

**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.

**Funding:** None.

**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.

**Funding:** None.

**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.

**Funding:** None.

**Abstract #:** 2.076\_NEP

### Impact of HIV on postpartum hemorrhage in South Africa

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