

**Mobile Provision of Integrated Health, Social, and IT Services to
Rural South African Youth: Description and Rationale of the
Mpilonhle Program**

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Abstract

Problem: Poor adolescents need better access to essential primary health services--including those relevant to HIV prevention--supportive social services, and socio-economically valuable skills.

Approach: The Mpilonhle Program uses schools-based mobile units to provide integrated primary health services, social services; health and life-skills education; and IT education to students in rural high schools on an opt-out basis. All services address HIV prevention and care and support, reproductive health, and general health issues; improving access to other services including public clinics, government grants, and social services; and improving school performance and skills relevant for job-seeking and higher education.

Local Setting: Umkhanyakude District is a poor, rural, high HIV prevalence area in KwaZulu-Natal Province, South Africa.

Relevant changes: In the program's first year of operation, three mobile units served 12 schools with a combined enrollment of 8800 students. Of these, 4953 students were provided with health screening and counseling, 3565 students saw a primary care nurse, 947 students saw a social worker, 6040 received health education sessions, and 7647 IT education. Of those receiving

screening/counseling, 3586 (72%) agreed to be tested for HIV, of whom 104 (2.6%) were infected and offered CD4 count tests.

Lessons Learned: It is feasible to provide integrated essential primary health services, social services, health and life-skills education, and IT education to large numbers of school-going adolescents in a poor rural area heavily affected by HIV. It can be done in a timely, routine, and recurring way and in a manner sensitive to financial and human resource constraints.

Introduction

Umkhanyakude is a rural Zulu district in KwaZulu-Natal, South Africa, with a population of 590,000, poverty rate of 77.1%, and unemployment rate of 66.5%¹. Its adolescents confront many health risks, HIV most centrally--by age 30, almost half the population has HIV²--but all the reproductive and general health risks facing adolescents worldwide as well.

Most of the authors were introduced to Umkhanyakude through demographic surveillance, and in the early 2000s grew interested in the core idea of HIV prevention among adolescents by bundling relevant preventive primary health services such as VCT, STI treatment, condom distribution, screening and counseling³ and providing them in high schools on an opt-out basis using mobile facilities. Adolescent HIV prevention remains a challenge. No purely behavioral or schools-based intervention has ever reduced HIV or STI incidence in a controlled experiment⁴⁻⁷. A state of the art schools-based intervention, the Tanzanian MEMA program adopted an appealing multi-component approach combining schools-based health education, community mobilization, and adolescent friendly clinics but did not reduce HIV incidence⁸. Male circumcision remains absent from the South African Government's strategic plans for HIV.

Both prevalence and incidence among South African youth declined from 2002-2008, but remain high⁹.

Approach

Given the core idea, we quickly saw the value of bundling health services that addressed not just HIV but all other major aspects of general health as well, including mental health and substance abuse, obesity and hypertension, STIs and unintended pregnancy, physical and sexual abuse, and accidents and injuries. A holistic focus providing a wide range of essential primary services recognizes the multiplicity and interaction of adolescent health vulnerabilities¹⁰, destigmatizes HIV-centric program elements, leverages interests in one health issue into opportunities to intervene with respect others, and is responsive to recent calls to promote adolescent use of essential health services¹¹. Using a single program infrastructure to address multiple vulnerabilities may promote cost-effectiveness and "crowd-in" additional public and private resources devoted to other aspects of adolescent well-being but lack infrastructure for delivering benefits.

We designed a program that was *integrated* in multiple senses. First it integrates clinical services physically into schools and into routine student life, providing them on an opt-out basis to facilitate prompt, routine, and widespread use. It responds to the challenges of adolescent use of community-based clinics:

financial, time-related, and logistical costs; inconveniences of travel; public exposure, embarrassment, and stigma associated with use; adolescent lack of information about the nature of their own needs, the range of available services, and their eligibility for such services; and the adolescent unfriendliness of services¹². Second, health services address most if not all major causes of adolescent disease burden. Third, the focus expands beyond health towards socio-economic empowerment through computer education, and social support and protection through social worker services, in order to address the potential interaction between socio-economic and health vulnerabilities¹³. The program is *flexible* enough to include new interventions (such as male circumcision, microbicides, HIV vaccines) as scientific innovation, public health knowledge, best-practice, community norms, and resources allow. Services are provided through mobile units and mostly non-professional staff sited within school grounds.

Context

Discussions in 2005/06 with school principals, teachers, students, and staff from local governments and the Provincial Departments of Education, Health, and Social Development found strong support for our proposal. We formed Mpilonhle (Zulu for "Good Life") as an NGO in 2006, with initial funding from the Charlize

Theron Africa Outreach Project and Oprah's Angel Network, and subsequent funding from PEPFAR. Our central program is the Mpilonhle Mobile Health and Information Technology (IT) program.

Our timing was fortuitous. The South African Children's Act came into effect in 2007, allowing adolescents aged 12 and older to receive clinical services without parental consent, greatly facilitating schools-based provision of services like VCT, STI treatment, and condom distribution. There was a growing emphasis among multilateral and donor agencies around the need for a comprehensive approach to HIV prevention, as well as for increased access to adolescent friendly health services. The recent introduction of computer studies into the South African high school curriculum, along with an increasing sense in the community and schools that computer literacy was critical preparation for higher education and skilled labor markets, contributed to considerable excitement for the IT component of the program.

Implementation

A Mobile Unit consists of two custom-designed trailers and a vehicle for transporting the units and staff. The trailers assemble into a physical infrastructure containing four private consultation rooms, a computer laboratory with 25 small energy-efficient desktop computers and a server, a generator for

schools lacking electricity, a health education classroom fitting 25 students, and private tents for nurse and social worker consultations. Each mobile unit provides services to four high schools over the course of a school year. Each school receives one week of program services per month, every month of the eight-month-long South African school year. On Saturdays and school holidays, the mobile units provide services to adults from the surrounding community. Each mobile unit has a staff consisting of four health screeners/counselors with at least a secondary-school education and training in HIV VCT and health screening and counseling, a primary health care nurse licensed to prescribe medicine, a social worker, a health educator, an IT educator, and a driver/security guard. The program involves no doctors in the direct provision of service.

One mobile unit began providing services in October 2007, and two were added in August 2008. These currently provide services to twelve high schools with a total enrollment of 8800. The use of mobile units minimizes the program's infrastructure demands, allows a limited number of facilities and staff to reach remote areas, and to service multiple schools and populations, which in turn raises utilization rates and reduces idle capacity. They give the program a modular structure that facilitates scale up. The use of non-professional staff helps cope with the scarcity and cost of health professionals in the developing world and

rural areas. The team approach to staffing helps sustain morale and performance, a major challenge in isolated rural areas.

Services provided by the mobile units (see Table 1) consist of (1) general health screening and counseling, (2) primary health nurse services, (3) social worker services, (4) health education, (5) computer education, and (6) referrals to a separate non-Mpilonhle-run home based care program

Table 1: Mpilonhle Services

<p>1: General Health Screening and Counseling</p> <p>Each student in a program school receives an annual 50-minute one-on-one health screening and counseling session conducted by a trained health counselor. This session includes (1) screening for risky sexual behavior and counseling on HIV prevention and family planning, (2) rapid on-site VCT for HIV, (3) symptomatic STI management, (4) TB-screening, (5) identifying orphans and vulnerable children for assistance with accessing social and governmental support, screening for exposure to sexual or physical abuse, and eligibility for government grants, and referrals as necessary to the social worker, and (6) distribution of condoms along with counseling on condom use, (7) screening, counseling and referral to the nurse as necessary for substance abuse and mental health problems, obesity</p>

and hypertension, diet and exercise, physical and sexual abuse, and accidents and injuries. A modified and shortened version of this session is used when services are provide to adults in the community.

2: Primary Health Care Nurse Services

Mpilonhle clients have access to a primary health care nurse by referral from the screener/counselors, by appointment, and on a drop-in basis. Nursing services include confirmatory HIV-testing using a second-rapid test for those who tested positive on the initial test during thier counseling visit, CD4 testing for those whose confirmatory HIV test is positive, treatment for presumptive STIs, and provision of primary health care services, including provision of medicines, using national guidelines. Nurses also identify clients with households affected by HIV and in need of care and support, and refers such households to home based carers from a separate non-Mpilonhle-run home based care program.

3: Social Worker Services

The social worker sees clients by referral from the counselors, by appointment, and on a drop-in basis. The social worker provides support to OVCs, victims of sexual and physical abuse, those suffering from depression or other psychological problems, and others needing counseling. They provide referrals to government

social services and law enforcement offices, as well as support with accessing government grants and with obtaining identity documents necessary for those grants. Social workers also identify clients with households affected by HIV and in need of care and support, and refers such households to home based carers from a separate non-Mpilonhle-run home based care program.

4: Health Education

Health and life skills education for students consist of four 90-minute interactive small-group health education sessions annually. Using a purposed designed curriculum that supplemets the life-orientation program, these sessions provide basic facts about HIV, VCT, STIs, tuberculosis, anti-retroviral therapy, prevention of mother to child transmission of HIV; a balanced abstain-be faithful-condomize (ABC) approach to HIV prevention; reducing stigma and discrimination against people with HIV; promoting respect between men and women; and making healthy lifestyle decisions. There are separate curricula for 8^h and 9th grade students (generally ages 13 and 14 years), and those in the 10th through 12th grades (ages 15-18, but with some students in their early twenties). A separate curriculum is used for adults in the community.

5: IT Education

IT education for students consists of four 90-minute small-group sessions per

year. Students are taught basic skills in computer operation, word-processing, email and Internet skills, curriculum vitae and job application preparation, matriculation exam preparation, and applications for higher education and scholarships. Students can browse a curated set of materials on HIV, general health topics, and life skills when not in formal classes.

6: Referrals for Home Based Care

Mpilonhle nurses and social workers identify clients with households affected by HIV and in need of care and support, and refers these households to home based care staff from a separate non-Mpilonhle-run home based care program. These carers visit these households and provide its members as necessary with counseling or psychosocial support, or information, or assistance with personal care and household maintenance. Household members who need further Mpilonhle services such as health screening/counseling, or consultations with the nurse or social worker, are given referral to home care staff who provide these services. Mpilonhle pays each carer a small financial incentive per household visited.

An integrated data collection system captures information from the health screening and counseling-, nurse-, and social worker sessions, generating detailed

longitudinal data on adolescent health and behavior, service utilization, educational attainment, and socio-economic and demographic characteristics. Its uses include measuring and promoting quality of care, evaluating program effectiveness and cost-effectiveness, public health surveillance, research, and providing strategic information to stakeholders.

Results

Our initial challenges were (i) demonstrating logistical and cost feasibility, (ii) demonstrating the acceptability of providing reproductive health-related clinical services such as VCT, STI treatment, and condom distribution in schools, (iii) demonstrating high utilization, with little to no idle capacity, of program facilities and staff, and (iv) generating and maintaining strong support for the program from principals, teachers, parents, students, community members, and civil and traditional authorities. We happily report that all these were confronted successfully. Daily operations run smoothly, predictably, on schedule, and in a manner well-integrated with the rhythms of school operations. The program runs within its budget, and has faced no difficulties recruiting and retaining staff. We are encouraged by high acceptance rates of all services. During the first year of

service provision, 4953 (56%) of enrolled students received Health Screening and Counseling, of whom 3586 or 72.6% accepted VCT, and 104 (2.6%) were infected and offered CD4 count tests and otherwise screened for the need for antiretroviral therapy. 3565 students visited to the nurse, 947 students visited the social worker, 6040 students attended health education, and 7647 students attended computer education. There is in general little to no idle capacity, either in terms of underutilized facilities, staff, or services. And there is very strong support for the program from all major stakeholders in the schools, communities, local and provincial governments, traditional Zulu as well as civil authorities, and funders. Mpilonhle's experience to date shows that it is feasible to provide a broad range of integrated services to large numbers of adolescents in schools in a timely way, in a manner informed by the public health literature, that enjoys strong community and donor support.

Our prospective challenges include (i) evaluating program quality, effectiveness and cost-effectiveness. The integration of our program creates the potential for both higher costs and benefits per beneficiary than in narrower programs, but economies of scope may promote cost-effectiveness. (ii) expanding service provision to more schools in response to strong community demand. Our ability to respond to this challenge depends largely on availability of donor money to

fund additional mobile units. (iii) investigating the inclusion of new services such as male circumcision, HPV vaccination, and expanded family planning; and (iv) piloting service provision in primary schools.



Figure 1. Photograph of Mpilonhle mobile unit

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Competing Interests

All authors receive salary from Mpilonhle

References

1. South African Department of Health. 2009. Annual Performance Plan: Population Data. <http://www.kznhealth.gov.za/plans/population.pdf>. Accessed 14 August 2009.
2. Welz T, Hosegood V, Jaffar S, Bätzing-Feigenbaum J, Herbst K, et al. (2007) Continued very high prevalence of HIV infection in rural KwaZulu-Natal, South Africa: a population-based longitudinal study. *AIDS*. 21: 1467-72.
3. WHO (2003) Global consultation on the health services response to the prevention and care of HIV/AIDS among young people. Available at <http://whqlibdoc.who.int/publications/2004/9241591323.pdf> Accessed 14 January 2009.
4. Maticka-Tyndale E, Brouillard-Coylea C (2006) The effectiveness of community interventions targeting HIV and AIDS prevention at young people in developing countries. *World Health Organ Tech Rep Ser*. 938: 243-85; discussion 317-41.
5. Paul-Ebhohimhen VA, Poobalan A, van Teijlingen ER (2008) A systematic review of school-based sexual health interventions to prevent STI/HIV in sub-Saharan Africa. *BMC Public Health*. 8: 4.

6. Gallant M, Maticka-Tyndale E (2004) School-based HIV prevention programmes for African youth. *Soc Sci Med.* 58: 1337-51.
7. Manhart LE, Holmes KK. (2005) Randomized controlled trials of individual-level, population-level, and multilevel interventions for preventing sexually transmitted infections: what has worked? *J Infect Dis.* 191 Suppl 1S7-24.
8. Ross DA, Changalucha J, Obasi AI, Todd J, Plummer ML, et al. (2007) Biological and behavioural impact of an adolescent sexual health intervention in Tanzania: a community-randomized trial. *AIDS* 21: 1943-55.
9. HSRC, MRC, CADRE, and NICD (2009) South African National HIV Prevalence, Incidence, Behaviour and Communication Survey 2008. Available at <http://www.mrc.ac.za/pressreleases/2009/sanat.pdf> accessed on 20 Jan 2010.
10. Zweig J, Lindberg L, McKinley K (2001) Adolescent health risk profiles: the co-occurrence of health risks among females and males. *J Youth and Adolescence* 30(6): 707-28.
11. WHO (2002) Global consultation on adolescent friendly health services: a consensus statement. Available at http://www.who.int/child_adolescent_health/documents/pdfs/who_fch_cah_02.18.pdf . Accessed 14 January 2009.

12. WHO (2002) Adolescent-friendly health services: an agenda for change.

Available: http://www.who.int/reproductive-health/publications/cah_docs/cah_02_14.pdf. Accessed 14 January 2009.

13. Wilkinson R, Marmot, M (2003) Social determinants of health: the solid facts.

Copenhagen: World Health Organization.

Available <http://www.euro.who.int/DOCUMENT/E81384.pdf>. Accessed 15 December 2009.