i-base
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Guide to hepatitis C for people living with HIV

November 2024

"Modern HCV drugs (DAAs) cure 95% of people with simple treatment."

HIV i-Base
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Watch for dated information

Contents

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Disclaimer: information in this booklet is not intended to replace information from your doctor. Treatment decisions should always be taken in consultation with your doctor.

HIV and HCV information dates quickly, please call to see if an up-date is available.

Welcome to the i-Base guide to HIV and hepatitis C coinfection.

This booklet will help you:

- Have accurate, up-to-date information about HIV and hepatitis C coinfection.
- Get the most out of your relationship with your doctor and other health professionals.
- Feel more in control of your health and your treatment options.

Introduction

This resource is about hepatitis C for people who are also living with HIV.

It is based on using DAAs to treat hepatitis C.

Direct-acting antivirals, called DAAs, cure more than 95% of people. Treatment usually takes only 8 to 12 weeks and has few side effects.

In the UK, DAAs are available on the NHS.

This online guide was produced in November 2024.

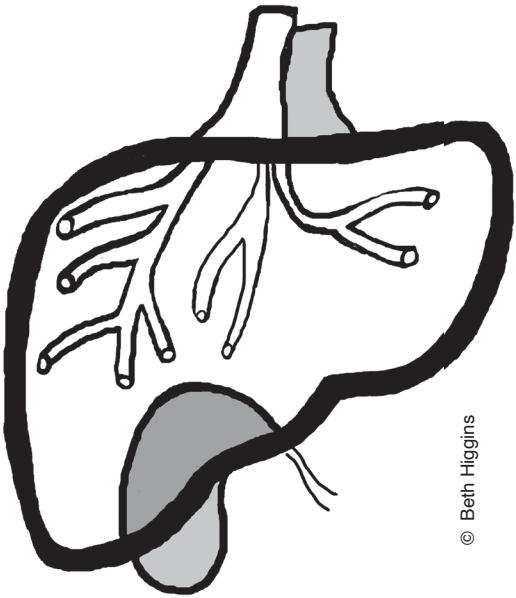
Glossary

DAAs	Direct-acting antivirals (new HCV drugs that directly target the virus)

Feedback

Please give us feedback:

www.surveymonkey.co.uk/r/7FKRM99



HCV and transmission

What is hepatitis C?

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV).

HCV is mainly in blood but it also gets into liver cells. This can cause inflammation and scarring in the liver.

The scarring is called fibrosis when it is mild and cirrhosis when it is more serious. Serious scarring makes it difficult for the liver to work well.

Usually, it takes many years before HCV causes liver damage, but sometimes this can happen more quickly.

HIV increases the risk and rate of liver damage from HCV.

New HCV drugs (DAAs) have the potential to prevent (and sometimes partially reverse) serious fibrosis and cirrhosis. They can cure HCV in nearly everyone.

Glossary

ART Antiretroviral treatment (HIV meds).

cirrhosis Severe scarring of the liver that makes it difficult for it to keep working.

fibrosis Mild liver scarring that still lets the liver continue to function.

How is HCV caught and passed on?

Most people catch HCV from blood-to blood contact. This is when blood containing HCV enters another person's bloodstream.

Semen, genital fluids and rectal mucus may be a risk but there is less research on this.

Saliva and tears are **not** a risk.

As with HIV, you cannot transmit or catch HCV by touching, kissing, hugging, or from sharing cutlery, cups or dishes.

Unlike HIV, which dies after a few minutes outside the body, HCV remains infectious for much longer. This can last for days to weeks, even after blood has dried. This is why you thing that might have traces of blood should not be shared.

HCV can be transmitted by:

- Sharing razors, toothbrushes, nail scissors and nail files.
- Injecting, smoking or snorting drugs with shared, unsterilised equipment.
- Tattooing or piercing when needles, ink, inkwells and other equipment are shared.
- Medical or dental procedures with unsterilised equipment, including kidney dialysis.

- Needlestick accidents to health workers.
- Sex with someone who has HCV – though this is a complex subject (see pages 8 to 13).
- To a baby during pregnancy, labour or at birth (see pages 13 and 14).
- From a blood transfusion or blood products (for clotting factors), generally many years ago. Now that blood is screened, this risk is now virtually zero in the UK, Western Europe and the US. Up to 90% of people with haemophilia were infected with both HIV and HCV before 1985.

In some countries, HCV infections still occur from reused, unsterilised equipment during medical or dental procedures or unscreened blood transfusions.

HCV reinfection

Having HCV once doen't protect you against catching HCV again in the future.

Anyone can become reinfected with HCV, even after being cured.

HCV prevention and testing remain important for people at ongoing risk.

Injecting drug use and HCV

Worldwide, most HCV infections are related to injecting drugs.

This includes medical and non-medical settings, from sharing needles and other equipment.

HCV is a tougher and smaller virus than HIV and is less easily killed. It can remain infectious for days to weeks.

Cleaning syringes with bleach reduces the risk of HIV transmission, but it is less effective against HCV.

Sharing syringes (even measuring syringes), cotton, water and ties can also be a risk for HCV.

Using clean needles and your own equipment each time you inject stops both HIV and HCV including reinfection.

It also reduces the risk of other infections.

Sharing equipment for injecting recreational drugs (slamming) has a high risk of HCV transmission (see pages 9 to 13).

This includes when taking mephedrone and crystal meth in gay clubs and/or at sex parties.

People who inject drugs often face barriers to HCV treatment. Pages 36 to 37 include information about support for people who inject drugs.

HCV and non-injecting drug use

HCV is more common among non-injecting drug users than the general population. It is not clear why.

It may be possible to catch HCV from snorting drugs through shared straws or rolled bank notes, or from sharing pipes to smoke crack or methamphetamine. Sharing these items is therefore not recommended.

Recreational drug use is one of the main risk factors associated with sexual HCV transmission in gay men (see pages 8 to 13). This is because these drugs can affect biological, physical and behavioural risk factors.

Other hepatitis viruses

Information about other types of viral hepatitis (A, B, D, E and G) is included online.

https://i-base.info/guides/hepc/other-viral-hepatitis-infections

This includes risks for transmission, vaccines (for hepatitis A and B), treatments and other information.

See pages 28 to 33 for information about using DAAs if you have both HBV and HCV coinfection.

HIV, HCV and sexual transmission

Sexual transmission of HIV

The majority of new HIV infections globally each year are from sexual transmission.

Sexual HIV transmission is well understood. HIV is present in blood, semen and genital fluids.

Different types of sex carry different risks. For example, giving someone oral sex is usually low risk and receiving oral sex is zero risk.

Anal or vaginal sex without a condom is a high risk, especially for the receptive partner.

However, there is zero risk if the positive person has an undetecble viral load on treatment, even without condoms.

The risk of HIV is close to zero if the negative person is using PrEP, even without condoms.

Otherwise, condoms are very effective at stopping HIV, and some other sexually transmitted infections (STIs).

Some STIs, including herpes, gonorrhoea and syphilis, increase the risk of transmitting HIV.

- Genital fluids are more infectious.
- An open sore is an easy route of infection.
- Immune responses to an STI make it easier for HIV to take hold.

Sexual transmission of HCV

The risk for sexually transmitted HCV is more complicated than HIV.

HCV is still primarily a blood borne infection, so contact with blood has the highest risk.

Although HCV has been found in semen, rectal and vaginal fluids, it is unclear how infectious HCV is in these fluids because levels are often very low.

However, some studies have reported high HCV levels in semen that are independent of HCV levels in blood.

The risk is low in monogamous, HIV negative heterosexual couples. However, much higher rates of sexual HCV transmission have been reported in gay men.

Three things might explain this higher risk.

1. HIV might reduced immune protection.
2. People with HIV/HCV coinfection having higher HCV viral load.
2. That some types of sex between men have a higher risk of HCV transmission.

Heterosexual HCV transmission

The risk of sexual transmission of HCV in heterosexuals who are HIV negative is reported as less than 1% per year.

This is so low that condoms are not routinely recommended.

In these studies, couples did not use condoms, but also did not have anal sex or have sex during menstruation. So the low transmission rate might be from not having blood-to-blood contact.

Although contact with menstrual blood has not been reported as a common factor in heterosexual partners, this has not been well studied.

In people living with HIV, the risk for sexually acquiring HCV is higher than that for HIV negative heterosexuals.

One study reported that sexual exposure is a risk factor for HIV positive women who do not inject drugs but have male partners with HCV.

There is very little information about whether these women were using HIV treatment. Also for whether their HIV viral load was undetectable and whether their partners were also living with HIV.

HCV transmission during sex between men

HCV sexual transmission among HIV positive gay men has been reported in cities in the UK, as well as in Europe, Asia, Australia, Africa and the US.

Limited research reported one or more of the following risks.

- Being HIV positive.
- Recreational drug use.
- Group sex and sex parties.
- Sharing sex toys.
- Rougher sex (longer fucking or fisting).
- Barebacking (insertive or receptive anal sex without condoms).
- Other STIs (especially syphilis).
- Meeting partners online.
- Number of partners.
- Rectal bleeding from surgical procedures and/or rough sex.

However, some men living with HIV have caught HCV sexually without any of these risks. For example, without fisting, using recreational drugs or taking part in group sex.

A summary of safer HCV sex for gay men in included on page 12.

HIV as a factor

Even with effective ART, immune responses to HCV are lower in people living with vs without HIV.

People living with HIV have a lower rate of spontaneous HCV clearance. They also take longer to develop HCV antibodies.

HIV positive people may also be more infectious, as HCV viral load is higher (by about 10 times) compared to HIV negative men.

The good news is that HCV treatment is very effective.

The good news is that DAAs are safe and effective for people who are coinfected with HIV and HCV.

Recreational drug use and HCV infection

Recreational drug use increases the risk of HCV transmission.

This includes injection and non-injection use of crystal meth, cocaine, ecstasy and other drugs.

Recreational drugs can:

- Lower your immune responses so HCV is easier to catch.
- Dilate blood vessels, making the the rectum less protected against cuts and bleeding.
- Act as muscle relaxants allow longer and more energetic sex.
- Reduce inhibitions, for example, during group sex.
- Carry a high risk of HCV transmission if needles and other equipment are shared.

Antidote is an LGBT drug and alcohol service.

It is based in London with a national phoneline.

020 7833 1674

http://londonfriend.org.uk

Safer HCV sex for gay men

Even though safer sex advice is often similar for both HIV and HCV, the risk for HCV is more likely to be linked to blood than sexual fluids.

- **UK guidelines recommend condoms.**
- Use a new condom with each partner.
- **Use latex gloves for fisting and a new glove with each partner.**
- Condoms and gloves need to be thrown away more carefully than when just considering HIV. Unlike with HIV, the outside of the condom (or glove) may be more infectious than the inside.
- **Any cause of anal bleeding, including recent surgery, increases the chance of HCV sexual transmission.**
- Blood is likely to be more infectious compared to semen or rectal fluid during chronic HCV. Semen might be more infectious during acute HCV.
- **Don't share lube from a pot. Traces of blood will not be visible and HCV remains infectious out of the body for at least 16 hours and perhaps for days or weeks.**
- Recreational drugs can increase the risk of bleeding because blood flow is increased. They can enable sex to be rougher or to go on for longer and they can reduce someone's awareness of their risk.
- **Use condoms on sex toys. If you share sex toys, use a new condom every time.**
- Be aware that in group sex HCV can be transmitted by someone who does not have HCV themselves. For example, from onward contact with traces of blood from a previous partner.
- **Other STIs are linked to recent HCV. Routine health checks are easy. Early diagnosis and treatment are important ways to look after your health and the health of your partners.**

Type of sex, group sex and sex parties

Any risk for contact with traces of blood is likely to be significant for HCV transmission. This is rather than semen, which is the route for most STIs.

Semen may be infectious if a partner is in recently acquired HCV infection. People with chronic HCV (for more than 12 months) are likely to have higher levels of HCV in their blood than their semen.

At least one study has reported high levels of HCV in rectal fluid.

Some recreational drugs, sharing toys and lube, rougher anal sex, fisting, and group sex are linked to higher HCV risk.

Because HCV is so much more infectious than HIV, it is more easily transmitted during group sex. Rougher, longer sex, increases the chance of bleeding.

In group sex, someone who fists more that one partner can transfer HCV without having become infected themselves.

Recreational drugs increase risk in at least three ways: tissue is more vulnerable to damage, sexual inhibition can change behaviour, and sex may be rougher and go on for longer.

One study also reported that sex after recent surgery or treatment for anal warts was a high risk for catching HCV. This would be an easy route for the virus to enter the bloodstream.

Other STIs, especially syphilis, are linked to recently acquired HCV infection. Routine health checks are important to protect your health and that of your partners.

ChemSex

Chemsex has often been linked to sexual HCV transmission.

This include crystal meth, mephedrone and GHB/GBL: “meth, meph and G”.

Compared to other party drugs, these drugs keep people high for much longer, often for several days.

However, other drugs such as cocaine, ketamine, ecstasy might also play a role.

Chemsex involves using drugs in an almost exclusively sexual context. It is linked to high rates of STI transmission, including HIV and HCV.

PrEP and HIV

PrEP involves HIV negative people taking HIV meds to protect against HIV, even when not using condoms.

PrEP usually involves oral meds either daily or just before and after sex. Sometimes it can involve an injection every two months.This drug is called cabotegravir-LA.

Research is also looking at PrEP that can be given by and injection every six months. This is called lenacapavir.

Although PrEP is highly effective against HIV – more than 99.9% when taken as prescribed – it doesn't protect against other STIs, including HCV.

HIV PrEP doesn't reduce the risk of HCV transmission.

There is no equivalent PrEP for HCV.

HCV and pregnancy

Importance of ART

ART is now recommended for all people living with HIV, including during pregnancy.

This is better for the mother's health.

It also dramatically reduces the risk of transmitting both HIV and HCV to the baby.

Overall, the risk of HCV transmission during pregnancy is 3% to 5% if the mother is on ART.

It is 3 to 4 times higher if the mother is not on ART.

Importance of DAA treatment

HCV increases the risk of serious complications in pregnancy. This is why people who can become pregnant should have early access to HCV treatment.

The complications are for both the mother and baby.

For the mother, HCV increases the risk of gestational diabetes, liver damage (including intrahepatic cholestasis) and preeclampsia.

For the baby, HCV increases the risk for pre-term delivery, low birth weight and overall health (Apgar score), birth defects and infant mortality.

Ongoing research is addressing the safety and effectiveness of HCV DAAs during pregnancy.

Guidelines for people living with HIV and HCV who are pregnant recommend:

- ART during pregnancy.
- Counselling about signs and symptoms of liver toxicity. Liver enzyme tests are recommended one month after starting ART, and then every three months.
- Treatment for HCV before pregnaancy or after delivery.
- Screening for hepatitis A (HAV) and hepatitis B (HBV). This is because they also increase the risk of complications during pregnancy.

  HAV and HBV vaccinations after the first trimester are recommended in all women. An extra vaccine dose may be needed if the CD4 cell count is below 300.
- UK guidelines recommend vaginal delivery on ART, unless there are complications that need a C-section.

Intrahepatic cholestasis:

This is a liver condition that usually occurs late in pregnancy.

It causes severe itching and increases the risk of complications.

These includes preeclampsia and gestational diabetes for the mother and lung problems and still birth for the baby.

More info

i-Base Guide to HIV, Pregnancy and Women's Health.

http://i-base.info/guides/pregnancy

BHIVA guidelines for the management of HIV infection in pregnant women.

http://www.bhiva.org

Natural history of HCV

What does your liver do?

Your liver is an essential organ that does hundreds of things.

These include:

- Filtering chemicals and waste from the blood.
- Storing vitamins, minerals and iron and converting nutrients from food into energy.
- Helping to balance levels of sugar and hormones.
- Producing cholesterol.
- Making bile (needed for digestion), and creating the hormone that helps to produce platelets (to stop bleeding).

Link

European Liver Association (EASL) guidelines for treating hepatitis C

www.easl.eu

Glossary

acute HCV Having HCV infection for less than 6 months.

chronic HCV Having HCV infection for more than 6 months.

How does HCV damage your liver?

HCV does not directly damage your liver.

It is the way that the immune system reacts to the virus that causes liver inflammation.

As the immune system attempts to surround and isolate infected cells to protect the liver, scarring develops and worsens.

As the liver becomes more scarred it hardens, making it more difficult for blood and other fluids to flow through it.

Even though the liver can still work when it is damaged, the continuous effect of HCV can slowly interfere with liver function. Complications develop when the liver is too damaged to be able to carry out important tasks.

Without treatment, HCV is linked to a long list of serious complications, although many of these only occur in late stage infection.

HCV outside of the liver

As with HIV, HCV increases the risk for other health problems, including type 2 diabetes, kidney and heart disease, and bone loss.

The reasons for this include inflammation from untreated HCV,

long-term use of some HIV drugs, family history and lifestyle.

For people with coinfection, being cured from HCV lowers the risk for liver-related illness and death, AIDS-related illness and death, and type 2 diabetes.

Natural history of HCV

The natural history of an infection is the term for describing what happens if the infection is not treated.

The natural history of HCV infection includes three possible stages:

- Recently acquired infection.
- Chronic infection.
- End stage liver disease (ESLD).

Recently acquired HCV

Recently acquired infection refers to the first 12 months after HCV infection.

Unless it causes symptoms recently acquired HCV is rarely diagnosed. Symptoms only occur in 1 in 5 people and can include fever, fatigue, abdominal pain, nausea, vomiting, dark urine, pale faeces and jaundice.

In people living with HIV, recently acquired HCV is generally diagnosed due to routine monitoring on ART. One sign of recently acquired HCV is very high liver enzymes, sometimes 10 times higher than normal. This should prompt checking for recently acquired HCV.

Gay men living with HIV should have an annual screen for HCV, and be tested if they have been at risk.

People who have cleared HCV or been cured by treatment should be screened using an HCV RNA viral load or HCV core antigen test.

In the first months of infection, some people clear HCV without treatment.

This is called spontaneous viral clearance. It is more common if:

- You had symptoms during recently acquired HCV.
- You are female.
- You are under 40 years old.

- You have certain genes.
- Your CD4 cell count is high.

People living with HIV are only half as likely to spontaneously clear HCV as HIV negative people.

People of African descent are less likely to clear HCV than Caucasians.

Genetics are part of the reason for these differences, but other factors are also involved.

People who clear HCV without treatment are no longer infectious. They usually test positive from an HCV antibody test, but HCV will not be detectable in blood.

Chronic infection

Chronic infection refers to any time after recently acquired infection (the first 12 months after infection).

In HIV negative people, untreated HCV usually progresses very slowly, often over decades.

Some people never develop serious liver damage or symptoms. But most people will have mild to moderate liver scarring (fibrosis) or symptoms such as fatigue, depression and confusion. Untreated HCV can also cause other health problems.

HIV increases the risk for, and speeds up the rate of liver damage from HCV.

It is important to be treated before serious liver damage develops.

Treating (and curing) HCV before HCV causes serious liver damage prevents liver failure and liver cancer.

People with cirrhosis need to be treated by a liver specialist. Although DAAs do not work as well for people with cirrhosis, the cure rate is at least 80%.

The risk for liver cancer remains high for people with cirrhosis, even after being cured and requires continued screening.

HIV and HCV coinfection

HCV is not thought to worsen HIV, but untreated HCV can make HIV treatment more complicated.

This is mainly because the liver processes most HIV drugs and HCV increases the risk for liver-related side effects from HIV drugs.

However, the benefit of HIV treatment still outweighs this risk.

Factors that speed up HCV progression include:

- HIV coinfection.
- Daily alcohol intake, especially more than 50 grams (6 units) per day.

  A pint of standard strength lager is 2.3 units. A small (175 mL) glass of wine is 2 units.
- Ageing (over 40).
- Duration of HCV infection.
- Older age when infected with HCV (over 40).
- HBV coinfection.
- HCV may progress faster in men than premenopausal women.

Because DAAs are so effective, safe and work equally well for people living with HIV, coinfection with HCV should always be treated.

“I can’t believe how easy the DAA treatment was to take.

I continued working throughout (with a grueling schedule) and felt fine.’

After treatment, now that I’ve cleared HCV, the first time in years I’m free of daily muscle pain.

I have more energy, can concentrate better – and I no longer get hangovers!”

– Kate

Finding out you have HCV – and getting support

Finding out you have HCV

Your response to dealing with HCV might vary depending on whether this is a recent or long-standing diagnosis, and whether or not you have been HIV positive for a long time too.

If both diagnoses are new, then getting support for HIV might be more important than for HCV. Or if you have been HIV positive for a long time, some of ways you coped with HIV might help you now.

Whatever your circumstances, it is likely to help to be able to talk about how you feel. Often, connecting with people who have gone through similar experiences can help.

Recently acquired hep C in gay men

For many years, most cases of recently acquired HCV in people living with HIV have been among gay men.

The majority of these cases occurred from sexual exposure. This raised new issues of disclosure that was often difficult because of prejudice and fear over HCV.

Early treatment can cure HCV and reduce further transmission.

But being cured once does not protect against HCV reinfection.

Long-term HIV/HCV coinfection

It is common for people who became HIV positive through blood products or injecting drug use to also have HCV.

Importantly, DAAs mean that most people with long-term HCV can now be cured.

How can I protect my liver?

The easiest way to limit and prevent liver damage is to treat HCV with modern DAAs.

These drugs are safe and very effective.

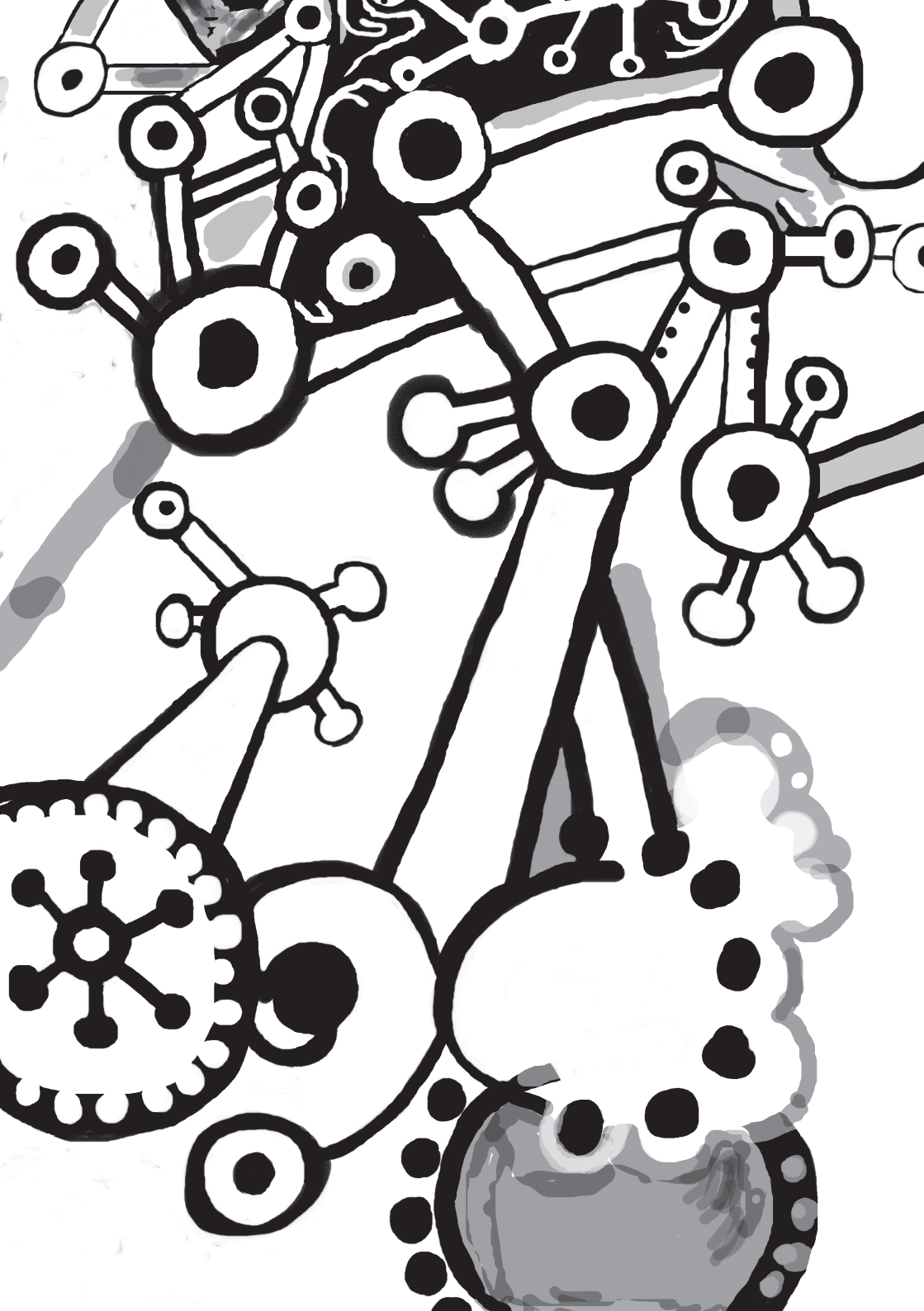
Lifestyle changes: diet, exercise, alcohol

Things that are good for your general health like reducing or stopping drinking, a balanced diet, keeping active and not smoking, are also good for your liver.

These and other changes include:

- Drink less, or stop drinking alcohol. The less you drink, the better for your liver.
- Get vaccinated against hepatitis A and B.
- A good diet includes eating less salty processed food, and more fresh fruit and vegetables, complex carbohydrates (whole grains, breads, rice, pasta), food that is low in fat and high in fibre and an adequate amount but not excessive amount of protein.
- Maintain a normal weight; being overweight increases your risk for fatty liver.
- Drink plenty of water to help your liver filter waste and toxins.
- Three cups of coffee (with or without caffeine) a day can delay fibrosis progression and lower the risk of liver cancer.
- Eating dark chocolate (85% cocoa) every day has been linked to better liver health and reduced risk of heart problems.
- Ask questions and get support. Talk with other people who are living with HCV or coinfection.

The online version of this guide includes more detailed information about diet, exercise, reducing alcohol and other lifestyle changes.



Testing and monitoring

HCV testing if you are HIV positive

If you are living with HIV, annual HCV testing is recommended in the UK as part of your routine care.

But HCV testing is also based on your risks. For example, if you are sexually active and/or if you have another STI and/or if you shared anything when injecting drugs then HCV tests are more important.

HCV testing is also recommended if your liver enzymes become raised.

Tests to diagnose HCV

HCV testing has two stages, but depends on your HCV history, see Table 1.

1) The first test is usually an HCV antibody test.

A positive antibody result means that you have either had HCV and cleared it or that you still have HCV.

A negative result means that you might not have HCV. This test doesn't detect recent HCV because it can take 6 to 24 weeks for HCV antibodies to develop. Also, if your CD4 count is less than 200 you may not make HCV antibodies.

If you have already cleared HCV or been cured, routine testing for reinfection needs to use an HCV viral load or HCV core antigen test.

2) An HCV viral load (RNA) or HCV core antigen test will confirm or rule out current infection.

These tests looks for direct evidence of HCV or viral replication.

If the results are positive it means that you currently have HCV.

If the results are undetectable/ negative, you might have spontaneously cleared HCV. A second test six months later will confirm this.

The HCV core antigen test is a cheaper and quicker alternative to HCV viral load and gives similar information. It looks for a protein produced by ongoing HCV, but is not always accurate if HCV viral load is very low.

Testing for HCV re-infection.

Reinfection with HCV can occur after clearing the virus or being cured by treatment.

In this case, HCV RNA or core antigen tests will detect re-infection.. The European Treatment Network for HIV, Viral Hepatitis and Global Infectious Diseases recommends testing for HCV reinfection for people who are at ongoing risk every 3-6 months. https://journals.lww.com/aidsonline/fulltext/2020/10010/recently_acquired_and_early_chronic_hepatitis_c_in.1.aspx

Table 1: HCV tests and what the results mean for HCV infection

	Type of test		
Diagnosis	Antibody test result	HCV RNA (viral load) or HCV core antigen	ALT: liver enzyme
Cleared or cured HCV.	Positive.	Undetectable.	Return to normal.
Recently acquired HCV.	Negative; but positive within 6 to 24 weeks.	Detectable within 1 to 2 weeks, usually very high.	May be up to 7 to 10 times above normal.
Chronic HCV.	Positive.	Detectable.	May be persistently normal, fluctuate, or persistently raised.
HCV reinfection	Positive	Detectable HCV RNA/core antigen.	Elevated liver enzymes.

Other routine blood tests

After an HCV diagnosis, you will need other blood tests.

The most important of these are HCV genotype, liver enzyme tests (ALT/AST) and a non-invasive scan (see below).

Testing for hepatitis A and B is important so that you can have these vaccinations, if needed.

Coinfection with HIV, HCV and HBV needs ART to include one or two active drug against HBV. This is usually tenofovir (DF or TAF)..

Other monitoring includes a complete blood count (CBC), blood clotting time and other liver enzymes (including albumin and GGT), kidney function and pregnancy.

HCV genotype

There are at least eight different types of HCV, known as genotypes.

They are numbered from G1 to G8, in the order that they were discovered.

These genotypes also have variations, called subtypes, which are named by lower-case letter (i.e. a, b, c, etc), also in the order that they were discovered.

Each genotype and subtype is a distinct virus. You can be infected and reinfected by more than one genotype or subtype.

You can also be reinfected with the same or a different genotype after successfully clearing or being cured of HCV.

DAAs that work for all genotypes. are called pan-genotypic.

Most people can be treated with these DAAs without being tested for their HCV genotype.

Some subtypes of genotypes 1-8 are common in certain regions of Africa and Asia, and may be resistant to one family of DAAs, called NS5A inhibitors.

HCV genotyping and subtyping in people who live in or come from these regions can inform the choice of DAA treatment.

Liver enzyme tests: ALT and AST

Liver enzymes are proteins with specific functions (and difficult long names).

If the liver becomes damaged, some of these enzymes leave the liver and enter the blood.

Many things can cause liver enzyme levels to increase. These include:

- Prescription and over-the-counter medicines.
- Herbs, vitamins and supplements.
- Toxic fumes.
- High alcohol intake or coming off drugs and/or alcohol.
- New or existing hepatitis infection.

HIV drugs can cause liver enzymes to increase, though usually not to dangerous levels. In some cases, these drugs need to be stopped or switched.

People taking HIV drugs (or other drugs processed by the liver) need to have liver enzymes routinely measured with other blood tests. This is especially important with HCV coinfection.

Raised liver enzymes do not always mean there is liver damage. But persistently high levels can be a sign of ongoing damage that needs to be treated.

Measuring liver damage

Before starting HCV treatment it is important to check for liver damage.

People with cirrhosis (advanced liver scarring) may need to be treated by a liver specialist, and may need to avoid certain DAAs.

Liver stiffness (FibroScan)

In the UK, scans such as FibroScan are recommended for monitoring liver health in people with coinfection.

This scan is painless: zero pain and zero risk. It takes less than ten minutes and produces immediate results. FibroScan has dramatically reduced the need for having a liver biopsy.

FibroScan asseses liver stiffness by measuring how quickly vibration waves pass through the liver. The more damaged or stiff the liver, the more rapidly the waves will pass through it. Results are presented as a number in kilopascals (kPa). A higher number indicates more liver damage.

Results from FibroScan need to be interpreted based on other factors.

A score of over 7.2 kPa indicates higher likelihood of significant fibrosis. A score over 14.5 kPa in someone with HCV/HIV coinfection indicates cirrhosis.

However, FibroScan is not a perfect test and does not work for everyone.

- It can be too difficult to perform and results may be unreliable in people who are obese.
- It can overestimate damage in recently acquired HCV.
- It is less sensitive at detecting small differences between mild or moderate liver damage.

However, FibroScan is very sensitive at picking up severe damage. It can therefore identify people who need HCV treatment more urgently.

If FibroScan results indicate serious liver damage, the test should be repeated to confirm the results.

FibroScan video

aFibroScan video with Dr Sanjay Baghani from the Royal Free Hospital.

Other non-invasive biomarkers

If FibroScan is not available, a panel of blood tests can sometimes be used to assess liver damage.

Combinations of lab results can help identify serious liver damage. Results are pretty good but they are not quite as useful as a FibroScan or biopsy.

In the UK, if a FibroScan is not available, or if FibroScan results are not clear, then monitoring using non-invasive blood panel tests is recommended before deciding on a biopsy.

These panels of tests include APR, FIB-4, ELF, FibroMeter and FibroTest.

Screening for liver cancer in people with cirrhosis

People with cirrhosis from HCV are at risk for liver cancer, even if they have been cured.

Regular screening can detect early-stage liver cancer.

This is usually an ultrasound, computed tomography (CT) or Magnetic Resonant Imaging (MRI) scan. It also includes a blood test for alpha-fetoprotein (AFP; a protein made in foetal liver tissue).

Screening is usually every six months.

Introduction to DAAs: treatment and management

Treating HCV

DAA stands for direct-acting antivirals.

DAAs cure HCV in more than 95% of people.

This usually involves just one or two pills a day for 8 to12 weeks.

Thia lao involves very few or only mild side effects.

Different DAA classes

As with HIV drugs, each class of DAA works at a different stage of the HCV life cycle.

DAAs are also used in combinations.

The three classes are:

- HCV protease inhibitors (PIs).
- Nucleotide polymerase inhibitors.
- NS5A inhibitors.

Adherence is very important. This is defined as taking more than 95% of doses on time.

What are the goals of treatment?

There are two goals of HCV treatment.

One is to cure HCV and the other is to improve liver health.

Goal 1: curing HCV

The first goal of treatment is to clear HCV. This is called a cure.

A cure is defined as having an undetectable HCV viral load during 12 weeks after the last dose (SVR-12). SVR stands for sustained viral (or virologic) response.

Up to 99% of people who have an SVR-12 stay HCV-free. This is regardless of HIV status.

Although HCV can sometimes return after treatment is finished, this is usually within four weeks.

However, being cured does not protect you against HCV reinfection.

Goal 2: improving liver health

The second goal of HCV treatment is to improve liver health.

This occurs from reducing liver inflammation. As well as preventing further damage, fibrosis can sometimes be partially reversed. These improvements usually happen in people who are cured.

Being cured reduces the risk of liver cirrhosis, liver cancer and liver failure in both HIV negative and HIV positive people.

In HIV positive people, a cure lowers the risk of death from liver-related and HIV-related causes, even with cirrhosis.

HCV treatment might also reduce liver-related side effects from ART.

Who needs HCV treatment?

Everyone living with HIV and HCV coinfection should be offered DAA treatment.

Direct-acting antivirals (DAAs)

All guidelines recommend that chronic HCV should be treated with all oral combinations of DAAs.

These drugs have high cure rates and very few side effects.

DAAs usually involve only one or two pills a day for 12 weeks.

Current single DAAs and fixed dose combination (FDC) tablets are listed in Table 2).

Your doctor will recommend the best DAA combination for you. This might depend on fibrosis stage, genotype and resistance.

How well does treatment work?

The high cure rates (more than 95%) shows that DAAs are effective enough to treat nearly everyone.

Even in people with cirrhosis, although cure rates are lower, they are still around 90%.

Table 2. DAAs, genotypes and NICE comments *

Regimen and drug classes	Genotypes	Duration
Elbasvir/grazoprevir (NS5A inhibitor/protease inhibitor)	G1 & 4	8 weeks (no cirrhosis) 12 weeks (compensated cirrhosis).
Sofosbuvir/ledipasvir (NS5B inhibitor/NS5A inhibitor), with or without ribavirin (RBV*)	G1,4,5 & 6	8-12 weeks (no cirrhosis) & 12 weeks with RBV for G5 & G6, and for compensated and decompensated cirrhosis).
Glecaprevir/pibrentasvir (NS5A inhibitor/protease inhibitor)	All	8 weeks (no cirrhosis) or 8-12 weeks (compensated cirrhosis).
Sofosbuvir/velpatasvir (NS5B inhibitor/NS5A inhibitor), with or without ribavirin (RBV*)	All	12 weeks (no cirrhosis and compensated cirrhosis); 12 weeks plus RBV (for G3 and compensated and all genotypes with decompensated cirrhosis).
Sofosbuvir/velpatasvir/voxilaprevir (NS5B + NS5A + protease inhibitor)	All	12 weeks.

* Ribavirin (RBV) can cause anemia (low red blood cell count), nausea, diarrhea, rash, fatigue, headache, itching, insomnia irratibility, deoression and suicidial thoughts; it cannot be used by people with sickle cell disease, thalassemia, or serious heart disease. RBV causes birth defects and should not be used by any partner planning a pregnancy during treatment and for 6 months after.

Table 2. continued... *

Contraindications and ARV interactions
People with decompensated cirrhosis (CPT class B and C). Cannot be used with HIV protease inhibitors, efavirenz, nevirapine and etravirine, fostemsavir, elvitegatvir/c.
* See: cautions and side effects with RBV. Interactions with lopinavir/r; monitor renal function if used with tenofovir.
People with decompensated cirrhosis (CPT class B and C). Cannot be used with HIV protease inhibitors, efavirenz, nevirapine and etravirine.
* See: cautions and side effects with RBV. Interactions with efavirenz, etravirine nevirapine; monitor renal function if used with tenofovir
People with decompendated cirrhosis. Interactions with boosted atazanivir, boosted darunavir lopinavir/r, fostemsavir, monitor renal function if used with tenofovir

Source: EACS Guidelines, V 12.1 2024.
https://www.eacsociety.org/guidelines/eacs-guidelines

For interactions beween DAAs and other medicines:
https://hep-druginteractions.org/checker

What about side effects?

DAAs have very few side effects.

When reported, these have generally been mild and rarely involved stopping treatment.

The most common side effects are mild fatigue, itching, and dizziness.

How is the response to HCV treatment measured?

Several medical terms and abbreviations are used to describe responses to HCV treatment (see Table 3).

The most important of these is SVR-12 because this defines if HCV is cured.

Recent HCV infection

Treating recently acquired HCV is included in many guidelines.

Cure rates are likely to be as high as for chronic HCV.

SVR needs to be checked at both 12 and 24 weeks as late relapses have been reported.

Treating recently acquired HCV also prevents the risk of HCV transmission. This is good for everyone.

Table 3: Terms used to describe responses to HCV treatment

Term	Meaning and comment
SVR-12 (Sustained viral response 12 weeks after the end of treatment.)	SVR-12 means having an undetectable HCV viral load 12 weeks after the end of treatment. This is considered a cure.
Relapse	When viral load becomes undetectable on treatment, but rebounds after it is stopped.

DAAs and HBV coinfection

Hepatitis B (HBV) reactivation can be a rare but serious problem during DAA treatment.

HBV that was previously resolved or dormant can flare-up, which can lead to liver failure that in very rare cases could be fatal. HBV testing is therefore recommended before starting DAAs.

Even though most HIV positive people in the UK are likely to be on treatment for both HIV and HBV, close HBV monitoring is needed during HCV treatment.

With HBV/HCV coinfection, one virus suppresses the other, with HCV usually suppressing HBV. DAAs cause a rapid drop in HCV viral load which can let HBV reactivate.

Retreating HCV

Although DAAs cure more than 95% of people, some people need retreatment.

If you did not respond to earlier, less effective treatment, retreatment with newer drugs might be more successful.

Some DAA regimens have been very effective for people who were not cured by PEG-IFN, RBV and a DAA, or certain DAA combinations.

Drug interactions

DAAs and ART

HCV drugs can be used with many HIV meds but there are a few important potential interactions.

As DAAs only require a short course of treatment, any potential drug interactions are easy to avoid by changing ART during HCV treatment.

DAAs and other meds

HCV drugs can be used with many HIV meds but there are a few important potential interactions.

Your doctor needs to check for interactions with any other drugs that you take. This includes prescribed or over-the-counter meds, together with any supplements, herbal remedies and recreational or street drugs.

The online HCV drug interaction database from Liverpool University is free and easy to use.

www.hep-druginteractions.org

This site includes interaction charts that use a traffic light summary:

- Red when drugs should never be used together.
- Amber for a caution or when additional monitoring is needed.
- Green when no interaction is likely.

Details on each interaction and reports can be printed for any combination.

HCV treatment and people who inject drugs

People who inject drugs sometimes only have limited access to HCV treatment.

This is even though current guidelines recommend that people who inject drugs should be treated for HCV.

Both injection and non-injection drug users have successfully used HIV and HCV treatment. This shows that concerns about adherence should not be a barrier to treatment.

The following suggestions may make it easier to access treatment.

- Try not to miss medical appointments. Some doctors will use this as part of the criteria for not treating your HCV.
- Do not avoid medical care just because you are using drugs.

  This is especially important while you are on HCV treatment, because your doctor will need to monitor and treat your side effects.
- Find a doctor who is willing and able to work with drug users and who will treat your HCV.
- Ask other people who use drugs for good doctors to recommend or avoid. This can be a good place to start.
- Discuss with your doctor how side effects of HCV treatment will be managed.

If you are injecting drugs, please ask your doctor or local syringe exchange programme for information on safer injection.

This will lower your risk of HCV reinfection (and other infections).

Guidelines and further information

Guidelines

EACS HIV/HCV guidelines (2024)

https://www.eacsociety.org/guidelines/eacs-guidelines/

NEAT guidelines in gay men (2020)

https://journals.lww.com/aidsonline/abstract/2020/10010/recently_acquired_and_early_chronic_hepatitis_c_in.1.aspx

EASL HCV guidelines (2020)

Includes a table of interactions between HCV and HIV meds.

https://easl.eu/wp-content/uploads/2020/10/EASL-recommendations-on-treatment-of-hepatitis-C.pdf

AASLD/IDSA – US HCV guidelines

www.hcvguidelines.org

NHS Scotland – updated DAA guidelines

https://publichealthscotland.scot/our-areas-of-work/health-protection/infectious-diseases/hepatitis-c/guidance-for-professionals/treatment-in-adults/

WHO HCV guidelines (2018)

https://www.who.int/publications/i/item/9789241550345

Prescribing and patient information for each DAA combination.

i-base.info/daa

Support organisations

HIV i-Base

www.i-base.info

The i-Base website has other treatment guides including translations, technical bulletins, a Q&A service and other resources.

The Hepatitis C Trust (UK)

020 7089 6221

www.hepctrust.org.uk

Antidote is a drug and alcohol service for lesbian/gay/transexual/bisexual people, based in London with a national phoneline. 020 7833 1674 (10am-6pm, Monday to Friday).

This service includes counselling and other 1-2-1 support based at several London HIV clinics.

www.londonfriend.org.uk

www.facebook.com/antidotelgbt

Alcoholics Anonymous

www.aa.org

Narcotics Anonymous

www.na.org

Addiction Treatment Watchdog Forum

A forum for people on methadone and buprenorphine for opioid addiction.

www.atwatchdog.lefora.com

National Alliance of Advocates for Buprenorphine Treatment (US)

www.naabt.org

Harm reduction resources and forums

Crystal Meth Anonymous

www.crystalmeth.org

Harm Reduction Coalition (US)

Information and news about HCV best practices, tools and advocacy and harm reduction resources (US)

www.harmreduction.org

International Network of People who Use Drugs (INPUD)

www.inpud.net

EROWID: Information about psychoactive substances

www.erowid.org

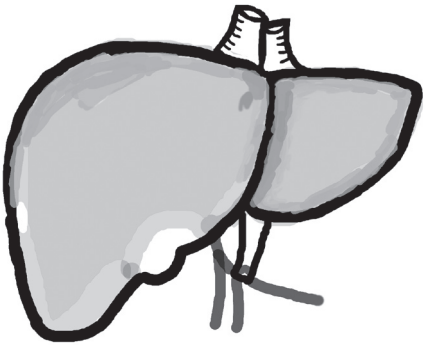
Drugs Forum: An information hub and platform to discuss recreational drugs

www.drugs-forum.com

The Fix: addiction and recovery news

www.thefix.com

Glossary



ALT – (alanine transaminase, also called serum glutamate-pyruvate transaminase; SGPT). A key liver enzyme produced in liver cells. ALT is routinely monitored in HIV positive people on ART to detect liver toxicity from HIV drugs (or other medications). Elevated ALT signals liver injury, but does not indicate how serious liver damage is.

ART – antiretroviral treatment: HIV meds.

AST – (aspartate aminotransferase; serum glutamic-oxaloacetic transaminase; SGOT). An enzyme that is made in many places throughout the body (heart, intestines, muscle). AST is routinely monitored in HIV positive people on ART to detect liver toxicity from HIV drugs (or other medications). Elevated AST that is specifically made in the liver signals liver injury, but does not indicate how serious liver damage is.

cirrhosis – severe scarring of the liver that reduces how well the liver works.

coinfection – infection with more than one virus

DAAs – direct-acting antivirals – new HCV drugs.

enzyme – a protein produced in the body that speeds-up other chemical reactions.

fibrosis – mild to moderate liver scarring.

FibroScan – non-invasive ultrasound scan that measures the elasticity or stiffness of the liver.

genotype – a category for different families of HCV.

ribavirin – a twice-daily oral drug sometimes used with DAAs.

SVR-12 - sustained viral response: having a negative HCV viral load test 12 weeks after stopping HCV treatment. SVR-12 shows that HCV is usually cured.

toxicity – the side effect from treatment.

i-Base resources

All i-Base information is available free online.

www.i-base.info

Treatment guides are written in everyday language.

HTB is written in more technical medical language.

Introduction to ART
Changing treatment: guide to second-line therapy
Pregnancy and womens health
Guide to hepatitis C for people living with HIV
HIV testing and risks of sexual transmission
UK guide to PrEP
HIV Treatment Bulletin (HTB)