

HEPATITIS C:

ESSENTIAL INFORMATION FOR PROFESSIONALS

FIRST IDENTIFIED IN 1989, HEPATITIS C EMERGED AS A SIGNIFICANT PUBLIC HEALTH PROBLEM. THIS PAPER HAS BEEN PRODUCED FOR PROFESSIONALS TO PROVIDE UP-TO-DATE INFORMATION ON HEPATITIS C VIRUS (HCV). IT INCLUDES INFORMATION ON THE PREVALENCE OF HCV, HOW THE VIRUS IS TRANSMITTED, HOW TO IDENTIFY THOSE AT RISK, DIAGNOSIS AND TESTING PROCEDURES IN SCOTLAND, AND TREATMENT. IT ALSO SIGNPOSTS FURTHER SOURCES OF INFORMATION.

What is Hepatitis C?

Hepatitis C is a slowly progressive and often silent disease of the liver caused by the hepatitis C virus (HCV).

HCV is a blood-borne virus that causes liver disease. The effects of the infection vary from one individual to the next. Many people will remain symptom free, some will develop cirrhosis and a few will develop liver failure or primary liver cancer. Studies in Scotland suggest that about 0.7% of the population, 1 in 140 people in Scotland, are chronically infected with HCV. These carriers may be passing the virus on to others. Unlike hepatitis A and B, there is no vaccine against hepatitis C but infection is preventable through strategies that minimise transmission.

As the average list size for GPs in Scotland is 1,400 patients, this equates to about ten patients per GP; however, because of the strong associations between HCV, injecting drug use and deprivation, there will be wide variations in this figure.

What are the Signs and Symptoms?

Most people who become infected with hepatitis C are unaware of it at the time. Some people may briefly feel unwell, or may have nausea and vomiting and, rarely, jaundice.

Many with chronic hepatitis C will have no symptoms, while others will feel unwell to

varying degrees. Most people will remain well and without symptoms for a number of years and this makes the infection difficult to recognise.

Disease progression and severity is very variable and patients may not become symptomatic until their liver disease is advanced.

Symptoms, though not common, may include muscle aches and a high temperature, mild to severe fatigue, nausea, loss of appetite, weight loss, depression or anxiety, pain or discomfort in the liver, jaundice, poor memory or concentration and alcohol intolerance.

It should be noted that the severity of symptoms does not necessarily equate to the extent of liver damage. Some patients will report quite severe symptoms with no clinical signs of liver disease, while cirrhosis can be present without any obvious symptoms.

For those in whom the disease progresses to cirrhosis, serious complications due to liver failure may include oesophageal varices and ascites.

What's the Long-term Outlook for the Patient?

Current evidence suggests that:

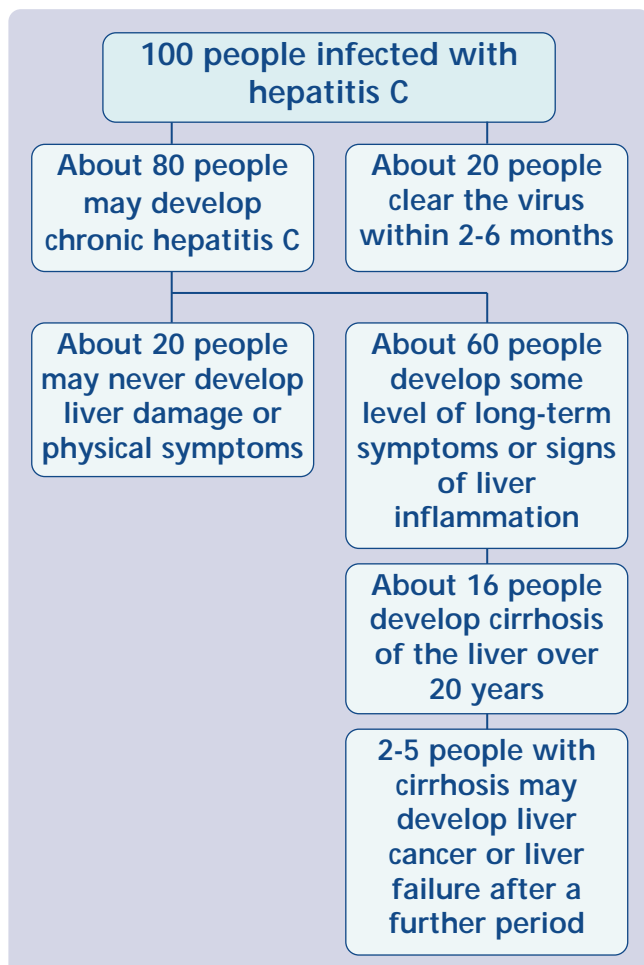
- >> around 20% of those infected with hepatitis C infection will clear the virus at the acute stage.

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Of the 80% who do not:

- >> some will remain well, and never develop liver damage;
- >> many will develop only mild to moderate liver damage (with or without symptoms);
- >> about 20% will progress to cirrhosis of the liver over a period of 20 years;
- >> a proportion of those with cirrhosis will progress to liver failure or primary liver cancer.

An example of the possible overall progression of the disease is illustrated below. It should be noted that our understanding of the natural history of hepatitis C is incomplete and the figures below should be considered as approximations:



These figures are approximations and the rate of progression to cirrhosis is higher in those who drink excessively. The faster progression is found in those who have previously drunk more than 50 units of alcohol a week for more than five years. Once cirrhotic, 3% per year will progress to liver failure or primary liver cancer.

Numerous studies have attempted to determine predictors of disease progression to cirrhosis. These studies indicate that some factors influence this progression, including:

- >> alcohol consumption – alcohol is strongly associated with increased likelihood of progression to severe liver complications;^{1,2} this is particularly important if alcohol consumption is heavy (greater than 50 units per week);
- >> age at infection – those who acquire hepatitis C at an older age have a more rapidly progressing disease;^{2,3}
- >> gender – studies indicate that men are more likely to progress to cirrhosis than women;^{2,3}
- >> co-infection with HIV or hepatitis B – those who are also co-infected with either HIV or hepatitis B are likely to progress to serious disease more rapidly;^{2,3}
- >> sub-type – it is important to identify the sub-type early, as this will have a differential effect on the prospects of recovery and the indicators for treatment.

How is Hepatitis C Transmitted?

HCV is carried in the blood, and has been detected in other body fluids. However, blood has been identified as the main vehicle of infection.⁴

- >> The major route of HCV transmission in the UK is by sharing equipment for injecting drug use, mainly via blood-contaminated needles and syringes. Spoons, water and filters may also be vehicles of infection. Scotland has one of the highest prevalences of injecting drug use in Europe and it is estimated that nearly 50% of all current injectors have been infected with hepatitis C; the corresponding rate for past injectors is thought to be higher.
 - >> Prior to the introduction of screening of all blood donations in September 1991, there was a risk to recipients of blood. A heat treatment process to protect blood clotting factors (used in the treatment of haemophilia) against hepatitis C and other viruses was introduced in the mid-1980s (treated Factor IX available in 1985 and Factor VIII in 1987). There is a high prevalence of hepatitis C in people with haemophilia who received untreated clotting factors before these dates.⁵
 - >> Mother to baby transmission does occur, either in utero or at the time of birth, but appears to be uncommon, with upper estimates of 6% across the UK.^{3,6} However, this is increased to around 15-20% when there is co-infection with HIV. In Scotland, it is estimated that about 200 babies are born to hepatitis C infected women annually and that, of these, 10 will be infected; it is likely that around 50% will become long-term chronic carriers of the viruses. There is no association proven, as yet, between breastfeeding and transmission of hepatitis C infection and mothers with this infection should not be advised against breastfeeding.⁶
 - >> Sexual transmission of hepatitis C is possible but uncommon.^{7,8} In Scotland, the prevalence of hepatitis C among attenders of genitourinary clinics who are either heterosexuals (non-injecting) or men who have sex with men, is relatively low (0.3-0.8%).⁷ There is a 3% life-time risk of transmission if the partner is positive.
 - >> Transmission can occur through medical and dental procedures abroad, where infection control may be inadequate.
 - >> Healthcare workers (and, to a lesser extent, other workers, such as police, prison staff and social workers) may be at risk of hepatitis infection from occupational injuries, for example needlestick injuries. Details of guidance on the investigation and management of occupational exposure to hepatitis C are contained in the further reading section on page 8.
 - >> There is a risk from tattooing, ear piercing, body piercing and acupuncture with unsterile equipment.
 - >> There is some evidence that transmission may occur through the sharing of toothbrushes, razors and other personal toiletry items that could be contaminated with blood.⁹
- There is no risk of HCV transmission from everyday social contact such as holding hands, hugging or kissing or through sharing toilets, crockery and kitchen utensils.

Prevalence of HCV Among Different Population Groups in Scotland

The prevalence of HCV in different population groups is shown in Table 1 below. It can be seen that injecting drug users (IDUs) are at greatest risk of acquiring HCV.

TABLE 1

Population group	% of population	Reference – see pages 10 and 11
Injecting drug users	20-80	10-14
Prisoners (non-IDU)	4	15
Genitourinary medicine (GUM) clinic Attenders (non-IDU):		
>> Heterosexual males	0.8	7
>> Heterosexual females	0.3	7
>> Homosexual/Bisexual males	0.6	7
Pregnant women	0-1	16 (and SCIEH)
Healthcare workers	0.2	17
Blood donors	0.01	(SNBTS)

SCIEH – Scottish Centre for Infection and Environmental Health

SNBTS – Scottish National Blood Transfusion Service

IDU – Injecting Drug User

Prevalence of Diagnosed Infection in Scotland

In Scotland, 13,535 people had been diagnosed with hepatitis C by end December 2001, although it is estimated that up to 40,000 persons may be infected. Of the diagnosed cases:

- >> 87% were aged 15-44;
- >> 68% were male;
- >> 60% were known to have injected drugs (note – 89% of the 9,104 cases, for which risk information was available, had injected drugs);
- >> 37% of cases resided in Greater Glasgow.

Further details of prevalence of HCV infection in Scotland, including geographical distribution by NHS Board, are given in Annex 1.

How is Hepatitis C Diagnosed?

Tests

An initial antibody blood test will indicate whether a person has ever been infected with HCV. About 15-20% of people who become infected with HCV will clear the virus at the acute stage: however, these people will still have positive antibody results.

In order to establish if the virus is still present, and to diagnose the extent of the disease, further specialist tests are required.

A polymerase chain reaction (PCR) test will identify current circulating virus. More sophisticated PCR tests can then identify the amount (viral load) and the genotype of the virus.

'Viral hepatitis' is a notifiable disease, and although this does not discriminate between the different viruses causing hepatitis, there is a medical responsibility to notify.

Who Carries Out HCV Tests?

Antibody tests may be carried out by GPs, local drug services and sexual health/GUM (genitourinary medicine) clinics. The presence of chronic infection will need to be confirmed by PCR testing. Specialist virology laboratories in Edinburgh and Glasgow can perform quantification and genotyping.

Referral to Secondary Care

Patients who are antibody positive, but PCR negative, do not need specialist treatment but need counselling about lifestyle. They can be managed in primary care or referred to secondary care for counselling.

All patients who are PCR positive should be referred to specialist hepatologists, gastroenterologists or infectious disease physicians for further investigations/assessments.

In patients who have clinical indications, liver biopsy will show the degree of any liver injury (inflammation, fibrosis, cirrhosis, etc). Additional investigations may be appropriate.

Who Should be Tested?

Antibody testing should be considered for:

- >> anyone who has ever injected drugs. It is very important that ex-injecting drug users are offered an HCV test as there is a high probability that many will have been infected for several years and have moderate disease (inflammation fibrosis) of the liver;
- >> current injecting drug users;
- >> recipients of blood or blood products (before September 1991);
- >> children born to mothers with hepatitis C (*NB: the test result may be difficult to interpret in children under 18 months old, due to the presence of maternal antibodies and specialist virological advice will be needed*);
- >> regular sexual partners of those with hepatitis C;
- >> people who may have had unsterile medical or dental procedures abroad;
- >> people who may have had ear piercing, body piercing, tattooing or acupuncture with unsterile equipment.

Those at risk of hepatitis C should be considered for testing for hepatitis B and HIV, if this has not been done already. Such testing should be accompanied with appropriate pre- and post-test counselling.

What Information do Patients Need?

Before testing

When antibody testing is undertaken it is important that the fears and anxieties of patients are discussed. Patients should also be made aware of the implications of both a positive and a negative result so that they are able to give informed consent to the process.

A range of health professionals in primary care and other specialist services are appropriate to provide pre- and post-test advice.

Prior to antibody testing, practitioners should consider the following issues:

- >> Does the patient clearly understand the testing procedure?
- >> Is the patient able to give informed consent?
- >> Does the patient have enough information about the disease to understand the long-term implications of a positive result?
- >> What support does the patient have, particularly after the receipt of a positive test result?
- >> Is the patient assured of confidentiality?

After testing

Results should be given in person wherever possible.

Negative Results

Where antibody test results are negative, patients should, where appropriate, be counselled that any continued risky behaviour may lead to infection in the future.

Repeat testing is advised if the patient is believed to have been recently exposed to the virus, since HCV antibodies can take up to six months to develop.

Positive Results

In the event of a positive antibody test, it is important that the patient clearly understands the result, and that further specialist tests are required to establish current HCV infection and identify the extent of any disease.

The patient may need support to come to terms with a positive test result and potential future implications. Referring practitioners should consider providing such support during the period that patients wait to see a specialist.

If current HCV infection has been diagnosed, patients should be advised:

- >> to stop or reduce alcohol consumption to less than 21 units per week – continued alcohol consumption is the most likely predictor for disease progression.¹ Patients may need to be referred for specialist alcohol support and counselling;
- >> not to donate blood or carry an organ donor card;
- >> **never** to share **any** injecting equipment;
- >> that, although rare, sexual transmission can occur (condoms minimise this risk); and
- >> not to share razors or toothbrushes or any toiletry equipment that could have been contaminated with blood.

What is the Treatment for Hepatitis C?

Increasingly effective treatments are available. The National Institute for Clinical Excellence (NICE) recommends a combination therapy of Interferon and Ribavirin in the treatment of chronic HCV.¹⁸ This treatment is successful in clearing the virus (with no detectable virus six months after treatment has ceased) in 38-43% of those treated.^{19,20}

The treatment generally lasts for six to twelve months and involves self-subcutaneous injection of Interferon Alpha three times a week, plus a daily dosage of oral Ribavirin.

Treatment is not recommended for drug users who continue to inject, where drug interactions, compliance and the possibility of re-infection are issues. This will need to be assessed on a case-by-case basis. The treatment is contraindicated for many patients, including those with pre-existing medical conditions and pregnant women. Side effects (fatigue, nausea, headaches, depression) can be intolerable for some. Ribavirin is teratogenic and adequate contraception must be used during and for up to six months after therapy.

More recently available is a new Pegylated Interferon, which maintains therapeutic drug levels over a longer period, is administered only once weekly and, in combination with Ribavirin, appears to be more successful in clearing the virus than conventional Interferon and Ribavirin, with efficacy rates of around 55%.^{21,22} (Pegylated Interferon has not yet been considered by NICE).

Further Information

British Liver Trust

The British Liver Trust (BLT) is concerned with raising awareness and providing information and education on all forms of liver disease. The charity produces a number of publications, for example *Hepatitis C* and *Hepatitis C and injecting drug use* patient leaflets. These are free to patients by sending an SAE to the address above, and for a small charge to primary care and other services. The BLT has expert advice on hand but is only able to respond to written medical enquiries by letter, fax or e-mail. The Trust will also be able to refer patients to support organisations in their areas.

Contact: British Liver Trust (BLT),
Ransomes Europark,
Ipswich IP3 9QG

Tel: 01473 276 326 (administration only).

Website: www.british-liver-trust.org.uk

e-mail: info@britishlivertrust.org.uk

Children's Liver Disease Foundation

This organisation specialises in supporting children with liver disease.

Contact: Children's Liver Disease Foundation,
36 Great Charles Street,
Birmingham B3 3YJ

Tel: 0121 212 3839

Website: www.childliverdisease.org

e-mail: info@childliverdisease.org

'Know the Score' – the Executive's drugs website and telephone helpline

The Executive's 'Know the Score' website – www.knowthescore.info – and its drugs helpline – telephone 0800 587 5879 – are intended primarily as a resource for information and awareness of drug issues for young adults and parents.

Contact: Substance Misuse Division,
Department of Health,
St Andrew's House,
Edinburgh

Tel. 0131 244 3483

Local Departments of Public Health will be able to direct patients to appropriate services for hepatitis C.

Drinkline – 0800 917 8282

Provides confidential information and advice about sensible drinking. Drinkline can put people in touch with local alcohol advice centres where help is available on a one-to-one basis.

NHS public/patient leaflets

- >> *Hepatitis C – your questions answered* is available free to primary care and other services. Contact: Public Health Division-1, 3E(S), St Andrew's House, Edinburgh or fax the Division on 0131 244 2157 for further copies.
- >> This *Hepatitis C Briefing Paper* is available free to primary care and other services from the same source.

Further Reading

- >> National Institute for Clinical Excellence (2000) *Guidance on the use of Ribavirin and Interferon Alpha for hepatitis C*. NICE, London.
www.nice.org.uk/Docref.asp?d=11658
- >> Department of Health (1999) *Hepatitis C – guidance for those working with drug users*. London: Department of Health.
www.doh.gov.uk/drugs/hepcguide.htm
- >> Ramsay M (1999) 'Guidance on the investigation and management of occupational exposure to hepatitis C', *Communicable Disease and Public Health*, 2(4): 258-62, available at
www.phls.org.uk/publications/CDPHVO12/no4/guidelines.pdf

ANNEX 1

Prevalence of Known Infection in Scotland

Of the 13,535 cases diagnosed in Scotland by 31 December 2001, it is estimated that between 1,500 and 3,000 have accessed specialist care for their infection. Additional data on these diagnosed cases are as follows:

- >> 87% were aged 15-44;
- >> 68% were male;
- >> 76% have been diagnosed since 1 January 1996;
- >> 9% were aged between 45 and 69;
- >> 2% were aged 70 or over;
- >> 37% of cases resided in Greater Glasgow;
- >> 15% resided in Lothian;

- >> 12% resided in Grampian;
- >> 8% resided in Tayside; and
- >> 21% resided in Lanarkshire, Argyll and Clyde, Ayrshire and Arran and Forth Valley health board areas combined.

Of the 13,535 cases, 60% were known to have injected drugs and, of the 4,431 cases for whom there was no risk information available, 75% were aged (at the time of testing) between 15 and 44 – the range within which most injecting drug users belong. A further 3% of cases were associated with the receipt of blood factor and for the 4% who were placed in the 'other' category, risk information such as 'sexual intercourse' and 'tattoo' were indicated.

Table 2
Persons in Scotland reported to be hepatitis C antibody-positive; number and rate/100,000 population, by NHS Board, to 31 December 2001

NHS board area	Number of known hepatitis C positive cases	Board population (rate of cases per 100,000 population)
Argyll & Clyde	858	423,500 (202.60)
Ayrshire & Arran	625	373,400 (167.38)
Borders	59	106,900 (55.19)
Dumfries & Galloway	289	145,800 (198.22)
Fife	356	350,400 (101.60)
Forth Valley	582	278,000 (209.35)
Grampian	1,600	523,400 (305.69)
Greater Glasgow	5,019	904,400 (554.95)
Highland	268	208,600 (128.48)
Lanarkshire	774	562,000 (137.72)
Lothian	2,003	783,600 (255.62)
Orkney	Under 25	19,480 (51.33)
Shetland	Under 25	22,440 (89.13)
Tayside	1,068	385,500 (277.04)
Western Isles	Under 25	27,180 (14.72)
Total	13,535	5,114,600 (264.63)

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