

A B S T R A C T

This paper examines self-reported risk factors and perceived chance of getting HIV/AIDS using five representative surveys of adult Albertans obtained in 1990, 1992, 1994, 1995, and 1996. The findings from this trend analysis demonstrate that less than 10% of respondents perceived their chance of getting HIV/AIDS to be medium or high. Persons with multiple sex partners tended to perceive themselves to be at risk. Almost 20% of respondents reported one or more new sex partners in the last two years prior to the survey. Condom use with new sex partners increased substantially. Fifteen percent of respondents reported two or more sex partners in total in the last two years prior to the survey. Fourteen percent reported having two or more sex partners including at least one casual sex partner, and of these 61% reported always using condoms with their casual sex partner(s). Finally, the most striking finding is the perception among health care workers that they are at risk for contracting HIV/AIDS.

A B R É G É

Ce document examine les facteurs de risque déclarés par les intéressés et les chances perçues de contracter le VIH/sida en se basant sur cinq sondages représentatifs des adultes albertains en 1990, 1992, 1994, 1995 et 1996. Les conclusions de cette analyse de tendance montre que moins de 10 % des répondants perçoivent leur chance de contracter le VIH/sida dans une proportion de moyenne à élevée. Les personnes qui ont des partenaires sexuels multiples tendent à se percevoir comme à risque. Près de 20 % des répondants ont rapporté avoir eu un nouveau partenaire sexuel ou plus dans les deux dernières années avant le sondage. L'utilisation du condom avec un nouveau partenaire sexuel a augmenté substantiellement. Quinze p. cent des répondants ont rapporté avoir eu deux partenaires sexuels ou plus durant les deux années qui ont précédé le sondage. Quatorze p. cent ont déclaré avoir eu deux partenaires sexuels ou plus incluant au moins un partenaire sexuel occasionnel et 61 % d'entre eux ont déclaré qu'ils utilisaient toujours le condom avec un partenaire sexuel occasionnel. Enfin, la conclusion la plus frappante est que les intervenants en soins de santé se perçoivent à risque de contracter le VIH/sida.

Self-reported Risk Factors and Perceived Chance of Getting HIV/AIDS in the 1990s in Alberta

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The first case of AIDS in Alberta was reported in 1983. By December 1998, a total of 954 AIDS cases had been reported. Of these, 676 (71%) had died. Table I shows the number of new AIDS cases and deaths from AIDS in Alberta from 1983 to 1998.¹

Of the 954 AIDS cases in Alberta from 1983 to 1998, the majority (95%) were males. Seventy-seven percent of persons with AIDS were between 30-59 years of age at the time of diagnosis and almost 18% were younger than 30 years. The most commonly reported risk factors associated with AIDS cases in Alberta from 1983 to 1998 were homosexual or bisexual contact (80%), heterosexual contact (6%), injection drug use (4%), and blood transfusions (3%). In the 1990s, homosexual or bisexual contacts declined as risk factors for acquiring AIDS while heterosexual contact and the use of injection drugs increased as modes of transmission.¹

Over 420,000 Albertans have been tested for HIV since voluntary testing began in 1986. Of these, less than 1% tested positive. In 1990, 16,612 persons were tested for HIV whereas 66,805 persons were tested in 1998, suggesting that there is a growing concern about contracting HIV.

In 1998, injection drug users accounted for 46% of all new HIV positive cases in Alberta compared to only 14% in 1992. Furthermore, women accounted for 36%

of all new HIV cases in 1998, in contrast to 13% in 1992. Finally, approximately 20% of all HIV positive cases in 1998 were the result of men having sex with men, in contrast to 62% in 1992.¹ The changing risk factors for HIV infection mean that the profile of persons with AIDS will continue to change in the future.

Persons who engage in risky activities such as multiple sex partners, unprotected sex, or sharing needles tend to perceive that they have an elevated chance of getting HIV/AIDS.²⁻⁸ Other studies have addressed occupational risk factors for health care workers (HCW).⁹⁻¹³ The risk of transmission of AIDS to HCW is very low.^{9,10} No known cases of AIDS in Alberta are the result of occupational exposure.¹ Nevertheless, many HCW experience a high fear of contagion.⁹⁻¹³

The objective of this study is to determine perceived chance of getting HIV/AIDS and the factors associated with perceived risk. It is hypothesized that persons who report engaging in risky behaviour such as unprotected sex or injection drug use will report higher levels of perceived chance of acquiring HIV/AIDS. It is also hypothesized that persons employed as health care workers will report higher levels of perceived chance of getting HIV/AIDS.

METHODS

This study employs a trend analysis. The Provincial AIDS Program, Alberta Health, funded a series of HIV/AIDS questions in the 1990s as part of the annual Alberta Survey conducted by the Population Research Laboratory of the Department of Sociology at the University of Alberta. Respondents were 18 years of age and

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older and residents of Alberta. Each sample was stratified to guarantee proportionate representation of the two largest cities in the province (Edmonton and Calgary) as well as the remainder of the province. Two stages were involved in the sampling procedure: household selection and respondent selection. First, telephone numbers were randomly selected from a computer-generated file of five-digit telephone banks and then the final two numbers were appended randomly to each five-digit telephone bank to complete the selection of phone numbers. Second, after a household was reached, an adult member of that household was selected to complete the interview. Respondents were chosen so that an equal number of males and females were interviewed. Sample size ranged from 1,204 to 1,277 and the response rate ranged from 62% to 77%.

Perceived chance of getting HIV/AIDS was assessed by asking respondents, "What do you think your chances are of getting HIV or AIDS?" (1=none; 2=low; 3=medium; 4=high). Self-reported risk factors including sexual behaviours and injection drug use were also assessed. Regarding sexual behaviour, respondents were asked (in 1990, 1992, and 1994) how many new sex partners they had in the last two years. Respondents with one or more new sex partners were asked if they always, sometimes, or never used condoms. Similarly, in 1995, respondents were asked how many sex partners they had *in total* in the last two years. Respondents were then asked if their sex partner(s) were usual or casual partners and if they used condoms always, sometimes, or never.

In 1990, all respondents were read a list of risk factors (used drugs by needle since 1977, have haemophilia and received clotting factor concentrates since 1977, are a man who has had sex with another man since 1977, have had sex for money or drugs since 1977, or have been with a sex partner who would answer yes to any one of these items) and asked if any of these statements were true. This variable was coded 0=no to all of the statements and 1=yes to at least one of them. Similarly, in 1992, respondents who indicated at least one new sex partner in the past two years were asked the following question, "Tell

Year	AIDS Cases*	Cumulative AIDS Cases	AIDS Deaths	Cumulative AIDS Deaths	HIV Tested Positive†
1983	1	1	1	1	na
1984	11	12	11	12	na
1985	13	25	13	25	na
1986	22	47	22	47	212
1987	38	85	35	82	319
1988	51	136	45	127	232
1989	84	220	75	202	331
1990	82	302	70	272	253
1991	85	387	73	345	262
1992	97	484	85	430	307
1993	93	577	74	504	228
1994	121	698	80	584	258
1995	100	798	50	634	179
1996	80	878	29	663	178
1997	54	932	9	672	217
1998	22	954	4	676	116

* AIDS has been a notifiable condition in Alberta since 1983. Regular reporting by physicians, hospitals, laboratories, HIV clinics, health units, and surveillance of death registration certificates ensures almost all AIDS cases are included in the provincial communicable diseases statistics.

† HIV testing is done on a voluntary basis. HIV became notifiable in Alberta on May 1, 1998. HIV statistics for 1998 include only the last eight months of 1998 (May 1 to December 31), therefore, the absolute numbers should not be compared to the previous years. No conclusions can be drawn from these data about the level of seropositivity in the larger untested population.

Perceived Chance of Getting the AIDS Virus	1990 %	1992 %	1994 %	1995 %	1996 %
High	2	2	2	2	1
Medium	5	5	9	6	7
Low	41	45	45	44	43
None	52	48	45	48	50
Total (n)	100 (1220)	100 (1263)	101 (1250)	100 (1194)	101 (1186)

Totals may not add to 100 due to rounding
 $\chi^2=34.0$, $df=12$, $p<0.001$

me after I finish with all the statements if at least one would be true for you at any time since the early 1980s (injected drugs, took part in anal sex, likely that any person with whom you had sex had previously injected drugs)." This variable was coded 1=new sex partner(s) and answered yes to at least one of the risk statements, 0=other. This same question was asked of *all* respondents in 1994. Respondents in 1995 were asked if they had ever injected drugs.

Employment in a health care profession was coded as 1 and all other occupations (including homemaker and student) were coded as 0. Finally, demographic characteristics were coded as follows: age (1=18-49 years, 0= 50+), sex (1=male, 0=female), marital status (1=not currently married, 0=married or common law), education (1=12 years or less, 0=13 years or more), religiosity (1=somewhat or not strong,

0=strong), home ownership (1=rent, 0=own), and Aboriginal identity (1=Aboriginal, 0=non-Aboriginal).

The following limitations are recognized. First, risk-taking behaviours which precipitate the transmission of HIV/AIDS are relatively rare occurrences in the general population. Although each survey contained a relatively large overall sample size, the sub-sample of those who reported themselves to be at high risk for contracting HIV/AIDS included a relatively small percentage of the respondents. Subsequent surveys might focus exclusively on high-risk groups. A second limitation is the reliance on self-report data. Sexual practices and illegal behaviour such as injection drug use are highly sensitive issues and may be under-reported.

The relationship between risk factors (sexual behaviour, injection drug use,

TABLE III
HIV/AIDS Self-reported Sexual Behaviour

Sexual Behaviour	1990 %	1992 %	1994 %	1995 %
New Sex Partner				
Yes	18	19	19	na
No	82	81	81	na
(n)	(1237)	(1264)	(1252)	
$\chi^2=0.37, df=2, ns$				
Number of New Sex Partners				
0	82	81	81	na
1	7	5	5	na
2	4	7	6	na
3	2	4	4	na
4	1	1	1	na
5+	4	3	3	na
(n)	(1230)	(1261)	(1253)	
$\chi^2=20.17, df=10, p<0.05$				
New Sex Partner(s) and Condom Use				
Always Use Condom	18	25	33	na
Never/Some Condom Use	82	75	67	na
(n)	(186)	(235)	(235)	
$\chi^2=12.81, df=2, p<0.01$				
Number of Sex Partners				
0	na	na	na	17
1	na	na	na	68
2	na	na	na	6
3	na	na	na	4
4	na	na	na	2
5+	na	na	na	3
(n)				(1163)
Casual Sex Partner(s) and Condom Use				
Always Use Condom	na	na	na	61
Never/Some Condom Use	na	na	na	39
(n)				(161)

Percentages may not add to 100 due to rounding. na = question(s) were not asked.

health care occupation, demographic characteristics) and perceived chance of getting HIV/AIDS (coded 1=high or medium, 0=low or none) was assessed for each of the survey years using logistic regression.

RESULTS

Respondents' perceptions of their chance of acquiring HIV/AIDS are shown in Table II. Except in 1994, 7-8% of respondents in each survey year (1990, 1992, 1995, 1996) said that their chance of getting HIV/AIDS was medium or high. In 1994, 11% perceived themselves to have medium or high risk. Approximately 50% of respondents in each survey year felt that they had no chance of getting HIV/AIDS. Another 43% ($\pm 2\%$) felt that their chances were low.

Table III shows that almost 1 of every 5 respondents to the 1990, 1992, and 1994 surveys reported having at least one new sex partner in the last two years and some 3-4% reported five or more new sex partners. Of those who reported a new sex partner, condom use increased significantly

from 1990 to 1994. In 1990, 18% of respondents reporting a new sex partner in the last two years always used condoms, whereas in 1994, 33% of respondents reported always using condoms with new sex partners. In 1995, 15% of respondents reported having two or more sex partners *in total* in the last two years. In the 1995 survey, respondents were asked if their sex partner(s) were usual or casual partners. Fourteen percent (14%) reported two or more sex partners including at least one casual partner in the two years prior to the survey and 61% of these respondents reported always using condoms with their casual sex partner(s).

In 1990, respondents were asked if at any time since 1977 they had done any of the following: injected drugs, received clotting factor concentrates for haemophilia, were male and had anal sex with another man, had sex for money or drugs, and/or had sex with any person who would have done any of the above. Three percent reported engaging in one or more of these behaviours.

In 1992, respondents reporting at least one new sex partner in the last two years

were asked if at any time since the early 1980s they had done at least one of the following: injected drugs, took part in anal sex, and/or had sex with a person who is likely to have previously injected drugs. Of those who had sex with a new partner, 11% had engaged in at least one of the listed activities. This same question was asked in 1994; however, all respondents were asked this question. Six percent of all respondents had engaged in at least one of the listed activities. Finally, respondents in 1995 were asked if they had ever used intravenous drugs. Less than 0.5% ($n=3$) said they had injected drugs in the past.

In order to assess whether risk-taking behaviours, health-related occupations, and demographic characteristics play a role in perceived chance of getting HIV/AIDS, logistic regression analysis was conducted for each survey year (Table IV). The most striking finding is the perception among health care workers that they are at risk for contracting HIV/AIDS. This finding was significant for all survey years (with the exception of 1994) with significant odds ratios ranging from 2.9 to 5.4. That is, health care workers were 2.9 to 5.4 times as likely as non-health care workers to perceive themselves to be at risk. Persons engaged in risk-taking behaviours such as having multiple sex partners and using injection drugs tended to report higher perceived chance of getting HIV/AIDS; however, these results were inconsistent from survey to survey. Similarly, the socio-demographic characteristics of respondents were inconsistent predictors of perceived risk. Persons aged 18 to 49 tended to be more likely than older persons to perceive themselves to be at risk, males in 1992, the less educated in 1994, and the not currently married in 1990 and 1996 also perceived themselves to be at risk.

DISCUSSION

The majority of respondents perceived themselves to be at no or low risk for contracting HIV/AIDS; nevertheless, almost 10% of respondents felt their chances of getting HIV/AIDS were either medium or high. Consistent with other AIDS research, persons having multiple sex partners tended to report higher levels of perceived vul-

TABLE IV
Logistic Regression of Perceived Chance of Getting HIV/AIDS on
Occupation, Risk-taking Behaviours, and Demographic Characteristics
for 1990, 1992, 1994, 1995, and 1996

Variables	1990			1992			Survey Years 1994			1995			1996		
	B	Sig	Odds Ratio	B	Sig	Odds Ratio	B	Sig	Odds Ratio	B	Sig	Odds Ratio	B	Sig	Odds Ratio
Occupation															
Health Care Worker [non-health worker]	1.68	0.00	5.38*	1.35	0.00	3.84*	0.24	0.62	1.27	1.55	0.00	4.70*	1.07	0.02	2.92*
Risk-Taking Behaviours															
New Sex Partners [none]	0.61	0.05	1.84*	0.17	0.68	1.18	0.47	0.15	1.59	na	na	na	na	na	na
Total Sex Partners [≤1]	na	na	na	na	na	na	na	na	na	0.78	0.02	2.18*	na	na	na
IV Drugs/Haemophilia/ Gay Male/Sex for \$/Risky Sex Partner [none of the above]	0.60	0.27	1.81	na	na	na	na	na	na	na	na	na	na	na	na
IV Drugs/Anal Sex/Sex Partner Injected Drugs (asked only of persons who reported new sex partners) [none of the above]	na	na	na	1.19	0.05	3.28*	na	na	na	na	na	na	na	na	na
IV Drugs/Anal Sex/Sex Partner Injected Drugs [none of the above]	na	na	na	na	na	na	0.41	0.33	1.51	na	na	na	na	na	na
IV Drugs [no]	na	na	na	na	na	na	na	na	na	1.33	0.02	3.79*	na	na	na
Demographic Characteristics															
Age [aged 50+]	0.71	0.04	2.03*	0.16	0.65	1.17	0.58	0.05	1.79*	0.72	0.05	2.05*	0.39	0.16	1.47
Gender [female]	-0.19	0.46	0.83	0.57	0.05	1.76*	0.04	0.85	1.04	-0.16	0.56	0.85	0.39	0.09	1.47
Education [more than High School]	0.32	0.19	1.38	0.22	0.45	1.25	0.62	0.01	1.86*	0.08	0.79	1.08	0.42	0.07	1.52
Marital Status [married or common-law]	0.81	0.00	2.24*	0.52	0.12	1.68	0.29	0.29	1.33	0.19	0.54	1.20	0.70	0.00	2.01*
Religiosity [strong]	0.28	0.25	1.32	-0.46	0.10	0.63	-0.12	0.61	0.89	-0.11	0.66	0.89	0.42	0.08	1.52
Home Ownership [own]	-0.38	0.16	0.68	0.24	0.45	1.27	0.12	0.64	1.12	0.44	0.11	1.56	-0.06	0.82	0.95
Aboriginal Identity [non-Aboriginal]	na	na	na	0.38	0.53	1.47	0.49	0.36	1.63	na	na	na	na	na	na
Constant	-3.97	0.00		-3.52	0.00		-3.23	0.00		-3.34	0.00		-3.70	0.00	
N=						1192			985			975			897
Model X ² [sig]=			57.6 [0.0000]			29.1 [0.0012]			22.9 [0.0111]			43.3 [0.0000]			26.0 [0.0005]

* $p \leq 0.05$; na = data not available
[reference categories are indicated in brackets]

nerability for contracting HIV/AIDS.^{4,7} Nevertheless, the data revealed that use of condoms has increased dramatically with new and/or casual sex partners.

Although perception of being at risk for contracting HIV/AIDS is higher among HCW in comparison to non-health care workers, no known AIDS cases have been the result of exposure to HIV/AIDS in the workplace in Alberta,¹ implying that perhaps the widespread fear of contagion

among HCW is unfounded.¹⁰⁻¹³ Wallack found that approximately two thirds of doctors and nurses responding to an AIDS anxiety survey believed they were at significant risk of becoming infected with AIDS despite following hospital infection control guidelines. Further, over 60% of these respondents were skeptical or did not believe assurances of experts that HCW who observe safety guidelines are at minimal risk of contracting AIDS from

patients.¹² Previous studies have found that HCWs' knowledge, attitudes toward homosexuals, the frequency of contact with a person with AIDS, and an individual's subjective meaning of AIDS are linked to AIDS anxiety, fear of contagion, and risk-perception.^{9,10,13} Educational strategies have been used to provide basic information on AIDS transmission, assist HCW in developing positive attitudes towards AIDS patients, involve HIV posi-

tive patients in the educational process, and emphasize the use of universal precautions for infection control and the need to adhere to such guidelines. It is important to recognize that factual AIDS information alone is not effective in alleviating long-standing behaviours, beliefs, and fears. As such, it is recommended that a blend of educational strategies be utilized addressing both facts and fears.

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