, which needs appropriate spaces, policies and insurance. This is often further impeded by lack of funding that cannot sustain long-term processes and studies.

In Asia, storing and analysing biological samples is an ongoing challenge in clinical research, and this is exacerbated by limited personnel to support this. Ongoing efforts to increase the number of trained personnel has included multi-country research partnerships that include a component for staff visiting overseas institutions to develop sample storage and analysis skills, to then analyse samples in-country in subsequent clinical research partnerships. Weak infrastructure was also noted in Asia, with researchers in Vietnam highlighting that national-level hospitals have strong facilities for conducting more complex study types, compared to more limited facilities at the province level, meaning researchers are mostly doing observational studies.

A commonality across Africa, Asia and Latin America, particularly in clinical trials, is that clinical trial infrastructure is not maintained after the trial is complete and ‘leaves’ at the end of the trial. Researchers felt that this stems from the transactional nature of research collaborations, which neglects the importance of ensuring commitments are made to sustain long-term infrastructure capacity building. Local research infrastructure capacity building should be encouraged to be a mandatory byproduct of an international collaboration.

## Communication, knowledge and data management systems

Communication, knowledge and data management systems were consistently highlighted as a key infrastructure element requiring targeted strengthening in all settings. Although the exact challenges related to these systems vary across countries and regions, there is an unmet need to ensure that researchers on CRCPs are supported and have access to strong communication, knowledge and data management systems to strengthen research and its implementation.

Researchers in Africa highlight frequent problems related to insufficient systems for the collection and storage of data, and data analysis in particular. This is often exacerbated by limited access to data libraries, repositories and data analysis resources. In addition, inadequate communication infrastructure can affect engagement with participants and local communities, and limits implementation of evidence-based findings. This impedes ongoing efforts to build trust in research practices among participants and local communities to increase their active participation in research. In addition, researchers report logistical difficulties in sharing resources for patient care and participant recruitment for research projects.

In Asia, there is a desire for the continued implementation of integrated electronic medical records (EMRs) and to ensure the appropriate protection of the intellectual property (IP) rights of researchers and primary data collectors. Positively, more hospitals across Asia are now using EMRs. However, researchers noted that it is often difficult to extract the data to do secondary research, so integrated EMRs are needed. In Thailand, researchers noted the presence of a national database for clinicians to use for secondary research. Collaboration is needed for the introduction of integrated EMRs, and academic health systems play a key role in aiding collaboration between researchers across different hospitals to arrange this. Researchers highlight a lack of large datasets that are accessible, leading to a culture of completing primary data collection as part of a PhD or Master's degree, which can be resource-heavy and time-inefficient.

The handling of data and its subsequent use can also be an issue for researchers. IP must be clearly managed, especially when it is owned by the university. Strict arrangements in some countries result in institutions often owning data in an international partnership. In other settings, tight regulations make it impossible to share data in published manuscripts – often requiring ministerial approval prior to publication. IP disputes and unclear authorship policies discourage researchers from participating in multi-centre or international studies, which can limit collaboration and development opportunities.

In Latin America and Africa, low levels of digitalisation across many countries is impeding researchers' access to data for research. In addition, institutional data repositories remain limited in many settings and restrict researchers' ability to generate, store and analyse research data. This raises concerns regarding data protection and vulnerability, while researchers also raise concerns around the misuse of data. Communication systems are an area to be strengthened, particularly to improve communication between Latin American countries and support multi-country research trials and partnerships.

## Research grant, support and project management capabilities

The presence of strong research management within institutions is identified as a pivotal facilitator in enabling researchers to sustain a CRCP, mainly by allowing them to focus on their research in the presence of a supporting environment. The establishment of strong, adequately funded grant and research support offices allows for the expansion of research activities and a robust portfolio of competitive grants and funding within institutions.

Across Africa and Asia, there is ongoing work to promote and enhance research management capabilities within institutions. However, progress is not equal across all institutions and regions. Researchers across Africa, Asia and Latin America reported an absence of (or limited) research grant support and project management capabilities within their institutions. This impedes researchers from being able to focus on research and adds to already overwhelming administrative burdens that are often accompanied by onerous clinical and teaching responsibilities. In addition, limited institutional capacity for project and grant management may impact eligibility for larger grants.

In some cases where a research support office is present, researchers note that it is often inadequately staffed and underfunded. In the same instance, research support offices have not increased their capacity in line with the growth of institutions. This indicates a need for increased expertise – particularly in statistics, data management and research management – within research support offices.

## Case study: Africa Research Management Capacity Strengthening Programme[28]

The Science for Africa Foundation launched the Africa Research Management Capacity Strengthening Programme to address critical gaps in the African research ecosystem and support a vibrant culture and leadership at institutions. The programme's overall goal is to address systemic challenges at institutions in creating and sustaining enabling research environments.

This programme aims to strengthen research management at institutional level by addressing the following:

- institutional leadership – creating awareness, engagement and continuity of support for strengthening research management functions in institutions, across generations of leadership and senior academic staff
- sustainability – developing mechanisms to ensure that institutions can support their own research management functions, including financial and career sustainability, regardless of funder or government support
- standards – developing the Good Research Management Practice Standard as a tool for research institutions to strengthen their research systems, benchmarking and enabling institutional assessment for continuous improvement
- developing individual capacity – training individuals working in research management functions to promote the notion of the research management career pathway in institutions, supported by appropriate infrastructure

## Case study: Enabling research management in India[29]

The India Alliance launched the India Research Management Initiative, consisting of Research Management fellowships, grants and travel grants. This has allowed many institutions to establish new research management offices, and helped institutions with established offices to expand current services and improve research management practices. In 2024, membership had grown from 27 to 99 institutions, reflecting the importance of research support offices. Other impacts include:

- enhancing the career prospects of research managers by offering structured support and development opportunities, connections with peers, facilitating collaborations and knowledge exchange
- increased access to funding opportunities through the initiative enabled research managers to lead and manage high-impact projects

28. Science for Africa Foundation (n.d.). *Africa Research Management Capacity Strengthening Programme: addressing critical gaps in research by supporting vibrant, professional and effective ecosystem.* https://scienceforafrica.foundation/africa-research-management-capacity-strengthening-programme

29. Ayvar S & Jameel S (2019). *India Research Management Initiative (IRMI) – an initiative for building research capacity in India.* Wellcome Open Research **4**, 18. https://wellcomeopenresearch.org/articles/4-18.

### Opportunities to strengthen research infrastructure for clinical research career pathways

#### Short term

- Enhance training, professional development and maintenance of infrastructure (Africa/Asia).
- Strengthen communication between countries conducting multi-country research trials and partnership (Latin America).
- Increase support for migrants who are researchers to increase research personnel (Latin America).
- Consistently demonstrate the value of research management within institutions.

#### Medium term

- Promote effective and efficient use of available clinical research infrastructure through the creation of resource-sharing platforms and linkage of clinicians with laboratories to access resources relevant to the implementation of their projects (Africa).
- Make better use of existing resources by creating networks of expertise across countries to pool resources, creating opportunities to collaborate with institutions that already have facilities, teams and infrastructure, and sharing research capacity between public and private hospitals (Latin America).
- Add clause in agreements with funders of clinical trials and research projects to include sustained strengthening of local infrastructure capacity. Commitments must be made to maintain clinical trial infrastructure long after a project is completed. Keeping clinical trial networks active to ensure that capacity is not lost is a good way to do this.
- Form strategic partnerships with researchers in the diaspora to strengthen local research capacity (Africa).
- Promote formal and sustainable career structures in research management across institutions.
- Develop clear policies for costing grant overheads in recruitment and retaining research management staff.

## Funding to support and promote clinical research career pathways

International and domestic funding agencies play a pivotal role in providing funding for the formation and strengthening of CRCPs in LMICs. Typically, most funding opportunities are focused on developing individual researchers' careers by providing fellowships, research awards, training, collaboration opportunities and soft skill development. However, there have been a growing number of funding initiatives aimed at strengthening the capacity of research institutions to provide funds, management and support to sustain both research and researchers' careers.

Historically, international funders have provided substantial funding for research, leading to criticism for its misalignment with local health needs and short-term, project-based, funding cycles. Building sustained and strong research capacity, however, must be driven by national governments. Competing priorities and limited national research budget allocations have led to minimal domestic funding for research in LMICs. A lack of sustained and sufficient government funding has significant implications for the resources available to institutions to sustain and fund research, as well as for supporting CRCPs.

Across many settings, research and long-term career development are increasingly supported via a mix of domestic investment (including national governments and private sector investments) and international funding. International funding can be matched to domestic investment (e.g. in the case of the DBT/Wellcome scheme), or used to support institutions, to work with countries to ensure they support context-specific needs and national strategies.

## Case study: Indonesian Science Fund[30]

The Indonesian Science Fund was established to contribute to the overcoming of barriers to conducting high-quality research following a national-level review that highlighted that funding constraints were limiting long-term research planning.

**Key approaches and learning**

- Independent and sustainable funding mechanisms: the Indonesian Science Fund is an independent body, and as a result can raise funds from non-governmental sectors at national and international levels. In addition, fund management does not have to follow the annual cycle of the state budget, allowing for more flexible support.
- Targeted support: emphasis is placed on multidisciplinary proposals, collaboration with the Indonesian diaspora, and career advancement of early-career researchers.
- Promoting a culture of scientific excellence: the fund supports both fundamental and frontier research through competitive funding.
- National-level collaboration: regular engagement and dialogue with governments allows alignment of funding calls with national priorities.

## Geographical disparities

International and domestic funding exhibits geographical disparities that directly impact an institution's ability to support clinical researchers. In Africa, research funding is often concentrated in a few countries with stronger research infrastructure (e.g. South Africa, Nigeria and Kenya), while smaller economies with weaker infrastructure struggle to attract investment. In Asia, wealthier countries (e.g. China, India and Singapore) lead in research funding, particularly domestic funding (both government and private investment), while others (e.g. Nepal and Vietnam) depend far more on external and international grants. Similarly, larger economies in Latin America such as Brazil, Mexico and Argentina receive more grants, with smaller nations struggling for funding. Public sector budget cuts further limit opportunities.

Disparities in financial investment significantly affect CRCPs by:

- limiting research opportunities – early-career researchers struggle to secure funding, which can discourage them from pursuing research careers
- brain drain – talented researchers migrate to better-funded institutions abroad
- restricting career progression – without long-term grants, researchers cannot transition from junior to senior research positions
- creating inequities in access to training – wealthier institutions and countries offer more opportunities, leaving lower-income researchers at a disadvantage
- limited investment in emerging research fields – areas like digital health, bioinformatics and rare diseases remain underfunded and limit the potential for researcher progression in these fields

Funding is also concentrated in a limited number of high-performing institutions. This is exacerbated by selection policies for grants and funding based on competition and excellence.[31] Thus smaller, less-resourced institutions tend to not receive a high number of grants, further limiting their capacity and support for clinical researchers. Funders must therefore consider both excellence and equity when distributing grants and funds. This would enable countries that have significantly strengthened their research capacity and quality of research to build on this progress, while supporting countries with lower research capacity to gain competitiveness and capacity, and obtain the benefits of producing research.[32]

30. Indonesian Science Fund (DIPI) (n.d.) homepage: https://dipi.id/
31. Maher, D (2020). *External funding to strengthen capacity for research in low-income and middle-income countries: exigence, excellence and equity.* BMJ Global Health **5**, e002212.
32. Lang T, *et al.* (2022). *Creating equity in health research to drive more and better evidence.* Wellcome Open Research **7**, 15.

### Seed and bridge funding

Seed and bridge funding, particularly for early-career clinical researchers, is vital for providing targeted support and targeting critical 'fallout' points in the career pathway, to prevent the loss of talented clinical researchers. This includes post-PhD transition support or points in the career pathway where researchers encounter gaps in funding or move to new institutions. This particularly includes clinical researchers returning to their home countries after overseas training. Clinical researchers across all regions highlighted the value of this in helping researchers to attract larger grants. Often, small but targeted seed or bridge funding goes a long way in allowing a clinical researcher to begin to carve out a career. Of particular benefit is when funds are allocated to conceptualising, writing and submitting grants, as many clinical researchers work out of hours to develop grants. However, clinical researchers highlighted that the availability of seed and bridge funding is limited, particularly in institutions and countries with limited research capacity.

## Case study: Africa Research Excellence Fund (AREF) seed funding[33]

The Seed Fund by AREF enables researchers, on completion of the Research Development Fellowship, to embed the skills they have acquired to develop their own projects within their home institution. This serves as a bridge to winning substantive research funding and achieving research independence. As part of the Seed Fund, support is provided for a pilot project to produce preliminary data, refine research questions and develop methods and data collection. The aim is that the preliminary data can make substantive research funding proposals to large funders more competitive.

### Funding clinicians

As outlined, clinical researchers across all regions referenced in this report highlight an urgent need to address issues regarding flexibility, advancement and funding uniquely for clinicians looking to pursue a research career. As emphasised throughout, clinical researchers with a PhD are not common across LMICs, and this can often lead to significant hurdles for career progression, as many funders require PhDs to secure grants. Hierarchical research structures pose further challenges, since an absence of funding schemes targeting non-PhD researchers can significantly limit the career potential of many talented researchers. Funding schemes targeting the clinical research pathway in LMICs must be far more flexible in their requirements and better reflect the reality of clinical researchers' backgrounds in LMICs.

In addition, few funding schemes encourage mobility between academic and clinical environments, and fail to support entry, exit and re-entry into the CRCP. This limits long-term career progression among researchers looking to move flexibly between environments and adapt to diverse and variable CRCPs.

### Institutional overheads

Clinical researchers in Latin America noted very few funding sources that recognise researchers' salaries or pay institutional overheads. This was echoed by researchers in Africa. As a result, institutions must often fund both direct and indirect research costs, which can be considerable and are often not included in institutional budgets. Similarly, researchers noted that late payments are another challenge when embarking on research collaborations with high-income countries, as money typically moves from funders to lead research partners (typically a high-income country) and then on to LMIC institutions. Ensuring that greater autonomy and control of finances are given to LMIC institutions is key to improving equity in partnerships and should be supported by engaging with LMIC institutions to strengthen financial and administrative systems.[34]

33. Africa Research Excellence Fund (n.d.). *On-going support*. https://africaresearchexcellencefund.org.uk/on-going-support/

34. Dean L, *et al.* (2015). *Promoting sustainable research partnerships: a mixed-method evaluation of a United Kingdom–Africa capacity strengthening award scheme.* Health Research Policy and Systems **13**, 81.

### Opportunities to strengthen funding for the promotion and strengthening of CRCPs

#### Short term

- Increase dialogue for LMIC stakeholders to inform funders of their national priorities and challenges.
- Prioritise opportunities for institutions and countries that are under-represented.
- Promote collaborative arrangements between research-active institutions and institutions looking to increase their research capacity.
- Prioritise support and funding for pre-proposal work at an individual and institutional level.

#### Medium term

- Develop high-income country funding programmes designed to leverage and encourage co-funding by LMIC governments and/or research funding bodies.
- Provide long-term funding, which is sustained and invested beyond specific projects.
- Ensure institutional and funder investment in strengthening research management.
- Ensure flexibility of funding schemes to enable simultaneous clinical and research training.
- Ensure flexibility of funding eligibility criteria to recognise diverse clinical research careers.
- Increase funder support for South–South collaborations within grants that support clinical research capacity strengthening.
- Ensure there are consistent efforts to fund Global South institutions directly.

## Research governance

While the project uncovered research governance as a significant issue impacting the CRCP, this has not been explored systematically during the project. We have outlined the views of researchers from a range of career stages below, but the views of regulators, IRB representatives, and Research Ethics Committee (REC) representatives are missing. The impact of current regulatory and ethics systems on CRCPs consequently warrants urgent further research and exploration, as outlined in **Recommendation 4**.

Research governance refers to the strategies for strengthening regulatory frameworks and promoting ethical conduct. It applies to everyone involved in clinical research, whether as PI, care professional, researcher, administrator, manager or support staff. Moreover, it is essential to safeguard participants, enhance the ethical and scientific quality of research, mitigate risk and promote good practices. Effective and efficient ethics and regulatory systems play a crucial role in enhancing the career trajectory of clinical researchers on CRCPs through the following actions.

- Upholding ethical standards – protecting researchers and study participants from ethical violations.
- Streamlining approvals – reducing bureaucratic delays to allow researchers to focus on the delivery of research and innovation.
- Providing institutional support – strengthening career security through enhanced funding and mentorship programmes.
- Facilitating international collaboration – harmonised regulatory processes enable multi-country clinical research projects, which, in turn, boost career visibility.
- Encouraging private investment – transparent and efficient ethics and regulatory systems attract more funding opportunities and sponsors looking to conduct clinical trials.

Institutions also play a vital role in supporting clinical researchers and ensuring research governance functions effectively by implementing the following.

- Developing ethical guidelines – universities and research centres should establish clear ethical policies.
- Providing compliance support – institutions must help researchers navigate complex regulatory environments.
- Managing grants efficiently – institutional research offices should offer assistance in grant applications and compliance reporting.
- Encouraging multi-centre studies – research centres should facilitate collaboration across institutions.

Strong, efficient, rapidly responsive and harmonised ethics and regulatory systems rely on multiple stakeholders proactively communicating, continuously learning and collaborating to streamline processes (see **Table 3**). This not only fosters an enabling clinical research environment, but it also helps to develop robust scientific evidence to inform the development of local policy.

| Stakeholder | Role |
|---|---|
| **Government regulatory agencies/ authorities** | Develop and enforce national research policies |
| **Universities & research institutions** | Train researchers, establish research governance units and provide administrative support |
| **Research Ethics Committees (RECs) and Institutional Review Boards (IRBs)** | Ensure compliance with ethical research standards |
| **Funding agencies (national and international)** | Set governance requirements for research funding |
| **Pharmaceutical and biotech companies** | Invest in clinical trials and ensure regulatory compliance |
| **Professional associations** | Advocate for policy changes and professional development |

***Table 3. Key stakeholders involved in research governance***

In recent years, good progress has been made in the regulatory space to promote the alignment of regulatory policies and processes across LMICs. International organisations such as the World Health Organization (WHO) have played an active role in encouraging multi-lateral initiatives to strengthen national regulatory systems. Mandated by the World Health Assembly (WHA) in resolution WHA 67.20, the WHO supports countries to build regulatory capacity and promote regulatory cooperation, convergence and transparency through networking, work-sharing and reliance.[35] This has included the development of the Global Benchmarking Tool to assess a regulatory system and its functions, as well as the formulation of institutional development plans. While much progress has been made to strengthen regulatory systems, less progress has been made regarding ethics boards. Several multi-lateral initiatives exist with the aim of strengthening regulatory systems, as outlined below.

35. World Health Organization (n.d.). *Regulation and prequalification.* https://www.who.int/teams/regulation-prequalification/regulation-and-safety/rss/programme#:~:text=As%20disease%20and%20falsified%20medical,start%20of%20the%20RSS%20programme

## Case study: Strengthening regulatory systems

### Africa: Africa Vaccine Regulatory Forum (AVAREF)

AVAREF aims to promote the harmonisation of ethics and regulatory processes across Africa by facilitating collaboration between National Research Authorities (NRAs), ethics committees and sponsors. Its key initiatives include:[36]

- building capacity by promoting joint reviews and the sharing of work and expertise across ethics committees and NRAs
- capacity building for ethics committees; this has previously included a partnership with a multi-regional clinical trial centre where a training course was delivered to the AVAREF country members' NECs and IRBs
- providing a platform for parallel review by NRAs, national ethics review committees, local ethics review committees and IRBs for multi-county clinical trial applications; the timelines for approval range from 60 days for regular review, 30 days for expedited review, and 10–15 days for emergency review

### Asia: South-East Asia Regulatory Network (SEARN)

Eleven member states of the WHO South-East Asia Region launched the SEARN to enhance information-sharing, collaboration and convergence of regulatory practices regarding medical products. Its mission is to facilitate and support regulatory capacity development and address shared regulatory challenges and issues in the WHO South-East Asia region. SEARN aims to promote:[37]

- information-sharing – create an enabling environment to enhance communication and information-sharing on regulatory policies, guidelines, standards, procedures, outputs and regulated products and entities between NRAs in the region
- systems strengthening – facilitate and support regulatory capacity development to enhance regulatory systems in the region
- convergence – promote the convergence and alignment of regulatory approaches and requirements based on international standards and good regulatory practices
- collaboration – identify and develop potential work-sharing and reliance processes to help address common work areas and optimise the use of existing regulatory capacities and expertise available in the region

### Latin America: Member States of the Pan American Health Organization (PAHO)

Member states of the PAHO have worked together to strengthen regulatory convergence over the previous decades, and regulatory system strengthening remains a priority for the region. This has included the following actions.[38,39]

- PAHO has assessed most NRAs in the Americas using a standardised tool to identify the strengths and opportunities for improvements within the NRAs. Eight regulatory authorities of regional reference now exist to benchmark and support other regulatory systems in the region.
- Regular assessments of NRAs to identify cross-cutting regulatory gaps that could be strengthened by leveraging shared capacities.
- Continued regulatory capacity strengthening in smaller countries, and in locations where regulatory gaps remain, such as Central America and the Caribbean. Regulatory collaboration initiatives are in place to address outstanding needs for improvement.

36. World Health Organization (n.d.). *African Vaccine Regulatory Forum (AVAREF).* WHO Regional Office for Africa. https://www.afro.who.int/health-topics/immunization/avaref
37. SEARO Regional Office for the South East Asia and WHO South-East Asia (2018). *South East Asia Regulatory Network*. https://www.who.int/publications/i/item/south-east-asia-regulatory-network-searn
38. PAHO (2022). *Regulatory system strengthening in the Americas. Lessons learned from the National Regulatory Authorities of Regional Reference.* https://iris.paho.org/bitstream/handle/10665.2/53793/9789275123447_eng.pdf
39. PAHO (2025). *PAHO promotes interagency exchange to strengthen regulatory systems for medicines and health technologies in the region.* https://www.paho.org/en/news/20-2-2025-paho-promotes-interagency-exchange-strengthen-regulatory-systems-medicines-and#:~:text=The%20activity%20is%20part%20of,primary%20objective%20of%20the%20meeting

## Fragmented and cumbersome regulatory and ethics approval processes

Researchers across all three regions expressed significant concerns over current ethics approval processes, which are characterised by unpredictability, duplication and high costs. Often, lengthy approval processes lead to unpredictable and highly variable timelines between receiving a grant and gaining ethical review clearance. During the COVID-19 pandemic, these difficulties and a lack of preparedness for adequate response in a time of crisis were evident in many countries. Vietnam, for example, lacks a defined timeline for final approval by the Ministry of Health, as well as by local-level sites for clinical trials, making the process extremely unpredictable for sponsors looking for clinical trial sites. This is exacerbated by grant and funder timeline expectations that do not reflect current timescales for approval processes. In some settings in Asia and Africa, timelines given by funders for study preparation are near-impossible to meet, with an average of 3 months allocated, which is out of sync with current waiting times for approval, which average 6–9 months. The impact of this is two-fold: there are significant delays and uncertainty in clinical research projects; and more researchers are having to ask for no-cost extensions to grants.


*Figure 3. Mapping a typical review process in Africa*

Across Africa, Asia and Latin America, lengthy approval processes often involve multiple stages and layers of review, exacerbating existing delays and creating unpredictability and inefficiency. In many contexts, particularly certain countries in Africa and Asia, sequential approval processes require each step to be completed before the next phase can begin, causing huge bottlenecks and slowing down study initiation. Enabling parallel ethics review is a key enabler for more efficient approval systems, such as those in countries like Malaysia.

In addition, researchers are having to apply to multiple RECs and IRBs for protocol approval, which is contributing to existing delays, as well as increasing costs. Delays are often further exacerbated by paper-based submission systems. In some settings in Asia, a clinical trial involving multiple hospitals requires an application to each individual hospital's ethics body. Moreover, in Africa, the increasing number of review stages, particularly in settings such as Malawi, is attracting greater costs. Instances were highlighted where IRBs are sometimes breaking down a single research protocol into multiple studies and requiring more fees than were originally budgeted. Not only are these costs continuing to increase, but they are often prohibitive for the researcher. Early-career researchers who have smaller grants are, in many cases, unable to meet these costs and become discouraged from pursuing research.

Concerningly, researchers across all settings, particularly early-career researchers, expressed concerns that they felt like a lone voice or powerless when grappling with these challenges. Senior researchers, particularly those who were involved in mentoring, worry this is stifling enthusiasm and the research pipeline, ultimately limiting the career trajectory of clinical researchers.

Strengthening ethics and review boards relies on the continuous learning and information-sharing gained from reviewing clinical research applications. Therefore, if discouraged researchers reduce their submission of protocols, this will heavily impact ongoing efforts and gains in review board strengthening. Beyond this, countries with fragmented, duplicated and unpredictable approval systems are at a competitive disadvantage to nations with streamlined and harmonised processes where studies can begin faster. This makes countries unattractive to potential sponsors, collaborations and investments.

WHO best practices and guidance on review processes include the following recommendations.[40]

- RECs should act in a timely manner, have clinical trial review competency, be transparent about their document submission requirements, and provide transparency on the time taken for clinical trial approval. Procedures should be kept under review, and any unnecessary bureaucracy should be eliminated, with approaches and procedures adapting to changes in the clinical trial landscape.
- Given the multiple parties involved in authorisations of multi-centre clinical trials, action should be taken to reduce duplication while ensuring rigorous and prompt authorisation processes. For instance, systems of parallel submission to different stakeholders (e.g. NRAs and RECs) or joint reviews.
- Promote efficiency through single REC models.

## Case study: Improving approval times for clinical trials in Brazil[35,37,41]

Brazil has a dedicated government agency to oversee, manage and approve clinical research (mainly clinical trials) – ANVISA. This was implemented after unclear regulations (including import), lengthy approval processes, and lack of support for clinical trials. Since 2015, ANVISA has introduced multiple measures to reduce its approval times for clinical trials, including:

- consolidated applications – resolutions RCD 09/2015 and RDC 10/2015 consolidated all documentation required for clinical trial approval into a single dossier
- priority review – further resolutions in 2017 enabled expedited review for clinical trial applications classified as priorities; priority reviews receive a first-opinion letter within 30–45 days (compared to a standard review of 90–180 days)
- known protocols – clinical trial protocols that have been previously approved by ANVISA are given an expedited review; in these cases, ANVISA holds regular meetings with the sponsor or Clinical Research Organisation (CRO) to discuss any potential problems with these protocols so that they can be addressed

40. World Health Organization (2024). *Guidance for best practices for clinical trials.* https://iris.who.int/bitstream/handle/10665/378782/9789240097711-eng.pdf?sequence=1

41. Fagundes P, Dresel P & Miller AE (2018). *Brazil's regulatory environment offers positive changes for clinical trials.* Regulatory Focus. Rockville, Maryland: The Regulatory Affairs Professionals Society.

- parallel processes – resolution 205/2017 enabled ANVISA reviews of clinical trial applications to be done in parallel with ethics reviews
- decentralised ethics review – before 2016, all ethics reviews were done by the national ethics committee, CONEP, which resulted in a bottleneck in approval timelines; in 2016, CONEP was able to accredit local ethics committees and ease bottlenecks by distributing applications for them to review and approve

By 2016, these changes had significantly reduced review timelines – the National Research and Ethics Committee reduced its approval period from 322 to 81 days.

## Case study: Strengthening the ethics review process in the Philippines[42]

The Single Joint Research Ethics Board (SJREB) was formed under the Department of Health (DOH) in the Philippines in 2017. This was tailored around the ethics approval process for multi-site studies. SJREB is the closest to a one-size-fits-all mechanism for multi-site protocols in the country because it has a blanket approval applicable to all hospitals under the DOH, allowing researchers to proceed with data gathering without needing to obtain separate approval for each site.

### Multi-country studies

Across all settings, particularly Asia and Latin America, researchers are finding it increasingly challenging to participate in multi-country clinical research studies. This is, in part, driven by the challenges mentioned above regarding ethics approval delays. However, a lack of consensus, or difference, in ethical considerations and regulatory standards across countries in Latin America and Asia is leading to operational challenges in multi-country studies. For example, there is a different definition of 'low risk' in certain aspects of clinical research; in Malaysia, low risk for drawing blood is 10mL, compared to 20mL in Thailand. Coupled with the requirement to satisfy multiple review boards across each country involved in the study, vital collaboration opportunities are missed by researchers on the CRCP.

There is an urgent need to strengthen regional and international harmonisation of regulatory requirements and processes. The International Council for Harmonisation (ICH) is currently working in this area to facilitate this.

### Sample governance, import and export permits

Across Africa, Asia and Latin America, clinical researchers have reported delays in receiving import and export permits, which has resulted in delayed access to products and drugs needed for clinical trials. This has also impacted sample governance. Biological sample handling considerations differ across regions, reflecting the fact that each country has its own specific regulations for the import and export of clinical materials.

In Asia, many clinical researchers cannot send samples abroad for analysis, due to restrictions on the transport of biospecimens. Researchers reported that this has sometimes resulted in the loss of clinical trials, particularly when samples cannot be sent abroad. This issue is compounded by inadequate infrastructure for managing and processing samples in-country. However, there are ongoing efforts, particularly in Indonesia, to build capacity to manage and process samples for observational and surveillance studies.

Clinical researchers often report a lack of cost-effectiveness for analysing samples in-country due to high taxes placed on analysis kits, which can sometimes be up to 10 times the cost of the kit in some countries in South-East Asia.

42. Lasco G, *et al.* (2021). *How ethics committees and requirements are structuring health research in the Philippines: a qualitative study.* BMC Medical Ethics **22**, 85.

In Latin America, each country has its own regulations for importing and exporting clinical trial materials, and many countries still need to obtain numerous import approvals. Approval times can range from 2 to 6 months, which can significantly delay multi-country research projects. Similarly, in some countries within Asia, import permits must be obtained separately from ethics approval, adding to the already complex and lengthy approvals process.

## Insights from other countries: Mexico[43]

Mexico has implemented a unified system for import and export licence submission, which is linked between the Ministry of Health and customs, shortening timelines from submission to approval. In addition, there is a reduced import tax for imports related to clinical research.

### Training

Comprehensive research ethics training should be provided for all members of clinical research teams, and all members of RECs, at the earliest opportunity in professional training. Importantly, Good Clinical Practice (GCP) courses should always be accompanied by additional course(s) in research ethics, including good health research practices, providing training and guidance to ensure quality and ethical conduct across all health-related research, beyond clinical trials. Clinical researchers from all settings highlighted significant progress in recent decades in the availability of, and funding to support, research ethics training from international organisations and funders.

However, many researchers, particularly in Africa, reflected that the language in ethics and GCP courses was highly negative, and often off-putting for young researchers. Research is often framed as exploitative and harmful, while there is less focus on the benefits of research. For early-career clinical researchers, who also lack mentorship to guide them through potentially daunting ethics processes, this could dissuade them from pursuing clinical research.

### Opportunities for strengthening research governance for clinical research career pathways

#### Short term

- Increase communication mechanisms between researchers, IRBs and RECs.
- Encourage pre-submission meetings between RECs/IRBs and researchers.
- Understand the views of both regulators and researchers on the impact of current regulatory and ethics systems on the career pathway.
- Encourage mentorship to help early-career researchers navigate these challenges.
- Promote continuous review and evaluation of approval delays by RECs/IRBs to ensure continuous learning and implementation cycles.
- Increase training opportunities for research support staff in specimen storage and analysis as part of research collaborations.

43. Patel R & Bamberger J (2017). *Overcoming complexities of clinical trial supplies in Latin America*. Applied Clinical Trials **17(10)**. https://www.appliedclinicaltrialsonline.com/view/overcoming-complexities-clinical-trial-supplies-latin-america

### Medium term

- Implement fast-track approvals.
- Centralise online portals for submissions.
- Shift towards parallel rather than sequential reviews.
- Encourage coordinated approval models.
- Strengthen ongoing efforts to harmonise regulatory requirements across regions.
- Work to synchronise ethics review process with applications for permits.
- Promote additional ethics courses to be taken by all involved in research alongside GCP training.

### Long term

- Work to harmonise ethics and regulatory approval processes across regions.

# Conclusion

## This report has provided a synopsis of existing and new evidence on the unique challenges to accessing, pursuing and maintaining a clinical research career in LMICs.

Clinical researchers play an important role in improving patient outcomes and advancing locally relevant research, including the identification of novel treatments, safer and more cost-effective interventions, and providing high-quality evidence to inform policymaking. However, this career pathway is rarely formalised in African, Asian and Latin American countries, where disease and mortality burdens are highest and the gains to be made from improving health are therefore greater. A clinical researcher faces unique challenges compared to a non-clinical researcher or ordinary clinician. These barriers include: gaining relevant education and training, with many clinical researchers not holding a PhD; limited access to international and domestic funding; balancing teaching, research and clinical care responsibilities, with a lack of protected time for research; and limited flexibility to move between academic and clinical settings. Without action from institutions, policymakers and other stakeholders within the wider research ecosystem, there is a risk of LMICs losing clinical researchers whose combined work offers economic and public health benefits.

This report outlines the foundational building blocks needed for a strong and formalised CRCP. The project identified these as research infrastructure, domestic and international funding, and research governance. In the case of research infrastructure, there needs to be an optimal physical space, laboratory equipment, digital infrastructure and human resources, as these affect clinical researchers' ability to do primary and secondary research (for example, using biological samples or electronic patient records). Clinical researchers would also benefit from a dedicated research support office within institutions to provide guidance on project management and obtaining grants. In the case of research funding, challenges include the requirement of many funders for applicants to hold a PhD, and the fact that few funding sources recognise researchers' salaries or institutional overheads. There are also geographical disparities, with funding concentrated in a few well-resourced countries. Finally, in the case of governance, current regulatory and ethics systems are a major barrier to young clinical researchers' careers. While these systems are essential in providing oversight and ensuring research is safe and conducted correctly, they can be burdensome, over-complicated and difficult to navigate. However, this project did not assess this problem systematically. Therefore, further work is needed to explore barriers and solutions, and to identify best practices for current regulatory and ethics systems within countries.

In addressing the global challenges facing CRCPs, this project proposes four key recommendations for academic institutions, health systems, funders and regulatory bodies. First, clinical research should be formally recognised as a career pathway through integrated policies, flexible training structures and joint academic–healthcare appointments. Second, academic institutions must foster enabling environments by embedding research in medical education, formalising mentorship schemes, and incentivising research engagement by creating institutional key performance indicators to monitor and evaluate researcher career development. Third, funders should adapt schemes to accommodate the dual demands of clinical and research roles, ensuring equitable salaries and broader eligibility criteria. Funders should also recognise that funding durations may need to be longer to accommodate highly variable ethical approval processes. Finally, regulatory and ethics stakeholders must also streamline approval processes and reduce barriers for early-career researchers, particularly through collaborative, cost-effective and harmonised governance systems across countries.

Underpinning all the recommendations and themes in this report is the high number of stakeholders involved in the clinical research pathway and how these can vary across countries and continents. This report and its recommendations are a starting point for the appropriate stakeholders in each context to act, requiring further stakeholder engagement and tailored implementation across diverse settings. Amid global funding cuts and freezes on foreign aid, there is an opportunity for governments in LMICs to prioritise domestic investment in research. Doing so will ensure that limited resources are used effectively and that research continues to drive health improvements and economic growth.

# Annexes

## Annexe 1

### Project timeline and conduct

The UK Academy of Medical Sciences (UK Academy) received funding through the International Science Partnership Fund (ISPF) from the Department for Science, Innovation and Technology (UK Government), to deliver a global working group project on the topic of clinical research pathways. The UK Academy is an independent organisation, and the UK Government was not directly involved in this project nor in the approval of the final report.

This project has been delivered in partnership with a cohort of global partner academies across LMICs in Asia, Africa and South America. The partner academies include:

- Academy of Science of South Africa
- The African Academy of Sciences
- Academy of Sciences in Malawi
- National Academy of Medicine & Brazilian Academy of Sciences
- National Academy of Science and Technology, the Philippines
- Indonesian Academy of Sciences

Project scoping activities indicated that the project should focus on institutional capacity, specifically how institutions can support and strengthen sustainable and locally embedded career pathways for clinical research.

The expert working group led on finalising the Terms of Reference, identifying project priorities, advising on key evidence-gathering activities, recommendation development and report drafting.

### Evidence-gathering process

The evidence-gathering process for the project consisted of three evidence-gathering workshops, commissioned research conducted by LSTM, and a call for written evidence.

The main evidence-gathering activities for this project involved a series of high-level in-person regional workshops, with the aim of identifying region-specific challenges, barriers and opportunities around clinical research pathways that could inform next steps and influence future action in each region and globally. Each workshop gathered researchers from a range of career stages, including early-career researchers. Workshops included:

- Africa evidence-gathering workshop: Nairobi, Kenya (15–16 October 2024)
- Latin America evidence-gathering workshop: Rio de Janeiro, Brazil (10–11 December 2024)
- Asia evidence-gathering workshop: Jakarta, Indonesia (15–16 January 2025)

The commissioned research was conducted by the Centre for Capacity Research (CCR) at LSTM. The CCR team used mixed methods to generate quantitative and qualitative data to investigate the current situation regarding institutional support for CRCPs across LMICs globally. The subproject is divided into two sections to explore the institutions' and individuals' perspectives.

1. Describe CRCPs across different global contexts: explore successes and challenges faced by institutions in supporting clinicians on these pathways.
2. Understand clinicians' experiences and perceptions of facilitators and barriers to accessing and completing CRCPs.

A mixed-methods approach was employed, incorporating surveys and semi-structured interviews at both individual and institutional levels. The surveys captured quantitative and qualitative data on CRCP support mechanisms, while interviews provided in-depth perspectives from clinical researchers and institutional representatives. The study engaged 36 survey respondents and 14 interview participants, ensuring a broad representation of experiences from Africa, Asia and Latin America.

# Annexe 2

## Working Group membership

### Project Co-Chairs

**Professor Jimmy Whitworth FMedSci**

**Professor Patty J. Garcia**

**Professor Adeeba Kamarulzaman**

### Working Group

**Dr Kondwani Katundu,** Academy of Sciences in Malawi

**Professor Fanuel Lampiao,** Academy of Sciences in Malawi

**Professor Francois Venter,** Academy of Science of South Africa

**Dr Gabriela Cromhout,** Academy of Science of South Africa

**Dr Musa Kana,** The African Academy of Sciences

**Dr Violet Kayamba,** The African Academy of Sciences

**Professor Kathryn Maitland FMedSci,** UK Academy of Medical Sciences

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**Dr Suraj Bhattarai,** Global Health Research & Medical Interventions for Development (GLOHMED), Nepal

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**Professor Marcello Barcinski,** Brazilian Academy of Sciences

**Dr Charlotte Chiong,** National Academy of Science and Technology, Philippines

**Dr Camilo Roa,** National Academy of Science and Technology, Philippines

# Annexe 3

## Terms of reference

The project, which will take the form of a working group project, will aim to:

1.1. Understand the career pipeline for clinical researchers in LMICs, including the barriers and facilitators to developing clinical research in LMICs, and how this affects the career pipeline for clinical researchers.
1.2. Promote global and regional knowledge-sharing of best practices in building and strengthening locally embedded and sustainable CRCPs.
1.3. Synthesise existing evidence to identify mechanisms at institutional and environmental levels of the research ecosystem to build, support and strengthen locally embedded career pathways.
1.4. Generate new evidence and analysis to target barriers, unmet needs and gaps in policy and research to build the evidence base.
1.5. Develop specific and targeted recommendations about effective policy interventions that will strengthen the CRCP within LMICs. This will include identifying key entry points in the career pathway to support the implementation of targeted interventions/programmes to promote the retention of talented researchers.

### Within scope

The project will:

2.1. Take a global approach, working across regions to identify international case studies and generate evidence to foster knowledge-sharing and learning. This will generate recommendations for an international audience.
2.2. Explore clinical research in its broadest sense, acknowledging that in many contexts clinical research includes public health and wider health research. The project should also acknowledge the importance of One Health in relation to clinical research.
2.3. Consider varied stages of the career pathway for researchers with a PhD or equivalent, who play an active and leading role in the research process (e.g. PI, sub-investigator), including early-, mid- and late-career researchers with high research literacy. This includes a wide range of health professionals such as doctors, nurses, midwives and pharmacists.
2.4. Consider institutions beyond academic universities, including healthcare settings and research centres.
2.5. Ensure an equity lens is applied to evidence generation, evidence synthesis, and any recommendations, taking into consideration under-represented and minority groups.
2.6. Explore the challenges and opportunities impacting clinical research pathways at institutional and environmental levels of the clinical research ecosystem. This includes exploring regulatory processes and policies, and advocacy for local funding for research within the project's evidence-gathering activities.

### Out of scope

3.1 To limit the scope, the project will not explore CRCPs for the broader scientific workforce (e.g. laboratory technicians, data analysts, etc.)
3.2 The project will not focus on the individual level of the research ecosystem (including fellowships, etc.), as this is already covered extensively in wider literature.
3.4 The project will not focus on the school and undergraduate level of the pathway, to narrow the scope.
3.5 The project will not be designing or delivering any research capacity strengthening programmes or interventions, due to its nature as a policy project.

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