

**Summary/Conclusion:** While laypersons and hospital personnel may receive and feel comfortable administering basic resuscitation techniques, further data must be collected to see if this intervention improves mortality. Analysis of the newly implemented trauma registry will evaluate mortality.

### Esophageal cancer in Northern Tanzania: Geographical distribution and case characteristics

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**Structure/Method/Design:** This was a descriptive retrospective study of histologically confirmed cases of esophageal cancer diagnosed at the Kilimanjaro Christian Medical Centre, and identified through its Cancer Registry and/or endoscopy unit, from 1998 to 2008. Demographic data (age, sex, village) were obtained from hospital records and a risk-factor questionnaire was administered to patient's relatives.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** 802 patients were diagnosed with esophageal cancer during the study period, the majority of which was squamous cell carcinoma. 59% of cases were male. Mean age at diagnosis was 60 years (inter-quartile range 50-70). The age-standardized incidence rates (ASR to world population per 100,000) were 6.8 and 3.8 in men and women respectively. Large geographical variations were observed. ASRs were over 9 in men in Moshi Urban, Moshi Rural, and Hai and less than 3 in Rombo, Mwanga and Same districts. 96% of male cases and 92% of female cases had drunk alcohol regularly; 38% and 5% had consumed strong illicit moonshine spirits (gongo). Amongst drinkers, drinking started at mean age of 13 years, with 25% having started by age 8 and mean lifetime years of drinking was 50 (SD 15.6). 87% of male and 36% of female cases had smoked tobacco regularly.

**Summary/Conclusion:** Within the high esophageal cancer area of the Kilimanjaro region, the south and western districts adjacent to the Kilimanjaro mountain peak have over 3-fold higher incidence rates than other districts in the region. Prevalence of alcohol and tobacco consumption is higher among cases than in previous population surveys. These findings need further investigation in a broader analytical study.

### Leveraging PEPFAR-funded HIV programming to enhance to delivery of NCD care in southern Botswana

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**Background:** Botswana's HIV prevalence is 19%, with antiretroviral drugs available to all eligible citizens. Through the President's Emergency Plan for AIDS Relief (PEPFAR), the Botswana-UPenn Partnership (BUP) has provided HIV support to rural hospitals across the country since 2006. Since the program's inception, BUP's outreach has extended support to outpatient care for non-communicable diseases (NCDs) to both HIV-infected and HIV-uninfected adults. Little data exists on how PEPFAR programming in Africa impacts on the care for NCDs. We sought to describe the burden of disease referred to HIV specialists on outreach to hospitals in southern Botswana.

**Structure/Method/Design:** We collected data on patients seen by HIV specialists on outreach to nine hospitals in southern Botswana. At each site, specialists saw outpatients referred by local general practitioners. Data collected from each encounter included HIV status and the reason for the encounter. Statistical analysis included descriptive analyses and  $\chi^2$  test for categorical variables.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** Between March 2011 and February 2012, outreach physicians recorded 400 outpatient encounters. 56% (224/400) of encounters occurred at primary hospitals and 44% (176/400) at district general hospitals.

The majority (69%) of patients seen by specialists presented with two or more medical problems. The most frequent medical problems encountered included hypertension, (17.5%,  $n = 70$ ), diabetes mellitus (8%,  $n = 32$ ), and congestive cardiac failure (5%,  $n = 19$ ). Cardiovascular diseases accounted for 29% of all diagnoses, neurological diseases 15%, and endocrine diseases 12%. There was no difference in either the spectrum of disease or the complexity of medical problems seen at district versus primary hospitals.

27% of encounters were with patients with confirmed HIV infection, the remainder had either unknown HIV status (32%,  $n = 129$ ) or were HIV-uninfected (40.3%,  $n = 161$ ). Among individuals with confirmed HIV-infection, 41% ( $n = 41$ ) of consultations related to HIV management. The other most frequently encountered diagnoses among HIV-infected individuals included hypertension (10%), tuberculosis (7%), diabetes (5%), and meningitis (5%).

**Summary/Conclusion:** Over a 12-month period, physicians in BUP's outreach program saw a significant number of patients with NCDs at nine Botswana outreach facilities. Most patients were not HIV-infected and the most frequent conditions seen by physicians were hypertension, diabetes, and congestive cardiac failure.

This study is limited by referral bias. Nevertheless, the analysis demonstrates how PEPFAR funding ensured access to physician consultations for NCDs as well as HIV. The data also supports growing evidence that Botswana faces a double-burden of infectious and non-infectious diseases. Given this epidemiologic transition, leveraging PEPFAR funded HIV-programming to expand access to care for patients with NCDs is increasingly important. While long-term follow up is necessary to assess the impact of PEPFAR on NCD services in Botswana, there is also an urgent need to build NCD capacity across the country.

### Double-dipping: When your research answers unintended questions

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**Background:** Global health research invests tremendous human and material resources into resource-poor settings. The scientific model and the nature of IRB approval demand specific research hypotheses, measured and carefully applied methods, and protection of participants and their health information. However, frequently the study of specific diseases leads to the collection of information that may be relevant to other health problems. The investment to study disease in often marginalized or hard-to-reach populations is substantial, and the potential to use data collected, and resources created, for other purposes is an important consideration.

**Structure/Method/Design:** Our team has developed a community-based research project in 2003 in a large urban slum of 14,000 residents, called Pau da Lima, on the periphery of Salvador, the

capital of the state of Bahia. This NIAID-supported longitudinal project was established to primarily study the natural history of leptospirosis and determining the effectiveness of community-based interventions, such as improved sanitation. This research has also led to the collection of basic demographic and health data on blood pressures and cardiovascular disease outcomes relevant to leptospirosis, and has given a unique picture of the burden of hypertension and other noncommunicable diseases in this unique population.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** We work closely with the Fiocruz, the research branch of the Brazilian Ministry of Health. Our team also has a long-standing relationship with the Urban Health Council of the Residents' Association of Pau da Lima.

**Summary/Conclusion:** The worldwide growth of slums presents a significant challenge to global public health. Limited data suggest that all health outcomes, both communicable and noncommunicable, are worse in slums that are by their nature illegal, comprised of overcrowded and poorly built communities that have limited access to safe water, sanitation, and other services. Yet, accurate health statistics in these communities are difficult to obtain and interventions are limited by their informal relationship to the state. Large investments in the study of disease in these communities may have multiple returns. For instance, the study of rheumatic disease may provide important information on cardiovascular disease outcomes in these communities. The implications of this kind of "double-dipping" challenges certain aspects of research design, but if done responsibly, may also provide a wealth of information where information is sparse, and further draw closer those who study communicable and noncommunicable diseases.

### Hypertension in an urban slum in northeastern Brazil

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**Background:** Developing countries account for the majority of disease burden due to hypertension and cardiovascular disease. Yet, little is known about their distribution within these countries, particularly among the nearly 1 billion people living in slum communities. The purpose of our project was to study the distribution and determinants of hypertension in a slum settlement in the largest city in northeastern Brazil. This work addresses the growing challenge of noncommunicable diseases in poor and informal urban communities such as slums.

**Structure/Method/Design:** A community-based hypertension survey was conducted in 2003 for 5649 adults 18 years or older from a slum settlement in the city of Salvador, Brazil. Data was collected on basic demographics and clinical outcomes in this population. Hypertension was defined as elevated arterial blood pressure on two separate house visits or the use of anti-hypertensive medications. A multivariate analysis was performed to evaluate risk associations for hypertension.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** Our collaborative partners include FIOCRUZ, which is the research branch of the Brazilian Ministry of Health. Since 2003, we have also worked closely with the Urban Health Council of the Residents' Association of Pau da Lima, a large urban slum on the periphery of Salvador, Brazil.

**Summary/Conclusion:** The overall prevalence of hypertension was 16.8% (95% CI, 15.9-17.8%) for the adult population 18 years or older (15.9% of women [14.7-17.2%] and 18.1% of men [16.5-19.6%]). In addition to age, lack of primary school education (prevalence ratio, 1.49 [1.12-1.98]) was an independent risk factor for hypertension. Among hypertensive individuals, 69.1% were aware of their illness, but only 37.3% received medical care for their hypertension. Men were less likely than women to be aware of their illness, receive medical attention or use anti-hypertensive medications. These findings suggest slums are not spared from the burden of hypertension, and also that there is limited access to the formal health sector for diagnosis and treatment.