CIRCLE OF LIFE HIV/AIDS-PREVENTION INTERVENTION FOR AMERICAN INDIAN AND ALASKA NATIVE YOUTH

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Abstract: This article describes the objectives, theoretical bases, development process, and evaluation efforts to-date for the Circle of Life (COL) curricula, HIV/AIDS prevention interventions designed for American Indian and Alaska Native (AI/AN) youth. The curricula are based on Indigenous models of learning and behavior encompassing concepts of Western theories of health behavior change. The curricula underwent extensive national and community review. Subsequent advances include the development of a computer-based version of the intervention.

INTRODUCTION

A review of the interventions aimed at HIV prevention for youth reveals a growing list showing success in sexual risk reduction. These theory-based interventions have been showcased in several ways—among them, on the CDC Web site of evidence-based interventions (Centers for Disease Control and Prevention, 2011), in a Cochrane review (Underhill, Montgomery, & Operario, 2009), and in a review conducted out of the Department of Health and Human Services (DHHS) Office of Adolescent Health (Office of Adolescent Health, 2011). While these reviews have provided useful guidance for many youth-serving programs, absent from these lists is an intervention designed specifically for American Indian/Alaska Native (AI/AN) youth. Several factors contribute to this absence, including the challenges of generating sufficient scientific evidence to meet the standards required by such lists, the gaps created by inconsistent funding and shifting programmatic priorities, and the rapid change in technology and opportunities to use approaches to learning appropriate for AI/AN youth. In this brief article, we present the case of two curricula developed specifically for AI/AN youth: "Circle of Life: HIV/AIDS Curriculum for K-6" and "Circle of Life: HIV/AIDS and STD Prevention Curriculum for Middle School." In the description that follows, we outline the challenges and successes of development, implementation, and dissemination of these AI/AN

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youth-focused interventions. This history—coupled with strategic partnerships and escalating HIV prevention need in AI/AN communities—has propelled the two Circle of Life (COL) curricula forward, positioning them as meaningful and appropriate options for youth sexual risk prevention. We begin by describing the development of COL, including the objectives of the curricula and their theoretical bases. We next describe the evaluations of the COL curricula, recent developments with respect to COL, and the promise of upcoming research efforts.

COL DEVELOPMENT

The COL curricula were developed by ORBIS Associates, an AI-controlled organization engaged in education research, program development, and evaluation. In 1992, ORBIS received funding, originating from the Centers for Disease Control and Prevention-Division of Adolescent and School Health (CDC-DASH) to assess the extent to which there were any existing comprehensive HIV/AIDS curricula culturally appropriate for use in AI/AN communities. The extensive search revealed no such curricula. Consequently, in 1994 CDC-DASH began funding the Indian Health Service (IHS) to develop appropriate curricula, and the IHS in turn, contracted with ORBIS to proceed with the work. However, in 1997, funding cuts substantially undermined IHS infrastructure to support national HIV/AIDS prevention activities. Subsequently, funding was provided to ORBIS through the Bureau of Indian Affairs (BIA) to develop culturally appropriate HIV prevention interventions for AI/AN youth (DASH/CDC, 2002). CDC-DASH mandated that all curricula meet certain requirements, including the following.

- Solid integration of health with culture, not simply health curricula with a segment on culture.
- An emphasis on de-linking associations between HIV/AIDS and stereotypes (e.g., homosexuality or race). The message was to be "it is not who you are, but what you do" that puts one at risk of acquiring HIV/AIDS.
- Strong messages about caring for sick persons, including empathy and respect, while also noting the specialized care needed for those who have HIV/AIDS.
- Material and activities enhancing both knowledge and skills of youth, not just didactic content.

By 2002, two curricula had been completed by ORBIS: one for kindergarten through 6th grade (K-6) and the other for middle school youth. Unifying these two curricula is the medicine wheel. The Plains Indian medicine wheel is a powerful symbol of holistic philosophies and a teaching tool used in many AI/AN communities. In designing the curricula while also addressing CDC's mandates, ORBIS adopted and adapted the medicine wheel as the foundation for developing

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content to engage AI/AN youth specifically. Also, drawing from earlier research demonstrating the importance of experiential learning in HIV prevention (Schinke, Gordon, & Weston, 1990), ORBIS infused the curricula with various skills-building games, activities, and stories to promote avoidance of risky behaviors. Both curricula were designed as targeted health curricula; however, consistent with AI/AN philosophies, they also encompass far more than sexual risk prevention. Instead, they also promote the development of overall physical, emotional, mental, and spiritual wellness of students, consistent with the teachings of the medicine wheel and other similar AI cultural symbols.

The strong theoretical base of the COL curricula was closely intertwined with the development process and resulting organization and content. The curricula were also strengthened by an explicit structure of extensive and systematic review, development, and revision. We describe both of these components here.

Theoretical underpinnings

The development of the curricula drew on Western theories of behavior change, including Social Cognitive Theory, Theory of Reasoned Action, and the Theory of Planned Behavior as well as models advanced in research-based curricula used in other settings at the time (Andrews & Moore, 1987; Jemmott, Jemmott, & McCaffree, 1995). At their core, however, the curricula are based on AI-specific precepts, including the medicine wheel—a cultural symbol divided into four equal parts, encompassing spiritual, emotional, physical, and mental wellness as the four essential aspects of health and well-being (see Figure 1). Indeed, the medicine wheel itself embodies a cultural theory of learning based on centuries of community epistemologies that form the foundation for cognitive and behavioral instruction (LaFrance & Nichols, 2009). As developed within the curricula, all four parts of the medicine wheel touch each other, so that each influences the others; and strength to make healthy choices is derived from balance and harmony. All parts of the wheel work together to provide those cognitive guides to decision making. The idea of "volition" is introduced in the K-6 curriculum and greatly expanded upon in the middle school version. Volition, located at the center of the wheel, emphasizes personal empowerment to shape and maintain balance among the elements of the circle, providing the foundation for making good decisions and acting on them. The COL curricula thus provide a conceptual guide for Native youth, using familiar symbols that explicitly link behavior with knowledge, ways of thinking, and expectancies about acquired skills and ideas. The COL curricula also include both cognitive and affective learning with a heavy emphasis on skills training and practice. Symbols, stories, and ways of learning familiar to Native youth provide the foundation for classroom implementation.

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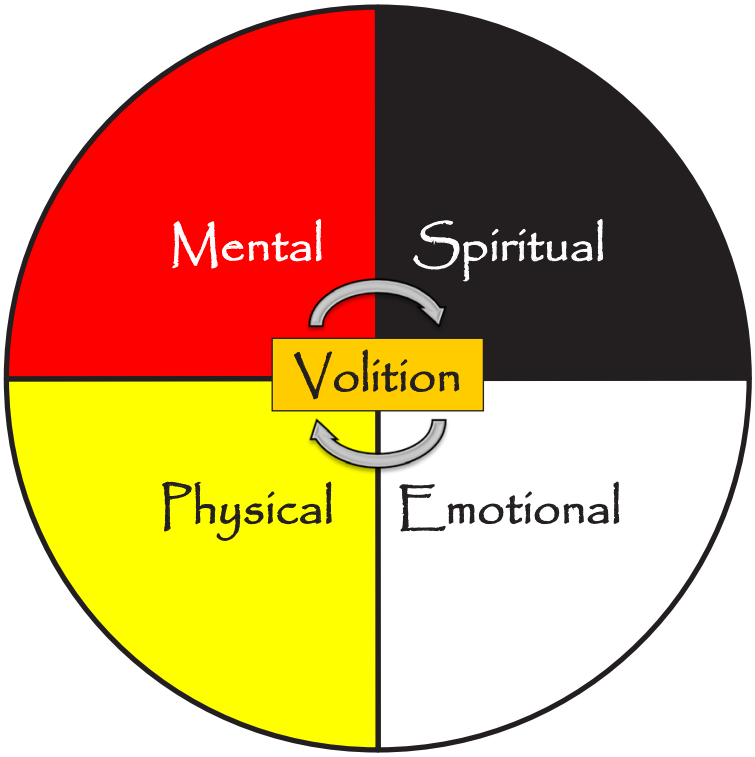
Figure 1
Circle of Life Medicine Wheel



The principles of the medicine wheel were interwoven with Western theory and concepts to create learning and behavioral action. The middle school curriculum, for example, drew heavily on Social Cognitive Theory (SCT; Bandura, 1994; 1997). SCT proposes three major classes of determinants and mediating mechanisms related to behavior change: knowledge structures, outcome expectancies, and efficacy expectancies. Knowledge structures represent "the rules and strategies of effective action (that) serve as cognitive guides for the construction of complex modes of behavior… Knowledge structures are translated into proficient action through transformational and generative operations" (p. 34; Bandura, 1997). As a key factor that regulates and establishes knowledge structures and skills, outcome expectancies are the envisioning of likely outcomes of prospective courses of action. Finally, efficacy expectancies influence the choice of activities and the motivational level, shaping aspirations and the outcomes expected for one's efforts (Bandura, 1997). Table 1 (next page) maps selected segments of the COL middle school curriculum to SCT to illustrate the promise of the curriculum in influencing knowledge, expectancies (both efficacy and outcome), and ultimately behaviors related to sexual risk.

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Table 1
Mapping COL to SCT Constructs

Concept	Example Activity*	Knowledge	Volition: Efficacy Expectancies	Volition: Outcome Expectancies	Behavior
Module 1: Young people are the pioneers of new ways.		***Conceptual framework for COL curriculum***			
1. Expect change and challenges	Audio: SuAnne's story	X	X	X	
2. Learn to take responsibility for own actions	Worksheet: SuAnne's actions	X	X	X	
3. Circle of Life - balance and strength	Brainstorming for the 4 parts of COL	X			
4. Exercise own volition	COL personal journal		X	X	X
Module 2: Protect the balance of your Circle of Life.		***Factual framework for HIV/STDs***			
1. Essential HIV/STD facts	Jeopardy game	X			
2. Statistics on HIV/STDs	Compare & contrast stats	X			
Module 3: Keep your personal Circle of Life strong.		***Groundwork for risky situation avoidance skills***			
1. New intensified feelings - expecting them, dealing with them	*What's normal?* worksheet (self-assessment poll)	X			
2. Recognize risky situations	Audio—Stories from a Talking Circle		X	X	X
3. Identify risky behaviors associated with HIV/STDs	Health risk thermometer	X	X	X	X
Module 4: Respect yourself.		***Development of students' skills for avoiding risky behaviors***			
1. Decision-making	SODA: Stop, Options, Decide, Act		X	X	
2. Communication	Assertiveness role plays		X	X	X
3. Refusal	Refusal role plays		X	X	X
Module 5: Celebrate the power of your Circle.		***Reinforcement of prior material***			
1. Importance of good decisions, responsibilities for decisions	Listen to Lisa and Kebin—Stories from 2 HIV+ AIs	X	X	X	
2. Rites of passage in adolescent lives	Help spread the word, not the disease (skits, media projects)	X			X

*Due to space limitations, only one activity per concept was selected for illustrative purposes.

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Structured review and development

ORBIS recognized from the beginning the importance of broad input and engagement from AI/AN and non-AI/AN educational and health professionals, as well as other community members. Clear forms of input, review, and revision were developed to ensure broad support, scientific accuracy, and cultural appropriateness for this highly sensitive and challenging topic.

- *Extensive External Input*. From initial conception and framework development through the draft and final revisions, both curricula were developed with comprehensive guidance and involvement from AI/AN communities, organizations, and institutions, as well as experts in a wide array of fields: teachers of AI/AN students; health practitioners; school administrators; cultural experts representing varied tribal perspectives and traditions; community health workers; community leaders; and national experts in health education, curriculum design, and evaluation. To this end, the COL Effectiveness Expert Group (CEEG) was formed as a working group providing ongoing input on initial conceptualization of the materials, as well as the drafting, revising, and pilot-testing of the curriculum itself.
- *Consistency with Standards and CDC Guidelines*. Material in both curricula was research-based and designed to reflect content and instructional standards/guidelines deemed effective and age-appropriate. Per CDC's requirement, the K-6 curriculum was modeled around CDC's Guidelines for Effective School Health Education. By the time the middle school curriculum was developed, CDC required that the material address the newly released National Health Education Standards for Grades 5-8 as well as CDC's own Guidelines for Effective School Health Education to Prevent the Spread of AIDS. Additionally, CDC required that the COL curriculum be designed to be consistent with the content level of six national middle and high school HIV/AIDS curricula deemed effective by CDC.
- *Infusion of Cultural Elements*. The medicine wheel is a traditional symbol among, primarily, Plains tribes, and it serves as a centering symbol of the curricula. The COL developers chose to use the wording "Circle of Life" not only to reflect the epistemologies and teachings inherent in the medicine wheel but also to make this important curricular foundation less specific to one group of tribes and to reflect more broadly the similar circular symbols and holistic thinking employed traditionally by many tribes across North America. In addition, specific culture-based content permeates the material. Illustrations are Native-specific, all real personages in the materials are Native and are presented as role models, role-play scenarios are based on life in AI/AN communities,

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and stories about the animal world are used as teaching tools (K-6 only). Culture-based instructional strategies were also incorporated into each module, as were widespread traditional values and expectations regarding an individual's responsibilities for family and the community.

- *Cultural Adaptability*. Providing a culture-based curriculum applicable across the diversity of AI communities posed a unique challenge, in that there are over 560 federally recognized tribes in the United States, representing many different languages, cultures, geographic locations, and socioeconomic circumstances. Some communities are urban and others are rural. Some Native communities are located on reservations, but many are not. The extent to which communities have retained their languages and traditional cultures varies considerably. Thus, from the outset, ORBIS recognized the importance of building cultural adaptability options into the curricula. All COL teacher instructions and preparation materials provide guidance on adapting student materials or instructional approaches, if needed, to accommodate specific local cultural context. Suggestions about techniques for identifying adaptations, along with examples, were also included in all COL teacher training, and time was built into every teacher training session to encourage planning of specific cultural adaptations. These features offered educators and community members the opportunity to make COL culturally distinct and as relevant as possible to their own youth.

Both COL curricula were extensively pilot-tested prior to final revision and publication. In each case, the pilot-tests were conducted in Bureau of Indian Education (BIE) and tribal schools located in varying geographical and Native "culture areas." The K-6 curriculum was pilot-tested in 18 schools, both rural and urban. Class sizes varied from 12 to 32, and both AI and non-AI teachers were selected as participants to ensure that the instructional content and teacher resource materials were equally useful irrespective of teacher backgrounds. The middle school curriculum was pilot-tested in five BIE and tribal schools reflecting five separate "culture areas." Four schools were relatively rural, one was urban. Again, classes taught by both AI/AN and non-AI/AN teachers were included. Class size varied from 8 to 35; in three schools, students were predominantly from one tribe; in the other two schools, students came from a broad mix of tribes and culture areas. Of the 110 7th- and 8th-grade pilot-test students who received COL instruction, familiarity with their own culture ranged from being "very strong" to "only a little."

For the pilot-testing of both curricula, multiple assessment instruments (both qualitative and quantitative) were used. The findings in both instances were very positive. In comparing pre- and post-tests, students demonstrated substantial increases in their knowledge levels about HIV/AIDS, and also demonstrated increased understanding of healthy behaviors and steps for avoiding

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risky behaviors. Additionally, the K-6 assessments specifically focused on attitudinal changes as a result of COL instruction; in that regard, there was a substantial reduction in students' fears about acquiring HIV and an increase in their acceptance of persons infected with HIV. Teachers responded positively to the overall curricula scope and content, indicating that the material was age appropriate and reflected health and personal behavior topics about which students needed—and wanted—to talk. Both curricula were also seen as culturally appropriate and sensitive to cultural issues

While the results of the pilot-tests offered support for the effectiveness of the curricula, dissemination of findings—and the curricula—proved challenging. CDC's funding resources to support COL teacher training and curriculum adoption at BIE and tribal schools were substantially reduced. Additionally, the timing of final publication of the curricula coincided with major educational policy changes at the national and local levels (e.g., No Child Left Behind), which considerably curtailed individual schools' flexibility with respect to choosing specific curricula for use in their classrooms. As a consequence, subsequent distribution of the COL curricula was limited and, in the absence of continued support for training teachers to use the curricula, its adoption school-wide in BIE and other AI/AN youth-serving schools declined.

EVALUATION EFFORTS

In the late 1990s, CDC planned to initiate longitudinal evaluations of several of its Division of Adolescent and School Health (DASH)-funded HIV/AIDS prevention programs, including both COL curricula. In anticipation of this effort, and to lay the necessary groundwork for such an evaluation of COL, CDC contracted with the Academy of Educational Development (AED) to work closely with ORBIS in evaluation planning as it developed the new COL middle school curriculum. In order to ensure that long-term evaluation remained a guiding principle of the curriculum development process, AED became a member of the CEEG. Then, in 2002, CDC contracted with Education, Training, Research Associates (ETR) to conduct the evaluation of COL and three other DASH-funded projects. However, as a result of decreased funding and leadership change at CDC, neither COL curricula was ultimately evaluated as a part of that effort.

Nevertheless, given the promise of COL and its extensive community and expert feedback and input in the development and pilot-testing stages, the lead author of this paper obtained funding in 2004 from the National Institute of Mental Health for a group-randomized trial of the COL middle school curriculum (R01 MH069086)—an effort designed specifically to provide rigorous evaluation of COL. This effort was undertaken in one Native reservation community from 2006 to 2009. The main objective of this project was to evaluate the effectiveness of COL in changing knowledge, expectancies, and behaviors related to sexual risk taking among Native youth. The details of the

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design and baseline results are described elsewhere (Kaufman et al., 2010). Of special note is the modification of the design to accommodate requests from community members.

- The tribe supported the project since it provided services to youth (in the form of a class provided in schools) but wanted all youth to receive these needed services. As a result, a wait-listed design was used, so that one half of the schools would receive COL first; the second half, one year later. This way, all schools had the opportunity to provide the class to students within the course of about 12 months.
- The tribe requested that its highly mobile youth population be accommodated. Therefore, students were allowed to participate if they transferred schools, if they dropped out for a period and then returned to school at a later date, or even if they were not present for the baseline survey.

Preliminary results of this project show promise (Whitesell, Kaufman, & Mitchell, 2010). Specifically, results to date suggest that the middle school COL curriculum may be especially effective in delaying sexual activity for the younger middle school students (11- to 12-year-olds). Preliminary results of qualitative feedback suggested that the curriculum was well received by students, and facilitators rated it highly on ease of implementation and teacher guidance for activities. The results also indicated that youth and facilitators recommended an increase in cultural content related to their own tribal history, traditions, and beliefs; and they also suggested that a digitized application might help increase students' engagement in sections that were most challenging.

COL ADAPTATIONS

Native Boys and Girls Clubs

Although results of a formal evaluation of COL (or any other Native youth-focused intervention) were not available, the increased recognition of the vulnerability of AI/ANs to HIV/AIDS and other sexually transmitted diseases (STDs; Kaufman et al., 2007; Wong, Swint, Paisano, & Cheek, 2006) created a high demand for culturally appropriate approaches to providing Native youth with information and skills to make healthy choices about sexual activity.

In response to this concern, in the mid-2000s the IHS HIV/AIDS Program funded an adaptation of COL, as well as a set of pilot studies in Native Boys and Girls Clubs (NBGCs) to assess the adaptation. Specifically, funding was provided to the National Congress of American Indians and FirstPic, Inc. (a consulting firm that provides technical assistance, training, and other organizational development services for NBGCs), to revise the content in the K-6 curriculum for use with youth ages 10-12 for after-school programming in NBGC settings. The adapted version was pilot-tested in 10 geographically and culturally diverse NBGC sites in 2006.

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The final report regarding the pilot tests focused on implementation of the adapted COL, and its strengths and weaknesses as noted by COL facilitators (National Congress of American Indians [NCAI] & FirstPic Inc., 2006). In general, the program appeared to be well received and liked by youth and facilitators. Chapters with an emphasis on activities were especially well received by youth and facilitators alike. Of note, the chapter titled "Protecting Yourself from HIV" was particularly challenging for many of the pilot-test sites. This chapter included messages and activities not only about sexual (and substance use) abstinence but also about homosexuality and condom use. Only 3 NBGCs implemented this chapter. These three NBGCs indicated that the chapter was very well designed and that youth were engaged in the material and asked many questions. Among those that did not implement the chapter, most noted that the facilitator, NBGC director, or parents felt that youth were not ready for such content or that such discussions should be conducted at home. Several suggestions for this chapter included conducting the chapter separately for boys and girls, providing the content to parents for their use at their discretion, and discussing the chapter one-on-one with youth. The variety of responses to the chapter at all levels (youth, club, and community) are likely indicative of the diversity of community and family approaches to sexual health for youth and underscore, as in other settings, the importance of active and respectful communication with parents and community members about the intent, content, and method of instruction of the curriculum.

In sum, the adapted version was well received across most pilot-test sites. Comments from NBGC staff endorsed the use of COL, and many adapted the curriculum content to reflect more closely local tribal culture. However, many of the comments were similar to the facilitator and youth feedback from the evaluation of the middle school curriculum: the need for increased cultural specificity, increased flexibility for implementation of content, and an increase in activities that engage youth.

MEDIA-RICH COL

With the continued need for appropriate HIV prevention curricula for Native youth and expanding technological educational opportunities, the IHS HIV/AIDS Program partnered with the Office of Minority Health Resource Center (OMHRC) in 2010 to obtain funding (from CDC and Minority HIV/AIDS Initiative) to convert the paper form of the adapted COL curriculum into a computerized, or "media-rich," format. In a later partnership, the IHS HIV/AIDS Program obtained further funding from CDC to incorporate more information into the curriculum. In response to concerns from the 2006 pilot-tests and other feedback, the digitization requirements include the following adaptations.

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- Regionalization of content: Although specific tribal content is cost-prohibitive, the plan allows variations across six regions of the United States, including original art from those areas. Youth will be able to specify the area that most closely represents their tribal identity.
- Flexibility in content and implementation: Because of the large variation in possible teaching settings (e.g., after-school programming, schools, youth groups, religious organizations) as well as the diversity in local standards for age-appropriate content, the digital curricula will be able to accommodate chapter preferences and the extent to which content is facilitated by an instructor/teacher or completed individually.
- Teacher's Corner: A "Teacher's Corner" to facilitate learning goals and objectives for each chapter. This section of the curriculum will contain the original activities included in the "paper" version of the adapted curriculum.
- STDs: Integrate additional materials focused on STDs and Hepatitis C.

Independently, researchers at the University of Colorado Denver (UCD) successfully applied for teen pregnancy prevention funding from the Office of Adolescent Health (DHHS) to digitize the middle school COL curriculum and evaluate it as a promising sexual risk reduction intervention in NBGCs. After several conversations among the UCD, OMHRC, and IHS project leaders, it was clear that collaboration would be beneficial for a number of reasons.

- The digitized version of the curriculum could benefit from technical, programmatic, scientific, and educational expertise across the entities.
- Costs could be shared.
- Coordinated evaluations included in the respective projects could collectively provide a strong and comprehensive assessment of the program.
- Collaboration would increase the consistency, content, and form of dissemination activities.

At the time of this writing, the work on digitization of the adapted curriculum is underway. To-date, the collaboration has already produced a number of enhancements.

- The technical and creative expertise in the project has generated immense flexibility and a number of enhancements that will address local needs while likely increasing engagement and interest among youth.
- A re-ordering of curriculum chapters will provide a strong base for youth about adolescence and the circle of life. The new order also presents opportunities in the future to add other focused components, such as alcohol or drug use prevention.
- Material on healthy relationships—part of the original K-6 curriculum—will be reintroduced in this version to emphasize respect for self and others

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- Based on promising preliminary results on role of self-efficacy in behavior change from the middle school curriculum, elements of "volition" will be integrated more strongly into the digitized version. The concepts of empowerment and confidence in one's ability to make healthy decisions appear to resonate clearly with young adolescents.

CONCLUSION

The COL HIV/AIDS prevention curricula are among the few that provide theory-based education and skills training designed specifically for AI youth. The evolution of these materials has been marked by funding challenges, changing health priorities, advancing technology, and providential partnerships. With the increasing focus on evidence-based interventions in funding opportunities, rigorously evaluating the new version will be paramount for continued use and support. While the UCD project will undertake that task in continued collaboration with OMHRC and IHS, such evidence, unfortunately, takes some time to produce. In the meantime, with its strong foundation of broad expert and community input, theoretical underpinnings, and technological advances, COL is well positioned to serve the youngest adolescents in Native communities.

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FOOTNOTE

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