

GL PID-R

Lessons Learnt from Developing and Applying Research Priorities during the COVID-19 Pandemic

Developed by the Research in Low- and Middle-Income Countries Working Group
Research Prioritisation Sub-group



UK Research
and Innovation

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1. Summary

The Research Prioritisation Sub-group under the GLoPID-R Research in Low- and Middle-Income Countries (LMICs) Working Group has embarked on activities to identify key lessons learnt from developing and applying research priorities locally, regionally and globally during the COVID-19 pandemic. Through engagement with researchers and research funders, the work has identified eight key recommendations for development and application of research priorities in response to disease outbreaks based on lessons learnt from the COVID-19 response. These are summarised in Figure 1.

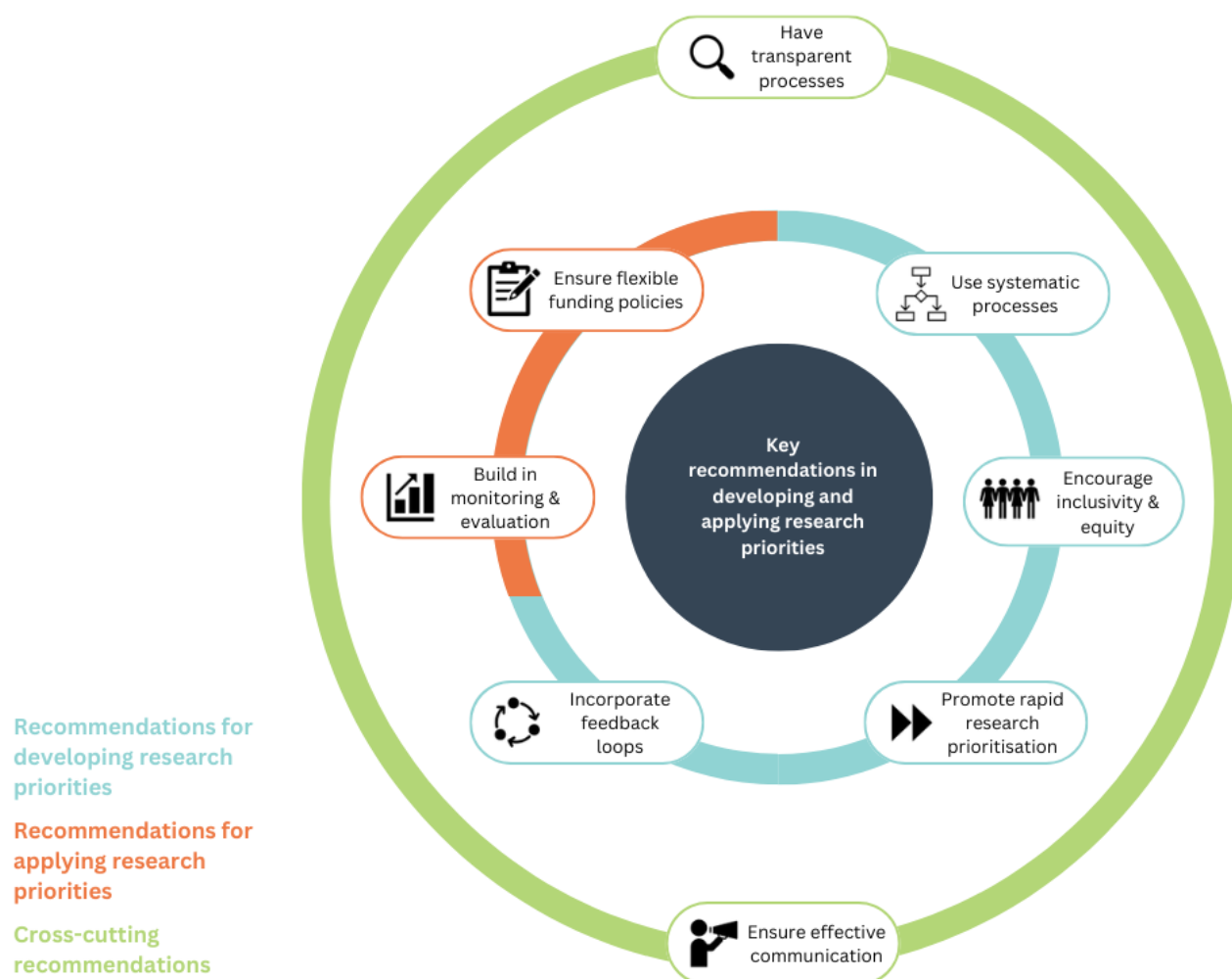


Figure 1: Key recommendations for developing and applying research priorities for disease outbreaks.

The recommendations are complementary to existing published guidance on best practice for health research prioritisation and are framed in the context of epidemic and pandemic response and preparedness research. They apply to research in every context with many being of particular relevance to LMICs given the urgent need to prioritise limited resources for research. Moving forward, this work is intended to provide a basis for further conversations within the GLoPID-R membership for the development of tangible actions on research prioritisation among funders.

2. Introduction

Research has played a vital role in the global COVID-19 response. Several research priority-setting exercises have been undertaken by diverse stakeholders including funders during the COVID-19 pandemic (see Annex A). The heterogeneity of methodologies applied, timing of exercises and variable updating of priority agendas was noted by the sub-group of the GloPID-R Research in LMICs Working Group (see Box 1) focusing on research prioritisation. The dearth of available literature on best practice for priority setting specific to preparedness and response research for epidemics and pandemics was also evident, stimulating interest in identifying standards for effectively developing and applying research priority agendas in preparation for and during epidemics/pandemics.

This work mainly draws on the experiences of the GloPID-R Research and Policy Team and GloPID-R funders in setting and applying their own internal organisations' research priorities and global/regional/national research priorities during the COVID-19 pandemic and other outbreaks. To a lesser extent, it also draws on the experiences of researchers.

3. Aim

To identify lessons learnt from developing and applying research priorities during the COVID-19 pandemic and to make recommendations on best practice for research priority setting for outbreaks of emerging/re-emerging infectious disease pathogens.

4. Approach

The four key areas under research prioritisation selected for focus by the sub-group (exploring the purpose, process, application and impact of research prioritisation and making recommendations for best practice) are shown in Figure 2. This report has been produced through synthesis of information from:

1. Regular sub-group consultations and consultations with the wider LMICs Working Group
2. Funder and clinical trial networks interviews and a survey of the GloPID-R membership conducted as part of the clinical trial roadmap development undertaken by the GloPID-R Clinical Trial Networks and Funders Working Group
 - Eighteen (18) GloPID-R members and observers responded to the survey with representation from Europe (12) North America (3) South America (1), Africa (1), Asia-Pacific (1), Un-named (1).
3. Compilation of COVID-19 research prioritisation exercises (See Annex A)
4. A case study on the Africa regional research priority-setting for COVID-19 and the WHO Global Research Roadmap for COVID-19 (see Annex B).
 - Publicly available information was used in the development of the case study. In addition, a leading member of the development team for the Africa research priority setting activities was consulted in the case study development.
 - The work focused on global and regional priority setting activities undertaken during the COVID-19 pandemic. Efforts were made to identify other regional priority setting activities in addition to Africa's regional COVID-19 research priority-setting, which emerged as the only example of a regional approach to research prioritisation from the Working Group's consultations and a search of publicly available resources at the

time this work was undertaken. In September 2022, findings from an exercise to identify public health research priorities in South-East Asia were published¹. Working group discussions also included institutional and national priority setting activities drawn from funders' experiences during the pandemic although this was not the focus of this work. Hence, beyond the experiences of the funders consulted, examples of other national priority setting activities have not been captured in this report. A further review of these activities and priority setting during outbreaks of other infectious disease might also yield important insights.

Box 1: GloPID-R Research in LMICs Working Group

The [GloPID-R Research in Low- and Middle-income Countries \(LMICs\) Working Group](#) was formed in response to the COVID-19 pandemic from a working group for the [COVID CIRCLE](#) initiative, a funder coordination initiative formed from a partnership between the UK Collaborative on Development Research (UKCDR) and GloPID-R. COVID CIRCLE sought to strengthen coordination of research efforts initiated in response to the COVID-19 pandemic. Activities under COVID CIRCLE include: the [UKCDR and GloPID-R COVID-19 Research Project Tracker](#), and associated [Living Mapping Review of funded COVID-19 research](#) for the identification of research gaps and a [researcher coordination platform](#) for strengthening support for researchers involved in COVID-19 research.

The LMICs Working Group evolved from this into a GloPID-R working group focused on particular issues across LMICs including broader preparedness and response. Membership includes representation from:

- European Commission
- International Development Research Centre (IDRC)
- UK Medical Research Council (UK MRC)
- Korea Research Institute of Bioscience and Biotechnology (KRIBB)
- UK Department of Health and Social Care (UK DHSC)
- German Aerospace Centre Project Management Agency (DLR-PT)
- UK Collaborative on Development Research
- UK Research and Innovation (UKRI)
- Science for Africa Foundation
- South Africa Medical Research Council (SA MRC),
- The São Paulo Research Foundation (FAPESP)
- European and Developing Countries Clinical Trials Partnership (EDCTP)
- Wellcome

AIMS OF GLOPID-R RESEARCH IN LMICs WORKING GROUP

The key aims of the Working Group include:

1. To support a coordinated approach to research funding for preparedness and response to the COVID-19 pandemic and future epidemics/ pandemics in LMICs.
2. Support for the alignment of research funding to research needs in LMICs.
3. Coordination of research capacity strengthening efforts among LMIC research funders.

WORKING GROUP ACTIVITIES

Under the COVID CIRCLE initiative, the [COVID-19 Research in LMICs meeting](#), co-hosted with the COVID-19 Clinical Coalition, was held. A learning report on [Funding and undertaking research during the first year of the COVID-19 pandemic](#)⁷ and [case studies highlighting innovative funder practice in response to COVID-19](#)¹² have been published. In November 2021 a [virtual dialogue](#) summarising key lessons from funding COVID-19 research globally and in LMICs was held.

CURRENT ACTIVITIES OF LMICs WORKING GROUP

Since January 2022 the Working Group has been focusing on broader preparedness activities for future epidemics and pandemics. Two areas of focus were selected: coordinated funding and research prioritisation and two sub-groups were formed to cover these topics. Both sub-groups have been meeting regularly to advance their objectives.

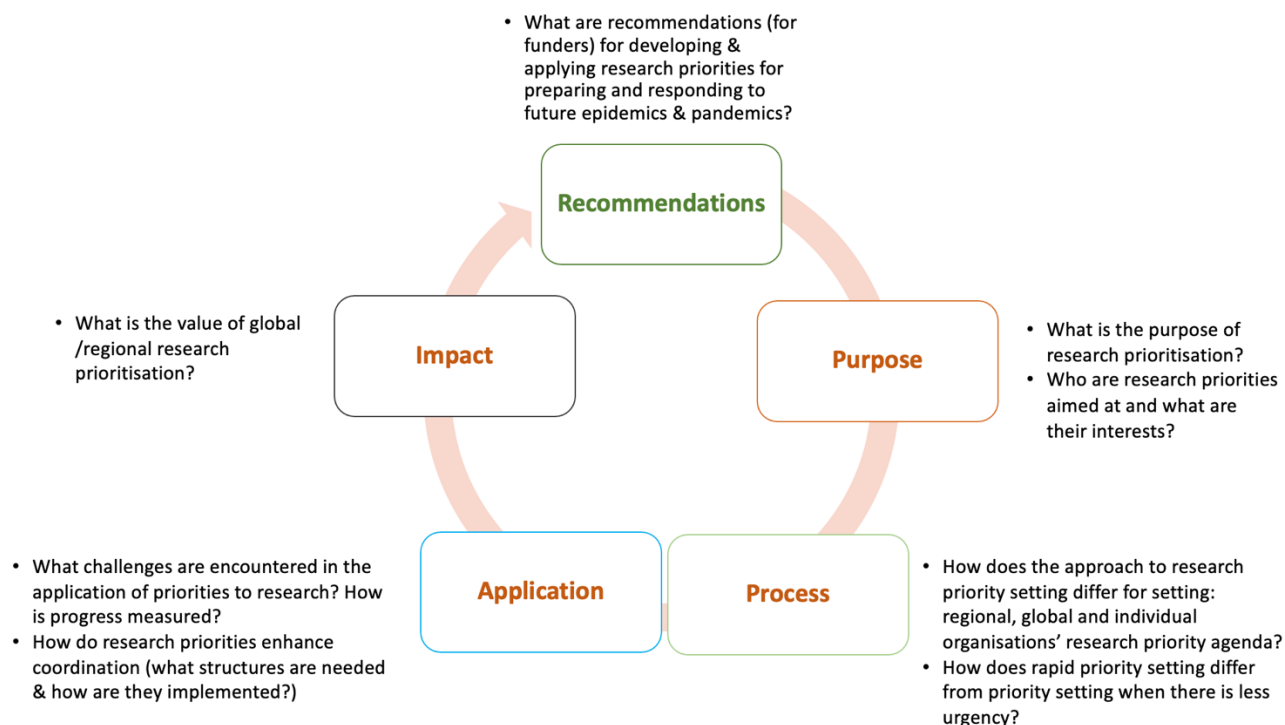


Figure 2: Areas of focus of the GloPID-R Research in LMICs Working Group Research Prioritisation Sub-group.

5. Findings

Findings from the sub-group’s work are discussed under the four areas of focus.

5.1. PURPOSE of research priorities

Given the finite resources available for research, it is crucial that the most pressing needs are addressed particularly in a pandemic where research needs are evolving and timely evidence is required for infection control and prevention. From a research funders’ perspective, investing in priority areas facilitates efficient use of resources to maximise the impact and reach of investments. Further, priority setting enhances coordination of research funders for efficient use of resources. The purpose of undertaking research prioritisation activities varies and is typically dependent on target audiences, including stakeholders at national, regional or global levels.

Whilst the [WHO COVID-19 Research Roadmap](#)², aimed at a global audience, covered a wide range of topics and included immediate and mid- to long-term priorities, priorities set by individual funding organisations tended to be more limited in scope and were typically aimed at guiding internal funder processes. Regardless of the setting, the purposes of determining research priorities must be well defined to avoid misinterpretation of research priority agenda developed.

5.2. PROCESS of research prioritisation

During the COVID-19 pandemic, multiple approaches were employed in the development of research priority agendas. Research priority-setting processes were often multi-staged, with initial stages identifying multiple priority areas which were narrowed down to the most important in subsequent activities (See Annexes A & B). The processes typically involved the

convening of experts and gaining consensus on research areas of greatest importance. In other instances, lists of research priorities were generated from engaging researchers, communities, policy makers and others, after which the emerging priorities were ranked to determine the most relevant ones³. Hence, it can be misleading to describe priorities as having been set via “top-down” (global / regional or government-led) or “bottom up” (community-led) approaches as either of these could involve engagement of multiple stakeholders. For instance, government-level research priorities could emerge from community consultations.

The criteria for inclusion or exclusion of research areas in final priority agenda were often subjective, dependent on the stakeholders consulted, and were rarely explicitly detailed in published reports. For priorities set to represent the needs of global, regional, national and local research needs, “voices” from these contexts should be incorporated into prioritisation efforts. Hence, processes for defining research priorities must be based on sound methodologies which promote inclusivity of diverse voices in the process of setting research agendas and transparency on how finalised research agenda are identified. Inclusivity of voices in priority setting is also important for linking priorities to the populations which ultimately utilise evidence derived from research.

The prompt identification of research priorities during the response to an outbreak is crucial for rapidly initiating research into the pertinent topics for outbreak control. The priority-setting activities employed during the COVID-19 pandemic took place over variable timeframes which ranged from days to several weeks⁴⁻⁶. Delays in availability of research roadmaps to align to was cited by funders and researchers as a barrier to rapid initiation of research during the pandemic response⁷. One approach to promoting speed of research prioritisation activities is to establish stakeholder groups ready to be consulted and engaged in the event of an outbreak. Another is to use existing networks which can be rapidly mobilised in response to an outbreak. A useful way to identify key stakeholders to be engaged in readiness for the future is to review stakeholders and advocacy groups which emerged during the COVID-19 pandemic.

However, speed should not be at the expense of quality and credibility of identified priorities, which can negatively impact engagement with and trust in the priority agenda that are developed. It would also be useful to further explore suitability of the available prioritisation methods in response mode, where speed is of the essence.

Another factor which can promote rapid response is the identification of priority research topics as part of preparedness activities for disease outbreaks. Here, the WHO R&D Blueprint mechanism, which develops global research roadmaps for priority pathogens of epidemic potential plays an important role.

Few published efforts were undertaken during the COVID-19 pandemic to update the research priorities developed. For instance, WHO updated and published its research roadmap once, and had routine engagement of thematic working groups on research prioritisation for reviewing and updating progress on research agenda⁸. Findings from the thematic group consultations were not, however, always made publicly available. There is a need to factor in mechanisms for monitoring and evaluation of progress on meeting the

priorities set in research agenda in the development stages of research roadmaps, especially in a fast-moving research environment such as seen during a pandemic. Here, planning should consider the concept of “living research roadmaps” which allow for identification of evolving needs during an outbreak.

5.3. APPLICATION of research priorities

It is important to acknowledge that there are inherent complexities to the application of research priorities, identified by various stakeholders, in research decisions during an outbreak. For instance, research funders might be limited by their remit of focus or organisational policies which inhibit funding of specific research fields/topics. Another challenge to the application of research roadmaps is the rapid evolution of research needs and generation of evidence in a rapidly moving pandemic, potentially resulting in funded projects which are no longer relevant. During the COVID-19 pandemic, some funders balanced this risk with the need for research evidence for the pandemic response via innovative approaches. Among these are funding short-term grants with interim assessments for relevance and permitting grantees to rapidly pivot ongoing research.

Transparency and communication were key areas discussed as crosscutting principles for the entire priority-setting process. To build trust in the processes, it is important to communicate clearly about:

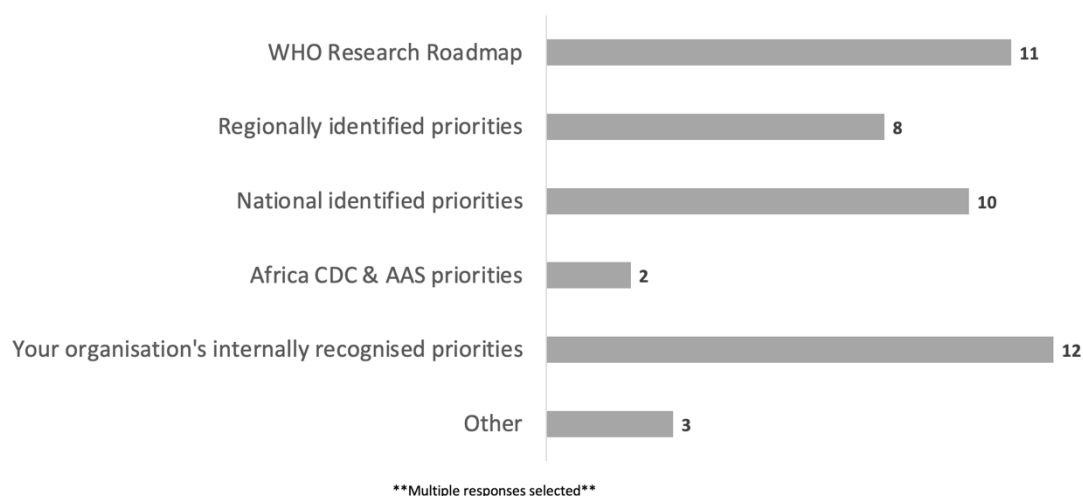
- the purpose of priority setting
- stakeholders engaged
- intended audiences
- processes for factoring research priorities into funding decisions (especially when funders align to their own priority agenda).

It is also important to promote data sharing and open publication of research to facilitate monitoring and evaluation of progress made on research agendas and the identification of gaps which require further research focus/ investment.

5.4. IMPACT of research prioritisation

The research priority agenda/roadmaps developed in response to the pandemic were expected to influence the direction of resources to COVID-19 research at national, regional or global levels. The WHO Roadmap, for instance, was widely applied in funding decisions during the pandemic by GloPID-R members surveyed as part of the activities of the GloPID-R Clinical Trial Networks & Funders (CTN&F) Working Group (see Figure 3). Further, individual funders also cited their organisations’ prioritisation activities in making funding decisions (Figure 3). However, it is challenging to determine the long-term and wider impact of the research prioritisation agenda developed during the pandemic. It is also challenging to determine the extent to which national priorities drew from regional/global prioritisation activities and vice versa.

Survey Question: During the pandemic, did you align your funding priorities to any of the following?



Responses from 18 GloPID-R member and observer organisations to a survey administered for the GloPID-R Clinical Trials Networks and Funders Working Group Roadmap development project.

WHO Research Roadmap², Africa Regional Research Priorities ^{3,9,10}, Respondents who selected “Other” referenced alignment to priorities under [COVAX+](#)

Figure 3: Alignment of GloPID-R members and observers to research prioritisation activities during the COVID-19 response.

6. Recommendations

The following recommendations on developing and applying research priority agenda are drawn from activities undertaken by the GloPID-R Research in LMICs Working Group and include inputs from internal GloPID-R LMICs Working Group discussions and consultations with researchers and the GloPID-R membership.

On the **PROCESS** of developing priorities, it is recommended that:

- A clear purpose should be defined to prevent misinterpretation of research agenda.
- Transparent processes should be employed to instil confidence and trust in processes for setting research priority agenda.
- Panels of experts should be pre-positioned in advance of outbreaks to promote rapid identification of research priorities.
- Systematic methodologies should be employed in the development of research roadmaps.
- Processes for setting research priorities should be inclusive, transparent and well communicated.
- Processes should have built-in feedback loops and plans for monitoring and evaluation (M&E) processes for assessing progress against research priority agendas.

On the **APPLICATION** of research priorities, it is recommended that:

- Data sharing and open publication of research should be encouraged to support communication and progress monitoring of research priority agenda. For instance, initiatives such as the Pandemic Preparedness: Analytical Capacity and funding Tracking programme (Pandemic PACT), for monitoring investments into research on pathogens of epidemic and pandemic potential, will be useful for open sharing of research funding investments data and identification of gaps in preparedness and response research.
- Monitoring progress against research priority agenda and progress made should be well communicated to facilitate the identification of research gaps.
- Funders should adopt flexible policies to address the organisational challenges to applying research priorities identified.

7. Conclusions

This report showcases the work undertaken by the research prioritisation sub-group of the GloPID-R LMICs Working Group and focuses on key lessons learnt from developing and applying research priorities during the COVID-19 pandemic. Beyond this, a scoping review on research prioritisation for preparedness and response to outbreaks of high consequence pathogens is being undertaken, led by the GloPID-R Research and Policy Team¹¹. This review is intended to reveal further elements of standards for effective prioritisation of research for preparedness and in response to outbreaks beyond COVID-19.

Further, the findings listed in this report and planned activities complement the activities planned under the Pandemic Preparedness: Analytical Capacity and funding Tracking programme (PANDEMIC PACT) and the new [GloPID-R regional hub strategy](#) which seeks to strengthen research preparedness and response particularly in LMICs.

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ANNEXES

Annex A: Compilation of published reports and articles on research prioritisation activities during the COVID-19 pandemic

The GloPID-R Research in Low- and Middle-Income Countries (LMICs) Working Group elected to focus on two areas of work in 2022: **Research Priority Setting** and **Coordinated Funding**. The sub-group on research priority setting has identified limited evidence on best practice for research priority setting during epidemics and pandemics as a key focus for its work. The sub-group has compiled the following resources on research prioritisation during the COVID-19 pandemic. Several of these resources are not explicit in their approach to priority setting, although the majority are based on a consultative consensus-based approach. Novel approaches include the use of scenario planning by GloPID-R and a publicly-led Long COVID research agenda. A [scoping review](#) of the literature on research priority setting activities for infectious diseases of outbreak potential being undertaken by the GloPID-R research and Policy team will explore this in further detail.

1. [WHO Coordinated Global Research Roadmap: 2019 Novel Coronavirus](#)¹

This Roadmap was published in March 2020 following the WHO Global Research and Innovation Forum (GRIF) co-hosted by WHO and GloPID-R on 11 -12 February 2020. A panel of international experts were convened under the WHO R&D Blueprint mechanism and immediate, mid- and long-term research priorities were developed by expert consensus. Nine broad research priority areas spanning clinical research and the social sciences were identified with sub-priorities under each category. Several of these sub-priorities relate to areas of direct action for the WHO.

2. [Research and Development Goals for COVID-19 in Africa](#)²

The Africa Academy of Sciences (AAS) undertook an exercise to determine the COVID-19 research priorities of relevance to the African continent in April 2020. The exercise involved expert consultations and survey of African researchers based on the WHO Research Roadmap priorities. The report highlighted the relevance of the WHO Research Roadmap early in the pandemic and identified 17 additional context-specific research priorities for the African continent.

3. [Collaborative Research Prioritisation Study: UK Collaborative on Development Research \(UKCDR\), Africa Academy of Sciences & The Global Health Network \(TGHN\)](#)³

The UKCDR, AAS and TGHN partnered in a study to identify research priorities in Low- and Middle-Income Countries (LMICs) in May 2020. This work was an expansion of the initial AAS research priority setting for Africa and was based on both the WHO Research Roadmap priorities and those research priorities for Africa identified in the aforementioned study. A survey of researchers followed by a workshop to ascertain consensus on the survey findings yielded new research priorities. Two key publications resulting from this work are: a [BMJ Global Health publication](#)⁴, which summarised the findings of this study and [Update-Research and Development Goals for Africa](#)⁵, which shows findings from analysing data obtained from African researchers. These findings were delivered to coincide with the UK GECO funding call decision-making panel as part of the work of the COVID CIRCLE initiative.

4. [Policy Paper: Research and Development Priorities for Africa](#)⁶

This policy paper was developed by the Africa Academy of Sciences, WHO Afro and the Africa Centres for Diseases Control and Prevention (Africa CDC) to disseminate actionable research priority areas for COVID-19 in Africa. The various priority setting activities for Africa (built directly from the above activities) were reviewed by a technical working group of the Africa Task Force for Coronavirus (AFTCOR) and other experts who identified six key priority areas, namely: transmission dynamics of COVID-19, epidemiology and surveillance; diagnostics; clinical characterization of cases; drug and vaccine clinical trials; modelling impact of COVID-19 on the health systems; social science and policy research. A series of consultation exercises with regional and international researchers and stakeholders followed and policy statements highlighting priorities under the six broad themes were outlined.

5. [Ending COVID-19: progress and gaps in research - highlights of the July 2020 GloPID-R COVID-19 Research Synergies Meetings](#)⁷

GloPID-R held a series of synergies meetings which sought to promote harmonisation of research efforts to end the COVID-19 pandemic. The meetings, held in July 2020, centred on vaccines; therapeutics; transmission; and social sciences research. The focus on these thematic areas provided an opportunity for rich dialogue among disciplinary experts, researchers, policy makers and funders. The consultations were also important for discussing ways of coalescing global research efforts to promote efficient, high-quality outputs. Presentations and consensus-building discussions facilitated the identification of critical research gaps requiring increased research focus and investment.

6. [United Nations Research Roadmap for the COVID-19 Recovery](#)⁸

The United Nations commissioned the Canadian Institutes of Health research (CIHR) to lead the development of the research roadmap for the COVID-19 recovery. The ten-week development process began in November 2020 and the goal was to identify key ways in which research can influence the socioeconomic recovery from the COVID-19 pandemic. Five steering groups were convened in addition to expert consultations and scoping reviews. The roadmap describes 5 priorities under the following 5 pillars: Health systems and services; Social protection and basic services; Economic response and recovery programs; Macroeconomic policies and multilateral collaboration; and Social cohesion and community resilience.

7. [Research priorities for Long COVID: refined through an international multi-stakeholder forum](#)⁹
[Long COVID: tackling a multifaceted condition requires a multidisciplinary approach](#)¹⁰

In December 2020, International Severe Acute Respiratory and emerging Infection Consortium (ISARIC), GloPID-R & Long Covid Support (a global support group for individuals living with Long COVID) held the Long COVID forum. This multistakeholder forum brought together researchers with an interest in long COVID, funders and individuals living with Long COVID to jointly identify research needs. The group highlighted the need for [multidisciplinary approaches](#) to tackling Long COVID and identified pertinent research gaps including the limited studies on paediatric Long COVID. The Research priorities identified were framed under 6 of the 9 broad WHO mid- to -long term research priorities for policy cohesion.

8. [Recommendations and Considerations for GloPID-R](#)¹¹

The GloPID-R Scientific Advisory Group (SAG) undertook a series of exercises between April and May 2021 aimed at making recommendations to GloPID-R members on an approach to the immediate and long-term funding of research for COVID-19. A scenario planning approach was used to consider three different potential future scenarios depicting variable levels of international cooperation, the relationship between climate change and infectious disease emergence and funding levels. Key recommendations were developed based on those which would have cross-cutting benefits in all or the majority of scenarios and centred on coordinated funding, research capacity strengthening and preparedness research funding.

9. [Creating a Publicly-Led Long COVID Research Agenda](#)¹²

This project, undertaken with the support of Wellcome, sought to identify the key research questions for Long COVID from the perspective of two African countries. The selected approach was public consultation with a focus on lived experiences of Long COVID sufferers, their carers and health care workers in Malawi and Kenya in 2021. Fifty specific research questions framed around the clinical characterisation of Long COVID and its management emerged. Findings provide evidence on an LMIC-led public consultation to yield context-specific research priorities.

10. [How global research can end this pandemic and tackle future ones](#)¹³

This report followed the third WHO GRIF held on 24 - 25 February 2022, which brought together global stakeholders to discuss progress on COVID-19 research. Updates were provided by each of the WHO working groups on COVID-19, who presented on their progress and identified gaps. The resulting report focused on pandemic preparedness as the COVID-19 pandemic entered the recovery phase. It further outlines a summary of some key remaining research gaps under 5 broad themes: Strengthening global research capability for future pandemics; Better data, better decisions, better outcomes; Global research global trust; Research centred in equitable access; and Pandemic preparedness and action is a long-term investment.

11. [National Research Action Plan on Long COVID](#)¹⁴

The action plan, developed by the US Department of Health and Human Services, was published in August 2022. To address pertinent research questions related to long COVID, it builds on existing long COVID research initiatives including: the [Researching COVID to Enhance Recovery \(RECOVER\) Initiative](#), led by the NIH, and [Innovative Support for Patients with SARS-CoV-2 Infections \(INSPIRE\) Study](#) led by CDC. Research questions are outlined under seven areas: characterising the full clinical spectrum of long COVID and diagnostic strategies; pathophysiology; surveillance and epidemiology; Long COVID and overall well-being; therapeutics and other health interventions; human services, supports, and interventions; and health services and health economics research.

[Public health research priorities for WHO on COVID-19 in the South-East Asia Region: results of a prioritization survey](#)¹⁵

The WHO South-East Asia Region (SEAR) Office led an exercise to identify the regional COVID-19 research priorities. The work acknowledges previous global priority setting activities (many of which are included in this compilation) and recognises the gap in knowledge in the research priorities specific to the SEAR. Findings from this work were published in September 2022. The seven broad thematic areas for research focus are: epidemiology; clinical; basic sciences; public health and social measures; socio-economic and equity-related and pandemic preparedness.

Other useful resources for priority setting for health research in general:

1. WHO Guidance for staff (2020): [A systematic approach for undertaking a research priority-setting exercise.](#)¹⁶
2. Review of WHO Research Prioritization activities: [An analysis of research priority-setting at the World Health Organization – how mapping to a standard template allows for comparison between research priority-setting approaches](#)¹⁷
3. Checklist of standards for research prioritization- [A checklist for health research priority setting: nine common themes of good practice](#)¹⁸
4. Lessons from setting priorities in LMICs: [Setting priorities for health research: lessons from low- and middle-income countries](#)¹⁹
5. Review of research prioritisation methods- [Health research priority setting in selected high-income countries: a narrative review of methods used and recommendations for future practice](#)²⁰
6. Framework for reporting- [Reporting guideline for priority setting of health research \(REPRISE\)](#)²¹
7. Tool for priority setting: [The 3D Combined ApproACH mATrix: An improved tool for setting priorities in reseArch for heAlth](#)²²
8. Council on Health Research for Development Report - [Priority Setting in research for health: A management Process for Countries](#)²³

This work was led by Emilia Antonio & Alice Norton, GloPID-R Research and Policy Team, University of Oxford, with support from the GloPID-R LMICs Working Group (sub-group focusing on research prioritisation)

GloPID-R Research in LMICs Working Group Research Prioritisation Sub-group Members and Organisations

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Annex B: Case study on Africa's regional research prioritisation activities and the WHO global research prioritisation for COVID-19

Global Research Priorities for COVID-19

Summary

In recognition of the importance of high-quality evidence for an effective response to the COVID-19 pandemic, the WHO has led the R&D response and coordinated activities to identify the global research priorities during the pandemic. Researchers, funders, policy makers, and regional and national public health bodies have engaged with the priorities identified, which have been essential for the research response to the COVID-19 pandemic.

Introduction

WHO triggered its R&D Blueprint mechanism, a convening and coordination mechanism for responding to infectious disease outbreaks, in response to the outbreak caused by the novel coronavirus, that began in Wuhan, China. In February 2020, the outbreak was declared a public health emergency of international concern (PHEIC)¹. By March 2020, infections had spread to many countries across the globe and COVID-19 was declared a global pandemic².

Purpose

With limited evidence on many aspects of the disease, WHO in collaboration with GloPID-R sought to identify the critical areas for research focus to control the pandemic caused by a novel pathogen. Activities explored immediate, mid- and long-term research priority areas.

Process

WHO and GloPID-R co-convened the Global Research and Innovation Forum on 11 - 12 February 2020. Consultations were held in advance of the forum where further consultations involved over 400 international experts on the key global research priorities for controlling the pandemic³. Existing evidence was consolidated and presented during the forum. Initial deliberations were undertaken in discipline-specific working groups after which consensus on priority areas was reached from wider expert discussions.

Following the forum, the [Coordinated Global Research Roadmap: 2019 Novel Coronavirus](#) was published outlining immediate, mid- and long-term research priorities⁴. This roadmap has played a vital role in coordinating research funding responses globally during the pandemic. Beyond this, WHO has continued to hold periodic internal priority-setting consultations, through thematic working groups, which reviewed progress on the priorities identified.

Nine broad, mid- to long-term research priority areas are listed in the roadmap and include 1) virus, natural history, transmission and diagnostics; 2) animal and environmental research on the virus origin, and management measures at the human-animal interface; 3) epidemiological studies; 4) clinical characterisation and management; 5) infection prevention and control, including health care workers' protection; 6) candidate therapeutics R&D; 7) candidate vaccines R&D; 8) ethical

considerations for research; and 9) integrating social sciences in the outbreak response.

Two further Global Research and Innovation Fora were held in May 2021⁵ and February 2022⁶. However, there were no published updates to the previous 2020 Coordinated Global Research Roadmap following these. A report listing research gaps and priorities was developed following the February 2022 forum⁷. The priorities identified were a blend of COVID-19 specific priorities and priorities on broader epidemic/pandemic preparedness.

These could reflect a shift in priorities from response to preparedness mode as the pandemic apparently waned.

Application

1. The Coordinated Global Research Roadmap was widely applied by funders globally in guiding their funding decisions during the pandemic. This was highlighted in the [COVID CIRCLE Learning Report](#)⁸ which showcases key lessons from funding research during the first year of the pandemic.
2. The research priorities were applied by researchers and policymakers during the pandemic for the identification of areas for increased research focus⁸. The majority of projects captured in the UKCDR and GloPID-R Research project Tracker address the priorities outlined in the WHO Research Roadmap.
3. The WHO Roadmap formed the basis for other priority setting activities undertaken during the pandemic including the Africa priority setting activities and the priorities emerging from the ISARIC and GloPID-R Long COVID Forum.
4. An analysis of funded COVID-19 research projects collated in the [UKCDR & GloPID-R Research Project Tracker](#) (a regularly updated database collating globally funded COVID-19 research mapped to the WHO Research Roadmap priorities) was influential in identifying research gaps and areas for collaboration of funders and researchers in the COVID-19 response⁹.

COVID-19 Research Priorities for Africa

Summary

To our knowledge, Africa is the only region to have taken a coordinated regional research approach to responding to the COVID-19 pandemic. In recognition of the need for high-quality evidence for controlling infections, the Africa Academy of Sciences in collaboration with Africa Centres for Disease Control and Prevention (Africa CDC), WHO Afro, WHO EMRO and African Union Development Agency-New Partnership for Africa's Development (AUDA NEPAD) led work to identify the COVID-19 research priorities for Africa. Applying a modified [Child Health and Nutrition Research Initiative \(CHNRI\)](#)¹⁰ approach to health research prioritisation, research priority setting activities allowed for the identification of context-specific research priorities for informing the COVID-19 response in Africa.

Introduction

The first case of COVID-19 was recorded in Africa on 14 February 2020¹¹. The Africa Centres for Disease Control and Prevention (Africa CDC) launched the [Africa Task Force for Novel Coronavirus \(AFTCOR\)](#) to coordinate the continent's response to the

pandemic in early February 2020 following consultations with representatives from health ministries of all 55 Africa Union member states¹². Other partners involved in Africa's response to the COVID-19 pandemic include WHO AFRO, WHO EMRO, African Union Development Agency-New Partnership for Africa's Development (AUDA NEPAD) and the Africa Academy of Sciences (AAS).

Purpose

As COVID-19 infections spread more widely from China to other regions, there was concern that the globally identified priorities might not be representative of regional research needs. The AAS led efforts to identify research priorities for the African continent's response to COVID-19.

Process

The process of research priority setting for COVID-19 drew on the prior experience of AAS in setting research priorities such as for maternal and neonatal health, food security and nutrition, climate change, and genomics. These were aligned to the [Child Health and Nutrition Research Initiative \(CHNRI\)](#)¹⁰ approach to health research prioritisation (see Box 1, Annex B). The priorities outlined in the [Coordinated Global Research Roadmap: 2019 Novel Coronavirus](#)⁴ were used as a basis for this work (see Box 2, Annex B) and experts with diverse backgrounds were consulted in the priority-setting activities. These included scientists with multidisciplinary expertise spanning clinical and laboratory research, social sciences, and policy stakeholders.

The process began in late March 2020 with an open consultative webinar attended by 275 researchers. The summarised priorities from the webinar were listed under the priorities outlined in the WHO Research Roadmap and were sent out in a survey to a wide group of researchers and experts. As part of the survey, respondents were invited to also provide free text suggestions for additional priorities. Over 844 scientists responded to the survey which ranked the WHO priorities and also identified 17 new research priority areas not captured in the WHO framework. These priorities were published in a [Report](#)⁸ in April 2020. The experts consulted found the WHO global research priorities were relevant for controlling the pandemic in Africa. However, other specific research priorities relevant to the African context (and not in the WHO Roadmap) were identified. These included but were not limited to: research questions on co-infection with malaria; tuberculosis and other infectious diseases; COVID-19 in conditions of higher prevalence in Africa such as sickle cell disease and tuberculosis; developing management protocols for care in the absence of ICU facilities and economic subsistence support for vulnerable populations when non-pharmacological public health control measures were applied.

In May, the AAS collaborated with the UK Collaborative on Development Research (UKCDR) and The Global Health Network (TGHN) to identify research priorities of Low- and Middle-Income Countries (LMICs)¹³. This work built directly on the prior work done by the AAS and involved a survey of global researchers. An analysis of the responses from African researchers provided an [update to the Africa regional research priorities for COVID-19](#)¹⁴, published in July 2020. This two-staged process allowed for the validation of the initial findings and the identification of new "evolved" priorities not previously captured such as: understanding COVID-19 in the contexts of conflict and refugee situations; investigating therapeutic properties of traditional herbs in Africa for

managing COVID-19 infections; and longer-term impacts of COVID-19 control on the environment.

The aforementioned activities resulted in over 50 research priority topics which were reviewed by a technical working group of the AFTCOR and discussed in a series of expert consultation meetings. The research priorities were further refined, categorised under 6 areas, and summarised into a [policy paper](#) ¹⁵ published in February 2021.

Box 1 (Annex B): Child Health and Nutrition Research Initiative (CHNRI) Research Prioritisation Method

In 2005, the World Bank commissioned the CHNRI, an initiative of the Global Forum for Health Research, to develop a systematic approach to identifying priority areas for health research. It involves the use of “crowd sourcing” to identify research priorities meeting specific set criteria. By using independent transparent ranking of ideas by experts the method overcomes the biases associated with the Delphi method, which is commonly used in consensus building. Through stakeholder feedback and implementation in various research fields the CHNRI method has been refined over the years, enabling prioritisation of research at institutional, national, regional and global levels.

Application

1. With support from Wellcome, the Swedish International Development Cooperation Agency (SIDA) and the Bill & Melinda Gates Foundation, the AAS made a funding call which was aligned to the research priorities identified. In October 2020, 12 grants were awarded in line with some of the research priorities identified. One funded project, for instance, was titled “PAMGENE-COVID-19; Dynamics of SARS-CoV-2 and Plasmodium species co-transmission and genetic variation across a gradient of malaria endemic areas in Africa”.
2. The policy paper was shared with the emergency response teams of all Africa Union member states and was intended to inform the national priorities of member states.
3. The collaborative study for determining research priorities for LMICs, from which the updated Africa COVID-19 research priorities were identified, were considered in the funding decisions made for the Global Effort on COVID-19 Health Research (GECO) funding call launched by the UK Department of Health and Social Care (DHSC) through the National Institute for Health and Care Research (NIHR) and UK Medical Research Council (MRC) in 2020.

Impact

1. In the short-term, the priorities set influenced the funding decisions made for the AAS and GECO COVID-19 funding calls.

2. The priorities set are likely to have had a broader impact on the activities of researchers, Africa regional research funders and funders outside Africa during the COVID-19 pandemic. Although it is challenging to determine the extent of the broader impact of priorities set, it would be useful to explore these to identify lessons for the future. An example is, the [2020 assessment of the funding landscape of COVID-19 research in Africa](#) which showed limited funding with few projects addressing the context-specific research priority areas ¹⁶.
3. The process of localising global research priority setting may have likely bolstered the confidence of local researchers in building capacity to influence global health funding for other areas of public health and science in the future.
4. Despite the continued funding of traditional areas of intervention by various funders according to their mandates, resulting in unaddressed research needs, the process of developing regional research priorities was valuable and allowed for the identification of research gaps requiring increased attention.

Box 2 (Annex B): Points to note - Global and Regional (Africa) research priorities.

A direct comparison of global and regional priority-setting activities might be misleading given the differing purpose(s) of initiating the activities. Whereas the WHO Research Roadmap was global in scope, the Africa research prioritisation activities sought to identify context-specific areas not captured in the global research agenda.

Added value of developing regional research priorities:

- The regional research priorities set were complementary to the global agenda.
- Regional prioritisation enhanced local ownership of research agenda and the inclusion of context-relevant research priorities.
- Engagement of regional stakeholders such as the Africa CDC is likely to have facilitated regional implementation of the region's research priorities.

Opportunities for greater integration of regional voices into global priority setting processes in future responses to epidemics and pandemics should be encouraged.

Recommendations for future epidemic/pandemic response

1. At a minimum it is essential for funders to consult local experts before making research funding decisions.
2. It is important for local experts to be re-asked during a highly-evolving outbreak to capture changing research priorities. It is also important to note that research priorities change in nearly every situation and therefore validation is needed on a regular basis.
3. Priority setting processes should be aligned to evidence-based approaches to ensure identification of relevant areas for research.
4. Research policy exchange between global and local funders and practitioners should be encouraged as this is important for successful global public health

interventions. Further, it is also important to recognise the potential for local research outputs (based on local priorities) to contribute to global interventions.

5. Local research prioritisation work should be made an integral part of global public health interventions.
6. Research prioritisation processes should be transparent and effectively communicated to enable acceptance of priority agenda and improve their uptake into practice.

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