ISSN 2214-9996/$36.00

## NEW AND EMERGING PRIORITIES FOR GLOBAL HEALTH

### Initial outcomes of a comprehensive care model for patients with sickle cell disease in a tribal population in rural Western India

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**Program Purpose:** Sickle cell disease (SCD) is the most prevalent worldwide-inherited blood disorder, and is increasingly recognized as a neglected chronic disease. India claims 15% of the worlds' neonates born with SCD every year. Several cost-effective interventions have dramatically reduced morbidity and mortality from sickle cell disease in the US. However, access to care for SCD is unavailable in most rural tribal regions with the highest SCD prevalence in India. In 2014, we implemented a comprehensive care model at SEWA Rural, a non-profit health and development organization in Gujarat, India, with the aim of providing high quality comprehensive screening and treatment for sickle cell disease.

**Methods:** Since 1980, SEWA Rural has operated the local public health care delivery system in partnership with the Government of Gujarat, including a 100-bed hospital with robust outpatient care system and community health worker model. In 2014, we implemented a comprehensive sickle cell treatment program. Components of the intervention include: universal newborn, antenatal and family screening; outpatient sickle cell clinic with pneumococcal vaccination, penicillin prophylaxis, and hydroxyurea for severe SCD; inpatient protocols for SCD crises; chronic disease registry with longitudinal population management; and health education and outreach via sickle cell health worker.

**Outcome and Evaluation:** In 2014 alone, 7832 patients were screened for SCD in SEWA Rural with 176 patients being diagnosed with SCD. Since February 2014, 370 SCD patients have been enrolled into the comprehensive care program to date. Of the 182 SCD patients followed for one year after enrollment, 134 (73.6%) of patients received pneumococcal vaccination, 8 (44.4%) of children under five were taking penicillin prophylaxis, and 128 (70%) were taking folic acid supplementation. Also, 23 (15.5%) patients had SCD crises, 21 (11.5%) were hospitalized, 10 (5.5%) received blood transfusions, and 3 died.

**Going Forward:** This study demonstrates acceptability and feasibility of implementing a continuity care model for sickle cell disease in rural India. Further research is needed to evaluate the impact of the comprehensive sickle cell program on clinical and quality of life outcomes and retention in care.

**Funding:** Private donations, Gujarat government for clinic expenses.

None for research.

**Abstract #:** *2.001_NEP*

### Trend in patient outcomes over time in a new tertiary surgical center in rural Haiti

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**Background:** Surgery is an increasingly recognized global health priority—5 billion people worldwide lack access to surgical care. As surgical systems develop in low-and middle-income countries (LMIC), it is crucial to assess progress in both increasing volume and improving quality. Overall perioperative mortality in LMIC surgical systems is 1.2% for planned procedures and 10.1% for emergent cases. A hospital in Central Plateau, Haiti, recently developed a surgical department and residency, vastly improving access to surgical care in an underserved region. As the capacity to provide surgical care is rapidly scaled up, early integration of safety monitoring and evaluation is critical to ongoing progress. We examine the ability of a new teaching hospital in a low-income country to monitor mortality and how this rate changes over time.

**Methods:** We conducted a retrospective study of all general surgical cases performed at a teaching hospital in Central Plateau, Haiti, from October 2013 to March 2015. Patient demographics and surgical procedural data were recorded at the time of procedure. Perioperative mortality (POMR) was recorded and discussed in weekly conferences. Data was analyzed on a quarter-year basis. POMR was defined as in-hospital deaths divided by the number of procedures performed.

**Findings:** From October 2013 to March 2015, 3221 non-obstetrical surgical procedures were performed. The mean patient age was 34 years with a female:male ratio of 44:53. Weekly operative caseload increased 4-fold from 19 to 80. Overall perioperative mortality rate was 2.2%. Linear regression revealed that mortality rates decreased over time from 3.2% in the first quarter to 1.8% in the last quarter ($p=0.04$, $R^2 = 0.69$). Of the 77 postoperative mortalities, 31% (24) followed exploratory laparotomy and 16% (12) followed lower extremity amputation.

**Interpretation:** Perioperative mortality can be monitored in an LMIC teaching hospital. The mortality rate during the first years of operation is in keeping with reported rates in LMIC surgical literature. In addition, the decrease in mortality rate demonstrates that a rapid scale-up of surgical services can be undertaken safely in an LMIC teaching hospital. In the future, we hope to identify patient characteristics associated with an increased risk for complications in this setting.

**Funding:** None.

**Abstract #:** *2.002_NEP*

### Pediatric inguinal hernia repair is safe and inexpensive in a resource-limited setting: a case series from Central Haiti

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