

Structure/Method/Design: We use detailed facility-level data from Colombia, Ghana, India, Kenya, Lebanon, Zambia, and Uganda. In each country, we collected data in approximately 200 facilities over a 5-year period. In addition, 12,000 patient interviews were conducted with the aim of gathering information on consumer perception of health facility quality.

We specify a production model with five inputs and seven outputs. Inputs include the number of beds as proxy for capital, and four categories for labor (doctors, nurses, other medical staff, and administrative staff). As with respect to output, outpatient visits include basic outpatient services, ART (antiretroviral treatment), malaria, antenatal care, and emergency. For inpatient services we use inpatient days, births, and surgery.

To avoid biased efficiency estimates due to heterogeneous technology, we propose an innovative approach that adjust outputs across facilities. We first identify all pharmaceuticals and equipment related to the production of each output and build a score that reflects the extent to which technology is available in the facility.

We then use consistent bootstrap DEA models using the adjusted outputs to compute technical efficiency scores by controlling for measurement error and noisy data. We include minimal weight restrictions to reflect the relative importance of inputs and outputs in the production process of health facilities. Weight restrictions are chosen to maintain the radial nature of efficiency valid.

We finally use output weights provided by DEA to calculate the marginal rate of transformation between outputs. This information is critical to the estimation of average costs for each output.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): We find evidence of important inefficiency (40% on average) with massive variation across facilities. Inefficiency substantially increases average costs to produce health services (35% on average). Also, we find evidence of efficiency increases over time of about 10%, likely due to the scale-up of ART treatment and related services. Additional evidence is necessary to assess the causal relationship.

Summary/Conclusion: We find evidence of potential efficiency increases. Efficiency increase of health services production in developing countries is paramount to exploit the potential of service coverage extension and fair allocation of resources. For this purpose, higher-quality data and systematic efficiency assessment analyses are needed.

Can bans break bad habits? An interrupted time series analysis of the impact of the 2005 high school smoking ban on teenage smoking behavior in Chile

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Background: Objectives: To evaluate the impact of the 2005 school smoking ban on smoking prevalence among the high school population compared to the general population aged 19 to 24 years in Chile, the country with the world's highest teenage smoking prevalence. The secondary objective was to evaluate the impact of this ban on high- versus low-frequency smokers.

Structure/Method/Design: The analysis followed an interrupted time series (ITS) design with a comparison group. The data consisted of biennially repeated population cross sections representative at the regional level in Chile between the years 2000 to 2011. The data for the intervention group (high school population, ages 12-18 years)

originated from the Chilean SENDA población escolar dataset ($n \sim 50,000$ per data year), and the data for the comparison group (age 19-24 years) originated from the Chilean SENDA población general dataset ($n \sim 2,000$ per data year).

In 2005, Chile passed a tobacco-regulatory law #20.105, effective January 1st, 2006. The strictest provision of the law was a complete smoking ban in all high schools and a tobacco sales ban within a radius of 300 m ($\sim 1,000$ feet) of all schools. The effect of this ban on the high school student population was the focus of this analysis. A two-stage ITS analysis via Poisson models was performed to assess the difference in change in slopes of smoking behavior pre- and post-policy between groups.

Thirty-day smoking prevalence change before and after the law, change in prevalence of heavy smokers before and after the law.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Past 30-day smoking prevalence during 2000-2001 was 41.9% and 55.1% among high school students and young adults, respectively. While smoking prevalence increased a relative 0.6% per year among HS students in the pre-intervention period 2000-2005 (RR, 1.01, 95% CI, 1.00-1.01, $P = 0.014$), no significant change was observed among young adults. Post-2006, the smoking prevalence decreased annually by -2.9% (95% CI, -5.0% to -0.1% , $P = 0.009$) in the high school group compared to the university aged group. A direct policy intervention effect of a -14.5% change over 5 years (or -29.0% over 10 years) can be attributed to the law. The impact of the smoking ban was driven by the decline in smoking prevalence in 8th- through 10th-grade students. The law was effective in reducing the relative proportion of low frequency smokers, but the proportion of heavy smokers (smoking more than 15 days per month) remained unchanged.

Summary/Conclusion: The 2005/06 high school smoking ban was successful in reducing the smoking prevalence among Chilean teenagers, but future interventions tackling older high school students and more frequent smokers are needed.

Health domains for sale: The need for better global eHealth governance of health information online

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Background: A debate on Internet governance for health, or "eHealth governance" is emerging with the impending award of a new dot-health (.health) generic top-level domain name ("gTLD") to a private sector entity by The Internet Corporation for Assigned Names and Numbers ("ICANN"), a multistakeholder nonprofit international organization that controls this system.

Structure/Method/Design: This was a descriptive global health policy study. We reviewed the applications of health-related gTLDs and assessed factors of application status and country of origin, entity type of applicant (public vs. private), applicant affiliations, proposed governance of gTLD, and the presence of any support/partnership from the health sector. Analysis was conducted in August 2013.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Upon our analysis, we found that prospective .health applicants are all business corporations with few or no ties to the global public health community. If approved, one of these companies would effectively control the future of the .health address on

the web. In addition, other important health-related domain names including .doctor, .healthcare, .hospital, and .medical are also pending award to exclusively private sector entities, the majority of which have no clear restrictions on use.

Summary/Conclusion: The lack of adequate representation by the global public health community in applying and management of new health-related gTLDs is worrisome and could compromise the future quality of health information online. Countries, medical associations, civil society, and consumer advocates have objected to these applications on grounds that they do not meet the public interest and may not adequately engage in consumer protection activities. We argue that there is a crucial need for quality and evidence-based sources of health information online and that proper governance by the international community is necessary. This could be accomplished by requesting ICANN to re-categorize .health as a sponsored gTLD and proactively appoint WHO its sponsor. By re-categorizing .health (similar to eligibility requirements in place since 2001 for .edu as a sponsored gTLD), WHO would develop policies to ensure accountability and transparency in gTLD operations that meet the best interests of the global health community and enforce eligibility rules regarding all future health registrants.

An expanded immunization program for US-bound refugees: Ethiopia, Kenya, Malaysia, Nepal, and Thailand, 2013

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Background: Up to 70,000 refugees, primarily from Asia, Africa, and the Middle East, will resettle to the United States in FY 2014. US-bound refugees are required to undergo a medical examination overseas to identify communicable diseases of public health significance, such as pulmonary tuberculosis. However, the required examination does not include vaccinations. Before resettlement, these refugees are at high risk for vaccine-preventable diseases due to difficult living conditions and lack of access to routine immunization services in both their countries of origin and host countries. Since 2005, US-bound refugees have experienced multiple outbreaks of vaccine-preventable diseases, including measles, rubella, and polio. Such outbreaks have led to morbidity, significant delays in resettlement, and substantial economic expenditure related to outbreak response and control. There is typically a 4- to 12-month period of processing between enrollment in the US resettlement program and US arrival. This time period presents a window of opportunity in which to deliver effective public health interventions to improve refugee health and prevent importation of diseases into the United States. We sought to develop and implement an expanded vaccination program for US-bound refugees.

Structure/Method/Design: The Centers for Disease Control and Prevention (CDC) Immigrant, Refugee, and Migrant Health Branch, in close consultation with CDC subject-matter experts, developed recommendations for provision of seven vaccines to US-bound refugees, protecting against 10 diseases. Implementation began in 2013. A toolkit covering vaccine schedules and administration, storage and handling, and adverse events monitoring was assembled. Checklists for program monitoring and evaluation were piloted.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): The International Organization for Migration, which conducts the overseas medical examination, is the implementing partner. The US Department of State co-funds the program with CDC.

Summary/Conclusion: A program for expanded immunization of US-bound refugees at the time of overseas medical examination is in the process of implementation, and may contribute to better health during and following resettlement as well as save costs. From January to September 2013, approximately 36,000 US-bound refugees in Ethiopia, Kenya, Malaysia, Nepal, and Thailand received immunizations as part of this program, with coverage rates of ~97% among those eligible for the first dose of MMR vaccine (used as a proxy since most age groups are eligible for this vaccine). Ongoing challenges have included vaccine procurement, cold chain maintenance, scheduling of next-due vaccine doses, proper review and documentation of previous immunization records, and modification of recommendations in outbreak settings. Future plans include expansion of this program to larger groups of US-bound refugees, and determination of its success in reducing the incidence and costs of vaccine-preventable diseases in recipients.

Global health influences internationalization priorities at Canadian universities

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Background: Canadian universities are at a turning point with federal funding reductions, national enrolment numbers declining, and private partnerships becoming a mandatory component to research and programming priorities. With these challenges, universities have turned to the international market focusing on enrollment and research funding as a potential answer to their financial challenges. The reality is that fee-paying international students will help budget constraints and provide an avenue for maintaining existing and enhancing additional resources of growth and diversification within institutions of higher education. The international market as only a "financial" resource is a narrow view of globalization.

Historically global health was viewed as a health issue germane to vulnerable communities like many countries in Africa, regions in conflict and humanitarian disasters. Now global health issues are recognized as a domestic issue (e.g., aboriginal child mortality) and global health solutions learned in other countries are now being established within the Canadian health care system (e.g., community based rehabilitation). It is of mutual benefit and interest to have a common global health strategy and network on which to learn together, share progress, and celebrate improvement in health status globally.

Resources, partnerships, and interest in global health continue to grow within the Canadian university environment. While the global health community is diverse, there is a common vision and set of principles based on social responsibility, ethical engagement, and collaboration.

Global health has typically sat in the background of the internationalization priorities within Canadian universities. However, several universities recognize the need to bring global health into the dialogue and planning of internationalization. This paper will explore the opportunities for global health to influence a socially and fiscally responsible Canadian university.

Structure/Method/Design: This review and analysis highlights a summary of Canada's International Education Strategy as well as approved internationalization strategies at Canadian universities.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Internationalization strategies exclude global health at most universities. Two Canadian universities have demonstrated their commitment to developing global health principles into their internationalization and socially responsible mandates. Parallel to this work are global health networks mobilizing to strengthen this