

trolled trials relevant to the needs of patients? Although some have a longstanding commitment to supporting randomised controlled trials, there is overall modest investment in such trials by medical research charities.⁹ Through the Pharmaceutical Industry Competitiveness Task Force, the government has made clear its commitment to facilitate the conduct of commercial drug trials in the NHS.¹⁰ We believe that a coherent strategy is also needed to ensure support for the many randomised controlled trials that are of no interest to industry but are nevertheless of importance to patients and practitioners. Given the responses to the Medical Research Council's consultation, factors that will have to be taken into account include the increased administrative burden that now faces anyone contemplating involvement in clinical research of this kind.¹

The views expressed in this article are those of the authors and are not necessarily the views or the policies of the Cochrane Collaboration.

Contributors: See bmj.com

Funding: IC and KL were funded by the NHS research and development programme. CR was funded by the Medical Research Council.

Competing interests: IC is employed on a part-time basis to help promote some of the objectives arising from the *Clinical Trials for Tomorrow* review. He is funded for this purpose by the Medical Research Council and the Department of Health.

1 Medical Research Council. *Report on the clinical trials for tomorrow review*. London: MRC, 2003.

2 Tallon D, Chard J, Dieppe P. Relation between agendas of the research community and the research consumer. *Lancet* 2000;355:2037-40.

3 Rothwell PM, McDowell Z, Wong CK, Dorman PJ. Doctors and patients don't agree: cross sectional study of patients' and doctors' perceptions and assessments of disability in multiple sclerosis. *BMJ* 1997;314:1580-3.

What is already known on this topic

No data have been published on the number and characteristics of randomised controlled trials supported by the main non-commercial sources in the United Kingdom

What this study adds

The number of non-commercial randomised controlled trials has declined without a concomitant increase in the sample sizes of these studies

The future of these trials is threatened by the discontinuation of the time limited NHS research and development programmes and by the demise of the regional programmes

4 Hanley B, Truesdale A, King A, Elbourne D, Chalmers I. Consumer involvement in the design, conduct and interpretation of randomized controlled trials: a questionnaire survey. *BMJ* 2001;322:519-23.

5 Chalmers I. A patient-led good controlled trials guide. *Lancet* 2000;356:774.

6 Lancet. Who's afraid of the European Clinical Trials Directive? [Editorial.] *Lancet* 2003;361:2167.

7 Medical Research Council. *Patients before paperwork. Medical Research Council response to the MHRA consultation letter on the Medicines for Human Use (Clinical Trials) Regulations 2003 (MLX 287) and draft legislation*. London: MRC, 2003. www.mrc.ac.uk/prn/pdf-good_regulation_clinical_trials.pdf

8 Chalmers I. It's official: evaluative research must become part of routine care in the NHS. *J R Soc Med* 2000;93:555-6.

9 Ernst E, Wider B. Medical research charities should fund more trials. *BMJ* 2002;325:1245.

10 Pharmaceutical Industry Competitiveness Task Force. *Clinical research report, 2003*. www.doh.gov.uk/pictf (Accepted 30 September 2003)

Decline in mortality, AIDS, and hospital admissions in perinatally HIV-1 infected children in the United Kingdom and Ireland

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Abstract

Objective To describe changes in demographic factors, disease progression, hospital admissions, and use of antiretroviral therapy in children with HIV.

Design Active surveillance through the national study of HIV in pregnancy and childhood (NSHPC) and additional data from a subset of children in the collaborative HIV paediatric study (CHIPS).

Setting United Kingdom and Ireland.

Participants 944 children with perinatally acquired HIV-1 under clinical care.

Main outcome measures Changes over time in progression to AIDS and death, hospital admission rates, and use of antiretroviral therapy.

Results 944 children with perinatally acquired HIV were reported in the United Kingdom and Ireland by October 2002; 628 (67%) were black African, 205

(22%) were aged ≥ 10 years at last follow up, 193 (20%) are known to have died. The proportion of children presenting who were born abroad increased from 20% in 1994-5 to 60% during 2000-2. Mortality was stable before 1997 at 9.3 per 100 child years at risk but fell to 2.0 in 2001-2 (trend $P < 0.001$). Progression to AIDS also declined ($P < 0.001$). From 1997 onwards the proportion of children on three or four drug antiretroviral therapy increased. Hospital admission rates declined by 80%, but with more children in follow up the absolute number of admissions fell by only 26%.

Conclusion In children with HIV infection, mortality, AIDS, and hospital admission rates have declined substantially since the introduction of three or four drug antiretroviral therapy in 1997. As infected children in the United Kingdom and Ireland are



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BMJ 2003;327:1019-23

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living longer, there is an increasing need to address their medical, social, and psychological needs as they enter adolescence and adult life.

Introduction

Since 1996 antiretroviral therapy with three or four drugs has been increasingly used to treat adults infected with HIV,^{1,2} and its substantial effect on progression of the disease has been well described.³⁻⁵ Because of difficulties in developing appropriate formulations and the lack of age specific pharmacokinetic data to guide paediatric dosing, the introduction of such treatment was delayed in children. Before 1994 only one antiretroviral drug was available for children. Dual antiretroviral therapy was introduced in 1995, and treatment with three or four drugs followed from mid-1997 and is now standard.⁶⁻⁸

We investigated changes over time in mortality, morbidity, hospital admission rates, and antiretroviral therapy received in perinatally HIV-1 infected children in the United Kingdom and Ireland.

Methods

The national study of HIV in pregnancy and childhood (NSHPC) is informed about children who present in the United Kingdom and Ireland with HIV-1 infection and infants born to HIV infected women.⁹ Each year notifying paediatricians subsequently provide minimal clinical information for infected children. In April 2000, the collaborative HIV paediatric study (CHIPS) cohort was established between the national surveillance study and the MRC Clinical trials Unit, where the Paediatric European Network for Treatment of AIDS (PENTA) trials are coordinated (222.pnetatrials.org). Most perinatally infected children reported to the national surveillance study are followed up in 17 paediatric clinics involved in PENTA.

Paediatric HIV surveillance started in 1986, and by October 2002, 944 perinatally infected children had been reported to the national surveillance study. In

total, 593 children alive in January 1996 were enrolled in the collaborative HIV paediatric study (75% of all children reported to the national surveillance study as alive on this date) and were included in analyses of antiretroviral therapy and hospital admissions.

We investigated the change in progression to death and to AIDS/death using time dependent Cox proportional hazards models, adjusted for selected demographic variables and allowing for age at first presentation (see bmj.com for details). We used Kaplan-Meier curves to compare survival after initial diagnosis of AIDS and Poisson regression for analysis of hospital admission rates.

Results

Half of the 944 children reported were girls and 628 (67%) were black African (table 1). The proportion of children born abroad increased from 20% in 1994-5 to 60% in 2000-2. In total, 132 (14%) children were identified at birth, 281 (30%) during the first year, and 202 (21%) at ≥ 5 years. Whereas the median age at presentation among children born in the United Kingdom and Ireland has remained constant at around 6 months, among children born abroad it increased from 2.5 years before 1991 to 5.2 years in 1994-5 and remained constant thereafter. A total of 193 children (20%) are known to have died (including 54 since 1997), and 41 left the country or were otherwise lost to follow up before 1996. Among 593 children in the collaborative HIV paediatric study, 534 (90%) were in follow up in 2001-2, 30 (5%) in 2000, and 29 (5%) were last seen in 1999 or earlier.

Mortality and progression to AIDS

While the number of perinatally infected children in follow up has increased steadily over time, the annual number of deaths declined markedly after 1996. Among 734 children identified at birth, or who survived at least a month after presentation, the crude mortality was stable before 1997 at 9.3 per 100 child years at risk but declined thereafter to 3.3, 2.7, 1.2, 1.3, and 2.0 in 1997, 1998, 1999, 2000, and 2001-2, respec-

Table 1 Characteristics of perinatally HIV-1 infected children in the UK and Ireland up to October 2002 according to place of birth. Figures are numbers (percentages) of children

	Born in UK or Ireland (n=586)	Born abroad (n=353)	Unknown (n=5)	Total (n=944)
Female	280 (48)	185 (52)	3	468 (50)
Ethnicity:				
White	148 (25)	13 (4)	0	161 (17)
Black	347 (59)	278 (79)	3	628 (67)
Other	88 (15)	61 (17)	1	150 (16)
Unknown	3 (1)	1 (0.3)	1	5 (1)
Age at first presentation (years):				
At birth	121 (21)	11 (3)	0	132 (14)
<1	254 (43)	27 (8)	0	281 (30)
1	72 (12)	38 (11)	0	110 (12)
2-4	104 (18)	113 (32)	2	219 (23)
5-9	29 (5)	123 (35)	2	154 (16)
≥ 10	6 (1)	41 (12)	1	48 (5)
Median (range)	0.46 (0.0-13.4)	4.6 (0.2-15.3)	5.0 (2.7-12.8)	1.6 (0.0-15.3)
Stage of disease at last follow up*:				
N/A/B	275 (47)	226 (64)	5	506 (54)
C	159 (27)	86 (24)	0	245 (26)
Died	152 (26)	41 (12)	0	193 (20)

*According to classification of Centers for Disease Control.¹³

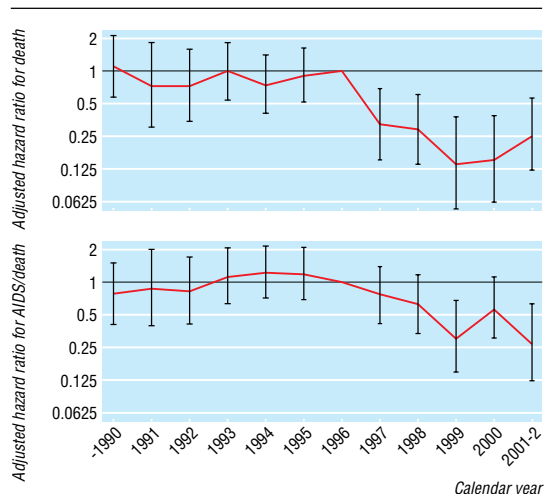


Fig 1 Risk of AIDS/death or death by calendar year relative to 1996, adjusted for age, sex, ethnicity, place of birth, and whether the child was identified prospectively from birth or later (y axis on log scale)

tively (log rank test for trend, $P < 0.001$). Adjusted changes in mortality are shown in table 2 and figure 1. However, improvement in survival since 1997 was more marked in children aged > 1 year (adjusted hazard ratio 0.19, 95% confidence interval 0.12 to 0.30) than in those aged < 1 year (0.72, 0.35 to 1.48; $P = 0.003$, heterogeneity for age).

Fifty four children are known to have died from 1997 onwards, 48 (89%) of whom were born to mothers whose HIV status was not known during pregnancy. Eighteen of 22 children who died aged < 1 year had *P carinii* pneumonia or cytomegalovirus disease, or both. Information on antiretroviral therapy was available for 36 children who died; 14 (including six infants) had not received three or four drug therapy, six died within two months of starting, and 16 within a median of 10 months of starting it.

A total of 438 children developed an AIDS indicator disease, but 13 of these died before AIDS was diagnosed. Two hundred and seventeen children (40%) developed AIDS within one month of presentation. Prognosis from initial AIDS diagnosis varied: mortality was higher in children with *P carinii* pneumonia or HIV encephalopathy compared with mortality in children with other opportunistic infections, failure to thrive, or severe recurrent bacterial infection (see [bmj.com](#)).

Among 587 children who had not progressed to AIDS within one month of presentation after birth, crude progression rates declined from 15.4 per 100 child years before 1997 to 3.0 per 100 child years at risk in 2001-2 (test for trend $P < 0.001$). As with mortality, the adjusted decline (fig 1) was more marked in children aged > 1 year (hazard ratio 0.37, 0.25 to 0.53 for before 1997 compared with 1997 onwards, table 2), while progression rates were similar in both periods for children aged < 1 (1.03, 0.60 to 1.77, $P = 0.002$, heterogeneity for age).

Antiretroviral therapy

Of 593 children followed since 1996 in the collaborative HIV paediatric study, 137 (23%) had not started antiretroviral therapy at last report (121) or by the time of death (16). The percentage of child time

Table 2 Adjusted hazard ratios (95% confidence intervals) for factors associated with progression to death and AIDS/death

	Death		AIDS/death	
	Ratio	P value	Ratio	P value
Calendar year:				
Before 1997	1		1	
1997-2002	0.26 (0.17 to 0.38)	$P < 0.001$	0.49 (0.36 to 0.67)	$P < 0.001$
1997-2002, age < 1 year	0.72 (0.35 to 1.48)	$P = 0.003^*$	1.03 (0.60 to 1.77)	$P = 0.002^*$
1997-2002, age ≥ 1 year	0.19 (0.12 to 0.30)		0.37 (0.25 to 0.53)	
Sex:				
Male	1		1	
Female	0.84 (0.61 to 1.15)	$P = 0.3$	1.06 (0.81 to 1.40)	$P = 0.7$
Ethnicity:				
White	1		1	
Black	0.87 (0.58 to 1.27)		0.77 (0.55 to 1.08)	
Other/not known	1.42 (0.85 to 2.37)	$P = 0.1$	1.09 (0.69 to 1.72)	$P = 0.1$
How child was identified:				
Prospectively from birth	1		1	
After birth	0.49 (0.31 to 0.78)	$P = 0.001$	0.44 (0.30 to 0.64)	$P < 0.001$
Place of birth:				
UK/Ireland	1		1	
Abroad	0.96 (0.62 to 1.48)	$P = 0.9$	1.06 (0.73 to 1.53)	$P = 0.8$

*Test of heterogeneity for age.

spent on three or four drug antiretroviral therapy increased from 1% in 1996 to 56% in 1999 and 69% in 2001-2 (fig 2). There was no evidence that this differed in children aged < 1 . There was a shift over time from initial drug regimens containing a protease inhibitor to those containing a non-nucleoside reverse transcriptase inhibitor (see [bmj.com](#)).

Among 371 children on antiretroviral therapy when they were last seen in 2000 or later, 48 (13%) were taking four drugs, 301 (81%) three, and 22 (6%) two. Overall 91 different drug combinations were used.

Hospital admissions

The number of children seen in collaborative HIV paediatric study centres increased from 299 during 1996 to 493 in 2001-2, while the number of hospital admissions fell by 26% from 350 to 258. Admission rates declined by 80% from 4.4 per 100 child years of follow up in 1996 to 0.9 in 2001-2 (test for trend $P < 0.001$). As expected, the rates were lower in children born to mothers whose HIV status was known in pregnancy compared with those in whom it was not (relative risk 0.49, 95% confidence interval 0.42 to 0.57, $P < 0.001$). Among those presenting after birth, rates of

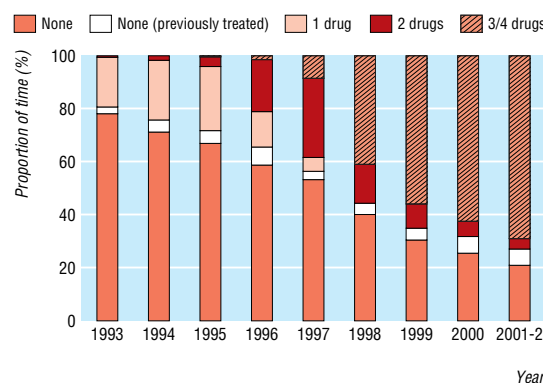


Fig 2 Proportion of time children with HIV spent having never received any drug treatment and while receiving none (previously treated), one, two, or three/four drugs, by calendar year

admission were higher in the first six months after presentation than later (4.21, 3.79 to 4.69, $P < 0.001$).

Discussion

Mortality

From 1997 onwards we have seen reductions of around 80% in mortality and 50% in progression to AIDS among children perinatally infected with HIV-1 in the United Kingdom and Ireland. In the collaborative HIV paediatric study, hospital admission rates fell substantially. The introduction and increased uptake of three or four drug antiretroviral therapy accompanied these changes and is likely to be the major contributing factor.¹⁰ Similar findings, concurrent with the widespread uptake of antiretroviral therapy, have been reported from cohorts of children in the United States¹¹ and Italy.¹² Follow up in these studies was only to 1999, but we observed that survival stabilised during 2000-2 after dramatic reductions during 1997-9, similar to adult cohorts.¹³

As in the Italian study¹² we allowed for late entry at first presentation to reduce bias due to children with a good prognosis surviving longer and being more likely to be enrolled. In addition we repeated analyses separately for children born in the United Kingdom and Ireland or born abroad and observed similar results. This is particularly important in our cohort with the increasing proportion of children born abroad in recent years. As we included all children ever reported in the United Kingdom and Ireland, biases related to referral patterns to specialist centres are unlikely.

AIDS and hospital admissions

Our study is among the first to report reductions in hospital admissions over time in children with HIV, paralleling reductions in mortality and morbidity. The pattern of AIDS diagnoses before and since 1997 were similar, except for a trend towards a higher proportion of opportunistic infections in the later period. Improvements in the uptake of antenatal HIV testing and interventions to prevent transmission from mother to child have substantially increased the proportion of women diagnosed before delivery (from 32% in 1997 to 77% in 2001 in the United Kingdom¹⁴) and led to a corresponding decrease in the proportion of infected infants. As expected, mortality, progression to AIDS, and hospital admission rates were lower in infected children born to mothers whose diagnosis was known before the child was born. Caution must be exercised in interpreting these results to suggest that antenatal testing has benefits beyond prevention of transmission by improving the outcome of infected children; presentation bias could play a part as asymptomatic infected children born to undiagnosed women will not be identified until they present with symptoms. Despite the marked reduction in hospital admission rates, total admissions have declined by only one quarter since 1996, underlying the need for continued inpatient as well as outpatient services for HIV infected children.

Infants

We found that improvements in prognosis among infants aged < 1 year were only modest. This may be because of a decreasing proportion of infants followed

What is already known on this topic

In adults with HIV, rates of death, morbidity, and hospital admission have fallen since the introduction of three or four drug antiretroviral therapy in 1996

In children, treatment has lagged behind because of difficulties in the development of appropriate formulations of antiretroviral drugs and the lack of age specific pharmacokinetic data to guide paediatric dosing

What this study adds

In children perinatally infected with HIV in United Kingdom and Ireland, mortality decreased by 80% between 1997 and 2001-2, paralleling the increased use of three and four drug combination antiretroviral therapy; AIDS progression and hospital admission rates also substantially decreased

Most reductions occurred in 1997-9; rates stabilised between 2000 and 2002

Nearly a quarter of these children were aged over 10 years in 2002, highlighting the need for intensive outpatient care for delivery of antiretroviral therapy and psychosocial support to older children and adolescents

Despite the 80% decrease in hospital admission rates, the absolute number of admissions decreased by only 25%; the increasing number of HIV infected children requiring care has implications for service requirements for HIV infected children and adolescents in the United Kingdom and Ireland

from birth due to a reduction in mother to child transmission rates. In recent years most infants presented with symptoms as they had been born to mothers undiagnosed at delivery (see bmj.com).

Conclusion

Rates of death, progression to AIDS, and hospital admission in children with HIV in the United Kingdom and Ireland have fallen significantly. Despite the marked reduction in hospital admission rates, total admissions have declined by only one quarter since 1996, underlying the need for continued inpatient as well as outpatient services for HIV infected children. As antenatal detection rates improve and fewer children born to infected women are themselves infected, children presenting to paediatric services with HIV are likely to be older and to have been born abroad. This, combined with improved life expectancy, means that the demand for specialist paediatric HIV services will continue to increase.¹⁵ Transitional links with adult services are required to deal with the medical, social, and psychological needs of children entering adolescence and adult life.

National surveillance of paediatric HIV is undertaken by the National Study of HIV in Pregnancy and Childhood (NSHPC) at the Institute of Child Health, London, in collaboration with the Health Protection Agency Communicable Disease Surveil-

lance Centre and the Scottish Centre for Infection and Environmental Health. NSHPC relies on active reporting from paediatricians through the British Paediatric Surveillance Unit of the Royal College of Paediatrics and Child Health, and from obstetric respondents reporting through an active reporting scheme run under the auspices of the Royal College of Obstetricians and Gynaecologists. We thank all those reporting to NSHPC and particularly the staff, families, and children from the 17 CHIPS centres (see bmj.com for details).

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Funding: NSHPC receives support from the Department of Health and the Medical Research Council. The CHIPS cohort has received additional support from Bristol-Myers Squibb, Boehringer Ingelheim, GlaxoSmithKline, Roche, Abbott, and Gilead.

Competing interests: None declared.

Ethical approval: The national study of HIV in pregnancy and childhood received renewed ethics approval, including follow up in the collaborative HIV paediatric study, in 2001 from Great Ormond Street Hospital for Children NHS Trust and the Institute of Child Health research ethics committee.

- 1 Guidelines for the use of antiretroviral agents in HIV infected adults and adolescents (accessed 14 July 2003).
- 2 British HIV Association (BHIVA). Guidelines for the treatment of HIV infected adults with antiretroviral therapy (accessed 14 July 2003).
- 3 Mocroft A, Vella S, Benfield TL, Chiesi A, Miller V, Gargalianos P, et al. Changing patterns of mortality across Europe in patients infected with HIV-1. EuroSIDA Study Group. *Lancet* 1998;352:1725-30.
- 4 Palella FJ Jr, Delaney KM, Moorman AC, Loveless MO, Fuhrer J, Satten GA, et al. Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection. HIV Outpatient Study Investigators. *N Engl J Med* 1998;338:853-60.

- 5 Detels R, Munoz A, McFarlane G, Kingsley LA, Margolick JB, Giorgi J, et al. Effectiveness of potent antiretroviral therapy on time to AIDS and death in men with known HIV infection duration. Multicenter AIDS Cohort Study Investigators. *JAMA* 1998;280:1497-503.
- 6 Sharland M, Castelli Gattinara di Zub G, Ramos JT, Blanche S, Gibb DM on behalf of the PENTA Steering Committee. PENTA (Paediatric European Network for Treatment of AIDS) guidelines for the use of antiretroviral therapy in paediatric HIV infection. *HIV Med* 2002;3:215-26.
- 7 Working Group on Antiretroviral Therapy, Medical Management of HIV-infected Children convened by National Pediatric and Family HIV Resource Center, Health Resources and Services Administration, and National Institutes of Health. Guidelines for the use of antiretroviral agents in pediatric HIV infection. 2001 (accessed 22 Sep 2003).
- 8 World Health Organization. *Scaling up antiretroviral therapy in resource-limited settings: guidelines for a public health approach*. Geneva: World Health Organization, 2002.
- 9 Ades AE, Davison CF, Holland FJ, Gibb DM, Hudson CN, Nicoll A, et al. Vertically transmitted HIV infection in the British Isles. *BMJ* 1993;306:1296-9.
- 10 Tarwater PM, Mellors J, Gore ME, Margolick JB, Phair J, Detels R, et al. Methods to assess population effectiveness of therapies in human immunodeficiency virus incident and prevalent cohorts. *Am J Epidemiol* 2001;154:675-81.
- 11 Gortmaker SL, Hughes M, Cervia J, Brady M, Johnson GM, Seage JR 3rd, et al. Effect of combination therapy including protease inhibitors on mortality among children and adolescents infected with HIV-1. *N Engl J Med* 2001;345:1522-8.
- 12 De Martino M, Tovo PA, Balducci M, Galli L, Gabiano C, Rezza G, et al. Reduction in mortality with availability of antiretroviral therapy for children with perinatal HIV-1 infection. *JAMA* 2000;284:190-7.
- 13 Cascade Collaboration. Determinants of survival following HIV-1 seroconversion after the introduction of HAART. *Lancet* 2003;362:1267-74.
- 14 Unlinked Anonymous Surveys Steering Group. *Prevalence of HIV and hepatitis infections in the United Kingdom 2001*. London: Department of Health, 2002.
- 15 Kinghorn G. A sexual health and HIV strategy for England. *BMJ* 2001;323:243-4. (Accepted 18 August 2003)

Secondhand effects of alcohol use among university students: computerised survey

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“Secondhand effects”—negative experiences directly resulting from someone else’s drinking—are among the problems associated with heavy drinking. Secondhand effects regularly receive attention from the media, and this probably shapes public opinion on alcohol policies and how individuals behave—for example, avoiding high risk situations—although no empirical studies have examined this. Also, studies of the incidence of secondhand effects are rare. One survey about drinking among college students has found that secondhand effects—including interruptions to study or sleep, having to take care of a drunk student, and being insulted or humiliated—were common.¹

Many university students in New Zealand often drink hazardously and are therefore a suitable population for studying secondhand effects.² We estimate the incidence of secondhand effects among university students, by the sex, age, and drinking status of the victim.

Participants, methods, and results

We invited a random sample of 1910 students (aged 16-29 years) at the University of Otago to complete an internet based questionnaire (<http://ipru.otago.ac.nz/ausdemo>), and 1564 (82%) responded.³ We asked the students which of 11 secondhand effects they had experienced in the previous four weeks (table).¹ Responses were none, once, two or three times, or at

least four times. We assessed whether the respondent was a heavy drinker by asking how often they drank six or more drinks on a single occasion.⁴

We obtained complete data from 1524/1564 (97%) respondents. Non-heavy drinkers included 62 abstainers and 191 drinkers who consumed fewer than six drinks on any single occasion. Incidence of any secondhand effect increased with the tendency to drink heavily. Logistic regression with adjustment for sex showed that, relative to 16-19 year olds, 20-24 year olds had similar odds of experiencing at least one secondhand effect (odds ratio 0.80; 95% confidence interval 0.58 to 1.09), and 25-29 year olds were at lower risk (0.17; 0.11 to 0.26).

A previous study considered only undergraduates in halls of residence or in fraternity or sorority houses—environments linked with excessive drinking.¹ We found that being pushed, hit, or assaulted was 1.6 times more common (9% *v* 15%), unwanted sexual advances were 1.4 times more common (20% *v* 28%), and damage to property was 1.3 times more common (15% *v* 20%).

Comment

Secondhand effects due to drinking alcohol are more common among university students than previously thought—for example, a tenth of women and a fifth of men were assaulted at least once in the four weeks

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BMJ 2003;327:1023-4