

Pure-AMC

Two Decades of Global Child Health at Amsterdam UMC

Boele van Hensbroek, Michaël; Smit, Menno R.; Brabin, Bernard J.; Calis, Job C. J.; van der Kuip, Martijn; Meels, Nina; Nieuwenhuijs, Linde; Voskuijl, Wieger P.; van Weissenbruch, Mirjam M.; van Woensel, Jacobus B. M.; de Baat, Tessa; Huibers, Minke H. W.; Tutu-van Furth, marceline M.

Published: 30/10/2020

Document Version Publisher's PDF, also known as Version of record

Citation for pulished version (APA):

Boele van Hensbroek, M., Smit, M. R., Brabin, B. J., Calis, J. C. J., van der Kuip, M., Meels, N., Nieuwenhuijs, L., Voskuijl, W. P., van Weissenbruch, M. M., van Woensel, J. B. M., de Baat, T., Huibers, M. H. W., & Tutu-van Furth, M. M. (2020). *Two Decades of Global Child Health at Amsterdam UMC*. Amsterdam Centre for Global Child Health.

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- · Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
 You may freely distribute the URL identifying the publication in the public portal?

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 02. May. 2024

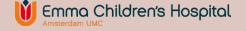
Reading guidance

For decades Global Child Health (GCH) has been an important component of the paediatric departments of the VUmc and the Emma Children's Hospital, AMC. In 2018 the institutions VUmc and AMC formed an alliance continuing under the name Amsterdam UMC. With the alliance, the two institutes have joined their global child health activities and have established the 'Amsterdam Centre for Global Child Health' (Amsterdam CGCH), which is unique in the Netherlands.

This report describes the achievements and activities over the past two decades and the future perspectives of the paediatric specialists in Global Child Health from both institutions. Unless needed for clarity, the activities described are not specifically linked to the individual institutes.

Contact us

globalchildhealth@amsterdamumc.nl www.globalchildhealth.nl



EXECUTIVE SUMMARY	2
INTRODUCTION & ORGANISATION	4
Mission & Vision	6
The numbers	7
Objectives	8
History & Positioning	11
Core staff	12
Key collaborators	18
Research networks	19
ACHIEVEMENTS & ACTIVITIES	20
Research lines	22
PhD programme	34
Four stories	35
Teaching & Training	38
Journal reviews	41
Funding	42
Publications	44
FUTURE PERSPECTIVES	46
Amsterdam CGCH as knowledge centre for clinical questions	48
Scientific research	49
Training & Education	50
ANNEX	54
List of publications	56
Overview of grants obtained	83

EXECUTIVE SUMMARY

Who we are

We are paediatricians with specialisation in different aspects of Global Child Health (GCH) working together at the 'Amsterdam Centre for Global Child Health'. The centre is based at Amsterdam UMC, which forms part of the VU University Amsterdam (VU) and the University of Amsterdam (UvA).

Our aims

Our overarching aim is to contribute to improved health for children worldwide. We try to achieve this by contributing to the training of medical staff working or wanting to work in a GCH setting (capacity building) and by addressing important outstanding scientific research questions in the area of GCH.

Our achievements

Over the past two decades, we have initiated and successfully completed many research initiatives 'overseas', which has involved obtaining funding, setting-up research sites, training local staff, conducting research and reporting the findings in (high impact) medical journals. During this period, we have secured in excess of seventeen million Euros through competitive research funding; we have published over 300 scientific manuscripts (average 15 per year) in peer

reviewed (medical) journals; we have supervised mostly locally recruited PhD students, of which fifty-nine have successfully defended their PhD theses at the VU and the UvA; we have developed several training courses in the area of GCH for medical students, for registrars in paediatrics and/or global health, and for medical staff of NGO's. Finally, all projects and activities described in this report, were done by doctors who undertook this work alongside a regular appointment as paediatrician at Amsterdam UMC.

The 'Amsterdam Centre for Global Child Health'

We have taken the initiative to officially launch the Amsterdam Centre for Global Child Health in the second half of 2020. This will allow concentration of GCH knowledge and specialisation which currently is fragmented in many institutes. The objective in establishing this new centre, which is unique in the Netherlands, is to facilitate a central role within the Netherlands: (I) in advising on the care of children with potential tropical disease(s); (II) in teaching and training healthcare workers interested in GCH; (III) in contributing to and advising on the development and evaluation of GCH projects initiated and funded by the Dutch government or NGO's; in advising, communicating and informing the media on new developments in the area of GCH; and in promoting work and collaboration on important outstanding research questions.



INTRODUCTION & ORGANISATION

AMSTERDAM CENTRE FOR GLOBAL CHILD HEALTH

The year 2015 was of importance because at the end of that year the Millennium Development Goals (MDG) should have been achieved. The 4th MDG, reduction in child mortality by 2/3 in comparison with the 1990 mortality rates, was achieved in only a minority of low-income countries with rates remaining up to twenty times higher compared to high-income countries. International organisations including the World Health Organisation, UNICEF and the World Bank, acknowledged that a great deal of work remained to be done which lead to the formulation of the Sustainable Development Goals (SDGs). These are more inclusive and have a target date of 2030. To achieve these new goals, international organisations as well as the medical profession including research communities in developed and developing countries need to increase their efforts and collaborations.

Over the past decades, the Netherlands has developed into a more globalised society in which paediatricians may encounter rare tropical diseases, epidemics of emerging infectious diseases, as well as various cultural perceptions of childhood disease by parents from different ethnic backgrounds. Furthermore, mortality in children from ethnic minorities in the Netherlands is substantially higher than that of Dutch Caucasian children. In view of this changing paradigm, both at the national and at

the international level, it is necessary that academia engages actively in research and education on Global Child Health in the Netherlands.

This priority was recognised at the VU by Professor Ed van der Veen who appointed Professor Marceline Tutu-van Furth as the first Professor on the Desmond Tutu Chair in Global Child Health in 2009. The Chair forms part of the Desmond Tutu Training Programme (DTTP), which is an academic cooperation for the joint supervision of PhD students with a focus on 'Bridging Diversities for Academic Advancement'. Tutu van Furth was succeeded in 2017 by Prof. Mirjam van Weissenbruch.

At the UvA, Prof. Hugo Heymans, former head of the Emma Children's Hospital AMC and Dr. Mulder, former Director of 'Stichting Simavi', jointly took the initiative to establish a Chair in Global Child Health at the UvA. In 1999 Professor Bernard Brabin was the first to be appointed on this new chair and established the Global Child Health Group (GCHG) with the aim to develop both an active teaching and research programme. He was succeeded in 2013 by Professor Michaël Boele van Hensbroek who has broadened the scope of the GCHG by attracting experts in important sub-areas within the GCH-field to join the GCHG initiative.





OBJECTIVES

- 1 Amsterdam CGCH as knowledge centre for clinical questions
- Research in collaboration with international partners
- To provide a comprehensive teaching and training programme

1. Amsterdam CGCH as knowledge centre for clinical questions

- Through development of a centre for consultation and advice for (paediatric) doctors in the Netherlands offering expertise and experience in different areas of GCH.
- By setting up a 'paediatric task force', in which members of the Amsterdam CGCH can be deployed ad hoc via partners such as Doctors without Borders if international emergencies arise where GCH expertise is required.
- Identifying or interpreting a particular GCH problem to the media or government agencies seeking expertise

2. Research in collaboration with international partners

- Expand research activities within the area of GCH.
- Promote comprehensive research strategies utilising basic research methods, clinical and epidemiological studies and clinical trials.
- Contribute to research capacity building by offering PhD opportunities at the VU and the UvA, and promote local research ownership of collaborative research projects.

3. To provide a comprehensive teaching and training programme

- Creation of training opportunities for medics intending to specialise in GCH.
- Through courses on GCH specifically designed for different user groups (e.g. paediatric registrars, Global Health registrars and NGO staff).
- Contribution to the curriculum, training and exchange-programmes of medical students and the post-graduate training programmes of the VU, UvA and Collaborating Universities overseas.
- Contribution to on-site training of medical staff at paediatric hospitals in resource limited settings.
- Development of suitable training materials







MILLENNIUM DEVELOPMENT GOAL 4

TO REDUCE THE UNDER-FIVE MORTALITY RATE BY TWO-THIRDS BETWEEN 1990 AND 2015 Despite being a millennium development goal, by the end of 2015 the under-five mortality rate in low-income countries still remained up to twenty times higher compared to high-income countries.



"Dutch doctors in the 1980's were everywhere in the tropics, but few were trained in tropical paediatrics"

PROF. BERNARD BRABIN

FOUNDER OF THE GLOBAL CHILD HEALTH GROUP

Iwo Decades of Global Child Health at Amsterdam UMC – Introduction & Organisation

HISTORY & POSITIONING

Global Child Health at the VU University Amsterdam

Research Institute

Formerly all translational research performed by Professor Tutu van Furth and her group had a special focus on central nervous system infections and was embedded in the 'Amsterdam Institute for Infection & Immunity'.

Research Themes

The main topic of research was meningitis (viral and bacterial). Studies were conducted from bench to bedside, from fundamental immunological, metabolomics, proteomics, and pathology studies, to a home treatment program for children with tuberculous meningitis. Most studies were performed in collaboration with the department of Child Neurology of Tygerberg Hospital, Cape Town, South-Africa and with the laboratory of metabolomics of the University of Potchefstroom, South-Africa.

For example:

- A large follow-up cohort study (n=580) of bacterial meningitis survivors, 25 years after initial infection (age range between 20-30 years), has recently been completed in South Africa.
- A sepsis study in neonates, with emphasis on innate immunity, treatment and outcomes, is currently being analysed.
- Currently in progress is the project 'Giving Children a Chance for Life', funded by the Dutch 'Postcode Loterij'. An exchange of knowledge between religious leaders and health care workers on treatment adherence in children with HIV in South-Africa has been assessed.

Global Child Health at the University of Amsterdam

Global Child Health Group

In 1999 Professor Bernard Brabin was appointed to the Chair of Global Child Health and founded the Global Child Health Group. Core members had responsibilities for planning and daily management which included: teaching, supervision of PhD students and administrative and logistic support of research programmes. The member's main research and clinical experience represented: critical paediatric care, maternal and child nutrition, anaemia, malaria, and community child health. These themes represented internationally recognised priority areas in GCH as well as the sub-specialisation of individual group members.

Positioning

With respect to the positioning of the GCHG it is important to note that three groups are responsible for the majority of Global Health activities within Amsterdam UMC location AMC. These are: the GCHG of the Emma Children's Hospital (the Emma); the Department of Tropical Medicine, Infectious Diseases and AIDS of the Division of Internal Medicine (Tropencentrum) and the Amsterdam Institute of Global Health and Development (AIGHD) of the Department of Global Health, also part of the Division of Internal Medicine. All three groups work closely together and have numerous joint activities. Within the Emma the GCHG has established close relationships with the Departments of Paediatric Haematology, Paediatric Infectious Diseases and Immunology, Paediatric Intensive Care, and General Paediatrics.

CORE STAFF

in alphabetical order



ngola

02



03

01





05





Two Decades of Global Child Health at Amsterdam UMC – Introduction $\&\ \mbox{Organisation}$

01

PROF. MICHAËL BOELE VAN HENSBROEK (MBVH)



Professor of GCH, Paediatric Infectious Disease specialist and staff member of the Emma Children's Hospital and of the AIGHD. MBvH previously worked in The Gambia (1991-1995), conducting research on the treatment of severe malaria in children at the MRC in collaboration with the University of Oxford. In 2000 he became a Wellcome Trust fellow studying severe anaemia in Malawian children. In 2005 he returned to the Emma Children's Hospital to become an ID specialist and paediatric advisor for Doctors Without Boarders (MSF). In 2013 he was appointed Professor in GCH and head of the GCHG. He is currently involved in several projects globally, is a member of various steering committees (DSMB's and TSC's) and vice-chair of the CCMO (Centrale Commissie Mensgebonden Onderzoek). He combines work with carpentry and writing children's books.

02

PROF. BERNARD BRABIN (BB)



Emeritus Professor in GCH at the UvA and the Liverpool School of Tropical Medicine. His main areas of interest include maternal and child health, focussing on pregnancy infections as they affect birth weight, pre-term birth and child health outcomes in developing countries. In particular, malaria and micro-nutrients and their influence on pregnancy outcomes, the growth and development of young children and nutrition-infection interactions. His initial work formed the basis for the development of the World Health Organisation strategy for treatment and prevention of malaria in pregnancy. He has supervised over 40 PhD students in the Netherlands and United Kingdom and conducted projects in Kenya, Malawi, Nigeria, Tanzania, Zambia, Papua New Guinea, and Burkina Faso. BB has been a member of International Advisory Committees and Working Groups on nutrition and infection. Most recently he acted as Principal Investigator of the NIH (USA) supported PALUFER trial of iron supplementation in non-pregnant adolescents. Apart from continuing his research work he enjoys writing on historical aspects of tropical medicine, ballroom dancing and philately.

03

DR. JOB CALIS (JC)



Paediatric Intensive Care specialist at the Emma Children's Hospital, Amsterdam UMC, with a special interest in Global Child Health. Between 2002-2005 he worked in the department of paediatrics of the Queen Elizabeth Central Hospital, Blantyre, Malawi ("Queens"). During this period he conducted a large study on the aetiology of severe anaemia in Malawian children which led to a PhD with distinction at the University of Amsterdam in 2008. During his Paediatric and Intensive Care training (2008 – 2015) he continued his research and supervised various PhD students, focusing on iron deficiency, anaemia and HIV. From 2017–2019 he returned to Malawi to set up the paediatric intensive care department at Queens and started studies on shock in children in Africa. Besides research, his medical interests include teaching, infectious diseases, electronic data management, and crew resource management. Currently he

Two Decades of Global Child Health at Amsterdam UMC – Introduction & Organisation

is a staff member of both the Department of Paediatric Intensive Care and the Amsterdam Centre for GCH at the Amsterdam UMC. He is a father of four children and balances hard work with running, playing football or cooking.

04

PROF. MARCELINE TUTU-VAN FURTH (MTVF)



Professor of Paediatric Infectious Diseases at the Emma Children's Hospital, Amsterdam UMC. Her vision: "empowerment of children around the world to create a safe and healthy home for each of them". Apart from contributing to this vision on a daily basis she gives advice on infectious or immunological problems in children. In addition, she teaches medical students, paediatric residents, and colleague paediatricians on important topics in the field of paediatric infectious disease. MTvF's research focuses on bacterial meningitis from bench to bedside, including follow-up of these patients. As an Honorary Professor of Tygerberg Hospital in Cape Town she supervises South-African PhD students in their research on tuberculous meningitis and HIV. She holds an MBA and uses this knowledge in initiating innovative projects such as "Giving children a chance for life" on HIV treatment adherence which will have a global impact. Together with her wife (Mpho Tutu van Furth) she has built an e-mentoring platform, for women only, # I Too (www.tututeach.org).

05

DR. MARTIJN VAN DER KUIP (MVDK)



Paediatric Infectious Disease specialist at the Emma Children's Hospital, Amsterdam UMC, and head of the Department of Paediatric Infectious Diseases, Rheumatology and Immunology. He completed his PhD in Paediatric Intensive Care Medicine before he specialised in paediatric ID. His research focusses on tuberculous meningitis (TBM) in children for which he collaborates with the University of Stellenbosch in South Africa. He is working on various models to study mycobacterial brain invasion and granuloma formation (silico based and zebrafish models). He is also involved in a large post-mortem study of brain specimens to study host immune-pathogenesis by means of immune-histopathology, metabolomics and proteomics. Furthermore, he is involved in various studies of TBM patients in Cape Town on the topics of nutritional status, early diagnostics and disease outcome. In the Emma Children's Hospital he does outpatient and clinical consultations and he teaches on a regular base for paediatricians, residents, interns and students.

06

DRS. NINA MEELS (NM)



Project Manager at the Amsterdam CGCH. Equipped with a Master's degree in both Global Health and Healthcare Innovation Management, she supports the Amsterdam CGCH as a project manager. In this role she hopes to unify her curiosity for infectious diseases with her keen interest in the implementation of innovative applications in health care. Aside from her day job at the Amsterdam CGCH, she organises the annual Global Health Film Festival in Rotterdam. A festival that aims to bring people together around issues in global health through film and dialogue.

07

LINDE NIEUWENHUIJS (LN)



HR assistant at AIGHD. LN has been coordinating the administrative aspects of the Amsterdam CGCH over the past 6 years. After completing her College Education (HBO) Linde started as a Secretary/Office Manager at AIGHD. In the past 3 years she has moved on to Human Resource Management (HRM) with a completed degree. Now her main focus is HRM in combination with the supervision of all the PhD students within the Global Health department. Nina Meels has taken over her role within the Amsterdam CGCH.

80

DR. WIEGER VOSKUIJL (WV)



General paediatrician at the Emma Children's Hospital, Amsterdam UMC and since 2018 a senior scientist in Global Child Health at AIGHD. He lived and worked in Malawi between 2012-2015 and since then he co-leads a large Malawian research group looking at the interplay between acute illness and undernutrition in children. Clinical phenotyping of fragile children has his main interest; early risk prediction and triage but also Cause-of-Death with minimally invasive tissue sampling are areas of interest. Since 2015 he is the site-PI for the Childhood Acute Illness and Nutrition (CHAIN) network in Malawi. In the CHAIN network he collaborates with internationally renowned scientists from SickKids Toronto, KEMRI/Wellcome trust and the University of Washington. WV is a honorary Senior Lecturer in Paediatrics and Child Health at the College of Medicine (COM since 2012), University of Malawi, (Queen Elisabeth Central Hospital). He has 3 children and tries to combine the above with running and playing the trumpet.

09

PROF. MIRJAM VAN WEISSENBRUCH (MvW)



Professor of Neonatology, Nutrition and Metabolism and Desmond Tutu Chair; Clinical Pharmacologist, Epidemiologist. Staff member of the Emma Children's Hospital, Amsterdam UMC, VU University. Conducting research on developmental origins of health and disease and on infectious diseases in the Netherlands, in collaboration with Stellenbosch University and Gadjah Mada University. She is currently involved in several projects globally.

10

PROF. JOB VAN WOENSEL (JVW)



Professor in Paediatric Intensive Care, and Head of the Paediatric Intensive Care Unit (PICU), at the Emma Children's Hospital, Amsterdam UMC. JvW, worked in 1991-1992 for Medicine Sans Frontiers (MSF) in a refugee camp on the Thai-Cambodian border, conducting mefloquine trials in (severe) malaria. In addition, in 2007 he worked in an MSF project in Myanmar. JvW supervised

Two Decades of Global Child Health at Amsterdam UMC – Introduction & Organisation

studies in Kenya and Uganda regarding fluid management during shock in malnourished children. He is member of the board of directors of Medical Action Myanmar. Finally, he is involved in a collaboration programme with the Mercy James Center in the Queen Elisabeth Central Hospital, Blantyre, Malawi where he is co-investigator in studies on fluid management in sepsis in children.

NEW MEMBERS

11

DRS. TESSA DE BAAT (TDB)



Paediatrician, Neonatology Fellow in Emma Children's Hospital, Amsterdam UMC. TDB worked as a clinician in Queen Elizabeth Central Hospital in Blantyre, Malawi and conducted research in collaboration with Malawi-Liverpool-Wellcome Trust (MLW). Her research focuses on neonatal sepsis and antibiotic stewardship. She is a lecturer at the Netherlands Course on Global Health and Tropical Medicine (NTC) and certified instructor of Neonatal Life Support.

12

DR. MINKE HUIBERS (MH)



Paediatric specialist with a focus on Global Paediatric Oncology. MH is a general paediatrician trained and graduated in 2018 as a resident in the Emma Children's Hospital, Amsterdam UMC. In 2019 she successfully defended her PhD thesis at the UvA, entitled: "HIV-infection in sub-Saharan Africa; from quantity to quality of care. Currently MH is working as paediatrician for Baylor College of Medicine and Texas Children's Hospital, Houston, USA, based at the Global HOPE (Haematology Oncology Paediatric Excellence) in Lilongwe, Malawi. Her current research focuses on different aspects of paediatric cancer in low and middle-income countries, including the effects of malnutrition on the treatment of childhood cancer, early recognition of childhood cancer and palliative care. Finally, MH is also involved in the paediatric oncology outreach group of the Princess Maxima Centre, the Dutch National Hospital for Paediatric Oncology, in Utrecht, the Netherlands.

13

DR. MENNO SMIT (MS)



Paediatric Registrar at the Emma Children's Hospital, Amsterdam UMC, and an Honorary Associate Professor in Malaria Epidemiology at the Liverpool School of Tropical Medicine (LSTM). Following clinical training in Tropical Medicine (Maternal & Child Health), he obtained an M.Sc. in Public Health (MPH) at the London School of Hygiene & Tropical Medicine (LSHTM), and a Doctor of Philosophy (PhD) at the LSTM. His research, for which he was based in Kenya, has included trials assessing: (i) the risk of malaria infection following iron supplementation in pregnancy, (ii) safety and efficacy of primaquine as a gametocidal drug in children with malaria, and (iii) high-dose ivermectin as a first-in-class mosquitocidal drug. Currently he is involved as an investigator and DSMB member in several trials across the globe that are assessing the use of ivermectin for the elimination of malaria and neglected tropical diseases.

KEY COLLABORATORS

in alphabetical order

Prof. Tahmeed Ahmed ICDDR-B, Dhaka, Bangladesh

Dr. Robert Bandsma SickKids, Toronto, Canada

Prof. Imelda Bates Liverpool School of Tropical Medicine, UK

Prof. Adrie Bekker Stellenbosch University, South Africa

Prof. Jay Berkley University of Oxford, UK, and KEMRI, Kenya

Prof. Louis Bont University Medical Centre Utrecht

Prof. Frank Cobelens AIGHD, Department of Global Health, Amsterdam UMC

Prof. Donna Denno Washington University, Seattle, US
Prof. Angela Dramowsky Stellenbosch University, South Africa

Prof. Mike English University of Oxford, UK, and KEMRI, Kenya

Prof. Martin Grobusch Department of Internal Medicine, Amsterdam UMC

Dr. Lia van der Hoek Department of Microbiology, Amsterdam UMC

Prof. Richard Idro Makerere University, Uganda

Prof. Menno de Jong Department of Microbiology, Amsterdam UMC
Prof. Mohammed Juffrie Gadja Mada University, Yogyakarta, Indonesia

Prof. Mariana Kruger Stellenbosch University, South Africa

Prof. Feiko ter Kuile Liverpool School of Tropical Medicine, UK

Dr. Lisette van Lieshout Department of Parasitology, LUMC

Prof. Rina Madarina Gadja Mada University, Yogyakarta Indonesia

Prof. Kath Maitland Imperial College, London, UK, and KEMRI, Kenya

Dr. Tim de Meij Department of Paediatrics, Amsterdam UMC
Prof. Charles Newton University of Oxford, UK, and KEMRI, Kenya

Prof. Kamija Phiri University of Malawi, CoM, Malawi

Prof. Tobias Rinke de Wit

AIGHD, Department of Global Health, Amsterdam UMC

Prof. Constance Schultz

AIGHD, Department of Global Health, Amsterdam UMC

Prof. Boy Sebit University of Juba, South Sudan

Prof. Frank Smithuis University of Oxford, UK, and Myanmar

RESEARCH NETWORKS

memberships

CHAIN

Optimizing the management and care of highly vulnerable children in resource-limited settings to improve survival

www.chainnetwork.org

IPT-PD

Intermitted Preventive Treatment-Post Discharge in the prevention of severe malaria anaemia

LYMEPROSPECTKIDS

Clinical presentation and long term outcome of Borrelia infections in children

www.expertisecentrumlyme.nl

SSNSS

South Sudan Nodding Syndrome Study: network to study the aetiology, epidemiology, risk factors and outcome of Nodding Syndrome

TUBERCULOUS MENINGITIS IN SOUTH-AFRICA

TB-meningitis network South Africa

TBM IN SILICO MODELLING

Systems biology of cerebral granuloma formation caused by *Mycobacterium tuberculosis*

METABOLOMICS IN TUBERCULOUS MENINGITIS

Metabolomic (urine) and proteomic (brain) profiling of central nervous system tuberculosis

MORU TROPICAL HEALTH NETWORK

Ivermection Safety in Small Children - Trial network for malaria and neglected tropical diseases

www.tropmedres.ac

ACHIEVEMENTS & ACTIVITIES

TWO DECADES OF GLOBAL CHILD HEALTH

RESEARCH LINES

Over the past 20 years, the Amsterdam CGCH has been involved in nine main research lines. The following section provides a brief review of each of the research lines as listed below.

- 1 CRITICAL CARE 6 COMA AND CONVULSIONS
- 2 NUTRITION 7 HIV
- 3 MENINGITIS AND TUBERCULOSIS 8 NODDING SYNDROME
- 4 MALARIA 9 NEONATOLOGY
- 5 ANAEMIA 10 OTHER PROJECTS

1. Critical Care

Childhood mortality in low income countries (LMIC) has dramatically decreased over the last two decades [1,2]. In the 1990's nearly one in five children living in sub-Saharan Africa died before their fifth birthday. The under-five mortality for sub-Saharan Africa has since more than halved and is currently estimated at 7.6%, however it remains eight times higher when compared to high income countries and requires further reduction in the coming decades [1,2]. The question is of course how to achieve this. So far the largest reduction may have been due to preventive medicine, an area that may still have room for improvement [3]. However, we now may have entered an era where further reduction of mortality should (also) come from improved curative services.

Reducing in-hospital mortality means improving care of critically sick children, or in other words developing critical care medicine in low income settings. The WHO acknowledged the importance of critical care in paediatrics by developing the Emergency Triage and Treatment (ETAT) guidelines in the previous decade [4]. These guidelines, developed for healthcare workers in LMIC's, help to timely detect critically sick children, prioritise their care and improve the quality of resuscitation and safe lives [5].

Although this may be seen as the introduction of critical care to LMIC, still much has to be improved in the care we deliver to children following on the acute moment. Focussing attention, means and efforts on the sickest children is ideally done in high-care wards or paediatric intensive care units (PICU), a concept which is relatively new to sub-Saharan Africa. Even in western settings separate paediatric intensive care units were only established in the 70's or 80's. In sub-Saharan Africa these units are not common, but are slowly appearing [6].

In Blantyre, Malawi we opened the first paediatric intensive care unit in July 2017. In the following paragraphs we describe some of the issues we faced and progress that has been made to inform and possibly help others with similar interests.

Fluid management in critically ill children in resource poor settings has gained renewed interest. Where since decades intra-venous (iv) fluid for (septic) shock has been considered the cornerstone of the first line treatment, the socalled FEAST trial showed that at least in shocked children in a resource poor setting the contrary may be true. In the trial it was demonstrated that iv fluid increased the mortality rate in children with signs of septic shock. However, the pathophysiological explanation for this unexpected outcome remains to be elucidated. This has been the stepping-stone for an intensive observational study to the underlying diseases, the clinical presentations as well the physiological phenomena accompanying circulatory insufficiency in children. Shocked children with malnutrition have historically always taken a particular place in iv fluid treatment. There has been strong reluctance in giving these children iv fluid since the heart was considered to be 'malnourished' too. However, in an observational study with echocardiography studies in Kenya and Uganda we found that the cardial condition of malnourished is good enough to handle fluid boluses (Critical Care, 2017).

Shock due to sepsis is one of the leading causes of childhood mortality, especially in low-resource settings. The mortality rates are high in part due to the delayed diagnosis and treatment in these children. Even in high resource settings, early diagnosis and prompt treatment can reduce mortality substantially. However, in many low-resource settings early diagnosis is hampered by the lack of (qualified) human resources and shortage of suitable high quality diagnostics. Previous research has indicated that monitoring physiological vital signs in combination with smart algorithms could assist clinicians in obtaining the diagnosis earlier and thereby reducing the mortality rates of children under 5.

Currently we are undertaking a feasibility study addressing a threefold aim. First, we want to assess whether tablet assisted patient monitoring is suitable in low-resource settings. Second, we want to investigate if it we can develop an algorithm to assist clinicians in diagnosing sepsis.

Third, we want to assess if this system is economically viable in low-income countries.

2. Nutrition

The nutrition research line was initiated by Dr. Wieger Voskuijl during the years he was based at the nutrition rehabilitation unit of the paediatric department of Queen Elizabeth Central Hospital, Blantyre, Malawi (2012-15). Initially he started doing research with funding from 'Stichting Steun Emma Kinderziekenhuis' and 'Ter Meulenfonds'. But with further funding from Thrasher Foundation and collaborating with dr Robert Bandsma (SickKids Hospital, Toronto) and Prof. Jay Berkley (KEMRI/Wellcome trust, Kenya) the research gradually grew and the Malawian research team increased. He further developed this research line as a PI in the CHAIN network, funded by the Bill & Melinda Gates foundation, with collaborators from SickKids hospital in Toronto, Canada (Dr. Robert Brandsma), the Kilifi Research Unit, part of the University of Oxford (Prof. James Berkley), and University of Washington (Prof. Judd Walson and Prof. Donna Denno). This collaboration has already resulted in numerous publications in high impact journals and a completed PhD by Dr. Rosalie Bartels.

• Childhood Acute Illness and Nutrition Network (CHAIN network with 9 sites, in 6 countries in Asia and Africa): Between October 2016 and October 2019, WV was PI for the Malawi site for the CHAIN-network. A prospective cohort in which study both the clinical phenotype of fragile, acutely ill, young children has been investigated using clinical data during admission and 180 days after discharge, and biological samples have been collected and stored in a large bio-repository in Kilifi, Kenya. The first papers from this network will emerge in 2020 (chief PI's prof Jay Berkley and prof Judd Walson). Also see www.chainnetwork.org

Currently, Dr Wieger Voskuijl is coordinating two other lines of research both within and outside the CHAIN network:

Minimally Invasive Tissue Sampling ("MITS"): In the MITS study causes of death in severely malnourished children admitted to a low resource hospital are studied using MITS









IMPRESSIONS FROM THE NUTRITION RESEARCH LINE

with the primary aim of unravelling pathways underlying death in these vulnerable, sick children. The second aim of the project is to investigate the feasibility of post-mortem endoscopy. The studies are conducted in collaboration with Prof. Donna Denno (University of Washington, Seattle, US) and received 1.400.000,- USD funding from the Gates Foundation.

• Early Risk Prediction & Volatile Organic Compounds (VOCs).

At the Amsterdam Institute of Global Health and Development (AIGHD), Dr. Wieger Voskuijl formed a team with Dr. Daniella Brals, econometrician and basic scientist in Global Child Health, and PhD students from the University of Toronto and have established a model looking at daily 'early warning signs' in children with severe malnutrition (rather than on admission only). This has been followed by organising a workshop on machine learning (early 2020) for junior and early phase senior scientists in Amsterdam

and strengthening the collaboration with the International Centre for Diarrhoeal Diseases in Dhaka, Bangladesh Prof. Tahmeed Ahmed, Dr. Chisti Mobayer, and Dr. Subhasish Das, ICDDR,B) and with Dr. Tim de Meij (Amsterdam UMC), to further validate VOCs. The ultimate aim will be to validate these VOC-data and to establish if VOCs can serve as proxies for pathophysiological mechanisms and/or as (an add on to) early risk prediction. This will be done as a sub-study in CHAIN part 2 that will start July 2020 with Daniella Brals (PhD) works as senior statistical advisor on this project.

3. Meningitis and Tuberculosis

The 'central nervous tuberculosis' or 'tuberculous meningitis' studies that take place in South Africa are in collaboration with the University of Stellenbosch and the affiliated Tygerberg academic hospital in Cape Town. It started in 2008 with a review on the burden of TBM: 'Twenty Years of Paediatric Tuberculous Meningitis: A





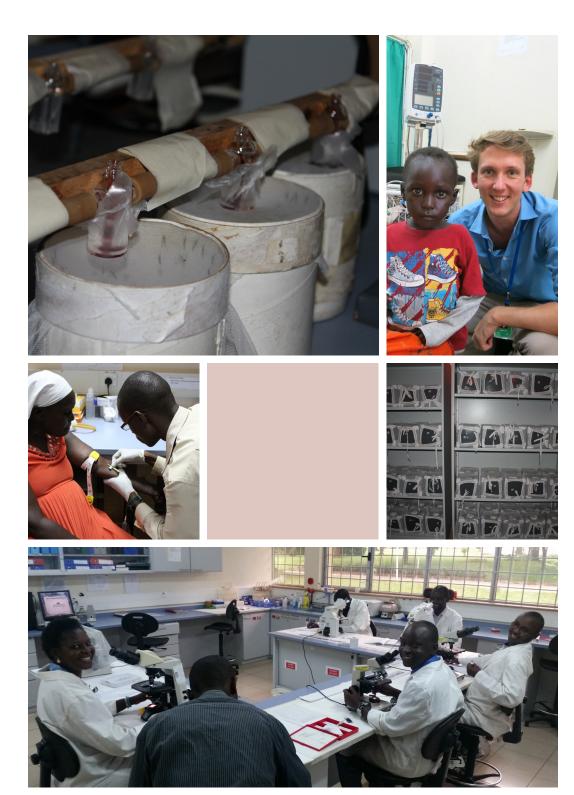
IMPRESSIONS FROM THE MENINGITIS AND TUBERCULOSIS RESEARCH LINE

Retrospective Cohort Study in the Western Cape of South Africa'. The past and current research projects are subdivided in clinical studies and basic science. The first clinical studies focused on early 'pre-clinical' detection of TBM and the host immune response (Regan Solomons and Douwe Visser). In that line of research, metabolomics profiling of urine samples was undertaken to develop a discriminating biosignature for different kinds of meningitis and to understand the metabolic response in TBM (Shayne Mason and ongoing by Simon Isaiah). A large postportem study of a historical cohort of brain specimens studies the immunohistopathology of TBM (ongoing by Dan Zahari). Proteomic profiling of the brain material was recently added on this topic (ongoing Abisola Shoyele). A prospective observational study is undertaken to monitor the effect of nutritional status and immunological status on the 6 months course of TBM (ongoing by Yajna Kooblal).

The Amsterdam Tuberculosis Centre (Amsterdam TBC) was initiated in 2018 by Prof. Marceline Tutu van Furth, ACGCH, together with Prof. Frank Cobelens, director of the AIGHD. The vision of the centre is: "A world free of tuberculosis", with the following mission: "To build the scientific basis for elimination of tuberculosis through multidisciplinary research

and research-based education along the entire research and development chain." The need for the centre is based on the fact that tuberculosis (TB) is among the major global infectious diseases, and worldwide the number-one infectious cause of death. While in rich countries TB incidence rates have fallen dramatically over the past century, the burden of disease in low- and middle-income countries remains high, further compounded by HIV co-infection and increasing rates of anti-tuberculosis drug resistance. There is a global push for eliminating TB as a health problem, supported by the World Health Organization's End TB Strategy, requiring better diagnostics, drugs, vaccines and health service interventions. This calls for massive scale up in research, covering the entire research and development chain from basic science to implementation research. With the alliance of the two universities in Amsterdam merging the existing knowledge on TB into a single centre will provide a major scientific contribution to TB elimination.

The Amsterdam TBC will be complementary to the current Amsterdam UMC structures of research institutes: contrary to these it focuses on a single disease, bringing together various disciplines across the entire R&D chain, including basic microbiology and immunology, clinical/translational research, epidemiology,



IMPRESSIONS FROM THE MALARIA RESEARCH LINE

implementation/social science and health economics. Important added values are strong links with implementation, both clinical and public health, at national (Amsterdam UMC clinical departments, GGD) and international levels (KNCV Tuberculosis Foundation, collaborating clinical sites in low- and middle-income countries), as well as strong links with national and global disease control policy (RIVM, WHO, Stop TB Partnership).

4. Malaria

The malaria research line began with MBvH's "A Trial of Artemether or Quinine in Children with Cerebral Malaria" (NEJM 1996) and Prof. Feiko ter Kuile's (FtK) series of papers on the "Efficacy of permethrin-treated bed nets in the prevention of mortality in young children" (AJTMH 2003). This was followed by multi-centre studies, coordinated by Prof. Kamija Phiri and supervised by MBvH and FtK on the benefit of antimalarial treatment in preventing rebound severe anaemia in African children (Lancet ID 2011). Most recently this research line has been expanded by work by Menno Smit (MS) assessing the safety and efficacy of population-level drug interventions in individuals at risk of malaria in western Kenya. A trial with pregnant women showed that iron supplementation did not increase the risk of malaria infection in the mother's blood, the placenta or the new-born, increased the birth-weight by 234 grams in neonates born to iron deficient mothers, and increased the birthweight by 150 grams in all neonates regardless of maternal iron status (JAMA 2015). A trial with children (1-12 years old) showed that single low dose primaquine with artemisinin combination therapy reduced Plasmodium falciparum gametocyte carriage and reduced transmission to Anopheles mosquitoes (JID 2020), without increasing the risk of haemolysis in both G6PDnormal and G6PD-deficient children (pre-submission). Finally, an initial trial in adults showed that high-doses of ivermectin are safe and kill mosquitoes, which bite treated malaria patients, for at least 28 days after treatment, resulting in a new class of antimalarial drugs (Lancet ID 2018). Population-level modelling showed that in a highly seasonal moderate transmission setting adding high-dose ivermectin to seasonal malaria chemoprevention (SMC) or mass drug administration (MDA) with antimalarials would reduce

clinical incidence of malaria in children under 5 years of age by 77% and 75% respectively compared to SMC/MDA without ivermectin (Lancet ID 2020). This work has attracted a lot of attention and led to more than \$40 million in combined funding for the research groups helping to take this strategy forward. Currently field trials are ongoing in several countries assessing the impact of high-dose ivermectin with SMC/MDA on malaria incidence and prevalence. Further trials are assessing (i) the antiparasitic, i.e. not mosquitocidal, effect of ivermectin against Plasmodium, and (ii) the safety of (high-dose) ivermectin in children <15kg, whom previously have never been included in ivermectin studies and therefore are currently excluded as per the product label. Menno Smit is currently involved in many of these ongoing studies.

5. Anaemia

The anaemia research line was initiated by MBvH in 2002 as part of a Wellcome Trust career development fellowship awarded to study the aetiology and outcome of severe anaemia in Malawian children. This was the start of a very productive research theme which is still ongoing and had the New England Journal of Medicine paper by Calis et al as the initiating paper reporting on the aetiology of severe anaemia in Malawian children. Other papers on the outcome, risk factors and relationship between iron deficiency and susceptibility to infection followed. Especially the role of iron status and supplementation on haematological recovery and HIV disease progression and infection risk was studied in detailed and gave a new insight into the role of iron in infection and haemoglobin recovery. This research line not only resulted in 6 completed PhD tracks (K. Phiri, J. Calis, M. Esan, F. Jonker, A. Dhabangi and M. Huibers), as well as over thirty publications with several of them in high impact factor journals (e.g. NEJM, Lancet, CID). The leading role in this research line has been taken over by Prof. Kamija Phiri of the University of Malawi. Currently he is coordinating a multi-centre study evaluating the impact of intermittent presumptive treatment of malaria on the post discharge morbidity and mortality following a severe anaemia episode. This includes apart from efficacy, a cost-benefit analysis as well as feasibility component.

6. Coma and Convulsions

The coma and convulsions research line, abbreviated to Coco, was initiated by MBvH and JvW in 2015 and funded by a NWO grant. The focus of this project, much like the anaemia research line, was to study the aetiology of coma and convulsions in children in resource poor settings using conventional and state-of-the-art diagnostic techniques. As a proof of concept study, a pilot study was initiated in Malawi, Uganda and Rwanda, coordinated by Arther Edridge who received a AMC PhD Scholarship to continue this work as a PhD student. This project is still ongoing but has already resulted in several successful results. The preliminary results indicate that a wide range of common, uncommon and even novel viruses are implicated in the aetiology of coma and convulsions. One of these included a novel orthobunyavirus, detected in the cerebrospinal fluid of a Ugandan girl with a fatal encephalitis which was published in CID. A current case-control is currently ongoing in the region where the index case came from to determine the burden of the virus. Besides viruses, novel unbiased techniques such as metabolomics, 16s sequencing, indirect murine immunohistochemistry and gene expression profiling are currently being used to look at metabolic, bacterial, auto-immune and other causes in this cohort. To scale up scope of this study, a Wellcome Trust Collaborative Award in Science was recently applied for with a team of European, African, Asian and American researchers, initiated by MBvH, but was unfortunately rejected.

7. HIV

Antiretroviral treatment for HIV has become increasingly available in South Africa. For the treatment to be successful an adherence level of 95% is required. Especially among children, reaching this high level of adherence can be a challenge, given the complex set of both social and material factors that influence adherence. Among those factors, religion plays an important role: e.g. how people view treatment and illness, which influences their health care seeking and treatment behaviour.

Religious structures have become increasingly involved in the HIV epidemic over the past years. Both negative and positive effects on the HIV

epidemic have been reported. Overall, religious structures are a valuable actor when addressing HIV, given their wide reach in communities and influence in daily lives of people. Specifically, religion can support improved paediatric ART adherence.

The research of PhD student Martha Teijmea and Germari Kruger (promotor MTvF) integrates existing literature and previous findings, and collects qualitative and quantitative data in order to better understand and eventually benefit from the interactions between child well-being, the role of religious structures, and HIV health care. This collaborative research can lead to a sustainable intervention involving local stakeholders (community leaders, religious leaders, health care workers, and community members) in Masiphumelele and Gugulethu in the Western Cape. Participants involved include community members, caregivers of children with HIV that receive ART, adolescents, health care workers, policy makers, and other people working in the intersection of health, HIV, and religion. Currently the following three PhD students are working on these project under supervision of promotor MTvF and are expected to defend their PhD's in the coming years:

- T. Msoka. PhD entitled "Effects of long-term use of anti-retroviral drugs and metabolomics changes in patients with HIV infection attending at Kilamanjar Christian Medical Center
- M. Teijema. PhD thesis entitled "Faith initiatives and HIV in the Western Cape Province, South-Africa
- G. Kruger. PhD thesis entitled "Stigma in faith initiatives and HIV in the Western Cape Province, South-Africa

A research line on HIV in Sub-Saharan Africa was initiated in 2010 by Job Calis following the strong link between anaemia and HIV identified in the severe anaemia study. The research line initially focussed on starting HIV treatment and detecting failure in Malawian children (Peter Moons and Minke Huibers). Given the high incidence of treatment failure we joined forces with Prof. Tobias Rinke de Wit and Dr. Cissy Kityo, who also studied resistance in children in Uganda and Nigeria on first and second line HIV treatment. This resulted in several PhD's including the four who were linked to the Global Child

Two Decades of Global Child Health at Amsterdam UMC – Achievements & Activities

Health Group: Sonia Boender, Ragna Boerma, Michaël Esan, Minke Huibers) and twenty publications including those in journals such as Lancet ID, CID and AIDS. The results of these studies have been used to adjust WHO guidelines for HIV treatment in children.

8. Nodding Syndrome

Nodding syndrome (NS) is a mysterious devastating neurological illness occurring in east African children. The epidemiological burden, disease aetiology and treatment are unknown. In 2016 we started a large case-control study, with a detailed clinical component, in the area surrounding Mundri, South Sudan, with the aim of obtaining a better understanding of the size of the problem, risk factors for disease and disease progression, and aetiology. The study is funded by the Dutch Ministry of Foreign Affairs. So far, our field and hospital teams have screened close to 3,000 households and identified over 500 children with NS of which 70 were taken to hospital for detailed investigations. The data are currently being analysed by PhD student Gasim Abd-Elfarac, supervised by MBvH and Dr. E. Rood

of the Royal Tropical Institute (KIT). Results are expected by the end of 2020.

9. Neonatology

Prof. Mirjam van Weissenbruch holds the Desmond Tutu chair (Aim of the chair: "Bridging Diversities for Academic Advancement" coordinated by SAVUSA (South Africa - VU University - Strategic Alliances). One of the most important targets of this program is the stimulation of exchange and guiding of undergraduate and PhD students. The chair has also created the opportunity to further develop the neonatal research agenda by adding South Africa as a second collaborating site aside from Indonesia.

South African (SA) collaboration: In SA neonatal morbidity and mortality is high, with infectious diseases related sepsis as one of the main causes. However, there is not much data available about the epidemiology, aetiology, diagnosis and management of neonatal-sepsis in Sub-Sahara Africa. There is an urgent need to study the outstanding questions related to the right diagnostic approach and optimal treatment of neonatal









IMPRESSIONS FROM NEONATOLOGY (TOP) & ANAEMIA (BOTTOM) RESEARCH LINES

sepsis in Sub-Saharan Africa. Together with neonatologist Lizel lloyd and Angela Dramowski of the Tygerberg Hospital, we are in the process of developing a bedside scoring system together with a cheap point-of-care (POC) test for pro-calcitonine and CRP in order to predict and/or identify neonatal sepsis at an early stage. This may ultimately lead to an improvement in better short- and long-term outcome.

Neonatal sepsis is also the focus of Tessa de Baat's research in collaboration with the Malawi Liverpool Wellcome Trust. Recognition of true neonatal sepsis amongst the large amount of neonates with presumed sepsis is of essential importance to reduce neonatal mortality and the rising problem of antimicrobial resistance in low and middle income countries.

Indonesian (IND) collaboration: The circumstances in Indonesia are in a way comparable to South-Africa. In Indonesia malnutrition, iron deficiency anaemia and chronic infectious diseases, before, during and after pregnancy, are very common. The incidence of prematurity and low birth weight is very high as well as the related mortality. Those who survive have a higher chance of growth restriction especially in the first 2 years of life.

Together with Prof. Rina Madarina (Paediatric Endocrinologist) and two PhD students at the Dr. Sardjito Hospital, University Gadjah Mada, we study the nutrition, hormone regulation, growth and body composition of preterm infants from birth until the corrected age of 6 months. In addition, we also investigate whether there are differences in DNA methylation, which can play an important part in the development of chronic disease due to malnutrition.

Another aim is to start a collaboration with Prof. Hamam Hadi of the Alma Ata University in Yogyakarta to co-investigate the consequences of malnutrition and iron deficiency anaemia in the mother and child in the city (high-income) as well as in the countryside (low-income). With an intensive intervention program already before marriage, information will be offered regarding optimal nutrition. Mother and the growth and development of the child will be followed until the age of two years.

10. Other Projects

- Fever in children in Burkina Faso: aetiology and development of diagnostic tests. P.I: Dr. H. Schallig. PhD student: Francis Kiemde. Coinvestigator: Prof. M. Boele van Hensbroek.
- Microbiome and rotavirus vaccine efficacy in children, adults and a mouse model. Location: Pakistan, Ghana and the Netherlands. PhD student and P.I.: Vanessa Harris.
- MACHS: Evaluation of the impact of the Health Insurance Fund program on maternal and child health in Kwara state, Nigeria. PhD students: Daniella Brals and Deji Aderibigbi.
- 'Giving children a chance for life'. Prof. dr.
 A. Marceline van Furth (VUmc), Martha
 Teijema, Sabine van Elsland (Desmond &
 Leah Tutu Legacy Foundation, Cape Town,
 South-Africa), Maarten Kok (Faculty of Earth &
 Life Sciences, VU).
- #ITOO MENTORING PLATFORM Social responsibility project by Marceline and Mpho Tutu van Furth in 2019: key factors influencing women's participation in leadership. (Ref: Lancet special issue "Advancing women in science, medicine, and global health" (vol 393. Number 10171).





IMPRESSIONS FROM THE NODDING SYNDROME RESEARCH LINE







"It would be amazing if we could find the missing pieces, with which we could reduce infant mortality from malnutrition"

DR. WIEGER VOSKUIJL
GENERAL PAEDIATRICIAN & SENIOR
SCIENTIST

PHD PROGRAMME

SUCCESSFULLY DEFENDED PHD'S				59 otal	3 MEAN PER YEAR
Year	# PhD's				
'00	1	'11	3		
'01	0	'12	10		
'02	1	'13	3		
'03	3	'14	3		
'04	1	'15	6		
'05	1	'16	2		
'06	3	'17	2		
'07	2	'18	3		
'08	2	'19	6		
'09	1	'20	3*		
'10	3				
				* Expecte	d number of defences

A total of 59 PhD students have successfully defended their PhD over the past 20 years. All but one at either the Vrije Universiteit or the University of Amsterdam. At the Vrije Universiteit Prof. Tutu-van Furth took seat as promotor (or co-promotor), at the University of Amsterdam Prof. B. Brabin acted as the promotor between 1999 and 2013 while Prof. M. Boele van Hensbroek did so from 2014 onwards.

One student (K. Phiri) defended his PhD at the University of Liverpool. For a full list of all the published PhDs please refer to Appendix A. List of Publications.

Especially for this report, we've reached out to four PhD alumni and asked to share their story after successfully completing their PhD.

FOUR STORIES

THE STORY OF

PROF. KAMIJA PHIRI

Prof. Kamija Phiri completed his PhD from the Liverpool School of Tropical Medicine under the supervision of Prof. Michaël Boele van Hensbroek and Prof. Bernard Brabin in 2006. He returned to his tenured position at the College of Medicine, University of Malawi in Blantyre to lecture and continue with his research career in anaemia. He secured a number of research grants (EDCTP and HRCSI Senior Fellowships) and grew into an independent researcher and established his own research group within the College of Medicine. In 2012 he was presented with the Merle A. Sande African award for leadership, training and research. He also served as Dean for Postgraduate Studies and Research and later founded the School of Public Health. He developed the PhD curriculum for the college and established masters' programs in epidemiology and global health. In 2015 he was made a full Professor in clinical epidemiology and also made a member of several national malaria policy making bodies.

As a researcher he has continued to have interest in strategies to prevent and treat of malaria in pregnant women and children. He has been awarded approximately \$30million in grants since his PhD. He has recently established an independent research centre (Training and Research Unit of Excellence) currently supporting 4 postdocs and 10 PhD students, research interns and a 100+ member field team with sites across southern Malawi. He also leads a large consortium on post-discharge management of severe anaemia in children with trial sites in Kenya, Uganda and Malawi and with collaborators in UK (LSTM, LSHTM, Imperial College), Norway and USA. He recently was granted funding to establish a multidisciplinary multinational network to tackle anaemia in Sub-Sahara Africa.

THE STORY OF

DR. FRANCINE VERHOEFF

Two electives in Kenya, whilst being a medical student and foundation doctor in Leiden, gave Dr. Verhoeff the taste for further endeavours in tropical medicine. After following the Tropical Medicine & Hygiene course at the Liverpool School of Tropical Medicine in 1992, she was appointed as field investigator for an EU funded research project based in Malawi where she spent 3 years in the Chikwawa District. The Chikwawa district is known as the hottest and wettest area of the country assuring plenty of malaria to assess the consequences of malaria in pregnancy in mother and child.

In 2001, after completing her paediatric training in the Netherlands, she went back to Liverpool to become coordinator of the newly established PREgnancy and MAlaria network PREMA-EU. She combined this with working part-time as paediatrician in a local hospital. This was a perfect combination for several years but international travel became more difficult with a young family and she decided to focus on her paediatric career. She currently works as a consultant in a large teaching hospital in Liverpool. Her main interest still remains improving health for the many, this may no longer be in Africa, but Liverpool has a diverse population and her years in tropical Medicine taught her the importance of Public Health.

THE STORY OF

PROF. RALF WEIGEL

Prof. Ralf Weigel completed his PhD under the supervison of Prof. Bernard Brabin in 2012. Between 2002 and 2010 he was employed by the Ministry of Health in Lilongwe, Malawi, as clinical advisor for the Lighthouse Trust supported by the German technical cooperation. His role included mentoring, supervision, clinical care and operations research in diagnosis, treatment and prevention of HIV and TB.

Between 2010 and 2017 he worked at LSTM as a Senior Clinical Lecturer under the Education and Scholarship track to lead innovative learning and teaching for the Master's programmes in Clinical Sciences and contribute to LSTM's attainment of independent Higher Education status and Degree Awarding Powers. He was the Director of Studies for the MSc in Tropical and Infectious Diseases and MSc in Tropical Paediatrics programmes and convened the postgraduate modules Current clinical challenges, HIV in resource limited settings and Development of a disease control programme. He was also holding a post in the UK's National Health System as an Honorary Consultant Paediatrician at Alder Hey children's hospital in Liverpool.

Since October 2017 Prof. Weigel holds the Friede Springer endowed Professorship of Global Child Health at the Witten/Herdecke University, Faculty of Health, Department of Medicine, Germany.

PROF. STEPHEN GRAHAM

Prof. Stephen Graham's PhD studies focused on the devastating impact of the HIV epidemic on the epidemiology of respiratory disease in Malawian children. He was awarded the Leverhulme Medal by Liverpool School of Tropical Medicine for distinguished contribution to tropical medicine in 2007. Since returning to Australia from Malawi in 2008, his research has focussed on important causes of neonatal and child morbidity and mortality in the Asia-Pacific region. A particular commitment to capacity building through research in resource-limited settings – including supervision of PhD studies in Indonesia, Vietnam, Bangladesh and Papua New Guinea as well as conducting operational research training courses in PNG and Fiji. He is now Professor of International Child Health with The University of Melbourne, Group Leader in International Child Health with The Murdoch Childrens Research Institute, and Principal Research Fellow with The Burnet Institute, Melbourne.

He is particularly recognised for global and regional contribution to increasing attention to tuber-culosis in children and adolescents – detection, treatment and prevention. Throughout his time in Malawi (1995-2007), Prof. Graham was responsible for inpatient and outpatient care of children and young adolescents with TB, collaborated with the Malawi NTP and conducted TB-related research. He was a founding member of WHO's Child TB sub-group (now Child and Adolescent Working Group), and was Chair from 2011 until 2017, as well as a member of WHO's Strategic Technical Advisory Group on TB. Under his leadership, the attention to child TB globally increased markedly, child-friendly fixed-dose combination treatments were developed, children were integrated with the WHO End TB Strategy (2015) and the first international Roadmap for Child TB was developed. Since 2009, he has been a consultant in child TB and lung health for the International Union Against Tuberculosis and Lung Disease (The Union, France) and was awarded the Karel Styblo Public Health Prize by The Union in 2015.



TEACHING & TRAINING

In the Netherlands

TEACHING AND EDUCATIONAL PROGRAMS ON GLOBAL HEALTH FOR MEDICAL STUDENTS AT THE AMSTERDAM UMC

(Vrije Universiteit and University of Amsterdam).

- Bachelor's students: 2nd and 3rd years.
- · Master's students.

CERTIFICATE COURSE IN TROPICAL PAEDIATRICS AND CHILD HEALTH

- Introductory course in Tropical Paediatrics, based at the Emma Children's Hospital, location AMC, coordinated by Linde Nieuwenhuys and Prof. M. Boele v Hensbroek.
- This course offers 5 sessions of 5 hours, the 20th annual course is planned.
- Target group: Paediatric registrars and Tropical Medicine and International Health registrars, based in the Netherlands (average 18 participants/year).

SUMMER SCHOOL GLOBAL CHILD HEALTH - UNIVERSITY OF UTRECHT AND UNIVERSITY OF AMSTERDAM

- One week summer school started in 2018.
- Target groups: Master students and junior doctors from the Netherlands and international.
- The Amsterdam CGCH contributes to the organisation as well as the teaching.

REGULAR CONTRIBUTIONS BY AMSTERDAM CGCH MEMBERS TO OTHER DUTCH TRAINING COURSES:

- Masters in Anthropology (University of Amsterdam)
- NTC-Tropical Medicine Course (Royal Tropical Institute [KIT], Amsterdam)
- Tropical courses for Medical Students (University of Amsterdam, Leiden University)

International

MSF-EMMA CHILDREN'S HOSPITAL TROPICAL PAEDIATRIC COURSE

- Tailor made, 10 days annual course developed and started by M. Boele van Hensbroek and conducted at Queen's Elisabeth General Hospital, Blantyre, Malawi. Started in 2006.
- Target groups: MSF doctors and senior nurses.
- Currently the Amsterdam CGCH contributes teachers, but does not take part in the organisation of the course.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.

 Annual diploma course of the Liverpool School of Tropical Medicine (LSTM), England.

POST-GRADUATE TRAINING OF PAEDIATRICS REGISTRARS

- Coordination of a six-months paediatric rotation at the Department of Paediatrics of Queen Elisabeth Central Hospital (Queens), College of Medicine, University of Malawi.
- This long standing relationship has developed into an official collaboration between the Emma Children's Hospital and the Paediatric Department of Queens, Blantyre, Malawi.

PAEDIATRIC SUPPORT ST. DAMIEN HOSPITAL, PORT AUX PRINCE, HAITI.

- Collaboration started on request from the 'Wereld ouders' NGO in 2017.
- The aim is to give sub-specialist support to the medical staff of St. Damien paediatric hospital through short visits by Emma Children's Hospital sub-specialists (nurses as well as doctors).
- The first visit was successfully done by R. Simons, former nursing head of the Emma Children's Hospital-PICU. The following visits will include a HIV and haematology specialist.













IMPRESSIONS FROM TEACHING AND/OR TRAINING



DR. VOSKUIJL AT THE NUTRITION REHABILITATION UNIT

Iwo Decades of Global Child Health at Amsterdam UMC – Achievements & Activities

JOURNAL REVIEWS

in alphabetical order

Acta Paediatrica (MW)

AIDS (MBvH)

L'Agence Nationale de la Recherche projects

(ANR France; MS)

American Journal of Clinical Nutrition (BB)

Annals of Tropical Paediatrics and International Child Health (MBvH, BB)

Archives of Diseases of Childhood (MBvH, BB,

WV, MW)

BMC (MBvH, WV)

BMC-ID (MBvH, JC)

BMC-Nutrition (WV)

BMC-Paediatrics (WV)

BMC Pregnancy and Childbirth (BB)

BMC-Medicine (BB)

BMJ-Open (MBvH, WV, JC)

British Medical Journal Infection and

Immunology (MBvH)

Bulletin World Health Organisation (BB)

Clinical Chemistry and Laboratory Medicine

(MW)

Ebiomedicine (JC)

Fertility and Sterility (MW)

Gates Open Research (MS)

Hormone Research (MW)

Human Reproduction (MW)

Infection and Immunity (BB)

International Journal of Epidemiology (BB)

JAMA (MBvH, BB, MW)

Journal of Antimicrobial Chemotherapy (MS)

Journal of Infectious Diseases (MBvH)

Journal of Infection (BB)

JPGN (WV)

Journal of Clinical Endocrinology and

Metabolism (MW)

Journal of Neuroinflammation (MvdK)

Journal of Public Health Medicine (BB)

Journal of Tropical Paediatrics (JC)

Lancet (MBvH, BB)

Lancet Global Health (JC)

Malaria Journal (MBvH, BB, MS)

Malawi Medical Journal (JC)

MRC projects (WV, BB)

New England Journal of Medicine (BB, JC)

Netherlands Journal of Critical Care (JC)

Obesity (MW)

Parasitology (MBvH)

Parasitology Today (BB)

Paediatrics (MBvH, BB, JC)

Paediatric Research (MW)

Paediatric Infectious Diseases Journal (MBvH)

PLoS Medicine (MBvH, WV)

PLoS NTD (MS)

PLoS One (MBvH, WV, MW)

Public Health Nutrition (BB)

Toxicology (MW)

Tropical Medicine and International Health

(MBvH, BB, JC)

Transactions of the Royal Society of Tropical

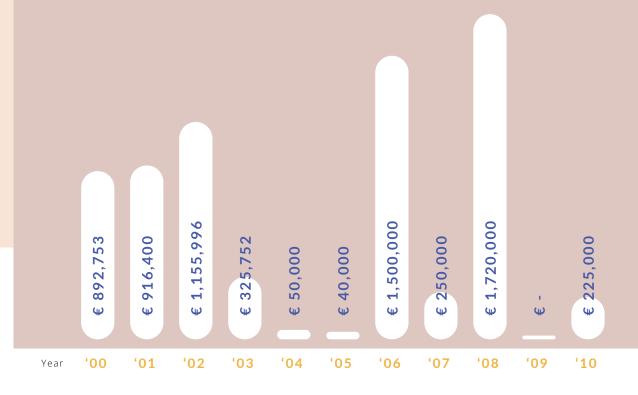
Medicine and Hygiene (MBvH, BB)

Tropical Doctor (WV)

Wellcome Trust Population and Health

Projects (BB)

FUNDING

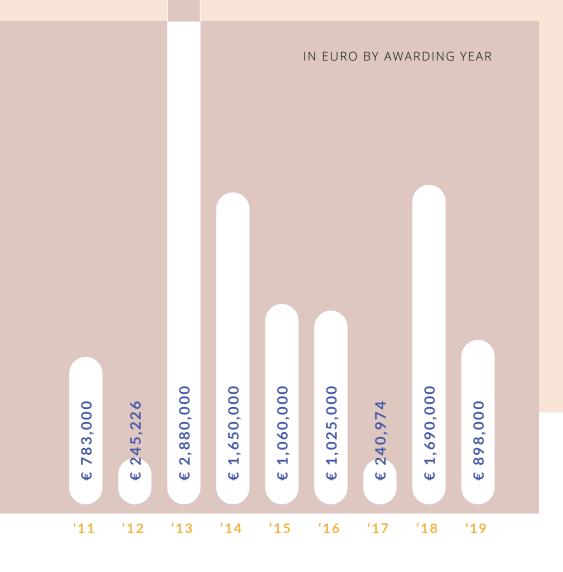


Core funding

- 1999-2013: Annual remittance to LSTM covering administrative cost Prof. B Brabin and running cost: Emma Children's Hospital-AMC. € 27,000.
- 2013-present: Salary support secretarial support GCHG: Emma Children's Hospital-AMC. € 20,000/year.
- 2013-present: Salary support Prof. M. Boele van Hensbroek. Division A (Department of Global Health, AMC), 0,3 FTE.
- 2018-present: Salary support Dr. W.P. Voskuijl. Division A (Department of Global Health, AMC), 0,2 FTE.

Grants obtained ongoing

- 2016-2020: South Sudan Nodding Syndrome Study (SSNSS). Ministry of Foreign Affairs, €1.000.000 (M. Boele van Hensbroek).
- 2017-2021: Encephalopathies of unknown cause in children in resource poor settings. AMC-PhD fellowship A. Edridge €216.064 (M. Boele van Hensbroek).
- 2018-2020: Minimally Invasive Tissue Sampling in children dying of an acute illness with varying forms of undernutrition; determining Causes of Death within the Malawian 'CHAIN' cohort. "MITS in CHAIN. Bill and Melinda Gates Foundation \$1.400.000,- total funding (W.P. Voskuijl).
- 2018-2020: Shock in children; epidemiology, early recognition and pathophysiology.



€17.7m TOTAL OVER 20 YEARS

> €887k MEAN PER YEAR

€3.7mGRANTS
OBTAINED
ONGOING

Please refer to Annex B. for a detailed overview of all grants obtained

Stichting Steun Emma: € 30.000 (J.C.J. Calis).

- 2018-2022: Optimizing strategies for the diagnosis of hospital-acquired neonatal sepsis in low resource settings: Tygerberg Hospital, Stellenbosch University South Africa., €100.000 (M. Weissenbruch.).
- 2018-2022: Effect of Global DNA Methylation Status At Birth And Early Life Nutrition To The Growth Velocity and Nutritional Status In Low Birth Weight Infants. Gadja Mada University/ Sardjito General Hospital. €80.000 (M. Weissenbruch).
- 2018-2022: Body Composition of Premature Infants at Term Equivalent Age (2018-2022). Gadja Mada University/ Sardjito General Hospital. €80.000. (M. Weissenbruch).
- 2019-2020: Monitoring device for children in

RPS. NWO, € 40.000 (J v Woensel)

- 2019-2021: Improving HIV care in Indonesian children through Monitoring, Evaluation and Clinical Research (INDIGO). Ter Meulen foundation and Emma Children's Hospital-GCHG funding. €28.000. (M. Boele van Hensbroek).
- 2019: AI&I TBM. Doortje Heemskerk: €80.000 (M. Tutu v Furth).
- 2019: Doctoral training grant for South African PhD. NRF-Nuffic: €80.000 (M. Tutu v Furth).
- CHAIN-2: Pancreatic Enzymes and Bile acids: A non-antibiotic approach to treat intestinal dysbiosis in acutely ill severy malnourished children (PB-SMAL). USD 640.000 (W.P. Voskuijl)

PUBLICATIONS

During the reporting period a total of 307 manuscripts were published in peer reviewed medical journals with major contributions by members of the Amsterdam Centre for Global Child Health. This included publications in high impact journals, like the New England Journal of Medicine and The Lancet, but also in journals with a high impact in the local medical communities, like the Malawi Medical Journal. The average number of publications per year, over the reporting period was 15, but there is a steady increase in numbers over time, with over 20 publications per year in the most recent years. When interpreting these numbers, one must realise however, that over the study period the number of scientific staff also increased to eight in recent years.

More important is the fact that we have made major contributions to the general knowledge and understanding in several important areas of Global Child Health. For example, the severe anaemia research line has made major contributions towards our understanding of the aetiology, pathogenesis, treatment and prevention of this often fatal paediatric syndrome. Especially our work on the role of iron-infection interactions and the importance of malaria prevention have had an important impact on treatment and prevention strategies worldwide. The work done on TB meningitis in South African children and animal models has given insight in early diagnosis of TBM patients and treatment adherence and on mycobacterial brain invasion and the brain immune response. Finally, our work on severe malnutrition in Malawian children has made a major contribution towards our understanding of the clinical phenotyping of children with complicated severe malnutrition. In addition much information about gastro-intestinal dysfunction in these children and potential new treatments have been investigated. A complete list of all publications can be found in Annex A.

Summary			307 15 TOTAL MEAN PER YEAR
Year	# PhD's		
'99	9	'10	12
'00	3	'11	13
'01	6	'12	15
'02	7	'13	14
'03	10	'14	18
'04	12	'15	20
'05	9	'16	24
'06	18	'17	21
'07	14	'18	25
'08	16	'19	28
'09	13		
			Only global child health relevant papers included from core members

FUTURE PERSPECTIVES

STRATEGIC PLAN 2020-2024

There is no time to sit back! Despite the progress that has been made over the past two decades, global mortality among young children is still unacceptably high, especially in low-resource settings (LRS). Knowledge of paediatrics and scientific research into the causes, pathophysiology, treatment and disease outcomes in children in LRS are therefore still necessary.

Over the past decades, the Netherlands has developed into a more globalised society in which, paediatricians may encounter rare tropical diseases, epidemics of emerging infectious diseases, as well as various cultural perceptions of childhood disease by parents from different ethnic backgrounds. Furthermore, mortality in children from ethnic minorities in the Netherlands is substantially higher than that of Dutch Caucasian children. Finally, frequent paediatric medical care is required after (natural) disasters, conflicts and massive migration, as recently became clear in the refugee camps on, for example, Lesbos, Greece. The conclusion from the above may therefore only be that good knowledge of Global Child Health (GCH) is essential not only for paediatricians (in training) who want to work in LRS, but also for those who remain working in the Netherlands.

Currently, GCH knowledge is fragmented and spread over many sub-specialists, working in

various institutes throughout the Netherlands. This means that it is difficult to find the right specialist if advice is needed about a specific patient, but also if a GCH item (for example, new developments in the field of tuberculosis treatment or malnutrition) must be interpreted in the media. In addition, it can also be a challenge to find the right teacher for the development and / or teaching of modules in the field of GCH. Finally, the fragmented knowledge does not promote the formation of knowledge networks for the development and implementation of GCH related research proposals.

Bringing a wide range of sub-specialists together in one group, the "Amsterdam Centre for Global Child Health (Amsterdam CGCH)", pools knowledge, creates shorter lines and improves effectiveness (for example, if a paediatrician has to contribute to medical teams deployed in international relief actions).

The initiative to further develop an Amsterdam CGCH fits in seamlessly with the name, ambition and international image that the Amsterdam UMC has in the field of Global Health and Internationalisation and which has already taken shape in the Amsterdam Institute for Global Health and Development (AIGHD).

THEME 1

AMSTERDAM CGCH AS KNOWLEDGE CENTRE FOR CLINICAL QUESTIONS

Over the past two decades, expertise in the field of GCH has been built up in the field of GCH in both the (former) VUmc and the (former) AMC. With the alliance of the two institutes the expertise has been merged resulting in at least one expert in each of the following key areas within GCH: neonatology, intensive care, malnutrition, anaemia, oncology, meningitis, malaria, tuberculosis and HIV. The alliance has also brought together education and research experts in low-resource settings. This concentration of GCH expertise in one centre (Amsterdam UMC) is unique for the Netherlands. The experts listed in the table below are affiliated with the Amsterdam CGCH.

In the coming years, the Amsterdam CGCH wants to further distinguish itself as an (inter) national knowledge Centre in the field of GCH and make this knowledge available to the following target groups and situations:

1. Medical professionals inside and outside the Netherlands. The Amsterdam CGCH wants

- to be the centre for consultation and advice for (paediatric) doctors in the Netherlands with regard to the diagnosis and treatment of children with suspicion of a "tropical disease". It is expected that with more brand awareness both the number of consultations and the number of referred patients to the Amsterdam CGCH will increase in the coming years.
- 2. The aim of the Amsterdam CGCH is to set up a 'paediatric task force', in which members of the Amsterdam CGCH can be deployed ad hoc via partners such as Doctors without Borders if international emergencies arise where GCH expertise is required.
- Media or government agencies seeking expertise to identify or interpret a particular GCH health problem.
- 4. Donors ("Funders") who are looking for opportunities to sponsor paediatric projects in low-research settings.

Experts affiliated with the Amsterdam CGCH

Neonatology	Prof. Mirjam van Weissenbruch Drs. Tessa de Baat			
Intensive care	Dr. Job Calis Prof. Job van Woensel			
Malnutrition	Dr. Wieger Voskuijl			
Anaemia	Dr. Job Calis Prof. Michaël Boele van Hensbroek			
Oncology	Dr. Minke Huibers			
Meningitis	Prof. Marceline Tutu - van Furth Dr. Martijn van der Kuip			
Malaria	Dr. Menno Smit Prof. Michaël Boele van Hensbroek			
Tuberculosis	Prof. Marceline Tutu – van Furth Dr. Martijn van der Kuip			
HIV	Dr. Job Calis			

Iwo Decades of Global Child Health at Amsterdam UMC – Future perspectives

SCIENTIFIC RESEARCH

The doctors of the Amsterdam CGCH are initiators of, or are very closely involved in, various research projects and programs in low research settings. In this regard, there is close cooperation with the Amsterdam Institute of Global Health & Development (AIGHD) of the Global Health department of the Amsterdam UMC. In recent years, this has resulted in the acquisition of major research grants and the publication of dozens of scientific articles every year. The current research areas of the Amsterdam CGCH are:

Malaria: this infectious disease still has a high morbidity and mortality and the research is aimed at optimising treatment and prevention of new infections and complications.

Tuberculosis (TB): In children, TB can quickly lead to an often life-threatening infection in the brain (TB meningitis). The research into this (in animal models and in humans) aims to gain a better understanding of pathophysiology in order to develop more effective treatments.

HIV: In children, HIV is a treatable disease, but (still) without any prospect of a cure. Good therapy compliance helps to prevent resistance and complications. This can be monitored with the "HIV Monitoring Foundation" (SHM) monitoring system. This system is being evaluated with our partners in Indonesia.

Nodding Syndrome: This is a neurological disease that only occurs in children in East Africa and has nodding as one of the hallmark symptoms. Epidemiology (including the extent of the problem), aetiology and treatment are unknown. The research, in South Sudan, focuses on the first two aspects.

Shock & critical care: Shock is a leading cause of death for (young) children in LRS. Not enough is known about the aetiology of

childhood shock in LRS. In Malawi, research is conducted into the aetiology and risk factors in the context of the 'critical care' research line.

Coma & convulsions: These neurological syndromes are very common in LRS and are a frequent reason for hospitalisation, with high mortality rates in this case as well. Cerebral malaria has long been considered the leading cause, but now that malaria is less common and the incidence of coma and convulsions has not decreased proportionately, research into other causes is a priority. This research is carried out by the Amsterdam CGCH in Uganda, Rwanda and Malawi.

Severe anaemia: This syndrome, too, is still associated with high mortality in young childre, in particular after hospital discharge. Prevention and treatment have been subjects of ongoing research for more than a decade, with the most recent research focusing on the prevention of malaria and bacterial infections.

Oncology: it is estimated that two-thirds of children diagnosed with cancer live in a low resource setting. Survival of these children is extremely low. Research in Malawi focuses on improving the treatment of children with cancer in this setting with a special focus on the effect of severe malnutrition on treatment.

The future

An important aspect of the scientific program of the Amsterdam CGCH is research capacity building in the countries where the research is carried out. This is done by setting up research sites, training local researchers and supporting staff, but above all by training local PhD students. In the past two decades, more than 40 local students have successfully defended their dissertations at the UvA or VU and obtained their PhD. Given the current number of

PhD students, it is expected that this successful program will continue in its current size in the next five years.

The Amsterdam CGCH wants to further strengthen the existing lines of research, as described above, through cross-pollination and new initiatives. In particular, efforts will be made to further expand the research lines 'critical care' and 'malnutrition'. In addition, there are advanced plans to develop a new line of research with a focus on migration issues, both in the Netherlands and in refugee camps on the borders of Europe. The newly to be established 'Paediatric Task Force' of the Amsterdam CGCH will also have its own line of research.

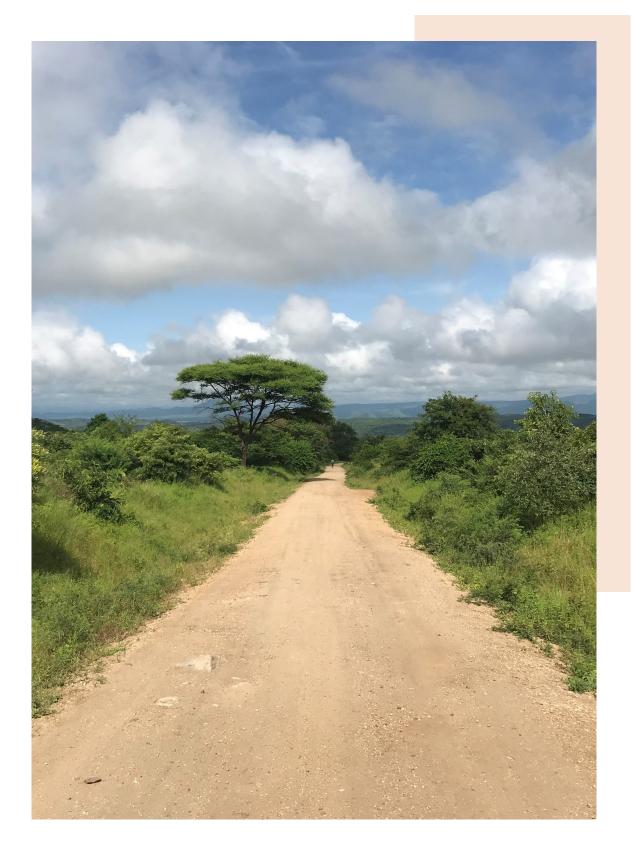
THEME 3

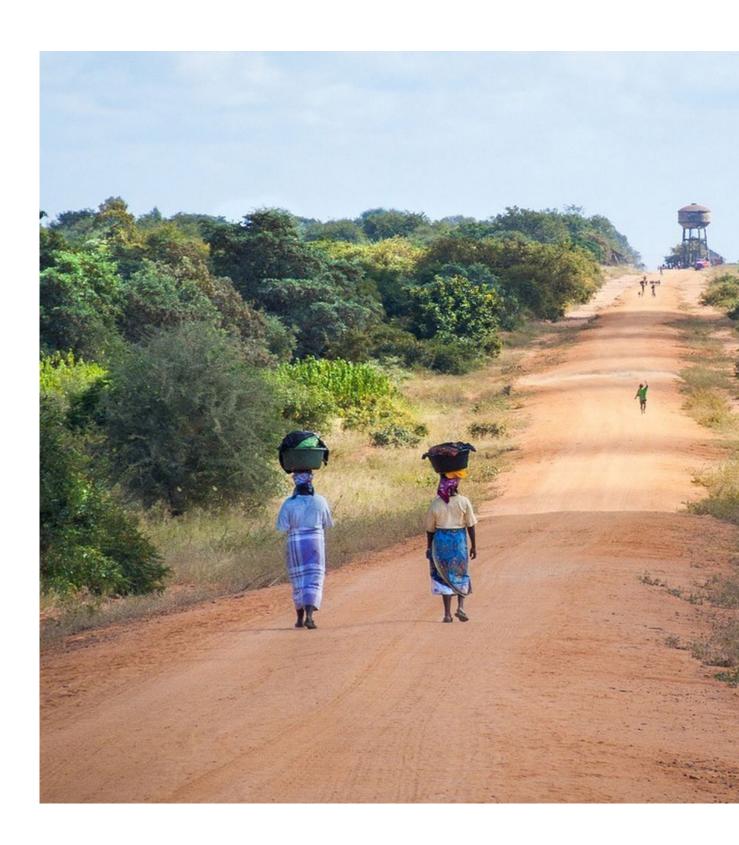
TRAINING & EDUCATION

Within the Amsterdam UMC, Amsterdam CGCH doctors are involved in the education of medical students in the Bachelors and the Master phase. In addition, for more than twenty years, a multi-day course "Global Child Health" has been given to paediatricians and Doctors of International Health and Tropical Medicine in Training (AIGT). Outside the Amsterdam UMC, Amsterdam CGCH physicians contribute to courses and training in Amsterdam, Leiden, Utrecht and Liverpool (England) and Blantyre (Malawi). In addition, the Amsterdam CGCH

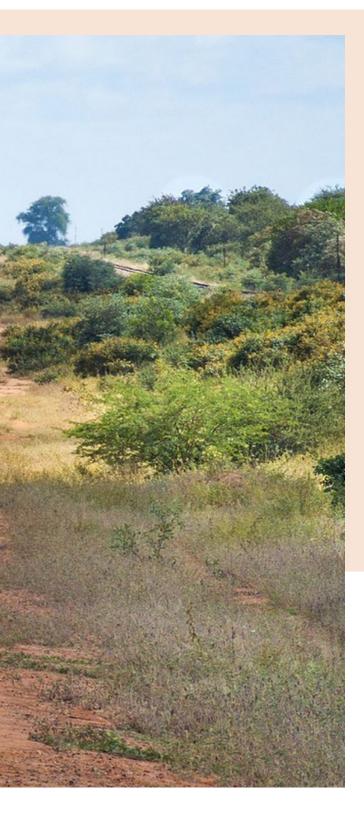
organises annual courses and summer schools for (para) medics. The aim is to further expand these educational activities in the coming years, including by offering new courses.

Finally, the Amsterdam CGCH plays a central role in creating opportunities for paediatric registrars to work for at least six months in children's wards in collaborating hospitals in low-resource settings. This offers much-needed paediatric support to local hospitals and allow registrars to develop GCH expertise.









"By training and educating medical students today, I hope to pass on the baton one day"

PROF. MICHAËL BOELE VAN HENSBROEK HEAD OF THE AMSTERDAM CENTRE FOR GLOBAL CHILD HEALTH

ANNEX

ANNEX A

LIST OF PUBLICATIONS

FULL LIST BY SENIOR STAFF MEMBER

Publications 1999

Brabin B. *Iron pots for cooking: wishful thinking or traditional common sense?* **The Lancet**. 1999;353(9154):690-1. http://doi.org/10.1016/s0140-6736(98)00370-5.

Brabin BJ, Agbaje SOF, Ahmed Y, Briggs ND. *A birthweight nomogram for Africa, as a malaria-control indicator*. **Annals of Tropical Medicine & Parasitology**. 1999;93(sup1):S43-S57. http://doi.org/10.1080/00034983.1999.11813503.

Brabin B, Wit JM, Broadhead R, Schulpen T, Heymans H. *Developing country twinning programmes in paediatric oncology*. **Lancet**. 1999;353(9155):847-8. http://doi.org/10.1016/S0140-6736(05)76670-8.

Enwere GC, Van Hensbroek MB, Jaiteh B, Palmer A, Onyiorah E, Schneider G, Weber MW, Greenwood BM. *Biochemical and haematological variables in Gambian children with cerebral malaria*. **Ann Trop Paediatr**. 1999;19(4):327-32. http://doi.org/10.1080/02724939992158.

Panpanich R, Brabin B, Gonani A, Graham S. *Are orphans at increased risk of malnutrition in Malawi?* **Ann Trop Paediatr**. 1999;19(3):279-85. http://doi.org/10.1080/02724939992374.

Verhoeff FH, Brabin BJ, Chimsuku L, Kazembe P, Broadhead RL. *Malaria in pregnancy and its consequences for the infant in rural Malawi*. **Ann Trop Med Parasitol**. 1999;93 Suppl 1(sup1):S25-33. http://doi.org/10.1080/00034989957718.

Verhoeff FH, Brabin BJ, Hart CA, Chimsuku L, Kazembe P, Broadhead RL. *Increased prevalence of malaria in HIV-infected pregnant women and its implications for malaria control.* **Trop Med Int Health**. 1999;4(1):5-12. http://doi.org/10.1046/j.1365-3156.1999.00349.x.

Verhoeff FH, Brabin BJ, Chimsuku L, Kazembe P, Broadhead RL. *An analysis of the determinants of anaemia in pregnant women in rural Malawi—a basis for action*. **Annals of Tropical Medicine & Parasitology**. 1999;93(2):119-33. http://doi.org/10.1080/00034983.1999.11813402.

Weber MW, Zimmermann U, van Hensbroek MB, Frenkel J, Palmer A, Ehrich JH, Greenwood BM. *Renal involvement in Gambian children with cerebral or mild malaria*. **Trop Med Int Health**. 1999;4(5):390-4. http://doi.org/10.1046/j.1365-3156.1999.00409.x.

Zijlmans CWR, De Boom WHC, Frenkel J, Boele van Hensbroek M. *De behandeling van malaria bij kinderen*. **Tijdschr Kindergeneeskunde**. 1999;67(4).

Publications 2000

Boele van Hensbroek M, de Vries E, Dolan G, Schneeberger P. *Rash and petechiae as presenting signs of Q fever*. **Pediatr Infect Dis J**. 2000;19(4):358. http://doi.org/10.1097/00006454-200004000-00021.

Brabin L, Fazio-Tirrozzo G, Shahid S, Agbaje O, Maxwell S, Broadhead R, Briggs N, Brabin B. *Tetanus antibody levels among adolescent girls in developing countries*. **Transactions of the Royal Society of Tropical Medicine and Hygiene**. 2000;94(4):455-9. http://doi.org/10.1016/s0035-9203(00)90139-1.

Shukla P, Graham SM, Borgstein A, Nhlane A, Harper G, Brabin BJ. *Sickle cell disease and vitamin E deficiency in children in developing countries*. **Trans R Soc Trop Med Hyg**. 2000;94(1):109. http://doi.org/10.1016/s0035-9203(00)90460-7.

Zachar V, Fazio-Tirrozzo G, Fink T, Roberts DJ, Broadhead RL, Brabin B, Ebbesen P. *Lack of protection against vertical transmission of HIV-1 by interferons produced during pregnancy in a cohort from East African republic of Malawi.* **J Med Virol.** 2000;61(2):195-200. http://doi.org/10.1002/(sici)1096-9071(200006)61:2<195::aid-jmv4>3.0.co;2-a.

Zijlmans CWR, Brabin BJ. *Hoofdstuk 'Malaria'*. In: De Meer K, Tjon A Ten WE, Wolf BHM, editors. **Werkboek Importziekten bij Kinderen**. Amsterdam: VU Uitgeverij; 2000. ISBN 9053837167.

Publications 2001

Aweis D, Brabin BJ, Beeching NJ, Bunn JE, Cooper C, Gardner K, Iriyagolle C, Hart CA. *Hepatitis B prevalence and risk factors for HBsAg carriage amongst Somali households in Liverpool.* **Commun Dis Public Health**. 2001;4(4):247-52.

Brabin B, Rogerson S. *Chapter 'The epidemiology and outcomes of maternal malaria'*. In: Duffy P, Fried M, editors. **Malaria in Pregnancy: Deadly Parasite Susceptible Host**: Taylor & Francis; 2001. p. 27-52. ISBN 9780203356159 9780203302255.

Brabin BJ. *Contibutor*. In: World Health Organization, editor. **Management of Severe Malaria, A Practical Handbook**. Geneva: WHO; 2001

Brabin BJ, Hakimi M, Pelletier D. *An analysis of anemia and pregnancy-related maternal mortality*. **J Nutr**. 2001;131(2S-2):604S-14S; discussion 14S-15S. http://doi.org/10.1093/jn/131.2.604S.

Brabin BJ, Premji Z, Verhoeff F. *An analysis of anemia and child mortality*. **J Nutr**. 2001;131(2S-2):636S-45S; discussion 46S-48S. http://doi.org/10.1093/jn/131.2.636S.

Brabin BJ, Rizwan S. *Prenatal risk factors of wheezing at the age of four years in Tanzania*. **Thorax**. 2001;56(11):897. http://doi.org/10.1136/thorax.56.11.897a.

Piper C, Brabin BJ, Alpers MP. *Higher risk of post-partum hemorrhage in malarious than in non-malarious areas of Papua New Guinea*. **International Journal of Gynecology & Obstetrics**. 2001;72(1):77-8. http://doi.org/10.1016/s0020-7292(00)00323-4.

Shulman C, Dorman E, Brabin BJ. *Section 'Malaria in Pregnancy'*. In: MacLean AB, Regan L, Carrington D, editors. **Infection and Pregnancy**. London: RCOG Press; 2001. p. 124-36

The Artemether-Quinine Meta-analysis Study Group. A meta-analysis using individual patient data of trials comparing artemether with quinine in the treatment of severe falciparum malaria. **Transactions of the Royal Society of Tropical Medicine and Hygiene**. 2001;95(6):637-50. http://doi.org/10.1016/s0035-9203(01)90104-x.

Verhoeff FH, Brabin BJ, van Buuren S, Chimsuku L, Kazembe P, Wit JM, Broadhead RL. *An analysis of intra-uterine growth retardation in rural Malawi*. **Eur J Clin Nutr**. 2001;55(8):682-9. http://doi.org/10.1038/sj.ejcn.1601200.

Publications 2002

Brabin BJ. Sections on 'Measles' and 'Immunisation'. In: Southall DP, editor. **International child health care: a practical manual for hospitals worldwide**. London: BMJ Books; 2002. p. 454-6 and 108-10. ISBN 9780727914767 0727914766.

Brabin BJ, Verhoeff FH. *Section 'Maternal Mortality and Malaria'*. In: MacLean AB, Neilson JP, editors. **Maternal Morbidity and Mortality**. London: RCOG Press; 2002. ISBN 9781900364768 190036476X.

Brabin L, Verhoeff F, Brabin BJ. *Maternal height, birthweight and cephalo pelvic disproportion in urban Nigeria and rural Malawi*. **Acta Obstet Gynecol Scand**. 2002;81(6):502-7. http://doi.org/10.1034/j.1600-0412.2002.810605.x.

Calis J, Bakker ML, Elens RB, Borgdorff M, Harries AD. *Mortality in smear-negative tuberculosis patients in Phalombe*. **Malawi Med J**. 2002;14(2):13-4. http://doi.org/10.4314/mmj.v14i2.10760.

Dewan N, Wood L, Maxwell S, Cooper C, Brabin B. *Breast-feeding knowledge and attitudes of teenage mothers in Liverpool.* **J Hum Nutr Diet**. 2002;15(1):33-7. http://doi.org/10.1046/j.1365-277x.2002.00332.x.

le Cessie S, Verhoeff FH, Mengistie G, Kazembe P, Broadhead R, Brabin BJ. *Changes in haemoglobin levels in infants in Malawi: effect of low birth weight and fetal anaemia*. **Arch Dis Child Fetal Neonatal Ed**. 2002;86(3):F182-7. http://doi.org/10.1136/fn.86.3.f182.

Panpanich R, Vitsupakorn K, Harper G, Brabin B. Serum and breast-milk vitamin A in women during lactation in rural Chiang Mai, Thailand. **Ann Trop Paediatr**. 2002;22(4):321-4. http://doi.org/10.1179/027249302125001976.

Prinsen Geerligs P, Brabin B, Mkumbwa A, Broadhead R, Cuevas LE. *Acceptability of the use of iron cooking pots to reduce anaemia in developing countries*. **Public Health Nutr**. 2002;5(5):619-24. http://doi.org/10.1079/PHN2002341.

Yamaguchi S, Dunga A, Broadhead RL, Brabin BJ. *Epidemiology of measles in Blantyre, Malawi: analyses of passive surveillance data from 1996 to 1998*. **Epidemiol Infect**. 2002;129(2):361-9. http://doi.org/10.1017/s0950268802007458.

Publications 2003

Brabin B, Prinsen-Geerligs P, Verhoeff F, Kazembe P. *Anaemia prevention for reduction of mortality in mothers and children*. **Trans R Soc Trop Med Hyg**. 2003;97(1):36-8. http://doi.org/10.1016/s0035-9203(03)90014-9.

Brabin BJ. Chapter 'International Child Health'. In: McIntosh N, Helms PJ, Smyth RL, editors. Forfar & Arneil's Textbook of Pediatrics. 6th edition ed. Edinburgh: Churchill Livingstone; 2003. ISBN 0443071926 9780443071928 0443071985 9780443071980.

Brabin BJ, Alexander Fletcher K, Brown N. *Do disturbances within the folate pathway contribute to low birth weight in malaria?* **Trends in Parasitology**. 2003;19(1):39-43. http://doi.org/10.1016/s1471-4922(02)00004-1.

Dewan N, Brabin B, Wood L, Dramond S, Cooper C. *The effects of smoking on birthweight-for-gestation-al-age curves in teenage and adult primigravidae*. **Public Health**. 2003;117(1):31-5. http://doi.org/10.1016/s0033-3506(02)00003-3.

Iwo Decades of Global Child Health at Amsterdam UMC – Annex

Geerligs PD, Brabin BJ, Eggelte TA. Analysis of the effects of malaria chemoprophylaxis in children on haematological responses, morbidity and mortality. **Bull World Health Organ**. 2003;81(3):205-16.

Geerligs PD, Brabin BJ, Omari AA. Food prepared in iron cooking pots as an intervention for reducing iron deficiency anaemia in developing countries: a systematic review. **J Hum Nutr Diet**. 2003;16(4):275-81. http://doi.org/10.1046/j.1365-277x.2003.00447.x.

Geerligs PP, Brabin B, Mkumbwa A, Broadhead R, Cuevas LE. *The effect on haemoglobin of the use of iron cooking pots in rural Malawian households in an area with high malaria prevalence: a randomized trial.* **Trop Med Int Health**. 2003;8(4):310-5. http://doi.org/10.1046/j.1365-3156.2003.01023.x.

Gies S, Brabin BJ, Yassin MA, Cuevas LE. Comparison of screening methods for anaemia in pregnant women in Awassa, Ethiopia. **Trop Med Int Health**. 2003;8(4):301-9. http://doi.org/10.1046/j.1365-3156.2003.01037.x.

Publications 2004

Brabin BJ, Eggelte TA, Parise M, Verhoeff F. Dapsone therapy for malaria during pregnancy: maternal and fetal outcomes. **Drug Saf.** 2004;27(9):633-48. http://doi.org/10.2165/00002018-200427090-00002.

Brabin BJ, Kalanda BF, Verhoeff FH, Chimsuku LH, Broadhead RL. *Risk factors for fetal anaemia in a malarious area of Malawi*. **Ann Trop Paediatr**. 2004;24(4):311-21. http://doi.org/10.1179/027249304225019136.

Brabin BJ, Prinsen-Geerligs PD, Verhoeff FH, Fletcher KA, Chimsuku LH, Ngwira BM, Leich OJ, Broadhead RL. *Haematological profiles of the people of rural southern Malawi: an overview*. **Ann Trop Med Parasitol**. 2004;98(1):71-83. http://doi.org/10.1179/000349804225003055.

Brabin BJ, Romagosa C, Abdelgalil S, Menendez C, Verhoeff FH, McGready R, Fletcher KA, Owens S, D'Alessandro U, Nosten F, Fischer PR, Ordi J. *The sick placenta-the role of malaria*. **Placenta**. 2004;25(5):359-78. http://doi.org/10.1016/j.placenta.2003.10.019.

Emhamed MO, van Rheenen P, Brabin BJ. *The early effects of delayed cord clamping in term infants born to Libyan mothers*. **Trop Doct**. 2004;34(4):218-22. http://doi.org/10.1177/004947550403400410.

Julia M, van Weissenbruch MM, de Waal HA, Surjono A. *Influence of socioeconomic status on the prevalence of stunted growth and obesity in prepubertal Indonesian children*. **Food Nutr Bull**. 2004;25(4):354-60. http://doi.org/10.1177/156482650402500405.

Nosten F, Rogerson SJ, Beeson JG, McGready R, Mutabingwa TK, Brabin B. *Malaria in pregnancy and the endemicity spectrum: what can we learn?* **Trends Parasitol**. 2004;20(9):425-32. http://doi.org/10.1016/j.pt.2004.06.007.

Prinsen Geerligs PD, Brabin BJ, Hart DJ, Fairweather-Tait SJ. *Iron contents of Malawian foods when prepared in iron cooking pots.* **Int J Vitam Nutr Res**. 2004;74(1):21-6. http://doi.org/10.1024/0300-9831.74.1.21.

Rizwan S, Reid J, Kelly Y, Bundred PE, Pearson M, Brabin BJ. *Trends in childhood and parental asthma prevalence in Merseyside, 1991-1998.* **J Public Health (Oxf)**. 2004;26(4):337-42. http://doi.org/10.1093/pubmed/fdh180.

Rumsey DS, Brabin L, Mfutso-Bengo JM, Cuevas LE, Hogg A, Brabin BJ. *Effectiveness of drama in promoting voluntary HIV counselling and testing in rural villages in southern Malawi*. **Int J STD AIDS**. 2004;15(7):494-6. http://doi.org/10.1258/0956462041211270.

van Rheenen P, Brabin BJ. Late umbilical cord-clamping as an intervention for reducing iron deficiency anaemia in term infants in developing and industrialised countries: a systematic review. **Ann Trop Paediatr**. 2004;24(1):3-16. http://doi.org/10.1179/027249304225013286.

Verhoeff FH, Le Cessie S, Kalanda BF, Kazembe PN, Broadhead RL, Brabin BJ. *Post-neonatal infant mortality in Malawi: the importance of maternal health*. **Ann Trop Paediatr**. 2004;24(2):161-9. http://doi.org/10.1179/027249304225013448.

Wort UU, Hastings IM, Carlstedt A, Mutabingwa TK, Brabin BJ. *Impact of El Nino and malaria on birthweight in two areas of Tanzania with different malaria transmission patterns*. **Int J Epidemiol**. 2004;33(6):1311-9. http://doi.org/10.1093/ije/dyh256.

Publications 2005

Brabin BJ, Johnson PM. *Placental malaria and pre-eclampsia through the looking glass backwards?* **J Reprod Immunol**. 2005;65(1):1-15. http://doi.org/10.1016/j.jri.2004.09.006.

Brabin L, Brabin BJ. *HIV, malaria and beyond: reducing the disease burden of female adolescents.* **Malar J.** 2005;4:2. http://doi.org/10.1186/1475-2875-4-2.

Kalanda BF, van Buuren S, Verhoeff FH, Brabin BJ. *Anthropometry of fetal growth in rural Malawi in relation to maternal malaria and HIV status*. **Arch Dis Child Fetal Neonatal Ed**. 2005;90(2):F161-5. http://doi.org/10.1136/adc.2004.054650.

Kalanda BF, van Buuren S, Verhoeff FH, Brabin BJ. *Anthropometry of Malawian live births between 35 and 41 weeks of gestation*. **Ann Hum Biol**. 2005;32(5):639-49. http://doi.org/10.1080/03014460500228675.

Kalanda BF, van Buuren S, Verhoeff FH, Brabin BJ. Catch-up growth in Malawian babies, a longitudinal study of normal and low birthweight babies born in a malarious endemic area. **Early Hum Dev**. 2005;81(10):841-50. http://doi.org/10.1016/j.earlhumdev.2005.06.006.

Milledge J, Calis JC, Graham SM, Phiri A, Wilson LK, Soko D, Mbvwinji M, Walsh AL, Rogerson SR, Molyneux ME, Molyneux EM. *Aetiology of neonatal sepsis in Blantyre, Malawi: 1996-2001.* **Ann Trop Paediatr.** 2005;25(2):101-10. http://doi.org/10.1179/146532805X45692.

Nkhoma E, van Hensbroek PB, van Lieshout L, van Hensbroek MB. *Severe anaemia in an 11-month-old girl*. **Lancet**. 2005;365(9465):1202. http://doi.org/10.1016/S0140-6736(05)71885-7.

Owens S, Chamley LW, Ordi J, Brabin BJ, Johnson PM. *The association of anti-phospholipid antibodies with parity in placental malaria*. **Clin Exp Immunol**. 2005;142(3):512-8. http://doi.org/10.1111/j.1365-2249.2005.02936.x.

Perret C, Chanthavanich P, Pengsaa K, Limkittikul K, Hutajaroen P, Bunn JE, Brabin BJ. *Dengue infection during pregnancy and transplacental antibody transfer in Thai mothers*. **J Infect**. 2005;51(4):287-93. http://doi.org/10.1016/j.jinf.2004.10.003.

Publications 2006

Delpisheh A, Attia E, Drammond S, Brabin BJ. *Adolescent smoking in pregnancy and birth outcomes*. **Eur J Public Health**. 2006;16(2):168-72. http://doi.org/10.1093/eurpub/cki219.

Delpisheh A, Kelly Y, Brabin BJ. *Passive cigarette smoke exposure in primary school children in Liverpool.* **Public Health**. 2006;120(1):65-9. http://doi.org/10.1016/j.puhe.2005.05.003.

Delpisheh A, Kelly Y, Rizwan S, Brabin BJ. Socio-economic status, smoking during pregnancy and birth outcomes: an analysis of cross-sectional community studies in Liverpool (1993-2001). **J Child Health Care**. 2006;10(2):140-8. http://doi.org/10.1177/1367493506062553.

Julia M, van Weissenbruch MM, Delemarre-van de Waal HA, Surjono A. *The influence of socioeconomic status on blood pressure of Indonesian prepubertal children*. **J Hum Hypertens**. 2006;20(7):546-8. http://doi.org/10.1038/sj.jhh.1002028.

Kalanda BF, Verhoeff FH, Brabin BJ. Breast and complementary feeding practices in relation to morbidity and growth in Malawian infants. **Eur J Clin Nutr**. 2006;60(3):401-7. http://doi.org/10.1038/sj.ejcn.1602330.

Kalanda BF, Verhoeff FH, Brabin BJ. *Size and morbidity in Malawian twins*. **Eur J Clin Nutr**. 2006;60(5):598-604. http://doi.org/10.1038/sj.ejcn.1602356.

Kalanda BF, Verhoeff FH, Brabin BJ. Chronic malnutrition in pregnant adolescents in rural Malawi: an anthropometric study. **Acta Obstet Gynecol Scand**. 2006;85(1):33-9. http://doi.org/10.1080/00016340500334869.

Kalanda BF, Verhoeff FH, Chimsuku L, Harper G, Brabin BJ. *Adverse birth outcomes in a malarious area*. **Epidemiol Infect**. 2006;134(3):659-66. http://doi.org/10.1017/S0950268805005285.

Kalanda GC, Hill J, Verhoeff FH, Brabin BJ. Comparative efficacy of chloroquine and sulphadoxine--pyrimethamine in pregnant women and children: a meta-analysis. **Trop Med Int Health**. 2006;11(5):569-77. http://doi.org/10.1111/j.1365-3156.2006.01608.x.

Loscertales MP, Brabin BJ. ABO phenotypes and malaria related outcomes in mothers and babies in The Gambia: a role for histo-blood groups in placental malaria? **Malar J**. 2006;5:72. http://doi.org/10.1186/1475-2875-5-72.

McGready R, Ashley EA, Tan SO, Brabin B, Nosten F. *Re: Malaria in pregnancy.* **BJOG**. 2006;113(2):246. http://doi.org/10.1111/j.1471-0528.2005.00831.x.

Nosten F, McGready R, d'Alessandro U, Bonell A, Verhoeff F, Menendez C, Mutabingwa T, Brabin B. *Antimalarial drugs in pregnancy: a review*. **Curr Drug Saf**. 2006;1(1):1-15. http://doi.org/10.2174/157488606775252584.

Owens S, Harper G, Amuasi J, Offei-Larbi G, Ordi J, Brabin BJ. *Placental malaria and immunity to infant measles*. **Arch Dis Child**. 2006;91(6):507-8. http://doi.org/10.1136/adc.2005.085274.

van Rheenen PF, Brabin BJ. *A practical approach to timing cord clamping in resource poor settings*. **BMJ**. 2006;333(7575):954-8. http://doi.org/10.1136/bmj.39002.389236.BE.

van Rheenen PF, Brabin BJ. Effect of timing of cord clamping on neonatal venous hematocrit values and clinical outcome at term: a randomized, controlled trial. **Pediatrics**. 2006;118(3):1317-8; author reply 8-9. http://doi.org/10.1542/peds.2006-1053.

van Rheenen PF, Gruschke S, Brabin BJ. Delayed umbilical cord clamping for reducing anaemia in low birthweight infants: implications for developing countries. **Ann Trop Paediatr**. 2006;26(3):157-67. http://doi.org/10.1179/146532806X120246.

Wort UU, Hastings I, Mutabingwa TK, Brabin BJ. The impact of endemic and epidemic malaria on the risk of stillbirth in two areas of Tanzania with different malaria transmission patterns. **Malar J**. 2006;5:89. http://doi.org/10.1186/1475-2875-5-89.

Wort UU, Warsame M, Brabin BJ. *Birth outcomes in adolescent pregnancy in an area with intense malaria transmission in Tanzania*. **Acta Obstet Gynecol Scand**. 2006;85(8):949-54. http://doi.org/10.1080/00016340600756870.

Publications 2007

Al-Saqladi AW, Delpisheh A, Bin-Gadeem H, Brabin BJ. *Clinical profile of sickle cell disease in Yemeni children*. **Ann Trop Paediatr**. 2007;27(4):253-9. http://doi.org/10.1179/146532807X245634.

Brabin B. *Infant vitamin A supplementation: consensus and controversy.* **Lancet**. 2007;369(9579):2054-6. http://doi.org/10.1016/S0140-6736(07)60956-8.

Brabin BJ. *Congenital malaria--a recurrent problem*. **Ann Trop Paediatr**. 2007;27(2):95-8. http://doi.org/10.1179/146532807X192453.

Delpisheh A, Kelly Y, Rizwan S, Attia E, Drammond S, Brabin BJ. *Population attributable risk for adverse pregnancy outcomes related to smoking in adolescents and adults*. **Public Health**. 2007;121(11):861-8. http://doi.org/10.1016/j.puhe.2007.03.015.

Desai M, ter Kuile FO, Nosten F, McGready R, Asamoa K, Brabin B, Newman RD. *Epidemiology and burden of malaria in pregnancy*. **Lancet Infect Dis**. 2007;7(2):93-104. http://doi.org/10.1016/S1473-3099(07)70021-X.

Loscertales MP, Owens S, O'Donnell J, Bunn J, Bosch-Capblanch X, Brabin BJ. *ABO blood group phenotypes and Plasmodium falciparum malaria: unlocking a pivotal mechanism*. **Adv Parasitol**. 2007;65:1-50. http://doi.org/10.1016/S0065-308X(07)65001-5.

Msyamboza K, Senga E, Tetteh-Ashong E, Kazembe P, Brabin BJ. *Estimation of effectiveness of interventions for malaria control in pregnancy using the screening method*. **Int J Epidemiol**. 2007;36(2):406-11. http://doi.org/10.1093/ije/dyl301.

Rizwan S, Manning JT, Brabin BJ. *Maternal smoking during pregnancy and possible effects of in utero testosterone: evidence from the 2D:4D finger length ratio*. **Early Hum Dev**. 2007;83(2):87-90. http://doi.org/10.1016/j.earlhumdev.2006.05.005.

Savage EJ, Msyamboza K, Gies S, D'Alessandro U, Brabin BJ. *Maternal anaemia as an indicator for monitoring malaria control in pregnancy in sub-Saharan Africa*. **BJOG**. 2007;114(10):1222-31. http://doi.org/10.1111/j.1471-0528.2007.01420.x.

Senga E, Loscertales MP, Makwakwa KE, Liomba GN, Dzamalala C, Kazembe PN, Brabin BJ. *ABO blood group phenotypes influence parity specific immunity to Plasmodium falciparum malaria in Malawian women.* **Malar J.** 2007;6:102. http://doi.org/10.1186/1475-2875-6-102.

Uddenfeldt Wort U, Hastings I, Bergstrom S, Massawe S, Lipingu C, Brabin BJ. *Increased postpartum blood loss in pregnancies associated with placental malaria*. **Int J Gynaecol Obstet**. 2007;96(3):171-5. http://doi.org/10.1016/j.ijgo.2006.11.023.

van Rheenen P, de Moor L, Eschbach S, de Grooth H, Brabin B. *Delayed cord clamping and haemoglobin levels in infancy: a randomised controlled trial in term babies.* **Trop Med Int Health**. 2007;12(5):603-16. http://doi.org/10.1111/j.1365-3156.2007.01835.x.

van Well GT, van der Mark LB, Vermeulen RJ, van Royen BJ, Wuisman PI, van Furth AM. *Spinal tuberculosis in a 14-year-old immigrant in the Netherlands*. **Eur J Pediatr**. 2007;166(10):1071-3. http://doi.org/10.1007/s00431-006-0347-1.

van Well GT, Wieland CW, Florquin S, Roord JJ, van der Poll T, van Furth AM. *A new murine model to study the pathogenesis of tuberculous meningitis*. **J Infect Dis**. 2007;195(5):694-7. http://doi.org/10.1086/511273.

Publications 2008

Al-Saqladi AW, Cipolotti R, Fijnvandraat K, Brabin BJ. *Growth and nutritional status of children with homozygous sickle cell disease*. **Ann Trop Paediatr**. 2008;28(3):165-89. http://doi.org/10.1179/146532808X335624.

Brabin BJ, Warsame M, Uddenfeldt-Wort U, Dellicour S, Hill J, Gies S. *Monitoring and evaluation of malaria in pregnancy - developing a rational basis for control.* **Malar J**. 2008;7 Suppl 1(Suppl 1):S6. http://doi.org/10.1186/1475-2875-7-S1-S6.

Calis JC, Phiri KS, Faragher EB, Brabin BJ, Bates I, Cuevas LE, de Haan RJ, Phiri AI, Malange P, Khoka M, Hulshof PJ, van Lieshout L, Beld MG, Teo YY, Rockett KA, Richardson A, Kwiatkowski DP, Molyneux ME, van Hensbroek MB. *Severe anemia in Malawian children*. **N Engl J Med**. 2008;358(9):888-99. http://doi.org/10.1056/NEJMoa072727.

Calis JC, Rotteveel HP, van der Kuyl AC, Zorgdrager F, Kachala D, van Hensbroek MB, Cornelissen M. Severe anaemia is not associated with HIV-1 env gene characteristics in Malawian children. **BMC Infect Dis**. 2008;8:26. http://doi.org/10.1186/1471-2334-8-26.

Calis JC, van Hensbroek MB, de Haan RJ, Moons P, Brabin BJ, Bates I. *HIV-associated anemia in children: a systematic review from a global perspective*. **AIDS**. 2008;22(10):1099-112. http://doi.org/10.1097/QAD.0b013e3282fa759f.

Delpisheh A, Brabin L, Attia E, Brabin BJ. *Pregnancy late in life: a hospital-based study of birth outcomes*. **J Womens Health (Larchmt)**. 2008;17(6):965-70. http://doi.org/10.1089/jwh.2008.051410.1089/jwh.2007.0511.

Delpisheh A, Brabin L, Drummond S, Brabin BJ. *Prenatal smoking exposure and asymmetric fetal growth restriction*. **Ann Hum Biol**. 2008;35(6):573-83. http://doi.org/10.1080/03014460802375596.

Delpisheh A, Kelly Y, Rizwan S, Brabin BJ. *Salivary cotinine, doctor-diagnosed asthma and respiratory symptoms in primary schoolchildren*. **Matern Child Health J**. 2008;12(2):188-93. http://doi.org/10.1007/s10995-007-0229-9.

Delpisheh A, Topping J, Reyad M, Tang A, Brabin BJ. *Prenatal alcohol exposure, CYP17 gene polymorphisms and fetal growth restriction*. **Eur J Obstet Gynecol Reprod Biol**. 2008;138(1):49-53. http://doi.org/10.1016/j.ejogrb.2007.08.006.

Driessen GJ, Pereira RR, Brabin BJ, Hartwig NG. *Imported malaria in children: a national surveillance in the Netherlands and a review of European studies*. **Eur J Public Health**. 2008;18(2):184-8. http://doi.org/10.1093/eurpub/ckm101.

Gies S, Coulibaly SO, Ouattara FT, Ky C, Brabin BJ, D'Alessandro U. A community effectiveness trial of strategies promoting intermittent preventive treatment with sulphadoxine-pyrimethamine in pregnant women in rural Burkina Faso. **Malar J**. 2008;7:180. http://doi.org/10.1186/1475-2875-7-180.

Jones CJ, Owens S, Senga E, van Rheenen P, Faragher B, Denton J, Brabin BJ. *Placental expression of alpha2,6-linked sialic acid is upregulated in malaria*. **Placenta**. 2008;29(3):300-4. http://doi.org/10.1016/j. placenta.2007.12.007.

Julia M, van Weissenbruch MM, Prawirohartono EP, Surjono A, Delemarre-van de Waal HA. *Tracking for underweight, overweight and obesity from childhood to adolescence: a 5-year follow-up study in urban Indonesian children*. **Horm Res**. 2008;69(5):301-6. http://doi.org/10.1159/000114862.

Phiri KS, Calis JC, Faragher B, Nkhoma E, Ng'oma K, Mangochi B, Molyneux ME, van Hensbroek MB. *Long term outcome of severe anaemia in Malawian children*. **PLoS One**. 2008;3(8):e2903. http://doi.org/10.1371/journal.pone.0002903.

Uddenfeldt Wort U, Warsame M, Brabin BJ. *Potential use of birthweight indicators in rural Tanzania for monitoring malaria control in pregnancy*. **Public Health**. 2008;122(9):923-32. http://doi.org/10.1016/j. puhe.2007.12.012.

van Rheenen PF, de Moor LT, Eschbach S, Brabin BJ. A cohort study of haemoglobin and zinc protoporphyrin levels in term Zambian infants: effects of iron stores at birth, complementary food and placental malaria. **Eur J Clin Nutr**. 2008;62(12):1379-87. http://doi.org/10.1038/sj.ejcn.1602862.

Publications 2009

Al-Saqladi AW, Delpisheh A, Bin-Gadeem HA, Brabin BJ. Severity of sickle cell disease in Yemeni children. J **Trop Pediatr**. 2009;55(3):208-9. http://doi.org/10.1093/tropej/fmn109.

Al-Sonboli N, Al-Aghbari N, Al-Aryani A, Atef Z, Brabin B, Shenkin A, Roberts E, Harper G, Hart CA, Cuevas LE. *Micronutrient concentrations in respiratory syncytial virus and human metapneumovirus in Yemeni children*. **Ann Trop Paediatr**. 2009;29(1):35-40. http://doi.org/10.1179/146532809X402015.

Brabin BJ, Coulter JBS. *Chapter 'Nutrition-associated Disease'*. In: Cook GC, Zumla AI, editors. **Manson's Tropical Diseases**: Elsevier; 2009. p. 537-55. ISBN 9781416044703.

Brabin BJ, Owens S, Bunn JEG. *Chapter 'Paediatrics in the Tropics'*. In: Cook GC, Zumla AI, editors. **Manson's Tropical Diseases**: Elsevier; 2009. p. 445-61. ISBN 9781416044703.

Brabin BJ, Wasame M, Uddenfeldt-Wort U, Dellicour S, Hill J, Gies S. *Correction: Monitoring and evaluation of malaria in pregnancy - developing a rational basis for control.* **Malar J**. 2009;8(1):146. http://doi.org/10.1186/1475-2875-8-146.

Delpisheh A, Brabin L, Topping J, Reyad M, Tang AW, Brabin BJ. *A case-control study of CYP1A1, GSTT1 and GSTM1 gene polymorphisms, pregnancy smoking and fetal growth restriction*. **Eur J Obstet Gynecol Reprod Biol**. 2009;143(1):38-42. http://doi.org/10.1016/j.ejogrb.2008.11.006.

Elemraid MA, Mackenzie IJ, Fraser WD, Brabin BJ. *Nutritional factors in the pathogenesis of ear disease in children: a systematic review*. **Ann Trop Paediatr**. 2009;29(2):85-99. http://doi.org/10.1179/146532809X440707.

Franco JM, Gurgel R, Sole D, Lucia Franca V, Brabin B, Brazilian IG. *Socio-environmental conditions* and geographical variability of asthma prevalence in Northeast Brazil. **Allergol Immunopathol (Madr)**. 2009;37(3):116-21. http://doi.org/10.1016/S0301-0546(09)71722-7.

Gies S, Coulibaly SO, Ky C, Ouattara FT, Brabin BJ, D'Alessandro U. Community-based promotional campaign to improve uptake of intermittent preventive antimalarial treatment in pregnancy in Burkina Faso. **Am J Trop Med Hyg**. 2009;80(3):460-9. http://doi.org/10.4269/ajtmh.2009.80.460.

Gulati R, Bailey R, Prentice AM, Brabin BJ, Owens S. *Haematological effects of multimicronutrient sup*plementation in non-pregnant Gambian women. **Eur J Clin Nutr**. 2009;63(8):970-7. http://doi.org/10.1038/ ejcn.2009.11.

Msyamboza KP, Savage EJ, Kazembe PN, Gies S, Kalanda G, D'Alessandro U, Brabin BJ. Community-based distribution of sulfadoxine-pyrimethamine for intermittent preventive treatment of malaria during pregnancy improved coverage but reduced antenatal attendance in southern Malawi. **Trop Med Int Health**. 2009;14(2):183-9. http://doi.org/10.1111/j.1365-3156.2008.02197.x.

Phiri KS, Calis JC, Kachala D, Borgstein E, Waluza J, Bates I, Brabin B, van Hensbroek MB. *Improved method for assessing iron stores in the bone marrow*. **J Clin Pathol**. 2009;62(8):685-9. http://doi.org/10.1136/jcp.2009.064451.

Phiri KS, Calis JC, Siyasiya A, Bates I, Brabin B, van Hensbroek MB. *New cut-off values for ferritin and soluble transferrin receptor for the assessment of iron deficiency in children in a high infection pressure area.* **J Clin Pathol**. 2009;62(12):1103-6. http://doi.org/10.1136/jcp.2009.066498.

Tolboom JJM, Goyens P, Brabin BJ. *Hoofdstuk 'Tropische Kindergeneeskunde'*. In: Van de Brande JL, editor. **Leerboek Kindergeneeskunde**. Utrecht: De Tijdstroom; 2009. ISBN 9789058980793.

van Well GT, Paes BF, Terwee CB, Springer P, Roord JJ, Donald PR, van Furth AM, Schoeman JF. Twenty years of pediatric tuberculous meningitis: a retrospective cohort study in the western cape of South Africa. **Pediatrics**. 2009;123(1):e1-8. http://doi.org/10.1542/peds.2008-1353.

Zijlmans WC, van Kempen AA, Serlie MJ, Sauerwein HP. *Glucose metabolism in children: influence of age, fasting, and infectious diseases*. **Metabolism**. 2009;58(9):1356-65. http://doi.org/10.1016/j.metabol.2009.04.020.

Publications 2010

Al-Saqladi AW, Bin-Gadeen HA, Brabin BJ. *Growth in children and adolescents with sickle cell disease in Yemen*. **Ann Trop Paediatr**. 2010;30(4):287-98. http://doi.org/10.1179/146532810X12858955921113.

Al-Saqladi AW, Brabin BJ, Bin-Gadeem HA, Kanhai WA, Phylipsen M, Harteveld CL. *Beta-globin gene cluster haplotypes in Yemeni children with sickle cell disease*. **Acta Haematol**. 2010;123(3):182-5. http://doi.org/10.1159/000294965.

Al-Saqladi AW, Harper G, Delpisheh A, Fijnvandraat K, Bin-Gadeem HA, Brabin BJ. *Frequency of the MTHFR C677T polymorphism in Yemeni children with sickle cell disease*. **Hemoglobin**. 2010;34(1):67-77. http://doi.org/10.3109/09687630903554111.

Bandsma RH, Mendel M, Spoelstra MN, Reijngoud DJ, Boer T, Stellaard F, Brabin B, Schellekens R, Senga E, Heikens GT. *Mechanisms behind decreased endogenous glucose production in malnourished children*. **Pediatr Res**. 2010;68(5):423-8. http://doi.org/10.1203/PDR.0b013e3181f2b959.

Boele van Hensbroek M, Calis JC, Phiri KS, Vet R, Munthali F, Kraaijenhagen R, van den Berg H, Faragher B, Bates I, Molyneux ME. *Pathophysiological mechanisms of severe anaemia in Malawian children*. **PLoS One**. 2010;5(9):e12589. http://doi.org/10.1371/journal.pone.0012589.

Calis JC, Phiri KS, Vet RJ, de Haan RJ, Munthali F, Kraaijenhagen RJ, Hulshof PJ, Molyneux ME, Brabin BJ, Boele van Hensbroek M, Bates I. *Erythropoiesis in HIV-infected and uninfected Malawian children with severe anemia*. **AIDS**. 2010;24(18):2883-7. http://doi.org/10.1097/QAD.0b013e32833fed27.

Cheema B, Molyneux EM, Emmanuel JC, M'Baya B, Esan M, Kamwendo H, Kalilani-Phiri L, Boele van Hensbroek M. *Development and evaluation of a new paediatric blood transfusion protocol for Africa*. **Transfus Med**. 2010;20(3):140-51. http://doi.org/10.1111/j.1365-3148.2010.00989.x.

Elemraid MA, Brabin BJ, Fraser WD, Harper G, Faragher B, Atef Z, Al-Aghbari N, Mackenzie IJ. Characteristics of hearing impairment in Yemeni children with chronic suppurative otitis media: a case-control study. **Int J Pediatr Otorhinolaryngol**. 2010;74(3):283-6. http://doi.org/10.1016/j.ijporl.2009.12.004.

Koshy G, Delpisheh A, Brabin BJ. *Trends in prevalence of childhood and parental asthma in Merseyside,* 1991-2006. **J Public Health (Oxf)**. 2010;32(4):488-95. http://doi.org/10.1093/pubmed/fdq027.

Koshy G, Delpisheh A, Brabin L, Attia E, Brabin BJ. *Parental smoking and increased likelihood of female births*. **Ann Hum Biol**. 2010;37(6):789-800. http://doi.org/10.3109/03014461003742803.

Msyamboza K, Ngwira B, Banda R, Mkwanda S, Brabin B. Sentinel surveillance of lymphatic filariasis, schistosomiasis soil transmitted helminths and malaria in rural southern Malawi. **Malawi Med J**. 2010;22(1):12-4. http://doi.org/10.4314/mmj.v22i1.55901.

Msyamboza K, Savage E, Kalanda G, Kazembe P, Gies S, D'Alessandro U, Brabin BJ. *Trends in pregnancy outcomes in Malawian adolescents receiving antimalarial and hematinic supplements*. **Acta Obstet Gynecol Scand**. 2010;89(8):1011-6. http://doi.org/10.3109/00016349.2010.487892.

Publications 2011

Elemraid MA, Mackenzie IJ, Fraser WD, Harper G, Faragher B, Atef Z, Al-Aghbari N, Brabin BJ. *A case-control study of nutritional factors associated with chronic suppurative otitis media in Yemeni children.* **Eur J Clin Nutr**. 2011;65(8):895-902. http://doi.org/10.1038/ejcn.2011.58.

Esan MO, Phiri KS, Molyneux EM, Mukaka M, Cheema B, Boele van Hensbroek M. *High transfusion failure rates in Malawian children with severe anaemia following a standard blood transfusion regimen*. **Br J Haematol**. 2011;154(6):783-5. http://doi.org/10.1111/j.1365-2141.2011.08779.x.

Gomo E, Kalilani L, Mwapasa V, Trigu C, Phiri K, Schmidt J, Boele van Hensbroek M. *Towards Sustainable Research Capacity Development and Research Ownership for Academic Institutes in Developing Countries: The Malawian Research Support Centre Model.* **Journal of Research Administration**. 2011;42(1):38-45.

Two Decades of Global Child Health at Amsterdam UMC - Annex

Kapito-Tembo A, Meshnick SR, van Hensbroek MB, Phiri K, Fitzgerald M, Mwapasa V. *Marked reduction in prevalence of malaria parasitemia and anemia in HIV-infected pregnant women taking cotrimoxazole with or without sulfadoxine-pyrimethamine intermittent preventive therapy during pregnancy in Malawi.* J Infect Dis. 2011;203(4):464-72. http://doi.org/10.1093/infdis/jiq072.

Koshy G, Delpisheh A, Brabin BJ. *Childhood obesity and parental smoking as risk factors for childhood ADHD in Liverpool children*. **Atten Defic Hyperact Disord**. 2011;3(1):21-8. http://doi.org/10.1007/s12402-010-0041-z.

Koshy G, Delpisheh A, Brabin BJ. *Dose response association of pregnancy cigarette smoke exposure, child-hood stature, overweight and obesity*. **Eur J Public Health**. 2011;21(3):286-91. http://doi.org/10.1093/eurpub/ckq173.

Obihara CC, Tutu-van Furth AM, Marais BJ, Detjens AK. *Overview of mycobacterial diseases in children*. **Europ Inf Dis**. 2011:102-11.

Raiten DJ, Namaste S, Brabin B. Considerations for the safe and effective use of iron interventions in areas of malaria burden - executive summary. **Int J Vitam Nutr Res**. 2011;81(1):57-71. http://doi.org/10.1024/0300-9831/a000051.

Raiten DJ, Namaste S, Brabin B, Combs G, Jr., L'Abbe MR, Wasantwisut E, Darnton-Hill I. *Executive summary--Biomarkers of Nutrition for Development: Building a Consensus.* **Am J Clin Nutr.** 2011;94(2):633S-50S. http://doi.org/10.3945/ajcn.110.008227.

Senga EL, Harper G, Koshy G, Kazembe PN, Brabin BJ. Reduced risk for placental malaria in iron deficient women. **Malar J**. 2011;10:47. http://doi.org/10.1186/1475-2875-10-47.

Sigaloff KCE, Calis JCJ, Geelen SP, van Vugt M, de Wit TFR. *HIV-1-resistance-associated mutations after failure of first-line antiretroviral treatment among children in resource-poor regions: a systematic review.* **The Lancet Infectious Diseases.** 2011;11(10):769-79. http://doi.org/10.1016/s1473-3099(11)70141-4.

van Hensbroek MB, Jonker F, Bates I. *Severe acquired anaemia in Africa: new concepts.* **Br J Haematol**. 2011;154(6):690-5. http://doi.org/10.1111/j.1365-2141.2011.08761.x.

Publications 2012

Al-Saqladi AW, Bin-Gadeem HA, Brabin BJ. *Utility of plasma transferrin receptor, ferritin and inflammatory markers in children with sickle cell disease*. **Paediatr Int Child Health**. 2012;32(1):27-34. http://doi.org/10.1179/2046905511Y.0000000009.

Bihari S, Cavalcanti N, Correia JB, Alves G, Souza E, Brabin BJ, Cuevas LE. *Interferon gamma-induced protein-10 concentrations in children with previous tuberculosis infections and disease*. **Pediatr Infect Dis J**. 2012;31(10):1089-91. http://doi.org/10.1097/INF.0b013e3182611152.

Boel ME, Rijken MJ, Brabin BJ, Nosten F, McGready R. *The epidemiology of postpartum malaria: a systematic review.* **Malar J.** 2012;11:114. http://doi.org/10.1186/1475-2875-11-114.

Boender TS, Sigaloff KC, Kayiwa J, Musiime V, Calis JC, Hamers RL, Nakatudde LK, Khauda E, Mukuye A, Ditai J, Geelen SP, Mugyenyi P, Rinke de Wit TF, Kityo C. *Barriers to Initiation of Pediatric HIV Treatment in Uganda: A Mixed-Method Study*. **AIDS Res Treat**. 2012;2012:817506. http://doi.org/10.1155/2012/817506.

D'Alessandro U, Ubben D, Hamed K, Ceesay SJ, Okebe J, Taal M, Lama EK, Keita M, Koivogui L, Nahum A, Bojang K, Sonko AA, Lalya HF, Brabin B. *Malaria in infants aged less than six months - is it an area of unmet medical need?* **Malar J**. 2012;11:400. http://doi.org/10.1186/1475-2875-11-400.

Dekker LH, Fijnvandraat K, Brabin BJ, van Hensbroek MB. *Micronutrients and sickle cell disease, effects on growth, infection and vaso-occlusive crisis: a systematic review*. **Pediatr Blood Cancer**. 2012;59(2):211-5. http://doi.org/10.1002/pbc.24163.

Esan MO, Jonker FA, Hensbroek MB, Calis JC, Phiri KS. *Iron deficiency in children with HIV-associated anaemia: a systematic review and meta-analysis*. **Trans R Soc Trop Med Hyg**. 2012;106(10):579-87. http://doi.org/10.1016/j.trstmh.2012.07.002.

Jonker FA, Calis JC, Phiri K, Brienen EA, Khoffi H, Brabin BJ, Verweij JJ, van Hensbroek MB, van Lieshout L. Real-time PCR demonstrates Ancylostoma duodenale is a key factor in the etiology of severe anemia and iron deficiency in Malawian pre-school children. **PLoS Negl Trop Dis**. 2012;6(3):e1555. http://doi.org/10.1371/journal.pntd.0001555.

Jonker FA, Calis JC, van Hensbroek MB, Phiri K, Geskus RB, Brabin BJ, Leenstra T. *Iron status predicts malaria risk in Malawian preschool children*. **PLoS One**. 2012;7(8):e42670. http://doi.org/10.1371/journal.pone.0042670.

Koshy G, Brabin BJ. Parental compliance--an emerging problem in Liverpool community child health surveys 1991-2006. **BMC Med Res Methodol**. 2012;12:53. http://doi.org/10.1186/1471-2288-12-53.

Phiri K, Esan M, van Hensbroek MB, Khairallah C, Faragher B, ter Kuile FO. *Intermittent preventive therapy for malaria with monthly artemether-lumefantrine for the post-discharge management of severe anaemia in children aged 4-59 months in southern Malawi: a multicentre, randomised, placebo-controlled trial.* **Lancet Infect Dis.** 2012;12(3):191-200. http://doi.org/10.1016/S1473-3099(11)70320-6.

Seddon JA, Visser DH, Bartens M, Jordaan AM, Victor TC, van Furth AM, Schoeman JF, Schaaf HS. *Impact of drug resistance on clinical outcome in children with tuberculous meningitis*. **Pediatr Infect Dis J**. 2012;31(7):711-6. http://doi.org/10.1097/INF.0b013e318253acf8.

Senga EL, Koshy G, Brabin BJ. Zinc erythrocyte protoporphyrin as marker of malaria risk in pregnancy - a retrospective cross-sectional and longitudinal study. **Malar J**. 2012;11:249. http://doi.org/10.1186/1475-2875-11-249.

van Elsland SL, Springer P, Steenhuis IH, van Toorn R, Schoeman JF, van Furth AM. *Tuberculous meningitis: barriers to adherence in home treatment of children and caretaker perceptions.* **J Trop Pediatr.** 2012;58(4):275-9. http://doi.org/10.1093/tropej/fmr095.

Publications 2013

Aduda DS, Macharia IM, Mugwe P, Oburra H, Farragher B, Brabin B, Mackenzie I. *Bacteriology of chronic suppurative otitis media (CSOM) in children in Garissa district, Kenya: a point prevalence study.* **Int J Pediatr Otorhinolaryngol**. 2013;77(7):1107-11. http://doi.org/10.1016/j.ijporl.2013.04.011.

Boele van Hensbroek M. *Hoofdstuk 'Malaria'*. In: van Furth AM, editor. **Infectieziekten en afweerstoornissen bij kinderen**. Houten: Prelum; 2013. ISBN 9789085621232 9085621232.

Boele van Hensbroek M. *Hoofdstuk 'Cultuur en onderzoekscapaciteit in Afrika'*. In: Heymans HSA, Derksen-Lubsen G, editors. **Kindergeneeskunde in een wereld van verschil**. Utrecht: Tijdstroom; 2013. p. 33-6. ISBN 9789058982452 9058982459.

Brabin BJ. Seminar in Honour of Professor Ralph Hendrickse 5 November 2010 Nickson Room, Liverpool School of Tropical Medicine. **Paediatrics and International Child Health**. 2013;32(sup2):3-. http://doi.org/10.1179/2046904712z.000000000089.

Brabin L, Brabin BJ, Gies S. Influence of iron status on risk of maternal or neonatal infection and on neonatal mortality with an emphasis on developing countries. **Nutr Rev**. 2013;71(8):528-40. http://doi.org/10.1111/nure.12049.

Calis J, van Woensel J, Lemson J. Severe sepsis and septic shock. **N Engl J Med**. 2013;369(21):2062. http://doi.org/10.1056/NEJMc1312359.

El-Kebir M, van der Kuip M, van Furth AM, Kirschner DE. Computational modeling of tuberculous meningitis reveals an important role for tumor necrosis factor-alpha. **J Theor Biol**. 2013;328:43-53. http://doi.org/10.1016/j.jtbi.2013.03.008.

Esan MO, van Hensbroek MB, Nkhoma E, Musicha C, White SA, Ter Kuile FO, Phiri KS. *Iron supplementation in HIV-infected Malawian children with anemia: a double-blind, randomized, controlled trial.* **Clin Infect Dis.** 2013;57(11):1626-34. http://doi.org/10.1093/cid/cit528.

Jonker FA, Calis JC, Phiri K, Kraaijenhagen RJ, Brabin BJ, Faragher B, Wiegerinck ET, Tjalsma H, Swinkels DW, van Hensbroek MB. Low hepcidin levels in severely anemic malawian children with high incidence of infectious diseases and bone marrow iron deficiency. **PLoS One**. 2013;8(12):e78964. http://doi.org/10.1371/journal.pone.0078964.

Koshy G, Akrouf KA, Kelly Y, Delpisheh A, Brabin BJ. *Asthma in children in relation to pre-term birth and fetal growth restriction*. **Matern Child Health J**. 2013;17(6):1119-29. http://doi.org/10.1007/s10995-012-1114-8.

Pakker N, Gomo E, Kyamanywa P, Mandala W, Katabira E, Klatser P, Boele van Hensbroek M. *Research capacity development for Africa: Consolidation, Ownership and Independence*. **Medicus Tropicus bulletin**. 2013;51(4):8-10.

Sigaloff KC, Kayiwa J, Musiime V, Calis JC, Kaudha E, Mukuye A, Matama C, Nankya I, Nakatudde L, Dekker JT, Hamers RL, Mugyenyi P, Rinke De Wit TF, Kityo C. *Short communication: high rates of thymidine analogue mutations and dual-class resistance among HIV-infected Ugandan children failing first-line antiretroviral therapy*. **AIDS Res Hum Retroviruses**. 2013;29(6):925-30. http://doi.org/10.1089/AID.2012.0218.

van Woensel JBM. *Bronchiolitis: have the guts.* **The Lancet Respiratory Medicine**. 2013;1(2):92-3. http://doi.org/10.1016/s2213-2600(12)70061-9.

Visser DH, Schoeman JF, AM VANF. Seasonal variation in the incidence rate of tuberculous meningitis is associated with sunshine hours. **Epidemiol Infect**. 2013;141(3):459-62. http://doi.org/10.1017/S0950268812001045.

Publications 2014

Ba-Saddik IA, Munibari AA, Alhilali AM, Ismail SM, Murshed FM, Coulter JB, Cuevas LE, Hart CA, Brabin BJ, Parry CM. *Prevalence of Group A beta-haemolytic Streptococcus isolated from children with acute pharyngotonsillitis in Aden, Yemen.* **Trop Med Int Health**. 2014;19(4):431-9. http://doi.org/10.1111/tmi.12264.

Blok N, Visser DH, Solomons R, Van Elsland SL, den Hertog AL, van Furth AM. *Lipoarabinomannan* enzyme-linked immunosorbent assay for early diagnosis of childhood tuberculous meningitis. **Int J Tuberc Lung Dis.** 2014;18(2):205-10. http://doi.org/10.5588/ijtld.13.0526.

Boele van Hensbroek M. Is de wereldwijde afname van kindersterfte genoeg om het vierde 'Millennium Development Goal' te halen? **Kinderarts & Wetenschap**. 2014(12):21-4.

Brabin BJ. Malaria's contribution to World War One - the unexpected adversary. **Malar J**. 2014;13:497. http://doi.org/10.1186/1475-2875-13-497.

Compaore A, Gies S, Brabin B, Tinto H, Brabin L. "There is iron and iron..." Burkinabe women's perceptions of iron supplementation: a qualitative study. **Matern Child Health J**. 2014;18(8):1976-84. http://doi.org/10.1007/s10995-014-1443-x.

Gladstone M, Mallewa M, Alusine Jalloh A, Voskuijl W, Postels D, Groce N, Kerac M, Molyneux E. Assessment of neurodisability and malnutrition in children in Africa. **Semin Pediatr Neurol**. 2014;21(1):50-7. http://doi.org/10.1016/j.spen.2014.01.002.

Hamdan M, Brabin B, Bates I. *Implications of inconsistent anaemia policies for children and adolescents in Africa*. **Public Health Nutr**. 2014;17(11):2587-94. http://doi.org/10.1017/S1368980013003121.

Huibers MH, Visser DH, Deckers MM, van Schoor NM, van Furth AM, Wolf BH. *Vitamin D deficiency among native Dutch and first- and second-generation non-Western immigrants*. **Eur J Pediatr**. 2014;173(5):583-8. http://doi.org/10.1007/s00431-013-2198-x.

Jonker FA, Boele van Hensbroek M. *Anaemia, iron deficiency and susceptibility to infections.* **J Infect**. 2014;69 Suppl 1:S23-7. http://doi.org/10.1016/j.jinf.2014.08.007.

Jonker FA, Boele van Hensbroek M, Leenstra T, Vet RJ, Brabin BJ, Maseko N, Gushu MB, Emana M, Kraaijenhagen R, Tjalsma H, Swinkels DW, Calis JC. *Conventional and novel peripheral blood iron markers compared against bone marrow in Malawian children*. **J Clin Pathol**. 2014;67(8):717-23. http://doi.org/10.1136/jclinpath-2014-202291.

Jonker FAM, Calis JCJ, Boele van Hensbroek M. *IJzersuppletie en infectierisico bij kinderen met ernstige anemie, tijd voor een nieuw WHO beleid?* **Kinderarts & Wetenschap**. 2014(9):15-7.

Kerac M, Postels DG, Mallewa M, Alusine Jalloh A, Voskuijl WP, Groce N, Gladstone M, Molyneux E. *The interaction of malnutrition and neurologic disability in Africa*. **Semin Pediatr Neurol**. 2014;21(1):42-9. http://doi.org/10.1016/j.spen.2014.01.003.

Kyeyune FX, Calis JC, Phiri KS, Faragher B, Kachala D, Brabin BJ, van Hensbroek MB. *The interaction between malaria and human immunodeficiency virus infection in severely anaemic Malawian children: a prospective longitudinal study.* **Trop Med Int Health**. 2014;19(6):698-705. http://doi.org/10.1111/tmi.12295.

Iwo Decades of Global Child Health at Amsterdam UMC - Annex

Mason S, Moutloatse G, Furth A, Solomons R, Reenen M, Reinecke C, Koekemoer G. *KEMREP: A New Qualitative Method for the Assessment of an Analyst's Ability to Generate a Metabolomics Data Matrix by Gas Chromatography– Mass Spectrometry.* **Current Metabolomics**. 2014;2(1):15-26. http://doi.org/10.2174/2213235x02666140115214427.

Pakker N, Cobelens FGJ, Boele van Hensbroek M. *Chapter 'Building research capacity in Africa'*. In: Rheeder J, editor. **Progress through partnership: the UvA and Africa**. Amsterdam: UvA Press; 2014. p. 20-1

Solomons RS, van Elsland SL, Visser DH, Hoek KG, Marais BJ, Schoeman JF, van Furth AM. *Commercial nucleic acid amplification tests in tuberculous meningitis--a meta-analysis.* **Diagn Microbiol Infect Dis**. 2014;78(4):398-403. http://doi.org/10.1016/j.diagmicrobio.2014.01.002.

Solomons RS, Wessels M, Visser DH, Donald PR, Marais BJ, Schoeman JF, van Furth AM. *Uniform research case definition criteria differentiate tuberculous and bacterial meningitis in children*. **Clin Infect Dis**. 2014;59(11):1574-8. http://doi.org/10.1093/cid/ciu665.

van Leeuwen LM, van der Kuip M, Youssef SA, de Bruin A, Bitter W, van Furth AM, van der Sar AM. *Modeling tuberculous meningitis in zebrafish using Mycobacterium marinum*. **Dis Model Mech**. 2014;7(9):1111-22. http://doi.org/10.1242/dmm.015453.

Publications 2015

Boele van Hensbroek M, Goyens P, van Rheenen PF. *Hoofdstuk 'Tropische Kindergeneeskunde'*. In: Heymans HSA, editor. **Leerboek kindergeneeskunde**. 2e druk ed. Utrecht: De Tijdstroom; 2015. ISBN 9789058982711 9058982718.

Boerma RS, Boender TS, van Hensbroek MB, Rinke de Wit TF, Sigaloff KC. *Sequencing paediatric antiretroviral therapy in the context of a public health approach*. **J Int AIDS Soc**. 2015;18(Suppl 6):20265. http://doi.org/10.7448/IAS.18.7.20265.

Boerma RS, Wit FW, Orock SO, Schonenberg-Meinema D, Hartdorff CM, Bakia A, van Hensbroek MB. *Mortality risk factors among HIV-exposed infants in rural and urban Cameroon*. **Trop Med Int Health**. 2015;20(2):170-6. http://doi.org/10.1111/tmi.12424.

Gathara D, English M, van Hensbroek MB, Todd J, Allen E. *Exploring sources of variability in adherence to guidelines across hospitals in low-income settings: a multi-level analysis of a cross-sectional survey of 22 hospitals*. **Implement Sci.** 2015;10:60. http://doi.org/10.1186/s13012-015-0245-x.

Gomez GB, Foster N, Brals D, Nelissen HE, Bolarinwa OA, Hendriks ME, Boers AC, van Eck D, Rosendaal N, Adenusi P, Agbede K, Akande TM, Boele van Hensbroek M, Wit FW, Hankins CA, Schultsz C. *Improving Maternal Care through a State-Wide Health Insurance Program: A Cost and Cost-Effectiveness Study in Rural Nigeria*. **PLoS One**. 2015;10(9):e0139048. http://doi.org/10.1371/journal.pone.0139048.

Mason S, van Furth AM, Mienie LJ, Engelke UF, Wevers RA, Solomons R, Reinecke CJ. *A hypothetical astrocyte-microglia lactate shuttle derived from a (1)H NMR metabolomics analysis of cerebrospinal fluid from a cohort of South African children with tuberculous meningitis.* **Metabolomics**. 2015;11(4):822-37. http://doi.org/10.1007/s11306-014-0741-z.

Mpoya A, Kiguli S, Olupot-Olupot P, Opoka RO, Engoru C, Mallewa M, Chimalizeni Y, Kennedy N, Kyeyune D, Wabwire B, M'Baya B, Bates I, Urban B, von Hensbroek MB, Heyderman R, Thomason

MJ, Uyoga S, Williams TN, Gibb DM, George EC, Walker AS, Maitland K. *Transfusion and Treatment of severe anaemia in African children (TRACT): a study protocol for a randomised controlled trial.* **Trials.** 2015;16:593. http://doi.org/10.1186/s13063-015-1112-4.

Muftah S, Mackenzie I, Faragher B, Brabin B. *Prevalence of Chronic Suppurative Otitis Media (CSOM)* and Associated Hearing Impairment Among School-aged Children in Yemen. **Oman Med J**. 2015;30(5):358-65. http://doi.org/10.5001/omj.2015.72.

Mwangi MN, Roth JM, Smit MR, Trijsburg L, Mwangi AM, Demir AY, Wielders JP, Mens PF, Verweij JJ, Cox SE, Prentice AM, Brouwer ID, Savelkoul HF, Andang'o PE, Verhoef H. *Effect of Daily Antenatal Iron Supplementation on Plasmodium Infection in Kenyan Women: A Randomized Clinical Trial.* **Jama**. 2015;314(10):1009-20. http://doi.org/10.1001/jama.2015.9496.

Norder WA, Peters RP, Kok MO, van Elsland SL, Struthers HE, Tutu MA, van Furth AM. *The church and paediatric HIV care in rural South Africa: a qualitative study*. **AIDS Care**. 2015;27(11):1404-9. http://doi.org/10.1080/09540121.2015.1114987.

Owens S, Gulati R, Fulford AJ, Sosseh F, Denison FC, Brabin BJ, Prentice AM. *Periconceptional multiple-micronutrient supplementation and placental function in rural Gambian women: a double-blind, randomized, placebo-controlled trial.* **Am J Clin Nutr.** 2015;102(6):1450-9. http://doi.org/10.3945/ajcn.113.072413.

Pedrini M, Moraleda C, Macete E, Gondo K, Brabin BJ, Menendez C. *Clinical, nutritional and immunological characteristics of HIV-infected children in an area of high HIV prevalence*. **J Trop Pediatr**. 2015;61(4):286-94. http://doi.org/10.1093/tropej/fmv038.

Raiten DJ, Sakr Ashour FA, Ross AC, Meydani SN, Dawson HD, Stephensen CB, Brabin BJ, Suchdev PS, van Ommen B, Group IC. *Inflammation and Nutritional Science for Programs/Policies and Interpretation of Research Evidence (INSPIRE)*. **J Nutr**. 2015;145(5):1039S-108S. http://doi.org/10.3945/jn.114.194571.

Solomons RS, Goussard P, Visser DH, Marais BJ, Gie RP, Schoeman JF, van Furth AM. *Chest radiograph findings in children with tuberculous meningitis*. **Int J Tuberc Lung Dis**. 2015;19(2):200-4. http://doi.org/10.5588/ijtld.14.0634.

Solomons RS, Visser DH, Donald PR, Marais BJ, Schoeman JF, van Furth AM. *The diagnostic value of cerebrospinal fluid chemistry results in childhood tuberculous meningitis*. **Childs Nerv Syst**. 2015;31(8):1335-40. http://doi.org/10.1007/s00381-015-2745-z.

Solomons RS, Visser DH, Friedrich SO, Diacon AH, Hoek KG, Marais BJ, Schoeman JF, van Furth AM. *Improved diagnosis of childhood tuberculous meningitis using more than one nucleic acid amplification test.* **Int J Tuberc Lung Dis**. 2015;19(1):74-80. http://doi.org/10.5588/ijtld.14.0394.

Visser DH, Solomons RS, Ronacher K, van Well GT, Heymans MW, Walzl G, Chegou NN, Schoeman JF, van Furth AM. *Host immune response to tuberculous meningitis*. **Clin Infect Dis**. 2015;60(2):177-87. http://doi.org/10.1093/cid/ciu781.

Publications 2016

Attia S, Versloot CJ, Voskuijl W, van Vliet SJ, Di Giovanni V, Zhang L, Richardson S, Bourdon C, Netea MG, Berkley JA, van Rheenen PF, Bandsma RH. *Mortality in children with complicated severe acute malnutrition is related to intestinal and systemic inflammation: an observational cohort study.* **Am J Clin Nutr.** 2016;104(5):1441-9. http://doi.org/10.3945/ajcn.116.130518.

Bartels RH, Meyer SL, Stehmann TA, Bourdon C, Bandsma RH, Voskuijl WP. Both Exocrine Pancreatic Insufficiency and Signs of Pancreatic Inflammation Are Prevalent in Children with Complicated Severe Acute Malnutrition: An Observational Study. J Pediatr. 2016;174:165-70. http://doi.org/10.1016/j.jpeds.2016.04.013.

Boele van Hensbroek M. Anaemia, iron deficiency and infection. Hematology. 2016;21(S1):17-8.

Boele van Hensbroek M, van Furth M. *Improving Global Child Health in the Light of the (Old) Millennium Development Goals and the (New) Sustainable Development Goals.* **Pediatr Infect Dis J.** 2016;35(8):918-9. http://doi.org/10.1097/INF.000000000001219.

Boender TS, Kityo CM, Boerma RS, Hamers RL, Ondoa P, Wellington M, Siwale M, Nankya I, Kaudha E, Akanmu AS, Botes ME, Steegen K, Calis JC, Rinke de Wit TF, Sigaloff KC. *Accumulation of HIV-1 drug resistance after continued virological failure on first-line ART in adults and children in sub-Saharan Africa*. **J Antimicrob Chemother**. 2016;71(10):2918-27. http://doi.org/10.1093/jac/dkw218.

Boerma RS, Boender TS, Bussink AP, Calis JC, Bertagnolio S, Rinke de Wit TF, Boele van Hensbroek M, Sigaloff KC. Suboptimal Viral Suppression Rates Among HIV-Infected Children in Low- and Middle-Income Countries: A Meta-analysis. Clin Infect Dis. 2016;63(12):1645-54. http://doi.org/10.1093/cid/ciw645.

Boerma RS, Boender TS, Sigaloff KC, Rinke de Wit TF, van Hensbroek MB, Ndembi N, Adeyemo T, Temiye EO, Osibogun A, Ondoa P, Calis JC, Akanmu AS. *High levels of pre-treatment HIV drug resistance and treatment failure in Nigerian children*. **J Int AIDS Soc**. 2016;19(1):21140. http://doi.org/10.7448/IAS.19.1.21140.

Brabin BJ, Gies S, Owens S, Claeys Y, D'Alessandro U, Tinto H, Brabin L. *Perspectives on the design and methodology of periconceptional nutrient supplementation trials*. **Trials**. 2016;17:58. http://doi.org/10.1186/s13063-015-1124-0.

Calis JC, Phiri KS, Faragher EB, Brabin BJ, Bates I, Cuevas LE, de Haan RJ, Phiri AI, Malange P, Khoka M, Hulshof PJ, van Lieshout L, Beld MG, Teo YY, Rockett KA, Richardson A, Kwiatkowski DP, Molyneux ME, van Hensbroek MB. *Severe anemia in Malawian children*. **Malawi Med J**. 2016;28(3):99-107.

Di Giovanni V, Bourdon C, Wang DX, Seshadri S, Senga E, Versloot CJ, Voskuijl W, Semba RD, Trehan I, Moaddel R, Ordiz MI, Zhang L, Parkinson J, Manary MJ, Bandsma RH. *Metabolomic Changes in Serum of Children with Different Clinical Diagnoses of Malnutrition.* **J Nutr**. 2016;146(12):2436-44. http://doi.org/10.3945/jn.116.239145.

Huibers MH, Moons P, Maseko N, Gushu MB, Wit FW, Graham SM, van Hensbroek MB, Calis JC. *An Evaluation of Alternative Markers to Guide Initiation of Anti-retroviral Therapy in HIV-Infected Children in Settings where CD4 Assays are not Available*. **J Trop Pediatr**. 2016;62(1):19-28. http://doi.org/10.1093/tropej/fmv070.

Jonker FAM, Boele Van Hensbroek M. *Anaemia and its treatment dilemmas*. **Medicus Tropicus bulletin**. 2016;54(2):3-5.

Kiemde F, Spijker R, Mens PF, Tinto H, Boele M, Schallig HD. *Aetiologies of non-malaria febrile episodes in children under 5 years in sub-Saharan Africa*. **Trop Med Int Health**. 2016;21(8):943-55. http://doi.org/10.1111/tmi.12722.

Kityo C, Sigaloff KC, Sonia Boender T, Kaudha E, Kayiwa J, Musiime V, Mukuye A, Kiconco M, Nankya I, Nakatudde-Katumba L, Calis JC, Rinke de Wit TF, Mugyenyi PN. *HIV Drug Resistance Among Children Initiating First-Line Antiretroviral Treatment in Uganda*. **AIDS Res Hum Retroviruses**. 2016;32(7):628-35. http://doi.org/10.1089/AID.2015.0215.

Kvissberg MA, Dalvi PS, Kerac M, Voskuijl W, Berkley JA, Priebe MG, Bandsma RH. *Carbohydrate malabsorption in acutely malnourished children and infants: a systematic review*. **Nutr Rev**. 2016;74(1):48-58. http://doi.org/10.1093/nutrit/nuv058.

Mason S, Reinecke CJ, Kulik W, van Cruchten A, Solomons R, van Furth AM. *Cerebrospinal fluid in tuberculous meningitis exhibits only the L-enantiomer of lactic acid.* **BMC Infect Dis.** 2016;16:251. http://doi.org/10.1186/s12879-016-1597-9.

Mason S, van Furth AMT, Solomons R, Wevers RA, van Reenen M, Reinecke CJ. *A putative urinary biosignature for diagnosis and follow-up of tuberculous meningitis in children: outcome of a metabolomics study disclosing host–pathogen responses.* **Metabolomics**. 2016;12(7). http://doi.org/10.1007/s11306-016-1053-2.

Smit MR, Ochomo E, Aljayyoussi G, Kwambai T, Abong'o B, Bayoh N, Gimnig J, Samuels A, Desai M, Phillips-Howard PA, Kariuki S, Wang D, Ward S, Ter Kuile FO. *Efficacy and Safety of High-Dose Ivermectin for Reducing Malaria Transmission (IVERMAL): Protocol for a Double-Blind, Randomized, Placebo-Controlled, Dose-Finding Trial in Western Kenya.* **JMIR Res Protoc**. 2016;5(4):e213. http://doi. org/10.2196/resprot.6617.

Solomons RS, Visser DH, Marais BJ, Schoeman JF, van Furth AM. *Diagnostic accuracy of a uniform research case definition for TBM in children: a prospective study*. **Int J Tuberc Lung Dis**. 2016;20(7):903-8. http://doi.org/10.5588/ijtld.15.0509.

Suchdev PS, Namaste SM, Aaron GJ, Raiten DJ, Brown KH, Flores-Ayala R, Group BW. *Overview of the Biomarkers Reflecting Inflammation and Nutritional Determinants of Anemia (BRINDA) Project.* **Adv Nutr.** 2016;7(2):349-56. http://doi.org/10.3945/an.115.010215.

van Agtmael MA, Bartlett JA, van Furth M, Smulders YM, Van Guilder GP, Msoka TF. *Antiretroviral treatment and time since HIV-1 diagnosis are associated with large artery stiffness in sub-Saharan African HIV-1 patients*. **Artery Research**. 2016;16(C):34. http://doi.org/10.1016/j.artres.2016.09.002.

Zhang L, Voskuijl W, Mouzaki M, Groen AK, Alexander J, Bourdon C, Wang A, Versloot CJ, Di Giovanni V, Wanders RJ, Bandsma R. *Impaired Bile Acid Homeostasis in Children with Severe Acute Malnutrition*. **PLoS One**. 2016;11(5):e0155143. http://doi.org/10.1371/journal.pone.0155143.

Publications 2017

Bartels RH, Bourdon C, Potani I, Mhango B, van den Brink DA, Mponda JS, Muller Kobold AC, Bandsma RH, Boele van Hensbroek M, Voskuijl WP. *Pancreatic Enzyme Replacement Therapy in Children with Severe Acute Malnutrition: A Randomized Controlled Trial.* **J Pediatr**. 2017;190:85-92 e2. http://doi.org/10.1016/j.jpeds.2017.07.013.

Boere TM, Visser DH, van Furth AM, Lips P, Cobelens FGJ. *Solar ultraviolet B exposure and global variation in tuberculosis incidence: an ecological analysis*. **Eur Respir J**. 2017;49(6):1601979. http://doi.org/10.1183/13993003.01979-2016.

Boerma RS, Bunupuradah T, Dow D, Fokam J, Kariminia A, Lehman D, Kityo C, Musiime V, Palumbo P, Schoffelen A, Sophan S, Zanoni B, Rinke de Wit TF, Calis JCJ, Sigaloff KCE, Paediatric Second-line Study G. *Multicentre analysis of second-line antiretroviral treatment in HIV-infected children: adolescents at high risk of failure*. **J Int AIDS Soc**. 2017;20(1):21930. http://doi.org/10.7448/IAS.20.1.21930.

Boerma RS, Kityo C, Boender TS, Kaudha E, Kayiwa J, Musiime V, Mukuye A, Kiconco M, Nankya I, Nakatudde L, Mugyenyi PN, Boele van Hensbroek M, Rinke de Wit TF, Sigaloff KCE, Calis JCJ. *Secondline HIV Treatment in Ugandan Children: Favorable Outcomes and No Protease Inhibitor Resistance*. **J Trop Pediatr**. 2017;63(2):135-43. http://doi.org/10.1093/tropej/fmw062.

Boerma RS, Sigaloff KC, Akanmu AS, Inzaule S, Boele van Hensbroek M, Rinke de Wit TF, Calis JC. *Alarming increase in pretreatment HIV drug resistance in children living in sub-Saharan Africa: a systematic review and meta-analysis.* **J Antimicrob Chemother.** 2017;72(2):365-71. http://doi.org/10.1093/jac/dkw463.

Brabin L, Roberts SA, Gies S, Nelson A, Diallo S, Stewart CJ, Kazienga A, Birtles J, Ouedraogo S, Claeys Y, Tinto H, d'Alessandro U, Faragher EB, Brabin B. *Effects of long-term weekly iron and folic acid sup- plementation on lower genital tract infection - a double blind, randomised controlled trial in Burkina Faso.* **BMC Med.** 2017;15(1):206. http://doi.org/10.1186/s12916-017-0967-5.

Brals D, Aderibigbe SA, Wit FW, van Ophem JCM, van der List M, Osagbemi GK, Hendriks ME, Akande TM, Boele van Hensbroek M, Schultsz C. *The effect of health insurance and health facility-up-grades on hospital deliveries in rural Nigeria: a controlled interrupted time-series study.* **Health Policy Plan**. 2017;32(7):990-1001. http://doi.org/10.1093/heapol/czx034.

Daniel AI, Bandsma RH, Lytvyn L, Voskuijl WP, Potani I, van den Heuvel M. *Psychosocial stimulation interventions for children with severe acute malnutrition: a systematic review.* **J Glob Health**. 2017;7(1):010405. http://doi.org/10.7189/jogh.07.010405.

Daniel AI, van den Heuvel M, Voskuijl WP, Gladstone M, Bwanali M, Potani I, Bourdon C, Njirammadzi J, Bandsma RHJ. *The Kusamala Program for primary caregivers of children 6-59 months of age hospitalized with severe acute malnutrition in Malawi: study protocol for a cluster-randomized controlled trial.* **Trials.** 2017;18(1):550. http://doi.org/10.1186/s13063-017-2299-3.

Gathara D, Malla L, Ayieko P, Karuri S, Nyamai R, Irimu G, van Hensbroek MB, Allen E, English M, Clinical Information N. *Variation in and risk factors for paediatric inpatient all-cause mortality in a low income setting: data from an emerging clinical information network.* **BMC Pediatr**. 2017;17(1):99. http://doi.org/10.1186/s12887-017-0850-8.

Jonker FAM, Te Poel E, Bates I, Boele van Hensbroek M. *Anaemia, iron deficiency and susceptibility to infection in children in sub-Saharan Africa, guideline dilemmas*. **Br J Haematol**. 2017;177(6):878-83. http://doi.org/10.1111/bjh.14593.

Kiemde F, Bonko MDA, Tahita MC, Lompo P, Rouamba T, Tinto H, van Hensbroek MB, Mens PF, Schallig H. *Accuracy of a Plasmodium falciparum specific histidine-rich protein 2 rapid diagnostic test in the context of the presence of non-malaria fevers, prior anti-malarial use and seasonal malaria transmission*. **Malar J.** 2017;16(1):294. http://doi.org/10.1186/s12936-017-1941-6.

Kityo C, Boerma RS, Sigaloff KCE, Kaudha E, Calis JCJ, Musiime V, Balinda S, Nakanjako R, Boender TS, Mugyenyi PN, Rinke de Wit TF. *Pretreatment HIV drug resistance results in virological failure and accumulation of additional resistance mutations in Ugandan children*. **J Antimicrob Chemother**. 2017;72(9):2587-95. http://doi.org/10.1093/jac/dkx188.

Mbale EW, Taylor T, Brabin B, Mallewa M, Gladstone M. Exploring neurodevelopmental outcome measures used in children with cerebral malaria: the perspectives of caregivers and health workers in Malawi. **BMC Pediatr**. 2017;17(1):9. http://doi.org/10.1186/s12887-016-0763-y.

Obonyo N, Brent B, Olupot-Olupot P, Boele van Hensbroek M, Kuipers I, Wong S, Shiino K, Chan J, Fraser J, van Woensel JBM, Maitland K. *Myocardial and haemodynamic responses to two fluid regimens in African children with severe malnutrition and hypovolaemic shock (AFRIM study)*. **Crit Care**. 2017;21(1):103. http://doi.org/10.1186/s13054-017-1679-0.

Thielemans L, Trip-Hoving M, Bancone G, Turner C, Simpson JA, Hanboonkunupakarn B, van Hensbroek MB, van Rheenen P, Paw MK, Nosten F, McGready R, Carrara VI. *Neonatal Hyperbilirubinemia in a Marginalized Population on the Thai-Myanmar Border: a study protocol.* **BMC Pediatr**. 2017;17(1):32. http://doi.org/10.1186/s12887-017-0798-8.

Tutu-van Furth A. Bacterial meningitis. BMJ Best Practice. 2017.

van den Heuvel M, Voskuijl W, Chidzalo K, Kerac M, Reijneveld SA, Bandsma R, Gladstone M. Developmental and behavioural problems in children with severe acute malnutrition in Malawi: A cross-sectional study. **J Glob Health**. 2017;7(2):020416. http://doi.org/10.7189/jogh.07.020416.

Versloot CJ, Voskuijl W, van Vliet SJ, van den Heuvel M, Carter JC, Phiri A, Kerac M, Heikens GT, van Rheenen PF, Bandsma RHJ. Effectiveness of three commonly used transition phase diets in the inpatient management of children with severe acute malnutrition: a pilot randomized controlled trial in Malawi. **BMC Pediatr**. 2017;17(1):112. http://doi.org/10.1186/s12887-017-0860-6.

Voskuijl W, Potani I, Bandsma R, Baan A, White S, Bourdon C, Kerac M. Stool frequency recording in severe acute malnutrition ('StoolSAM'); an agreement study comparing maternal recall versus direct observation using diapers. **BMC Pediatr**. 2017;17(1):140. http://doi.org/10.1186/s12887-017-0874-0.

Publications 2018

Aderibigbe S, Wit F, van Hensbroek M, Osagbemi G, Akande T. *The effect of health insurance on maternal and child health: a systematic review.* **Journal of Medicine in the Tropics**. 2018;20(2):83. http://doi.org/10.4103/jomt.jomt_17_18.

Albers L, Sobotzki C, Kuss O, Ajslev T, Batista RF, Bettiol H, Brabin B, Buka SL, Cardoso VC, Clifton VL, Devereux G, Gilman SE, Grzeskowiak LE, Heinrich J, Hummel S, Jacobsen GW, Jones G, Koshy G, Morgen CS, Oken E, Paus T, Pausova Z, Rifas-Shiman SL, Sharma AJ, da Silva AA, Sorensen TI, Thiering E, Turner S, Vik T, von Kries R. *Maternal smoking during pregnancy and offspring overweight: is there a dose-response relationship? An individual patient data meta-analysis.* **Int J Obes (Lond)**. 2018;42(7):1249-64. http://doi.org/10.1038/s41366-018-0050-0.

Baauw A, Rosiek S, Slattery B, Chinapaw M, van Hensbroek MB, van Goudoever JB, Kist-van Holthe J. *Pediatrician-experienced barriers in the medical care for refugee children in the Netherlands*. **Eur J Pediatr**. 2018;177(7):995-1002. http://doi.org/10.1007/s00431-018-3141-y.

Bartels RH, van den Brink DA, Bandsma RH, Boele van Hensbroek M, Tabbers MM, Voskuijl WP. *The Relation Between Malnutrition and the Exocrine Pancreas: A Systematic Review.* **J Pediatr Gastroenterol Nutr**. 2018;66(2):193-203. http://doi.org/10.1097/MPG.000000000001769.

Brouwer L, van der Sanden SMG, Calis JCJ, Bruning AHL, Wang S, Wildenbeest JG, Rebers SPH, Phiri KS, Westerhuis BM, van Hensbroek MB, Pajkrt D, Wolthers KC. *High frequency of Polio-like Enterovirus C strains with differential clustering of CVA-13 and EV-C99 subgenotypes in a cohort of Malawian children*. **Arch Virol**. 2018;163(10):2645-53. http://doi.org/10.1007/s00705-018-3878-7.

Browne JL, Smit MR, Angira F, van der Graaf R, Bukusi EA. *Good intentions do not replace ethical conduct in research*. **Lancet**. 2018;391(10125):1020-1. http://doi.org/10.1016/s0140-6736(17)32413-3.

Compaore A, Gies S, Brabin B, Tinto H, Brabin L. Community approval required for periconceptional adolescent adherence to weekly iron and/or folic acid supplementation: a qualitative study in rural Burkina Faso. **Reprod Health**. 2018;15(1):48. http://doi.org/10.1186/s12978-018-0490-y.

Daniel AI, van den Heuvel M, Gladstone M, Bwanali M, Voskuijl W, Bourdon C, Potani I, Fernandes S, Njirammadzi J, Bandsma RHJ. *A mixed methods feasibility study of the Kusamala Program at a nutritional rehabilitation unit in Malawi*. **Pilot Feasibility Stud**. 2018;4:151. http://doi.org/10.1186/s40814-018-0347-8.

el Tahir O, Tutu-van Furth A. Bacterial meningitis. BMJ Best Practice. 2018.

Gies S, Diallo S, Roberts SA, Kazienga A, Powney M, Brabin L, Ouedraogo S, Swinkels DW, Geurts-Moespot AJ, Claeys Y, D'Alessandro U, Tinto H, Faragher B, Brabin B. *Effects of Weekly Iron and Folic Acid Supplements on Malaria Risk in Nulliparous Women in Burkina Faso: A Periconceptional, Double-Blind, Randomized Controlled Noninferiority Trial.* **J Infect Dis**. 2018;218(7):1099-109. http://doi.org/10.1093/infdis/jiy257.

Harawa PP, Mbale E, Mallewa M, Dube Q, Langton J, Njiram'madzi J, Kumwenda B, Bandsma R, Voskuijl W. *Parasitic and parachute research in global health*. **Lancet Glob Health**. 2018;6(8):e840. http://doi.org/10.1016/S2214-109X(18)30324-3.

Huibers MHW, Moons P, Cornelissen M, Zorgdrager F, Maseko N, Gushu MB, Iwajomo OH, Boele van Hensbroek M, Calis JCJ. *High prevalence of virological failure and HIV drug mutations in a first-line cohort of Malawian children.* **J Antimicrob Chemother.** 2018;73(12):3471-5. http://doi.org/10.1093/jac/dky348.

Huibers MHW, Moons P, Maseko N, Gushu MB, Iwajomo OH, Heyderman RS, Boele van Hensbroek M, Brienen EA, van Lieshout L, Calis JCJ. *Multiplex Real-time PCR Detection of Intestinal Protozoa in HIV-infected Children in Malawi: Enterocytozoon Bieneusi Is Common and Associated With Gastrointestinal Complaints and May Delay BMI (Nutritional Status) Recovery.* **Pediatr Infect Dis J**. 2018;37(9):910-5. http://doi.org/10.1097/INF.0000000000001924.

Inzaule SC, Hamers RL, Calis J, Boerma R, Sigaloff K, Zeh C, Mugyenyi P, Akanmu S, Rinke de Wit TF. When prevention of mother-to-child HIV transmission fails: preventing pretreatment drug resistance in African children. AIDS. 2018;32(2):143-7. http://doi.org/10.1097/QAD.00000000000001696.

Kiemde F, Bonko MDA, Tahita MC, Lompo P, Tinto H, Mens PF, Schallig H, van Hensbroek MB. Can clinical signs or symptoms combined with basic hematology data be used to predict the presence of bacterial infections in febrile children under - 5 years? **BMC Pediatr**. 2018;18(1):370. http://doi.org/10.1186/s12887-018-1340-3.

Kiemde F, Tahita MC, Bonko MDA, Mens PF, Tinto H, van Hensbroek MB, Schallig H. *Implementation of a malaria rapid diagnostic test in a rural setting of Nanoro, Burkina Faso: from expectation to reality.*Malar J. 2018;17(1):316. http://doi.org/10.1186/s12936-018-2468-1.

Kiemde F, Tahita MC, Lompo P, Rouamba T, Some AM, Tinto H, Mens PF, Schallig H, van Hensbroek MB. Treatable causes of fever among children under five years in a seasonal malaria transmission area in Burkina Faso. **Infect Dis Poverty**. 2018;7(1):60. http://doi.org/10.1186/s40249-018-0442-3.

Koop K, Boele van Hensbroek M. *Hoofdstuk 'Koorts bij een kind dat uit de tropen terugkeert'*. In: Derksen-Lubsen G, editor. **Compendium kindergeneeskunde: diagnostiek en behandeling**. 55e druk ed. Houten: Bohn Stafleu van Loghum; 2018. ISBN 9789036817912 9036817919 9789036817929 9036817927.

Kwambai TK, Dhabangi A, Idro R, Opoka R, Kariuki S, Samuels AM, Desai M, van Hensbroek MB, John CC, Robberstad B, Wang D, Phiri K, Ter Kuile FO. *Malaria chemoprevention with monthly dihydroartemisinin-piperaquine for the post-discharge management of severe anaemia in children aged less than 5 years in Uganda and Kenya: study protocol for a multi-centre, two-arm, randomised, placebo-controlled, superiority trial.* **Trials.** 2018;19(1):610. http://doi.org/10.1186/s13063-018-2972-1.

Msoka TF, Van Guilder GP, Smulders YM, van Furth M, Bartlett JA, van Agtmael MA. *Association of HIV-infection, antiretroviral treatment and metabolic syndrome with large artery stiffness: a cross-sectional study.* **BMC Infect Dis.** 2018;18(1):708. http://doi.org/10.1186/s12879-018-3637-0.

Nassar-Sheikh Rashid A, Boele van Hensbroek M, Kolader M, Hovius JW, Pajkrt D. *Lyme Borreliosis in Children: A Tertiary Referral Hospital-Based Retrospective Analysis*. **Pediatr Infect Dis J**. 2018;37(2):e45-e7. http://doi.org/10.1097/INF.000000000001735.

Popovic A, Bourdon C, Wang PW, Guttman DS, Voskuijl W, Grigg ME, Bandsma RHJ, Parkinson J. Design and application of a novel two-amplicon approach for defining eukaryotic microbiota. **Microbiome**. 2018;6(1):228. http://doi.org/10.1186/s40168-018-0612-3.

Smit MR, Ochomo EO, Aljayyoussi G, Kwambai TK, Abong'o BO, Chen T, Bousema T, Slater HC, Waterhouse D, Bayoh NM, Gimnig JE, Samuels AM, Desai MR, Phillips-Howard PA, Kariuki SK, Wang D, Ward SA, Ter Kuile FO. Safety and mosquitocidal efficacy of high-dose ivermectin when co-administered with dihydroartemisinin-piperaquine in Kenyan adults with uncomplicated malaria (IVERMAL): a randomised, double-blind, placebo-controlled trial. Lancet Infect Dis. 2018;18(6):615-26. http://doi.org/10.1016/s1473-3099(18)30163-4.

van Elsland SL, Peters RPH, Kok MO, van Toorn R, Springer P, Cotton MF, Grobbelaar CJ, Aarnoutse R, van Furth AM. *A treatment-support intervention evaluated in South African paediatric populations with HIV infection or tuberculous meningitis*. **Trop Med Int Health**. 2018;23(10):1129-40. http://doi.org/10.1111/tmi.13134.

van Elsland SL, van Dongen SI, Bosmans JE, Schaaf HS, van Toorn R, van Furth AM. *Cost-effectiveness of home-based vs. in-hospital treatment of paediatric tuberculous meningitis.* **Int J Tuberc Lung Dis.** 2018;22(10):1188-95. http://doi.org/10.5588/ijtld.18.0236.

van Enter BJD, Huibers MHW, van Rooij L, Steingrover R, van Hensbroek MB, Voigt RR, Hol J. *Perinatal Outcomes in Vertically Infected Neonates During a Chikungunya Outbreak on the Island of Curacao*. **Am J Trop Med Hyg**. 2018;99(6):1415-8. http://doi.org/10.4269/ajtmh.17-0957.

van Keulen V, Huibers M, Manshande M, van Hensbroek MB, van Rooij L. *Chikungunya Virus Infections Among Infants-Who Classification Not Applicable*. **Pediatr Infect Dis J**. 2018;37(3):e83-e6. http://doi.org/10.1097/INF.000000000001826.

Versloot CJ, Attia S, Bourdon C, Richardson SE, Potani I, Bandsma RHJ, Voskuijl W. *Intestinal pathogen clearance in children with severe acute malnutrition is unrelated to inpatient morbidity*. **Clin Nutr ESPEN**. 2018;24:109-13. http://doi.org/10.1016/j.clnesp.2018.01.004.

Ware SG, Daniel AI, Bandawe C, Mulaheya YP, Nkunika S, Nkhoma D, Kokota D, Stewart RC, Voskuijl W. Perceptions and experiences of caregivers of severely malnourished children receiving inpatient care in Malawi: An exploratory study. Malawi Med J. 2018;30(3):167-73. http://doi.org/10.4314/mmj.v30i3.7.

Publications 2019

Abuga JA, Kariuki SM, Kinyanjui SM, Boele Van Hensbroek M, Newton CR. *Premature mortality in children aged 6-9 years with neurological impairments in rural Kenya: a cohort study.* **Lancet Glob Health.** 2019;7(12):e1728-e35. http://doi.org/10.1016/S2214-109X(19)30425-5.

Bandsma RHJ, Voskuijl W, Chimwezi E, Fegan G, Briend A, Thitiri J, Ngari M, Mwalekwa L, Bandika V, Ali R, Hamid F, Owor B, Mturi N, Potani I, Allubha B, Muller Kobold AC, Bartels RH, Versloot CJ, Feenstra M, van den Brink DA, van Rheenen PF, Kerac M, Bourdon C, Berkley JA. *A reduced-carbohydrate and lactose-free formulation for stabilization among hospitalized children with severe acute malnutrition: A double-blind, randomized controlled trial.* **PLoS Med.** 2019;16(2):e1002747. http://doi.org/10.1371/journal.pmed.1002747.

Bannister-Tyrrell M, Krit M, Sluydts V, Tho S, Sokny M, Mean V, Kim S, Menard D, Grietens KP, Abrams S, Hens N, Coosemans M, Bassat Q, van Hensbroek MB, Durnez L, Van Bortel W. *Households or Hotspots? Defining Intervention Targets for Malaria Elimination in Ratanakiri Province, Eastern Cambodia.* **J Infect Dis**. 2019;220(6):1034-43. http://doi.org/10.1093/infdis/jiz211.

Bartels RH, Chimwezi E, Watson V, Pei L, Potani I, Allubha B, Chidzalo K, Wang D, Dube Q, Mallewa M, Allen A, Bandsma RHJ, Voskuijl WP, Allen SJ. *Hypoallergenic and anti-inflammatory feeds in children with complicated severe acute malnutrition: an open randomised controlled 3-arm intervention trial in Malawi*. **Sci Rep**. 2019;9(1):2304. http://doi.org/10.1038/s41598-019-38690-9.

Bitilinyu-Bangoh J, Voskuijl W, Thitiri J, Menting S, Verhaar N, Mwalekwa L, de Jong DB, van Loenen M, Mens PF, Berkley JA, Bandsma RHJ, Schallig H. *Performance of three rapid diagnostic tests for the detection of Cryptosporidium spp. and Giardia duodenalis in children with severe acute malnutrition and diarrhoea*. **Infect Dis Poverty**. 2019;8(1):96. http://doi.org/10.1186/s40249-019-0609-6.

Boele van Hensbroek M. *Hoofdstuk*. In: Heymans HSA, Derksen-Lubsen G, editors. **Kindergeneeskunde op zak: klinische problemen bij kinderen**. Utrecht: De Tijdstroom; 2019. ISBN 9789058982704 905898270X.

Bonko MDA, Kiemde F, Tahita MC, Lompo P, Some AM, Tinto H, van Hensbroek MB, Mens PF, Schallig H. *The effect of malaria rapid diagnostic tests results on antimicrobial prescription practices of health care workers in Burkina Faso*. **Ann Clin Microbiol Antimicrob**. 2019;18(1):5. http://doi.org/10.1186/s12941-019-0304-2.

Brabin B, Gies S, Roberts SA, Diallo S, Lompo OM, Kazienga A, Brabin L, Ouedraogo S, Tinto H. Excess risk of preterm birth with periconceptional iron supplementation in a malaria endemic area: analysis of secondary data on birth outcomes in a double blind randomized controlled safety trial in Burkina Faso. **Malar J**. 2019;18(1):161. http://doi.org/10.1186/s12936-019-2797-8.

Brabin B, Tinto H, Roberts SA. Testing an infection model to explain excess risk of preterm birth with long-term iron supplementation in a malaria endemic area. **Malar J**. 2019;18(1):374. http://doi.org/10.1186/s12936-019-3013-6.

Brouwer L, Karelehto E, Han AX, Thomas XV, Bruning AHL, Calis JCJ, van Hensbroek MB, Westerhuis BM, Amarthalingam D, Koekkoek SM, Rebers SPH, Phiri KS, Wolthers KC, Pajkrt D. *High frequency and diversity of parechovirus A in a cohort of Malawian children*. **Arch Virol**. 2019;164(3):799-806. http://doi.org/10.1007/s00705-018-04131-7.

Calis J, Weir P, Kapalamula T, Thomson E, Chikumbanje S, Mpunga M, Dayo S, Borgstein E, Dube Q, Bentsen GK. *Establishing a paediatric intensive care unit in a low income setting*. **Medicus Tropicus bulletin**. 2019;57(1):6-9.

Childhood Acute I, Nutrition N. Childhood Acute Illness and Nutrition (CHAIN) Network: a protocol for a multi-site prospective cohort study to identify modifiable risk factors for mortality among acutely ill children in Africa and Asia. **BMJ Open**. 2019;9(5):e028454. http://doi.org/10.1136/bmjopen-2018-028454.

Daniel AI, Kvissberg MEA, Senga E, Versloot CJ, Harawa PP, Voskuijl W, Wishart D, Mandal R, Bandsma R, Bourdon C. *Urinary Organic Acids Increase After Clinical Stabilization of Hospitalized Children With Severe Acute Malnutrition*. **Food Nutr Bull**. 2019;40(4):532-43. http://doi.org/10.1177/0379572119853930.

Dhabangi A, Dzik WH, Idro R, John CC, Butler EK, Spijker R, van Hensbroek MB. *Blood use in sub-Saharan Africa: a systematic review of current data*. **Transfusion**. 2019;59(7):2446-54. http://doi.org/10.1111/trf.15280.

Dhabangi A, Idro R, John CC, Dzik WH, Opoka R, Siu GE, Ayebare F, van Hensbroek MB. *Caregivers and community perceptions of blood transfusion for children with severe anaemia in Uganda*. **Transfus Med**. 2019;29(1):61-7. http://doi.org/10.1111/tme.12581.

Dhabangi A, Idro R, John CC, Dzik WH, Opoka R, Ssenyonga R, van Hensbroek MB. *Risk factors for recurrent severe anemia among previously transfused children in Uganda: an age-matched case-control study.* **BMC Pediatr**. 2019;19(1):27. http://doi.org/10.1186/s12887-019-1398-6.

Dhabangi A, Idro R, John CC, Dzik WH, Siu GE, Opoka RO, Ayebare F, van Hensbroek MB. *Community perceptions of paediatric severe anaemia in Uganda*. **PLoS One**. 2019;14(1):e0209476. http://doi.org/10.1371/journal.pone.0209476.

Edridge AWD, Deijs M, Namazzi R, Cristella C, Jebbink MF, Maurer I, Kootstra NA, Buluma LR, van Woensel JBM, de Jong MD, Idro R, Boele van Hensbroek M, van der Hoek L. *Novel Orthobunyavirus Identified in the Cerebrospinal Fluid of a Ugandan Child With Severe Encephalopathy*. **Clin Infect Dis**. 2019;68(1):139-42. http://doi.org/10.1093/cid/ciy486.

Huibers MHW, Kityo C, Boerma RS, Kaudha E, Sigaloff KCE, Balinda SN, Bertagnolio S, Nakanjako R, Mugyenyi P, Calis JCJ, Boele van Hensbroek M, Rinke de Wit TF. *Long-term virological outcomes, failure and acquired resistance in a large cohort of Ugandan children.* **J Antimicrob Chemother**. 2019;74(10):3035-43. http://doi.org/10.1093/jac/dkz266.

Kiemde F, Bonko MDA, Tahita MC, Mens PF, Tinto H, Schallig H, van Hensbroek MB. Algorithms for sequential interpretation of a malaria rapid diagnostic test detecting two different targets of Plasmodium species to improve diagnostic accuracy in a rural setting (Nanoro, Burkina Faso). **PLoS One**. 2019;14(2):e0211801. http://doi.org/10.1371/journal.pone.0211801.

Roberts SA, Brabin L, Diallo S, Gies S, Nelson A, Stewart C, Swinkels DW, Geurts-Moespot AJ, Kazienga A, Ouedraogo S, D'Alessandro U, Tinto H, Brabin BJ. *Mucosal lactoferrin response to genital tract infections is associated with iron and nutritional biomarkers in young Burkinabe women.* **Eur J Clin Nutr**. 2019;73(11):1464-72. http://doi.org/10.1038/s41430-019-0444-7.

Smit MR, Ochomo EO, Aljayyoussi G, Kwambai TK, Abong'o BO, Bousema T, Waterhouse D, Bayoh NM, Gimnig JE, Samuels AM, Desai MR, Phillips-Howard PA, Kariuki SK, Wang D, Ward SA, Ter Kuile FO. *Human Direct Skin Feeding Versus Membrane Feeding to Assess the Mosquitocidal Efficacy of High-Dose Ivermectin (IVERMAL Trial)*. **Clin Infect Dis**. 2019;69(7):1112-9. http://doi.org/10.1093/cid/ciy1063.

Smit MR, Ochomo EO, Waterhouse D, Kwambai TK, Abong'o BO, Bousema T, Bayoh NM, Gimnig JE, Samuels AM, Desai MR, Phillips-Howard PA, Kariuki SK, Wang D, Ter Kuile FO, Ward SA, Aljayyoussi G. *Pharmacokinetics-Pharmacodynamics of High-Dose Ivermectin with Dihydroartemisinin-Piperaquine on Mosquitocidal Activity and QT-Prolongation (IVERMAL)*. **Clin Pharmacol Ther**. 2019;105(2):388-401. http://doi.org/10.1002/cpt.1219.

Tickell KD, Mangale DI, Tornberg-Belanger SN, Bourdon C, Thitiri J, Timbwa M, Njirammadzi J, Voskuijl W, Chisti MJ, Ahmed T, Shahid A, Diallo AH, Ouedrago I, Khan AF, Saleem AF, Arif F, Kazi Z, Mupere E, Mukisa J, Sukhtankar P, Berkley JA, Walson JL, Denno DM, Childhood Acute I, Nutrition N. *A mixed method multi-country assessment of barriers to implementing pediatric inpatient care guidelines*. **PLoS One**. 2019;14(3):e0212395. http://doi.org/10.1371/journal.pone.0212395.

van Elsland SL, Peters RPH, Grobbelaar C, Ketelo P, Kok MO, Cotton MF, van Furth AM. *Disclosure of human immunodeficiency virus status to children in South Africa: A comprehensive analysis*. **South Afr J HIV Med**. 2019;20(1):884. http://doi.org/10.4102/sajhivmed.v20i1.884.

van Elsland SL, Peters RPH, Grobbelaar N, Ketelo P, Kok MO, Cotton MF, van Furth AM. *Paediatric ART Adherence in South Africa: A Comprehensive Analysis*. **AIDS Behav**. 2019;23(2):475-88. http://doi.org/10.1007/s10461-018-2235-x.

van Furth MT, van Furth MT. #IToo. Lancet. 2019;393(10171):529-30. http://doi.org/10.1016/S0140-6736(19)30204-1.

van Leeuwen LM, Versteegen P, Zaharie SD, van Elsland SL, Jordaan A, Streicher EM, Warren RM, van der Kuip M, van Furth AM. *Bacterial Genotyping of Central Nervous System Tuberculosis in South Africa: Heterogenic Mycobacterium tuberculosis Infection and Predominance of Lineage 4.* **J Clin Microbiol**. 2019;57(8):e00415-19. http://doi.org/10.1128/JCM.00415-19.

Wiegers HMG, van Nijen L, van Woensel JBM, Bem RA, de Jong MD, Calis JCJ. *Bacterial co-infection of the respiratory tract in ventilated children with bronchiolitis; a retrospective cohort study.* **BMC Infect Dis**. 2019;19(1):938. http://doi.org/10.1186/s12879-019-4468-3.

Publications 2020

Dabira E, Soumare H, Lindsay S, Conteh B, Ceesay F, Bradley J, Kositz C, Broekhuizen H, Kandeh B, Fehr A, Nieto Sanchez C, Ribera JM, Peeters Grietens K, Smit MR, Drakeley C, Bousema T, Achan J, D'Alessandro U. Mass drug administration with high-dose ivermectin and dihydroartemisinin-piperaquine for malaria elimination in an area of low transmission with high coverage of malaria control interventions

(MASSIV): a study protocol for a cluster-randomized clinical trial. **JMIR Res Protoc**. 2020. http://doi. org/10.2196/20904.

Diallo S, Roberts SA, Gies S, Rouamba T, Swinkels DW, Geurts-Moespot AJ, Ouedraogo S, Ouedraogo GA, Tinto H, Brabin BJ. *Malaria early in the first pregnancy: Potential impact of iron status*. **Clin Nutr**. 2020;39(1):204-14. http://doi.org/10.1016/j.clnu.2019.01.016.

Slater HC, Foy BD, Kobylinski K, Chaccour C, Watson OJ, Hellewell J, Aljayyoussi G, Bousema T, Burrows J, D'Alessandro U, Alout H, Ter Kuile FO, Walker PGT, Ghani AC, Smit MR. *Ivermectin as a novel complementary malaria control tool to reduce incidence and prevalence: a modelling study.* **Lancet Infect Dis**. 2020;20(4):498-508. http://doi.org/10.1016/s1473-3099(19)30633-4.

Stepniewska K, Humphreys GS, Gonçalves BP, Craig E, Gosling R, Guerin PJ, Price RN, Barnes KI, Raman J, Smit MR, D'Alessandro U, Stone WJR, Bjorkman A, Samuels AM, Arroyo-Arroyo MI, Bastiaens GJH, Brown JM, Dicko A, El-Sayed BB, Elzaki SG, Eziefula AC, Kariuki S, Kwambai TK, Maestre AE, Martensson A, Mosha D, Mwaiswelo RO, Ngasala BE, Okebe J, Roh ME, Sawa P, Tiono AB, Chen I, Drakeley CJ, Bousema T. *Efficacy of single dose primaquine with artemisinin combination therapy on P. falciparum gametocytes and transmission: A WWARN individual patient meta-analysis.* **J Infect Dis.** 2020. http://doi.org/10.1093/infdis/jiaa498.

Two Decades of Global Child Health at Amsterdam UMC - Annex

OVERVIEW OF GRANTS OBTAINED

GRANTS OBTAINED AND CLOSED

TOTAL € 14.013.137

EXCL. KWARA, AIGHD FUNDING

2000-2004: A cost-shared concerted action on malaria and anaemia control for pregnant women and their infants (PREMU-EU): EU funding: € 658,753 (B. Brabin).

2000-2007: Amsterdam-Liverpool collaborative project on teaching and research in tropical paediatrics. "Child Foundation", The Netherlands and Academic Medical Centre, University of Amsterdam. Cost: €234,000 (B. Brabin)

2001-2006: Studies into the aetiology pathogenesis and long term outcome of severe anaemia in Malawian children (SEVANA) Wellcome Trust: € 815,400 (M. Boele van Hensbroek).

2001-2004: Growth in infants and adolescents in malarious area of rural Malawi. Bill and Melinda Gates Foundation: € 101,000.

2002-2004: Randomised controlled trial of iron cooking pots for prevention of iron deficiency anaemia: Bush Hospital Foundation € 29,500 (B. Brabin)

2002-2004: PhD training costs for Boniface Kalenda. Bill and Melinda Gates Foundation. € 116,570 (B. Brabin).

2002-2004: HIV and anaemia PhD scholarship J.C. Calis. Ter Meulen Foundation € 80,000 (JC Calis & M. Boele van Hensbroek).

2002-2007: New approaches to improve coverage and compliance of antimalarial treatment for pregnant women in rural Africa. EU-INCO € 849,926 (B. Brabin).

2002: The role of inflammatory mediators during experimental tuberculous meningitis. Mr. Willem Bakhuys Roozeboomstichting € 80.000 (M. Tutu v Furth).

2003: The role of inflammatory mediators during experimental tuberculous meningitis. KNCV Tuberculosefonds € 15.000 (M. Tutu v Furth).

2003-2006: The role of zinc and other micronutrients in the aetiology and pathogenesis of malaria. WOTRO € 270,252 (B. Brabin).

2003-07: Studies on infant anaemia and cord clamping practices (Zambia): Liverpool/Amsterdam International Child Health Programme €40,500 (B. Brabin)

2004-2006: HIV and anaemia PhD scholarship J.C. Calis. Numico stipendium € 50,000 (J.C.J. Calis & M. Boele van Hensbroek).

2005: De rol van immunoglobulinen in de behandeling van experimentele meningitis. Baxter BV € 45.000 (M. Tutu v Furth).

2006-2012: College of Medicine, Malawi-Amsterdam-Liverpool partnership for Research Capacity Development through the establishment of a Research Support Centre in the College of Medicine, University of Malawi (COMMAL). NWO-WOTRO € 850,000 (M. Boele van Hensbroek).

2006-2012: Double blind randomised trial to evaluate the use of Coartem as Intermitted Preventive Treatment –post discharge in children following a severe malaria anaemia episode (IPTpd). NWO-WOTRO € 650,000 (Boele van Hensbroek).

2007-2012: Double blind randomised trial to evaluate the effect of iron supplementation in haematological recovery in HIV infected anaemic children. NWO-WOTRO € 250,000 (M. Boele van Hensbroek).

2008: Tuberculeuze meningitis Township project. Turing Foundation, Alexander Ribbink and KIDS Rights. Total € 45.000. (M. Tutu v Furth).

2008-2010: Simple markers to start HAART in children; NWO-NACCAP and Stichting Steun Emma: € 175,000 (150,000 + 25,000), (J.C. Calis).

2008-2013: Malaria risk prior to and during pregnancy in nulliparous women receiving long-term weekly iron and folic acid supplementation (WIFS): a non-inferiority randomised controlled trial. National Institutes of Health (USA) \$ 1,500,000 (B. Brabin).

2010: Effects of long-term use of antiretroviral drugs and metabolomics changes in patients with HIV infection attending at Kilimanjaro Christian Medical Center, Tanzania. Nuffic: € 85.000.

2010: Mathematical modelling of tuberculous meningitis. ESPID Fellowship Award MvdK: €80.000.

2010-2011: Hepcidin and other iron markers in Malawian children. Janivo and Stichting Steun Emma € 60,000 (J. Calis).

2011: Metabolomics study and Improving early diagnosis of tuberculous meningitis. Desmond Tutu PhD's € 180.000 (M. Tutu v Furth).

2011: Tuberculous meningitis home treatment program. UBS Optimum Fund € 118.000 (M. Tutu v Furth).

2011: Tuberculous meningitis home treatment program. Lions Noordwijk: € 60.000 (M. Tutu v Furth).

2011: Neonatal infections. Nuts-Ohra Fonds € 225.000 (M. Tutu v Furth).

2011-2019: TBM South Africa: from bench to bedside. Mr Willem Backhuys Roozeboom Stichting € 200.000. (M. Tutu v Furth).

20012-2015: Pancreatic exocrine replacement therapy in severely malnourished children (Optmism trail). Stichting Steun Emma € 68,000 and Ter Meulen foundation €35,900. (W.P. Voskuijl). 2012-2015: Pancreatic exocrine replacement therapy in severely malnourished children. The "OPTIMISM" trial, a pilot study. Ter Meulenfonds, € 38,000 (W.P. Voskuijl).

2012-2016: Appropriate Fluid Resuscitation for Shock in Severely Malnourished Children. Coapplicant (AFRIM). Medicines sans Frontieres (MSF): € 171.326 (J. v Woensel).

Health Insurance Fund – evaluation of impact on child health MinBuza € 1.000.000 (AIGHD-group including J.C.J. Calis & M Boele van Hensbroek, not included in the total sum of funds obtained)

Iwo Decades of Global Child Health at Amsterdam UMC - Annex

2013-2017: High quality research and sustainable research capacity building through a Research Support & Training Center network for sub-Saharan Africa (RSTC network programme): Ministry of Foreign Affairs. € 2,880,000 (M. Boele van Hensbroek).

2014: Giving Children a Chance for Life; Postcodeloterij: € 1.500.000. (M. Tutu v Furth).

2014-2015: Phase III Randomised, double blind, placebo-controlled trial of a reduced carbohydrate formulation of F75 therapeutic milk among children with severe acute malnutrition, the "F75-trial. The Thrasher Research Fund with \$150,000 of \$450,000 total funding (W.P. Voskuijl).

2015-2017: Rotavirus vaccine and the microbiome. Stichting Steun Emma: € 60,000 (M. Boele van Hensbroek),

2015-2019: The Childhood Acute Illness and Nutrition (CHAIN) network. Bill and Melinda Gates Foundation \$1,000,000 for the Malawian site (\$12.500.000,- total funding) (W.P. Voskuijl)

2016-2018: Numico stipendium PhD scholarship Iron and anaemia. Numico foundation. € 25,000 (J.C.J. Calis).

2017-2019: Bone marrow iron deficiency in HIV-infected Malawian adults: defining its role in the development of very severe anaemia and identifying the best peripheral blood marker. Nutricia Research Foundation: € 24,910 (J.C.J. Calis).

GRANTS OBTAINED ONGOING

TOTAL € 3.744.064

2016-2020: South Sudan Nodding Syndrome Study (SSNSS). Ministry of Foreign Affairs, € 1,000,000 (M. Boele van Hensbroek).

2017-2021: Encephalopathies of unknown cause in children in resource poor settings. AMC-PhD fellowship A. Edridge € 216,064 (M. Boele van Hensbroek).

2018-2020: Minimally Invasive Tissue Sampling in children dying of an acute illness with varying forms of undernutrition; determining Causes of Death within the Malawian 'CHAIN' cohort. "MITS in CHAIN. Bill and Melinda Gates Foundation \$1.400.000,- total funding (W.P. Voskuijl).

2018-2020: Shock in children; epidemiology, early recognition and pathophysiology. Stichting Steun Emma: € 30,000 (J.C.J. Calis). 2018-2022: Optimizing strategies for the diagnosis of hospital-acquired neonatal sepsis in low resource settings: Tygerberg Hospital, Stellenbosch University South Africa., € 100.000 (M. Weissenbruch.).

2018-2022: Effect of Global DNA Methylation Status At Birth And Early Life Nutrition To The Growth Velocity and Nutritional Status In Low Birth Weight Infants. Gadja Mada University/ Sardjito General Hospital. €80.000 (M. Weissenbruch).

2018-2022: Body Composition of Premature Infants at Term Equivalent Age (2018-2022). Gadja Mada University/ Sardjito General Hospital. €80.000. (M. Weissenbruch).

2019-2020: Monitoring device for children in RPS. NWO, € 40.000 (J v Woensel)

2019-2021: Improving HIV care in Indonesian children through Monitoring, Evaluation and Clinical Research (INDIGO). Ter Meulen foundation and Emma Children's Hospital-GCHG funding. € 28,000. (M. Boele van Hensbroek).

2019: AI&I TBM. Doortje Heemskerk: € 80.000 (M. Tutu v Furth).

2019: Doctoral training grant for South African PhD. NRF-Nuffic: € 80.000 (M. Tutu v Furth).

CHAIN-2: Pancreatic Enzymes and Bile acids: A non-antibiotic approach to treat intestinal dysbiosis in acutely ill severy malnourished children (PB-SMAL). 640.000 USD (W.P. Voskuijl)

CORE FUNDING

1999-2013: Annual remittance to LSTM covering administrative cost Prof. B Brabin and running cost: Emma Children's Hospital-AMC. € 27,000.

2013-present: Salary support secretarial support GCHG: Emma Children's Hospital-AMC. € 20,000/ year.

2013-present: Salary support Prof. M. Boele van Hensbroek. Division A (Department of Global Health, AMC), 0,3 FTE.

2018-present: Salary support Dr. W.P. Voskuijl. Division A (Department of Global Health, AMC), 0,2 FTE.





Contact us globalchildhealth@amsterdamumc.nl www.globalchildhealth.nl

Writers

Prof. Job van Woensel, Prof. Michaël Boele van Hensbroek

Editors

Carla van Burik, Drs. Jacqueline Weiner, Dr. Menno Smit, Prof. Michaël Boele van Hensbroek, Drs. Nina Meels

Sponsor

Emma Children's Hospital

Photo credits

All pictures taken by Amsterdam CGCH members

Printer

Drukkerij DR&DV Media Services

ISBN

978 90 831 0580 2



