Multifaceted Adolescent Reproductive Health Education Strategies in Panama

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Abstract

Advances in adolescent healthcare have the potential to greatly impact worldwide public health and well-being. Reproductive health education relates directly to the United Nations Millennium Development Goals (UN MDGs) 1, 3, 5, 6 and 8, which concern poverty, gender equality, maternal health, combating HIV/AIDS and global partnership, respectively. However, current research comparing education strategies is limited.[1] Research in the area of reproductive health education must take into account cultural factors and societal norms in addition to political pressures and infrastructural constraints.

In this paper, three methods of adolescent reproductive education in Panama are compared through the lens of the UN MDGs. This analysis reveals that formal education sector initiatives in public schools, non-governmental organizations' participation in schools and grassroots advocacy all have distinct strengths and uniquely address various MDGs. These methods, when used in conjunction, can provide a starting point from which to guide the development of an adolescent reproductive health education program in Panama.

A Comparative Analysis of HIV/AIDS Education Programs in Panama

The need for preventive reproductive care and health education is widely acknowledged in international medical and public health communities. Specifically, the need for high-impact adolescent sexual and reproductive healthcare programs has become a primary concern for global health organizations such as the World Health Organization (WHO) and the United Nations.[2] Sexual education is related to many other markers of health and well-being, including maternal and child health, extreme poverty and gender equality. Therefore, it has become the focus of many youth health advocacy programs. Efforts in Panama to address this concern by government and non-government entities alike provide scenarios in which diverse methods of addressing public health needs can undergo comparative analyses and serve as indicators of area-wide changes. The development of multiple targeted programs in Panama may be a useful model for other countries with similar circumstances, namely limited resources, infrastructure challenges and highly diverse populations.[3]

However, Panama does have certain unique healthcare characteristics that distinguish it from similar countries. Regarding HIV/AIDS prevalence, the country is at a critical point in which the situation can either drastically improve or deteriorate, depending on how it is addressed.[4] As a result, the government has chosen to support a variety of programs that address adolescent sexual health in efforts to decrease the prevalence of HIV/AIDS. Government entities disburse discretionary funds to programs, and the National Assembly has passed legislation promoting youth rights, in order to improve adolescent health. Non-governmental organizations (NGOs), both international and Panama-based, have increased their involvement in the country. Programs by three NGOs – Aid for AIDS, APLAFA and PROBIDSIDA – are attempting to create HIV/AIDS and reproductive health education opportunities within formal and informal education sectors.

The Greater Impact of Reproductive Health Education

Adolescent reproductive health is a widespread global concern. Sexually transmitted infection (STI) incidence rates are the highest in individuals younger than 25 years of age. It is estimated that 20% to 50% of the annual 340 million curable infections of syphilis, gonorrhea, chlamydia and trichomoniasis occur in this age group, but incidence is underreported due to a lack of routine reproductive health services.[5] Worldwide, an estimated 6000 young people aged 15 to 24 are newly infected with HIV every day. In 2008, 45% of new global HIV infections were found in individuals from this age group.[4,6] In Panama, 22% of new HIV infections have been diagnosed in individuals that are 10 to 29 years of age.[11]

Sexual behavior as a whole should be viewed within its sociocultural context.[2] Generalizing motivations for sexual activity is misleading, as factors including socioeconomic status, gender, cultural norms and the media play notable roles in shaping individuals' sexual behavior. These contexts vary not only between populations, but also in sub-demographics within populations. Linda Bearinger, who studied sexual education programs, advocates a system of clinical services, education and youth empowerment programs to counter and adapt to these variable influences.[5] The WHO acknowledges the need for context and specificity with its statement that "no general approach to sexual-health promotion will work everywhere, and no single-component intervention will work anywhere."[2]

Unfortunately, studies advocating tailored methods often combine data from disparate settings and contexts, counter-intuitively offering generalized recommendations for public health providers and workers. For example, Wellings et al. (2006) used research based in Sub-Saharan Africa and Southern Asia and extrapolated recommendations for Latin America.[3] This cultural translation homogenizes different groups and ignores the importance of specific cultural, political and regional contexts. In Latin America, within-population and between-population variations are significant due

to immigration and the large number of indigenous groups. Therefore, underestimating diversity undermines the development of custom programs.

The Lens of the UN Millennium Development Goals

In September 2000, the United Nations (UN) approved what are now known as the Millennium Development Goals (MDGs).[1] These eight areas for improvement were built around the realization that public and individual well-being are influenced by a number of social, cultural and political factors. These goals are: 1) to eradicate extreme poverty and hunger; 2) to achieve universal primary education; 3) to promote gender equality and empower women; 4) to reduce child mortality; 5) to improve maternal health; 6) to combat HIV/AIDS, malaria and other diseases; 7) to ensure environmental sustainability; and 8) to develop a global partnership for development.

The UN recognizes that these goals are interrelated and inter-dependent, reflecting the belief that progress toward one goal renders the other goals more attainable. The web that connects HIV/AIDS to reproductive and sexual health also includes maternal health (MDG 5), gender equality and women's empowerment (MDG 3), extreme poverty (MDG 1) and global cooperation (MDG 8). Reproductive education programs, including those focusing on HIV/AIDS, therefore, have a purpose beyond eradicating a disease. These programs further numerous MDGs that improve both the individual's quality of life and the community's overall health. In-depth analysis focusing on maximizing impact with limited resources can help optimize a single nation's reproductive health education programs as well as provide opportunities for progress towards an overall higher standard of health and well-being.

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Reproductive Health in Panama: Local Context and Framework for Analysis

As stated by the 2002 WHO World Health Report, "[u]nderstanding the contribution of the different [education intervention] components would be very useful in deciding on the appropriate overall strategy" for reproductive education.[7] In-depth consideration of the strengths and weaknesses of each method and their impact as a whole facilitates this process. As such, attempts have been made to provide as comprehensive an evaluation as possible. The analysis will be tripartite, examining political context, statistical data and cultural impact.

The Republic of Panama's National Constitution Article 106 assigns primary responsibility for developing prevention and health education strategies to the state. The Ministry of Health dictates resource allocation and implementation strategies as approved by the executive branch. Article 76 of 2001's Ministry of Health Law 119 explicitly outlines that the Ministry of Health will coordinate education and prevention campaigns with all government and autonomous (non-government) entities in the public and private sector.[8]

The cultural diversity of Panama must be taken into account when analyzing the efficacy of health education programs. In addition to mestizo and immigrant populations, the country is home to seven indigenous groups. To protect the rights of these tribes, three indigenous regions and two indigenous sub-regions (or comarcas) have been established in addition to the nine provinces that subdivide Panama. The comarcas are given substantial administrative autonomy by the state, and the laws of its people are established within its boundaries. Legislative policies are usually developed by national branches in cooperation with the local governing body as opposed to unilaterally by the state (UNDP Panama). As these groups have unique characteristics with respect to public health, they must be looked at individually, rather than subsuming them within the larger population. Although 75% of Panamanians live in urban areas (with that proportion increasing 2.3% per year), socioeconomic conditions in cities are highly variable.[9,10] These differences in living conditions and cultural heritage illustrate the need for nuanced approaches to public health and education in Panama.

In such a heterogeneous population, it must be considered how each type of education program addresses changing cultural factors such as youth rights and political status, legal and social discrimination against homosexuality, interpersonal violence, sex-negative media (portrayals of sex as dirty or taboo) and traditional gender roles. Incorporating such context-specific influences is vital to developing well-designed reproductive health education programs. Discussion of these social pressures and their influence on sexual behavior and quality of life denotes the broader significance of these education programs. The ways by which each strategy does so will serve as the final criteria for comparative study of HIV/AIDS prevention efforts.

Using the perspectives of political support, statistical data and cultural context, three types of HIV/AIDS and reproductive health education programs will be analyzed: "formal" education efforts in public Panamanian school systems with a "top-down" structure, NGO-led "informal" sector approach using peer community agents in a "grassroots" dissemination strategy and the "mixed" approach using peer community agents in coordination with school infrastructure. Source data includes first-hand materials the author collected during the summer of 2011 through an internship with Universidad Latina Panama and several NGOs.

Formal Sector Youth Reproductive Health Education: Schools and Public Health Centers

Despite helping to pass the UN MDGs, the 1994 UN International Conference on Population & Development (ICPD) Cairo resolutions and the International AIDS Society 2008 conference declaration—all of which promote comprehensive sexual or reproductive education for adolescents—the Panamanian government has neglected to legislate any such programs within its own country.[11,12] As recently as 2011, political efforts to pass comprehensive sex education programs in public schools (the formal sector) have failed, defeated by legislative delays, opposition by the Ministry of Education and pressure from religious groups.[10,13]

The Ministry of Education actively forbids NGO-representative activities within public schools and also prevents free discussion by teachers on the subjects of sexual education and human rights. Reform efforts by the leading comprehensive sexual education advocacy organization, La Coalicíon Panameña por la Educación Integral en Sexualidad (Cpeis), have been ignored by the Ministry with no alternative education program offered.[14] This holding pattern is limited to the formal education sector. The hostile legislative environment has created a functional absence of academic research on sexual education within public schools. In a vicious cycle of stagnation, political and religious

leaders state the need for precisely such studies in order to consider changes.[10]

Statistical health data in Panama, though limited, indicates certain trends of risky sexual behaviors. For example, 19.8% of Panamanian women aged 15 to 19 are mothers, and 333,896 live births by mothers ages 11 to 19 were recorded from 2005 to 2009. In 2008, 96.6% of those adolescent mothers had attended public schools.[11] The disproportionate pregnancy rate for public school students cannot be causally linked, but it does indicate a comparative failure to engage with reproductive health issues when compared to the smaller number of pregnant private school students. Though factors such as under-reporting by private schools may skew the data, the raw number of pregnancies indicates that the phenomenon is more widespread in public schools. Adolescent pregnancies are associated with higher health risks to the mother and child, negatively impacting MDGs 3 and 5: gender equality and maternal health. In addition, adolescent pregnancies alone indicate unsafe sexual practices stemming from improper or nonexistent contraception usage, putting MDG 6 (combating HIV/AIDS) at risk.

Culturally, the formal sector struggles to combat discrimination. The National Assembly passed non-discriminatory legislation guaranteeing the right of pregnant adolescents to continued education within the public school system. However, only 1.36% of teen mothers between 2004 and 2009 continued or returned to schools after giving birth.[10] Professionals and students alike recognize that discrimination and expulsion of pregnant students by school officials perpetuate stigma against the acceptance of sexual and reproductive health, though incomplete records make such causalities impossible to prove.[10] Public health centers, as established by the state, are mandated to provide care to adolescents without guardian consent or involvement, and efforts are made to train public health professionals about the importance of respecting adolescents' rights to healthcare.[15] Unfortunately, as stated by NGO and healthcare professionals with whom I worked, centers are known to turn young people away under the false premise that a guardian must be present. This creates another barrier to the protection and empowerment of adolescents and further stigmatizes reproductive health. These violations of human rights indicate the formal sector's failure to address cultural norms affecting youth reproductive health. Such practices negatively impact UN MDGs 3 and 5 (gender equality, women's empowerment and maternal health).

Further, the formal sector does not reach all targeted youth. Infrastructure is especially poor in the comarcas, where only 37% of the population finishes secondary school. A lack of higher education opportunities forces adolescents either to leave their homes for areas with schools or to give up higher education goals.[19] Public schools are attended mostly by students of lower socioeconomic status, as private schools are highly preferred by families who can afford them. Public health centers are often the only resource for individuals in low socioeconomic urban neighborhoods and rural areas. Thus, restrictive educational and political policies disproportionately affect adolescents who are already exposed to high reproductive health risk factors. This relationship indicates the inter-relatedness of sociocultural factors as recognized by the UN in the Millennium Development Goals and underscores the importance of context in initiatives such as HIV/AIDS prevention and reproductive health education.

However, public schools undoubtedly play a role in public education overall and involve a significant number of Panamanian youth. Current political opposition and cultural stigma challenge the efficacy of the formal sector as a forum for reproductive education, but the extensive potential impacts of using this system give reason for such initiatives to be pursued. This would require legislative or administrative changes and a dramatic shift from current policies; thus, resistance to such changes represents a significant limitation of this strategy. Public health centers, as key resources with an established infrastructure, could be instrumental in reaching out to adolescents while destigmatizing their needs. The potential benefits of reaching numerous individuals and challenging social stigma from within the public sector system are significant, particularly with respect to high-risk adolescents. This avenue should therefore be part of a multifaceted approach. The formal education sector alone does not reach all youth and is therefore insufficient in addressing the nation's problems. One alternate education method utilizes the cooperation of NGO education workshops with existing school infrastructures.

"Mixed" Sector Youth Reproductive Education: Peer Advocates in the School System

This strategy utilizes a hybrid approach of informal sector peer educators supervised via the formal sector. Although the Ministry of Education has prohibited NGO involvement in public schools, private schools have more liberties regarding curriculum development. With regards to adolescent reproductive health, private schools recently have begun working with local NGOs. This relationship incorporates comprehensive sexual education with minimal labor and finance costs while side-stepping political challenges, creating a 'mixed' sector of NGO-led peer education within a formal education infrastructure.

The dominant NGO in these partnerships is Fundación pro Bienestar y Dignidad de las Personas Afectadas por el VIH/SIDA (PROBIDSIDA), an advocate of HIV/AIDS awareness, testing and carrier rights. PROBIDSIDA is credited with influencing the passed legislation that covers payment for first-line HIV/AIDS medications while creating a fund for free and low-cost HIV testing. It holds education and testing events throughout Panama City and is also involved with the Panama City Children's Hospital. The NGO is considered an authority on HIV/AIDS policies and is supported financially by the Office of the President and First Lady.[16] Political support for the organization is significant, which facilitates program development and outreach.

PROBIDSIDA Juventud (PROBIDSIDA Youth) workshops invite small teams of students (accompanied by a teacher) to a retreat with teams from other schools. Afterward, students hold teacher-supervised discussions in their classes and communities using materials obtained during the workshop and report results back to PROBIDSIDA. The volunteer students enable schools to develop reproductive health programs at no cost, and circumvent administrative policies for teacher training by having students make presentations. When individuals hold discussions in their communities, they utilize a "bottom-up" strategy, while operating within a "top-down" infrastructure. From 2007 to 2010, 236 adolescents were trained as peer educators throughout the country. Through their efforts, 54,271 individuals were reached during 2008-2010.[17] However, the "top-down" infrastructure of private schools poses significant challenges to the program's impact. Private schools, as the basis for message dissemination, limit the reach of the program by excluding public school students. In addition, it seems that the workshop program's presence is absent in the comarcas. This demographic has high need, and its exclusion represents a significant weakness in this strategy.

Additionally, PROBIDSIDA Juventud does not explicitly focus on youth empowerment. I was involved with preparations, execution and participation in one PROBIDSIDA workshop. As noted during that process, program leaders were not youth themselves and tended to interact more with the teachers than the students. This had serious potential consequences: the visible dichotomy between the "adult" leaders and the "youth" workers revealed the biases of the adult leaders by furthering the hierarchy of authority. This facilitated judgment and avoidance, thus undermining a major strength of peer education programs.

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Furthermore, the involvement of poorly educated teachers often counteracted the goal of education. In an observed workshop, teachers often supplied responses that were scientifically false or ran counter to human rights messages. PROBIDSIDA workshop organizers allowed and contributed to factual errors and resisted alternative explanations offered by students. As these adults control the flow of information after the workshop has concluded, their misinterpretation of facts and messages calls into question the quality of replicated lessons. Teachers often denigrated homosexuality and sexual activity or disregarded students' questions. These issues run counter to MDGs 3 and 6 (concerning gender equality and combating HIV/AIDS) and perpetuate harmful cultural norms. As other departments of PROBIDSIDA emphasize human rights, tolerance and safe sexual practices, this observation was perplexing.[18]

It is undeniable that PROBIDSIDA has a strong influence in the politics of HIV/AIDS and reproductive health. The organization's cooperation with private schools is highly efficient, circumventing political hurdles to reach adolescents in otherwise hostile environments. The number of individuals reached is several times higher than in the informal sector, but quality indicators are also lacking. Not all Panamanian youth are reached through this program, notably those in indigenous and lower socioeconomic status communities. Extending the reach of this strategy towards these demographics is not currently possible, representing a major limitation of the mixed sector approach. Furthermore, factual errors and a perpetuation of cultural stigmas during the PROBIDSIDA retreats may seriously compromise student led lessons and increase the spread of misinformation. The lack of emphasis on youth empowerment and continuation of a hierarchical educational structure divides the students from their authority-bearing supervisors and may be detrimental to youth advocacy initiatives and MDG 3 (promoting gender equality and women's empowerment).

Informal Sector Youth Reproductive Education: Community Leaders and Peer Advocates

The informal method of reproductive education consists of NGOs' initiatives in which youth leaders disseminate information to their peers in lectures and meetings. Two noteworthy examples of NGO operations active in Panama are the Aid for AIDS's "¿Cuánto sabes del VIH/Sida?" workshops and the "Juventudes con opciones" program of the Asociación Panameña para el Planeamiento de la Familia (APLAFA). Both efforts share political support and work to change similar cultural norms using comparable methodology of grassroots peer education. A discussion of Aid for AIDS workshops serves as a representative example for both organizations.

The informal method of educational outreach among adolescents enjoys national and international political support as part of NGO-led initiatives. The Office of the President and First Lady use discretionary funds to support Aid for AIDS, while the government-owned National Lottery sponsors APLAFA.[15] The United Nations Population Fund (UNFPA) and UNAIDS assist in planning and funding outreach programs, furthering MDG 8 and advocating global partnerships for development. Aid for AIDS enjoys significant community support due to its tutoring and counseling programs at the Panama City Children's Hospital HIV department and its program that provides free (antiretroviral medications (ARVs) for HIV-positive individuals with resistant HIV. APLAFA was founded in 1965 by its parent organization, the International Planned Parenthood Federation (IPPF), and is well established in Panama. The NGO's facility in the San Miguelito neighborhood of Panama City offers comprehensive services, including medical exams, counseling and health education. APLAFA employees advise government policy and community outreach initiatives, hold human rights counseling programs for youth offender rehabilitation and organize public health events across the country. This level of community involvement and service indicates the political and social support for these NGOs and their goals to improve sexual health and education.

The informal sector programs recruit adolescents who are already active in their communities. They then develop their leadership skills during peer health educator trainings. Aid for AIDS workshops bring together volunteer youths in established organizations including Red Cross Panamá, Scouts International, Aldeas SOS (an international foster home organization), Fundación del Movimiento del Liderazgo Juvenil Panameño (FUMOLIJUP) and indigenous groups. Over a three-day retreat, participants learn proper HIV terminology, the mode of transmission of HIV and the stages of AIDS, comprehensive training on safe sexual practices, reproductive anatomy, youth and human rights, gender construction, methods of destigmatization, presentation techniques and options for continued youth advocacy involvement. Participants return home with sexual health and HIV/AIDS informational materials to distribute to their peers. As youths are responsible for planning and leading their sessions, this is a definite "bottom-up" grassroots approach. Retreats are held three or four times per year across the country, training youth in all provinces and indigenous areas. Students reunite at a year-end retreat to have their earlier training reinforced. At APLAFA, peer educator programs work with high-risk socioeconomic youth in the San Miguelito neighborhood, and the organization partners with UNFPA and the Youth Kuna Movement organization to reach indigenous groups.

Statistically, this grassroots-based method is highly efficient. Preliminary data collection showed that although only 99 peer advocates were trained by the central Aid for AIDS team in 2011, 8159 youth were reached by peer educators from May through November 2011, indicating the vast impact of each peer advocate. This is especially impressive considering that Aid for AIDS' outreach education program itself only had resources to educate 1647 individuals.[19] Quality control of peer education efforts remains a concern, as data only report the number of youth reached, not the information they obtained. Efforts to implement quality control surveys, as I helped design during my internship, have not yet produced applicable results. This does represent

a significant limitation of this strategy.

Culturally, this retreat format is highly effective in destigmatizing reproductive health. The workshop leaders are youth who create an accepting atmosphere, facilitating open discussion. The youth participants include homosexuals who have disclosed their sexual orientation, indigenous community members and high-risk socioeconomic group members. Team-building activities are designed to broaden attendees' outlooks and make individuals feel more accepting of others and responsible for their well-being. Program reviews and responses by participants stated that having such discussions was not possible in school or with family members because they concern taboo subjects. It is conceivable that similar improvements fostering tolerance could occur in the community replications. The workshop's emphasis on teaching strategies also provides opportunities for personal empowerment for youth leaders and peers by stressing the importance of personal responsibility and involvement. This furthers MDGs 3 and 6 towards gender equality, women's empowerment and combating HIV/AIDS.

Grassroots strategies also allow for customization to a sub-population's needs. This is particularly relevant with respect to indigenous groups, who are at increased risk for STI and HIV/AIDS.[20,21] These populations suffer from a lack of educational infrastructure, and few health centers are located in comarcas. Financial and labor resource management in comarcas remains poor despite the Ministry of Health's efforts. In a representative Kuna indigenous population survey, 43% reported never being offered STI education or informational materials at public health centers.[18] These groups reject direct intervention by both governmental and non-governmental entities. However, youth peer educators provide an alternative education dissemination strategy as they can navigate language barriers and adapt to their specific cultural context. Additionally, employing young women as peer educators could provide an avenue for empowerment. These opportunities for progress in public health and MDGs 3, 6 and 8 (gender equality and women's empowerment, combating HIV/AIDS and establishing a global partnership for development) are a significant and unique strength of informal grassroots programs.

In summary, the informal sector approach enjoys political support while providing a highly cost and labor-efficient program that reaches a large number of individuals via peer education. These programs notably target underserved demographics. Culturally, this strategy destigmatizes reproductive health by fostering accepting environments and promoting gender equality with messages of human rights and acceptance. By involving women, particularly from indigenous and low socioeconomic communities, grassroots efforts also support female empowerment. Gender inequality creates vulnerability to HIV/AIDS for women, and efforts to counter such cultural norms are explicitly advocated by the WHO.[22]

As noted previously, quality control and consistency of information are problematic in these grassroots approaches. Furthermore, resource and infrastructure limitations pose challenges to the scope of impact and may limit the potential extent and growth opportunities of this strategy. While further investigation into the efficacy of grassroots approaches is necessary, this method has definite strengths and is therefore valuable as part of a composite plan.

Comparative Consideration of 'Formal,' 'Informal,' and 'Mixed' Education Strategies

The three main categories of adolescent public health education strategies are: the "top-down" formal sector consisting of public schools and health centers, the "mixed" sector involving NGOs and private school collaboration and the informal sector "bottom-up" organization led by NGO programs. Each system's unique political influences, public health indicators and cultural contexts help adjust its focus and priorities to best address certain goals and messages. Statistical information on the effectiveness of these programs is highly variable. Cultural messages such as gender equality and discrimination, youth empowerment and attitudes towards acceptance of sexual activity also differ significantly.

The formal sector is the most controlled of the three categories, subject to political and religious pressures. It has the least comprehensive reproductive health education program. Public schools show high teen pregnancy and low matriculation rates, which compound with the demographic's pre-existing high-risk factors. Discrimination in schools and public health centers persists despite legislative efforts, creating barriers to education and care. However, the formal sector is often the only recourse for rural and lower socioeconomic status subpopulations. Therefore, improvement of reproductive education in public schools could potentially have a great impact. Developments in this forum are vital to reach those most in need and must be considered as part of any comprehensive strategy to address the issue. In so doing, MDGs 1, 3, 5, and 6 (those related to extreme poverty, gender inequality and women's empowerment, maternal health and combating HIV/AIDS) can be directly addressed.

The mixed sector approach blends NGO involvement with private schools, preserving the "top-down" organization of the formal sector while involving adolescents in the teaching process. This is a highly efficient method, minimizing financial and labor investment for both the NGO and schools while reaching a remarkable number of individuals. It neglects certain demographics, such as indigenous communities, and does not focus on greater youth rights and advocacy. The hierarchical organization may be detrimental to open discussion and to empowerment and may perpetuate popular health myths. This method does support adolescent reproductive health education, however, and its strategy also works towards MDGs 5 and 6, those concerning maternal health and combating HIV/AIDS.

The informal sector trains young people as peer educators on reproductive health concepts in their own communities. The NGOs enjoy political support and financial assistance, working with numerous other organizations. It emphasizes youth empowerment and leadership through a "bottom-up" organizational style by giving peer educators independent agency and further advocacy opportunities. In this way, the strategy addresses globally recognized human rights concerns.[23] This approach also facilitates education in diverse areas, including indigenous communities, allowing for messages tailored to demographic contexts. The impact of the informal sector is limited by lack of resources and quality control, but the informal sector approach has distinct advantages and should be involved in the larger strategy to improve youth reproductive health in Panama, directly addressing MDGs 3, 5, 6 and 8. These MDGs translate to progress in gender equality and women's empowerment, maternal health, combating HIV/AIDS and global partnerships for development.

> Public health centers, as key resources with an established infrastructure, could be instrumental in reaching out to adolescents while destigmatizing their needs.

It should be noted that this study had certain limitations. Longitudinal data on the impact of reproductive health education programs in Panama is not available and quality control metrics of peer educators are admittedly lacking. Observation and data collection in public schools would be immensely helpful for conceptualizing that method, and larger data sets using additional NGOs and education programs would provide more nuanced and comprehensive information. Further investigation addressing these concerns is highly recommended.

To conclude, each approach has unique advantages that should be used as part of a larger strategy. The formal strategy is key for high-risk demographics and could theoretically incorporate reproductive health into the existing infrastructure. The informal sector grassroots programs reach underdeveloped areas and are highly customizable to individual contexts while empowering and motivating young people.

The mixed approach is very successful at using an established infrastructure with efficient resources. These advantages, and the programs that embody them, are not in competition with one another. Rather, they can and should be implemented together. The specific aspects that lead to each program's success can be combined to improve the overall impact.

This investigation shows that diverse combinations of clinical services, sex education and youth development services provide opportunities to customize efforts to be context-specific. Similar to what was advocated by Bearinger,[4] varied implementations in the Panamanian context are key to maximizing their effectiveness. The particular needs of subpopulations must be determined and analyzed on a case-by-case basis as seen in the discussion of diverse cultural contexts in Panama. The three methods discussed and their aggregate effectiveness will not only provide a guide for Panama's development towards improved adolescent reproductive health care and the MDGs, but also outline a framework for analyzing public health initiatives in other contexts with limited resources and diverse subpopulations.

In the published Fall 2012 issue of the journal, the JGH production team mistakenly omitted the names of two of the article's authors, Rhonda Buchanan and Whitney Nash. The JGH production team and editorial review board regret this error and take responsibility for the omission.

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Table 1
Overview of Compared Reproductive Health and HIV/AIDS Education Methods in Panama

	Method 1: ***Formal Sector:*** Public Schools and Public Health Centers	**Method 2:** ***Mixed Sector:*** NGO and Private School Partnerships	**Method 3:** ***Informal Sector:*** NGO-Guided Peer Educators
Key (Unique) Demographic	High-risk socioeconomic groups; public school students	Private school students and peers	Youths in indigenous groups as well as rural and urban areas
Program Structure	Nonexistent/Unknown	Youth training workshop for peer education supervised by teachers	Youth training workshop for independant peer education
Key Weaknesses	Political Stagnation; religous opposition	Limited scope (only in private schools); accuracy of message	Limited resources; accuracy of message
Key Strengths	Established infrastructure; captive high-need demographic may lead to high impact	Political and social support; established infrastructure of schools improves organization	Political and social support; diverse participants increase scope