

patients in Western countries. Researchers in Nairobi, Kenya have sought to examine these parameters among a cohort of African patients at Kenyatta National Hospital.

**Methods:** Participants in the study were recruited from the Renal and Rheumatology Clinics of Kenyatta National Hospital. Patients were required to have an active diagnosis of SLE, an absence of concurrent diseases, and at least six months of clinical follow-up. 65 patients were recruited for the study; of these, 62 patients were females and 3 were male. A study questionnaire was administered among the patients for self-reporting of current medications and demographic data, including gender, age, age at diagnosis, occupation, education level and residency. While present in the clinic, venipuncture was performed for CBC/PBF/Reticulocyte values and ESR.

**Findings:** Out of the 65 patients recruited for the study, 28 (43.1%) had anemia, 17 (26.2%) had leukopenia, 6 (9.2%) had leukocytosis, 13 (20%) had thrombocytopenia, and 8 (12.3%) had thrombocytosis. 25 patients (38.5%) had no abnormalities, compared to 38 patients (61.5%) that presented with at least one hematological abnormality. 24 patients (36.9%) patients presented with lower levels of one cell line only. Another 14 patients (21.5%) presented with lower levels of multiple cell lines, and 3 patients (3%) presented with lower levels of all three cell lines (pancytopenia). Hematological abnormalities were the second most common clinical presentation of SLE, second only to arthritis/arthralgia.

**Interpretation:** The majority of patients studied had hematological abnormalities; among these patients, anemia was the most common clinical presentation. Overall, hematological abnormalities were the second most common clinical feature of patients with SLE. Levels of anemia and thrombocytopenia were consistent with what has been demonstrated in Western countries. Comparing these values with similar studies in other African settings may guide future research.

**Funding:** None.

**Abstract #:** 1.005\_NEP

### **Pediatric emergency medicine curriculum in Armenia: evaluating knowledge retention**

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**Background:** In October 2014, a multidisciplinary team of instructors including emergency physicians, pediatric surgeons, emergency nurses and paramedics from the United States travelled to Yerevan, Armenia to teach a 4-day course on pediatric emergency care (PEC). Upon completion of the course, participants received continuing medical education credits. 52 physicians participated in the course: twenty-four physicians working in the pre-hospital environment, sixteen general pediatricians and twelve pediatric critical care specialists. The mean test scores improved significantly, with mean pre-course score of 50.3%±0.11 SD and mean post-course score of 77.3%±0.13 SD ( $p < 0.0001$ ). 98% of the participants reported that as a result of this course, they would introduce a change in their practice. This study aimed to evaluate knowledge

retention at the nine-month follow up, among physicians who participated in the course.

**Methods:** In July 2015, the participants were invited to anonymously complete the same 45-question post-test taken at the completion of the course. The tests were collected in sealed envelopes. Descriptive analysis was performed on the data. This study qualified for exemption by the IRB at Virginia Commonwealth University.

**Findings:** Of the 52 physicians, 36 completed the knowledge retention test, a response rate of 69%. The mean score was 68.4% ±0.11 SD. This represents an 8.9% decline in mean test scores between October 2014 and July 2015; nevertheless, the retention mean test score was 18.1% higher than the mean pre-course test score.

**Interpretation:** We sought to assess the long-term knowledge retention of physicians in Yerevan, Armenia who received PEC education. A comparison of scores from the pre-CME training, post-CME training and knowledge retention tests confirms that, although participants' knowledge of PEC declined between October 2014 and July 2015, PEC knowledge 9-months following CME training remained higher than baseline. Future courses should be designed to take this knowledge decay into account and to structure review sessions at adequately spaced intervals such that to ensure preferential knowledge retention. Further research is needed to determine whether healthcare providers' education in Yerevan, Armenia improves patient outcomes and practice behaviors.

**Funding:** Virginia Commonwealth University Children's Hospital Foundation.

**Abstract #:** 1.006\_NEP

### **From well-meaning to well being: bridging the gap in mental health awareness in Tanzania**

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**Program/Project Purpose:** In April 2013, a building collapsed on a children's playground in Dar es Salaam, Tanzania killing 36 people and trapping over 60, some of whom were children playing in the playground. This tragic event highlighted a lack of capacity in the community and the country at large, to know how best to support those living with mental and emotional distress. A pilot project was created as a way to address this gap and build capacity within already existing community structures to create awareness about mental health, its impact upon all aspects of life, and a support network for the community.

**Structure/Method/Design:** The pilot project took place in the community most affected by the building collapse in Dar es Salaam. 18 socially active volunteers from within the community were vetted and trained using the Mental Health First Aid England curriculum. The volunteers formed a group for mental wellbeing within the community to increase awareness and reduce the stigma attached to mental health disorders and to increase access to professional services, such as therapists and psychiatrists. Given that mental health services are scarce in Tanzania, the group also aimed to increase awareness of positive self-help strategies to aid quicker recovery and to provide support to those suffering from mental health disorders.

**Outcome & Evaluation:** 12 months after the first set of trainings, 16 out of the 18 volunteers were still part of the group, many of whom are actively reaching out to community members suffering from mental health disorders.

**Going Forward:** The project was replicated in Arusha, Tanzania and Mombasa, Kenya to assess replicability. The success in Arusha and Mombasa has paved the path for a full roll out East Africa wide. Discussions are now underway for MHFA curriculum to be translated in Swahili and adapted to the East African culture. A training of trainers' workshop will then take place to train trainers who will train volunteers in communities across East Africa and assist each community in setting up their own mental wellbeing groups and structures. The biggest challenge the project has faced is combating the stigma surrounding mental health.

**Funding:** Local community fundraising and donations.

**Abstract #:** 1.007\_NEP

### Housing quality as a potential risk factor for locally acquired malaria infection in Swaziland

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**Background:** Poor housing quality may confer greater risk of malaria infection by means of increased mosquito exposure; however, evidence in low transmission settings is lacking. In this study, surveillance data was used to examine the relationship between housing quality and locally-acquired infection in the low transmission setting of Swaziland.

**Methods:** A retrospective analysis was conducted utilizing data collected from passive and active surveillance. Subjects included malaria index cases diagnosed at health facilities as well as their household and community screened in active case detection from August 2012 to March 2015. Subjects with recent history of travel and/or residing beyond 500m from the index case were excluded. Using bivariate and multivariable logistic regression, adjusted for household-level clustering, the relationships between infection (testing positive by Rapid Diagnostic Test (RDT), microscopy, or loop-mediated isothermal amplification (LAMP)) and housing quality, as well as other epidemiological factors were analyzed. Housing quality was assessed by individual components (wall, roof and window type) as well as a composite housing quality index.

**Findings:** Cases included 280 index cases and 131 RDT or LAMP positive individuals identified in active surveillance. These cases were compared to 8668 non-infected household members and neighbors of index cases. In the multivariable model, poor quality external wall and windows were associated with higher infection odds (OR 3.74 95%CI 1.53–9.16 and OR 1.70 95%CI 1.03 – 2.80). There was a trend in the association with poor quality roof,

but the relationship was not significant. Using the composite housing index, compared to good quality housing, moderate and poor quality housing were associated with higher infection odds (OR 1.92 95%CI 1.27–2.91 and OR 2.68 95%CI 1.40–5.13). In the composite housing model, coverage of vector control interventions was independently associated with protection. Compared to no vector control (neither sleeping under an insecticide treated bed net (ITN) nor a sprayed structure), coverage with either an ITN or spraying conferred protection (OR 0.67 95%CI 0.44–1.01), as did coverage with both interventions (OR 0.10 95%CI 0.13–0.72).

**Interpretation:** Housing quality, especially wall material, is an important determinant of locally-acquired infection in Swaziland, suggesting improved housing as a potential control and elimination strategy in low transmission settings.

**Funding:** Swaziland Ministry of Health, NIH/NIAID, Bill and Melinda Gates Foundation, Horchow Family Fund.

**Abstract #:** 1.008\_NEP

### Measuring facility capability to provide routine and emergency delivery care to mothers and newborns: an appeal for utilisation of metrics allowing adjustment for delivery caseload of facilities

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**Background:** Emergency obstetric care (EmOC) indicators and signal functions for emergency newborn care (EmNC) and routine delivery care can be used to assess the capability of health facilities to provide comprehensive delivery care. We aimed to develop and illustrate the usefulness of a statistical method that accounts for differences in delivery caseload between facilities to standardise patient volume.

**Methods:** Using the 2010 Kenya Service Provision Assessment dataset, we examined facilities' capabilities by applying EmOC indicators in addition to suggested EmNC and routine care functions. We required facilities to possess equipment and/or medications necessary for each signal function. Our analyses accounted for complex survey sampling. To better contextualise the results, we analysed the data in terms of delivery caseload, with the number of deliveries in the facility in the previous 12 months factored into the survey weight value. These results are reported as percentage of deliveries, instead of percentage of facilities, signalling a shift in focus of metrics from facilities to individual deliveries.

**Findings:** Of the 695 facilities in the survey, 403 (58%) provided delivery care and were included in the analysis. Nearly half (46%) of deliveries occurred in a facility that was capable of providing 9–11 of the 11 routine delivery care functions; 46% and 12% occurred in a facility equipped to provide basic emergency obstetric and newborn care, respectively. Less than 2% of deliveries occurred in a facility equipped to provide the full spectrum of emergency and routine delivery care.