

Interpretation: The Global Initiative for Children's Surgery was supported by multiple funding mechanisms, including several children's surgery sub-specialties. Support across disciplines and types of organizations reflect the wide range of stakeholders. Key stakeholders preferred to sponsor LMIC providers to whom they were closely connected, emphasizing the existing networks that must be mobilized to develop a strategic voice for children's surgery. Tracking funds will help to marry interests with needs and funding resources, help realize gaps in funding and promote transparency. This approach may help support surgical capacity building.

Source of Funding: None.

Abstract #: 1.035_NCD

Use of Ultrasound in an Outpatient Primary Care Clinic in Mozambique

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Program/Project Purpose: Ultrasound is a valuable inpatient diagnostic tool in developing countries, where other types of imaging may not be available. It is not known how ultrasound technology contributes to patient care in a limited-resource, outpatient primary care setting. This information is vital to developing appropriate training programs for practitioners in this setting. This study aimed to quantify the number, type, indication and usefulness of ultrasound at an urban health center in Beira, Mozambique.

Structure/Method/Design: We conducted a two-month observational study at the Sao Lucas Health Center, a government health center supported by the Catholic University of Mozambique in collaboration with the University of Pittsburgh, from February–April 2016. Ultrasound operators were the clinic director, Mozambican physicians, and global health residents from the University of Pittsburgh, all of whom received formal ultrasound training. Using a Siemans Acuson X000 machine a log-book was used to record the age and sex of patients, indication for exam, type of exam and findings. Operators were asked to assess if ultrasound contributed to: (1) confirmation of a diagnosis/gestational date, (2) exclusion of a potential diagnosis, or (3) revealed unexpected findings.

Outcome & Evaluation: During 44 clinical days, 369 ultrasounds were performed. Most patients were female (88%) and median age was 26 years. A majority of exams evaluated women's health complaints, including amenorrhea/suspected pregnancy (23%), gestational age/fetal position in gravid women (24%), pregnancy complications such as bleeding and absence of fetal movement (5%), and other gynecologic complaints (6%). Other indications for exam were abdominal complaints (24%). Less common indications were cardio-pulmonary, urologic, soft tissue, breast and ENT symptoms. Ultrasound was used to confirm a suspected diagnosis in 163 cases (44%), most often pregnancy and gestational age. The exam was used to rule-out a diagnosis in 115 cases

(32%) and to reveal an unsuspected diagnosis in 91 cases (25%). Unsuspected diagnoses included intramuscular abscess in patient with cellulitis, ectopic pregnancy in patient with amenorrhea, and pericardial effusion and ascites in a patient with chronic cough.

Going Forward: Ultrasound is a valuable outpatient primary care tool in limited-resource settings, and is particularly useful in the evaluation of obstetric and gynecologic complaints. Clinical training in primary care should include acquisition and interpretation of ultrasound images.

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Abstract #: 1.036_NCD

Demographics and Mortality Outcomes of Neurotrauma in Guatemala City

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Background: In Guatemala, trauma is the leading cause of productive years of life lost and the fourth leading cause of death, but no published data is available on the incidence of neurotrauma. This study was conducted to obtain basic demographic information on traumatic brain injury (TBI) patients at the second highest-volume hospital in the country; determine whether TBI severity and other demographic variables correlated to poor outcomes; and place this information in the context of neurotrauma worldwide.

Methods: Case series study of TBI patients who were admitted to Hospital General San Juan de Dios in Guatemala City, Guatemala from May 2013–April 2015. Data was collected from nursing logs in the hospital's trauma bay and reports submitted to the Ministry of Health. Age, gender, and severity of TBI were compared to hospital length of stay (LOS) and in-hospital mortality. TBI severity was graded as mild (GCS=13–15), moderate (GCI=9–12), and severe (GCI=3–8).

Findings: 360 patients aged 15–91 years were included. The mean age was 39.2 years (SD=18.4). Patients were predominantly male (n=310, 86.1%). 119 patients (33.1%) received a TBI diagnosis of mild, 105 (29.2%) moderate, and 136 (37.8%) severe. Men were more likely to receive a severe TBI diagnosis (p=0.006, 40.3% men vs. 22.0% women). Overall mortality rate from TBI was 43.9% (n=158). Mortality rates increased with age (p=0.002) and severity grading (p<0.001). Mortality rates for mild, moderate, and severe grading were 21.0% (n=25), 41.0% (n=43), and 66.2% (n=90), respectively. Demographic variables, however, did not affect hospital length of stay (R²=0.00044). The median LOS was six days; most patients were discharged within one day (n=86, 23.9%).

Interpretation: Neurotrauma in Guatemala is linked to significantly higher mortality than in comparable countries. A 2009 study examining TBI outcomes in 46 countries participating in the CRASH trial found similar patient demographics but a mortality rate of 26.2% in other lower-middle income countries. Hospital

length of stay is unaffected – likely due to the resource paucity for post-injury treatment in this environment. This study was limited by lack of access to numerical GCS scores, mechanism of injury, neuro-imaging, and treatment data. It highlights, however, the need for further data collection on TBI patients.

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Abstract #: 1.037_NCD

Determinants of Occupational Injuries among Building Construction Workers in Kampala City, Uganda

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Background: About 1,000 people die and close 860,000 people sustain injury at work daily globally. Health and safety improvement requires strong evidence, but most studies focus on general causes.

This study assessed individual, work environment and behavioral determinants of occupational injuries among building construction workers.

Methods: This was a cross-sectional study among male and female building construction workers aged ≥ 18 years in Kampala city during April–May 2016. A standardized semi-structured questionnaire was used to collect data. We randomly and proportionately selected 319 participants from 57 construction sites.

Ethical approval was acquired from the Research and Ethics Committee of Makerere University School of Public Health and written consent was obtained.

The primary outcome was having had an injury at work within 6 months prior to the study. Data were analyzed using Stata 12 and generalized linear models to estimate crude and adjusted prevalence ratios (aPR) at $p < 0.05$ and 95% CI.

Findings: 318 respondents from 57 construction sites were interviewed. The mean age was 28.2 years and ± 7.0 standard deviation (SD). Prevalence of occupational injuries was 32.4%, mostly (68.9%) on night duty.

Experience > 4 years (aPR: 1.63, CI: 1.07–2.49); daily income $< \$75$ (aPR: 0.54, CI: 0.38–0.75); job dissatisfaction (aPR: 1.57, CI: 1.16–2.13); job stress (aPR: 1.60, CI: 1.14–2.25) and perceived poor safety environment (aPR: 1.41, CI: 1.04–1.92) were independent predictors of occupational injury.

Interpretation: Prevalence of injuries may be due to absence of injury preventive measures while exhaustion and inadequate lighting could account for night duty injuries. Experience may lead to unsafe workplace practices and perception of workplace safety may affect work confidence thus the risk of injuries.

Low daily income could limit ability to purchase PPE, increase risk taking or lead to dissatisfaction, which leads to low commitment to safety procedures and job stress thus complex injury pathways.

There was risk of recall and social desirability biases in this study. However, the study reports on comprehensive contextual determinants of occupational injuries.

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Abstract #: 1.038_NCD

Impact of Helmet Usage on Clinical Presentation and Outcome of Traumatic Brain Injury in Motorcycle Operators in Cambodia

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Background: Traumatic brain injuries (TBIs) contribute heavily to burden of disease in Cambodia, where motorcycles are an increasingly common mode of transportation despite low rates of helmet usage. We sought to quantify the protective effect of helmets for TBIs and looked for an association between severity of injury and functional outcome with helmet usage at the time of accident.

Methods: This was a retrospective case-control study enrolling 491 patients motorcycle operators who presented with TBI to a major trauma center in Cambodia. Diagnosis by cranial CT was required for inclusion. The exclusion criteria was unknown helmet usage at the time of accident.

The primary outcomes of this study were clinical severity, as assessed by the Glasgow Coma Scale and requirement for neurosurgical intervention, and functional outcomes, as assessed by the Glasgow Outcome Scale. Logistic regression was used to calculate chi-square statistics, and 2-sided p-values were derived from the Fisher's Exact Test. This study was approved by the Cambodian National Committee for Health Records under Protocol 350 NEHCR and informed consent was obtained for all participants.

Findings: 426 (86.8%) patients were male, and 475 (15.3%) of patients wore helmets at the time of their accident. Presenting injuries included contusions (33.8%), epidural hematomas (23.4%), subdural hematomas (21.6%), subarachnoid hemorrhages (10.2%), skull fractures (17.1%) and facial fractures (13.8%). The rates of injuries in the helmeted and non-helmeted groups were similar.

Patients without helmets had higher odds of presenting with moderate to severe TBI relative to helmeted patients (OR 2.12; 95% CI 1.14–3.94; $p = 0.018$). Non-helmeted patients also had higher odds for requiring emergency neurosurgery for evacuation of a hematoma (OR 2.88; 95% CI 1.12–7.41; $p = 0.023$). Non-helmeted patients had increased odds of severe functional reductions at discharge (OR 5.16, 95% CI 2.23–11.86, $p < 0.0001$).

Interpretation: Helmets demonstrate a protective effect on injury severity and outcomes for patients with TBIs that require admission to a hospital. Con Strengths of this study include the cohort size and the clinical parameters assessed. Limitations include its retrospective design, lack of data on accident characteristics, and lack of long-term follow-up.

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