

Responding to the AIDS Epidemic in Africa*

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Abstract

The proposed project aims to expand understanding of the local response to an epidemic in a resource-poor setting. Using the severe AIDS epidemic in rural Malawi, a very poor country with high HIV prevalence and low bureaucratic development, we will use mixed methods to explore how local actors respond to the AIDS epidemic, including the local implementation of global policies and HIV/AIDS interventions. In addition to addressing a set of more general questions with implications for a wide range of foreign aid activities, we propose to implement a field experiment to evaluate an HIV intervention in rural Malawi.

1 Introduction

The central aim of the proposed project is to expand understanding of the local response to an epidemic in a resource-poor setting. Using the severe AIDS epidemic in rural Malawi, a very poor country with high HIV prevalence and low bureaucratic development, we will use mixed methods to explore how local actors respond to the AIDS epidemic, including the local implementation of global policies and HIV/AIDS interventions. Although international, national, and local actors may share a common goal—in this case to mitigate the impact of AIDS—do they also have other, perhaps divergent, interests that they are simultaneously trying to maximize? If so, what are these interests, and do they vary across actors in ways that are likely to lead to variation in the provision or efficacy of interventions? Finally, but more speculatively, what do our findings suggest about ways to improve our collaborative efforts at providing humanitarian assistance? In addition to addressing a set of more general questions with implications for a wide range of foreign aid activities, we propose to implement and evaluate an HIV intervention in rural Malawi.

*This research proposal was prepared for the UCLA Methods Workshop, January 10, 2008 especially to solicit feedback on the field experiment component, but suggestions or comments on any aspect of the proposal are welcome.

The specific aims of the planned study are:

1. To test at the local level the impact of disseminating AIDS research findings on AIDS knowledge;
2. To compare messenger effects in HIV prevention messages to professed degrees of trust of varying messengers; and
3. To study the concrete way rural Malawians prioritize public policies during an epidemic.

2 Background and Significance

HIV/AIDS is one of the most important public policy challenges faced by African governments today. International donors have responded to the crisis with compassion, and have generously supported humanitarian interventions to prevent the spread of HIV and to mitigate the effects of AIDS in the severely resource-constrained countries in the region. With a few exceptions, however, there is little evidence that these interventions have been effective in stemming the tide of the epidemic: despite more than a decade of effort, HIV prevalence rates have been fairly stable in sub-Saharan Africa (Asamoah-Odei, Calleja, and Boerma, 2004). Increasing knowledge and awareness about HIV/AIDS in areas experiencing a generalized epidemic is championed as an important way to encourage behavior change (Quigley et al., 2004; Bloom et al., 2000; Gregson et al., 1998), which is argued to subsequently decrease the spread of HIV (Gregson et al., 2006; Stoneburner and Low-Beer, 2004; Asiimwe-Okiror et al., 1997). It is argued that armed with knowledge about HIV, people will change their behavior to reduce their chances of becoming infected, subsequently reducing the incidence of HIV in the population. Calls for monitoring and evaluation of interventions have been on the rise (Boily et al., 2007; Bennett, Boerma, and Brugha, 2006; Stephenson, 1999), but objective measurements of the impacts of behavior change interventions are still scarce (Wegbreit et al., 2006; Quigley et al., 2004; Grassly et al., 2001; Aral and Peterman, 1998).¹ In addition to studying more generally the interventions against HIV/AIDS in Malawi, this study aims to specifically account for the impact of an HIV intervention.

As part of my dissertation project on the provision of AIDS programs in sub-Saharan Africa, we propose a field experiment to test the effects of disseminating research findings on a population's HIV knowledge and attitudes. Considered the "gold standard," randomized controlled trials aim to eliminate the influence of variation in contextual factors in assessing the impact of interventions (Grassly et al., 2001; Stephenson, 1999). HIV prevention interventions typically focus on promotion of condom use, increased availability of HIV testing and counseling, treatment of sexually transmitted infections and, more recently, male circumcision. One explanation of Africa's exceptional HIV problem is the greater prevalence

¹Notable exceptions include Quigley et al. (2004); Kamali et al. (2003).

of concurrent partnerships (Halperin and Epstein, 2004; Morris and Kretzschmar, 1997), but how could an intervention be designed to decrease concurrent partnerships? The study proposed here presents an opportunity to study a prevention intervention that considers the role of concurrent partnerships in spreading HIV. Our intuition is that if it was generally known and accepted by those at risk that HIV infection was not certain with one coital act, but more likely in a relationship sustained over time, that some individuals would therefore leave partners they suspect are infected with HIV instead of assuming they themselves are already infected.

In addition to testing the impact of disseminating information on the transmissibility of HIV, the field experiment will provide evaluation of possible policy options (Duflo, 2006). Should the intervention prove effective, a variation in the treatment—in this case, the messenger delivering the prevention message—allows us to test the most efficacious way to deliver the message.

The proposed research also aims to study how rural Malawians rank order public priorities during an epidemic. In the West, people think about Africa first and foremost as a place suffering from AIDS; in the rush to stem the tide of the AIDS pandemic, many international actors forget about the many other day-to-day concerns of Africans.² We hope to represent more accurately the policy preferences of rural Africans experiencing the AIDS pandemic firsthand and to ask whether being infected/affected has an impact on one's policy preferences.

This study is informed by the nascent HIV/AIDS scholarship in the field of political science. As with studies of foreign aid in general, the literature usually centers on the national response to AIDS (Lieberman, 2007; Gauri and Lieberman, 2006; Patterson, 2006; Boone and Batsell, 2001), typically with a focus on national leaders (Bor, 2007; Patterson, 2005).³ However, a complete understanding of interventions requires extending the analysis beyond national-level decision-making to examine the role of local actors. Though the study here aims to have ramifications beyond the rural Malawi context in which the study will take place, the micro-level context was chosen explicitly to study the import of local actors.

3 Preliminary Research

Analysis of preliminary data from the most recent round of the Malawi Diffusion and Ideational Change Project (MDICP)⁴ show the great majority of respondents think HIV

²A recent article in the *Los Angeles Times* actually shows how international donations for HIV/AIDS can have deleterious effects on other basic healthcare needs (Piller and Smith, 2007).

³Notable exceptions that consider the role of local actors in humanitarian interventions include Gibson (1999) and Gibson et al. (2005).

⁴The MDICP is four-phase longitudinal study in three regions of rural Malawi. The project's overarching goal is to investigate the role of social processes in modern family planning and HIV/AIDS. In addition to a broad collection of qualitative data, the MDICP has gathered individual-level data on HIV/AIDS, sexual

infection is certain or very likely during one act of intercourse with an infected person (see Table 1). In actuality, the transmission rate of HIV is much lower.⁵ Less than one percent of the MDICP sample responded with the actual likelihood of transmission after one coital act: low. Beliefs about the HIV transmission rate are inconsistent with the otherwise correct AIDS knowledge MDICP respondents demonstrate regarding other aspects of the disease. For example, the overwhelming majority of respondents in the sample knew that: (1) a mother could transmit HIV to her unborn child; (2) a mother could pass HIV to her child via breastmilk; (3) one can become infected after having sex with a healthy-looking person; and (4) there is no cure for AIDS (see Table 2). Why are rural Malawians wrong about the transmissibility of HIV? Would they respond differently following a presentation of the actual rate of transmission of HIV?

Table 1: HIV Transmissibility After One Coital Act

	% Men	% Women
Certain	63.85	57.91
High	34.73	40.95
Low	0.92	0.96
None	0.33	0.12
Don't Know	0.17	0.06

N= 2863. The survey question reads: "If you have unprotected sex only one time with a person infected with HIV/AIDS, what do you think are the chances that you will get HIV/AIDS from him/her?"

Source: Preliminary MDICP-4 Data (2006)

Furthermore, how would new information about HIV transmissibility affect attitudes? The 2006 round of the MDICP asked questions to better understand attitudes about HIV/AIDS and relationships. For example, one question asked whether it was proper for a wife to leave her husband if she thought he might be infected with HIV; the majority responded no (see

behavior, religion, health, and economics. The MDICP has collected an unusually rich data set consisting of a longitudinal survey, the collection of biomarkers for HIV and other sexually-transmitted infections, village-level data, data on faith-based organizations and on sexual networks, and related qualitative projects. More about the MDICP can be found online at: <http://www.malawi.pop.upenn.edu>.

⁵Following a study of monogamous, heterosexual discordant couples in Rakai, Uganda, Gray et al. (2001) estimate the overall probability of transmission per coital act was 0.0011. It is important to remember the transmission rate of HIV is variant; some factors affecting the variance in rate of transmission include: sexually transmitted infections, male circumcision, and viral load of the HIV-positive individual. For example, a study of men who had acquired a sexually transmitted disease from a group of prostitutes with a prevalence of HIV infection of 85% found an overall cumulative HIV transmission rate of 0.03 (Cameron et al., 1989). Still, the estimated rate from the Cameron et al. (1989) study is much lower than that estimated by respondents in the MDICP.

Table 2: AIDS Knowledge

	Not True	True	Don't Know
A pregnant woman can transmit the AIDS virus to her unborn child	7.7	91.4	0.9
A woman can transmit the AIDS virus to her child through her breast milk.	2.3	97.2	0.5
You can get AIDS if you have sex with someone who looks perfectly healthy.	6.7	92.1	1.2
AIDS has a cure.	98.3	1.6	0.1

N=2859. Cells represent percentages. The survey question reads: “Now I will read you a few statements about AIDS. Please tell me if you think that these statements are true, not true or if you don't know if they are true or not.”

Source: Preliminary MDICP-4 Data (2006)

Table 3 below). My pilot research on HIV testing in 2007, however, brought into question the acceptance by rural Malawians of the possibility of discordant results.⁶ With new information about the transmissibility of HIV and about the possibility of couple discordancy, would Malawians change their attitudes about whether a wife could leave her husband?

Table 3: Acceptable to Leave a Husband Suspected to be HIV-Positive?

	Women	Men	Both
No	76.3	83	79.1
Yes	23.6	17	20.8
Don't Know	0.1	0	0.1

N=2859. Cells represent percentages. The survey question reads: “Do you think it is proper for a wife to leave her husband if she thinks he might be infected with HIV?”

Source: Preliminary MDICP-4 Data (2006)

⁶In semi-structured interviews conducted in June-August 2007, some respondents believed that if a husband was HIV-positive, the wife must also be infected: the two have the “same blood.” These remarks were not only attributed to the rural Malawians in our study, but, in one case, a respondent remarked that an HIV testing counselor said as much when she asked about what to do in a discordant situation.

4 Hypotheses

Based on analysis of previously collected data and theoretical insights from the literature and the co-PI's experience in rural Malawi, we anticipate finding that:

1. Individuals will be more knowledgeable about disease prevention when presented with new information. [H1]
2. Individuals will change their attitudes in response to learning new information. [H2]
3. Individuals will adopt new information as knowledge dependent on the messenger. [H3]
4. Those affected by HIV will be more likely [than those who are not] to prioritize HIV/AIDS-related public programs and policies. [H4]

Through testing the stated hypotheses, we hope to shed light on the nature of local response to the AIDS pandemic. Second, we seek to represent, by asking them directly, the local public policy priorities of HIV-infected and HIV-affected rural Malawians, the intended beneficiaries of globally supported AIDS programs and policies.

5 Methods, Data, and Timetable

We will conduct the study concurrent with the 2008 survey round of the Malawi Longitudinal Study of Families and Health (MLSFH). The MLSFH studies the consequences of AIDS in Malawi, continuing the longitudinal data collection of more than a decade of demographic, socioeconomic, and health conditions previously collected by the MDICP. The MDICP/MLSFH consists of approximately 4,000 men, women and adolescents in rural Malawi. The survey was designed to study the role of informal networks on family planning and on the diffusion of HIV knowledge and prevention strategies.

5.1 Intervention Experiment

We propose to study the effects of village-level dissemination of findings from previous waves of the MDICP on the sample population's HIV/AIDS knowledge and attitudes. More specifically, we will test whether presentation of information regarding the transmission of HIV impacts responses to survey questions.

5.1.1 Sample

A random sample of MLSFH villages in each of three districts will be selected: half will be treated (62 villages), the other half will be the control group (61 villages). The treated

group will be equally divided into thirds for each of the varying treatments: presentation by an international researcher (21 villages), presentation by a local Malawian (21 villages), and presentation by a government health clinic employee (20 villages).

5.1.2 Treatment

Prior to the administration of the 2008 survey, presentations will be made at the village headman's grounds and will cover findings from the MDICP research gathered in the past 10 years, including presentation of the estimated probability of HIV transmission and the possibility of couple discordancy. Though the person presenting the information will vary in order to test "messenger effects," the presentation in each treatment village will be consistent.⁷

The variation in treatment among the treated villages allows for specifically testing messenger effects in disseminating information about AIDS. Respondents in the sample previously professed to have variant levels of trust for HIV information from different people/organizations (see Table 4). The variant treatment will test whether the true impact of a message is predicted by people's professed degree of trust.

Table 4: Social Trust and HIV Information (Women)

	Best Friend	Govt Med Staff	Trad'l Healer	Pvt Med Staff	Religious Ldrs	VCT Counselors	Media	CBOs	Teachers
None	4.6	0.7	54.4	3.0	3.4	0.7	1.3	3.9	8.4
Very Little	25.5	1.1	38.5	11.3	21.4	2.4	15.0	20.5	34.2
A Good Amount	39.8	11.5	4.7	43.4	43.2	15.1	38.0	42.9	41.3
A Great Deal	29.9	86.6	1.9	41.6	31.6	81.3	45.5	32.0	15.2
Don't Know	0.3	0.1	0.5	0.7	0.4	0.6	0.2	0.8	0.8

N=1650. Cells represent percentages. The survey question reads: "Many organizations have been spreading information about HIV and how people can prevent themselves from getting infected. Some people trust these organizations to provide accurate information, and some people don't. I'd like to hear your opinion. I'm going to read you a list of organizations and people. I'd like to hear how much you trust them to provide accurate information about HIV."

Source: Preliminary MDICP-4 Data (2006)

⁷Presentation protocols and intensive training will be essential to maintaining a consistent presentation across messengers. All presentations will be videotaped to allow for independent evaluation of consistent messages across presenters.

5.1.3 Survey Questions

To test the effects of disseminating research at the local level, and to be consistent with previous iterations of the survey instrument, the questions of interest will be:

If you have unprotected sex only one time with a person infected with HIV/AIDS, what do you think are the chances that you will get HIV/AIDS from her/him? (test of H1 and H3)

Consider a healthy woman in your village who currently does not have HIV. Pick the number of beans that reflects how likely you think it is that she will become infected with HIV: during a single intercourse without a condom with someone who has HIV/AIDS; within the next 12 months if she is married to someone who infected with HIV/AIDS. (test of H1 and H3)

Do you think it is proper for a wife to leave her husband if she thinks he might be infected with HIV? [yes, no, don't know] (test of H2 and H3)

A woman has the right to refuse unprotected sex with her husband when she: thinks her husband may have HIV/AIDS; thinks she may have HIV/AIDS. [yes, no, don't know] (test of H2 and H3)

People in your village feel that those who are movious and got AIDS through sex have gotten what they deserve. [strongly disagree, disagree, agree, strongly agree, don't know] (test of H2 and H3)

Because the aforementioned survey questions were asked in the 2006 round, they have already been field-tested. Furthermore, the longitudinal study allows us to test not only treatment effects at the village level, but also any treatment effects on the individual-level by comparing individual responses from 2006 to 2008.

5.2 Panel Data

The survey instrument will also allow us to study the impact of HIV/AIDS on how rural Malawians rank order public priorities during an epidemic. In the west, people think about Africa first and foremost as a place suffering from AIDS; in the rush to do something about the scourge of HIV/AIDS, many Westerners forget about the many other concerns on the ground. I would like to know what people's policy preferences are, and if there is any variation based on their serostatus or the serostatus of family members. Would an HIV-positive Malawian be more likely to prefer the allocation of more resources to HIV/AIDS programs than clean water or agricultural development? Afrobarometer data from 2004 shows AIDS

has yet to register very high on the “people’s agenda.”⁸ In short the survey question aims to answer: does being infected/affected have an impact on one’s policy preferences?

I would like to ask you your opinion on programs in this area. People have said they would like programs to improve life here in this area. Some programs that could improve life would be: more access to clean water, increased health services, more agricultural development, better education programs, and more HIV/AIDS programs. Unfortunately, the money available for these programs is very limited. Let’s say these 10 beans represented all of the money available for improving life in this area, and you had the chance to pick how much money could go to each of these five programs. How would you divide the beans? There is no right or wrong answer, I just want to know what you think. (test of H4)

5.3 Semi-structured Interviews

To learn more substantively about HIV/AIDS interventions at the local level, we intend to select a subsample from the MLSFH for semi-structured interviews. The interviews will allow us to: (1) determine dissemination of information via network effects/contagion; and (2) to learn, in-depth, the public policy priorities of both HIV-affected and not HIV-affected populations.

5.4 Analysis and Expected Results

5.4.1 Initial Analysis

The experimental design allows for multiple tests of the effects of the intervention. First, responses to the survey questions of interest can be compared between respondents from treatment and control villages. Should the treatment have its intended effect, we expect respondents in treated villages will be less likely than respondents in control villages to respond that infection is certain or highly likely following sex with an infected person. Second, we will analyze the survey data for individual response change over time: in treatment villages, do the previous responses (from 2006) differ from the responses following the treatment (in 2008)?⁹ The variant treatment design also allows for testing for differential impact based on who presents the research findings, what we refer to as “messenger effects.” Based on the 2006 survey data, I expect the villages where presentations are made by the government

⁸Though concern about the HIV epidemic has risen over time, Afrobarometer (2004) highlights that HIV/AIDS is still not named as the priority public issue. Disaggregating its survey respondents by education level, however, the Afrobarometer found that the higher a persons level of formal education and the more often they read newspapers, the more likely they are to cite AIDS as an important issue.

⁹The control population allows us to control for effects unrelated to the treatment (i.e. media diffusion of HIV prevention messages) that could have occurred between survey waves.

health clinic employee to show the strongest messenger effect: respondents in these treatment villages will have higher rates of correct responses than respondents in villages treated with the same message, but presented by different messengers.

5.4.2 Future Analysis

Though the 2008 data collection allows us to test effects on knowledge and reported attitudes, the timeframe is too short to measure effects on behavior or rates of infection. However, the MLSFH plans to collect an additional round of data in 2010. The future round presents an opportunity to see whether the treatment will affect future behavior and if there will be consequences for relationships. One explanation of Africa's exceptional HIV problem is the greater prevalence of concurrent partnerships (Halperin and Epstein, 2004; Morris and Kretzschmar, 1997). Our intuition is that if it was generally known that HIV infection was not certain with one coital act, but more likely in a relationship sustained over time, that some individuals would therefore leave partners they suspect are infected with HIV instead of assuming they themselves are already infected. The collection of data in 2010 could provide suggestive evidence of the treatment affecting relationships: would we see people ending their partnerships after the dissemination?¹⁰ Additionally, the collection of biomarker data can also provide some suggestive evidence on whether serostatus has an effect on individuals deciding to leave relationships.¹¹

5.5 Research Schedule

The NSF Doctoral Dissertation Improvement Grant will partially fund the experimental component of the research project, which will take place in Mchinji, Balaka, and Rumphu Districts of Malawi from May 2008 through August 2008 (see Table 5.5 for a timetable for data collection and analysis).

6 Impact

Through broad dissemination to the academic community via professional conferences and publications and to local Malawian health and policy organizations, the proposed research will aid understanding of the response to AIDS in sub-Saharan Africa, the relevance of messenger effects in public health interventions, and local policy priorities during a time of crisis.

¹⁰We say *suggestive* because it is not certain whether observed behavior change will be wholly attributable to the intervention (Hallett et al., 2008).

¹¹Though I intend to analyze the data for effects on HIV rates, I expect the sample to be too small to make strong inferences. Additionally, the relationship between a prevention intervention and relative reduction in HIV incidence is complex and nonlinear (Quigley et al., 2004; Grassly et al., 2001).

Table 5: Timetable for data collection and analysis

<i>Phase</i>	<i>Activities</i>	<i>Location</i>
1. May 2008	Pilot test intervention experiment. Hire and train two research assistants for dissemination experiment.	Mchinji, Malawi
2. June 2008 - Aug 2008	Implement experiment. Assist in wave 5 of Malawi survey data collection. Ensure reliable responses to public policy preference questions and AIDS knowledge questions. Pilot in-depth interviews. Hire and train two interviewers for qualitative interviews.	Mchinji, Balaka, and Rumphu, Malawi
3. July 2008 - Sept 2008	Conduct in-depth interviews with MLSFH respondents and their “near neighbors.” Transcribe and translate interview recordings.	Mchinji, Balaka, and Rumphu, Malawi
4. Sept 2008 - Dec 2008	Prepare and analyze data.	Zomba, Malawi
5. Jan 2009 - Apr 2009	Present initial findings and solicit feedback from colleagues at academic conferences in Africa and the US (including Midwest Political Science Association conference in April 2009).	Zomba, Malawi and Los Angeles, CA
6. May 2009 - July 2009	Publish two papers with early findings: one on local policy priorities during the AIDS epidemic, and the other on [what?]	Zomba, Malawi and Los Angeles, CA

References

- Afrobarometer. 2004. *Public Opinion and HIV/AIDS: Facing Up to the Future?*. Afrobarometer Briefing Paper No. 12.
- Aral, S., and T. Peterman. 1998. "Do we know the effectiveness of behavioural interventions?" *Lancet* 351:33–6.
- Asamoah-Odei, E., J. Calleja, and J. Boerma. 2004. "HIV prevalence and trends in sub-Saharan Africa: no decline and large subregional differences." *The Lancet* 364:35–40.
- Asimwe-Okiror, G., A. Opio, J. Musinguzi, E. Madraa, G. Tembo, and M. Carael. 1997. "Change in sexual behaviour and decline in HIV infection among young pregnant women in urban Uganda." *AIDS* 11:1757–1763.
- Bennett, S., J. Boerma, and R. Brugha. 2006. "Scaling up HIV/AIDS evaluation." *The Lancet* 367:79–82.
- Bloom, S., C. Banda, G. Songolo, S. Mulendema, A. Cunningham, and J. Boerma. 2000. "Looking for Change in Response to the AIDS Epidemic: Trends in AIDS Knowledge and Sexual Behavior in Zambia, 1990 Through 1998." *JAIDS Journal of Acquired Immune Deficiency Syndromes* 25:77–85.
- Boily, M., C. Lowndes, P. Vickerman, L. Kumaranayake, J. Blanchard, S. Moses, B. Ramesh, M. Pickles, C. Watts, R. Washington, A. Labbe, R. Anderson, D. K.N., A. M., and CHARME-India team. 2007. "Evaluating large-scale HIV prevention interventions: study design for an integrated mathematical modelling approach." *British Medical Journal* 335:582–589.
- Boone, C., and J. Batsell. 2001. "Politics and AIDS in Africa: Research Agendas in Political Science and International Relations." *Africa Today* 48:3–33.
- Bor, J. 2007. "The political economy of AIDS leadership in developing countries: An exploratory analysis." *Social Science & Medicine* 64:1585–1599.
- Cameron, D., J. Simonsen, L. D'Costa, A. Ronald, G. Maitha, M. Gakinya, M. Cheang, J. Ndinya-Achola, P. Piot, R. Brunham, et al. 1989. "Female to male transmission of human immunodeficiency virus type 1: risk factors for seroconversion in men." *Lancet* 2:403–7.
- Duflo, E. 2006. *Field Experiments in Development Economics*. Prepared for the World Congress of the Econometric Society.

- Gauri, V., and E.S. Lieberman. 2006. "Boundary Institutions and HIV/AIDS Policy in Brazil and South Africa." *Studies in Comparative International Development* 41:47–73.
- Gibson, C. 1999. *Politicians and Poachers: The Political Economy of Wildlife Policy in Africa*. Cambridge University Press.
- Gibson, C., K. Andersson, E. Ostrom, and S. Shivakumar. 2005. *The Samaritan's Dilemma: The Political Economy of Development Aid*. Oxford University Press.
- Grassly, N., G. Garnett, B. Schwartländer, S. Gregson, and R. Anderson. 2001. "The effectiveness of HIV prevention and the epidemiological context." *Bulletin of the World Health Organization* 79:1121–32.
- Gray, R., M. Wawer, R. Brookmeyer, N. Sewankambo, D. Serwadda, F. Wabwire-Mangen, T. Lutalo, X. Li, T. vanCott, and T. Quinn. 2001. "Probability of HIV-1 transmission per coital act in monogamous, heterosexual, HIV-1-discordant couples in Rakai, Uganda." *The Lancet* 357:1149–1153.
- Gregson, S., G. Garnett, C. Nyamukapa, T. Hallett, J. Lewis, P. Mason, S. Chandiwana, and R. Anderson. 2006. "HIV Decline Associated with Behavior Change in Eastern Zimbabwe." *Science* 311:664–666.
- Gregson, S., T. Zhuwau, R. Anderson, and S. Chandiwana. 1998. "Is there evidence for behaviour change in response to AIDS in rural Zimbabwe?" *Social Science & Medicine* 46:321–330.
- Hallett, T., G. Garnett, Z. Mupamberiyi, and S. Gregson. 2008. "Measuring effectiveness in community randomized trials of HIV prevention." *International Journal of Epidemiology* forthcoming.
- Halperin, D., and H. Epstein. 2004. "Concurrent sexual partnerships help to explain Africa's high HIV prevalence: implications for prevention." *The Lancet* 364:4–6.
- Kamali, A., M. Quigley, J. Nakiyingi, J. Kinsman, J. Kengeya-Kayondo, R. Gopal, A. Ojwiya, P. Hughes, L. Carpenter, and J. Whitworth. 2003. "Syndromic management of sexually-transmitted infections and behaviour change interventions on transmission of HIV-1 in rural Uganda: a community randomised trial." *The Lancet* 361:645–652.
- Lieberman, E.S. 2007. "Ethnic Politics, Risk, and Policy-Making: A Cross-National Statistical Analysis of Government Responses to HIV/AIDS." *Comparative Political Studies* 40:1407.
- Morris, M., and M. Kretzschmar. 1997. "Concurrent partnerships and the spread of HIV." *AIDS* 11:641–648.

- Patterson, A.S. 2005. *AIDS and the African State*. Ashgate Publishing, Ltd.
- . 2006. *The Politics of AIDS in Africa*. Lynne Rienner Publishers.
- Piller, C., and D. Smith. 2007. “Unintended victims of Gates Foundation generosity.” *Los Angeles Times*, pp. .
- Quigley, M., A. Kamali, J. Kinsman, I. Kamulegeya, J. Nakiyingi-Miir, S. Kiwuwa, J. Kengeya-Kayondo, L. Carpenter, and J. Whitworth. 2004. “The impact of attending a behavioural intervention on HIV incidence in Masaka, Uganda.” *AIDS* 18:2055–2063.
- Stephenson, J. 1999. “Evaluation of behavioural interventions in HIV/STI prevention.” *British Medical Journal* 75:69.
- Stoneburner, R., and D. Low-Beer. 2004. “Population-Level HIV Declines and Behavioral Risk Avoidance in Uganda.” *Science* 304:714–718.
- Wegbreit, J., S. Bertozzi, L. DeMaria, and N. Padian. 2006. “Effectiveness of HIV prevention strategies in resource-poor countries: tailoring the intervention to the context.” *AIDS* 20:1217–1235.