

Low knowledge and high infection rates of hepatitis in Vietnamese men in Sydney

Catherine C. O'Connor^{A,C,D}, Miranda Shaw^A, Li M. Wen^B and Susan Quine^C

^ASexual Health Service, Community Health Facility, Sydney South West Area Health Service, Camperdown, NSW 2050, Australia.

^BHealth Promotion Service, Population Health, Sydney South West Area Health Service, Camperdown, NSW 2050, Australia.

^CSchool of Public Health, University of Sydney, Sydney, NSW 2006, Australia.

^DCorresponding author. Email: oconnorc@email.cs.nsw.gov.au

Abstract. *Objective:* To describe hepatitis B and C knowledge and self-reported infection and risk behaviour in a group of Vietnamese men living in inner-urban Sydney, in order to assist with future program planning. *Methods:* Data were collected through telephone interviews conducted in Vietnamese using a structured questionnaire from 499 of 761 eligible men contacted, giving a response rate of 66%. The data were weighted to be consistent with the age distribution of Vietnamese men in the area. The findings were compared with a published national telephone study. *Results:* Low knowledge levels of hepatitis B and C were found when compared with data from a published national telephone study. The factors associated with higher mean knowledge scores for hepatitis B were being highly acculturated ($P < 0.001$), ever having been tested for HIV ($P < 0.001$) and knowing someone with HIV ($P < 0.0001$). For hepatitis C, the factors were being highly acculturated ($P < 0.001$), ever injecting drugs ($P < 0.05$) and being vaccinated for hepatitis B ($P < 0.001$). Knowledge regarding hepatitis B was particularly poor. High rates of self-reported hepatitis B infection were noted. Of the participants, 7.2% were aware that they had ever been infected with hepatitis B, more than 10 times the rate in the national telephone study. *Conclusion:* Lower levels of hepatitis B knowledge have been identified in a community with higher numbers of people living with chronic hepatitis B. Targeted community-wide awareness-raising campaigns and health care worker education is required to improve knowledge of hepatitis B and rates of screening in the Australian Vietnamese community.

Additional keywords: hepatitis B, hepatitis C, population based, telephone interview.

Background

People of Vietnamese background comprise 1% of Australia's population. Almost all have migrated from Vietnam to Australia since 1975 or are children of recent migrants.¹ The majority are concentrated in Sydney and Melbourne. Australia's Vietnamese community has many markers of low socioeconomic status, including poor health. There are high rates of some mental health problems,² smoking in men³ and cervical cancer⁴ in women. Several studies have suggested high rates of hepatitis B.⁵ There is also concern around injecting drug use in Vietnamese youth.^{6–8}

Hepatitis B is a serious global public health problem that is both preventable and treatable. People with chronic hepatitis B infection are at high risk of death from cirrhosis of the liver and liver cancer.⁹ Chronic hepatitis B is very common in Vietnamese people born in Vietnam.¹⁰ A recent estimate of the number of hepatitis B infections among Australians born in Vietnam was 30 900.¹¹ People with a South-East Asian background accounted for 33% of all chronic hepatitis B in Australia.¹² Most hepatitis B in people with a South-East Asian background is acquired perinatally.¹³ Hepatitis C is also common in Vietnam with

infection occurring through mother to child transmission, medical transmission and needle sharing when injecting drugs.¹³ Men more commonly bear the severe long-term consequences of hepatitis B and C, liver cancer and cirrhosis.¹⁴ Thus, men in Australia's Vietnamese community may bear a disproportionate burden of chronic hepatitis.

Little is known about the levels of knowledge of chronic hepatitis among Australia's Vietnamese community. An American study of hepatitis knowledge with Vietnamese community members showed moderate levels of knowledge.¹⁵ Studies of Vietnamese women in the USA suggest that acculturation is associated with increased health-seeking behaviour and knowledge.¹⁶ A recent paper found that Vietnamese men living in Sydney generally display lower levels of sexually transmissible infection (STI) knowledge compared with other Australian males.¹⁷ Another recent study found that sex with sex workers is more common among Vietnamese men, both in Sydney and when they travel outside Australia, and unprotected vaginal sex with sex workers is more frequent than was found in the Australian Study of Health and Relationships (ASHR).¹⁸

The Vietnamese community in Australia relies heavily on Vietnamese-speaking family doctors for medical care and health information.¹⁹ Some health information is also accessed through the ethnic media (SG Phan, pers. comm., 2007). Community-wide education on hepatitis C has been delivered as part of the National Hepatitis C Strategy, and extensive efforts have been made to educate immigrant communities, including the Vietnamese community in metropolitan Sydney.²⁰

A large population-based study of sexual and related risk behaviour, the ASHR, was conducted in Australia in 2002 by random-digit telephone interview.²¹ A limitation of that study was that the interviews were only conducted in English and consequently Vietnamese Australians with little English were not included. The current study therefore sought to describe knowledge of hepatitis, risk and carriage among the male Vietnamese population of central Sydney and to compare this with the national data.

Methods

The present study is part of a larger telephone study investigating HIV risk behaviour in Vietnamese men living in Sydney. The methods have been reported previously.^{17,18} The study was approved by the Royal Prince Alfred Hospital Research Ethics Committee. To generate the sampling frame, a validated list of the 100 most common Vietnamese family names was obtained. This list has been used in several other research projects within the Vietnamese community of the central Sydney area (CSA).²² The names were matched with publicly available telephone numbers in the electronic phone book within the CSA. Phone numbers for 3914 residences were obtained. The questionnaire used was a shortened version of the ASHR questionnaire for men, with the addition of a standardised acculturation score.²³

The questionnaire was translated into Vietnamese and then back-translated into English by a professional health translator. Errors in translation were corrected through pilot testing. Advertisements announcing the study were placed in the local Vietnamese media with the endorsement of the NSW Vietnamese Health Professionals' Association.

Results

Seven hundred and sixty-one men were invited to participate and 506 agreed. Seven men were excluded because of inconsistent responses and poor data quality giving a participation rate of 66%. This is comparable to the participation rate of 69.4% for

men in the ASHR.²⁴ Compared with 2001 census data for Vietnam-born or Vietnamese-speaking men in the CSA, these Vietnamese men were significantly more likely to be aged 40 years or older ($P < 0.0001$).

Hepatitis B knowledge

The mean score on the hepatitis B knowledge question was 4.4 (95% confidence interval (CI) 4.0–4.9) compared with 5.9 (95% CI 5.6–6.1) for the ASHR male data,²⁴ indicating that Vietnamese men were significantly less likely to answer correctly (Table 1).

Univariate predictors of hepatitis B knowledge were: being highly acculturated ($P < 0.001$); perceiving yourself to be in good health ($P < 0.01$); ever having been tested for HIV ($P < 0.05$); and knowing someone with HIV ($P < 0.01$). On multiple regression analysis being highly acculturated ($P < 0.001$), ever having been tested for HIV ($P < 0.001$) and knowing someone with HIV ($P < 0.0001$) remained predictive.

There was no significant difference in hepatitis B knowledge in those who had ever been infected with hepatitis B and diagnosed in the last year compared with those diagnosed previously.

Hepatitis C knowledge

The mean score on the hepatitis C knowledge question was 4.9 (95% CI 4.6–5.3) compared with 7.6 (95% CI 7.4–7.8) for the ASHR male data,²⁴ indicating that Vietnamese men were significantly less likely to answer correctly on hepatitis C questions (Table 1).

Univariate predictors of hepatitis C knowledge were: being highly acculturated ($P < 0.01$); being employed full time ($P < 0.05$); ever injecting drugs ($P < 0.05$); and being vaccinated for hepatitis B ($P < 0.001$).

On multiple regression analysis being highly acculturated ($P < 0.001$), ever injecting drugs ($P < 0.05$) and being vaccinated for hepatitis B ($P < 0.001$) remained predictive.

Self-reported hepatitis B and C infection rates

There were 36 men (7.2%) who had ever been infected with hepatitis B, this was 10 times the prevalence (0.7%) found in the men in the ASHR ($P < 0.001$). Of the 36 men (7.2%) who had ever been infected with hepatitis B,²⁵ 19 men (3.8%) were diagnosed in the past 12 months compared with none of the men in the ASHR.²⁵ There was no statistically significant

Table 1. Knowledge of hepatitis B and C and proportion of respondents giving correct response

ASHR, Australian Study of Health and Relationships

Knowledge questions	Correct response	ASHR men ²⁵ (%) <i>n</i> = 9432	Vietnamese study men (%) <i>n</i> = 499	χ^2	<i>P</i> -value
People who have injected drugs are at risk of hepatitis C	True	86.5	59.9	263	<0.0001
Hepatitis C can be transmitted by tattooing and body piercing	True	73.4	54.0	87.4	<0.0001
Hepatitis C has no long-term effect on your health	False	69.1	35.2	231	<0.0001
Hepatitis B can be transmitted sexually	True	58.6	44.2	39.2	<0.0001

difference between rates of ever being infected with hepatitis C in these Vietnamese Australian men (0.8%) compared with the prevalence of 0.5% in the men in the ASHR.²⁵ Two men had been infected with both hepatitis B and C. Hepatitis B knowledge score for those ever infected with hepatitis B was 5.3 (95% CI 3.6–7.0). The hepatitis B knowledge score for the rest of the Vietnamese Australian men we studied was 4.3 (95% CI 3.9–4.8).

Univariate predictors of ever being infected with hepatitis B were: being 20 years or older ($P < 0.04$); not being born or raised in Australia ($P < 0.01$); being married ($P < 0.05$); not being highly acculturated ($P < 0.001$); perceiving yourself to be in poor health ($P < 0.001$); ever having an STI ($P < 0.001$); ever having been tested for HIV ($P < 0.05$); ever being tattooed ($P < 0.05$); and ever having a body piercing ($P < 0.05$). None of the 36 men ever infected with hepatitis B were born in Australia.

On multiple regression analysis, predictors of ever being infected with hepatitis B infection were: perceiving yourself to be in poor health ($P < 0.01$); ever having an STI ($P < 0.001$); ever having been tested for HIV ($P < 0.05$); and ever having a body piercing ($P < 0.05$).

Univariate predictors of ever being hepatitis C infected were: being married ($P < 0.05$); perceiving yourself to be in poor health ($P < 0.05$); and having 50 or more lifetime sexual partners ($P < 0.01$).

All five people who ever injected drugs were 20 years or older and born and raised outside Australia. They were significantly more likely to have ever had anal sex with a female ($P < 0.01$), to have not had sex with a female in the past 12 months ($P < 0.05$), and to ever have had a body piercing ($P < 0.001$). None of the five men who ever injected drugs reported being infected with hepatitis B or C.

Discussion

This is the first population-based telephone survey of sexual and blood-borne virus risk behaviour in Vietnamese men ever conducted. Acceptance rates were comparable to the ASHR, conducted in English in 2002.

The prevalence of ever being infected with hepatitis B and C in our study is self-reported and this is a weakness of the study. Hepatitis B infection status is particularly difficult to interpret for the layman.^{26,27}

Another weakness of this study is that only one question was asked about hepatitis B. This question was the same question as was asked in the ASHR and thus enabled comparison of hepatitis B knowledge. The authors would suggest that in future studies several questions are asked to more adequately assess hepatitis B knowledge.

Our study findings highlight very low levels of hepatitis B knowledge among Vietnamese men and low levels of knowledge of hepatitis C. This is consistent with the ASHR where men who spoke a language other than English at home had a significantly lower STI and blood-borne virus knowledge score of 4.3 (95% CI 3.7–4.9) compared with men who spoke English at home who scored 5.8 (95% CI 5.7–5.9).²⁴

Of particular concern are the very low levels of hepatitis B knowledge in these Vietnamese men with only 59% answering

the question correctly compared with 71% in Seattle, USA, in 2002.¹⁷ The self-reported rate of ever being infected with hepatitis B was 7.8% compared with 0.7% in the ASHR male sample; however, knowledge levels in Vietnamese men were much lower than in the ASHR sample. As anticipated, ever being infected with hepatitis B is very common in the Vietnamese community. However, both infected and uninfected men in this study had lower levels of knowledge than in the male sample of the ASHR.

Acculturation is a predictor of both hepatitis B and C knowledge, thus interventions need to be focussed on less-aculturated individuals.

These findings would suggest that targeted hepatitis B awareness-raising campaigns are urgently needed for the Vietnamese community in Australia. Improved education and training programs for Vietnamese health care workers, including general practitioners, are also required. Combined, we would hope that these strategies may work to improve the levels of screening for hepatitis B, treatment of those chronically infected with hepatitis B and adult vaccination for hepatitis B. In line with good health-promotion practice, the Vietnamese community would have a key role in shaping such programs.

Conflicts of interest

None declared.

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References

- 1 Department of Immigration and Citizenship. Community information summary. The Vietnam-born community. Commonwealth Australia: Canberra; 2006. Available online at: http://www.immi.gov.au/media/publications/statistics/comm-summm/_pdf/vietnam.pdf [verified 1 June 2008].
- 2 Phan T. Investigating the use of services for Vietnamese with mental illness. *J Commun Health* 2000; 25: 411–25. doi: 10.1023/A:1005184002101
- 3 Rissel C, McLellan L, Bauman A. Factors associated with delayed tobacco uptake among Vietnamese/Asian and Arabic youth in Sydney, NSW. *Aust N Z J Public Health* 2000; 24: 22–8. doi: 10.1111/j.1467-842X.2000.tb00718.x
- 4 Lesjak M, Hau M, Ward J. Cervical screening among migrant Vietnamese women seen in general practice: current rates, predictors and potential recruitment strategies. *Aust N Z J Public Health* 1999; 23: 168–73.
- 5 Smith M, Stewart G, Dien N. Prevalence of hepatitis B markers in Vietnamese refugees. *Commun Dis Intell* 1995; 19: 260–1.
- 6 Maher L, Sargent P, Higgs P, Crofts N, Kelsall J, Le TT. Risk behaviours of young Indo-Chinese injecting drug users in Sydney and Melbourne. *Aust N Z J Public Health* 2001; 25: 50–4.

- 7 Hellard M, Nguyen O, Guy R, Jardine D, Mijch A, Higgs P. The prevalence and risk behaviours associated with the transmission of blood borne viruses among ethnic-Vietnamese injecting drug users. *Aust N Z J Public Health* 2006; 30: 519–25. doi: 10.1111/j.1467-842X.2006.tb00779.x
- 8 Aitken CK, Higgs P, Bowden S. Differences in the social networks of ethnic Vietnamese and non-Vietnamese injecting drug users and their implications for blood-borne virus transmission. *Epidemiol Infect* 2007; 17: 1–7.
- 9 World Health Organization. Hepatitis B factsheet. World Health Organization: Geneva; 2000. Available online at: <http://www.who.int/mediacentre/factsheets/fs204/en/> [verified 1 June 2008].
- 10 Nguyen VT-T, McLaws ML, Dore G. Highly endemic hepatitis B infection in rural Vietnam: #076. *J Gastroenterol Hepatol* 2006; 21: A28.
- 11 Dore G, Wallace J, Locarnini S, Desmond P, Gane E, Crawford D. Hepatitis B in Australia: responding to a diverse epidemic. Australian Research Centre in Sex, Health and Society, La Trobe University: Melbourne; 2006. <http://www.hepatitisaustralia.com/documents/acthbv.pdf> [verified 1 June 2008].
- 12 Nakata S, Sony P, Duc DD, Quang NX, Murata K, Tsuda F, *et al.* Hepatitis C and B virus infection in population at low or high risk in Ho Chi Minh and Hanoi, Vietnam. *J Gastroenterol Hepatol* 1994; 9: 416–19. doi: 10.1111/j.1440-1746.1994.tb01265.x
- 13 Lavanchy D. Hepatitis B virus epidemiology, disease burden, treatment, and current and emerging prevention and control measures. *J Viral Hepat* 2004; 11: 97–107. doi: 10.1046/j.1365-2893.2003.00487.x
- 14 Yim H, Lok A. Natural history of chronic hepatitis B virus infection: what we knew in 1981 and what we know in 2005. *Hepatology* 2006; 43: S173–81.
- 15 Taylor VM, Choe JH, Yasui Y, Burke N, Nguyen TT, Acorda E, *et al.* Hepatitis B awareness, testing, and knowledge among Vietnamese American men and women. *J Commu Health* 2005; 30: 477–90.
- 16 Yi J. Acculturation and Pap smear screening practices among college-aged Vietnamese women in the United States. *Cancer Nurs* 1998; 21: 335–41. doi: 10.1097/00002820-199810000-00004
- 17 O'Connor CC, Wen LM, Rissel C, Shaw M, Quine S. Knowledge of STIs and blood borne viruses among Vietnamese men in metropolitan Sydney. *Aust N Z J Public Health* 2007; 31: 464–7. doi: 10.1111/j.1753-6405.2007.00119.x
- 18 O'Connor CC, Wen LM, Rissel C, Shaw M. Sexual Behaviour and Risk in Vietnamese Men Living in Metropolitan Sydney. *Sex Trans Inf* 2006; 31: 464–7. Available online at: <http://sti.bmj.com/cgi/content/abstract/sti.2006.021394v1> [verified 1 June 2008].
- 19 Cheek J, Fuller J, Gilcrest S, Maddock A, Ballantyne A. Vietnamese women and Pap smears: issues in promotion. *Aust N Z J Public Health* 1999; 23: 72–6.
- 20 Department of Health and Aged Care. National hepatitis C strategy 1999–2000 to 2003–2004. Commonwealth Australia: Canberra; 1999. Available online at: [http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pubhlth-publicat-document-hepc_strat9900_0304-cnt.htm/\\$FILE/hepc_strat9900_0304.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pubhlth-publicat-document-hepc_strat9900_0304-cnt.htm/$FILE/hepc_strat9900_0304.pdf) [verified 1 June 2008].
- 21 Smith AMA, Rissel CE, Richters J, Grulich AE, de Visser RO. Sex in Australia: the rationale and methods of the Australian Study of Health and Relationships. *Aust N Z J Public Health* 2003; 27: 106–17. doi: 10.1111/j.1467-842X.2003.tb00797.x
- 22 Rissel C, Russell C. Heart disease risk factors in the Vietnamese community of South Western Sydney. *Aust J Public Health* 1993; 17: 71–3.
- 23 Rissel C. The development and application of a scale of acculturation. *Aust N Z J Public Health* 1997; 21: 606–13.
- 24 Grulich AE, de Visser RO, Smith AMA, Rissel CE, Richters J. Sex in Australia: Knowledge about sexually transmittable infections and blood-borne viruses in a representative sample of adults. *Aust N Z J Public Health* 2003; 27: 230–3. doi: 10.1111/j.1467-842X.2003.tb00813.x
- 25 Grulich AE, de Visser RO, Smith AMA, Risse CE, Richters J. Sex in Australia: Sexually transmittable infections and blood-borne virus history in a representative sample of adults. *Aust N Z J Public Health* 2003; 27: 234–41. doi: 10.1111/j.1467-842X.2003.tb00814.x
- 26 Best D, Noble A, Finch E, Gossop M, Sidwell C, Strang J. Accuracy of perceptions of hepatitis B and C status: cross sectional investigation of opiate addicts in treatment. *BMJ* 1999; 319: 290–1.
- 27 Comfort MB, Wu PC. The reliability of personal and family medical histories in the identification of hepatitis B carriers. *Oral Surg Oral Med Oral Pathol* 1989; 67: 531–4. doi: 10.1016/0030-4220(89)90268-5

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