

Degree: MPH-65

Field of Study: Global Health

Practicum Project Abstracts 2020

Practice Organization	Project Title and Abstract
Bill & Melinda Gates Foundation	<p>Innovations for Maternal, Newborn & Child Health</p> <p>Over the course of 12 weeks I worked primarily on three projects:</p> <ol style="list-style-type: none">1) Maternal Morbidity Lit Review: Designed to understand what variables should be included in a comprehensive pregnancy and birth surveillance system. Operational definitions for 15 maternal morbidity outcomes were pulled from 139 unique studies, analyzed and incorporated into a study protocol for 7 research sites across 6 countries.2) Digital Device Connectivity: Revised the strategy and target product profile for equipment monitoring technologies in newborn ICUs via reviewing landscapes, stakeholder interviews and collaborating with a partner organization to guide research in India, Kenya & Ethiopia.3) Antenatal Care (ANC) Digital Platform Landscape: Conducted an analysis of digital tools that integrate data (from patient records, novel diagnostics, population priors , etc.) and communicate next steps to a user (midwives or nurses) based on the pregnancy risk calculated. Developed thematic criteria to evaluate tools, interview guides and an investment framework to inform future bets in this space. Generated a presentation on the dominant trends and challenges in the digital health ecosystem and conducted deep dives for 5 potential investments - highlighting the opportunities, strengths, weaknesses and next steps for each digital platform.
Boston Children's Hospital	<p>Health Related Social Needs Post ED Discharge in the COVID-19 Era</p> <p>For my practicum, I worked with the Boston Children's Hospital Division of Pediatric Emergency and Global Health Department on the research project "Health Related Social Needs Post ED Discharge in the COVID-19 Era" to address the following four objectives:</p> <ol style="list-style-type: none">1.) Assess the impact of the COVID-19 pandemic on social health needs of pediatric patients and their families (eg. food security, employment, transportation),2.) Examine the effects of the Massachusetts "Safer-at-Home Advisory" (March 15th – May 18th) on the pediatric population and their families,3.) Assess barriers to maintaining the government recommended public health measures of physical and social distancing, and4.) Assess the impact of the COVID-19 pandemic on the health needs of pediatric patients and access to medical care. <p>We are conducting a retrospective cohort study using a random convenience sample of all children seen in the ED and discharged home between March 15th and August 31st, 2020. We aim to have an 80% powered</p>

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	<p>sample size of 908 non-COVID19 patients plus an additional 100 COVID19 positive patients, totaling at least 1,000 patients.</p>
Boston Children's Hospital	<p>Health-Related Social Needs in the COVID-Era</p> <p>This project aimed to understand the challenges, if any, faced by families with children throughout the COVID-19 pandemic. We wanted to learn which social determinants of health were impacted by the pandemic and how this compared to before the pandemic. We also wanted to provide families with community resources in the area to help with any challenges.</p>
Center for the Evaluation of Value and Risk in Health (CEVR)	<p>Cost-effectiveness analysis of continuous glucose monitoring versus self-glucose monitoring among adolescence and young adults with type 1 diabetes in the United States</p> <p>My project consisted to conduct an original cost-effectiveness analysis with other two fellows. It was a cost-effectiveness analysis for the use of continuous glucose monitors (CGM) compared to single glucose monitors (SGM) in young adults and adolescents with type 1 diabetes in the United States.</p> <p>Based on literature review we identified the best available evidence and developed a hybrid decision analytic state-transition model for capturing acute and chronic complications of TD1. We measured expected lifetime cost and quality-adjusted life-years (QALYs) gained from a health care sector perspective with a 3% discount rate. Incremental cost-effectiveness ratios (\$/QALY) were used to summarize the results along with disease-specific outcomes. To account for uncertainty in the model inputs we conducted deterministic sensitivity analyses.</p> <p>In the base-case analysis, CGM turned out to be more costly (\$73,676 lifetime costs) and more effective (0.9 lifetime QALYs gained) than SGM, resulting in an ICER of \$81,946 per QALY gained. Sensitivity analysis showed that the price of both devices have the largest impact on the ICER.</p> <p>Therefore, from an US healthcare sector perspective and at a standard willingness-to-pay (WTP) of \$100,000 per QALY gained, CGM are cost-effective compared to SGM. Our results may guide value-based pricing for CGM and new devices in the market.</p>
Centers for Disease Control and Prevention	<p>COVID-19 Hotspot Machine Learning Analysis</p> <p>Knowing that another COVID-19 wave will hit the US before a vaccine is widely accessible, it is important to learn from the current counties that are COVID-19 hotspots (very high number of cases) in order to allocate the proper resources for potential future hotspot counties. This machine learning algorithm identifies characteristics shared among current COVID-19 hotspots in the United States and produces a ranked list of United States counties that are likely to become hotspots.</p>

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Children's Foundation of Mississippi	Developing a Blueprint for Children's Health and Well-being in Mississippi Researched "blueprints" for children's health and well-being at the state, national and international level; conduct over 30 interviews with leadership across the state; and create a policy memo and blueprint chapter about strategies to solve the digital divide in Mississippi.
Harvard T.H Chan School of Public Health	Rural Mutual Healthcare I did my practicum at the Department of Global Health and Population Studies at the Harvard T.H Chan School of Public Health with two professors on a project on Rural Mutual Healthcare. Rural Mutual Healthcare (RMH) is a potential solution for overcoming access barrier to care and providing health insurance to informal sector workers and their families in low and lower-middle income countries. The basic principle RMH is that through self-reliance, cooperation, trust, subsidies by the government and management at the local level, financially sustainable community health insurance (CHI) schemes can be set up in rural areas in the developing countries. My job was to conduct literature review of the historic development of CHI schemes. I prepared analytical reports on the historical development of community health insurance schemes in Japan, China, Indonesia and Kerala, India. Furthermore, I did a detailed analysis of the CHI schemes in Rwanda and Ethiopia through the principles of Rural Mutual Healthcare. What made the schemes successful and what lessons can researchers and policy makers learn from their experience. My final task was provision of policy recommendations for developing countries that want to implement CHI schemes for their rural populations.
Harvard T.H Chan School of Public Health Design Lab	Review and Analysis of Structural, Industrial, and Individual level Pandemic Response This practicum work was centered on making crises visible in real-time in response to the tendency to analyze crises after they have subsided. Integrating design and public health approaches to problem analysis, I worked on research teams at two institutions pursuing three research streams. With the IIT Institute of Design, known for its innovative tactical and human-centered design approaches to reimagining civic infrastructures, developing new models, and repairing critical systems, I was able to explore global industry response to pandemic restrictions. My work in support of an industrial ethnography analyzed the emerging opportunity landscape for building resilient infrastructure long term. With the Harvard School of Public Health Design Lab, whose activation of design methodology bolsters analysis of behavioral challenges that threaten the well-being of people, organizations, and the natural environment, I elucidated the pandemic experience on an individual level. My work analyzing patterns of activity via a camera study and qualitative interview will inform design criteria for emerging public health interventions. Through a literature exploration, I was able to critically analyze the syndemic of COVID-19 and structural racism in the US context

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	<p>to realize opportunities for increasing health equity in public health practice. This work supported the operationalization of design in interdisciplinary public health practice. Future plans for this work include the integration of research streams and extrapolation of general principles to apply via micro piloting. As an iterative process. Continued ideation integrates new knowledge flows to develop hard and soft infrastructure together and build resilience in our system response.</p>
India Health Systems - Harvard T.H. Chan School of Public Health	<p>Feasibility of Mutual Healthcare in Odisha, India</p> <p>I was working on a sub-track within the project that involved the feasibility assessment of mutual healthcare and community-based financing (CBF) in Odisha, India. My key responsibilities included an exhaustive systematic literature review on the various CBF models in India, along with the sustainable Self-Help Group (SHG) models. I carried out the research by examining the social factors that are instrumental in shaping the SHGs, the reasons for their homogeneity while focusing particularly on the marginalized groups in India, i.e. the Scheduled Castes (SCs) and the Tribal Communities. I analyzed the various approaches that SHGs have adopted in India, along with the operating models, including credit delivery models. The literature review included, the extensive usage of annual household surveys and health surveys to include the data pertaining to socio-economic indicators, ability to spend on healthcare, religious and political affiliations of communities, health service delivery, utilization of facilities, etc.</p>
International Rescue Committee	<p>Strengthening Female Public Health Research Capacity in Low-Income, Conflict-Affected Countries</p> <p>As the world continues to face humanitarian crises that devastate access to quality care for maternal and newborn health and constrain the ability of women to practice and research in this field, promoting strong research capacity to improve outcomes in low-income, conflict-affected countries is a pressing public health challenge. My project focused on supporting the career advancement of female public health researchers through the design of research capacity-strengthening programming together with partners in Democratic Republic of Congo, Nigeria, Somalia, and South Sudan. Namely, I conducted a literature review and user research with students, early career researchers, and senior researchers in these countries to better understand their unique career trajectories, challenges, values, aspirations, and ideas for support structures. I then developed virtual prototypes and gained user feedback on ideas for implementation. I compiled findings and an implementation guide in a final report, policy brief, and presentation. I also mapped maternal and newborn health national policies in these countries to inform future research, advocacy, and evaluation efforts around maternal and newborn health policy.</p>
iTakeControl Health	<p>Designing an At-home Six-minute Walk Test</p>

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	<p>The Covid-19 pandemic necessitated the need to find health technology solutions to limit the risk associated with visits to healthcare facilities. To that end, iTakeControl was interested in designing a protocol and tech solutions to enable severely ill patients to take the Six-minute Walk Test, a test of functional exercise capacity, from their homes. I conducted desk research on Six-minute Walk Test protocols and landscape analysis on the the applications of wearable gadgets for monitoring health vitals and mobility. With the team, I developed the test questionnaire to be used for the mobile app part of the solution and a created a final presentation illustrating how the Six-minute Walk Test could be conducted reliably and accurately at home.</p>
Partners in Health	<p>Contact Tracing in Massachusetts: Lessons Learned</p> <p>For my practicum I worked as a Case Investigator for the Partners in Health led Massachusetts Contact Tracing Collaborative. While at the CTC I was tasked with calling newly identified positive cases and collecting conducting outreach interview in both Spanish and English. During the outreach call I collected demographic information, symptom data, and recent contacts. Additionally, I also provided isolation instructions to newly positive cases. Identified contacts were then called and referred for testing and provided with quarantine instructions. For both cases and contacts, I was also tasked with following up with them until the end of their isolation or quarantine period. If at any point during the process, resource needs were identified (such as housing or food insecurity, issues with health care access, or unsafe isolation or quarantine conditions) I referred the individuals to a Care Resource Coordinator, or CRC. The experience provided insight into how pandemic response was undertaken in the context of Massachusetts, but also within the national context of the United States.</p>
Takeda	<p>A landscape analysis of Japanese public-private partnerships and developing framework for measuring impact</p> <p>The project will use a Global Health lens to analyze various public-private partnerships to assess its efficiency and effectiveness to ensure projects are innovative, impactful, and sustainable for the long-term. To do so, this project has five objectives.</p> <ol style="list-style-type: none">1. Research, analyze, and catalog ongoing PPP projects and stakeholders in Japan, including Global Health Innovative Technology Fund (GHIT) and compare to other PPPs in the world2. Analyze and summarize 80+ projects in Takeda's PPP Catalogue to improve articulation of impact/benefit that the various PPP projects bring to patients and the company3. Develop a framework to measure the impact and benefits of PPP projects for both business and public health.4. Organize an internal workshop/conference with stakeholders at a venue to be determined to raise

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	<p>awareness about PPPs and promote collaboration by leveraging existing synergies.</p> <p>5. Analyze and estimate the effect of PPP on how it contributes to the capacity development of employees through key-informant interviews and focused group discussions.</p>
The World Bank Group	<p>Leveraging Knowledge Translation to Tackle the World's Deadliest Infectious Disease</p> <p>I worked with the World Bank's Health, Nutrition, and Population Global Practice, which provides financing, state-of-the-art analysis, and policy advice to help countries expand access to quality, affordable health care. My practicum project centered on contributing to the Bank's portfolio of tuberculosis allocative efficiency studies by providing research and data analysis support, as well as supporting the write-up of policy briefs, reports, and journal articles emanating from the studies.</p>
World Bank Group	<p>Health Financing, Strategic Purchasing and Adolescent Health</p> <p>Over the summer I conducted my practicum with the World Bank Group working with a senior economist and a senior health specialist in the Health, Nutrition and Population Global Practice Division. The objectives of this practicum were geared towards supporting the analytical and operational work of the World Bank Group in gathering key data and providing advice and technical assistance to partner countries as they implement organizational reform and key strategic activities in 2 key areas (i) in financing and strategic purchasing in the healthcare sector and (ii) in health care provision specifically targeting policies to improve maternal, child and adolescent health.</p> <p>Objectives and deliverables</p> <ol style="list-style-type: none">1. Conducting a country case analysis looking at the strategic purchasing of healthcare services in Azerbaijan and analyzing the country's system for healthcare financing. For this country case analysis, I drafted a technical report and a knowledge brief detailing my findings and analysis.2. Literature review – Emerging NCDs in adolescent health. Editing and updating the information in 2 chapters of a book on adolescent health: one chapter on emerging NCDs and their impact on adolescent health, and the second chapter on School health, specifically sexual and reproductive health in secondary education. I also produced 2 case studies on the state of adolescent health education in Zimbabwe and India, and these will be included in the book.3. Creating a database of the best practices for adolescent health and adolescent health education