

Health Research Priorities in Maldives



Ministry of Health
Republic of Maldives

2022-2025





ABOUT THE REPORT

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PREFACE

The Ministry of Health (MoH) is pleased to present the final report on health research priority areas of 2022-2025, developed in collaboration with the WHO Country Office. This report outlines the methodology used to identify priority areas, the aim for choosing those specific areas, and includes the finalized health research priority areas for the next three years.

Setting health research priorities is part of Health Ministry's mandate. It is also an objective stated in the National Health Research Policy (2017). Establishing health research priorities at a national level is important because it aids the Health Ministry in developing health policies and interventions that addresses the needs of Maldives from a social, political, and environmental point of view. Furthermore, it is our belief that periodical review and revision of research priority areas is crucial to keeping policies, interventions, and key developments up to date and in line with the health master plan and strategic indicators.

While the development process of the current research priority areas started in 2020, the finalization process was greatly impacted due to the COVID-19 pandemic and subsequent restrictions, leading to many delays. The pandemic pushed our team to find creative solutions to finalize priority areas for 2022 – 2025, leading to many key internal developments. In the end, we finalized our research priorities by engaging stakeholders in discussions using an online approach in the last quarter of 2021.

The Ministry of Health thanks WHO for facilitating this project and our consultants from the Center for Tropical Medicine, UGM Indonesia, for their invaluable assistance in developing the health research priority areas for the next three years and compiling this report.

Also, my sincere appreciation to our Health Information Management and Research team for their proactiveness and efforts in leading this project and conducting the research prioritization exercise. Lastly, I would like to thank all stakeholders from different sectors for their valuable input in finalizing the current research priority areas. We hope that these areas aid in the strengthening of the Maldivian health sector.

Ahmed Naseem
Minister of Health

EXECUTIVE SUMMARY

Setting research priorities is the first key step to maximizing investments' impact, particularly in resource-limited settings. The aim of the priority setting process is to select among different options for addressing the most important health needs given limited resources and the challenges identified during the situation analysis process.

This research priority agenda is a result of joint collaboration between the Ministry of Health of Maldives, WHO Country Office for Maldives (WHO Maldives), and the Center for Tropical Medicine Universitas Gadjah Mada, Indonesia. The panel of experts represents the Ministry of Health, the National Health Research Council of Maldives, health-related institutions, academician, clinician, and non-governmental organizations. A total of 67 respondents participated in the open survey and 21 experts participated in the Delphi survey.

The use of the Delphi method in this research priority settings has several advantages: a wide range of stakeholders in health were represented. Anonymity in the process encouraged honesty, and access to the result of an online survey provides a balanced consideration of ideas

The priorities research list highlights the most important and urgent needs for health research as identified by all stakeholders involved in this study. We identified 10 health research priorities and 10 clinical research areas, as shown in the box below. We also identified several barriers in conducting research in Maldives, which includes access to data, difficulties in getting ethics approval, lack of demand for scientific evidence for decision making, lack of human resources for health research, lack of research culture, lack of resources for research, and the geographical dispersion of islands.

Identifying the top 10 health research and clinical research areas was an initial start in maximizing the benefits of research investment, providing valuable direction for the allocation of national and international research funds into areas of strategic importance. Distributing the report to the research community and key research funders will guide research to be aligned with the needs of the community and policymakers. Comparing the result of this exercise with the existing evidence will reveal gaps in evidence from research. Identifying less researched areas may expand the range of skills and resources needed to build research competence in new areas.

Top 10 health research priorities areas

- 1 Disease epidemiology, risk factors, prevention and control
- 2 Food and nutrition
- 3 Healthcare quality and safety.
- 4 Health promotion
- 5 Health resource allocation
- 6 Advancement of health technology, e-Health, telemedicine
- 7 Clinical studies
- 8 Access to health care
- 9 Health governance, including clinical and public health governance
- 10 Healthy lifestyle

Top 10 clinical research priorities areas

- 1 Cancer
- 2 Cardiovascular diseases
- 3 Mental health, behavioural disorder, and substance abuse
- 4 Kidney diseases
- 5 Endocrine and metabolic disorder, including diabetes
- 6 Respiratory diseases
- 7 Reproductive and maternal health
- 8 COVID-19 and emerging diseases
- 9 Sexual health
- 10 Blood disorders

TABLE OF CONTENT



	About the report	i
	Foreword	iii
	Executive summary	iii
1	Introduction	6
2	Context and scope	8
3	Objectives	8
4	Governance and team	9
5	Intended audiences	10
6	The framework	10
7	The open survey	12
8	Delphi survey round 1	31
9	Delphi survey round 2	36
10	Barriers and challenges in conduction research	38
11	Strength and limitation	44
12	Next step	45
13	References	46

LIST OF TABLE



Table 1. Characteristic of respondents	14
Table 2. Proposed research areas in the category 'Context'	18
Table 3. Proposed research areas in the category 'Governance and Leadership'	19
Table 4. Proposed research areas in the category 'Resources'	21
Table 5. Proposed research areas in the category 'Service Delivery'	24
Table 6. Proposed research areas in the category 'Outcomes'	26
Table 7. Proposed research areas in the category 'Clinical Research'	27
Table 8. Proposed research areas in the category 'Population'	29
Table 9. Characteristics of respondents of Delphi Survey round 1	33
Table 10. Selected health research priority areas	34
Table 11. Selected clinical research areas	35
Table 12. Participants of Delphi Survey round 2	36
Table 13. Top 10 health research priorities areas	38
Table 14. Top 10 Clinical research areas	39
Table 15. Barriers and challenges in conducting research	42



1. INTRODUCTION

Research is an essential component that enables the improvement of health. The World Health Organization (WHO) has identified four ways health system systems can support health research: a) setting research priorities, b) building research capacity, c) defining norms and standards for research, and d) translating evidence into practice (WHO, 2013). Setting research priorities is the first key step to maximising investments' impact, particularly in resource-limited settings.

Decision-making in the health sector is usually made at a macro level, whereas implementation is conducted at various levels, going down to the village level (Hakim, 1997). On the other side, scientists and clinicians often shape health research priorities. There is a risk of a lack of understanding of the policy's implementation barriers and appropriateness to the local context. Research has the potential to identify these gaps and propose ways to improve population health. Thus, it should be prioritized to respond directly to community health needs. Therefore, it would be useful for the investigators to understand the most important and pressing issues that need to be addressed in the country (al Nsour et al., 2021). Otherwise, there is a risk that research conducted in LMICs will be according to funders' agendas, distort national priorities, undermine the role of national research in LMICs or fail to respond to explicit health needs (McGregor et al., 2014).

The aim of the priority-setting process is to select among different options for addressing the most important health needs given limited resources and the challenges identified during the situation analysis process. The process is inherently political, where societal values and goals are important, and resulting priorities reflect a compromise among stakeholders.



The Delphi survey was developed by the RAND corporation and first used in 1953 to obtain the consensus of experts on military planning (Delkey & Helmer, 1962). It has become a popular technique for identifying priority views and obtaining consensus on various topics in many disciplines. The Delphi method is a useful tool for identifying research priorities among key stakeholders on the changing landscape of the health system in the Maldives, amidst and beyond the COVID-19 pandemic, producing recommendations to be shared with the public.

Some of the distinctive features of this research process are:

- a) the use of a panel of experts and anonymous survey for obtaining data,
- b) participants do not meet in face-to-face discussions,
- c) the use of sequential questionnaires or interviews,
- d) the systematic emergence of a concurrence of judgement or opinion,
- e) the anonymity of participant's responses,
- f) the use of frequency distributions to identify patterns of agreement, and
- g) the use of two or more rounds between which a summary of the results of the previous round is communicated to and evaluated by panel members (Loughlin & Moore, 1979; McMillan et al., 2016).

This report is structured according to the Reporting guideline for health research priority setting with stakeholders (REPRISE) and is intended to inform researchers, policymakers, academicians, clinicians, health practitioners, and other relevant stakeholders about the key health priorities areas in the Maldives for the next three years.



2. CONTEXT AND SCOPE

The COVID-19 pandemic has had significant implications for society, including public health and safety. Like other parts of the world, many countries across Asia are facing challenges to contain the spread of the pandemic while maintaining the performance of other health programs. Researchers must adapt to the changing circumstances and challenges during and after the pandemic. These changes will affect the selection of research methodologies and priority areas that may differ in locations, populations, or cultures experiencing different rounds of the pandemic. Therefore, we set out to update the health research priorities for the Maldives in the context of the COVID-19 pandemic.

The scope of research is divided into two areas: the first is research on public health and health system areas, and the second is research on clinical areas.

3. OBJECTIVES

The scopes of this project are to:

1. Identify health problems and barriers to health program implementations in the Maldives using an online questionnaire to key stakeholders and experts in health.
2. Identify health research areas that have the potential to address the identified challenges using an online questionnaire to key stakeholders and experts in health.
3. Determine priorities of health research areas and clinical research areas in 2022 to 2025, which have the potential to improve population health in the Maldives using a two rounds of Delphi survey.

4. GOVERNANCE AND TEAM

The project team consisted of public health and clinical experts, seniors from the Ministry of Health of Maldives, members of the National Health Research Council of Maldives, the WHO Country Office for Maldives (WHO Maldives), and the Center for Tropical Medicine Universitas Gadjah Mada, Indonesia. The consultant team and the steering committee have managed and participated in training on research priority setting. In collaboration with the WHO, the consultant team has been involved in developing several research priorities agenda across the South East Asia region.

The questionnaires for the online survey and Delphi survey were developed by the consultant team from the Center for Tropical Medicine Universitas Gadjah Mada, Indonesia. They were peer-reviewed by the steering committee team from the Ministry of Health of Maldives, the National Health Research Council, and the WHO Maldives before publication. Results from the online survey and Delphi Survey were discussed with the steering committee before the survey proceeded to the next round.

The list of identified health research priorities and clinical research areas from the online survey was circulated to the steering committee and expert panels for review to ensure all relevant areas of health systems/public health and clinical areas were covered. A review of the previous national report on disease burden in the Maldives was conducted to ensure that all high burden disease groups were included in the priority clinical research areas list. The steering committee reviewed newly added clinical areas.





5. INTENDED AUDIENCES

There are three groups of intended audiences for this report. First, the national and international health researchers or scientists with their research organization, who are the final decision-makers in selecting a research area. This group also includes academicians and students from the school of health sciences or universities. Second is the health providers, who can provide directions to the researchers on the current priorities in clinical health research and/or be directly involved in the research processes. The third is the government, including politicians and policymakers, who must navigate the political complexities of working within and across various stakeholders and organizations. The outcomes of research (clinical or health systems) conducted by researchers will aid the government in evidence-based decision-making for efficient use of limited resources.

6. THE FRAMEWORK

A conceptual framework is essential to guide the research priority-setting processes. The framework can help clarify the concept of analysis and can point to linkages to other relevant concepts, leading to a better understanding of underlying mechanisms or determinants of observed phenomena. In this prioritization exercise, we applied the health system dynamics framework to guide the qualitative analysis processes in this work (Olmen et al., 2012). The health system dynamic framework consists of ten elements: 1) goals and outcomes, 2) values and principles, 3) service delivery, 4) the population, 5) the context, 6) leadership and governance, and 7-10) the organization of resources: finances, human resources, infrastructures and supplies, knowledge and information. Description for each element of this framework will be provided in the result section.



For the online survey, respondents were invited to propose opinions about the most important health issues, the most important barriers related to the proposed issues, priority research needed to solve health problems, and current challenges in conducting research in the Maldives. Respondents were encouraged to submit their responses using short sentences. The survey's responses to four main questions were open-coded and categorized into six categories of the health system dynamic framework: 1) Leadership & Governance, 2) Resources, 3) Service delivery, 4) Outcomes and goals, 5) Population, and 6) Context.



Figure 1: The health system dynamics framework

Taken from Christen J van Coot, et al. 2012. The Health System Dynamics Framework: The introduction of an analytical model for health system analysis and its application to two case studies. Health, Culture and Society, 1(1), 1-21. <https://doi.org/10.1080/17445019.2012.71>



7. THE OPEN SURVEY

Introduction

This is the first round in the research priorities setting process to collect researchers, health practitioners, and related stakeholders' opinions and identify initial priority health issues and implementation barriers that can be addressed through research on health system/public health and clinical areas.

Specific objectives of the online survey are:

1. To identify health problems and barriers to health program implementations
2. To identify research areas that have the potential to address the identified challenges

The questionnaire

The survey was accessible online between November 20th to December 10th 2021, from the QuestionPro online survey platform. The questionnaire consists of four open-ended questions that allow respondents to answer in open text format. Respondent was also encouraged to reflect on their current understanding of the situation of Maldives's health system, the existing capacity and resources to provide health, and their knowledge, experience, and understanding of the issue in question.

- Q1: *What do you think are the Maldives' three most important health problems? Example: diabetes, tuberculosis, covid-19 pandemic.*
- Q2: *What are the barriers to implementing health programs related to those health problems?*
- Q3: *Please propose a research topic that has the potential to address those barriers in the implementation of health programs.*
- Q4: *What are the barriers and challenges to conducting research in the Maldives?*

Demographic questions were added in the last section of the questionnaire to identify respondent characteristics, i.e. age, gender, profession, location, and affiliation. Response to the demographic section was optional.



The respondent

The inclusion criteria to be a potential respondent for the survey was discussed in a meeting between the steering committee team and the consultant team. Maximum variation sampling was applied to reach a wide range of stakeholders in the health care system. Respondents who gave consent and provide personal information but did not any questions were excluded from the analysis.

The MoH provided a list of potential respondents according to the agreed inclusion criteria. We sent an email invitation to a total of 185 key stakeholders from various departments in the Ministry of Health, the Health Protection Agency, the Maldives Food and Drug Authority, National Health Insurance Scheme, National Health Research Council, Maldivian Blood Service, Maldives Red Crescent, Aasandha , ADK hospital, Treetop Hospital, Indira Gandhi Memorial Hospital, Kulhudhuffushi Regional Hospital, Dr. Abdul Samad Memorial Hospital, Maldives National University, National Social Protection Agency (NSPA), Maldives Bureau of Statistics, the WHO Maldives, UNICEF, UNFPA Maldives Country Office, Diabetes Society of Maldives, Villa College, the Ministry of Higher Education, Ministry of Education, Society for Health Education, Ministry of Environment, the Islamic University of Maldives, Tiny Hearts of Maldives, Institute for Mental Well Being, and health practitioners, including general practitioner, specialist, dentist, nurse, midwives, laboratory analyst, psychologist, and community groups and leaders. Participation in this online survey was voluntary and anonymous. A reminder to participate in the survey was sent two days before the end of the survey period. The online survey was extended for one week to allow more respondents to participate.

Information about the survey and how the data will be used were informed in the email invitation and the introduction section of the questionnaire. Informed consent was obtained before the respondent could proceed to answer the questions. We received responses from 96 participants, and 52 participants completed the questionnaire (54.2% response rate). There was no reimbursement for respondents. However, all respondents received the survey results and the list of priority research areas. See the characteristics of respondents in Table 1.

Table 1. Characteristic of respondents

Viewers		Number of responses	%
Number of invitees		185	100
Number of survey viewers		170	91.9
Agree to participate in the survey		96	51.9
Completed the survey		52	28.1
Responded to questions but not completed the survey		15	8.1
Total respondent		67	36.2
Main Questions			
Q1. What do you think is the most important health issues/health problems in Maldives?		67	100
Q2. What do you think is the most important barriers related with the proposed health problems above?		63	94.0
Q3. What research should be done to address those important health problems or barriers?		58	86.6
Q4. What are the barriers / challenges to conduct health research in the Maldives?		55	82.1
Characteristics of respondents			
Q5. Are you a Maldivian?	Yes	52	77.6%
	No	1	1.5%
	No answer	14	20.9%
Q6. Where do you live?	Atolls	2	3.0%
	Greater Male Regions	49	73.1%
	Outside Maldives	2	3.0%
	No answer	14	20.9%
Q7. Your profession is	General Doctor/Medical Specialist	5	7.5%
	Dentist	0	
	Nurse/Midwife	6	8.9%
	Medical Laboratory Professional	3	4.5%
	Community health professional / Public Health	13	19.4%
	Professional of behavioral sciences	2	3.0%
	Pharmaceutical professional	0	
	Dietician	0	

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	Nurse/Midwife	6	8.9%
	Medical Laboratory Professional	3	4.5%
	Community health professional / Public Health	13	19.4%
	Professional of behavioral sciences	2	3.0%
	Pharmaceutical professional	0	
	Academic professional	12	17.9%
	Researcher	7	10.4%
	Healthcare manager	1	1.5%
	Socio-economic professional	1	1.5%
	Non-medical staff (working at a health facility)	1	1.5%
	Dietician	0	

Q7. Your profession is	Other, please specify:	13	19.4%
	• Civil servant	1	1.5%
	• Consultant	1	1.5%
	• Food safety field	1	1.5%
	• Religious scholar	1	1.5%
	• Administration/management at ministry level	1	1.5%
	• Financing Institution	1	1.5%
	• Ministry of Health	1	1.5%
	• Accounts officer at MOH	1	1.5%
	• Monitoring Staff	1	1.5%
	• Finance and management	1	1.5%
	• Civil service	1	1.5%
	• Planning officer	1	1.5%
	• Engineering	1	1.5%
Q8. Number of years worked in primary area of work	No answer	15	22.4%
	1-2 years	7	10.4%
	3-5 years	6	8.9%
	6-10 years	12	17.9%
	1-10 years	27	40.3%
	No answer	15	22.4%
Q9. Institution or Organization	Aasiandha Company Limited	1	1.5%
	Cancer Society of Maldives	1	1.5%
	Environmental Protection Agency	1	1.5%
	Health Protection Agency	1	1.5%
	Indira Gandhi Memorial Hospital	3	4.5%
	Institute for mental well-being	1	1.5%
	Sikandhar School	1	1.5%
	Islamic University of Maldives	2	3.0%
	Maldives Bureau of Statistics	1	1.5%
	Maldives Food and Drug Authority	1	1.5%
	Maldivian Blood Services	2	3.0%
	Ministry of Health	10	14.9%
	Ministry of Higher Education	2	3.0%
	Society for Health Education (SHE)	3	4.5%
	The Maldives National University	4	6.0%
	UNICEF	1	1.5%
	Utility Regulatory Authority	1	1.5%
	Villa College	1	1.5%

Q9. Institution or Organization	WHO Maldives	2	3.0%
	Women's and Children's Health Network, Adelaide	1	1.5%
	Not specific	12	17.9%
	• Education sector	1	1.5%
	• ASMH	1	1.5%
	• Government	2	3.0%
	• Health	1	1.5%
	• Institution	1	1.5%
	• Private	2	3.0%
	• Private college	1	1.5%
	• Ratified	1	1.5%
	• TTH	1	1.5%
	• Public and private sector and NGO	1	1.5%
	No answer	15	22.4%
Q10. What is your age?	Range	21-62 years	
	21-40 years	30	44.8%
	40-62 years	22	32.8%
	No answer	15	22.4%
Q11. What is your gender?	Male	7	10.4%
	Female	45	67.2%
	No answer	15	22.4%

Methods of analysis

Responses to the three key questions about the priority health issues, important challenges and proposed research areas were collected from the survey platform and exported to QSR International NVivo (version 12) for analysis processes. While most responses were submitted as short answers, long responses were also included in the analysis.

Open and axial coding to all text data were performed in NVivo 12. Multiple coding was also applied to a text with multiple interpretations or relevancy to multiple categories. During the axial coding process, the created codes and underlying data were read over, removed, combined, or reframed. Revised codes were grouped into sub-categories and categories. The categories were predetermined based on the health system dynamics framework elements.

The list of sub-categories and axial codes was circulated to the steering committee and a panel of experts for review. The analysis process was repeated to ensure all relevant areas and proposed research areas suggested by the panel of experts and steering committee were included in the final list of health research areas.

Results

A total of 28 health research areas were identified from the online survey, which was categorized into six components of the health system dynamic framework. Alongside the list of health research areas, a new list of clinical research areas was created, as suggested by the panel of experts, to highlight the importance of clinical research and the potential for research improvement in this area.

1. Context

The Health system in each country is shaped by its political decision and historical change. An analysis of the national context encompasses a governance analysis, including the regulatory system, institutional arrangements, the organization of the public sector, and the influence of social determinants on health system outcomes and goals.

a. Important issues

The context of the health system in the Maldives is influenced by the geographical presentation of the country, which consists of large and small islands, population distribution and an increase in the migrant population. Respondents also proposed cultural restraint, use of traditional medicine, and social resilience amid the COVID-19 pandemic as barriers to achieving good health outcomes.

b. Barriers

Identified barriers to governance include poor decentralized governance, governance structure, regime, and lack of well-coordinated clinical governance. Cultural restraint toward mental health issues was proposed as an example of barriers to taking the problem seriously. The widespread population, including the various communities in atolls, will affect healthcare responsiveness in providing care to those who need it.

c. Proposed research areas (Table 2).

Table 2. Proposed research areas in the category 'Context'

No	Proposed research areas and axial codes	Number of relevant responses
1	<p><i>Community resilience and addressing health of disadvantaged population group.</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Community dynamic • Urban health • Social and geographical determinants, including culture and traditions, social resilience, and individual beliefs 	10
2	<p><i>Social determinants of health</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Social factors affecting health status • Individual and group characteristics • Household expenditure for health 	8

2. Leadership and Governance

Governance entails policy guidance to the whole health system, coordination of actors and regulations, optimal allocation of resources and ensuring accountability towards the population and stakeholders.

a. Important issues

The responses related to leadership and governance were categorized into four categories. Respondents highlighted the importance of selection criteria and systems to appoint healthcare leaders in the leadership category. Concerns on health system accountability are raised, and they refer to financial accountability (related to the implementation of universal health care), performance accountability, and public perception of the public health authorities. Other important issues are a lack of a constructive plan for health system development and a lack of policy implementation to ensure health and wellbeing.

b. Barriers

We identified some barriers related to the above issues, e.g. lack of coordination that affects the relation with health stakeholders to build an equitable health system, lack of political will and commitment to address priority health issues, failure to identify the root causes of health issues and lack of inclusive consultative process.

c. Proposed research areas

Table 3. Proposed research areas in the category 'Governance and Leadership

No	Proposed research areas and axial codes	Number of relevant responses
1	<p><i>Accountability and fraud in healthcare</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Health system accountability • Fraud in Medicare 	8
2	<p><i>Health governance, including clinical and public health governance</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Structure and coordination of governance in health system • Monitoring and evaluation system • Governance and management challenges for priority health 	16
3	<p><i>Health policy formulation and implementation</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Health policy formulation • Health policy implementation • Health policy evaluation 	10
4	<p><i>Health planning</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Evaluation and improvement of healthcare planning process • Health information system for timely evidence-based decision making 	8
5	<p><i>Political commitment for health improvement</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Evaluation and improvement of policy makers awareness on important health issues • Evaluation of political commitment on health issues 	10

3. Resources

Resources included in this theme are financing, human resources, infrastructure, supply of pharmaceuticals, goods, technologies, information, and knowledge.

a. Important issues

Lack of sustainable funding and investment for the health system were mentioned as the most important issue, as well as barriers to healthcare improvement. Other essential issues include human resources availability and its distribution to rural areas, new technology and innovation in health care, including the potential of digital health or telemedicine to bridge the access to care, and the availability of integrated and comprehensive health data for actions and policy decision making.

b. Barriers

Lack of access to adequate healthcare facilities, advanced medical equipment, and speciality care was mentioned as the barriers to reaching better health outcomes. Lack of human resources and access to infrastructure for preventive healthcare was also mentioned. Inappropriate resource allocation, neither evidence-based nor result-based, possibly contribute to this problem. The transportation system and availability of affordable accommodation during treatment visits were also mentioned as barriers to access health care for people from rural areas.

The use of innovation and technology for health promotion, diagnosis and treatment were recognized as important health issues. The ongoing COVID-19 pandemic increases the need for digital health advancements and expansion across the country. However, the lack of clear digital health infrastructure to implement e-Health initiatives in various health sectors and limited uptake of telemedicine by healthcare professionals remains the crucial current challenges.

Inadequate digital infrastructure leads to a lack of integrated and comprehensive health data for actions and policy decision making. Access to routine data, such as cancer registry, routine data from health facilities, incidence and prevalence of priority diseases and periodic health data collection through baseline health surveys are also needed.

Weak training strategy and lack of implementation plan contribute to the scarcity of trained human resources in healthcare, particularly in rural areas. Lack of interest in the development of non-medical healthcare professional also contribute to the lack of qualified human resources in other healthcare fields, such as microbiologist, mental health professionals, health researchers, and postgraduates in public health. High staff turnover, lack of continuing professional development, and lack of human resource development funding are other existing barriers.

There are also challenges in recruiting and retaining competent health professionals in rural areas. Unavailability of a clear strategy to attract proficient human resources and adequate incentive to retain and motivate local staff have created larger gaps in to access quality healthcare in rural areas. Inadequate sustainable funds allocated for health care are also a prominent issue contributing to all of the barriers above.

c. Proposed research topics

Table 4. Proposed research areas in the category 'Resources'

No	Proposed research areas and axial codes	Number of relevant responses
1	<p>Advancement of health technology, E-Health, and telemedicine</p> <p>Categories:</p> <ul style="list-style-type: none"> Evaluation and improvement of digital health infrastructure Improving access to telemedicine / telehealth 	17
2	<p>Health Financing</p> <p>Categories:</p> <ul style="list-style-type: none"> Evaluation of healthcare spending/expenditure and its impact to population health Evaluation of funding for health research and its impact Cost-benefits study of regulating unhealthy products and behaviors 	26
3	<p>Health Information</p> <p>Categories:</p> <ul style="list-style-type: none"> Epidemiology studies on communicable and non-communicable diseases Building integrated disease registry (example: cancer, NCDs, TB) Use of integrated and comprehensive digital health data for research and policymaking 	24

No	Proposed research areas and axial codes	Number of relevant responses
4	Health Resource allocation Categories: <ul style="list-style-type: none"> • Evaluation of allocation and access to health resources in rural and urban areas • Need assessment and use of advanced medical equipment 	26
5	Human resources for health Categories: <ul style="list-style-type: none"> • Evaluation of barriers and ways to attract and retain proficient health professionals to work in rural areas • Evaluation of methods to maintain and improve competency of HRH • Evaluation of remuneration and incentive mechanism/policy 	50

4. Service Delivery

Service delivery is defined as the process through which providers, health facilities, programmes, and policies are coordinated and implemented to reach the health system's goals. It relates to services and activities that include primary prevention, secondary prevention, curative care and rehabilitation.

a. Important issues

Healthcare services need to be available equally and easily accessible in Greater Male and other islands in a timely manner. Lack of accessibility to speciality or tertiary care and private healthcare facilities is concerning for many respondents. Waiting time for a specialist doctor in a public hospital is too long, while speciality care in private health facilities is more accessible, but they are expensive and primarily available in the greater Male area and not in other islands.

Strengthening the focus of the health system on primary health care and improving the model of health care delivery were also identified. The current model of care delivery was considered to hinder sustainable and continuous care. The lack of a proper public health system and continued care for chronic illnesses highlights the need to redesign the health system and create a better balance between public health programs and clinical care.

Preventive health measures are also considered lagging, particularly in the control of non-communicable diseases. Other important issues include health awareness and people's behaviour related to education level, and their knowledge, attitude, and health practice. Harmful traditional practices are still existing and can lead to short and long-term health consequences.

b. Barriers

Early detection of diseases and access to necessary treatment is needed to improve health outcomes. However, lack of access to proper testing, long waiting time, lack of advanced medical equipment, lack of competent human resources, and difficulty to access speciality or tertiary care for timely treatment have demotivated people to visit healthcare facilities unless they are very sick, or went abroad to seek treatment. Private healthcare providers are expensive and not available on many islands.

The poor health system setup was mentioned as one of the barriers which can lead to a lack of proper public health system, lack of public awareness of health issues, and lack of community engagement. There is a need to change the overall focus of the health care system on primary health care, with health promotion, preventive healthcare, and public health at the centre. Limited health promotion and advocacy contribute to low health awareness and unhealthy behaviour that justifies the need to strengthen health promotion.

Change in the health system will also bring changes in health care delivery. Several barriers in health care deliveries have been identified, e.g. lack of comprehensive referral mechanism, tedious procedures, individual/societal beliefs in health providers, lack of implementation plan of public health programs, and challenges of care deliveries during the COVID-19 pandemic.

c. Proposed research areas

Table 5. Proposed research areas in the category 'Service Delivery'

No	Proposed research areas and axial codes	Number of relevant responses
1	<p><i>Access to health care</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Evaluation of access to health care services in rural and urban areas, including Basic health care services, laboratory testing, maternal health care, and cancer • Impact assessment of financial protection to population health • Availability, accessibility, and affordability of private healthcare facilities 	33
2	<p><i>Model of healthcare deliveries</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Evaluation of model and roles of primary healthcare in clinical and public health services • Interventions and innovations for health system strengthening • Evaluation of referral mechanism, involving private health care providers 	23
3	<p><i>Preventive health care</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Evaluation of funding and public health measures for preventive healthcare • Improving access to preventive medicine/treatment 	10
4	<p><i>Traditional medicine</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Describe the prevalence and practice of harmful traditional practices 	2
5	<i>Pharmaceutical study</i>	Additional category

5. Outcomes

Outcomes is defined as the direct results of the organization of health care delivery, e.g. universal coverage, quality of care and responsiveness, and goals as the expected impact in terms of improved physical, mental and social wellbeing. The outcomes of a health system also include access and coverage, which are important determinants in utilising health services.

a. Important issues

We identify eight health topics relevant to health outcomes and goals, i.e. burden of communicable diseases, non-communicable diseases, environmental health, geriatric health, maternal and child health, mental health, sexual and reproductive health, and gender-based violence. Important sub-topics within the communicable disease group include COVID-19, emerging and resurgent diseases, antimicrobial resistance (AMR), and respiratory conditions (Asthma, COPD, upper respiratory tract infection, and lower respiratory tract infection air pollution).

Within the non-communicable diseases group, respondents identified cancer, cardiovascular diseases, diabetes, kidney diseases, hypertension, blood disorders, and neurological conditions as the priority diseases. Many respondents were also interested in looking at the causes of the high burden of communicable and non-communicable diseases, identifying barriers and enablers for good healthcare, and strategies to control these diseases.

Maternal and child health also gained respondent's attention, despite the lack of specification of the problem. In the sexual and reproductive health group, several respondents raised the issue of sexual reproductive health among young people, and increasing infertility rate and health sector response to gender-based violence and child abuse.

The increasing elderly population is another issue that needs to be accommodated in the changing health system to meet their health needs. Air pollution and the living environment were also part of the environmental health issue. Many respondents highlighted a huge increase in mental health issues in the Maldives, while focus on mental health is lacking. Specific issues related to mental health mentioned in the survey were psychosocial factors, substance abuse and suicide.

The issue of quality of care and patient safety was also raised, with suggestions to evaluate the implementation of Maldives Healthcare Quality Standards, accreditation system, and medication errors.

b. Barriers

Health system barriers related to communicable diseases include implementation challenges of disease control programmes, availability of data on burden of diseases, and the impact of COVID-19 to other health programmes. Within the non-communicable diseases group, prevention and associated complications were selected as the most common barriers to achieving good health outcomes. Other barriers were also related to the barriers to service delivery, which includes accessibility to maternal healthcare, lack of priority and acceptance of violence against women as a public health issue, access to telehealth for geriatric patients, and lack of community health nurse that can provide home care services for elderly people.

Barriers related to mental health are stigma on mental health issues, lack of emphasis on proper mental health care, and lack of trained health professionals. Within the quality and safety groups, the respondents mentioned the limited regulation of the quality and safety of care, lack of experts in quality and safety, and lack of adherence to clinical protocols as barriers to good quality of care. Another barrier that influences priority making is the lack of evidence from local research due to limited funding for research.

c. Proposed research areas

Table 6. Proposed research areas in the category 'Outcomes'

No	Proposed research areas	Number of relevant responses
1	Disease epidemiology, risk factors, prevention and control	18
2	Clinical studies on priority communicable and non-communicable diseases	102
3	Environmental health	4
4	Healthcare delivery for aging population	3
5	Healthcare quality and safety	6
6	COVID-19 and emerging diseases	23
7	Gender-based violence	6

The most frequent responses to the online survey were clinical research on priority communicable and non-communicable diseases (102 responses). During the expert panel consultation meeting, it was decided to invite more clinicians from hospitals to the panel of experts to expand the scope of clinical research areas. New research areas were also added after reviewing the Maldives Health Statistics 2017-2019 to identify high burden diseases that were not mentioned by the respondents or the panel of experts. Tuberculosis and leprosy were also added to the list to support eliminating tuberculosis and leprosy in the Maldives.

Table 7. Proposed research areas in the category 'Clinical Research

No	Proposed clinical research areas	Number of relevant responses
1	Mental health, behavioural disorder, and substance abuse	42
2	COVID-19 and emerging diseases	25
3	Reproductive and maternal health	13
4	Endocrine and metabolic disorder, including diabetes	10
5	Sexual health	10
6	Cancer	9
7	Digestive diseases	9
8	Neurological disorders	6
9	Respiratory diseases	5
10	Blood disorders	4
11	Kidney diseases	4

No	Proposed clinical research areas	Number of relevant responses
12	Allergy	3
13	Bone and joint diseases	3
14	Eye diseases	3
15	Cardiovascular diseases	3
16	Genetic disease	3
17	Skin diseases	3
18	Genitourinary diseases	Additional category
19	Dengue	Additional category
20	Perinatal conditions and child health	Additional category
21	Neglected Tropical Diseases	Additional category
22	Tuberculosis	Additional category
23	Leprosy	Additional category

6. Population

The population includes patients, individuals having rights and obligations for healthcare, and the various groups in the community, including peer groups and informal caregivers.

a. Important issues

Lack of community awareness, lack of community engagement in healthcare, and unhealthy lifestyle are topics identified under the population group. Lack of awareness and engagement were linked with health promotion strategy and health outcomes. While unhealthy lifestyles were linked with unhealthy eating habits (lack of fruits and vegetables), lack of physical activity, stressful life, and living style.

b. Barriers

Some barriers related to healthy lifestyle were unhealthy eating habits, lack of organic food, lack of affordable locally harvested fruits, influence and interference from food, beverage and tobacco industries, unavailability of cheaper gym alternatives, and lack of awareness of the consequences of unhealthy behaviour. Inadequate regulation and monitoring of food production, sale, and marketing were also mentioned as the barriers.

c. Proposed research topics

Table 8. Proposed research areas in the category 'Population'

No	Proposed research areas	Number of relevant responses
1	<i>Community engagement in health</i>	4
2	<i>Food safety and quality</i> Categories: <ul style="list-style-type: none">• Total dietary and food consumption survey	18
3	<i>Health promotion</i> Categories: <ul style="list-style-type: none">• Innovative health promotion strategies, including use of technology for health promotion.• Access to health promotion and advocacy	21

No	Proposed research areas	Number of relevant responses
4	<p><i>Healthy lifestyle</i></p> <p>Categories:</p> <ul style="list-style-type: none"> • Behavioral survey to identify healthy and unhealthy behavior • Innovative intervention/strategy for lifestyle modification • Implementation of strategy to improve physical activity 	4



8. DELPHI SURVEY

ROUND 1: Selection of research priorities areas

The previous online survey is the initial step to collecting opinions on priority areas in health from key stakeholders and practitioners in the Maldives. A qualitative analysis process to the responses from the online survey has resulted in a list of 28 health research areas. The list may reflect 'voices from the field' about important health issues that need proper attention from the government. It may inform a panel of experts before selecting priorities research areas.

A two-round Delphi survey was organized to select priority research areas from the list above. Delphi survey is an indirect, anonymous, iterative process designed to pool experts' opinions in a given field to establish a consensus based on the results of the previous related survey. The experts in the panel were selected purposively to represent a variety of health sectors and key stakeholders. The selected panel of experts is invited to participate on a voluntary basis to complete a questionnaire anonymously using an online platform. This anonymous online method carries an advantage over an on-site discussion by avoiding the influences of individuals in power or with dominant personalities. Therefore, the experts can focus on their personal choices.

Objective

The objective of the first round of the Delphi survey was to select 10 out of 28 research areas identified from the online survey.

Panel of experts

The steering committee identified and contacted prospective experts. Invitation to participate in the Delphi Survey, both for round 1 and 2, and an internet link to the survey platform were sent via email. Participation was anonymous to other participants, voluntary and unpaid, and participants could withdraw at any time.

A total of 28 health experts were invited, and 21 participated in the first round of the Delphi survey. The selected experts were from the Ministry of Health (5), the Maldives National University (4), World Health Organization (2), Maldives food and drug authority (1), Health protection agency (HPA) (1), Maldives Bureau of Statistics (1), Villa college (1), Attorney General Office (1), Islamic Universities of Maldives (1), School of Nursing (1), IGMH (1), Ministry of Islamic affairs (1), and DhamaNaveshi (1). There is no specific sample size formula to the determined number of experts needed in a Delphi survey. Literature showed that the number of experts in a Delphi survey might vary from 10 to 60, and we aimed to have between 15-20 experts in the panel.

The questionnaire

An online questionnaire was created on the QuestionPro Survey platform. All participating experts received the results of the previous online survey, and we encouraged them to read it before making their research priorities. Information about the Delphi survey process and issues related to ethics were provided in the introduction part of the questionnaire. One member of the steering committee was assigned to be the contact person if respondents had an inquiry about the survey. Consent was obtained before a participant could proceed to the questions part.

The questionnaire contains only two assignments and four columns to collect information about the characteristics of respondents (first name, last name, email addresses, and institution)

Statement of the first assignment:

"Please select ten research areas out of 28 research areas from the list below. Numbers in brackets indicate the number of opinions that support the research area from the results of the preliminary survey. Score 1 will be given to selected research areas."

Statement of the second assignment:

"Please select ten diseases that should be prioritized for research and health development in the Maldives."

Survey process

The first Delphi survey was started with a one-hour meeting with a panel of experts on January 18th, 2022. The panel reviewed the questionnaire and the available options for priority research areas for the Delphi survey round 1 and gave oral and written feedback. All feedback were discussed by the steering committee and the consultant team, then the questionnaire was revised.

All experts were invited to participate in the Delphi survey round 1, and we received responses from 22 experts. The number of vote for each research areas were summed and listed from the highest votes to the lowest vote.

Table 9. Characteristics of respondents of Delphi Survey round 1

No	Institution	Total respondents
1	Universities	8
2	Ministry of Health	5
3	Ministry of Islamic Affairs	1
4	Attorney General Office	1
5	Maldives Bureau of Statistics	1
6	Maldives Food and Drug Authority	1
7	World Health Organization	1
8	HPA	1
9	ICMH	1
10	DhamaNaveshi	1
	Total	21

Table 10. Selected health research priority areas

No	Research areas	Number of votes
1	Disease epidemiology, risk factors, prevention and control (supporting opinions: 18)	17
2	Health governance, including clinical and public health governance (supporting opinions: 16)	13
3	Healthcare quality and safety (supporting opinions: 6)	12
4	Healthy lifestyle (supporting opinions: 19)	12
5	Access to health care (supporting opinions: 33)	12
6	Clinical studies (supporting opinions: 102)	11
7	Food and nutrition (supporting opinions: 18)	11
8	Preventive healthcare (supporting opinions: 10)	11
9	Health promotion (supporting opinions: 21)	10
10	Advancement of health technology, e-Health, telemedicine (supporting opinions: 17)	10
11	Health resource allocation (supporting opinions: 26)	10
12	Health policy formulation and implementation (supporting opinions: 10)	9
13	Human resource for health (supporting opinions: 50)	9
14	Model of healthcare delivery (supporting opinions: 23)	9
15	COVID-19 and emerging diseases (supporting opinions: 23)	8
16	Community resilience and addressing health of disadvantaged population group (supporting opinions: 10)	7
17	Health financing (supporting opinions: 26)	7
18	Accountability and fraud in healthcare (supporting opinions: 8)	6
19	Political commitment for health improvement (supporting opinions: 10)	6
20	Health care delivery for aging population (supporting opinions: 3)	5
21	Environmental health (supporting opinions: 4)	5
22	Community engagement in health (supporting opinions: 4)	4
23	Health information (supporting opinions: 24)	4
24	Social determinant of health (supporting opinions: 8)	3
25	Health planning (supporting opinions: 8)	3
26	Pharmaceutical study (additional area)	2
27	Gender-based violence (supporting opinions: 6)	1
28	Traditional medicine (supporting opinions: 2)	1
29	Other:	0

Table 11. Selected clinical research areas

No	Research areas	Number of votes
1	Mental health, behavioural disorder, and substance abuse (supporting opinions: 42)	21
2	Cancer (supporting opinions: 9)	20
3	Reproductive and maternal health (supporting opinions: 13)	15
4	Kidney diseases (supporting opinions: 4)	15
5	Sexual health (supporting opinions: 10)	13
6	Endocrine and metabolic disorder, including diabetes (supporting opinions: 10)	13
7	Respiratory diseases (supporting opinions: 5)	10
8	Cardiovascular diseases (supporting opinions: 3)	9
9	Skin diseases (supporting opinions: 3)	9
10	COVID-19 and emerging diseases (supporting opinions: 25)	8
11	Blood disorders (supporting opinions: 4)	8
12	Dengue (added from the Maldives Health statistics 2017-2019)	7
13	Perinatal conditions and child health (added from the Maldives Health statistics 2017-2019)	7
14	Eye diseases (supporting opinions: 3)	7
15	Neurological disorders (supporting opinions: 6)	7
16	Tuberculosis (towards elimination of tuberculosis in Maldives)	6
17	Genetic diseases (supporting opinions: 3)	6
18	Allergy (supporting opinions: 3)	6
19	Digestive diseases (supporting opinions: 9)	5
20	Bone and joint diseases (supporting opinions: 3)	5
21	Neglected Tropical Diseases (additional group)	5
22	Genitourinary diseases (added from the Maldives Health statistics 2017-2019)	3
23	Leprosy	2
24	Other, please describe: • Prevalence of malnutrition among the elderly/under 5 children	2

9. DELPHI SURVEY

ROUND 2: Ranking of research priorities areas



The first round of the Delphi survey has resulted in 10 health research areas and 11 clinical research areas. Determining a ranking for each panel of research areas is one way to display priority. It is usually challenging to reach a consensus on priorities due to conflicting interests, scope and perspectives. An alternative to reach a consensus is by assigning a rank based on certain criteria to a panel of priority.

Objective

- To assign a rank to each research area
- To create lists of health research areas and clinical research areas based on the rank.

Panel of experts

We invite experts who participated in the first round of the Delphi survey to continue participating and rank the selected research areas. Out of 22 experts who participated in the Delphi survey round 1, 16 participated in the Delphi survey round 2.

Table 12. Participants of Delphi Survey round 2

No	Institution	Total respondents
1	Universities	5
2	Ministry of Health	5
3	Ministry of Islamic Affair	1
4	Attorney General Office	1
5	Maldives Food and Drug Authority	1
6	World Health Organization	1
7	Maldives Food and Drug Authority	1
8	Dhamanaveshi	1
	Total	16

The questionnaire

An online questionnaire was created on the QuestionPro Survey platform. All participating experts received the results of the first round of the Delphi survey, and we encouraged them to read it before participating in the second round. Information about the Delphi survey process and issues related to ethics were provided in the introduction part of the questionnaire. One member of the steering committee was assigned to be the contact person if respondents inquire about the survey. Consent was obtained before a participant could proceed to the questions part.

The questionnaire contains only two assignments and four columns to collect information about the characteristics of respondents (first name, last name, email addresses, and institution)

1.Statement of the first assignment:

*"Please rank (1-10) the following health research areas in order of priority.
The number in brackets indicates the number of respondents voted for the area in the first stage of the Delphi Survey."*

2.Statement of the second assignment:

*"Please rank (1-11) the following clinical research areas in order of priority.
The number in brackets indicates the number of respondents voted for the area in the first stage of the Delphi Survey."*

Survey process

The survey was conducted online between 14 – 17 March 2022. Respondents assign a rank from 1 to 10 for the health research panel and 1 to 11 for the clinical research panel. The score is given opposite to the rank value, i.e. rank 1 was scored 10 and rank 10 was scored 1. Rank 11 in the clinical research panel was scored 0. The median of the assigned rank was used to determine which research areas have the higher rank when there are two research areas with the same total score.

Classification of 'health research' in this prioritizing exercise refers to research that is done to learn more about human health. Health research studies the distribution and determinants of the health status of the people as influenced by social, economic, and physical environments, human biology, health policy and services. Health research also aims to find better ways to promote, prevent and treat diseases by enhancing the efficiency and effectiveness of the health system.

Table 13. Top 10 health research priorities areas

Ranks	Health areas	Scores	Median
1	Disease epidemiology, risk factors, prevention and control (Votes: 16)	114	
2	Food and nutrition (Votes: 11)	94	
3	Healthcare quality and safety. (Votes: 12)	93	
4	Health promotion (Votes: 10)	89	Median 5.5
5	Health resource allocation (Votes: 11)	89	Median 6
6	Advancement of health technology, e-Health, telemedicine (Votes 10)	87	
7	Clinical studies (Votes: 11)	85	
8	Access to health care (Votes: 11)	82	
9	Health governance, including clinical and public health governance (Votes: 12)	78	
10	Healthy lifestyle (Votes: 12)	75	

Classification of 'clinical research' in this prioritizing exercise involves research using human volunteers or participants that is intended to add to medical knowledge, including clinical trials and observational studies. In a clinical trial, participants receive specific interventions, i.e. medical products, procedures, and behaviour change, according to the research protocol created by the investigators. Clinical trials can compare a new medical approach to a standard one, or to a placebo, or to no intervention. In an observational study, investigators assess health outcomes in groups of participants according to a research plan or protocol. Participants may receive interventions or procedures, but participants are not assigned to specific interventions by the investigator.

Table 14. Top 11 Clinical research areas

Ranks	Clinical areas	Scores
1	Cancer (Votes: 20)	108
2	Cardiovascular diseases (Votes: 9)	106
3	Mental health, behavioural disorder, and substance abuse (Votes: 21)	105
4	Kidney diseases (Votes: 15)	89
5	Endocrine and metabolic disorder, including diabetes (Votes: 13)	86
6	Respiratory diseases (Votes: 10)	83
7	Reproductive and maternal health (Votes: 15)	81
8	COVID-19 and emerging diseases (Votes: 8)	68
9	Sexual health (Votes: 13)	62
10	Blood disorders (Votes: 8)	53
11	Skin diseases (Votes: 9)	43

10. BARRIERS AND CHALLENGES IN CONDUCTING RESEARCH

After completing the main three questions about the most important issues, barriers, and challenges in health, we asked the respondents to give their opinion about the barriers and challenges for research in the Maldives. Each respondent can submit 1 to 3 short statements. We received responses from 55 respondents and 107 short statements about the barriers and challenges in conducting research.

The question:

"What are the barriers/challenges to conduct health research in the Maldives?"

Data analysis

All responses were analyzed qualitatively. Open codes were assigned to all statements, and axial coding was performed to combine or reframe the codes to create categories of barriers and challenges in conducting research in the Maldives.

Results

We identified seven main barriers and challenges in conducting research in the Maldives.

1. Access to data

We identified five quotes related to lack of data availability for research, due to lack of documentation, lack of base information (e.g. cancer registry), and difficulty getting data from different organizations.

2. Difficulties in getting ethics approval

Getting ethical approval from the NHRC is difficult and takes a lot of time. The process can delay the implementation of planned research activities and demotivate researchers to conduct independent research.

3. Lack of demand for scientific evidence for decision making

Lack of political commitment to really dig deep and address the root causes of a health problem and lack of understanding of the importance of research have led to a lack of evidence-based decision-making at policymaking levels. The unwillingness of policymakers to listen to experts has discouraged experts from providing evidence.

4. Lack of human resources

Lack of strategies to train personnel / professional in research has led to a shortage of dedicated and competent personnel for research, including the lack of scientist/researchers/epidemiologists/experts in the field.

5. Lack of research culture

Lack of research culture encompasses a lack of awareness of the importance of research among public and policymakers, lack of research culture in higher education institutions, and lack of cohesiveness across government institutions regarding national research priorities. Research is not considered something that requires priority and often leads to rejection. Lack of awareness of the importance of research may also lead to a lack of availability of research participants or institutions.

Research is often not associated with incentives, e.g. promotion or salary increment among researchers. While the opportunity to conduct research is limited, researchers may lack interest in some issues, e.g. violence against women.

Opportunities to collaborate with international universities are open. However, poor coordination of health research between stakeholders/institutions, lack of teamwork, and dominance of particular experts also hampers research collaboration.

6. Lack of resources for research

The most common issue related to resource for research is the availability of research funding (37 out of 43 quotes are related to research funding). The cost to conduct research in the Maldives is high, particularly when research conducted countrywide or includes respondents living in atolls. Other barriers are limited resources for laboratory-based research, which often force researchers to send the samples abroad. Unavailability of a research agency to guide, coordinate, and implement research is also another barrier to research. Local platform to publish results from researches is also still limited.

7. The geographical dispersion of islands

The geographical presentation of the country and economic disparity making generalization difficult and increasing the cost of research.

Table 15. Barriers and challenges in conducting research

No	Categories	Number of relevant responses
1	Access to data	5
2	Difficulties in getting ethics approval	9
3	Lack of demand for scientific evidence for decision making	12
4	Lack of competent human resources	29
5	Lack of research culture	21
6	Lack of resources for research	43
7	The geographical dispersion of islands	3



11. STRENGTHS AND LIMITATIONS

This study produced a national stakeholder-informed research agenda for health and clinical medicine research. The priorities research list highlights the most important and urgent needs for health research as identified by all stakeholders involved in this study, including clinicians and public health experts.

It is acknowledged that the Delphi method has been applied in various fields of study, such as program planning, needs assessment, policymaking, and resource utilization, aimed at predicting future developments and finding practical solutions. The use of the Delphi method in this research priority settings has several advantages: a wide range of stakeholders in health were represented, use of online survey platform can avoid direct confrontation of the experts, which may produce opinion bias when few experts provide dominant views. Anonymity in the process encouraged honesty, and access to the result of an online survey provides a balanced consideration of ideas. The opportunity to give feedback to the survey tool before the starts of Delphi survey allowed the team to create a more comprehensive range of research areas, both in general health and clinical health field. Online access to the survey and meeting enables the team and participants to save time and money and travel costs.

However, it is common in a Delphi survey for participants to drop out in the process. A limited number of experts involved may result in uneven views or uneven spread of expertise. Therefore, we encourage the readers to explore the results from all stages of this research priority setting processes and consider the barriers and challenges in conducting research in Maldives.



12. NEXT STEPS

Identifying the top 10 health research and clinical research areas was an initial start in maximizing the benefits of research investment, providing valuable direction for the allocation of national and international research funds into areas of strategic importance. Distributing the report to the research community and key research funders will guide research to be aligned with the needs of the community and policymakers. Comparing the result of this exercise with the existing evidence will reveal gaps in evidence from research. Identifying less researched areas may expand the range of skills and resources needed to build research competence in new areas, such as digital health, COVID-19 responses, or health resource allocation. Using the priority list to inform research funders may influence future funding calls.

The impact of this work to the improvement of health research and population health in a long term should be evaluated.



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