Aspirin for secondary prevention after stroke of unknown etiology in resource-limited settings: a decision analysis

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Background: Seventy-one percent of worldwide stroke mortality and 77.5% of worldwide stroke disability-adjusted life years (DALYs) lost occur in low- and middle-income countries (LMIC). This disproportionate burden of stroke in LMIC is due to resource limitations in both prevention and treatment. In addition to risk factor modification, aspirin is an inexpensive and effective medication for secondary stroke prevention. However, only 3.8% of patients with prior stroke in low-income countries take antiplatelet agents, compared to 53.1% in high-income countries. One reason for this is that without access to CT to distinguish ischemic stroke (IS) from intracerebral hemorrhage (ICH), clinicians must balance presumed risks of aspirin administration in patients with potential ICH against potential benefits of secondary prevention in patients with possible IS. In order to assist clinicians practicing in resource-limited settings, we conducted a decision analysis to determine the impact of administering aspirin as long-term secondary preventive therapy to all patients after stroke when CT is not available to distinguish IS from ICH.
Methods: We used a Markov state transition model to evaluate the potential outcomes of two strategies for long-term secondary prevention after stroke of undetermined etiology: administering aspirin to all patients versus not administering aspirin to any patients. Data on the risks and benefits of aspirin use after IS and ICH were obtained from meta-analyses and large series. Sensitivity analyses were performed across the worldwide reported range of the proportion of strokes due to ICH and the 95% confidence intervals of aspirin-associated relative risks in patients with ICH.
Findings: For patients with stroke of unknown etiology, long-term aspirin was the preferred treatment strategy across the worldwide reported range of the proportion of strokes due to ICH. At 34% of strokes due to ICH (the highest proportion reported in a large epidemiologic study), the benefit of aspirin remained beyond the upper bounds of the 95% confidence intervals of aspirin-associated post-ICH relative risks most concerning to clinicians (ICH recurrence risk and mortality risk if ICH recurs on aspirin). Based on the estimated 11,590,204 strokes in LMIC in 2010, our model predicts that aspirin therapy for secondary stroke prevention in all patients in these countries could lead to an estimated yearly decrease of 84,492 recurrent strokes and 4,056 stroke-related mortalities.
Interpretation: The concern that the risks of aspirin in patients with stroke of unknown etiology could outweigh the benefits is not supported by our model, which predicts that aspirin for secondary prevention after stroke of undetermined etiology could lead to decreased stroke-related mortality and stroke recurrence. In the absence of a clinical trial to test this approach empirically, clinical decisions still require patient-specific assessment of risk and benefit.
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Cost-Effectiveness of diabetes screening and prevention by global region: A review

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Program/Project Purpose: Diabetes rates are increasing globally and are of growing concern in low and middle-income countries (LMICs). Screening and prevention among high-risk individuals can improve quality of life and reduce associated healthcare costs. We used existing literature to assess cost-effectiveness of diabetes screening and prevention among high-risk individuals by global region.
Structure/Method/Design: We compiled data from trial or modeling studies published before June 1, 2013 and registered in the National Library of Medicine, Scopus, or Google Scholar databases. Studies were included if written in English and contained cost-effectiveness data for participants with type-2, gestational, or high-risk for diabetes. We reported incremental cost-effectiveness ratios and cost per quality-adjusted life year (QALY) from the health system perspective in international dollars. We calculated median and range of cost-effectiveness estimates related to 1) diabetes, pre-diabetes, and/or gestational diabetes screening and 2) type-2 diabetes prevention in high-risk individuals. Median cost-effectiveness estimates were compared to WHO-CHOICE thresholds; interventions were considered cost-effective (CE) when intervention cost per QALY was between one and three times regional GDP per Capita. Costs below this range were considered very cost-effective (VCE) and those above were considered not cost-effective (NCE). Regions were defined according to World Bank classifications.
Outcomes & Evaluation: We identified 23 studies that reported economic data for diabetes screening and prevention among high-risk individuals; 21 were from high-income countries (HICs) and 2 were from LMICs. Screening for undiagnosed diabetes was VCE or CE in all regions except for South Asia and Sub-Saharan Africa (SSA). When accompanied by intervention, estimates were VCE or CE in every region except for SSA. Screening for gestational diabetes was VCE or CE for all regions except for South Asia and SSA. When accompanied by intervention, estimates were CE in SSA and VCE in every other region. In trials, individual-level interventions for type-2 diabetes prevention among high-risk individuals were NCE in East Asia & Pacific, South Asia, and SSA. Group interventions were VCE or CE in every region except for SSA. In modeling studies, individual-level interventions were VCE or CE in every region except for SSA, for which they were NCE. Group-level interventions were NCE in East Asia & Pacific, South Asia, or SSA.
Going Forward: Our analysis suggests that screening for undiagnosed or gestational diabetes with intervention is CE in every region except for SSA, where only gestational screening was CE. Trial and modeling studies provide conflicting results for prevention: trial studies favour group interventions while modelling studies favour individual-level interventions. The lack of cost estimates from LMICs is a limitation, since applying HIC estimates to LMIC settings may not truly represent intervention costs. Further research should be conducted in LMICs to adequately represent costs and burdens of diabetes.
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Prevalence of depression in the rural villages of Gujarat, India: A cross-sectional study

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Background: Depression is the most common major mental illness worldwide, affecting an estimated 350 million people [1]. In India, there is only one psychiatrist for every three hundred thousand people [2]. In the rural villages of Gujarat, India, major barriers to depression awareness and treatment exist. Barriers include socioeconomic obstacles, lack of access to care, inadequate budgeting, limited mental health education, and a high stigma of mental illness. This study was executed to gain a stronger understanding of the magnitude of depression in the rural villages of India. Few previous studies have analyzed depression in the general population of Indian villages. The aim of this study was to determine the prevalence of depression in the rural villages of Gujarat, India.
Methods: Study design: This two-month, cross-sectional study was conducted in six rural villages of Gujarat, India in collaboration with the MINDS Foundation, a non-profit organization that utilizes a grassroots approach to eliminate stigma and provide educational, medical, and moral support for patients with mental illness in rural India. Participants: A convenience sample of 190 adults (111 females, 79 males) was recruited door-to-door from their village homes. Participants were included if they were over 18 years old and willing to participate. The sample size was determined based on power, time, and feasibility. Each participant was administered the Patient Health Questionnaire (PHQ-9), a validated 9-question screening tool for depression, with the assistance of a local translator from the MINDS Foundation. Analysis: Each PHQ-9 depression score was categorized as either: none, minimal, mild, moderate, moderately severe, or severe depression. Based on the data collected, the scores were further categorized into total scores of 0 (no depression), 1 (1 depressive symptom), 2 (2 depressive symptoms), and 2+ (greater than 2 depressive symptoms). The covariates of age, sex, occupation, marital status, and education were examined in relation to PHQ-9 score through chi square analysis. This study was IRB approved, and written consent was obtained from each participant. 3. Findings.
Findings: Sex ($X2=23.906$, $df=3$, $p < .000$) and occupation ($X2=45.771$, $df=9$, $p < .000$) were found to be significant predictors of PHQ-9 depression score. Females and housewives were significantly more likely to score a 2 or higher on the PHQ-9 than other groups, while farmers were significantly more likely to score "no depression" than other occupations.
Interpretation: The results of this study portray a correlation between both sex and occupation with depression. Limitations to this study include the lack of randomization in the sample and reporting bias for the PHQ-9. However, this study provides an important and unique glimpse into the magnitude of depression in rural India, which few prior studies have examined.
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One RB world online: a virtual retinoblastoma clinic

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Program/Project Purpose: Retinoblastoma (childhood eye cancer) is curable, but outcomes remain poor in low-and-middle-income countries. Global research collaboration has been identified as key to addressing this survival disparity. In 2009, the first retinoblastoma clinical practice guidelines were published in Canada. Optimal resources and expertise for retinoblastoma management were outlined, and serves as a guide to inform health policy, at national, regional and institutional levels. Subsequently these guidelines were adopted by the Kenyan National Retinoblastoma Strategy group. In both countries, a situational analysis of key treatment centers has informed systems of patient referral, educational capacity initiatives, and is predicted to result in enhanced patient care. We now apply this approach on a global scale, with an online virtual retinoblastoma clinic.
Structure/Method/Design: We conducted a survey of Global Retinoblastoma Treatment Centers to identify and document expertise and resources available for the care of children with retinoblastoma worldwide. An online platform was developed to disseminate this information in an interactive and data-rich format.
Outcomes & Evaluation: The virtual clinic connects patient families to caregivers, and documents data on 130 centers in 50 countries. Survey functionality allows further data collection and updates. Knowledge of where and how retinoblastoma children are managed worldwide provides an efficient and rapid path for parents to access urgent care. The website indicates the closest expert center and all the contacts. Paths of referral and multicenter co-management aim to keep the children close to home while optimizing access to advanced therapies when needed. Estimated incidence vs location and capabilities of treatment centres reveals opportunities to increase capacity, collaboration and coverage in various regions.
Going Forward: The One Retinoblastoma World Virtual Clinic connects stakeholders and strengthens capacity to care for the global retinoblastoma population. This first-of its-kind collaboration promotes global standards of care, setting the stage for multicenter clinical trials and other research, thereby accelerating the translation of results from lab to clinic.
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An approach to assessment of global pediatric surgery partnerships targeting long-term capacity building in resource-limited settings

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Program/Project Purpose: Surgical services are frequently overlooked as part of the essential health care package in low- and middle-income countries resulting in death and disability due to lack of basic surgical care. A United States-based AMC (USAMC) set out to determine the feasibility of developing a collaborative global pediatric surgical program in response to requests from teaching hospitals in Sub-Saharan Africa (SSAAMCs) to build capacity in pediatric anesthesia and surgery and in alignment with internal faculty and USAMC institutional priorities. From May 2013 to April 2014, USAMC implemented a project with the aim of assessing a number of SSAAMCs to determine partnership opportunities for a long-term and sustainable pediatric surgery program that would both improve the capacity of the SSAAMC to provide pediatric surgery and anesthesia services as well as train future leaders in the health sector.
Structure/Method/Design: To determine feasibility, the project had a number of objectives focused on assessing: organizational alignment; existing SSAAMC surgical and anesthetic capacity and needs; USAMC resources and capabilities, and; logistical complexity for implementation. SSAAMCs self-selected as potential program sites by reaching out to the USAMC via USAMC's existing in-