



## Hepatitis C

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Dear Readers,

if – as predicted in the Maya calendar – the world really ended today, the hepatitis C virus would have only been 6,000 years old. Compared to other companions such as the hepatitis B virus, it would not have even reached crawling age. Not until the second half of the 20<sup>th</sup> century was the virus able to spread considerably. This was attributable to medicine. It could affect anybody, which is why the US health authority has recommended since August 2012 that all people born between 1945 and 1965 take a hepatitis C test at least once in a lifetime. We report about the reasons for this recommendation in this HIVreport.

Sexually transmitted hepatitis C has so far been rather rare. An increased rate of sexually transmitted HCV has been observed in HIV-positive MSM since the turn of the millennium. This trend becomes apparent in the Swiss cohort study. Prevention will have to attend to this problem more intensively, but also research will have to do its part, since although we know a great deal, but not yet everything about hepatitis C transmission.

Enjoy reading!

Armin Schafberger, Steffen Taubert

## **Hepatitis C**

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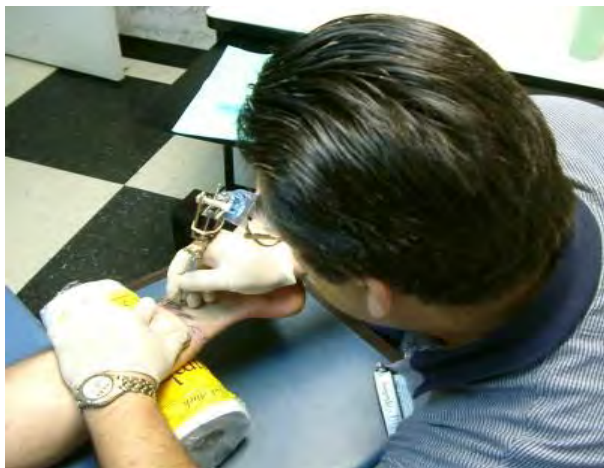
## When was hepatitis C born?

An estimated 130-170 million people worldwide are infected with hepatitis C. There are three to four million new infections every year, with 350,000 people dying as a result of the infection (WHO 2011).

In Germany, 0.4 % of the population has hepatitis C antibodies – i.e. these people have already come into contact with the virus, 84 % of whom also have viral components in their blood, which means they are chronically infected (RKI 2011).

The hepatitis C virus (HCV) is a “young” virus; it seems to be only about 6000-10,000 years old. It has so far only been found in humans.

This is not the case with hepatitis B: It has been infecting primates for about one million years; it already infected Neanderthal men; the Homo sapiens, who came from Africa and Europe approx. 70,000-40,000 years ago and from Asia 40,000-14,000 years ago to settle in America carried hepatitis B but not hepatitis C (Gürtler 2012).



Hygiene is particularly important in tattoo studios to prevent HCV transmissions. Photo: Alexander Hauk / bayern-nachrichten.de / pixelio.de

Where exactly HCV came into being is unknown, but we know that it did not spread significantly on the American continent until the beginning of the slave trade in 1733 (Gürtler 2012).

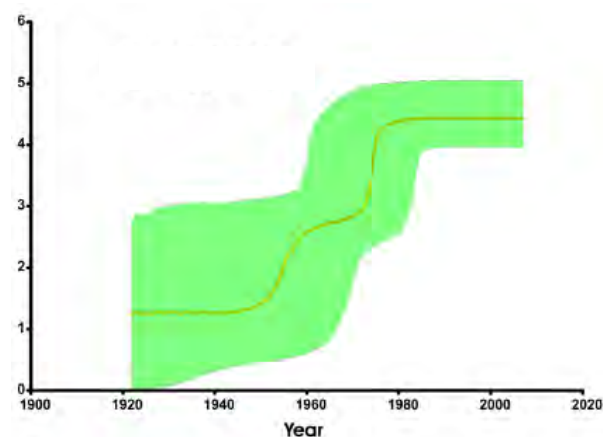
However, the prevalence of hepatitis C in the population was low. After all, the sexual route of transmission (in the absence of HIV) is in-

effective; only tattoos and scarification<sup>1</sup> are considered relevant routes of transmission.

## The first wave

This changed around 1920: Medical treatments against e.g. syphilis and the trypanosome fever were now injected into muscle using syringes – without any knowledge of the significance of hygiene. During and after the Second World War, penicillin was extensively administered with syringes. The spread of HCV now assumed epidemic proportions.

Between the Second World War and 1990, HCV was also spread in the industrialised countries through blood products. Particularly pooled (coming from several donors), frozen blood plasma is assumed to have contributed to spreading HCV (Magiorkinis 2012). The detection of HCV, discovered in 1989, and its antibodies in blood has only been possible since 1990.



The first wave of the hepatitis C epidemic (mainly subtype 1b) in the 20<sup>th</sup> century spread through unsterile syringes used several times and blood products starting from the 2<sup>nd</sup> World War and lasted in the industrialised countries well into the 1980s. Logarithmic illustration of estimated infections. Source: Magiorkinis 2009

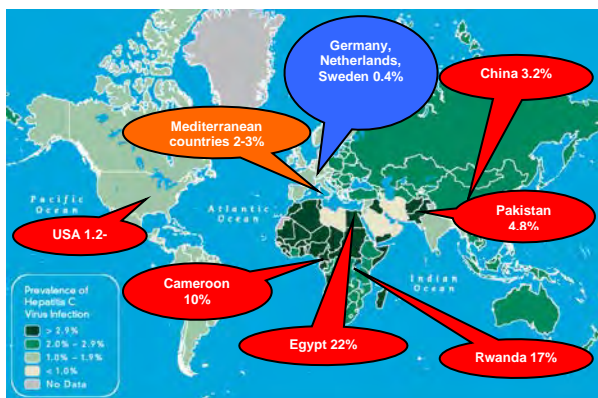
Hence, the first epidemiological wave was induced by medicine. In some developing countries, hepatitis C is still spread by inadequately sterilised needles and syringes. The unfortunate front runner is Egypt: More than 20% of the population, among them mainly men, are infected with HCV. This was mainly

<sup>1</sup> Scarification from *scarificatio* (Latin) = “to scratch”. Positioning of decorative scars on the skin, formerly usually as a ritual or traditional body art, either by cutting with knives or burning with hot objects (referred to as branding). Hepatitis C transmissions are possible by using the same knife for several persons.

caused by the bilharziosis<sup>2</sup> treatment programme in the '80s: The therapy injected into muscles was introduced at schools, and back then going to school was mainly the boys' prerogative.

But Europe has its hot spots too. In some Italian regions, the prevalence is similarly high as in Egypt. Some medical establishments here seem to have neglected hygiene in times where hygiene measures in the rest of Europe were already implemented. Therefore, the disease predominantly concerns the older generation.

Whereas the hepatitis C prevalence in Northern Europe amounts to approx. 0.4%, it is higher in the Mediterranean area (on average also in Italy) with 2-3%. It is estimated at 1.2-2% in the USA, 3.2% in China, 4.8% in Pakistan, 10% in Cameroon and 17% in Rwanda (RKI 2012). In some African countries, vaccination programmes conducted with unsterile syringes are also likely to have contributed to the spread of hepatitis C.



Worldwide hepatitis C prevalence. African countries and Pakistan are affected most severely (dark green in the map). Source: Background map: CDC, data RKI

### Once-in-a-lifetime testing?

In August 2012, the US health authority CDC issued the recommendation that all persons born between 1945 and 1965 should take a hepatitis C test once in a lifetime, irrespective of the existing hepatitis risk (Smith 2012).

<sup>2</sup> Bilharziosis: The liver fluke is a parasite found in stagnant waters, i.e. in the side arms of the Nile. It infects swimmers or people who drink the water, destroying the tissue of predominantly the urinary bladder and causing urinary bladder cancer in the long term.

CDC, August 2012:

Alle Jahrgänge 1945-1965 einmal im Leben zum Test!

**Hepatitis C Virus Testing of Persons Born During 1945 to 1965: Recommendations From the Centers for Disease Control and Prevention**

Bryan D. Smith, PhD; Rebecca L. Metzger, MPH; Cheryl A. Berkitt, PA-C, MPH; Yusef Fakh-Yfies, MD; Deborah Holzman, PhD; and John W. Ward, MD

Does this also apply to us? The prevalence in the USA is somewhat higher than in Germany. But anybody who grew up in the '50s and the '60s does not exactly remember whether he/she has ever received an injection (with other than a disposable syringe) or a medical treatment on holiday in Southern countries. So it is not bad for people over the age of 45 or 50 to know their hepatitis C status.

### Hepatitis C test recommended for certain migrants

In some countries, the prevalence reaches two-digit figures. Nearly every 20<sup>th</sup> person in Pakistan, every 10<sup>th</sup> in Cameroon and every 5<sup>th</sup> in Egypt is infected with HCV.

In many countries, hepatitis C has so far not been a big health issue: The treatment with interferon/ribavirin and protease inhibitors is too complicated and too expensive. What is the purpose of test campaigns if they are not followed by treatment? By the way, not only hepatitis C but also hepatitis B is widely spread in many countries.

A one-off hepatitis C test is advisable to all persons born between 1945 and 1965 as well as to migrants of any age from countries with high prevalence or low hygiene standards.

For migrants, hepatitis B and HIV should also be integrated into counselling.

## The second wave

The second boost was imparted to the hepatitis C epidemic by intravenous drug use and the sharing of injection equipment by several persons.



The second wave of hepatitis C epidemic (mainly subtype 1a) in the 20<sup>th</sup> century spread through intravenous drug consumption, predominantly from the 1960s. Logarithmic illustration of estimated infections. Source: Magiorkinis 2009

Although the injection of drugs has been known in the USA and Canada since the late '20s, heroin consumption did not start to gain importance in Europe and Australia until the late '60s (Magiorkinis 2012). Today, 60% to more than 90% of IV drug users are infected with hepatitis C in many regions – the virus is ten times easier to transmit during drug use than HIV ([see HIVreport 04/2011](#)). sch

Intravenous drug users should be repeatedly tested for hepatitis C and advised on prevention methods.

In order to better reach users and ensure that they pick up/receive their test results, projects in Berlin and Dortmund also offer hepatitis C rapid tests (see HIVreport 01/2012).

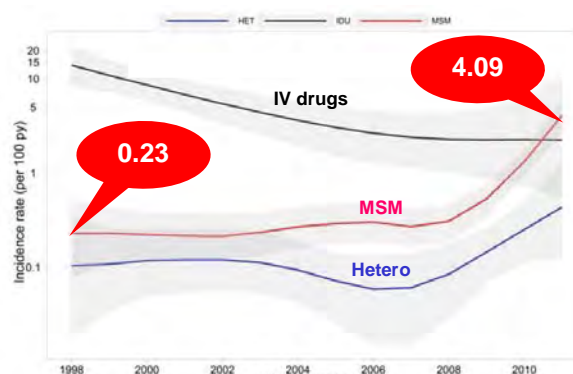
## Hepatitis C infections in HIV-positive MSM

Since the turn of the millennium, Western Europe and the USA have reported an increased incidence rate of hepatitis C infections in HIV-positive gay men and MSM.

### Massive increase in Switzerland

More specific data has now been reported from Switzerland (Wandeler 2012): The incidence rate in HIV-positive gay man in 2011 is 18 times as high as it was in 1998, increasing from 0.23 to 4.09. This means that four out of one hundred men, i.e. every twenty-fifth were infected with hepatitis C in 2011! 50% of the infections occurred during the last three years. It is particularly the speed of the epidemiological development that is alarming.

However, the actual rate of hepatitis infections was rather underestimated; whereas initial hepatitis is recognised during the routine antibody test, recurrent infections are not. Cases of delayed antibody presence could also lead to underestimation in such a study.



Hepatitis C infections in the Swiss HIV cohort between 1998 and 2011. The graphic shows a logarithmic illustration of the incidence rates per 100 person years in HIV-positive MSM (red), HIV-positive IV drug users (black) and HIV-positive heterosexuals (blue). The incidence rate strongly increases especially in HIV-positive MSM (rate of new hepatitis C infections) from 0.23 to 4.09. Source: Wandeler 2012.

The rate of new infections in drug users dropped during this period; although that in heterosexuals slightly increased, it still remained low with a rate of less than 1/100 person years. The subgroups of drug users, heterosexuals and MSM can, however, only be compared to a limited extent, since at the beginning of the study, 92.2% of the drug users were already HCV-positive. This is why the scientists only took account of 123 per-

sons (7.8% of all persons who indicated drug use as the route of transmission) in the evaluation. The reduction of the number of new diagnoses in this small group may not be representative for the entire group of IV drug users.

### Reasons for hepatitis C infections

As possible reasons for this increase, the Swiss indicate inconsistent condom use and a previously diagnosed syphilis in the group of MSM. Those study participants who indicated to never or only irregularly use condoms were, just like those with syphilis in their case history, exposed to a twofold risk of contracting HCV compared to those who always took condoms and had no syphilis.

However, it should be considered that the study statements on MSM only refer to 101 hepatitis seroconversions in 3,333 MSM or 23,707 person years.

#### *Unprotected anal sex as the reason for new infections?*

An increasing number of new HCV diagnoses in HIV-positive men have also been reported from Germany (Stellbrink 2010). Whether the reason for this is actually inconsistent condom use remains unclear – despite the data from Switzerland.

The courses of disease and treatment in HIV-positive persons have been documented in the Swiss HIV cohort since 1988. At present, physicians and employees of outpatient clinics document medical data such as laboratory results, concomitant diseases and prescribed medication of more than 8,400 men and women on a regular basis.

They conduct a brief, structured interview with the study participants twice a year, also inquiring social-demographic data such as income, marital status, professional situation and also condom use. The information is provided on a voluntary basis.

The main focus of the Swiss Cohort is clearly medical, with an additional small set of social-demographic data being documented as well. There are only a few questions about sexual attitude. The interviewer starts by asking whether vaginal or anal intercourse took place during the last few months. The answer can only be “yes” or “no”; various sexual

practices are not distinguished in greater detail.

In the further course of the interview, the interviewer asks the study participant whether he used condoms (possible answers: “yes”/“sometimes”/“never”). There is no possibility to document whether the anal intercourse was insertive (“active”) or receptive (“passive”).

It is also unclear whether those who indicated to use condoms only irregularly mean that they use condoms irregularly or not at all within a steady partnership (while using condoms in sexual contacts outside this partnership), or if they use condoms irregularly in general.

Other transmission risks discussed in the past, such as fisting or nasal drug use, are not documented in the Swiss cohort either.

The SHCS thus considerably differs from much more differentiated behavioural studies such as the BZgA [Federal Centre for Health Education] survey among gays (Bochow/Schmidt/Grote 2010) or the European [EMIS project](#), and can only provide a rough impression of possible correlations.

#### *HCV can be transmitted through fisting and “nasal drug use”*

Within the scope of its questionnaire survey among MSM, Schmidt identified minor bleeding as a risk factor for transmission. Schmidt evaluated extensive questionnaires of 34 HIV/HCV-positive study participants and compared them with those of a control group consisting of 67 HIV-positive MSM without hepatitis C (Schmidt 2011).

The most striking common feature of the co-infected persons: Many of them report about frequently occurring visible bleeding following anal intercourse – unlike the HIV-positive men without hepatitis C in the similarly structured control group.

Another peculiarity: More co-infected persons engaged in receptive fisting, and did so more often than those in the control group (fisting involves the insertion of the partner’s hand or forearm into the rectum, which may cause bleeding in this region). In addition, 32% of the co-infected persons indicated to frequently engage in receptive fisting without gloves or that the glove was not changed for the next partner (control group: 6%) or to frequently share lubricants (29 % vs. 8 %).

Schmidt concluded that HCV is not transmitted directly between the two sexual partners, but in group situations from the receptive partner through the insertive partner (no matter if via the fist or penis) to the next receptive partner. In this process, the insertive sexual partner “carries” HCV-containing blood from one person to the next.

Nasal cocaine, amphetamine/methamphetamine or ketamine use is also still discussed as a possible source of infection, since HCV can be transmitted through minute amounts of blood when sharing snorting tubes.



Care pack with disposable equipment for drug users. Photo: tau

*Minor impurities are sufficient when injecting drugs*

The use of unsterile syringes for drug injection represents another risk factor for hepatitis C transmission. This is nothing new and has been part of the prevention programme for drug users for years. What is new, however, is that intravenous drug use seems to also become popular with MSM (see interview with Benedikt Zahno).

Since even microscopic amounts of blood are sufficient for transmitting HCV, the shared use of filters or water (e.g. for diluting am-

phetamines/crystal) involves a transmission risk.

*sch*



Content of care packs: Besides syringe and needle, the packs should include further disposable products: **sterilised water**, **alcohol swabs** for hand disinfection, a sterile **spoon** (pan) and a disposable **filter**. Photo: tau

### HCV in syringes and equipment

A study group at Hannover University has recently confirmed the significance of drug "equipment" for hepatitis C infections (Doerrbecker 2012):

**Water:** The shared use of water (for dissolving the drug) already involves infection risks. HCV remains infectious in contaminated water bottles for up to 3 weeks.

**Filters:** After dissolving (and heating), the drug is drawn into the syringe via a filter. Filters are supposed to retain undissolved particles. The filter is often used several times and is wrapped in aluminium foil to protect it. The study group around Doerrbecker has now proved that the infectiousness of filters, especially when wrapped, was still verifiable even after 24 and 48 hours. By contrast, the infectiousness of unwrapped filters drops to a hardly detectable level after 24 hours (Doerrbecker 2012).

**The "care packs" of Deutsche AIDS-Hilfe [German AIDS Service Organisation] have therefore recently been complemented with disposable filters, which additionally filter health-critical airborne contaminants out of the injection solution.**

**Syringes:** HCV in syringes remains infectious for up to two months (Paintsil 2010).



*Use of care pack: The sterilised water is heated in the pan and is subsequently drawn into the syringe via the filter integrated in the plastic connection piece. This is to prevent that undissolved drug clots enter the syringe. The filter is then removed and the needle is placed onto the syringe. Following skin disinfection (alcohol swabs), the drug can be injected. Photo: tau*

### The second, third, fourth hepatitis C... Resolved HCV provides no protection against re-infection

Hepatitis C can be contracted repeatedly; the disease leaves no immunity. But how often does this occur?

This question has been investigated by a study group in Amsterdam (Lambers 2011). It observed 56 HIV-positive MSM who were diagnosed with acute hepatitis C and treated with interferon and ribavirin for a period of 24 weeks.

Five out of the 56 men sustained a relapse following the treatment; the other 51 were considered completely recovered. Eleven out of the 51 men became re-infected with hepatitis C. The calculated incidence (rate of new diseases) of these recurrent infections amounted to 15.2 per 100 person years, i.e.

- 15 out of 100 men with resolved hepatitis C re-contracted hepatitis C within one year;
- After two years, one-third of the recovered men were re-infected with hepatitis C.

The average time until re-infection in the 11 re-infected men was 8.4 months.



*HIV therapy provides no protection against HCV*

The study by Lambers found no difference between the number of CD4 cells in men with and without re-infection. The HIV viral load at the time of re-infection was below the detection limit in all re-infected persons. HIV-positive persons receiving effective HIV therapy do not seem to be better protected against recurrent infections than men without optimum HIV therapy or with no HIV therapy at all – as also demonstrated in other studies (Stellbrink 2010b).

Recurrent infections seem to be no rare event in Germany either (Stellbrink 2010a): In a Hamburg practice-based cohort of HIV-positive MSM, 61 men were continued to be observed following acute hepatitis C. 10 out of 45 men with resolved hepatitis C re-contracted hepatitis C later on, three of them with the same genotype, seven of them with another. The cumulative probability of re-infection following recovery amounted to 45% over a period of six years.

In one man, the authors even detected three hepatitis C infections in short succession (two times genotype 1a, following an initial genotype 3 infection); hepatitis C resolved spontaneously in all three cases – a rather rare stroke of luck for the patient.

It can be assumed that these were actually new infections and not reactivated old infections. The virus genome was examined in both the Dutch and the German study in order to be able to clearly distinguish between recurrent infections (new infection) and relapses (the same pathogen was hidden in the body and recurred following therapy). *tau/sch*

**Interview**

***Interview with Benedikt Zahno, head of the counselling project “Checkpoint Zurich”***

***HIVreport:*** *Benedikt, an evaluation of the Swiss HIV cohort study has shown that HIV-positive men who indicated to also have unprotected anal sex contracted hepatitis C more often. What do you think: Does unprotected anal sex involve a risk for HIV-positives? Or is it rather something else?*

***Zahno:*** From personal conversations, I know about two, three men who told me that they hadn't had any sexual contacts involving blood. There hadn't been any fisting or the like either. But when you ask more specifically, they tell you: “Ok, it was a long session with Viagra and some other drugs”, and such a long shagging can also lead to bleeding injuries, even without fisting.

***HIVreport:*** *Do you think this is a transmission risk?*

***Zahno:*** Yes, I think that blood must be involved somehow; at least, I hope so.

***HIVreport:*** *Hepatitis C is still not considered a sexually transmitted infection. Do you think that all new infections can be explained by such injuries during anal sex or fisting?*

***Zahno:*** We don't know that either. What we experience is an increase of intravenous drug use, especially at private sex parties, where for example crystal, but also testosterone and anabolic steroids are injected.

We have so far not offered syringe exchange within the scope of our prevention efforts; this will be a new service next year. Perhaps we would also like to offer special workshops to teach people how to inject properly.

***HIVreport:*** *What other plans do you have?*

***Zahno:*** We intend to develop a flyer to also point out the risk of blood contact, with messages like: “Fisting: New gloves for every ass”. Furthermore, we want to elaborate on the transmission risks when sharing sex toys.

We also have to consider what alternatives to ketamine we can offer for fisting. There may be better relaxant substances. The central question is: How can I enjoy good sex with as few health risks as possible?

I think HCV prevention should be focussed on what's essential, i.e. the three or four situa-

tions that demonstrably involve a hepatitis risk: fisting, drug use, both nasal and intravenous, and group sex. We should initially focus on these groups in order not to get the whole scene confused.

**HIVreport:** *Checkpoint Zurich also plans to collect its own data; what exactly do you have in mind?*

**Zahno:** We have received more than 500 hepatitis C rapid tests as a gift and are now conducting a confirmatory study, similarly to that we have already conducted with 900 tests here at Checkpoint Zurich and at Checkpoint Mobile for German-speaking Switzerland.

In January and February, we would like to offer the hepatitis C test to all visitors who have sex with men, both HIV-positives and HIV-negatives, at all four Checkpoints – in addition to Zurich, Checkpoints also exist in Geneva, Basel and Lausanne – in order to once again check whether hepatitis C is similarly rare in HIV-negatives as it is among the general public.

**HIVreport:** *Do you ask people what type of sex they had before the test?*

The expected number of positive HCV rapid tests is too low to conduct a detailed analysis of the sexual risk factors. This was already the case with the last test, where 8 out of 900 tests were positive, i.e. the prevalence in Checkpoint clients was below 1%.

However, we will ask some questions about surgical interventions on the penis and anus, the frequency of anal bleeding during sex, the setting of fisting and anal douches, which seem to be shared in some clubs. Furthermore, we are planning more in-depth counselling for those people who have a positive test result to help them find out about the possible reasons.

Next year, we would like to additionally offer syringe and snorting equipment exchange at the Checkpoints (snorting tubes are used for nasal drug consumption, editor's note).

At this point, another study would be thinkable, where we collect the tubes after tube exchange and test them for HCV. There have already been two or three studies on this, but the risk of nasal transmission has not yet been completely clarified ...

**HIVreport:** *An exciting idea...*

**Zahno:** Yes, and of course we also hope that the therapy will become simpler for those who contract hepatitis C.

**HIVreport:** *Interferon-free and shorter therapy would certainly be a great progress. What tasks do you think AIDS service organisations will have until then?*

**Zahno:** We should thoroughly inform HIV-positive men about hepatitis C, also about the fact that they do not become immune after they have had an HCV infection. Hepatitis C will certainly be a major topic for us next year and will be present in all Swiss *Checkpoints*, including projects such as syringe and snorting equipment exchange.

**Benedikt Zahno, thank you very much for this interview.**

*tau*

## Recommendations for prevention

HIV-positive men suffering from hepatitis C should be reached with the prevention – not only upon diagnosis, but also after the end of treatment and in the further course, since in order to prevent recurrent infections after successful HCV therapy, it is necessary to find out together with the clients whether they have sufficient knowledge of transmission risks and possibilities of protection.

Consultations would also be helpful to identify and rectify false assumptions – such as the idea that an HCV infection provides immunity.

Therefore, the study by Schmidt asked about the knowledge of routes of transmission in a study. Two-thirds of the interviewed study participants were not aware of the risk of contracting HCV through the shared use of drug equipment (Schmidt 2011).

*But what advice should be given to men to protect themselves against sexually transmitted hepatitis C?*

Preventionists are always looking for ONE specific risk factor or ONE specific route of transmission. The sexual transmission of hepatitis C – as shown in the study by Schmidt – may require several risk factors. HIV infections seem to reduce the threshold for sexual hepatitis C transmission. Nearly all cases of sexual transmission concern HIV-positives, predominantly HIV-positive MSM.

Therapy status, CD4 cell count and HIV viral load do not seem to play a role.

When looking at the evaluations of the studies and the on-site experience of preventionists, the impression arises that there seem to be certain settings where the risk of hepatitis C transmission considerably increases. This mainly involves situations where sex with several men takes place and/or drugs are taken concomitantly. Men who are often active in such settings should note the following transmission risks:

- **Rectal bleeding:** Anorectal injuries with visible bleeding after sex seem to involve a hepatitis C risk.
- **Fisting:** Receptive fisting ("being fisted") without gloves.
- **Group sex:** "Sharing" partners without changing the condoms or the fisting glove (or thoroughly washing hands between two partners) is most likely to be problematic, since the bloody secretion can be transmitted from one partner to another.
- **Snorting drugs:** Sharing snorting equipment, e.g. when taking coke seems to pose a risk. Hepatitis C can remain infectious on materials for several days to weeks (Ciesek 2010).

#### *Protection strategies*

- Condoms can help to prevent the transmission of hepatitis C during anal intercourse. This seems to be useful especially if the sex becomes somewhat wild (and small injuries are possible) and/or drugs reduce the sensitivity so that injuries are not noticed.
- When having sex with several partners: Change condoms/gloves when changing partners!
- Always use your own syringe and injection equipment for intravenous drug use, for taking anabolic steroids or for local stimulation (injection of substances into the erectile tissue or the scrotum)!
- Use your own tube for snorting drugs!

The Swiss Checkpoints of the AIDS service organisation are planning large-scale HCV testing of MSM for next year, with one goal being to find out whether HIV-negative men

are also affected by the increasing trend of HCV infections.

The other goal is to clarify in an extensive interview with HCV-infected persons what sexual attitude and what type of drug use preceded the infection.

#### **Scientific studies on HCV transmission among MSM**

Unfortunately, not all questions have been clarified yet in respect of the transmission of HCV in MSM. This is also because sexually transmitted hepatitis C is a relatively new phenomenon. Above all, it is important to ask in studies what exactly happened when and with whom during sex. Most researchers do not ask such specific and detailed questions.

The most thorough study so far has been conducted by Axel J. Schmidt in Berlin (Schmidt 2011). With the publication of this HIVreport, this study is now also available in German and can be downloaded on the [website of Deutsche AIDS-Hilfe](#) (material area) or on [plus-one in english](#):

*sch/tau*

#### **References**

**Bochow, M. Schmidt A.J., Grote, S.,** Schwule Männer und HIV/Aids: Lebensstile, Szene, Sex 2007 - eine Befragung im Auftrag der Bundeszentrale für gesundheitliche Aufklärung, Köln. AIDS-Forum DAH, Bd. 55, Berlin 2010

**Ciesek S, Friesland M, Steinmann J, Becker B, Wedemeyer H, Manns MP, Steinmann J, Pietschmann T and Steinmann E:** How Stable is the Hepatitis C Virus (HCV)? Environmental Stability of HCV and Its Susceptibility to Chemical Biocides. JID 2010:201 (15 June) 1859-1866

**Doerrbecker J, Behrendt P, Mateu-Gelabert P, Ciesek S, Riebesehl N, Wilhelm C, Steinmann J, Pietschmann T and Steinmann E:** Transmission of Hepatitis C virus among people who inject drugs: viral stability and association with drug preparation equipment. Journal of Infect Diseases. Advance Access, November 5, 2012

**Fierer, S. et al.:** Sexual Transmission of Hepatitis C Virus Among HIV-Infected Men Who Have Sex with Men --- New York City, 2005-2010. MMWR Weekly July 22, 2011 V.60 N.28 p. 945-950

**Gürtler L:** Ursprung und Alter von Hepatitis B- Virus (HBV) und Hepatitis C-Virus (HCV). Sprktrum der Virologie, 1/2012, S. 3-12

**Lambers FAE, Prins M, Thomas X et al.:** Alarming incidence of Hepatitis C virus (HCV) reinfection after treatment of sexually acquired

acute HCV infection in HIV-infected men having sex with men in Amsterdam. *AIDS*. 2011 Nov 13;25(17):F21-7.

**Magiorkinis G, Magiorkinis E, Paraskevis D, Ho SYW, Shapiro B, Pybus OG, Allain JP, Hatzakis A:** The Global Spread of Hepatitis C Virus 1a and 1b: A Phylodynamic and Phylogeographic Analysis. *PLoS Medicine*. December 2009, Vol 6, Issue 12, e1000198

**Matthews GV et al.:** Patterns and characteristics of hepatitis C transmission clusters among HIV-positive and HIV-negative individuals in the Australian trial in acute hepatitis C. *Clin Infect Dis*. 2011 Mar 15;52(6):803-11. Epub 2011 Jan 31.

**Paintsil E, He H, Peters C, lindenbach BD, Heimer R:** Survival of Hepatitis C Virus in Syringes. Implication for transmission among injection drug users. *J Infect Dis* 2010; 202:984-90

**RKI:** Virushepatitis B, C und D im Jahr 2011. *Epidemiologisches Bulletin*, Nr 38, 2012

**Schmidt, AJ, Rockstroh JK, Vogel M, an der Heiden M, Baillot A, Krznicar I, Radum D:** Trouble with Bleeding: Risk Factors for Acute Hepatitis C among HIV-Positive Gay Men from Germany — A Case-Control Study. Published online 2011; *PLoS One*. 2011; 6(3): e17781; March 8. URL: doi: [10.1371/journal.pone.0017781](https://doi.org/10.1371/journal.pone.0017781)

**Schmidt, AJ, Rockstroh JK, Vogel M, an der Heiden M, Baillot A, Krznicar I, Radum D:** Nichts als Ärger mit dem Blut: Risikofaktoren für akute Hepatitis C bei HIV-positiven Männern mit gleich geschlechtlichen Sexualkontakten in Deutschland – Eine Fall-Kontroll-Studie. *Deutsche Fassung der Veröffentlichung in PLoS One* aus dem Jahr 2011 (s.o.). Übersetzung durch A.J. Schmidt 2012, [online abrufbar auf der Webseite der Deutschen AIDS-Hilfe e.V.](#)

**Shepard CW, Finelli L, Alter MJ:** Global Epidemiology of Hepatitis C Virus Infection. *Lancet Infect Dis* 5; 558-567

**Smith BD, Morgan RL, Beckett GA, Falck-Ytter Y, Holtzman D, Ward, JW:** Hepatitis-C-Testing of Persons born during 1945 to 1965. Recommendations from the Centers for Disease Control and Prevention. *Annals of Internal Medicine*, Volume 157, Number 9, 6 November 2012

**Stellbrink HJ, Schewe K, Vogel M, Noah C:** Increasing numbers of acute Hepatitis C infections in HIV-infected MSM and high reinfection rates following SVR. Poster P200, HIV10, Glasgow, Nov 2010

**Stellbrink HJ, Schewe K, Vogel M, Hoffmann C, Noah C:** Incidence, Genotype Distribution and Prognosis of sexually transmitted acute Hepatitis C in a Cohort of HIV-infected patients. Poster P645, Retroviruskonferenz, San Francisco, Feb 2010

**Taylor LE et al.:** Incident hepatitis C virus infection among US HIV-infected men enrolled in clinical trials. *Clin Infect Dis*. 2011 Mar 15;52(6):812-8. Epub 2011 Jan 31.

**WHO:** [Hepatitis C. Fact Sheet No 164](#). Juni 2011

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