health

Department:
Health
REPUBLIC OF SOUTH AFRICA

REVISED 2021-2024 NATIONAL HEALTH RESEARCH PRIORITIES FOR SOUTH AFRICA

NATIONAL HEALTH RESEARCH STRATEGY: RESEARCH PRIORITIES FOR SA 2021-2024

Compiled by the National Health Research Committee (NHRC), comprising: Mahmood Ally (Chairperson); Anthony Hawkridge; Panjarasaam Naidoo; Heidi Abrahamse; Glaudina Loots; Angela Mathee; Taryn Young; Nico Gey van Pittius; Joyce Tsoka-Gwegweni; Christo Heunis; Mushi Matjila; Moses Mbewe; Mapitso Molefe and Gail Andrews. The NHRC was supported by the Secretariat, comprising: Thulile Zondi; Tshilidzi Muthivhi and Lesibana Malinga.

ABBREVIATIONS

DHIS	District Health Information System
EDL	Essential Drug List
HCW	Health Care Worker
HIV/AIDS	Human Immuno-deficiency Virus/ Acquired Immuno-Deficiency Syndrome
IgA	Immunoglobulin A
IgG	Immunoglobulin G
NCD	Non-Communicable Diseases
NHI	National Health Insurance
NHRC	National Health Research Committee
PCR	Polymerase Chain Reaction
PHRC	Provincial Health Research Committee
SARS	Severe Acute Respiratory Syndrome
SDG	Sustainable Development Goals
WHO	World Health Organization
4IR	Fourth Industrial Revolution

FOREWORD BY THE DIRECTOR-GENERAL

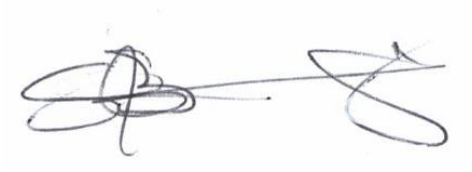
The development of health research priorities is part of the mandate of the National Health Research Committee (NHRC). Research priorities will ensure that health research agendas and research resources focus on priority health problems**.**

The NHRC in identifying health research priorities, took into consideration the followings:

- the burden of disease.
- the cost-effectiveness of interventions aimed at reducing the burden of disease.
- the availability of human and institutional resources for the implementation of an intervention at the level closest to the affected communities.
- the health needs of vulnerable groups such as woman, older persons, children, and people with disabilities.
- the health needs of communities.

In line with its areas of operation, the NHRC established a sub-committee for this purpose as one of its delivery structures. The process of consultation from which the sub-committee would get inputs from key stakeholders was the National Health Research Summit, held in September 2018. Following the Summit, ideas collected from key stakeholders were considered along with those from other important forums and sources to distil a list of high-level health research priorities that can be filtered down to specific research questions by the health research community. The research topics proposed should cover a whole spectrum of research for Health, including clinical, basic science, social, health systems, and policy research.

We would like to thank NHRC members and all the Provincial Health Research Committees (PHRCs) for their invaluable contributions to solicit provincial inputs and priorities for the strategy.



DR SSS BUTHELEZI
DIRECTOR-GENERAL OF HEALTH
DATE: 31/05/2023

NATIONAL HEALTH REASEARCH STRATEGY
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1. INTRODUCTION

The development of health research priorities is part of the mandate of the National Health Research Committee (NHRC). In line with its areas of operation, the NHRC established a sub-committee for this purpose as one of its delivery structures. The process of consultation from which the sub-Committee would get inputs from key stakeholders was the National Health Research Summit held in September 2018. Following the Summit, suggestions from key stakeholders were considered along with those from other important forums and sources listed under references, to distil a list of high level health research priorities that can be filtered down to specific research questions by the health research community. Research questions should cover a spectrum of research for Health, including clinical, basic science, social, health systems, and policy research.

2. FRAMEWORK FOR PRIORITY SETTING

The priority setting framework should not be seen as static, but rather fluid and responsive to changing health-related circumstances and needs in South Africa. In order to account for this continual contextual change in the health environment, the NHRC determined that Priority Setting exercises should be conducted regularly (at least every five years); to identify broad priority areas for health-related research, pitched primarily at a National Governance level. These broad and specific priority areas should then be interrogated in relevant stakeholder workshops in order to set more specific research priorities at local, institutional and researcher levels.

Priority setting exercises must consider the “three pillars” of process, tools, and context:

- The *process* of priority setting is not static, but should be continuous and cyclical, responsive to the changing health environment and local needs; and involve a large number of stakeholders from both health and other sectors (including education, environmental affairs, treasury). The process should be objective, participative and strive for on consensus. Appropriate preparation and planning are essential.
- *Tools* for priority setting include all the resources and instruments required to collect, organise and analyse the multiple information sources required to set priorities (including different metrics for burden of disease measurement).
- The particular and complex socio-political, economic and cultural contexts within South Africa must be taken into account to ensure appropriate identification of priority concerns. Results of priority-setting exercises must be simple and clear and free of jargon in order for policy makers to fully understand the report, and implement the results appropriately.

3. THE PROCESS

The following conceptual framework for research for health prioritisation was developed by the NHRC, through stakeholder engagement and discussion. This framework was implemented at the Summit, and developed further through continued stakeholder engagement.

Practical steps outlined in the WHO-published Module II: Setting priorities for health research were followed, which include:

Step 1: Planning the process – the NHRC collated views from stakeholders directly through the 2018 Health Research Summit themed “Research for Health” and subsequent interactions, as well as indirectly through products of other key stakeholder interactions and documents.

Step 2: Situational analysis – each NHRC sub-committee conducted a situational analysis in its area of responsibility, the results of which were presented at the 2018 Summit with opportunity for stakeholder input.

Step 3: Involving stakeholders – various stakeholder inputs were collected through the sub-committee situational analysis exercises at the Health Research Summit, through inviting inputs to different NHRC documents, as well as through perusal of stakeholder interaction documents.

Step 4: Selecting criteria: this step took into account that the purpose of priority-setting was aimed at National Level, using a bottom-up approach. Therefore, health challenges emanating from local/district level, through to Provincial and National were taken into account to identify broad health research priorities.

3.1 An initial two-dimensional framework was developed, which linked current broad priority diseases (according to the National Burden of Disease) with multifactorial determinants of health, thus incorporating the Public Health domain (Table 1). The above broad disease-based priority setting model was then refined into a three-dimensional model factoring in variables of equity, access, discrimination, marginalisation and vulnerabilities, to ensure that research for health is targeted at benefiting those with the greatest need, and contributes to improved health, equity and access to health for all.

Table 1: Proposed two-dimensional tabular model for comprehensive health research priority setting.

Priority disease (according to burden of disease estimates)	Biological determinants	Psychosocial and behavioural determinants	Health system factors	Political, economic and market factors	Planetary and environmental factors	Other
Communicable diseases						
Non-communicable diseases						
Maternal and child health						
Trauma and violence						
Mental health						

3.2 These aspects were then integrated using a "3D Combined Approach Matrix (CAM)" tool to further interrogate each broad priority area in terms of: impact, determinants, knowledge, and funding flows at individual, community, health sector and governance levels, as well as considering other factors related to equity in health, including poverty, gender, historical legacy, race, vulnerable population groups etc. (Figure 1). Using this model, multifactorial determinants of health were considered at different levels, as well as potential ameliorative approaches (considering different levels and sectors), responsive to the Health Sustainable Development Goals, and with the aim of implementation of Universal Health Coverage (UHC), and as appropriate to the new Digital Age in health.

3.3 A final Priorities List was developed, incorporating the above models, and expanding the Broad priority areas into Specific Priority and Key Focus Areas for Health Research (Table 2).

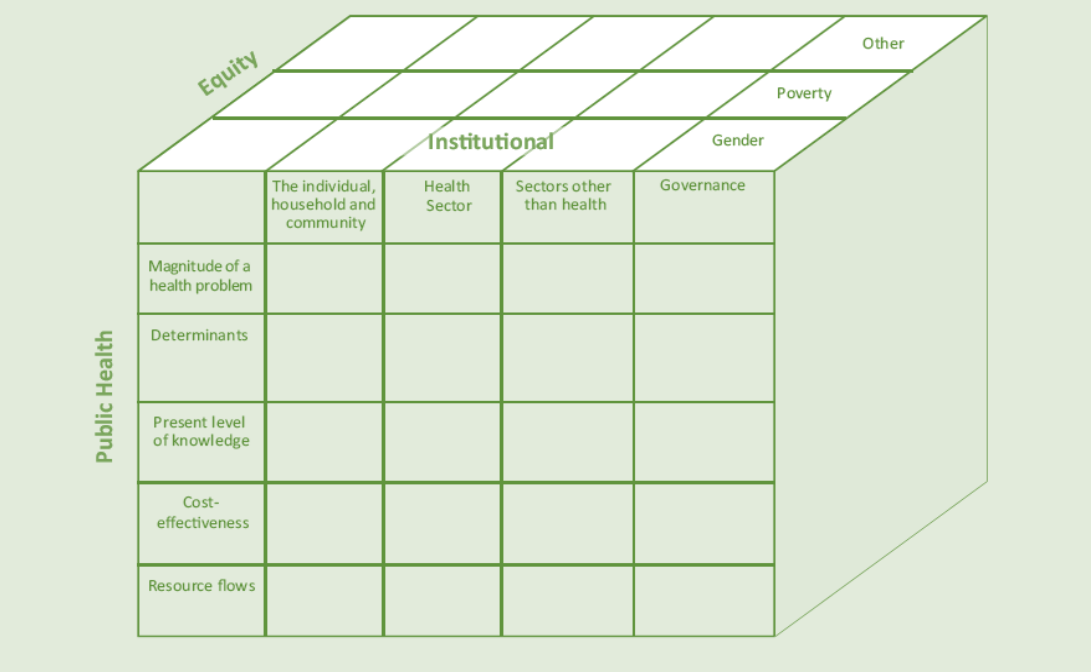

Figure 1: The Three Dimensional Combined Approach Matrix tool for research for health priority setting (from Ghaffar et al, http://www.bvs.hn/Honduras/PIS/MEC3DEnglish.pdf).

4. THE PRODUCT

Table 2 presents the first product of the Health Research Priority Setting Process. The second process was to review national and international strategic documents that list research priority areas (**Table 3**). The third process involved further consultations with Provincial Health Research Committees (PHRC) on the process to inform and facilitate the research priority setting, development and continuous review thereof, and on production of the list of health research priorities (**Table 4**).

5. FURTHER CONSIDERATIONS

Funding, financial implications and resource flows are incorporated into the list of Key Focus Areas for Health Research, in order to determine the prevailing level of investment in research for the identified health challenges, as well as influencing financial resource mobility towards health challenges of national importance.

Table 2: National Priorities Framework in Research for Health

Broad area of challenge	Specific priority areas	Key focus areas for research
1. Burden of Disease	Communicable Diseases (HIV, TB, sepsis) Non-Communicable Diseases: (cancers, diabetes, cardiovascular disease) Injury, Crime and Violence (including gender-based violence) Mental Health (including Depression, para-suicide, risk behavior, harmful substance use) Maternal and Child Health (morbidity and mortality; including hypertensive disorders, pre-eclampsia, infectious disease in pregnancy, obstetric haemorrhage, mother-to-child transmission of HIV)	Consider the following at individual, community, health sector and governance levels, in relation to funding flows, and including different health models (e.g. traditional/indigenous health practice) 1. Epidemiology and biological factors • New case resurgence and drug resistance, drug-drug interactions, 90-90-90 targets. • Drug-resistance and vaccines, missing cases, infection control 2. Political, economic and market factors 3. Health system factors 4. Psychosocial, behavioural and environmental factors • Education and Knowledge • Stigma • Compliance • Access • Environment (e.g. climate change, pollution, waste management, other systems) • Consider equity, discrimination, poverty, marginalisation and other vulnerabilities 5. Product development (health innovation) 6. Cost effectiveness 7. Resource flow 8. Ethical issues: Consider issues of justice, respect for persons, beneficience/non-maleficence; deontological vs. consequentialist approaches. This is needed to ensure health-related research stands to benefit those with the greatest need (without systematically excluding any group), and contributes to improved health, equity and access to health for all.

Broad area of challenge	Specific priority areas	Key focus areas for research
2. Health systems strengthening	The Nine Pillars of the Health Systems and Service Improvement Plan outlined in the Presidential Health Compact Other health systems strengthening Health Systems Innovation as outlined in the NSI White Paper	Consider the following, considering all sectors of health providers and consumers, from individual/community, to institutional, regional and national governance levels. 1. Human Resources for Health (HRH), including technical skills 2. Health policy and systems 3. Training of healthcare workers (needs and implementation) 4. Improved access to essential health products, for all sectors of community 5. Infrastructure planning (health facilities) 6. Engagement of the private sector and civil society in improving access, coverage and quality of health services 7. Health service improvement (quality, safety and quantity of facilities, services and health outcomes) with focus on primary health care 8. Public sector financial management systems and processes (efficiency and effectiveness) 9. Governance and leadership improvement (oversight, clinical, accountability, policy frameworks coherence and coordination) 10. Community engagement and empowerment to optimise community-based care 11. Health information systems (integration, guidance to health systems policies, strategies and investments) 12. Accountability 13. Research translation and rollout of innovations 14. Rural Health 15. Health research financing/funding 16. Monitoring and evaluation
3. Universal Health Coverage (UHC)	National Health Insurance (NHI)	Consider the following at individual, household, community, health sector and governance levels: 1. Norms and standards 2. Rollout 3. Financing/financial management 4. Stakeholder buy-in 5. Cost effectiveness a 6. Management of service delivery (including referral pathways) 7. Governance and leadership 8. Human Resources for Health 9. Information and Intelligence 10. Infrastructure

Broad area of challenge	Specific priority areas	Key focus areas for research
		11. Equipment 12. Supply chain 13. Monitoring and evaluation (health system inputs, service delivery, and health status and financial indicators. 14. Measures of essential health service coverage, quality and associated costs - promotion, prevention, treatment, rehabilitation, and palliation. 15. *Consider Equity:* measure service coverage and quality, stratified by socioeconomic circumstances, gender, ethnicity, and other vulnerabilities.
4. Digital Health and the Fourth Industrial Revolution	The nine strategic interventions to be achieved by 2024, proposed in the South African Digital Health Strategy Platforms including the Fourth Industrial Revolution Data collation Precision Medicine New treatment and prevention technologies	Consider the following, with consideration for implementation at different levels, from primary to specialised healthcare; and from individual to community and governance levels, in order to achieve the health-related SDGs, responsive to priority disease burden and ensuring equity (UHC). 1. Leadership and capacity for digital health innovation and adaptive management 2. Multi-stakeholder engagements for digital health implementation 3. Sustainability in interventions, investments and funding mechanisms 4. Governance structures and oversight mechanisms 5. Integration of information architecture and systems for effective, safe, sharing of Health information 6. Digital applications and health services 7. Physical and network infrastructure, and connectivity 8. National legislative, policy and regulatory frameworks for digital health 9. Technical capabilities and support mechanisms 10. Digitisation of health (promotion, healthy living) 11. Security and confidentiality (ethics, respect for persons, human rights) 12. Monitoring and evaluation of digital health services 13. Resource flows

Table 3: National Priorities list in Research for Health

Broad area of challenge	Specific priority area	Key focus areas for research
Burden of Disease	COVID-19	1. Novel diagnostics to inform better strategies for prediction, prevention, detection, and control of pandemic diseases. 2. Epidemiology of COVID-19, focusing on past and current trends, drivers of transmission and severity, and epidemiological research gaps. 3. Genomic sequencing to rapidly identify emerging viruses and develop tools. 4. SARS-CoV-2 at the human-animal interface. 5. Research on public health and social measures and their impact. 6. Progressing on the public health research agenda for managing infodemics 7. Social science in outbreak response: placing communities at the centre of health emergency. readiness and response. 8. Infection prevention and control research during the pandemic: Pointing to an opportunity for saving lives and money. 9. Ethics and research. 10. Vaccines Research and development priorities. 11. Outbreak research response centred around the patient. 12. Research and development for treatments of hospitalised patients. 13. Critical needs for outpatients and for the design of outpatient therapeutic trials. 14. Regulatory science and convergence between national regulatory authorities. 15. Access and intellectual property.
Burden of Disease	HIV/AIDS AND TB	1. Identify and implement effective interventions to prevent the spread of HIV/AIDS and TB. 2. Assess the epidemiology, treatment and prevention of multidrug resistant and extensively drug-resistant TB. 3. Assess the interaction of HIV/AIDS and TB with noncommunicable diseases such as diabetes, cardiovascular disease and mental health. 4. Develop safer and more effective vaccines for HIV infection and TB. 5. Develop new anti-TB drugs to reduce treatment duration and improve completion rates. 6. Develop rapid, reliable, accessible, point of care diagnostic methods for TB. 7. Monitor the uptake and outcomes of treatment for HIV/AIDS and TB. 8. Monitor the presence, concentrations and implications of ARV's and other pharmaceuticals in water, wastewater and food.
Burden of Disease	Non-communicable diseases (NCDs), communicable diseases	1. Acquiring accurate statistical data on the causes of death in South Africa to define the status quo.

Broad area of challenge	Specific priority area	Key focus areas for research
	other than HIV/AIDS and TB, trauma, and social determinants of health.	2. Acquiring accurate data on the prevalence and incidence of NCDs in the population through active case finding and surveillance systems (including wastewater) 3. Understanding the barriers to translation of existing evidence into policy and existing policy into implementation, including 4. Assessing where and why existing health policies are not being implemented 5. Assessing whether known interventions are being made and whether they are working effectively in different provinces/districts 6. Strengthening health promotion and disease prevention through: • Identification and validation of diagnostic and prognostic biomarkers of NCDs to enable early screening for disease and monitoring of treatment responses • Identification of environmental and genetic risk factors of disease, including identification of gaps in knowledge on the social, cultural and economic determinants of disease in South African populations • Identification of the barriers to healthy behavioural choices by individuals, and the potential impact of community-driven health interventions. 7. Prevention of violence and injury. 8. Develop and evaluate models of primary health care – a model for integrated care is needed, with identification of the factors that will enable its implementation at scale. This should make use of lessons learnt from HIV care. Important issues that need to be researched include task shifting, methods for enhancing adherence and the role of e-health 9. Inter-sectoral and multidisciplinary research to understand and influence the macro-economic and social determinants of NCDs and exposure to NCD risk factors. This is important to guide inter-sectoral action at district level. 10. Develop and evaluate school related interventions to promote healthy lifestyles. It is particularly important to find effective methods to influence future generations. 11. Identify best-buys for prevention, health promotion and treatment and care. The evidence base needs to be synthesised and evaluated in the South African context. There is an urgent need to review policies that will prevent or exacerbate NCDs, to monitor progress and effectiveness of these policies, and identify gaps in the policies to promote healthy lifestyles and prevent NCDs. 12. Implementation research is essential with rigorous evaluation of roll-out of interventions. 13. Innovative research to develop low-cost screening and intervention approaches as well as medicines and vaccines is needed

Broad area of challenge	Specific priority area	Key focus areas for research
Burden of Disease	Maternal mortality	1. Determine the impact of social determinants related to maternal death. This necessitates collaboration with experts (water, education, housing, nutrition, electricity) to ascertain minimum standards. 2. Ascertain the quality of maternal services (antenatal care, reproductive education, postnatal care). 3. Review the implementation programme in specific districts of the 'ten recommendations' arising from the Saving Mothers report. 4. Ascertain how the District Health Information System (DHIS) data may be strengthened (maternal death registration).
Burden of Disease	Child mortality	1. Better understanding of neonatal infections (representing 1/3 of deaths) 2. Ascertain the HIV profile in children <5 years (pattern might have changed following the widespread use of anti-retroviral drugs) 3. Determine the impact of vaccines – particularly on diarrhoea and acute respiratory infections in children <5 years 4. Ascertain why 40% of deaths occur outside of healthcare facilities.
Health System	Governance & Leadership	1. Review of what can be learned from experiences of provincial governance of relevance to UHC 2. Clinic committees and hospital boards 3. Measurement of patient and social preferences 4. Incorporating more democracy and openness into governance 5. Monitoring governance and leadership in the health system 6. The key role of governance and leadership in nurturing the software of health systems (see cross-cutting issues above) and enabling health system learning 7. The distributed and collaborative nature of governance and leadership required in health systems 8. Ethical leadership
Health System	Human resources for health	1. Performance evaluation structures and processes with accountability for delivery 2. Leadership accountability, with action on incompetence, racism and illegal behaviour 3. Position of health worker unions and professional bodies on NHI and health reform 4. Review of workloads in public sector and private sector recruitment practices 5. Linking HRH to socio-economic development (human capacity index) 6. HRH management e.g. efficient filling of posts, career pathing, retention 7. Models of consultation with health providers on policies and research 8. Training and mentorship of health workers to develop critical thinking, engagement with data, problem-solving ethos

Broad area of challenge	Specific priority area	Key focus areas for research
		9. Topics seen as important from the individual experiences of group participants 10. Understanding healthcare worker (HCW) dissatisfaction, mental health and burnout 11. Community health workers: role, recognition, maximising impact in the community, and relationships with other members of the team
Health System	Financing	1. Address all aspects of financing: collection, pooling and allocation of funds, strategic purchasing of services, provision of services 2. Rapid evaluation of realistic NHI financing arrangements within the current context 3. Evaluate the popularity of priority setting mechanisms such as citizens' juries or the like 4. Capacity for financial management, especially at district level, to enable flexible alignment of budgets and planning 5. Tariffs, including how tariffs are set
Health System	Service delivery	1. Service and benefit packages: designing and evaluating the benefit package (services included) for UHC; evaluating the approach towards benefit package design and health technology assessment; core services we need to deliver; how to expand these; and cost implications 2. Balancing affordability and equity and rationalising clinical guidelines, Essential drug list (EDL), diagnostic and equipment choices. Identify areas for disinvestment 3. Practices of policies created centrally and sent down to facility managers with no extra resources. Budgets required need to be assessed and areas for investment and disinvestment identified. This will allow us to see the opportunity costs of our choices and will force us to make the tough choices at a central (or provincial) level instead of making clinicians the ones that ultimately are responsible for implicit rationing and poor quality of care. 4. Include environmental health as an explicit component of service delivery 5. Develop a toolkit with provinces on how to deliver services drawing on medical school and specialist expertise and existing guidelines and manuals, 'turn around' district initiatives 6. Identify and document best practices of service delivery 7. The impacts of supply chains on service delivery
Health System	Quality	1. Develop and validate quality measures suitable for resource constrained settings 2. Understand the extent and causes of variations in quality 3. Assess equity of quality care across dimensions of vulnerability, including setting of care, demographics, and disease type 4. Analyse the effect of quality care on health, confidence, and economic outcomes, including patient-reported outcomes, demand for health care and bypassing, health system waste, and catastrophic and impoverishing expenditures

Broad area of challenge	Specific priority area	Key focus areas for research
		5. Test the effect of innovations in the preservice education of health professionals on delivery of competent and respectful care 6. Evaluate effects of quality-centred health service design on health, user experience, equity of care, and health system function 7. Explore individual and combinations of interventions to generate community demand for quality, including dissemination of locally relevant information and innovations that use new technologies 8. Refine the best design for district-level learning strategies (eg, quality improvement collaboratives and other approaches) 9. Analyse the effects of legal, performance, and social mechanisms to promote accountability in low-income and middle-income countries 10. Test management innovations and intrinsic and extrinsic approaches to motivate providers 11. Measure the costs and cost-effectiveness of improvement approaches and their sustainability
Health System	Information & intelligence	1. Integrated electronic health records that work across primary, secondary and tertiary care levels 2. Linking laboratory and facility information systems – a fully functional, well maintained information system for obtaining blood results and other tests reports that works for primary health care settings, especially blood results 3. User Experience Design 4. Issues of access to data 5. Value all forms of knowledge: multiple perspectives, views of staff and patient experiences to be includes and valued as legitimate forms of data, and not dismissed as anecdote 6. Patient held records & self-management tools
Health System	Equipment	1. Standardisation of equipment in specialised units 2. Managing corruption 3. Research on best practice, leadership and systems thinking skills for procurement teams who are compliance driven and not shown the clinical impact of supply chain delays 4. Continuing education and information updates on technological advances relevant to the field
Global, planetary and national catalysts and contextual processes	Health implications associated with rapid/dramatic change (i.e. pandemics, a VUCA (volatile, uncertain, complex & ambiguous) world, the Fourth	1. Understand the health impacts and health services implications of major global and local events and processes, including social unrest and volatility, and identify and characterise communities and people at greatest risk 2. Assess the individual, synergistic and cumulative health effects of major global and local events and processes, including extreme weather events (drought, floods, heat waves, wildfires) associated with climate change

Broad area of challenge	Specific priority area	Key focus areas for research
	Industrial Revolution (4IR), climate change, extreme poverty, inequality, social unrest)	3. Identify and develop potential societal and behavioural responses (including early warning systems, resilience and adaptation) to health risks from major events and processes 4. Evaluate a systems approach to health, including One Health (people, animals, plants and environment) and zoonotic diseases 5. Explore the opportunities and concerns associated with 4IR in terms of burdens of disease, health systems, data management and intelligence, cost efficiencies/effectiveness and other relevant factors

Table 4: Consolidated Provincial Health Research Priorities

Broad area of challenge	Specific priority areas/themes	Key focus areas for research
Burden of disease	Communicable Diseases	1. COVID-19 2. HIV/AIDS and TB 3. Malaria 4. Diarrheal diseases 5. Pneumonia 6. Rabies
Burden of disease	Non-communicable Disease	1. Diabetes 2. Hypertension 3. Cancer
Burden of disease	Violence and injury	1. Intentional injuries (including homicide from sharp object, firearm, and blunt force) 2. Road traffic injuries (including transport accidents of cyclist, passengers, and drivers)
Burden of disease	Mental Health	1. Suicide 2. Substance abuse 3. Anxiety disorders 4. Mood disorders 5. Depression
Burden of disease	Maternal Child Health	1. Sexual and reproductive health 2. Teenage pregnancy

Broad area of challenge	Specific priority areas/themes	Key focus areas for research
		3. Prevention of Mother to child HIV transmission 4. Maternal and neonatal mortality
Burden of disease	Social determinants of disease	1. Intersectoral collaboration 2. Traditional Medicine 3. Health inequality 4. Environmental Health (i.e air and water pollution) 5. Nutrition
Health Systems	Service delivery	1. Referral systems 2. Interfacility patient transport 3. Emergency medical services
Health System	Supply chain	1. Pharmaceutical Management 2. Procurement of Health and medical supplies management
Health System	Human resources for health	1. Organizational management system 2. Capacity building in health services, salaries, benefits and non-financial incentives 3. Staff retention strategies 4. Employee wellness
Health System	Infrastructure	1. State of health facilities
Health System	Quality	1. Utilization of health facilities in rural and urban areas 2. effective model for the compliments -complaints system 3. PHC-Re-engineering 4. Ideal clinic status

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