Findings: We first outline an approach that uses qualitative data to adjust existing, validated assessments so that they directly reflect the psychosocial constructs of the new target population, and so that they are more easily implemented in that context. We then describe the incorporation of cognitive interviews to ensure understanding and agreement in items between researchers and participants. Lastly, we outline an efficient method for improving the reliability of measures through the careful training and supervision of research teams.

Interpretation: Inaccurate estimation of the prevalence of mental illness, as well as misunderstandings regarding its etiologies and expressions, are associated with unnecessary costs to the health system and to people living with mental illness. Researchers interested in accurately measuring the mental health burden in a low-resource setting must carefully modify validated assessment tools. By adhering to at least one of the strategies outlined in this study, researchers will improve the reliability and validity of their assessments, leading to improved understanding of the burden of mental health in the settings where action is most needed.

Abstract #: 2.074_NEP

Estimation of unmet need for inguinal hernia repair among infants in low- and middle-income countries

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Background: Inguinal hernias in infants are common and usually mandate semi-urgent repair in high-income countries. With an estimated two to five billion people worldwide lacking access to prompt and safe surgical care, many of these hernias go un-treated, particularly in low- and middle-income country (LMIC) settings. There is a paucity of data regarding the global burden of this problem. The goal of this study is to estimate the incidence of inguinal hernias in infants in LMICs, extrapolate rates of incarceration, and estimate the impact of providing universal hernia repair.

Methods: Estimates of annual live births in LMICs (135 million), incidence of infant inguinal hernia (3-5%), incarceration frequency (10-30%), and percentage of the population lacking access to surgical care (28%-70%) were used to calculate the annual volume of inguinal hernias in infants in LMICs without access to adequate surgical care. Disability adjusted life years (DALYs) averted were calculated using the estimate of 5.7 per repair in LMIC settings.

Findings: Of the 135 million annual live births in LMICs, an estimated 4.05 to 6.75 million will present with an inguinal hernia in the first year of life. Of these, 1.13 to 4.73 million may go untreated due to lack of access to surgical care. Between 405,000 and 2.03 million hernias will incarcerate, leading to associated complications, including death. An estimated 6.46 to 26.9 million DALYs could be averted by timely repair.

Interpretation: A large unmet need for inguinal hernias exists for infants in LMIC settings. With increasing success in efforts to reduce mortality in children under the age of 5, the incidence of inguinal hernia will likely increase. Efforts to improve data collection and increase resources may help reduce preventable deaths and disabilities.

Abstract #: 2.075_NEP

Impact of access to cesarean section and safe anesthesia on maternal mortality ratio in low-income countries: A new reality in the post 2015 era

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Background: Despite global efforts to reduce the maternal mortality ratio (MMR) through the WHO Millennium Development Goal 5 (MDG#5), MMR remains unacceptably high in Low-income countries (LICs). Maternal death and disability from hemorrhage, infection, eclampsia, and obstructed labor, may be averted by timely cesarean section (CS) and safe anesthesia. Most LICs have CS rates less than that recommended by the World Health Organization (WHO). Without access to CS, it is unlikely that MMR in LICs will be further reduced. Our purpose was to measure the MMR gap between the current MMR in LICs and the MMR if LICs were to raise their CS rates to the WHO recommended levels (10-15%).

Methods: This model makes the assumption that increasing the CS rates to the recommended rates of 10-15% will similarly decrease the MMR in these LICs. World Health Organization health statistics were used to generate estimated MMRs for countries with CS rates between 10-15% (N=14). A weighted MMR average was determined for these countries. This MMR was subtracted from the MMR of each LIC to determine the MMR gap. The percent decrease in MMR due to increasing CS rate was calculated and averaged across the LICs.

Findings: We found an average 62.75%, 95%CI [56.38, 69.11%] reduction in MMR when LICs increase their CS rates to WHO recommended levels (10-15%).

Interpretation: Maternal mortality is unacceptably high in LICs. Increasing CS rates to WHO recommended rates will decrease the maternal mortality in these countries, significantly decreasing the mortality ratio toward the projected MDG#5.

Abstract #: 2.076_NEP

Impact of HIV on postpartum hemorrhage in South Africa

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Background: In the South African triennial report on maternal death for 2008−2010, the overall rate of maternal mortality had increased compared with 2005−2007. Obstetrical hemorrhage was the most common avoidable cause of death. HIV infection was the most common contributory condition to causes of death. Of the nine South African provinces, Kwazulu-Natal had the highest number of maternal deaths. Research on the effect of HIV and post-partum hemorrhage (PPH) in Sub-Saharan Africa suggests an association but is inconclusive.

Methods: This study has a retrospective cohort design. Records from two Level I hospitals affiliated with the University of Kwazulu-Natal were selected. Delivery log books of all births at these two hospitals during 2013 were reviewed. A total of 482 charts were reviewed and 24 excluded for missing data; 458 charts were used for analysis. The women were aged 14−44 years, with a mean age of 24 years old. A linear regression model was computed to obtain odds ratios (OR).

Findings: 36.5% of women were HIV positive and 7.4% of women had PPH. Being HIV-positive was associated with postpartum hemorrhage (OR 2.200, 95% CI: 1.078 − 4.490). After adjusting for age, gravity, parity, institution and mode of delivery, HIV is still associated with PPH (OR 2.460, 95% CI: 1.126 − 5.375).

Interpretation: Parturients with HIV infection have increased odds of postpartum hemorrhage in district hospitals of Kwazulu-Natal. These results signify an association between HIV infection and a preventable cause of maternal mortality. Future research requires parsing out confounding factors versus HIV infection related physiology causing this association. Notably HIV infection increases odds of PPH despite mode of delivery. These results could impact obstetrical management of HIV positive women by priori-tizing blood products during labor and delivery or earlier treatment of HIV in the antepartum. This study has limited external validity in that the results have been shown in a specific population.

Abstract #: *2.077_NEP*

Quality of expanded program for immunization (EPI) and its determinants in seven selected zones of Ethiopia: A cross-sectional study

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Background: For immunization to be effective and increase accep-tance by the community, provision of quality vaccination is critical.

Methods: The study domain was 63 rural districts in five regions with about five million people. Cross-sectional representative data from 1,597 mothers with children 12 to 23 months from 210 communities and the service delivery points serving those communi-ties obtained in December 2014−January 2015 were used to assess the quality of vaccination and the factors associated with it. The quality of vaccination services was measured by the validity of doses given, BCG scar formation, card retention, and client-provider interactions. While, valid doses was defined as doses that were administered when the child had reached the minimum age for the vaccine, and were administered with the proper spacing between doses. Multi-level logistics regression analysis was done to assess the factors associated with the quality of vaccination.

Findings: The valid vaccination coverage among children aged 12-23 months for each vaccine was as follows: BCG 83%; Penta1 69%; Penta3 57%; measles 50% and complete vaccination 36%. The drop-out rate between Penta1 and Penta3 was 10%. While, the proportion of children vaccinated with BCG had no BCG scar was 19%. More than a quarter of mothers were not told about the potential side-effects associated with vaccines. Nearly 28% of health facilities missed at least one EPI session in the six month time prior to the study. Complete vaccination with valid doses was lower in the households with poorest wealth quintile, high parity, maternal age between 20-34 years, and no maternal education. Facility level determinants including service inter-ruption and defaulter tracing system were also independent predictors of complete vaccination with valid doses.

Interpretation: This study is unique in reporting the quality of vaccination services and their predictors in Ethiopia. Invalid vaccina-tions and lack of scar after BCG vaccination is likely to be due to lack of adequately screening before vaccination and poor injection technique, respectively. Therefore, close monitoring of vaccination sessions, uninterrupted schedule of vaccination sessions, and use of defaulter tracing mechanisms will improve the quality of vaccinations.

Abstract #: *2.078_NEP*

Geographic access and relationship to unmet surgical need in Uganda: a geospatial analysis of a household survey on burden of surgical conditions in Uganda

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Background: Geographic access is one of the important factors to consider in planning healthcare services. Globally, about 5 billion people lack access to surgical care. We investigated the relationship between unmet surgical need and geographic access in Uganda.

Methods: This is a geographic information system (GIS) analysis of a nation-wide household survey on surgical conditions. A 2-stage cluster-randomized sample was designed in which 105 Enumeration