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Pharmacy and hepatitis C

Community pharmacists are among the most accessible health professionals in Australia. Health-care consumers can receive professional health-care advice and services from a pharmacist, via a network of over 5 000 community pharmacies in urban, rural and remote centres around Australia. Community pharmacists are therefore in a key position to raise awareness, provide education, and decrease social discrimination associated with hepatitis C.

By actively promoting the health of the individual and the community, pharmacists can enable people to take greater control of their own health. Pharmacists recognise the importance of confidentiality, empathy and non-discriminatory customer interaction, and understand that the stronger the customer-pharmacist relationship, the better the expected health outcomes.

Introduction

Hepatitis C is a blood-borne virus that can cause inflammation of the liver. Hepatitis C is a ribonucleic acid (RNA) virus belonging to the flavivirus family.¹ Hepatitis C is often a mild, slow progressing disease which is not generally life-threatening for the majority of people infected with the virus. However, some people infected with hepatitis C virus (HCV) can experience severe complications of chronic infection, including cirrhosis, liver failure and/or hepatocellular carcinoma. HCV-related end-stage liver disease remains the most common indication for liver transplantation in Australia.¹ People living with chronic hepatitis C may experience a reduction in quality of life and wellbeing in addition to isolation, stigma and discrimination.²

Hepatitis C virus prevalence in Australia

The high prevalence of HCV prior to the introduction of public health strategies and preventive measures, such as Needle and Syringe Programs (NSPs), is one of the key factors sustaining the hepatitis C epidemic today. An estimated 1% of Australia's population currently has HCV infection.

At the end of 2008, it was estimated that 284 000 people had been exposed to hepatitis C and 212 000 had chronic hepatitis C.³ An estimated 10 000 new infections occur annually. The burden of disease is of concern with a growing number of patients diagnosed with cirrhosis, end-stage liver disease and hepatocellular carcinoma.

Risk factors for transmission of hepatitis C

Hepatitis C is primarily transmitted through blood-to-blood contact. A history of injecting drug use is the single most consistently associated risk factor

with HCV infection globally.⁴ In Australia, 50-80% percent of prevalent cases and an estimated 90% of newly-acquired infections are attributed to injecting drug use.⁵ Transmission of HCV is not limited to the re-using of needles but also includes the re-use of all associated injecting paraphernalia, including the tourniquet, spoon and swab.⁶ Similarly, re-using equipment to snort illicit drugs has been strongly associated with HCV infection.⁷ Prevalence of HCV in Australian prisoners is high ranging from 30-58%.⁸ Unsterile skin penetration procedures including tattooing and body piercing have been identified as possible modes of infection.⁹ In developing countries with a high prevalence of HCV, the risk of HCV transmission during medical and dental procedures may be higher where standard precautions have not been implemented, where mass vaccination programs have occurred and where blood has not been screened for HCV.¹⁰

In Australia, screening of donated blood products for HCV commenced in February 1990¹¹ virtually eliminating transmission of HCV by blood transfusion. Breach of standard precautions during medical and dental procedures has resulted in a few cases of nosocomial acquisition of HCV,¹² however, generally the risk is considered very low. Transmission of HCV following a needlestick injury contaminated with infected blood is small, the risk being relative to the type of needle and depth of needle penetration.

The risk of sexual transmission of HCV is small, because the virus is not found in sexual fluids in sufficient amounts to be a transmission risk.¹³ Instead sexual transmission only occurs if there is blood-to-blood contact. There is an increased risk of sexual transmission in people with HCV/HIV co-infection, and in HIV-positive men who acquired HCV after engaging in high-risk sexual behaviour.¹⁴ Transmission of HCV from mother to child is low and varies from 0-13%.¹⁵

Natural history and disease progression

Hepatitis C virus was cloned in 1989¹⁶, and led to the development of an anti-HCV antibody assay in 1990. The acute stage of the infection is often mild and goes unnoticed in most people. HCV can live in the body for a long time without causing symptoms but chronic infection can lead to liver damage. Genetically distinct viral groups of HCV have evolved with six major genotypes or strains of hepatitis C identified.² These genotypes can be further subdivided into 'subtypes' (1a, 1b, 1c, etc). Transcription errors often occur during viral replication, leading to an accumulation of mutation strains and the generation of different genomes referred to as quasi species. It is not uncommon for individuals to have HCV infection with more than one genotype and numerous quasi species.¹⁷

Acute hepatitis C infection

Studies of acute hepatitis C have been limited, primarily hindered by the asymptomatic nature of acute HCV infection.¹⁸ Virus (HCV RNA) may be detectable within 7-21 days of infection^{17,19} and HCV antibodies within 12 weeks post primary exposure. Approximately 25% of people exposed to HCV will spontaneously clear the infection within 6 months of exposure; they no longer have the infection or are infectious for HCV.²⁰

Following viral clearance, HCV antibodies (anti-HCV) persist, but these antibodies are unable to protect the individual against subsequent exposure to HCV.²¹ Treatment for acute hepatitis C is becoming more readily available in Australia, because there is strong evidence to suggest treatment is highly efficacious.²²

Chronic hepatitis C virus infection

People who do not clear the virus in the six-month acute phase and progress to chronic HCV infection generally have a slow disease progressive with variable health outcomes.²³ Muller et al (1996) suggest that transaminase levels, measured by the liver function test (LFT), in peripheral blood can be normal in patients with chronic hepatitis C, but there is a poor correlation with liver histology. For example, a person can have a normal alanine aminotransferase (ALT) level but severe liver scarring. About 60% of people with chronic infection are at risk of chronic liver disease which may in turn lead to cirrhosis, hepatocellular carcinoma, hepatic failure, need for liver transplantation and death. HCV-related cirrhosis and complications are reported to occur mostly in the second and third decade after infection and have been shown to be associated with age of acquisition (over 40 years), heavy alcohol consumption, co-infection with hepatitis B virus or human immunodeficiency virus (HIV) and male gender.²⁴

Signs and symptoms of acute and chronic hepatitis C infection

In most cases, acute HCV infection is unnoticed, or causes a mild illness and is often clinically insignificant. However, in 10-20% of cases, clinical features resembling other forms of acute viral hepatitis may occur such as: malaise, nausea, vomiting, abdominal discomfort, jaundice, pale stool and concentrated or dark urine.¹ Liver failure rarely occurs secondary to acute HCV infection.

The majority of people with chronic HCV infection will experience a range of symptoms from mild to severe. These include: lethargy, fatigue, abdominal pain or discomfort, nausea, vomiting, skin

disorders and muscle and joint pain. Such physical symptoms may affect a person's quality of life and mental wellbeing.

Testing

The diagnosis of HCV infection can only be made following HCV specific blood tests. People with HCV infection may have elevated liver function tests (LFTs). In particular, the liver enzyme, ALT may be elevated in the presence of HCV infection, however, it is a poor indicator as people with HCV infection can also have normal LFTs. There is a range of serological blood tests that can be performed to indicate the presence of hepatitis C virus in a person's blood.

The initial screening test for HCV is a blood test called a hepatitis C antibody (HCV Ab) test. The presence of HCV antibodies can indicate current infection as well as previous exposure to HCV.²⁵ To determine active HCV infection and the level of virus in the blood (viraemia or viral load), a PCR (Polymerase Chain Reaction) test should be performed. This highly sensitive test detects HCV Ribonucleic Acid (RNA). A positive HCV PCR result indicates current HCV infection and confirms the diagnosis of HCV infection. There are three components of PCR testing;

1. Qualitative PCR – confirms the diagnosis of current HCV infection. Results are provided as 'detected' or 'not detected'.
2. Genotype PCR – confirms the strain of HCV infection. The genotype has clinical application in terms of treatment duration and is a predictor of response to interferon based therapies.
3. Quantitative PCR – is a measure of the level of HCV in the blood, the viral load. It has clinical implications in terms of treatment monitoring and response.²⁶

Table 1. HCV testing and interpretation of test results

HCV Ab	HCV PCR	Interpretation
negative	negative	- no HCV infection - no prior HCV exposure
positive	negative	- previous exposure - no current HCV infection - ? spontaneous clearance - ? successful treatment
positive	positive	- current HCV infection

Treatment¹

Aims of Treatment

People are treated using antiviral therapy in chronic hepatitis C to:

- eradicate the infection
- prevent disease progression
- improve liver histology
- improve survival
- improve symptoms

Antiviral therapy is available in Australia under section 100 of the Pharmaceutical Benefits Scheme (PBS) for any person who fulfils the following criteria:²⁷

- 18 years or older
- documented chronic HCV infection (repeatedly positive HCV Ab and HCV PCR positive)
- compensated liver disease
- commitment to use effective contraception

- A liver biopsy is no longer a specific requirement for treatment.
- A diagnosis of HIV does not exclude access to treatment.
- Active injecting drug use (IDU) does not exclude access to treatment.
- People can be re-treated if a previous course of interferon alfa and ribavirin or pegylated interferon alfa and ribavirin was unsuccessful.²⁸

The primary aim of treatment is the eradication of the HCV virus. In HCV, viral eradication or cure is defined by the achievement of a sustained virological response (SVR). SVR is defined as a negative HCV PCR viral detection test 24 weeks after completing treatment. The benefit of achieving an SVR is that it can reduce the risk of the liver disease progression for people at all stages of the disease. There have been reports of significant regression of fibrosis, even in people with cirrhosis.¹

Antiviral treatment for hepatitis C

Current optimal therapy for HCV is pegylated interferon and ribavirin otherwise known as combination therapy. The combination of pegylated interferon and ribavirin produces an overall SVR of between 50% and 90% depending on genotype.

Table 2. HCV treatment regimens ^{29,30}			
Drug	Genotype	Body weight	Dose
Ribavirin with peginterferon alfa 2a (Pegasys RBV)			
Peginterferon alfa-2a (subcutaneous)	All	All	180 µg once a week
Ribavirin (oral)	1 and 4	< 75 kg	400 mg in the morning and 600 mg at night
		≥ 75 kg	600 mg twice daily
	2 and 3	All	400 mg twice daily
Ribavirin with peginterferon alfa-2b (Pegatron)			
Peginterferon alfa-2b (subcutaneous)	All	All	1.5 µg/kg once a week
Ribavirin (oral)	All	<65 kg	400 mg twice daily
		65–85 kg	400 mg in the morning and 600 mg at night
		86–105 kg	600 mg twice daily
		>105 kg	600 mg in the morning and 800 mg at night

Pharmacology^{29,30}

Interferon

Interferon is one of a group of heat-stable soluble basic antiviral glycoproteins of low molecular weight that are usually produced by cells in response to the presence of a virus. Interferons bind to specific receptors initiating a complex intracellular signalling pathway and rapid activation of gene transcription. Interferon stimulated genes modulate many biological effects including the inhibition of viral replication in infected cells, inhibition of cell proliferation and immunomodulation. Synthetically manufactured Interferon in large

doses can help reduce the HCV viral load and slow down the process. Pegylated Interferon (PEGIFN) has an altered molecular structure which ensures it remains circulating in the bloodstream. After subcutaneous administration, the drug is detectable in plasma within 3-6 hours and peak serum concentrations are reached in 72-96 hours. The terminal half life (T_{1/2}) is approximately 72 hours (range 50-140 hours). Therapeutic plasma concentrations are maintained throughout a full week (168 hours after administration), thus resulting in an improved antiviral effect.

Ribavirin

Ribavirin is an oral synthetic nucleoside analogue with antiviral activity. It has no significant initial viral kinetics over the first 4 to 6 weeks in patients treated with combination ribavirin and PEGIFN. Ribavirin has shown in vitro activity against some RNA and DNA viruses, as well as immunomodulation activities. Clinical trials have shown that ribavirin monotherapy has no effect on eliminating HCV.

Ribavirin is excreted renally and therefore must be used with caution in renal patients. Mean terminal half-life following a single dose ranges from 140-160 hours. Following oral dosing of 600 mg, steady state is reached by approximately 4 weeks. Upon discontinuation half-life is approximately 300 hours. The bioavailability of ribavirin is increased when administered with a high fat meal.

Drug interactions^{29,30}

No pharmacokinetic interactions between pegylated interferon and ribavirin have been observed in clinical trials.

Based on the half-life of ribavirin, there is a theoretical potential for interactions for up to two months after cessation of therapy.

Pegylated Interferon

- Theophylline – metabolism may be inhibited, therefore increasing concentration and risk of toxicity: theophylline serum concentrations should be monitored and dose adjustments made if required
- Methadone – levels may be increased: patients should be monitored for signs of toxicity
- Telbivudine – combination is associated with increased risk of peripheral neuropathy
- Colchicine – given regularly, decreases effectiveness of peginterferon; avoid combination
- Sho-saiko-to, a Chinese herbal medicine – increased risk of pulmonary symptoms.

Ribavirin

- Didanosine – risk of fatal hepatic failure, peripheral neuropathy, pancreatitis and lactic acidosis; coadministration is contraindicated
- Warfarin – decreased anticoagulant effect; monitor INR (international normalised ratio, a test of blood clotting) and increase warfarin dose if indicated
- Nucleoside analogues – activation may be inhibited, causing increased HIV plasma viraemia; monitor HIV RNA levels
- Azathioprine – metabolism may be inhibited, closely monitor haematology due to increased risk of myelotoxicity; cease medications immediately if occurs

Predictors of response to antiviral therapy:³¹

- Genotype 2 or 3
- Rapid virological response
- Low baseline viral load
- Nil- minimal fibrosis
- Younger age < 40 years

- Female gender
- Low-normal body weight
- Nil- low alcohol intake

Hepatitis C genotypes

Hepatitis C genotypes influence the length of treatment and likely response (Table 3). All people with suspected HCV have a PCR test for genotype and viral load performed prior to commencing therapy. Both of these tests are reimbursable by Medicare.

Table 3. Expected treatment outcome	
Pegylated Interferon plus ribavirin ^{2,32}	
Genotypes 1 and 4 (48 weeks of treatment)	45 – 50% SVR
Genotypes 2 and 3 (24 weeks of treatment)	80 – 90% SVR
Genotype 4 (48 weeks of treatment) ³³	≥58% SVR
Pegylated interferon monotherapy ²	
Genotype 1*	11 – 14% SVR
Genotypes 2 and 3	36 – 49% SVR
*No data available for genotype 4.	

Re-treatment

As with initial therapy, re-treatment should be considered in regard to the individual patient with consideration of host and viral factors. Factors influencing retreatment response:^{2,34}

- Previous treatment regimen
 - adverse medications effects leading to dose reductions
 - compliency with medications
 - use of alcohol and illicit drugs
 - dose of ribavirin and interferon
- Nature of previous response- relapse versus non-response
- Bridging fibrosis or cirrhosis
- Hepatitis C genotype
- Viral load
- Race/ ethnicity
- Insulin resistance

Current research indicates that after completing 48 weeks re-treatment, an SVR rate of between 14 – 38% can be expected.³⁴

Side-effect management

Management of side-effects to combination therapy is a joint effort

involving the health-care team and the person with HCV. Lack of attention to side-effect development and contraindications can have potentially catastrophic outcomes for the person with HCV and reduce his or her chance of achieving an SVR. Table 4 details the common and rare adverse effects that patients may experience. It also details the significant contraindications to treatment. While side-effects are common, most people complete the treatment program.^{25,31} The treating specialist may recommend dose reductions at times as a way of managing side effects. The majority of side effects resolve within 4-12 weeks of treatment cessation.

Table 4. Adverse effects and contraindications to treatment ³¹		
Interferon		
Common adverse effects	Rare adverse effects	Contraindications
Malaise, fatigue, low-grade fever	Interstitial lung disease	Decompensated liver disease
Diarrhoea, anorexia, weight loss	Cardiomyopathy	Severe depression, psychosis
Irritability, forgetfulness	Retinopathy	Uncontrolled diabetes
Depression and anxiety		
Insomnia		Cardiac failure
Neutropenia		Autoimmune disease
Thrombocytopenia		Organ transplantation (other than liver)
Thyroid dysfunction		Pregnancy/ breastfeeding
Decreased sexual libido		
Injection-site erythema		
Hair thinning/loss		
Worsening of psoriasis		
Ribavirin		
Common adverse effects		Contraindications
Rash/pruritus		Renal failure
Upper respiratory tract congestion		Pregnancy/ breastfeeding
Haemolytic anaemia (dose dependent)		Inability/ unwillingness to practise adequate contraception
Teratogenicity		

Pharmacists can provide advice regarding side effect management (Table 5).

Table 5. Side-effect management strategies	
Side-effect	Management strategy
Flu like symptoms 8-48 hours after first few pegylated interferon injections; tend to become less severe over first month	Manage with adequate hydration (at least 2L water each day) and paracetamol 4-6 hourly. Advise to rest and avoid stress.
Nausea, weight loss, (often 10% body weight loss, sometimes more)	Small frequent meals, reduce acidic foods. Sustagen or other nutritional supplement may be useful and dietician advice is often required.
Insomnia	Regular evening routine, no vigorous exercise immediately prior to bed; warm showers only; ensure good ventilation in room; good sleep hygiene; sedation may help.
Mood disorders - especially irritability, anxiety, low libido and depression (20-50% experience depression, often from serotonin depletion due to interferon).	Social worker or psychologist advice can be very helpful pre, during and post treatment. Refer patients to specialist treatment centres for assessment.
Skin eruptions including very dry skin, mild rash.	Use moisturisers, cool showers, no soap, non- sedating antihistamines, sedating antihistamines nocte (can also assist with sleep disturbance), topical cortisone creams. Severe skin irritation may require dermatology referral.
Hair thinning/loss	Usually resolves post treatment so suggest ways of restyling or covering hair in the meantime. Use of mild shampoos, less frequent washing. Nutritional supplements may be recommended.
Dry cough	Throat lozenges to relieve symptoms.
Mouth ulcers, bleeding gums	Soft toothbrushes, non-alcohol mouth washes, oral moisture preparations.
Injection-site erythema	Remind patients to rotate injection sites, topical steroid creams may assist.

General management

For people living with a chronic illness such as hepatitis C, taking an active role in self-management can result in significant benefits to their long-term physical, emotional and social wellbeing.² Addressing lifestyle issues can also be useful in preparation for antiviral therapy or for where antiviral therapy is not indicated. Pharmacists can provide valuable advice and support in this regard.

Reducing alcohol consumption

Alcohol is known to negatively affect treatment outcomes and increase fibrotic and disease progression. Drinking alcohol guidelines for people with hepatitis C are the same as those recommended for the general population unless liver damage, particularly cirrhosis, is present. In this case, no alcohol is recommended. People with hepatitis C can anticipate a more benign disease course if they consume no or a lower amount of alcohol.^{1,2,20,31,35}

Key messages for people with hepatitis C include:

- no more than 2 standard drinks each day
- no more than 4 standard drinks on a single occasion
- aim for at least 2 alcohol-free days each week
- consider low or no alcohol during a course of hepatitis C treatment
- avoid alcohol when cirrhosis is present

Complementary and alternative medicines

Complementary and alternative medicines (CAM) are often used by people with hepatitis C to help alleviate symptoms and improve quality of life.² These medicines can include a range of therapies used independently or in conjunction with pharmaceutical treatments. Importantly, while many people find CAM beneficial, for example in managing side-effects of antiviral therapy and for some showing an improvement in liver function tests, there is no evidence that the use of CAM will lead to eradication of the virus. Also, as some remedies can worsen liver function and lead to liver toxicity it is important that those with HCV seek appropriately credentialed CAM practitioners and that people with HCV are encouraged to discuss any use of CAM therapies with their treating doctors.^{20,31,36}

Diet, exercise and oral health

Insulin resistance, high Body Mass Index (BMI) and metabolic syndrome, known to increase the risk of cardiovascular disease and diabetes, can also lead to the development of liver steatosis (fatty deposits) and fibrosis.^{20,31} Engaging in regular exercise, together with a balanced diet can improve general health and wellbeing while helping to achieve or maintain optimal body weight.²⁰ These lifestyle measures will also assist people with hepatitis C to maintain liver health. For the majority of people with hepatitis C, dietary modifications are not needed unless cirrhosis is present. People with cirrhosis are at risk of developing nutritional problems, and dietary management plays an important role in maintaining health and wellbeing.^{1,20,31} Seeking advice from dieticians can help.

Oral health problems often related to dry mouth conditions can be improved by good diet, drinking adequate water, not smoking and regular dental care. There is some evidence that tobacco smoking can increase fibrosis.^{1,20,31} Quitting smoking will lead to improved general health and reduce the risk of related and significant illnesses.

HCV/HIV co-infection

HIV infection can lead to an increase in HCV viral load and worsening of HCV disease.³¹ HCV testing is recommended in people with HIV infection and close monitoring of HCV/HIV coinfection is essential.¹

Combination anti-retroviral therapy (cART) can cause hepatotoxicity and precipitate HCV antiviral toxicity, particularly where there is significant fibrosis.¹ Hepatitis C treatment outcomes in this population continue to improve and treatment can be considered either in the absence of antiretroviral therapy or where the CD4 count is stable.³¹ HCV treatment and management with HIV co-infection is best undertaken in collaboration with general practitioners (GPs), together with HIV and HCV specialist services.^{1,31}

Injecting drug use

The majority of new hepatitis C infections occur as a result of injecting drug use.³⁷ Encouraging the use of new injecting equipment is therefore essential in reducing the transmission of HIV and other blood-borne viruses such as hepatitis C. NSPs provide sterile equipment and are a point of access to the health system for those who inject. NSPs now frequently offer a range of facilities including primary health care, vaccination, counselling, peer-based education and support and health promotion. Referral to drug and other treatment services such as hepatitis C services are also available.³¹

Vaccination

Under current NHMRC immunisation guidelines,³⁸ hepatitis A and B vaccinations are recommended for people with chronic liver disease. Combination vaccines for hepatitis A and B are available and free hepatitis B vaccine is accessible to clients in opioid treatment programs. Encouraging people with hepatitis C to have these vaccinations is an important role for the pharmacist. Preventing hepatitis B co-infection in people with hepatitis C can reduce the significant morbidity associated with HCV and hepatitis B coinfection.

No vaccine currently exists for hepatitis C.^{1,20,31}

People with advanced liver disease should also be encouraged to have the pneumococcal and seasonal flu vaccines.

Harm minimisation

Over 90% of all new hepatitis C infections in Australia occur in injecting drug users.³¹ By reducing illicit drug use and the risk behaviours associated with it, a significant reduction in estimated annual new infections would occur in addition to improving health outcomes for people who inject illicit drugs. Harm minimisation does not condone the use of drugs, but acknowledges that these behaviours will continue despite efforts to reduce supply and demand.³⁹ Rather it refers to policies and programs designed to prevent and reduce harm associated with licit and illicit drugs for both the community and the individual.

Harm minimisation consists of three components that work together; supply reduction, demand reduction and harm reduction, to reduce the harmful health, social and economic consequences of drug use.

Supply reduction: involves legislation, regulatory controls and law enforcement which aim to reduce the amount of illicit drugs available in the country

Demand reduction: generally considered to include drug education and support services such as detoxification and rehabilitation, which aim to reduce community demand for illicit drugs by discouraging people from starting to use drugs and encouraging those that do use to stop or reduce

Harm reduction: the pragmatic philosophy of reducing the harms associated with risk behaviours such as illicit injecting drug use without necessarily reducing drug use. The National Hepatitis C Strategy defines harm reduction as 'interventions designed to reduce the impacts of drug-related harm on individuals and communities'.⁴⁰ In Australia, harm reduction programs largely consist of opiate replacement treatment (pharmacotherapy such as methadone and buprenorphine programs), drug-user organisations, peer education and needle and syringe programs.

Needle and Syringe Programs

Needle and Syringe Programs (NSPs) are internationally recognised as the primary harm reduction tool in the prevention of blood-borne viruses such as HIV and hepatitis C. In Australia, the inclusion and recognition of the value of NSPs within the first National HIV Strategy in 1989, and the subsequent implementation across the country has placed Australia in a lead position internationally. NSPs are legal in every state and territory and are strictly regulated.⁴¹

In Australia in 2009, there were 85 primary NSP sites, 737 secondary sites, 20 enhanced secondary sites and 118 vending machines.⁴² Approximately 2 000 pharmacy-based services also provide access to sterile injecting equipment across Australia.⁴³

NSPs have an important role in health-care by providing sterile injecting equipment and harm reduction information that enables people who inject drugs to make informed choices and protect their health. NSPs operate through a range of service providers such as Primary NSPs whose sole function is NSP, community health services, hospital accident and emergency units, councils, drug treatment agencies, youth organisations and pharmacies.⁴⁴ Primary NSPs and enhanced secondary NSPs can make referrals to voluntary drug treatment centres and some provide medical care, legal and social services, distribute condoms and deliver safe sex education. All primary, secondary and enhanced secondary NSPs provide options for the safe disposal of used needles and syringes. NSPs also provide support to families of people who inject drugs. NSPs do not supply drugs or allow injecting drug use on the premises.³⁹

While NSPs remain largely misunderstood in the community and often receive negative media, there is generally great support from national and state and territory governments, policy makers and service providers for NSPs. The recently released Return on Investment 2: Evaluating the cost-effectiveness of needle and syringe programs in Australia (2009) demonstrated the financial benefit derived from the provision of NSPs.⁴² In health-care costs, Australia's NSPs have saved the Australian economy \$1 280 million, which includes preventing 32 000 cases of HIV and nearly 100 000 cases of hepatitis C.

Stigma and discrimination

Public interaction with community pharmacists has increased due to enhanced delivery of health promotion and education services. Specifically, community pharmacists are uniquely positioned to have regular contact with people with, or at risk of, hepatitis C through pharmacotherapy dispensing programs and new needle and syringe distribution. These interactions provide an opportunity for health education. Yet if pharmacists lack knowledge or hold judgmental attitudes towards people with, or at risk of, hepatitis C, they may not provide optimal support, education and care.

A recent study conducted by Hepatitis Australia (2009)⁴⁵ found that people with hepatitis C want to access information in a variety of locations including community pharmacies. However, fear of being identified and subsequently stigmatised often prevented this access from occurring.

Hepatitis C is a highly stigmatised condition because of its association with injecting drug use as the primary mode of transmission. Discrimination occurs when someone is treated less favourably than others in the same or similar circumstances because of a particular characteristic, such as hepatitis C. Stigma and discrimination in the general community and in health-care settings can create barriers to accessing hepatitis C-related services. As such, reducing and ultimately preventing hepatitis C-related discrimination remain priorities for action in the current national and state-based strategic responses.

Hepatitis C-related discrimination can take many forms and may follow people in many areas of their public and personal lives. It can also have a severe impact on a person's health-seeking behaviour, quality of life and subsequent health outcomes. Although discrimination against an individual with an infectious disease, such as hepatitis C, is prohibited by Australian Commonwealth law, anecdotal reports of discrimination against people with hepatitis C are widespread. The literature details episodes of hepatitis C-related discrimination, with the most commonly reported context being health-care settings.⁴⁶

A study of 1347 health professionals identified that community pharmacists (n = 275) had a low level of hepatitis C knowledge, but generally demonstrated compassionate and non-discriminatory attitudes toward people with hepatitis C and people who inject drugs. However, pharmacists exhibited an unfounded fear of contracting hepatitis C, which affected their ability to adequately support people with the virus.⁴⁷

In most cases, hepatitis C-related discrimination is manifested by fear of contracting the virus, ignorance about transmission modes and stereotyped responses towards people on the basis of past, current or assumed injecting drug use.⁴⁶

Pharmacists have an important responsibility to prevent discrimination in their work through:

- maintaining their customers' confidentiality and
- ensuring their customers have access to the most appropriate and accurate information.

Hepatitis C-related stigma and fear of discrimination are barriers to seeking both information and support for people with hepatitis C.⁴⁵ To provide a professional service, pharmacists should remember that they are not at risk of acquiring hepatitis C in a pharmacy setting, be non-judgemental and have a respectful attitude towards their customers' needs, treatment preferences and lifestyle choices. In this way, pharmacists can create an environment free of discriminatory behaviour.

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Useful contacts:

Hepatitis Australia

(Contains links to other State and Territory Hepatitis Councils)

Tel: 1300 437 222 (or 1300 HEP ABC)

Web: www.hepatitisaustralia.com

Australasian Society for HIV Medicine

Tel: 02 8204 0700

Web: www.ashm.org.au

Australian Government Department of Health and Ageing

Freecall: 1800 020 103

Web: www.health.gov.au

Pharmacy Guild of Australia

Tel: 02 6270 1888

Web: www.guild.org.au

Pharmaceutical Society of Australia

Tel: 02 6283 4777

Web: www.psa.org.au

Australian Injecting and Illicit Drug Users League (AIVL)

Tel: 02 6279 1600

Web: www.aivl.org.au

Australian Drug Information Network

Tel: 03 9278 8100

Web: www.adin.com.au

Gastroenterological Society of Australia

Tel: 1300 766 176

Web: www.gesa.org.au

Dietitians Association of Australia

Tel: 1800 812 942

Web: www.daa.asn.au

Local contacts:

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Other ASHM resources, including hepatitis C-related publications, are available from the ASHM website: www.ashm.org.au



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