



OPEN ACCESS

“There are bugs in condoms”: Tanzanian close-to-community providers’ ability to offer effective adolescent reproductive health services

John Dusabe,¹ Zaina Mchome,² Soori Nnko,³ John Changalucha,⁴
Angela Obasi⁵

¹Research Assistant, Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, UK

²Researcher, Tanzania National Institute for Medical Research, Mwanza, United Republic of Tanzania

³Principal Research Scientist, Tanzania National Institute for Medical Research, Mwanza, United Republic of Tanzania

⁴Principal Research Scientist and NIMR Mwanza Director,

Tanzania National Institute for Medical Research, Mwanza, United Republic of Tanzania

⁵Senior Clinical Lecturer, Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, UK

Correspondence to

Dr John Dusabe, Department of International Public Health, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA, UK; john.dusabe@lstm.ac.uk

Received 21 February 2014

Revised 8 September 2014

Accepted 21 October 2014

To cite: Dusabe J, Mchome Z, Nnko S, et al. *J Fam Plann Reprod Health Care* Published Online First: [please include Day Month Year] doi:10.1136/jfprhc-2014-100915

ABSTRACT

Objectives Young people in Tanzania are known to access reproductive health services from a range of close-to-community providers outside formal health settings such as drug stores, village AIDS committees, traditional healers and traditional birth attendants (TBAs). However, questions remain about the quality of services such agents provide. This study investigated their capacity to provide adolescent reproductive health (ARH) services and explored their readiness and ability to integrate with the mainstream health sector through community referral interventions.

Methods Thirty-five focus group discussions exploring close-to-community provider experiences and attitudes to ARH service provision were carried out in two districts in Northern Tanzania. Discussions were conducted in Kiswahili, digitally recorded, verbatim-transcribed, translated and back-translated from Swahili to English. A thematic analysis was conducted using NVivo 9.

Results The major close-to-community cadres providing reproductive health services were drug stores, traditional healers, TBAs and village health workers. They reported being the first port of call for adolescents seeking reproductive health services, but their knowledge of ARH needs was poor. They had negative attitudes to, and lacked the necessary resources for, the provision of such services for adolescents. Some were particularly unwilling to provide condom services and were prejudiced against adolescents using them. There was poor integration between the close-to-community providers and the formal health sector, further limiting their ability to provide adequate services.

Key message points

- ▶ Close-to-community service providers continue to be the first port of call for adolescent reproductive health needs in Tanzania.
- ▶ Unfortunately these providers lack appropriate knowledge, skills and attitudes, and this could lead to adverse reproductive health outcomes.
- ▶ These providers are, however, willing to engage with the formal sector, which could provide a much needed entry point for expanded reproductive health service access for adolescents.

Conclusions Although close-to-community providers are considered a key resource in the community, most have limited capacity to provide ARH services. Without capacity-building investments such as training and cooperation with the mainstream health sector, their contribution to positive reproductive health outcomes is limited, or could indeed lead to adverse outcomes.

INTRODUCTION

Adolescent reproductive health (ARH) outcomes in Africa are the worst in the world.¹ For this reason, the World Health Organization (WHO) has strongly promoted youth-friendly reproductive health services for over a decade; however, targets for service access,

uptake and funding remain unmet.^{2–3} Infrastructural limitations including health system failures,^{4–5} extreme lack of human resources, irregular medicine supply,⁶ inaccessibility due to long distances,⁷ and inflexible work routines combine with poor attitudes of government health workers⁸ to limit the effectiveness of public sector ARH service provision. Against this background, ‘close-to-community’ providers such as private drug vendors and traditional healers are often the first port of call for adolescents with reproductive health needs.⁹ Such close-to-community providers are perceived to be more convenient than government service providers such as clinical officers based in dispensaries and health centres.^{10–11} For this reason, health planners have increasingly explored different strategies for community-based and lay reproductive and maternal health service provision.^{12–15}

However, it is unclear what capacity close-to-community agents have to provide effective reproductive health services for adolescents. We report the results of a study examining the experience, attitudes and capacity of a range of close-to-community providers of such services, as well as their readiness and ability to integrate with the mainstream health sector. For the purpose of this study, we define a close-to-community provider as any service provider at the community level offering one or more of a range of ARH services including contraception, antenatal care, obstetric services, sexually transmitted infection (STI) and HIV services, counselling and support. We adopt the WHO definition of adolescence, namely anyone who is 10–19 years of age.¹⁶

METHODS

Study setting

We aimed to determine which cadres of close-to-community providers were providing reproductive services to adolescents in nine communities in two districts (Magu and Sengerema) in Mwanza Region on the northwest shore of Lake Victoria; what services they offered; their skills and capacity to provide them; their attitudes towards ARH; and their attitudes to cooperation with the mainstream health sector, especially referral of their clients to formal health facilities. These providers were selected from communities that were stratified into rural, urban and high-risk clusters. We also included formal health service providers from government dispensaries and health centres to triangulate views on community referral and integration.

Study type and participant selection

Cadre-specific focus group discussions (FGDs) with 8–14 participants were conducted in order to capture the consensus view on the respective experiences and attitudes^{17–18} to ARH. FGDs were facilitated by senior researchers from the Tanzania National Institute for Medical Research (NIMR) Mwanza. The FGDs were conducted in February 2011 at central locations (e.g.

schools, health centres or village offices). Village executive officers invited eight people per cadre to participate in planned FGDs; however, word-of-mouth spread of information about the study led to greater numbers of participants than expected. In view of the distance they had travelled, additional participants could not be turned away.

Ethical considerations

Ethical approvals were obtained from the Liverpool School of Tropical Medicine Research Ethics Committee and the Tanzania Medical Research Coordinating Committee. Permission was obtained from administrative leaders at the regional, district and ward levels, and informed written consent was sought from all participants.

Data collection and analysis

FGD guides were prepared, pretested in the field and revised to incorporate the views of pre-test participants. Discussion focused on skills, attitudes and practices in family planning and contraception, antenatal care and maternal delivery, HIV and STI prevention and treatment as well as post-abortion care. After each round of discussion the guide was further tuned to key themes based on reflection on the previous FGDs. The discussions were digitally recorded, transcribed in Kiswahili language and translated into English. Using NVivo™ 9 Software (QSR International, Doncaster, Victoria, Australia), the transcripts were analysed using a thematic framework based on nodes that were deductively drawn from predefined themes in the discussion guide.¹⁹

RESULTS

We conducted 35 FGDs with a total of 323 close-to-community providers distributed among nine cadres as shown in Table 1. Six key themes were identified as follows:

- 1 Knowledge, skills and attitudes towards ARH
- 2 ARH services offered by close-to-community providers
- 3 ARH needs and close-to-community providers' ability to provide them
- 4 Close-to-community providers' training
- 5 Community referral
- 6 Preferred referral service.

Theme 1: Knowledge, skills and attitudes towards ARH

Most close-to-community providers were subject to a number of serious misconceptions and negative attitudes about ARH. Specifically, they had negative attitudes towards provision of reproductive health services to adolescents and expressed hostility to ARH rights; dismissing the right of adolescents to choose when and where to seek reproductive health services or when to use contraceptives as nonsense.

In particular, they were reluctant to advise adolescents to use condoms. Some maintained the belief

Table 1 Summary of close-to-community providers' views within the emerging themes

Themes/ provider	Dispensaries	Drug shops	Home-based care volunteers	Village AIDS committees	Social workers	Village health workers	Traditional birth attendants	Traditional healers	Youth clubs
ARH knowledge, beliefs attitudes and practices	We do not give antenatal care services to women without husbands Adolescents are promiscuous Adolescents fear us No facilities to offer confidential youth-friendly services	Adolescents are promiscuous We can't give condoms to young adolescents as they are not old enough to have sex	Adolescents should stop bad behaviour of sexual intercourse	We can reveal to parents when their children ask for condoms We are a close-knit community, my nephew can't ask for condoms and I keep quiet	Adolescents shouldn't have sex when still young	It is our prerogative to decide what RH services adolescents can access, a child is raised by the village	No reported negative attitude among the participating traditional birth attendants	We can't give fertility information to adolescents because they're still young	No reported negative attitude among the participating youth clubs
Services offered	Syndromic STI diagnosis and treatment Contraceptives including VCT Antenatal and postnatal care Referral Health education	Sale of drugs including antibiotics, condoms Advice on medicines and dosages Limited referral to formal health services Health education and promotion	Guidance Palliative care Counselling HIV test ART adherence counselling Referral	Condom and family planning education Advice and referral to health facilities	Home visits Palliative care Counselling	Education Counselling Health education and promotion Distribution of condoms Referral	Home delivery Midwife duty Assistance at dispensary Pregnancy education and referral	Herbal remedies Counselling Infertility treatment Abortions, home births, treatment of STIs	Condom distribution Peer-counselling and education Advocacy
Main RH needs of adolescents	Family planning, HIV prevention (mainly condoms) STI treatment Delivery, abortion	Condoms Pregnancy information STI treatment	Condoms, counselling Welfare support	Condoms AIDS information	Condoms AIDS information	Condoms, information, leaflets on AIDS	Pregnancy care Mostly maternal delivery services	Fertility inquiries and STI treatment	Condoms and leaflets on AIDS
Unmet RH needs of adolescents	Youth-friendly services, abortion (illegal), complex FP, HIV testing, ARV initiation	STI testing, FP, abortion	FP	FP, counselling	FP	FP, STI treatment	HIV-related services, home-based antenatal care. Maternal delivery of first or fifth birth	None	HIV counselling, FP
Community referral	We refer patients to drug shops when there are no drugs at the dispensary, to health centres for complicated services	We refer to dispensaries for prescriptions	We refer to dispensaries and village health workers	We refer to dispensaries	We refer to dispensaries	We refer to dispensaries	We refer to dispensaries	We don't refer People come to us from dispensaries	We refer to dispensaries and village health workers
Preferred referral intervention	We want to control delivery of all RH service delivery All should refer to us	Our contribution to PHC should be recognised We need formal integration with dispensaries	More connections with the dispensaries Referral forms are not confidential	Dispensaries should raise awareness We need an ambulance service	We need outreach activities in the communities conducted by health facilities	We need transport facilitation to accompany patients to dispensaries	We need training and resources to conduct home deliveries	We need formal recognition by the health services	We want more health education in the communities, and facility support for youth initiatives

ARH, adolescent reproductive health; ART, antiretroviral therapy; ARV, antiretroviral; FP, family planning; PHC, primary health care; RH, reproductive health; STI, sexually transmitted infection; VCT, voluntary counselling and testing.

that condoms were impregnated with HIV, while others believed that condoms could cause cancer.

“There are bugs in condoms... they have been put in condoms to control our population through HIV infections.” [FGD #17, Traditional healers]

Such sentiments were also linked to doubts on the general purpose of family planning interventions:

“... people in this village know that using family planning a person won't bear children ever again. So you cannot tell someone who is 18 years old to use it, they can't accept because they want to have children.” [FGD #17, Traditional healers]

Theme 2: ARH services offered by close-to-community providers

Drug shops mainly sell medicines. However, whilst they are only licensed to sell non-prescription drugs and items such as analgesics and condoms, they reported treating STIs and selling antibiotics. They also offer health education and promotion services as well as counselling.

Home-based care volunteers and social workers reported their main services to be palliative care, education and counselling.

Village AIDS committees are selected by communities and mostly comprise older people. They felt that provision of guidance on HIV prevention including condom use, education and informal referral to health facilities in the community was their responsibility; however, clinical officers from dispensaries did not corroborate that these referrals take place. In addition, Village AIDS committee members stated that if consulted by adolescents on reproductive health issues they would disclose the discussion to parents.

Village health workers (also known as community health workers) reported providing counselling, distribution of condoms and referral to health facilities.

Traditional birth attendants conducted home births and provided advice to pregnant mothers. In one community, TBAs worked 1 day per week at dispensaries helping with deliveries. This was corroborated by clinical officers.

Traditional healers, the largest group of close-to-community providers, were the least likely to have had any form of training, despite the range of services that they claim to provide; including infertility treatment, abortions, home births and treatment of STIs using herbal remedies and charms.

Youth clubs distributed condoms in the community and provided counselling.

Theme 3: ARH needs and close-to-community providers' ability to meet them

All close-to-community providers reported that the main reproductive health need of the adolescents was condoms. The next most requested service was information on HIV prevention, pregnancy and family planning.

The close-to-community providers and dispensary clinicians also highlighted a number of specific reproductive health demands that they were not able to meet. For example, dispensaries could not offer complex family planning services such as sterilisation, and although they could not provide abortion due to its illegality in Tanzania, its need amongst adolescents was reported to be on the rise. Youth-friendly service provision was also difficult for some due to lack of space.

“To be frank adolescents do not like our dispensary because of lack of space. There is no confidential room where I can take an adolescent and listen to her in private. The consultations are done in an area where everybody has access. Adolescents are scared of coming because the moment they find someone they know, they tend to turn around and go back home.” [FGD #33, Clinical officers]

Some drug sellers complained of being consulted for STI treatment but unable to provide it, as they are not licensed to do so:

“We can't treat STIs. Maybe the government should permit us to sell STI drugs so that when people don't get them at the dispensary they can come and buy them from us.” [FGD #17, Drugstore attendants]

Close-to-community providers also felt that the demand for information and other reproductive health services could not be met as they lack the ability or resources.

Theme 4: Close-to-community providers' training

Most close-to-community providers did not have any training except drugstore attendants and dispensary clinical officers who said they had certificates in drug dispensing and diplomas in clinical medicine, respectively. Community health workers, home-based care volunteers and social workers reported receiving orientations from various civil society organisations promoting HIV prevention in the community, although the level and quality of such orientations to provide ARH services was unclear. The other close-to-community providers had received no training or orientation, and all except dispensary staff felt that they had limited knowledge on ARH and requested further training. Unfortunately verification of the actual level of training attained by the close-to-community providers was beyond the scope of our study.

Theme 5: Community referral

Our FGDs explored the acceptability of establishing community referral mechanisms from close-to-community providers to formal health facilities (i.e. dispensaries and health centres). We established that referral is done informally between close-to-community providers, for example, from village health workers to TBAs. Referrals from drug shops to dispensaries were also reported:

"Patients come saying they have been sent by drug shops to get injections." [FGD # 31, Clinical officers]

Theme 6: Preferred referral service

Participants discussed ideal community referral interventions to increase adolescents' access to reproductive health services. They wanted linkages and connections with formal health facilities as well as recognition and integration into the health sector.

Dispensaries were also willing to work with drug shops saying:

"We have skills but lack medicines at the dispensary, but drug shops have medicines they do not know how to prescribe, if we had a linkage, we could fill the gaps." [FGD #8, Clinical officers]

Drug sellers also stated that linkages to dispensaries would be beneficial to them:

"We could refer any patient for prescription before we sell the medicines [...] we need collaboration so that what we tell adolescents is accepted at the health centres when they go there." [FGD #17, Drugstore attendants]

Table 1 summarises the close-to-community providers' views within the themes discussed above.

DISCUSSION

Improved integration of close-to-community providers into formal health services has been identified as a strategy to strengthen health service provision.²⁰ Training and involvement of close-to-community provider cadres is included in the Tanzania National Strategic Plan 2009–2015.²¹ However, our findings suggest that despite activities by the Government of Tanzania Ministry of Health and Social Welfare to engage this segment of the health sector²² the capacity of community-based providers to offer effective adolescent reproductive health services is poor.

Our study systematically explored views about ARH across 10 cadres of close-to-community providers in nine communities in two districts in Tanzania. The large number of FGDs utilised in this study and the stratification of communities to include rural, urban and high-risk increases the representativeness of our findings, and makes this one of the largest studies of its kind.^{23 24} However, although large, representative and inclusive, this study is not without limitations.

First, while we emphasised the need for confidentiality and set clear ground rules during each session, FGDs are a communal activity and disclosure is dependent on the degree of trust generated within the discussion group. It is therefore possible that some close-to-community providers did not fully express their views out of embarrassment or fear of retribution. The use of the village executive officers as an entry point may also have led to unknown biases arising from local and interpersonal relationships;

however, we hope that the large number of participants and geographical breadth of the study has offset some of this bias.

There was no gender or age separation within the cadre-specific groups as we believed service provision to be a topic that both male and female participants within a cadre could discuss openly; however, the presence of older male participants could well have inhibited younger or female participants from speaking their minds extensively. Whilst this did not appear to be the case from a review of field reports, there may have been subtle inhibitions of which the researchers were unaware.

Overall, our results suggest that levels of knowledge about ARH among close-to-community providers remains poor and attitudes negative. Misconceptions and mistrust are especially demonstrated through observed perceptions that HIV has been put into condoms to harm the public. These misconceptions date back to the very early days of the HIV epidemic and it is disappointing that they persist despite the substantial and varied community information campaigns that have been implemented over the past two decades.^{23 25}

Strongly held close-to-community provider views about adolescent sexual behaviour are based on cultural norms, which are difficult to change. There is a need to develop and model rights-based approaches to reduce judgemental views on adolescents' sexuality.

The perceived increase in demand for condoms among adolescents beyond the available supply could suggest that the number of adolescents seeking protection during sex is increasing. Other HIV-prevention interventions have reported increases in this demand,^{26 27} however, such trends are difficult to interpret. Whilst it may mean that decades of health promotion strategies are finally translating into increased condom use, it could also represent increasing numbers of sexual encounters among adolescents. The latter could explain the high reported demand for abortion services in this population.

Abortion is illegal in Tanzania and not formally offered in health facilities. However, our findings suggest that abortions are being sought by adolescents, potentially leading to increased numbers of unsafe abortions being carried out. Whilst reported data of this kind are a good indicator of perceptions, they must be interpreted with caution in the absence of quantitative documentation of actual condoms dispensed or abortions conducted.

We also found that close-to-community providers' services are largely fragmented and under-resourced. The close-to-community providers are juggling HIV/STI, family planning and maternal health in large populations with very little capacity. They promote themselves as providers of these services, even though they are not in a position to offer them effectively. Notwithstanding this, research shows that some

close-to-community providers such as drug shops are more popular than mainstream health services.^{24–28} It means that close-to-community providers have the potential to powerfully influence health outcomes in the communities. A systematic review of evidence on health care workforce task-shifting demonstrated that issues identified in our study such as training and integration were key to improving health outcomes in communities where largely untrained and unsupported human resources are to be deployed.²⁹

Our study also explored opportunities for integration. For example, dispensaries with staff who have diagnostic and prescribing skills often lack supplies of medicines,^{30–31} whereas drug shops where such skills are lacking may have stocks of these medicines. At the time of writing the Ministry of Health was upgrading drug stores into accredited drug distribution outlets (ADDO) with a licence to sell controlled medicines, and our respondents were open to referral between government dispensaries and drug sellers. Further development of the ADDO programme to include linkages with local dispensaries could significantly improve accessibility of skilled reproductive health services and effective treatment.

Our findings suggest that TBAs may be one of the effective cadres in the community. In our FGDs, TBAs reported weekly participation in facility-based, in addition to house-to-house, visits. Although evidence on population-level benefits of TBA involvement in maternal health is equivocal,³² a recent study in southern Tanzania reported that only 46.7% ($n=974$) of women delivered in a health facility.³³ We argue that the popularity of TBAs at the community level cannot be ignored. The regular use of their services, even at the institutional level as demonstrated in the present study, indicates a continued need for their role. Improving the capability of TBAs to provide ARH services is an option worth considering in the context of Tanzania.

Close-to-community providers' potential to provide effective services is limited by their low capacity and skills, negative attitudes and lack of resources. Other researchers have argued that training, integration and provision of resources to close-to-community providers is important if the health system achievements they contribute to are to be realised.²⁰ Our findings suggest that currently this training is lacking and that there have been few integration efforts to include the close-to-community providers in the health system or to address their lack of capacity and resources. A mechanism to continually improve their attitudes towards ARH would also be necessary.

CONCLUSIONS

Close-to-community providers, known to be the first port of call for many adolescents seeking health care in Tanzania, continue to have negative attitudes towards the provision of ARH services, family

planning and condom use. Although they lack training, skills or resources to provide effective ARH care, they are open to integration with the formal health sector. Potentially therefore they could provide an entry point for expanded access to reproductive health services, but only with significant skills building and training to address negative attitudes.

Acknowledgements The authors thank the participants, focus group moderators, transcribers and translators. Everyone who contributed significantly to this study has been listed as a co-author.

Funding This study was funded by the 7th Framework Programme, European Commission (Grant No. 242173).

Competing interests None.

Ethics approval Liverpool School of Tropical Medicine Research Ethics Committee and Medical Research Coordinating Committee of Tanzania Commission for Science and Technology.

Provenance and peer review Not commissioned; externally peer reviewed.

Open Access This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/3.0/>

REFERENCES

- 1 Patton GC, Coffey C, Cappa C, *et al.* Health of the world's adolescents: a synthesis of internationally comparable data. *Lancet* 2012;379:1665–1675.
- 2 Bernstein S, Say L, Chowdhury S. Sexual and reproductive health: completing the continuum. *Lancet* 2008;371:1225–1226.
- 3 United Nations. *The Millennium Development Goals Report 2013*. 2013. <http://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013-english.pdf> [accessed 6 September 2014].
- 4 World Health Organization (WHO). *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes: WHO's Framework for Action*. Geneva, Switzerland: WHO, 2007.
- 5 Richard F, Hercot D, Ouédraogo C, *et al.* Sub-Saharan Africa and the health MDGs: the need to move beyond the “quick impact” model. *Reprod Health Matters* 2011;19:42–55.
- 6 World Health Organization (WHO). *The World Medicines Situation*. Geneva, Switzerland: WHO, 2004.
- 7 Williams HA, Jones COH. A critical review of behavioral issues related to malaria control in sub-Saharan Africa: what contributions have social scientists made? *Soc Sci Med* 2004;59:501–523.
- 8 Renju J, Andrew B, Nyalali K, *et al.* A process evaluation of the scale up of a youth-friendly health services initiative in northern Tanzania. *J Int AIDS Soc* 2010;13:32.
- 9 Nguyen H, Snider J, Ravishankar N, *et al.* Assessing public and private sector contributions in reproductive health financing and utilization for six sub-Saharan African countries. *Reprod Health Matters* 2011;19:62–74.
- 10 Atuyambe L, Mirembe F, Annika J, *et al.* Seeking safety and empathy: adolescent health seeking behavior during pregnancy and early motherhood in central Uganda. *J Adolesc* 2009;32:781–796.

- 11 Mullan F, Frehywot S. Non-physician clinicians in 47 sub-Saharan African countries. *Lancet* 2008;370:2158–2163.
- 12 Pagel C, Lewycka S, Colbourn T, *et al.* Estimation of potential effects of improved community-based drug provision, to augment health-facility strengthening, on maternal mortality due to post-partum haemorrhage and sepsis in sub-Saharan Africa: an equity-effectiveness model. *Lancet* 2009;374:1441–1448.
- 13 Stanback J, Otterness C, Bekiita M, *et al.* Injected with controversy: sales and administration of injectable contraceptives in drug shops in Uganda. *Int Perspect Sex Reprod Health* 2011;37:24–29.
- 14 Stanback J, Mbonye AK, Bekiita M. Contraceptive injections by community health workers in Uganda: a nonrandomized community trial. *Bull World Health Organ* 2007;85:768–773.
- 15 World Health Organization. *Task Shifting to Tackle Health Worker Shortages*. 2007. http://www.who.int/healthsystems/task_shifting_booklet.pdf [accessed 6 September 2014].
- 16 World Health Organization (WHO). *Adolescent Friendly Health Services: An Agenda for Change*. Geneva, Switzerland: WHO, 2002.
- 17 Kitzinger J. The methodology of focus groups: the importance of interaction between research participants. *Sociol Health Illn* 1994;16:103–121.
- 18 Ryan M, Scott D, Reeves C, *et al.* Eliciting public preferences for healthcare: a systematic review of techniques. *Health Technol Assess* 2000;5:1–186.
- 19 Joffe H, Yardley L. Content and thematic analysis. In: Marks DF, Yardley L (eds), *Research Methods for Clinical and Health Psychology*. London, UK: Sage, 2004:56.
- 20 Haines A, Sanders D, Lehmann U, *et al.* Achieving child survival goals: potential contribution of community health workers. *Lancet* 2007;369:2121–2131.
- 21 The United Republic of Tanzania Ministry of Health and Social Welfare. *Tanzania Health Sector Strategic Plan III July 2009–June 2015: “Partnership for Delivering the MDGs”*. 2009. http://www.unfpa.org/sowmy/resources/docs/library/R226_MOHTanzania_2009_HSSP_III.pdf [accessed 15 April 2012].
- 22 Mayombana C, Jenkins J, de Savigny D, *et al.* Training of village health workers in Tanzania; a comparison of two approaches. *Trop Doct* 1990;20:63.
- 23 Epsley EJ, Nhandi B, Wringe A, *et al.* Evaluation of knowledge levels amongst village AIDS committees after undergoing HIV educational sessions: results from a pilot study in rural Tanzania. *BMC Int Health Hum Rights* 2011;11:14.
- 24 Nina V, Willbrord K, Phare M, *et al.* Practical knowledge and perceptions of antibiotics and antibiotic resistance among drugsellers in Tanzanian private drugstores. *BMC Infect Dis* 2010;10:270.
- 25 Plummer ML, Wight D, Wamoyi J, *et al.* Farming with your hoe in a sack: condom attitudes, access, and use in rural Tanzania. *Stud Fam Plann* 2006;37:29–40.
- 26 Ross DA, Changalucha J, Obasi AIN, *et al.* Biological and behavioural impact of an adolescent sexual health intervention in Tanzania: a community-randomized trial. *AIDS* 2007;21:1943.
- 27 Foss AM, Hossain M, Vickerman PT, *et al.* A systematic review of published evidence on intervention impact on condom use in sub-Saharan Africa and Asia. *Sex Transm Infect* 2007;83:510–516.
- 28 Mills A, Brugha R, Hanson K, *et al.* What can be done about the private health sector in low-income countries. *Bull World Health Organ* 2002;80:325–330.
- 29 Callaghan M, Ford N, Schneider H. A systematic review of task-shifting for HIV treatment and care in Africa. *Hum Resour Health* 2010;8:8–16.
- 30 Center for Pharmaceutical Management. *Access to Essential Medicines: Tanzania, 2001*. Prepared for the Strategies for Enhancing Access to Medicines Program. Arlington, VA: Management Sciences for Health, 2003.
- 31 The United Republic of Tanzania Ministry of Health. *Second Health Sector Strategic Plan (HSSP) (July 2003–June 2008): “Reforms Towards Delivering Quality Health Services and Clients Satisfaction”*. 2003. <http://ihi.eprints.org/803/> [accessed 6 September 2014].
- 32 Sibley L, Sipe TA, Koblinsky M. Does traditional birth attendant training improve referral of women with obstetric complications: a review of the evidence. *Soc Sci Med* 2004;59:1757–1768.
- 33 Mpembeni R, Killewo J, Leshabari M, *et al.* Use pattern of maternal health services and determinants of skilled care during delivery in Southern Tanzania: implications for achievement of MDG-5 targets. *BMC Pregnancy Childbirth* 2007;7:29.