CENTER FOR GLOBAL HEALTH

2021-2022 ANNUAL REPORT

PHOTO BY DAVID JUAREZ

IMPROVING THE HEALTH & WELL-BEING AROUND THE WORLD

CENTER FOR **GLOBAL HEALH**

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CENTER FOR GLOBAL HEALTH

MESSAGE FROM **THE DIRECTOR**

Stephen Berman

You may be surprised that I am still director of the Center for Global Health after announcing in last year's annual report that I intended to step down as director but remain as an active faculty member. Unfortunately, the search for my replacement was unsuccessful so I agreed to continue as director until June 30, 2023. Dean Samet will name a new search committee by the end of the year to recruit a new director for the start of the 2023 academic year.

Over the last three years, the Center for Global Health has grown exponentially in the areas of grants, personnel, and educational programs. Our research portfolio continues to expand with a global reach and impact well beyond Colorado and the United States. This annual report documents new grants as well as an impressive list of over 267 published articles in peer-reviewed high-quality journals. The faculty has established collaborations with faculty at CSU, CU Denver, CU Boulder, and many elite Universities in the United States and internationally.

As a quick overview, the Center for Global Health's grant portfolio increased by an average of 29% in the last three years. In Figure 1, from fiscal year (FY) June 2019 through July 2020 the center had roughly six grants routed directly through the center in the amount of $2,588,436 in total cost (direct and indirect cost). In the fiscal year 2021, we had ten grants with a total cost of $3,556,381. In the fiscal year 2022 to date , we had eight grants with a total amount of $1,433,375.

The center has expanded its focus during the past 3 years, adding seven additional faculty to our core faculty. Drs. Thomas Jaenisch, May Chu, Megan Cherewick, Lisa Umphrey, Jessica Landry, Yannik Roell, and Ms. Melisa Jaenisch. As the center is growing, we onboarded a new staff member to assist with our growing grant project needs, please meet Robert (Joe) Ladmirault our new post-award grant manager.

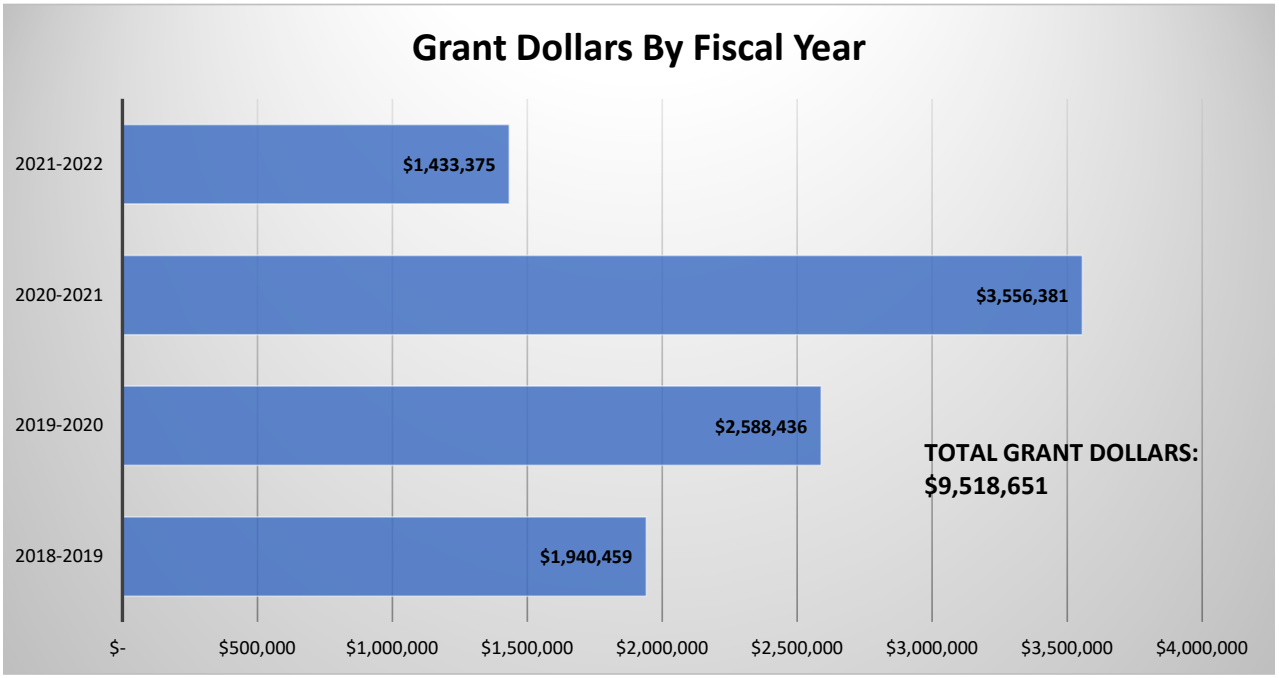
The center has also been in discussions with Drs. Vineet Chopra, the new chair of the Department of Medicine, and Myra Muramoto, the new chair of the Department of Family Medicine about expanding and strengthening our training and research programs in non-communicable diseases.

I continue to be inspired by the dedication and achievements of our incredible faculty and the commitment of our staff, especially Mary Moua and Alexa Collesides who had worked many extra hours during the past year due to a high turnover. I believe the Center is in an excellent position to expand its activities under a new energetic leadership and continue to make major contributions to global health.

Warm wishes and please stay safe and well,

Stephen Berman, MD
Director, Center for Global Health
Professor of Pediatrics, School of Medicine and
Epidemiology, Colorado School of Public Health

FIGURE 1:



CENTER FOR GLOBAL HEALTH
HISTORY & MISSION

HISTORY

Chancellor Georgia Leah-Laurie established the Center for Global Health in 2002 under the CU Denver Office of the Provost and appointed Blair Gifford in the CU School of Business as the first director. In 2004, Dr. Calvin Wilson, a distinguished expert in global health and professor of family medicine, became the director of the Center. In 2006, Chancellor Roy Wilson moved the Center from the Denver downtown campus to the CU Anschutz campus where it was incorporated into the Colorado School of Public Health. Once on the CU Anschutz campus, Dr. Calvin Wilson launched the School of Medicine student global health track and a CDC funded project to create family medicine residency in Rwanda. In 2011, Dr. Wilson returned to Rwanda to work full-time on his family medicine project. Richard Hamman, the Dean of the School of Public Health, appointed a new director, Dr. Stephen Berman, a pediatrician with extensive global research and policy experience working with the Institute of Medicine, NIH, Pan-American Health Organization (PAHO) and the World Health Organization (WHO.)

The University of Colorado and Children's Hospital Colorado signed an initial memorandum of understanding (MOU) in 2011 agreeing to jointly support the Center faculty, staff ,and programs. The Center was designated in 2012 as the Pan-American Health Organization/ World Health Organization Collaborating Center to Promote Child and Family Health. The Center has an outstanding multidisciplinary faculty committed to the mission of the Center for Global Health. While located within the academic structure of the Colorado School of Public Health, the Center serves as a resource to all the schools on the CU Anschutz campus including Medicine, Dentistry, Nursing, and Pharmacy, as well as schools on the CU Denver campus.

MISSION

The Center for Global Health has a threefold mission: First, provide outstanding educational programs in Colorado and globally. These programs transmit knowledge, build local capacity, and inspire participants to transform the population health of their own communities as well as impoverished communities around the world. We are committed to supporting the professional development of our students, trainees and junior faculty so they will have successful, productive careers. Second, carry out impactful multidisciplinary research that will advance our understanding of health as well as disease and inform global policy making. We provide a platform for the integration of clinical science, basic bench science, epidemiology and public health, that has both local Colorado and global perspectives. Third, design, implement and evaluate transformative interventions in low resource countries that can be replicated and taken to scale for better healthcare, better health and a better future for children and their families.

CENTER FOR GLOBAL HEALTH
WORLD HEALTH ORGANIZATION COLLABORATING CENTER

WORLD HEALTH ORGANIZATION

Our WHO Collaborating Center (CC) is designated by both World Health Organization (WHO), headquarters in Geneva, Switzerland, and the Pan American Health Organization (PAHO), the regional WHO office. Our Center was first designated in 2012 and subsequently renewed in 2016 and again in 2020 because of the value of our ongoing partnership. Our current Collaborating Center activities are focused on reducing maternal, neonatal, child, and adolescent morbimortality; promoting child development, carrying out vaccine-related research, educational programs, and policy; and helping countries improve their emergency medical services systems, especially for disaster preparedness and response. Our work in the area of child development related to our collaborating Center is highlighted below.

Child Development: Our CC determined the reliability and validity of the ASQ for children ages 0–5 years living in rural Guatemala. Internal consistency and test-retest reliability were assessed, as well as concurrent and predictive validity. Sensitivity, specificity, positive and negative predictive values related to performance-based developmental assessment (Mullen Scales of Early Learning; MSEL) and growth status (i.e., stunting) were also calculated. Results: Internal consistency reliability for the ASQ was adequate, except when results were limited by a small sample size. Test-retest reliability ranged from low to moderate ($r = 0.08–0.43$; $p < 0.05–0.01$). However, there was significant variability in mean scores over time across ASQ domain scores. In terms of validity, the ASQ did not discriminate adequately between children who performed within or below age expectations on performance-based developmental testing or those with and without stunting. Therefore, the ASQ did not demonstrate adequate psychometric properties in rural Guatemala, consistent with concerns documented in other LRSs. These results indicate that existing caregiver report screening measures of early childhood development should be utilized with caution in LRSs, and alternative methods for assessment or in the development and utilization of caregiver report measures should be considered. (Early Human Development 161 (2021) 105453).

Child Development: Our CC studied microcephaly, an anthropometric marker of reduced brain volume as a predictor of developmental disability. The prevalence is much higher in lower resource settings. Faculty in our CC calculated the prevalence of microcephaly in infants and young children (n= 642; age range= 0.1–35.9 months), examined trends in occipitofrontal circumference (OFC) growth in the year after birth, and evaluated the relationship between OFC and performance on the Mullen Scales of Early Learning (MSEL) in rural Guatemala. The prevalence of microcephaly ranged from 10.1% to 25.0%. OFC z-score decreased for most infants throughout the first year after birth. A significant

positive association between continuous OFC measurement and MSEL score suggested that children with smaller OFC may do wore on ND tests conducted both concurrently and ~1 year later. OFC should be considered in developmental screening assessments at the individual and population level, especially when performance-based testing is not feasible. (Journal of Developmental Origins of Health and Diseases doi: 10.1017/S204017442200023X). We, therefore, proposed that occipitofrontal head circumference (OFC) may be a more direct and appropriate proxy, as well as a feasible and cost-effective method of identifying children at the highest neurodevelopmental risk in LRSs. (Arch Dis Child doi:10.1136/archdischild-2021-323216).

Child development: Cumulative risk Index (CRI) is a useful tool for targeting and designing more effective interventions to help high-risk young children reach their developmental potential, especially in impoverished rural regions. Our studies in both rural Guatemala (PediatrDimensions, 2019 doi: 10.15761/PD.100198) and in Colorado (https://doi.org/10.1111/cch.12858) support the potential of using this approach. In Guatemala, a combined demographic and mother-child interaction cumulative risk index was a useful tool to predict which children had developmental concerns across multiple domains. In Colorado, we used this approach to show that a practice-friendly CRI, based on characteristics typically available in the medical record, could help identify families less likely to support development concurrently at one year of age and predictively at 2–3 years. School functioning at 8 to 10 years was also significantly better in children with a low CRI at one year.

Child development: Based on our experience introducing finger puppets to mothers in our child development promotion intervention in Guatemala, our CC faculty tested the feasibility, acceptability, and preliminary efficacy of introducing finger puppets in a Colorado primary care setting at the 2-month well visit to support caregivers talking with their infants. Thirty-four caregiver-child pairs were enrolled. Caregivers reported high satisfaction with the intervention. ASQ-3, Communication, and Total scores at 6, 12, and 18 months were significantly higher for high puppet users across all age levels with no significant interactions with age or cumulative risk. Finger puppets provide a low-cost way to promote language-rich interactions and high puppet usage may have long-lasting effects on child development. (Clinical Pediatrics DOI: 10.1177/0009922820903407).

CENTER FOR GLOBAL HEALTH
EDUCATIONAL PROGRAMS

CU ANSCHUTZ PROGRAMS

During the past year, the Center has focused on strengthening our educational and training programs on the Anschutz Medical Campus. Our Global Health Fellowship program, under the leadership of Dr. Daniel Olson, continues to expand to more disciplines and attract highly qualified candidates.

The two-week Global Health course was held in person in October 2021 with international faculty and participants joining virtually. Dr. Lisa Umphrey led the effort to write up our experience and the article will be published in the Fall edition of Advances in Pediatrics Journal. In 2021, course directors recruited 28 US-based and 10 international faculty (all from low-to middle-income countries). Among 31 participants, 21 were in-person, while 10 were virtual or hybrid. No international participants completed the course in full, citing a lack of protected time or internet difficulties. 100% of in-person participants successfully passed knowledge assessments (86% average composite score). Participants and facilitators reported overall satisfaction with the course, agreeing that it met the stated aims and objectives. Positive themes included: international faculty presence; strong course organization; and pertinent course content. Negative themes included: limited group discussion time to share international experiences; limited applicability of course content for public health audiences or those in low-resource settings; and technical difficulties on virtual platforms. While future courses must address challenges, a hybrid PEDS Course structure successfully achieved course goals and incorporated international faculty. Lessons learned will guide future course revisions and fellow global health educators.

The Center is facilitating better coordination among the schools and departments that are offering international training experiences. Under the leadership of Dr. Jessica Landry, a new working group is developing a Pre-Trip Preparation program for residents and fellows engaging in Global Health experiences abroad. The program will use a case presentation format with local experts. The session will review basic health precautions related to international travel, discuss strategies for risk reduction, including transportation, environment, food, personal protective equipment, risk-taking behaviors, and recreational activities, and review pertinent guidelines regarding occupational exposures and travel health.

The College of Nursing, under the leadership of Dr. Pamela Prag, is taking the lead on offering a suite of courses including Helping Babies Breathe, Helping Babies Survive, and Helping Mothers survive. The Center is facilitating discussions on possible global health multidisciplinary educational collaborations with the College of Nursing, School of Pharmacy, and the School of Public Health.

PHOTOS BY MARY MOUA

PEDIATRICS IN DISASTERS COURSE (GHDC 2-WEEK COURSE SIMULATION)

INTERNATIONAL PROGRAMS

In the global educational arena, with the leadership of Dr. PK Vedanthan, the Center continues to co-sponsor the fellowship training in allergy, asthma, and immunology at the Postgraduate Institute of Medical Education and Research Chandigarh, India. The Center is also a co-sponsor of a new successful program called Diploma in Pediatric Sleep Medicine. The co-directors of this program include Drs. Bharath Kumar Reddy (Shishuka Children's Specialty Hospital), PK Vedanthan, and Stephen Hawkins, a pediatric sleep medicine physician at Children's Colorado Hospital. The program involves many Department of Pediatrics faculty in pulmonary, ENT, and psychology.

The Online Pediatrics in Disasters training program was completed by 14 members of the Philippine Pediatric Society Committee on Disasters and an in-person course sponsored by the Haitian Pediatric Society was held in Port au Prince on June 29-30, 2022.

CENTER FOR GLOBAL HEALTH
GUATEMALA COMMUNITY-BASED PUBLIC HEALTH PROGRAMS

Southwest Trifinio, Guatemala

CRECIENDO SANOS

Creciendo Sanos (Growing up healthy) is a community health program started in 2014, which includes a maternal/reproductive health component (Madres Sanas/ Healthy Mothers) and an early childhood health and development component (Ninos Sanos/Healthy Children). The program targets mothers and children who live in 12 rural Guatemalan communities that are near the FUNSALUD clinic. Madres Sanas follows pregnant women through birth of the child and and Niños Sanos follows the child from birth for the first two or three years of life.

Madres Sanas enrolls women upon detection of pregnancy and provides them with regular home visits by community nurses. Visits include education about healthy pregnancy, basic health checks with danger sign screening, prenatal vitamins, diabetes and urinary infection screening, formation of a birth plan, and emergency plan, and family planning counseling. In 2021, the program enrolled 209 pregnant women, who received an average of seven visits each (total program visits – 1456). The program made 129 medical referrals.

The **Niños Sanos** program begins with the birth of the child and continues until the child turns 24 months if low risk, or until 36 months old if the child is high risk. Niños Sanos started as a group visit program, however, due to pandemic restrictions in 2020, the program switched to individual visits. Program nurses commented that mothers more actively participated in these individual home visits as did other members of the household. Mothers expressed appreciation, and nurses were able to provide more individualized education and support for the caregivers and children in the program. Community nurses during the visits provide screening for danger signs (especially during the visits in the first month of age), take anthropometric measurements of the child, conduct basic health checks, provide deworming medicine, vitamin A supplementation, and deliver educational sessions on relevant well child topics (newborn care, breastfeeding, hygiene, basic child health, and child development.). During 2021, 581 children were enrolled in the program had 1,638 household visits.

The majority of the visits happened during the first year of the child's life, with children 0-12 months receiving an average of 5 visits. 106 children were referred to the clinic for follow-up with a medical doctor in 2021.

Program Staff

Claudia Rivera is the head nurse and the Program Manager who oversees the day-to-day operations of the program, supervises program nurses, and participates in strategic planning for the program. There are six community health nurses who conduct the home visits for both Madres Sanas and Niños Sanos programs. They work in teams of two nurses with each team responsible for four rural communities.

Data Management is provided by Jakson Lopez who is based at the FUNSALUD clinic. He provides monthly data reports and works with nurses entering data to ensure a clean database

PHOTO BY JENNIFER DAILEY-VAIL

PHOTOS BY MELISA JAENISCH

CHILD MALNUTRITION PROGRAM

In the fall of 2019, a community-based nutrition program began identifying malnourished children in the 12 communities surrounding the FUNSALUD clinic where the Growing up Healthy (Creciendo Sanos) program operates. The program helps malnourished children recover quickly and prevents at risk children from becoming more malnourished. The malnutrition program known as PROGRESAN a has a staff of 2 community health nurses and 1-2 nutrition students from a Guatemalan university. The program staff identify and enroll eligible children between 6-59 months with a diagnosis of chronic and/or acute malnutrition. Children who are at risk of malnutrition, according to the anthropometric measurements, are also invited to enroll and receive monitoring visits and nutrition and hygiene education. Children with moderate or severe acute malnutrition are given a nutritional supplement with nutrition and hygiene counseling while they are followed carefully with anthropometric measurements. PROGRESAN nurses partner closely with the local health posts run by the Guatemalan Ministry of Health to coordinate efforts such as monitoring nutritional status and ensuring vaccination completion and provision of nutritional supplements.

In 2021, 156 children participated in PROGRESAN, and program nurses completed a total of 1,169 visits. PROGRESAN made 68 clinical referrals for medical consultation at the clinic when there was no improvement or for illnesses. Medical consultations were provided free of charge for all enrollees and the program provided financial assistance to families who were unable to pay for needed lab exams and/or medications.

Program Staff

Dr. Mirella Barrientos (MD) together with Melisa Jaenisch (MPH) co-manages PROGRESAN. Dr. Mirella Barrientos who has a specialty in nutrition is based in Guatemala and provides in-country management. Melisa Jaenisch provides programmatic management from the Center for Global Health. Two community health nurses perform the home visits and manage the day-to-day running of the program. They implement the program with the support of one to two rotating Guatemalan nutrition students

who are completing their 4-month practical rotation at the site. The nutrition students support the program nurses during home visits with nutrition counseling and taking anthropometric measurements. They also provide nutritional counseling for patients at the FUNSALUD clinic. In the community, the nutrition students organize periodic healthy recipe cooking classes with caregivers of children in the malnutrition program, assist in giving nutrition talks at local schools, and help develop educational resources used in the program.

Data management is provided by Jakson Lopez who is based at the FUNSALUD clinic. He provides monthly data reports and monitors data entry to ensure a clean database.

Photos by Melisa Jaenisch and Jennifer Dailey-Vail from the Niños Sanos and Madres Sanas Program

ADOLESCENT MOTHERS WHO ARE ENROLLED IN THE ADOLESCENT CLINIC PILOT PROGRAM

PHOTOS BY CLAUDIA LUNA-ASTURIAS

CENTER FOR GLOBAL HEALTH **EDUCATION ACTIVITES IN GUATEMALA CONTINUES**

Southwest Trifinio, Guatemala

ALMA PROGRAM

ALMA is being piloted within the Creciendo Sanos and the Adolescent Mothers' programs at Trifinio. The Creciendo Sanos nurses began screening for depression and psychosocial distress in November of 2021, and the Adolescent Mothers' nurse started in July 2022. The Malnutrition team will begin screening in August of 2022. ALMA is a peer mentoring program for depressed pregnant or postpartum adolescent mothers that was co-created by Dr. Sona Dimidjian and the CREST Lab at UC Boulder. Mental health professionals train adolescent mothers or community health workers (called compañeras) in basic helping skills and skills of behavioral activation. Behavioral activation is based on the tenant that when people get depressed, they may increasingly disengage from their routines and withdraw from their environment. Over time, this avoidance exacerbates depressed mood, as individuals lose opportunities to be positively reinforced through pleasant experiences, social activity, or experiences of mastery. Behavioral activation seeks to increase the patient's contact with sources of reward by helping them get more active and, in so doing, improve one's life context. Patients are also taught to identify values that help them guide the selection of activities to increase mood. Behavioral activation has a significant evidence base,and is simple enough to be delivered by non-mental health professionals with sufficient training and supervision. In ALMA, the compañeras are first trained to implement the skills in their own lives, and then supported in sharing program tools with pregnant women and adolescent mothers of children ages 0–3. ALMA lasts for 6-8 sessions and is conducted biweekly. Sessions are designed to last approximately 45 minutes.

Program Staff

CHD Mental Health Program Coordinator: Brieanne Kohrt, PhD, is a clinical psychologist and Assistant Professor at California State University, Los Angeles. Her specialty is in the adaptation of evidence-based treatments and approaches for communities with limited access to mental health services, with a focus on Peru, Guatemala, and Latinx immigrants in the U.S. In her role as the CHD Mental Health Program Coordinator, Dr. Kohrt works along with the Creciendo Sanos team and oversees the implementation of the Alma intervention.

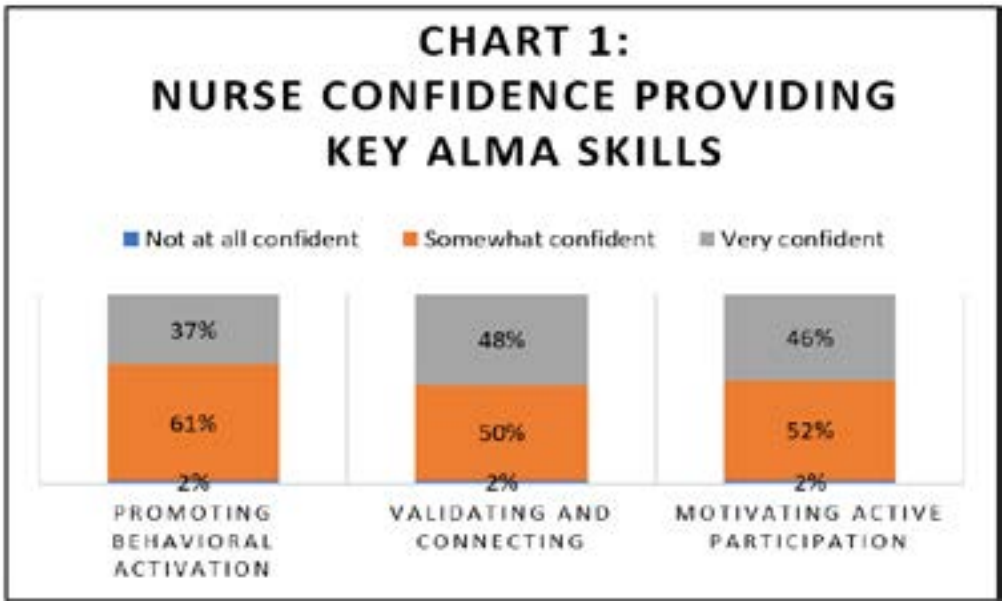
Consultation Support: Elena Aranda is a community leader and Professional Research Assistant working for the Renee Crown Wellness Institute, which oversees the ALMA program in Colorado. Elena provides periodic consultation to the CHD mental health program coordinator and the nurse team regarding the implementation of the ALMA program in the Trifinio site.

Trifinio Community Nurses: Seven community-based nurses (Team Red, Yellow, and Blue, and the Adolescent Mother's nurses) carry out the screening of women in the Creciendo Sanos program and determine program eligibility. They also implement the ALMA program with interested mothers. The nurses maintain constant communication with the on-site psychologist, keep the RedCap database updated, and attend bimonthly case supervision meetings.

Trifinio Nurse Coordinator: Claudia Rivera, the Trifinio nurse coordinator, ensures that the nurses have the time and space to complete the ALMA activities, and communicates any concerns, difficulties, and accomplishments to the CDH mental health program coordinator.

On-site Psychologist: The role of the onsite psychologist is to assist in training newly hired nurses in the ALMA program, providing case consultation and support to nurses implementing the ALMA program, engaging in live supervision of cases, organizing the intervention materials, and carrying a small caseload of 4-5 participants with complex clinical needs. The on-site psychologist attends bi-monthly supervision with the Mental Health Program Coordinator, attends all ALMA meetings, and maintains an active records of her work in RedCap.

Data Support: Jackson Lopez provides support in checking the



ALMA RedCap data on a bimonthly basis to check for potential errors, and follows up with the nurses when need be. Starting in August of 2022, he will also be assisting with monthly and quarterly data aggregation for reports.

Process measures

A.Training of nurses

Since September, 2021, ten nurses have been trained in the use of the ALMA program, though three nurses are no longer working with Trifinio. Two nurses are currently in the process of receiving their training, which takes approximately 16 hours to complete. In addition, nurses receive biweekly case consultation and booster training sessions, amounting to approximately 48 hours of group supervision/ supplementary training per year. Nurses working with Creciendo Sanos (n=6) and the Adolescent Mothers program (n=1) have active cases of ALMA. Cases are capped at 4 per team for the time being while ongoing training and supervision are provided.

The core skills of the program that the nurses need to demonstrate competence in are 1) promoting behavioral activation, 2) validating the mother's experience using basic helping skills, such as reflective listening, open questions, and validating statements, and 3) Motivating active participation in the mother by recognizing and providing positive reinforcement whenever the mother shows any sign of behavior change and attempts to put into practice the skills and concepts learned in the program. **Chart 1** shows the current nurses' confidence level in demonstrating these key skills.

B. Screening of mothers

Since the start of the program in November, 347 women have been screened for 13 risk factors (**see Box 1**) shown to be tied to psychosocial distress and for symptoms consistent with depression. The depression screener starts with a brief, 2-item measure inquiring about the degree to which an individual has experienced depressed mood and anhedonia over the past two weeks. If the participant endorses these items, the full 9-item measure (PHQ-9) is administered. Mothers reporting 4 or more risk factors and/ or with mild to moderate depressive symptomatology are eligible to receive the ALMA program.

Box 1: Risk factors assessed to determine need for psychosocial support

- First-time mother
- Adolescent mother
- Single mother
- Lack of support from partner or significant conflict with partner
- Lack of support from the family the mother is living with (in-laws or family of origin)
- Mother lives far away from family of origin
- Adverse child experiences in youth
- History of mental health concerns
- Negative or ambivalent feelings about the pregnancy or child
- High-risk pregnancy
- Previous miscarriage, stillbirth, or infant loss
- Child with malnutrition
- Child with special health or developmental needs

CENTER FOR GLOBAL HEALTH **EDUCATION ACTIVITES IN GUATEMALA CONTINUES**

Southwest Trifinio, Guatemala

ALMA PROGRAM CONTINUES

C. Characteristics of mothers qualifying for the program

Twenty-four mothers agreed to participate in the program, while 14 declined. Reasons for declining typically included a lack of time, feeling as though they were not experiencing any psychological distress (more common amongst women who qualified based on risk factors), or fearing that their family would not support or allow their participation. The mean age of qualifying mothers was 23.55 (SD = 6.1, range = 15-36). Thirteen mothers (34%) were teenagers; of note, only four teenage mothers consented to participation in the study. The mean number of risk factors of mothers qualifying for the program 2.4 (SD = 1.39, range = 0-7). Mean depression scores of qualifying mothers was 6.42 (SD = 6.99), with a range of scores from 0-25. Higher average scores were seen for mothers who qualified and consented (M(24) = 9.58, SD – 6.83) than mothers who qualified but refused (M(14) = 1.0, SD = 2.54). The majority of women who qualified but refused participation had no depression symptoms (93%), while one had mild symptoms. **Chart 2** shows the levels of depression in mothers who qualified for the program, consented, and refused. **Chart 3** shows the level of depression amongst those who chose to participate in ALMA.

Nine qualifying mothers (24%) reported suicidal ideation ("Have you wished you were dead or could go to sleep and never wake up"), and six reported a previous attempt (16%). All of these mothers consented to participation.

D. Status of program participation

Seventeen mothers have received at least one session of ALMA. Twelve cases are currently active, and five women have completed the full program. Four cases were closed due to multiple visits to the mother wherein she was either not at home or not able to complete the session. Two women accepted participation, but their families or in-laws did not consent, which was a pre-requisite to involvement in the program given that the sessions are conducted in the family's home. One mother had severe levels of suicidality that was beyond the nurses' level of comfort and expertise; unfortunately, given the resignation of the local psychologist, this mother is continuing to wait to receive services. Thirty-two total sessions of ALMA have been conducted with the seventeen mothers who have received at least one session. Of the five women who have completed the program, the average number of sessions received was 5.6 (SD = 1.34, range = 4-7). Cases were closed because the mothers showed significant improvement according to the nurses' judgement. Three cases were closed before the typical program length of six sessions; this was done when a given nurse team had a large waitlist, and the mothers were demonstrated both improvement and readiness to discontinue the intervention.

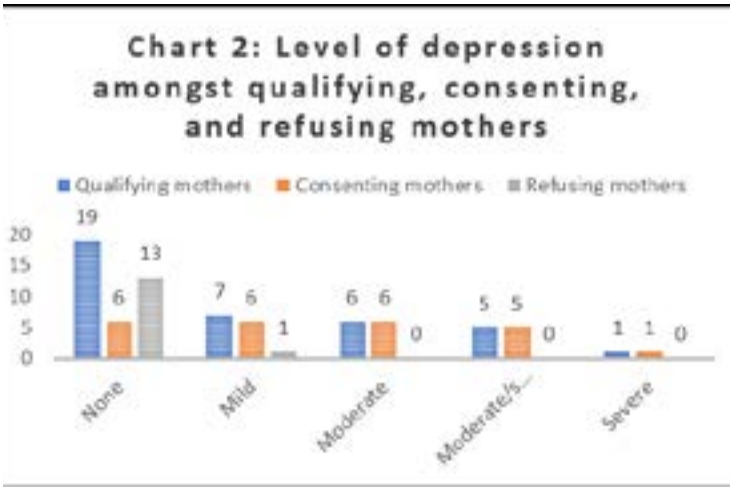
E. Referrals made

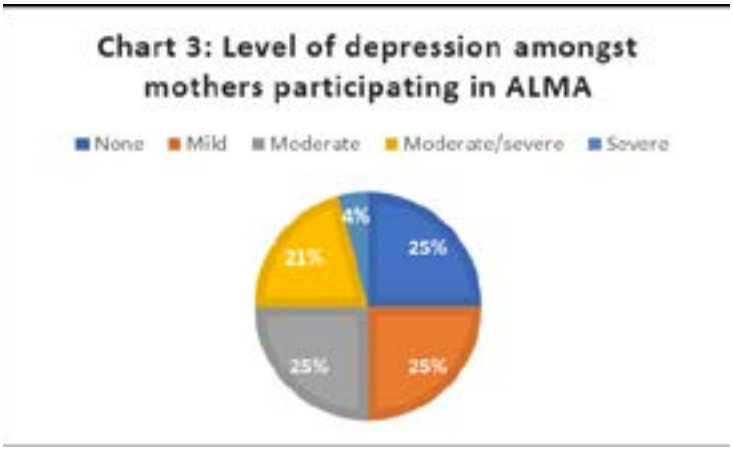
Six mothers who qualified for the program (16%) were referred to the on-site psychologist due to severe levels of depression and/or active suicidal ideation and/or significant symptoms of post-traumatic stress disorder. Three mothers completed psychological treatment, with the average number of sessions completed being 4.6. One mother was still completing her psychological treatment and had completed two sessions when the program psychologist resigned from the organization. Two mothers were on the waitlist, and continue to wait for services at this time.

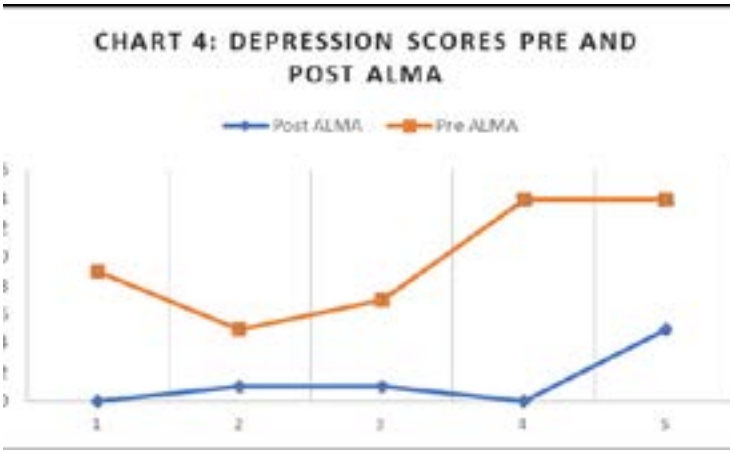
Outcome measures

Statistical information for the five mothers who have completed the program is not yet available given the small sample size; however, pre-post depression scores are provided in **Chart 4.**

Importantly, two of the five mothers who have completed treatment reported suicidal ideation prior to the program. None of the mothers reported suicidal ideation at the close of treatment.







The program nurses have also provided qualitative information regarding their perceived gains and challenges for the five closed cases. Selected quotes are provided below:

"In our last session together, the participant was energetic, and she told us that she felt much better. She said that she is dedicating more time to her children and that she has more patience with them than she did before. She reported not realizing how much her mood impacted her parenting and expressed gratitude for our helping her realize this."

"We talked to one of our participant's children, who stated that she has been helping him more with his homework, and that she takes time out to draw and pay attention to him."

"The participant told us that the ALMA program was very helpful to her, and that she now realizes that all problems can be solved. She said that it is now easier for her to make decisions that are beneficial to her, and that she feels brave and strong."

"The participant told us that the thing she learned most from the program is that she is valuable, and important."

CENTER FOR GLOBAL HEALTH
EDUCATION ACTIVITES IN GUATEMALA CONTINUES

Southwest Trifinio, Guatemala

PHOTOS BY CLAUDIA LUNA-ASTURIAS

BIG DECISIONS SCHOOL BASED REPRODUCTIVE HEALTH EDUCATION PROGRAMS

Big Decisions is a comprehensive sexual health education program for adolescents, which seeks to reduce unplanned pregnancies and sexually transmitted diseases so youngsters can reach their goals and dreams. The Big Decisions program is carried out in 10 schools located in 8 communities around FUNSALUD Clinic. The 10 lesson curriculum targets youth 11 to 19 years of age.
Due to the COVID-19 pandemic, schools in the area were closed for 2 years. During this time, the Big Decisions program was able to coordinate with school teachers to provide information to the students via WhatsApp and the facilitators created short video versions of some of the lessons that were sent via WhatsApp with homework.

Hybrid classes began in January 2022, and the Big Decisions program re-started onsite teachings with added videos and online worksheets to reinforce the information given in the classrooms. Students embraced returning to the classroom and participating in the program. They appreciated receiving information about contraceptive methods and sexually transmitted diseases. Trust between the students and the facilitators of the program has strengthened as facilitators have received more comments and questions via WhatsApp messages and telephone calls asking about contraceptive methods, the menstrual cycle, risks of pregnancies and sexual abuse. Access to sex education in these communities has had an impact on the decisions that youth make regarding their relationships and future educational plans.

In July 2022, the program organized a Health Fair for adolescents, bringing together the students from all the schools. The turnout was excellent as 509 teens participated in a mix of games and health related informational sessions. In addition, this year the program sessions with parents was well attended by 85% of student families. In past years, attendance had been approximately 50%.
Impact on Teens

Currently the number of teenage pregnancies at the schools where the program is taught has decreased, in 2017 schools had 5 to 6 pregnancies a year, since 2020 this rate dropped to 1-2.

Program Students

Number of schools in the Program	Number of sessions	Number of Students within the program 865		Number of Lessons taught date
		F	M	
10	52	441	424	149

YOUTH LEADERS PROGRAM

The Youth leaders (YL) project seeks to reduce high school dropout rates by providing academic scholarships and to encourage youth to consider how they can contribute positively to their community and promote lasting social change.

Methodology

Students from ages 16 to 21, attending 10th thru 12th grade are chosen to participate in the program via a scholarship application process that includes individual and family interviews, an initial workshop session, and a final acceptance meeting. The scholarship covers the student's full school tuition to a private school in the area, "Luna Azul" or "Colegio Comercial" for their last two to three years in high school, their uniforms, school supplies and program activities. Students begin the program parallel to the start of the school year when they receive 1 to 2 sessions a week of instruction. They receive lessons from the YELL curriculum, "Youth Engaged in Leadership and Learning", this program was developed to disseminate effective practices and models for youth development and community renewal, by bringing together youth leaders and sharing new knowledge. The program was adapted and translated for our program.

One of the main components involve community organization and development activities described below:

- Reading Village Program: To promote literacy in a diverse and interdisciplinary effort.
- Oral Health certificate: provided online by Colgate Corporation
- Participation in the following activities to teach and learn about health and development in their communities.

1. Health Fairs
2. Accident Prevention Workshops
3. Sports Festival for adolescents
4. Art Program: to promote the expression of thought and emotions via art, the program addressed topics such as self-esteem, identity, planning for the future and setting goals.
5. Training in Malnutrition topics to assist the community nurses in teaching mothers about feeding and nutrition to their young children.
6. Career Fair: Students participate in an all-day fair where they attend presentations provided by professionals to learn about their careers, their education at the university and work experiences.
7. Vacation Camp Program: Youth leaders help organizing and implementing the program
8. Bioengineering Method Contest: students participated in the design of a project to solve a community problem. They were taught how to identify and understand a problem affecting the community, develop a plan, implement the project and evaluate the results.

As shutdowns across the world spread due to COVID-19, Guatemala was no exception. Schools closed in the middle of March 2020, with no plan to continue instruction. The Youth Leaders students were fortunate to have the support of the program facilitators who provided additional instruction, guidance and the much-needed social interaction during their sessions on site. During 2020, the first year of the pandemic, the program facilitators actively worked to find ways to support the students at home, either by offering additional time and support, or by organizing volunteering activities where the YL members were asked to plan and implement ways to help their neighbors. One of the activities organized by the program, with support from FunSalud clinic, was a mental health informational week where staff and students provided verbal and written information of ways to stay healthy, both physically and mentally. A GoFund me fundraiser was created to purchase soap, mandalas, crayons, cloth facemasks and a flyer with information about mental health and prevention measures against COVID-19.

The Youth program has covered 39 students with full-time tuition to finish their high school, 14 are currently in progress. (42 total) Out of this group 23 have a full-time job, 6 females are married with one baby and 4 males are married and working full-time and one has a part time job. Two students applied and were accepted to college, but unfortunately after two years due to COVID and financial burden were forced to stop their education and returned home where they are working full-time. To date three program graduates are working at the Trifinio Clinic as administrative assistants and other patient care activities

Participants enrolled

Year	Female	Ages	Males	Ages
2017	4	16 to 21	5	16 to 21
2018	1	16	5	16 to 19
2019	1	17	0	
2020	7	16 to 23	6	18 to 21
2021	4	15 to 21	3	16 to 17
2022	4	15 to 18	2	15 to 19
TOTALS	**21**		**21**	

Total students served: 42

CENTER FOR GLOBAL HEALTH
SIRC AEF FUNDING SUPPORT

Lab in Guatemala

SIRC AEF FUNDS

The CU School of Medicine SIRC grant, including matching donations from throughout the CU School of Medicine and Colorado School of Public Health, allowed us to advance several key areas that will form the foundation for future work. The primary objective was to renovate our research laboratory to accommodate several projects relying on advanced molecular diagnostic tools. The renovation included expanding the laboratory space, which now includes a GCLP-certified human research laboratory and a flex lab for human and animal samples. We have also completed the upgrade of our electrical system, working with an engineer from the Colorado School of Mines. The site now has an array of 48 solar panels and two sets of 24 high-capacity batteries. The laboratory space is completely self-sufficient from the local power grid allowing us to use our new molecular equipment safely. We are also refurbishing our insectary for mosquito/tick studies.

These laboratory renovations allowed us to begin carrying out RT-PCR and next gen sequencing using the Minion platform (donated by Colorado State University). In March 2022, we carried out our first sequencing run for SARS-CoV-2, and we continue to do so monthly, sharing data with the Guatemala Ministry of Health and incorporating it into research. In June 2022, we installed a new PCR instrument (ABI 7500, on loan by CDC), which will allow for higher throughput PCR for emerging pathogen surveillance/research. In August, we installed a BioFire FilmArray instrument (on loan by the Naval Medical Research Unit, NAMRU6), for multitplex PCR testing of respiratory and febrile illness.

This new infrastructure has leveraged for additional grant funding in 2022, including the following:

- SARS-CoV-2 household transmission for respiratory pathogens (AGRI-CASA study, CDC): $650,000
- Cross-border transmission dynamics of SARS-CoV-2 and influenza (CDC): $125,000
- Influenza seroprevalence in backyard domesticated animals (CDC): $26,000
- Next gen sequencing of influenza and SARS-CoV-2 (CDC): $263,000
- Saliva vs nasopharyngeal swab for detection of SARS-CoV-2 and influenza (Roche Molecular Systems): $36,000
- Dengue Seroepidemiology in School Aged Children and Agricultural Workers in Guatemala (Merck): $339,000
- We also submitted an R21 to evaluate long-term immunity against COVID-19 in farm workers (Beckham, Santiago labs, CU SOM) and will submit an R01 in the coming months.

The ongoing molecular work has resulted in multiple publications as well.

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8845422/
- https://www.mdpi.com/2076-393X/10/7/1160
- Additional manuscripts in development (COVID-19 vaccine effectiveness, household transmission during omicron wave, natural history of SARS-CoV-2 antibody kinetics)
- >12 conference presentations in the last 12 months (ASTMH, IDWeek, ISIRV, ICEID)

PHOTOS BY DANIEL OLSON

CENTER FOR GLOBAL HEALTH
DRS. ASTURIAS & OLSON'S GRANTS

Translational Research in Guatemala

PHOTOS BY DANIEL OLSON

DRS. ASTURIAS AND OLSON'S GRANTS

Over the past 2 years, the SWT Guatemala Global Health Signature site was key to developing and implementing translational research in emerging infectious diseases and advanced diagnostics. Led by Dr. Daniel Olson, an NIH K-23 grant to study the incidence of influenza and its impact on agricultural worker productivity, was also useful to determine the impact of COVID-19 disease on these essential workers. COVID-19 infections represented a loss of a third in monthly wages.

In addition, with funding and collaboration from the Centers for Diseases Control and Prevention, the SWT Guatemala site began studies evaluating the dynamics of household transmission of COVID-19 in these rural communities and has been funded to study the incidence and impact of COVID-19 in migrants at the Guatemala-Mexico border towns. Funding also has been provided by the Strategic Initiative for Research of the CU School of Medicine and CDC for the establishment of advanced molecular diagnostics at the site that includes PCR-based identification of SARS-CoV2, influenza, and RSV, and more recently sequencing for SARS-CoV2 variants.

In collaboration with public hospitals in Guatemala, and led by Dr. Edwin Asturias, the CGH has been carrying out studies to evaluate the clinical utility of a new specific urine antigen test to diagnose pneumonia due to S. pneumonia in children. This study provides key evidence to advance diagnostics to be utilized for evaluating the efficacy and effectiveness of the new generation conjugate pneumococcal vaccines (PCV20). A new study at two public hospitals in Guatemala City is also studying the transfer of RSV maternal antibodies to premature and at-term newborns, to predict the best timing of administration of the upcoming RSV vaccines now in phase 3 of development.

CENTER FOR GLOBAL HEALTH
DR. MAY CHU'S GRANTS

WHO/ UNICEF/ Bill & Melinda Gates Foundation

PHOTOS BY JULIA MILZER

DR. MAY CHU

May C. Chu, Ph.D. is a Clinical Professor in the Department of Epidemiology at the Colorado School of Public Health and a Senior Investigator in the Center for Global Health. Dr. Chu has interest in using global health diplomacy as a platform to build coalitions to solve some of the most intractable public health issues. Her research focuses on the PPE of the future and improving current masks and respirator fit and use, on the transmissibility of SARS-CoV2 in congregant situations, on standardization of diagnostic tests for diseases with outbreak potential including COVID-19, arboviral diseases and viral hemorrhagic fevers as well as leading the Virtual Biorepository System project. Her research is funded by Open Philanthropy, Bill and Melinda Gates Foundation, UNICEF and the World Health Organization (WHO).

Dr. Chu is an advisor to the WHO Committees for COVID-19 Infection Prevention, to the WHO Committee for PPE for Viral Hemorrhagic Fevers as well as serving as member of the WHO COVID-19 Virology Diagnostic Working Group.

Dr. Chu's career includes 30 years at the U.S. Centers for Disease Control and Prevention as Director of Laboratory Science Policy and Practice Office. During her time at CDC, she was detailed to the WHO for global outbreak response and to the White House as the Assistant Director for Public Health during the West Africa Ebola epidemic.

PHOTOS BY JULIA MILZER

CENTER FOR GLOBAL HEALTH
DR. THOMAS JAENISCH'S GRANTS

European Commission- ReCoDID

DR. THOMAS JAENSICH

Thomas Jaenisch, MD, Ph.D., is an Associate Professor in the Department of Epidemiology primarily focused on Infectious Disease Epidemiology. For the last 20 years, he has coordinated multicentric observational clinical research projects on arbovirus infections like Dengue or Zika.

His research was instrumental to provide key evidence for the WHO Dengue classification of 2009. After that, he focused on warning signs for severe Dengue and on standardized severe disease endpoints in Dengue. When the Zika epidemic hit Latin America in 2016, he was able to use the existing network of partners to mount a research response against Zika.

Dr. Jaenisch is involved in large multicentric pregnant women and children's cohorts in Latin America as well as in Data Sharing and Harmonization of Infectious Disease cohorts, building on the ongoing Zika birth cohorts.

His current ReCoDID project ("Reconciliation of Cohort Data for Infectious Diseases", funded by the European Commission Horizon 2020 programme), involves a large-scale data harmonization, standardization, and methods development for pooled analysis of infectious disease cohort projects around the world. The initiative results from the challenges of pooling data for Zika virus cohorts as well as COVID-19 cohorts. The project covers harmonization for standard clinical-epidemiological data as well as laboratory data, for example, COVID-19 serology data. A multitude of manuscripts have been published; Limitations introduced by a low participation rate of SARS-CoV-2 seroprevalence data (submitted) (1), Incidence and risk factors of COVID-19-like symptoms in the French general population during the lockdown period: a multi-cohort study (3), Clinical prediction models for mortality in COVID-19 patients: an external validation and individual participant data meta-analysis (COVID-PRECISE) (4). With several publications in preparation, The power of bridging studies using SARS-CoV-2 seroprevalence data with data on multiple test results to generate a synthetic meta-standard seroprevalence estimate (in preparation) (2). We also work on governance and ethics of data sharing as well as sharing of biological samples. This project has led to a number of synergies with other projects acquired by faculty at the CGH, mainly in the area of federated biorepositories for global health as well as serology for preparedness.

CENTER FOR GLOBAL HEALTH
CURRENT GRANTS

2022 Grant at the Center for Global Health and in Colloration with other Department /Centers at the University of Colorado Anschutz Medical campus

Project Title: RSV antibody transfer in mother-infant premature and term pregnancies (PRISERO)
Timeline (Period): 05/13/2022-05/12/2027
Location: Guatemala
Funder: PFIZER
Faculty Lead: Dr. Edwin Asturias
Funding Amount: $536,960

Project Title: Gates SEROSURVEILLANCE
Timeline (Period): 02/23/2022-09/30/2022
Funder: Bill & Melinda Gates Foundation
Faculty Lead: Dr. May Chu
Funding Amount: $464,891

Project Title: Clinical Impact of BioFire BCID2 FilmArray on Early Identification of Positive Blood Cultures Coupled with Antimicrobial Stewardship in Pediatric Patients in Guatemala
Timeline (Period): 12/14/2021-12/13/2024
Location: Guatemala
Funder: Biofire Diagnostics, LLC.
Faculty Lead: Dr. Sam Dominguez
Funding Amount: $76,461

Project Title: Caregivers in Carolina
Timeline (Period): 05/01/2022-03/31/2023
Funder: University of North Carolina-Chapel Hill
Faculty Lead: Dr. Molly Lamb
Funding Amount: $9,354

Project Title: Community-Based Natural History and Household Transmission of SARS-CoV-2 in Rural Guatemala
Timeline (Period): 11/02/2021-09/29/2022
Location: Guatemala
Funder: Center for Disease Control
Faculty Lead: Dr. Daniel Olson
Funding Amount: $127,030

Project Title: Community-Based Natural History and Household Transmission of SARS-CoV-2 in Rural Guatemala
Timeline (Period): 11/02/2021-09/29/2022
Location: Guatemala
Funder: Center for Disease Control
Faculty Lead: Dr. Daniel Olson
Funding Amount: $180,704

Project Title: Measuring the Clinical and Economic Impact of Influenza in Guatemalan Agricultural Workers: a Case Study for Point-of-Care Testing in Remote, Resource-Limited Settings/LIAT-IIS-010_ Guatemala
Timeline (Period): 02/21/2020-02/20/2025
Location: Guatemala
Funder: Roche Molecular
Faculty Lead: Dr. Daniel Olson
Funding Amount: $37,913

Project Title: Burden of Lower Respiratory Tract Infection (LRI) caused by Respiratory Syncytial Virus (RSV) in infants in India: A Multicenter population based study.
Timeline (Period): 11/13/2015-10/31/2022
Location: India
Funder: Bill & Melinda Gates Foundation
Faculty Lead: Dr. Eric Simoes
Funding Amount: $20,975

Project Title: Urine Antigen Detection assay for pneumonia in Guatemalan children
Timeline (Period): 06/28/2018-12/31/2022
Locations: Guatemala
Funder: PFIZER
Faculty Lead: Dr. Edwin Asturias
Funding Amount: $1,167,049

Project Title: Epidemological surveillance of Respiratory Diseases (AGRI-CASA_ CARES)
Timeline (Period): 07/01/2021-09/31/2023
Location: Guatemala
Funder: Center for Disease Control
Faculty Lead: Dr. Daniel Olson
Funding Amount: $676,703

Project Title: Epidemological surveillance of Respiratory Diseases (AGRI-CASA_ARP)
Timeline (Period): 10/01/2022-09/30/2023
Location: Guatemala
Funder: Center for Disease Control
Faculty Lead: Dr. Daniel Olson
Funding Amount: $113, 885

Project Title: Expand Epidemiological surveillance of respiratory diseases (AGRI-CASA Expansion)/UVG
Timeline (Period): 09/30/2022-09/29/2023
Location: Guatemala
Funder: Center for Disease Control
Faculty Lead: Dr. Daniel Olson
Funding Amount: $148,717

Project Title: Real-Time sequencing of SARS-COV 2 and influenza virus in rural Guatemala
Timeline (Period): 10/01/2022-09/31/2023
Funder: Center for Disease Control
Faculty Lead: Dr. Daniel Olson
Funding Amount: $161,273
Project Title: Burden and transmission dynamics of SARS-COV-2 and influenza virus in migrant shelters along the Guatemala-Mexico boarder (AGRICASA_ Border)
Timeline (Period): 10/01/2022-09/30/2023
Funder: Center for Disease Control
Faculty Lead: Dr. Daniel Olson
Funding Amount: $88,108

Project Title: Adolescent Health in Rural Guatemala: Reproductive Health Education, Clinical Services, and Long-Acting Reversible Contraception (LARC)
Timeline (Period): 01/01/2020-12/31/2022
Funder: The Summit Foundation
Faculty Lead: Dr. Edwin Asturias
Funding Amount: $50,000

Project Title: Reconciliation of Cohort data in Infectious Diseases (ReCODID)
Timeline (Period): 07/01/2020-12/31/2022
Funder: European Commission
Faculty Lead: Dr. Thomas Jaenisch
Funding Amount: $757,269

Project Title: Expanding Xenosurveillance Capabilities in Central America
Timeline (Period): 07/11/2020-05/31/2023
Funder: Colorado State University
Faculty Lead: Dr. Daniel Olson
Funding Amount: $150,545

Project Title: Asymptomatic and Pre-symptomatic trans- mission of SARS- CoV-2 in a community congregant setting
Timeline (Period): 09/30/2019-12/31/2022
Funder: World Health Organization
Faculty Lead: Dr. May Chu
Funding Amount: $494,498

Project Title: WHO DeMaND2 Package of PPE Related Studies to Improve IPC Practice and Saefety
Timeline (Period): 11/23/2020-12/31/2022
Funder: World Health Organization
Faculty Lead: Dr. May Chu
Funding Amount: $814,882

Project Title: Clinical and economic impact of respiratory infections in a cohort Guatemalan agricultural workers, and the natural history and protection of the SARS-CoV-2 and seasonal coronavirus antibody response
Timeline (Period): 10/30/2020-10/29/2024
Funder: Roche Diagnostics
Faculty Lead: Dr. Daniel Olson
Funding Amount: $461,227

Project Title: Pahway to Scale for Zika Diagnostic Tests
Timeline (Period): 07/01/2020-12/31/2022
Funder: UNICEF
Faculty Lead: Dr.May Chu
Funding Amount: $696,308

Project Title: COVID-19 Health Care Worker Study in AMC hospitals"
Project goals: to evaluate SARS-CoV-2 seroprevalence and seroconversion rates in health care workers, stratified by risk category and investigate clinical phenotype by age and comorbidity status
Timeline (Period): 10/02/2020-03/31/2023
Funder: CDPHE
Faculty Lead: Drs. Thomas Jaenisch & Steve Berman
Funding Amount: $125,000
*Grant Funded through the Department of Epidemiology, Colorado School of Public Health

Project Title: An Adaptive Strategy for Preventing and Treating Lapses of Retention in HIV Care for Adolescents (A4A)
Timeline (Period): 07/01/2019- 06.30/2024
Location: Kenya
Funder: NINR
Faculty Lead: Drs. Abuogi & Geng
Funding Amount: $2,920,862
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: HIV/STI Colorado HIV/AIDS Prevention Program
Timeline (Period): 07/01/2022-06/30/2023
Funder: CDPHE
Faculty Lead: Dr. Lisa Abuogi
Funding Amount: $292,091 annual
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: Colorado Department of Public Health and the Environment Community Mobilization for HIV/STI/VH
Timeline (Period): 06/01/2022-12/31/2022
Funder: CDPHE and Environment/CDC
Faculty Lead: Dr. Lisa Abuogi
Funding Amount: $292,091annual
*Grant Funded through the Department of Pediatrics, School of Medicine

CENTER FOR GLOBAL HEALTH
CURRENT GRANTS CONTINUES

2022 Grant at the Center for Global Health and in Colloration with other Department /Centers at the University of Colorado Anschutz Medical campus

Project Title: Hepatitis C (HCV)
Timeline (Period): 08/01/2022-06/30/2023
Funder: CDPHE
Faculty Lead: Dr. Lisa Abuogi
Funding Amount: $48,000
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: Maternal and Child Health Bureau Ryan White Part D HIV Program for Children, Youth, Women and Families
Timeline (Period): 04/01/2021-03/31/2023
Funder: DHHS/HRSA
Faculty Lead: Drs. Abuogi & Levin
Funding Amount: $862,571
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: Health Outcomes around Pregnancy and Exposure to HIV/ARV (HOPE): Extending the Reach of PHACS to Examine Women's Health
Timeline (Period): 07/01/2021-02/28/2023
Funder: NIH pte Harvard and Fellows of Harvard College
Faculty Lead: Drs. Abuogi & McFarland
Funding Amount: $862,571
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: Natural history of SARS-CoV-2 Spike and Nucleocapsid IgG response to natural infection and vaccination in a longitudinal cohort of Guatemalan farm workers.
Timeline (Period): 2020- 2025
Location: Guatemala
Funder: Roche Diagnostics
Faculty Lead: Dr. Daniel Olson
Funding Amount: $0

Project Title: Zika virus and other tropical pathogens in Latin America (BioFire Study)
Timeline (Period): 2023-2028
Funder: NAMRU6
Faculty Lead: Dr. Daniel Olson
Funding Amount: $0

Project Title: AGRI STUDY
Timeline (Period): 2020-2028
Funder: NIH-K23
Faculty Lead: Dr. Daniel Olson
Funding Amount: $164,781
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: AGRI STUDY (COVID-19 Supplement)
Timeline (Period): 2020-2023
Location: Guatemala
Funder: NIH-K23 SUPPLEMENT
Faculty Lead: Dr. Daniel Olson
Funding Amount: $131,744
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: Global Initative for Childhood Cancer & Implementation Projects
Timeline (Period): 11/01/2017-07/31/2025
Funder: St.Jude Global, St. Jude Children's Clinicl Research Hospital, Memphis TN
Faculty Lead: Dr. Sandra Luna-Fineman
Funding Amount: $42,000
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: WHO Global Initiative for Childhood Cancer & Policy practice building
Timeline (Period): 10/05/2021-10/04/2022
Funder: WHO HQ, NCD, Cancer Group
Faculty Lead: Dr. Sandra Luna-Fineman
Funding Amount: $ 22,080
*Grant Funded through the Department of Pediatrics, School of Medicine

Project Title: Research Into Visual Endpoints and RB Health Outcomes After Treatment: The RIVERBOAT Consortium
Timeline (Period): 08/01/2022-07/31/2023
Funder: NCI
Faculty Lead: Drs. Luna-Fineman & Friedman, Vanderbilt
Funding Amount: $68,00
*Grant Funded through the Department of Pediatrics, School of Medicine

TOTAL OF CURRENT GRANTS FUNDED THROUGH THE CENTER FOR GLOBAL HEALTH:

$7,234,752

TOTAL OF CURRENT GRANTS FUNDED THROUGH OTHER DEPARTMENTS/CENTER ACROSS CU IN COLLABORATION WITH CGH CORE FACULTY MEMBERS:

$5,831,791

CENTER FOR GLOBAL HEALTH **MEMORANDUM OF UNDERSTANDING (MOU) AGREEMENTS**

China

Beijing- Capital Institute of Pediatrics
MOU signed 11/1/2017 through 11/1/2022
Field Test of Niños Sanos/Healthy Children Guatemalan Program in rural China

Ethiopia

Tepi- Mizan Tepi University Teaching Hospital, Villiage Health Partnership
MOU signed 06/06/2019 through 06/06/2024
Research on pregnancy and childbirth outcomes

Germany

Freiburg im Breisgau- University of Freiburg
MOU signed 02/02/2017 through 02/01/2022
Research and Testing: Sample Testing on Efficancy of Eplipsy Treatment

Guatemala

Guatemala City- Relaões Foundation
To include General MOU Framework, Addendum A (Center for Human Development Clinic), Addendum B (Pharmacy Clinical Training), and Addendum C (Dental Medicine Clinical Training).

Humana Center of Epilepsy and Functional Neurosurgery and Children's Hospital Colorado
MOU signed 02/02/2018 through 02/01/2023
General MOU Framework (Training & Education)

Guatemela City- Pantaleon Group and Center for Health, Work, and Environment (CHWE)
MOU signed 08/03/2016 through 07/25/2022
Trainee Exchange Program

Guatemala City- Universidad del Valle de Guatemala and Children's Hospital
(Dental Licensure)

Guatemala City- Universidad Rafael Landivar
MOU signed 05/05/2018 through 05/05/2023
General MOU Framework in Research in Global and Population Health (Educational and Training Programs)

India

Amaravati- Meditation, De-addiction, Health, AIDS, Nurtition Trust
MOU signed 02/01/2018 through 02/01/2023
General MOU Framework in Research for Manuscript Publication and Presentation

Vellore- Christian Medical College Hospital Vellore India and International Asthma Services
MOU signed 02/23/2021 through 02/23/2026
General MOU Framework in Research in

CENTER FOR GLOBAL HEALTH
MEMORANDUM OF UNDERSTANDING (MOU) AGREEMENTS

04/20/2024
General MOU Framework in Faculty and Scholar Exchange
Banda Aceh- Syiah Kuala University
MOU signed 04/25/2019 through 04/25/2024
General MOU Framework in Faculty and Scholar Exchange

West Nusa Tenggara- University of Mataram
MOU signed 04/25/2019 through 04/25/2024
General MOU Framework in Faculty and Scholar Exchange

Kenya
Nairobi- University of Nairobi and Children's Hospital Colorado
MOU signed 11/18/2018 through 11/18/2013
General MOU Framework in Research and Programs in Otitis Media

Mexico
Secretariat of Health and Children's Hospital Colorado
MOU signed 12/01/2017 through 12/01/2022
General MOU Framework in Research into Maternal and Child Health and Family

Peru
Lima- Universidad Peruana Cayetano Heredia and Children's Hospital Colorado
MOU signed 10/03/2018 through 10/03/2023
General MOU Framework in Research and Programs in Maternal Health and Disasters Preparedness

Sengal
Dakar- Albert Royer National Children's Hospital and Children's Hospital Colorado
MOU signed PENDING
General MOU Framework in Partnership to support the CHNEAR in improving care of sick children and adolescents in Ophthalmology

Thailand
Salaya- Mahidol University
MOU signed 01/15/2021 through 01/15/2026
General MOU Framework in Visits and Informal exchanges of Faculty, Scholars, and Administrators in specific areas of education, research, and outreach

Vietnam
Pasteur Institute of Ho Chi Minh City (PIHCMC)
MOU
General MOU Framework in

CENTER FOR GLOBAL HEALTH
PUBLICATIONS
JULY 2021- JUNE 2022

PUBLICATIONS

The Center for Global Health faculty members has made major contributions to the field as evidenced by an impressive list of 267 publications between July 2021 through June 2022. The number of publications are shown here according to their categories:

Childhood Development (7)
Adolescent, School, and Mental Health (7)
Advocacy & Equity (2)
Refugee Health (3)
Vaccine Research & Policy (2)
COVID-19 (45)
Oncology (5)
HIV (21)
Influenza (3)
Infections: Diagnostics and antimicrobial resistance (8)
RSV (16)
Arbovirus (15)
Other Infectious Diseases (9)
Oncology (11)
Neonatal Care (12)
Maternal & Reproductive Health (31)
Emergency Medicine (23)
E-Health (16)
Worker Health/Chronic Kidney Disease- Center for Health, Work, & Environment (17)
Global Health Education (1)
Epidemiology (3)
Ophthalmology (13)
Other (3)

A full list of the publications is available HERE.

CENTER FOR GLOBAL HEALTH
STAFF MEMBERS

STAFF MEMBERS

MARY MOUA
Center Administrator

ALEXA COLLESIDES
Education Coordinator

OLIVIA PLUSS
Professional Research Asst.

ROBERT (JOE) LADMIRAULT
Post-Award Grant Manager

CENTER ASSISTANT
Recruiting Positon

TO BE FILLED

WILLIAM (JON) WINDSOR
Professional Research Asst.

CENTER FOR GLOBAL HEALTH **FACULTY MEMBERS**

Abdel-Maksoud, Madiha, MD, PhD, MSPH, Clinical Assistant Professor of Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado

Abuogi, Lisa, MD, MSc, Assistant Professor of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado

Andrus, Jon, MD, Adjunct Professor of Family Medicine and Pediatrics, Section of Pediatric Infectious Diseases, School of Medicine and Adjunct Professor of Epidemiology at the Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Asturias, Edwin, MD, Professor of Pediatrics, Section of Pediatric Infectious Disease, School of Medicine and Epidemiology at the Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado

Berman, Stephan, MD, FAAP, Professor of Pediatrics, School of Medicine and Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus; Director, Center for Global Health, Children's Hospital Colorado

Bills, Corey, Assistant Professor of Emergency Medicine, Global Emergency Care Initiative, School of Medicine, University of Colorado Anschutz Medical Campus

Boat-Landry, Jessica, MD, Instructor of Pediatric Hospital Medicine, Associate Director of Education, Section of Pediatric Hospital Medicine, Department of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado

Bolanos, Antonio, MD, Clinical Faculty in Guatemala, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Bogart, Amanda, MD, Assistant Professor, Children's Hospital Colorado, Section of Adolescent Medicine in Department of Pediatrics, University of Colorado Anschutz Medical Campus, Center for Global Health

Bull, Sheana. PhD, MPH, Professor of Community and Behavioral Health, University of Colorado Anschutz Medical Campus, Colorado School of Public Health, Center for Global Health

Bunge-Montes, Saskia, MD, MPH, Clinical Faculty in Guatemala, Colorado School of Public Health

Calvimontes, Mirella, MD, Clinical Faculty in Guatemala, Colorado School of Public Health

Campbell, Thomas, MD, Professor of Infectious Diseases, School of Medicine, Departments of Internal Medicine, Division of Infectious Disease and Microbiology at the School of Medicine, University of Colorado Anschutz Medical Campus

Calvello-Hynes, Emilie, MD, MPH, Associate Professor of Emergency Medicine, Lead of Global Emergency Care Initiative, School of Medicine, University of Colorado Anschutz Medical Campus

Clarke, Susan B., MS, BSN, NPD-BC, RNC-NIC, CNS, Master Trainer, Helping Babies Survive and Bleeding After Birth Complete, Center for Global Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Cherewick, Megan, PhD, Assistant Professor, Colorado School of Public Health, Department of Community and Behavioral Health, University of Colorado Anschutz Medical Campus

Chu, May, PhD, Clinical Professor, Colorado School of Public Health, Department of Epidemiology, University of Colorado Anschutz Medical Campus

Connery, Amy, PsyD, Assistant Professor, Physical Medicine and Rehabilitation, Children's Hospital Colorado, University of Colorado Anschutz Medical Campus, Center for Global Health

Cunningham, Maureen, MD, MPH, Assistant Professor of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado

Delgado-Zapata, Roberto, MD, MPH, Clinical Instructor of Community and Behavioral Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Dixon, Julia, MD, MPH, Assistant Professor of Emergency Medicine, School of Medicine, University of Colorado Anschutz Medical Campus

Domek, Gretchen, MD, MPhil, Assistant Professor of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado

Hampanda, Karen, PhD, MPH, Assistant Professor of the Division of Academic Specialist in Obstetrics and Gynecology, School of Medicine, Senior Investigator, Center for Global Health, Colorado School

of Public Health, University of Colorado Anschutz Medical Campus

Harrison, Margo, MD, MPH, Assistant Professor of Obstetrics and Gynecology, School of Medicine, University of Colorado Anschutz Medical Campus

Heinrichs, Gretchen, MD, DTMH, Associate Professor of Obstetrics and Gynecology, School of Medicine, University of Colorado Anschutz Medical Campus and Professor of Obstetrics and Gynecology at Denver Health

Ifantides, Cristos, MD, MBA, Assistant Professor of Ophthalmology, Director of Ophthalmic Global Outreach, School of Medicine, University of Colorado Anschutz Medical Campus

Jimenez-Zambrano, Andrea PhD. Instructor Section of Academic General Pediatrics, Department of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus

Jaenisch, Melisa MPH , Instructor, Department of Community and Behavioral Health, Colorado School of Public Health,

Jaenisch, Thomas, MD, PhD, Associate Professor and Director of Colorado Consortium, Department of Epidemiology, Department of Pediatrics, Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado

Lamb, Molly, PhD, Assistant Professor, Department of Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Luna-Asturias, Claudia, LGSW, Adjunct Faculty in the Physician Assistant Program and Clinical Instructor in the Department of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus

Luna-Fineman, Sandra, MD, Associate Professor of Pediatrics, Division of Pediatric Hematology/Oncology/SCT, School of Medicine, University of Colorado Anschutz Medical Campus, Children's Hospital Colorado, St. Jude Global, St. Jude Children's Research

Matergia, Michael, MD, Clinical Instructor of Family Medicine, School of Medicine at the University of Colorado Anschutz Medical Campus

May Moser, Leana, DO, MPH, Assistant Professor of Pediatrics, Section of Pediatric Emergency Medicine, School of Medicine at the University of Colorado Anschutz Medical Campus, Director Pediatric Global Health Track Residency.

Melgar, Mario, MD, Head of Pediatric Infectious Diseases Unit, Department of Pediatrics, Hospital Roosevelt, Guatemala
Montague, Brian, DO, Associate Professor of Infectious Disease, School of Medicine, University of Colorado Anschutz Medical Campus

Mould-Millman, Nee-Kofi, MD, Associate Professor of Emergency Medicine, Research Director of Global Emergency Care Initiative, School of Medicine, University of Colorado Anschutz Medical Campus

Nacht, Amy, DNP, CNM, MPH, FACNM, Assistant Professor, Division of Academic Specialists in Obstetrics and Gynecology, School of Medicine. Director Interprofessional Programs College of Nursing, University of Colorado Anschutz Medical Campus

Newman, Lee, MD, MA, FCCP, FACOEM, Professor of Environmental and Occupational Health and Epidemiology, Director of the Center for Health, Work, and Environment, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Niermeyer, Susan, MD, MPH, FAAP, Professor of Pediatrics, Section of Neonatology, School of Medicine, Children's Hospital Colorado, University of Colorado Anschutz Medical Campus

Olson, Daniel, MD, Assistant Professor of Pediatrics, Section of Pediatric Infectious Disease, School of Medicine and Assistant Professor, Department of Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus.

Prag, Pamela, CNM, MS, MPH, Certified Nurse Midwife, College of Nursing, Global Health Program Director, University of Colorado Anschutz Medical Campus

Pudupakkam, Vedanthan, MD, Clinical Professor of Medicine, Division of Allergy, Asthma, and Immunology, School of Medicine, University of Colorado Anschutz Medical Campus

Simoes, Eric, MBBS, DCH, MD, Professor of Pediatrics, Section of Pediatric Infectious Disease, School of Medicine and Professor of Epidemiology at the Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Umphrey, Lisa MD, Assistant Professor of Pediatrics, Section of Hospital Medicine, School of Medicine, University of Colorado Anschutz Medical Campus

Wathen, Joseph, MD, Associate Professor of Pediatrics, School of Medicine, Department of Emergency Medicine, Children's Hospital Colorado, University of Anschutz Medical Campus

Wilson, Calvin, MD, Emeritus, School of Medicine, University of Colorado Anschutz Medical Campus

Roell, Yannik, PhD, Research Associate, Colorado School of Public Health, Center for Global Health, University of Colorado Anschutz Medical Campus

Young, Janine, MD, FAAP, Associate Professor of Pediatrics, Section of Academic General Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus, Denver Health and Hospitals

CENTER FOR GLOBAL HEALTH **EXECUTIVE COMMITTEE MEMBERS**

Adams, Jimi, PhD, MA, Associate Professor of Health and Behavioral Science and Director, Undergraduate Program in Public Health, University of Colorado, Denver Campus

Berman, Steve, MD, FAAP, Professor of Pediatrics, School of Medicine and Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus; Director, Center for Global Health

Calvello-Hynes, Emilie, MD, MPH, Associate Professor of Emergency Medicine, Lead of Global Emergency Care Initiative, School of Medicine, University of Colorado Anschutz Medical Campus

Campbell, Thomas, MD, Professor of Infectious Diseases, School of Medicine, Departments of Internal Medicine, Division of Infectious Disease and Microbiology at the School of Medicine, University of Colorado Anschutz Medical Campus

Chopra, Vineet, MD, Professor and Chair, Department of Medicine, School of Medicine, University of Colorado Anschutz Medical Campus

Daniels, Stephen, MD, PhD, Professor and Chair, Department of Pediatrics at the University of Colorado School of Medicine, Anschutz Medical Campus and Pediatrician-in-Chief L Joseph Butterfield Chair in Pediatrics at Children's Hospital Colorado

DeGruy, Frank, MD, MSFM, Woodward-Chisholm Professor and Chair, Department of Family Medicine at the University of Colorado School of Medicine, Anschutz Medical Campus

Gifford, Blair, PhD, Professor of International Health Management in the Business School, University of Colorado Denver and the Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Hausmann, Jena, MHA, President and Chief Operating Officer, Children's Hospital Colorado

Holguin, Fernando, MD, Director, Asthma Program at the Center for Lungs and Breathing and Executive Director, Latino Research and Policy Center at the Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Jones, Alana, Director, Office of International Affairs, University of Colorado Denver and Anschutz Medical Campus

Malhotra, Jodie, PharmD, International Affairs Coordinator and Assistant Professor at the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences, Anschutz Medical Campus

Mould-Millman, Nee-Kofi, MD, Assistant Professor of Emergency Medicine, School of Medicine, University of Colorado Anschutz Medical Campus

Muramoto, Myra, MD, MPH, FAAFP, Woodward-Chisholm Visiting Professor and Chair, Department of Medicine, University of Colorado Anschutz Medical Campus

Newman, Lee, MD, MA, FCCP, FACOEM, Professor of Environmental and Occupational Health and Epidemiology, Director of the Center for Health, Work, and Environment, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Prag, Pam, CNM, MS, MPH, Certified Nurse Midwife, College of Nursing, Global Health Program Director, University of Colorado Anschutz Medical Campus

Reilly, John, MD, Dean of the University of Colorado School of Medicine and the University's Vice Chancellor for Health Affairs, Anschutz Medical Campus

Samet, Jon, MD, Dean and Professor of Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Simoes, Eric, MBBS, DCH, MD, Professor of Pediatrics, Section of Pediatric Infectious Disease, School of Medicine and Professor of Epidemiology at the Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Wynia, Matthew, MD, MPH, FACP, Director, Center for Bioethics and Humanities, University of Colorado, Anschutz Medical Campus.

Yeatman, Sara, PhD, Associate Professor, Department of Health & Behavioral Sciences, University of Colorado, Denver Campus.

CENTER FOR GLOBAL HEALTH
RESIDENTS, FELLOWS, STUDENTS, & SCHOLARSHIP AWARDEES

List of residents graduating in 2022:
Brooke Mueller, MD
Leah Williams, MD
John Guerrieri, MD
Margit Mikkelsen, MD
Miriam Ben Abdallah, MD
Brianna Morgan, MD
Amy Chambliss, MD

Graduating in 2023:
Isabel Hardee
Nathan Howell
Kathryn Kalata
Celia Lenarz-Gerisen
Faith O'Brian
Chloe Stiggelbout
Maggie Tashjian
Mollie Lesser

Graduating in 2024:
Lucas Morgan
Carly Muller
Sheridan Schulte
Valerie Teano

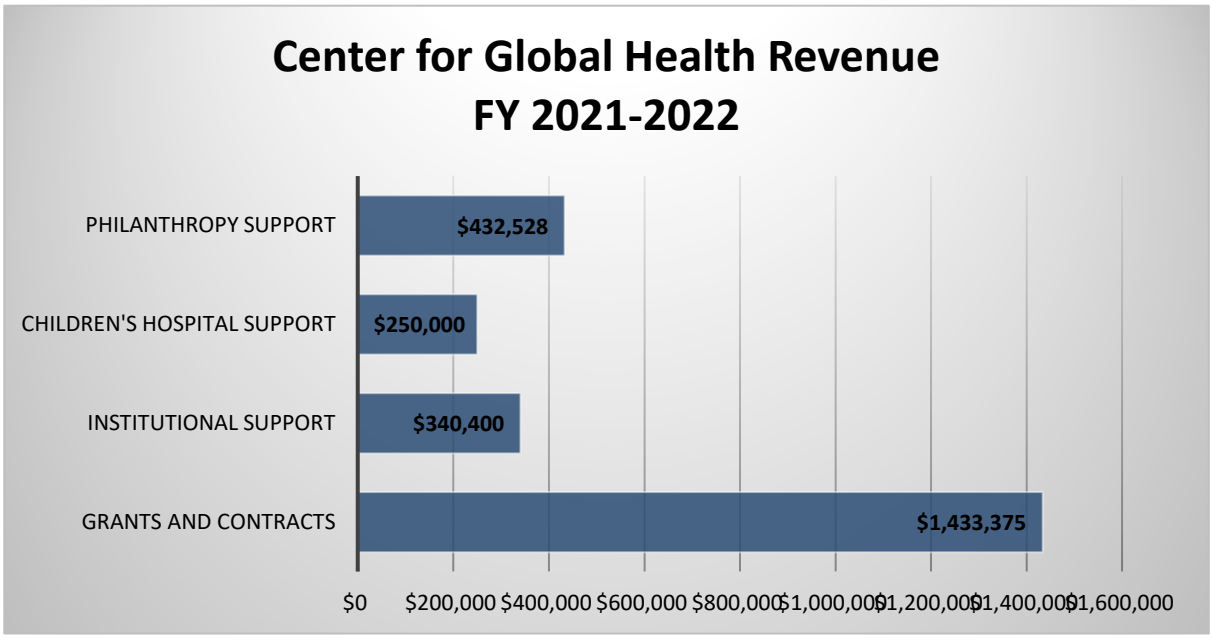
Graduating in 2025:
Alice Burgess
Sandra Zoubovsky
Scott Stuart
Hanna Ravi

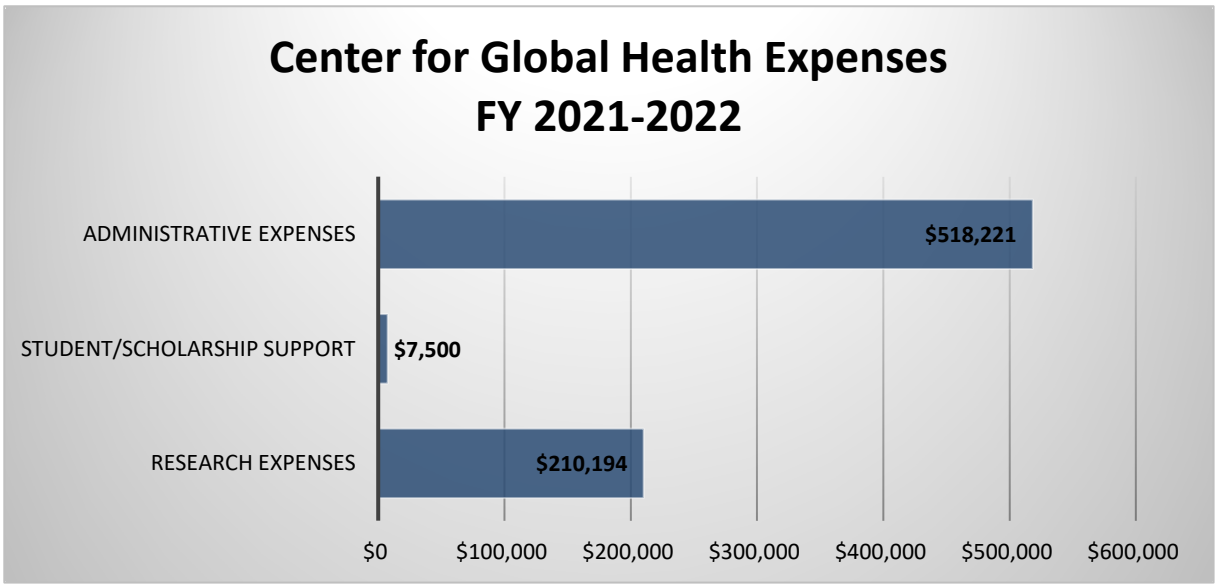
2022-2023 Fellows:
Nguyen-Tran, Hai, MD
Nishihara, Yo, MD
Doran, Jennifer, MD
Bevilacqua, Mary, PhD Candidate

Student Employees:
Fineman, Melissa
Cassaday, Mattie
Connor, Stephens
Steinberg, Zoe

Scholarship Awardees 2022:
Clair, Victoria- Denver Rotary Club
Inhoff, Ataleigh- Calvin Wilson
Jacobson, Claire- Aurora Fitzsimons Rotary Club
Santiago, Alessandra- Southwest Rotary Club
Van Hook, Reed- Global Chest Initative

CENTER FOR GLOBAL HEALTH
FINANCIALS FOR FISCAL YEAR 2021-2022





CENTER FOR GLOBAL HEALTH
SUPPORTERS & PARTNERS

SUPPORTERS

CHANCELLOR FOR THE UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS
UNIVERSITY OF COLORADO OFFICE OF THE PROVOST
ACADEMIC AND STUDENT AFFAIRS
COLORADO SCHOOLOF PUBLIC HEALTH
SCHOOL OF MEDICINE
SKAGGS SCHOOL FO PHARMACY AND PHARMACEUTICAL SCIENCES
COLLEGE OF NURSING
SCHOOL OF DENTAL MEDICINE
CHILDREN'S HOSPITAL COLORADO
SOUTHWEST ROTARY CLUB
DENVER ROTARY CLUB
AURORA FITZSIMONS ROTARY CLUB
GLOBAL CHEST INITIATIVE GROUP
PETER DURST
DR. CALVIN WILSON

PARTNERS

DEPARTMENT OF PEDIATRICS
SCHOOL OF MEDICINE
COLLEGE OF NURSING
WORLD HEALTH ORGANIZATION (WHO)
PAN AMERICAN HEALTH ORGANIZATION (PAHO)
CENTER FOR HEALTH, WORK, & ENVIRONMENT AT THE COLORADO SCHOOL OF PUBLIC HEALTH
COLORADO STATE UNIVERSITY
DENVER HEALTH
NATIONAL JEWISH HEALTH
COLORADO SCHOOL OF PUBLIC HEALTH

THANK YOU TO EVERYONE WHO PROVIDED PHOTOTS FOR THIS YEAR'S ANNUAL REPORT!

THANK YOU FOR YOUR ONGOING SUPPORT!

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