ENHANCING COMMUNITY HEALTH EDUCATION THROUGH TECHNOLOGY IN LAGOS, NIGERIA

By: Alexandra Tarzikhan, Schuette Clinical Fellow in Health and Human Rights
Enhancing Community Health Education through Technology in Lagos, Nigeria
Alexandra Tarzikhan¹, Juliet Sorensen¹, Shannon Galvin², Annie Conderacci³
¹Center for International Human Rights, Northwestern University Pritzker School of Law, Chicago, IL; ²Center for Global Health, Northwestern University, Chicago, IL; ³Slalom

Background
Access to basic health knowledge and care remains elusive to many communities in Lagos, Nigeria. In partnership with Justice Empowerment Initiatives (JEI) and the Nigerian Slum/Informal Settlement Federation, a Health Needs Assessment of informal urban communities was conducted. The assessment revealed that residents of communities lacked access to health information, were unsure of where to access health resources, and had low health literacy rates.

Objective
Our objective was to develop a community health education curriculum responsive to the needs of the informal-urban communities at our partner site.

Methods
Curriculum Development
Guided by the communities’ needs, ATH developed an innovative community health educators (CHEs) curriculum with components of health education and adult learning techniques. ATH based the curriculum on JEI’s existing community paralegal program, adapting it from existing validated curricula from USAID, Pathfinder, Peace Corps; integrating Nigerian guidelines; tailoring to topics relevant to the communities’ interests; and developed written materials. The CHE program was implemented impacting 112 communities of 1,000 to 30,000 people.

Curriculum Evaluation
ATH tested the effectiveness of this first iteration of the curriculum using multiple choice and open-ended questions. Knowledge-based pre- and post-tests were also developed to assess the initial class of educators’ baseline knowledge and understanding of the material presented. Descriptive statistics were used to describe response rate. A t-test was used to compare response rates between pre and post testing results. Percent of correctly answered questions were calculated and statistical analysis was performed using Microsoft Excel.

Results

<table>
<thead>
<tr>
<th></th>
<th>Correct answers out of 23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test Mean</td>
<td>16.5</td>
</tr>
<tr>
<td>Post-Test Mean</td>
<td>19.1</td>
</tr>
</tbody>
</table>

- P = 0.003
- The mean of Group One minus Group Two equals -2.63
- 95% confidence interval of this difference: from -4.36 to -0.91

We found a moderate but statistically significant increase in percentage of questions correct from the pre- and post-test, indicating the curriculum was effective. The survey provided a nuanced analysis, allowing our team to revise the curriculum, emphasizing the areas with low baseline knowledge and minimal improvement and deemphasizing areas with high baseline knowledge.

However, providing the CHEs with updated training materials and other health information proved to be difficult. Faced with inconsistent internet access and, at times, no access to power, the CHEs have to rely on memory to deliver trainings and answer questions from the community.

Technological Solutions
ATH partnered with Slalom LLC to design a website and mobile application solution, which would increase access to health information and transparency to services. The website provided updated, visual training materials to the CHEs through a scalable, user-friendly medium. A mobile platform was also developed allowing a full public health curriculum to reach even the most remote populations. The functionality of these solutions were tested in the field and communication vehicles were assessed to foster collaboration across CHEs and communities. Community members requested SMS recap of information. Visual information supplemented trainings with diagrams and videos providing deeper understanding.

Next Steps
ATH will update the solutions based on user feedback and create more content for low literacy populations. A data collection and analysis strategy will be developed to collect health data, map health facility information, and continuously assess healthcare landscape.
Interdisciplinary global community health partnership working directly with communities and local NGOs to:

(1) Develop targeted and sustainable projects in partnership with local communities; and

(2) Teach students how to engage in interdisciplinary, transnational partnerships that encourage global citizenship and understanding.
LOCAL PARTNERS
• ATH aims to provide health education to informal-urban communities
• On the ground, trained Community Health Educators (CHEs) deliver classes to the community on multiple health topics (common diseases, sexual education, basic hygiene)
• Northwestern provides the CHEs with training materials
PROJECT DEVELOPMENT

**STEP 1**
Initial consultation and identification of health care needs

**STEP 2**
Development of CHE program with components of health education and adult learning methods

**STEP 3**
Implementation of CHE program and evaluation of the curriculum

**STEP 4**
Revise CHE training based on community baseline data analysis

**STEP 5**
Ongoing Implementation
CHE CURRICULUM

Initial Needs Assessment

- Infrastructure Barriers
  - Geographic
  - Poverty
  - Absent Sanitation

- Health Access Constraints
  - Low Health Literacy
  - Unsure where to access health resources
  - Financial

Adult Learning and Teaching Techniques

- Questions
- Teach Back
- Stories
- Games

Utilized Existing Validated Curricula

- USAID
- Pathfinder
- Peace Corps
- Integrated Nigerian Guidelines
METHODS

• To test the effectiveness of the first iteration of the curriculum: multiple choice and open-ended questions were used
• Knowledge-based pre-and post-tests were developed to assess baseline knowledge and understanding of the material presented
• Descriptive statistics were used to describe response rate
• A t-test was used to compare response rates between pre and post testing results
RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Pre Test</th>
<th>Post Test</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Questions Correct</td>
<td>16.53</td>
<td>19.17</td>
<td>0.003</td>
</tr>
<tr>
<td>Min %s Correct</td>
<td>6</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Max %s Correct</td>
<td>22</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Number of Participants</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Pre and Post Test Mean Percent Correct and Range

<table>
<thead>
<tr>
<th></th>
<th>Pre Test</th>
<th>Post Test</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean % Correct</td>
<td>71.88</td>
<td>83.33</td>
<td>0.003</td>
</tr>
<tr>
<td>Min % Correct</td>
<td>26.09</td>
<td>47.83</td>
<td></td>
</tr>
<tr>
<td>Max % Correct</td>
<td>95.65</td>
<td>100.00</td>
<td></td>
</tr>
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</table>
Addressing Persistent Problems

• Access to basic health knowledge and care remains elusive to many communities

• Providing the CHEs with updated training materials and other health information resources has proven to be difficult

• Faced with inconsistent internet access and, at times, no access to power, the CHEs have to rely on memory to deliver trainings, answer questions from the community
TECHNOLOGICAL SOLUTIONS

- Slalom was asked to help create a solution
- The team developed a website and mobile application for the CHEs
- The functionality of these solutions were tested in the field and communication vehicles were assessed to foster collaboration across CHEs and communities
- Community members requested SMS recaps of information
- Visual information supplemented trainings with diagrams and videos providing deeper understanding
NEXT STEPS

• **Application and Website:**
  - Update solution based on user feedback
  - Create more visual content including graphics and charts
  - Record and upload CHE training videos for remote access

• **Data Analytics:**
  - Develop data collection and analysis strategy to assess healthcare landscape
  - Add dynamic features to provide real time research updates
  - Update health facility information
QUESTIONS