

within the team tended to serve more in an advisory rather than participatory role. Key challenges in program implementation were related to inadequate and inconsistent inputs (salaries, transport, dedicated office space) and gaps in management. Specific factors that undermined consultant's effectiveness included lack of formal orientation at inception, no clear job performance targets, no performance feedback or monitoring of Consultants, weak supervision, and no co-management between the National and State levels on Consultants activities.

Interpretation: While Consultant's TORs are fairly well observed, weaknesses in managerial and material inputs affect performance. This study provides evidence that could inform efforts to improve the management and implementation of the RI consultant program. Our finding may help to understand operational challenges to implementing TA interventions more broadly, and can act as a tool for leadership in the design and management of these programs.

Funding: Funding by the GAVI Alliance through the Vaccine Implementation Technical Advisory Consortium (VITAC) grant.

Abstract #: 02GMHE007

Lessons for public-private partnerships from ACHAP's contributions to the fight against HIV/AIDS in Botswana

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Program/Project Purpose: In 2000, Botswana was a country in crisis. The HIV/AIDS epidemic was ravaging the country, with an adult prevalence rate over 28 percent. Projections from the World Health Organization (WHO) at the time indicated that 85 percent of 15 year-olds in the country would eventually die of AIDS. In 2013, FSG conducted a strategic review of the African Comprehensive HIV/AIDS Partnerships (ACHAP), focusing on the successes, challenges, impact, and lessons learned by the partnership over its 14 year history. ACHAP is a public-private partnership (PPP) formed by Merck, the Bill & Melinda Gates Foundation, and the Government of Botswana that contributed significantly to the dramatic scale-up of the antiretroviral therapy (ART) program which today reaches an estimated 85 percent of those in need.

Structure/Method/Design: Over the course of 12 months, FSG conducted over 75 interviews with key informants, three site visits to Botswana, a review of hundreds of documents pertaining to ACHAP's strategy and operations, and a review of external literature assessing ACHAP, HIV in Botswana, key interventions, and other PPPs.

Outcomes & Evaluation: FSG found that ACHAP's story is one of adaptation. Lessons from this partnership have clear implications for PPPs today working to solve health issues in complex and often broken healthcare systems. PPPs need to develop the capacity to adapt to ever changing political, epidemiological, and social contexts. By studying ACHAP's successes and failures, FSG identified critical and timely recommendations for the field.

Going Forward: FSG has put forward six key lessons that PPPs today can and should integrate into their work: Emphasize nimble execution and leverage flexible funding upfront to design the right interventions and role for the PPP. Set clear milestones upfront and be intentional about strategic shifts to ensure the organization has the skill and capacity to support the shifts. Ensure the management and governance structure supports the PPP design and goals. Plan for the sustainability of the organization and its impact and revisit the plans on an ongoing basis to ensure the success of the partnership. Set up the PPP to be a learning body that both informs the field and regularly test the strategic direction of the partnership. Design the appropriate collaboration mechanisms to allow for alignment with the government to ensure success of the partnership. ACHAP formed at a time when many other PPPs on health issues were emerging putting it in a position to serve as

one of the few examples that show the challenge of remaining relevant and effective over time.

Funding: FSG, a nonprofit consulting and research firm, received funding from the Merck Foundation to conduct the research.

Abstract #: 02GMHE008

A comparative cost-benefit analysis of medical equipment sterilization methods in a rural Nicaraguan clinic

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Program/Project Purpose: The rural clinic in El Tololar, Nicaragua routinely turns away dental and women's health patients because of a lack of sterile medical equipment. Clinic staff, including the director and dentist, identified this as a problem that could be ameliorated by having on-site equipment sterilization, but lacked evidence to rigorously determine the optimum method for sterilization.

Structure/Method/Design: Therefore, from January-February 2014, I performed a comparative cost-benefit analysis of three methods of medical equipment sterilization in their clinic: the status quo of shipping medical equipment back to the main hospital about one hour away, chemical sterilization, or purchasing an autoclave for on-site use. I visited the closest medical supply store, priced out goods, and calculated the net present value (NPV) and internal rate of return (IRR) for each sterilization method. I found that the autoclave would maximize NPV, while chemical sterilization maximized IRR. In addition, I calculated annualized return on investment (ROI) and time to ROI, which was shortest for chemical sterilization.

Outcomes & Evaluation: With the main criterion of maximizing NPV, I concluded that obtaining an autoclave would be the optimal solution to the clinic's problem. I have presented my findings to a US-based business, and hope to convince them to make a relatively small investment by US standards to improve the financial outlook and health of this rural community. The clinic has agreed to take responsibility for ongoing maintenance and upkeep of the autoclave.

Going Forward: This project demonstrates a powerful financial tool that can be used in the global health setting to decide between projects from a fiscal perspective.

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Abstract #: 02GMHE009

The economic and social impact of patient care attendants at Mulago national referral hospital, Kampala, Uganda

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Program/Project Purpose: Uganda has one doctor per 15,000 patients and one nurse per 11,000 patients. Critically or terminally ill patients are commonly referred to Mulago Hospital in Kampala. Even at Mulago, the number of nursing staff is insufficient to meet the significant needs of all patients. Thus, it is common for inpatients to be accompanied by an attendant to aid in their care. However, little is known about the lives and experiences of patient care attendants. Aim: The primary goal of this study was to learn about the lives, impact and economic challenges of attendants at Mulago Hospital.

Structure/Method/Design: This was a qualitative study of 100 patient care attendants in the Medicine Department at Mulago National Referral Hospital. Participants were recruited via simple random sampling in August 2014. Only one attendant per patient was included. Data was collected using an interviewer-administered questionnaire. Results were analyzed qualitatively to identify recurring themes. Written informed consent was sought from every participant and IRB approvals were obtained.

Outcomes & Evaluation: Most of the participants were female, married, farmers and of youthful age. The services they provided focused on self-care deficits such as feeding, cleaning, and administering of drugs. Furthermore, most participants reported the attendants to be an imperative and suitable method to respond to patient needs. While serving as an attendant, each participant spends at least 120,000 Ugandan Shillings on transport, food and communication. Patients' relatives generally provided funding. Almost all participants slept on the floor when serving as attendants and consumed food served by the hospital to the patients. The greatest challenges mentioned included the poor bedding and sanitation of the hospital. Most attendants were their family's primary home caretaker and breadwinner, leaving the needs of family back home neglected.

Going Forward: Interpretation: The need for a patient care attendant imposes a financial strain on patient families by providing an additional cost and often disposing a primary income earner. Limitations: There is no standardized instrument available to assess the lives of patient care attendants. However, existing literature and the study objectives were used to design a data collection instrument that was comprehensive and detailed. Strength: The study findings are a true representation of the participants' views since data collection was exhaustively done until no new themes were generated.

Funding: Western Connecticut Health Network, Danbury, Connecticut, USA.

Abstract #: 02GMHE0010

Can poverty reduction investments translate into more healthcare workers?

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Background: New targets for global development emphasize poverty reduction with some perceiving these priorities as de-emphasizing healthcare investments even though health and poverty are inextricably linked. This study sought to examine the relationships between key country development indicators and physician and nurse-to-population ratios in order to explore the potential impact poverty reduction investments could have on human resources for health production.

Methods: Publicly available data from international databases that collect human resources for health, political system, economic, and population demographic data comprised the data for the 184 countries included in this cross-national comparative observational study. Selected variables have known influences on healthcare systems indicators. Data were from the most recent year available. Relationships between key variables were examined using descriptive and multiple regression techniques. Missing data were imputed using the ICE technique in STATA. Analyses were also replicated in R for added rigor. IRB approval for this study was obtained through New York University.

Findings: Average education levels of the population were strongly and significantly correlated with the nurse/midwife ($r = .60$, $p=0.000$) and physician ($r = .72$, $p=0.000$) to population ratios. In regression models, average years of school in a country's population, emigration rates, beds per 1,000 population, and low income country statuses were consistently statistically significant predictor variables. Regression models found that the combination of variables explained 63% of the nurse/midwife-to-population ratio (pseudo $R^2=.627$, $p = .0000$) and 73% of the physician-to-population ratio (pseudo $R^2 = .729$, $p = .0000$).

Interpretation: Poverty reduction priorities in the next decade appear to have the potential to indirectly facilitate the production of human resources for health. The education variable in the model and its consistent significance is the best illustrator of the potential long term effects of these investments. While the study was limited by the overall quality and availability of data, the stability of the model across various analytic strategies strengthens the rigor of the results. Thus, while poverty reduction initiatives may help future generations and long term economic development, policies and investments also need to strengthen present day production systems that support the operations of health systems vital to combating health conditions related to poverty.

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Abstract #: 02GMHE011

Universal healthcare access and equity in Brunei Darussalam

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Background: Universal healthcare is being promoted internationally as a way to reduce healthcare disparities, however, little research has been conducted to determine the extent to which universal healthcare achieves that aim. The Brunei Darussalam Health System Survey (HSS) was conducted in 2013 in four districts of Brunei Darussalam. The survey was a nationally representative household survey to gather data on the population's perceptions and expectations related to the nation's universal healthcare system. The purpose of this research was to determine how healthcare access and equity in Brunei differ by individual respondent and household characteristics.

Methods: Using census data provided by the Ministry of Health, all households in Brunei were randomly sampled. Local interviewers conducted interviews in person using a standardized questionnaire that gathered data about individual and household healthcare utilization, perceptions of healthcare quality, and expectations for future health system strengthening. The average response rate was 80 percent and 1,197 households participated in the survey. Data were analyzed using Stata 2010.

Findings: HSS data suggest that healthcare utilization in Brunei varies by ethnicity, district of residence, health status, and income. When compared to other ethnic groups, Chinese households were significantly less likely to utilize public healthcare and significantly more likely to utilize private healthcare services. Indigenous groups also demonstrated significantly lower rates of private healthcare utilization compared to other ethnicities. Temburong district had the lowest rates of both private and public healthcare utilization and was associated with a 2.67 decreased likelihood of using public healthcare in the past six months. When stratifying for health status, data indicate that healthcare utilization in Brunei is proportional to healthcare need, with 93 percent of respondents in poor health reporting using government hospitals 12 or more times in the past six months compared to 76 percent of respondents in excellent health