Dear members of the UCSF Preterm Birth Initiative Strategic Advisory Board:  

I look forward to seeing continuing members and welcoming new members at the third annual meeting of the UCSF Preterm Birth Initiative (PTBi) Strategic Advisory Board. We are grateful that you are able to join us in person for this special two-day meeting, which begins on Wednesday, May 8, at 1:30 p.m. and concludes on Thursday, May 9, at noon.

This year’s Strategic Advisory Board meeting will feature some early results of our work to date and an opportunity to reflect on lessons learned, share insights and discuss our thoughts on priorities for the next phase of the work. The meeting is designed to be both informative and interactive, with time for your input and feedback that will help guide the direction of this work.

Prior to our meeting, we hope you will review the enclosed Program Update and minutes from last year’s Strategic Advisory Board meeting. We will provide you with print copies at the meeting.

Again, I look forward to welcoming you on May 8 and 9. Thank you for your ongoing commitment to UCSF and PTBi.

Best wishes,

Sam Hawgood, MBBS  
Chancellor  
Arthur and Toni Rembe Rock Distinguished Professor  
Sam.Hawgood@ucsf.edu  
www.ucsf.edu

May 8, 2019

The work of the UCSF Preterm Birth Initiative is made possible by the visionary partnership and generosity of our funders Marc and Lynne Benioff and the Bill & Melinda Gates Foundation.
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Globally, preterm birth is the leading cause of death in children under 5. In California, we continue to see stark racial disparities in preterm birth rates and clinical outcomes, particularly among Blacks/African Americans. Interpersonal and structural racism undermine quality, respectful care and drive social/economic inequalities that lead to chronic stress and increased physiologic risk. Systems of care and support across the reproductive life course are fragmented and unresponsive.

California Approach
- Embrace community partnership to drive innovation and ownership
- Conduct holistic cell-to-society discovery research to deepen our understanding of modifiable risk and protective factors
- Reimagine and evaluate models of care and support that foster resilience
- Catalyze cross-sector coalitions to mobilize communities and drive policy and systems change

East Africa Approach
- Partner with local researchers to identify context-specific drivers and solutions while increasing system capacity
- Build on local capacity to identify and care for those vulnerable newborns
- Focus on data and information systems, so all babies are counted and policy makers can understand the extent of the problem
- Through these actions, work to improve quality of care for all mothers and babies

The UCSF Preterm Birth Initiative: a transdisciplinary, place-based research program tackling the global epidemic of prematurity

- In East Africa, the high burden of neonatal mortality especially impacts those born small and preterm. Health system limitations, including both poor quality of care and gaps in data and information systems make prematurity an invisible problem.

- In California, we continue to see stark racial disparities in preterm birth rates and clinical outcomes, particularly among Blacks/African Americans.

- Globally, preterm birth is the leading cause of death in children under 5. 15 million preterm births each year, 1 million deaths, 14 million survivors who are at risk for lifetime disability and chronic health issues that threaten human potential.

- Through these actions, work to improve quality of care for all mothers and babies.
Introduction

UCSF Preterm Birth Initiative Program Update 2018 – 2019

Preterm Birth
Solutions for
Fosters Precision

Each year and that preterm birth remains the largest
killer of children under five. We knew that infants who
survive are at increased risk for a lifetime of health
challenges, which leave families and communities
wrestling with ongoing health, social and financial
borders that prevent a society from reaching its
full human potential. We knew that in the United
States, prevalence and outcomes for mothers and
children are often considerably worse in low-resource
communities and among people of color – and that
relatively powerless communities in East Africa have
worse outcomes than communities in other parts of
the world.

We needed to know why – and that meant
understanding the drivers of preterm birth in each
individual community so that we could deliver solutions
that had a real chance of stemming the tide. The
size-fits-all model of research was never going to
work on the problem of preterm birth; the drivers and
challenges differ too dramatically from place to place.
Understanding local context is crucial, and we have
relentlessly sought to better understand the unique
drivers in and needs of each affected community.

Yet none of this progress would have been possible
without our tireless efforts to dig beneath what the
world already knew about preterm birth. We knew
that more than 15 million children are born prematurely
each year and that preterm birth remains the largest

Place-Based Approach
Fosters Precision
Solutions for
Preterm Birth

The UCSF Preterm Birth Initiative (PTBi) has developed
a diverse and unprecedented global community that
is making headway against the devastating epidemic
of preterm birth. Our community brings together
researchers, clinicians, parents and policymakers from
six regions of the world – three in East Africa and three
in California. These individuals and organizations are
the engine for a global research and implementation
platform that enables us to identify, localize and
propagate the most promising strategies for reducing
rates of preterm birth and improving outcomes when
it does occur.

This is precision population health at its best, and the
past few years offer evidence that this approach has
begun to generate tangible progress. Communities
in our target areas and target populations have
recognized the depth and breadth of the challenge and
are energized to expand this vitally important work.
In some regions, rates of preterm birth are already
beginning to decline and outcomes are improving.
The details of this progress make up the remainder
of this report.

Identifying Primary Drivers
and Immediate Needs

In Kenya, Uganda and Rwanda, where outcomes
for both mothers and preterm babies are worse than
in other parts of the world, our work with in-country
partners and stakeholders made clear that spotty
birth data and poor quality of care were the most
pressing concerns. Gestational age measurement,
the most critical element in accurately understanding
preterm birth rates was extremely unreliable. Health
care facilities undervalued their maternity registers,
leading to inconsistent data for both maternal and
newborn outcomes. Many hospitals did not regularly
record infant birth weight. Clinicians did not have the
tools, knowledge or confidence they need to care for
a mother in preterm labor or for a small infant needing
extra care at birth.

Our top priorities became clear: (1) believing in
maternity registers by creating high-quality data
systems to track progress and facilitate delivery of
the right services to the right people at the right time
and (2) moving aggressively to introduce a package
of interventions to improve quality of care during the
antenatal, intrapartum and immediate postnatal
periods. Process indicators demonstrate that we have
made inroads, positioning us to scale our progress and
focus more of our work on prevention.

Understanding local context in California moved us in
a different direction. When innovative epidemiological
research revealed extraordinary disparities by both
race and zip code, it became clear that the first step
was erasing the disparities. It is unconscionable that
the rate of preterm birth among Black women is 47
percent higher than the rate among all other women;
that a woman living in San Francisco’s Bayview-
Hunters Point neighborhood is nearly three times more
likely to have a preterm birth than a woman living in the
much wealthier Presidio; that more than 40 percent of
Fresno’s preterm births occur in about a 2-by-5-mile
historically poor sector of the city.

Extensive discussions and partnering with women
of color deepened our understanding of how their
experiences with persistent interpersonal and
structural racism have led to the chronic toxic stress
that is not only a known risk factor but also a precursor
to other high-risk conditions for preterm birth. It is an
inescapable conclusion, therefore, that racism and
related social determinants are the most important
drivers of this epidemic in California. In response, we
have made health and racial equity the touchstone,
frame and lens for all of the prevention and treatment
initiatives we develop, for and tailor to our partner
communities in California. Here too, signs of progress
are emerging, including declining preterm birth rates
in Fresno and policy changes in San Francisco that
address the needs of that city’s most affected
communities.

Finally, an Inflection Point

The PTBi’s growing global community has helped
the world to focus on this epidemic, bringing us to
a genuine inflection point. We believe we are poised
to substantially reduce the number of preterm births
and improve outcomes for both mothers and children.

It’s a gratifying validation of our approach: respectfully
collaborate with and connect affected communities
to shape our work, generate evidence and rapidly
transform it into effective and sustainable innovations.

The rest of this report tells the story of what we
achieved in the 2018-2019 academic year.
Although decreasing the burden of preterm birth in East Africa remains a complex challenge, 2018 offered evidence that the East Africa Preterm Birth Initiative’s (PTBi-EA’s) work to address the epidemic’s drivers is leading to the critical behavior change needed for real and sustained impact.

Our approach of testing facility-based quality-of-care interventions targeting the prenatal and intrapartum periods is rapidly shoring up weaknesses in both provision and experience of care, key factors in the high rates of maternal and newborn death. Tackling flawed data and information systems and inadequate tools for measuring gestational age has enabled us to better understand the scope of the problem. Counting and valuing these women and their babies has made this epidemic visible to families, communities, ministries of health, researchers and funders. Investing in a cohort of early-career East African researchers, helping them to build preterm birth expertise, test innovations and generate important new research questions has spurred growing interest in solving the problem of prematurity in East Africa, while bringing new perspectives and deeper insights. (See Figure 1).

Together these strategies are changing the culture of care across settings to address preterm birth, from health care systems and clinical facilities through individual providers and families. This culture change occurs in a complex ecosystem that will lead to improved quality of care for preterm infants and their mothers. Sustainable change is only possible in the context of an enabling environment that prioritizes and makes visible the problem of preterm birth, generates capacity necessary to address preterm birth and is capable of accurately measuring the scope and monitoring change. This is the ecosystem that will drive the discovery, development and delivery of effective tools and interventions that will reduce the burden of preterm birth in the communities where we work. This is the ecosystem we have fostered to introduce our intrapartum and group antenatal care trials.

Answers To Key Research Questions - And New Questions Emerge

Three years ago, as PTBi-EA began the work summarized above, we formed a collaborative research team with members from Kenya, Uganda and Rwanda. The goal was to develop and test sustainable tools and innovations that can decrease the burden of prematurity. Three critical questions drove that work:

- Can an intrapartum quality improvement package improve 28-day survival among small and preterm babies? (Aims 1 and 2)
- Does group antenatal care (ANC) impact gestational age at birth? (Aim 3)
- What are the drivers of prematurity and potential solutions as seen through the lens of East African investigators? (Aim 4)

To answer these core questions, we nurtured a process of iterative inquiry that we believe is essential for addressing a complex problem like preterm birth. Insights are emerging and, unsurprisingly, new questions have arisen:

- What is the prevalence of antenatal depression among a subset of Rwandan women attending antenatal care?
- Can a triage checklist and limited obstetric ultrasound improve identification of high-risk obstetric conditions, including preterm birth?
- What are the health and neurodevelopmental outcomes of low birth weight and preterm birth infants at 6, 12 and 18 months?

The answers to these critical questions further our capacity to sustainably improve the quality of care for mothers and babies. The rest of this section on PTBi-EA reviews our work during the 2018-2019 academic year, and includes preliminary data, program highlights, research insights and personal stories.
Aims 1 and 2: The Intrapartum Quality-of-Care Package Transforms Facility Care

Partners: Phelgona Otieno, KEMRI, and Peter Waiswa, Makerere University

Study Design: A cluster-randomized controlled trial among 20 of 23 public sector health facilities in the Busoga Region of Uganda (six facilities) and Migori County, Kenya (17 facilities) to evaluate the impact of a package of intrapartum quality-of-care interventions on 28-day mortality rates among babies born small and preterm.

Intervention: The intrapartum quality-of-care package (see Figure 2) includes:
- Simulation and team training in obstetric and neonatal emergency response in low-resource settings for providers by trained local mentors in collaboration with PRONTO International (www.prontointernational.org); intervention sites only.
- Quality improvement cycles, delivered through facility-based quality improvement learning collaboratives; intervention sites only.
- Modified Safe Childbirth Checklist, with a focus on preterm birth; all sites.
- Data strengthening, with a focus on maternity registers; all sites.

Sample Size Target: 3,060 babies born preterm, followed through 28 days for outcome

Sample Size Update: As of March 31, 2019, we have reached enrollment of our target sample size of 3,060, with complete follow-up data collected for just over 3,000. By April 2019, we expect to complete follow-up for our primary analysis and to have collected maternity registry data for over 96,000 individual mother-baby pairs for secondary analyses.

Figure 2. Elements of the Intrapartum Quality-of-Care Package

Population Overview
By March 2019, maternity register data were collected on 93,984 births. These data indicate that preterm birth rates and associated trends in public facility settings are similar to what is seen in many low- and middle-income countries (LMICs). The patterns reveal common challenges or trouble spots, such as high rates of stillbirths delivered by cesarean section.

Table 1. Birth Data from 23 PTBi-EA Facilities in Kenya and Uganda, 2016-2019

<table>
<thead>
<tr>
<th>DATA ELEMENT</th>
<th>Total Births</th>
<th>Preterm Births</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>N %</td>
<td>N %</td>
</tr>
<tr>
<td>Total births</td>
<td>34,664</td>
<td>93,384</td>
</tr>
<tr>
<td>Mothers less than 15 years old</td>
<td>3,772</td>
<td>10.7</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>2,776</td>
<td>8.0</td>
</tr>
<tr>
<td>Stillbirth</td>
<td>880</td>
<td>2.5</td>
</tr>
<tr>
<td>Fresh stillbirth</td>
<td>370</td>
<td>1.1</td>
</tr>
<tr>
<td>Macerated stillbirth</td>
<td>419</td>
<td>1.2</td>
</tr>
<tr>
<td>Unclassified stillbirth</td>
<td>101</td>
<td>0.3</td>
</tr>
<tr>
<td>Pre-discharge deaths</td>
<td>342</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Aim 1 and 2 Insights
- Rotation and staff changes will always impede sustained quality improvement.
- Multicomponent interventions are needed to transform the culture of care.
- The high rate of cesarean delivery for stillbirths is a red flag and a call for us to better understand the root causes.

Of the infants born in PTBi-EA facilities, 4.5 percent were stillbirths. Nearly 25 percent of all stillbirths were delivered by cesarean section. In Uganda, 26 percent of all births were delivered by cesarean section, which reflects the fact that the health facilities where we work in Uganda are higher-level facilities: all are able to perform cesarean sections, while about half of Kenyan health facilities in our study lack this capacity. In Kenya, 11 percent of infants were born to mothers under 18 years of age. Importantly, though not surprisingly, our data confirm that preterm newborns are more likely to be born to adolescent mothers, be stillborn, or die before hospital discharge.
The Intrapartum Quality-of-Care Package Improves Care

Our first priority has always been saving the lives of mothers and newborns. When work with in-country partners revealed that they had limited knowledge about how to care for preterm infants and their mothers, we prioritized tailoring and measuring the effectiveness of a package of interventions designed to increase uptake of evidence-based practices for improving intrapartum care in Kenya and Uganda. The interventions included introducing PRONTO simulation and team training for providers, creating quality improvement teams, implementing a modified version of the Safe Childbirth Checklist, and strengthening data, with a focus on maternity registers.

This work has helped us decide not only what to teach and how to teach it but also how long it should be taught in order to sustain these low-tech quality improvements. In turn, more clinicians now have the training, tools and confidence to save preterm babies and their mothers. We believe improved outcomes will follow, as do various stakeholders in both countries, many of whom are poised to scale our models as part of their health system strengthening programs (See page 24).

Improving Capacity and Quality With Provider Training and QI Cycles

Over the past year, our efforts in Kenya and Uganda focused on concluding the cluster-randomized controlled trial, rolling out intervention activities in the control sites and transitioning intervention activities to sustainable local programs. Sustainability and stakeholder engagement have been central to our efforts since project inception. To facilitate the hand-over of activities to the facility staff and local Ministry of Health (MOH) offices, we have worked with our partners to develop and implement tailored sustainability plans for each of the two settings.

With our central focus on quality of care (see Figure 2), we have seen progress in both clinical knowledge and use of evidence-based practices among facility staff. For example, using simulation and quality improvement (QI) data audits, we have found that appropriate antenatal corticosteroid (ACS) use has increased in both simulation training and actual practice. Simulation video analysis found an increase from 78 percent to 90 percent in appropriate administration of ACS (see Figure 3); in actual practice QI teams documented improvement from 10 percent to 80 percent (see Figure 4). Similarly, assessment scores of knowledge on how to care for mothers in preterm labor increased from 62 percent to 73 percent (see Figure 5).

Our analysis of provider performance during simulation assessments illustrates increases, over time, in use of evidence based practices by providers (see Figure 3).
The Intrapartum Quality-of-Care Package Improves Data

We implemented data strengthening and introduced the modified Safe Childbirth Checklist across all of our 6 study sites in Uganda and 17 in Kenya. These foundational pieces of our quality-of-care package can improve and standardize documentation and ensure that health workers have basic reminders of evidence-based practices.

Data Strengthening

At project inception, we found that lack of awareness about preterm birth, poor training, inadequate tools and weak data practices caused facility staff to inaccurately report preterm birth rates. Now, near project completion, our process monitoring data indicate that our data-strengthening activities are working. Our primary focus to date has been the creation and use of reliable and accurate maternity and newborn registers and encouraging documentation best practices in the facilities in which we work. To lock-in the progress we’ve made, we use and strengthen MOH routine information systems as our primary sources whenever possible. Maternity register completion rates for gestational age, birth weight, Apgar at one minute and birth outcome have increased since baseline. In Uganda, completion rates across all key fields have improved from 33 percent to 77 percent complete, and in Kenya rates have improved from 51 percent to 94 percent complete as of December 2018.

We also track alignment with and adherence to reporting standards in our data quality assessments (DQAs) to ensure that data reported in the national systems (on Health Management Information Systems [HMIS] Form 105 and MOH Form 711) and in the PTBi database are consistent, reliable and accurate. PTBi teams in Kenya and Uganda have performed two facility-level DQAs in all PTBi-EA sites. Results from Kenya’s DQAs indicate that the accuracy of preterm birth-related register data reported to national systems has improved over time (see Figure 6).

Figure 6. Data Quality Assessment Results in Kenya

Results from Uganda also show improvements (see Figure 7), including a decrease in over-reporting on some indicators. These DQAs allowed us to focus our data-strengthening activities. For example, we discovered that facility staff were not reporting preterm births based on gestational age less than 37 weeks, but were rather reporting only those births classified as preterm in the diagnosis fields in the register. As a result of our training of health facility staff in referencing the correct column in the maternity register for these national indicators, our facilities now report preterm birth more accurately, which will improve national data systems and resource
Facility staff members have also gained a better understanding of the rates of preterm birth in their facilities and are therefore better able to advocate for themselves when requesting additional resources, such as pediatricians and newborn units.

**Figure 7. Percentage of Key Indicators in the Maternity Register Reported to MOH, Uganda**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>DQA 1 (Oct 2016-Feb 2017)</th>
<th>DQA 2 (Dec 2017-Feb 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh stillbirth</td>
<td>100.0%</td>
<td>99.4%</td>
</tr>
<tr>
<td>Macerated stillbirth</td>
<td>87.7%</td>
<td>88.6%</td>
</tr>
<tr>
<td>Live births</td>
<td>106.2%</td>
<td>107.6%</td>
</tr>
<tr>
<td>Preterm births</td>
<td>53.5%</td>
<td>62.5%</td>
</tr>
<tr>
<td>Babies born low birthweight</td>
<td>96.5%</td>
<td>96.2%</td>
</tr>
<tr>
<td>Newborn deaths</td>
<td>116.4%</td>
<td>89.8%</td>
</tr>
</tbody>
</table>

Note: Percentages over 100% reflect over-reporting of these key indicators.

### The Modified Safe Childbirth Checklist

To increase and maintain workers’ awareness of evidence-based practices at the time of birth, we adapted the WHO Safe Childbirth Checklist and introduced it to all facilities. Monitoring health workers’ completion of our Modified Safe Childbirth Checklist (mSCC) provides some evidence of its use, which has increased over time, although health workers do not use it equally at all pause points (see Figure 8). They seem to value it most at the first point of contact, and completion rates diminish over the time a patient is in the facility. This could be related to gaps in handover practices as the woman moves through the health care facility, or to the way current tools make the checklist more relevant in early pause points, or to health workers being overwhelmed by the number of tasks they must complete.

**Figure 8. Modified Safe Childbirth Checklist Completion Rates**

In surveys of health workers aimed at monitoring their adherence to our intervention, we also found differences in uptake of the mSCC between control sites, which received only data strengthening and the mSCC, and intervention sites, which also received PRONTO and QI:

- 97 percent of staff in intervention sites reported having used the checklist, compared to 81 percent in control sites.
- Staff in intervention sites were more likely to agree that the checklist could help them identify gestational age and prematurity, identify pre-eclampsia and maternal infection, and prepare their workstation for a birth and a patient for a referral.

While most health workers (97 percent in intervention sites and 93 percent in control) knew that the checklist includes clinical prompts, more health workers in intervention sites (73 percent versus 51 percent in control sites) felt the checklist was easy to read, suggesting that the reinforcement from QI and PRONTO improve acceptability of the checklist. These findings are consistent with the Better Birth Trial and other studies, which found that the checklist requires close engagement and mentoring for optimal use. We will assess the impact on outcomes at the completion of the trial.
Martha Asimwe
Martha Asimwe is a PRONTO mentor and a medical officer in one of the PTBi Uganda sites.

I worked as a provider in Kakamega County, a busy rural hospital where there was no doctor or obstetric specialist and the closest village was 15 kilometers away on earth roads. Then PRONTO training arrived and brought in a new dawn of giving quality attention to obstetric emergencies in Kakamega. As a clinician I gained skills in patient stabilization and even became the focal person in pre-ectampsia management. This reduced the number of calls I made to the RH (reproductive health) coordinator.

As a mentor for PTBi in Migori, I got a better picture of the frustrations rural health care workers feel when they come in contact with obstetric emergencies. The fear of using drugs, like hydralazine and magnesium sulfate, is common among nurses. I worked with nurses to equip them with the prerequisite knowledge.

To me, quality improvement became the magic bullet in my work in PTBi. Getting at root causes of system problems without stepping on people's toes was a game changer. In Migori County Referral Hospital, for example, we identified long waiting times for emergency attention as a major setback to quality of care. This was evident from the data collected in the maternity files and led to the generation of change ideas, such as fixing up the doctors' quarters so they could stay in residence while on call, and ongoing system changes.

PRONTO is one of the best models in teaching health care workers because it tests behavioral, technical and analytical skills.

– Leaky Massavah
QI Mentor

The PRONTO simulation-based training, as opposed to the old-fashioned lecture method, was a new and exciting way to train health workers in the Busoga Region.

One of the biggest highlights of my time as a trainer was working with a young, newly qualified midwife who had been recruited at St. Francis Hospital, Buloba. She was timid and quite lacking in clinical skills.

Our efforts to train her on the job didn’t seem to make a difference until the PRONTO facility-based simulations and team training started. She acquired knowledge and skills in managing obstetric and neonatal emergencies.

Once I was called in to review a sick pregnant mother who had been admitted with severe pre-ectampsia. This previously timid midwife gave an excellent SBAR [Situation, Background, Assessment, Recommendation is one of the communication techniques learned during the training] and further informed me that she had given all the emergency drugs needed for this particular patient. She even suggested that she thought this patient needed an emergency cesarean section if we were to save her life and her newborn baby.

She has gone on to train other new midwives in the area of newborn resuscitation. She is now confident in the knowledge and skills and is not afraid to take on any challenge.

– Martha Asimwe
PRONTO Mentor
Seed to Scale for High Quality Intrapartum Care

As noted in our introduction to the PTBi-EA section of this report, process indicators indicate that our facility-based package for quality-of-care improvements during the intrapartum period is changing the culture of care in Kenya and Uganda. The indicators have convinced numerous partners to consider components of our models for scale-up as part of their health system strengthening programs.

- Ugandan facility staff, hospital leadership, and MOH officials worked with us to design, implement and monitor our sustainability plan.
- The USAID and its implementing partner Regional Health Integration to Enhance Services (RHITES) are seeking strategies to improve health service delivery and are considering using components of our intrapartum package (PRONTO and QI) in Uganda.
- For nationwide use, the Uganda MOH has formally adopted the neonatal register that our Makerere-based team developed in previous work and implemented across Busoga in the PTBi Intrapartum Quality-of-Care Package. In Kenya the MOH has also exhibited interest and is piloting a version of the newborn register.

Pathway to Sustainability for PTBi Intervention Package

- The Kenyan-based branch of Global Health Strategies (GHS) has prioritized promotion and scale of the mSCC. With Migori County support, GHS, the Kenya Medical Research Institute and UCSF are seeking additional funding to support this effort.
- PRONTO’s Kenyan representative, who also works for the Kenyan Pediatric Association, is leading a national movement to integrate PRONTO simulation and team training into the new EmONC (emergency obstetrical and newborn care) national training curriculum currently under development.
- Migori County health leadership officials have indicated that they would like to integrate countywide PRONTO trainings into their annual action plan, which the United Nations partners fund. They intend to modify the training program so county-based trainers can conduct it on a regular basis to orient new nurses and clinical staff when rotation occurs. To facilitate that, we are training the county reproductive health coordinators and representatives from each of the facilities in the trial as PRONTO simulation facilitators.
- QI capacity-building efforts have equipped our trainers to work with large-scale national initiatives in Kenya and Uganda to integrate and expand the PTBi QI work in their health service delivery programs.

Aim 3: Ibaruke Neza Mubyeyi the Rwandan Group Antenatal and Postnatal Care Trial

Partners: Sabine Musange, University of Rwanda, and Felix Sayinzoga, Rwanda Biomedical Center, Rwanda MOH

Study Design: Cluster-randomized controlled trial with four arms across 36 health centers in five districts of Rwanda to assess the impact of group care on gestational age at birth

Intervention: Individual first visit followed by up to the recommended three visits for group antenatal care, plus one group postnatal visit. The group antenatal care curriculum used was developed by the Rwanda Technical Working Group. Two of the four arms have a secondary intervention that includes urine pregnancy testing by community health workers and ultrasound offered at the health center during antenatal care.

Figure 9, Ibaruke Neza Mubyeyi Study Design

Sample Size Target: 7,704 women with birth outcomes

Sample Size Accrual: As of March 2019, we have complete data available for 8,199 mother/baby dyads, exceeding our target sample size. In April 2019 we will focus on completing follow-up data and data cleaning for our primary analysis and approximately 15,000 women for secondary analyses.
The Group Care Trial: Update and Highlights

The trial concluded enrollment in December 2018 and continues its longitudinal follow-up on antenatal care visits and outcomes. We expect to have collected all trial data by April 2019. (See Table 2 for enrollment by arm.) In addition to the quantitative data collected for outcomes, in March 2019 we collected a final round of qualitative data to more deeply understand the experiences of women, providers and the health system. As of March 2019, we have completed more than 2,500 group sessions, with a projection of 2,700 sessions by the trial’s end. We are encouraged by the initial results, and once we complete our analysis, we look forward to identifying future actions, such as potential scaling by our colleagues at Rwanda’s MOH.

Table 2. Enrollment by Arm as of March 1, 2019

<table>
<thead>
<tr>
<th>STUDY ARM</th>
<th>Women Enrolled</th>
<th>Women Enrolled &lt; 24 Weeks GA</th>
<th>Women Enrolled &lt; 24 Weeks GA +2 ANC</th>
<th>Women Enrolled &lt; 24 Weeks GA +2 ANC w/ Delivery Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Standard ANC</td>
<td>7,301</td>
<td>4,868</td>
<td>3,501</td>
<td>1,979</td>
</tr>
<tr>
<td>2. Standard ANC + US</td>
<td>5,693</td>
<td>3,453</td>
<td>2,429</td>
<td>1,493</td>
</tr>
<tr>
<td>3. Group ANC</td>
<td>7,279</td>
<td>4,939</td>
<td>3,962</td>
<td>2,579</td>
</tr>
<tr>
<td>TOTAL</td>
<td>26,461</td>
<td>17,517</td>
<td>13,089</td>
<td>6,199</td>
</tr>
</tbody>
</table>

Abbreviations: GA, gestational age; ANC, antenatal care; US, ultrasound.

What we are learning is consistent with other reported trials: Women are enthusiastic and respond well to group care. Nearly 90 percent of women approached at group care sites agreed to participate in our study, and among those, only 1 percent returned to only individual, rather than group visits. Providers are also enthusiastic. The Rwanda MOH has embraced the Group Antenatal and Postnatal Care Model and intends to continue and expand this model, possibly as a platform for attaining the goal of eight antenatal care contacts that the WHO now recommends. However, this change in the health service delivery model comes with significant impact to the health system. Health centers that have introduced both ultrasound and group care bear the largest burden because of the additional time that ultrasound demands.

The Technical Working Group that developed the Rwanda Group Antenatal and Postnatal Care Model plans to further refine and explore modifications to the existing group care model. Possible iterations include (1) using group care as a way to attain eight contacts, as the WHO recommends, (2) identifying / integrating components that resonated well with participants and incorporating them into a refined model, (3) increasing the role of community health workers as facilitators and (4) integrating culturally significant touch points as a running theme throughout the model. Each of these presents opportunities for implementation research and global learning.

Aim 3 Insights

- Group care can be introduced at scale and is welcomed by clients and providers.
- The introduction of antenatal ultrasound requires close attention to quality controls and system disruption.
Providers are Receptive to Group Care

Although nurses and midwives in the study believe group care improves antenatal care, they recognize that the health system is not yet structured to fully support it.

The overwhelming majority (86 percent) of Rwandan nurses and midwives in the study prefer the group model to the traditional model of individual antenatal care. Provider focus group participants spoke of the “love” and “closeness” that develop among the clients and providers during group visits. This group dynamic creates new levels of openness to both sharing and receiving knowledge.

This new knowledge can save lives.

As one nurse recounted,

“A woman shared her personal story of eclamptic seizure with the group. The members of the group were shocked by their previous beliefs about seizures, because before they understood a seizure to mean that a person was possessed by a demon. The group made up their minds to mean that a person was possessed by a demon. The group made up their minds...”

However, providers confess that the time required to sit with women and facilitate a group discussion is hard to come by.

Table 3. Observed and Self-Reported Model Fidelity

<table>
<thead>
<tr>
<th>OBSERVED MODEL FIDELITY (Five-point scale, N = 61)</th>
<th>Completed Observations</th>
<th>Average Fidelity Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group care observations: June – Aug. 2017</td>
<td>31</td>
<td>3.84</td>
</tr>
<tr>
<td>SELF-REPORTED GROUP DEBRIEFS (N = 2,484) as of Dec. 31, 2018</td>
<td>Total</td>
<td>Average</td>
</tr>
<tr>
<td>Participants per group</td>
<td>NA</td>
<td>9.05</td>
</tr>
<tr>
<td>Time for physical assessment</td>
<td>NA</td>
<td>51 min.</td>
</tr>
<tr>
<td>Time for discussion</td>
<td>NA</td>
<td>62 min.</td>
</tr>
</tbody>
</table>

Ensuring Fidelity to the Group Care Model

To ensure fidelity to the model that the Technical Working Group designed, Rwandan master trainers – five midwives and one physician – observed 150 antenatal and postnatal group visits. These master trainers hold regular clinical and teaching jobs, but they dedicate a few days per month to visiting PTBi study sites and providing mentorship and assessments related to group care. In this way they have extended the network of skilled group care providers to support ongoing implementation across Rwanda. As seen in Table 3 below, model fidelity scores have increased over time. Based on self-reported data, it appears that groups are also adhering well to recommended time allocations for assessments and discussion. Self-reported debrief data also reveals that only 144 men and 86 next of kin have attended sessions.

Mothers Find “Two Heads Are Better Than One”

Qualitative evidence from our research conducted within the large-scale group care trial reinforces the findings from similar studies in other settings. As an example, in focus group discussions, group antenatal care participants describe finding trust, affiliation and cooperation among providers and pregnant mothers, as well as increased knowledge related to healthy behaviors and danger signs. Many women find the open exchange of ideas can result in problem solving and new understanding quite different from their previous experiences in individual antenatal care.

One of the master trainers, Yvonne Nsaba Uwera, described what she has observed:

“Because of too much work, you may fail to render good service. On the same day, the facility director may give you one or two group visits and also assign you to attend to all women in maternity. When there is a very urgent case in maternity, you must go to attend to it. You leave the group care visit without anybody else to provide group care, after apologizing to the women because you must leave them...”

- Group Care Participant

At the first visit, (the women) are a bit shy, but soon they are like sisters. Women love group care because it helps them to open up, express themselves and support each other. In one group I observed, the women donated clothes to a group member in need. Another member proposed that the group put in some money every month, in case one of them had financial issues after the babies were born. And they made plans to bring food to group members who didn’t have family nearby.

- Group Care Participant

This finding and others from interviews and focus groups have led us to identify a new hypothesis that may explain the success of group care: Perhaps the “magic” is no more than the result of the formation of effective and functional teams among the groups of women and their facilitators, with a clear leader, mutual support, a shared vision, effective communication and situation monitoring. This presents another exciting venue to explore in future iterations of this model.

One mother explained the benefit of the group care model this way:

“Two heads are better than one. When you are alone, you may be misguided by your thoughts. Being in group care helps you get more knowledge from other mothers and from the nurse, who takes time to talk with you...”

- Group Care Participant
Introducing Ultrasound With Group Care Has Its Challenges

As of February 2019, 31 percent of eligible pregnant women (n = 3,693 women) received a basic obstetric ultrasound examination at PTBi study sites. According to mentors from the Rwanda Society of Radiologists, antenatal care providers (mostly nurses and some midwives) are not able to offer every eligible woman an ultrasound examination because health centers are “understaffed and overloaded.” Nurses and mentors report that each basic pregnancy ultrasound requires 15 minutes of provider time (on average), and this extra work time is added to their other responsibilities. Nevertheless, nurses are happy to work with the improved gestational age data that ultrasound provides, with one noting, “Ultrasound has increased our satisfaction because when one predicts the date of delivery, she is sure of what she says, thanks to that tool. You can give sure information also when you happen to transfer that woman to the hospital.”

Implementing Early Ultrasound at Health Centers

Half of the study sites (n = 18) have implemented ultrasound at the health center level as part of antenatal care. To date, the average gestational age at the time of ultrasound was 19.5 weeks by fetal measurements, and 67 percent of all ultrasound examinations were done before 22 completed weeks of gestation. Almost 2,500 women in the cohort have gestational age data obtained before 22 weeks. (See Table 4.)

Table 4. Ultrasound Breakdown by Gestational Age at Scan

<table>
<thead>
<tr>
<th>ULTRASOUND TIMING</th>
<th>Number of women</th>
</tr>
</thead>
<tbody>
<tr>
<td>US before 9 weeks GA</td>
<td>208</td>
</tr>
<tr>
<td>US 9-16 weeks GA</td>
<td>1,077</td>
</tr>
<tr>
<td>US 17-21 weeks GA</td>
<td>1,200</td>
</tr>
<tr>
<td>US 22-28 weeks GA</td>
<td>712</td>
</tr>
<tr>
<td>US 29-40 weeks GA</td>
<td>496</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3,693</strong></td>
</tr>
</tbody>
</table>

The Global Group Antenatal Care Collaborative

The Global Group Antenatal Care Collaborative (www.groupantenatalcare.org) is an open forum where researchers can learn, share, and build partnerships. A Steering Committee, comprised of eight founding members, manages the collaborative and includes a community of practice open to anyone actively conducting research in group care or interested in learning more. The collaborative’s objective is to inform an active research agenda around group antenatal care by undertaking the following tasks:

- Defining the minimal necessary components
- Identifying principles and best practices
- Prioritizing key research questions and identifying gaps and opportunities
- Recommending core indicators to track in research and implementation
- Advocating for group antenatal care at major conferences and symposia
- Providing tools and resources to support a growing community of researchers

As the principal investigator of the largest trial of group antenatal care, UCSF physician Dilys Walker was invited to the founding meeting and later asked to serve as a vice chairperson. In October of 2018, she became chairperson, and her research group at UCSF became the secretariat of the collaborative. Since then, UCSF has expanded both the membership and the activities of the collaborative.

The collaborative’s achievements in the past year include the following:

- The Steering Committee authored a commentary paper titled “Group Antenatal Care – Building a Global Research Collaborative to Address Gaps and Define Opportunities.” The committee has submitted the article to the Journal of Midwifery and Women’s Health.
- In December 2018, the collaborative held a webinar on the new Monitoring Framework for Antenatal Care with a presentation by Allisyn Moran, scientist in epidemiology monitoring and evaluation in the Department of Maternal, Newborn Child and Adolescent Health at the WHO.
- In May 2019, the collaborative launched a website.
- In May 2019, the collaborative will host a roundtable discussion at the 64th annual meeting of the American College of Nurse-Midwives, titled “Group Antenatal Care (GANC) Research in Low- and Middle-Income Countries: An Introduction to the Work of the Global GANC Collaborative and a Call for Midwives to Join Our Community of Practice.” Dilys Walker will serve as Chairperson through October 2020.

Steering Committee

- Blair Darney
  Oregon Health and Science University
- Carrie Klima
  University of Illinois, Chicago
- Crystal Patil
  University of Illinois, Chicago
- Dilys Walker
  University of California, San Francisco
- Jody Lori
  University of Michigan
- Lindsay Grenier
  Jhpiego
- Sheela Maru
  Boston University
- Stephanie Suhowatsky
  Jhpiego
Expanding Prevention Research through PTBi Cohorts

PTBi-EA has a unique opportunity to conduct epidemiological and intervention research to better understand how to prevent recurrent preterm birth and to care for preterm babies and their families. Across our geographies we have demographic, clinical, outcomes and contact data for more than 14,000 mothers and 11,000 babies. Leveraging this cohort would allow us to pursue new and exciting areas of inquiry.

- What are the rates of recurrence among mothers who experience a preterm birth in LMICs?
- Are these effective prevention strategies that can cost-effectively help governments identify and treat women most at risk of preterm birth?
- What are the long-term impacts of a preterm birth on the baby, mother and family?
- What are the best approaches for addressing the needs of preterm babies in LMIC health settings?

PTBi-EA Cohorts and Their Potential for Further Research

<table>
<thead>
<tr>
<th>Setting</th>
<th>Number of high-risk mothers</th>
<th>Number of babies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>3,766</td>
<td>3,260</td>
</tr>
<tr>
<td>Rwanda</td>
<td>2,429</td>
<td>1,278</td>
</tr>
<tr>
<td>Uganda</td>
<td>8,629</td>
<td>7,095</td>
</tr>
</tbody>
</table>

- GA, birthweight, sex
- Apgar scores
- Diagnosis/complications
- Discharge status
- 28-day survival
- Breastfeeding/KMC

Areas for further research within PTBi-EA cohorts

High-risk mothers
- PTB recurrence
- Prevention strategies and interventions
- Impact on maternal mental health

Preterm babies
- Neurodevelopmental outcomes
- Morbidities and mortality, 28 days and beyond

Aim 4: Discovery Research Informs Development of Preterm Birth Interventions

Our Discovery Research portfolio contributes to global knowledge about preterm birth and supports testing of tools to improve preterm birth prevention and management. We support projects through two distinct mechanisms: (1) a competitive request for proposal (RFP) process for East African investigators and (2) targeted studies that address priority research areas. By focusing on locally driven research questions (see Grants Portfolio, page 37), we are further defining this previously invisible problem.

The RFP program is shedding much needed light on preterm birth etiology and epidemiology in East Africa, and it is accelerating the development of promising East African researchers interested in prematurity-related research. Since 2015, we’ve selected 15 projects for funding. These projects span the life course – from elucidating risk factors associated with prematurity to developing clinical tools to improve preterm care to understanding what happens when these babies go home. Through this program, we also promote capacity-strengthening activities that include training at UCSF laboratories, in-country data analysis and writing workshops, and formal connections with research mentors. Among the 16 East African principal investigators we support, 14 are early career investigators, seven receive formal research mentorship from UCSF faculty, and three are mentored by current PTBi-EA principal investigators.

Targeted studies, the second arm of our Discovery Research portfolio, represent key topic areas that organically surfaced from our measurement and implementation research efforts. Project topics include new biomarkers and approaches to accurately assess gestational age, preterm birth phenotyping, and exploration of preterm outcomes after facility discharge. Most of these projects leverage the research platforms of the large trials, and they will add much-needed knowledge about preterm birth epidemiology and community drivers of post-neonatal outcomes.

“...their strategy of twinning a mentor to a local researcher, I feel confident and supported. When we met for the first time, she contributed in designing the implementation phase... She is an enthusiastic academician who is open to new research ideas and excited from them....”

- 2017 RFP grantee

Abbreviations: PTB, preterm birth; GA, gestational age; KMC, kangaroo mother care; LMP, last menstrual period.
One of our targeted discovery studies is investigating whether the introduction of a labor triage checklist and ultrasound can improve the identification and management of six high-risk obstetric conditions prior to birth, including multiple gestation, malpresentation, oligohydramnios, placenta previa, fetal distress/demise and preterm labor. Since this phased-intervention study began (see Figure 10), 18 midwives from Iganga District Hospital and three of its referring health centers have been trained in limited obstetric ultrasound, and over 800 women have received a triage scan. Along the way, the study has produced many insights into the use of ultrasound in this context.

Before introducing the ultrasound scan, it was common to have stillbirths delivered by caesarean section having been misdiagnosed as fetal distress…. The role of the scan has been to confirm the diagnosis of IUFD.

Ultrasound impacts clinical management

- OB/GYN

It has added [to our work]... the bench is very full here with new mothers, and you are only two people. And one is in labor ward there, conducting second stage. Eh, workload! Yeah, not all mothers [get a scan].

- Midwife

Offering ultrasound without the basics

- Facility Client

They feel good when you see them. And at times they turn that thing to face [the mother], “Can you see? That’s the fetal heart – your baby is alive.” They have liked it!

- Midwife

Patients seem to like it

- Facility Client

Staff shortages are an obstacle

- Midwife

- Facility Client

Ultrasound During Labor Triage | System Disruption or Clinical Asset?

One of our targeted discovery studies is investigating whether the introduction of a labor triage checklist and ultrasound can improve the identification and management of six high-risk obstetric conditions prior to birth, including multiple gestation, malpresentation, oligohydramnios, placenta previa, fetal distress/demise and preterm labor. Since this phased-intervention study began (see Figure 10), 18 midwives from Iganga District Hospital and three of its referring health centers have been trained in limited obstetric ultrasound, and over 800 women have received a triage scan. Along the way, the study has produced many insights into the use of ultrasound in this context.

Figure 10. A Three Phase Temporal Comparison of Interventions to Improve Care at Labor Triage

Before introducing the ultrasound scan, it was common to have stillbirths delivered by caesarean section having been misdiagnosed as fetal distress…. The role of the scan has been to confirm the diagnosis of IUFD.
Burden Extends Beyond Care in the Hospital

In high-income settings, studies have established that preterm and low birth weight babies are at higher risk for health and neurodevelopmental challenges, such as reduced cognitive functioning and sensory impairments (e.g., vision and hearing loss), and more rarely, cerebral palsy. Unfortunately, health outcomes data from LMICs are limited, often due to poor postnatal follow-up. Current evidence suggests that in these regions, preterm and low birth weight infants have an increased risk of mortality after the neonatal period and have higher rates of acute illness, rehospitalization and poor growth (including higher rates of stunting and wasting). Ongoing discovery and targeted studies in Kenya and Uganda aim to better understand what happens when a baby goes home.

In Kenya, for example, the Health and Neurodevelopment (HND) study is a sub-study assessing 549 infants at 6, 12 and 18 months of age. These infants were enrolled in the Intrapartum Quality-of-Care Package Trial and initially followed up at 28 days. As of April 2019, of 332 children assessed, 7.8 percent had died after 28 days and 8.4 percent had identified health, nutritional or neurodevelopmental conditions that required referral for care. Of children requiring referral, the most common identified conditions were nutritional compromise (36 percent) and concern for neurodevelopmental delay / cerebral palsy (28.5 percent). Eleven percent had an identified seizure disorder, and 17.8 percent had either vision or hearing impairment. Three-quarters of the children in this study have already completed referrals and evaluations specific to these concerns. This study will result in important insights on long-term outcomes for these vulnerable infants and areas for potential intervention.

Grants Portfolio

East Africa Fall 2015 - Summer 2019

Projects supported by the Discovery Research Portfolio are listed below.

*Data analysis and dissemination ongoing; †Data collection ongoing; ψStudy launch pending

RFP Grants | Prevention & Prediction of Preterm Birth

The prevalence of chorioamnionitis and Group B streptococcus among HIV infected and uninfected pregnant Ugandan women and its association with preterm birth
John Ategeka, Infectious Diseases Research Collaboration

Understanding knowledge and perceptions about menstruation, preterm birth and related care seeking practices to inform new health interventions in rural Bondo, Western Kenya
George Ayodo, Jaramogi Oginga Odinga University of Science and Technology

Is the association between ambient air pollution and perinatal outcomes causal? A systematic review and meta-analysis
Rakesh Ghosh, UCSF

Genetic associations with preterm birth in Rwanda ň
Leon Mutesa, University of Rwanda
Janet Wojcicki, UCSF

Maternal lead exposure in pregnancy and risk of preterm birth among women attending Mulago National Referral Hospital, Uganda†
Fatuma Namusoke, Makerere University

Maternal periodontal disease, bacterial pathogens and leukocyte telomere length as predictors for preterm birth among women in Kisumu County, Kenya†
Linus Ndegwa, Kenya Medical Research Institute
Julius Oyugi, University of Nairobi
Janet Wojcicki, UCSF

Nutrition and infection in relation to preterm delivery and other pregnancy outcomes in Rwanda*
Etienne Nsereko, University of Rwanda

Exposure mapping of household and environmental toxicants associated with adverse pregnancy outcomes in Migori County, Kenya†
Lydia Oluka, University of Nairobi
Margaret Okuva, University of Nairobi

Prospective phenotyping of preterm birth in Busoga Region, Uganda†
Philip Wanduru, Makerere University

Periopathogenic bacteria serotypes and the association with preterm birth in Kenya†
Veronica Wangas, University of Nairobi
Investing in Local Research Capacity

When the Discovery Research Program issued its first RFP from East African researchers in 2015, Ugandan physician and researcher Mary Kakuru Muhindo applied.

Muhindo’s initial proposal identified the challenges nurse-midwives face in delivering high-quality care to preterm infants. Working with UCSF pediatric infectious disease specialist Theodore Ruel and pediatrician Joshua Bress, current president of Global Strategies, she crafted what would be her first qualitative research study around that challenge: testing the feasibility and acceptability of Ugandan nurse-midwives using the Global Strategies-developed NoviGuide, a mobile health technology for the management of neonatal care. She worked closely with the Ugandan MOH to align NoviGuide with national guidelines and then brought the nurse-midwives aboard, helping to teach them how the tool works.

The study was successful, with the midwives using it regularly and reporting that it saved them time and prevented mistakes. This success points the way to more expansive studies in the future. Muhindo says the study also helped inspire Tororo Hospital to hire more midwives and create a neonatal ward, with a focus on skin-to-skin contact between mother and child.

She, Ruel and Bress are currently at work on the first manuscript from the study, and Muhindo presented the results at a 2017 UNICEF event in New York City.

Muhindo is a 2019 recipient of the two-year Postdoctoral Transdisciplinary Research Fellowship, a joint program cosponsored by PTBi-EA and PTBi-CA.

The fellowship will provide me with new skills in qualitative research and implementation science,” she says. “I am grateful that this will help me transition to becoming an independent investigator who can make a significant contribution to transforming newborn care and reduce neonatal mortality in resource-limited rural settings.

RFP Grants | Management & Care of Preterm Birth

Newborn complications and outcomes within the neonatal period following preterm birth – Uganda†
Joseph Akuse, Makerere University

Kangaroo mother care in Eastern Uganda: A feasibility study to assess the factors influencing uptake, adherence, and acceptability into routine healthcare†
Doris Kwesiga, Makerere University

Feasibility and acceptability of NoviGuide: A mobile health device for the management of neonates†
Mary Muhindo, Infectious Diseases Research Collaboration

Evaluation of the utility of C-reactive protein among preterm infants with sepsis in a resource-limited setting: A retrospective study†
Victoria Nakibuuka, St. Francis Hospital Nsambya

Newborn outcomes following preterm birth in the post-neonatal period in the first year of life, Uganda†
Charles Opio, Makerere University

Targeted Discovery Studies

Placental proteins as a clock for gestational age†
Susan Fisher, UCSF

Gestational dating at birth by metabolic profile: Testing and adaptation in African settings†
Laura Jelliffe-Pawlowski, UCSF (co-funded with Grand Challenges Explorations)

Gestational dating at birth by metabolic profile: Translation into hospital settings in Uganda†
Laura Jelliffe-Pawlowski, UCSF

Clinical phenotyping of preterm birth in Migori County: A retrospective chart review†
Lara Miller, UCSF

Use of a checklist and ultrasound at labor triage to improve identification and management of high-risk obstetric complications†
Jude Mulowooza, Makerere University

Magnitude of perinatal, neonatal, and maternal mortality in Migori County†
Lesri Krumbi, Kenya Medical Research Institute

Understanding causes and determinants of neonatal preterm deaths in Migori County, Kenya, using verbal and social autopsy†
Beatrice Olack, Kenya Medical Research Institute

Health and neurodevelopmental status of preterm and low birth weight babies in Migori County, Kenya†
Phelgona Ottano, Kenya Medical Research Institute

Susanne Martin Hertz, UCSF

"The fellowship will provide me with new skills in qualitative research and implementation science,” she says. “I am grateful that this will help me transition to becoming an independent investigator who can make a significant contribution to transforming newborn care and reduce neonatal mortality in resource-limited rural settings.

- Mary Muhindo"
East Africa Publications and Presentations

We’re committed to broadly disseminating our research. As results begin to emerge, we hope to expand our publications in the year to come.

Publications to Date


Conference Presentations

May 2018 – 2019

Uganda Pediatrics Association Conference; August 10-11, 2018; Kampala, Uganda.


Joint Annual Scientific Health (JASH) Conference; September 26-28, 2018; Kampala, Uganda.

Bridging regional, socioeconomic and urban inequalities: Advancing reproductive maternal, neonatal and child health care to achieve SDG targets. Waiswa P. Oral.


Improving kangaroo care for small babies: What is the missing link? Kwaresiga D, Moses K.


Outcomes for preterm babies following discharge from hospitals. Waiswa P. Oral.


5th Global Symposium on Health Systems Research (HSR); October 8-12, 2018; Liverpool, United Kingdom.


International Federation of Gynecology and Obstetrics (FIGO) World Congress of Gynecology and Obstetrics; October 14-19, 2018; Rio de Janeiro, Brazil.


Implementation Science Approaches to Preterm Birth. Walker D. Session.


Simulation and team training with PRONTO in India and East Africa: What do simulation videos tell us? Walker D, and members from Helping Mothers Survive Bleeding after Birth Projects. Session.

International Conference on Family Planning (ICFP); Nov 12-15, 2018; Kigali, Rwanda.


International Meeting on Simulation in Healthcare (IMSH); 26-30 January, 2019; San Antonio, Texas.


9th KEMRI Annual Scientific and Health Conference (KASH); February 13-15, 2019; Nairobi, Kenya.


Laminated chipboard as a wall cushioning improves thermal comfort in newborn resuscitation room: Results of a prototype experiment at Awendo Sub County Hospital, Migori County, Nyakach A, Kizilli L, Otieno T, Kirumbi L, Achola K, Walker D, Otieno P. Oral.

Quality improvement approach promotes uptake of modified safe childbirth checklist: The case of Awendo Sub County Hospital, Migori County, Mijwanga F, Onware P, Nyakech A, Achola K, Otieno P. Oral.

43rd Kenya Obstetrical and Gynaecological Society Annual Scientific Conference (KOGS); February 20-22, 2019; Nairobi, Kenya.


Africa Health Agenda International Conference 2019 (AHAIC); March 5-7, 2019; Kigali, Rwanda.


Consortium of Universities for Global Health Annual Conference (CUGH); March 8-10, 2019; Chicago, Illinois.


Kenya Paediatric Association Annual Scientific Conference; April 9-12, 2019; Mombasa, Kenya.


The 23rd Edition of International Conference on Neonatology and Perinatology; April 23-24 2019; United Kingdom.


Pediatric Academic Societies (PAS) Annual Meeting; April 28-May 1, 2019; Baltimore, Maryland.


29th International Pediatric Association Congress; March 17-21 2019; Panama City, Panama.


Other Select Presentations

May 2018 – May 2019


PTBi - A Preterm Birth Research Incubator to Accelerate Discovery and Intervention

Highlights from Select Completed Studies

**Impact of immigration enforcement on preterm birth rates in California** (Tomes)
There were some associations between county immigration enforcement and increased preterm birth rates for Latina women.
The immigration enforcement is multifactorial and may have longer term effects.

**Chorioamnionitis and its association with preterm birth among HIV+/− women in Uganda** (Ategeka)
Evidence of maternal and fetal acute chorioamnionitis (ACA) was seen in 44% and 26% of samples, respectively. HIV+ women with moderate to severe maternal ACA had a significantly higher risk of preterm birth compared to those with mild or no ACA.

**Perceptions about menstruation and preterm birth in rural Kenya** (Ayodo)
Some women whose children had preterm birth and deformities had been using contraceptives prior to birth, leading them to believe that birth complications were a result of contraceptive use.

**Nutrition and infection in relation to pregnancy outcomes in Rwanda** (Nsereko)
Slight associations between county immigration enforcement and increased preterm birth rates for Latina women.

**Impact of fruit and vegetable vouchers on pregnant women’s food security and diet** (Seligman)
Adding $40 per month in vouchers specifically for F/V to existing WIC benefits improves the food security of low income pregnant women.
At the current amount, the vouchers do not increase consumption of F/V.

**Effects of oil and gas power plant shut-downs on preterm birth rates** (Casey)
In a 20km radius of 8 California power plants, preterm birth rates dropped by 1.9% after power plant retirement.
Improvements in preterm birth rates were larger for non-Hispanic Black and Asian mothers.

**OMX, a novel oxygen carrying protein for resuscitation in preterm delivery** (Fineman)
In preclinical studies OMX effectively delivered oxygen to the myocardium in the context of severe hypoxia, without triggering systemic vascular reactivity.
$2 million in new research funding for further trials has been awarded by the NIH and the Bill and Melinda Gates Foundation.

**Impact of fruit and vegetable vouchers on pregnant women’s food security and diet** (Seligman)
Adding $40 per month in vouchers specifically for F/V to existing WIC benefits improves the food security of low income pregnant women.
At the current amount, the vouchers do not increase consumption of F/V.

**Nutrition and infection in relation to pregnancy outcomes in Rwanda** (Nsereko)
Among 366 Rwandan women with first trimester ultrasound, the preterm birth rate was 10.1 percent.
A third of the study participants had anemia and approximately 10 percent had a urinary tract infection or bacterial vaginosis.

**OMX, a novel oxygen carrying protein for resuscitation in preterm delivery** (Fineman)
In preclinical studies OMX effectively delivered oxygen to the myocardium in the context of severe hypoxia, without triggering systemic vascular reactivity.
$2 million in new research funding for further trials has been awarded by the NIH and the Bill and Melinda Gates Foundation.

**Placental proteins as a clock for gestational age** (Fisher)
SWATH mass spectrometry identified several circulating proteins in maternal blood during normal pregnancy that had altered expression as a function of gestational age.
New research funding has been awarded to further explore these gestational age biomarkers.
UCSF Preterm Birth Initiative Program Update 2018 – 2019
Since we began our work in California, one fact has loomed large: inequities in care and disparities in outcomes persist for women of color, even when they’ve escaped many other known stressors, such as income inequality, living in unsafe neighborhoods and lack of higher-level education. Research shows that the relentless impact of institutional, interpersonnel and internalized racism results in chronic toxic stress that puts childbearing women and their babies at risk for preterm birth and other serious adverse health outcomes. This explains why the concept of health and racial equity drives everything we do.

To make that concept more than words and good intentions, we’ve designed the California PTBi (PTBi-CA) as a sustained, multipronged research effort that’s grounded in community-academic partnership and committed to a “place-based” approach that incorporates an understanding of how racism plays out in local communities. Our tight focus on place and the specifics of affected communities facilitates authentic partnership and helps us better understand how local social determinants of health affect women’s biology. A place-based approach also drives policy change because it allows us to catalyze alignments among non-health sectors that can impact the social determinants.

We have been especially focused on ensuring that women of color from these communities – those most affected by preterm birth – have a full voice in shaping our work in California. These women have become our essential partners. They are fellow researchers and advisors, doulas and community advocates – and it is their voices that inform everything we do. They are why we’ve expanded our scope to develop ambitious solutions that go beyond the health system to directly counteract structural racism’s impact on childbearing women of color. They are why we work to identify and confront racism’s insidious effect whenever we tailor, develop and implement broad-based interventions across the lifespan.

We believe the past year has validated our approach. Early results have shown a decline of preterm birth rates in Fresno. Our use of human-centered design has generated excitement and engagement in San Francisco and Oakland that should accelerate and amplify our impact in those cities. Consider below some highlights of the past year’s results, which we will present in more detail in the body of this report.
Many Avenues, One Destination

As part of our Discovery research effort, we launched the SOLARS study (Supporting out Ladies And Reducing Stress to Prevent Preterm Birth), the largest prospective cohort study in the nation focused on understanding risk and resilience factors affecting birth outcomes in women of color (See page 59). By exploring the relationships among psychosocial stress, molecular stress signaling and other molecular signaling that affects immune, metabolic and epigenetic function, the study allows us to understand how chronic stress gets under the skin and changes women’s biology.

In our policy work, we’re seeing successes emerge from our Collective Impact framework, which aligns multiple non-health sectors around the issue of prematurity. For example, San Francisco’s Collective Impact effort, Expecting Justice, consists of city agencies, community-based organizations, health care providers, researchers and community members. In the past year, Expecting Justice spearheaded a campaign that led to San Francisco passing an ordinance that entitles all Black and Pacific Islander women – the communities most deeply affected by the prematurity epidemic in the city – to receive care from a culturally and racially concordant doula (See page 72). In 2019, Expecting Justice hopes to enhance the doulas’ impact with two other components: a pregnancy income supplement program to address the upstream impacts of structural racism by reducing poverty and associated stress, and racial equity trainings with social service providers and clinicians to reduce the number of policies, practices and interactions tainted by conscious and unconscious racism.

In our Intervention Research programs, we continued pursuing innovations across the lifespan that considered the needs of families affected by racism and associated social determinants of health. For example, our landmark postnatal project – mobile-enhanced Family Integrated Care (mFICare) – made excellent progress on mitigating the impact of preterm birth on babies born too soon and their families. The project is based on a Canadian trial that actively trained and involved parents in caring for their low birth weight infants in the neonatal intensive care unit (NICU). The study demonstrated improved infant weight gain, decreased parent stress and anxiety, and increased high-frequency exclusive breast milk feeding at discharge. Our trial enhances some of the Canadian interventions – including offering new parents a one-to-one mentorship with a previous NICU parent – and leverages mobile technology to involve parents who are unable to be in the NICU with their baby during daytime hours. This year, three additional NICUs joined the study.

A Better Birth Experience for All

Simultaneously addressing a major health epidemic like preterm birth and a massive societal wound like structural and interpersonal racism is an ambitious task, but significant change in the former is possible only if we focus our healing efforts on the latter.

The PTBi-CA team is proud to have been a leader in changing the way people think and talk about disparities in preterm birth, moving the discussion from one of race, which merely describes the disparities, to one of racism, which is a root cause of the epidemic of preterm birth in California. Our work has helped change the local and national narrative around birth equity. The March of Dimes has shifted its focus to birth equity, and the California Department of Public Health has launched the Perinatal Equity Initiative, investing 8-10 million annually to help California jurisdictions develop policies and interventions focused on improving perinatal equity; it resulted from PTBi’s partnership with the California Department of Health and other disparities-focused research groups across California.

We believe strongly that by reframing the problem of preterm birth as one that is rooted in racism, we can dramatically reduce both disparities in preterm birth rates and poor outcomes for infants born too soon. The result will be a better birth experience and healthier pregnancies and newborns for all.
Aim 1: Discovery Research in California

Place-based precision health guides our Discovery research into the prevention of preterm birth. This concept asserts that achieving optimal health at both a community and an individual level requires intense partnering with women, families, community organizations and other professionals to understand cell-to-society patterns of disease and disease states.

The Transdisciplinary Collaborative

Our transdisciplinary discovery collaborative spans ten departments at UCSF and includes partners from UC Berkeley, UC San Diego, Stanford University, Fresno State University, the University of Iowa, and Cincinnati Children's Hospital. Since April 2018, the collaborative – which plays a key role in all of our Discovery research efforts in that it allows for the contribution of expertise from multiple perspectives – has produced 22 published manuscripts, and as of the end of February 2019, 11 additional manuscripts are in review or in revision. (See page 96).

Within this frame, we are particularly interested in understanding and addressing patterns and drivers of preterm birth among Black and Hispanic/Latina women and infants in San Francisco, Oakland and Fresno. In these three geographies, women and infants in these groups experience higher rates and greater burdens of preterm birth. Consequently, our work focuses on understanding rates, onset, and outcomes of preterm birth among women and infants in these groups, as well as risk and resiliency factors. Four specific goals guide our Aim 1 work:

1. Establish and maintain a place-based research collaborative
2. Create and cultivate a data and specimen resource
3. Evaluate phenotypes of preterm birth and related outcomes and the role of stress in place-based patterns
4. Translate findings into place-based interventions

Phenotypes of Preterm Birth and Related Outcomes

Our work examining patterns of preterm birth in urban, suburban and rural areas of Fresno (Baer et al., J Epidemiol Res., 2018) was powerful for PTBi-CA, allowing our initiative to launch an interactive mapping website that allows parents, community members, public health professionals, clinicians and researchers to interactively explore patterns of preterm birth in Fresno County (https://delphidata.ucsd.edu/ptbi/uhome). For example, using this tool, users can examine patterns of preterm birth within county neighborhoods along with levels of air pollution in those same communities (See Figure 2). Given the established links between preterm birth and air pollution by our group and others, this mapping information could lead to interventions aimed at decreasing exposure to air toxins and particulate matter.

In addition, PTBi-CA research has helped elucidate patterns of and risks for preterm birth among Black and Hispanic/Latina women in California and in our communities of focus, and our work examining the role of structural racism, community-level income and racial segregation in patterns of preterm birth has been especially impactful (Chambers et al., J Urban Health., 2018). This work demonstrated that the rates of preterm birth and infant mortality were highest in neighborhoods with the highest percentage of Black compared to White households (a metric referred to as the Index of Concentration at the Extremes [ICE]) (see potential ICE figure at end labeled Figure 3).

Our work on molecular drivers was also key. In 2018 and early 2019 we used data from the SMART Diaphragm (SMART-D) and the California 1000 (CA1000) studies to better understand how molecular patterns behave in combination with clinical and other factors to contribute to parturition and preterm birth. For example, we published results from the CA1000 showing that poverty status and maternal age along with immune and growth factors could be used to predict a woman’s level of risk for preterm birth at 15-20 weeks of gestation (Jelliffe-Pawlowski et al., J Perinatology, 2018). Preliminary results presented in 2018 and early 2019, which we expect to publish in the year ahead, include (1) results from the SMART-D study showing that there are parturition-specific patterns of bile acid and steroid biosynthesis and (2) results from the CA1000 study demonstrating that women who go on to deliver preterm have a different patterning of telomeres, pathogens, lipids and proteins in mid-pregnancy than do women delivering at term.
The Role of Stress

In early 2019, we launched our Supporting Our Ladies And Reducing Stress to Prevent Preterm Birth (SOLARS) study in Oakland. Led by principal investigators Laura Jelliffe-Pawlowski, Brittany Chambers and Anu Gómez, SOLARS is one of the first large-scale studies to examine the impact of stress, anxiety and racism – as well as resilience and coping – on gestational duration and preterm birth in women of color (See page 59).

Translating Findings Into Placed-Based Interventions

In November 2018, we published a first-trimester risk-scoring framework that characterizes a woman’s cumulative risk for preterm birth based on demographic and clinical factors (Baer et al., *Eur J Obstet Gynecol Reprod Biology*, 2018). Using this framework, we are able to identify women at different levels of risk for preterm birth (See Figure 4). In turn, Aim 1 and Aim 2b investigators and partners have been collaborating on a web application that (1) clinicians can use to help women better understand preterm birth and (2) women and their providers can use to better understand patient-specific risk (this is the PREPARE application; see Aim 2, page 63, for details). We expect that this tool will eventually include routine prenatal molecular screening markers (e.g., alpha-fetoprotein) and possibly novel molecular factors (e.g., those identified as predictive for preterm birth in our serum prediction test [Jelliffe-Pawlowski et al., *J Perinatology*, 2018]).

Finally, work continued on understanding the role of newborn metabolic profiles in the outcomes for babies with preterm birth. Our group published first-ever reports on newborn metabolic profiles and patterns of survival, jaundice and persistent pulmonary hypertension in newborns with preterm birth compared to term birth (Oltman et al., *J Pediatrics*, 2018; McCarthy et al., *Clin Transl Sci.*, 2019; Steurer et al., *Ped Res.*, 2018). What has emerged is a pattern of newborn metabolic vulnerability that appears to place babies with preterm birth at differing levels of risk for death and complications of prematurity. We have submitted an article to *JAMA Pediatrics* that presents our work establishing a newborn metabolic vulnerability profile that can be used to characterize risk for death and multiple complications among babies with preterm birth.

The Year Ahead

Over the next year, we expect to work on the following goals:

- Continue enrolling SOLARS participants (see page 59) and begin critical investigations of SOLARS-related data and biospecimens.
- Report on molecular findings from the SMART-D and CA1000 studies and leverage those results for SOLARS investigations.
- Examine epidemiologic patterns of preterm birth and outcomes of prematurity using 2012-2017 state data. Securing this data will allow the collaborative to expand on and contextualize many of the big data findings that we reported on in FY1-3.
- Translate what we’ve learned about risk and protection for preterm birth and outcomes of prematurity into new tools for use in pre- and postnatal settings. In particular, we will update the PREPARE tool as new risk and protective factors emerge, and we will begin to determine whether we can leverage the newly established PTBi Newborn Family Research Collaborative (NFRC) to evaluate the use of newborn metabolic vulnerability profiling to identify newborns with preterm birth who are at higher risk for death or complications of prematurity. This could result in better-informed counseling of parents and identification of pathways for intervention (e.g., related to feeding and medication use).
Connecting the Dots Between Stress and Molecular Function in Preterm Birth

In 2018, as PTBi-CA geared up to launch our Supporting Our Ladies And Reducing Stress to Prevent Preterm Birth (SOLARS) study in Oakland, new co-principal investigator (PI) Brittany Chambers joined current PIs Laura Jelliffe-Pawlowski and Anu Gómez on the study. Chambers – a former PTBi fellow and now an assistant professor in the UCSF Department of Epidemiology & Biostatistics – has brought new energy and perspective to the study.

“SOLARS is unique because we are partnering with Black and Latina women to understand how chronic stressors like exposures to racism, perceived stress, intimate partner violence and pregnancy-related anxiety get under the skin to impact gestational duration and preterm birth,” says Chambers. “By improving our understanding of these interrelationships – and in partnership with communities most impacted – we hope to design more effective interventions aimed at reducing chronic stress and increasing gestational duration.”

Designed by women of color and women who have delivered preterm, SOLARS is one of the first large-scale studies to examine the impact of stress, anxiety and racism – as well as resilience and coping – on gestational duration and preterm birth. It includes psychosocial measures of stress during and after pregnancy, as well as collection of biospecimens that will allow the research team to examine how psychosocial stress, molecular stress signaling and other molecular signaling around immune, metabolic and epigenetic function are related. The goal is to unlock new pathways, discoveries and findings that can lead to effective interventions to increase gestational duration and decrease risk for preterm birth in communities of color. The study expects to recruit 500 women over the next two years.
Aim 2a: Interventions Across the Reproductive Life Course — Women’s Health Equity

“Preconception” Care Becomes “Women’s Health Equity”

Aim 2 focuses on interventions across the life course, including adolescent sexual, reproductive, and more general health; women’s health before, during and after pregnancy; and health for babies and families in the neonatal period.

Aim 2a focuses on what has traditionally been referred to as “preconception” health. One of our major accomplishments this year was to convene reproductive justice scholars and activists, public health leaders, practitioners and patient-centered researchers to redefine and rename the preconception period. At the conclusion of the convening, we tentatively settled on the term “women’s health equity.”

Increasing Access to Contraception

During the past year we also focused on increasing access to perinatal contraception, both by exploring barriers to postdelivery contraception options and by adapting a patient-centered contraceptive choice tool for use in the peripartum period (See page 61). The tool uses a reproductive justice frame to support the autonomy of women and families in decision making and to help them make decisions that reflect their preferences and values.

A Comprehensive Assessment to Begin Developing Policy Interventions

In collaboration with our colleagues at the Central Valley Health Policy Institute at California State University, Fresno, we developed a comprehensive assessment of public policies and dominant private sector practices that potentially influence birth outcomes. This effort included faculty from UCSF and California State University, Fresno; public health departments in San Francisco, Fresno and Oakland; and other thought leaders. We employed broad outreach to and communication with both the PTBI-CA community and people with lived experience to develop a framework that guides our thinking on policy interventions at the federal, state and local levels.

Steps have been taken to reduce the burden of women’s health for all women. The tool uses a reproductive justice frame to support the autonomy of women and families in decision making and to help them make decisions that reflect their preferences and values.

The Year Ahead

Over the next year, we expect to work on the following goals:

- Begin creating a platform for adolescents that will engage them with the health care system and equip them with knowledge and resources to support their sexual, reproductive and other health care needs.
- Synthesize findings from the Aim 2a convening and circulate them broadly.
- Initiate a policy research portfolio to advance important policy changes that support women’s health equity.

A Contraceptive Decision Support Tool

We have developed a prototype for a contraceptive decision support tool for women to use during and immediately after pregnancy. This tool is an adaptation of My Birth Control, an intervention that has been found to improve decision quality and patient experience in family planning care (Dehlendorf et al., 2019). By including information about sex and birth control after pregnancy and during infertility intervals, this tool will provide women with the information they need to make informed decisions about birth control after pregnancy.

Screenshots from the prototype

THINGS YOU MIGHT WANT TO THINK ABOUT

- How much do you want to know about your options and the differences between them?
- Which factors will you use to make your decision?
- How do I manage my life choices?
- How can I support my partner?
- How can we do it all?
- How do I use my contraceptive?

WHAT ARE YOUR FEELINGS ABOUT GETTING PREGNANT AGAIN?

- I’m not ready — I’m too busy or stressed, or I’m not ready financially. If you don’t think you’re ready, it’s okay! You can return to the tool later when you’re ready.
- I’m ready — I’m excited to have another baby, and I’m ready to focus on my health and well-being.

BREASTFEEDING AND BIRTH CONTROL

- You can breastfeed while you are taking hormonal birth control, but it’s important to talk to your healthcare provider about the best plan for you and your baby.
- You can breastfeed while you are taking non-hormonal birth control, but it’s important to talk to your healthcare provider about the best plan for you and your baby.
- You can also consider using a contraceptive method that doesn’t affect breastfeeding, such as condoms or diaphragms.

If you are planning to breastfeed, it’s important to talk to your healthcare provider about the best plan for you and your baby.

- If you are not planning to breastfeed, you can use any method of contraception that’s right for you and your partner.
- If you are not planning to breastfeed, you can use any method of contraception that’s right for you and your partner.
Aim 2b: Interventions Across the Reproductive Life Course — Prenatal Care

Glow!

During the past year, we have dedicated substantial resources and effort toward finishing a feasibility study for a new model of care, which our Fresno partners named “Glow!” Introduced in last year’s report, Glow! provides group prenatal care at one central site and offers wraparound services to address the social determinants of preterm birth.

One of this year’s major accomplishments was our development and submission of a large proposal to the Patient-Centered Outcomes Research Institute (PCORI) for a comparative effectiveness study of Glow! We will compare Glow! with traditional one-on-one care and support services offered to pregnant Medi-Cal recipients through the California Department of Public Health’s Comprehensive Perinatal Services Program (CPSP). On April 16, 2019, we were thrilled to receive the news that PCORI awarded $5.6 million in funding for the project!

New Decision Support Tool

In collaboration with Brownsyne Tucker Edmonds and her team at Indiana University, we completed work on a decision tool, Periviable GOALS (Getting Optimal Alignment around Life Support). This tool helps pregnant women and their partners who are facing threatened periviable delivery to share in informed decision making with their providers about resuscitation or comfort care. Providers and patients have expressed a lot of enthusiasm for the tool, which we will begin pilot testing with patients in 2019.

The Year Ahead

Over the next year, we expect to work on the following goals:

- Begin our quasi-randomized study of the effect of Glow! on preterm birth rates, maternal mental health and receipt of respectful care among 2,600 Medi-Cal-eligible English- or Spanish-speaking women in Fresno. This will be a four-year study, with the first year dedicated to finalizing agreements with 60 percent of the recruitment sites, establishing study practices and enrolling 650 participants.
- Complete the pilot tests of our periviability decision support tool and the PCMC measurement tool in San Francisco and Indianapolis.
- Begin our evaluation of the San Francisco Doula Program.
- Complete and begin evaluating a preterm birth educational and risk assessment tool, which we are now in the process of creating.

Person-Centered Maternity Care

We are currently working on an adaptation of a person-centered maternity care (PCMC) scale for the United States. This scale, which was developed by UCSF Assistant Professor Patience Afulani while she was a PTBI Transdisciplinary Postdoctoral Fellow, focused on the experience of childbirth in hospital facilities in Kenya and other low-resource settings. In collaboration with University of Washington Assistant Professor Molly Altman, another former PTBI Fellow, we are expanding the measure to include prenatal care and to make it relevant for women in the United States.

Evaluating San Francisco’s Pioneering Doula Program

During the past year, the San Francisco Board of Supervisors instituted a policy that made all Black and Pacific Islander pregnant women in San Francisco eligible to receive care from a pregnancy/labor/postpartum doula (See page 73). In partnership with colleagues at UC Berkeley and members of SisterWeb – an organization that is creating a network of peer doulas from within San Francisco’s underserved communities – we are developing a plan to evaluate this program.

The PREPARE Study

A major highlight from the past year was initiation of the PREPARE (Promoting Resilience and Empowerment through Prematurity Awareness and Risk Education) study, a joint Aim 1/Aim 2b project. As part of the study, the Aim 2b team is conducting focus groups with pregnant and newly postpartum women. The goal is two-fold: (a) to learn what these women understand about preterm birth and (b) to determine whether they are interested in receiving tailored risk information about the chances that they will deliver preterm. We are also asking women who are interested in receiving this information how they would like to receive it and, more generally, what they think should be included on an educational and risk assessment tool. In parallel, the Aim 2b team is conducting one-on-one qualitative interviews with prenatal care providers, to elicit their thoughts on this tool. After completing this formative work, we will develop a tool that incorporates a risk algorithm that the Aim 1 team developed. The tool will offer pregnant women the opportunity to learn about preterm birth and receive tailored information.
Aim 2c: Interventions Across the Reproductive Life Course — Postnatal Care

PTB-CAs goal is to improve health outcomes and quality of life for preterm infants and their families by developing and refining interventions to reduce chronic stress and promote resilience and equity. This year we made significant progress in transforming the culture of hospital care — and the culture of research — for preterm infants and their families.

Mobile-Enhanced Family-Integrated Care (mFICare)

Building Resilience After Preterm Birth

Family Integrated Care (FiCare™) is a model of care that transforms the culture of the NICU by training and supporting parents to be their baby’s primary caregiver and partners in the care team. PTB-CA is leading the first U.S. evaluation of a mobile-enhanced version of this intervention, mFICare, at six NICUs throughout California. The We3health™ app, developed with NICU parents, allows parents to track their baby’s progress, as well as their own; watch helpful videos; and journal about their experience. It also acts as a study data collection tool.

The mFICare study compares infant outcomes and parent experiences between two study phases: (1) during standard of care (family-centered care) and (2) after mFICare implementation. UCSF Benioff Children’s Hospital, San Francisco (BCH-SF) is the first to complete phase 1 of the study and launch mFICare in the NICU. In spring of 2019, we will launch mFICare at BCH-Oakland and Community Regional Medical Center (CRMC) in Fresno. Our three other sites (UCLA, UCSD and Kaiser Permanente, Santa Clara) will complete their baseline study phase and implement mFICare in the fall of 2019.

We are now conducting preliminary analysis of data from phase 1, examining where disparities in care and structural inequities may exist that could impact parental involvement in the NICU, kangaroo care, parent well-being, experiences with family-centered care and more.

Based on the early success of our We3health™ app, UCSF and Wiilys Foundation have entered into a licensing agreement with Dapasoft, a Canada-based health technology company. The plan is to build and launch the next generation of the app so it can support parents and enhance family integration in NICUs worldwide.

mFICare in Action: The BCH-SF NICU Experience

The following highlights describe how mFICare is being used at BCH-SF:

- All parents can now attend parent classes four or five times a week. A transdisciplinary team of BCH-SF experts facilitates the classes, which cover relevant topics and encourage parents to connect with each other to create a sense of community and peer support.
- Specially trained parent mentors – six parents who have experienced the NICU – provide individual support and encouragement to new NICU parents.
- Parents enrolled in the mFICare study are actively participating in patient rounds.
- Parents with video access can support parents and enhance family integration in NICUs worldwide.

Building Capacity for Health Equity-Focused Postnatal Research

The Newborn Family Research Collaborative (NFRC) represents a first-of-its-kind partnership between three NICUs: UCSF Benioff Children’s Hospitals in San Francisco and Oakland and CRMC in Fresno. In the last year, the collaborative has continued to grow its powerful platform to support a new model of family-partnered research. The NFRC is composed of three essential elements: (1) a dedicated research staff, (2) a Parent Clinician Advisory Board (PCAB) at each NICU and (3) a common data platform across the NICUs.
NFRC Supports New Studies

Because the core research staff of the NFRC allows us to support a number of other projects, led by other researchers – and because of our invaluable collaboration with the PCABs – our portfolio of research studies continues to grow. Among the latest studies are these, with the researchers in parentheses following:

- Pilot study of exoskeleton-assisted rehabilitation in children with cerebral palsy (Gano)
- Biomarkers of ventriculomegaly in preterm infants with intraventricular hemorrhage (Gano and Peterson)
- Parent employment and nonmedical expenses while in the NICU (Karasek and Goodman)
- Qualitative investigation of parents’ experiences in mFICare (Bisgaard)
- Clinical accuracy of a new method to wirelessly monitor skin temperature in preterm neonates using adhesive-imbedded sensors (Coleman and Franck)
- Kangaroo care effects on infant stress biomarkers and energy expenditure (Forde)

Infant Medical Record Database

The promise of big data is that by harnessing and analyzing NICU patient health information, researchers will be able to improve outcomes for babies and families while maintaining their privacy. We have created the Infant Medical Record Database (IMRD) to collect premature infant data across our network so researchers with important questions can appropriately use this information for analysis. The data we have collected to date is already helping us look at relationships between parent experiences and infant outcomes, including how factors like distance, race, age and having other children might play into those relationships. As this data leads to insight, we will be better able to support each parent in the NICU.

The Year Ahead

Over the next year, we expect to work on the following goals:

- Complete mFICare baseline data collection, fully launch mFICare at all six study sites, complete the mFICare study at BCH-SF and begin analyzing data.
- Work closely with the Aim 1 team to leverage the NFRC to evaluate the use of a newborn metabolic vulnerability profile.
- Continue to expand the research portfolio within and beyond the NFRC NICUs with emphasis on priorities identified by each PCAB.
- Launch retrospective and prospective studies on all preterm babies in the NICU at all three NFRC sites using the IMRD.
- Partner with families, healthcare professionals and family-led advocacy organizations to share findings from the research and build demand for the transformation of NICU care nationally.

We thank our app technology partners for their support:
Aim 3: Collective Impact

Achieving a vision of birth equity at the population level requires a commitment to combating interpersonally structured racism as root causes of health disparities. California PTBi-supported Discovery research has shown that housing and food insecurity, and exposure to interpersonal violence are important social determinants of prematurity and more commonly experienced by mothers of color. The health care sector cannot tackle these issues alone. The third aim of PTBi’s work in California is testing the hypothesis that cross-sector partnerships and system-level changes can turn the curve on preterm birth and address persistent disparities. Over the past year, Fresno and San Francisco Collective Impact efforts have marked several achievements.

Fresno

Since 2014, PTBi-CA has partnered with over 20 organizational stakeholders in Fresno County to create a common agenda that aims to achieve population-level reductions in preterm birth. The coalition, known as the Fresno PTBi, includes mothers with lived experience and leaders from the education, housing, public health, health care, social service and law enforcement sectors. California State University, Fresno, has served as the backbone organization for the coalition.

Fresno PTBi has spearheaded several interventions across the reproductive life course, and over the past year, it has (1) developed and launched two new modules as part of a state-mandated sexual health curriculum for Fresno Unified School District students that try to demystify for teens how to access health care services, (2) created a cross-agency marketing plan to increase WIC uptake among eligible pregnant women—with a particular focus on Black and Latina mothers, (3) encouraged enrollment in the Glow! group prenatal care demonstration project and (4) trained navigators that work in centers serving housing unstable clients on available health and social services for pregnant women. The Shared Measures working group is charged with measuring progress on key population-level metrics, such as preterm birth rates. The group has prioritized the collection of more accurate birth record data, and as a quality improvement project, it has created a new video for mothers who have recently delivered. This video provides information about the importance of the birth record data collected from parents—specifically, its role in helping to decide how resources are to be invested in communities.

At the center of the Fresno PTBi are the parent councils, comprised of mothers and fathers who have experienced preterm birth. These parents participate actively on all Fresno PTBi committees and working groups—and they continue to shed light on the experience of and risk factors for preterm birth. The councils also help the parents involved grow in their role as community representatives, building the leadership skills needed to guide community transformation that will improve birth outcomes for families. Parent council members have spoken publicly about their work, ably representing Fresno PTBi and highlighting the issue of preterm birth.

The Parent Council Advisory Committee consists of 15 African American leaders and parents (community residents) living or working in southwest Fresno. The committee has been instrumental in the creation and/or implementation of Keeping It Real (KIR) and African-American Youth Leadership Academy (AAYLA), both of which focus on promoting family resiliency and mobilizing communities to tackle the epidemic of preterm birth.

- KIR is a 12-week program for African American fathers and young men in Fresno County. It uses the national Noble Youth curriculum to promote cultural understanding, leadership development and raising children with pride.
- The AAYLA is a 16-week program that aims to provide leadership development opportunities to mothers and young women.

To advance the mutually agreed-upon goal of having every birth among Black and PI families be a healthy birth by 2030, Expecting Justice has advanced four initiatives: (1) a city-wide pilot program to provide culturally congruent doula support to all Black and PI mothers through prenatal, birth and postnatal periods (see page 72), (2) an exploration of strategies to address housing insecurity, including income supplements during pregnancy, (3) an effort to more closely align and coordinate siloed perinatal services across the city and (4) racial equity trainings for service providers.

San Francisco

Since 2017, the PTBi-CA cosponsored Expecting Justice, a coalition of over 17 San Francisco governmental, academic, and community partners and mothers with lived experience. The San Francisco Department of Public Health, Maternal Child and Adolescent Health Section, serves as the backbone of the coalition. Expecting Justice has set out to address the enduring legacy of racism that continues to shape the city’s interactions with Black and Pacific Islander women, who experience a disproportionate burden of preterm birth. It advocates for transformational approaches that value and include Black and Pacific Islander women throughout their lives in order to improve birth outcomes.
The Year Ahead

Over the next year, we expect to work on the following goals:

- Fresno PTBi will accelerate its efforts to reduce the preterm birth rate by one-third by 2025. While reductions in all racial and ethnic groups are encouraging (see Figure 5), a significant Black/White gap in the rates persists. As of this writing, the Steering Committee is considering several new initiatives, including ways to reliably measure the delivery of respectful care, recommending systems-based accountability measures to ensure that respectful care is happening and expanding access to high-quality family planning education and access in the interconception period for families who wish to extend their interpregnancy intervals. Focused interventions to drive down preterm rates in Fresno’s Black community are closely aligned with state and countywide efforts.

- Expecting Justice will continue its efforts to roll out the San Francisco Doula Program demonstration project while designing a pregnancy income supplement pilot program that would provide a monthly stipend of several hundred dollars to birthing Black and Pacific Islander people in San Francisco. Both of these efforts will be evaluated in collaboration with PTBi-CA to assess their potential for narrowing racial disparities in preterm birth.

- A new policy research core will include several PTBi-CA-affiliated investigators who are committed to generating evidence about the link between income and housing insecurity and birth outcomes. This evidence is critical to support our local and state policy change efforts.

- We are in an active planning process with key stakeholders in Oakland to explore next steps in amplifying existing racial equity and economic security work in a way that could promote better birth outcomes across the city.

![Figure 5. Fresno County Preterm Birth Rates by Maternal Race/Ethnicity 2014 – 2017](image-url)
San Francisco Doulas Foster Resilience in Women of Color

When President of the Board of Supervisors Malia Cohen announced the launch of San Francisco’s Doula Program in September 2018, she noted that Black and Pacific Islander women are the San Francisco communities most affected by maternal mortality and preterm birth. By creating access for these women to doula care and supporting the doulas with training and a living wage, the Doula Program validated PTBi-CA’s Collective Impact effort in San Francisco – Expecting Justice – and our focus on addressing racism head-on as a root cause of preterm birth.

The city’s program was spurred in part by our research showing that Black women from San Francisco and other areas of the state feel disrespected, stereotyped and coerced throughout their maternity care interactions. This results in low quality care because women feel alienated, don’t trust their providers or the system and are less likely to follow provider recommendations or interventions. Other research has shown doula care to be a safe, cost-effective and promising intervention that is associated not only with reduced rates of preterm birth, low birth weight and operative deliveries, but also with fewer reports of negative feelings about birth experiences. These benefits of doula care combine to improve the overall prenatal, intrapartum and postnatal experience and outcomes for both mother and child.

The Doula Program is a partnership between the San Francisco Department of Public Health and SisterWeb, a San Francisco-based community doula network that trains, supports and sustains doulas from marginalized communities. We expect that the doulas will serve as powerful advocates for women within the system and will work with these women to better understand and navigate the challenges of giving birth.

As Supervisor Cohen noted, “This program is innovative because it does not just train doulas but offers ongoing mentorship, professional development, reflective practice and community-building for its collective of doulas. It is imperative that we show up and support women and their options for healthy births.”
Community-Partnered Research

In PTBi-CA, we continue to expand and deepen our commitment to doing research differently through investments in community partnership, study consultation, capacity building and community-based participatory action research.

Community Advisory Board/Parent Community Advisory Boards

This year we launched the 2018-2020 cohort of our Community Advisory Board (CAB) at a December orientation retreat held at the Eastbay Community Space in Oakland. Our team presented to the incoming board about preterm birth and the initiative’s current research portfolio, while continuing board members reflected on the past two years in a “talking circle” format that provided critical feedback about accomplishments, challenges and opportunities.

Given the increased level of need for community consultation, we have expanded our board from 16 to 19 members, who continue to represent the diversity of our stakeholders in Fresno, Oakland and San Francisco. CAB meetings take place monthly, and each member also serves on one of our aim’s workgroups.

In addition, each of our three NICU sites – UCSF Benioff Children’s Hospitals in San Francisco and Oakland and CRMC in Fresno – now has a Parent Community Advisory Board (PCAB). In the past year, each PCAB finalized its top 10 research priorities, and through the course of two all-site meetings, the PCABs did the following:

- Chose three topics to be included in PTBi-CA’s fall request for proposals.
- Received training on how to review grant proposals.
- Created a review committee with members from each of the three sites, which then worked with the CAB to review, score and recommend proposals for funding.
- Provided input to researchers studying parents’ experience with employment while in the NICU to help refine survey tools and protocols.
- Developed an original research proposal and submitted it for funding.

Each PCAB is also working on how best to communicate their values and priorities to broader audiences, including researchers and funders. The value they bring to shaping our work demonstrates why community engagement is so essential to this effort.

Benioff Community Innovators

The Benioff Community Innovators (BCI) program is a community engagement project that educates and develops community scientists with an emphasis on economic workforce development. Drawing on two years’ worth of lessons from our work with the BCIs in San Francisco, this year we conceptualized a three-tiered leadership model that moves the current BCI program from research to policy action.

Over the next year, we will launch a BCI Oakland cohort, as well as the BCI SF Policy and Advocacy Fellowship. The fellowship will advance the work of the BCI program by raising public awareness of the impact that homelessness and housing insecurity have on the health and well-being of low-income Black, Latina and Pacific Islander pregnant women and their babies. The fellows will focus on those communities as they advocate for and cogenerate public policy reform initiatives, including prioritizing women in their first and second trimester for housing opportunities.

Other aspects of the work include the following:

- Co-creation of a public policy campaign with Parent Voices Oakland (see next section) that prioritizes community-based interventions
- Community outreach and engagement
- Liaisons with cross-sector stakeholders
- Research
- Analysis of current policies and effects of proposed legislation
- Reporting findings
- Funding development

Parent Voices of Oakland

In the past year, we formalized a partnership with Parent Voices Oakland (PVO), a grassroots parent-led organization that advocates for affordable quality childcare and other family-friendly policies. PVO has an active, dues-paying membership base of over 300 parents. Its leaders are primarily African American caregivers who live in East Oakland and self-identify as low-wage workers. The organization offers families multidisciplinary political education and advocacy training that helps them engage in the political process and lead grassroots campaigns.

Our role is to help PVO parents broaden their knowledge and understanding of prematurity in their neighborhoods. As part of this partnership, participants will collect information through community engagement, storytelling, research and data analysis to develop a set of policy recommendations aimed at reducing preterm births in Oakland’s African American communities. PVO will also produce a final report that will document all of its work during this process, as well as any capacity building it has done as a result of its partnership with PTBi-CA.
Community Partners Leverage Development Opportunities

We are proud that our work together has opened up avenues for professional development and education for both our CAB members and BCIs.

- Two BCIs are now research assistants at UCSF.
- Five BCIs have re-engaged in their education through City College of San Francisco and San Francisco State University.
- We hired Daphina Melbourne as our community engagement associate. She brings years of community engagement experience to our efforts, including service on our inaugural CAB.
- CAB members, BCIs and parent leaders across the initiative provided staffing support and served on the workgroup for our human-centered design “sprint” with IDEO.org to raise awareness of preterm birth across all of our geographies.
- Numerous CAB members have increased their involvement in our research studies, including as co-investigators.

What About the Men?

In November 2017, we conducted two focus groups with 12 men from Fresno who identified as African American, Asian American and Latin American. Our goal was to better understand their experiences and their priorities for research to reduce preterm birth and improve outcomes.

Frustration with the health care system – including lack of information, mistrust and poor communication – was a common theme. Their top research priorities included understanding the causes and risks of preterm birth, preterm baby health, and hospital and institutional practices. We ended by developing preliminary recommendations for health care providers working with men of color through the prenatal and postnatal process.

This work is continuing, with similar focus groups in San Francisco and Oakland, in partnership with community-based organizations. We will use the findings to inform our research priorities because we believe that understanding men’s experiences with preterm birth and respecting their contributions to improving birth outcomes can help mothers, babies and families survive and thrive.

The Year Ahead

Over the next year, we expect to work on the following goals:

- We will continue to facilitate opportunities for shared learning, translation and collaboration between our CAB/PCABs and academic partners.
- The BCI Program will launch in Oakland.
- The BCI Policy and Advocacy Fellowship will launch in San Francisco with a focus on improving housing policies to increase access for pregnant women.
- Through our partnership with Parent Voices Oakland, we will develop parent-generated policy recommendations that address preterm birth in Oakland.
- Guided by their postnatal research priorities, PCAB members will participate in all aspects of the research cycle, including developing their own research studies, providing expertise to researchers in the NICU, reviewing grant proposals and participating in dissemination of findings.
Studying the problem of preterm birth through the lens of health and racial equity requires the active participation of the communities and individuals most affected by the epidemic, as well as the health care systems charged with supporting these communities. Among PTBi’s founding principles are an emphasis on local context and the involvement of the end-user in intervention design. This past year, we used a human-centered design approach to develop two important new programs, the Birth Justice Warriors Campaign and the Pregnancy Village.

Human-Centered Design to Engage in Communities, Change Delivery Systems

In response, we explored ways to raise awareness of preterm birth and move people to action. We conducted interviews and focus groups with more than 100 parents, grandparents, teens, providers, birth workers, community advocates, and leaders across Fresno, Oakland and San Francisco. After we developed and tested numerous messages, we came to understand that people were drawn to stories about the champions within their communities already devoted to improving maternal and child health outcomes. So we built a strength-based campaign that highlights and supports the great work of the people who are already at the forefront of this issue, the Birth Justice Warriors.

The Birth Justice Warriors campaign emerged from our Community Advisory Board’s concern that preterm birth was normalized in our communities of focus. In fact, very few women in these communities were aware of the epidemic of preterm birth, affecting on average 1 in 10 pregnancies — and higher rates in the most deeply affected communities, as many as 1 in 6 pregnancies among Black women in Fresno, for example.

We unveiled our campaign in November, at a World Prematurity Day event in Oakland, with an Art Walk featuring striking, beautifully designed posters, as well as black-and-white photographs of doulas, activists and providers. We are now scaling this campaign into a full-fledged street-level and digital campaign that will direct people to an online resource for advocates, families and individuals.

Our second human-centered design program is a response to numerous testimonials that clearly describe a prenatal care system rife with discrimination and bias, leaving women of color less likely to engage with or trust in their providers or the system at large. This program aims to reimagine the prenatal care experience as one that women would trust and find comfort in. Working with publicly insured women living in San Francisco, UCSF, the San Francisco Department of Public Health and community-based organizations, we have co-created the Pregnancy Village, a care delivery model for pregnancy-related services within low-income San Francisco neighborhoods that will ensure respectful care that is responsive to women’s needs.

The Pregnancy Village model envisions a welcoming and person-centered environment that provides collocated pregnancy-related services, as well as the opportunity for pregnant families to gather and build community. As we roll out the program in 2019, we will work with individuals and organizations in low-income San Francisco neighborhoods to identify the services and opportunities they find most valuable.
PTBi-CA RFP Grants Awarded

San Francisco
- San Francisco PTB Review (Jackson)
- Hyper-localized air pollution measures and PTB (Glymour and Casey)
- Telomere length and PTB and growth in Latino neonates (Wojcicki)
- Biomarkers of ventriculomegaly in preterm infants with IVH (San)
- Postpartum contraceptive decision support tool (Dehlendorf)
- Preventing PTB through empowering adolescents (Dehlendorf)
- Person-centered maternity care scale for women of color (Altman and Altman)
- Portable decision support tool (Kuppermann)
- D-APPS: Marijuana use during pregnancy (Roberts)
- Food and vegetable voucher during pregnancy (Seligman)
- Post-delivery provision of contraception (Thiel de Bocanegra)
- Glowing Group prenatal care implementation (Lessard and Capitman)
- Post-delivery provision of contraception (Thiel de Bocanegra)

California-wide Projects
- Air pollution from oil and gas power plants and PTB (Glymour and Casey)
- Immigration enforcement exposure and PTB (Torres)
- CMV infection in PTB and IUGR (Tabata)
- Severe maternal mortality and PTB (Lyndon)
- Biological drivers of PTB among women with insomnia (Prather)
- Drug use and pregnancy policy (Roberts)

Fresno
- Stress, resilience, coping and birth outcomes in Black and Hispanic women: The SOLARS pilot study
- Monica McLemore, UCSF
- Anu Manchikanti Gómez, UC Berkeley
- Laura Jelliffe-Pawlowski, UCSF
- Adaptation of an existing data integration/visualization platform for the purpose of visualizing and performing exploratory analysis of a multivariate dataset of risk factors of preterm birth in Fresno County, and validation of its usability with diverse and cross-sector PTBi stakeholders
- Marta Jankowska, UCSD
- Jessica Block, UCSD
- Persistent human cytomegalovirus infection of the amnion in preterm birth and intrapartum growth restriction
- Takako Tabata, UCSF
- Exploring the dual burden of severe maternal morbidity and preterm birth in California
- Audrey Lyndon, UCSF
- San Francisco Preterm Birth Review (SF PTBR)
- Rebecca Jackson, UCSF
- Identifying biological drivers of preterm birth among women with insomnia
- Aric Prather, UCSF
- Hyper-localized air pollution measures and preterm birth in the Bay Area
- Maria Glymour, UCSF
- Joan Casey, UC Berkeley
- Telomere length as a predictor of preterm birth and growth in Latino neonates
- Janet Wojcicki, UCSF
- Coagulation and neurodegeneration biomarkers of ventriculomegaly in preterm infants with intraventricular hemorrhage
- Dawn Garcia, UCSF
- Mark Petersen, UCSF
- Utilizing systematic screening approaches to identify pesticides that contribute to preterm birth
- Joshua Robinson, UCSF
- Is preterm birth associated with air pollution from oil and gas power plants in California? A natural experiment
- Joan Casey, UC Berkeley
- Testing exposure to local immigration enforcement as a structural determinant of preterm birth disparities in California counties
- Jacqueline Torres, UCSF
- CMX, a novel oxygen carrying protein, for resuscitation in preterm delivery
- Jeffrey Fineman, UCSF

Oakland
- Stress, resiliency and birth outcomes in Black women (McLemore)
- Hyper-localized air pollution measures and PTB (Glymour and Casey)
- Preventing PTB through empowering adolescents (Dehlendorf)
- Person-centered maternity care scale for women of color (Altman and Altman)
- Portable decision support tool (Kuppermann)
- D-APPS: Marijuana use during pregnancy (Roberts)
- Food and vegetable voucher during pregnancy (Seligman)
- Post-delivery provision of contraception (Thiel de Bocanegra)
- Glowing Group prenatal care implementation (Lessard and Capitman)
- Post-delivery provision of contraception (Thiel de Bocanegra)

Grants Portfolio

California Spring 2016 - Fall 2018

RFP Grants | Discovery

Stress, resilience, coping and birth outcomes in Black and Hispanic women: The SOLARS pilot study
- Monica McLemore, UCSF
- Anu Manchikanti Gómez, UC Berkeley
- Laura Jelliffe-Pawlowski, UCSF

Adaptation of an existing data integration/visualization platform for the purpose of visualizing and performing exploratory analysis of a multivariate dataset of risk factors of preterm birth in Fresno County, and validation of its usability with diverse and cross-sector PTBi stakeholders
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- Jessica Block, UCSD

Persistent human cytomegalovirus infection of the amnion in preterm birth and intrapartum growth restriction
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Exploring the dual burden of severe maternal morbidity and preterm birth in California
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Hyper-localized air pollution measures and preterm birth in the Bay Area
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- Joan Casey, UC Berkeley

Telomere length as a predictor of preterm birth and growth in Latino neonates
- Janet Wojcicki, UCSF

Coagulation and neurodegeneration biomarkers of ventriculomegaly in preterm infants with intraventricular hemorrhage
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Is preterm birth associated with air pollution from oil and gas power plants in California? A natural experiment
- Joan Casey, UC Berkeley

Testing exposure to local immigration enforcement as a structural determinant of preterm birth disparities in California counties
- Jacqueline Torres, UCSF

CMX, a novel oxygen carrying protein, for resuscitation in preterm delivery
- Jeffrey Fineman, UCSF
Qualifying Risk: Exploring how life course stress experiences influence the risk of preterm birth among black women
Leslie Dubbin, UCSF

RFP Grants | Preconception Interventions
Postpartum contraceptive decision support tool
Christine Dehlendorf, UCSF

Preventing extremely short interpregnancy intervals and preterm birth through post-delivery provision of highly effective contraception
Heike Thiel de Bocanegra, UCSF

Laying the foundation for healthy reproduction: a life course approach to prevention of preterm birth through engaging and empowering adolescents
Christine Dehlendorf, UCSF

RFP Grants | Prenatal Interventions
Adaptation of the person-centered maternity care scale for women of color in the U.S.
Patience Afulani, UCSF
Molly Altman, University of Washington

Perivable GOALS: Formative research to create a decision support tool for perivable decision-making
Miriam Kuppermann, UCSF

Understanding and reducing barriers to utilization of Progesterone (17P) and other evidence-based interventions to prevent preterm birth in Fresno County
Subhashini Ladella, UCSF Fresno

Disrupting current models of prenatal care: Glow!
Lauren Lessard, CSU Fresno
John Capitman, CSU Fresno

Exploring women’s experiences to inform Drug and Alcohol Pregnancy Policies study (D-APPS: Women’s Experiences)
Sarah Roberts, UCSF

Social Determinants of Health, Adversity and Resilience (SOAR) Factors
Danielle Hessler, UCSF
Dayna Long, UCSF

Drug use and pregnancy policy study (D-APPS)
Sarah Roberts, UCSF

EatSF: fruit and vegetable vouchers to support pregnant mothers in San Francisco with food security and healthy dietary intake
Hilary Seligman, UCSF

Using community health workers for preterm birth prevention
Melanie Thomas, UCSF

RFP Grants | Postnatal Interventions
Robotics-Assisted Rehabilitation in children with cerebral palsy: The RoAR Study
Dawn Gano, UCSF

Evaluating the effect of San Francisco’s Paid Parental Leave Ordinance on preterm birth and associated maternal and newborn outcomes*
Deborah Karasek, UCSF
*Jointly funded by Postnatal Interventions and Collective Impact

Informing model articulation by eliciting the family experience: a pilot study of the special start neonatal follow up
Laura Frame, UCSF

Milk, growth and microbiota: An RCT of donor milk vs. formula to supplement breastfeeding late preterm newborns
Valerie Flaherman, UCSF
California Publications and Presentations

We’re committed to broadly disseminating research, influencing the fields of public health, maternal-fetal-neonatal medicine and health service delivery as well as policy and community health practice. We’re proud to have published 34 manuscripts in the past year.

Publications to Date

May 2018 – May 2019


Conference Presentations

May 2018 – May 2019

Pediatric Academic Societies (PAS) Annual Meeting; May 5-8, 2018; Toronto, Canada.


Institute of Patient- and Family-Centered Care (IFPCC) 8th International Conference; June 11-13, 2018; Baltimore, Maryland.


Society for Epidemiologic Research (SER) Annual Meeting; June 19-22, 2018; Baltimore, Maryland.


Annual European Congress of Rheumatology (EULAR); June 13-16, 2018; Amsterdam, Netherlands.


Interdisciplinary Association for Population Health Sciences (IAPHS) Annual Meeting; October 3-5, 2018; Washington, District of Columbia.

Local immigration enforcement and birthweight outcomes in California counties. Torres JM, Casey JA, Morello-Frosch R. Oral.

International Federation of Gynecology and Obstetrics (FIGO) World Congress of Gynecology and Obstetrics; October 14-19, 2018; Rio de Janeiro, Brazil.


7th Congress of the European Society of Paediatric Societies (EAPS); October 30-November 3, 2018; Paris, France.


March of Dimes Annual Conference; November 5-6, 2018; Irvine, California.

Co-designing mobile technology and care delivery to improve family integrated care in NICUs. Franck L, Sossaman S, Lothe B. Oral.

American Public Health Association (APHA) Annual Meeting and Expo; November 10-14, 2018; San Diego, California.


Using community based participatory research to improve group prenatal care for communities of color. Lessard L, Oberhoftizer C. Poster.

7th International Conference on Kangaroo Mother Care; November 14-17, 2018; Bogotá, Colombia.


Precision Medicine World Conference; January 20-23, 2019; Santa Clara, California.


Annual Meeting of the Society for Maternal Fetal Medicine (SMFM); February 11-16, 2019; Las Vegas, Nevada.


6th Annual Clinical InQuERI Nursing Research Conference; January 30-31, 2019; San Francisco, California.


American Psychosomatic Society (APS) Annual Meeting; March 6-9, 2019; Vancouver, British Columbia.


Annual Meeting of the Society for Reproductive Investigation (SRI); March 12-16, 2019; Paris, France.


International Meeting on Indigenous Child Health; March 22-24, 2019; Calgary, Alberta.


Pediatric Academic Societies (PAS) Annual Meeting; April 24-May 1, 2019; Baltimore, Maryland.


**Other Select Presentations**

**May 2018 – May 2019**


Our Annual Symposium on Preterm Birth harnesses the collective energy of our initiative’s California and East Africa arms to strengthen our common mission – reducing the burden of preterm birth by decreasing its incidence and improving outcomes for babies born to soon. This year the research symposium took place in Kigali, Rwanda, October 2-4, 2018. Titled Preterm Birth Through the Lens of Quality, Equity and Dignity, the 2018 meeting built on the 2017 launch of the WHO program on the same topic, which aims to halve maternal and newborn deaths and stillbirths within five years in health facilities across 10 countries within five years.

Our symposium brought together our global research team and a community of stakeholders that included representatives from the Ministries of Health of Uganda, Kenya and Rwanda, as well as Community Advisory Board members from California. Approximately 160 attendees explored what quality, equity and dignity mean in the context of preterm birth and continued our efforts to find solutions to address these issues. Theatrical vignettes brought the voices of women into the room and inspired sharing by leaders of their own lived experiences. We discussed everything from respectful maternity care through how to effectively collaborate so we may advance quality improvements through translational research. We ended with a call to action for scientific activism to raise awareness and hold the global community accountable for making advances against the epidemic of preterm birth. The full program booklet can be found here.

The PTBi Transdisciplinary Postdoctoral Research Fellowship Program

Building future capacity and leadership in the field of preterm birth research has been at the heart of PTBi’s mission since the beginning. To attract new minds and new ideas to the field – and, in doing so, to decrease the global burden of preterm birth – PTBi launched a two-year, transdisciplinary postdoctoral fellowship. The primary goal of this first-of-its-kind training program is to develop the next generation of researchers by equipping promising young scientists with the skills and perspectives needed to launch independent research careers. Driven by fundamental commitments to transdisciplinarity, collaboration and community engagement, we expose our fellows to a wide range of basic and translational science, implementation research and policy-focused work.

To date, ten promising scholars at the top of their fields have participated in the fellowship program – six in the inaugural 2015-2017, three in the 2017-2019 cohort and one new fellow welcomed in 2018. They include three MDs, three PhDs, two RN/PhDs and two MD/PhDs and represent a wide range of clinical and scientific disciplines. These innovative and highly productive fellows have collectively published 48 first-author papers and 37 co-authored papers (see Fellows publication list, page 110). The seven fellows who have completed the fellowship now have faculty positions at UCSF or another university. We’re thrilled to report that, based on this success, we have just been awarded a prestigious T32 training grant from the National Institutes of Health to both expand and sustain the fellowship for years to come.

In July 2019, we will welcome three additional fellows to the program. Their research interests include the association of neighborhood composition with preterm birth, societal and structural biases that impact adolescent reproductive health, and mobile health tools to improve neonatal care.

Another highlight of our postdoctoral fellowship is the diversity of the participants. Four of the fellows are from Africa and half of the North Americans are Black, reflecting both our target geographies and the California focus on Black-White disparities in preterm birth and other adverse maternal and birth outcomes.
### 2015 Fellowship Class

<table>
<thead>
<tr>
<th>Name</th>
<th>Current Role</th>
<th>Research Focus</th>
<th>Fellowship Highlights</th>
</tr>
</thead>
</table>
| Patience Afulani      | Assistant Professor, Department of Epidemiology & Biostatistics, UCSF       | Quality of maternal health care: person-centered maternity care in Kenya, Ghana and India                                      | 12 first-author and three co-author publications  
NIH-K99/R00 (PI) 2018  
USAID systems for health grant (PI) 2016                                                                                                  |
| Molly Altman          | Assistant Professor (tenure-track), School of Nursing, Department of Family Child Nursing, University of Washington | Respectful maternity care: influence of racism, bias and discrimination in provider interactions for women at risk for preterm birth | Five first-author and five co-author publications  
PTBi-CA RAP grant (co-PI) 2018                                                                                                                |
| Jennifer Felder       | Assistant Professor, Department of Psychology and Osher Center for Integrative Medicine, UCSF | Digital cognitive behavior therapy for antenatal insomnia, depression and birth outcomes relative to usual care | Nine first-author and three co-author publications  
NIH-K23 (PI) 2018                                                                                                                               |
| Dawn Gano             | Assistant Professor, Departments of Neurology and Pediatrics, UCSF          | Cerebellar hemorrhage in premature newborns                                                                 | Five first-author and eight co-author book chapters  
Two foundation grants (PI): NIH-NINDS P01 (co-PI)  
Benioff Children’s Hospital, San Francisco, Newborn Family Research Collaborative (site-PI)                                                                 |
| Melissa Medvedev      | Assistant Professor, Department of Pediatrics, Division of Neonatology, UCSF | Feasibility and acceptability of kangaroo care for clinically unstable neonates in Jinja, Uganda | Nine first-author and eight co-author publications  
NIH-K23 (PI) 2018  
MRG-Wellcome Trust/DFID/NHR Global Health Trials (co-PI) 2019                                                                                   |
| Joseph Musana         | Assistant Professor, Department of Obstetrics & Gynecology, Aga Khan University Hospital, Kenya | Stress perceptions, stress hormones and preterm birth among pregnant women in a semi-urban hospital in Kenya | Awarded Completion Certificate in Advanced Training in Clinical Research, Department of Epidemiology & Biostatistics, UCSF, 2016                                                                 |

### 2017 Fellowship Class

<table>
<thead>
<tr>
<th>Name</th>
<th>Current Role</th>
<th>Research Focus</th>
<th>Fellowship Highlights</th>
</tr>
</thead>
</table>
| Brittany Chambers     | Assistant Professor, Department of Epidemiology & Biostatistics, UCSF       | Developing novel measures of structural racism from the perspective of Black women | Four first-author publications  
UCSF-Kaiser Building Interdisciplinary Careers in Women’s Health (BICWH) Program/NIH K12 (PI) 2018  
UCSF School of Medicine Population Health and Health Equity Scholar                                                                                      |
| Deborah Karasek       | Current PTBi Fellow                                                          | Economic insecurity, neighborhood housing conditions, and social policy: impact on health and well-being of pregnant women and their infants | Seven co-authored publications  
PTBi-CA RAP grant (co-PI) 2017  
Initiated pregnancy income supplement research working group                                                                                           |
| Moses Madadi Obimbo   | Current PTBi Fellow; Lecturer, University of Nairobi                         | Impact of HIV and antiretroviral treatment on the structure of placenta, cytokine milieu and the mechanistic pathway of preterm birth | Four first-author and three co-author publications  
Invited guest speaker at the NIH Human Placenta Project  
Initiated a Translational Research Lab at the University of Nairobi with seven students (five MS and two PhD)                                                                 |
| Dorothy E. Forde      | Current PTBi Fellow (joined October 2018)                                    | Buffering effects of kangaroo care on preterm infant stress and energy expenditure biomarkers and behavior | Primary sponsorship from UCSF School of Nursing T32 Biobehavioral Research Program in in Symptom Science  
Best poster and student presentation awards at several scientific meetings for her doctoral research                                                                 |
Communications in East Africa

Tiny Hats for Tiny Babies

The Tiny Hats for Tiny Babies initiative provides handmade hats to the infants around the world who need them most: preterm and low birthweight babies. Since 2017, the initiative has received more than 37,000 tiny hats from more than 1,000 volunteers. In its first year, the initiative received more than 17,000 hats, all of which were distributed to hospitals and clinics in nine LMICs. In 2018, the initiative received more than 20,000 hats, exceeding our stated goal of 17,000 by more than 15 percent. This year we also added the American Academy of Pediatrics (AAP) as a partner. Together with the AAP and our first partner, Warm Up America!, we can expand our reach to more clinics and hospitals in need and continue to build global awareness of the burden of preterm birth. We plan to raise the bar for our upcoming 2019 campaign and keep our community of knitters and crocheters engaged through our website at https://tinyhatsfortinybabies.org/.

Global Communications and Collaboration

Building a research community around preterm birth goes beyond working with partners in our current geographies. We actively work with others in the field to build our knowledge and share our perspective. In 2018, PTBi-EA hosted a joint learning session in San Francisco with Born on Time and the Global Alliance for Prevention of Prematurity and Stillbirth (GAPOS). One of the outcomes of that session was our jointly sponsored prematurity session at the 2018 International Federation of Gynecology and Obstetrics (FIGO) World Congress in Rio de Janeiro. At the 2019 Women Deliver conference in Vancouver, the three organizations will come together to share booth space to promote awareness of prematurity and the work of all three groups.

Communications in California

Celebrating the Making of Birth Justice Warriors in Honor of World Prematurity Day

On November 30, 2018, we honored World Prematurity Day by sharing the development of a new public awareness campaign, Birth Justice Warriors, which celebrates the lives of women who worked to improve the birth experiences of Black and Brown families in our communities. Located at Impact Hub Oakland, the Birth Justice Warriors Art Walk featured large, beautifully designed posters depicting artwork from the campaign. Oakland, San Francisco and Fresno doula, activists, and providers were among the subjects of stunning black-and-white photography that lined the walls. One poster stated,

“I’m here to empower you to advocate for the things you need, no matter what anyone has said you don’t deserve.”

As attendees strolled down the row of posters, they also had the opportunity to learn more about the 12-week human-centered design process used to create the campaign (See page 83). Brittany Chambers, co-principal investigator of our SOLARS trial, said,

“It is moving to see positive images of Black and Latino women, families, doula and breastfeeding consultants advocating for community-based approaches aimed at centering on women and their families. This is what we need to move the curve in the inequities we see in preterm birth.”

Legislative Briefing in Sacramento

On December 10, 2018, the California PTBi joined UCSF’s Bixby Center for Global Reproductive Health to present a legislative briefing in Sacramento to more than 20 California Assembly and Senate staff members. The goal was to build relationships and establish our expertise on reproductive issues in the hopes of providing valuable evidence-based data to inform future policies.

Linda Tenerowicz, legislative aide to Assemblyman Freddie Rodriguez, told us,

“I really appreciated the inclusion of systematic racism in the medical setting, because I think that’s something we don’t hear a lot about in legislative briefings.”

Presenters

- Brittany Chambers | Assistant Professor, UCSF Department of Epidemiology & Biostatistics
- Brianne Taylor | Research Assistant, Project Coordinator, Osher Center for Integrative Medicine
- Zea Malawa | Program Manager, Collective Impact to Prevent Preterm Birth in SF
- Ushma Upadhyay | Assistant Professor, UCSF Department of Obstetrics, Gynecology & Reproductive Sciences, Advancing New Standards in Reproductive Health (ANSIRH)
- Sarah Roberts | Associate Professor, UCSF Department of Obstetrics, Gynecology & Reproductive Sciences, Public Health Social Scientist, ANSIRH

Topic: Structural racism and maternal and infant health

Topic: Public insurance coverage for doula care

Topic: Safety of telemedicine abortion

Topic: Substance use and pregnancy
Raising Awareness of Barriers to Medicaid Coverage for Doula Care

Racism and racial bias in health care have helped contribute to what is coming to be understood as a national crisis of maternal deaths for women of color - in particular, Black women. Black women are three to four times as likely as White women to die during labor and the maternal period. Notably, these racial disparities in maternal mortality rates exist across all levels of income, age and education.

Numerous studies have demonstrated that doulas can help reduce the impacts of racism on pregnant women of color by helping to provide culturally appropriate patient-centered care. Doula care would seem to be a natural fit for underserved populations such as women of color, immigrant women, and low-income women, who experience among the worst maternal health and birth outcomes. Yet these women can ill afford to pay out of pocket for doula care, and today, doula care is covered for Medicaid enrollees in only two states, Minnesota and Oregon.

To help change this, we partnered with the National Health Law Program in 2018 to co-author an issue brief that lays out barriers to Medicaid coverage for doula care. The brief also proposes potential recommendations for successful implementation (See page 72 for the doula implementation we helped pioneer in San Francisco).

Monthly Collaboratory Events

Every month PTBi offers a free, open-to-the-public discussion series titled Collaboratory. It has been one of the most exciting and quickly growing areas of our research dissemination efforts, advancing the field through true thought leadership. The goals of each Collaboratory are to bring together a wide range of investigators and community members to hear about a specific topic in preterm birth from several perspectives and to engage in a lively discussion on developing innovative approaches to preventing preterm delivery and improving outcomes for babies born too soon.

Clinicians who attend these sessions can earn CME and CNE credit, and each session begins with 30 minutes for refreshments and mingling to help encourage engagement during the session. In-person attendance is, on average, 60-70 people, with an additional 20-30 attendees joining by livestream video. Our most widely attended Collaboratories drew more than 200 attendees.

Past Collaboratories & Topics July 2018 – May 2019

July 2018
Black Women’s Perspectives of Structural Racism Across the Reproductive Lifespan: Opportunities for Novel Measure Development

Panelists
Helen Arega, MA
PTBi-CA, UCSF
Silvia Arabia, MPH
PTBi-CA, UCSF
Brandi Gates, IBCLC
BreastFriends & Breastfeeding WIC West Oakland Health Center Community Advisory Board Member, Oakland
PTBi-CA, UCSF

Loretta Scruggs-Leach, RN
Central Valley Black Nurses Association Community Advisory Board Member, Fresno
PTBi-CA, UCSF

August 2018
Breastfeeding Policies: Global Trends, Conflicts of Interest and Consequences for Marginalized Communities
August (cont.)

**Panelists**
- Ifeyinwa Asiabu, RN, PhD
  Department of Family Health Care Nursing, UCSF
- Aunchalee Palmquist, PhD, IBCLC
  Department of Maternal and Child Health, UNC
- Chyonne Washington
  Black Infant Health Program, San Mateo County Health
- Kimberly Seals Aliens
  Journalist and Author
- Robbie Gonzalez-Dow, MPH, RD, CLE
  California Breastfeeding Coalition

September 2018
Beyond the Neonatal Intensive Care Unit: Comprehensive Postnatal Support for Preterm Infants and Their Families

**Panelists**
- Linda Franck, RN, PhD, FAAN
  Department of Family Health Care Nursing, UCSF
- Dawn Gano, MD, MAS
  Department of Neurology, UCSF
- Laura Frame, LCSW, PhD
  Early Intervention Services, UCSF BCHO
- Monica Parran
  Preterm Birth Mother

October 2018
Annual Symposium on Preterm Birth in Kigali, Rwanda

Panelists
- Jennifer Dunn, JD
  UC, Hastings College of the Law
- Usha Ranji, MS
  Women's Health Policy, Kaiser Family Foundation

January 2019
The Healing Power of Doulas

**Panelists**
- Marsha Armstead
  SisterWeb
- Stephanie Dixon
  Bare With Me Duo
- Linda Jones
  Black Women Birthing Justice
- Etcia Brown
  LetThemFlourish
- Deunda Hunden
  Bare With Me Duo
- S’Lah Wehner
  Community Doula

February 2019
How Can We Close the Racial Gap in Preterm Birth Rates? Opportunities for Intervention

**Panelists**
- Arnold L. Chandler
  Forward Change
- Paula Braverman, MD, MPH
  Center for Health Equity, UCSF

March 2019
Understanding Abuse and Preterm Birth: What Can Be Done?

**Panelists**
- Alexis Cobbins, MSW
  Human Services Agency, San Francisco
- Rebecca Baer, MPH
  Department of Pediatrics, UCSD
- Elizabeth Rogers, MD
  Department of Pediatrics, UCSF

April 2019
Placental Infection and Prematurity: Community Engagement Across the Globe

**Panelists**
- Moses Madadi Obimbo, MD, PhD
  Postdoctoral Fellow, PTBi
- Jessica Amezcua
  Division of Maternal-Fetal Medicine, UCSF
- David Arnoff, MD, FIDSA, FAAM
  Division of Infectious Diseases, Vanderbilt University
- Sachi Patel
  Department of Obstetrics, Gynecology & Reproductive Sciences, UCSF

May 2019
Disrupting the Racial Wealth Gap in Pregnancy: Evidence from Cash Transfer Programs and Opportunities for Policy Action

**Panelists**
- Deb Karasek, PhD
  Postdoctoral Fellow, PTBi
- Artanesha Jackson, MSW
  Department of Community Health and Engagement, UCSF BCHO
- Hector Santamaria
  Human Services Agency, SF City and County
Media Coverage
East Africa
June 2018 — May 2019

Many of our communications have focused on raising awareness locally and globally about preterm birth. Our Tiny Hats campaign remains the cornerstone of our efforts, but our local teams also have worked to raise awareness in their respective geographies.

Print/Online
Daily Nation (Kenya): At About Touch: Kangaroo Care Can Save Your Pre-term Baby’s Life, December 17, 2018, by Elizabeth Ojina.

Makerere University Centre for Excellence in Maternal Newborn Health (MNH) News: Transferring Care for Every Newborn Key to Health for All Global Targets – New Report (Survive and Thrive), December 12, 2018.


Makerere University Centre for Excellence in Maternal Newborn Health (MNH) News: Maternal Newborn Care: Calls for Task Shifting, Doctors Urged to Embrace Teamwork, July 12, 2018, by Kakaare Ayub Kirunda.

Radio
Radio talk show hosted by Migori County Department of Health where listeners were able to call in with questions on preterm birth.

KTFM 96.7: Prematurity Awareness With Increased Attention On and Urgency About Global Initiatives to Address Preterm Birth, November 2018, in Kigali, Rwanda.

KCBS: Dily Walker reported on PTBI-EA and the Tiny Hats Campaign.

Videos
Kenya Medical Research Institute (KEMRI), 2018: Overview video including highlight footage of PTBI and an interview with PTBI-EA PI, Dily Walker.

KEMRI, 2019 Documentary on the Preterm Birth Initiative Study, edited from a larger KEMRI documentary.

Events
Knit and Commit: This side session at the triennial FIGO conference in Brazil in October 2018 provided participants with an overview of PTBI’s activities and introduced our Tiny Hats campaign to them, while providing basic knitting lessons to new knitters so they can join the campaign.

World Prematurity Day Celebrations showcased the work of PTBI-Kenya, both at the national and county levels.

Maternal and Child Health Week in April 2019 in Rwanda supported 500 mothers with Tiny Hats to teach mothers about the importance of keeping their babies warm.

California
May 2018 — May 2019

We believe it is our task to continually call out racism as the root cause of the inequities that lead to the large racial disparities in preterm birth rates in our geographies. Our communications highlight the power of research when it is driven by the voices of the communities most impacted by this epidemic.

Print/Online


UC Global Health: In Health Research, Local Efforts Have Global Benefit, July 10, 2018, by Andy Killefer.


Radio

KQED Forum: Disparity Between Black and White Infant Mortality Rates Remains High, July 18, 2018, host Mina Kim.

Events
Fellows Publications

Patience Afulani


Molly Altman


Brittany Chambers


Melissa Medvedev (Morgan)


Deborah Karasek


Joseph Musana


Moses Madadi Obimbo


by which socioeconomic status and other social determinants influence health. She directed the MacArthur Foundation’s Research Network on Socioeconomic Status and Health and developed a widely used measure of subjective social status. She heads the national program office of the Robert Wood Johnson Foundation “Evidence for Action” grants program. A fellow of the American Psychological Society and the American Psychological Association, she was elected to the American Academy of Arts and Sciences and the National Academy of Medicine (NAM), which awarded her the David Rall Medal. She serves on the Advisory Committee to the Director of National Institutes of Health, the Report Review Committee of the NRC/NAS and the NAM Council and Executive Committee. In 2017, she received the Medal for Distinguished Contributions in Biomedical Sciences from the New York Academy of Medicine.

Dr. Joia Adele Crear-Perry is the founder and president of the National Birth Equity Collaborative. Previously, she served as the executive director of the Birthing Project, director of Women’s and Children’s Services at Jefferson Community Healthcare Center and director of Clinical Services for the City of New Orleans Health Department, where she was responsible for four facilities that provided health care for the homeless, and pediatric, WIC and Healthy Start programs. In 2018, Dr. Crear-Perry was awarded an NIMHD R01 study in Chicago exploring epigenetic mechanisms that drive disparities in adverse birth outcomes, and an NICHD R01 study examining the impact of group prenatal care on maternal and placental inflammation in Greenville, South Carolina. Borders also serves as the executive director and obstetric lead for the Illinois Perinatal Quality Collaborative, a collaborative focused on improving health outcomes for women and newborns through quality improvement with over 100 birthing hospitals in Illinois. Borders is a member of the ACOG Committee on Obstetrics Practice and an ex-officio member of the Committee on Patient Safety and Quality Improvement.

Dr. Ann E.B. Borders, MD, MSc, MPH

Dr. Borders is a maternal-fetal medicine specialist in the Department of Obstetrics and Gynecology at NorthShore University HealthSystem, and a clinical associate professor at the University of Chicago Pritzker School of Medicine. Borders’ research examines psychosocial and socioeconomic determinants of adverse pregnancy outcomes in vulnerable populations of women. Her work includes an NICHD R01 study in Chicago exploring epigenetic mechanisms that drive disparities in adverse birth outcomes, and an NICHD R01 study examining the impact of group prenatal care on maternal and placental inflammation in Greenville, South Carolina. Borders also serves as the executive director and obstetric lead for the Illinois Perinatal Quality Collaborative, a collaborative focused on improving health outcomes for women and newborns through quality improvement with over 100 birthing hospitals in Illinois. Borders is a member of the ACOG Committee on Obstetrics Practice and an ex-officio member of the Committee on Patient Safety and Quality Improvement.

Dr. Michael Lu, MD, MS, MPH

Dr. Michael Lu is a professor and senior associate dean for Academic, Student, and Faculty Affairs at the Milken Institute School of Public Health at George Washington University (GW). He provides leadership and vision for the school’s educational mission, and coordinates services and support to help all students and faculty succeed. Prior to joining GW, Lu was the director of the Maternal and Child Health Bureau for the U.S. Department of Health and Human Services. During his tenure, Lu transformed key federal programs in maternal and child health, launched major initiatives to reduce maternal, infant, and child mortality, and was awarded the prestigious Hubert H. Humphrey Award for Service to America. Lu joined the federal government from UCLA Schools of Medicine and Public Health, where he held a joint faculty appointment in obstetrics-gynecology and community health sciences. He was best known for his research on racial-ethnic disparities in birth outcomes, and his leadership in developing, testing, and translating a unified theory on the origins of

Sam Hawgood, MBBS, PTBI Strategic Advisory Board Chair

Dr. Hawgood, a renowned researcher, professor, academic leader, and pediatrician, has been chancellor of UCSF since 2014. Previously, he was dean of the UCSF School of Medicine and vice chancellor for medical affairs from 2009 to 2014. Hawgood earned his MD as a research fellow in 1982. His focus on the proteins associated with pulmonary surfactant led to funding from the National Heart, Lung, and Blood Institute, which supported his work continuously through 2015. That work gained him an international reputation in neonatology research. Today, as chancellor and Arthur and Toni Rembe Rock Distinguished Professor, Hawgood oversees the multi-billion-dollar UCSF enterprise, which includes the top public recipient of research funds from the National Institutes of Health, a nationally ranked medical center, and San Francisco’s second-largest employer. UCSF includes highly ranked graduate schools of dentistry, medicine, nursing, and pharmacy, a graduate-level biomedical research division, the UCSF Health system, and affiliated hospitals. Hawgood is a member of the American Academy of Pediatrics and the American Association of Physicians. In 2010, he was elected to the National Academy of Medicine.

Lynne Benioff

Lynne Benioff is a philanthropist active on the boards of several organizations. She is a Distinguished Director of the Board of Overseers of the University of California, San Francisco Foundation, and serves on the boards of directors of the Rise Fund, UCSF Benioff Children’s Hospitals, Common Sense Media, the Benioff Ocean Initiative and Forward.

Joia Adele Crear-Perry, MD, FACOG

Dr. Joia Adele Crear-Perry is the founder and president of the National Birth Equity Collaborative. Previously, she served as the executive director of the Birthing Project, director of Women’s and Children’s Services at Jefferson Community Healthcare Center and director of Clinical Services for the City of New Orleans Health Department, where she was responsible for four facilities that provided health care for the homeless, and pediatric, WIC and glycemic services within the New Orleans clinical service area. Crear-Perry has been celebrated for her work to improve the availability and utilization of affordable health care for New Orleans’ citizens after the Hurricane Katrina disaster of 2005. Currently, her focus has expanded nationally and internationally as it relates to maternal and child health. Recently, she addressed the United Nations Office of the High Commissioner for Human Rights to urge a human rights framework to improve maternal mortality.

Nancy Adler, PhD

Dr. Adler is the Lisa and John Pritzker Professor of Medical Psychology at UCSF, vice-chair of the Department of Psychiatry, and director of the Center for Health and Community. Her research examines the impact of risk perception on reproductive and sexual health decision making and identification of mechanisms that influence risk perception and risk behavior. Adler is an expert on reproductive and sexual health decision making and is well-versed in research methods to understand decision making and behavior change.

Dr. James M. Greenberg is the director of the Division of Neonatology at Cincinnati Children’s Hospital Medical Center. At Cincinnati Children’s, he serves as one of three co-directors of the Perinatal Institute. In 2006, he co-created Cradle Cincinnati, a collective impact collaborative devoted to the elimination of infant mortality in Hamilton County (Cincinnati), Ohio. Cradle Cincinnati now incorporates novel intervention programming, including Cincinnati’s Healthy Start program. In 2018, Dr. Greenberg was appointed co-chair of the Ohio Collaborative for the Prevention of Infant Mortality, sponsored by the Ohio Department of Health. He is author of over 90 peer-reviewed articles, book chapters and editorials, his research interests include the epidemiology of preterm birth, community health, neonatal chronic lung disease and patient safety in the NICU. Greenberg earned his MD from the University of Illinois College of Medicine and completed fellowships in immunology and neonatology at the University of Minnesota Hospital and Clinic.

Michael Lu, MD, MS, MPH

Dr. Michael Lu is a professor and senior associate dean for Academic, Student, and Faculty Affairs at the Milken Institute School of Public Health at George Washington University (GW). He provides leadership and vision for the school’s educational mission, and coordinates services and support to help all students and faculty succeed. Prior to joining GW, Lu was the director of the Maternal and Child Health Bureau for the U.S. Department of Health and Human Services. During his tenure, Lu transformed key federal programs in maternal and child health, launched major initiatives to reduce maternal, infant, and child mortality, and was awarded the prestigious Hubert H. Humphrey Award for Service to America. Lu joined the federal government from UCLA Schools of Medicine and Public Health, where he held a joint faculty appointment in obstetrics-gynecology and community health sciences. He was best known for his research on racial-ethnic disparities in birth outcomes, and his leadership in developing, testing, and translating a unified theory on the origins of

California Subcommittee

Dr. Nancy Adler, PhD

Dr. Nancy Adler is a professor in the Department of Psychology and a member of the Center for Health and Community. Her research examines the impact of risk perception on reproductive and sexual health decision making and identification of mechanisms that influence risk perception and risk behavior.
participating in the largest national initiative focused on advancing racial and economic equity: just and fair inclusion for everyone living in America. He brings over 20 years of experience as a leader who has partnered with organizations across the public, philanthropic, and private sectors to realize this vision. Michael came to PolicyLink in 2011 as the inaugural director of the Promise Neighborhoods Institute at PolicyLink. Under his leadership, PolicyLink emerged as a national leader in building cradle-to-career systems that ensure children and youth in our nation’s most distressed communities have a pathway into the middle class. Michael earned his doctorate of education in human and organizational learning from George Washington University and completed Harvard University’s Executive Program in Public Management.

Hope Williams
Ms. Williams has worked for over 20 years educating, advocating and strengthening family and community voices in San Francisco. Motivated by her own experiences growing up in the city, being a young professional and new mother overcoming homelessness, to later in life giving birth to a preterm infant, she is driven to serve and impact change. As a member of the PTBi-CA Community Advisory Board and CEO of PolicyLink, a national research and action institute focused on advancing racial and economic equity, just and fair inclusion for everyone living in America. He brings over 20 years of experience as a leader who has partnered with organizations across the public, philanthropic, and private sectors to realize this vision. Michael came to PolicyLink in 2011 as the inaugural director of the Promise Neighborhoods Institute at PolicyLink. Under his leadership, PolicyLink emerged as a national leader in building cradle-to-career systems that ensure children and youth in our nation’s most distressed communities have a pathway into the middle class. Michael earned his doctorate of education in human and organizational learning from George Washington University and completed Harvard University’s Executive Program in Public Management.

East Africa Subcommittee

Michael McAfee, MPA, EdD
Michael McAfee is president and CEO of PolicyLink, a national research and action institute focused on advancing racial and economic equity: just and fair inclusion for everyone living in America. He brings over 20 years of experience as a leader who has partnered with organizations across the public, philanthropic, and private sectors to realize this vision. Michael came to PolicyLink in 2011 as the inaugural director of the Promise Neighborhoods Institute at PolicyLink. Under his leadership, PolicyLink emerged as a national leader in building cradle-to-career systems that ensure children and youth in our nation’s most distressed communities have a pathway into the middle class. Michael earned his doctorate of education in human and organizational learning from George Washington University and completed Harvard University’s Executive Program in Public Management.

Zulfikar Bhutta, PhD, MBBS, FRCPC, FAAP
Dr. Zulfikar A. Bhutta is the Robert Harding Inaugural Chair in Global Child Health at the Hospital for Sick Children (SickKids), Toronto, co-director of the Sick Kids Centre for Global Child Health and the founding director of the Centre of Excellence in Women and Child Health at the Aga Khan University. He also holds adjunct professorships at several leading universities globally, including the Schools of Public Health at Johns Hopkins University, Tufts University, Boston University, University of Alberta and the London School of Hygiene & Tropical Medicine. Bhutta’s research interests include newborn and child survival, maternal and child undernutrition and micronutrient deficiencies, as well as reproductive, maternal, neonatal, child and adolescent health and nutrition in conflict settings. He leads large research groups based in Toronto, Karachi and Nairobi with a special interest in research synthesis, scaling up evidence-based interventions in community settings and implementation research in health systems research.

Anna Knutsson, PhD
A midwife by training, Dr. Anna Knutsson holds a PhD in health care pedagogy from the University of Göteborg. She currently serves as the chief of the Sexual and Reproductive Health Branch for the United Nations Population Fund (UNFPA). Previously, Knutsson served as the head of development cooperation for the Embassy of Sweden/Sida.

Alex Coutinho, MD, MPH
Dr. Alex Coutinho, a global health leader, has practiced medicine and public health in Africa for 34 years. He is the executive director for Partners in Health in Rwanda and previous board chair for the International AIDS Vaccine Initiative in New York and International Partnership for Microbicides in Washington, DC. Coutinho began his work with HIV/AIDS in 1982. He was the executive director of The AIDS Support Organization (TASO) from 2001 to 2007. From 2007 to 2014 he served as executive director of the Infectious Diseases Institute at Makerere University, Kampala. In 2015, he helped to respond to the Ebola epidemic in West Africa. Since September 2015, Coutinho has been working with the Rwanda Ministry of Health to build innovative health systems in the areas of oncology, neonatology, mental health and noncommunicable diseases. In 2013 he was awarded the prestigious Hideyo Noguchi Africa Prize. Currently Coutinho serves on the International Partnership for Microbicides board, the WHO strategic advisory board for the elimination of malaria, and the Kenjin-Tatsujin International Advisory Council for the Ashinaga Africa Initiative. He is a senior lecturer at the University of Global Health Equity in Rwanda.

Geeta Rao Gupta, PhD
Dr. Geeta Rao Gupta is the executive director of the 3D Program for Girls and Women and Senior Fellow at the United Nations Foundation. She is also a member of the WHO Independent Oversight and Advisory Committee for health emergencies. In 2017 she was a visiting scholar at Stanford University and served as co-chair of the Gender-Based Violence Task Force of the World Bank. From 2011 to 2016, Rao Gupta served as deputy executive director at UNICEF and from 2010 to 2011 was a senior fellow at the Bill & Melinda Gates Foundation. Prior to that, for over a decade, Rao Gupta was the president of the International Centre for Research on Women (ICRW), a non-profit based in Washington, DC. Dr. Rao Gupta earned a PhD in social psychology from Bangalore University and an MPH and MA from the University of Delhi in India.

Ruth Levine, PhD
Dr. Ruth Levine is the program director of the Global Development and Population Program at the William and Flora Hewlett Foundation. Levine is an internationally recognized development economist and expert in global health, education and evaluation. Since 2011, she has led the foundation’s team responsible for grantmaking to improve living conditions in low- and middle-income countries and to advance reproductive health and rights in developing countries and in the United States. Previously, Levine was a deputy assistant administrator in the Bureau of Policy, Planning and Learning at the U.S. Agency for International Development. She holds an undergraduate degree in biochemistry from Cornell University and a doctorate degree in economic demography from Johns Hopkins University.

Amy Pollack, MD, FACOG, FAAP
Dr. Amy Pollack serves as the director of the Maternal, Newborn & Child Health team at the Bill & Melinda Gates Foundation. Prior to joining the foundation, Pollack served as chief safety officer at Medtronic, where she set the strategy and policy for medical safety across the company’s global business groups. Pollack has over 25 years of experience in domestic and international health care, including work in clinical practice, as the CEO of an international women’s health non-profit, and as an executive in early-stage medical device businesses, social venture capital and industry. She has led global health multilateral negotiations for disruptive technologies and national working groups to drive policy change around the HPV vaccine, cervical cytology and prostate cancer. Pollack received her undergraduate degree in neuroscience and her medical degree from the University of Florida. She completed her obstetrics and gynecology and preventive medicine residencies at the University of Washington.

Jaime Sepulveda, MD, DrSc, MPH
Dr. Jaime Sepulveda is the director of the Center for Global Health Sciences, professor of Epidemiology, and the Hale T. Debas Distinguished Professor in Global Health at UCSF. His areas of research expertise include HIV/AIDS, vaccines, health surveillance and metrics, neglected infectious diseases, maternal & neonatal health, health policy and global health initiatives. Previously, Dr. Sepulveda was the principal investigator for the FIRST (Fighting Infections through Research, Science & Technology) program, which
Jeffrey Smith, MD MPH

Jeffrey Smith is the deputy director of Implementation Research and Demonstration for Scale on the Maternal, Newborn and Child Health Team. He is an obstetrician/gynecologist and global health strategist with 25 years of clinical and public health experience in developing countries across Asia, Africa and Latin America. He received his undergraduate and medical degrees from Georgetown University and his public health degree from Johns Hopkins University. He spent 10 years in Asia, where he provided program management support and technical guidance to a variety of public health programs in Nepal, Afghanistan and Thailand. He guided the maternal health team for Jhpiego on USAID’s Maternal and Child Survival Program. His most recent role was as the vice president for Technical Leadership at Jhpiego, where he led clinical interventions and implementation approaches in reproductive, maternal, neonatal, child and adolescent health and infectious diseases. He has authored numerous publications related to improving the quality of clinical services, expanding the health workforce and scaling up proven clinical interventions for women and girls, mothers and newborns. He holds faculty positions in Gynecology and Obstetrics at the Johns Hopkins University School of Medicine and in International Health in the Johns Hopkins University Bloomberg School of Public Health.

Appendix B: Preterm Birth Initiative Leadership

East Africa

UCSF Team

Dilys Walker
Principal Investigator, PTBi East Africa

Hana Azman Firdaus
Monitoring, Learning, and Evaluation Technical Advisor

Alejandra Benitez
Biostatistician

Elizabeth Butrick
Senior Program Manager

Michelle Cai
Operations Manager

Susanne Martin-Herz
Co-Investigator Health and Neurodevelopment sub-study

Felicia Lester
East Africa Training Specialist

Tiffany Lundeen
Lead, Group Care Model Development

Rikita Morai
Research Analyst

Lara Miller
Program Manager

David Mugume
PTBi Information Lead System Developer

Roger Myrick
Director of Monitoring and Evaluation
In addition to the project leadership listed here, the East Africa team gratefully acknowledges the work and support of our field teams, consultants, local and national advisory boards, and Ministry of Health partners.
Principal Investigators

Larry Rand
Principal Investigator, PTBi
California and PTBi C3 (Communication, Collaboration, and Capacity Building, Aim 4)

Linda Franck
Co-Principal Investigator, PTBi
California; Director, Postnatal Interventions (Aim 2c)

UCSF Team

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Research Analyst, Epidemiology and Biostatistics

Esperanza Castillo
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Brittany Chambers
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Kimberly Coleman-Phox
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Jennifer Felder
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Sky Feuer
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Jonathan Fuchs
Director, Collective Impact (Aim 3)

Dawn Gano
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Jaontra Henderson
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Quin Hussey
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Rebecca Kriz
Program Manager, Postnatal Research Program

Miriam Kuppermann
Director, Preconception & Prenatal Interventions (Aim 2a, Aim 2b), Director, Transdisciplinary Postdoctoral Fellowship

Selina Lao
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Daphina Melbourne
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Community Advisory Board

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Hope Williams
San Francisco Unified School District

Alexis Cobbins
Project 500, San Francisco Human Services Agency

Oakland

Shanell Williams
Director, Community Engagement

Nayeli Bernal
Community Member

Jennifer Braddock
Certified Nurse Midwife, Highland Hospital

TaNefer Camara
Lactation Consultant, Alameda Health System

Zoe Carrasco
Prenatal Healthcare Educator, La Clinica De La Raza

Starr Britt
Roots of Labor Collective

Brandi Gates-Burgess
Lactation Consultant and Breastfeeding Coordinator, Breast Friends Mommy Group, Alameda County WIC Program, West Oakland Health Center

Linda Jones
East Bay Community Doula, Black Women Birthing Justice Co-Founder, Roots of Labor Birth Collective Advisor

Michele Poole
Community Member

Sonia Waters
Resource Counselor, Family Resource Navigators

Jesse Wehner
Native, Natural and Beyond Birthing Supportive Services

Fresno

Amee Mallet
Program Coordinator, Clinica Sierra Vista

Loretta Scruggs-Leach
Community member

Carla Stanley
Clinical Nurse

Claudia Taylor
Community member

Parent Clinician Advisory Board

Benioff Children’s Hospital Oakland

Holly Christensen
NFRC Site Research Nurse

Priscilla Joe
NFRC Site Principal Investigator

Samantha Ngo
NFRC Site Clinical Research Coordinator

Meshay Adams | Member, Oakland
Ruth Crowe | Member, Oakland
Bette Flushman | Member, Oakland
Audra Kay | Member, Oakland
Joanne Kuller | Member, Oakland
Jianina Lloyd | Member, Oakland
Leslie Lusk | Member, Oakland
Evelyn Mascarinas | Member, Oakland
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Kathryn Ponder | Member, Oakland
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Teresa Proctor | Member, Oakland
Analucia Silva | Member, Oakland
Meskerem Zawde | Member, Oakland

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Whitney Brown  
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Kristina Chester  
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Zach Chester  
Member, San Francisco
Courtney Gregory  
Member, San Francisco
Kristin Hoppe  
Member, San Francisco
Jen Hutchison  
Member, San Francisco
Jaclyn Lerch  
Member, San Francisco
Keidonna McDowell  
Member, San Francisco
Kacy Minot  
Member, San Francisco
Alina Mon  
Member, San Francisco
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Member, San Francisco
Quyhn-an Phan  
Member, San Francisco
Janet Shimotake  
Member, San Francisco
Myrna Vega Demare  
Member, San Francisco

CRMC Fresno

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NFRC Site Clinical Research Coordinator

Diana Cormier  
NFRC Site Principal Investigator

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Jennifer Contreras  
Member, CRMC
Yuri Corona  
Member, CRMC
Kristi Hernandez  
Member, CRMC
Abby Jacobs  
Member, CRMC
Jennifer King  
Member, CRMC
Michael King  
Member, CRMC
Karina Lopez  
Member, CRMC
Roselyn Nuñez  
Member, CRMC
Yesica Perez  
Member, CRMC
Robin Ryan  
Member, CRMC
Pamela Salcedo  
Member, CRMC
Priscilla Valle  
Member, CRMC
Anne Williams  
Member, CRMC
Donna Wyman  
Member, CRMC

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Laura Jelliffe-Pawlowski  
Principal Investigator

Brittany Chambers  
Co-Principal Investigator

Anu Manchikanti Gómez  
Co-Principal Investigator

Carly Ritter  
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Collective Impact - Fresno

Steering Committee

Brian Angus | Fresno Economic Opportunities Commission
Lynne Ashbeck | Valley Children’s Hospital
Joseph Castro | California State University, Fresno
Kathryn Catania | Fresno County Superintendent of Schools
Jennifer Chou | ACLU of Northern California
Jonathan Fuchs | UCSF California Preterm Birth Initiative
Sara Goldgraben | Fresno County Dept. of Public Health
Kristi Hernandez | Mother with Living Experience
Quin Hussey | UCSF California Preterm Birth Initiative
Nicole Hutchings | Mother with Living Experience
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Carla Stanley | Central Valley Black Nurses Association
Kudzi Muchaka | Community Regional Medical Center
Gail Newel | OB/GYN Consultant
Artie Padilla | Every Neighborhood Partnership
Janet Paine | Anthem Blue Cross
Larry Rand | UCSF California Preterm Birth Initiative
Emilia Reyes | First 5 Fresno County
Mark Salazar | Fresno County Police Department
Courtney Shapiro | CalViva Health
Preston Prince | Fresno Housing Authority
Dawan Utecht | Fresno County Dept. of Behavioral Health
Reyna Villalobos | Clinica Sierra Vista
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Expecting Justice, San Francisco Collective Impact for Healthy Births

Steering Committee

Sabra Bell | Parent Advocate
Ayanna Bennett | SF Department of Public Health
Alice Chen | SF Department of Public Health
Kim Coates | SF Unified School District
Davina Counte | Parent Advocate
Farah Faramand | SF Department of Children, Youth and their Families
Anastasia Gordon | Bayview Y
David Erikson | SF Federal Reserve

Hector Sanchez Flores | National Compadres Network
Jonathan Fuchs | UCSF California Preterm Birth Initiative
Milika Funaki | Regional Pacific Islander Task Force
Jessica Wiley | San Francisco Health Plan
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Dan Kelly | Human Services Agency
Sara Kennedy | Planned Parenthood of Northern California
Ingrid Mezquita | First 5 San Francisco
Martha Ryan | Homeless Prenatal Program
Kim Scurr | UCSF
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Transdisciplinary Fellowship Cohort ’18-’19

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Postdoctoral Fellow

Deborah Karasek
Postdoctoral Fellow

Moses Obimbo Madadi
Postdoctoral Fellow

Solaire Spellen
Program Associate

Dorothy E. Forde
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Deborah Karasek
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Solaire Spellen
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Appendix C: Videos and Digital Stories

Shared Stories

About the Preterm Birth Initiative

Using Community Health Workers in San Francisco for Preterm Birth Prevention
http://bit.ly/2ThM1xU

Transdisciplinary Postdoctoral Research Fellowship
http://bit.ly/2W7wF04

California Stories

Social Determinants of Health Adversity and Resilience (SOAR) Factors
http://bit.ly/2OwFRF

Family Integrated Care with Mobile Technology (mFICare)
http://bit.ly/2PIz2Nc

Persistent Human Cytomegalovirus Infection of the Amnion in Preterm Birth
http://bit.ly/2TM8KH0

Exploring the Dual Burden of Severe Maternal Morbidity and Preterm Birth in California
http://bit.ly/2TSH4mY

Newborn and Family Research Collaborative

Informing Model Articulation by Eliciting the Family Experience
http://bit.ly/2TWjn1g

Preventing Short Interpregnancy Intervals and Preterm Birth Through Post-Delivery Contraception

Testing Exposure to Immigration Enforcement as a Determinant of Preterm Birth in California
http://bit.ly/2mvDMZ8

San Francisco Preterm Infant Mortality Review (SF PFIMR)

A Trial of Donor Milk Vs. Formula to Supplement Late Preterm Infants

Eating Wellness: Fruit and Vegetable Vouchers to Support Pregnant Mothers in San Francisco
http://bit.ly/2Y8mTVQ

Postpartum Contraceptive Decision Support Tool

Infant Questionnaire: Exploring How Stress Influences the Risk of Preterm Birth Among Black Women
http://bit.ly/2yjT6a4

Exploring the Dual Burden of Severe Maternal Morbidity and Preterm Birth in California
http://bit.ly/2TSH4mY

x

Qualifying Risk:
Exploring How Stress Influences the Risk of Preterm Birth Among Black Women
http://bit.ly/2yjT6a4

Periviable GOALS: A Decision Support Tool for Perivable Decision-Making
Stress, Resilience and Coping in Hispanic Women in Fresno: The SOLARS Study Expansion
http://bit.ly/2Fx4D0N

Disrupting Models of Prenatal Care in Fresno: GLOW!

Air Pollution and Preterm Birth: A Natural Experiment
http://bit.ly/2T3jU0G

World Prematurity Day: City and County of San Francisco Press Conference
http://bit.ly/2KsS3G3

Jove Protocol: Involving Women of Color at High Risk for Preterm Birth in Research Priority Setting

Collaboratory: Housing and Preterm Birth: Community-Academic Partnership for Research and Action

Racism and Preterm Birth: Preterm Birth Initiative 2017 Annual Symposium

San Francisco Supervisor Malia Cohen, Sister Web and SF DPH Announce New Doula Program
http://bit.ly/2TPaS6y

The Benefits of Kangaroo Care

PTBi California Partnering with Patients to Co-create Research Agendas (Premiered at the White House Precision Public Health Summit in June 2017)
http://bit.ly/2KsTX3m

Laura Jelliffe-Pawlowski on KVTU: New Blood Test to Predict Preterm Birth

Monica McLemore at the White House Frontiers Conference

Roman’s Story
http://bit.ly/2Kvig1

Collaboratory: Got Breast Milk?
http://bit.ly/2jAYM1

Black Women’s Perspectives on Structural Racism: Opportunities for Measure Development

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Collaboratory: Got Breast Milk?
http://bit.ly/2jAYM1

Collaboratories: Transdisciplinary Monthly Discussion Series on Preterm Birth
http://bit.ly/2TzG5c

The Making of Birth Justice Warriors

Benioff Community Innovators

Monica McLemore at the White House Frontiers Conference
http://bit.ly/2KnUN9N

Roman’s Story
http://bit.ly/2Kvig1

Collaboratory: Got Breast Milk?
http://bit.ly/2jAYM1
Collaboratory: Living in a Time of Uncertainty: Advancing Women's Health in 2017 and Beyond [bit.ly/2rMBt6t]

Anne Wojcicki at World Prematurity Day 2016: Empowering People to Take Charge of Their Health [bit.ly/2IgJkJU]

Case Studies of Kangaroo Mother Care in Vietnam [bit.ly/2IgJkJU]

The Power of Group Antenatal Care [bit.ly/2U2Fv4u]

Group Pregnancy Care Webinar, 11 July 2017 [bit.ly/2w9u13t]

2016: A Year in Review | East Africa Preterm Birth Initiative [https://adobe.ly/29jbdK]

California Residents Talk About How Prematurity has Affected Their Lives (World Prematurity Day 2015) [bit.ly/2tm4POx]

Case Studies of Kangaroo Mother Care in Vietnam [bit.ly/2IgJkJU]

Tiny Hats for Tiny Babies Photo Story [https://adobe.ly/2mPBrF]

Tiny Hats for Tiny Babies Video [bit.ly/2Ib9I38]

East Africa

Kangaroo Care [https://adobe.ly/2tn3gh7]

Tiny Hats for Tiny Babies Photo Story [https://adobe.ly/2mPBrF]

Tiny Hats for Tiny Babies Video [bit.ly/2Ib9I38]