

COMMENTARY

Reproductive Health and New Technologies in Africa: Horizon Scanning for new Technologies

Sare Corben de Romero and Sunanda Ray

With thanks to

Joanna Crichton, Teresa Saliku and Philippe Mayaud for comments and discussion

“The authors express their appreciation for the financial support (Grant HD4) provided by the UK Department for International Development (DfID) for the Realising Rights Research Programme Consortium. This document is an output from a project funded by DfID for the benefit of developing countries. The views expressed are not necessarily those of DfID.” (*Rev Afr Santé Reprod* 2007; 11[1]:7-13)

RÉSUMÉ

La santé de reproduction et les nouvelles technologies en Afrique: l'horizon à la recherche de nouveaux programmes Les hommes et les femmes dans les pays en voie de développement doivent profiter du progrès récent dans le domaine du développement des technologies de la santé sexuelle. Le dépistage du chlamydia, le dépistage et la vaccination du VPH, les essais du vaccin du VSH-1 et le nouvel test diagnostique des infections sexuellement transmissibles (ISTs) ont la possibilité de réduire le fardeau des infections sexuellement transmissibles. Le dépistage du chlamydia a été effectué dans plusieurs pays d'Europe, mais il est trop cher pour les pays en voie de développement où le problème est la prévalence du chlamydia et ses complications sont beaucoup plus énormes. Les questions éthiques concernant la mise en oeuvre de la vaccination du VPH sont l'objet d'une discussion au fur et à mesure que le vaccin devient disponible dans les pays riches. Le coût du dépistage pour le VIH était une fois très cher pour beaucoup de pays en voie de développement, mais l'importance de cette intervention par rapport au traitement de la pandémie du VIH a conduit à des améliorations dans la qualité du dépistage et des réductions dramatiques des coûts. Il faut apprendre les leçons de l'épidémie du VIH en vue de l'introduction dans l'avenir de nouvelles technologies dans des conditions de ressources pauvres. En particulier, il faut évaluer et considérer le contexte social des communautés qui devraient en profiter. Le développement et la manière très rapide dont un de deux vaccins qui ont démontré, au cours des essais, leur haute efficacité dans la prévention de l'infection chez les femmes qui sont infectées par les types majeurs du virus du papillome humain (VPH) a initié les discussions sur la possibilité de l'efficacité de ce vaccin dans les pays à faible revenu. Il faut considérer le coût, la prestation, l'accès et l'acceptabilité d'accès, s'il faut introduire une nouvelle technologie, mais une compréhension partielle ou incomplète du contexte social et culturel aggrave les difficultés. Mots clé: santé de reproduction, infections sexuellement transmissibles, VPH, acceptabilité, Kenya (*Rev Afr Santé Reprod* 2007; 11[1]:7-13)

KEY WORDS: *Reproductive health, sexually transmitted infections, HPV, acceptability, Kenya*

¹ UK 2002: crude incidence rate 9.4/100,000 women

² In this paper they acknowledge their work as consultants to GSK and Merck & Co, the vaccine producers.

Introduction

Recent progress in the development of sexual health technologies should benefit men and women in developing countries. Chlamydia screening, HPV screening and vaccination, trials of HSV-1 vaccine, and improved diagnostic testing for sexually transmitted infections (STIs) have the potential to reduce the burden of sexually transmitted infections. Chlamydia screening has already been implemented in many European countries but is too expensive for developing countries where the prevalence of chlamydia and its complications is much greater. The ethical issues of implementing HPV vaccination are being discussed as the vaccine becomes available in rich countries. The cost of HIV testing was once prohibitive for many developing countries, but the importance of this intervention in managing the HIV pandemic led to improvements in quality of testing and dramatic reductions in costs. Lessons from the HIV epidemic must be learnt for future introduction of new technologies in resource poor conditions. In particular, the social context of the communities meant to benefit must be assessed and considered. The development and fast track licensing of one of two new vaccines which have been demonstrated in trials to be highly effective in preventing infection in women with the main types of Human Papilloma Virus (HPV) has initiated discussion on the potential effectiveness of this vaccine in low income countries. Cost, delivery, and access must all be considered if a new technology is to be introduced, but partial or incomplete understanding of the social and cultural context aggravates the difficulties. (1)

Burden of Infections

STIs cause a major burden of illness in low income countries, both because of their serious sequelae, and in some cases as facilitators of HIV infection (2) Data is sketchy, but the recently available information comes from a WHO 2001

report, which estimates 340 million new cases of the main bacterial STIs worldwide. Predominant amongst infections are Chlamydia, trichomoniasis, gonorrhoea and syphilis, although over diagnosis through syndromic management is an issue. From an adult population (15-49 years) of 269 million in sub-Saharan Africa, WHO estimated a prevalence of 32 million infected people, and an incidence of 69 million new infections in 1999. With a rate of 119/1000 adults infected, sub-Saharan Africa had the highest infection rate in the world. In all cases of bacterial infections, women had higher numbers than men, and numbers had increased since the previous estimates of 1995 (3). The indicative picture is that the rate of sexually transmitted bacterial infections is slowing whilst that of viral infections is increasing. Bacterial infections – shorter duration, highly infectious – spread most efficiently amongst groups of people with multiple partners of short duration, whereas viral infections rely on multiple partnerships over longer time periods. Therefore people in long term relationships where multiple partners for one, other or both people are culturally accepted are at increased risk of infection.

Women, often asymptomatic, tend to be diagnosed less frequently and later in infection progression than men, with consequent risk of complications. Pregnancy is one of the main opportunities health services in many low resource settings have to screen women for infections and for changes in cervical cytology. Having a sexually transmitted infection during pregnancy can lead to more expensive treatment, and complicated outcomes affecting the health of the infant and increased risk of still birth.

Cancer of the uterine cervix is the leading female cancer in Sub-Saharan Africa and the burden of the infections (80%) falls on low income countries (4). An estimated 234,000 deaths occur world wide from cervical cancer, 75% of them in developing countries. Africa has disproportionately higher mortality from this

infection than the rest of the world (5). This is related to the absence of planned programme screening, and limited opportunistic screening, in most Sub-Saharan countries. The estimated crude incidence of cervical cancer in Kenya is 37 – 47/100,000 (6)¹. Over one hundred genotypes of HPV have been identified, divided into low and high oncogenic risk in relation to cervical cancer. The HPV vaccine, currently licensed for women aged 9 – 26, targets genotypes 6, 11, 16 & 18, being those most closely associated with genital warts and cervical cancer. Types 16 and 18 are the most common in all regions, and account for about 65% of cancers in Africa (7). De Vuyst et al (4), found during their study in Nairobi that other genotypes were more frequent, indicating that the distribution of HPV genotypes can be varied in different populations, with implications for more targeted vaccine development.

Whilst there is growing awareness of the relationship between HPV and cervical cancer, it is still misunderstood in many regions, including amongst health professionals. Moreover, in countries where resources for health are stretched, prevention, detection and treatment of STIs takes a back seat in relation to the big three of HIV, TB and malaria, and the ongoing and recurrent basic health problems resulting from poor nutrition, sanitation and lack of basic resources - helminth infections, bacterial infections such as leprosy, and protozoan infections. (8). HPV vaccine requires the introduction of a screening programme, to monitor older cohorts of women and screen vaccinated women at older ages. There is a question about the cost-effectiveness of introducing the vaccine versus a screen and treat programme using lower cost but possibly not as effective methods. Cervical cytology screening programmes are undermined by paucity of pathology and gynaecology back-up services. Vaccination as a method of prevention provides more opportunity to tackle the high risk of cervical cancer, but will mainly benefit younger age cohorts.

Sexuality, Sexual Practice, Sexual Infections

In any culture acknowledgement of sexuality across generations can be difficult. Some sexual health technologies coming on stream (HPV, HIV) might require parents to think in more concrete terms about the sexuality of their adolescent female children, an area which might normally only receive tacit acknowledgement. Zimet et al (9)², argue that people in the USA, UK and Mexico find this vaccine acceptable, although the complex sets of beliefs inherent in any discussion of sexuality will arise in any social setting. A brief review of the literature on sexuality and sexual practice in rural and urban Kenya highlights a sexual economy partially in transition, accommodating new and older ideas, as well as the difficulties that arise with regard to behaviour change in sexual health and sexual infections.

Adolescent sexual activity in urban Kenya has been described as expected, mundane and following a normative script for both men and women (10). A mix of older and ‘modern’ beliefs combine to provide a set of gender norms, including forced sex in many cases and some involvement of the family in establishing or approving the relationship. Young girls and women in many poor areas accept gifts to ‘play sex’ – often financial. This has been interpreted as building on older traditions of bridewealth. Whilst varying cultural groups may have different ideas about appropriate sexual practice, and despite what may really be happening in a young person’s life with or without their parents knowledge and/or consent, sex outside of marriage or at an early age is also described as “bad manners” and parents claim that they don’t know how to influence their children’s behaviour. Alternatively, parents know that the only way they will be able to pay for basic necessities – whether for themselves or for the family – is by overlooking the fact that their children are selling sex.

Sexual activity starts at a young age for many women with men 5-10 years older. Early sex is associated with later health problems, including infertility. A survey in Kenya with over 8000 girls and boys aged 11 - 16 found 53% to be sexually active, the median age of first intercourse being 12 years old(10). Young women living in urban deprived areas of Nairobi tend to initiate sex on average two years earlier than women in more economically stable environments. They typically have significantly more sexual partners over time. This is related to the insecure environments they grow up in or move into, and/or their lack of education, and often the need to earn money through commercial or transactional sex (11).

With regard to safe-sex practice, focus groups held with 94 school-age rural Akamba girls discussed how these girls managed STIs and unwanted pregnancy (12). Despite a high level of knowledge of HIV and other STIs, there was a persisting belief in their own invulnerability amongst the girls. The vast majority of the girls knew about condoms, but the prevailing belief was that good girls could not introduce them to a sexual relationship (in addition to their not being available in a rural location). There was also a great deal of knowledge of traditional means of preventing infection and procuring abortion, and these were frequently relied upon.

The little research available on effective STI interventions with heterosexual men (13) outlines their vulnerability to infection because of similar predominant discourses. The need to demonstrate virility and potency justify multiple sexual partners and the difficulties of accommodating preventive action (condom use). Equally sparse is evaluation of men's involvement in health promotion about women's reproductive health (14). The benefits of men's involvement in discussion and decision making about new technologies is important to gauge, and therefore this sort of information is crucial.

Indicative of a transitional sexual economy, Spronk (15) describes how some urban profes-

sional women in Nairobi are challenging the dominant discourses of female chastity, modesty in appearance and women's value being held in their reproductive function, by occupying spaces and activities previously understood as reserved for men. However, 'playing hard to get', which is used by these women as a screening tool to reveal men's 'intentions', echoes the actions of younger women in poorer areas who hold out for a higher priced 'gift' before agreeing to have sex.

Cultural beliefs about sexuality and the difficulty of behaviour change in sexual practice in all settings have emerged as key influences on rights to sexual health during the last few years of research on HIV/AIDS. As Crichton et al (16) argue, in Africa, sexual rights are often mediated by claimed cultural norms. Difficulties of access to quality, preventive health services compounds sexual health problems.

Accessing sexual health care, and preventive health care

Access to sexual health services is vital to good sexual health. Nairobi is typical of many large and growing cities in the South. Urban slums like Kibera and others present people with problems everyday in accessing the basic resources for a dignified life, including clean water and sanitation. Health care is often a luxury, preventive healthcare even more so.

Sexual health services are provided by a range of providers, including government, private-for-profit, NGO and faith-based health centres and dispensaries. Government clinics and many NGO-run clinics provide consultations and some drugs at low cost or free. However, there are problems with long queues or lack of drug supplies for these subsidized services. There are many informal settlements in Nairobi, and they vary in size, the number of international and local NGOs working there, the number of services and geographical location. Some are better served by health services or closer to hospitals than others.

An alternative is to travel out of the slums to hospitals, although cost of travel is a barrier, as well as costs of services. The preferred method of contraception is often injected, because this is discrete, and relatively easy to manage.

Voluntary counseling & testing services and sometimes family planning providers are available in some of the bigger slums. Some NGOs organise ad hoc health events or mobile units ('health camps') that carry out vaccinations, along with public awareness activities. There are some community-based organizations that provide maternity services for women, although these may be poorly equipped and insufficient to serve the local population. They may also be too expensive for some women.

Some health facilities also provide screening and treatment for sexually transmitted infections. There have recently been campaigns to encourage people to come forward for treatment at government facilities, although many people who can afford to prefer to pay, considering that payment also buys discretion. There is cross referral between HIV services and STI services.

Studies on understanding of cervical cancer among women in Kenya and elsewhere in sub-Saharan Africa (6), (17), (18) look at the reality of undertaking preventive health care in low resource settings. As well as varying understandings of reproductive organs, etiology of infections, causal factors, and methods of detection, there are other priorities; both health and other that took precedence in women's lives. Women in affluent areas are encouraged to screen regularly but there is a low level of awareness of the problem across the country, especially in rural areas.

Acceptability of new SRH technologies; trust in service provision

How does a new SRH technology gain and keep social and cultural acceptance? In addition to beliefs about sexuality and sexual practice, parents and women's understandings of the reproductive

system, and what immunisations do are two considerations. (19). There are many reasons why a SRH technology might not be considered necessary or acceptable. They could include the experience of a neighbour or friend of adverse side effects, or less immediately experiential factors such as local political and/or religious influence, anti-vaccine lobbying, or resistance to what is perceived as colonial legacy or foreign interference, or an interpretation of a new technology as a form of imposed and unsolicited family planning (20). Young people themselves could be reluctant to associate themselves with something stigmatising, because it is associated with sexually transmitted infection (9). These responses are not irrational or due to ignorance (21), but reflect local interpretations of new globalised healthcare technologies (22).

Other studies of health care technologies introduced in Africa have explored some of these issues. Bierlich (23) investigated local understandings of biomedicine and vaccine in Ghana and found an ambivalent attitude towards Western medicine. This was partly because older people had experienced both the success and failures of early vaccine initiatives, but also because of the context within which this happened (the end of the colonial era). Younger people were also wary, interpreting biomedicine as a powerful force external to local culture, to be both respected and treated with caution. Molyneux et al (24) discuss how coastal Kenyans interpret the aims and achievements of a medical research centre, and why injections, hospitals and clinics might be avoided when these were feared to aggravate the spirit believed to be at root of an illness. Experiences during a tetanus campaign in Cameroon during the 1990s highlight a feminine side to the global-local relations at play in the campaign, as the vaccine came to be interpreted as a threat to local reproductive capacity. (25)

This important consideration of trust also relates to what people believe about their local health services, and how this influences their access

to and take-up of services. Introducing a new SRH technology needs to take into account and address these local issues.

Conclusions

Preventive health care is both an individual and a state responsibility. The evidence shows people attempt to take preventive health care measures where they can (contraception, limited use of screening where available) but there are multiple obstacles. Sexual health and sexual infections are gendered development issues. Failure to address the sexual health and sexual rights of adolescent and older women in low resource settings such as Kenya exacerbates the health inequality between industrialised countries and the rest of the world. Middle aged and older women in sub-Saharan Africa may be less politically visible, but they have a significant social role, being household managers, the main providers of food, and wage earners, as well as the mothers of young women. Having had a role in the care of grandchildren, in many places they are more frequently primary carers of children, where a generation of men and women have disappeared due to HIV/AIDS. The impact of sexual infections on this important part of any community needs to be recognised, and demand created for technologies to resolve the problems.

Beyond delivery and access, the appropriateness of a new SRH technology should be explored (26). This includes exploring beliefs about sexualities and sexual practice, the reality of being able to take preventive health behaviour, parental beliefs about children, trust in health services, and beliefs about vaccines, biomedicines and their interaction with ideas about fertility and reproduction. Poverty does not mean that health service provision must always be basic, but it is worth recognising that new technological fixes might not be enough (27). Tried and tested 'older' technologies, adapted to local circumstances, might provide better solutions.

REFERENCES

1. Bonair, A; Rosenfield, P; Tengvald, K (1990) *Medical Technologies in developing countries: issues of technology development, transfer, diffusion and use*. Social Science & Medicine Vol. 28 No. 8 pp769-781
2. Mayaud, P; Mabey, D (2004) *Approaches to the control of sexually transmitted infections in developing countries: old problems and modern challenges*. Sexually Transmitted Infections 80 174-182
3. WHO 2001 *Global Prevalence and Incidence of Selected Curable Sexually Transmitted Infections: Overview and Estimates*
4. De Vuyst et al (2003) *Distribution of Human Papillomavirus in a Family Planning Population in Nairobi, Kenya* Sexually Transmitted Infections Volume 30, February pp137-142
5. Franco, E ; Saslow, D (2003) *The Epidemiology of Cervical Cancer*. Cancer Journal Vol. 9 pp 348-359
6. Gichangi, P; Estamble, B; Bwayo, J, Ojwang, S; Opiyos A & Tmmerman M (2003) *Knowledge and Practice about cervical cancer and Pap smear testing among patients at Kenyatta National Hospital, Nairobi Kenya*. International Journal Gynaecological Cancer 13, 827-833
7. WHO 2005 *Report of the Consultation on Human Papillomavirus Vaccines*
8. Molyneux, DH; Hotez, PJ; Fenwick, A (2005a) *Rapid-Impact Interventions: How a Policy of Integrated Control for Africa's Neglected Tropical Infections could benefit the poor* Public Library of Science Vol. 2 (11) November
9. Zimet, GD; Liddon, N; Rosental, SL; Lazcano-Ponce, E & Allen, B (2006) *Psychosocial Aspects of Vaccine Acceptability* in Vaccine 24S3 S3/201-S3/209
10. Maticka-Tyndale, M, et al (2005) *The sexual scripts of Kenyan young people and HIV prevention* Culture Health and Sexuality Jan 7 (1) 27-41
11. Zulu, E; Ezech, A; Nii-Amoo Dodoo, F (2000) *Slum Residence and Sexual Outcomes: Early Findings of Causal Linkages in Nairobi, Kenya*. African Population & Health Research Council
12. Nzioka, C (2004) *Unwanted Pregnancy and Sexually Transmitted Infection among young women in rural Kenya* Culture, Health and Sexuality Jan – Feb Vol. 6, No. 1 31-44

13. Ndubani, P & Hoger, B (2001) *Sexual behaviour and sexually transmitted infections among young men in Zambia* Health Policy & Planning 16 (1) pp 107-112
14. Sternberg, P & Hubley, J (2004) *Evaluating Men's involvement as a strategy in sexual and reproductive health promotion* Health Promotion International Vol. 19 No. 3
15. Spronk, R (2005) *Female Sexuality in Nairobi: Flawed or favoured?* Culture Health and Sexuality May – June 7 (3) 267-277
16. Crichton, J; Nyamu-Musembi, C; John-Langba, J & Theobald, S (2006) *Sexual and Reproductive Health Rights in Africa* The Lancet Vol 367 June 24 pp 2043-5
17. Gatune, JW & Nyamongo, IK *An Ethnographic study of cervical cancer among women in rural Kenya: is there a folk causal model?* International Journal of Gynaecological Cancer, 15, pp 1059-59
18. Wood, K; Jewkes, R & Abrahams, N (1997) *Cleaning the womb: constructions of cervical screening and womb cancer among rural black women in South Africa.* Social Science and Medicine Vol. 45 No.2 pp283-294
19. Leach, M (2006 a) *Making Vaccine Technologies work for the poor.* IDS Policy Briefing Issue 31 May
20. Streefland, P; Chowdhury, AMR; Ramos-Jimenez: P *Patterns of Vaccination Acceptance* Social Science and Medicine 49 1705-1716
21. UNICEF 2002 *Combating Anti-vaccination rumours: lessons learned from case studies in East Africa.* UNICEF Eastern and Southern Africa Office, Nairobi, Kenya
22. Leach M (2006 b) *Beyond Rumour and Resistance: Blood stealing and genocide allegations as public engagement with globalised health technocracies.* Paper presented at Innogen 5-6 September 2006
23. Bierlich, B (2000) *Injections and fear of death: an essay on the limits of biomedicine among the Dagomba of northern Ghana* Social Science and Medicine 50 pp 703-713
24. Molyneux, DH; Peshu, N & Marsh K (2005b) *Trust and Informed consent: insights from community members on the Kenyan Coast.* Social Science and Medicine 61 1463-1473
25. Feldman-Savelsberg, P; Ndonko, FT; Schmidt-Ehry, B (2000) *Sterilizing Vaccines or the Politics of the Womb: retrospective study of a rumour in Cameroon* Medical Anthropology Quarterly 14 (2) 159-197
26. Spicehandler J & Simmons R *Contraceptive introduction Reconsidered: A review and Conceptual Framework* WHO 1994
27. Leach, M & Scoones, I (2006c) *The Slow Race: Making Technology work for the poor,* DEMOS