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Reimagining Health Communication: A Non-Inferiority Randomized Controlled Trial of Crowdsourcing in China

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Background: Crowdsourcing, the process of shifting individual tasks to a large group, may reimagine health communication, making it more people-centered. We aimed to compare the effectiveness of a crowdsourced versus a social marketing video in promoting condom use.

Methods: Men who have sex with men (MSM) (≥ 16 years old, had condomless sex within three months) were recruited through a nationwide MSM website and randomly assigned to watch one of two videos in 2015. The crowdsourced and social marketing videos were developed through an open contest and designed by a company, using social marketing principles, respectively. Participants completed a baseline survey and follow-up surveys at three weeks and three months post-intervention. Intention-to-treat analyses was used for data analysis, with a non-inferiority margin of +10%.

Findings: Among the 1173 participants, 907 (77%) and 791 (67%) completed the three week and three month follow-ups. At three weeks, condomless sex was reported by 146/434 (33.6%) and 153/473 (32.3%) participants in the crowdsourced and social marketing arms, respectively. The crowdsourced intervention achieved non-inferiority (estimated difference: +1.3%, 95% CI: -4.8 to 7.4%). At three months, 196/376 (52.1%) and 206/415 (49.6%) individuals reported condomless sex in the crowdsourced and social-marketing arms (estimated difference: +2.5%, 95% CI: -4.5 to 9.5%). The two arms also had similar HIV testing rates and other condom-related secondary outcomes, but crowdsourced per unit cost was less than the social marketing arm (\$58 vs. \$84).

Interpretation: Our study demonstrates that crowdsourcing is an effective tool for designing media to promote condom use. Crowdsourcing contests could create more imaginative intervention tools that promote HIV prevention and control.

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HepTestContest: A Global Innovation Contest Soliciting Descriptions of Hepatitis B and C Testing Programs

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Background: Innovation contests provide a structured mechanism to solicit community feedback on important public health issues. Innovation contests have been used to develop public health campaigns, clinical algorithms, and inform policy. The purpose of this innovation contest was to solicit descriptions of hepatitis B and C testing from around the world.

Methods: The innovation contest represented a collaboration between SESH (Social Entrepreneurship for Sexual Health) and the World Health Organization. The contest, called HepTestContest, included the following steps: 1) organizing a steering committee to create the open call; 2) engaging the general public through social media; 3) evaluating contributions based on pre-specified criteria; 4) recognizing finalists and sustaining engagement. Information was collected from each contributor regarding when testing programs started, percent of organization's work devoted to hepatitis, availability of direct acting antivirals (DAAs), providing HIV testing, and barriers to testing.

Findings: The HepTestContest received 64 entries from 27 countries. Thirty-one groups received a commendation of excellence from the World Health Organization. A mean of 9301 individuals were tested for HBV, HCV, or both among the 39 entries that reported. Most (42/64, 66%) entries were from testing programs that started in the past three years. A mean of 44% of each organization's work was devoted to hepatitis. Most entries (49/64, 77%) were from countries in which DAAs were available. Most (45/64, 71%) programs also provided HIV testing and four entries described integration of HIV-hepatitis testing services. The most commonly mentioned barriers were lack of hepatitis awareness among the public and subpopulations (25/64, 39%) and lack of test kits (25/64, 39%).

Interpretation: This innovation contest solicited a wide range of descriptions of hepatitis B and C testing programs. Public policy experts and community health workers alike may benefit from innovation contests that engage end-users of guidelines. As testing for hepatitis B and C programs scale up in many regions, further innovation will be important for achieving WHO service targets towards the elimination of hepatitis B and C.

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Abstract #: 2.027_INF

Crowdsourcing Designathon: A New Model for Multisectoral Collaboration

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Background: Many HIV testing services campaigns for young people are designed by experts with limited input from young people. Hackathons are events in which a diverse community of individuals collaborates over several days, typically developing a new technology. We adapted the concept of a hackathon to focus on developing a community-based HIV testing campaign for young men who have sex with men (MSM).

Methods: We implemented a crowdsourcing designathon focused on creating an HIV test promotion campaign for young men who have sex with men (MSM). The intensive 72-hour crowdsourcing designathon contest brought together eight multi-sectoral teams with expertise in public health, design, advocacy, and communications. The incentive to participate was having the finalist campaign implemented among young MSM in eight Chinese cities.

Findings: A total of 53 individuals applied to participate and 40 were selected to join the designathon. Among the 40 participants, 30/40 (75%) were 30 years or younger, 16 (40%) were young students. Campaign themes developed by the teams were compelling and feasible. Two teams were commended as exceptional, forming the basis for an eight-city HIV testing campaign to be evaluated using a stepped wedge randomized controlled trial ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02796963) NCT02796963). Major themes included HIV self-testing and using social media to promote HIV testing. Six images from the crowdsourcing designathon were included in the final implemented campaign.

Interpretation: Crowdsourcing designathons may be useful for creating more engaging and effective health campaigns for youth, including young MSM. This method increased youth ownership of the HIV testing campaign.

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Diagnosis of Cutaneous Leishmaniasis using Microscopic Detection and Molecular-based PCR Assay Techniques

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Background: Molecular identification of *Leishmania* species using Polymerase Chain Reaction (PCR) has been studied as a more sensitive approach compared to parasitological and microscopic methods. However, in many Cutaneous Leishmaniasis (CL) -endemic areas in low and middle income countries, there is little

to no infrastructure to conduct PCR assays on the site. PCR-based molecular diagnosis aids in CL treatment and follow-up due to its higher sensitivity and specificity.

Methods: Our sample consisted of 16 subjects with suspected cases of CL in North West Ecuador. We used the tissue smear which is the gold standard diagnostic method as well as two molecular-based PCR-assay methods - cytochrome B (cyt B) PCR and the Internal Transcribed Spacer 1 (ITS1) PCR and compared results. Tissue smears were obtained from patients and examined under the microscope on site. Also, tissue samples were obtained using FTA cards and transported to a laboratory for DNA extraction and PCR assay.

Findings: Identification using microscopic tissue smear yielded a sensitivity of 56.25% compared to Cyt B PCR (87.5%) and ITS1 PCR (93.75%). An additional benefit of the molecular methods was the ability to identify the exact species of *Leishmania* following sequencing of the PCR product.

Interpretation: Our results suggest that molecular techniques are indeed more sensitive than the use of microscopic smears. The FTA cards proved effective at retaining the integrity of the samples during transportation to the laboratory and could also be used more often in addition with PCR for Leishmaniasis diagnosis.

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Patterns and Perceptions of Self-Prescribed Antibiotic Use in Guayaquil, Ecuador

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Background: The rising incidence of antibiotic-resistant disease is partially attributable to the extensive use and misuse of antibiotics. Ecuador has the second highest rate of per-capita antibiotic consumption in Latin America. The purpose of this study is to identify factors that contribute to self-prescribed antibiotic use in a low-income neighborhood of Guayaquil, Ecuador's largest city, where antibiotics are frequently available over-the-counter.

Methods: Qualitative, oral interviews were conducted with local residents who had seen a physician in the last two years (group A, 101 subjects) and those who had not for two years or more (group B, 100 subjects). Subjects were recruited at a local medical clinic and a nearby food market.

Findings: Although 71% of subjects overall report that they believe antibiotics could be dangerous for them, 74% have self-medicated with antibiotics in their lifetime, and 43% have taken antibiotics in the last month. 73% of subjects report taking just one or two antibiotic pills when they self-medicate. There were no differences between groups for these findings, but subjects in group A were more than twice as likely to have spoken with a physician before starting antibiotics the last time they took them (56% vs. 25% $p < 0.001$), and more than three times as likely to complete a full course of antibiotics that had been prescribed by a physician (41% vs. 13% $p < 0.001$). Overall, 78% of subjects who had children under the age of 18 reported self-medicating with antibiotics, but 85% said