income countries (LMIC). In this study, we report preliminary results in a sample of urban and semi-rural governmental and non-governmental hospitals in Kenya.

**Methods:** After IRB approval, anesthesia care providers were educated on data collection logistics and began collecting pediatric case-specific data in January 2014, using a novel electronic tool. Data fields include provider training level, patient demographics, surgery and anesthetic details, and POMR. Logistic regression was used to model specific predictors of perioperative mortality including gender, age, weight, ASA classification, emergent status, time of surgery, and Surgical Apgar Score (SAS).

**Findings:** Over the 19-month study period, data was collected on 3,383 surgical cases from 12 hospitals (78% of cases were from one nurse anesthetists training site). Case characteristics revealed the following: ASA 1/2 (98%), age between 3 and 18 (58%), general anesthesia (80%). While neurosurgical procedures (38%) were the largest portion of cases and Safe Surgery checklist (SSC) use was 99% at the training facility, C-sections (88%) were the primary procedure and SSC use was 87% at government facilities. Cumulative perioperative mortality at 24hrs, 48hrs, and 7d was 30 (0.91%), 38 (1.22%), and 47 (2.09%) patients, respectively. Seven-day mortality data was available for 69% of patients. Logistic regression analysis showed that ASA was a significant predictor for mortality at 24hr (OR=3.29, $p<0.01$), 48hr (OR=3.92, $p<0.01$) and 7d (OR=4.69, $p<0.01$). Increasing weight was protective of mortality at 48hrs (OR=0.68, $p=0.03$) and 7d (OR=0.59, $p<0.01$), while older age was associated with reduced mortality at 7d (OR=0.80, $p=0.02$). Type of facility was not a significant predictor of pediatric preoperative mortality at any time point (24h OR=1.39, $p=0.41$; 48h OR=1.08, $p=0.84$; 7d OR=1.01, $p=0.98$).

**Interpretation:** Pediatric perioperative mortality data collection by anesthesia care providers is possible in a LMIC country. ASA, weight and age appear to be associated with pediatric POMR, although larger study needs to be done. This provides vital information regarding case-specific data and overall POMR to further inform quality improvement measures.

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**Abstract #:** *1.092_NEP*

### A longitudinal analysis of the National Cancer Institute's investment in International Research in LMICs

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**Program/ Project Purpose:** The US National Cancer Institute (NCI), along with other NIH Institutes and Centers, supports a large number of international cancer research projects. Many of these research projects are to investigators at US institutions with portions of this research conducted abroad. The purpose of this project was to quantitatively describe the type and amount of extramural NCI-supported cancer research conducted in low and middle income countries (LMICs) between FY08 – FY14. The overall aim was to identify opportunities for future cancer research in LMICs, where the NCI's geographic investments are low compared to the country's cancer incidence rates, risk factor prevalence, infection rates, or ecological niche exposures. These results can inform future NCI research initiatives that will optimally support local and global communities.

**Structure/ Method/ Design:** The focus of this analysis included NCI-supported extramural grants to US institutions that had a foreign research project site(s) between FY2008-FY2014. The grant data come from the NIH IMPAC II database. Global cancer research grants were stratified by (1) World Health Organization Region (WHO); (2) World Bank Lending Group; (3) Common Scientific Outline; and (4) anatomic tumor site.

**Outcome and Evaluation:** This analysis has presented the landscape of NCI investment in global cancer research projects over the last seven years. Specific outcomes include the observation that the majority of the foreign research project sites associated with grants to US institutions were located in high-income countries. Among LMIC institutions, the majority of the research project sites were located in the WHO Africa Region. Analysis of the scientific content of these research projects indicates that most focus on cancer treatment. The greatest number of research projects examine breast cancer as opposed to other cancer types.

**Going Forward:** The quality of the data is the main ongoing challenge of this work going forward. The research project site name is manually entered which causes substantial variability in the data.

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### Dengue virus and malaria co-infection in Kenyan children

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**Background:** Dengue virus (DENV) and malaria are two important re-emerging mosquito-borne infections that affect hundreds of millions of people worldwide each year. Although they do not share a common vector, their respective vectors thrive in the same climates, and frequently co-exist, resulting in overlapping geographic distributions for DENV and malaria endemicity. Despite the abundant opportunity for DENV and malaria to cause concurrent infections in their human hosts, for unclear reasons, DENV/malaria co-infections are infrequently reported, particularly in children.

**Methods:** As part of an ongoing study of incidence and prevalence of arboviral infection in Kenyan children, we enrolled children ages 1- to 17-years who presented with fever (temperature $\geq 38^{\circ}C$) of unclear etiology to one of two health centers located in Kisumu County in western Kenya.

**Findings:** To date, 579 blood samples from febrile children (mean age 4.3-years) have been tested for both DENV RNA

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by RT-PCR and malaria by light microscopy examination of peripheral blood smears. 333 (70%) were positive for malaria, most of which were identified as *Plasmodium falciparum*. 73 (13%) samples were positive for DENV. 33 (49%) of the DENV-positive samples were also positive for malaria. The mean temperature at presentation of subjects who were co-infected with both DENV and malaria was higher than that of subjects who were infected with DENV alone (39.0 vs 38.5 degrees C, $p$=0.002, respectively), but was not statistically higher than the mean temperature of subjects infected with only malaria (39.0 vs. 38.8 degrees C, $p$=0.007). Children who were infected with DENV alone tended to be younger (mean age 3.4 years) than those who were infected with both DENV and malaria (mean age 3.4 vs. 5.1 years, $p$=0.008, respectively) or with malaria alone (3.4 vs. 4.8 years, $p$=0.008, respectively). Enrollment in the study is ongoing at these and two other sites on the Kenyan coast.

**Interpretation:** Collectively, these data will provide important insights into the incidence and characteristics of DENV and malaria co-infection as well as mono-infection in Kenyan children.

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