

# Academic research and HIV/AIDS in South Africa

C. M. Campbell, B. G. Williams

The HIV/AIDS epidemic in South Africa is developing approximately 10 years behind the epidemics in East and Central Africa. In 1990 the prevalence in most groups tested was still low, typically less than 1%, but it was already known that the doubling time was about 1 year and it was clear that within the next 5 years prevalences would reach 10 - 30% in some groups.<sup>1</sup> The years between 1990 and 1995 were a window of opportunity during which time the control and management of HIV could have greatly reduced the future spread of the disease. This opportunity has been lost and prevalences in many groups have reached the expected levels.

The most important factors leading to severe HIV epidemics are well known and include high rates of sexually transmitted diseases (STDs), opportunistic infections, especially tuberculosis, and a range of social factors such as migrancy, social and political instability, and disruption of social support mechanisms and family structures. It is likely that the prevalence of HIV and the incidence of AIDS will continue to increase over the next 5 years. At this critical juncture in South Africa's history we face the possibility of a major, preventable epidemic that will decimate the economically active population. Yet effective interventions, through the control of STDs and effective, participatory, community-based education programmes that promote low-risk sexual behaviour, could have a dramatic effect on the future course of the epidemic.

The evidence, so far, is that none of the scientific community's attempted interventions has significantly altered the course of the epidemic. In this paper we review the scientific literature on HIV/AIDS in South Africa to suggest areas in which more research needs to be done and ways in which scientists can contribute to the management of the epidemic.

In April 1995 we searched three bibliographical databases, MEDLINE, SOCLIT and PSYCHLIT, for articles containing the key-words 'AIDS' and/or 'HIV' and 'South Africa', and followed up references cited in the papers that were found. (Because of space constraints it has not been possible to cite all of the papers that were reviewed.) Fig. 1 shows the number of publications concerned with technical issues, epidemiology, social science, and policy and planning. Each category has received a similar amount of attention but social science studies appear mainly as full papers while policy issues have been debated largely in the 'letters' columns.

---

London School of Economics and Political Science, London, UK

C. M. Campbell, PH.D.

Epidemiology Research Unit, Johannesburg

B. G. Williams, PH.D.

behaviour. Social scientists need to develop and evaluate innovative educational programmes that conceptualise behaviour more broadly than do the KAP models. Researchers in Zimbabwe<sup>47,48</sup> have shown that participatory, skills-based educational interventions are more successful than information-based interventions in bringing about behavioural change. A growing literature on sexuality criticises the tendency in the social sciences to reduce sexuality to a range of discrete behaviours that fall under individual control, such as using condoms or practising anal sex, and argues for the development of a better understanding of the culture and context of sexuality and risk.<sup>49</sup> More imaginative educational interventions are needed, which aim not only to transmit information about health risks but also to change the culture and context in which people make decisions about sexual behaviour. Such interventions need to draw on information about the psychosocial context of the particular target groups they seek to educate, they need to be planned and administered in close co-operation with target group members, and the development of such interventions should be informed by the target group's perceptions of health, disease and HIV/AIDS.

## Policy and planning

Of the publications devoted to policy and planning most were commentaries (Fig. 1), the bulk of which were devoted to: (i) ethical issues, in particular letters debating the issues of informed consent and notifiability;<sup>50</sup> (ii) budgeting for HIV/AIDS prevention and care;<sup>51</sup> and (iii) issues relating to HIV/AIDS and the insurance industry.<sup>52</sup> The remainder give guidelines for large-scale HIV containment policies and strategies. A paper published in 1988 by the predominantly white, male, medical Advisory Group on AIDS to the Department of National Health and Population Development<sup>53</sup> outlines a range of strategies under the headings of infection and disease surveillance, identification of high-risk groups and interventions aimed at these groups, health education, the provision of health services for HIV-infected people, and the evaluation of antibody testing methods and proficiency testing of laboratories. Sadie<sup>54</sup> subsequently argued that a key reason for the failure of this policy to make any impact on the spread of AIDS in the late 1980s and early 1990s was that it was formulated and implemented without adequate consultation and participation of all sectors of South African society. The importance of involving target communities such as migrant workers, township residents, commercial sex workers and gay groups as equal partners with scientists and policy-makers in all aspects of HIV control and prevention is echoed in a range of papers and editorials.<sup>47,55-57</sup> In several editorials in the *SAMJ*,<sup>22,58,59</sup> Schoub notes that promotion of HIV awareness and the empowerment of members of at-risk groups are the key to preventing the spread of the virus.<sup>58</sup> A further reason for the failure of this policy has been the neglect of the role of socio-economic factors in the spread of HIV/AIDS.<sup>60</sup> Schoub<sup>22</sup> highlights the link between heterosexual HIV infection and 'the social, economic and political factors that produce the poverty, squalor, inadequacy of facilities and destruction of family life so

characteristic of the rapid urbanisation of blacks in South Africa' and emphasises the importance of addressing poverty and overcrowding and the economic dependency of women which promotes prostitution.<sup>59</sup> Moodie discusses the social conditions, such as single-sex hostels and migrant labour, which promote sexual merchandising.<sup>61</sup>

Wilson and Lavelle<sup>47</sup> discuss the lessons that South Africa can learn from AIDS prevention in Central and East Africa and provide the most convincing illustration of the kind of programme that results from collaboration between biomedical scientists and those involved in management economics, adult education and social psychology. Given the limited effectiveness of programmes aimed at the reduction of multiple sexual partners and the shortcomings of information-based HIV/AIDS education programmes, they argue for a range of strategies<sup>47</sup> including: (i) targeted interventions aimed at high-risk groups, together with the legalisation and organisation of prostitutes, and co-ordinated interventions among prostitutes, clients, truckers, the military and other mobile or single groups in all towns with over 50 000 inhabitants; (ii) efforts to reduce age variation among sexual partners and move away from older men/younger women to same-age partners; (iii) an aggressive assault on STDs; (iv) investigation of the role that male circumcision might play in limiting the spread of HIV; and (v) the promotion of efficient health service management to provide an infrastructure for AIDS prevention. Wilson and Lavelle<sup>47</sup> emphasise both the traditional biomedical responses as well as a range of strategies designed to alter the culture of sexuality in which HIV/AIDS is located, the development of community structures to modify norms, the introduction of AIDS themes into popular culture, support activities for those with HIV/AIDS to bolster risk reduction, and convenient access to participatory education programmes, counselling and testing.

## Conclusion

So far there is little evidence that existing interventions have significantly altered the course of the HIV epidemic in South Africa. We already have many of the biological and social insights needed to mount successful HIV/AIDS control programmes,<sup>47</sup> but this knowledge is not being fully applied to the design of intervention programmes and policy. There is a growing consensus that if academics are to contribute to effective HIV/AIDS management, they should become involved in the planning and assessment of concrete controlled interventions that will lead to effective large-scale HIV/AIDS control programmes.

More attention should be given to the possibilities offered by the prevention and treatment of AIDS-related diseases. South Africa has some of the highest rates of STDs and tuberculosis in the world and trial interventions on the effectiveness of STD treatment in reducing HIV infection are urgently needed. Treating these and other diseases such as pneumonia may be the best we can do for people who already have AIDS. One of the present authors is involved in planning a pneumococcal pneumonia vaccine trial in immunosuppressed people, and it is suggested that much more needs to be done to investigate the benefits of treating other diseases in HIV-positive people.

With regard to epidemiological research, some data are available on specific groups of people such as commercial sex workers, municipal employees and gay men. Data have also been acquired from large-scale screening of blood donors and women attending antenatal clinics. These data provide a broad overview of the development of the epidemic in South Africa. More extensive longitudinal studies must be done to inform the task of assessing the present and predicting the future time course of the epidemic.

Considerably more effort should be put into developing models that can be used as the basis both for planning appropriately targeted interventions, and for assessing the effectiveness of those interventions that we do make.

As the epidemic intensifies in urban and rural black communities there is a singular lack of data on one of the most important of these, viz. migrant workers. For example, it has been argued that living and working conditions on the mines may encourage the spread of HIV infection<sup>41</sup> and that miners' contact both with the urban communities, which they encounter on the mines, and the rural populations, to which they return regularly, could mean that HIV in the mines will spread rapidly through South Africa and into neighbouring countries as well. It is essential that data on HIV and AIDS on the mines are acquired as soon as possible and that effective control measures continue to be developed and implemented.

There are few data on the time between infection and disease in South Africa. The socio-economic disparities and the wide differences in access to health care mean that the life expectancy of different groups of HIV-positive people will vary greatly. Without this knowledge we can neither estimate the gravity of the epidemic nor plan effective health services to deal with it over the next decade.

Considerably more effort should be made to model the demographic implications of HIV and AIDS.<sup>62</sup> Most models relating to other African countries predict that HIV infection will slow down, but not reverse, the population growth rate. Of greater importance is the effect that it will have on the age structure of the population and, in particular, how it will affect the proportion of economically productive people and the dependency ratio.

More extensive cross-sectional studies of disease transmission among different groups of people are needed. Such large-scale epidemiological research would not consider only biomedical transmission factors and prevalence, but correlate these with the range of social factors implicated in HIV transmission such as patterns of economic development, employment, housing, social support, family relationships and sexual networking. A wide range of social factors, including the economic status of women, age variation in sexual partners, and the age at which people become sexually active, need to be measured. Such information would provide the baseline for interventions that go beyond traditional biomedical approaches and focus on providing economic and social support for the most severely affected communities and on empowerment programmes for groups at greatest risk such as economically disadvantaged women.

Scott and Mercier<sup>63</sup> argue that qualitative data are needed to interpret information about disease prevalence, HIV-related behaviour and risk situations that are identified through large-scale quantitative methods. It is here that the potential for the much recommended but little pursued collaboration between biomedical and social scientists lies.

While epidemiology provides the essential starting point for HIV/AIDS intervention strategies, it needs to be backed up with information about cultural determinants of disease and sexual behaviour and by information regarding the way in which people perceive and respond to health intervention programmes. Sexual behaviour that leads to HIV/AIDS transmission in South Africa exists within a complex web of psychological and social forces, and an understanding of these may enable us to develop interventions that recognise and accommodate the range of social and psychological obstacles that mediate between health interventions and their targets. Such detailed qualitative information could also provide the basis for the design and implementation of programmes aimed at changing community norms, in collaboration with the participation and partnership of target communities.

Grassroots community health organisers and workers almost certainly have much experience, but it has not found its way into the academic literature. Channels need to be developed whereby such knowledge can be more widely circulated both within South Africa and also to and from other African countries. Academic journals have a role to play in this process, and academics need to collaborate with health workers and activists in the task of documenting this experience. The compilation of unpublished work on HIV/AIDS in southern Africa and the establishment of a resource centre to house copies of such work could make a significant contribution to the study of HIV/AIDS.

We may already have let our best chance pass us by. Effective interventions in the early years of this decade might have limited the spread of HIV infection significantly, and most of those who will die in the next 10 years are already infected. We must still do all that we can to minimise the effects of what is likely to be the greatest health challenge of the next 20 years.

#### REFERENCES

1. Padayachee GN, Schall R. Short-term predictions of the prevalence of human immunodeficiency virus infection among the black population in South Africa. *S Afr Med J* 1990; **77**: 320-333.
2. Spracklen FHN, Whittaker RG, Becker WB, et al. The acquired immune deficiency syndrome and related complex. A report of 2 confirmed cases in Cape Town with comments on human T-cell lymphotropic virus type III infections. *S Afr Med J* 1985; **68**: 139-143.
3. Miller N, van Rooyen J, Buck R. Inappropriate use of rapid HIV antibody tests. *S Afr Med J* 1994; **84**: 696-697.
4. Karstaedt AS. AIDS — the Baragwanath experience: Part III. HIV infection in adults at Baragwanath Hospital. *S Afr Med J* 1992; **82**: 95-97.
5. Phillips JL, Sher R. Kaposi's sarcoma in different populations in South Africa. *S Afr Med J* 1987; **71**: 615-619.
6. Welsh NH, Swartz J, Martin C, Salmenson BD, James SH, Zwi S. Retinal complications in the acquired immunodeficiency syndrome. A case report. *S Afr Med J* 1987; **71**: 394-396.
7. Roife M. HIV-2 and its neurological manifestations. *S Afr Med J* 1994; **84**: 503-505.
8. Sitas F, Levin CV, Spencer D, et al. HIV and cancer in South Africa. *S Afr Med J* 1993; **83**: 880-881.
9. Klugman KP, Patel J, Sischy A, McIntyre JA. Serological markers of sexually transmitted diseases associated with HIV-1 infection in pregnant black women. *S Afr Med J* 1991; **80**: 243-244.
10. Hoosen AA, Moodley J, Pudifin DJ, Duursma J, Coetzee KD, Kharsany ABM. Sexually transmitted pathogens and colposcopic findings in asymptomatic HIV-1 antibody-positive blood donors. *S Afr Med J* 1990; **77**: 626-628.
11. Sher R. HIV infection in South Africa, 1982-1988 — a review. *S Afr Med J* 1989; **76**: 314-318.
12. Küstner HGV. Update: AIDS in South Africa since 1982. *Epidemiological Comments* 1991; **18**: 97.
13. Sher R. Acquired immunodeficiency syndrome (AIDS) in the RSA. *S Afr Med J* 1986; **70**: suppl, 23-26.
14. Sitas F, Fleming AF, Morris J. Residual risk of transmission of HIV through blood transfusion in South Africa. *S Afr Med J* 1994; **84**: 142-144.
15. De Miranda DS, Sher R, Metz J, Sifris D, Lyons SF, Schoub BD. Lack of evidence of HIV infection in drug abusers at present. *S Afr Med J* 1986; **70**: 776-777.
16. Martin DJ, Schoub BD. Entry of HIV infection into the intravenous drug abusing population. *S Afr Med J* 1989; **75**: 349.
17. Schoub BD, Smith AN, Johnson A, et al. Considerations on the further expansion of the AIDS epidemic in South Africa — 1990. *S Afr Med J* 1990; **77**: 613-618.
18. Brink B, Clausen L. The acquired immune deficiency syndrome. *Journal of the Mine Medical Officers Association* 1987; **63**: 10-17.
19. Hainsworth M, van Heyningen CF. HIV surveys in KwaZulu. *S Afr Med J* 1988; **73**: 679.
20. Taylor MB, Swanevelder C. HIV survey in Venda. *S Afr Med J* 1989; **75**: 348-349.

21. Wilkinson D. Second HIV survey of women attending antenatal clinics, Hlabisa Health Ward, Zululand, 1993. *Epidemiological Comments* 1994; **21**: 78-79.
22. Schoub BD. The AIDS epidemic in South Africa — perceptions and realities. *S Afr Med J* 1990; **77**: 607-608.
23. Friedland IR, McIntyre J. AIDS — the Baragwanath experience: Part II. HIV infection in pregnancy and childhood. *S Afr Med J* 1992; **82**: 90-94.
24. Küstner HGV, Swanevelder JP, van Middelkop A. National HIV surveillance — South Africa 1990-1992. *S Afr Med J* 1994; **84**: 195-200.
25. Schall R. On the maximum size of the AIDS epidemic among the heterosexual black population in South Africa. *S Afr Med J* 1990; **78**: 507-510.
26. Küstner HGV. The relationship between the growth rate of the pool of HIV infections and the incidence rate of full-blown AIDS, South Africa, 1990-1993. *Epidemiological Comments* 1994; **21**: 239-243.
27. Lindegger G, Wood G. The AIDS crisis: review of psychological issues and implications, with special reference to the South African situation. *S Afr J Psychol* 1995; **25**: 1-11.
28. Schlebusch L, Cassidy M. Stress, social support and biopsychosocial dynamics in HIV-AIDS. *S Afr J Psychol* 1995; **25**: 27-30.
29. Isaacs G, Pegge J. Marginalization and HIV infection in Cape Town: crisis intervention as a dynamic, effective strategy. *Social Work/Maatskaplike Werk* 1991; **27**: 356-365.
30. Eagle G, Brouard P. AIDS education for health professionals. *S Afr J Psychol* 1995; **25**: 21-26.
31. Schlebusch L, Bedford R, Bosch BA, du Preez MR. Health care professionals' knowledge about AIDS, prejudice and attitudes towards AIDS. Special Issue: Race, social attitudes, and prejudice. *S Afr J Psychol* 1991; **21**: 247-254.
32. Van Rooyen CAJ, Bernstein AJ. AIDS education for student social workers in South Africa: are social workers being educated to meet the needs of the society in which they function? *Social Work/Maatskaplike Werk* 1992; **28**: 48-60.
33. Woods R. Social work responses to AIDS: a programme for social work education in South Africa. *Social Work/Maatskaplike Werk* 1992; **28**: 37-46.
34. Jameson CP, Glover PH. AIDS education in schools: awareness, attitudes and opinions among educators, theology students and health professionals. *S Afr Med J* 1993; **83**: 675-679.
35. Flisher AJ, Ziervogel CF, Chalton DO, Leger PH, Robertson BA. Risk-taking behaviour of Cape Peninsula high-school students: Part VIII. Sexual behaviour. *S Afr Med J* 1993; **83**: 495-497.
36. Kaplan ME, Van den Worm Y. The relationship between South African adolescents' knowledge and fear of AIDS and their attitudes toward people who have AIDS. *J Soc Psychol* 1993; **133**: 581-583.
37. Mathews C, Kuhn L, Metcalf CA, Joubert G, Cameron NA. Knowledge, attitudes and beliefs about AIDS in township school students in Cape Town. *S Afr Med J* 1990; **78**: 511-516.
38. Friedland RH, Jankelowitz SK, De Beer M, et al. Perceptions and knowledge about the acquired immunodeficiency syndrome among students in university residences. *S Afr Med J* 1991; **79**: 149-154.
39. Richter L, Swart-Kruger J. AIDS-risk among street children and youth: implications for intervention. *S Afr J Psychol* 1995; **25**: 31-38.
40. O'Farrell N, Will R. Sexual behaviour, knowledge, attitudes and awareness of AIDS amongst sexually transmitted disease clinic attendees in Durban following the national campaign. *S Afr J Epidemiol Infect* 1989; **4**: 45-48.
41. Ijsselmuiden CB, Padayachee GN, Mashaba W, Martiny O, Van Staden HP. Knowledge, beliefs and practices among black gold-miners relating to the transmission of human immunodeficiency virus and other sexually transmitted diseases. *S Afr Med J* 1990; **78**: 520-523.
42. Timmins P, Gallois C, Terry D, McCamish M, Kashima Y. Theory of reasoned action and the role of perceived risk in the study of safer sex. In: Terry D, Gallois C, McCamish M, eds. *The Theory of Reasoned Action: its Application to AIDS Preventive Behaviour*. Oxford: Pergamon; 1993.
43. Perkel AK, Strebel A, Joubert G. The psychology of AIDS transmission: issues for intervention. *S Afr J Psychol* 1991; **21**: 148-152.
44. Jochelson K, Mothibeli M, Leger JP. Human immunodeficiency virus and migrant labour in South Africa. *Int J Health Serv* 1991; **21**: 157-173.
45. Evian C. AIDS and the socio-economic determinants of the epidemic in southern Africa — a cycle of poverty. *J Trop Paediatr* 1994; **40**: 61-62.
46. Strebel A. Whose epidemic is it? Reviewing the literature on women and AIDS. *S Afr J Psychol* 1995; **25**: 12-20.
47. Wilson D, Lavelle S. AIDS prevention in South Africa. A perspective from other African countries. *S Afr Med J* 1993; **83**: 668-674.
48. Wilson D, Mparadzi A, Lavelle S. An experimental comparison of two AIDS prevention interventions among young Zimbabweans. *J Soc Psychol* 1991; **132**: 415-417.
49. Zwi A, Cabral A. Identifying high-risk situations for preventing AIDS. *BMJ* 1991; **303**: 1527-1529.
50. McLean GR, Jenkins T. HIV testing and informed consent — ethical considerations. *S Afr Med J* 1994; **84**: 669-674.
51. Ncayiyana DJ. Does the HIV/AIDS campaign deserve a larger slice of the health budget? *S Afr Med J* 1994; **84**: 191.
52. London L, Frieslaar J, Schelhase M. HIV testing in the insurance industry — the gap between theory and practice. *S Afr Med J* 1994; **84**: 301-302.
53. Advisory group on AIDS. AIDS — the current situation in the RSA. *S Afr Med J* 1988; **74**: 317.
54. Sadie Y. The policy cycle in a transitional society: the national AIDS strategy in South Africa. *Plural Societies* 1992; **22**: 172-194.
55. Ijsselmuiden CB, Steinberg MH, Padayachee GN, et al. AIDS and South Africa — towards a comprehensive strategy. Part I. The world-wide experience. *S Afr Med J* 1983; **73**: 455-460.
56. Ijsselmuiden CB, Steinberg MH, Padayachee GN, et al. AIDS and South Africa — towards a comprehensive strategy. Part II. Screening and control. *S Afr Med J* 1988; **73**: 461-464.
57. Zwi A, Bachmayer D. HIV and AIDS in South Africa: What is an appropriate public health response? *Health Policy and Planning* 1990; **5**: 316-326.
58. Schoub BD. AIDS in South Africa — a time for action. *S Afr Med J* 1987; **71**: 677-678.
59. Schoub BD. AIDS in South Africa — into the second decade. *S Afr Med J* 1992; **81**: 55-56.
60. Evian C. The socio-economic determinants of the AIDS epidemic in South Africa — a cycle of poverty. *S Afr Med J* 1993; **83**: 635-636.
61. Moodie TD. Migrancy and male sexuality on the South African gold mines. *Journal of Southern African Studies* 1988; **14**: 228-256.
62. Williams BG, Campbell CM. A model of HIV transmission on South African mines: implications for control. *S Afr J Epidemiol Infect* (submitted for publication).
63. Scott SJ, Mercer MA. Understanding cultural obstacles to HIV/AIDS prevention in Africa. *AIDS Education and Prevention* 1994; **6**: 81-89.

Accepted 2 Nov 1995.

Reprint requests to: B. G. Williams, Epidemiology Research Unit, PO Box 4584, Johannesburg, 2000 South Africa.