

An abstract network diagram on the left side of the page. It features a series of interconnected nodes represented by grey and red ovals. The nodes are connected by thin grey lines, forming a complex web that tapers off towards the right. The red nodes are scattered throughout the network, with one notably larger red node in the lower-left quadrant.

ANNUAL REPORT

2016

**AMSTERDAM INSTITUTE
FOR GLOBAL HEALTH
AND DEVELOPMENT**

25 September 2017





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Management Board's report

Introduction

The Amsterdam Institute for Global Health and Development (AIGHD) is an international research institute that works to develop sustainable solutions to major health problems. By taking a problem-oriented approach, AIGHD transcends the boundaries of traditional academic disciplines and integrates three fundamental activities into one institute: global health and development research, education and policy advice.

AIGHD was initiated as a partnership between the Academic Medical Center (AMC), the University of Amsterdam (UvA) and the VU University Amsterdam (VU). Today, it is a dynamic research and education institute that thrives on intense collaboration among experts from multiple disciplines including biomedicine, economics and social and behavioral sciences. With its interdisciplinary and translational approach, AIGHD addresses the most critical medical, social, economic and political challenges in global health and development that cut across national and political borders.

To realize its vision of “access to high quality health care for all”, AIGHD closely collaborates with implementing partners and with organizations from both public and private sectors around the globe. AIGHD works by linking expertise, resources and programs from organizations involved in health-related research, education, capacity building and policy making, bringing a ‘delivery perspective’ to health research and a ‘quality aspect’ to health care services.

Together with its global network, AIGHD is pioneering innovative approaches to the delivery, financing and improvement of health care, particularly in resource limited settings.

Initiated in 2003 as the Center for Poverty-Related Communicable Diseases (CPCD), AIGHD was officially launched on 7 October 2009 in the presence of the late Prince Friso van Oranje-Nassau and Princess Mabel van Oranje. With its headquarters in the Netherlands and offices in Asia and Africa, AIGHD quickly expanded to become the international research institute it is today.

Vision

Access to high quality health care for all.

Mission

To provide sustainable solutions to major health problems across our planet by forging synergies between disciplines, health care delivery, research and education.

Focus

Our organization transcends the boundaries of traditional academic disciplines and integrates three fundamental activities into one institute: research, education and policy.

Governance Structure

AIGHD is governed by its Supervisory Board, an Executive Board and Operational Management Team.

Supervisory Board

- Overall responsibility for governance
- Define strategic direction
- Appointment and supervision of Executive Board
- Minimum bi-annual meetings
 - Chair Tom van der Poll
 - Member Hans Brug
 - Member Hans Romijn
 - Member Willem Verschoor

Executive Board

- Execute strategy, scientific direction and policies
- Manage the Foundation
- Minimum bi-annual meetings
 - Chair Frank Cobelens
 - Member Chris Elbers
 - Member Anita Hardon
 - Member Michiel Heidenrijk
 - Member Constance Schultsz

Operational Management Team

- Day-to-day operations
- Finance & Control
- Internal and external reporting
- Monitoring progress of projects and programs
- Weekly meetings
 - Chair, Executive Board Frank Cobelens
 - General Manager Friso Janssen
 - Member, Executive Board Constance Schultsz

Executive Board's Report

Successes and Contributions

In 2016, the Amsterdam Institute for Global Health and Development (AIGHD) contributed to research, education and policy advice in global health and development in five domains: urbanization and health, drug resistance, infectious disease elimination, chronic care and ageing, and health markets. Across these domains, AIGHD consolidated its achievements in HIV/AIDS research with ongoing studies into HIV-related comorbidities and ageing, HIV drug resistance and scale-up of 'test and treat'. It expanded its work in antimicrobial resistance for common bacterial and zoonotic pathogens, tuberculosis, cardiovascular disease, helminth infections and child health. Increasingly, our research in each of these domains is interdisciplinary, addressing issues in global health and development through the biomedical, social science and economics lenses in an integrated approach. Projects in these research areas have had important outputs. For 2016, these included 132 papers in peer-reviewed journals and four PhD degrees.

An important element of several of these projects has been the strengthening of local research capacity. Forty-two PhD fellows worked at AIGHD in 2016, often in a 'sandwich' format in which they combined data collection in their home country with periods of intense supervised research work in Amsterdam. 2016 also saw the completion of the ARISE project that supported four African universities in establishing

Research Support & Training Centers aimed at strengthening local ownership of biomedical research and institutional research infrastructure. The annual INTEREST Workshop, held this year in Cameroon, provided a platform for lively debate on HIV research in Africa.

Among our educational achievements were the further development of the Master's course in Global Health Research (with VU University's Athena Institute) into a truly mixed-methods course, numerous contributions to the University of Amsterdam medical curriculum training (in particular, Bachelor and Master thesis supervision) and the development of the new Epicurius Bachelor curriculum, and AIGHD-organized symposia around global health topics. AIGHD staff was also engaged in various international policy debates and guideline development processes.

Essential for AIGHD's achievements have been successful collaborations with other research institutes and organizations. In the Netherlands, we continue to collaborate with various research groups within the Academic Medical Center (AMC), the Faculty of Social and Behavioural Sciences, the Amsterdam Institute for Social Science Research (AISSR) and the VU University Amsterdam's Faculty of Economics and Business Administration (VU-FEB), as well as with the PharmAccess Group, the Amsterdam Health & Technology Institute (AHTI), the Joep Lange Institute, the VU's Athena Institute, the KNCV Tuberculosis Foundation and Health[e] Foundation.

Internationally, we have worked with a global network of universities and research institutes on all continents. Some have also been of particular importance for collaboration at the institutional level, prompting international trips by AIGHD's Executive Board and Operational Management Team members in 2016 to Duke University Global Health Institute (Durham NC, USA), the African Population Health Research Center (Nairobi, Kenya), the Southeast Asia Community Observatory/Monash University (Segamat, Malaysia), Makerere University College of Health Sciences (Kampala, Uganda), the Reproductive Health Institute at Witwatersrand University (Johannesburg, South Africa), the School of Public Health at Chongqing Medical University (Chongqing, China) and (planned for early 2017) the HIVNAT/Thai Red Cross and Chulalongkorn University collaboration (Bangkok, Thailand).

This work was supported by funding from a wide variety of sources. In addition to support from the University of Amsterdam, we received project support from, amongst others, the Dutch Government, the European Commission, philanthropic organizations (such as the Bill and Melinda Gates Foundation), product development partnerships and industry sponsors.

Challenges and External Factors

The primary challenge for AIGHD remains the acquisition of funding for its core activities and essential support functions. While it received some in-kind support from the AMC through the Department of Global Health, funding from the University of Amsterdam through the Research Priority Area ("Zwaartepunt") Global Health, all other activities were funded through project funding. This limited, in particular, our capacity to invest in new project grant applications. Similarly, research funding for global health has continued to be constrained. Funding from the Dutch government (mainly through NWO-WOTRO) for global health has remained limited and largely restricted to sexual and reproductive health. The Dutch National Research Agenda, established through a bottom-up process, barely pays attention to global aspects of its health priorities. Health-related calls within the European Commission's Horizon 2020 Societal Challenges Program have been largely thematic, making global health topics compete with disease areas that are considered of more relevance in the EU context.

The longer-term consequences for global health funding influenced by recent political developments and administration changes, particularly in Europe and the US are so far unclear. We do know, however, that the European & Developing Countries Clinical Trials Partnership (EDCTP) is expected to issue several larger calls for clinical research in poverty-related infections in Africa; the Dutch Government has defined antimicrobial resistance one of its international health priorities; and political awareness of the importance of global health security is quickly gaining ground, both domestically and internationally. In addition, AIGHD has started a process of identifying and further developing Big Ideas for research projects that can be submitted for external funding.

Another challenge has been the relatively limited critical mass in AIGHD, resulting in constrained capacity to acquire new project funding and to move into new areas where funding is becoming available. This has underscored the need for broadening AIGHD's disciplinary and scientific expertise base. The expansion of AIGHD, in 2016, to include social scientists from the AISSR and economists from the VU-FEB was an important step to address this limitation. Another will be the formal engagement of additional successful researchers of the AMC, UvA-AISSR, VU-FEB and beyond as AIGHD academic staff (to be implemented in 2017). A major development for AIGHD's future critical mass has been the commencement of the Joep Lange Chair and Fellows Program.

Organizational Developments

By the end of 2016, the total number of AIGHD-employed staff in the Netherlands was 47 FTE. In addition to its headquarters in Amsterdam, AIGHD employed staff in branch offices for clinical operations and data management in Kampala (Uganda, in close collaboration with Makerere University College of Health Sciences) and Bangkok (Thailand, as an extension of the HIVNAT program). We initiated the formal integration of the Amsterdam Institute for International Development (AIID) into AIGHD, which will be completed in 2017.

As of 1 January 2016, AIGHD's Executive Board (EB) was expanded with the addition of Prof. Constance Schultsz (AMC), Prof. Anita Hardon (AISSR/UvA Faculty of Social and Behavioral Sciences) and Prof. Chris Elbers (VU-FEB), with Prof. Frank Cobelens (AMC) as its Chair. Friso Janssen was appointed General Manager. During the course of the year, AIGHD's Supervisory Board (SB) was expanded as well to reflect the integration of the three disciplines, now consisting of Prof. Tom van der Poll (AMC, chair), Prof. Hans Romijn (successor of previous SB chair and AMC/Faculty of Medicine Dean Prof. Marcel Levi), Prof. Hans Brug (Dean UvA-FMG) and Prof. Willem Verschoor (Dean VU-FEB). The EB meets monthly, with day-to-day management delegated to the Operational Management Team. AIGHD's Management Team was retained in an advisory capacity and expanded to better reflect the various levels in the organization.

Organizational developments furthermore included an EB-led inventory of academic staff ambitions, the introduction of formal academic titles (within the respective faculties) for research and education staff along with annual work plans, the initiation of an annual budget cycle and streamlining processes for Bachelor and Master thesis supervision. The EB also started the development of AIGHD's next Strategic Plan, to be completed in 2017.

The Joep Lange Chair and Fellows Program, supported by the Dutch Ministry of Foreign Affairs and the Joep Lange Institute, allows the appointment of five part-time professors in various areas of global health at AIGHD/AMC's Department of Global Health, as well as research fellows to further expand these areas. 2016 saw the appointment of the first two Joep Lange Chair holders (both starting in 2017): Prof. Dan Ariely (Behavioral Economist at Duke University, Durham NC, USA) and Dr. Mark Dybul (currently Director of the Global Fund to fight AIDS, Tuberculosis and Malaria).

Two further Chair holder appointments are foreseen for 2017. In addition, AIGHD's critical mass was strengthened by the appointment of Dr. Constance Schultsz (Emerging infectious diseases and antibiotic resistance; already with AMC/AIGHD) and Dr. Jintanat Ananworanich (HIV treatment and cure; primary affiliations HIVNAT Thailand and US Military HIV Research Program) as full professors.

The Year Ahead

For AIGHD, the year 2017 will be one of expansion, in which it will aim to consolidate and strengthen its position in global health and development research and education, capitalizing on the ongoing interdisciplinary integration, recent organizational renovations and new opportunities for funding and enhancement of its critical mass. To this aim, it will further develop and support an interdisciplinary discourse, internally as well as with partners, to define novel research questions in global health and development, and identify funding opportunities for new research projects. Planned improvements in its capacity for, and approach to, grant acquisition will hopefully translate into funding for several new research projects. AIGHD will also continue to increase opportunities to attract core funding.

In education, we will continue to improve our existing courses, develop innovative Global Health Trajectories in the new Bachelor of Medicine curriculum at the AMC, and work towards a PhD Program in Global Health with involvement of the faculties that collaborate in AIGHD.

The appointment of new Joep Lange Chair holders and fellows will be an important boost for AIGHD's critical mass, as will be a formalization of the position of nonAIGHD-employed research and education staff who wish to be involved in the organization's activities.

AIGHD will continue strengthening its ties with its parent academic institutes, international partners, and NGOs and other organizations in health care delivery with which it collaborates. It will work towards enhancing its visibility as an interdisciplinary research institute both domestically and internationally.

Research Report

"The first step to finding a solution is understanding the problem"

In 2016, AIGHD was involved in a large number of research projects. Several of these were interdisciplinary in nature, crossing the bridges between medicine and biomedical sciences, social and behavioral sciences and economics. SOCIALAB, a project completed in 2016, combined ethnographic research with studies of utilization of diagnostic tests to understand how practical, organizational, economic, sociocultural and historical factors contribute to the under-utilization of laboratory screening for various diseases in antenatal care in Senegal. The COHEiSION project, also completed in 2016, focused on health insurance in Ghana. A team of biomedical scientists, health economists and social scientists studied clients' perceptions about willingness to remain insured, attractiveness of services offered and alternatives that people would opt for. In the ongoing MaxART project, AIGHD epidemiologists, anthropologists and health economists collaborated to evaluate the feasibility, acceptability, clinical outcomes, affordability, and scalability of offering anti-retroviral therapy to HIV positive people regardless of CD4 count in Swaziland. AIGHD researchers were engaged in many other research projects around the globe, such as ageing and comorbidity in relation to HIV infection and treatment, innovative methods for surveillance of antimicrobial resistance, HIV drug resistance in sub-Saharan Africa, early testing of a hookworm vaccine, evaluation of patient-centered hypertension control and economic modeling of tuberculosis interventions. These research activities resulted in 132 publications in peer-reviewed journals and four PhDs defended at the University of Amsterdam.

In 2016, we also saw the completion of the first PhD project in the Erasmus Mundus Trans Global Health program (an AIGHD-led project on tuberculosis and HIV co-infection), resulting in a joint doctoral degree between the University of Amsterdam and the University of Barcelona (thesis to be defended in 2017).

Research Focus Areas

- Urbanization & health
- Drug resistance
- Infectious disease elimination
- Chronic care & ageing
- Health markets

Our research findings translated into several policy documents and guidelines concerning global health. In 2016, AIGHD researchers contributed to WHO expert and guideline committees on new drug regimens for tuberculosis and assays for latent tuberculosis infection.

AIGHD's Research Group Leaders

Frank Cobelens, Chris Elbers, Anita Hardon, Michael Boele van Hensbroek, Frank van Leth, Robert Pool, Menno Pradhan, Peter Reiss, Constance Schultz, and Tobias Rinke de Wit.

AIGHD was awarded a number of grants for new research projects. We will start a collaborative project with the Italian NGO CUAMM (Medici con l'Africa) to study the roll-out of "test and treat" antiretroviral treatment in the Shinyanga and Simiyu Regions, Tanzania. The results are meant to feed back directly into further development and improvement of the program as it progresses. Linked to this will be a TB-REACH project to improve and evaluate tuberculosis

case finding in the same regions. Two grants have been awarded to study zoonotic diseases and antimicrobial resistance in a One Health framework: HECTOR and PIGS. Finally, several research projects are being prepared in the context of the M-TIBA program. This program, designed and run by the Dutch NGO PharmAccess in collaboration with the Kenyan innovator CarePay, offers a novel approach to health financing through a Mobile Health Wallet on a mobile payment platform, focusing on the rapidly expanding private health sector in Africa.

The joint research projects aim to study biomedical, economic, behavioral and feasibility aspects of the M-TIBA program, as well as ways to use the data it generates for, amongst others, health planning and surveillance purposes.

Also in 2016, the research projects that AIGHD is involved in were collaboratively carried out with a wide array of collaborators. These included academic and research institutes in the Netherlands, Europe, Africa, Asia and the Americas (see section 'Where we work' on page 22), as well as governmental institutes (e.g. China Center for Disease Control) and NGOs (e.g. Amsterdam Institute for Health & Technology, PharmAccess Group, Health[e] Foundation, KNCV Tuberculosis Foundation, HealthNet TPO).

Project Highlights: Completed in 2016

ARISE

The objective of the ARISE (Africa Research Initiative and Support) consortium was to strength research and development capacity by developing a network of Research Support & Training Center's (RSTCs) in sub-Saharan Africa. The ARISE consortium, funded by the Ministry of Foreign affairs of The Netherlands, was founded in 2012.

Achievements: four RSTCs were established in Zimbabwe, Uganda, Rwanda and Malawi. These RSTCs were integrated into their respective host institutes and their activities were often conducted in a South-South collaboration between network partners. The RSTC activities were grouped into three categories (work packages): 1) Training & Courses; 2) Support Services; and 3) Governance & Infrastructure.

1) Training & Courses: in all sites, a course portfolio was developed offering a range of courses on: conduct of clinical research, biostatistics, evidence based medicine, data- and grants-management. In total, over the funding period, more than 3,000 trainees attended the courses of whom the majority were students and faculty staff.

2) Support Services: the service package of epidemiological & statistical support; data- & grant-management support and monitoring of clinical trials was developed in all sites. These services benefitted students and staff members, but, more importantly, it generally increased the quality of the research conducted in the host institutes.

3) Governance & Infrastructure, the RSTC's have been able to establish themselves in the centre of the research activities in their respective host institutes. They have made vital contributions to the development of research policies & guidelines. Through regular newsletters they have been able to become the source of research information for students and staff.

This very successful NACCAP funded program has made significant contributions towards research capacity building in Africa and has shown that research ownership can be shifted from the west to the Sub Saharan host institutes.

MaxART: Ending new infections in Swaziland Phase II

Swaziland is implementing two Early Access to ART for All implementation studies, one being conducted in Hhohho (MaxART) and the other in Shiselweni (Médecins Sans Frontières) which are designed to inform the Ministry of Health on the feasibility, acceptability, clinical outcomes, affordability and scalability

of offering early ART to all HIV-positive individuals in Swaziland. Preliminary lessons learned are now contributing in informing the Test & Start roll-out. Test & Start allows for people who are ready to initiate on antiretroviral therapy (ART) immediately after an HIV-positive diagnosis in an effort to improve their health. By introducing the Test & Start approach, the Swaziland Ministry of Health aims to achieve universal access to ART and the UNAIDS 90-90-90 targets by 2020. Test & Start is also informed by epidemiological research that shows that when people begin ART soon after they are diagnosed with HIV - regardless of CD4 count - HIV incidence in the population will be significantly reduced.

The Early Access to ART for All study demonstrates that it is necessary to test the right people, in the right places, with the right strategies. Another lesson learned is that it is important to ensure that individuals are linked to care and initiated early on ART. The last lesson learned is that measures to ensure quality care should be in place to maximize retention and viral suppression. The Test & Start approach puts these findings into practice to improve the lives of people living with HIV.

While Test & Start is being rolled out, the implementation of MaxART's Early Access to ART for All study continues. The end-date of data collection remains 31 August 2017. To minimize any potential for bias, the final step in the study was moved forward three months. In this way, the transition of the final two facilities from control to intervention phase coincided with the initiation of Test & Start. Results will be presented in Swaziland end-2017 and during the International AIDS Conference 2018.

PASER: Pan-African Studies to Evaluate Resistance

Using methodologies that were fully compatible with WHO guidance, the project determined the effects of large-scale antiretroviral treatment (ART) on the emergence and evolution of HIV drug resistance. Unlike any other HIV drug resistance effort in Africa, PASER was able to produce long-term data on a comprehensive scale and show results of up to 72-84 months of patient follow-up. PASER collected data from 13 clinical sites in six countries: Kenya, Uganda, Zambia, Zimbabwe, South Africa and Nigeria. Extensive experience and benefits were gained from the regional aspects of the program. In 2012, PASER contributed 25% of all HIV drug resistance data reported to the WHO from sub-Saharan Africa. The project built capacity in Africa for the monitoring and surveillance of HIV drug resistance by training clinic staff, nurses, counselors and lab technicians in good clinical practice (GCP) and good laboratory practice (GLP). In addition, PASER proved to be a true advocate of HIV drug resistance by publishing nearly 50 scientific manuscripts in peer-reviewed journals, delivering presentations at key HIV conferences, reaching out to mass media in Africa, and influencing policy on HIV treatment in Africa. Importantly, PASER created high-profile involvement in the international policy arena of HIV treatment in Africa.

SOCIALAB: Addressing Social Cultural and Historical Factors Limiting the Contribution of Medical Laboratory services to antenatal care in Senegal

The SOCIALAB project examined how organizational, political, sociocultural and historical factors shape the views of health policymakers and others regarding medical laboratories and how they influence the organization, service delivery and success of current interventions to upscale laboratories in health facilities in Senegal. The project used a transdisciplinary approach linking Dutch, Senegalese and French research institutions with local stakeholders to understand the underutilization of laboratory test in ANC in Senegal.

The case study in Senegal revealed that screening tests are severely underutilized, in a context where laboratory technology and infrastructures for ANC testing are widely available. Less than one third of the 1600 pregnant women who visited the participating health facilities obtained the complete set of seven mandatory antenatal tests. Moreover, only 11% of women interviewed during the ethnographic study, were in possession of the complete set of test results.

The historical analysis conducted in Senegal, Mali and Burkina Faso suggested that the lack of dedicated programmatic support from international donors seriously limited the development of the laboratory sector in West Africa, thereby aggravating the neglect of maternal care diagnostics by health program managers and national policymakers. Because HIV incidence is low in West Africa, these countries did not receive

the extensive support from PEPFAR (President's Emergency Plan for Aids Relief, USA) which played an important role in strengthening laboratories in East and southern Africa.

The SOCIALAB project has identified bottlenecks in the whole process of ANC test uptake, with new insights into the problematic of strengthening the medical laboratory sector in low-resource setting from West Africa.

The results led to recommendations for the improvement of medical laboratory services and hence the quality of ANC in Senegal and other settings. The outcomes of the study have been taken up directly by the Directorate of Laboratory in Senegal and are currently being examined by Mali and Burkina Faso in the context of the RESAOLAB network. Capacity for transdisciplinary research has been built within the consortium for Southern and Northern scientists.

TB CHINA: Improving Tuberculosis Control in China

The goal of this project was to demonstrate the impact of improved tuberculosis (TB) control using innovative tools and delivery approaches in China. Working with Duke University (USA) and several Chinese universities AIGHD researchers evaluated the effects of these interventions on clinical and epidemiological parameters related to diagnosis and treatment of drug-resistant TB. Other aspects studied in the project included health sector changes, health care financing and economic burden to patients. The project found important benefits of improved diagnosis using rapid molecular drug resistance tests, but also limited impact of the new policy, recently introduced in China, of sputum culture for all patients diagnosed with TB despite negative microscopic sputum examination.

VIBRE: Antimicrobial drug Resistance – the Human-Animal Interfacet in Vietnam

In low-income countries, most poultry is kept in back yard farms. Knowledge regarding antimicrobial drug usage and antimicrobial resistance (AMR) in back yard farms is limited. This project used a One-Health approach, simultaneously studying chicken flocks and their farmers, as well as humans unexposed to chickens, in southern Vietnam. The study focused on antimicrobial drug usage in back yard chicken and humans in the community, as well as on AMR levels in normal gut bacteria from chicken and humans. The results of the study indicate that antimicrobial drug usage in back yard chicken is very high and that this usage is a key driver of AMR in both humans and back yard chicken. In addition, the results show that transmission of bacteria and bacterial genes between chicken and humans is bidirectional, depending among others on the antimicrobial drugs used in each of the host populations and the likelihood of direct exposure.

Project Highlights: Ongoing in 2016

SPIN: Scientific Programme Indonesia-Netherlands – Novel Strategies and tools for antimicrobial resistance surveillance

The SPIN project validates, optimizes, and implements the use of LQAS-based AMR surveillance for urinary tract infections caused by *Escherichia coli* and *Klebsiella pneumoniae*. This is paired with extensive capacity building activities in microbiology using state-of-the-art techniques (Tele-microbiology approach) to be able to timely inform local antimicrobial stewardship activities. Other objectives of the study are to assess the appropriateness of empirical therapy for urinary tract infection given the background prevalence of AMR as assessed by LQAS-based surveillance, and to assess clinical and molecular determinant of AMR in urinary tract infections. The studies take place in two cities on two Indonesian Islands (Bandung, Java and Medan, Sumatra) and consist of two sub-projects. The first project focuses on epidemiology and mathematical modeling, addressing the validation and optimization of the use of LQAS-based surveillance, as well as bias introduced by laboratory-based surveillance or negative cultures. The second project focuses on clinical and microbiological aspects, and studies the effect of results of LQAS-based surveillance on antimicrobial stewardship activities and appropriateness of empirical therapy.

AGEHIV Cohort Study: Comorbidity and Ageing with HIV

The AGEHIV Cohort Study compares the prevalence and incidence of a broad range of non-communicable co-morbidities and their risk factors between HIV-infected and uninfected individuals aged 45 and older. Its primary aim is to determine the extent by which HIV may increase the risk of developing such co-morbidities, and to study potential underlying mechanisms, including any which may affect aging as a result of infection and antiviral treatment. The study started recruiting in the Netherlands in November 2010, and within two years 598 HIV-infected and 550 uninfected individuals were enrolled and completed their baseline assessment. A follow-up study with the same study participants was set up in 2015 for the next five years.

Pediatric HIV Drug Resistance Nigeria

Pediatric HIV Drug Resistance Nigeria project is a collaboration between AIGHD, the Nigerian Ministry of Health (MOH), the Lagos University Teaching Hospital (LUTH) and all participating Early Infant Diagnosis (EID) centers in Nigeria. During the PASER study, preliminary results showed an alarming 21% of children with HIVDR even before anti retroviral treatment has started. Of children without any exposure to drugs for PMTCT, the rate of HIV drug resistance was 16%. These data are the first for Nigeria and provide a strong warning signal for health policy. Therefore this project assesses initial HIVDR among children below the age of 18 months in order to confirm and extend these preliminary findings on high pre-treatment HIVDR and thus inform policy about potential consequences for selection of 1st line pediatric ART regimens. This project is aligned with WHO methodology and uses remnant diagnostic dried blood spots (DBS) to survey initial resistance among a nationally representative sample of children below the age of 18 months, newly diagnosed with HIV-1 in Nigeria.

South Sudan Nodding Syndrome Study

Nodding syndrome (NS) is an unexplained neurological illness that has been reported in Uganda, South Sudan and Tanzania and mainly affects children for the first time when they are between 5 and 15 years of age. NS is characterized by head-bobbing spells. The onset of the spells is often followed, years later, by other types of seizures, growth faltering and cognitive deterioration. There is an urgent need for more detailed investigation into NS in order to address outstanding questions with respect to prevalence, natural history and aetiology. The findings of this study will be critical for health care providers to plan and improve their NS treatment and preventive programs.

HOOKVAC: Developing and testing a novel, low-cost, effective HOOKworm VACcine to control human hookworm infection in endemic countries

HOOKVAC studies a candidate vaccine against hookworm infection, which ranks number one in terms of years lost from disability caused by a neglected infectious disease. It aims to establish the safety and immunogenicity of the vaccine candidate in an endemic population; improve the manufacturing process; provide clinical proof of concept; and improve accessibility of the vaccine in endemic areas (sub-Saharan Africa, Southeast Asia and Latin America). HOOKVAC is developing the first and only vaccine for human hookworm infection.

OMRON Pilot Evaluation

OMRON Healthcare Europe approached AIGHD to collaborate on developing, implementing and evaluating an innovative pharmacy-based hypertension care delivery model for subSaharan Africa. In this program jointly developed, patients with hypertension use community pharmacies as their main point of care, rather than regular health facilities. Patients will go to the pharmacy for blood pressure measurements, lifestyle advice and drug dispensary. Monitoring of patients and drug prescriptions will be done remotely by a doctor via a digital data transfer tool, a "health cloud". The expected benefits for patients include reduced travel and waiting time to and in health facilities, reduced costs of care and potentially better service due to lower workload of pharmacy staff compared to doctors in health facilities. A pilot of the program was started in Lagos, Nigeria, recruiting 336 adults with uncomplicated hypertension to participate in the program for 6 months.

H-TEAM: HIV Transmission Elimination Amsterdam Initiative

The H-TEAM initiative is a unique collaboration between all stakeholders involved in the prevention and care of HIV in Amsterdam, including key affected communities. The main objectives are (1) to decrease

the number of new HIV infections in people at risk of becoming HIV-infected; and (2) to promote the health of HIV-infected individuals and reduce their risk of transmitting HIV to others. The H-TEAM initiative has developed and implements innovative strategies to expand testing and immediate treatment for HIV, as well as to prevent further transmission of the virus. For example, H-TEAM implemented strategies to enhance the awareness of acute and chronic HIV infection and the benefits of regular testing, early diagnosis and treatment among the key populations and their health care providers, combined with rapid testing procedures, fast linkage to care and provision of immediate HIV treatment. H-TEAM also implemented a demonstration project that evaluates the uptake, acceptability and usability of pre-exposure prophylaxis (PrEP) for MSM and transgender people with increased risk of acquiring HIV.

SPARKS

SPARKS is an awareness-raising and engagement project to promote Responsible Research and Innovation (RRI) across 29 European countries (EU members plus Switzerland). It gathers 33 organizations as partners and linked Third Parties. SPARKS will organize an interactive touring exhibition and 232 innovative participatory activities on RRI (science cafés, pop-up Science Shops, incubation activities and scenario workshops) across Europe. Objectives: Raise awareness about RRI across Europe and encourage citizens and other stakeholders to engage in it; Contribute to the achievement of Horizon 2020's objective; Feed R&I policies at the EU, national, regional and local levels with societal inputs to facilitate the development of RRI; Build upon existing projects and powerful networks.

Project list AIGHD - 2016

Project title	Start date	End date	Project leader
A phase 3b, Randomised, Open-label Clinical Study to Demonstrate Non-inferiority in Virologic Response Rates of HIV-1 RNA Suppression <400 Copies/mL of TDF/FTC/RPV Versus TDF/FTC/EFV in First-line Antiretroviral NNRTI-based Suppressed Patients	08-08-2013	31-03-2016	Dr. N. Pakker
Technical Assistance to Evaluate the Chinese ministry of Health's Phase 2 TB Program	01-05-2014	30-04-2016	Prof. dr. F.G.J. Cobelens
High quality research and sustainable research capacity building through a Research Support & Training Center network for sub-Saharan Africa (NACCAP II ARISE Network)	01-06-2012	30-06-2016	Prof. dr. M. Boele van Hensbroek
Wotro CoHeRe	01-08-2011	31-07-2016	Dr. N. Pakker
MaxART: Ending New Infection in Swaziland Phase II	01-06-2014	31-12-2016	Dr. G. Gomez Guillen
CAD4TBCloud	01-01-2015	31-12-2016	Prof. dr. F.G.J. Cobelens
Pediatric HIV Drug Resistance study in Nigeria	01-07-2015	31-12-2016	Prof. dr. T.F. Rinke de Wit
15 years Heineken	01-01-2016	31-12-2016	Prof. dr. T.F. Rinke de Wit
10th INTEREST Workshop, Yaounde, Cameroon, 3-6 May 2016	01-01-2016	31-12-2016	Dr. C. Hankins
Co-morbidity in relation to AIDS	01-03-2013	28-02-2017	Prof. dr. P. Reiss
Epidemiology and control of tuberculosis in the antiretroviral therapy era: towards a mathematical model for Cape Town, South Africa	01-03-2014	28-02-2017	Dr. S. Hermans
Analysis on the concepts, relationships between and causes of poverty, income inequality and economic growth	01-01-2016	30-04-2017	Prof. dr. P.F. Lanjouw
Expanded use of ART for treatment and prevention in female sex workers in South Africa (TAPS project)	01-06-2014	30-06-2017	Dr. G. Gomez Guillen
Evaluation of the ORIO project ORIO09/SA/01 Sustainable Water and Sanitation Development Programme for Indigent Communities in eThekweni Municipality, South Africa	01-04-2016	30-06-2017	Prof. dr. C.T.M. Elbers
Comparing the impact and cost effectiveness of two social protection interventions in Kenya: fee waiver versus social health insurance scheme	01-05-2015	31-07-2017	Prof. dr. C.T.M. Elbers
OMRON Pilot Evaluation	01-08-2015	31-07-2017	Dr. A.H. van 't Hoog
Synthesis Evaluation of SRHR Subsidy Policy Frameworks 2011-2015	01-11-2016	31-07-2017	Prof. dr. Marleen Temmerman
Big Results Now! Research on Education System Reform in Tanzania	01-11-2016	31-08-2017	Dr. Y. Schipper
Novel strategies and tools for antimicrobial resistance surveillance	01-10-2012	30-09-2017	Prof. dr. M. de Jong
Developing and Testing a novel, low-cost, effective HOOKworm VACcine to Control Human Hookworm Infection in endemic countries	01-10-2013	30-09-2017	Dr. R. van Leeuwen

Project title	Start date	End date	Project leader
International Doctorate in Transdisciplinary Global Health Solutions	19-10-2012	19-10-2017	Prof. dr. F.G.J. Cobelens
Thematic coordination infectious disease and health; "Translating health research into health policy in Indonesia: barriers and solutions"	01-11-2012	31-10-2017	Prof. dr. M de Jong
EU-India research and innovation partnership on vaccine development for hookworm and other neglected tropical diseases	01-12-2014	30-11-2017	Dr. R. van Leeuwen
The gut microbiome as a determinant of the diminished rotavirus and enteric vaccine immunogenicity seen in the developing world	01-01-2014	31-12-2017	Mrs. V.C. Harris
Productive Employment in the Segmented Markets of Fresh Produce	01-09-2014	31-12-2017	Prof. dr. M.P. Pradhan
South Sudan Nodding Syndrome Study programme: A study into the epidemiology, aetiology and outcome of nodding syndrome in South Sudan	01-01-2015	31-12-2017	Prof. dr. M. Boele van Hensbroek
New challenge for HIV in Africa; exacerbated immune activation during antiretroviral treatment; biomarkers and health impact	01-01-2015	31-12-2017	Dr. R. Hamers
Rota-biome: the influence of the viral, fungal and bacterial microbiome on rotavirus vaccine immune responses. A retrospective study in Ghana.	01-10-2016	31-12-2017	Mrs. V.C. Harris
Evaluation of the ORIO project 09/VN/04 Realisation of Two Water Supply Plants for Rural Areas in Ba Ria Vung Tau Province	01-10-2014	31-03-2018	Prof. dr. C.T.M. Elbers
SPARKS	01-07-2015	30-06-2018	Dr. C. Hankins
Principal Investigator - Quantitative Research KIAT Guru	10-11-2016	30-06-2018	Prof. dr. M.P. Pradhan
HealthTech Park	10-03-2016	09-03-2019	Mr. M. Heidenrijk
ASPASIA premie - Dr. Constance Schultsz	01-08-2014	31-07-2019	Dr. C. Schultsz
Amsterdam MSM Hepatitis C Free	01-12-2016	30-11-2019	Dr. M. van der Valk
Comorbidity and aging with HIV (AgeHIV Cohort Study)	01-01-2010	31-12-2019	Prof. dr. P. Reiss
1H4F – Integrale aanpak van preventie en bestrijding van Streptococcus suis infecties in de varkenshouderij	01-01-2016	31-12-2019	Dr. C. Schultsz
Impact Evaluation of the MASSIF Investment in Business Partners International (BPI)	01-02-2014	31-05-2020	Prof. dr. C.T.M. Elbers
Sociology of Health and Aging	01-09-2012	30-09-2020	Dr. C. Schultsz
European HIV Vaccine Alliance (EHVA): a EU platform for the discovery and evaluation of novel prophylactic and therapeutic vaccine candidates	01-01-2016	31-12-2020	Prof. dr. J.M. Prins
Evaluation of the ORIO project ORIO09/GH/05 Ghana TB Case Detection	01-07-2016	31-12-2020	Dr. F. van Leth

Education Report

“Developing and inspiring the next generation of global health leaders”

At the undergraduate level, AIGHD coordinates the Global Health elective course, offered to second year Bachelor of Medicine students at the Academic Medical Center (AMC), the university hospital and Faculty of Medicine of the University of Amsterdam (UvA). As of 2016, AIGHD is also developing additional elective courses in the field of global health for the UvA's new Bachelor of Medicine curriculum, in collaboration with multiple faculties and disciplines in the Netherlands and abroad, in order to increase competence in global health and promote interdisciplinary learning. In 2016, AIGHD hosted seven bachelor thesis projects.

In collaboration with the VU University Amsterdam (VU), AIGHD offers the two-year Research Master Global Health at the VU. AIGHD coordinates curriculum elements of this program which has been running since 2012 and continues to be an active participant of the coordinating team. Scientific internships are hosted by AIGHD for Master's students, allowing students to gain 'hands-on', real-world skills in global health research. In 2016, AIGHD hosted four such internships, many of which included international fieldwork and experiential collaboration with local communities, researchers and institutions.

In 2016

- PhD supervisions 42
- PhD defenses 4
- Bachelor thesis supervisions 7
- Internships 7

Note: Statistics for PhDs based on calendar year.
Statistics for Bachelor/Master based on 2015/2016 academic year.

AIGHD's Lecturers and Curriculum Developers

Guus ten Asbroek, Daniella Brals, Frank Cobelens, Marleen Hendriks, Michael Boele van Hensbroek, Anja van 't Hoog, Frank van Leth and Constance Schultsz.

In 2016, AIGHD supervised 42 PhD students. PhD research work is supervised (or co-supervised) by one of AIGHD's research group leaders who provide supervision and mentorship throughout the duration of the PhD, including overseeing the quality and completeness of the research. PhD students are deeply embedded within active research teams at AIGHD in the Netherlands and abroad, in fields such as infectious diseases, chronic diseases and health systems, collaboratively working with internal and external researchers and institutions. The PhD results in the defense of a final thesis and a scientific publication.

Alongside its involvement in global health education at the VU and the AMC/UvA, AIGHD also contributes to global health courses at the Amsterdam University of Applied Sciences (HvA) and various professional organizations and NGOs. In collaboration with partner institutions, AIGHD also conducts professional training in Quantitative Research Methods and Good Clinical Practice in Nigeria and Uganda.

Policy and Communication

“Expert advice and knowledge sharing that makes a difference”

In 2016, AIGHD researchers engaged in policy advice and active participation in a variety of decision-making bodies. We did this locally in Amsterdam and at the national level in the Netherlands, and at the global level with municipal, governmental and global agencies, as well as non-governmental organizations (NGOs), product development partnerships (PDPs) and companies.

Several of these activities involved research and research funding bodies. Anita Hardon was Member of the Social Scientific Council of the Royal Netherlands Academy of Sciences (KNAW), the Scientific Advisory Board of the Netherlands National Institute for Health and Environment (RIVM), and the Excellence Strategy Review Committee of the German Research Foundation for Humanities and Social Science. Peter Reiss was the Scientific Advisory Board Member of the Agence Nationale de Recherches sur le Sida et les hépatites (ANRS) and Frank Cobelens started his membership of the Scientific Advisory

Board of the Research Networks for Health Innovations in Sub-Saharan Africa (German Federal Ministry of Education and Research). Similarly, AIGHD researchers were members of various steering committees, e.g. the European clinical research consortium TB-Net (Dr. Frank van Leth), the Low dose primaquin trial in African children (Mahidol University, Thailand; Michael Boele van Hensbroek), and the MRC-funded STAMP trial on TB diagnosis in severely immunosuppressed HIV patients (Frank Cobelens). Peter Reiss was on the organizing/program committees for the Biannual Glasgow International Congress on Drug Therapy in HIV Infection and the US Conference on Retroviruses and Opportunistic Infections (CROI).

AIGHD researchers contributed to national-level guideline development in the Netherlands, such as on antibiotic use (Constance Schultsz) and on HIV testing in TB patients (Frank van Leth). AIGHD also participated in global policy bodies, including the Scientific Expert Panel to the UNAIDS Executive Director and the Strategic and Technical Advisory Committee of the UNAIDS 90-90-90 program (Peter Reiss), the Steering and Advisory Committee of the Special Programme of Research, Development, and Research Training in Reproductive Health of NDP/UNFPA/ UNICEF/WHO/World Bank (Anita Hardon), and WHO task forces working on the development of target product profiles for new TB drug regimens and assays for latent TB infection (Frank Cobelens). In addition, Peter Reiss was Member of the Executive Committee and Governing Council of the International Aids Society.

We provided advice to PDPs, companies and NGOs. Tobias Rinke de Wit was on the Board of Mondial Diagnostics, a not-for-profit company producing affordable diagnostics for resource-poor settings. Anita Hardon was a Supervisory Board Member at Rutgers International, and Tobias Rinke de Wit and Frank Cobelens were scientific advisors with PharmAccess International and the KNCV Tuberculosis Foundation, respectively. Michael Boele van Hensbroek was Member of the Academic Board of the Dutch medical specialization in International Health and Tropical Health.

Good Participatory Practice Guidelines

Dr. Catherine Hankins led a consultative process in 2016 for the World Health Organization to develop a document entitled: Good participatory practice guidelines for trials of emerging (and re-emerging) pathogens that are likely to cause severe outbreaks in the near future and for which few or no medical countermeasures exist (GPP-EP). The primary audience for the good participatory practice guidelines for emerging pathogens (GPP-EP) is all those involved in designing, financing, and implementing prevention and treatment trials of emerging or re-emerging pathogens. These are pathogens that are causing or are likely to cause severe outbreaks in the near future and for which few or no medical countermeasures exist. They include diseases such as Ebola virus disease, Crimean Congo haemorrhagic fever, Marburg, Lassa fever, MERS and SARS coronavirus diseases, Nipah, Rift Valley fever, Chikungunya, severe fever with thrombocytopenia syndrome, Zika, and other known and as yet unknown pathogens. This guidance specifically addresses good participatory practices during trials conducted in health emergency contexts where accelerated research processes are needed.

INTEREST

10th International Workshop on HIV Treatment, Pathogenesis and Prevention research in Resource-Limited settings

Ending AIDS as a public health threat by 2030 was the theme of the 2016 INTEREST Conference held in Yaoundé, Cameroon on 3-6 May 2016. It attracted 369 active delegates from 34 countries, of which 22 were in Africa. The annual conference is jointly presented by AIGHD and Virology Education.

The conference focused primarily on HIV treatment, pathogenesis, and prevention research in resource limited settings. The entire scientific program took place in plenary, with presentations on treatment optimization, acquired drug resistance, care of children and adolescents, laboratory monitoring and diagnostics, implementation challenges, HIV prevention, key populations, vaccine and cure, hepatitis C, financing the HIV response, and emerging pathogens. Spirited plenary debates were held on the UNAIDS 90-90-90 treatment cascade goal and on antiretroviral pre-exposure prophylaxis.

The 38 highest scoring scientific abstracts were highlighted in oral, mini-oral, and poster presentations. Duke University's Guido Ferrari and AIGHD's Cate Hankins, who is also INTEREST's Scientific Chair, successfully competed for an USA National Institutes of Health/Fogarty International grant that provided travel support for young scientists chosen for oral abstract presentations.

The 10th INTEREST Workshop maintained the tradition of holding the highly popular Joep Lange career guidance sessions for young and early career researchers that had been introduced in 2015. Early morning grantspersonship sessions also attracted early career researchers. Cameroon's Joseph Fokam won the Joep Lange INTEREST award for the highest scoring scientific abstract, entitled Ultra-deep pyrosequencing of paediatric HIV-1 drug resistance and coreceptor suggests possible suitability of protease inhibitors and maraviroc at younger ages in Cameroon. The Joep Lange INTEREST award provides registration, accommodation, and travel to the next INTEREST Workshop. The 2017 INTEREST Workshop is being held on 16-19 May 2017 in Lilongwe, Malawi.

At the closing ceremony, the Yaoundé Declaration called on African governments; UNAIDS; development, bilateral, and multilateral partners; and civil society to adopt urgent and sustained approaches to end HIV by 2030.

Selected Keynotes & Presentations

AIDS 2016, Durban

Peter Reiss

Introduced next (22nd) International AIDS Conference, AIDS 2018 in Amsterdam, during closing ceremony of AIDS 2016 in Durban

UNAIDS PCB Meeting, Geneva

Peter Reiss

Invited Keynote speaker and panel discussant during the Thematic Segment on "Ageing and HIV"

CROI 2016, Boston

Cate Hankins

Co-chair of plenary session on achieving 90-90-90 with Dr. Serge Eholie of Cote d'Ivoire entitled: "Reaching 90:90:90 and Beyond: Challenges and Innovations"

TB 2016, Durban

Sabine Hermans

Oral presentation: Deterministic linkage to evaluate the burden of recurrent TB disease in Cape Town, South Africa

Scientific Research & TB Control & Prevention, Zhejiang

Frank Cobelens

Presentation on new concepts in latent tuberculosis infection

EDCPT Forum, Lusaka

Frank Cobelens

Presentation: Why should doctors care about money?

From Innovation to Impact, Amsterdam

Frank Cobelens

Key note address on health at public debate held at KIT, featuring Bill Gates

TBnet Academy 2016: Odessa

Frank van Leth

Four-day master class for early-career physicians and researchers in the field of tuberculosis

XXXVI World Congress of the International Society of Hematology, Glasgow

Michael Boele van Hensbroek

Keynote speaker and presentation Anaemia, iron deficiency and susceptibility to infections

Fourth Global Symposium on Health Systems Research, Vancouver

Pascale Ondo and Winny Koster

SOCIALAB: Antenatal Care (ANC) testing in Senegal

European Association for Communication in Healthcare (EACH) International Conference, Heidelberg

Christopher Pell (Presented by Janke Oosterhaven)

Conference paper: Illness Perceptions and Health Literacy Skills of Patients with Chronic Pain - A Qualitative Study

Union Conference on Lung Health, Liverpool, UK

Frank Cobelens

Conference paper: Tuberculosis treatment monitoring: is a test of cure realistic?

Global Health Symposia

Kick-Off Symposium: Amsterdam Public Health Institute's Global Health Program

23 September 2016

First networking event of the Amsterdam Public Health's Global Health Program, set up by the VU University Medical Center Amsterdam and the University of Amsterdam's Amsterdam Medical Center to strengthen collaborations between academia, research institutions, and implementing organizations in the Amsterdam region and developing nations. Discussions were focused on four key areas: urbanization, migration & environmental health; sexual, reproductive & child health; communicable diseases & NCDs; and health systems strengthening & governance.

Global Health Symposium: Refugee Care

Organized by AIGHD, AMC and Health[e]Foundation - 27 September 2016

By the end of 2015 65.3 million people had left their homes in an effort to flee war and violence. A history of refugee care in the Netherlands was presented by five speakers, followed by a discussion on the need of an adequate response and research into the health problems faced by refugees.

Publication Highlights

132 Publications in 2016

Urbanization and Health

- Coming of age, becoming obese: a cross-sectional analysis of obesity among adolescents and young adults in Malaysia (AIGHD author: Christopher Pell)
BMC Public Health. 2016 Oct 13;16(1):1082.
- Guest Editors' Introduction: Harm Reduction From Below. Contemporary Drug Problems (AIGHD author: Anita Hardon)
Volume: 43 issue: 3, page(s): 191-198.

Drug Resistance

- Protease Inhibitor Resistance in the First 3 Years of Second-Line Antiretroviral Therapy for HIV-1 in Sub-Saharan Africa (AIGHD authors: Sonia Boender, Raph Hamers, Pascale Ondo, Tobias Rinke de Wit, Kim Sigaloff)

- J Infect Dis. 2016 Sep 15;214(6):873-83. doi: 10.1093/infdis/jiw219. Epub 2016 Jul 11.
- Affordable HIV drug-resistance testing for monitoring of antiretroviral therapy in sub-Saharan Africa (AIGHD author: Seth Inzaule, Pascale Ondo, Tobias Rinke de Wit, Raph Hamers)
Lancet Infect Dis. 2016 Nov;16(11):e267-e275. doi: 10.1016/S1473-3099(16)30118-9. Epub 2016 Aug 25.
- Dissemination of the mcr-1 colistin resistance gene (AIGHD authors: Menno de Jong, Constance Schultsz)
Lancet Infect Dis. 2016 Feb;16(2):147-9. doi: 10.1016/S1473-3099(15)00541-1. Epub 2015 Dec 18.
- Tradeoffs in Bedaquiline Introduction Policies: A Model Based Analysis (AIGHD author: Frank Cobelens)
PLoS Med. 2016 Oct 11;13(10):e1002142. doi: 10.1371/journal.pmed.1002142. eCollection 2016 Oct.
- Treatment Outcomes in Multidrug-Resistant Tuberculosis (AIGHD author: Frank van Leth)
N Engl J Med 2016; 375:1103-1105 September 15, 2016.

Infectious Disease Elimination

- Suboptimal viral suppression rates among HIV-infected children in low and middle-income countries: a meta-analysis (AIGHD authors: Ragna Boerma, Sonia Boender, Tobias Rinke de Wit, Michael Boele van Hensbroek, Kim Sigaloff)
Clin Infect Dis. 2016 Dec 15;63(12):1645-1654. Epub 2016 Sep 22.
- Community engagement and population coverage in mass anti-malarial administrations: a systematic literature review (AIGHD author: Christopher Pell)
Malar J. 2016 Nov 2;15(1):523.
- An emerging zoonotic clone in the Netherlands provides clues to virulence and zoonotic potential of *Streptococcus suis* (AIGHD author: Constance Schultsz)
Sci Rep. 2016 Jul 6;6:28984. doi: 10.1038/srep28984.
- The timing of tuberculosis after isoniazid preventive therapy among gold miners in South Africa: a prospective cohort study (AIGHD author: Sabine Hermans)
BMC Med. 2016 Mar 23;14:45. doi: 10.1186/s12916-016-0589-3.
- Circumcision for HIV Prevention: New Mathematical Models for Strategic Demand Creation Prioritizing Subpopulations by Age and Geography (AIGHD author: Catherine Hankins)
PLoS One. 2016 Dec 30;11(12):e0169499. doi: 10.1371/journal.pone.0169499. eCollection 2016.

Chronic Care and Ageing

- HIV infection is independently associated with frailty in middle-aged HIV type 1-infected individuals compared with similar but uninfected controls (AIGHD author: Peter Reiss)
AIDS. 2016 Jan;30(2):241-50. doi: 10.1097/QAD.0000000000000910.
- Higher Prevalence of Hypertension in HIV-1-Infected Patients on Combination Antiretroviral Therapy is Associated with Changes in Body Composition and Prior Stavudine Exposure (AIGHD authors: Rosan van Zoest, Peter Reiss)
Clin Infect Dis. 2016 Jul 15;63(2):205-13. doi: 10.1093/cid/ciw285. Epub 2016 May 3.
- Determinants of reduced cognitive performance in HIV-1-infected middle-aged men on combination antiretroviral therapy (AIGHD author: Peter Reiss)
AIDS. 2016 Apr 24;30(7):1027-38. doi: 10.1097/QAD.0000000000001017.

AIGHD Uganda

Report from our Office in Kampala

Strengthening Clinical Research Capacity in sub-Saharan Africa

The ARISE (Africa Research Initiative and Support Network) consortium was founded in 2012 as a joint venture of the existing COMMAL (College of Medicine – Malawi Amsterdam Liverpool) and INTERACT (Infectious Diseases Network for Treatment and Research in Africa) programs. These programs aimed at strengthening the sub-Saharan African research and development capacity in the field of poverty-related diseases (HIV, TB and malaria). The main objective of the ARISE consortium was to develop and consolidate a network of Research Support & Training Centers (RSTCs) in sub-Saharan Africa. These centers are to be embedded in local universities, have ownership of the research conducted and operate according to ICH-GCP research standards.

The ARISE project was successfully completed in June 2016 and the construction of the fourth Research Support & Training Center commenced at Makerere University, College of Health Sciences in Uganda. The center is expected to be launched and fully functional in 2017. Funding for the construction was provided by the NACCAP II ARISE Network, the Wellcome Trust and the NIH.

Good Clinical Practice Training

AIGHD, in collaboration with the Clinical Trials Unit at the Makerere University College of Health Sciences conducts Good Clinical Practice (GCP) training in Uganda. The two-day certificate course is recognized by the Uganda National Council for Science and Technology. Course participants are from various medical and organizational backgrounds including physicians, medical officers, pharmacists, lab technologists, Independent Review Board members, IT and data professionals, and research assistants. In 2016, GCP courses were conducted between September and December 2016 with a total of 124 participants.

East African Consortium for Clinical research

AIGHD-Uganda became an active member of the East African Consortium for Clinical Research (EACCR) in 2016. The EACCR is a partnership of 30 research and academic institutions in five East African countries (Tanzania, Uganda, Kenya, Sudan, and Ethiopia) and five European countries (United Kingdom, Netherlands, Germany, Sweden, and Norway). The aim of the consortium is to contribute to the accelerated discovery of new or improved drugs, vaccines and interventions to control targeted diseases in East Africa. It is sponsored by the European & Developing Countries Clinical Trials Partnership (EDCTP), the Netherlands-African partnership for Capacity Development & Clinical interventions Against Poverty (NACCAP), Medical Research Council (MRC)-UK and other development partners.

Where we Work

Africa	Asia & Pacific	Europe	North & South America
Cameroon Gabon Ghana Kenya Malawi Nigeria Rwanda Senegal South Africa South Sudan Tanzania Uganda Zimbabwe	Australia Bangladesh China India Indonesia Myanmar Thailand Vietnam	Belgium France Germany Italy Netherlands Spain Sweden United Kingdom	Brazil USA

Financials

Total income in 2016 amounted to EUR 10.47 million (2015: EUR 8.84 million). AIGHD Foundation ends the financial year 2016 with a surplus of EUR 434,024 (2015: surplus EUR 195,587). This surplus is added to the balance of income and expenditure, which now amounts to EUR 1,340,581. This reserve will be used to secure the continuity of AIGHD Foundation and/or support its statutory goals.

The financial statements have been prepared in accordance with the Guideline for annual reporting 640 “Not-for-profit organizations” of the Dutch Accounting Standards Board. Contrary to the Guideline for annual reporting 640 the budget on overall level has not been included, as control has been performed on project level.

AIGHD is in discussion with the tax authority concerning the handling of VAT. The main point for discussion is the correctness of VAT taken for deduction in past declarations. The outcome of this discussion will take time. Currently AIGHD is in the process of consulting the advice of a tax consultant.

Managing Risk

AIGHD has identified the need of risk analysis and risk mitigation. The diversity of projects and the ever changing environments in which these projects are implemented, require robust mechanisms to prevent, monitor and mitigate potential risks. AIGHD acknowledges the importance of internal control and risk management systems. A risk analysis will be done, assessing risks, controls and mitigating actions. The internal risk analysis, as well as significant changes and major improvements in internal controls assessment will be discussed in the Executive Board and the Supervisory Board. The procedure to screen potential local partners is in development. The General Manager is currently not aware of any significant change in the organization’s internal control that occurred during 2016 that has materially affected, or is reasonably likely to materially affect, the organization’s internal control over finances. Currently the main financial risk is raising funding in challenging environments. The funding landscape is changing and competition for available resources has significantly increased. By prioritizing Global Health problems identified by relevant stakeholders and developing relevant and specific solutions and translating these in well-targeted proposals we will be better able to generate funding.

Stichting Amsterdam Institute for Global Health and Development
Amsterdam

Signing of the Management Board's Report

Amsterdam, 25 September 2017

Executive Board:

F.G.J. Cobelens
(Chair)

C.T.M. Elbers

A.P. Hardon

M. Heidenrijk

C. Schultsz

Supervisory Board:

T. van der Poll
(Chair)

J. Brug

J.A. Romijn

W.F.C. Verschoor

Financial statements

- Balance sheet
- Statement of income and expenditure
- Notes to the financial statements

Balance sheet as at 31 December 2016

(after appropriation of result)

	Note	31.12.2016	31.12.2015
		EUR	EUR
Assets			
Fixed assets			
Tangible fixed assets	1	164	295
Current assets			
Receivables:			
Accounts receivable	2	1,332,767	1,210,993
VAT receivable	3	13,273	169,250
Other receivables and prepayments	4	<u>1,405,197</u>	<u>3,054,800</u>
		2,751,237	4,435,043
Cash and banks	5	<u>4,304,567</u>	<u>4,626,939</u>
		<u>7,055,968</u>	<u>9,062,277</u>

	Note	31.12.2016	31.12.2015
		EUR	EUR
Equity and liabilities			
Continuity reserve	6	1,340,581	906,557
Current liabilities			
Accounts payable		902,606	764,046
Taxes and social security contributions	7	74,744	86,529
Deferred income	8	2,096,680	5,538,693
Other liabilities and accrued expenses	9	<u>2,641,357</u>	<u>1,766,452</u>
		5,715,387	8,155,720
		<u>7,055,968</u>	<u>9,062,277</u>

Statement of income and expenditure 2016

	Note	2016 EUR	2015 EUR
Income	10	10,469,071	8,842,471
Operating expenses:			
Direct project costs		6,029,289	4,085,405
Personnel expenses	11	2,900,476	3,130,451
General and administrative expenses		1,194,349	1,570,249
		10,124,114	8,786,105
		344,957	56,366
Financial income and expenses:			
Financial income	12	89,067	139,277
Financial expenses		0	(56)
Result		434,024	195,587
Appropriation of result:			
Added to 'Equity - Continuity reserve'		434,024	195,587

Notes to the financial statements

General

Foundation

Stichting Amsterdam Institute for Global Health and Development is a not-for-profit organization based in Amsterdam. The foundation was established on 18 December 2006.

On 14 April 2011, the name was changed from Stichting AMC CPCD Foundation to Stichting Amsterdam Institute for Global Health and Development.

The financial statements have been prepared in euros.

Objective

The mission of the foundation is to provide sustainable solutions to major health problems across our planet, by forging synergies between disciplines, health care delivery, research and education.

Accounting principles

General

The financial statements have been prepared in accordance with the Guideline for annual reporting 640 "Not-for-profit organizations" of the Dutch Accounting Standards Board ('Raad voor de Jaarverslaggeving').

The financial statements have been prepared using the historical cost convention and are based on going concern. Income and expenses are accounted for on an accrual basis. Profit is only included when realized on balance sheet date. Liabilities and any losses originating before the end of the financial year are taken into account if they have become known before preparation of the financial statements.

If not indicated otherwise, the amounts of the accounts are stated at face value.

Tangible fixed assets

Tangible fixed assets are presented at cost less accumulated depreciation and, if applicable, less impairments. Depreciation is based on the expected future useful life and calculated as a fixed percentage of cost, taking into account any residual value. Depreciation is provided from the date an asset comes into use.

Costs for periodical major maintenance are charged to the result at the moment they arise.

Receivables

Upon initial recognition the receivables are valued at fair value and then valued at amortized cost. The fair value and amortized cost equal the face value. Provisions deemed necessary for possible bad debt losses are deducted. These provisions are determined by individual assessment of the receivables.

Cash

The cash is valued at face value. If cash equivalents are not freely disposable, then this has been taken into account upon valuation.

Provisions

Provisions for employee benefits

The AIGHD pension scheme for staff based in the Netherlands concerns a defined contribution scheme which is accommodated at the insurance company Delta Lloyd. The contribution to be paid is recognized in the 'Statement of income and expenditure'.

Current liabilities

Deferred income

Deferred income consists of payments from donors related to projects to be carried out decreased by the realized revenue of these projects, taking into account foreseeable losses on projects.

Principles for the determination of the result

Statement of income and expenditure

Income and expenditure are recognized as they are earned or incurred and are recorded in the financial statements of the period to which they relate.

Income

Income from 'Realized income related to projects' is recognized in proportion to the completed project activities rendered on active projects, based on the cost incurred up to balance sheet date. The cost of these project activities is allocated to the same period.

Other income relates to other non-project related items.

Direct project costs

Direct project costs consist of expenses directly related to projects (out-of-pocket costs) excluding staff costs.

Recognition of transactions in foreign currency

Transactions in foreign currencies are recorded at the exchange rate prevailing at the transaction date. At year-end, the assets and liabilities reading in foreign currencies are translated into euros at the rates of exchange as per that date.

Financial instruments

Financial instruments include both primary financial instruments, such as receivables and liabilities, and financial derivatives. Reference is made to the treatment per balance sheet item for the principles of primary financial instruments. AIGHD does not use derivatives and there are also no embedded derivatives. AIGHD does not apply hedge accounting.

Notes to the specific items of the balance sheet

1. Tangible fixed assets

	2016	2015
	EUR	EUR
Book value as at 1 January	295	913
Additions	0	0
Depreciation	(131)	(618)
Book value as at 31 December	<u>164</u>	<u>295</u>
Purchase value as at 31 December	14,647	14,647
Disposal of assets	0	0
Accumulated depreciation as at 31 December	(14,483)	(14,352)
Book value as at 31 December	<u>164</u>	<u>295</u>

The depreciation of the tangible fixed assets is calculated according to the straight-line method. The depreciation percentages are based on the economic life span. For computer equipment and office furniture a depreciation of 20% is used.

2. Accounts receivable

	31.12.2016	31.12.2015
	EUR	EUR
Accounts receivable	1,426,187	1,445,485
Accounts receivable to be charged	0	450
Provision doubtful debts	(93,420)	(234,942)
	<u>1,332,767</u>	<u>1,210,993</u>

3. VAT receivable

	31.12.2016	31.12.2015
	EUR	EUR
Value added tax receivable	<u>13,273</u>	<u>169,250</u>

4. Other receivables and prepayments

	31.12.2016	31.12.2015
	EUR	EUR
Advances projects	1,007,286	2,268,852
Accrued income	346,175	717,071
Prepaid expenses	44,329	58,675
Pension and other personnel insurances	3,556	109
Advances personnel	1,025	100
Other receivables	2,826	9,993
	<u>1,405,197</u>	<u>3,054,800</u>

5. Cash and banks

	<u>31.12.2016</u>	<u>31.12.2015</u>
	EUR	EUR
ABN-AMRO MeesPierson - EUR	20,000	20,000
ABN-AMRO MeesPierson - Savings account	3,372,714	4,137,909
ABN-AMRO MeesPierson - USD	911,586	468,803
Cash	267	227
	<u>4,304,567</u>	<u>4,626,939</u>

Funds are available in line with the different program and foundation objectives.

6. Continuity reserve

	<u>2016</u>	<u>2015</u>
	EUR	EUR
Balance as at 1 January	906,557	710,970
Result for the year	434,024	195,587
Balance as at 31 December	<u>1,340,581</u>	<u>906,557</u>

Result appropriation for the year

The result for the year EUR 434,024 is added to the continuity reserve. The continuity reserve is available to use in line with the described objectives of the foundation as stated in article 3 of the Articles of Association.

7. Taxes and social security contributions

	<u>31.12.2016</u>	<u>31.12.2015</u>
	EUR	EUR
Salary taxes payable	<u>74,744</u>	<u>86,529</u>

8. Deferred income

	<u>31.12.2016</u>	<u>31.12.2015</u>
	EUR	EUR
Received and receivable from donors related to projects	26,877,344	33,210,927
Realized revenue on projects	<u>(24,780,664)</u>	<u>(27,672,234)</u>
	<u>2,096,680</u>	<u>5,538,693</u>

9. Other liabilities and accrued expenses

	<u>31.12.2016</u>	<u>31.12.2015</u>
	EUR	EUR
Accrued expenses	1,508,426	1,095,280
Holiday allowance and days	196,904	218,342
Liabilities projects	771,430	275,709
Salaries	3,637	3,268
Other liabilities	160,960	173,853
	<u>2,641,357</u>	<u>1,766,452</u>

AIGHD is in discussion with the tax authority concerning the handling of VAT. The main point of discussion is the correctness of VAT taken for deduction in past declarations. The outcome of this discussion will take time. Currently, AIGHD is in the process of consulting the advice of a tax consultant.

Contingent assets and liabilities

Regarding the current project portfolio AIGHD received from donors commitments for grants for an amount of about EUR 33 million. Of this amount EUR 27 million has been received. AIGHD has the obligation to use these funds in accordance with the contractual donor requirements.

Financial instruments

For the notes to financial instruments reference is made to the specific item by item note. The main financial risks the foundation is exposed to are the currency risk, the liquidity risk and the credit risk. The foundation's financial policy is aimed at mitigating these risks.

Currency risk

The currency risk is mitigated by holding the received foreign currency pre-payments on ongoing foreign currency contracts as long as possible in the contracted foreign currency and only converting into the functional currency (EUR) based on commitments.

Liquidity risk

The liquidity risk is mitigated by monthly monitoring the work in progress portfolio and closely monitoring and steering the deferred income position per contract.

Credit risk

The credit risk is limited as most of AIGHD's programs are prefunded. The credit risk is mitigated by banking at a governmental acquired bank (ABN-AMRO MeesPierson). For the local branch offices and partner organizations, the credit risk is mitigated by providing only a two months rolling advance.

Notes to the specific items of the statement of income and expenditure

10. Income

	2016	2015
	EUR	EUR
Realized income related to projects	9,446,985	8,107,471
Other income	1,022,086	735,000
	<u>10,469,071</u>	<u>8,842,471</u>

The main 'Realized income related to projects' consists of:

HOOKVAC	2,213,789	1,293,349
COBRA	1,975,800	308,597
AGEhIV Cohort Study	697,346	486,790
H-TEAM	696,799	652,237
ARISE	644,514	825,768
OMRON	275,075	95,290
ARTA-A II	258,470	350,781
JLI – HIF	220,384	0
Other	2,464,808	4,094,659
	<u>9,446,985</u>	<u>8,107,471</u>

Other income

The other income includes a total amount of EUR 329,000 from the University of Amsterdam (UvA) to facilitate UvA's Research Priority Area on Global Health and Development.

11. Personnel expenses

	2016	2015
	EUR	EUR
Salaries	2,158,836	2,341,730
Social security contributions	391,837	388,977
Pension costs	187,993	199,317
Other personnel expenses	161,810	200,427
	<u>2,900,476</u>	<u>3,130,451</u>

In order to provide an accurate overview of the "personnel expenses", these expenses have not been allocated to "Direct project costs". The "pension costs" consist of a defined contribution per employee.

12. Financial income

	2016	2015
	EUR	EUR
Financial income	<u>89,067</u>	<u>139,277</u>

Other notes

Number of employees

The average number of full-time equivalents (FTE) during the financial year was 47 (2015: 49).

Remuneration Board of Directors and Supervisory Board

In 2016 members of the Board of Directors and members of the Supervisory Board did not receive any remuneration. For 2015, with reference to article 2:383 of the Dutch Civil Code, the remuneration of the only board member has been omitted. The Supervisory Board did not receive any remuneration in 2015.

Subsequent events

There are no subsequent events to report.

Signing of the financial statements

Amsterdam, 25 September 2017

Executive Board:

F.G.J. Cobelens
(Chair)

C.T.M. Elbers

A.P. Hardon

M. Heidenrijk

C. Schultsz

Supervisory Board:

T. van der Poll
(Chair)

J. Brug

J.A. Romijn

W.F.C. Verschoor

Stichting Amsterdam Institute for Global Health and Development
Amsterdam

Other information

Independent auditor's report

The independent auditor's report is recorded on the next page.

Independent auditor's report

To the the supervisory board of Stichting Amsterdam Institute for Global Health and Development

REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS 2016 INCLUDED IN THE ANNUAL REPORT

Our opinion

We have audited the accompanying financial statements 2016 of Stichting Amsterdam Institute for Global Health and Development, based in Amsterdam.

In our opinion the accompanying financial statements give a true and fair view of the financial position of Stichting Amsterdam Institute for Global Health and Development as at 31 December 2016, and of its result for 2016 in accordance with the Dutch Accounting Standard 640 "Not-for-profit organizations".

The financial statements comprise:

1. The balance sheet as at 31 December 2016.
2. The statement of income and expenditure 2016.
3. The notes comprising a summary of the accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the "Our responsibilities for the audit of the financial statements" section of our report.

We are independent of Stichting Amsterdam Institute for Global Health and Development in accordance with the Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore we have complied with the Verordening gedrags- en beroepsregels accountants (VGBA, Dutch Code of Ethics).

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

REPORT ON THE OTHER INFORMATION INCLUDED IN THE ANNUAL REPORT

In addition to the financial statements and our auditor's report thereon, the annual report contains other information that consists of:

- Management Board's Report.
- Other Information as required by the Dutch Accounting Standard 640 "Not-for-profit organizations".

Based on the following procedures performed, we conclude that the other information:

- Is consistent with the financial statements and does not contain material misstatements.
- Contains the information as required by the Dutch Accounting Standard 640 "Not-for-profit organizations".

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing these procedures, requirements of the Dutch Accounting Standard 640 "Not-for-profit organizations" and the Dutch Standard 720. The scope of the procedures performed is substantially less than the scope of those performed in our audit of the financial statements.

Management is responsible for the preparation of the other information, the Management Board's Report and the other information as required by the Dutch Accounting Standard 640 "Not-for-profit organizations".

DESCRIPTION OF RESPONSIBILITIES REGARDING THE FINANCIAL STATEMENTS

Responsibilities of management and the supervisory board for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the Dutch Accounting Standard 640 "Not-for-profit organizations". Furthermore, management is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, management is responsible for assessing the entity's ability to continue as a going concern. Based on the financial reporting framework mentioned, management should prepare the financial statements using the going concern basis of accounting unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

Management should disclose events and circumstances that may cast significant doubt on the entity's ability to continue as a going concern in the financial statements.

The Supervisory Board is responsible for overseeing the entity's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit assignment in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

We have exercised professional judgement and have maintained professional skepticism throughout the audit, in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit included e.g.:

- Identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.
- Evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Concluding on the appropriateness of management's use of the going concern basis of accounting, and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern.
- Evaluating the overall presentation, structure and content of the financial statements, including the disclosures.
- Evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the supervisory board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant findings in internal control that we identified during our audit.

We provide the Supervisory Board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Amsterdam, 25 September 2017

Deloitte Accountants B.V.

Signed on the original: M.G.W. Quaadvlieg