
COMPARING LEVEL OF EXPENDITURE ON HIV HEALTH PROMOTION AND INCIDENCE OF HIV IN GREATER GLASGOW AND LOTHIAN HEALTH BOARDS (1988-1998)

Donald J. Nicolson¹
Edwin R. van Teijlingen²

¹ *PhD student School
of Healthcare,
University of Leeds*

² *Department of
Public Health,
University of
Aberdeen*

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards (1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

ABSTRACT

Legislation through the AIDS Control Act (1987) required regional health boards in Scotland to account for their expenditure on HIV/AIDS services by 'ring-fencing' funding allocated for HIV health promotion. This aimed to ensure monies allocated for expenditure on HIV health promotion by health boards would be used for this purpose and not to finance other health board services. We analysed health board expenditure on HIV health promotion in relation to the incidence of HIV transmission for two Scottish health boards, Greater Glasgow and Lothian (the region in which the Scottish capital Edinburgh is situated). Lothian region which had a higher incidence of HIV transmission than Greater Glasgow similarly had a greater expenditure on HIV health promotion. However, for either health board there was no consistent increase in expenditure after HIV incidence increased. Likewise it was more often the exception than the norm for the incidence of HIV to decline after increased expenditure on HIV

*Received on: October 27, 2004.
Accepted on: April 15, 2005.*

health promotion. While it is tentatively concluded that increased HIV health promotion expenditure did not apparently make a significant difference to the incidence of HIV in either health board, this ignores the effect of practical measures funded by the expenditure.

KEY WORDS: HIV, AIDS, incidence, health expenditure, epidemiology

INTRODUCTION

The spread of HIV in Scotland has not reflected that of the rest of the United Kingdom (UK), with transmission most often occurring through the sharing of injecting drug equipment. There have also been major differences in the nature and extent of the AIDS epidemic between two neighbouring Scottish cities – Glasgow and Edinburgh (MCKEGANEY, 1994). These cities, in Greater Glasgow (population approximately 870,000) and Lothian Health Board (approximately 780,000) respectively, are the two most populated areas in Scotland. The recorded incidence of HIV in Greater Glasgow has never been as great as the incidence in Lothian, probably due to the higher than average incidence of HIV transmission in Edinburgh compared to Glasgow.

Official health promotion interventions in the UK operate at national and local level. Mass media HIV education campaigns seeking to raise AIDS awareness at a national level have been the responsibility of the UK Government. More practical/applied interventions, such as needle syringe exchanges and/or the distribution of free condoms, have been the responsibility of regional health boards and local authorities.

Health board expenditure for HIV/AIDS services (including HIV prevention services) did not seem to follow any strict criterion in the early years of the epidemic. This allowed the diversion of funds by health boards, which did not have a significant HIV problem. Since 1986 health boards have been expected to make formal arrangements for dealing with HIV/AIDS (BENNET 1993). The AIDS (Control) Act (1987) required health boards to account for their expenditure on HIV/AIDS services. By 'ring-fencing' funding allocated for HIV health promotion, health boards were prevented from spending the monies on services other than HIV health promotion.

Evaluation of expenditure for these particular health services is important because there is a need to prove money spent on HIV positive individuals has not been 'wasted' (TEIJLINGEN; HUBY, 1998). This paper looks at expenditure on HIV health promotion by

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards (1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards (1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

the two largest health boards in Scotland, Greater Glasgow and Lothian from 1988 to 1998, to analyze the relationship (if any) between annual levels of expenditure and incidence of HIV.

METHODS

Expenditure data for the two health boards was collated from the annually published AIDS (Control) Act Report for the regional health boards/authorities for Greater Glasgow (GREATER GLASGOW HEALTH BOARD, 1989; 1990; 1991; 1992; 1993; 1994; 1995; GRUER et al, 1996; GRUER et al, 1997; GREATER GLASGOW HEALTH BOARD, 1998; GRUER, 1999) and Lothian (LOTHIAN HEALTH BOARD, 1989; 1990; 1991; 1992; 1993; 1994; 1995; 1996; 1997; 1998; 1999) for the period from 1988 to 1998. The monetary unit of expenditure is UK pounds sterling.

Scottish HIV data from 1986-1999 was taken from the 1999 Annual Review of HIV/AIDS in Scotland, published in 2000 by the Scottish Centre for Infection and Environmental Health (SCIEH, 2000). We extracted the total HIV incidence (the number of new cases of transmission of the infection per year without manifestation of the disease) by regional health board and year of report. This highlights more recent risk-related behaviours which health promotion practitioners seek to target, making it a more important marker of HIV transmission. We did not look at the prevalence count for the number of cases of AIDS because of the lengthy incubation period between HIV infection and the onset of AIDS making this unhelpful for preventing HIV transmission. HIV incidence data was published by calendar year (January to December), and expenditure data for the financial year (April to March).

We analysed the relationship between the level of HIV health promotion expenditure and incidence of HIV in two ways. The index year's expenditure was compared to: (i) the incidence from two years previously, which would have been published one year before the index year and could have influenced its level of expenditure; and (ii) the following year's incidence of HIV because it would take at least one year for the expenditure on prevention to have an effect on the incidence of HIV for that region. For example, 1986 incidence data would be available by early 1987 and, therefore, could technically influence decisions on funding for 1988 HIV health promotion at the earliest. Likewise, expenditure on HIV health promotion in 1988 could technically have an effect on the following year's transmission. By analysing the correlation between the index year's expenditure and

the incidence from two year's previous, we can examine the influence of prior transmission rates on HIV health promotion spending. Likewise by studying the correlation between the index year's expenditure and the incidence of HIV in the following year, we can examine the influence of HIV health promotion spending on later transmission rates.

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards (1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

RESULTS

Every year since HIV recording began in Scotland, Lothian Health Board has had the greater HIV incidence compared to Greater Glasgow Health Board. Over the time period studied, there was an overall decline in transmission of HIV in both health boards (FIGURES 1 and 2). The decline was greater in Lothian in part because of its higher baseline rate.

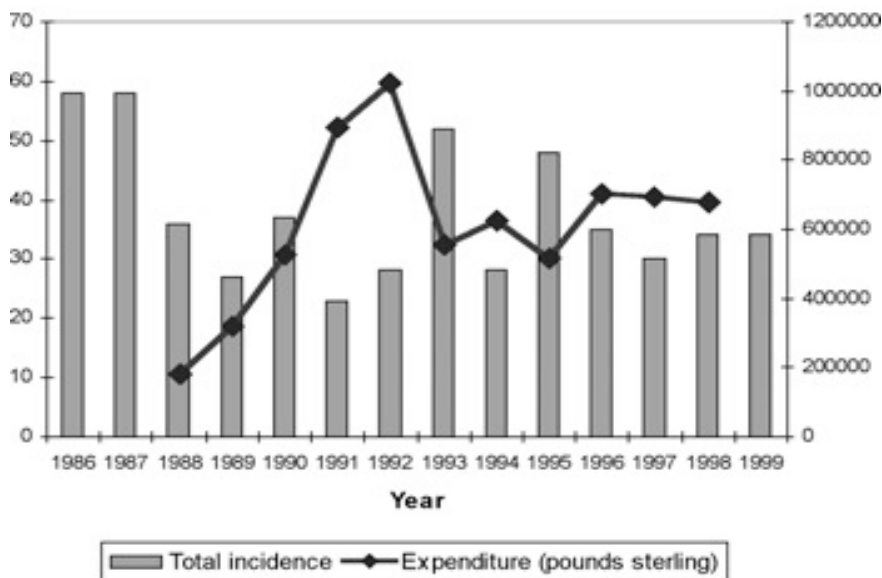


Figure 1: Greater Glasgow Health Board HIV incidence 1986-1999 and HIV health promotion expenditure 1988-1998

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards (1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

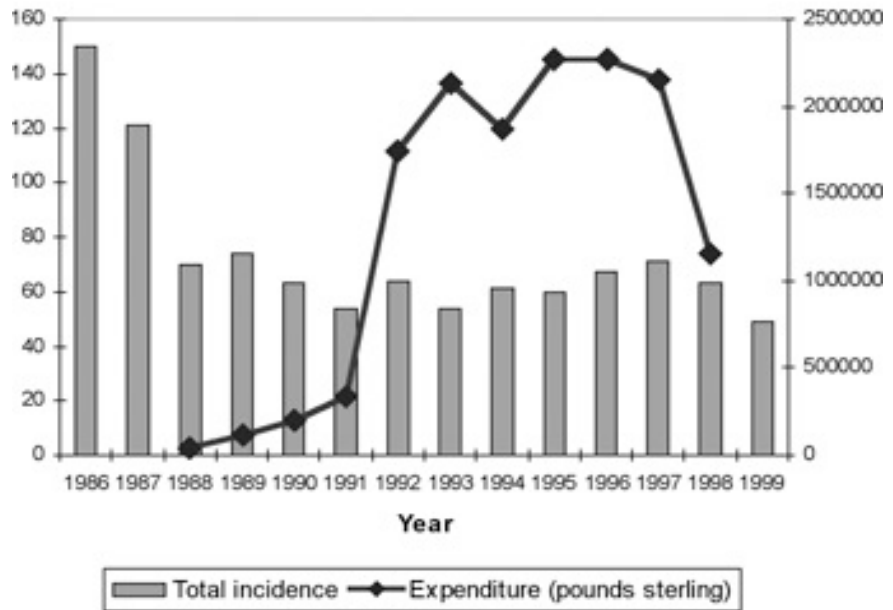


FIGURE 2 - Lothian Health Board HIV incidence 1986-1999 and HIV health promotion expenditure 1988-1998

The greater incidence of HIV transmission in Lothian has been reflected in its expenditure on HIV health promotion services. Since 1992, Lothian Health Board has spent significantly more on HIV health promotion services than Greater Glasgow Health Board. Expenditure in Glasgow over this period was almost £7 million, peaking in 1992 at £1,021,000.* There was a sharp reduction in spending in 1993 before it evened out at around £700,000 from the mid-1990s. In Lothian over £12,000,000 was spent on health promotion during the same period. Spending rose slowly in the late 1980s and dramatically rose in the early 1990s, reaching a peak of £2,269,572 in 1995 and steadily declining thereafter.

The influence of incidence on expenditure

Expenditure rarely changed in direct relation to the previous year's incidence. For both health boards, this only occurred on three occasions: 1991, 1996 and 1997 in Glasgow; and 1992, 1994 and 1998 in Lothian. In 1991 and 1996 in Glasgow, and 1992 and 1994 in Lothian, expenditure increased the year after increased transmission of HIV. In 1997 in Glasgow and 1998 in Lothian, expenditure

declined after a fall in incidence the previous year.

The influence of expenditure on incidence

In the early years of the epidemic as expenditure rose, transmission dropped the following year for both Glasgow and (for longer) in Edinburgh. Conversely in 1993 in Glasgow and 1997 in Lothian, when expenditure declined from the previous year, the following years incidence rose. In the years of highest expenditure on HIV health promotion in both Glasgow and Lothian, 1992 and 1996 respectively, the incidence of HIV however subsequently rose the following year.

DISCUSSION

It is logical perhaps to assume that there would be higher expenditure on HIV health promotion in areas where the population is at greater risk. The data bears evidence to this point. From 1992 onwards, Lothian Health Board, which had the greater incidence of HIV, spent a significantly greater amount of money on HIV health promotion services. The apparent lower expenditure from 1988-1991 may be attributable to a different definition of HIV health promotion services employed during this period, compared to the 1990s. For example the Lothian AIDS (Control) Act Reports of 1988-91 do not apparently combine expenditure on drug misuse prevention within HIV health promotion expenditure (LOTHIAN HEALTH BOARD, 1989; 1990; 1991). This was accounted for within health promotion expenditure from 1992 onwards, suggesting expenditure data from 1988-91 does not actually reflect expenditure on drug-related HIV health promotion expenditure. Future research in this area should seek to determine more clearly HIV health promotion expenditure for Lothian.

It might be expected there would be an increase in expenditure when HIV incidence rates go up, probably with a lag of a year, to take into account the time for policy-makers to react to the previous year's incidence data. The evidence gathered does not wholly support this proposition. For either health board it was more often the exception than the norm for expenditure to increase after a rise in the incidence of HIV. It is then concluded changes in HIV expenditure for either health board probably was the result of a consideration other than the previous year's incidence.

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards (1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards (1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

It might also be expected there would be a decline in HIV incidence when health promotion expenditure increased in the previous year. This cannot be supported by the available evidence. It is apparent it was the exception rather than the norm for the incidence of HIV to decline after an increase in HIV health promotion expenditure by either health board. This could be interpreted as evidence to suggest increased expenditure on HIV health promotion was not effective in reducing the incidence of HIV in either health board. However this discounts a number of extraneous factors which may have an influence on the incidence of HIV.

A key objective of HIV health promotion is to raise knowledge and awareness of AIDS. There is however no guarantee that increased knowledge and awareness about AIDS will result in decreased transmission of HIV. It then becomes more difficult to assess any comparisons between health board expenditure on HIV health promotion and a change in the incidence of HIV. Practical actions by health boards, (e.g.) the provision of needle exchange and methadone services, or the supply of free condoms, will probably have a greater effect on the incidence of HIV than will solely seeking to increase AIDS awareness. Future research on health board HIV health promotion expenditure should seek to distinguish between expenditure on practical measures (as defined above) and actions which seek to raise AIDS knowledge and awareness.

Our analysis of the data has limitations. We are unable to account for testing behaviour (the likelihood that someone HIV positive is coming forward to be tested) will vary between areas as well as over time. Because of the latent period between infection and onset of the disease, a person can have HIV for many years without knowing they are infected. This delay in notification will result in an underestimate in the notification of HIV.

In the past decade studies have been conducted into the cost of HIV/AIDS to hospital services (BBECK et al, 1996) and the surveillance of communicable diseases (Morris et al, 1996), but until now, no studies have been conducted relating the health promotion expenditure on HIV/AIDS to disease incidence. This paper found it rare for the incidence of HIV for either health board to change in accordance with changes in expenditure. It is tentatively concluded changes in HIV health promotion expenditure did not apparently make a significant difference to changes in the incidence of HIV for either health board.

ACKNOWLEDGEMENTS

We would like to thank Dr. Laurence Gruer and Mrs. Heather Telford at Greater Glasgow Health Board, Mr. Jim Sherval at Lothian Health and Dr. Lloyd Matowe at the Department of Public Health, University of Aberdeen for their help.

REFERENCES

1. BECK, E. J. et al. The use and cost of hospital services by London AIDS patients with different AIDS defining conditions. *J. Publ. Hlth. Med.*, v. 18, p. 457-464, 1996.
2. BENNETT, C. HIV/AIDS: some organisational and managerial issues. *Hlth Manpower Manag.*, v. 19, p. 25-28, 1993.
3. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1988-89*. Glasgow, 1989.
4. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1989-90*. Glasgow, 1990.
5. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1990-91*. Glasgow, 1991.
6. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1991-92*. Glasgow, 1992.
7. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1992-93*. Glasgow, 1993.
8. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1993-94*. Glasgow, 1994.
9. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1994-95*. Glasgow, 1995.
10. GREATER GLASGOW HEALTH BOARD. *AIDS (Control) Act Report 1997-98*. Glasgow, 1998.
11. GRUER, L.; BARTON, P.; STEVENSON, J. *AIDS (Control) Act Report 1995-96*. Glasgow: Greater Glasgow Health Board, 1996.
12. GRUER, L.; STEVENSON J.; BARTON, P. *AIDS (Control) Act Report 1996-97*. Glasgow: Greater Glasgow Health Board, 1997.

NOTE

One UK pound sterling is worth 5.3 Brazilian Real on 26th October 2004. On 26th October 2000 the exchange rate was £1 = 2.76 Real and on the same date in 1998 the pound was worth 2.00 Real. Because of the inflation of the Real over the past fifteen years the data has not been converted in Real.

NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards(1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.

NICOLSON, Donald
 J.; TEIJLINGEN,
 Edwin R. van.
 Comparing level of
 expenditure on HIV
 health promotion and
 incidence of HIV in
 Greater Glasgow and
 Lothian Health
 Boards(1988-1998).
Salusvita, Bauru,
 v. 25, n. 1, p. 13-22,
 2006.

13. GRUER, L. *AIDS (Control) Act Report 1998-99*. Glasgow: Greater Glasgow Health Board, 1999.
14. LOTHIAN HEALTH BOARD. *AIDS in Lothian: Time to TAKE CARE 1989* (AIDS Control Act Report for the year ending 31 March 1989). Edinburgh, 1989.
15. LOTHIAN HEALTH BOARD. *AIDS in Lothian: Facing the Facts 1990* (AIDS Control Act Report for the year ending 31 March 1990). Edinburgh, 1990.
16. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian: Planning for the Future 1991* (AIDS Control Act Report for the year ending 31 March 1991). Edinburgh, 1991.
17. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian: Building Together 1992* (AIDS Control Act Report for the year ending 31st March 1992). Edinburgh, 1992.
18. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian: Changing Times and Shifting Targets* (AIDS Control Act Report for the year ending 31st March 1993). Edinburgh, 1993.
19. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian 1993/94: Strategies for Survival* (AIDS Control Act Report for the year ending 31st March 1994). Edinburgh, 1994.
20. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian: Ten Years On* (AIDS Control Act Report for the year ending 31st March 1995). Edinburgh, 1995.
21. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian 1995/96: Shaping the Future* (AIDS Control Act Report for the year ending 31st March 1996). Edinburgh, 1996.
22. LOTHIAN HEALTH – Centre for HIV/AIDS & Drugs Studies. *HIV/AIDS in Lothian 1996/97: Dilemmas, Decisions and Positive Futures* (AIDS Control Act Report for the year ending 31st March 1997). Edinburgh, Lothian Health Board, 1997.
23. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian 1997/98: Reshaping the Future* (AIDS Control Act Report for the year ending 31st March 1998). Edinburgh, 1998.
24. LOTHIAN HEALTH BOARD. *HIV/AIDS in Lothian 1998/99* (AIDS Control Act Report for the year ending 31 March 1999). Edinburgh, 1999.
25. MCKEGANEY, N. AIDS and HIV infection within Scotland: current state of the epidemic and future areas of need. *Hlth. Bull*, v. 52, p. 260-277, 1994.
26. MORRIS, S. et al. The costs and effectiveness of surveillance of communicable disease: a case study of HIV and AIDS in

- England and Wales. *J. Publ. Hlth. Med.*, v. 18, p. 415-422, 1996.
27. ROBERTSON, J. R. et al. Epidemic of AIDS related virus (HTLV III/LAV) infection among intravenous drug users. *Brit. Med. J.*, v. 292, p. 527-529, 1986.
 28. Scottish Centre for Infection and Environmental Health (2000) HIV infection and severe HIV-related disease in Scotland 1999. SCIEH Weekly Report 2000; 34 (13).
 29. TEIJLINGEN, E. van; HUBY, G. Evaluation within a policy-making and contracting culture: reflections on practice. In BARBOUR, R. S.; HUBY, G. (ed.), *Meddling with Mythology: AIDS and the social construction of knowledge*, London: Routledge, p. 218-233, 1998.
- NICOLSON, Donald J.; TEIJLINGEN, Edwin R. van. Comparing level of expenditure on HIV health promotion and incidence of HIV in Greater Glasgow and Lothian Health Boards(1988-1998). *Salusvita*, Bauru, v. 25, n. 1, p. 13-22, 2006.