



Published in final edited form as:

J Health Commun. 2013 March ; 18(3): 343–353. doi:10.1080/10810730.2012.727952.

Evaluation of a Tuberculosis Education Video among Immigrants and Refugees at an Adult Education Center: A Community-Based Participatory Approach

Mark L. Wieland,

Mayo Clinic College of Medicine, Rochester, Minnesota, USA

Jonathan Nelson,

Hawthorne Education Center, Rochester, Minnesota, USA

Tiffany Palmer,

Mayo Clinic College of Medicine, Rochester, Minnesota, USA

Connie O'Hara,

Hawthorne Education Center, Rochester, Minnesota, USA

Jennifer A. Weis,

Mayo Clinic College of Medicine, Rochester, Minnesota, USA

Julie A. Nigron, and

Hawthorne Education Center, Rochester, Minnesota, USA

Irene G. Sia

Mayo Clinic College of Medicine, Rochester, Minnesota, USA

Abstract

Tuberculosis (TB) disproportionately affects immigrants and refugees to the United States. Upon arrival to the US, many of these individuals attend adult education centers, but little is known about how to deliver TB health information at these venues. Therefore, a participatory approach was used to design and evaluate a tuberculosis education video in this setting. Focus groups data were used to inform the content of the video that was produced and delivered by adult learners and their teachers. The video was evaluated by learners for acceptability through 3 items with a 3-point Likert scale. Knowledge (4 items) and self-efficacy (2 items) about TB were evaluated before and after viewing the video. A total of 159 learners (94%) rated the video as highly acceptable. Knowledge about TB improved after viewing the video (56% correct vs. 82% correct; $p < 0.001$), as did TB-related self-efficacy (77% vs. 90%; $p < 0.001$). Adult education centers that serve large immigrant and refugee populations may be excellent venues for health education, and a video may be an effective tool to educate these populations. Furthermore, a participatory approach in designing health education materials may enhance the efficacy of these tools.

The incidence of tuberculosis (TB) infection in the United States has declined over the past decade, but a disparity has emerged whereby infection rates among foreign-born individuals are on the rise. Over half of active TB cases in the U.S. occur in foreign-born individuals ("Trends in tuberculosis--United States, 2007", 2008), and the majority of these cases are due to reactivation of latent tuberculosis infection (LTBI) (Cain et al., 2007; Geng et al., 2002). The Centers for Disease Control and Prevention (CDC) recommends testing and

treating LTBI among foreign-born individuals from countries with a high incidence of TB who have lived in the U.S. for five years or less (Z. Taylor, Nolan, & Blumberg, 2005). In spite of this recommendation, LTBI screening of foreign-born individuals is not commonly practiced (Institute of Medicine, 2000). Challenges include low health seeking behaviors for screening for latent infection and active disease, as well as suboptimal treatment compliance (Z. Taylor et al., 2005).

Community-based participatory research (CBPR) is a means to collaboratively investigate health topics within a community, whereby community members and academics partner in an equitable relationship through every phase of the research process, from derivation of the research questions through interpretation and dissemination of data (Horowitz, Robinson, & Seifer, 2009; Israel, Schulz, Parker, & Becker, 1998; Shalowitz et al., 2009). CBPR has been particularly successful in identifying and acting to reduce health disparities, as it empowers communities and promotes understanding of culturally pertinent issues (Wallerstein & Duran, 2006; Wells & Jones, 2009). Furthermore, the CDC recommends forging these types of partnerships to eliminate TB in the US (Centers for Disease Control and Prevention, 2007).

English as a Second Language (ESL) programs seem a logical setting for creating and disseminating culturally-appropriate information about TB among new immigrants and refugees to the US. Indeed, school-based programs have proven to be highly effective locations for TB control among children (Barry et al., 1990; Brassard, Steensma, Cadieux, & Lands, 2006; Chang, Wheeler, & Farrell, 2002; Mohle-Boetani et al., 1995; Pong et al., 1998; Sipan et al., 2003), including one ESL program for school age students (Denison & Pierce, 1996). Furthermore, while we are aware of no published reports of TB programming at adult education centers, adult ESL programs have been successful venues for educational programming around health topics such as hepatitis B (V. M. Taylor et al., 2009), cancer screening and prevention (Bennett, Kripalani, Weiss, & Coyne, 2003), and cardiovascular health (Elder et al., 2000).

Since content at adult education centers is typically delivered to heterogeneous groups of recent immigrants and refugees, it is important to create educational tools that target these diverse populations. Health education is an important product of many CBPR projects, and video production guided by CBPR can be a powerful mechanism for engaging community and strengthening partnerships while broadening the appeal to a community audience (Chavez et al., 2004). CBPR-derived videography in this context refers to a participatory approach to every phase of video production for health promotion, which is distinct from a common use of images in CBPR through techniques like “photovoice” (Wang and Burris, 1997) for data gathering and advocacy. To inform the content of such education tools, a CBPR process was conducted to identify perceptions about TB among immigrants and refugees at an adult education center. One resultant educational intervention was the participatory creation of a TB education video.

Methods

Setting

As a constituent of the Rochester Public Schools Independent School District 535, Hawthorne Education Center (HEC) provides education with an emphasis on literacy to Rochester adults. HEC has evolved into a community center, providing instruction for cultural adjustment, citizenship, and even driver’s license training.

The Hawthorne community includes approximately 2,500 learners, 60 staff members, and 250 volunteers each year. Adult learners come predominantly from Sub-Saharan Africa

(38%), Latin America (21%), Southeast Asia (17%), and Southeast Minnesota (20%); they speak 70 different languages at home. An estimated 85% live at or below the federal poverty level. Less than half (40%) have completed high school; 12% have never before attended school.

A significant proportion of Hawthorne learners have some of the highest risk characteristics for TB and LTBI in this country, including recent emigration from regions of the world where TB is endemic. The HEC community has experienced several cases of active TB among its students in recent years. Furthermore, 18% of 261 learners and staff who participated in a 2009 pilot TB screening project were found to have LTBI (Wieland et al., 2011). This disparity contributed to a desire among HEC learners and staff to address the problem in this community of recent immigrants and refugees.

Partnership

In 2005, HEC manager (JAN) approached Mayo Clinic faculty who volunteered at HEC to work together to address the problem of TB among its learners. Both community and academic partners agreed to adopt a CBPR approach to broadly address health concerns at HEC, and to focus the initial effort on TB. An early partnership consisting of HEC learners, HEC staff, Mayo Clinic faculty, and representatives from the local public health department was established to explore CBPR and its potential application to TB at HEC. Operating norms were established (e.g., democratic decision making processes, preparation for meetings, communication plans, etc), and CBPR principles were adopted from existing materials (Israel, Schulz, Parker, & Becker, 1998) during monthly meetings, and a health needs survey was performed. This partnership has grown to include five additional community based organizations, two additional academic centers, and many volunteers to form the Rochester Healthy Community Partnership (RHCP) with a mission of promoting health and well-being among the Rochester population through CBPR, education, and civic engagement to achieve health equity (www.rochesterhealthy.org). While RHCP was conducting several health projects, community research capacity and external funding was built around the TB project with the goal of applying the CBPR infrastructure to future health topics. The HEC program manager (J.N.) was a co-principal investigator on this federal grant which included funding of the TB video production. For the purpose of the TB project, “community” was defined as HEC learners and staff. Project partners engaged HEC learners and staff to form a TB working group to ensure community involvement in every aspect of the project design and analysis.

TB Focus Groups

In 2008–2009, ten focus groups with 84 participants were conducted at HEC among adult learners and staff through a CBPR approach to elucidate perceptions of TB in this population. Comprehensive methods and results of these focus groups are reported elsewhere (Wieland et al., 2011). There were four recommended education points that emerged from the focus groups analysis: 1) Raise awareness that TB is in the US; 2) Reinforce modes of transmission; 3) Educate about the difference between latent and active TB; 4) Reassure that TB is curable. These points were used as a framework for the TB video content and evaluation.

Creation of the TB Video

The TB focus groups data were shared and implications explored with over 900 HEC learners and staff during the week of World TB Day in March 2009. One expectation from students and staff was that results be used to inform an education intervention at the school. The RHCP TB working group recommended a video media for the purposes of consistent messaging and sustainability. Four key concepts to most effectively address TB at HEC

emerged from the focus groups. These concepts were used by a group of five HEC adult education specialists to inform the writing of a video script. These teachers have been immersed in the HEC community for many years and have significant experience writing content for low literacy learners. The script was then formally reviewed by five HEC adult learners across different cultures. Significant revisions were made by students for cultural acceptability. Finally, the script was reviewed by academic partners for content accuracy.

This combined group of HEC learners and staff then produced the video. The production was captured with a hand-held video camcorder. The video filmed five narratives by HEC students or staff who had personal experiences with TB. Each narrative reflected one of the key concepts identified in the focus groups and was punctuated by filming of HEC healthcare volunteer professionals summarizing each message.

The narrative themes that comprised the video were as follows: 1) TB is in the US: 3 HEC learners and 2 HEC staff briefly described personal experiences with TB while in the US; 2) Modes of transmission: an HEC learner engaged in dialogue with an HEC volunteer physician regarding TB transmission; 3) TB testing: an HEC volunteer nurse performed a TB test on an HEC staff with associated dialogue; 4) Differences between latent and active TB: an HEC learner engaged in dialogue with an HEC volunteer physician regarding the difference and implications for testing and treatment; 5) Reassure that TB is curable: an HEC learner engaged in dialogue with an HEC volunteer physician regarding principles of treatment for latent and active TB.

The unedited video was then piloted among a subset of HEC learners and staff with resultant changes in content and format. Initial editing was performed by HEC staff with Final Cut Pro® software. Further editing was performed by HEC staff based on feedback from additional staff and learners. Final editing was performed by Mayo Clinic Media Support Services. The final seven minute video was shown in all HEC classrooms during the week of World TB Day in March 2010.

Evaluation

Evaluation of the TB education video was completed by a convenience subset of HEC learners and staff who were shown the video in classrooms. Pre-video survey items elicited demographic information, knowledge about TB, and self-efficacy pertaining to TB. These items were adapted from existing materials and modified by the RHCP TB working group comprised of academics and HEC learners and staff. Post-video survey items elicited perceived acceptability of the video as well as re-assessment of knowledge and self-efficacy. All items were based on focus groups results and were written by the RHCP TB working group comprised of academics and HEC learners and staff.

Acceptability—Concepts from the Ottawa Health Decisions Centre’s users manual for acceptability were used to discern HEC learner’s perceptions of the clarity, helpfulness, and importance of the TB video (O’Connor, 2008). These three items were each constructed across a 3-point scale.

Video acceptability among HEC faculty was gauged through two questions: 1) How helpful do you feel the TB video was for your students? (1=not helpful, 2=somewhat unhelpful, 3=neither helpful nor unhelpful, 4=somewhat helpful, 5=very helpful); and, 2) Would you recommend showing this video to future classes? (1=no, 2=maybe, 3=yes).

Knowledge—The instrument to assess knowledge tested the four concepts informed by the focus groups results. There was one item per domain, each with three response options (true, false, I don’t know).

Self-Efficacy—Self-efficacy is an important predictor of positive health seeking behavior (Bandura, 1977), and was assessed through two survey items: 1) Do you know who to ask for help about TB (Yes/No)?; 2) Do you know how to get tested for TB (Yes/No)?

Statistical Analysis

Results are reported using standard descriptive statistics. Comparison of knowledge and self-efficacy before and after the educational intervention are reported as paired t-tests. Comparisons of all domains by demographic were conducted through t-test or one-way ANOVA, as appropriate. Community partners from the RHCP TB working group informed the interpretation of results.

Results

A total of 169 HEC learners and 14 staff who had not participated in video production participated in evaluation of the video. Demographic characteristics of the learners are shown in table 1.

Acceptability

Among the HEC learners, 159 (94%) rated the TB video as highly acceptable, while 10 (6%) reported low or undecided acceptability scores across the three domains. Most (97%) reported that the video helped them learn about TB, 96% said that the video was easy to understand, and 89% recommended that all students should see the video (Table 2).

A total of 14 HEC teachers assessed the video for acceptability. Most felt that the video was very helpful for their students (average response = 4.71 out of 5) and that they would recommend it to future classes (average response = 2.93 out of 3).

Knowledge

Knowledge of TB improved from an overall average of 56% correct prior to the video to 82% correct after watching the video ($p<0.001$). There was demonstration of significant accrual of knowledge from watching the video across all four knowledge domains (Table 3).

Self-Efficacy

Self-efficacy regarding TB improved from 77% to 90% after watching the video ($p<0.001$). Knowledge of who to ask about TB increased from 66% to 88% ($p<0.001$), while knowledge of how to get tested for TB increased from 71% to 91% ($p=0.001$) (Table 3).

Discussion

To our knowledge, this is the first reported evaluation of a health education tool to address TB at an adult education center. Adult education centers frequently serve populations at high risk for TB, and may be outstanding venues for health education and promotion. Furthermore, this study lends preliminary evidence that a short TB video may be a useful component of a broader TB prevention and control program at adult education centers that serve large immigrant and refugee populations.

Our study found that an educational video improved knowledge and perceived self-efficacy about TB and that it was highly acceptable to learners and staff. Indeed, videos have been previously reported as highly effective media to address immigrant and refugee groups in a culturally appropriate format (Burke et al., 2004; Clabots & Dolphin, 1992; Destephano, Flynn, & Brost; Mahloch et al., 1999; Poursalami, Rootman, & Balka, 2007; Wang et al., 2008). The effectiveness of this media among these populations may stem from the

narratives that run through a video, making them potentially more effective than traditional didactics or reading materials (Panford, Nyaney, Amoah, & Aidoo, 2001; Wang et al., 2008).

Like many adult education centers in the US, Hawthorne Education Center is very diverse. This social, cultural, linguistic and economic diversity challenges the notion of “target audience” in videography for health promotion. Our experience is that these challenges are attenuated by two tools: the unique delivery setting at an adult education center and a participatory process of development, production and dissemination. Lessons learned from our CBPR-directed video production at an adult education center are summarized in Appendix A.

The adult education center setting where ESL classes are a curricular mainstay offers several advantages. First, English language proficiency is a goal for every student; therefore, an English-language video to address TB is appropriate despite the primary language heterogeneity. Second, video content in the classroom are used by teachers and students as topical opportunities for English-language conversation, thereby reinforcing concepts depicted in the video. Finally, despite student diversity, the adult education center setting creates a target audience with a certain commonality of life experience; namely, recent immigrants and refugees to the US with relatively low health literacy. For the purposes of TB prevention, this is the target population for the public health goal of shrinking the pool of latent tuberculosis infection in the US (Z. Taylor, Nolan, & Blumberg, 2005).

The acceptability of our video was likely enhanced by the participatory production process, whereby learners and staff led the entire endeavor. The participatory approach was beneficial across several domains. First, the four key concepts about TB that directly informed the video content were derived from a participatory assessment of TB perceptions among the adult education center learners (Wieland et al., 2011). Second, the fact that adult education specialists trained in low-literacy messaging collaborated with their students to write the video script helped overcome barriers to health literacy and English-language literacy. Finally, the delivery of video content by HEC students enhanced the face validity of the message while ensuring an appropriate literacy level. These messages were delivered by compelling individuals through a narrative approach. In total, these participatory processes helped deliver a tailored health message that would not be available from an “off the shelf” TB video. A similarly powerful experience was noted by the authors of a single study of the participatory creation of a TB education video in Gambia (Martin et al., 2005). Potential benefits and limitations to CBPR-directed video production are summarized in Appendix B.

This study has limitations. While we describe lessons learned from a participatory approach to video production, we did not compare acceptability or educational outcomes between a video produced in this manner versus a traditional TB education video. Further, the study is limited by a lack of control group, though the timing of post-testing precludes the possibility of significant additional influences on TB attitudes and knowledge beyond those delivered by the intervention. Additionally, the study is limited by a lack of long-term follow-up on maintenance of knowledge and self-efficacy. Finally, health seeking behaviors as they relate to TB were not evaluated in this study.

Conclusions

Adult education centers that serve large immigrant and refugee populations may be excellent venues for TB education, and a video may be an effective tool for health education in these populations. Furthermore, a participatory approach in designing health education materials may enhance the efficacy of these tools.

Acknowledgments

The authors would like to thank the HEC learners and staff and community volunteers who participated in this project. This project is supported by the National Institutes of Health (NIH) through a Partners in Research grant, R03 AI082703, and by Grant Number 1 UL1 RR024150 from the National Center for Research Resources (NCRR), a component of the NIH, and the NIH Roadmap for Medical Research.

References

- Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*. 1977; 84:191–215. [PubMed: 847061]
- Barry MA, Shirley L, Grady MT, Etkind SW, Almeida C, Bernardo J, et al. Tuberculosis infection in urban adolescents: results of a school-based testing program. *Am J Public Health*. 1990; 80(4):439–441. [PubMed: 2316765]
- Bennett IM, Kripalani S, Weiss BD, Coyne CA. Combining cancer control information with adult literacy education: opportunities to reach adults with limited literacy skills. *Cancer Control*. 2003; 10(5 Suppl):81–83. [PubMed: 14581908]
- Brassard P, Steensma C, Cadieux L, Lands LC. Evaluation of a school-based tuberculosis-screening program and associate investigation targeting recently immigrated children in a low-burden country. *Pediatrics*. 2006; 117(2):e148–e156. [PubMed: 16452324]
- Burke NJ, Jackson JC, Thai HC, Stackhouse F, Nguyen T, Chen A, et al. 'Honoring tradition, accepting new ways': development of a hepatitis B control intervention for Vietnamese immigrants. *Ethn Health*. 2004; 9(2):153–169. [PubMed: 15223574]
- Cain KP, Haley CA, Armstrong LR, Garman KN, Wells CD, Iademarco MF, et al. Tuberculosis among foreign-born persons in the United States: achieving tuberculosis elimination. *Am J Respir Crit Care Med*. 2007; 175(1):75–79. [PubMed: 17038659]
- Centers for Disease Control and Prevention. Forging Partnerships to Eliminate Tuberculosis: A Guide and Toolkit. 2007. from <http://www.cdc.gov/tb/publications/guidestoolkits/forge/default.htm>
- Chang S, Wheeler LS, Farrell KP. Public health impact of targeted tuberculosis screening in public schools. *Am J Public Health*. 2002; 92(12):1942–1945. [PubMed: 12453813]
- Chavez V, Israel B, Allen AJ, DeCarlo MF, Lichtenstein R, Schulz A, Bayer IS, McGranaghan R. A bridge between communities: video-making using principles of community-based participatory research. *Health Promotion Practice*. 2004; 5(4):395–403. [PubMed: 15358912]
- Clabots RB, Dolphin D. The multilingual videotape project: community involvement in a unique health education program. *Public Health Rep*. 1992; 107(1):75–80. [PubMed: 1738812]
- Denison AV, Pierce JR Jr. Enrollment in English-as-a-second-language class as a predictor of tuberculosis infection in schoolchildren. *Public Health Rep*. 1996; 111(5):428–430. [PubMed: 8837631]
- Destephano CC, Flynn PM, Brost BC. Somali prenatal education video use in a United States obstetric clinic: A formative evaluation of acceptability. *Patient Educ Couns*.
- Elder JP, Candelaria JI, Woodruff SI, Criqui MH, Talavera GA, Rupp JW. Results of language for health: cardiovascular disease nutrition education for Latino English-as-a-second-language students. *Health Educ Behav*. 2000; 27(1):50–63. [PubMed: 10709792]
- Geng E, Kreiswirth B, Driver C, Li J, Burzynski J, DellaLatta P, et al. Changes in the transmission of tuberculosis in New York City from 1990 to 1999. *N Engl J Med*. 2002; 346(19):1453–1458. [PubMed: 12000815]
- Horowitz CR, Robinson M, Seifer S. Community-based participatory research from the margin to the mainstream: are researchers prepared? *Circulation*. 2009; 119(19):2633–2642. [PubMed: 19451365]
- Institute of Medicine. Ending Neglect: The Elimination of Tuberculosis in the United States. Washington, D.C.: National Academy Press; 2000.
- Israel BA, Schulz AJ, Parker EA, Becker AB. Review of community-based research: assessing partnership approaches to improve public health. *Annu Rev Public Health*. 1998; 19:173–202. [PubMed: 9611617]

- Mahloch J, Jackson JC, Chitnarong K, Sam R, Ngo LS, Taylor VM. Bridging cultures through the development of a cervical cancer screening video for Cambodian women in the United States. *J Cancer Educ.* 1999; 14(2):109–114. [PubMed: 10397488]
- Martin M, Brookes L, Cham A, Sowe DM, Khan S, Thomas DR, et al. Tuberculosis education in an endemic setting: application of participatory methods to video development in The Gambia. *Int J Tuberc Lung Dis.* 2005; 9(5):550–555. [PubMed: 15875928]
- Mohle-Boetani JC, Miller B, Halpern M, Trivedi A, Lessler J, Solomon SL, et al. School-based screening for tuberculous infection. A cost-benefit analysis. *Jama.* 1995; 274(8):613–619. [PubMed: 7637141]
- O'Connor, A. [Retrieved August 18, 2010] User Manual for Acceptability. 2008. from http://decisionaid.ohri.ca/docs/develop/User_Manuals/UM_Acceptability.pdf
- Panford S, Nyaney MO, Amoah SO, Aidoo NG. Using folk media in HIV/AIDS prevention in rural Ghana. *Am J Public Health.* 2001; 91(10):1559–1562. [PubMed: 11574305]
- Pong AL, Anders BJ, Moser KS, Starkey M, Gassmann A, Besser RE. Tuberculosis screening at 2 San Diego high schools with high-risk populations. *Arch Pediatr Adolesc Med.* 1998; 152(7):646–650. [PubMed: 9667535]
- Poureslami I, Rootman I, Balka E. Assessing the effectiveness of informational video clips on Iranian immigrants' attitudes toward and intention to use the BC HealthGuide Program in the greater Vancouver area. *MedGenMed.* 2007; 9(1):12. [PubMed: 17435621]
- Shalowitz MU, Isacco A, Barquin N, Clark-Kauffman E, Delger P, Nelson D, et al. Community-based participatory research: a review of the literature with strategies for community engagement. *J Dev Behav Pediatr.* 2009; 30(4):350–361. [PubMed: 19672162]
- Sipan C, Blumberg E, Hovell M, Kelley N, Moser K, Ocana M, et al. Screening Latino adolescents for latent tuberculosis infection (LTBI). *Public Health Rep.* 2003; 118(5):425–433. [PubMed: 12941855]
- Taylor VM, Teh C, Lam W, Acorda E, Li L, Coronado G, et al. Evaluation of a hepatitis B educational ESL curriculum for Chinese immigrants. *Can J Public Health.* 2009; 100(6):463–466. [PubMed: 20209742]
- Taylor Z, Nolan CM, Blumberg HM. Controlling tuberculosis in the United States. Recommendations from the American Thoracic Society, CDC, the Infectious Diseases Society of America. *MMWR Recomm Rep.* 2005; 54(RR-12):1–81. [PubMed: 16267499]
- Trends in tuberculosis--United States, 2007. *MMWR Morb Mortal Wkly Rep.* 2008; 57(11):281–285. [PubMed: 18354371]
- Wallerstein NB, Duran B. Using community-based participatory research to address health disparities. *Health Promot Pract.* 2006; 7(3):312–323. [PubMed: 16760238]
- Want C, Burris M. Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education and Behavior.* 1997; 24(3):369–387. [PubMed: 9158980]
- Wang JH, Liang W, Schwartz MD, Lee MM, Kreling B, Mandelblatt JS. Development and evaluation of a culturally tailored educational video: changing breast cancer-related behaviors in Chinese women. *Health Educ Behav.* 2008; 35(6):806–820. [PubMed: 17602099]
- Wells K, Jones L. "Research" in community-partnered, participatory research. *Jama.* 2009; 302(3):320–321. [PubMed: 19602693]
- Wieland ML, Weis JA, Yawn BP, Sullivan SM, Millington KL, Smith CM, et al. Perceptions of Tuberculosis Among Immigrants and Refugees at an Adult Education Center: A Community-Based Participatory Research Approach. *J Immigr Minor Health.* 2010 Sep. 2010 [Epub ahead of print].
- Wieland ML, WJ, Olney MW, Aleman M, Sullivan SM, Millington KL, O'Hara C, Nigon JA, Sia IG. Screening for Tuberculosis at an Adult Education Center: Results from a Community-Based Participatory Process. *American Journal of Public Health.* 2011; 101:1264–1267. [PubMed: 21653249]

Appendix A: Steps in CBPR-directed video production at an adult education center

1. Ensure video production is a priority for learners and staff representing the adult education center and that it occurs in the context of an established CBPR partnership.
2. Elicit target population perceptions of the health topic to inform local emphasis of content.
3. Learners, staff, and academics together create outline for video script informed by key concepts from learner perceptions and content expertise for health issue.
4. Working group of learners and staff together write video script.
5. Script edited by learners, staff, and academics.
6. Video production by working group of learners and staff who are comfortable with digital media.
7. Pilot testing of video with learners and staff not involved in production.
8. Editing of video by working group of learners and staff with commercially available software.
9. Final editing for presentation by professional videographers, if feasible.
10. Timely dissemination dictated by logistics and priorities of education center.

Appendix B. Potential benefits and challenges of CBPR-directed video production

Benefits	Challenges
Promotes local relevance of health message.	Time-consuming, iterative process.
Strengthens cultural relevance of message.	Product may not be as “polished” as professionally produced.
Maximizes fit of education with health literacy levels.	Technical expertise may be lacking among community partners.
Improves dissemination to the target audience.	Funding: personnel and technical costs should be carefully considered.
Strengthens CBPR partnership and community capacity.	Privacy: importance of going beyond informed consent to ensure trust among video participants. Dissemination may be limited compared with other media. Discuss dissemination plan early in process.

Table 1

Baseline Characteristics of the Study Sample

<i>Demographic</i>	<i>N (%)</i>	<i>Baseline TB Knowledge^a</i>	<i>Baseline TB Self-Efficacy</i>
		<i>Average % Correct^a</i>	<i>% Positive self-efficacy^b</i>
		<i>p-value^c</i>	<i>p-value^c</i>
Age		0.61	0.24
<i>18–24</i>	28 (17%)	56.3%	66.1%
<i>25–34</i>	58 (34%)	54.7%	71.6%
<i>35–44</i>	38 (22%)	59.9%	81.6%
<i>45–54</i>	25 (15%)	59.0%	74.0%
<i>55</i>	15 (9%)	46.7%	60.0%
Gender		0.30	0.67
<i>Female</i>	110 (65%)	57.5%	71.8%
<i>Male</i>	59 (35%)	53.5%	74.1%
Region of Birth		0.26	0.10
<i>Africa</i>	10 (6%)	60.0%	85.0%
<i>Latin America</i>	42 (25%)	62.5%	82.1%
<i>Asia</i>	28 (17%)	49.1%	66.1%
<i>Middle East</i>	78 (46%)	53.9%	70.5%
<i>Europe</i>	8 (5%)	62.5%	50.0%
Years Lived in U.S.		0.30	0.10
<i>2</i>		51.1%	63.6%
<i>3–4</i>		58.1%	72.5%
<i>5</i>		57.7%	77.7%
Overall	169	56.1%	72.8%

^a Average percent correct across four knowledge items

^b Average percent positive self efficacy across two items

^c p-value represents t-test or 1-way ANOVA as appropriate

Table 2

Acceptability of a tuberculosis (TB) Education Video at an Adult Education Center

Survey Item	Yes (%)	No (%)	Don't Know (%)
The TB video helped me learn about TB	97.0%	1.2%	1.2%
The TB video was easy to understand	95.9%	2.9%	0.60%
All students should see this video	88.8%	4.1%	5.9%
Overall	93.9%	2.8%	2.6%

Table 3

Comparison of tuberculosis (TB) Knowledge and Self-Efficacy before and after viewing an Education Video

Survey Items	Pre-Video % Correct	Post-Video % Correct	p-value ^a
Knowledge (overall)	56.1%	82.3%	<0.001
Is TB in the United States?	59.2%	88.8%	<0.001
Is TB caused by germs?	69.8%	96.5%	<0.001
Do people with TB always feel sick?	29.6%	50.9%	<0.001
Can TB be treated with medicines?	65.7%	92.9%	<0.001
Self-Efficacy (overall)	72.8%	89.7%	<0.001
Do you know who to ask for help about TB?	66.3%	88.2%	<0.001
Do you know how to get tested for TB?	79.3%	91.1%	0.001

^ap-value represents paired t-test