



ANNUAL REPORT 2015



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FROM THE EXECUTIVE COMMITTEE

CISMAC's mission is to create a sustainable global network of institutions and individuals who carry out high-quality maternal, newborn and child health (MNCH) intervention research in low and middle income countries. We develop and test interventions, and help translate into policy and practice those that are effective, thereby fostering MNCH and survival and child development.

In 2015, CISMAC scientists focused on finalizing formative research, protocols and instruments, and on obtaining ethical approvals. One of the studies started the recruitment of participants. Following advice from our Strategic Scientific Advisory Committee, we developed strategic directions to guide CISMAC's prioritizations and further development.

The volume of publications increased considerably in 2015. Among other papers, CISMAC scientists co-authored three important review articles about breastfeeding that appeared in *Acta Paediatrica* and the *Lancet* series on breastfeeding (the latter was published in January 2016).

One of our studies obtained substantial additional funding from the GLOBVAC program. In addition, we expanded our study portfolio with two studies based at the Norwegian Institute for Public Health. The first study, "Interactive checklists within an electronic health registry in Palestine", will evaluate structured checklists as part of new electronic health registries in antenatal care. It receives the bulk of its funding from the European Research Council (ERC) and the Research Council of Norway's GLOBVAC program. The second study, the GLOBVAC-funded "Strengthening the extension of reproductive, maternal, neonatal and child health services in Bangladesh with an electronic health registry", will assess the benefits of an electronic tool-kit for improving collection and use of health information to benefit women's and children's health. You can read more about these studies on page 12.

Bergen, Geneva and New Delhi, March 27th, 2015



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STRATEGIC DIRECTIONS

IMPROVED HEALTH FOR WOMEN AND CHILDREN

CISMAC's vision is *"Improved maternal, newborn and child health in low and middle-income countries"*.

Following advice from the Strategic Scientific Advisory Committee (SSAC), in 2015, CISMAC developed a set of strategic directions to guide its future priorities and further development. Through a process starting with a meeting with SSAC members and relevant experts from the World Health Organization (WHO), continuing with involvement of partners and researchers and concluding with the Board's approval, a strategy document was developed (find it on cismac.org). In the following sections we present some of the main features of CISMAC's strategic directions.

CISMAC's strategy is to enhance the quantity and quality of evidence on interventions that improve maternal, newborn and child health and that reduce inequities in low and middle income countries (LMICs), by:

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

WHAT IS CISMAC AND HOW IS IT UNIQUE?

By integrating capacity strengthening, research and institutional commitment, CISMAC aims to be a leading centre for international MNCH research. CISMAC evaluates new interventions and improvements of existing interventions, and assesses their delivery in diverse epidemiological, socio-cultural and health system settings. 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.

CISMAC aims to influence global and national MNCH programs through translation of its research findings into policy and practice. Together with the WHO, we will engage with experts also from other agencies during project planning and implementation. We will also ensure the early 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.

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

WHAT DOES CISMAC DO?

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

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 convenes and contributes to international technical meetings addressing particular topics.



THE DEVELOPMENT OF SKILLS
NEEDED FOR RESEARCH AND FOR
LEADERSHIP IS A FUNDAMENTAL
CISMAC ACTIVITY

CISMAC builds and sustains a network 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 Norwegian Institute of Public Health in Oslo, the Centre for International Health and the Chr. Michelsen Institute (CMI) in Bergen, and the WHO. Its SSAC brings additional perspectives including from the World Bank and from the Bill & Melinda Gates Foundation. The network will continue to evolve in the interest of developing teams in diverse settings capable of conducting high quality MNCH research, ensuring excellence in conceptualization, implementation and analysis, as well as when translating findings into policy and action.

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:	Documenting contexts
Invest in intervention development through:	Systematic literature reviews Formative research
Conduct thorough intervention assessment including:	Strong evaluation designs, primarily randomized controlled trials 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

A CENTRE WITHIN THE CENTRE

CISMAC evolved from the Centre for International Health (CIH) and its collaborators. These two units continue to work closely together. CIH is home to CISMAC's central administration and several of the CISMAC researchers. The research activities of the centres are integrated and complementary.

Through research and teaching, CIH aspires to improve health for poor populations. CISMAC contributes to fulfill this vision. CISMAC undertakes research to generate knowledge that will contribute to improve health and survival of mothers and children in Asia and Africa. CISMAC is a pivotal addition to CIH in its quest to foster excellent research in international health.

Bergen March 14th 2016



Bente E. Moen

Bente E. Moen,
Director, CIH



BCG VACCINATION AND CHILD SURVIVAL

In 1990, child mortality in Mbale, a district in Eastern Uganda, was nearly 15% (147/1,000 live births). In 2015 it had dropped to around 10%. While this reflects a substantial progress, the risk of early childhood death in this area remains unacceptably high.

Efforts to enhance child survival focus on saving children from deaths due to preventable causes. This can be achieved in various ways, including identification and implementation of effective child survival interventions such as vaccination against common childhood diseases.

In Uganda, children are scheduled to receive BCG as soon as possible after birth, during their first contact with the health services, to protect them against severe forms of tuberculosis (TB). Studies in other countries, such as Guinea Bissau, Senegal and Malawi, have indicated that in addition to protecting children from severe TB, administration of the BCG vaccine may also have non-specific effects on childhood morbidity and mortality. Unfortunately, there is little research describing these effects.

To investigate the issue more closely, CISMAC researchers and colleagues undertook a community-based cohort study to estimate the effect of BCG vaccination on the risk of death in children less than 5 years of age in Mbale. The study was done as part of the larger cluster-randomised PROMISE EBF intervention trial lead by Prof Thorkild Tylleskär. A total of 819 babies were included in this cohort study, and 83% were followed from birth until death or till their 5th birthday.

Although there was a strong association between receiving BCG and surviving the first month of life (the neonatal period), the researchers excluded this finding from the analysis, because they could not rule out that BCG was deliberately withheld from severely ill babies. But even in infancy beyond the neonatal period there tended to be increased survival among the babies who had received BCG. Children between 1 and 4 years of age had a significantly higher survival probability than those who had not received the vaccine. This was an observational study and the authors concluded that, despite all attempts to adjust for possible confounding variables, such confounding could not be ruled out and randomized controlled trials are needed to adequately address this important issue. This conclusion is in complete alignment with the WHO's view, and CISMAC scientists have been called in as experts to advise the WHO on how to develop protocols for such trials.

WILL DELAYING BCG VACCINATION IN HIV-EXPOSED INFANTS CHANGE THEIR RISK OF SEVERE ILLNESS DURING INFANCY?

So it seems that BCG vaccination may protect infants against several serious infections, not only against tuberculosis. On the other hand, infants, especially those born to mothers who are infected with HIV (so called HIV-exposed infants), may respond better to BCG if vaccination is deferred for several weeks. WHO guidelines for children not infected with HIV state that BCG should be given as soon as possible after birth, while HIV-positive infants should not receive the vaccine because these babies have an increased risk of disseminated BCG disease. These guidelines are difficult to implement in many low and middle income countries because infant HIV infection is usually identified several weeks after birth. Some countries, including Uganda, have decided that all HIV-exposed infants should receive BCG at birth, including those few who are yet to be diagnosed with the infection.

Our trial in Uganda will estimate the effect of delaying BCG vaccination of HIV-exposed babies until 14 weeks of age. The principal investigator of this study, Dr. Victoria Nankabirwa (picture), describes to us the nature of the study and the plans for the randomized control trial.

WHY DID YOU CHOOSE TO STUDY THE TIMING OF BCG VACCINATION IN HIV-EXPOSED BABIES?

There has been a substantial increase in the number of HIV-exposed babies as a result of the extensive rollout of antiretroviral treatment of pregnant HIV-positive women to prevent mother-to-child transmission of HIV coupled with stagnating or increasing adult HIV prevalence in some LMICs. Unfortunately, these babies are more likely to suffer from serious illnesses, be resistant to treatment and to die in comparison to children in the general population. It is possible that a well-timed BCG vaccine could have non-specific beneficial effects and protect these babies from being severely ill from otherwise common childhood illness such as pneumonia.

However, the most appropriate timing of BCG vaccination among these babies that could maximize these non-specific effects is not known. By comparing different vaccine timings, our trial may identify the best age at which the vaccine should be given and thereby contribute to protect these vulnerable babies from severe illness.

HOW MANY BABIES WILL BE RECRUITED FOR THIS STUDY?

The randomized controlled trial will enroll almost 2,200 HIV-exposed babies

HOW ARE YOU PREPARING FOR THE TRIAL?

The study team has completed a number of preparatory activities. These include obtaining all the necessary regulatory approvals from the School of Medicine Research and Ethics Committee (SOMREC), the National Council of Science and Technology, and The National Drug Authority in Uganda as well as the Regional Committees for Medical and Research Ethics (REC) in Norway. The team has engaged multiple stakeholders in academia, local and global health organizations, including the WHO, and engaged with the Ministry of Health in Uganda. We strongly believe that engaging these stakeholders from study outset will foster study ownership and ultimately hasten uptake of useful study results. Plenty of time has been devoted to the development of high quality instruments and standard operating procedures with the aim of conducting a study that is of high scientific integrity. The team is now in the process of setting up the three study sites at three health centers in Kampala and Mukono districts as well as hiring and training key study staff.

HOW DO YOU THINK THIS STUDY CAN CONTRIBUTE TO FORMULATE POLICY ON BCG VACCINATION IN UGANDA AND ELSEWHERE?

We hope our study will provide crucial information on: 1) the most appropriate timing for the BCG vaccine that maximizes any non-specific beneficial effects of the vaccine, such as a reduced occurrence of severe illness from malaria, pneumonia and diarrhea and 2) the costs and cost-effectiveness of such vaccination. This information, could, in-turn, inform policy for the best timing of BCG vaccination of HIV-exposed infants. Moreover, the study has a proactive dissemination plan for key stakeholders that will facilitate rapid uptake of findings both nationally and internationally.



ADDITIONAL FUNDING FOR CISMAC STUDIES

EDUCATION AND EMPOWERMENT OF GIRLS TO REDUCE ADOLESCENT CHILDBEARING IN ZAMBIA

Our study in Zambia, «Research Initiative to support the empowerment of adolescent girls» was granted NOK 25 mill by the Research Council of Norway's (RCN's) GLOBVAC program. The Study aims to prevent adolescent childbearing through economic and social empowerment of young girls in rural Zambia. The collateral funding enables the team to embark on a cluster randomized study with three study arms (two intervention and one control arm). In one of the intervention arms, girls and their families will receive economic support, partly directed to support schooling. In another arm, in addition to providing such support, we will organize community dialogue and youth meetings about early childbearing, early marriage, the benefits of education and the empowerment of girls. Educational attainment and the occurrence of adolescent pregnancies in the three arms will be compared. We expect that the findings of this trial will be important to inform new policies to foster girls' education and reduce the risk of teenage pregnancies.

IMPACT OF PROMOTING COMMUNITY-BASED KANGAROO MOTHER CARE FOR LOW BIRTH WEIGHT INFANTS

This study will estimate the mortality impact of promoting Kangaroo Mother Care in the community. The study team was granted collateral funding from Grand Challenges Canada, which enabled the team to assess the first 550 children enrolled in the study for psycho-motor development. The mothers of these babies are being assessed for maternal depression and the team is also measuring bonding between the mothers and the babies. To enroll them as soon as possible after birth, a team has been allocated to follow up pregnant women in the target population. The intervention has been well received by the families and a high proportion of babies and mothers are being successfully followed up.

IMPROVING LINEAR GROWTH AND DEVELOPMENT OF CHILDREN IN LOW INCOME SETTINGS

Despite the last decades' impressive gains in preventing and treating important illnesses and thereby improving child survival, the growth and development potentials of children in many LMICs are far from met. Despite decades of research efforts, specific interventions that improve nutrient intake or prevent or treat infections are, somewhat surprisingly, not translated into significantly enhanced linear growth and development. There is an increasing understanding that if the growth and developmental potentials of children are to be met, improvements in various dimensions throughout the life cycle are required. The WHO and our partners the Society for Applied Studies have invited CISMAC to participate in a study to examine the effects of integrated interventions on child growth and development. The interventions will improve the situation of young Indian women before they become pregnant, during pregnancy, and when giving birth. This trial, which also encompasses infant health promotion, will explore whether such life-cycle strategies can foster child growth and development, thereby generating an evidence base for how social, nutritional and biomedical interventions can enhance the human capital in LMICs. Care on the day of birth will be a key component of the intervention package.

CISMAC considers refocusing its resources originally destined to a trial on interventions to prevent stillbirth and death during the first 24 hours of life to this large comprehensive study covering care around birth as part a continuum from preconception through pregnancy, birth and early childhood. The trial has already received substantial funding from the Bill and Melinda Gates Foundation and the Government of India (birac.nic.in). CISMAC's contribution will enhance its scientific value and allow a wider range of questions to be addressed, while still responding to questions identified as part of CISMAC's originally planned study on stillbirth and death during the first day of life.

HOW ADOLESCENT CHILDBEARING AFFECTS GIRLS, WOMEN AND THEIR CHILDREN



GIRLHOOD

Many girls quit school early because their families are unable to pay school fees, buy uniforms or rely on their labour. When family resources are constrained, there is often a preference to support boys' education rather than girls'.

EARLY MARRIAGE

Young women who quit school early are more likely to marry and become pregnant. Marrying off a girl may be regarded as a better way to secure her future than schooling, and the bride-price paid to the girl's family is often an important source of income.

CHILDBEARING

Childbearing before age 18 is risky. Complications of childbearing and abortion are the most common causes of death in adolescent girls in low and middle income countries. For the baby, the risk of premature birth, low birth weight and neonatal death is increased. Women with higher education levels have fewer children and lower risk of death due to childbearing.

LATER LIFE

Increased levels of schooling foster women's health and can reduce poverty in the community. One extra year of schooling increases income of women by 10-20%.

NEXT GENERATION

Children of adolescent mothers are more likely to grow up in poverty, drop out of school early and become parents themselves during adolescence. Higher education levels among women are associated with lower child mortality and longer schooling of their children.

ELECTRONIC HEALTH REGISTRIES – NEW CISMAC STUDIES

Electronic health (eHealth) solutions, including mobile health technologies (mHealth), have the potential to improve quality of healthcare by addressing technical shortcomings in health systems. Many eHealth initiatives in low and middle income countries (LMIC) have been fragmented. Now, global health agencies are moving towards more sustainable and holistic approaches for institutionalizing e- and mHealth into healthcare systems. Better data on health status and quality of healthcare are crucial to address bottlenecks in achieving universal health coverage and producing better policies for health.

In the following section you can read more about two eRegistry studies based at the Norwegian Institute for Public Health that are now part of the CISMAC portfolio.



EREGISTRIES: ELECTRONIC REGISTRIES TO IMPROVE QUALITY OF MATERNAL AND CHILD HEALTHCARE IN PALESTINE

The quality of maternal and child health data in countries with the highest maternal mortality is often compromised by inaccurate, incomplete, and inconsistent data. Poor data quality diminishes trust, which, in turn, may result in a data culture where health care providers are not motivated to invest in data collection and data users discount data validity. eRegistries are designed to maximize data use and address common challenges of health information systems so that data are consistently and methodically utilized to inform decision-making.

The Palestinian National Institute of Public Health is, in close collaboration with the Ministry of Health in Palestine, currently rolling out a nationwide electronic registry for maternal and newborn health. The eRegistry is an adaptable electronic platform for capturing crucial health data through simple e- and mHealth tools. Implemented through the DHIS2 tracker software, it serves the dual purpose of patient management and public health monitoring. The research in Palestine led by the Norwegian Institute of Public Health, is embedded within the national implementation of eRegistries for maternal and child health.

The study is conducted as a cluster randomized trial, designed and monitored in collaboration with CISMAC. Research topics include integrated clinical decision and workflow support, feedback and benchmarking of care providers for improving quality of care, tailored text messages to women and behavior change communication. The framework of research is nested within the US Institute of Medicine's domains of quality of care, namely, safety, effectiveness, patient-centeredness, timeliness, efficiency and equity (eregistries.org).

STRENGTHENING THE EXTENSION OF REPRODUCTIVE, MATERNAL, NEONATAL AND CHILD HEALTH (RMNCH) SERVICES IN BANGLADESH WITH AN ELECTRONIC HEALTH REGISTRY

Bangladesh has made great progress in addressing high maternal and child mortality over the last decade. Still, there are major gaps in the quality of care for mothers and their children, in particular in rural areas. The International Center for Diarrheal Disease Research, Bangladesh (ICDDR,B), a research institution with a 50-year history of improving the quality of maternal and child health in Matlab, Bangladesh, is working with the Bangladeshi Ministry of Health to expand its quality improvement program into government run facilities and demonstrate its benefits.

Registries for women and children link information on their health and the care being provided to them across the continuum from the community to clinics and hospitals and back to the community again. Using the opportunities of electronic sharing of information, such tools can contribute to the quality of care, support communication across health care providers and other parts of the health system, and empower women and families with information.

Together, the Norwegian Institute of Public Health and the WHO have developed a framework and series of tool-kits to make it easier for LMICs to improve the collection and use of health information to benefit women's and children's health. This study will build upon this framework to be the first of its kind to assess the benefits of this type of program to support quality improvement of care in rural Bangladesh. This study has been granted NOK 15 mill by the Research Council of Norway's GLOBVAC program.



CISMAC NEWCOMERS

MAHIMA VENKATESWARAN

Mahima is a doctoral student with the eRegistries team at the Norwegian Institute of Public Health. She is registered as a PhD student at the University of Bergen, and is a medical doctor from India with a Master of Science in Global Health from Maastricht University, The Netherlands. Mahima is involved in the cluster-randomized trial in Palestine, aimed at improving quality of care in maternal and newborn health. Her areas of focus include trial methodology, interactive electronic checklists and clinical decision support. She also contributes to developing the clinical content of the eRegistries.



SAWSAN IMSEEH

Sawsan is a PhD student at the University of Bergen. She is a reproductive public health officer, currently working on the harmonized Reproductive Health Registries (hRHR) project at the Palestinian National Institute of Public Health. She received a master's degree in Public Health from Birzeit University in Palestine and has Bachelors in Pharmacy from Al-Quds University in Palestine. She has worked on various research projects in different fields of research, including diabetes and women's and children's health.



CISMAC will provide support to Sawsan's PhD research on the effect of audit and performance feedback to healthcare providers within the maternal and child health eRegistry settings in Palestine. This intervention research represents a unique opportunity for cross-country collaboration between Palestine and Norway in the field of maternal and child Health.

AMANI THOMAS MORI

Amani works as a postdoctoral fellow within CISMAC (50%), where he supports health economic research and co-ordinates health economic activities related to trials aimed at improving maternal and child health. He is currently engaged with our cluster randomized controlled trial in Zambia on girls' education and adolescent pregnancies and our randomized trial examining the optimal time of BCG vaccination in HIV-exposed babies in Uganda, where he will estimate the cost-benefit and cost-effectiveness of the interventions, respectively. Amani holds a bachelor of Pharmacy degree from the University of Dar es Salaam and a Masters degree in Health Policy Analysis and Management from Muhimbili University of Health and Allied Sciences in Tanzania. He did his PhD in Health Economics at the CIH. His academic interests span from economic evaluation of health interventions to health policy analysis. The other 50% of his time he works for a GLOBVAC-funded project at CIH where he is an investigator in a malaria chemoprevention clinical trial.



INGRID FRIBERG

Ingrid is a researcher with the eRegistries team at the Norwegian Institute of Public Health. She received her PhD in International Health from the Johns Hopkins Bloomberg School of Public Health with a dissertation to understand the complex and longitudinal interactions between nutrition and pneumococcal disease in infants in India. Previously, she was part of the Lives Saved Tool (LiST; livesavedtool.org) team, with roles ranging from development support, training, and analyses on the country and global levels. She currently leads the cluster randomized controlled trial of the effectiveness of eRegistries in Bangladesh.



PATRICK MUSONDA

Patrick is a postdoctoral fellow in CISMAC. He has a PhD in Medical Statistics from the Open University in the United Kingdom (UK), a Master of Science in Medical Statistics from the London School of Hygiene and Tropical Medicine (UK) and an under-graduate degree in Mathematical Sciences. He specializes in Medical Statistics and has been teaching and doing research at higher learning institutions, including the Institute of Child Health (London) and the University of Zambia, for 15 years.

Patrick has co-authored over 50 research papers published in peer-reviewed journals and published a book on statistical methodology. He has an academic interest in statistical modelling of observational data and in modelling adverse outcomes using a case series approach. Patrick is the Zambian Co-principal investigator of the cluster randomized trial on the empowerment of girls to reduce adolescent childbearing in Zambia.



PREDICTING RECOVERY TIME IN SICK INFANTS

Being better able to identify the most seriously ill infants is of great importance in terms of being best able to prioritize health resources, particularly in LMICs where such resources are limited. Tor A. Strand and Halvor Sommerfelt of CISMAC were part of a study that has identified predictors of recovery time in infants with Probably Serious Bacterial Infection (PSBI). PSBI is an important cause of infant death globally. Despite substantial advances in diagnostics and treatment, many seriously ill LMIC infants don't reach treatment facilities.

Having relatively easy-to-use, quantifiable indicators for accessing illness severity will enable health care workers to make more effective decisions regarding health care resources. This in turn will have positive economic and social effects for communities in developing countries.

IDENTIFYING SIMPLE INDICATORS

Time to recovery is used as an indicator of the severity of the PSBI, which in turn relates to identifying infants who should receive special treatment, including more lengthy hospital stay, which also, in turn has an economic and social impact on both the family and health system. This study found several simple clinical and laboratory parameters that could be used as early identifiers of infants with PSBI at risk for longer recovery times.

These include:

- Formula feeding prior to illness
- Being underweight
- Being lethargic and/or irritable
- Poor breast suckling
- Having elevated levels ($\geq 12\text{mg/L}$) of C-reactive protein (CRP).

Although it requires more resources to measure than some of the others, CRP levels could be a simple, easily quantifiable tool for predicting illness severity and for making clinical management decisions.

Read the full article here:

[Predictors of Time to Recovery in Infants with Probable Serious Bacterial Infection](#)

Singh P, Wadhwa N, Lodha R, Sommerfelt H, Aneja S, Natchu UC, Chandra J, Rath B, Sharma VK, Kumari M, Saini S, Kabra SK, Bhatnagar S, Strand TA.

PLoS One. Apr 2015



CISMAC OUTREACH ACTIVITIES – HIGHLIGHTS FROM 2015

PRESENTING NEWBORN AND ADOLESCENT HEALTH RESEARCH AT THE BERGEN SUMMER RESEARCH SCHOOL

CISMAC was represented in several sessions of the course "Maternal and Child Health: Research to accelerate progress" at the Bergen Summer Research School 2015. The course was coordinated by Prof. Thorkild Tylleskær and focused on current research methods to identify and assess the best ways to improve maternal and child health, along with resource mobilization and advocacy for further efforts to decrease maternal and child mortality.

José Martines, CISMAC's scientific coordinator gave the talk "The unfinished agenda of newborn health: Reviewing and accelerating progress". In his presentation, José took the PhD candidates through the development of newborn health research over the last decades, gave an overview of current levels of newborn survival; what has been done, where we should go from here, and he identified priority research to guide us. Some of this research is currently undertaken by CISMAC. Priorities and recent findings are summarized in last year's Lancet series: "Every Newborn" (2014), with José as one of the authors. He concluded the Summer School presentation on an optimistic note, stating that Research and researchers can make a difference.

Professors Karen Marie Moland and Astrid Blystad addressed the use of formative research to guide the design of maternal and child health interventions, and Associate Professor Ingvild F. Sandøy gave an overview of research on prevention of adolescent pregnancies, priority research questions and the plans for a CISMAC-funded cluster randomized trial in Zambia on the empowerment of girls to reduce adolescent childbearing.

THE SILENT REVOLUTION – FEATURE ARTICLE IN BT

Ottar Mæstad (CMI & CISMAC) and Halvor Sommerfelt (CISMAC) co-authored a feature article in Bergens Tidende (BT) entitled The silent revolution. The article describes the progress achieved in global child health over the last decades. Particularly in developing countries, great progress has been made without the mass media noticing. Many people are living much longer than before,



they are taller and stronger and children have a much greater chance of growing up. That said, with almost 6 million children dying yearly, most of them from preventable causes, and maternal mortality being over 100-fold higher in poor countries than in e.g. Norway, and inequity in health growing in many areas, we need to address the Unfinished Agenda of Maternal, Neonatal and Child Health.

MINI SEMINAR: SUSTAINABLE DEVELOPMENT GOALS

United Nations (UN) adopted the Sustainable Development Goals at their General Assembly in New York, Friday 25th of September. The CIH and CISMAC co-hosted a mini-seminar in Oslo with Fafo, one of Norway's largest organizations for applied social research. A number of national leaders participated. On the same day, the CIH organized a seminar in the Student Centre in Bergen videolinked to a larger meeting at the University of Oslo. Several CISMAC scientists contributed.

VISJON 2030
Bidrag fra Universitetet i
Bergen og CMI



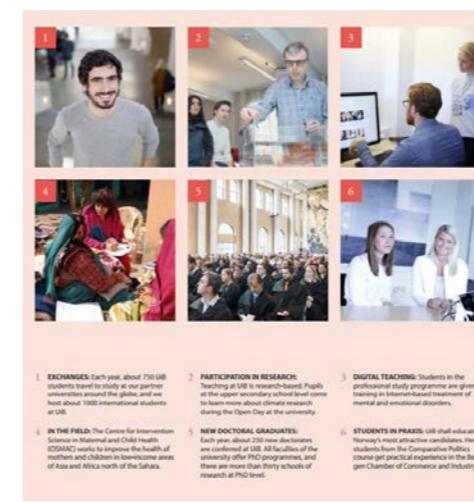
Foto: UNICEF

INNOVASJONER FOR BEDRE MØDREHJELSE – FOKUS PÅ
TENÅRINGSGRAVIDITETER

APPROACHING POLICY MAKERS – VISJON2030

Visjon2030 is a joint national effort for global health & education – initiated by the Minister of Foreign Affairs, Minister of Health and Care Services, and Minister of Education and Research. A two-day national conference was held and a compendium with innovative solutions was published.

CISMAC scientists attended the conference and contributed to the compendium with a paper on maternal health – with a focus on teenage pregnancies.



VISIBLE IN THE UNIVERSITY OF BERGEN'S STRATEGY

In 2015, UiB presented its Strategy for 2016-2022. In the strategy document, CISMAC was represented through an image from our Partner institution in India, Society for Applied Studies. The UiB rector wrote a feature article about the new strategy and emphasized CISMAC's significant role in UiB's research on major global challenges.

PUBLICATIONS 2015



Chola L, Fadnes LT, Engebretsen IM, Nkonki L, **Nankabirwa V, Sommerfelt H**, Tumwine JK, **Tylleskar T, Robberstad B**; PROMISE-EBF Study Group.

Cost-Effectiveness of Peer Counselling for the Promotion of Exclusive Breastfeeding in Uganda.
PLoS One. 2015 Nov

Nagot N, Kankasa C, Tumwine JK, Meda N, **Hofmeyr GJ**, Vallo R, Mwiya M, Kwagala M, Traore H, Sunday A, Singata M, Siuluta C, Some E, Rutagwera D, Neboua D, Ndeeki G, Jackson D, Maréchal V, Neveu D, Engebretsen IM, Lombard C, Blanche S, **Sommerfelt H**, Rekacewicz C, Tylleskär T, Van de Perre P; ANRS 12174 Trial Group.

Extended pre-exposure prophylaxis with lopinavir-ritonavir versus lamivudine to prevent HIV-1 transmission through breastfeeding up to 50 weeks in infants in Africa (ANRS 12174): a randomised controlled trial.
Lancet. 2015 Nov

Aase A, **Sommerfelt H**, Petersen LB, Bolstad M, Cox RJ, Langeland N, Guttormsen AB, **Steinsland H**, Skrede S, Brandtzaeg P.

Salivary IgA from the sublingual compartment as a novel noninvasive proxy for intestinal immune induction.
Mucosal Immunology 2015 Oct

Santos IS, Matijasevich A, Assunção MC, Valle NC, Horta BL, Gonçalves HD, Gigante DP, **Martines JC**, Pelto G, Victora CG.

Promotion of Weight Gain in Early Childhood Does Not Increase Metabolic Risk in Adolescents: A 15-Year Follow-Up of a Cluster-Randomized Controlled Trial.
The Journal of Nutrition 2015 Oct

Mori AT, Norheim OF, Robberstad B.

Budget Impact Analysis of Using Dihydroartemisinin-Piperaquine to Treat Uncomplicated Malaria in Children in Tanzania.
Pharmacoeconomics. 2015 Oct

Sinha B, **Chowdhury R**, Sankar MJ, **Martines J**, Taneja S, Mazumder S, Rollins N, Bahl R, Bhandari N
Interventions to Improve Breastfeeding Outcomes: Systematic Review and Meta Analysis.
Acta Paediatr. 2015 Jul

Chowdhury R, Sinha B, Sankar MJ, Taneja S, Bhandari N, Rollins N, Bahl R, **Martines J**.
Breastfeeding and Maternal Health Outcomes: A Systematic Review and Meta-Analysis.
Acta Paediatr. 2015 Jul

Taneja S, Bahl S, Mazumder S, Martines J, Bhandari N, Bhan MK.

Impact on inequities in health indicators: Effect of implementing the integrated management of neonatal and childhood illness programme in Haryana, India.
J Glob Health. 2015 Jun

Basnet S, Sharma A, Mathisen M, Shrestha PS, Ghimire RK, Shrestha DM, Valentiner-Branth P, **Sommerfelt H, Strand TA**.

Predictors of Duration and Treatment Failure of Severe Pneumonia in Hospitalized Young Nepalese Children.
PLoS One. 2015 Mar

Nankabirwa V, Tumwine JK, Mugaba PM, Tylleskär T, **Sommerfelt H**; PROMISE – EBF Study Group.
Child survival and BCG vaccination: a community based prospective cohort study in Uganda.
BMC Public Health. 2015 Dec

Singh P, Wadhwa N, Lodha R, **Sommerfelt H**, Aneja S, Natchu UC, Chandra J, Rath B, Sharma VK, Kumari M, Saini S, Kabra SK, **Bhatnagar S**, **Strand TA**.
Predictors of time to recovery in infants with probable serious bacterial infection.
PLoS One. 2015 Apr

Khan J, Stafstrom M, **Martines JC**.
Feeding of Low Birth Weight Newborns in Tertiary Care Hospitals in Pakistan: Do They Follow the World Health Organization Latest Guidelines?
J Coll Physicians Surg Pak. 2015 Aug

Sankar MJ, Sinha B, Chowdhury R, **Bhandari N**, **Taneja S**, **Martines J**, **Bahl R**.
Optimal Breastfeeding Practices and Infant and Child Mortality – A Systematic Review and Meta-analysis.
Acta Paediatr. 2015 Aug

CISMAC members **in bold**.

Links to all the publications can be found at cismac.org/publications



TOWARDS A BRIGHTER FUTURE FOR MOTHERS AND CHILDREN



CENTRE FOR INTERVENTION SCIENCE IN MATERNAL AND CHILD HEALTH (CISMAC)

is anchored at the Centre for International Health (CIH), University of Bergen, Norway. CISMAC is a consortium of CIH and research institutions in Ethiopia, India, Nepal, South Africa, Uganda and Zambia. The consortium also includes Chr. Michelsen Institute, the Norwegian Institute of Public Health and collaborates closely with the World Health Organization.

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