Innovative use of cellphone technology for HIV/AIDS behaviour change communications: 3 pilot projects

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Introduction

The opportunities in South Africa for using mobile technologies to support initiatives in the HIV/AIDS sector are enormous. A huge number of people have cellphone access, and there are a range of innovative ways in which cellphones can be used to support treatment, disseminate information, provide anonymous counselling, gather data and link patients to services.

Cell-Life is an NGO based in Cape Town, South Africa, that seeks to improve the lives of people infected and affected by HIV through the appropriate use of technology. This paper describes three pilot interventions that use cellphones for behaviour change communication, ie that are experimenting with different cellphone technologies to disseminate information, undertaken as part of Cell-Life's Cellphones4HIV project: ARV adherence SMSs, USSD content delivery and content delivery via MXit. Challenges around measuring impact in behaviour change communications are briefly discussed, and some of Cell-Life's upcoming initiatives are outlined.

As Kaplan[1] points out in his 2006 literature review of the subject, "There is almost no literature on using mobile telephones as a healthcare intervention for HIV, TB, malaria, and chronic conditions in developing countries". Although the initiatives discussed in this paper are very much in their infancy, we hope that by sharing our ideas and approaches with others in the field we will generate discussion around some of the practicalities of mHealth.

Cellphones4HIV project

Cell-Life has initiated a project called "Cellphones4HIV", which looks at how mobile technology can be used in the prevention, treatment and care of HIV and AIDS, and to support the HIV sector in general.

In South Africa there are approximately 36 million active cellphone users, and around 80% of all youth and adults have a cellphone[2]. This level of cellphone penetration makes mobile a potential 'mass media' in South Africa. Given that the World Health Organization has concluded that mass media campaigns are one of the 'best buys' when it comes to HIV prevention[3], there is an imperative to look at how cellphones can be harnessed to this end.

For millions of people living with HIV and others affected by the epidemic, there is an unmet need for information regarding the disease, and for communication with support structures. Information needs vary from basic information on prevention to detailed information on the course of the disease and its treatment, called 'treatment literacy'.

There are many organisations working to produce such information (eg the SA Department of Health, LoveLife, Soul City, PEPFAR organisations, various NGOs). Information is

[1] Kaplan, WA (2006), Can the ubiquitous power of mobile phones be used to improve health outcomes in developing countries?, *Globalization and Health*, issue 2 no. 9
[2] http://www.cell-life.org.za/cellphones-4-hiv
[3] Cassidy, J (2008), Medicine and the media - The soap opera that saves lives, *British Medical Journal Observations*, 14 May 2008, http://www.soulcity.org.za/publications/papers-1/medicine-and-the-media-the-soap-opera-that-saves-lives.html/

disseminated in numerous ways including print media, radio, television, billboards, newspapers and the internet. Not all of these media are accessible to everyone and using cellphones to increase the reach of HIV messaging seems an obvious extension.

Cell-Life is thus exploring a range of cellphone services to assess their viability for content delivery. These include, *inter alia*, content delivery through SMS, USSD and MXit.

SMS ARV reminders: TAC adherence clubs

Background

Studies have indicated that reminding people to take their medication can increase adherence[4], and that people with higher levels of health literacy adhere better to their medication[5]. Given South Africa's high HIV prevalence rate and the urgent need to get people on treatment and adhering to it, Cell-Life decided to pilot daily SMS reminders to members of 'adherence clubs' run by the TAC and the Department of Health at Site B clinic in Khayelitsha, Cape Town.

Starting on 1 December 2008, around 120 people have been receiving twice-daily SMSs in English or Xhosa, at the time they should take their ARVs. The SMSs contain both a reminder to take the medication, and ARV- or HIV-related information on topics such as side effects, nutrition, and TB. (See Annexure A for examples of SMSs.)

Cell-Life chose SMSs as they are a service very familiar to cellphone users in South Africa, which would remove the potential of the technology presenting a barrier to use. It is also easy to make SMSs free to the user. Lastly, it is easy to time SMSs relatively precisely (depending on network availability, which is generally good in South Africa), which is important for ARV efficacy: patients have a 'window' of around an hour in which to take their medication. If they start to mis-time their medication (or skip it) with any regularity, resistance can easily develop, forcing them to move onto second-line treatment (which is more costly and complicated)[6].

Confidentiality

Cell-Life was originally concerned that given that some people share cellphones and that not everyone is public about their HIV status (even within families), we may have a significant number of refusals for the service. This proved not to be the case, however: of the 126 people offered the service, only 19 did not sign up for the service (some of whom did not have a cellphone, or completed the opt-in form incorrectly). It needs to be borne in mind, however, that the group used for the pilot had chosen to become members of the adherence club, and might thus be more comfortable being identified as HIV-positive.

Concerns have been raised that in a society where people share cellphones, HIV-positive people may be unwilling to use services that can potentially result in others being aware of

[4] See for instance Vital Wave Consulting (2009), *mHealth for Development: The Opportunity of Mobile Technology for Healthcare in the Developing World*, p 15; Kaplan, WA (2006), Can the ubiquitous power of mobile phones be used to improve health outcomes in developing countries?, *Globalization and Health*, issue 2 no. 9, pp6 – 8. Lester, RT, Gelmon, L, Plummer FA (2006), Cell phones: tightening the communication gap in resource-limited antiretroviral programmes?, *AIDS*, vol. 20 no. 17

[5] Kalichman, S et al (2008), Association Between Health Literacy and HIV Treatment Adherence: Further Evidence from Objectively Measured Medication Adherence, Association Between Health Literacy, *Journal of the International Association of Physicians in AIDS Care*, Volume 7 Number 6, p 317

[6] Treatment Action Campaign (2006), ARVs in our Lives: Handbook for people living with HIV and treatment advocates in support groups, clinics and communities

their status[7]. However research done by Gillwald[8] indicates that in South Africa "[c]ontrary to popular perceptions that cellphones are widely shared, less than 5% of respondents regularly allow friends to use their phones, over 45% occasionally did but more than 50% never did", and "[e]ven with regard to family usage, for only 23% was it regularly used by family members, for over half of the respondents this happened occasionally and for about 24% family members never used their mobile phones." So far, none of the participants in this pilot have reported concerns around unwanted disclosure of their status as a result of the messaging – however this is one of the issues that will be covered in detail in the formal monitoring and evaluation of the initiative.

Language

The SMS service is currently available in English and Xhosa. This posed some interesting challenges to the project, as SMSs are limited to 160 characters, and it is difficult to include a meaningful message within this limitation. When you take into account the fact that Xhosa requires on average 20% more characters than English[9], it becomes very tricky to translate this content.

Additionally, whereas there are accepted SMS abbreviations in English there are no standard abbreviations in Xhosa and there are often no accepted terms to describe medical conditions, sexual practices and other issues relevant to HIV.

To get around the character limitation, the translated SMSs use some English words and acronyms (eg 'ARVs'), and abbreviations (largely the removal of vowels in certain words). We tested the SMSs on 12 Xhosa speakers of different ages, socio-economic backgrounds and education levels to see whether they were able to easily read the translated versions of the Adherence SMSs. This piloting has been very useful and has allowed us refine the list of Xhosa abbreviations to be used in the messages.

Impact

At time of writing, the pilot had only been running for three months. It is thus far too early to be able to make statements on the impact of the SMSs. Anecdotally, however, the adherence club coordinator has received positive feedback from people receiving the SMSs, and members of the adherence clubs who were not invited to participate in the pilot have expressed displeasure. She has requested that all 800 members be sent the SMSs. So far only 5 people have chosen to opt-out of the service. At the first phase of the monitoring and evalution held in early March 2009, 15 additional people asked to receive the SMSs.

An issue to be examined in the evaluation of the service is whether the content and timing of the SMSs is helpful, but also whether the fact of receiving them makes recipients feel like they belong to something (like a group or particular community), and whether this is a worthwhile benefit in itself.

Scalability

A major issue confronting Cell-Life is the scalability of the project. It costs R13.20 (US$1.32) per person per month to send the SMSs[10]. This does not include the costs to write, translate

[7] Kaplan, WA (2006), Can the ubiquitous power of mobile phones be used to improve health outcomes in developing countries?, *Globalization and Health*, issue 2 no. 9, p1
[8] Gillwald, A. (ed.) (2005). "Towards an African e-Index: Household and Individual ICT Access and Usage across 10 African Countries".
[9] Based on a comparison of various translated texts at www.capegateway.gov.za
[10] Cell-Life pays a bulk rate of R0.22 per SMS.

and schedule them. Even for 800 people, that would add up to well over R8,000[11] (US$800) per month. Given that currently around 350,000[12] South Africans are on ARVs, integrating SMS reminders into South Africa's ARV rollout programme would cost over R3.5 million per month. Clearly the scaling up of SMS reminders will only be feasible if the cellular networks provide severely discounted (or free) SMSs for such a programme, or if the SMSs can be targeted at certain groups (e.g. those who are isolated and/or are identified as experiencing difficulties with adherence).

USSD: Soul City 'soap opera' and information service

Background

Since all handsets are able to use USSD (unlike services such as WAP) and these services are relatively inexpensive, this technology seems to offer immense potential for content delivery. Although few people know the acronym, many South Africans already use USSD to recharge their prepaid airtime – the technology is thus widely available and should be at least vaguely familiarly to users.

Cell-Life has partnered with Soul City, a popular and groundbreaking HIV 'edutainment' series that has shown real benefits in terms of increased knowledge about HIV and positive behaviour change[13]. Soul City seeks to extend its reach beyond radio and television, and mobile is a logical extension of its other communication channels.

As part of the current 9th season of the show, Soul City is running the 'OneLove' campaign, that aims to educate people about the dangers of multiple concurrent partnerships (MCP). Cell-Life has created two USSD services based on the messaging of the campaign. One is a 'direct' information service that provides information in a traditionally didactic style (for example it explains the dangers of MCP, why alcohol can be dangerous, etc). The second is a 'soap opera' that seeks to convey the same messaging in story format. See Annexure B for an outline of these services.

Pilot

Cell-Life piloted the two services in early March and surveyed 24 people in three areas in greater Cape Town. Users were given free airtime, basic instructions on how to use the services, and then asked questions when their 2-minute USSD session had timed out. The pilot sought to better understand how people used the technology, issues around content, and whether the direct style or the story approach was more effective.

Technology issues

Half of those surveyed experienced one or more fails: the service never initialised, or 'crashed'. These were due mostly to problems with the USSD itself (either the network or the service provider hosting the USSD). In some cases, users were unable to navigate through the service due to limitations on their handsets (on some Motorola phones there is no Reply button – a surprise result as we thought USSD was ubiquitous).

We found that despite the fact that all those surveyed were prepaid users and had performed this action before, many were unable to dial the USSD string unaided. They would type in the

[11] Based on a further discounted rate of R0.17 per SMS.
[12] See http://www.tac.org.za/community/keystatistics
[13] See for instance Cassidy, J (2008), Medicine and the media - The soap opera that saves lives, *British Medical Journal Observations*, 14 May 2008

string itself, but not know to press the 'dial' button. One can thus not automatically assume an association between the use of USSD for services like recharging airtime, and its use to access content. Half of the participants also needed instructions on how to get from one screen to the next, sometimes more than once.

Content issues

The pilot showed that on average, in a two-minute USSD session, people could make it through about 9 screens of content. At 150 characters per screen[14], this makes for a total of about 1,350 characters (equivalent to 8 SMSs). We found that user abilities varied considerably; one user got to 2 screens, another to 14, and another to 26.

The services were presented in English only. While most users found the content very easy to understand, most said that they would prefer to read it in their own language. The challenges mentioned previously in relation to translation of the adherence SMSs will thus also be applicable here.

We had hoped to assess whether 'direct' or story-format content was more effective in conveying messaging, but the pilot results were inconclusive. The researchers' observations indicated that users engaged more with the story-format than the direct content, but the significance of this on impact cannot yet be determined.

Cost

USSD costs the user about R4 for a two-minute session. Cell-Life is currently negotiating to make it possible to reverse-bill the service so that it is free to the user (in which case it will cost us R1.20 for 2 minutes).

Conclusions on USSD

We concluded that given the content issues explained above, USSD was not well-suited for the delivery of 'narrative' content, but should rather be used for providing menus that allow users to 'drill down' to content they want (see for instance the TAC's information directory[15] or the commercial 'Look4it'[16] service).

The issue of fails needs to be further explored to ascertain whether it is due to the service provider currently hosting the USSD, or if it is a widespread problem with USSD.

Given that USSD is session based and the information disappears from the user's phone once the session is over, cross-over to other channels (e.g. sending the user an SMS with the content they have requested) should be explored to increase USSD's utility.

MXit HIV content delivery

Background

MXit is a Java application installed on users' phones that allows for GPRS- or 3G-based instant messaging. Data costs about R2 for 1MB, which makes MXit a very cheap way for people to chat (less than 1c per chat message). MXit claims over 11 million users globally (most non-South African users are in Indonesia, where there are 1.2 million users).

[14] Technically USSD allows for 182 characters per screen, but in practice it seems that fewer characters are available for content due to other system-related information that is sent with each screen.
[15] In South Africa, dial *120*TAC1#. Currently under development by Cell-Life.
[16] www.look4it.co.za

Although MXit is primarily a chat environment, it is possible to host information on the service, which users can access by selecting options through a menu structure.

There are a couple of developmental services using MXit, including Dr Math[17] (a math tutoring service) and Angel[18] (a drug counselling and information service). Both of these initiatives have found that their services have been taken up quickly by MXit users despite very limited marketing. It seems that viral marketing is a powerful tool within the MXit environment.

Given MXit's popularity with South African youth, Cell-Life is piloting the provision of HIV-related content on MXit. We have partnered with the Angel service to host information on HIV, including basic information on HIV, prevention, and testing,

Pilot

We piloted the HIV content on MXit with a group of seven high school learners in Khayelitsha, Cape Town, to test whether the content was understandable and easy to navigate. They were all existing MXit users, so there were no user problems with the technology. From a technical perspective, MXit was very stable, unlike USSD, and only one learner reported a fail during the pilot.

From a content perspective, the learners found the information easy to understand and find in the menu structure, but they indicated that this was information that they knew already. They said that they would tell their friends to use the service should their friends have any questions and they supported the idea of Mxit chatrooms with counsellors to discuss HIV-related issues. The participants indicated that they preferred MXit as a medium because it is cheap, fast and anonymous.

Most notable from the pilot was the fact that the learners indicated that they would not like to read the information in their home language, Xhosa, as it would make the information more difficult to understand. They advocated that all the information be translated into MXit-language (rather like SMS shortenings, e.g. 'sumting', 'every1'). They felt that this MXit-language was universal and not dependent on where you were from.

Conclusions on MXit

MXit can be a promising way to host content, as it has many users who are very familiar with the technology, meaning that there is no technology barrier (unlike USSD). The main strength of MXit is chat, and this needs to be explored further for counselling purposes. However not all phones are able to support MXit and technical support may be required to assist new users install the application on their phones.

From the pilot it also seems that English (and particularly its shortened form) is the predominant language of MXit, though this would need to be explored further. This contrasts with stated user language preferences in relation to the USSD services. At this stage we don't know whether this difference is inherent to the medium, or whether it is simply a difference in the kinds of people surveyed.

[17] Butgereit, L (2007), Math on MXit: the medium is the message. 13th Annual National Congress of the Association for Mathematics Education of South Africa (AMESA), White River South Africa, 2-6 July 2007, researchspace.csir.co.za/dspace/bitstream/10204/1785/1/Butgereit1_2007.pdf

[18] See http://marlonparker.blogspot.com/2008/12/find-your-angel-on-mxit.html

Behaviour change communications: issues in measuring impact

The initiatives that are discussed in this paper aim to change the users' health-related behaviour, ie they are examples of cellphones used for behaviour change communications.

There are a few published examples indicating that information delivered via cellphone can be effective in this area. The SEXINFO service in San Francisco has reported that a survey of 214 youth at ten health clinics linked knowledge of the program to increased concern about STIs. Their research also indicated that youth were intrigued by the idea of using cellphones to receive this information[19].

Also, a small study by Puccio *et al* found that cellphone reminders (calls, not SMSs) correlated with high ARV adherence during the study and viral suppression after the end of the initiative[20].

These kinds of initiatives can present challenges in measuring impact[21]:

- Changing behaviour is difficult.
- It takes time, especially for behaviours to change enough to measure impact.
- Data collection can be difficult, for instance because of sensitive questions on sexual practices, fidelity, etc. (This is especially true of HIV.)
- There are difficulties linking a behaviour change to an intervention, especially given the influence of other, outside factors.

Cell-Life is at the early stages with its current interventions, and it is too early to reach any conclusions on impacts. We have just started the montoring and evaluation of the adherence club SMSs, and the other two services are at the piloting stage.

Future scientific studies

Cell-Life has received funding from USAID for studies[22] to look at three cellphone-based interventions:

The first will be a mass HIV prevention SMS campaign. A randomised control trial is envisaged to measure and compare the difference in health outcomes between the intervention and control groups. An appropriate SMS will be sent to the intervention group once per week over six months. Assessments of samples of the groups will occur before and after the intervention.

The second will be an intervention with adolescents to assess the use of cellphones in HIV prevention. An observational study design (prospective cohort study) is envisaged, which would involve following, over a period of time, two groups of participants to measure desired outcomes. The first group will be exposed to the intervention, while the second group (comparison or control group) will not. The intervention will look at community projects working for the prevention of HIV infection in adolescents. Those in the intervention group will

[19] Ybarra, ML & Bull, SS, (2007), Current Trends in Internet and Cell Phone–based HIV Prevention and Intervention Programs, *Behavioral Aspects of HIV Management*, vol. 4 no. 4, p 202
[20] *ibid*
[21] Family Health International (2004), Module 6: Monitoring and Evaluating Behavior Change Communication Programs, course material from FHI's IMPACT Project, http://www.fhi.org/en/HIVAIDS/pub/guide/meprogramguide.htm
[22] http://www.cell-life.org.za/images/stories/file%203%20-%20research%20proposal%20to%20usaid.pdf?1768f84c07a3a208150af5c12451b8b9=66b1c05acad428e41db8d7b770e475b9

receive one SMS per day containing HIV-prevention messaging and encouragement to stay in the study and come to meetings.

The third will be an intervention in support of prevention of mother-to-child transmission (PMTCT). It will also follow an observational study design. The intervention will be designed around a functioning PMTCT site, and will seek to improve linkages between the clinic and pregnant HIV-positive women before delivery, and to inform and encourage the mother to adhere to PMTCT. A primary focus of this intervention will be to empower the women / mothers with information and access to services.

The study designs will be finalised once a researcher has been appointed and a reference group of experts has been consulted.

Future possibilities on mobile

Two channels Cell-Life is exploring are WAP and voicemail-push.

South Africa has relatively low desktop internet penetration (between 4.4 and 5.7 million people), while mobile web users stand at around 9.5 million[23]. Interestingly, 70% of that 9.5 million only use their cellphone to access the internet. While those cellphones that can use WAP are mostly in the hands in people who are not poor, this will shift over time. Cell-Life is looking at piloting HIV-related chatrooms through MYMsta, LoveLife's WAP offering.

An exciting potential is voicemail-push, where a voicemail message is 'pushed' into the user's voicemail inbox, and they are notified of its arrival by SMS (like for any voicemail). Voicemail-push can overcome a number of barriers related to content delivery by cellphone:

- Some cellphone services (eg SMS, USSD) are very restricted in terms of number of characters. Others (eg MXit, WAP) are constrained by screen size and usability factors. A voice message can allow for a lot of information to be delivered without those restrictions.
- Illiteracy can be overcome as the user just needs to listen.
- Content can easily be delivered in the user's language of choice (and the issue of some local languages being a lot longer than English falls away).
- Content can be delivered by a 'trusted source', such as a popular character in a local soap opera, sports stars, or a local nursing sister known to the recipient.

Cell-Life is currently exploring implementation of voicemail-push with a local service provider.

Conclusion

The initial work that has been done in the Cellphones4HIV project has raised as many, if not more questions, than it has answered: most significantly "Can content delivery via cellphones impact on HIV-related behaviour?"

Although we are still a long way from answering that question, we have nevertheless learned a number of valuable lessons. Possibly the most significant of these has been the need to test our assumptions before implementing projects. Our small-scale pilot testing has raised important points in terms of language of choice, technical ability and project cost.

[23] http://www.matthewbuckland.com/?p=573

Cell-Life is actively engaged with other role-players in this sector to develop indices that can assist with impact assessment in these and similar projects. Impact evaluation needs to be a key consideration with any new initiative.

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Annexure A: Examples of adherence club SMSs

Note: all SMSs had to be 160 characters or less.

Don't forget to take your ARVs on time. Adherence means taking your ARVs on time, everyday. The ARVs may not be effective if you miss doses or take them late.

ARV time again! Remember to take spare pills with you if you go away. And try to keep some extra pills in a safe place for emergencies.

Good morning, please take your ARVs now. And if you need support or advice you can call the Aids Helpline on 0800 012 322 - the call is free from a landline.

It's ARV time! Hope you're feeling well today but remember to keep eating even if you feel sick. Your immune system needs energy to fight off infections.

Remember your pills. DdC, d4T, ddI and 3TC can cause tingling in your hands and feet. If untreated this can become very painful. Speak to your doctor.

Annexure B: OneLove USSD Services

When the user dials the string *120*1LOVE#, they can chose either 'Information' (the direct information service), or 'Story'

Direct Information Service

Welcome to Soul City's 'OneLove' campaign. Learn how sleeping with many people at the same time spreads HIV. Hit Reply, press 1 and Send for the menu				
Select an option 1 Dangers of multiple partners 2 Why people have multiple partners 3 Dangerous relationships 4 Protect yourself 5 Have a baby safely				
1 - Why Multiple Partners are dangerous	**2 - Why people have multiple partners**	**3 - Dangerous Relationships**	**4 - Protecting yourself**	**5 Safely Having a Baby**
More than 1 in 10 South Africans are HIV+. So if you sleep with many people and have unprotected sex, you are in real danger of getting HIV. 1 Next	People sometimes take another partner when they don't have good sex with their main partner due to tiredness, boredom or lack of communication 1 Next	Having sex for money or things increases the risk of HIV as the person giving you something may not want to use a condom. Insist on safe sex. 1 Next	You can protect yourself by having ONE fulfilling, honest sexual relationship at a time. Talk to your partner about your needs. 1 Next	You obviously need to have unprotected sex in order to get pregnant. So how can you have a baby without getting HIV? 1 Next

If you have more than 1 sex partner at a time you become part of a sexual network. One HIV+ person can pass on HIV throughout the network. 1 Next	People sometimes feel they can't try new things with their main partner, so they have sex with someone else to experiment. 1 Next	Drinking too much can lead to unprotected sex with more partners. Always have condoms when you go out & don't drink so much you lose control. 1 Next	Protect yourself and others by knowing your HIV status. You and your partner should get tested regularly. 1 Next	First, you and your partner need to know your HIV status. If you are both negative and have no other sex partners, you can have unprotected sex 1 Next
When you 1st get HIV you are very infectious as there's lots of HIV in your body. A new HIV infection can spread through a sexual network fast 1 Next	Some believe that men can't control their sexual urges and must have many partners. BUT this is not true. Men can and do control their urges. 1 Menu	Research says that if your partner is more than 5 years older than you, you are more at risk of HIV because it is hard to insist on a condom. 1 Menu	Don't stop using a condom with your partner unless you are sure they are HIV negative and are not having sex with anyone else. 1 Next	If one of you is positive, speak to your health worker or call the National Aids Helpline on 0860 012 322. 1 Next
Beliefs that men must have lots of partners, or that women cannot challenge men, or that divorce is shameful, put people at risk of getting HIV 1 Menu			Space your relationships - leave six weeks between one sexual relationship and the next. 1 Next	An HIV+ woman can take medicine (called PMTCT) to stop the baby getting HIV. 1 Next
			Being married does not protect you from HIV unless you both tested negative for HIV before marrying & you both only have sex with each other 1 Next	Remember that a pregnant woman can easily get HIV. So always use a condom. 1 Menu
			Condoms can protect you from getting HIV, but only when you use them every time you have sex, even with your main partner. 1 Menu	

USSD Story

Welcome to Soul City's Cell Story where Tembi & Sam learn about love & sex.Enter our competition; we may call you to find out what you think! 1 - next	
Tembi & Sam are a couple & have stopped using condoms. She works nights & he goes out with the boys. He's so sexy - the girls love him. 1 - next	
Tembi loses her job. She is too ashamed to tell Sam. Instead of going to work she looks for company. Kindly Mpho buys her a drink. 1 - next	
Mpho seems loaded; he offers to take Tembi shopping. With a new dress and a bag full of food, Tembi is feeling better. She kisses Mpho. 1 - next	

Mpho wants sex but doesn't have a condom. Tembi is afraid, but he did buy her all the stuff. You choose: should she sleep with him? 1 - yes 2 - no	
YES	**NO**
Weeks go by. Everyone thinks Sam & Tembi are the perfect couple. But secretly, Tembi keeps seeing Mpho & Sam sleeps with girls at the clubs. 1 - next	Chatting to her friend, Tembi hears that Mpho is quite a playa. He's been ill and people say he has HIV. She feels like she dodged a bullet! 1 - next
After watching Soul City, Tembi realises that she should know her status - what if she is HIV positive? Only one way to find out. 1 - next	After watching Soul City, Tembi realises that she should always use a condom. When she asks Sam to do this, he accuses her of cheating on him 1 - next
Her test is positive! Where did the HIV come from? The only way to know is to talk to Mpho and Sam. It's the hardest thing she's ever done. 1 - next	Furious, Sam breaks up with Tembi. She's heartbroken but proud of herself for sticking to what she believes in. 1 - next
Tearfully, Tembi tells Mpho about her test. She suggests that he should also get tested, as should his wife and the others he has slept with. 1 - next	A year later, Tembi hears Sam is HIV+. She tests and is negative. If they'd stayed together not using condoms, she could have been infected! 1 - next
She also tells Sam. He can't believe it. But he tests and finds out he is also positive. Could he have passed the virus on? He blames Tembi. 1 - next	Tembi imagines all the people Sam slept with. He could have passed on HIV to anyone. At least she's no longer part of that sexual network. 1 - next
Sam and Tembi really talk and realise that they are part of a huge sexual network so they will never know where the HIV comes from. 1 - next	Tembi knows that HIV comes from one's own behaviour: more than 1 partner at the same time + unprotected sex = high risk. 1 - next
They realise that the HIV comes from their own behaviour: more than 1 partner at the same time + unprotected sex = high risk. 1 - next	
CONVERGE	
Think about your own sexual network: anyone in the network could be HIV+ and it can spread through the network if people aren't using condoms 1 - next	
So when you have unprotected sex with someone, it's like having sex with everyone they are having sex with or have had sex with in the past. 1 - also	
Because HIV grows quickly when you are first infected it spreads rapidly in your sexual network before you even know you are HIV+. 1 - next	
Write these numbers down: National AIDS Helpline 0800 012 322 Childline 0800 055 555 Stop Gender Violence Helpline 0800 150 150 1 - next	
Tell us how many sex partners Sam has & you could win R50 airtime. Send a please-call-me: 083 333 3333 - 1 partner 083 333 3331 - more than 1 1 - next	

OneLove: talk to, respect & protect yourself and your partner.	

Annexure C: MXit

MXIt users can add Angel as a MXit services contact. (Number: Angel; Nickname: Angel)

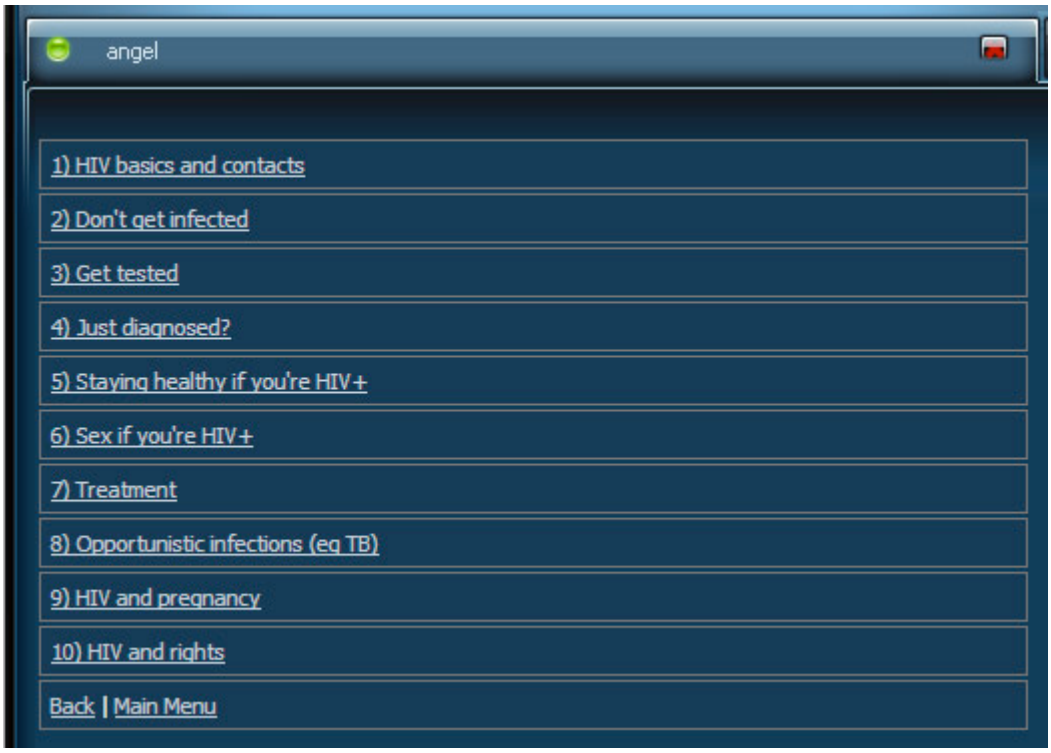

Figure 1: HIV directory on MXit

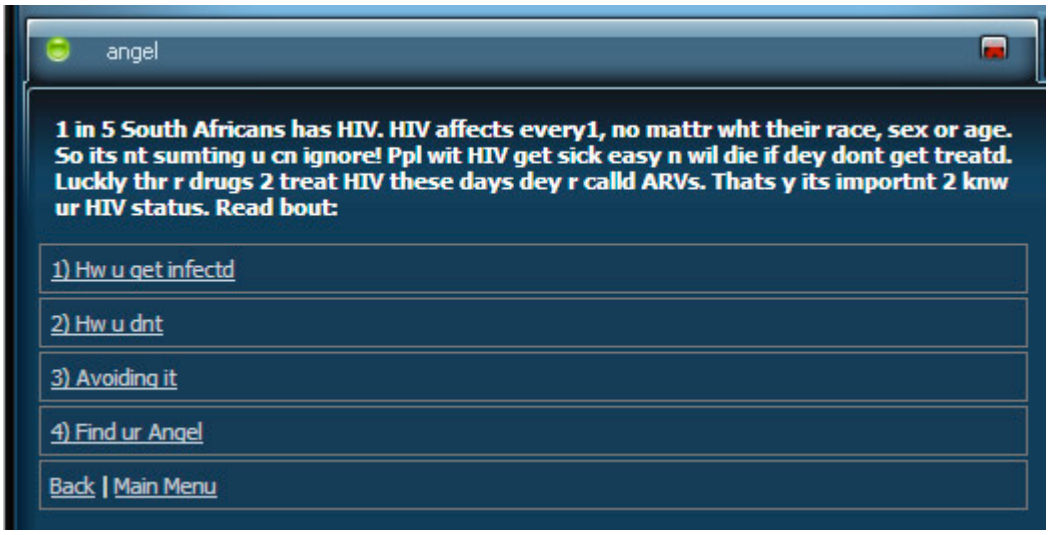

Figure 2: MXit language used in HIV Quick Guide