

Findings: Data from 63 unique study participants, including 27 individual interviews and five separate focus groups, were analyzed. Major themes supported the effectiveness of community-based prevention strategies in community uptake of key messages. Successful approaches for targeting reticent subpopulations included enlisting support from religious leaders and village elders to secure trust from community members. Bidirectional, dynamic methods of communication were also identified as essential characteristics of behaviour change, rather than relying on static materials such as informational posters and pre-taped PSAs. Messages focusing on the lethality of disease were found to reduce essential care-seeking behaviours.

Interpretation: Local Red Cross volunteers and staff are ideally placed for social mobilization efforts to prevent transmission, combat misinformation in the event of an Ebola outbreak. They often have an established relationship with community members and understand the anthropological background, which can be a challenge for incoming foreign aid workers. The community-based work of this cadre is an essential component of the response effort complementary to the clinical work. Findings and lessons learned from this research provide the groundwork for continuing response efforts, as well as for future Ebola and infectious disease outbreaks in similar international settings.

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Abstract #: 02CD007

Unpacking the care cascade: Late presentation to care among HIV-infected drug users in a large urban center of Brazil

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Background: Global and national policies have highlighted the importance of the HIV care cascade to achieve viral suppression and reduce transmission risk. While many HIV-infected people, including drug users, continue to experience delays in accessing services, it remains unknown if risk factors associated with late presentation differ at distinct stages of care. To inform the provision of services, we investigated how risk factors for delays or interruptions in care are similar and different along the care cascade of HIV-infected drug users.

Methods: Data were collected in a cross-sectional study of HIV-infected individuals aged 18 or older and enrolled in HIV/AIDS care at one of three main health facilities in Salvador, Brazil. Eligible participants (n=1970) were interviewed between August 2010 to June 2011. 363 individuals reported drug use at least once in their lifetime. Descriptive and bivariate statistics were conducted to identify risk factors associated with late presentation to different stages of the care cascade among HIV-infected drug users. Late diagnosis, late enrollment, and non-adherence to medication served as measures for experiencing interruptions in care. Covariates explored included socio-demographic profiles, drug usage, sexual health, and health service quality.

Findings: 363 participants, 269 men and 94 women, reported ever using amphetamines/cocaine (n=214, 59.0%), crack (n=87, 24.0%), injecting drugs (n=56, 15.4%), marijuana (n=291, 80.2%), LSD/mushrooms (n=34, 9.4%), or other drugs (n=45, 12.4%). For late testing, male gender (2.54 OR, 1.2-5.4 95%CI) significantly increased odds for late diagnosis, while crack usage (0.41 OR, 1.2-5.4 95%CI), experiencing forced sex (0.38 OR, 0.2-0.9 95%CI), and confidential testing (0.43 OR, 0.2-0.8 95%CI) decreased odds. For late

enrollment, unemployment (2.45 OR, 1.0-2.5 95%CI), amphetamine/cocaine usage (1.62 OR, 1.0-2.5 95%CI), and experiencing forced sex (1.95 OR, 1.1-3.5 95%CI) increased odds, while male gender (0.46 OR, 0.3-0.8 95%CI), and post-test counseling (0.50 OR, 0.3-0.9 95%CI) decreased odds. For non-adherence, smoking tobacco (1.92 OR, 1.1-3.5 95%CI) and experiencing forced sex (2.40 OR, 1.2-4.9 95%CI) increased odds.

Interpretation: Risk factors for late presentation among HIV-infected drug users differed at each stage of the care cascade. Some variables, including male gender and experiencing forced sex, were negatively associated with engagement in care at one stage and positively at another. Early provision of quality health services, including confidential testing and post-test counseling, had positive effects across stages of care. Identifying how risk factors for late presentation differ at each stage of the care cascade can inform changes in service provision that improve care continuity, facilitate achievement of viral suppression, and reduce HIV-related morbidity and mortality globally.

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Epidemiological dynamics of bovine brucellosis in India

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Background: Bovine brucellosis is a worldwide, zoonotic disease with significant economic and global health impact. As a predominantly agrarian society, India faces many health-related and socio-economic challenges in managing livestock disease. Mathematical modeling of livestock diseases in developing regions can provide valuable insight into infectious disease dynamics and disease management strategies; these findings help decision-makers in improving public health policy. Our objective was to develop an epidemiological model of brucellosis transmission dynamics among cattle in India, and to estimate the impact of various control strategies. Control strategies include test-and-slaughter, reducing transmission rate, and mass vaccination.

Methods: Data collection and analysis was conducted at Madras Veterinary College in Chennai, India. We developed a deterministic, susceptible-infected-recovered model to simulate brucellosis transmission dynamics in cattle in India, calibrated to endemically stable levels of bovine brucellosis prevalence of 13.5% in India. We then analyzed the epidemiological benefits at various rates of transmission reduction and mass vaccination.

Findings: While test-and-slaughter is an effective control strategy, socio-cultural constraints in India forbid culling of cattle on religious grounds. Reducing transmission rates lowered disease prevalence correspondingly, and a one-time vaccination initially lowered prevalence but increased with influx of new susceptible births over time. Reducing transmission among cattle either by restricting movement and contact rate or through vaccination decreases the burden of bovine brucellosis in India.

Interpretation: Vaccination is an effective strategy to eliminate bovine brucellosis in India, but it must be implemented at regular intervals. One potential management strategy may be restricting herd density, although further study is necessary to establish density-dependent effects on disease transmission. A main limitation of this study is lacking data on disease prevalence and population dynamics of livestock. The governmental ban on cow slaughter presents a significant obstacle within this analysis as well as potential management outcomes; nonexistent records

of cattle off-take and the impossibility of test-and-slaughter implementation stress dire need of further mathematical modeling and analysis. Although this epidemiological model is a generalized representation of brucellosis transmission dynamics in cattle, this study illustrates the comparative public health impact of various prevention and control strategies for India. Low resource availability, weak infrastructure, and unique cultural beliefs in India emphasize the demand for enhanced intersectoral collaboration in research and policy.

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Utilization of GeneXpert MTB/RIF in the Southern Department of Haiti

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Program/Project Purpose: GeneXpert is a transformative new TB diagnostic method that provides specific and sensitive results in 90 minutes. Global implementation of GeneXpert, with the endorsement of the World Health Organization, has begun in Haiti. There are currently four cities in Haiti with GeneXpert machines: Port-au-Prince, Cap-Haitien, Fond des Blancs, and Les Cayes. This is the first analysis of GeneXpert utilization at Hôpital Immaculée Conception (HIC) in Les Cayes, in the Southern Department of Haiti.

Structure/Method/Design: Investigators conducted semi-structured interviews of clinicians at HIC with access to GeneXpert. Those interviewed included three infectious disease physicians, one TB physician, three TB nurses, one TB laboratorian, and one TB clinic manager. Investigators also reviewed paper and electronic laboratory and patient records for TB suspects tested using AFB sputum smear and GeneXpert. Utilization of GeneXpert, information flow, and impact on patient care were determined. At the end of the data collection period, findings were shared with all interviewed staff at HIC, and feedback on the findings was solicited. This meeting facilitated a discussion amongst physicians, TB nurses, laboratorian, and other clinic staff about ways to streamline clinical processes and maximize GeneXpert utilization at HIC. The findings were also presented to the Director of HIC.

Outcomes & Evaluation: GeneXpert was first used at HIC on 5 December 2013. Since then, lack of electricity made GeneXpert unavailable for 5 weeks. Until 2 August 2014, 64 patients had GeneXpert testing. This represents only 2.6% of Ministry of Health projected utilization. No results returned on the same day. 15 (23%) tests returned No Result: Machine Error, largely due to hyperviscous sputum. Of 49 tests with results (77%), 23 (47%) were TB+. Many tested patients were already smear positive. Among 19 TB+ Rif S patients, the average time from clinical presentation to GeneXpert testing was 73 days. 11 (58%) TB+ Rif S patients were already on anti-TB therapy at the time of GeneXpert testing.

Going Forward: Utilization of GeneXpert at HIC is in accordance with Haitian Ministry of Health guidelines, but far below capacity. Same-day diagnosis is not currently being realized. Key goals include laboratory support for sputum preparation, educating clinicians regarding

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Abstract #: 02CD010

Mixed-methods evaluation of a novel community-based support and education intervention for individuals with HIV/AIDS in KwaZulu-Natal, South Africa

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Background: People living with HIV in Sub-Saharan Africa face significant challenges to accessing and utilizing appropriate care. Community-based peer support groups have long been recognized as a key psychosocial intervention to increase linkage to treatment and improve health outcomes. This study aimed to measure the impact of the PEPFAR-supported structured support group intervention Integrated Access to Care and Treatment (I ACT), as implemented by a small community-based organization, on South African clients' knowledge, attitudes, and practice regarding HIV/AIDS, including their experiences of stigma, willingness to disclose, and uptake of and adherence to treatment services.

Methods: This study took place in Okhahlamba Local Municipality, KwaZulu-Natal, South Africa. Data collection proceeded in two stages: a quantitative component utilized pre- and post-intervention tests, and a qualitative component involved interviews with participants. Participants were community members, over 18, living with HIV, who had graduated from I ACT groups. They were sampled consecutively into the quantitative component and purposively into the qualitative component. I ACT is a 6-session, closed, structured support group intervention. In this case, it was delivered at the community level by trained support group facilitators. The pre/post-test measured changes in participant HIV knowledge, stigma, disclosure, treatment adherence, and linkage to care. Interviews focused on participants' perspectives on the I ACT program. Sample size calculations suggested that 44 participants would demonstrate clinically important differences in the quantitative component. Paired t-tests and McNemar's tests looked for significant changes between pre- and post-intervention, while robust multiple linear regression determined whether relevant sociodemographic and clinical variables predicted changes in the outcome variables. Line by line coding according to an inductive approach was used to identify themes in the interview transcripts. This study received ethical approval from the Human Sciences Research Council of South Africa. Clients gave written consent prior to participating in interviews.

Findings: Pre-/post-test data from 66 clients were collected and 17 participants were interviewed. Paired t-tests did not detect significant changes in the five outcomes between pre- and post-intervention. However, McNemar's tests did indicate a significant increase in the proportion of participants with complete HIV knowledge from pre- to post-intervention ($p = 0.03$), and a significant decrease in the proportion of participants experiencing any stigma from pre- to post-intervention ($p = 0.08$). Qualitative results indicated a psychosocial benefit as participants connected with their peers, expressed themselves openly, and re-engaged with their communities.

Interpretation: This study demonstrated that community-based I ACT groups can be a useful, culturally-sensitive complement to clinic-based treatment literacy programs, offering unique psychosocial benefit without requiring intensive financial or human resources. However, the quantitative component of this study was not designed to capture the bulk of this psychosocial benefit. Further, the results have limited generalizability to men.

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Characterization of inpatient admission within a large HIV treatment program in Ethiopia

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