

Global WACH ANNUAL REPORT

The Global Center for Integrated Health of
Women, Adolescents, and Children
Year 6



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RESEARCH AND DISCOVERY

Global WACH makes scientific discoveries, cultivates leaders, and bridges disciplines to advance the tightly connected health and well-being of women, adolescents, and children

A lifecycle approach to research

The Center's approach to research incorporates a lifecycle lens that views women, children and adolescents as interconnected populations that move along a shared life course. Our research focuses on critical windows — during birth and infancy, during the transition from childhood to adolescence, and from adolescence into adulthood — where healthcare interventions can have long-term benefits. Global WACH researchers harness technological and social innovations to speed health improvements and decrease unnecessary deaths and morbidity among women, adolescents, and children.



Scientific discovery is a major pillar of our mission. Each year we track our progress towards expanding and contributing knowledge that will improve health outcomes of women, adolescents, and children around the world. Global WACH is home to 24 active research grants with a combined budget of over \$20 million. In 2016-2017, Global WACH researchers submitted 46 applications to funders including the National Institute of Health (NIH), Bill & Melinda Gates Foundation, and World Health Organization (WHO).

Global WACH has three scientific priority areas: Gut health and child survival, HIV through the lifecycle, and family planning decision support. This year, Global WACH research teams made strides in all three domains to improve health and wellbeing for women, adolescents, and children in health systems and communities around the world.

Leveraging cell phone technology to improve maternal child health



From agriculture, to personal finance, to health, mobile devices are changing our day-to-day lives. It is no different in Kenya where Global WACH has developed a novel mobile health (mHealth) platform designed to connect women to the healthcare system during and after pregnancy. Global WACH's research is designed to discover and share best practices for engaging women in care using the simple, but powerful tool of a text message crafted to speak to women in a voice they understand and trust at critical moments for their health and the health of their children.

This year Global WACH researchers shared their work in scientific journals including [Contemporary Clinical Trials](#) and the Journal of Medical Internet Research (JMIR) as well as the International AIDS Society annual meeting. An ongoing randomized controlled trial (Mobile WACH X) is examining how tailored motivational and educational text messaging, both automated and with an option to speak with a nurse, might help HIV-positive women adhere to a medication regimen, known as Option B+, that prevents the spread of HIV from mother to child and keeps pregnant women healthy. Formative interviews with pregnant and post-partum Kenyan women suggest that personalized and tailored text messages for HIV-positive women during and after pregnancy may be an effective strategy to motivate women to adhere to the recommended medication regimen and improve maternal and infant health outcomes. The same Global WACH SMS platform is also being applied to supporting newborn health and early uptake of contraceptives in

postpartum women in Kenya, in the Mobile WACH NEO study. In summer of 2017 NEO held a collaborative meeting that brought together delegates from the Kenyan Ministry of Health and Global WACH study collaborators to launch the project in Kenya.

Global WACH investigators also explored the challenge of addressing infant deaths, miscarriages and stillbirths through a mHealth platform. In an article published in JMIR our team shared findings that the majority of women in their study who experienced loss wanted to continue receiving text messages and communicating with a nurse, while the minority preferred to no longer receive messages. The authors suggest that future study is needed to devise an effective system for those who want to remain connected after a loss. They recommend engineering a mechanism for early identification of infant deaths and miscarriages with tailored messages to support women and encourage healthy behaviors around grief and depression as a next step.



This year, Global WACH received awards to expand how we leverage texting to improve woman and child health. Dr. Alison Drake responded to a Bill & Melinda Gates Foundation Grand Challenge call for applications and was selected to implement her proposal to track women’s preferences and behaviors for contraceptive methods through text messaging. This data will be used to inform critical decision for developing new contraceptive methods, technologies, and guidelines that are better aligned with women’s wants and needs for birth control.

“Decisions about whether to continue using contraceptive methods are often made without any interaction with the health care system or providers, and are not captured in current surveys. We want to understand what experiences women have after leaving a family planning clinic, what challenges they encounter when using contraception, and use this data to inform development of tools, technologies, and guidelines to optimize their experience with contraception.” –Alison Drake, PhD, MPH

Pioneering HIV testing for children



Too often, parents and providers do not know an infant or child has HIV until they arrive at the hospital in critical condition. At this late stage, options for treating the child are limited and there is a high probability of adverse health outcomes, including death. This year, Global WACH published two papers that highlighted the need to identify children with HIV *before* they show symptoms and the results of a trial that tested an intervention to diagnose children with a high likelihood of HIV infection who may otherwise fall through the cracks of the health system.

Global WACH investigators [published results](#) from a trial that tracked mortality rates of HIV-infected children in hospitals in *BioMed Central Pediatrics*. In their article the authors underscore the need for faster turnaround time for HIV diagnosis in prevention of mother-to-child transmission of HIV (PMTCT). Children who are diagnosed through early infant detection programs have better prospects for treatment and survival. The same Global WACH team [published findings](#) from the Counseling and Testing for Children at Home (CATCH) study this year that sought to test high-risk children through their HIV-positive parent(s). The team found that referring HIV-infected parents already in care to have their children tested both increased the rate of pediatric HIV testing and uncovered a population with a high prevalence of HIV. The CATCH team also highlighted challenges, noting that the majority of adults in the study were not willing to complete HIV testing for their children.

Several pilot studies are currently underway to build on the findings of the two studies above that emphasize the need for early diagnosis and treatment of pediatric HIV through a culturally sensitive, age appropriate, and properly incentivized mechanism. Global WACH investigators are currently testing different interventions that explore the effectiveness of providing financial incentives to parents for pediatric HIV testing, simplifying the testing process using a saliva-based diagnostic, reducing wait times and standardizing counseling through video, and improving the quality of adolescent HIV testing and counseling services.

Discovering and addressing root causes of child death



Our gut health and child survival team seeks to understand the root cause of, prevent, and manage acute infections that jeopardize child health and long-term growth and well-being. Shigellosis- a bacterial infection that causes fever, watery stool, and stomach cramps- is one of the leading causes of diarrheal deaths in children in low and middle-income countries. International guidelines from the WHO rely on patients to show signs of dysentery, or blood in their stool, to treat children with antibiotics for diarrhea. Global WACH researchers from our gut health and child survival team conducted a series of systematic reviews to determine whether dysentery appropriately identifies children most likely to benefit from antibiotic therapy and explored the efficacy of antibiotic therapy for treating both the symptom and the infection. In their review, which is being published in *The Lancet Global Health* (in press), the authors found that many *Shigella*-infected children do not have dysentery when they arrive at the hospital and health systems may be missing a critical window for treating this potentially lethal bacteria.

Antibiotics are the gold standard for treating dangerous bacterial infections. In some cases however, bacteria develop resistance to an antibiotic rendering the treatment less effective or ineffective. Global WACH researchers [published a paper](#) in the *Public Library of Science's (PLOS) Neglected Tropical Diseases* section from a study that sought to understand the prevalence and factors contributing to the development of antibiotic resistance in sub-Saharan Africa. The team tested fecal samples from 292 children with acute diarrhea in western Kenya and concluded that young age, HIV exposure, acute malnutrition, and poor sanitation may increase risk of antibiotic resistant infections. This finding is particularly concerning given that children in these groups suffer from frequent infections that may require antibiotic treatment. The authors hope this information will be used by clinicians to improve treatment and to develop interventions to reduce the spread of antibiotic resistance.

This year, Global WACH investigators assumed leadership roles with the CHAIN Network, a multi-site network of global experts seeking to identify areas for intervention to reduce deaths of sick and undernourished children. We currently have three sites running cohort studies in Kenya to observe, identify, and test possible interventions (like antibiotics) to reduce death and re-hospitalization rates among critically ill children in the areas of malnutrition and infections in the gut. These trials will provide evidence to inform WHO diarrhea management guidelines and other policy decisions aimed at strategies to reduce child mortality.

Putting HIV prevention medicine in the hands of pregnant and adolescent women



Pre-exposure prophylaxis, or PrEP, is a daily medication that when taken every day can virtually eliminate the risk of HIV infection. PrEP is a relatively new tool for stopping the spread of the HIV virus and has proven to be highly effective. Delivery of and adherence to PrEP among groups at high risk of acquiring HIV, however, can be challenging. Global WACH has several exciting developments this year in our effort to evaluate PrEP implementation approaches for efficiency, effectiveness, safety, and cost-effectiveness to ensure that this powerful preventative medicine reaches the people who need it most.

In a [paper published in *PLOS Medicine*](#), Global WACH investigators found that women living in settings with high HIV prevalence had a substantial risk of acquiring HIV during pregnancy and breastfeeding. This year, our investigators developed and [published a risk assessment tool](#) that can be used to identify pregnant women who may benefit from taking PrEP. Their tool captures a number of risk factors identified in routine assessments at antenatal care clinics, including that women who did not know their partner's HIV status were at high risk for infection. Findings from these studies helped to inform a WHO policy recommendation that PrEP could be used, in some high-risk cases, for pregnant and lactating women.

This year, members of Global WACH team also embarked on an implementation project to rapidly scale the delivery of PrEP in maternal-child health and family planning clinics in Kenya. PrEP Implementation for Young Women and Adolescents (PriYA) seeks to programmatically evaluate PrEP implementation, and determine best practices for providing PrEP to young women and seeking services at health facilities. The PriYA study launched in June 2017 and to date has provided PrEP clinical services- including prescribing and counseling for the drug, follow-up care, and blood spot testing to measure drug levels- to over 4,000 women. PrEP Implementation for Mothers in Antenatal Care (PrIMA) is a trial designed to follow women during their pregnancies through nine months postpartum to assess HIV incidence and other outcomes among those who use PrEP and those who do not.

CULTIVATING LEADERS IN WACH HEALTH

A New Generation of Global Health Leaders in WACH

WACH Graduate Student Certificate Program

The Global WACH graduate certificate program offers graduate and postdoctoral students coursework, seminars, workshops, and peer and faculty mentoring focused on developing emerging leaders in global health who specialize in the unique needs of women, adolescents, and children in resource-limited settings.



2016-2017 AT A GLANCE:

28

Students Enrolled from Seven UW
Departments and Schools



7

New Graduates

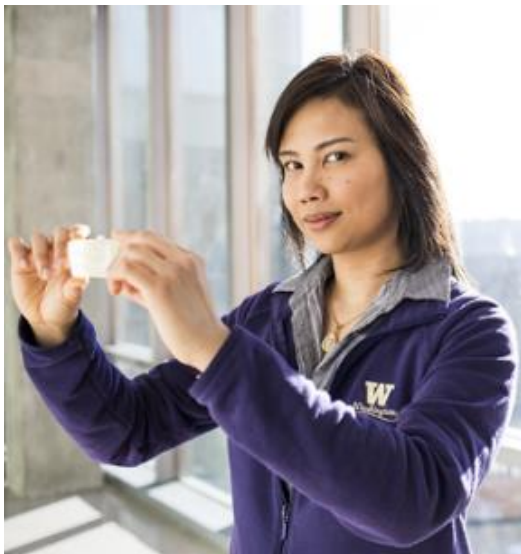


24

New Students Enrolled Fall Quarter 2017



Certificate Student Profile: Nuttada Panpradist, PhD Candidate, Bioengineering



“It takes more than good science to get technology into the hands of users – implementation is really important. The certificate program is designed for students like me, who are enrolled in other degree programs, but want to see how they can contribute to global health solutions.”- Nuttada Panpradist

Nuttada is developing diagnostic devices that will allow clinicians to rapidly and affordably identify HIV/TB infection and drug resistance, especially in developing countries where first-line diagnostic technology is out of reach. With more precise and prompt test results, clinicians can choose and administer the right medication for patients and save lives. It was in the Global WACH course “Bioengineering Solutions to Improve the Health of Women, Adolescents and Children” where Nuttada and classmate Dr. Diana Marangu, MPH ‘14 and pediatrician from Kenya, developed a grant proposal for a rapid, instrument-free device for diagnosing TB from urine samples. The project was awarded a Global WACH Seed Grant in 2014 and a two-year grant from the NIH in 2016. Nuttada also is the technical lead on the OLASimple project, engineering a device that provides a rapid visual readout of HIV diagnosis, viral load and drug resistance. OLASimple has received numerous monetary awards, including a five-year grant from NIH in 2014 and in 2016, \$50,000 from Massachusetts General Hospital to turn the proposed rapider, equipment-free OLASimple 2.0 into reality.

Certificate Student Profile: Marina Plesons, MPH, Global WACH Certificate Recipient 2017



“Working with the WHO was an incredibly enriching experience. I felt engaged and stimulated by the work and Dr. Chandra-Mouli is a phenomenal mentor. I have a better sense of international health policy work and I've learned much about communicating with diverse arrays of people and in complicated power structures. Many thanks to Dr. Donna Denno and Global WACH for offering such a fantastic opportunity for students!”- Marina Plesons

Marina Plesons completed an internship with the Adolescents and At-Risk Populations team in the Reproductive Health and Research Department at WHO this year where she fulfilled her capstone requirement for the Certificate. She worked with Dr. Chandra-Mouli at the WHO on a number of adolescent sexual and reproductive health reviews on topics of gender socialization, sexuality education, and child marriage. Following her internship, she was hired as a consultant for Dr. Chanda-Mouli to continue collaborating on adolescent sexual and reproductive health projects.

Global WACH in the classroom

Our courses train new leaders with curricula that foster interdisciplinary collaboration among students. The Global WACH course suite consists of five courses that offer a mix of lecture courses, seminar series, and short course workshops focusing on competencies and research methods specific to woman, adolescent, and child health. In 2017, 146 students enrolled in Global WACH courses for a total of 366 credit hours.

Course Offerings

Maternal and Child Health in Developing Countries

Bioengineering Solutions to Improve the Health of Women, Children & Adolescents

Adolescent Health In Resource Limited Settings

Global Perspectives on Reproductive Health

"This class was incredibly intellectually stimulating! It took the subject of family planning and stretched it as something that was applicable to men, health care providers, and children, rather than just women. It made realize that family planning was much more than simply birth control and contraceptives." [Global Perspectives on Reproductive Health]

"Rather than just lecture on the content of the health problems of women and children globally, we learned about WHY those problems exist in different settings, what has been done about them, and which interventions have been successful or unsuccessful. Discussion was emphasized and encouraged during the lectures which was enlightening when getting the perspectives of others in the class." [Maternal & Child Health in Low and Middle Income Countries]

Investing in the future of WACH health



Since 2012, the Center has awarded over \$245,000 in seed grants to foster new discovery, interdisciplinary collaboration, and career development of scientists dedicated to improving the health of women, adolescents and children.

This year, Global WACH and the W.H. Coulter Foundation awarded PlayGait™ for the development of a therapeutic device that children with cerebral palsy can wear at home to strengthen their legs and increase their mobility, eventually allowing them to walk without assistance. Cerebral palsy is the most common motor disability, affecting about 1 in every 300 children in the United States, and even more children globally. PlayGait is designed to be low-tech and affordable, making it accessible to children around the globe who have limited or no access to expensive therapies that require robotics, supervision by a trained clinician, or invasive surgeries. The PlayGait team, from the Ability & Innovation lab at the University of Washington, is applying new exotendon technology to bring this device to a global market. Leading this effort are Katherine Steele, a UW assistant professor of mechanical engineering, Jessica Zistatsis, a research assistant in mechanical engineering, and Kristie Bjornson, a UW assistant professor in pediatrics working with Seattle Children's Research Institute.

"The currently available assistive devices for home use include walkers, crutches, and ankle foot orthoses, but none of these train kids to walk unassisted. Ultimately, we hope this will allow kids to outgrow the need for assistive devices." Jessica Zistatsis, graduate researcher with PlayGait

Working Groups, Lectures and Workshops

WORKING GROUPS

FAMILY PLANNING MINI SYMPOSIUM



FRIDAY DECEMBER 9, 2016

2:00-5:00 PM

University of Washington, Foegen N130
(Wallace H. Coulter Seminar Room)

The Global WACH Family Planning Working Group is pleased to invite you to a symposium to provide discussion about key emerging areas within family planning and reproductive health.

Please register for this event by December 7th.

[TO REGISTER, CLICK HERE](#)



Join University of Washington family planning researchers and physicians for research updates and discussion about:

Novel Family Planning Methods

Stephanie Page, MD, PhD
Elizabeth Mills, MD, MPH

Microbiome & Immunology

Scott McClelland, MD, MPH
Grant Hughes, MD

mHealth

Jennifer Singer, MD, MPH
Alicia Drake, MPH, PhD

FOR QUESTIONS, CONTACT:

Kate Plummer, Global WACH Program Manager
kpl@uw.edu

Global WACH is home to eight working groups that engage over 200 members around topics related to woman, adolescent, and child health.

In addition to their regular activities, several of our Working Groups host annual symposiums that bring together leaders in their field and showcase speakers on emerging topics of interest. In December 2016, the Family Planning Working Group held a half-day “Family Planning Mini Symposium” at the University of Washington to present updates on novel family planning methods, microbiome and immunology, and mobile health (mHealth).

WACH Working Groups

Adolescent Health Working Group

Family Planning Working Group

Global Brain Group

Kizazi Peer Mentoring

Mobile Health (mHealth)

Nutrition Think Tank

Pediatric Infectious Disease Group (PedsID)

Working Group in Implementation Science (WISE)

LECTURES, WORKSHOPS, AND CONFERENCES

Bringing powerful minds together from different areas of expertise and backgrounds is part of our mandate as a Center. Global WACH hosted 123 participants at seven seminars as part of our Breakfast with WACH series in 2016-2017. Seminars spanned a broad array of topics in woman, adolescent, and child health including speakers on the Zika epidemic, gut microbiome, ORS and zinc supplementation, family planning research in Kenya, and reducing maternal mortality in the Democratic Republic of the Congo among others.

Global WACH also hosted a costing and microbiome workshop, alongside our partners at CFAR, to provide learning opportunities for students, faculty, and staff in these emerging fields. Global WACH researchers presented, attended, and led sessions at several international conferences this year including the International AIDS Society (IAS), Conference on Retroviruses and Opportunistic Infections (CROI), and the Saving Lives at Birth Development Exchange.



Global WACH researchers Anjuli Wagner and Irene Njuguna at the IAS conference in Paris, France

OUR LEADERSHIP



The Global WACH Leadership Team drives discovery, leadership development, and collaboration with innovators and researchers from a broad range of disciplines. A full list of the Global WACH Leadership Team is below:

Maneesh Batra, MD

Associate Director
Pediatrics

Alison Drake, PhD, MPH

Scientific Priority Lead
Support for patient-centered family planning

Stephanie Edlund-Cho, MSW

Program Coordinator

Brandon Guthrie, PhD, MPH

Leadership Development Lead

Grace John-Stewart, MD, PhD, MPH

Director

Patricia Pavlinac, PhD

Scientific Priority Lead
Gut health and childhood survival

Kate Pfizenmaier, MPA

Program Manager

Jennifer Slyker, PhD

Scientific Priority Lead
HIV through the WACH Lifecycle

Margaret Thompson, MS

Grants Manager

Jennifer Unger, MD

Scientific Priority Lead
Support for patient-centered family planning

Judd Walson, MD, MPH

Scientific Priority Lead
Gut health and childhood survival