

**Interpretation:** The EENC course provided a structured training program in rural Mongolia, which in this setting may prove an effective method of teaching neonatal care and resuscitation to both medical and non-medical personnel. The effectiveness of the training program must be assessed continuously on a larger scale.

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### Impact of President's Malaria Initiative on all-cause child mortality from 1996 to 2014: a difference-in-differences analysis

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**Background:** Since its launch in 2005, the U.S. President's Malaria Initiative (PMI) expanded by 2012 to an annual budget of over \$600 million in 19 sub-Saharan countries. PMI has financed the provision of evidence-based malaria interventions, including insecticide treated nets (ITNs), indoor residual spraying (IRS), and artemisinin-based combination therapies (ACTs), with the goal of reducing malaria-related mortality. Despite considerable investment, no studies have evaluated population-level impacts of PMI on use of malaria prevention technologies and child mortality.

**Methods:** We used individual-level data from 99 Demographic and Health Surveys conducted in 36 countries in sub-Saharan Africa between 1996 and 2014 to assess the likelihood of mortality before 5 years of age. We conducted a separate analysis using annual country-level data on use of ITNs, IRS and ACTs between 2000–2014 from the Malaria Atlas Project. A difference-in-differences (DD) methodology was used to compare trends in PMI recipient vs. non-recipient countries and determine the impact of PMI. Models were adjusted for whether countries received support from the President's Emergency Plan for AIDS Relief (PEPFAR) and included country and year fixed effects. Standard errors were clustered at the country-level.

**Findings:** Our sample consisted of 7,945,703 person-year observations for children aged  $\leq 5$  years and 688 country-year observations of population's coverage of ITNs, IRS and ACTs. DD results showed that PMI led to a significantly lower risk of mortality among children aged  $\leq 5$  years (odds ratio, OR, 0.83, 95%CI 0.73–0.93). This result persisted in models that controlled for PEPFAR (OR 0.82, CI 0.73–0.92). Lastly, we found that populations in PMI-recipient countries had 10 percentage points higher coverage of ITNs ( $P < 0.01$ ) and 6 percentage points more child fever cases treated with ACTs ( $P < 0.001$ ) than populations in non-recipient countries.

**Interpretation:** PMI led to a large reduction in all-cause child mortality in analyses that compared trends in recipient and non-recipient countries. This impact may have been due to increased

use of malaria prevention strategies implemented with PMI support and was robust to controlling for PEPFAR. Our results should be interpreted with caution, as we did not fully account for all aid in the region; future research should address this limitation.

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### Social capital and networks and retention to HIV care among people living with HIV/AIDS (PLWH) in Tanzania

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**Background:** Mobile technology has become a promising communication and educational platform for both health care providers and patients. Mobile phone messages have been used to provide reminders to patients about medication adherence and medical appointments. While retention to care is a significant predictor for HIV health outcomes, this study aims to understand HIV patients' social capital and networks and retention to care in relation to their use of mobile text messages (SMS).

**Methods:** A cross-sectional research study conducted among 163 HIV patients attending five outpatient HIV clinics in Dar es Salaam, Tanzania between August and September in 2015. Conveniently sampled study participants were mostly women (78%) and the average age was 41.9 years (range, 22–77). Trained research assistants administered questionnaires in Swahili and HIV biological markers and retention to care records were extracted from medical records.

**Results:** The study data is currently being analyzed using Stata version 12. Following research hypothesis will be presented: HIV patients with higher social capital and strong social networks 1) engage in HIV care with higher CD4 counts and lower WHO HIV/AIDS stages 2) stay in HIV care and less missed appointments. 3) have better quality of life (assessed by SF-12).

Content analysis on HIV patients use of mobile phone and text messages revealed that PLWH's closest social networks were identified as immediate family members, followed by extended friends and relatives. Approximately 20% of the participants reported no use of SMS due to 'vision problems', 'prefer calling', or 'not accustomed to SMS'. Seventy-three percent of participants sent none to 10 SMS over one week. Affordability, accessibility, and privacy are the top three stated reasons for preferring SMS.

**Implications:** SMS is an affordable and well-accepted mode of communication among this sample of Tanzanians living with HIV. SMS can be used to improve PLWH's knowledge about the management of their chronic health status, retention and engagement to care.

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