opportunity to save lives. Furthermore, no integrated analyses exist of combined microbiological/virological, immunological, clinical, epidemiological, and genetic data for comprehensive assessment of host-emerging pathogen interactions that can inform prevention and control activities, and guide clinical management. There is an urgent need to establish a sustainable consortium of clinical research groups with broad geographic coverage (including low resource settings), cross-border coordination, commitment to open access, and capacity to conduct complementary high-quality, hospital-based pathogenesis and clinical management studies and the flexibility to respond immediately to rapidly emergent threats. We need a new paradigm for clinical research in the context of rapidly emerging public health threats and one appropriate to the sorts of challenges we will face in the 21st Century.

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Room: Lotus 1-4

Infectious diseases surveillance and alert systems

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Prompt detection of infectious disease outbreaks is required to ensure timely responses that reduce morbidity and mortality, and mitigate social and economic disruption. Traditional public health surveillance systems rely on hierarchical structures where providers, laboratories and healthcare institutions report defined diseases to local authorities. Local authorities in turn report to regional authorities that report to national officials, who then report to international bodies such as WHO. While this system has many strengths, it is expensive and has critical weaknesses as well e.g., slow reporting, inevitable breaks in the chain of communication, disincentives to report, and failure to report undefined or unrecognized illnesses. The past twenty years has seen enormous innovation in nontraditional public health reporting systems. ProMED was perhaps the first system to exploit the Internet to allow nontraditional sources of health information such as media, firsthand clinician and lay observer reports to be widely disseminated and serve as early warnings of outbreaks, thus encouraging transparency in detection and reporting of emerging disease and other biohazardous threats. It has enhanced reporting in underserved areas through the development of regional programs such as PRO/MBDS in Southeast Asia. The growing "firehose" of data that can be mined for public health purposes has led to a number of novel strategies for harnessing this information. GPHIN and HealthMap utilize web crawling, coupled with human data curation, to rapidly report disease events. Other biosurveillance systems include Medisys and BioCaster. Deidentified search engine queries from Google and Yahoo, the so-called "searchstream," have been used to monitor community levels of influenza and dengue. The contents of Twitter messages and other social media content can be geolocated, monitored, analyzed, and interpreted to show trends in outbreaks and public sentiment regarding vaccination and other public health interventions. Cell phone usage patterns can detect unusual events such as disease outbreaks and can track patterns of movements and migration. Cell phones themselves, now nearly ubiquitous, have become tools for rapid reporting of health events. The revised International Health Regulations, enacted in 2005 and adopted in 2007 have codified the use of informal information sources and promote the rapid and transparent flow of public health data.

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Delivering HIV treatment & care in resource limited settings - Therapeutic mobile units

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A weak state health infrastructure and a disparate system of rural clinics render the delivering of treatment and care of HIV/AIDS patients in sub-Saharan Africa extremely difficult. Furthermore, because patients living in remote areas do not have access to lab facilities, we developed a decentralized strategy based on bringing the needed services closer to the people, through the use of Therapeutic Mobile Units (TMU) as potentially useful means to follow up adults and children undergoing antiretroviral treatment.

Using the TMU of the National Public Health Laboratory of the Cameroon Ministry of Health, we conducted several cross-sectional surveys on epidemiological, biological and clinical features of HIV/AIDS in young and elderly patients in Cameroon. The screening of HIV-specific antibodies was carried out using rapid tests. Indeterminate or positive samples were immediately retested. People diagnosed as HIV-infected were provided free biological monitoring and referred to health care centres. The TMU was also equipped with the Auto40 cytometer for CD4 determination. A FACSCalibur cytometer was used as reference method.

From April 2005 to July 2011, 120 campaigns were organised in Cameroon (average of 277 volunteers tested per day). Out of 32, 970 volunteers who received a pre-test counselling, 32, 869 (20,937 males; 11,932 females) tested for HIV (acceptance rate of 99.69%). Their average age was 31 years. Amongst those, 32,569 (99.08%) received post-test counselling. The overall HIV prevalence was 6.06% [with higher rates in women, data not shown]. CD4 testing was performed using the Auto40 cytometer and gave a perfect correlation with the reference method (FASCSCalibur) [mean±SD CD4 T cell count was 1041±317 cells/ml by Auto40, and 1032±294 cells/ml by FACSCalibur; r2=0.982]. For patients receiving ART, our medical staff provided support in monitoring treatment, recording information about patient's medical status, resolving the barriers to drug adherence and others factors that may affect a patient ART therapy (data not shown).