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Knowledge and perceptions about hepatitis C among police undertaking training at the Western Australia Police Academy

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Bachelor of Health Science Honours

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Cerissa Papanastasiou

31st October 2008

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Abstract

Hepatitis C (HCV) is a significant health issue in Australia with approximately 90% of new cases attributed to injecting drug use (IDU). With no vaccination for this infection it is important that preventive methods are utilised to reduce the likelihood of it being transmitted from the IDU community into the wider community. Research has suggested that people's beliefs, which are influenced by the knowledge they have, play an important role in influencing the action people take in protecting and promoting their health.

While there are numerous studies which have measured the HCV-related knowledge and perceptions of other professions in the community, there did not appear to be research specifically focusing on police. Due to the nature of front-line policing, officers are considered to be at an elevated risk of exposure to HCV. This study investigated the knowledge and perceptions about HCV among a sample of Western Australian (WA) police in training. The sample comprised of 150 pre-service police officers who were undergoing training at the WA Police Academy. There were 121 (80%) Police Recruits and 25 (17%) Cadets included in the sample (4 respondents did not report their role at the Academy). Two thirds of the sample was male and the majority aged between 17 and 27 years.

Overall, the results from this study suggested the knowledge of the pre-service police who participated in this research about HCV, was relatively poor. The majority did, however, believe there was a risk of exposure to HCV while working in the community, both for police officers in general (91%) and for themselves personally (83%). Participants reporting their highest level of education to be secondary school were more likely to perceive themselves to personally be at risk of exposure while on duty than those with a university qualification. Similarly, Police Recruits were more likely to report a personal perceived risk than Cadets. Although the pre-service police were reported to have received some HCV-related training, only 45% of respondents recalled receiving this training.

The results from this study uncovered the need for review of the content and delivery of the HCV-related training provided at the WA Police Academy. As this was a small non-randomised exploratory study the findings cannot be generalised and any further research conducted with this group should ideally utilise a larger randomised sample and utilise a valid and reliable data collection instrument.

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Literature review

Public health issue

Hepatitis C (HCV) is a blood-borne viral infection that affects around 170 million people worldwide with three to four million new infections being reported each year (World Health Organization, 2008). It has been estimated that one percent of the Australian population are infected with HCV. At the end of 2006 it was reported that an estimated 202,400 people were living with chronic HCV in Australia alone (National Centre in HIV Epidemiology and Clinical Research, 2007). According to the latest available data, on average 12,000 new infections are reported each year in Australia with; 12,988 new cases being reported in 2004, 12,335 in 2005, 12,373 in 2006 and 12,330 in 2007 (Australian Government, 2008a, 2008b).

HCV is one of the most frequently notified diseases in Western Australia (WA) (Hepatitis Council of Western Australia, 2008b). For instance, the number of new notifications of HCV in WA since 2004 has been; 1,192 in 2004; 1,078 in 2005; 1,151 in 2006; and 1,283 in 2007 (Government of Western Australia, 2008). While the overall number of new notifications in Australia seems to be declining, those in WA are reported to be increasing. The incidence and prevalence of HCV alone make it a significant public health problem in Australia.

The prevention of HCV is also important because the progression of the virus is relatively slow and people are therefore often unaware they have HCV until the later stages of the infection and can be unknowingly transmitting this virus to others (Commonwealth of Australia, 2005). It is a virus that threatens the liver resulting in inflammation which can lead to permanent scarring, a condition known as cirrhosis (Commonwealth of Australia). This progression to cirrhosis among HCV-positive individuals is reportedly the most significant cause of liver cancer in Australia. Approximately 25% of those with HCV develop liver cancer (New South Wales Health, 2003) and HCV is the most common reason for liver transplants in Australia (Commonwealth of Australia). This information on the progression of the virus highlights the importance of the prevention of this public health issue.

For HCV transmission to occur the virus must leave the body of an individual whose blood concentration of HCV is sufficient to represent an infectious threat and the blood carrying the virus must enter the blood stream of another person (Australian Institute for Primary Care, 2001). Unlike the human immunodeficiency virus (HIV), HCV is only transmitted via infected blood. It is however, important to appreciate that HCV is transmitted relatively easily. Firstly, HCV is a virus that is small in size and an amount sufficient for the transmission of this infection can exist in an amount of blood so small it cannot be seen by the human eye. Secondly, the virus is quite robust and can remain communicable outside the body for some time (National Centre in HIV Social Research, 2001). Due to the robustness of the virus, strategies implemented for HIV, such as cleaning injecting equipment with bleach, are not completely effective for HCV (Public Health Agency of Canada, 2004). HCV is therefore not only a significant public health issue in terms of its incidence and prevalence, but also because it is a robust and easily transmissible infection and as discussed next, is for the most part is preventable.

As mentioned earlier, HCV is transmitted via blood-to-blood contact and up to 90% of new transmissions each year in Australia are reportedly via the sharing of contaminated equipment among injecting drug users (IDUs) (Maher, Chant, Jalaludin, & Sargent, 2004). This extends beyond sharing needles and syringes to include sharing any injecting equipment such as, spoons, filters, water, tourniquets, swabs and/or the drug solution (Hepatitis Council of Western Australia, 2008b).

HCV can also be transmitted through the use of unsterile tattooing and piercing equipment and through unsterile medical procedures or vaccinations (Hepatitis Australia, 2008). Other ways of transmission include mother to child transmission at birth, sharing shavers and toothbrushes with a HCV-positive person and needle-stick injuries in health-care settings (Hepatitis Council of Western Australia, 2008b). Although currently not a risk of transmission, it is worth noting that prior to 1991 screening of donated blood products was relatively minimal. This resulted in a number of people in Australia acquiring the virus through receiving HCV-contaminated blood transfusions (Hepatitis Council of WA).

From a public health perspective, it is also important to recognise that while vaccinations exist for hepatitis A and hepatitis B (HBV), to date there is no vaccination available for HCV (Hepatitis Council of Western Australia, 2008b). Of those exposed to the HCV virus, approximately 25% will clear the infection within six months (Commonwealth of Australia, 2005). The remaining 75% will typically develop chronic HCV with around 50%-60% of this 75%, developing long-term symptoms (Australian Institute for Primary Care, 2001).

While there is treatment available as an option for those who do develop long-term symptoms, it can be a lengthy and expensive process generally taking around six to 12 months to complete (Hepatitis C Council of Victoria, 2002a). Moreover, the treatment is complex involving both intravenous administration a few times a week and tablets taken orally twice a day (Hepatitis C Council of Victoria). In addition, the response to HCV treatment is reported to vary from one individual to the next and is said to range from being 25%-70% successful depending on the strain of HCV and the concentration of the virus in the blood (Hepatitis C Council of Victoria). There are also a range of side effects associated with HCV treatment which vary in the number and severity of side effects, experienced by different people. With all of this in mind and the fact that there is currently no vaccination for HCV, it is imperative that prevention strategies are implemented in order to reduce the likelihood of HCV becoming even more prevalent.

At-risk communities

Four subgroups of the Australian population are reported to be at a higher risk of exposure to HCV. IDUs are an important target group as they make up the majority of new infections in Australia each year (Maher, Chant, Jalaludin, & Sargent, 2004). Prisoners are also a significant target group as almost 60% of people entering prison have a history of IDU (Butler & Papanastasiou, 2008). Likewise prison officers are considered to be at high-risk of workplace exposure to HCV. This is due to the high prevalence of HCV in the prison environment and because they have daily contact with IDUs with high rates of blood-borne viruses (Dillon & Allwright, 2005). Finally, the recognised connection between drug use and crime combined with the nature of

operational policing places police officers at a higher risk of being in contact with IDUs when compared to those in other occupations.

HCV is the most prevalent pathogenic virus transmitted among IDU communities (Australian Government, 2005). In 2007, 328,100 Australians reported ever injecting a drug while 82,400 reported injecting in the past 12 months (Australian Institute of Health and Welfare, 2008). When comparing HCV and HIV prevalence, there is a noticeable difference among IDUs whereby HIV prevalence is relatively low at below two percent (National Centre in HIV Epidemiology and Clinical Research, 2007). By contrast, HCV prevalence among IDUs who presented at needle and syringe programs around Australia was estimated to be 63% in 1995, 51% in 1996 and remained constant at around 50% from 1996 to 2004 (National Centre in HIV Epidemiology and Clinical Research, 2006). In 2006, the prevalence of HCV among IDUs reportedly rose to 62% (National Centre in HIV Epidemiology and Clinical Research, 2006). HCV is therefore a significant health threat among IDUs. This highlights that while HIV transmission among IDUs poses a significant public health threat in Australia, HCV is a more substantial problem.

Prisoners are also at high-risk of HCV infection because many prison entrants have a history of IDU. In both Germany and New Zealand around 80% of prisoners with a history of IDU have been reported to be HCV positive (International Harm Reduction Association, 2008). In the United Kingdom 30-44% of prisoners with a history of IDU are reportedly living with HCV, while in the United States 30-40% of prisoners are reported to be HCV positive, regardless of whether they have a history of IDU. In Estonia this statistic is significantly higher with 82-97% of prisoners reported to be living with HCV (International Harm Reduction Association).

High rates of HCV infection among prisoners in Australia have also been reported. In 1997, HCV rates among prisoners reporting a history of IDU in New South Wales, Australia was 66% (Butler et al., 1997). From the National Prison Entrants' Blood-borne Virus Survey conducted in 2007, HCV prevalence among Australian prison entrants who had previously been incarcerated was 48%, while nine percent of those entering prison for the first time were HCV positive (Butler & Papanastasiou, 2008).

Of male prison entrants reporting a history of IDU, 58% were HCV positive, while 78% of female prison entrants who reported a history of IDU had HCV. When comparing the above prevalence of HCV to HIV among prison entrants, less than one percent of the total participants tested positively for HIV (Butler & Papanastasiou). Overall, the prevalence of HCV among prisoners is significantly higher than that of HIV.

The risk of HCV transmission is somewhat exacerbated in the prison environment. Interpersonal relationships are different in prison and resources that can be exchanged, such as syringes, have a high value as a commodity (Small et al., 2005). It is important to appreciate that most incarcerated IDUs eventually return to the general community and so this puts the community at risk of contracting HCV (Dolan & Wodak, 1999). As mentioned earlier, prison officers are considered to be at a high-risk of exposure to HCV as it is the nature of their work to have daily contact with IDUs in the prison environment. Their risk of exposure is heightened by the high prevalence of HCV among prisoners (Dillon & Allwright, 2005).

In addition to IDUs, prisoners and prison officers, it is a reasonable assumption that due to the nature of front-line policing, police officers could also be considered to be at an elevated risk of exposure to HCV when compared to other professions. One significant factor that influences this risk is their interaction with drug users. While this interaction is no longer solely due to law enforcement, the fact that police come in contact with drug users who inject drugs creates an obvious risk to the officers. It is beneficial for police to receive adequate training to ensure such occupational risks are minimised (Australian Institute for Primary Care, 2001).

As discussed earlier, many people entering Australian prisons have a history of drug use. Given that nine percent of new entrants into prison and 48% of entrants who had previously been to prison at some point in their life in 2007 were HCV positive (Butler & Papanastasiou, 2008), police are considered at risk because of the nature of their work in terms of arresting those who potentially may go to prison.

Other factors that contribute to the risk of exposure to HCV among police include contact with potentially infected injecting equipment, needle stick injuries, car crashes, and assaults where blood is present. While the seriousness and likelihood of HIV transmission is generally well-appreciated by front line police (and by education and welfare workers), there appears to be a degree of complacency regarding the risk of HCV transmission (Coppola et al., 2004; Murtagh & Hepworth, 2004). Moreover, some misperceptions about how the transmission of HCV is both facilitated and prevented exist in the general community. These include believing that: there is a vaccination for HCV; it is a sexually transmitted infection; and HCV can be transmitted through means such as touching another person (Hepatitis C Support Project, 2008). It would be reasonable to assume such misperceptions may also be prevalent among police.

Given the public health significance of HCV, the reported complacency and misperceptions about its transmission and that police are at risk of occupational exposure, it was considered important to investigate the knowledge and perceptions among police and use the findings to make recommendations regarding the training of police.

Current research

When reviewing the literature regarding knowledge about HCV there appeared to be information pertaining to different professions and sub-groups of the population. For example, Murtagh and Hepworth (2004) examined the knowledge and practice of occupational health and safety regarding HCV among beauty therapists in Adelaide, South Australia. They administered a survey firstly to all beauty therapists who advertised in the Telstra Yellow Pages and secondly they distributed the survey through four product distribution agencies. These authors reported a 38.2% response rate from the group advertised in the Telstra Yellow Pages and concluded that it was not possible to calculate the response rate of the second group because they were not sure how many surveys were distributed through the product distribution (Murtagh & Hepworth).

Overall, these investigators found the knowledge and practice of occupational health and safety regarding HCV among the beauty therapists who participated in the study was relatively poor (Murtagh & Hepworth, 2004). Their knowledge of transmission modes was particularly meagre with substantial proportions of respondents incorrectly identifying sharing coffee cups (42%), kissing (46%), sharing cutlery (37%) and sneezing (28%) as ways of transmitting HCV. Respondents confused the transmission modes of HCV with that of HIV and HBV. While respondents correctly identified sharing toothbrushes (64%), sharing towels (25%) and specific beauty procedures (25%) as possible modes of transmission, only 38% of the beauty therapists included in the study estimated the correct prevalence of HCV (Murtagh & Hepworth).

Murtagh and Hepworth (2004) reported difficulty in identifying and following up beauty therapists due to the inability to monitor the changing composition of the beauty therapy practices. They found beauty therapy practices were opening and closing relatively rapidly. They identified that this created problems in recruiting, placing limitations on the interpretation of the results. Therefore it is unlikely that their findings can be generalised to other beauty therapy practices.

Rosenthal, Haste, Mitchell and Ollis (2002) surveyed teachers of health and sex education across Australia about their HCV knowledge, attitudes, beliefs and

behaviours. School teachers were considered important in delivering HCV prevention for two reasons. Firstly, they have the opportunity to inform a large number of young people and secondly, young people are known to trust the information provided by school teachers and perceive the information to be accurate (Rosenthal et al.). Rosenthal et al. mailed out a self-completion questionnaire to 1,600 teachers, of whom 473 responded (29.6%).

Rosenthal et al. (2002) conducted parametric and non-parametric tests on the data collected and concluded the demographic characteristics of the sample reflected the broader population of the target group. Knowledge about the risks of transmission and health consequences of HCV were relatively high. The school teachers were, however, reportedly confused facts about HCV with those about HIV (Rosenthal et al.). Many teachers incorrectly perceived that the most common mode of HCV transmission was through sexual contact while almost half (48%) could not identify a symptom of HCV (Rosenthal et al.). While study limitations did not appear to be raised, one concern that emerged when reviewing this article was the reliability and validity of the self-completion mail questionnaire used for data collection. In addressing this limitation, it appeared the researchers had the questionnaire reviewed by their network of teacher contacts which resulted in slight changes being made to the instrument (Rosenthal et al.).

In the United States (US) Coppola et al. (2004) conducted a study to determine opinions and practices of Primary Care (PC) trainee doctors on the topic of HCV. Data were collected via a one-page questionnaire administered to 180 trainee physicians enrolled in five US training programs, all of whom completed the survey. These researchers concluded trainee PC doctors lacked the knowledge deemed adequate for management of patients with HCV. A substantial number of respondents (66%) reported they would vaccinate patients for HCV when no vaccination is currently available and only 52% of the doctors surveyed knew the correct treatment for HCV-positive patients (Coppola et al.). Coppola et al. also reported a significant percentage of those surveyed (69%) felt the HCV-related information provided in their training was inadequate.

While limitations of this study did not appear to be presented by these authors, the five accredited training programs in the US where the PC trainee doctors were recruited were not chosen randomly and therefore it would be unwise to generalise the results to other PC doctors in training.

Dillon and Allwright (2005) conducted a cross-sectional study with prison officers across four Dublin prisons. Written questionnaires were administered to 273 selected prison officers across the four prisons and 272 agreed to participate resulting in a 99.6% response rate. The aim of this study was to explore the knowledge and perceptions of prison officers about HBV, HCV and HIV. Dillon and Allwright noted that upon entry to the Prison Service, prison officers received information on these topics from a medical officer. The questionnaire administered in this research addressed demographic characteristics, HBV vaccine status and knowledge about the three blood-borne viruses, perceptions of risk of contracting the viruses in their workplace and their previous training status (Dillon & Allwright). The data collected were analysed using chi-squared tests and logistic regression.

The prison officers' knowledge on HBV, HCV and HIV transmission modes was reported to be relatively high, although like those in the beauty therapist study (Murtagh & Hepworth, 2004), some officers believed the viruses could be contracted through casual contact such as coughing and sneezing (Dillon & Allwright, 2005). In terms of the prison officers' perception of risk, most of the 272 officers surveyed believed there was a risk of contracting HBV (92%), HCV (94%) and HIV (94%) while at work. Dillon and Allwright concluded the training officers received upon entering the Prison Service had little effect on both their knowledge of transmission modes and their perception of risk of contracting a blood-borne virus at work.

Like the study on the PC trainee doctors (Coppola et al. 2004) discussed earlier, study limitations did not appear to be raised by Dillon and Allwright (2005). The selection of prisons included in the study was based on convenience. Within these prisons one in four officers was selected randomly, stratified by prison, grade and length of service (Dillon & Allwright). This may affect the generality of the results to the wider prison officer population.

In summary, existing research on the knowledge and perceptions of different professionals on the topic of HCV appeared to be sparse with professions sampled including only beauty therapists, teachers, PC doctors in training and prison officers. Overall, the beauty therapists and PC doctors were reported to lack knowledge on this topic, while teachers' and prison officers' knowledge was relatively sound. The beauty therapists and teachers reportedly confused facts about HCV with those of HBV and HIV. Moreover, prison officers and beauty therapists incorrectly identified casual contact, such as sneezing and coughing as potential modes of transmission and it also appeared the PC doctors perceived their knowledge of HCV to be inadequate. Finally, the study by Dillon and Allwright (2005) reported the training prison officers received had little effect on their knowledge and perception of risk of contracting a blood-borne virus.

There did not appear to be empirical information regarding the knowledge, perceptions and protective behaviours of police officers. As described earlier, police are a group in the community who work in situations that may put them at risk of exposure to HCV. It was therefore deemed important to identify the knowledge and perceptions police may have about HCV. If such an investigation revealed inaccurate knowledge or misperceptions about HCV, then recommendations regarding the professional development needs of police could be identified.

Theoretical framework

The knowledge and beliefs people hold regarding a health threat such as HCV is reported to influence their actions. The Health Belief Model (Nutbeam & Harris, 1998) highlights the importance of the beliefs people have about the costs and benefits of undertaking some course of action and the level of importance they place on this course of action to prevent a health problem occurring. This model is particularly useful when attempting to minimise the extent of health-compromising behaviours. For example, when applying this model to police personnel and their adoption of protective behaviours regarding HCV, the importance of identifying and correcting any inaccurate knowledge and/or misperceptions about HCV is pertinent. Moreover, from the perspective of the Health Belief Model police personnel are more likely to

implement protective strategies if they appreciate why they are considered a high-risk group for exposure to HCV (Nutbeam & Harris).

Summary

For a number of reasons HCV is a significant public health issue in Australia. One of these reasons is because of the magnitude of the incidence and prevalence of the infection, whereby an estimated 202,400 Australians live with HCV and approximately 12,000 new notifications are reported each year. Secondly, the virus has a slow progression and is relatively easily transmitted. With the process of treatment of HCV being quite lengthy, expensive, and typically accompanied by a range of side effects, in addition to there not being a vaccination available for the infection, the importance of prevention and the need for implementation of prevention strategies is clear.

Particular sub-groups within the community are at a higher risk of exposure to HCV. For instance, IDUs in the community are considered a high-risk group predominantly due to the sharing of infected injecting equipment. Prisoners are also considered a high-risk group because of the association between drug use and crime and because needle and syringe programs do not currently operate in any Australian prison. Prison officers are a third group who are considered at risk of contracting HCV due to their regular interaction with both IDUs and prisoners. Finally, front-line police officers can also be considered to be at an elevated risk of exposure to HCV as a result of their interaction with drug users, people who have been to prison, contact with injecting equipment via searching both people and premises and their attendance at assaults and accidents where blood is present.

Although the HCV-related knowledge and perceptions of other professionals have been investigated previously, there did not appear to be any research on police officers. There were data available on beauty therapists, health and sex education teachers, U.S. Primary Care trainee doctors and prison officers in Ireland. The fact that HCV is a significant public health issue in Australia; police being a population at risk of exposure to HCV while on duty and the lack of research on their knowledge and

perceptions about HCV highlighted the need for research on this specific area in Australia. Given the theoretical connection between knowledge and perceptions about a health issue and the subsequent implementation of protective behaviours (i.e. The Health Belief Model) it is important police are equipped with adequate knowledge to ensure they can protect themselves effectively against the risk of exposure to HCV when working in the community.

Purpose of study

As described previously, HCV is already a significant public health issue among IDUs in Australia and the risk of transmission into the wider community needs to be minimised. The association between IDU and crime is well established and police are therefore considered to be a high risk group in terms of exposure to HCV. The purpose of this study was therefore to investigate the knowledge of pre-service police about the transmission, symptoms and prevention of HCV and their perceptions about the risk of being exposed to HCV whilst on duty.

Research questions

The specific questions investigated in this research were as follows:

- To what extent do WA pre-service police have accurate knowledge regarding the health significance, modes of transmission and prevention of hepatitis C?
- To what extent does the knowledge WA pre-service police have regarding HCV impact upon their perception of the likelihood of general and personal exposure to HCV whilst on duty as a front-line police officer?
- What are the gaps/needs of WA police in terms of pre-service education about hepatitis C?

Definition of terms

Health Belief Model

The Health Belief Model is a theoretical framework that attempts to explain health behaviour through gaining an understanding of a person's beliefs (Nutbeam & Harris, 1998). It focuses on the role people's beliefs, which are influenced by the knowledge they have, play in influencing the action people take in protecting and promoting their health. From the perspective of the Health Belief Model, if a person believes that he or she is at risk of a particular health problem or may be exposed to a known health threat, and believes the consequences could be serious, he or she is more likely to take some course of preventive action (Nutbeam & Harris).

Hepatitis C

HCV is an infection which causes inflammation of the liver which can lead to slight or serious liver damage (Hepatitis C Council of Victoria, 2002b).

Police Cadet

A Police Cadet is a full time non-operational employee who joins the WA Police Academy from the age of 16 years. During a period of up to two years Cadets are trained in theoretical and sometimes practical elements of policing and may be offered the opportunity to enter the Academy as a full time Police Recruit (Western Australia Government, 2008a).

Police Recruit

A Police Recruit in Western Australia refers to a person who trains for six months at an accredited Police Academy and who becomes a Police Constable after successfully graduating (Western Australia Government, 2008b).

Prevention

Prevention can be described as stopping or delaying a health-compromising event from happening (Australian Drug Information Network, 2004). For the purpose of this research the undesirable event was seen as unprotected exposure to HCV.

Protective Factor

A protective factor is something known to reduce the likelihood of an adverse health-related occurrence. It is often a characteristic of an individual or the social environment (Australian Drug Foundation, 2008). In this research, accurate knowledge and perceptions about the transmission and prevention of HCV were considered protective factors.

Risk Factor

A risk factor is something known to be associated with an increased likelihood of a health-compromising outcome (Dekovic, 1999). In this research inaccurate knowledge and misperceptions about HCV was considered a risk factor for police officers not using protective actions/strategies to protect themselves from exposure to HCV.

Methods and materials

Study design

This study was quantitative in nature and employed a cross-sectional research design to investigate the HCV-related knowledge and perceptions of WA pre-service police in training.

Participants

The participants of this research comprised people undergoing training at the WA Police Academy in Joondalup and included Police Recruits and Cadets. At any one time there were estimated to be 200 officers (Sergeant Scott Arnold, personal communication, March 28, 2008) in training at the WA Police Academy, all of whom were eligible to participate in this research.

Ethical approval

Ethics clearance was obtained prior to data collection from the Faculty of Computing, Health and Science Ethics Committee of Edith Cowan University. A memo outlining this approval from the Ethics Committee appears as Appendix A. In addition approval to conduct this research was obtained from the WA Police Research and Review Committee (Appendix B). This committee approved the research on the condition the survey assessed police knowledge of other blood-borne infections, namely HBV and HIV. To have included these other two blood-borne viruses would have been beyond the scope of this study. Therefore the additional information was collected and made available to the WA Police, however this research was restricted to hepatitis C. As a result of this the Information Letter to Participants and Questionnaire indicated data will be collected on all three blood-borne viruses.

Consent

Passive consent was obtained from participants prior to data collection. Participants were issued with an Information Letter to Participants (Appendix C) wherein it was explained that completing the questionnaire indicated consent. Participants were also informed that their participation was entirely voluntary and that any information

provided would remain confidential and anonymous. Also included in the Information Letter to Participants, was a statement to the effect that there would be no negative impact on those who decided not to participate. If willing to participate, they were asked to complete the questionnaire which took approximately 15 minutes. They were asked to place the questionnaire into an envelope provided. To ensure complete anonymity the researcher left the room while the respondents handed the sealed envelope to the researcher's supervisor.

Procedure

Subsequent to acquiring the necessary ethical and procedural approval a convenient time was established to undertake data collection. Data were collected from participants during one of their usual classroom-based sessions. Participants were provided with a brief explanation of the significance of the research and invited to participate in the research by completing the written questionnaire. All present were given a small non-monetary incentive as a thank you gesture.

Data collection occurred after the pre-service police personnel had received their training at the WA Police Academy on HCV. The Officer in Charge of the scenario training at the WA Police Academy reported all participants included in the study who were enrolled as Recruits, had received the in-house HCV-related training prior to the questionnaire being administered (Sergeant Scott Arnold, personal communication, August 12, 2008). The Cadets who participated were also reported by the Cadet (Traineeship) Unit to have received 30-minutes of training on the topic of blood-borne viruses in preparation for their HBV vaccination (Heather Murphy, personal communication, August 27, 2008).

Independent and dependent variables

The independent variables in this study included the demographic characteristics of the respondents, questions specifically relating to knowledge of HCV and training on the topic. The dependent variables in this study comprised of respondent's perceptions regarding the likelihood of exposure to HCV while on duty, both for police officers in general and personally.

Instrumentation

Data for this study were collected using a self-administered written questionnaire. Items in the questionnaire were sourced from previously used surveys and others were designed specifically for this research. Refer to Table 1. Efforts were made to contact the authors of the surveys, however no response was received, therefore validity and reliability of the items used cannot be authenticated. Response categories were made up either Likert scale or forced-choice method. The Likert scale included a range of five choices. The forced-choice method gave the respondents three choices to choose, which always included 'unsure'.

Overall there were 49 items on knowledge over five questions. Of these, items were grouped pertaining to four different knowledge themes. These themes included knowledge on HCV transmission, symptoms, protective strategies and risk scenarios while on duty. Four items addressed the demographic characteristics of participants and included an item identifying their role (i.e. Police Recruit or Police Cadet) at the WA Police Academy. To assess the extent of contamination, three items in the questionnaire addressed whether participants had received the standard in-house (i.e. WA Police Academy) training on the topic of HCV, self-reported effectiveness of this training and/or whether they had received any other HCV training. Two items addressed the police personnel's perceptions on the risk of being exposed to HCV, both for police officers in general and the respondents own personal perception of risk. The questionnaire appears as Appendix D.

Transmission knowledge

The 21 questionnaire items relating to respondents' knowledge of HCV transmission were sourced from other previously used surveys, while others were developed for this research. Items 1f, 1g, 1i, 1k, 1n, 1o and 2g were sourced from the Hepatitis and Health Survey (National Centre in HIV Social Research, 2001). Items 1e, 2a, 2b, 2c, 2d, 2f, 2h and 2k were sourced from the Hepatitis C and Me Survey (Hepatitis C Council of Victoria, 2008) and items 1d, 1h, 1j, 1m, 2e, 2i and 2j were developed specifically for this research. All of these items had five-point Likert scale response categories with the options of 'strongly agree' through to 'strongly disagree'.

Table 1

Data collection questions source and response category type

Data Collection Objective	Response category type	Items	Source
Knowledge re: HCV prevalence, treatment, vaccination, transmission, symptoms, protective strategies & risk scenarios	5 point Likert scales and forced-choice	1-5	Q1. Hepatitis and Health Survey 2001 (National Centre in HIV Social Research 2001). Q2-3. Hepatitis C and Me Survey (Hepatitis C Council of Victoria, 2008) Some new items
Perception of risk	Forced-choice	14-15	New items
Contamination	Forced-choice	16-18	New items
Demographic information	Forced-choice	19-22	National Drug Strategy Household Survey 2007 (Australian Institute of Health and Welfare, 2008) One new item

Symptoms knowledge

There were a total of 11 variables that made up the theme on respondents' knowledge of HCV symptoms. Item 1c was developed specifically for this research while item 1k was sourced from the Hepatitis and Health Survey (National Centre in HIV Social Research, 2001). The remaining items, 3a through to 3i were sourced from the Hepatitis C and Me Survey (Hepatitis C Council of Victoria, 2008). Those variables relating to the symptoms of HCV had forced-choice response categories of 'agree', 'disagree' and 'unsure'.

Protective strategies knowledge

Nine variables were included in the questionnaire which addressed respondents' knowledge strategies to protect themselves against contracting HCV. As these questions related specifically to the police officer profession, they were all developed for this research. Forced-choice response categories were used and included 'not effective', 'effective' and 'unsure'.

Risk scenario knowledge

The variables addressing respondents' knowledge of the HCV risks specific to police officers were made up of five scenarios that had forced-choice answers with categories being 'low risk', 'high risk' and 'unsure'. These items were developed for the purpose of this research as they were specific to the police officer profession.

Perception of risk

There were two variables included in identifying respondent's perception of risk. One focused on the risk respondents believed that police officers had of being exposed to HCV while on duty and the other identified their personal risk of being exposed to HCV while on duty. These items were developed specifically for this research and had response categories of a 5 point Likert Scale ranging from 'very likely' through to 'very unlikely'.

Training on HCV

A questionnaire item was developed to identify whether the respondents had received the in-house training on HCV and several items were constructed which allowed them to evaluate the in-house training. Items were also developed which addressed contamination of knowledge through receiving information on HCV through other measures such as a pamphlet, poster or DVD.

Demographic characteristics

The items that addressed respondent's demographic characteristics were sourced from the 2007 National Drug Strategy Household Survey (Australian Institute of Health and Welfare, 2008). These included items identifying the respondent's gender, birth year and highest level of education. A question was also included which was developed to identify whether respondents were enrolled as Police Recruits or Police Cadets at the WA Police Academy.

Scoring of knowledge themes

Some of the independent and both of the dependent variables were given a score in order for the univariate analyses to be undertaken. The method of deriving the mean score for each of the knowledge themes will be outlined below. Negatively presented items were re-coded so as to be in the same direction and mean scores were generated for the four different themes or domains of HCV-related knowledge. As a result of small numbers of responses in some response categories and overall lack of normality of the mean domain scores knowledge and perception of risk, the scores were dichotomised. The procedure for dichotomisation is presented below.

Transmission

Mean scores were calculated for each respondent with the range in mean score possible to obtain for this area of knowledge ranging from one to five. Respondents with a mean score of less than or equal to two were deemed competent in the area of transmission of HCV, while those with a score above two were not.

Symptoms

The variables were re-coded so that agree=2, unsure=1 and disagree =0. Mean scores were then calculated and a score between 0 and 2 was generated for each respondent. Respondent's with a score of 2 were deemed to have knowledge on HCV symptoms, while those with a mean score ≥ 1 and < 2 were categorised as being unsure of HCV symptoms. Finally, those scoring < 1 were deemed to not have knowledge on HCV symptoms.

Protective strategies

The protective strategies variables were re-coded so that very effective=2, unsure=1 and not effective=0. Variables were re-coded as to be in the same direction and mean scores were then calculated and a score between 0 and 2 was generated for each respondent. Respondents with a score of 2 were deemed to have knowledge on HCV protective strategies, while those with a mean score ≥ 1 and < 2 were categorised as being unsure of effective HCV protective strategies. Finally, those scoring < 1 were deemed to not have knowledge on protective strategies relating to HCV. Due to small

numbers in the final category of not having knowledge on protective strategies it was appropriate to collapse the 'unsure' and 'no' knowledge categories.

Risk scenarios

For the risk scenario knowledge theme mean scores were calculated and a score between 0 and 2 was generated for each respondent. Respondents with a score of 2 were deemed to have knowledge on HCV risk scenarios, while those with a mean score ≥ 1 and < 2 were categorised as being unsure. Finally, those scoring < 1 were deemed to not have knowledge on HCV risk scenarios. Due to small numbers in the final category of not having knowledge on risk scenarios it was appropriate to collapse the 'unsure' and 'no' knowledge categories.

Perception of risk

The two items on perception of risk were dichotomised from the five-point Likert scale to a 'yes' or 'no'. Those scoring 'very likely' or 'likely' scored one, which meant 'yes' they perceived there was a risk and those scoring 'unsure', 'unlikely' or 'very unlikely' scored zero, which was interpreted as 'no' they did not perceived there to be a risk.

Demographic characteristics

Due to small numbers in the higher age year categories (1961-1965; 1966-1970 and 1971-1975) they were collapsed into one birth year category. For the same reason of small numbers, the education level categories 'trade certificate' and 'non-trade certificate' were collapsed into one category.

Validity

It is important to gain valid data when undertaking research and this is affected by the validity of a data collection instrument, such as a questionnaire. Validity refers to the ability of a data collection instrument to measuring what it is designed to measure (Kumar, 2005). When designing a questionnaire it is acceptable to use previously-validated items if they are suitable to the research setting, providing the original author is acknowledged (Streiner & Norman, 2003).

As outlined above most of the questionnaire items were sourced from previously used surveys while other items were designed specifically for this research. A panel comprising of four people with expertise in the area of HCV, policing, public health and education reviewed the questionnaire for content validity and minor amendments were subsequently made to the questionnaire.

Reliability

The reliability of an instrument is also important as it ensures that consistent measurements are produced each time the instrument is used (Kumar, 2005). This means the data collected through administering a questionnaire can be considered to be stable and similar results should be obtained when it is administered several times under similar conditions. This is commonly verified through a test/re-test method (Kumar). Due to time and financial constraints associated with this research, it was not feasible to undertake an assessment of the reliability of the questionnaire items.

Statistical Analyses

Data entry and management

Prior to data entry the questionnaires were allocated a unique identification number and then, consistent with theoretical recommendations checked for data quality and completeness (Tabachnick & Fidell, 1996). Any missing data and/or inconsistencies established through this inspection were clarified. Data were entered into SPSS for Windows Version 16.0 (SPSS, 2007) and checked to ensure accuracy of data entry through generating frequency tables. Data were then analysed using SPSS for Windows Version 16.0 (SPSS) and level of significance set at 0.05.

Demographic characteristics

Descriptive statistics were generated from the final data set to determine demographic characteristics of the total sample of respondents. Proportions and percentages were presented with the respective sample size denominator (n). Descriptive statistics outlining the number of respondents who reported receiving the in-house training on HCV at the WA Police Academy were generated and statistics regarding the self-reported effectiveness of this training were presented.

Response characteristics

Consistent with the Health Belief Model theoretical premise of this research (Nutbeam & Harris, 1998), descriptive statistics were generated to assess the accuracy of participants' knowledge regarding the transmission, symptoms, protective strategies and risk scenarios specific to police officers.

Response characteristics - Exploring differences

Univariate analyses were undertaken for police personnel's perception of the likelihood of a front-line police officer being exposed to HCV and the independent variables. Chi-squared analyses were undertaken to identify any significant associations between respondents' perception of the likelihood of a front-line police officer being exposed to HCV and the independent variables. Univariate analyses were then repeated to assess the association between respondents' perception of the likelihood of **personally** being exposed to HCV and the independent variables. Chi-

squared analysis were undertaken to identify any significance between respondents' perception of the likelihood of personally being exposed to HCV and the independent variables.

Exploring the relationship between independent variables and perception of personal risk

Multivariate logistic regression analyses were undertaken in SPSS using the Forced Entry method to examine the relationship between the dependent variable, perception of the likelihood of personally being exposed to HCV; and the independent variables. These included; the four knowledge themes, the demographic characteristics and the existence of any other training on the topic of HCV. Independent variables were considered for inclusion into the logistic regression model if univariate chi-squared analyses demonstrated a p-value < 0.25. Statistical significance for the unique contribution of each variable was assessed by the Wald Chi-Squared statistic. The strength of associations between variables statistically significantly associated with outcome variables in the logistic regression analyses was quantified by estimated odds ratios and 95% confidence intervals.

Results

Data in this section are related to the characteristics of the study sample.

Response rate

Questionnaires were administered to 150 pre-service police personnel and were completed by all, resulting in a 100% response rate.

Sample characteristics

Participants were made up of 150 pre-service police personnel, namely Police Recruits and Police Cadets, at the WA Police Academy in 2008. Most of the study sample were Police Recruits (80% n=121) and two thirds were male (67% n=100). The majority were aged between 17 and 27 years (69% n=104) and just under half reported their highest level of education to be secondary school (49% n=74). Characteristics of the study sample are presented in Table 2.

Table 2

*Characteristics of study sample**

	n (%)
Gender	
Male	100 (66)
Female	46 (31)
Role at Academy	
Recruit	121 (80)
Cadet	25 (17)
Birth year	
1986-1990	71 (47)
1981-1985	33 (22)
1976-1980	21 (14)
1971-1975	9 (6)
1966-1970	7 (5)
1961-1965	5 (3)
Highest level of education	
Secondary school	74 (49)
Trade certificate	19 (13)
Non-trade certificate	3 (2)
TAFE qualification	31 (21)
University qualification	19 (13)

*Totals do not add up to 150 due to missing data

Training on HCV

While just under half of the respondents (45%) reported having received the in-house training on HCV provided by the WA Police Academy (n=68), 36% reported that they had not received any training (n=54) and 16% were unsure whether they had received HCV-related training at the Academy (n=24). Of the 68 participants who reported having already received the training provided at the Academy, 67 completed the questions regarding the training (Table 3). Only 28% of these reported they had all of their questions answered about HCV. The majority reported they had the knowledge to protect themselves against exposure to HCV (88%) and over two thirds (68%) reported having knowledge of how HCV is transmitted.

Table 3

*Evaluation of HCV-related training of those who reported receiving the training at the WA Police Academy (n=67)**

	Yes n (%)	**No n (%)**	**Unsure n (%)**
I have general knowledge about HCV	49 (74)	9 (13)	9 (13)
I have knowledge about how HCV is transmitted	45 (68)	11 (16)	11 (16)
I know how to protect myself from HCV	59 (88)	2 (3)	6 (4)
I could explain to someone else how HCV is transmitted	30 (45)	21 (31)	16 (24)
I had all of my questions about HCV answered	19 (28)	28 (42)	20 (30)

*These responses relate to question 17 in relation to HCV

When exploring any HCV training the respondents reported receiving in the 12 months prior to data collection, 31% had received training other than that provided at the WA Police Academy training (n=47). The types of training mentioned included attending a seminar/workshop, reading pamphlets/posters, watching audio visual material and/or any other HCV training.

HCV knowledge

Overall, the knowledge of HCV reported by the Recruits and Cadets appeared to be quite poor. Only nine percent of respondents were deemed to have competent knowledge on the area of HCV transmission (n=13). None of the respondents had adequate knowledge on the topic of HCV symptoms. When looking at respondents'

knowledge of protective strategies against contracting HCV only a small number of respondents were deemed to have knowledge (7% n=11). Respondents' knowledge on the level of risk of contracting HCV within scenarios specific to their profession was much better than the previous three knowledge areas with almost a third being competent (29% n=43).

Although there is a successful treatment available for HCV, only 15% (n=22) of the respondents were aware of this. Around 60% of the respondents incorrectly reported that a vaccination for HCV exists (n=90) and just over a third of respondents were not aware of the approximate prevalence of HCV in Australia (39% n=58). The overall responses to indicative questions on participant's knowledge around the topic of HCV are presented as Appendix E.

HCV perception of risk

In terms of the likelihood of police officers being exposed to HCV while on duty, the majority of respondents perceived there to be a risk (91% n=137). A high number of respondents also perceived there to be a risk of personally being exposed to HCV (83% n=125) whilst on duty.

Chi-squared analyses

Results for univariate analyses results determining the relationship between dependent and independent variables are presented in Tables 4 and 5.

Table 4

Univariate analyses for perception of personal risk of exposure to HCV

Study Variables	Perception of Risk Yes n %	No n %	Test for association p-value
Transmission knowledge			
Yes	11 (85)	2 (15)	1.0†
No	114 (84)	21 (16)	
Symptoms knowledge			
Yes	--	--	0.77†
No	21 (88)	3 (12)	
Unsure	103 (84)	20 (16)	
Protection knowledge			
Yes	10 (91)	1 (9)	1.0†
No	114 (84)	22 (16)	
Scenario risk knowledge			
Yes	38 (88)	5 (12)	0.39*
No	86 (83)	18 (17)	
Other training			
Yes	41 (87)	6 (13)	0.53*
No	84 (83)	17 (17)	
Role at Academy			
Recruit	107 (88)	14 (12)	0.002*
Cadet	16 (64)	9 (36)	
Gender			
Male	85 (85)	15 (15)	0.71*
Female	38 (83)	8 (17)	
Birth year			
1986 – 1990	56 (79)	15 (21)	0.02*
1981 – 1985	32 (97)	1 (3)	
1976 – 1980	15 (71)	6 (28)	
1961 – 1975	20 (95)	1 (5)	
Education Level			
Secondary school	60 (81)	14 (19)	0.04*
Trade/Non-trade certificate	21 (96)	1 (4)	
TAFE qualification	29 (93)	2 (7)	
University qualification	13 (68)	6 (32)	

* Chi-squared test for association
† Fishers Exact test
** Totals do not always sum to 150 due to missing data

Table 5

Univariate analyses for perception of risk of exposure to HCV for on-duty police officers generally

Study Variables	Perception of Risk Yes n %	No n %	Test for association p-value
Transmission knowledge			
Yes	12 (92)	1 (8)	1.0†
No	125 (93)	9 (7)	
Symptoms knowledge			
Yes	--	--	0.36†
No	23 (100)	--	
Unsure	113 (92)	10 (8)	
Protection knowledge			
Yes	10 (91)	1 (9)	0.56†
No	126 (93)	9 (7)	
Scenario risk knowledge			
Yes	40 (93)	3 (7)	1.0†
No	96 (93)	7 (7)	
Other training			
Yes	45 (96)	2 (4)	0.50*
No	92 (92)	8 (8)	
Role at Academy			
Recruit	113 (94)	7 (6)	0.38†
Cadet	22 (88)	3 (12)	
Gender			
Male	90 (90)	10 (10)	0.03†
Female	45 (100)	--	
Birth year			
1986 – 1990	64 (91)	6 (9)	0.22*
1981 – 1985	32 (97)	1 (3)	
1976 – 1980	18 (86)	3 (14)	
1961 – 1975	21 (100)	--	
Education Level			
Secondary school	68 (92)	6 (8)	0.02*
Trade/Non-trade certificate	22 (100)	--	
TAFE qualification	30 (100)	--	
University qualification	15 (79)	4 (21)	

* Chi-squared test for association
† Fishers Exact test
** Totals do not always sum to 150 due to missing data

Multivariate logistic regression analyses

Perceived personal risk

In the univariate analysis for perceived personal risk presented in Table 3, p values less than 0.25 were found for three variables; birth year, education level and role at Academy. Only two variables were included in the final multivariate regression, education level and role at Academy. This was because after inclusion in the logistic regression model, birth year variable was not found to be statistically significantly associated with perceived personal risk of exposure to HCV. Refer to Table 6.

Table 6

Results of multivariate logistic analyses using the forced entry method examining the relationship between perception of personal risk of exposure to HCV for on-duty police officers and study variables

Study Variables	Odds Ratio	95% C.I.	Wald Chi squared	df	p-value
Education Level 'university qualified' ref 'secondary school certificate'	0.13	0.03-0.63	6.45	1	0.01
Role at Academy 'cadet' ref: 'recruit'	0.14	0.04-0.60	7.08	1	0.008

For police personnel who reported having a university qualification the odds of perceiving themselves to be at risk of exposure while on duty were 0.13 times that for those whose highest level of education was reported as secondary school. Conversely, respondents who had completed secondary school only were 7.7 times more likely to perceive themselves to be at risk of exposure to HCV while on duty (OR: 7.7, 95% CI: 1.59-33.33).

For Police Cadets at the WA Police Academy the odds of perceiving themselves to be personally at risk of exposure while on duty were 0.14 times that of Police Recruits. Conversely Police Recruits had 7.14 times the odds of perceiving themselves to be

personally at risk of exposure to HCV while on duty than Police Cadets (OR: 7.14, 95% CI: 1.66-25.0).

General perceived risk

In the univariate analysis for perceived general risk presented in Table 4, p values less than 0.25 were found for three variables; gender, birth year and highest education level. After inclusion in the logistic regression model, no variables were found to be statistically significantly associated with general risk of exposure to HCV.

Discussion

HCV is a blood-borne viral infection that is a significant public health issue in Australia with over 200,000 people currently living with HCV. No vaccination currently exists for HCV and it is a virus that only requires a small amount of blood for infection to occur with a relatively slow progression. Although there is an effective treatment for HCV it is a fairly long process with many different side effects. It is important that prevention strategies are employed when any individual comes in contact with blood to avoid the risk of contracting HCV.

In Australia 90% of new cases are attributed to IDU, therefore IDUs are one group in the community that can be considered to be at a higher risk of exposure to HCV. Another group of the population who are considered at high-risk of exposure are prisoners because of the association between drug use and crime. Due to their regular contact with IDU and prisoners, prison officers are a third high-risk group. Front-line police officers can also be considered to be at an elevated risk of exposure to HCV because they interact with drug users, people who have been to prison, come in contact with injecting equipment and their attendance at assaults and accidents where potentially contaminated blood is present.

When reviewing the literature on research about HCV-related knowledge and perceptions of different professions there were data on beauty therapists, health and sex education teachers, U.S. Primary Care trainee doctors and prison officers in Ireland. There did not appear to be any research on police officers. The fact that police are a population at risk of exposure to HCV while on duty and the lack of research on their knowledge and perceptions about HCV highlighted the need for research on this specific area in Australia. From the perspective of the theoretical framework underpinning this research, the Health Belief Model, if a person believes they are at risk of a particular health problem and considers the consequence serious, they are more likely to take action to minimise this risk. It is important that police have adequate knowledge on HCV prior to working out in the community so they can protect themselves effectively against contracting HCV.

The aim of this research was therefore to explore pre-service police officers' knowledge about HCV and their perception of risk of exposure to HCV while on duty. The participants comprised of 150 pre-service police in training at the WA Police Academy. Participation was entirely voluntary and participants completed a self-administered questionnaire exploring their knowledge and perceptions about HCV.

One hundred percent of 150 pre-service police made up of Police Recruits (80%) and Police Cadets completed the questionnaire. Two thirds of the participants were male with most being aged between 17 and 27 years of age. Just under half of the participants (49%) reported their highest level of education to be secondary school and 34% reported to have a tertiary education (i.e. TAFE or university qualification). In terms of the HCV-related training provided at the WA Police Academy, less than half of participants reported having received the training. Of these 31% answered 'no' to the statement 'I could explain to someone else how HCV is transmitted'.

Research Question 1: To what extent do WA pre-service police have accurate knowledge regarding the health significance, modes of transmission and prevention of hepatitis C?

The first issue investigated in this research was to determine pre-service police officers' knowledge regarding the health significance, modes of transmission and prevention of HCV. Although the results from this study indicated an overall low level of knowledge on the themes of HCV transmission, symptoms and protective strategies, respondents' knowledge on the extent of the risk of HCV transmission in policing scenarios was sound.

These results should, however, be interpreted with caution as three of the measures of HCV-related knowledge lacked variability in their mean scores. This is explained more fully later in this section where study limitations are addressed. Never-the-less, the overall lack of knowledge about the transmission, symptoms and protective strategies of HCV found among pre-service police surveyed in this research was consistent with similar previous research.

For instance, Coppola et al. (2004) found from their study on HCV knowledge among Primary Care doctors in training, that overall participants lacked adequate knowledge of the recommended guidelines for the management of patients with HCV. For example, although no vaccination currently exists for HCV, 66% of 180 participants in their study recommended vaccination for HCV. Likewise, the findings from the present study were consistent with those of Murtagh and Hepworth's (2004) who studied beauty therapists' HCV-related knowledge and found it to be poor, particularly on modes of HCV transmission.

Research Question 2: To what extent does the knowledge WA pre-service police have regarding HCV impact upon their perception of the likelihood of general and personal exposure to HCV whilst on duty as a front-line police officer?

The second issue investigated in this research was to determine whether pre-service police officers' knowledge impacted on their perception of the risk of exposure to HCV whilst on duty, both generally and personally. While overall HCV-related knowledge of pre-service police who participated in this research was found to be low, the majority of respondents perceived there to be some risk of exposure to HCV while on duty.

In terms of the likelihood of police officers in general to be exposed to HCV, the majority of participants (91%) perceived there to be some element of risk. Of the participants perceiving there to be a risk of exposure, 59% thought that the likelihood of the exposure occurring was 'likely' while the remainder (41%) considered it to be 'very likely'. Although slightly lower, a large number of participants (83%) also reported perceiving there to be risk of personally being exposed to HCV while on duty. Of these, 70% reported the likelihood of this risk occurring to be 'likely'. The remaining 30% perceived the risk of personally being exposed to HCV as 'very likely'. These findings were consistent with those of previous similar research. Dillon and Allwright (2005) reported 94% of the 270 prison officers they surveyed in Dublin believed they were at risk of contracting HCV in the workplace.

In this study logistic regression analyses were undertaken to determine if there was any impact of the HCV knowledge areas or demographic characteristics of the pre-service police officers on their responses for dependent variables. It was found that a higher level of education among respondents in this study was associated with a lower perception of personal risk of exposure to HCV whilst on duty. This result could be interpreted two ways. Respondents with a higher level of education may not have been aware of the risk of exposure to HCV while on duty. Alternatively, those with a higher level of education may have perceived themselves to have the knowledge of protective strategies to prevent them from being exposed to HCV while on duty, hence perceiving their personal risk to be lower. As there did not appear to be previous research with which to compare this finding, it was difficult to determine which of the above interpretations, was the more sound explanation.

As described earlier, the participants in this research were either Police Recruits or Police Cadets. Recruits were found to be more likely than Cadets to perceive themselves to be at personal risk of exposure to HCV while on duty. This result could also be interpreted in two ways. Compared to the Cadets, the Recruits were at a more advanced stage of their training at the WA Police Academy and this may have contributed to them having better knowledge about the risk of occupational exposure to HCV. Alternatively, the Cadets may have perceived themselves to have sufficient knowledge of protective strategies to prevent themselves from being exposed to HCV while on duty and hence perceived their risk of HCV exposure to be lower.

This finding was contrary to what Dillon and Allwright (2005) found from their study on prison officers. They reported that junior prison officers with shorter service time were more likely to view the risks of contracting HCV as high than more senior officers.

Research Question 3: What are the gaps/needs of WA police in terms of pre-service education about hepatitis C?

The final issue investigated in this research was to determine the adequacy of HCV-related training provided for pre-service police officers. Teaching staff at the WA

Police Academy indicated that the respondents had received some previous training about HCV at the Academy. While this may have been the case, only 45% of respondents recalled receiving this training and 16% reported being unsure as to whether they had received the training.

When interpreting this finding several issues need to be considered. Firstly, it may have been that the training was provided, but the pre-service officers received it early in their course and because they are exposed to so much new knowledge they had forgotten. Another explanation could be that the training was provided but its effectiveness may have been compromised by officers being absent and/or the training provided was not effective due to the way in which it was delivered. However this finding is interpreted, it has important implications for the way HCV-related training is provided for pre-service police officers in WA.

Another finding from this research was that of those who reported receiving the HCV-related training at the WA Police Academy, almost half reported that they had not had all of their questions on the topic answered from the training. This finding was consistent to that of Coppola et al. (2004) who reported that 69% of the Primary Care doctors in training felt that the dissemination of HCV-related knowledge was inadequate in their training.

Overall, it seemed reasonable to conclude that the HCV-related training provided at the WA Police Academy for pre-service police would benefit from a review wherein ways to enhance its effectiveness were identified. This conclusion was consistent with that of other previously conducted research (Dillon & Allwright, 2005) who found the workplace training their sample of prison officers had received about HCV had little effect on their knowledge. They suggested a practical approach involving mock situations and role-playing may be more effective than a didactic approach (Dillon & Allwright).

Limitations

Interpreting and generalising the results of any study usually warrants caution (Steckler, McLeroy, Goodman, Bird, & McCormick, 1990). Similarly, limitations relating to the data collection instrument and the study design pose possible threats to the internal and external validity of the findings of this study.

Firstly, the scope of this study did not include psychometric evaluation of the data collection instrument. The validity of the results could not be feasibly verified within the time frame of this research. An attempt was made to minimise this threat by, where possible, utilising survey items from pre-existing and previously-used instruments. In addition, prior to being administered, the questionnaire was reviewed for face and content validity by a group of public health experts. Likewise, the reliability of the data used from both the original items and the scales developed could not be substantiated. With a longer time frame a reliability assessment using, for example, a test/re-test procedure would have been undertaken.

The second limitation of this research was also related to the questionnaire used to collect the data. Inconsistencies in the response formats used for the HCV-related knowledge items reduced the variability of the mean cut off scores. For example, the Knowledge about HCV Transmission Theme was the only area of HCV-related knowledge where all items used a five-point Likert Scale response category. The remaining items addressing participants' HCV-knowledge utilised a forced-entry type of response category, where only three responses were possible. If all of the knowledge items had used five-point Likert Scale response categories, the mean cut off scores for knowledge competencies in all four knowledge themes would have had a larger range. This may have assisted in gaining a more accurate indication of respondents' HCV-related knowledge.

A third limitation of this study was that only one item in the questionnaire addressed the respondents' perception of their personal risk of being exposed to HCV while on duty. This may not have been sufficient to gain an accurate indication of their perception of risk as it did not take into account the reasons why respondents may or may not have perceived themselves to be at risk. For example, as discussed earlier,

respondents may have perceived themselves to not be at risk as a result of believing they were competent in protecting themselves against exposure. Again, the validity and reliability of this one-item outcome measure was not assessed

The sample included in this study was made up of available Police Recruits and Police Cadets from the WA Police Academy, at the time of data collection. The sample was therefore not random but instead based on convenience (Windsor, Baranowski, Clark, & Cutter, 1994). At this point without current knowledge of the similarity of training curriculum across other Australian states for pre-service police, the generalisability of these results is limited.

A cross-sectional research design was used in this study and provided a 'snapshot' of the knowledge Police Recruits and Cadets had about HCV, by obtaining one measure of each participant. The study would have been further strengthened by using a longitudinal study design or pre/post-test design, whereby data are collected on knowledge and perception of risk at both baseline and at the end of the training session, providing a measure of change.

Recommendations

Two main recommendations emerged from the findings of this study. The first of which addressed reducing the gap between what research findings from a project such as this suggests about the training of pre-service police, and how such training is currently implemented by practitioners. Facilitation of the transfer of research knowledge into practice is recommended in the public health literature (Broner, Franczak, Dye, & McAllister, 2001) and such findings of the present study therefore require dissemination to the WA Police.

Further support for action to reduce the 'research-practice gap' comes from understanding that the majority of strategies that protect against the transmission of HCV are also protective of other blood-borne viral infections such as HIV and HBV. That is, not sharing IDU, piercing and tattooing equipment, razors or toothbrushes and using protective gloves when in contact with blood (AIDS Action Council, 2008; Hepatitis Council of Western Australia, 2008a) provide protection against all three

BBVs. While it might be difficult to justify the inclusion of effective HCV training in an already crowded curriculum it becomes easier if such training also provides pre-service police with the means to protect themselves from other significant public health threats.

As mentioned earlier, this study uncovered the need for review of the HCV-related training currently being delivered at the WA Police Academy. This review could address both content and delivery issues. In terms of content, it appeared that pre-service police lacked accurate knowledge about four issues. That is the way in which HCV is transmitted to others, HCV symptoms, effective protective strategies and the inherent risk front line police face in terms of their possible exposure to HCV. In terms of the delivery of HCV-related training, measures to ensure pre-service police officers' understanding and retention of information are warranted. Likewise, the provision of a range of opportunities for pre-service police to ask questions and clarify HCV-related issues during their training is important.

The second main recommendation that emerged from this study related to study design issues. The results of the present study provided insights that may be useful in designing and implementing future HCV-related research. A larger randomised sample would enhance the strength of the findings as would the use of a reliable and valid instrument for data collection. Ensuring consistency among response categories provided in the data collection instruments, preferably utilising a five-point Likert Scale would increase the utility of reported knowledge.

As outlined throughout this report, the significance of HCV as a public health issue should not be underestimated and particularly for individuals or groups considered to be at an elevated risk, such as IDUs, prisoners, prison officers and front-line police officers. As there did not appear to be any previous HCV-related research on police officers, this study has assisted in expanding the research base on the knowledge and perceptions of pre-service police regarding the transmission and prevention of HCV. This research adds to the small body of evidence on the issue of HCV and if implemented, the recommendations could play some role in minimising the spread of HCV.

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Appendix A

EDITH COWAN UNIVERSITY MEMO
FACULTY OF COMPUTING, HEALTH AND SCIENCE

Human Ethics Subcommittee

TO: **Tamara Harold, Admin. Officer, Higher Degrees**
FROM: **Angus Stewart, Chair, Faculty Human Ethics Subcommittee**
SUBJECT: **Human Ethics Clearance Application/s**
DATE: **11th June, 2008**

Dear Tammie,

The following ethics application by:

Cerissa Papanastasiou	Knowledge and perceptions about hepatitis C among police undertaking training at the Western Australia Police Academy

is approved (category 1.

Best wishes,
Angus.

Appendix B

WESTERN AUSTRALIA POLICE

INDIGENOUS, COMMUNITY DIVERSITY AND CORPORATE RESEARCH

PROFESSIONAL DEVELOPMENT
WA POLICE ACADEMY
81 LAKESIDE DRIVE
JOONDALUP
TELEPHONE : (08) 9301 9616
FACSIMILE : (08) 9301 9628

Cerissa Papanastasiou
U2 11 Orchid Street
JOONDANNA WA 6060

28 July 2008

Dear Cerissa

RE: Knowledge and perceptions about blood-borne viruses among police undertaking training at the WA Police Academy

Thank you for your application to conduct research within Western Australia Police.

Your research application to survey police personnel has been reviewed by the WA Police Research Application Review Committee who has approved your study, subject to a number of conditions (outlined below). These conditions will ensure the research is conducted in accordance with the WA Police research guidelines.

Conditions of approval of research project:

- It is agreed that up to 100 police officers who are undergoing pre-service training at the WA Police Academy will be available to participate in this survey. Please contact Sergeant Scott Arnold on 9301 9822 to organise;
- The surveys will take place after the police officers have completed their in-house training on the topics to be covered in the survey;
- Data collected on Hepatitis B and HIV as part of the survey is provided to the WA Police Occupational Safety & Health Branch. Please provide the data to Kym Kaptein, Assistant Director on 9268 7563 on completion of this section of the project;

- If further participants are required, or you require any amendments to your research request, please contact the Corporate Research Team to process this request.

Your project will be monitored and regular (three monthly) project updates are required for the duration of the WA Police involvement. As outlined in the WA Police research guidelines a copy of your report is required 14 days prior to public release.

I would like to take this opportunity to congratulate you on this very worthwhile research.

Yours sincerely

Jenny Mann
Manager, Corporate Research
WA Police

Appendix C

Information Letter to Participants

KNOWLEDGE AND PERCEPTIONS ABOUT BLOOD-BORNE VIRUSES AMONG POLICE IN TRAINING AT THE WA POLICE ACADEMY

Dear Police Officer,

I am a postgraduate student at Edith Cowan University undertaking my Honours degree in Health Science in 2008 and am inviting you to participate in research which aims to investigate knowledge and perceptions about blood borne viruses. This research has been approved by the ECU Faculty of Computing, Health and Science Ethics Committee and the WA Police Research and Review Committee.

Taking part in this research involves completing the attached survey which should take approximately 15 minutes. Participation is completely voluntary and the information you provide will remain confidential and anonymous. The required ECU procedures are in place to ensure your identity will not be revealed. Your answers will be analysed collectively with those of other participants and the results will be used as data for my Honours thesis, and will be processed and presented anonymously.

I hope you will participate, but if you do not want to, you do not need to explain why. If you choose not to participate, please return the survey in the envelope provided. Completion of the questionnaire will indicate consent, so please consider this before participating.

When you have completed the survey please place it in the envelope provided, seal it and hand it back to my supervisor, Dr Shelley Beatty (Senior Lecturer, Addiction Studies, School of Exercise, Biomedical and Health Sciences, Faculty of Computing Health and Science, ECU).

The items contained in this survey require you to reflect on your beliefs about blood-borne viruses. If you experience any discomfort or you would simply like to talk to someone about your experiences or would like factual information, the following contact may be useful:

Hepatitis Council of WA - Support line: (08) 9328 8538/Website: www.hepatitiswa.com.au

WA Aids Council – Support line: (08) 9482 0000/Website: www.waaids.com

If you have any queries regarding this research please feel free to contact me by email (cpapanas@student.ecu.edu.au). Alternatively, Dr Beatty can be contacted via phone (6304 5602) or email (s.beatty@ecu.edu.au).

Yours Sincerely

Cerissa Papanastasiou
Postgraduate Honours Student
Edith Cowan University

Appendix D

Blood-borne virus survey for police in training at the Western Australia Police Academy

Prepared by Cerissa Papanastasiou
Honours Student 2008
School of Exercise, Biomedical and Health Science
Faculty of Computing, Health and Sciences
Edith Cowan University

The following questions are concerned with hepatitis C

1. Indicate your opinion about the following statements about hepatitis C.

(Circle only ONE number per line)

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
a. More than 100,000 people are hepatitis C positive in Australia	1	2	3	4	5
b. It is possible to be vaccinated against hepatitis C	1	2	3	4	5
c. Early symptoms of hepatitis C are experienced by only 20% of people who become infected	1	2	3	4	5
d. Sharing cutlery can transmit hepatitis C	1	2	3	4	5
e. hepatitis C can be transmitted through kissing	1	2	3	4	5
f. Hepatitis C can be transmitted by unsterile tattooing equipment	1	2	3	4	5
g. Sharing toothbrushes can transmit hepatitis C	1	2	3	4	5
h. Hepatitis C can be transmitted through coughing	1	2	3	4	5
i. Hepatitis C can be transmitted by unsterile piercing equipment	1	2	3	4	5
j. Hepatitis C is only transmitted through infected blood	1	2	3	4	5
k. For most people, hepatitis C infection has no long term effects on health	1	2	3	4	5
l. There is a successful treatment for hepatitis C	1	2	3	4	5
m. Over 90% of new cases of Hepatitis C occur through injecting drug use	1	2	3	4	5
n. Unprotected sex is the most common way of transmitting hepatitis C	1	2	3	4	5
o. People who have injected drugs are not at risk for hepatitis C	1	2	3	4	5

2. Indicate the extent that you believe each of the behaviours listed below is a risk of transmitting hepatitis C.

(Circle only ONE number per line)

Constitutes a risk for transmitting hepatitis C	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
a. Drinking dirty water	1	2	3	4	5
b. Eating contaminated food	1	2	3	4	5
c. Transmission from mother to child during pregnancy	1	2	3	4	5
d. Transmission from mother to child while breast-feeding	1	2	3	4	5
e. Sharing towels	1	2	3	4	5
f. Contaminated blood transfusions	1	2	3	4	5
g. Sharing razors	1	2	3	4	5
h. Sharing needle and syringe	1	2	3	4	5
i. Giving first aid to someone (ie. Resuscitation)	1	2	3	4	5
j. Being bitten by a mosquito	1	2	3	4	5
k. Sharing drug injecting equipment other than the needle and syringe	1	2	3	4	5

3. Which of the following are common signs of hepatitis C infection?

(Circle only ONE number per line)

	Agree	Unsure	Disagree
a. Darker than usual urine	1	2	3
b. Running a fever	1	2	3
c. Feeling tired all the time	1	2	3
d. Depression	1	2	3
e. Feeling pain in the abdominal region	1	2	3
f. Nausea and/or vomiting	1	2	3
g. Yellowness around the eyes	1	2	3
h. Headaches	1	2	3
i. Diarrhoea	1	2	3

4. How effective are the following strategies for preventing the transmission of hepatitis C?

(Circle only ONE number per line)

	Not effective	Very effective	Unsure
a. Using gloves for blood spills	1	2	3
b. Not sharing personal items	1	2	3
c. Using sterile body piercing equipment	1	2	3
d. Condom vending machines in nightclubs	1	2	3
e. Using gloves to pick up used injecting equipment	1	2	3
f. Re-capping a discarded used needle in the community	1	2	3
g. Needle syringe exchange vans	1	2	3
h. Avoiding contact with injecting equipment	1	2	3
i. Giving first aid to someone (ie. Resuscitation)	1	2	3

5. In terms of the likelihood of contracting hepatitis C, what is the level of risk for the police officer involved in the following three scenarios?

(Circle only ONE number per line)

	Low risk	Unsure	High risk
While arresting a young man for assaulting his girlfriend, the offender's blood is splashed on the officer's hand	1	2	3
After approaching a woman breaking into a car, a police officer is stabbed with a syringe	1	2	3
While attending a car crash a police officer cuts herself on some broken glass	1	2	3
After picking up a discarded syringe a police officer nicks his gloved hand with the tip of the needle	1	2	3
A police officer is involved in a physical dispute in which both himself and the other man involved are bleeding	1	2	3

The following questions are concerned with hepatitis B

6. Indicate your opinion about the following statements about hepatitis B.

(Circle only ONE number per line)

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
a. More than 100,000 people are hepatitis B positive in Australia	1	2	3	4	5
b. It is possible to be vaccinated against hepatitis B	1	2	3	4	5
c. Sharing cutlery can transmit hepatitis B	1	2	3	4	5
d. Hepatitis B can be transmitted through kissing	1	2	3	4	5
e. Hepatitis B can be transmitted by unsterile tattooing equipment	1	2	3	4	5
f. Sharing toothbrushes can transmit hepatitis B	1	2	3	4	5
g. Hepatitis B can be transmitted through coughing	1	2	3	4	5
h. Hepatitis B can be transmitted by unsterile piercing equipment	1	2	3	4	5
i. Hepatitis B is only transmitted through infected blood	1	2	3	4	5
j. For most people, hepatitis B infection has no long term effects on health	1	2	3	4	5
k. There is a successful treatment for hepatitis B	1	2	3	4	5
l. Over 90% of new cases of hepatitis B occur through injecting drug use	1	2	3	4	5
m. Unprotected sex is the most common way of transmitting hepatitis B	1	2	3	4	5
n. People who have injected drugs are not at risk for hepatitis B	1	2	3	4	5

7. Indicate the extent that you believe each of the behaviours listed below is a risk of transmitting hepatitis B.

(Circle only ONE number per line)

Constitutes a risk for transmitting Hepatitis B	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
a. Drinking dirty water	1	2	3	4	5
b. Eating contaminated food	1	2	3	4	5
c. Transmission from mother to child during pregnancy	1	2	3	4	5
d. Transmission from mother to child while breast-feeding	1	2	3	4	5
e. Sharing towels	1	2	3	4	5
f. Contaminated blood transfusions	1	2	3	4	5
g. Sharing razors	1	2	3	4	5
h. Unprotected sexual intercourse	1	2	3	4	5
h. Sharing needle and syringe	1	2	3	4	5
i. Giving first aid to someone (ie. Resuscitation)	1	2	3	4	5
j. Being bitten by a mosquito	1	2	3	4	5
k. Sharing drug injecting equipment other than the needle and syringe	1	2	3	4	5

8. Which of the following are common signs of hepatitis B infection?

(Circle only ONE number per line)

	Agree	Unsure	Disagree
a. Darker than usual urine	1	2	3
b. Running a fever	1	2	3
c. Feeling tired all the time	1	2	3
d. Depression	1	2	3
e. Feeling pain in the abdominal region	1	2	3
f. Nausea and/or vomiting	1	2	3
g. Yellowness around the eyes	1	2	3
h. Headaches	1	2	3
i. Diarrhoea	1	2	3

9. How effective are the following strategies for preventing the transmission of hepatitis B?

(Circle only ONE number per line)

	Not effective	Very effective	Unsure
a. Using gloves for blood spills	1	2	3
b. Not sharing personal items	1	2	3
c. Using sterile body piercing equipment	1	2	3
d. Condom vending machines in nightclubs	1	2	3
e. Using gloves to pick up used injecting equipment	1	2	3
f. Re-capping a discarded used needle in the community	1	2	3
g. Needle syringe exchange vans	1	2	3
h. Avoiding contact with injecting equipment	1	2	3
i. Giving first aid to someone (ie. Resuscitation)	1	2	3

The following questions are concerned with HIV

10. Indicate your opinion about the following statements about HIV.

(Circle only ONE number per line)

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
a. More than 100,000 people are HIV positive in Australia	1	2	3	4	5
b. It is possible to be vaccinated against HIV	1	2	3	4	5
c. Sharing cutlery can transmit HIV	1	2	3	4	5
d. HIV can be transmitted through kissing	1	2	3	4	5
e. HIV can be transmitted by unsterile tattooing equipment	1	2	3	4	5
f. Sharing toothbrushes can transmit HIV	1	2	3	4	5
g. HIV can be transmitted through coughing	1	2	3	4	5
h. HIV can be transmitted by unsterile piercing equipment	1	2	3	4	5
i. HIV is only transmitted through infected blood	1	2	3	4	5
j. For most people, HIV infection has no long term effects on health	1	2	3	4	5
k. There is a successful treatment for HIV	1	2	3	4	5
l. Over 90% of new cases of HIV occur through injecting drug use	1	2	3	4	5
m. Unprotected sex is the most common way of transmitting HIV	1	2	3	4	5
n. People who have injected drugs are not at risk for HIV	1	2	3	4	5

11. Indicate the extent that you believe each of the behaviours listed below is a risk of transmitting HIV.

(Circle only ONE number per line)

Constitutes a risk for transmitting HIV	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
a. Drinking dirty water	1	2	3	4	5
b. Eating contaminated food	1	2	3	4	5
c. Transmission from mother to child during pregnancy	1	2	3	4	5
d. Transmission from mother to child while breast-feeding	1	2	3	4	5
e. Sharing towels	1	2	3	4	5
f. Contaminated blood transfusions	1	2	3	4	5
g. Sharing razors	1	2	3	4	5
h. Sharing needle and syringe	1	2	3	4	5
i. Giving first aid to someone (ie. Resuscitation)	1	2	3	4	5
j. Being bitten by a mosquito	1	2	3	4	5
k. Sharing drug injecting equipment other than the needle and syringe	1	2	3	4	5

12. Which of the following are common signs of the HIV infection?

(Circle only ONE number per line)

	Agree	Unsure	Disagree
a. Darker than usual urine	1	2	3
b. Running a fever	1	2	3
c. Feeling tired all the time	1	2	3
d. Depression	1	2	3
e. Feeling pain in the abdominal region	1	2	3
f. Nausea and/or vomiting	1	2	3
g. Yellowness around the eyes	1	2	3
h. Headaches	1	2	3
i. Diarrhoea	1	2	3

13. How effective are the following strategies for preventing the transmission of HIV?

(Circle only ONE number per line)

	Not effective	Very effective	Unsure
a. Using gloves for blood spills	1	2	3
b. Not sharing personal items	1	2	3
c. Using sterile body piercing equipment	1	2	3
d. Condom vending machines in nightclubs	1	2	3
e. Using gloves to pick up used injecting equipment	1	2	3
f. Re-capping a discarded used needle in the community	1	2	3
g. Needle syringe exchange vans	1	2	3
h. Avoiding contact with injecting equipment	1	2	3
i. Giving first aid to someone (ie. Resuscitation)	1	2	3

14. In general terms, how likely are on-duty police officers to be exposed to blood-borne viruses?

(Circle ONE number only)

	Very likely	Likely	Unsure	Unlikely	Very Unlikely
Hepatitis B	1	2	3	4	5
Hepatitis C	1	2	3	4	5
HIV	1	2	3	4	5

If you selected 'Unsure' for any of the options above please provide a brief explanation for your answer

_____

_____

_____

_____

_____

15. Specifically, how likely are you personally to be exposed to a blood-borne virus whilst on duty?

(Circle ONE number only)

	Very likely	Likely	Unsure	Unlikely	Very Unlikely
Hepatitis B	1	2	3	4	5
Hepatitis C	1	2	3	4	5
HIV	1	2	3	4	5

If you selected 'Unsure' for any of the options above please provide a brief explanation for your answer

_____

_____

_____

_____

_____

16. Have you completed the WA Police Academy's in-house training on blood-borne viruses – hepatitis B, hepatitis C and HIV?

(Circle ONE number only)

Yes	1	Go to Question 17
No	2	Go to Question 18
Unsure	3	Go to Question 18

17. Think about the in-house training you received at the WA Police Academy about blood borne viruses (hepatitis B, hepatitis C and HIV) and answer the following questions.

(Circle only ONE number per line)

	Yes	No	Unsure
Hepatitis B			
I have general knowledge about this infection	1	2	3
I have knowledge about how this infection is transmitted	1	2	3
I know how to protect myself from this infection	1	2	3
I could explain to someone else how this infection is transmitted	1	2	3
I had all of my questions about this infection answered	1	2	3
Hepatitis C			
I have general knowledge about this infection	1	2	3
I have knowledge about how this infection is transmitted	1	2	3
I know how to protect myself from this infection	1	2	3
I could explain to someone else how this infection is transmitted	1	2	3
I had all of my questions about this infection answered	1	2	3
HIV			
I have general knowledge about this infection	1	2	3
I have knowledge about how this infection is transmitted	1	2	3
I know how to protect myself from this infection	1	2	3
I could explain to someone else how this infection is transmitted	1	2	3
I had all of my questions about this infection answered	1	2	3

18. Have you completed any of the following activities in the last 12 months? (Other than WA Police Academy's in-house training about blood-borne viruses)

(Circle only ONE number per line)

	Yes	No	Unsure
Hepatitis B			
Attended a seminar/workshop on the topic of this infection	1	2	3
Read materials such as pamphlets or posters on the topic of this infection	1	2	3
Watched any audio visual learning materials on the topic of this infection (E.g. DVDs or videos)	1	2	3
Received any other training or information on the topic of this infection	1	2	3
Hepatitis C			
Attended a seminar/workshop on the topic of this infection	1	2	3
Read materials such as pamphlets or posters on the topic of this infection	1	2	3
Watched any audio visual learning materials on the topic of this infection (E.g. DVDs or videos)	1	2	3
Received any other training or information on the topic of this infection	1	2	3
HIV			
Attended a seminar/workshop on the topic of this infection	1	2	3
Read materials such as pamphlets or posters on the topic of this infection	1	2	3
Watched any audio visual learning materials on the topic of this infection (E.g. DVDs or videos)	1	2	3
Received any other training or information on the topic of this infection	1	2	3

19. Which of the following are you enrolled as at the Western Australia Police Academy?

(Circle ONE number only)

Police Recruit	1
Police Cadet	2

20. Are you male or female?

(Circle ONE number only)

Male	1
Female	2

21. In which of the following year categories were you born?

(Circle ONE number only)

1991 – 1995	1
1986 – 1990	2
1981 – 1985	3
1976 – 1980	4
1971 – 1975	5
1966 – 1970	6
1961 – 1965	7
1956 – 1960	8
1951 – 1955	9
1946 – 1950	10

22. What is your highest level of formal education?

(Circle ONE number only)

Secondary School	1
Trade certificate	2
Non-trade certificate	3
TAFE qualification	4
University qualification	5

Thank you for completing this survey.

Please put your survey in the enveloped provided, seal it and give it to Dr Beatty.

Appendix E

HCV knowledge on prevalence, transmission, vaccination, symptoms, treatment protective strategies and risk scenarios (n=150)

	Correct n (%)	Incorrect n (%)	Not reported n (%)
Prevalence			
>100,000 people HCV + in Australia	92 (61)	58 (39)	--
Vaccination			
There is no vaccination for HCV	60 (40)	90 (60)	--
Treatment			
There's successful treatment available	22 (15)	128 (85)	--
Transmission modes			
Sharing cutlery	57 (38)	93 (62)	--
Kissing	46 (30)	103 (69)	1 (1)
Unsterile tattooing equipment	141 (94)	9 (6)	--
Sharing toothbrushes	75 (50)	75 (50)	--
Coughing	72 (48)	77 (51)	1 (1)
Using unsterile piercing equipment	135 (90)	15 (10)	--
Only through infected blood	58 (39)	91 (60)	1 (1)
Over 90% of new cases through IDU	76 (51)	74 (49)	--
Unprotected sex most common mode	23 (15)	127 (85)	--
Injecting drugs	136 (91)	13 (9)	1 (1)
Drinking dirty water	75 (50)	75 (50)	--
Eating contaminated food	72 (48)	78 (52)	--
Mother to child during pregnancy	102 (68)	48 (32)	--
Mother to child while breast-feeding	67 (44)	82 (55)	1 (1)
Sharing towels	100 (66)	49 (33)	1 (1)
Contaminated blood transfusions	141 (94)	9 (6)	--
Sharing razors	103 (69)	47 (31)	--
Sharing needle and syringe	144 (96)	6 (4)	--
Giving first aid (i.e. Resuscitation)	26 (17)	123 (82)	1 (1)
Being bitten by a mosquito	45 (30)	105 (70)	--
Sharing other injecting equipment (other than needle/syringe)	110 (73)	39 (26)	1 (1)
Symptoms			
Only 20% experience early symptoms	61 (40)	88 (59)	1 (1)
No long term effects for most people	14 (9)	136 (91)	--
Darker than usual urine	28 (19)	122 (81)	--
Running a fever	57 (38)	93 (62)	--
Feeling tired all the time	76 (51)	74 (49)	--
Depression	26 (17)	123 (82)	1 (1)
Pain in the abdomen	41 (27)	106 (71)	3 (2)
Nausea/vomiting	44 (29)	104 (70)	2 (1)
Yellowness around the eyes	61 (40)	88 (59)	1 (1)
Headaches	33 (22)	116 (77)	1 (1)
Diarrhoea	32 (21)	117 (78)	1 (1)
Protective strategies			
Gloves for blood spills	142 (94)	7 (5)	1 (1)
Not sharing personal items	127 (84)	22 (15)	1 (1)
Sterile body piercing equipment	142 (94)	7 (5)	1 (1)

Condom vending machines	97 (65)	50 (33)	3 (2)
Using gloves when picking up used IDU equipment	136 (90)	13 (9)	1 (1)
Re-capping a discarded needle	38 (25)	111 (74)	1 (1)
Needle syringe exchange vans	113 (75)	36 (24)	1 (1)
Avoiding contact with IDU equipment	140 (93)	9 (6)	1 (1)
Giving first aid	68 (45)	81 (54)	1 (1)
Risk scenarios			
Blood splashed on officer's hand	77 (51)	72 (48)	1 (1)
Officer stabbed with a syringe	146 (97)	3 (2)	1 (1)
Officer cuts hand on broken glass	100 (66)	49 (33)	1 (1)
Officer nicks hand with a needle	128 (85)	21 (14)	1 (1)
Officer in physical dispute where himself and other man are bleeding	136 (90)	13 (9)	1 (1)