

# III. Treatment



# 1. DIFFERENT HEPATITIDES – DIFFERENT TREATMENTS

## GET TREATED

### 1.1 Treating viral hepatitis

Experience to date has shown that the chances of successfully treating viral hepatitis in drug users are similar to those for patients with no addictive disorders. However, treatment should be provided by physicians and/or medical institutions with the necessary experience and expertise with respect to addictive disorders and the specific problems associated with viral hepatitis infections. Psychic and/or somatic concomitant diseases, which commonly occur in patients with an addictive disorder must be taken into consideration and treated.

An important precondition for the medicinal treatment of viral hepatitis in drug users is the attainment of the greatest possible physical, psychological, and social stability. This makes it possible to prevent interruptions in or premature discontinuation of treatment. In addition, the risk of coming into contact with the virus again (re-exposure to the hepatitis C virus) and/or substances that cause liver damage (especially alcohol) is also greater among unstable patients. Withdrawal treatments and the months immediately following withdrawal are usually to be viewed as an unstable phase, which is why the risks and benefits of hepatitis treatment during such a phase should be carefully considered. Conversely, treatment is often highly feasible while the person is undergoing a well-established out-patient opiate replacement therapy regimen or within the framework of a longer stay at an institution - even while serving time at a correctional institution.

Among all of the various types of viral hepatitis, chronic hepatitis C is clearly the most important form of hepatitis requiring treatment among drug users. The chances of success depend on individual factors and the genotype of the hepatitis C virus, as well as proper treatment (→ Chapter III.1.5). The chances of success are between 50 and 90 %. In addition, the genotype mainly determines the duration of the medicinal treatment (24 or 48 weeks).

Because hepatitis B is significantly less prone to chronic progression than hepatitis C, and because it is possible to get vaccinated against hepatitis B, the need for medicinal treatment is much less common. The indication should be established at a specialized centre by taking all of the possible contraindications into consideration.

Because hepatitis D only occurs in conjunction with hepatitis B, this disease does not need to be taken into consideration and treated except in cases of existing chronic hepatitis B.

Hepatitis A and E never become chronic and are always able to be cured. Thus, a medicinal treatment is not necessary.

### 1.2 Hepatitis A and E

Hepatitis A and hepatitis E never become chronic. In the case of an acute illness it is not necessary to administer any medicinal, anti-viral treatment. Any symptoms, such as nausea, can be treated. However, it is urgently recommended to conduct a thorough medical examination beforehand. It may be that treatment influences blood coagulation. In a case in which the patient bleeds more readily during the acute phase (e.g. while brushing teeth) it is recommended to test the patient's blood coagulation; an

increased bleeding tendency may be an expression of an acute hepatic event. It is not necessary to change basic eating habits; however, heavy and fatty foods should be avoided.

### **1.3 Hepatitis B (and D)**

In the case of most patients with an acute hepatitis B infection acquired as an adult the disease usually heals without any complications, such that medicinal treatment is not necessary. Hepatitis B becomes acute only rarely, usually in association with diminished liver function. In such cases, early admission to an organ transplant centre is recommended in order to make it possible for the patient to receive a life-saving liver transplant.

### **1.4 Chronic hepatitis B (and D)**

Due to the fact that the hepatitis D virus only occurs in conjunction with the hepatitis B virus, the same treatment guidelines are applicable for both of these types of hepatitis.

In determining whether it is necessary to treat a chronic case of hepatitis B, the following aspects must be taken into consideration and careful testing must be performed:

- the activity of the viral infection
- the extent of the liver damage
- the age of the patient
- the foreseeable response to treatment
- the possible side effects associated with the treatment

Patients with significantly impaired liver function (more than twice the norm) and advancing or advanced liver damage (fibrosis/cirrhosis) will benefit from anti-viral therapy.

*There are two types of chronic hepatitis B:*

- severe viral replication: HBs and HBe antigens are detectable in the blood > HBe antigen-positive hepatitis B. The risk of long-term damage and infection is high in such a case.
- slight viral replication: HBs antigen-positive, HBe antigen-negative, HBe antibody-positive > HBe antigen-negative hepatitis B.  
(→ Chapter III.1.7)

With respect to contraindications and treatment of patients with addictive disorders the same basic rules for chronic hepatitis C apply (see below). At all events a medically qualified professional should be contacted. The treatment usually involves anti-viral medications (nucleoside and nucleotide analogs) or pegylated interferon. The goal is a sustained suppression of the viruses, as well as a reduction in the impairment of liver function. The duration of therapy is between 6 months and several years, depending on the progression. Resistances can occur during treatment with nucleoside and nucleotide analogs, making it necessary to use additional substances from this class of active

substances. Virus elimination with the formation of HBs antibodies (HBs seroconversion) is more commonly achieved with interferon therapy (in approx. 7 % of cases).

### **Liver transplant**

In the case of advanced cirrhosis, a successful liver transplant is now possible. In order to prevent the recurrence of the disease (relapse) life-long medicinal prophylactic measures with an anti-viral medication and periodic passive immunization with hepatitis B antibodies will be necessary.

### **Lifestyle**

Balanced nutrition and limited alcohol consumption are important.

There are no fundamental restrictions with respect to physical activity on the job and during leisure time. Athletic activity has been shown to have a positive influence on disease progression in obese patients with fatty liver disease (hepatosteatosis).

## **1.5 Chronic hepatitis C**

Deaths associated with liver damage are higher among drug users. Hepatitis C plays an important role here. Thorough counseling and awareness among all hepatitis C-positive drug users is vital.

The central treatment goal is the elimination of hepatitis C viruses in order to prevent and/or stop any possible after-effects of the infection, especially chronic liver damage. There are four subgroups of the hepatitis C virus in Western Europe (genotypes 1 through 4). In addition to the amount of virus in the blood, the type of subgroup has a significant influence on the success of the treatment and plays an important role in the selection of the treatment regimen and the follow-up examination schedule. Based on the known data available to date, it is possible to assume that the success rate for the treatment of genotypes 2 and 3 is between 70 % and 90 %. In the case of genotype 1 it can be assumed that approx. 50 % of cases will be cured; in the case of genotype 4 the percentage of cases will be somewhat higher.

## **1.6 Adherence among drug users**

Good adherence is of utmost importance for the successful treatment of hepatitis (as well as HIV). Adherence means the ability to comply with the therapeutic steps, which the physician and the patient have determined together.

In the case of hepatitis C these include:

- showing up for periodic follow-up appointments during and following treatment
- weekly injections as well as
- taking the prescribed medications

Adherence among drug users may be limited due to psychic concomitant diseases and the influence of psychotropic substances. If it is possible to provide the most comprehensive psychosocial and somatic treatment and counseling in one place, this will have positive effects on adherence and not only in association with hepatitis C therapy. The greater the number of different institutions and private practices that the patient has to visit, the greater the risk that appointments will be missed or that the therapy will be discontinued altogether.

An intensive counseling setting can also have a positive influence on adherence among drug users. The ideal setting for hepatitis C therapy offers opiate replacement therapy. Thus, hepatitis C treatment should be conducted within the framework of opiate replacement therapy and/or heroin-assisted treatment, wherever possible.

A coinfection with hepatitis B or HI viruses does not rule out treatment, not even among opiate replacement therapy patients. Just the opposite: Every effort should be made to start these patients on a hepatitis C therapy regimen as soon as possible. At all events, the establishment of the indication and the treatment decisions for coinfecting persons are best left to specialized centres and physicians.

## MEDICINAL TREATMENT & SIDE EFFECTS

### 1.7 Chronic hepatitis B (and D)

The indication for the treatment of chronic hepatitis B should only be established by specially qualified medical personnel because there is a variety of factors to be considered. The goal of anti-viral treatment is a sustained suppression of the HBV DNA together with a normalization of the transaminases. The levels of the latter are decisive in choosing a medication. A liver biopsy is not absolutely necessary.

The following substances are available: Lamivudine (Zeffix), telbivudine (Sebivo), entecavir (Baraclude) (all nucleoside analogs); adefovir (Hepsera) a nucleotide analog, and pegylated interferon (Pegasys, Peginteron).

The therapies can be roughly classified based on the form of progression:

#### ***HBe antigen-positive chronic hepatitis B***

The presence of HBe antigens points to a high replication rate of the virus in the body. The transaminase level is decisive for the selection of the medication.

Variations include:

- If the transaminase level is over five times above the upper normal value, there is no contraindication (→ Chapter III.1.4), and the prospects are good for adherence on the part of the patient, then therapy with pegylated interferon for a period of 6 months is the top choice. Alternatives include: adefovir or entecavir.
- If the transaminase level is two to five times above the upper normal level, then therapy with lamivudine is indicated. The therapy lasts up to 6 months following HBe antigen seroconversion or until the appearance of a lamivudine resistance. Alternatives include: adefovir, entecavir and pegylated interferon.
- If transaminase values are within twice the upper normal level, then the patient usually receives no therapy.

#### ***HBe antigen-negative chronic hepatitis B***

If a hepatitis B patient's transaminase level is higher than twice the upper normal level, then long-term treatment with lamivudine is recommended until the patient develops resistances and/or up to 1 year after HBV DNA loss. Patients with lower values usually receive no treatment. Alternatives include: adefovir, entecavir and pegylated interferon.

#### ***Inactive HBs antigen***

The prognosis for these patients is usually good. Treatment is therefore unnecessary.

## **Treatment**

Generally, the chances of therapeutic success are increased if the patient is consistent in following the treatment. A high degree of consistency on the part of the patient is also highly conducive to the prevention of the premature formation of resistances.

### *Pegylated interferon*

Interferon is a natural protein produced by the body that activates the body's own defences, thereby inhibiting the replication of viruses. Thus, the body's immune system is enhanced. Pegylated interferon is a modified interferon, in which a polyethylene glycol side chain is attached to the original interferon molecule. This causes the medication to be absorbed and eliminated more slowly by the body, such that only one injection per week is necessary. Pegylated interferon has a higher rate of therapeutic success and fewer side effects than conventional interferon. In the most favourable cases treatment with pegylated interferon leads to "immunoclearance" (HBsAg/Anti-HBs seroconversion) and thus a serological cure. However, the therapy must be initiated prior to the appearance of cirrhosis.

Pegylated interferon alpha-2a is the only medication approved for the treatment of hepatitis B.

### *Lamivudin/adefovir/telbivudine/entecavir/tenofovir*

Nucleoside analogs (lamivudine, telbivudine, entecavir) and nucleotide analogs (adefovir, tenofovir) are chemical substances which are very similar in structure to the building blocks of the viral DNA. As a result, the virus recognises them as its own normal building blocks. Unlike with normal building blocks, however, once the nucleoside analogs or nucleotide analogs are integrated, the DNA can no longer continue to be produced and production is discontinued. This stops the replication of the virus. These medications are highly effective and well tolerated and can be taken in tablet form, unlike interferon. Unfortunately, these medications, which are usually required to be taken for several years, lose their efficacy over time (due to the development of resistances, which occurs at different times, depending on the medication and individual factors). In such cases combination therapies become necessary.

The primary use of combination therapies, similar to those used for the treatment of HIV, is currently a highly controversial topic of debate.

## **Side effects**

Lamivudine (nucleoside analog) is usually very well tolerated; special attention should be paid to kidney function with entecavir. Adefovir can cause gastrointestinal side effects (nausea, diarrhoea). The side effects of interferon are described in the chapter below on the treatment of chronic hepatitis C.

## **Tests during therapy**

Periodic Laboratory tests are necessary during ongoing hepatitis B therapy.

In the case of therapies with nucleoside/nucleotide analogs, a quarterly control of transaminase levels is recommended, as well as a semiannual virological test (HBs antigen, HBe antigen, anti-HBe, HBV DNA quantitative).

In the case of treatment with pegylated interferon periodic blood work and liver function tests should also be performed. Tests are recommended to be performed every two weeks during the first month and then every four weeks thereafter. In addition, a test for TSH (thyroid-stimulating hormone) is also recommended every quarter.

## 1.8 Chronic hepatitis C

### Indications

The specialists are still not in agreement about the question as to when hepatitis C therapy should be initiated. According to the current state of knowledge, the decision on when to initiate hepatitis C therapy is based on the following criteria:

1. The virus (HCV RNA) is detectable in the blood
  - *and* there is a histological indication, in other words portal fibrosis and septa are detectable regardless of the degree of inflammation (Metavir score = F2)
  - *or* the virus is genotype 2 or 3 with elevated transaminases
  - *or* the patient wants to be treated no matter what
  - *and/or* the indication is based on extrahepatic manifestations, i.e. symptoms of hepatitis C are occurring outside the liver.

→ *In all of these cases it is not necessary to perform a liver biopsy.*
2. There are no contraindications, such as depression or psychosis, uncontrolled alcohol or intravenous drug use, advanced heart, lung or neurological diseases, autoimmune disease, previous malignant disease (except in cases of long-term remission), severe anaemia (<10 g/dl, but possible with administration of erythropoetin), poorly controlled diabetes mellitus.

→ *Note with respect to decompensated liver disease: Treatment in such cases at hepatology centres only.*
3. The consent of the patient, who has been informed in detail about the chances of success for the therapy, the potential side effects, and the risks of a progression of the disease if the therapy is not carefully followed.
4. The ability of the patient to adhere to the therapy and the follow-up appointments, and/or creation of a setting that promotes adherence for the administration of the therapy (→ Chapter III.1.6).

*It is recommended to combine a hepatitis C therapy with an opiate replacement therapy and corresponding counseling, wherever possible.* It is often useful to temporarily increase the methadone or heroin dosage during therapy. Hepatitis C therapy, while undergoing drug withdrawal treatment or less than 6 months thereafter, is contraindicated due to the high rate of relapse.

*Hepatitis C therapy is feasible for prison inmates and long-term in-patient situations.* Adherence to therapy and follow-up appointments is especially well ensured in such settings.

### Treatment

Chronic hepatitis C is currently treated with a combination of pegylated interferon and ribavirin. The pegylated interferon is injected subcutaneously once every week. The injection can be performed by the patient or a qualified person after receiving the corresponding training. The second medication, ribavirin, is taken in tablet form twice daily. The recommended therapeutic regimens are distinguished by the selection between two types of pegylated interferon (peg. interferon alpha-2a and peg. interferon alpha-2b). Both medications are equal in their efficacy. Thus, the decision as to which medication to use should be made on an individual basis. Possible criteria include the method of application (various types of syringes for the two medications) as well as cost.

## Dosage

### *Pegylated interferon alpha-2a*

- Genotype 1 and 4:

180 µg peg. interferon alpha-2a sc 1x/week plus ribavirin 5 or 6 x 200 mg (depending on body weight, < or >75 kg), orally, in two doses per day for 48 weeks.

- Genotyp 2 and 3:

180 µg peg. interferon alpha-2a sc 1x/week plus ribavirin 4 x 200 mg orally in 2 doses per day for 24 weeks.

### *Pegylated interferon alpha-2b*

Here the interferon dosage is also based on body weight:

- 1.5 µg/kg once weekly for 48 weeks.

- Plus ribavirin:

<65 kg: 800 mg/day (2 capsules each morning and 2 each evening)

65-85 kg: 1,000 mg/day (2 capsules each morning, 3 each evening)

>85 kg: 1,200 mg/day (3 each morning, 3 each evening)

- Genotype 1 and 4: 48 weeks

Genotype 2 and 3: 24 weeks

## Duration of the therapy

The genotype and the viral load before and after the therapy determine the length of the therapy. The therapy usually lasts 24 to 48 weeks.

- *Genotype 1 + 4*: Usually 48 weeks. In cases in which the viral load after 3 months is not negative or is not decreased by at least 2 log (100 x) the treatment is discontinued because the chances of success are too small in relation to the side effects.

- *Genotype 2 + 3*: Usually 24 weeks. (→ shortened therapies).

A negative viral load after one month of treatment (rapid virological response, RVR) has been shown to have great chances of success with good patient response to the medication and proper compliance on behalf of the patient with respect to the administration of the therapy. This can increase the motivation among drug users, especially in the case of severe side effects. In addition, RVR therapy can also be shortened, as necessary.

## Therapy follow-up

- Blood sampling 1x weekly for 8 weeks, then blood work every month.

- ALT (liver function test): every 2 weeks for the first month, then monthly.

- TSH (thyroid-stimulating hormone): every 3 months.

- HCV RNA test: at 4 and 12 weeks, and additionally after 24 weeks of therapy in the case of genotypes 1 and 4.

- Week 4: If the viral load is already no longer detectable, then a shortened therapy can be considered (rapid virological response, RVR).

- Week 12: The therapy can be stopped if the viral load has decreased by less than 2 log because there is barely any chance of therapeutic success.

- Week 24: Therapy is not continued in the case of genotypes 1 and 4 unless HCV RNA is no longer detectable.

## Post-treatment follow-up

A liver function test (ALT) and viral load test (HCV RNA) are performed every 6 months following successful therapy. If abnormalities are detected in the blood work performed during the therapy, then those values are checked again at 3 and 6 months.

**Chances of success**

Therapeutic success is defined as a negative HCV RNA result and normal transaminase levels at 6 months after the conclusion of therapy (sustained virological response, SVR).

The chances of successful therapy are between 50 and 90 %, depending on genotype, whereby genotypes 2 and 3 respond best to therapy.

Following successful therapy (sustained virological response 6 months after the conclusion of therapy), the relapse rate is 1-2 % for the next 2 years (late relapse). The patient can attempt therapy more than once following discontinuation of therapy; the chances of success remain the same.

**Shortened therapies**

In cases in which there are no more viruses detectable in the blood after 4 weeks of therapy it is possible under certain circumstances to shorten the therapy to 16 weeks for genotypes 2 and 3, and 24 weeks for genotype 1. The presence of further prognostically favourable factors, such as low viral load at the start of therapy (<600,000 IU/ml), as well as good adherence during therapy are important preconditions in reaching such a decision. Therapies lasting the entire scheduled duration without any difficulties are recommended; the chances of success are best under these conditions. A shortened therapy should only be considered under the conditions described above and with the appearance of severe side effects.

**Adverse reactions**

The appearance and extent of side effects vary widely depending on the individual. Most side effects occur during the first four weeks and often clear up gradually during the course of treatment.

**Somatic side effects**

- Flu-like symptoms most commonly occur within several hours of the interferon injections, including fever, headache, fatigue, sore muscles, joints, and limbs. These can be readily treated preventively by administering a cold remedy (paracetamol, 500 mg, 30-60 minutes prior to the interferon injection).
- Fatigue, which will decrease during the course of the therapy and will not completely disappear until the conclusion of treatment.
- Nausea, often occurring when first taking ribavirin, can be handled with medicinal treatment.
- Loss of appetite associated with weight loss.
- Hair loss, thinning hair.
- Dry skin, which can be prevented by using skin cream from the outset of treatment.
- Impaired thyroid function or other autoimmune diseases (rare).

The adverse reactions described above will decrease if the dosage is reduced or the medications are discontinued, with the exception of impaired thyroid function (and other autoimmune diseases), which never disappears completely.

Because the treatment can be stressful on the body (but does not necessarily have to be) it is important that the patient have access to a qualified medical expert to provide a detailed explanation beforehand of the effects of the treatment on the quality of life and to discuss any problems that might occur during treatment.

**Pregnancy**

Ribavirin is detrimental to the developing fetus in the womb and the quality of sperm. Therefore, women are not permitted to become pregnant and men are not permitted to sire children during treatment and up to six months after the conclusion of treatment. As a result, suitable birth control is indispensable throughout the entire duration

of therapy and up to six months after its conclusion.

**Side effects  
on the blood count**

The hepatitis C treatment also has side effects on the blood cells (white and red blood cells, blood platelets); therefore, regular blood tests are very important.

**Side effects of  
interferon**

Interferon lowers the number of white blood corpuscles (leukopenia) and/or the blood platelets (thrombopenia).

The extent of these side effects on the blood varies depending on the individual and can lead to the reduction of the interferon dosage or the discontinuation of therapy in a worst case scenario.

**Side effects of ribivarin**

The hemoglobin level (red blood pigment) drops to anaemic levels often accompanied by tiredness or rapid fatigue. Even some patients with normal blood values complain about increased fatigue during the first months of treatment.

**Psychic/psychiatric  
issues involved with  
hepatitis C infections  
and treatment**

The risk of psychiatric illnesses exists for both an infection with hepatitis C, as well as for its treatment.

Various studies have shown an increased prevalence in depressive disorders (in 22-28 % of infected persons) and anxiety (in 10-25 %) in cases of untreated illness. The infection is often observed to have occurred due to higher risk behaviour based on pre-existing personality disorders.

The various psychiatric disorders can have a considerable influence on the development and treatment of hepatitis C. Therefore, it is important to take into account the psychiatric comorbidity of the patient.

The administration of interferon can have neuro-psychiatric side effects, which can lead to a reduction in the dosage or even discontinuation of the therapy.

**Psychic side effects of  
interferon**

- Irritability
- Mood swings
- Depression
- Sleep disorders
- Anxiety
- Manic behaviour (rare)
- Cognitive disorders (memory, concentration)
- Confusion

Therapies often take a negative course in the case of drug users, especially due to these complications. Thus, a physician-patient relationship based on trust is important.

Special attention should always be paid to the following points during the treatment:

- The patient and his/her loved ones must also be informed about the possible confusion that may occur and any questions should be answered thoroughly.
- In the case of depression it may be necessary to initiate a corresponding medicinal treatment.
- The patients must be made aware that the hepatitis C treatment is a long-term treatment that will last for several months beyond the anti-viral therapy period. They should attend at least one meeting per month.
- In certain cases, such as a history of depression with or without suicidality, it is recommended that the patient undergo preventive anti-depression treatment.

The therapy of patients with unstable psychiatric illnesses should always be managed by specialized and experienced centres or private practices.

### **1.9 Special characteristics of drug users**

Persistent, uncontrolled drug use increases the risk of a reinfection during therapy, regardless of whether the substances are used intravenously, inhaled or snorted. Therapy is not recommended in such cases.

This does not apply to drug users with controlled use.

Sporadic use is possible under hygienic conditions and in quantities that do not adversely affect cognition and does not represent a risk of reinfection or a danger to the ongoing therapy.

It is recommended to combine a hepatitis C therapy with an opiate replacement therapy and corresponding counseling, wherever possible.

### ***Alcohol and hepatitis C therapy***

Wherever possible alcohol should not be consumed during hepatitis C therapy. Alcohol has no direct negative influence on the efficacy of the therapy. However, consumption can have an adverse effect on a patient's ability to adhere to the regimen and thereby complicate the course of the therapy. Thus, in the case of persons who are not able to do without alcohol completely prior to treatment, special attention should be paid to the ability of such persons to adhere to the regimen and steps should be taken to improve this ability, as necessary.

### 1.10 Preconceived notions about hepatitis C therapy

- Assertion** *"If you are addicted to drugs and/or living on the streets, you can't participate in any therapy."*  
*"You can only participate in a therapy if you are in a methadone or heroin programme."*
- Response** Regular drug use and/or homelessness do not disqualify you for hepatitis treatment. The decisive factor is whether the patient is willing and able to undergo treatment, which requires a great deal of discipline and tenacity. The chances of success for each individual case must be assessed in consultations between patients, physicians, and other caregivers and based on prior experience.
- Assertion** *"The side effects are so terrible that it's better not to undergo therapy."*
- Response** The side effects vary widely depending on the individual and are almost impossible to predict in individual cases. For example, time and again there are cases of patients who appear very frail but who complete their therapy with no side effects whatsoever. On the other hand, there are patients who appear healthy, but who experience such severe side effects that they have to discontinue therapy. The great majority of patients falls somewhere in between these extremes. While adverse effects do occur, they are often not severe and can also be relieved by means of medicinal treatment. The side effects last as long as the treatment, while the symptoms of a chronic illness can often last for many years.
- Assertion** *"You get very depressed."*
- Response** Only a small group actually experiences depression. Experience has shown that some patients will go through mood swings, which are often mistaken for a very depressed state of mind. However, very few patients are actually affected by serious depression in the psychiatric sense of the word. In these types of cases it is useful to initiate treatment with anti-depressive medications, which are often highly effective.
- Assertion** *"The therapy only works on a few people."*
- Response** Depending on the type of hepatitis and the genotype, as well as the medications used, the success rate for therapy is between 50 and 90 %. It can truthfully be asserted that the treatment is successful for many.
- Assertion** *"Nobody will cover the treatment."*
- Response** Doctors' visits and most of the medications used are required to be covered by the health insurance funds. In other words, coverage for hepatitis C treatment is mandatory under basic insurance.



# *IV. Appendix*

# 1. GLOSSARY

## A

Adherence	Compliance with the therapeutic goals set by the physician and the patient	56
Ab	Antibody	18
ALT	Alanine aminotransferase, formerly GPT. Liver enzyme, indicates liver damage.	29
Antigen	Substance that results in the formation of antibodies	18
Anti-HBs	Antibody against the HBs antigen	31
Anti-HBc	Antibody against the HBc antigen	31
At-risk situation	Immediate measures following an at-risk situation	42
Asymptomatic	Not corresponding to the anticipated symptoms	14

## B

Base	Actually: base cocaine = crack	45
Bilirubin	Normal byproduct of the breakdown of the blood pigment (hemoglobin)	29
Blood awareness	With respect to contact with blood or with objects that could have blood or blood residue on them – even dried blood	39

## C

CD4 value	Indicates the number of certain helper cells in the blood	23
Cirrhosis of the liver	Severe disruption in liver function	10
Crack	Base cocaine, manufactured from cocaine hydrochloride (cocaine), able to be smoked, contains ammonia residues	45
Coinfection	When more than one pathogen is simultaneously active	23
Contaminated	Infected	41

## D

DNA	Deoxyribonucleic acid, a very large molecule that acts as a carrier of genetic information. Proteins are produced based on this information, which is written into the DNA in the form of a certain genetic code.	29
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## E

Exposure	Medical: contact	27
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## F

Fecal, feces	(Excrement), eliminated wastes (dung and urine) which the human or animal organism can no longer use	12
Fecal-oral	(Used to describe routes of transmission) human excrement in the mouth	11
Free Base	Actually: freebase cocaine, manufactured from cocaine hydrochloride (cocaine) with an elaborate process, able to be smoked	45
Fibroscan	A technique for measuring the stiffness or elasticity of the liver; an alternative to liver biopsy	30
Frontloading	A method of dividing a portion of a drug that has been heated and prepared for use into a syringe and transferring portions into one or more other syringes through the top opening (the cone)	44
Fulminant	In the medical sense of the word: severe, rapid progression	11

## G

Genital secretion	Fluid from the genitals: sperm or vaginal mucous	18
Genotype	Subgroups of the hepatitis C virus	54

**H**

Hand hygiene	Washing of the hands	38
HAV	Hepatitis A virus	17
HAV-Ab	Hepatitis A antibodies	17
HBc Ag	Hepatitis Bc antigen; a portion of the core of the hepatitis B virus	18
HBe	Hepatitis B envelope (antigen)	29
HBsAg-positive	Presence of acute hepatitis B	31
HBeAg	Hepatitis Be antigen; formed during virus replication, function unknown	55
HBsAg	Hepatitis B surface antigen, is usually the first detectable marker of a hepatitis B infection; part of the surface of the hepatitis B virus; also formerly referred to as Australia (Au) antigen or HAA (hepatitis-associated antigen)	19
HBV	Hepatitis B virus	18
HBV-DNA	Deoxyribonucleic acid of the hepatitis B virus, the genetic information of the virus, in other words a part of the virus	29
HCV	Hepatitis C virus	21
HDV	Hepatitis D virus	22
Hepatitis	Inflammation of the liver	12
HEV	Hepatitis E virus	23
HIV	Human Immunodeficiency Virus, the virus that causes AIDS	12

**I**

IgG or IGG	Class G immunoglobulins (antibodies)	17
IgM or IGM	Class M immunoglobulins (antibodies)	17
Immunity	Non-responsiveness to pathogenic germs due to: 1. Formation of antibodies following past exposure to an infectious disease; 2. Formation of antibodies following vaccination	10
Illness	Is an emergency situation in which the body shows symptoms (of disease)	41
Index patient	Person who may have infected an exposed person	51
Infection	Colonization of a host organism by pathogens; provides no information about symptoms	10
Infertility	Sterility, barrenness	15
Incubation time	Period between an infection and the appearance of clinical signs of the infectious disease	12
INR value	In order to verify the efficacy of blood-thinning medications the so-called international normalized ratio is determined in blood work performed by a Laboratory	29

**L, M, N, O, P**

Labour Law	Legal regulations	50
Liver biopsy	Removal of a tissue sample in suspected cases of chronic hepatitis	30
Pregnancy	Possible routes of transmission	35
Post-expositions-prophylaxis	Measures taken following possible contact with the pathogens of an infectious disease	50
PCR method	Polymerase chain reaction; a method of making copies of DNA without a living organism, using Escherichia coli or yeast, for example	21
Pegylated interferon	Interferon with delayed release of the active substance	58

**Q, R**

Relapse	Recurrence of a disease	56
Rules of use	Rules of use for drug users	44
RNA	Ribonucleic acid; RNA is a nucleic acid, which sometimes serves as a carrier of genetic information in living cells instead of DNA	59

**S**

Side effects	Side effects in the treatment of hepatitis C	61
Screening	Series of tests for antibodies	21

**T, U**

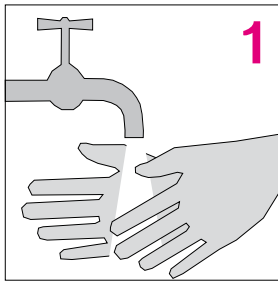
Testing	Testing in cases of suspected infection	27
Treatment	Treatment for hepatitides	54
Transaminases	Liver enzyme levels that are determined through liver function tests	29

**V, W, X, Y, Z**

Vaccination	Vaccination against hepatitis	32
Viral	Related to or caused by a virus	10
Viral load	Used to refer to the amount of the virus in the blood	30

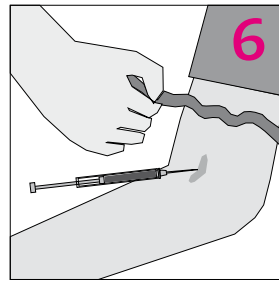
## 2. ILLUSTRATED FACT SHEETS

### INJECTION



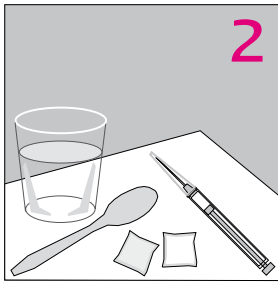
1

Wash hands thoroughly.



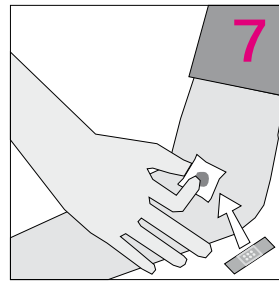
6

Once the needle has been placed correctly (dark blood): release the tourniquet prior to pushing down on the plunger.



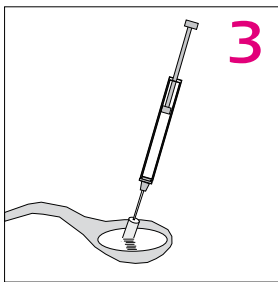
2

Prepare a clean surface. Always use your own new injection materials: syringe, needle, water container, water, spoon, filter, ascorbic acid, alcohol and dry swab or wipe, tourniquet, adhesive bandage. Never share injection materials! Don't share filters either - not even just to "help out"!



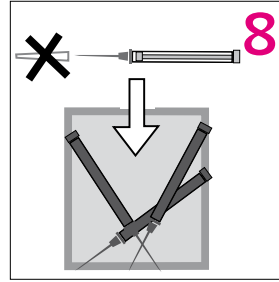
7

Following injection: Squeeze the vein and wipe up any blood droplets with a clean dry swab or wipe. Then place an adhesive bandage.



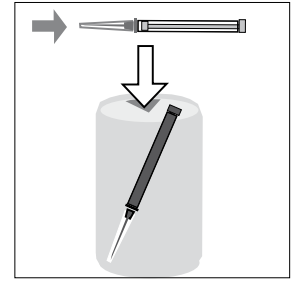
3

Use a sterile syringe with a filter (use a piece of your own cigarette filter, if necessary). Do not remove the filter with your teeth. The liquid in the syringe must be clear and clean.

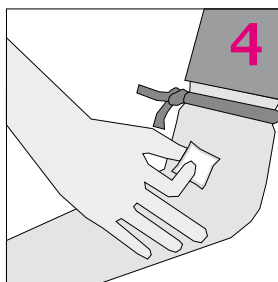


8

Within the consumption room: dispose of used syringes without the plastic cap on the needle in special containers intended for this purpose.

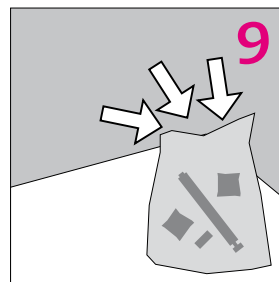


Everywhere else: place the used syringe with the plastic cap on the needle in a sturdy container (e.g. empty aluminum can) and dispose of the whole thing with the normal refuse.



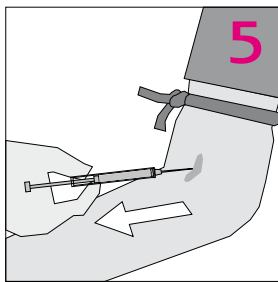
4

Place the tourniquet (causes the veins to "bulge out"). Disinfect the insertion site with an alcohol swab or wipe.



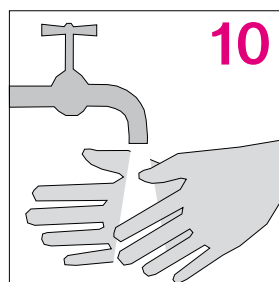
9

Clean the surface. Discard the used syringe (without the needle!), the swabs or wipes, the filter, etc. with the refuse.



5

If light red blood enters the syringe on its own, then an artery has been tapped. Remove the needle and press down on the insertion site for at least 5 minutes.

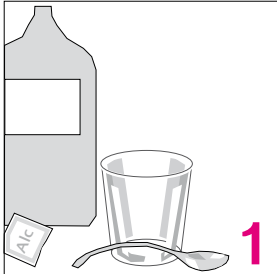


10

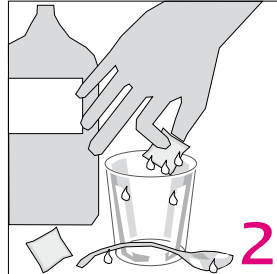
Wash hands thoroughly.

## DESINFECTATION

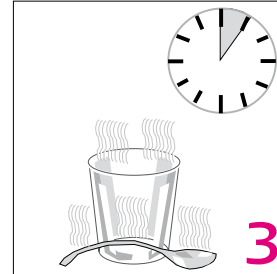
### Disinfect the spoon and water container



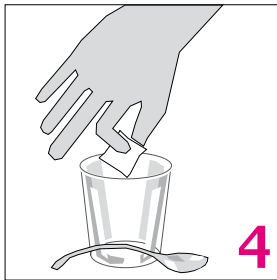
Disinfect the spoon and water container with alcohol wipes or with bleaching agent (e.g. eau de Javel).



Apply copious amounts of disinfectant to the spoon and water container with the wipes or a paper tissue.



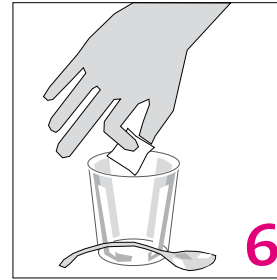
Leave the liquid on for at least 5 minutes.



Dry with a fresh wipe or paper tissue.



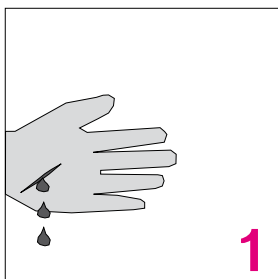
Thoroughly rinse with fresh water.



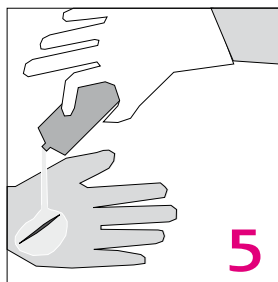
Finally, dry with a fresh wipe or paper tissue.

## FIRST AID/TREATING WOUNDS

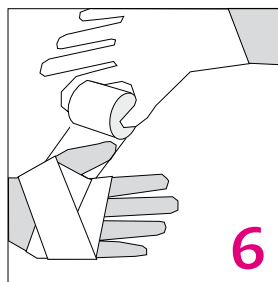
### Patients



Allow the wound to bleed for a moment.

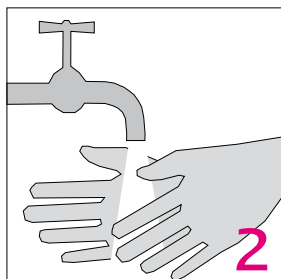


Disinfect the wound.

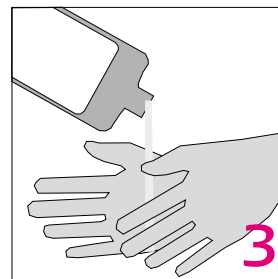


Place adhesive bandages on smaller wounds; wrap larger wounds with a bandage.

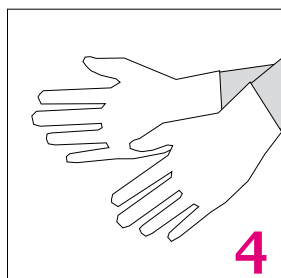
### Health care personnel



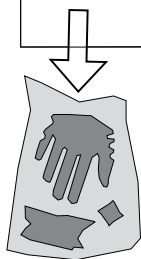
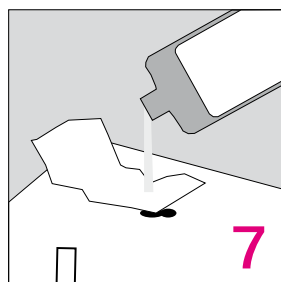
Wash hands thoroughly...



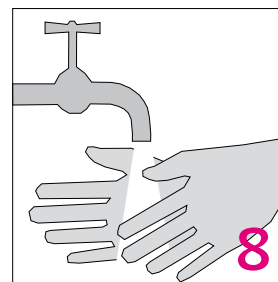
...rub with disinfecting solution.



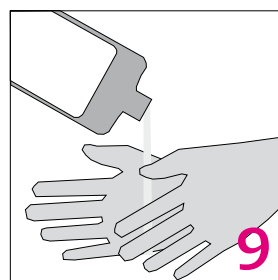
Put on latex gloves (following contact with blood: discard gloves and put on new ones).



Remove blood droplets on work surfaces with disinfecting solution. Immediately dispose of used, blood-stained cloths, wipes, gloves, etc.



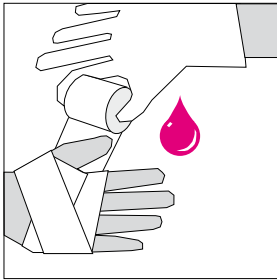
Wash hands thoroughly...



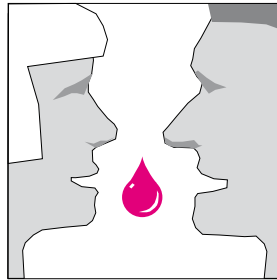
...rub with disinfecting solution.

## BLOOD AWARENESS

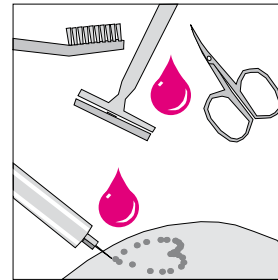
In the case of certain viruses even tiny invisible amounts of blood are enough to spread infection. Even in day-to-day situations it is possible to come into contact with blood or with objects that could have blood or blood residue on them – even dried blood:



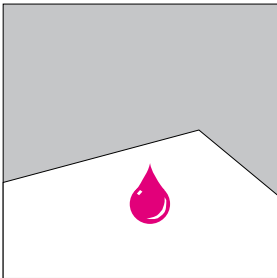
- Cuts and scrapes from sharp objects in the kitchen, while doing handcrafts, etc.
- Cuts, scrapes, and puncture wounds from foreign objects, needles, knives, etc.
- First aid: direct contact with open wounds (always wear gloves)



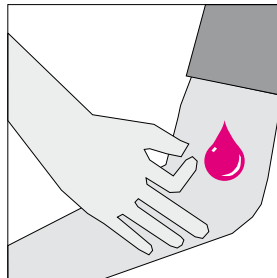
- Sexual practices involving cuts, scrapes or wounds (even tiny ones)
- Ventilation of people with nosebleeds or mouth wounds without a respiratory mask
- Bites from people with mouth wounds



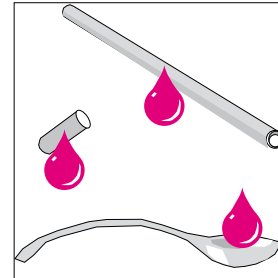
- Toothbrushes, razors and razor blades, nail clippers, nail files, piercing and tattooing instruments (which have not been completely sterilized)



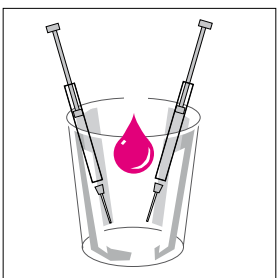
- Counter tops, shelves, surfaces, and documents, on which previously soiled materials have been placed (tables, paper documents)



- Blood residue on fingers, e.g. due to scratched open wounds, insect bites, eczema, etc.
- Touching veins that have already been tapped with soiled, blood-smearred fingers (when helping someone else inject)
- Pressing down on the injection site with soiled fingers after pulling out the needle (use a dry swab)



- Inhalation tubes/straws or pipes while snorting or freebasing
- Filters (touched by soiled hands/with residual blood on the fingers)
- Spoons (which have not been cleaned and sterilized or not completely cleaned and sterilized)
- Residual blood (even dried blood) on lighters, tourniquets, water containers or knives (used to divide up the drugs, etc.)



- Water containers in which a used syringe was immersed to withdraw water
- Syringes (used) to divide up the drugs

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