

COMMUNICABLE DISEASES

Ebola prevention to recovery: A student-to-student social media campaign

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Program/Project Purpose: Content: The Thomas Jefferson University Global Health Initiative Committee (GHIC) is an inter-academic committee of faculty and students. It is the premier point of engagement on global health issues. The GHIC is building a student-to-student social media campaign to provide educational messages to students in the diaspora and the countries affected by Ebola. Students manage the social media network with faculty oversight. The network collaborates with key stakeholder organizations to identify and propagate important public health information. Program Period: From crises through recovery phases of the Ebola epidemic. Why: The program looks to capitalize on the social media capabilities of students as a methodology to disseminate key information and form support groups locally and globally. Aim: To disseminate information regarding Ebola from crises to recovery phase in readily understood messages, in the appropriate language or signage, at the appropriate educational level, both locally and globally.

Structure/Method/Design: Desired Outcomes: To inform students in effected areas about Ebola and to inform and support them through recovery Participants: An inter-professional team of Jefferson students and faculty volunteered to develop the outreach and social media campaign. Hesperian Foundation, famous for health resources such as Where there is No Doctor, is assisting in creating the messages. We are collaborating with nonprofit and faith-based organizations and ambassadors from Sierra Leone and Guinea. Sustainability: The plan is to address each phase of the emergency from crisis to recovery with appropriately targeted messages.

Outcomes & Evaluation: To date: The GHIC coordinated a symposium with key stakeholders, including ambassadors from three West African countries, that was broadcast to universities in West Africa. The GHIC developed an inter-professional team of student volunteers and faculty advisors who identified key stakeholders at nonprofit and faith-based organizations both in the diaspora and effected countries to help build the social media campaign. The GHIC continues to act as a liaison with key embassies in effected countries and has begun collaborating with the Hesperian Foundation to help craft messages that can be translated and/or disseminated in a myriad of languages through a variety of social media. M & E: The GHIC will monitor the number of messages and the number of times each message is propagated as an indicator of success. **Going Forward:** Ongoing challenges? Maintaining a constant stream of effective educational messages using pragmatic social media venues in a multitude of languages from crisis to recovery phases with a student volunteer team that will change with the semesters. Unmet goals? Future program activities change? Future program activities will change as the current Ebola crises moves to recovery.

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Abstract #: 02CD001

Performance of high-risk human papillomavirus messenger RNA testing in self-collected tampons among HIV-Infected women in Pretoria, South Africa

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Background: HIV-infected women are at increased risk for infections with high-risk human papillomavirus (hrHPV) types and development of cervical cancer. South Africa has a large HIV burden and low cervical cancer screening coverage. Self-collection of cervical specimens for HPV testing has been suggested as one method to increase cervical cancer screening. We evaluated the performance of hrHPV messenger RNA (mRNA) testing on self-collected tampons versus clinician-collected swabs among HIV-infected women in Pretoria, South Africa. **Methods:** We conducted a prospective study at one government HIV treatment clinic in Pretoria, South Africa. A study clinician performed a pelvic examination and obtained a cervical brush specimen for hrHPV and cytology. Study participants then inserted a tampon for self-collection. Both the clinician- and self-collected specimens were tested for hrHPV mRNA using the Aptima assay (Hologic/Gen-Probe Inc.). The primary outcome was test positivity of the clinician-collected versus tampon-collected specimens. The secondary outcome was correlation with cytology results.

Findings: A total of 325 women, with a mean age of 41 years (25–70 years) participated in the study. There was no difference in the hrHPV mRNA prevalence detected by each collection method, 36.7% in clinician-collected specimens versus 43.5% in tampon-collected specimens ($p = 0.11$). Paired specimens agreed in 77.6% of women, and the Cohen's κ -statistic was 0.54 (95% CI: 0.44 – 0.63). The sensitivity of hrHPV testing for detecting HSIL as diagnosed by cytology was 84.0% (95% CI: 63.9 – 95.5%) in clinician-collected specimens and 72.0% (95% CI: 50.6 – 87.9%) in tampon-collected specimens ($p = < 0.01$). The specificity of hrHPV testing for detecting HSIL was 67.4% (95% CI: 61.6 – 72.7%) in clinician-collected specimens and 58.9% (95% CI: 53.0 – 64.6%) in tampon-collected specimens ($p = 0.03$).

Interpretation: We found a high prevalence of hrHPV mRNA in a population of HIV-infected women in South Africa, highlighting the need for more expansive cervical cancer screening. Given its lower sensitivity and specificity for HSIL, the tampon-collection method might be limited to patients who are not able to have a pelvic examination or who prefer home-collection. However, further evaluation of the role for tampon-collection as a method to increase cervical cancer screening coverage is warranted.

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Abstract #: 02CD002

Factors that influence mycobacterium tuberculosis culture results in patients diagnosed with tuberculosis

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Background: Molecular epidemiology has revolutionized the understanding of *Mycobacterium tuberculosis* (MTB) transmission. Such studies require culture-based genotyping results from the majority of the study population to generate valid inferences. The present investigation aims to describe factors that influence confirmatory culture results within The Kopanyo Study, a large molecular epidemiological study of MTB in Botswana.

Methods: We performed liquid culture for MTB confirmation and isolation among patients initially diagnosed with TB in routine clinical practice. Multiple sputum samples were collected per patient to account for variability in sputum production and contaminated samples. Data were gathered via chart review from 29 clinics in Botswana for patients enrolled between September 1st 2012 and August 31st 2013. Generalized estimating equation (GEE) logistic regression modeling was used to determine factors associated with MTB culture positivity while accounting for multiple samples collected for each patient. This research was approved by the Ethics Committees and Independent Review Boards at the University of Pennsylvania, Centers for Disease Control and Prevention, Botswana Ministry of Health, University of Botswana and Princess Marina Hospital. All study participants provided informed consent.

Findings: A total of 1,338 samples collected from 574 TB patients were included in the analysis. Overall, 435 (75.8%) patients had at least one MTB positive culture. Among HIV-infected patients 197/278 (70.9%) were culture positive, whereas among HIV-uninfected patients 156/186 (83.9%) were culture positive ($p < 0.01$). The median time between diagnosis and initiation of culture was four days (interquartile range 2 - 6). Among mucopurulent and salivary (clear, mucoid, blood-stained or salivary) samples, 554/738 (75.1%) and 336/548 (61.3%) were culture positive, respectively ($p < 0.01$). In patients who underwent sputum induction via respiratory methods or gastric aspiration 89/193 (46.1%) were culture positive, while 438/596 (73.5%) who voluntarily expectorated sputum were culture positive ($p < 0.01$). In multivariate analysis, HIV-infection (OR=0.53 95% CI = 0.32 - 0.88), age (21-30 years vs.

Interpretation: We found that age 21-30 years, HIV-infection, and sputum collection method are factors that must be taken into consideration in studies using MTB isolation. Improved methods of MTB culture detection are necessary for HIV co-infected populations and others with low levels of bacilli in the sputum.

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Abstract #: 02CD003

Socio-economic, clinical, and behavioral factors associated with study retention among tuberculosis patients in Botswana

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Background: Prospective cohort studies are crucial for expanding the understanding of tuberculosis (TB). High level of patient retention throughout the study period is vital to maintain study power and draw valid conclusions. In this study we aim to define factors associated with mid- and long-term participant retention to identify patients at risk of being lost to follow-up in a large cohort TB study in Botswana.

Methods: We conducted a nested cross-sectional study of clinical and research records of culture positive TB patients enrolled from Sep 1, 2012 - Aug 31, 2013. Participants were recruited after being diagnosed with TB at one of 32 clinics in the greater Ghanzi and Gaborone area. All diagnosed patients were eligible for enrollment. Factors studied included sex, age, location, smoking status, alcohol consumption, previous incarceration, income, previous TB, HIV status, and antiretroviral therapy use. Patient retention among the cohort is attempted at 6-month intervals. Study retention was analyzed for patients enrolled in the study for at least 12 months with complete data entry and was defined in two ways: 1) evidence of at least one follow-up visit; and 2) continued retention at 12 months after enrollment. Of the 1,092 patients enrolled during the time period, 270 fulfilled requirements for analysis. Descriptive analysis and chi-square tests were performed. This research was approved by the Ethics Committees and Independent Review Boards at the University of Pennsylvania, Centers for Disease Control and Prevention, Botswana Ministry of Health, University of Botswana, and Princess Marina Hospital. All study participants provided informed consent.

Findings: Overall, 200/270 (74.1%) participants had at least one follow-up visit and 124/270 (45.9%) participants were retained at 12 months. Female sex (69.2% vs. 78.0% among males; $p=0.100$) and HIV infection (69.2% vs. 84.3% among HIV-uninfected participants; $p=0.011$) were negatively associated with having at least one follow-up visit. Female sex (38.3% vs. 52.0% among males; $p=0.025$) and living in a rural setting (24.2% vs. 48.7% among participants living in an urban setting; $p=0.008$) were negatively associated with retention at 12 months.

Interpretation: Findings suggest that improved efforts are needed to increase cohort study retention for female, HIV-infected, and rural participants. Limitations of the current study include incomplete data entry forms that skew eligible participants to the beginning of the study period.

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Abstract #: 02CD004

HIV and early hospital readmission: Evaluation of a tertiary medical facility in Lilongwe, Malawi

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Background: Delivery of quality healthcare in resource-limited settings is an important, understudied public health priority. Thirty-day (early) hospital readmission is often avoidable and an important indicator of quality. At Kamuzu Central Hospital (KCH), a tertiary