Centre for Intervention Science in Maternal and Child Health (CISMAC)

Strategic Directions 2015-2023

Vision: Improved maternal, newborn and child health in low and middle-income countries.

Mission: To create and support a sustainable global network of institutions and individuals who carry out high-quality research to develop and test the delivery of interventions to improve maternal, newborn and child health in low-and middle-income countries, and translate the results into policy and practice.

Strategy: Through its network, CISMAC will enhance the quantity and quality of evidence on interventions that improve maternal, newborn and child health and that reduce inequities in LMICs, by:

--conducting and supporting cutting-edge research
--creating mechanisms for sustained and expanded collaboration
--strengthening research capacity and leadership
--influencing policy and programme action.

I. Introduction: how was CISMAC conceived and how is it evolving?

The creation of CISMAC, led by the Centre for International Health (CIH) at the University of Bergen (UiB), was based on extensive cooperation between a group of institutions in Norway, Africa and South Asia and the World Health Organization (WHO). Since its creation, CISMAC has provided a platform that links institutions and supports research. Projects are funded by multiple sources, building on the initial funding provided by the Research Council of Norway (RCN) and UiB.

While CISMAC aims to continue to grow in excellence, it also aims to become a sustainable international consortium of institutions. It prioritizes strengthening research skills and capacity in partner institutions. Sustainability and high quality are facilitated by its anchor at the UiB and its close collaboration with the WHO.

The focused collaborative work of CISMAC will contribute to improving maternal, newborn and child health (MNCH) in LMICs. Attention will be paid to the special needs of priority age groups, including newborns and adolescents, in the context of pre-conception, pregnancy and childbirth. The types of studies supported and carried out by CISMAC are closely aligned with the research actions set out in the UN Secretary-General's Global Strategy for Women's, Children's and Adolescents' Health 2016-2030, [1] launched in September 2015. The UN strategy urges the international community to invest in a wide range of research, prioritizing local needs and capacities, to link evidence to policy and practice, to invest in and nurture the cycle of research, evidence, knowledge, policy and programming, and to test and take innovations to scale. The work is also closely aligned with the recently-adopted Sustainable Development Goals (SDGs), which provide new impetus for increased attention to the crucial issues and barriers to improving the health of women, children and adolescents.

[1] http://www.who.int/life-course/partners/global-strategy/global-strategy-2016-2030/en/

II. What is CISMAC, and how is it unique?

CISMAC is a global network of institutions, organizations and individuals who undertake high-quality research to develop interventions to improve maternal, newborn and child health and to test their delivery at a large scale, and whose aim is to see the results translated into policy and practice.

CISMAC aims for excellence in:

- high-quality cutting-edge intervention research
- translation of research results to influence country policy and programme activities
- network creation and maintenance
- capacity-strengthening and leadership development for intervention research

By integrating capacity strengthening, research and institutional commitment, CISMAC aims to be a leading centre for international MNCH research. CISMAC represents a unique opportunity for interaction among Norwegian and LMIC institutions and researchers and international agencies. This mix of competencies provides the expertise and infrastructure to carry out studies, including those on a large scale that would be beyond the reach of a single research group.

CISMAC evaluates new interventions and improvements of existing interventions, and assesses their delivery in diverse epidemiological, socio-cultural and health system settings. It will identify, develop and employ state-of- the-art intervention research methods, and further global knowledge on MNCH interventions and their delivery. This will help meet the need for studies that measure the individual or combined effectiveness, cost-effectiveness and impact on equity of effective interventions implemented under programme conditions. Such information is crucial for putting evidence into practice. CISMAC also identifies and describes risk factors for MNC ill health which, when modified, may improve maternal and child health and development.

Given its composition, CISMAC is able to facilitate studies in multiple contexts, particularly in sub-Saharan Africa and South Asia, the regions with the largest global burden of ill-health. Its studies will contribute to the development of interventions that can be effectively implemented in such contexts. The relationship with WHO provides CISMAC with access to an expanded international network of experts and health policy-makers – bringing in technical resources, global priority questions, and an understanding of needs for guideline development and opportunities for policy-dialogue.

CISMAC will open new opportunities for PhD students, post-doctoral fellows and other young researchers who will acquire experience in conceptualizing, designing, implementing, analyzing and reporting on intervention studies. Hands-on research and supportive monitoring will instil the confidence required to work under difficult, resource-limited conditions, thereby increasing the research capacity in LMIC institutions and other consortium members.

CISMAC aims to influence global and national MNCH programmes through rapid translation of its research findings into policy and practice. To do this it will, together with WHO, engage with experts also from other agencies during project planning and implementation. It will also ensure the early active involvement of stakeholders, including LMIC governments, in the generation and use of evidence.

CISMAC's work will strengthen Norway's engagement and capacity to improve MNCH in LMICs. The evidence generated in close interaction with WHO and local governments will inform Norwegian development policy in the area of MNCH, adding value by increasing the health returns of Norway's substantial investment. It will also contribute to the capacity of

Norwegian universities and research institutions to develop and support innovative research projects that respond to priority MNCH issues.

CISMAC is committed to gender equality. Five of six studies with substantial CISMAC funding have female Principal Investigators (PIs), selected for their competence and dedication. Despite this imbalance, CISMAC intends to refrain from actively recruiting male PIs. The Executive Committee of three men and one woman (CISMAC Deputy Director) is tasked to safeguard a continued gender-equity recruitment strategy. CISMAC's key administrative personnel comprises five women. To maintain CISMAC's excellent track record, it will continue to review gender balance at the time of developing announcements for new positions and take any further necessary action at the time of selection for vacant posts.

III. What has CISMAC chosen to do? (What does it produce and why?)

a. Conduct and support cutting-edge research that will be useful to programmers and policy makers

CISMAC develops new and evaluates existing interventions, and explores how to make them more effective and feasible to implement on a large scale. Research supported by CISMAC produces results for use by policy makers and implementers in the short as well as in the longer term.

What are the markers of success for conducting and supporting research?

- The publication of articles in high-impact journals that substantially advance MNCH intervention science, both with respect to content and methods;
- The inclusion of policy and programme decision-makers of LMICs in the conception and implementation of research;
- The engagement in ongoing discussions at the interface between science and policy formulation, at conferences, in international fora of influence and in LMICs.

What challenges does CISMAC face in conducting and supporting research?

- Limited resources (technical and financial, exacerbated by fluctuating exchange rates)
- Time required for intervention evaluation and demonstration of impact on policy, a process that tends to be long

Section IV of this document describes CISMAC's research strategy in greater detail.

b. Ensure that research results are used in developing policy and implementing new practices

CISMAC builds translational thinking into its research by addressing how to use study findings to influence policy and programming, so that the results can be applied soon after they are available. It engages with policy-makers from the conception of a research effort to ensure they see the value of --- and continue the demand for -- intervention research. CISMAC will contribute to the synthesis of available evidence on a particular topic, including but not limited to that generated by CISMAC. It will convene international technical meetings around particular topics.

What are the markers of success for translation of results?

- Participation of CISMAC collaborators in national and international policy-making bodies/meetings
- Findings of research supported or summarized by CISMAC reflected in policy and programme action

What challenges does CISMAC face in translating results into policy and practice?

- Lengthy process required at institutional and country levels for putting guidelines into practice: advocacy, decision-making, development of new or revision of existing guidelines and training materials, communication, training, logistics (if relevant)
- Lack of continuity / frequent changes among responsible counterparts in LMICs
- Need for dialogue among multiple diverse sectors and actors in LMICs
- Conflicting spheres of interest (public, private, not-for-profit, academia)

c. Build and sustain networks of research institutions

CISMAC's current core network consists of institutions in six LMICs (Ethiopia, India, Nepal, South Africa, Uganda and Zambia), as well as the NIPH in Oslo, the Centre for International Health in Bergen, the CMI, and WHO. The CISMAC Strategic and Scientific Advisory Committee brings additional perspectives including from UNICEF and from the Bill & Melinda Gates Foundation.This extended network represents a strong partnership among Norwegian institutions and the international scientific community, including LMIC research institutions, for generating ideas, and for developing, supporting and conducting relevant research. The collaboration has grown in relation to the numbers and types of studies with which CISMAC is involved. The network will continue to evolve in the interest of developing teams in diverse settings capable of conducting research on priority topics, ensuring excellence in implementation, and translating findings into policy and implementation action.

What are the markers of success for maintaining the network?

- Development and funding of joint projects
- Joint publications of methods and results
- Face-to-face and electronic meetings (phone, video, etc.) of network partners
- Joint courses, lectures, and on-line seminars performed by researchers in partner countries

What challenges does CISMAC face in maintaining the network?

- Limited south-south collaboration included in current CISMAC projects
- Restricted availability of funds and personnel time

d. Strengthen capacity in research and in leadership

The development of skills needed for research and for leadership is a fundamental activity that sets CISMAC apart from other consortia that focus solely on research.

CISMAC fosters the capacity of young researchers to conduct relevant and high quality research. It does so by integrating them into research work starting with identifying research priorities, defining the study concept, and following on to project development, implementation and evaluation. CISMAC also

aims to promote the development of leadership skills among staff in the network of institutions in LMICs and in Norway.

The CISMAC experience will include strengthening skills on critical thinking and idea generation, in addition to research methods, data analysis and scientific writing. CISMAC aims to develop a critical mass of four to six researchers in each partner institution, who will be able to support each other in becoming sustainable Groups of excellence.
CISMAC will ensure that efforts to strengthen capacity address:

Strengthening the capacity of institutions	and	Strengthening the capacity of individuals
Fostering the interest and capacity of people in specific positions of responsibility and decision-making to support institutional growth	and	Bringing in new researchers, expanding the pool of skills and improving the quality of teams
Ensuring that people with strong implementation background learn key research skills and critical thinking	and	Ensuring that people with strong research background learn key implementation skills
Short-term capacity strengthening	and	Longer-term capacity strengthening
Technical skills (research design and data analysis)	and	Critical thinking about programme delivery

Strengthening the research capacity of senior staff in countries and institutions will promote policy and political engagement. For leadership development, CISMAC will also target senior faculty; this approach will require shorter-term investments and a clear focus on their intended roles and results.

Strengthening the research capacity of young investigators will allow an involvement over sufficient time to enable increased opportunities for study implementation and sustained skills at the institutions supported. Thus CISMAC will mainly target PhD students and postdoctoral fellows (young upcoming faculty members) in the network of partner institutions in LMICs and in Norway. It will facilitate exchange among research teams and create a pipeline of young principal investigators.

Targets for building capacity include senior research staff and faculty, PhD students and post-doctoral fellows and junior research staff.

CISMAC approaches for strengthening capacity include:

--Arranging workshops/meetings on topics of central relevance and importance to two or more CISMAC studies.

--Holding short courses of a defined CISMAC brand, for example "CISMAC summer school of intervention research".[2]

--Promoting close interaction, possibly one-on-one (as mentoring) between experienced and less-experienced researchers for the generation of ideas, the conceptualization, planning and implementation of research projects, the analysis of data and the development and publication of papers.

--Providing opportunities for further capacity development for experienced researchers.

--Supporting exchange of trainers between research sites.

--Creating groups to allow researchers to meet, exchange experiences and interact in other ways to learn from one another.

What are the markers of success for capacity development?

- Short-term: Numbers of people having participated in CISMAC/CIH-organized training activities, and working in priority areas. In five years' time, all collaborating centres will have investigators capable of conceptualizing and developing MNCH implementation research studies.
- Longer-term: number of Masters and PhDs completed
- Longer-term: institutional groups of excellence created for research on maternal, newborn and child health
- Development of a CISMAC "brand" to make the training opportunities desirable and attractive (what is the significance of being a CISMAC fellow? How is this recognized?)
- Number of CISMAC trained young scientists with articles published in peer-reviewed journals
- New resources generated for research implementation and institutional sustainability

What challenges does CISMAC face in developing capacity?

- Availability of good mentors
- Recruiting the right young people, considering both the available talent and the likelihood of contributing to institutional growth over the longer term
- High number of competing tasks among staff in partner institutions (e.g. teaching, supervision and administrative work) may limit the opportunities or availability of talented people to develop their own capacity
- Availability of time and capacity to provide necessary support in developing scientific papers to increase the likelihood of publication in a higher-impact journal
- Resources, especially for short courses and for publishing papers based on available data.

[2] Until resources are available, CISMAC will contribute to strengthen and remould the existing CIH Course in Experimental Epidemiology, renaming it "Health Intervention Science".

IV. What is CISMAC's research strategy?

CISMAC will focus on selected research topics. Its research projects will, as a principle, have their protocols published, include formative research when developing interventions, and have a clear process evaluation component. They will include analyses of cost, cost-effectiveness and equity, both in terms of received health care as well as of health and development outcomes.

All studies will be undertaken in LMICs. If resources become available, CISMAC will support parallel simultaneous studies in LMICs to widen the generalizability of study findings or to unearth possible differences between regions and countries.

CISMAC will primarily consider topics that have been identified by WHO and other partners as global priority questions and have local applicability.

Criteria for judging new studies to be developed will include whether the research questions are:

- consistent with global and national priorities in MNCH
- relevant for national programmes

…and whether the interventions

- are scientifically cutting-edge
- have potential for high impact on morbidity and mortality, and positive effects on growth and development
- are deliverable on a large scale
- have a strong potential to reduce inequities in health

CISMAC will ensure that its research projects are relevant and innovative, and it will support

- thorough and informed intervention development, covering formative research and piloting
- early engagement of stakeholders
- monitoring of implementation
- methods development/evaluation.

Where relevant, CISMAC will:

- Harmonize studies on a particular topic with other studies elsewhere
- Explore synergies with other studies being conducted at the same site(s)
- Carry out observational/descriptive studies when these are appropriate to identify risk factors that can be modified to enhance MNCH
- Fully exploit the opportunities for conducting sub-studies embedded into randomized controlled trials (RCTs), such as analysis of RCT data to derive relevant prevalence and risk estimates, and cohort or case-control analyses to identify risk and prognostic factors.
- As part of its methods development strategy, undertake case-control studies with follow-up in parallel to RCTs to evaluate their ability to estimate adequately the effect of the intervention.

CISMAC will enhance study quality by ensuring the programmatic relevance of research, adequate study design, rigour in study implementation and study ownership by the implementing institutions. Further, multi-and interdisciplinary research will ensure relevance of the intervention and will contribute to translation of evidence into health programme policy and action.

To ensure excellence, CISMAC will provide specific support at strategic points in the research process:

- Definition of study questions
- Development of detailed study protocols
- Confirmation of readiness for implementation
- Monitoring of implementation
- Dissemination of findings

The definition of study questions reflects the analysis of internationally-endorsed lists of priorities and the review by experts and CISMAC's Technical Advisory Group. Study protocols are developed at workshops supported by experts in multiple disciplines. Readiness to begin implementation will be confirmed during a site visit by a monitor. A monitor will accompany study implementation thereafter, through periodic site visits and more frequent electronic contact (calls, emails). CISMAC will promote the establishment of Data Safety and Monitoring Boards (DSMBs) for the interventions trials it supports and will have in place a mechanism for rapid response to study implementation needs identified by investigators, the monitors or the DSMB.

To maximize the learning from studies and make fuller use of its investments, CISMAC will consider the provision of additional resources, either financial or technical, to address relevant questions identified during study implementation or to explore mechanisms of intervention impact. A major effort will be made by CISMAC to maximize the presentation of findings in peer-reviewed journals and to ensure their dissemination at local and international levels.

CISMAC RESEARCH STRATEGIC APPROACHES AT A GLANCE	
Focus on selected topics that are:	Consistent with global priorities or national needs Cutting-edge interventions with high-impact potential
Enhance external validity by:	Conducting parallel studies in different settings Documenting contexts
Invest in intervention development through:	Systematic literature reviews Formative research
Conduct thorough intervention assessment including:	Strong evaluation designs, primarily RCTs Process evaluation Cost, effectiveness, equity and fairness Mechanisms of impact
Ensure quality of studies by:	Protocol development workshops Expert review of protocols Publication of protocols External monitoring of implementation
Maximize cooperation by:	Harmonizing variable definitions Synergy with other studies Using opportunities for sub-studies
Promote programmatic applicability of findings by:	Engaging programme implementers in protocol development Participation of policy-makers in examining findings
Ensure wide communication and dissemination through:	Publication in peer-reviewed journals Policy briefs Electronic media

The future will see a stronger M in CISMAC.

The majority of CISMAC–supported studies have concerned child health; the future will also include a focus on maternal health. An essential question in this area concerns how to improve and sustain the quality of care (QoC) around the time of birth. Improving QoC gives a triple return on investment: improved health of the mother and of the newborn, and reduced risk of stillbirth. This is an opportunity to join with

the efforts of the specialist communities of obstetrics and gynaecology and of newborn care, and to ensure attention to the special needs of adolescents.

CISMAC will address this question by incorporating maternal measures and outcomes into relevant studies and by supporting the development of one study with the primary focus on maternal health.

V. How will CISMAC communicate?

CISMAC has a communication plan that uses platforms such as www.cismac.org, general media, and social media to enhance visibility. Communication products including videos and policy briefs will be developed, and articles will be published targeting the general public. As the communication plan evolves, a particular CISMAC "brand" will be developed and promoted to broaden public and professional awareness and strengthen the name of the consortium.

The communication plan also targets researchers and research institutions through regular updates and events. The internal flow of communication will be systematized and reinforced. CISMAC will nurture a close relationship with a group of visible champions who will help keep its work in the eye of partners and the public.

CISMAC staff and partners participate in international conferences on topic areas and ensure links to relevant global initiatives including the Sustainable Development Goals and the United Nations Secretary-General's Global Strategy for Women's, Children's and Adolescents' Health 2016-2030.

What are the markers of success for communication?

- Publications in high-impact journals on key maternal, newborn, child or adolescent health topics
- Publication of policy briefs
- Regular (annual or semi-annual) interaction with RCN to discuss CISMAC's past, current and future work and the link with other relevant prominent Norwegian initiatives
- Opinion pieces published by thought leaders on selected relevant topics (papers may be generated through meetings and workshops)
- Publication of articles in general media targeting the lay public

What challenges does CISMAC face in its communication?

- Identifying constant and consistent champions within organizations
- Capacity to develop and implement the communication plan
- Resources to support the publication of articles and the meetings needed to generate opinion pieces

VI. How will CISMAC be financed over the longer term?

CISMAC will adhere to its contract with RCN and notify RCN of any budgetary changes required to accommodate study needs. CISMAC seeks complementary funds for its existing studies and uses the resources received from RCN and the UiB to leverage the acquisition of additional financial support. It encourages and assists its scientists to pursue additional funds to support ongoing and future studies, as well as new collaborations that will enhance the quality and scope of its research. These efforts substantially expand CISMAC's portfolio. CISMAC will continue efforts to consolidate existing research activities and to ensure operation beyond 2023.

VII. Final words

This document puts forward the strategic directions chosen by CISMAC to enable it to best support and undertake cutting-edge research, ensure that results are translated into policy and practice for MNCH, and nurture a cadre of strong researchers in partner institutions. The development of these strategic directions represents a significant step in the evolution of CISMAC from a project-based, single-source consortium to a sustainable network supported by multiple funders.

Annex 1: CISMAC's partners

LMIC institutions

- Ethiopia: Addis Ababa University and Hawassa University
- India: Society for Applied Studies, Delhi, and Translational Health Science & Technology Institute, Faridabad
- Nepal: Institute of Medicine at Tribhuvan University, Kathmandu
- South Africa: Effective Care Research Unit, East London Hospital Complex
- Uganda: Makerere University, Kampala
- Zambia: University of Zambia, Lusaka

International and Norwegian institutions

- World Health Organization (Department of Maternal, Newborn, Child and Adolescent Health), Geneva
- Chr. Michelsen Institute (CMI), Bergen
- Norwegian Institute of Public Health (NIPH), Oslo
- The Centre for International Health (CIH) at UiB

The CIH hosts the CISMAC Management. Each research project is led by a small team of senior investigators, including one from the implementing LMIC institution and one from the CIH. This team leads proposal development, fund generation and project implementation.

The Strategic and Scientific Advisory Committee

- Mickey Chopra[3]
- Kåre Mølbak[4]
- Ellen Piwoz[5]

This committee brings perspectives on state-of-the-art of technical issues, on LMIC perspectives, on multi- and bilateral collaboration and international research funding.

[3] World Bank
[4] Statens Serums Institut
[5] Bill & Melinda Gates Foundation

Annex 2: Summary of markers of success and challenges faced

	Markers of success	Challenges
Support and undertake cutting-edge research	• The publication of articles in high-impact journals that substantially advance MNCH intervention science, both with respect to content and methods • The inclusion of policy and programme decision-makers of LMICs in the conception and implementation of research • The engagement in ongoing discussions at the interface between science and policy formulation, at conferences, in international forums of influence and in LMICs	• Limited resources (technical and financial, exacerbated by fluctuating exchange rates) • Time required for intervention evaluation and demonstration of impact on policy (a process that tends to be long)
Translate results to policy and practice	• Participation of CISMAC collaborators in national and international policy-making bodies/meetings • Findings of research supported or summarized by CISMAC reflected in policy and programme action	• Lengthy process required for changes in policy and in practice (decision-making, guideline development, communication, training, implementation) • Lack of continuity among responsible counterparts in LMICs (frequent changes) • Need for dialogue among multiple diverse sectors and actors in LMICs • Conflicting spheres of interest (public, private, not-for-profit, academia)
Build and sustain networks	• The development and funding of joint projects • Joint publications of methods and results • Face-to-face and electronic meetings (phone, video, etc.) of network partners • Joint courses, lectures, and on-line seminars performed by researchers in partner countries	• Limited south-south collaboration included in current CISMAC projects • Restricted availability of funds and personnel time

	Markers of success	Challenges
Strengthen capacity in research and leadership	• Short-term: Numbers of people having participated in CISMAC/CIH-organized training activities, and working in priority areas. In five years' time, all collaborating centres will have investigators capable of conceptualizing and developing MNCH implementation research studies. • Longer-term: number of Masters and PhDs completed • Longer-term: institutional Groups of excellence created for research on maternal, newborn and child health • Development of a CISMAC "brand" to make the training opportunities desirable and attractive (what does it 'mean' to be a CISMAC fellow? How is this recognized?) • Number of CISMAC trained young scientists with articles published in peer-reviewed journals • New resources generated for research implementation and institutional sustainability	• Availability of good mentors • Recruiting the right young people, considering both the available talent and the likelihood of contributing to institutional growth over the longer term • High number of competing tasks among staff in partner institutions (e.g. teaching, supervision and administrative work) may limit the opportunities or availability of talented people to develop their own capacity • Availability of time and capacity to provide necessary support in developing scientific papers to increase the likelihood of publication in a higher-impact journal • Resources, especially for short courses and for publishing papers based on available data.