New Options for New Moms: Birth Center Opens in El Trifinio, Guatemala

The idea to establish a birth center at the Guatemala Trifinio site was part of the initial five-year plan for Gretchen Heinrichs, MD, DTMH, Associate Professor of Obstetrics and Gynecology, School of Medicine at the University of Colorado Anschutz Medical Campus (CU AMC) and Denver Health. Dr. Heinrichs has led the effort as Director of Maternal Health Programs at the Center for Global Health, Colorado School of Public Health CU AMC in El Trifinio since 2011, the latest milestone being the opening of the birth center in October of this year.

Guatemala is Central America’s most populous country and has one of the highest maternal mortality ratios with 80 maternal deaths per 100,000 live births in 2015 (compared with 14 per 100,000 in the United States).

The needs assessment conducted by the Center for Global Health in the southwest Trifinio region in 2011 revealed that rural and indigenous women have births attended by skilled caregivers less than half as often as urban, non-indigenous women.

Based on these findings, Dr. Heinrichs looked to the scientific literature for models that would allow women to have more choices in their birth plan. She wanted to respect traditional therapies while also making medications and clinical facilities more accessible and acceptable to women in the community. “The original plan came about because we knew Traditional Birth Attendants (TBAs) were delivering babies in homes in the communities. We did not want to take away their jobs but wanted to adopt a model that would involve them in providing safe births in a low-resource environment,” states Dr. Heinrichs.

The physical structure of the birth center has been in place for a few years, as it is part of the Clinica Desarrollo Humano (the clinic at the Center for Human Development), which has been operational since 2014. Although the space was available, many other elements had to come together before members of the community would be able to utilize such a resource.

Dr. Heinrichs explains, “The very first thing we did was establish the pregnancy registry. We felt like we couldn’t make progress without measuring the outcomes, and we had no idea what percentage of women were delivering at home versus in the hospital. We needed this information to understand the motivations for birthing at home, and whether a birth center would be accepted by the women in the community.”

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According to the International Disaster Database, in 2015 there were 346 reported disasters, resulting in 22,773 deaths, an additional 98.6 million people affected, and $66.5 billion USD worth of economic damage.

Even though children under 5 years of age only account for 25% of the world’s population, they account for 50% of the victims of natural and man-made disasters. The United Nations (UN) cites that approximately 53% of preventable childhood deaths under the age of 5 years occur after disasters.

In 2004, a team of pediatricians decided to improve this reality through better preparation. The American Academy of Pediatrics (AAP) — in partnership with the Johnson and Johnson Leadership Institute, the World Health Organization (WHO), the Pan American Health Organization (PAHO), the United States Military, and the Association for Health Research & Development (ACINDES) — created an educational train-the-trainer program to address healthcare provider’s preparedness to support pediatric populations after disasters.

The Pediatrics in Disasters (PEDS) Program was designed to simulate post-disaster zones, granting participants the opportunity to apply skills of triage, communication, and care of pediatric patients.

In 2010, when the Center for Global Health became a WHO Collaborating Center, this training became an area of focus at the request of WHO. In response, the Center developed an online version of the course materials for 24/7 global access.

Since the initial launch of the program in 2004, it has been taught 24 times, 16 of which took place in low- and middle-income countries (see the worldwide map).

To date, the countries most active in implementing the disaster curriculum have been Mexico, Panama, Argentina, Kenya, and the Philippines.

The course has been so successful that the head of the Disaster Committee for the Philippine Pediatric Society encouraged the disaster-response committee chair of each Philippine region to take the online course.

And currently, the Kenyan Pediatric Society, the Red Cross, and the Kenyan Ministry of Health are developing a proposal to disseminate the training throughout their country.

Based on recent feedback, the Kenyan participants took the online course prior to the in-person course and felt the combination provided a more comprehensive view of the material.

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Registering pregnant women in a database and collecting information about their pregnancies through prenatal visits allowed a dialogue to unfold between Dr. Heinrichs, her midwifery colleagues, and women from communities across the Trifinio region. Information captured in the registry included things like whether the pregnant woman had previous children, and what her birth plan was for the present pregnancy, as well as clinical data like weight, gestational age, and blood pressure.

“We found that 1 out of every 3 women were giving birth at home. Some of the reasons for birthing at home included lack of trust in the hospital, and fear of undesired interventions during labor. The fact that the hospital makes it difficult for family to be present is another major disincentive,” Dr. Heinrichs comments.

The purpose of the registry and birth center is not to reduce births at the hospital, but to provide an alternative to home birth that is safer for the mother and the baby especially for high risk pregnancies or if there is an emergency during delivery.

The clinic is closer to the communities and is perceived differently than the district hospital. Dr. Heinrichs felt a birth center at the clinic could offer a middle road between birthing at home and birthing at the hospital.

In order to provide labor and delivery services at the birth center, the nurses already employed by the clinic required additional training in skilled birth attendance.

“The nurses are stepping into the role of provider, rather than someone who carries out orders. They are in decision-making roles, which is challenging and possibly intimidating. However, with the right support, they enjoy the continuity of seeing patients in the community and following through to the actual birth. This is not a role that most nurses can formally carve out in Guatemala, so it is exciting and rewarding for them,” comments Dr. Heinrichs.

There are two nurses based in the clinic, and seven community nurses who provide prenatal home visits for pregnant women. Although these women have the back-up support of two physicians, they play the primary role in providing care at the birth center. To reach this level of clinical proficiency, Dr. Heinrichs has relied on a cadre of midwives from the College of Nursing at the CU AMC to provide training for the nurses.

“The hope is that someday, we can have a fund to provide even the poorest women in the community access to this high quality safe birth care. It should be the right of every woman and every child to have a safe, clean, competent, and compassionate labor experience.”

Gretchen Heinrichs, MD, DTMH, Director of Maternal Health Programs, Center for Global Health

Amy Nacht, CNM, MPH, has spent hundreds of hours developing the curriculum for the Traditional Birth Attendants and Skilled Birth Attendants (i.e. nurses).

Ana Williams, CNM, MS, and Geri Middleton, CNM have both made multiple trips to the site in Guatemala to execute training, and they have translated clinical care guidelines for recommended practices.

Now that the birth center is fully operational, the nurses have an on-call schedule so they can cover responsibility for hours.

The birth center also has an ambulance for emergencies. “Birth is really unpredictable and in order to open the birth center we needed to have a system in place to evacuate a patient to the hospital in Coatepeque as quickly as possible in the event of a complication,” Dr. Heinrichs explains.

Beyond just referrals, the birth center enjoys a good relationship with the Coatepeque Hospital, approximately an hour away. Dr. Heinrichs describes this relationship, “We [the Center for Global Health] conducted trainings at the hospital for residents and faculty, as well as some assessments of the residents’ obstetrics curriculum. Our
collaboration has been imperative to our ability to take care of patients. As we prepared the nurses for the opening of the birth center, the hospital provided opportunities to shadow deliveries so our nurses could get additional exposure to birth."

While moving in the direction of facility-based births, Dr. Heinrichs has been mindful to embrace the role of Traditional Birth Attendants in this model. TBAs do not have the formal training the nurses have, but they remain key players in pregnancies and births in El Trifinio.

Women in the community value the herbal remedies and traditional practices that TBAs provide, and their desire to comply with these practices is another reason why women may prefer not to give birth in the hospital.

"Whenever we work with the TBAs we try to provide them with sterile birth kits that were donated by Project C.U.R.E. [a non-profit here in Denver]. We have observed home deliveries with the TBAs, and saw that the attendant did not have any equipment except for a few things like cord clamping and cutting tools. The issues with unsterile equipment that have been described around the world are true here as well," Dr. Heinrichs says.

Ultimately, Heinrichs and the nurses do not want to duplicate the efforts of the TBAs, but they do want to create a setting where the TBAs have the opportunity to learn safe birth practices. This includes recognizing danger signs and knowing when a situation has become risky for mom or baby, which may require referral to the birth center, or ultimately the hospital. Establishing this cascade of services was a fundamental step in the project.

The birth center is operational, and the nurses, TBAs, and women in the area are aware of the resource. It will take time, and positive experiences for the center to become a fixture in the community.

"We are, to a large extent, relying on word-of-mouth from women who have experienced the care. We are hearing feedback that some women may be disappointed that a physician is not delivering the baby. This is interesting because the women have voiced their preference for minimal intervention, which is not how a physician performs deliveries," Dr. Heinrichs states.

She explains that another part of the work now is to help women understand that midwives who are trained in skilled birth attendance provide better care, with better outcomes and less intervention. This brings up the challenge of creating appropriate messaging for the community, "There is a huge educational gap between providers and patients. We know from our registry demographics that the vast majority of the women have less than a 6th grade education, so evidence doesn't carry the same weight for them. We are relying on our community partners, like the Traditional Birth Attendants, to get the word out."

In November 2016, Dr. Heinrichs, Ms. Nacht, and another nurse-midwife Shannon Pirrie, traveled to the Trifinio site to host a small ceremony to formally launch the birth center.

This served as another platform to disseminate the information about purpose and functions of the birth center. Members of the community advisory board (who provide input on projects in the Trifinio), TBAs, nurses, clinic staff, and

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women in the community attended the celebration. During the ceremony, women who have delivered babies at the birth center gave testimony about the care they received.

As this group of women grows in number, so do the number of babies who get a healthy start in life. But there is still work to be done. Some women can’t afford the cost required to cover a birth at the center (roughly $100).

Dr. Heinrichs states, “The hope is that someday, we can have a fund to provide even the poorest women in the community access to this high quality safe birth care. It should be the right of every woman and every child to have a safe, clean, competent, and compassionate labor experience.”

Learn more the Center’s Guatemala project on our [website](#).

♦By Molly Terhune

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Center for Global Health at CU Anschutz Receives Grand Challenges Explorations Grant For Groundbreaking Research in Global Health and Development

CU Anschutz announced that it is a [Grand Challenges Explorations](https://www.grandchallenges.org/grand-challenges-explorations) winner, an initiative funded by the [Bill & Melinda Gates Foundation](https://www.bmgf.org). Kathryn Colborn, PhD, assistant research professor at the CU School of Medicine and senior investigator with the [Center for Global Health](https://globalhealth.colorado.edu) at the Colorado School of Public Health, will pursue an innovative global health and development research project titled “Development of an automated early warning system for malaria transmission using machine learning.”

Grand Challenges Explorations (GCE) supports innovative thinkers worldwide to explore ideas that can break the mold in how we solve persistent global health and development challenges. Colborn's project is one of more than 55 Grand Challenges Explorations Round 17 grants announced by the Bill & Melinda Gates Foundation.

To receive funding, Colborn and other Grand Challenges Explorations winners demonstrated in a two-page online application a bold idea in one of [six critical global health and development topic areas](https://www.grandchallenges.org/topic-areas). The foundation will be accepting applications for the next GCE round in February 2017.

Using data from Mozambique, Colborn, in collaboration with her husband, James, seeks to show how novel statistical models and online tools can change the way people are surveying, predicting and responding to areas of high malaria transmission. It focuses on innovations in malaria elimination analytics, specifically the training of algorithms using supervised learning, an advanced computing task, on demographic health surveys and satellite data. The methods will be disseminated through Github, a code repository and version control system, and can be made available for free to anyone in the world.

“Ideally, the malaria analytics tools we develop would be used by Mozambique’s Ministry of Health to predict future monthly case rates and to help in their prevention planning,” Colborn said.

**About Grand Challenges Explorations**

[Grand Challenges Explorations](https://www.grandchallenges.org/grand-challenges-explorations) is a US$100 million initiative funded by the [Bill & Melinda Gates Foundation](https://www.bmgf.org). Launched in 2008, over 1228 projects in more than 65 countries have received Grand Challenges Explorations grants. The grant program is open to anyone from any discipline and from any organization. The initiative uses an agile, accelerated grant-making process with short two-page online applications and no preliminary data required. Initial grants of US$100,000 are awarded two times a year. Successful projects have the opportunity to receive a follow-on grant of up to US$1 million.
Post-course follow-up surveys and interviews investigated the exact course’s impact on its participants. In both Beijing and Sichuan, post-test scores were 16 percent higher than pretest scores. Participants also identified that of the ten total modules, the three most useful were emotional impact of disasters, planning/triage, and nutrition.2

This follow-up study demonstrated that the “PEDS in disaster program imparts cognitive knowledge, is well-received by participants, is regularly referenced in medical practice, and promotes a variety of disaster planning and response activities including teaching, research, hospital-level planning, and the provision of medical care to pediatric disaster victims.”2

Even with the positive feedback regarding the course, the Center for Global Health at the Colorado School of Public Health, in partnership with Children’s Hospital Colorado, recognized the recommendations for best practices were evolving and understood that the courses need to reflect not only current natural disasters due to climate change but also the influx of civil war and political unrest seen today.

“We realized we needed a revision that included updated material based on current WHO recommendations for Integrated Case Management for Childhood Illness (IMCI), Helping Babies Breath® modules, and treatment of malaria and malnutrition as these are an integral part of the training material,” stated Steve Berman, MD, FAAP, Director of the Center for Global Health and editor of the Pediatrics in Disasters Program.

Additionally, the revision also includes recommendations for diseases that have emerged internationally within the last few years, such as Ebola.

Originally focusing on disasters affecting Latin America, this edition has shifted to include sub-Saharan Africa and the Middle East as recent conflict has significantly increased the number of refugee and displaced individuals, creating multiple humanitarian disaster zones.

“With this revision, we broadened our perspective to Africa and Middle East because we wanted to introduce training in both of these regions,” said Dr. Berman. “To gain additional expertise and experience, we included humanitarian organizations that are doing work in these regions such as Doctors Without Borders (Medicins Sans Frontiers), Save the Children, as well as the United Nations High Commission on Refugees,” stated Dr. Berman. These organizations were able to give valuable information and perspective during the year it took to complete the revision.

Even though the program has been very effective and successful worldwide, Dr. Berman believes there is an opportunity to make a larger impact. “The real challenge is how to increase the dissemination through the train-the-trainer model. We are exploring the usefulness of having disaster planning managers to improve disaster preparedness and response among the countries that have taken the course.” Additional goals include incorporating course materials within general medical school education worldwide as well as including materials as part of the training of humanitarian organization aid workers.

Dr. Berman reiterates that the project must be sustainable, “The training faces the challenge that there is rarely funding available to provide support for the trainers to return to their communities and hospitals and implement the course. By implementing ongoing trainings and simulations in hospitals and clinics globally, we can continue the benefits of this course.”

The Center for Global Health is excited to announce the introduction of the updated course, available online and in-person. The in-person course is available each fall at the University of Colorado Anschutz Medical Campus. If you would like more information on registering for the online course, please click here. Want to learn more about the in-person course, please click here.

References:


Global Health Projects
Student Presentations

Robinson Durst International Scholarship and Calvin L Wilson Future Leaders in Global Health Scholarship

Recipients have returned from their international travels and will be presenting their projects. You are invited to join us!

When: Tuesday, December 6, 2016
6:30 pm Reception
7:00 pm Presentations Begins

Where: Durst Studio, 1571 South Broadway, Denver, CO 80210

How: RSVP to Michelle Shiver at: michelle.shiver@ucdenver.edu

DEADLINE: Today!

Students presenting:

- **Anowara Begum** (Colorado School of Public Health - MPH Global Health Community and Behavioral Health) – Understanding biomass fuel (BMF) exposure characteristics using exposure modeling - Bangladesh

- **Jakob Gamboa** (School of Medicine - MD) – Using social media to increase preventative behaviors against arboviral disease: a pilot study among teens - Dominican Republic

- **Reese Garcia** (Colorado School of Public Health – MPH) – Increasing the effectiveness of mosquito – borne disease surveillance and control programs – Machala, Ecuador

- **Katherine Sabourin** (Colorado School of Public Health - PhD Epidemiology) - Detection of proteins related to transmission reducing immunity responses in malaria patients - Kenya
Preview Spring 2017 | Global Health Lecture Series Schedule

February 1, 2017
12-1 | ED 2 N, 2301
Anschutz Medical Campus

**Gwen Vogel Mitchell, PsyD**, Assistant Professor and Director of Field Placement, Graduate School of Professional Psychology, University of Denver

*Global Mental Health: Lessons learned and current trends in a field that has finally been brought out of the shadows*

March 15, 2017
12-1 | ED 2 N, 1206
Anschutz Medical Campus

**Elizabeth Carlton, PhD, MPH**, Assistant Professor of Environmental and Occupational Health, Colorado School of Public Health

*Schistosomiasis on the Edge of Elimination in China*

April 19, 2017
12-1 | ED 2 N, 1206
Anschutz Medical Campus

**Michael Matergia, MD**, Global Health Fellow, Center for Global Health, Colorado School of Public Health

*10 Years in Darjeeling: Creating a Partnership for Community Engagement & Impact in the Eastern Himalayas*

Want to watch a lecture you missed? [Click here.](#)