Hepatitis C Micro-Elimination: MSM

Benjamin Hampel, Swiss Hepatitis Symposium 2019

SWISS HCVree TRIAL

UniversityHospital Zurich

CHECKPOINT GESUNDHEITSZENTRUM FÜR DIE COMMUNITY ZÜRICH

Universität Zürich[UZH]

Rising incidence of HCV infections among HIV positive MSM

HCV incidence in HIV positive Swiss MSM

- 18-fold increase since 2002[1]
- Strong decrease in IDU's

HCV in HIV negative Swiss MSM

- HCV prevalence (0.32%) similar to general population[2]

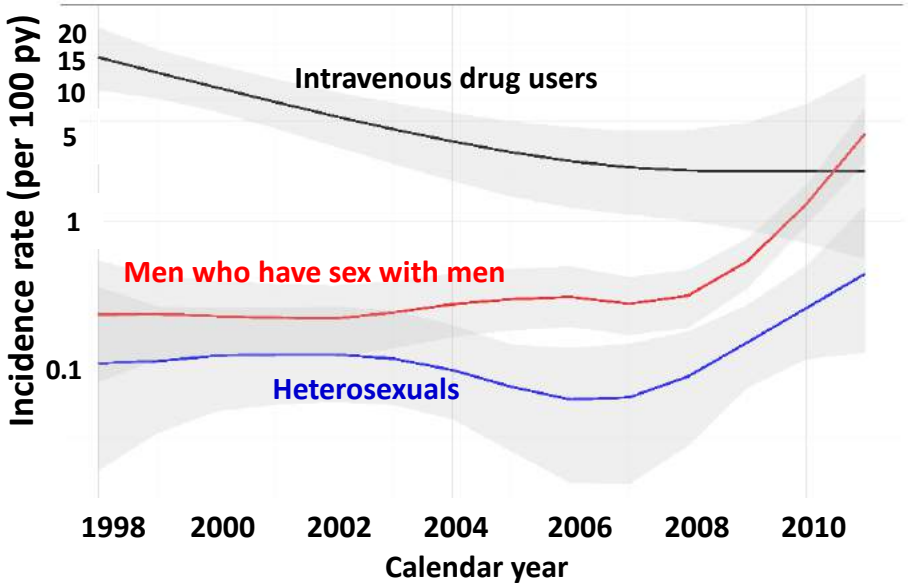
Reaching WHO elimination targets by 2030[3]

- Identification and treatment of potential HCV spreaders

Aim of the Swiss HCVree Trial

To test the feasibility of a HCV elimination approach among HIV/HCV positive MSM

A rapidly evolving epidemic



[1]Wandeler G et al, Clin Infect Dis 2012;55:1408-16
[2]Schmidt AJ et al, BMC Public Health 2014;14:3
[3]www.who.int/hepatitis/publications/global-hepatitis-report2017

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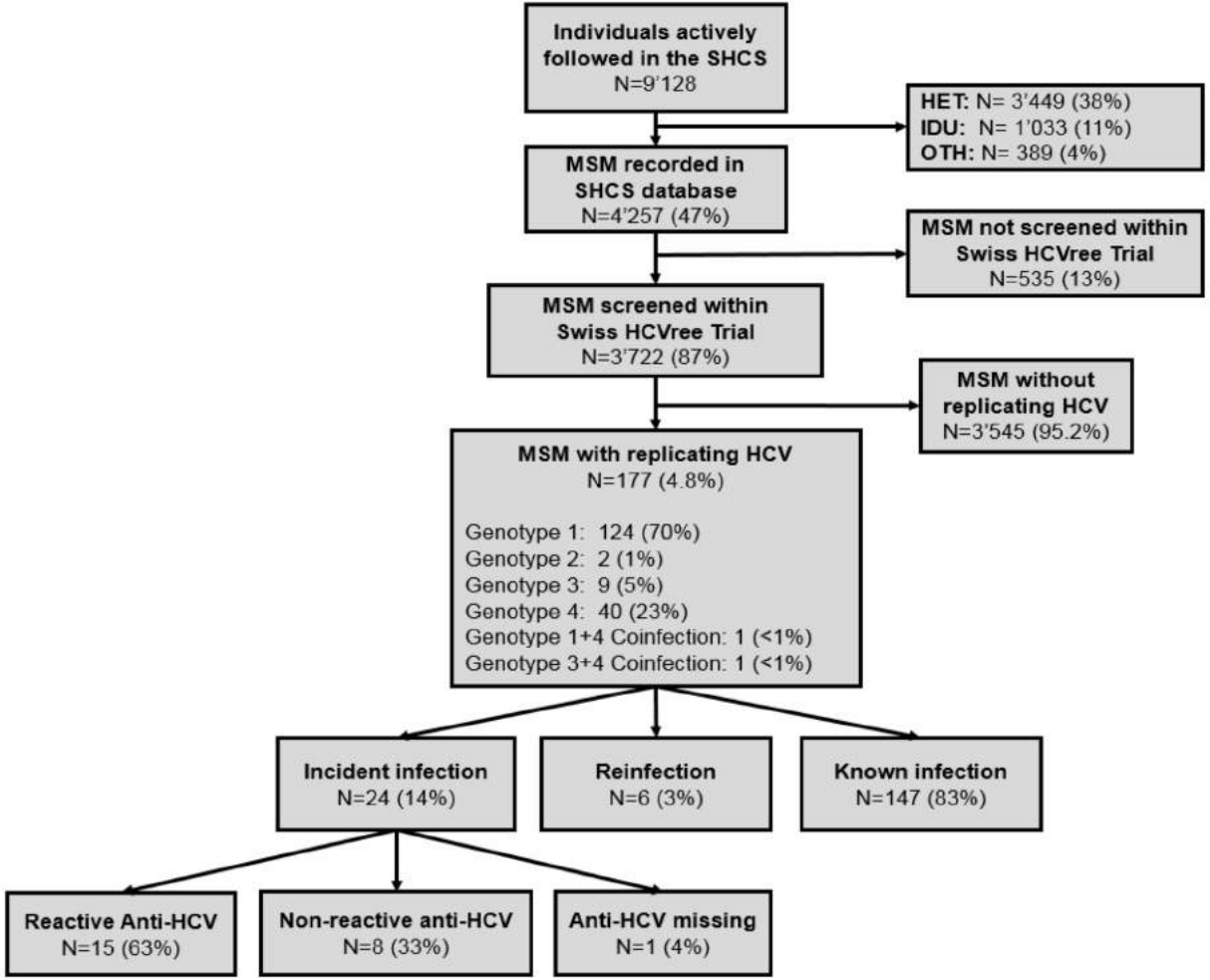
Research article | Open Access | Open Peer Review | Published: 06 January 2014

Prevalence of hepatitis C in a Swiss sample of men who have sex with men: whom to screen for HCV infection?

Axel J Schmidt, Luis Falcato, Benedikt Zahno, Andrea Burri, Stephan Regenass, Beat Müllhaupt & Philip Bruggmann

SWISS HCVree TRIAL



Risk factors for replicating HCV infection

	Replicating HCV	Non-replicating HCV	p-value
Number of patients (%)	177 (4.8)	3545 (95.2)	-
Age, median [IQR]	47 [41, 54]	50 [42, 56]	0.007
AST or ALT >50 U/L (%)	123 (69.5)	461 (15.1)	0.000
Condomless sex with occ. partners (%)	83 (47.4)	849 (24.3)	0.000
Condomless sex with stable partner (%)	54 (30.7)	1181 (33.6)	0.242
Intravenous drug use (%)	51 (29.0)	151 (4.3)	0.000
Non-injectable drug use (%)	106 (60.2)	1039 (29.4)	0.000
Previous syphilis (%)	106 (65.4)	1406 (40.5)	0.000

self-reported their own assumption(s) of how they were infected by HCV; condomless anal intercourse (n=27, 53%), sharing sex toys (n=14, 27%). One-third (17%) reported not knowing.

D.Braun et al CID2018

Clinical Infectious Diseases

MAJOR ARTICLE

Shedding of Hepatitis C Virus Into the Rectum of HIV-infected Men Who Have Sex With Men

Andrew L. Foster,[1] Michael M. Gaisa,[1] Rosanne M. Hijdra,[1] Samuel S. Turner,[1] Tristan J. Morey,[1] Karen B. Jacobson,[1] and Daniel S. Fierer[1]

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Background. For over a decade we have known of an epidemic of sexually transmitted hepatitis C virus (HCV) infection among human immunodeficiency virus (HIV)-infected men who have sex with men (MSM), but there still remains significant controversy over which bodily fluid(s) are responsible for HCV transmission in these men.

Methods. We enrolled HIV-infected MSM with recent and chronic HCV infection and quantified HCV from rectal fluid obtained by blind swab. We compared the rectal HCV viral load (VL) with paired blood HCV VL.

Results. We found rectal HCV shedding in 20 (47%) of 43 men, only one (2%) of whom had visible bleeding. Detection of rectal HCV shedding was associated with blood VL > 5 $\log_{10}$ IU/mL ($p = .01$), and 85% with blood VL > 5 $\log_{10}$ IU/mL had rectal shedding. The HCV VL of the rectal fluid ranged from 2.6 to 5.5 $\log_{10}$ IU/mL. Based on the median rectal fluid VL, the surface of an average human penis would be exposed to at least 2,300 IU of HCV for the duration of anal intercourse.

Conclusion. This study provides the first direct evidence to our knowledge that a sufficient quantity of HCV is shed into the rectum in HIV-infected men with HCV infection to directly infect an inserted penis or be passed indirectly through fomite-like transmission to the rectum of sex partner. We must develop an appropriate public health campaign to educate MSM about these routes of HCV infection to reverse the HCV epidemic among HIV-infected MSM.

Open Forum Infectious Diseases

MAJOR ARTICLE

Shedding of Hepatitis C Virus in Semen of Human Immunodeficiency Virus-Infected Men

Samuel S. Turner,[1] Sara Gianella,[2] Marcus J-S. Yip,[1] Wouter O. van Seggelen,[1] Robert D. Gillies,[1] Andrew L. Foster,[1] Zachary R. Barbati,[1] Davey M. Smith,[2,3] and Daniel S. Fierer[1]

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Background. The epidemic of sexually transmitted hepatitis C virus (HCV) infection among human immunodeficiency virus (HIV)-infected men who have sex with men (MSM) has been documented for over a decade. Despite this, there is no consensus as to the risk factors for sexual acquisition of HCV in these men.

Methods. We obtained paired semen and blood samples at 2-week intervals from HIV-infected MSM with recent and chronic HCV infection and quantified HCV in semen.

Results. Hepatitis C virus was quantified in 59 semen specimens from 33 men. Hepatitis C virus was shed in 16 (27%) of semen specimens from 11 (33%) of the men. Median HCV viral load (VL) in semen was 1.49 $\log_{10}$ IU/mL. Hepatitis C virus VL in blood was significantly higher at the time of HCV shedding in semen than when HCV shedding in semen was not detected ($P = .002$). Furthermore, there was a significant correlation between the HCV VL in blood and semen overall ($r_s = 0.41$; $P = .001$), and in the subgroup with recent HCV infection ($r_s = 0.37$; $P = .02$), but not in the subgroup with chronic HCV infection ($r_s = 0.34$; $P = .1$).

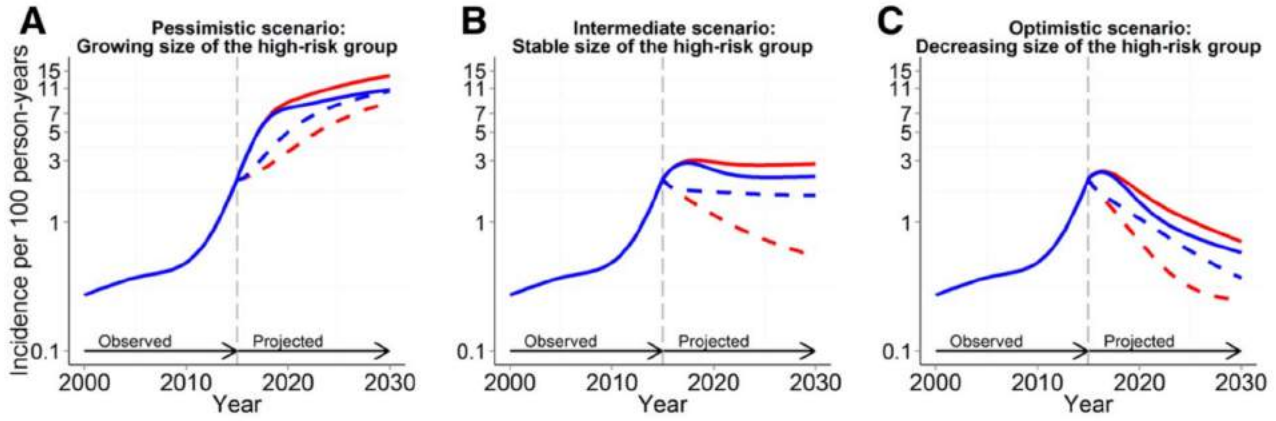
Conclusions. One third of HIV-infected MSM coinfected with HCV shed HCV into their semen. Based on the HCV VL in semen in this study, an average ejaculate would deliver up to 6630 IU of virus into the rectum of the receptive partner. Therefore, our data strongly support that condoms should be used during anal intercourse among MSM to prevent transmission of HCV.

HCV reinfection incidence among HIV+ MSM in Europe. (From Ingiliz P, Martin TC, Rodger A, et al. HCV reinfection incidence and spontaneous clearance rates in HIV-positive men who have sex with men in Western Europe. *Journal of hepatology.* Feb 2017;66(2):282–287; with permission.)

Centre	Incidence reinfections/100py (95% CI)	Number of reinfections	Person years follow up
Dusseldorf (n=59)	8.1 (4.6–14.3)	12	148
Hamburg (n=73)	5.0 (2.9–8.7)	13	258
Berlin (n=95)	8.2 (5.6–12.1)	26	316
Bonn (n=11)	4.8 (0.7–33.7)	1	21
London – Chelwest (n=190)	7.0 (5.3–9.1)	52	746
London – Royal Free (n=69)	5.7 (3.7–8.7)	21	369
Paris (n=27)	21.8 (11.3–41.8)	9	41
Vienna (n=28)	16.8 (8.7–32.3)	9	54

Martin et al 2018

Rationale for a behavioural intervention



Salazar-Vizcaya et al,
Hepatology, 2016

Hepatitis C among HIV negative MSM in the age of HIV pre-exposure prophylaxis (PrEP)

MSM starting preexposure prophylaxis are at risk of hepatitis C virus infection

Hoornenborg, Elske[a,b]; Achterbergh, Roel C.A.[b]; Schim van der Loeff, Maarten F.[a,c]; Davidovich, Udi[a]; Hogewoning, Arjan[b]; de Vries, Henry J.C.[b,d,e]; Schinkel, Janke[f]; Prins, Maria[a,c,*]; van de Laar, Thijs J.W.[g,*] on behalf of the Amsterdam PrEP Project team in the HIV Transmission Elimination AMsterdam Initiative, MOSAIC study group

18/375 (4.8%)tested positive for HCV at enrollment

	HCV-negative, $n=357$		HCV-positive, $n=18$		
	n	%	n	%	P^*
Age (years)					
Median (IQR)	40	33–48	33	28–42	0.019[a]
Self-declared ethnicity[b]					0.727
Western	300	85.2	14	82.4	
Non-Western	52	14.8	3	17.6	
Eligibility criteria for AMPrEP[c]					
STI[d]	124	34.7	11	61.1	0.041
Postexposure prophylaxis used	26	7.3	1	5.6	1.000
CAS with casual partners	340	95.2	18	100	1.000
HIV-positive partner with a detectable HIV RNA	9	2.5	0	0	1.000
Chosen daily PrEP	258	72.3	14	77.8	0.789
Number of anal sex partners[e]					
Median (IQR)	15	6–30	20	15–25	0.257[a]
Number reporting rCAS[e]	265	74.2	16	88.9	0.263
Number of rCAS acts[e]					
Median (IQR)	3	0–10	14	7–26	<0.001[a]
Any bacterial STI at PrEP start[f]	67	18.9	4	22.2	0.758
Any drug use during sex[e,g]	311	89.1	18	100	0.236
Injecting drug use[e,h]	11	3.1	4	23.5	0.003
Chemsex[e,h,i]	141	40.1	15	83.3	<0.001

AMPrEP, Amsterdam preexposure prophylaxis; CAS, condomless anal sex; HCV, hepatitis C virus; IQR, interquartile range; PrEP, preexposure prophylaxis; rCAS, receptive condomless anal sex; STI, sexually transmitted infection.
[a]Rank-sum test.
[b]Six missing.
[c]All eligibility reported over the preceding 6 months.
[d]Self reported rectal, urethral chlamydia, gonorrhea, or syphilis.
[e]In the previous 3 months.
[f]Two missing.
[g]Eight missing.
[h]Five missing.
[i]Chemsex is defined as the use of gamma-hydroxybutyrate/gamma-butyrolactone (GHB/GBL), methamphetamine, or mephedrone during sex.
*All P values are based on Fisher's exact test, except when indicated otherwise.
[#]HCV RNA and/or anti-HCV positive.

AIDS

MSM starting preexposure prophylaxis are at risk of hepatitis C virus infection

Hoornenborg, Elske; Achterbergh, Roel C.A.; Schim van der Loeff, Maarten F.; Davidovich, Udi; Hogewoning, Arjan; de Vries, Henry J.C.; Schinkel, Janke; Prins, Maria; van de Laar, Thijs J.W.; on behalf of the Amsterdam PrEP Project team in the HIV Transmission Elimination AMsterdam Initiative, MOSAIC study group

AIDS31(11):1603-1610, July 17th, 2017.

doi: 10.1097/QAD.0000000000001522

Baseline characteristics including sexually transmitted infections of hepatitis C virus-positive and hepatitis C virus-negative MSM starting preexposure prophylaxis in 2015/2016 in the Netherlands.

- Test for HCV recommended every 6 months
- 1/546 HCV positive, already known and treated

Lachmann et al unpublished

Stigma for HCV is now higher than for HIV among MSM

JIAS JOURNAL OF THE INTERNATIONAL AIDS SOCIETY Open Access

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Hepatitis C risk perceptions and attitudes towards reinfection among HIV-diagnosed gay and bisexual men in Melbourne, Australia

Sophia E Schroeder, Peter Higgs, Rebecca Winter, Graham Brown ... See all authors

First published: 21 May 2019 | https://doi.org/10.1002/jia2.25288

Stigma for HCV is now higher than for HIV among MSM

Acknowledgments

The patients of the SHCS

SWISS HIV COHORT STUDY

The clinicians, study nurses, laboratory members and researchers of the Swiss HIV Cohort Study centers

With special thanks to:

Dominique Braun, Jan Fehr, Huldrych Günthard, Christina Grube Division of Infectious Diseases, University Hospital Zurich
Roger Kouyos, Huyen Nguyen, Katharina Kusejko Division of Infectious Diseases, University Hospital Zurich, Zurich
Jürg Böni, Alexandra Trkola, Cyril Shah Institute of Medical Virology, University of Zurich
Markus Flepp, Anja Mönch Center of Infectious Diseases, Zurich
Marcel Stöckle, Rebekka Plattner Division of Infectious Diseases, University Hospital of Basel
Enos Bernasconi, Marina Russotti Division of Infectious Diseases, Regional Hospital of Lugano
Matthieu Rougemont, Yoana Dimitrova Division of Infectious Diseases, University Hospital of Geneva, Geneva
Julie Delaloye, Deolinda Alves University Hospital Lausanne, University of Lausanne
Charles Béguelin, Andri Rauch, Daniela Hirter Department of Infectious Diseases, University Hospital of Bern
Patrick Schmid, Matthias Hoffmann, Simone Kessler Division of Infectious Diseases, Cantonal Hospital of St. Gallen
Dunja Nicca, Patrizia Küenzler, Daneel Otterbech, Manuela Rasi University of Basel, and University Hospital Basel, Switzerland

Clinical Trials Center University Hospital Zurich

Maja Müller, Alessandra Matter

UniversityHospital Zurich

The funder of the study Merck Sharpe & Dohme

Erik Mossdorf, Silvana Renner, Daniele Viviani, Manfred Bögli

MSD INVENTING FOR LIFE