

a global health hazard, yet also an opportunity for disease prevention. Molecular epidemiology studies employing sensitive and specific biomarkers for screening of populations at risk are thus warranted.

Genome-scale studies established a characteristic mutational signature of AA. Exploiting its unique features (predominant A>T transversions), alongside the knowledge of key affected cancer genes, we devised a cost-effective targeted resequencing (TRseq) method to detect AA exposure in upper tract urothelial carcinoma (UTUC) samples from South Korean patients. *Aristolochia* species (e.g., *A. contorta*, Bunge) are included in the Korean traditional pharmacopoeia although the local occurrence of AA-associated cancers remains unexplored.

Methods: DNA from archived, paired kidney and UTUC samples of 16 Korean patients was used for adduct and TRseq analyses. 31 cancer genes, previously found recurrently mutated in AA-induced UTUCs from Asia and Europe, were selectively captured using Seq-Cap EZ enrichment kit (Nimblegen) and sequenced using Illumina MiSeq. Sets of UTUCs from Croatia harboring AA signature and UTUCs from US patients (unlikely to be exposed) were included as respective positive and negative controls. Somatic variants were called against the patient-matched non-tumor DNA.

Findings: Three of sixteen kidney samples tested positive for aristolactam-dA (AL-dA) adducts, indicative of past exposure to AA. A>T-positive UTUC samples were detected in 5 cases, 2 of which were also adduct-positive. Positive control samples exhibited a strong A>T signal while the US samples were A>T-negative, as expected.

Interpretation: The TRseq approach can detect AA exposure in UTUC tumors, providing a sensitive complement to the AL-dA adduct analysis. Furthermore, the presence of adducts and AA signature in South Korean UTUC cases highlights a previously uncharacterized population at risk. The future use of TRseq, either alone or in combination with adduct analysis, can address exposure to AA, thereby assisting in the design of preventive measures against this global public health hazard.

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Abstract #: 2.035_NCD

Substance Abuse, A Challenge to the Mental Health Status in Uganda

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Background: Globally, it is estimated that in 2012, between 162 million and 324 million people has used substances. In Uganda, there is 79% increase in use and abuse of substances, and substances commonly abused are alcohol, cannabis, tobacco, khat and kuber. The global burden of disease report for Uganda of 2010 indicates alcohol, cigarette smoking and drug use as one of the fifteen leading causes of disease. Hence this study assesses the risk factors associated with, the prevalence rates and the effects of substance abuse on the mental health status of Ugandans.

Methods: Literature review of the World Drug Report (WDR) 2006, Ministry of Health Uganda (MoH) reports, Uganda Youth Development Link (UYDEL) report on substance abuse of 2010, newspaper articles and journals.

Findings: According to the UYDEL report of 2010, the risk factors associated with substance abuse include parental influence and friends while other studies from different journals show permissiveness and psychological stress. According to the WDR of 2006, the prevalence rates of alcohol use are 23.7%, cigarette smoking is 20.4%, cannabis is 1.4%, opioid use is 0.05%. From the MoH reports, 25% of mental health cases received at Butabika National Mental Referral Hospital between February 2015 and March 2015 were due to substance abuse.

Interpretation: A relatively large number of mental health cases attributed to substance abuse were received at Butabika National Mental Referral Hospital. Most people are introduced to substances by their parents. Alcohol has the highest prevalence rate among the abused drugs. Therefore, there is a need to increase effort by government, the religious community and civil society towards curbing substance abuse.

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Abstract #: 2.036_NCD

Global Development-Related Assistance for Mental Health: A Review of the Last Decade

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Background: Mental and behavioral disorders constitute 7.3% of the global burden of disease and are projected to be the leading cause of disability in the year 2030. This burden is disproportionately borne by low- and middle-income countries. Recently, global mental health has gained international attention, as evidenced by the inclusion of mental health and wellbeing in the Sustainable Development Goals, the international meeting on mental health as a priority for global development—co-hosted by the World Health Organization and the World Bank in April of 2016—and other key milestones. This new attention to mental health is expected to generate additional financial resources for care, not only at the country level, but also at the international level. However, the current contributions of the international development community to fund programmes to support mental health globally is poorly documented.

Methods: The research directly addresses this knowledge gap by systematically analyzing development-related assistance for mental health over the past ten years, 2005–2014, including support from development partners, NGOs, foundations, and the pharmaceutical industry. The nature of the types of projects and programmes funded are assessed. The analysis separates funding for research from funding for programmes, as the nature of funding for research is geared primarily towards knowledge creation as opposed to increased access to services.

Findings: The analysis finds very limited financial support for mental health care (in comparison to other key areas for global health), and an almost complete lack of focus on mental health

among NGOs, foundations, and corporate social responsibility arms of global pharmaceutical companies.

Interpretation: Given the recent surge of interest in global mental health, this research is timely and essential as it provides a baseline for future evaluation of the impact of the renewed attention to mental health.

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Abstract #: 2.037_NCD

Telepathology: Reducing Time from Biopsy to Treatment in Limited Resource Settings

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Program/Project Purpose: Innovating Health International (IHI) operates one of the few cancer treatment centers in Haiti and is setting up the first pathology lab at a public facility outside Port-au-Prince. Up until recently, histopathologic diagnosis of tumors required the use of private pathologists in Haiti or transporting samples to United States for evaluation. This resulted in a lag between initial consultation and diagnosis and ultimately delayed treatment onset. To address this, IHI established a telepathology program at Justinien University Hospital (HUI) in Cap-Haitien, Haiti. The center is now fully functional and is able to process biopsied tissue from grossing the specimen to slide creation. As there are a limited number of pathologists in Haiti, and none outside Port-au-Prince, created slide images are then scanned using Mikroskan hardware and software. Digital images are then uploaded to the Internet and thereby available to be analyzed by pathologists around the world through an online platform that allows manipulation of images, including 100x zoom capability. The online platform also allows pathologists to remotely make and record a diagnosis which the Haitian pathology technicians can then print out and report results to patients. Each pathology technician spent one month training in the pathology lab in Baptist Health South Florida in Miami. Then, volunteer histotechnologists from abroad rotated through the lab in Cap-Haitien, establishing protocols, training the staff, and providing oversight through all phases of the process. IHI's pathology lab now has the ability of rapid histopathologic diagnosis in a setting with limited resources. We are validating the quality of the process by double reading the first 100 samples in Cap-Haitien and the pathology lab at the University of Florida. We are working with the government to use the online platform to help establish an electronic cancer registry in Haiti. The process, however, has not been without obstacles. Road blocks that had to be overcome include issues with sample preservation as well as poor internet speed and connectivity which slows the speed at which we can upload images.

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Expert Perspectives on Mesoamerican Nephropathy (MeN): Examining the Production of Biomedical Knowledge about a Contested Epidemic

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Background: A form of chronic kidney disease sometimes called Mesoamerican nephropathy (MeN) is killing thousands of impoverished young men, mostly sugarcane harvesters, throughout Central America. Despite growing research interest in this disease since it was first described in 2002, its characteristics, causes, and even existence as a distinct clinical entity remain uncertain and, at times, contested. Using extensive interviews with leading MeN researchers, this study explored how biomedical knowledge about MeN is produced in a research climate fraught with barriers and controversy.

Methods: We interviewed 39 researchers from clinical, laboratory, academic, and/or field settings in 14 countries based on their publications and participation in conferences about MeN. Twenty-seven (69.2%) were male, 33 (84.6%) had a doctoral or medical degree, and 29 (74.3%) had been involved in MeN research for ≥ 6 years. Interviews were semi-structured and conducted in English (n=29, 72%) or Spanish (n=11, 28%) by Skype/telephone or in person. They were verbatim transcribed, translated, de-identified, and analyzed using 35 themes developed iteratively by content analysis.

Findings: Informants expounded their often nuanced thoughts on MeN etiology and impressions of the research environment, enriching and sometimes diverging from what research processes and findings peer-reviewed MeN publications describe. Informants' support for different causal factors (e.g. heat stress/dehydration, pesticides, infection), confidence in existing evidence, and prioritization of interventions versus additional etiological studies depended on their expertise, funding source, and experience in MeN-affected communities. Informants described numerous factors that stymie research broadly, yet are rarely referenced in MeN literature, including limited funding, uncooperative state and private actors, and significant methodological and logistical challenges, as well as local obstacles such as gang interference, participant loss of livelihood, and deportation of researchers. Half of informants believed their work on MeN posed personal and/or professional risk to them. Informants' experiences working with marginalized affected communities often motivated them to address not only MeN, but also broader occupational, environmental, and social injustices in these communities.

Interpretation: These results contextualize the limited progress that has been made in understanding and addressing MeN and highlight sources of the contestation surrounding the epidemic. They also underscore the need to identify strategies for facilitating MeN science and addressing the community-wide suffering caused by MeN.

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Taipei Hospital's Chronic Kidney Disease Education Program and eGFR Outcomes

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Background: Taiwan has the highest prevalence and incidence of end-stage renal disease (ESRD) in the world. Taipei Hospital established the Chronic Kidney Disease Education Program (CKDEP)