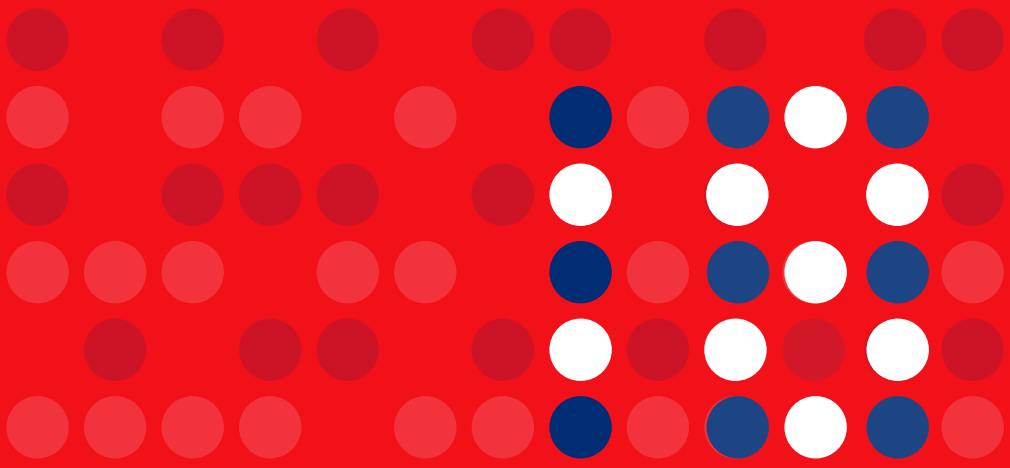
Human Immunodeficiency Virus (HIV)
infection in the Netherlands

HIV Monitoring

HIV Monitoring Report 2018

Chapter 8: The Amsterdam Cohort Studies on HIV infection: annual report 2017



About Stichting HIV Monitoring

Stichting HIV Monitoring (SHM), the Dutch HIV monitoring foundation, was founded in 2001 and appointed by the Dutch minister of Health, Welfare and Sport as the executive organisation for the registration and monitoring of HIV-positive individuals in the Netherlands.

SHM comprehensively maps the HIV epidemic and HIV treatment outcomes in the Netherlands, thereby contributing to the knowledge of HIV. In collaboration with the HIV treatment centres in the Netherlands, SHM has developed a framework for systematically collecting HIV data for the long-term follow up of all registered individuals. The Netherlands is the only country in the world to have such a framework, which enables healthcare professionals to aspire to the highest standard of HIV care.

In addition to national reports, healthcare professionals are provided with treatment centre-specific reports to enable them to monitor and optimise care provided in their centres. Moreover, upon request, SHM data are also made available for use in HIV-related research, both in the Netherlands and internationally. The outcome of SHM's research and international collaborations provides tangible input into policy guidelines and further improves HIV care in the Netherlands.

Our mission

To further the knowledge and understanding of all relevant aspects of HIV infection, including comorbidities and co-infections (such as viral hepatitis), in HIV-positive persons in care in the Netherlands.

HIV Monitoring

Monitoring Report 2018

Human Immunodeficiency Virus (HIV) Infection in the Netherlands

Interactive PDF user guide

This PDF allows you to find information and navigate around this document more easily.

Links in this PDF

Words and numbers that are underlined are links — clicking on them will take you to further information within the document or to a web page (which opens in a new window) if they are a url (e.g http://www.cdc.gov/hiv/guidelines/).

Reference numbers

Click on the reference numbers in the text to see the reference details on a web page (which opens in a new window).

Guide to buttons

Content page

Next chapter

Preceding chapter

You can also navigate using the bookmarks.

Acknowledgements

Authors: Ard van Sighem, Sonia Boender, Ferdinand Wit, Colette Smit, Amy Matser, Peter Reiss

Co-authors: Joop Arends, Ward van Bilsen, Kees Brinkman, Ashley Duits, Suzanne Geerlings, Gonneke Hermanides, Frank Kroon, Kees van Nieuwkoop, Eline Op de Coul, Jan Prins, Maria Prins, Clemens Richter, Annemarie van Rossum, Marc van der Valk, Anne Wensing, Diederik van de Wetering, Tom Wolfs

Production and support: Catriona Ester, Mireille Koenen, Yunka de Waart

Requests for digital copies: Stichting HIV Monitoring, Meibergdreef 9, 1105 AZ Amsterdam, the Netherlands
T +31 20 5664172
E: hiv.monitoring@amc.uva.nl, www.hiv-monitoring.nl

Visiting address: Stichting HIV Monitoring, Nicolaes Tulphuis, Tafelbergweg 51, 1105 BD Amsterdam, the Netherlands

KvK#: 34160453
Correspondence to: Peter Reiss, hiv.monitoring@amc.uva.nl

To cite this report, please use: van Sighem A.I., Boender T.S., Wit F.W.N.M., Smit C., Matser A., Reiss P. Monitoring Report 2018. Human Immunodeficiency Virus (HIV) Infection in the Netherlands. Amsterdam: Stichting HIV Monitoring, 2018. Available online at www.hiv-monitoring.nl

ISBN/EAN: 978-94-90540-09-8
First edition: November 2018
Editing: Sally H. Ebeling, Boston, MA, USA

Art Direction & DTP: Studio Zest, Wormer, the Netherlands

Special reports

8. The Amsterdam Cohort Studies on HIV infection: annual report 2017

Amy Matser, Ward van Bilsen and Maria Prins for the ACS

Introduction

The Amsterdam Cohort Studies (ACS) on HIV infection and AIDS were started shortly after the first cases of AIDS were diagnosed in the Netherlands. Since October 1984, men who have sex with men (MSM) have been enrolled in a prospective cohort study. A second cohort involving people who use drugs (PWUD) was initiated in 1985. In 2017, the cohorts reached 33 years of follow up. The initial aim of the ACS was to investigate the prevalence and incidence of HIV-1 infection and AIDS, the associated risk factors, the natural history and pathogenesis of HIV-1 infection, and the effects of interventions. During the past 33 years, these aims have remained primarily the same, although the emphasis of the studies has changed. Early on, the primary focus was to elucidate the epidemiology of HIV-1 infection, whereas later more in-depth studies were performed to investigate the pathogenesis of HIV-1 infection. In the past decade, research on the epidemiology of other blood-borne and sexually transmitted infections (STI) and their interaction with HIV has also become an important component of the ACS research programme.

From the outset, research in the ACS has taken a multidisciplinary approach, integrating epidemiology, social science, virology, immunology, and clinical medicine in one study team. This unique collaboration has been highly productive, significantly contributing to the knowledge and understanding of many different aspects of HIV-1 infection. This expertise, in turn, has contributed directly to advances in prevention, diagnosis, and management of HIV infection.

Collaborating institutes and funding

Within the ACS, different institutes collaborate to bring together the data and biological sample collections and to conduct research. These include the Public Health Service of Amsterdam (*Gemeentelijke Gezondheidsdienst Amsterdam*; GGD Amsterdam): Department of Infectious Diseases, Research and Prevention; the Amsterdam University Medical Centers (Academic Medical Center [AMC] site): Departments of Medical Microbiology, Experimental Immunology, and Internal Medicine [Division of Infectious Disease]; the Emma Kinderziekenhuis (paediatric HIV treatment centre); Stichting HIV Monitoring (SHM); MC Jan van Goyen: Department of Internal Medicine; and the Hiv Focus Centrum (DC Klinieken Lairesse). From the start, Sanquin Blood Supply Foundation has been involved

in the ACS and, since 2007, has provided financial support for the biobank of viable peripheral blood mononuclear cells (PBMC) at the AMC's Department of Experimental Immunology. In addition, there are numerous collaborations between the ACS and other research groups both within and outside the Netherlands. The ACS is financially supported by the Centre for Infectious Disease Control Netherlands of the National Institute for Public Health and the Environment (*Centrum voor Infectieziektenbestrijding-Rijksinstituut voor Volksgezondheid en Milieu*, RIVM-CIb).

Ethics statement

The ACS have been conducted in accordance with the ethical principles set out in the declaration of Helsinki. Participation in the ACS is voluntary and written informed consent is obtained from each participant. The most recent version was approved by the AMC medical ethics committee in 2007 for the MSM cohort and in 2009 for the PWUD cohort.

The ACS in 2017

The cohort of men who have sex with men

As of 31 December 2017, 2,796 MSM were included in the ACS. Every three to six months, participants complete a standardised questionnaire designed to obtain information regarding medical history, sexual and drug use behaviour, underlying psychosocial determinants, healthcare use, depression, psychological disorders, and demographics. Blood is also collected for diagnostic tests and storage. Of the 2,796 MSM, 607 were HIV-positive at entry into the study, and 253 seroconverted during follow up. In total, the GGD Amsterdam was visited 58,410 times by MSM.

From 1984 until 1985, men who had had sexual contact with a man in the preceding six months were enrolled independent of their HIV status. In the period 1985 – 1988, HIV-negative men of all age groups were eligible to participate if they lived in or around Amsterdam and had had at least two male sexual partners in the preceding six months. From 1988 to 1998, the cohort was also open for HIV-positive MSM. During the period 1995–2004, only men aged ≤30 years with at least one male sexual partner in the previous six months could enter the study. From 2005 to 2013, recruitment has been open to MSM of all ages with at least one sexual partner in the preceding six months.

Since 2013, HIV-negative men of all age groups have been eligible to participate in the ACS if they live in or are closely connected with the city of Amsterdam and have had at least one male sexual partner in the preceding six months. In line

with the advice issued by the international scientific advisory committee in 2013, the cohort now makes additional efforts to recruit young HIV-negative MSM (age ≤30 years).

HIV-seroconverters within the ACS remained in the cohort until 1999, when follow up of a selection of HIV-positive MSM was transferred to the MC Jan van Goyen. In 2003, the *Hiv Onderzoek onder Positieven* (HOP) protocol (HIV Research in Positive Individuals) was initiated. Individuals with a recent HIV infection at study entry at the GGD Amsterdam and those who seroconverted for HIV during follow up within the cohort continue to return for study visits at the GGD Amsterdam or at an HIV treatment centre. Blood samples from these participants are stored. All behavioural data are collected on a six-monthly basis by questionnaires, coordinated by the GGD Amsterdam, and clinical data are provided by SHM.

In 2017, 701 HIV-negative and 73 HIV-positive MSM were in active follow up at the GGD Amsterdam; in other words, these men had visited the cohort at least once in the current or preceding year. Of the 73 HIV-positive MSM, 73 had filled in behavioural questionnaires. In addition to the HIV-positive MSM visiting the GGD Amsterdam, 256 HIV-positive MSM were followed outside the GGD Amsterdam at the MC Jan van Goyen or the DC Klinieken Lairesse-Hiv Focus Centrum in Amsterdam. Behavioural questionnaires were filled in by 35 of these men. In 2017, 60 new HIV-negative MSM were recruited. The median age in this group was 29.5 years (interquartile range [IQR] 25.7-34.3), while that of the total group of MSM in active follow up was 42.5 years at their last visit (IQR 34.7-49.5). The majority (85.0%) of the total group were born in the Netherlands and 83.8% were residents of Amsterdam. Finally, 75.3% of the participants had a college degree or higher.

The cohort of drug users

As of 31 December 2016, 1,680 PWUD were included in the ACS and contributed 28,194 visits. In 2014, the cohort was closed for new participants. Regular follow up of drug users continued until February 2016. All PWUD who had ever participated in the ACS were then invited for an end-of-study interview and follow up of PWUD was successfully ended in July 2016. Of the 1,680 PWUD, 323 were HIV-positive at entry, and 99 seroconverted during follow up. The last HIV seroconversion was seen in 2012. By 31 December 2016, 576 deaths had been confirmed among PWUD. The median age of the PWUD who visited the ACS in 2016 was 55 (IQR 49-59), 8.1% had attained a college degree or higher, and 63.4% were born in the Netherlands.

ACS biobank

The ACS visits, together with data collection from several subgroup studies and affiliated studies embedded in the ACS, have resulted in a large collection of stored samples. The ACS biobank includes plasma/serum and PBMC samples collected within the context of the Primo-SHM study (a national randomised study comparing the effects of early temporary antiviral therapy with that of no therapy among patients who presented with primary HIV-1 infection at the AMC HIV outpatient clinic and ACS seroconverters). These samples are stored at the AMC. At present, biological samples are still being collected prospectively for Primo-SHM participants visiting the AMC clinic until one year after they have recommenced therapy. The ACS biobank also includes plasma and PBMC samples that were collected from HIV-positive and HIV-exposed children at the Emma Kinderziekenhuis in the AMC until 2008. All stored samples are available for ACS research.

Subgroup studies and affiliated studies

AGE$_h$IV cohort study

The AGEhIV cohort study (a collaboration between the AMC Departments of Infectious Diseases and Global Health, the Amsterdam Institute of Global Health and Development, the GGD Amsterdam, and SHM) was started in October 2010. The aim of the study is to assess the prevalence and incidence of a broad range of comorbidities and known risk factors for these comorbidities in HIV-positive individuals aged ≥45 years, and to determine the extent to which comorbidities, their risk factors and their relation to quality of life differ between HIV-positive and HIV-negative groups.

Participants undergo a comprehensive assessment for comorbidities and complete a questionnaire at intake and follow-up questionnaires every 2 years afterwards. In total, 598 HIV-1-positive participants and 550 HIV-negative individuals completed a baseline visit between October 2010 and September 2012. HIV-1-positive participants were included through the AMC HIV outpatient clinic and HIV-negative participants from similar risk groups through the STI clinic at the GGD Amsterdam (n=486) or the ACS (n=64). All participants were aged ≥45 years and were as comparable as possible with respect to age, gender, ethnicity, and risk behaviour. By the end of 2017, 340 HIV-1-positive participants and 308 initially HIV-negative individuals had completed the fourth follow-up visit. The fourth visits will be completed in the first half of 2018, and the fifth study round will start in the fall of 2018.

H2M cohort study

From 2010 to 2013, the H2M (HIV and human papillomavirus [HPV] in MSM) cohort study was conducted in a subset of the HIV-negative (n=459) and HIV-positive (n=40) participants of the ACS who were in active follow up, and also among patients of the STI clinic of GGD Amsterdam and MC Jan van Goyen. The aim of the study was to compare the prevalence, incidence, and clearance of high-risk (hr) HPV infections between HIV-negative and HIV-positive MSM.

H2M2 study

In 2015, a study based on the H2M cohort was initiated to identify potential predictors for high-grade anal intra-epithelial neoplasia (HGAIN) in the HIV-positive MSM population. This study, the H2M2, is an Aidsfonds-supported project and a collaboration between the GGD Amsterdam, AMC, DC Klinieken Lairesse, the RIVM-CIb, DDL Diagnostic Laboratory, VUmc and the DKFZ German Cancer Research Center. The study includes a subset of the HIV-positive ACS participants (n=19). Analyses showed that among 193 HIV-positive MSM, persistence of an HPV type in the preceding years was strongly associated with an HGAIN caused by that type. Neither HPV-specific antibodies, nor the HPV viral load of anal infections was predictive for HGAIN. Analyses among a larger group of HIV-positive MSM showed that there are no demographic, behavioural, or HIV-related variables that usefully may predict the presence of HGAIN.

H2M3 study

Since September 2014, collection of anal and genital swabs has been resumed in all consenting ACS participants. The key aim of this second new study (the H2M3 study), which builds on the H2M study, is to examine long-term incidence and clearance of anal and penile hrHPV infections. Between September 2014 and November 2015, 700 men provided samples for HPV testing during ACS cohort visits. Of these, 434 (62%) were already participating in the H2M study (recruited 2010-2011), and 266 (38%) were new participants who joined the ACS after inclusion in the H2M study had ended. Samples at two time points (6 months apart) have been tested in the laboratory for HPV DNA, and analyses of anal samples have been conducted. This study found that a quarter of MSM had not cleared an anal HPV-16 infection after three years; thus, persistence of anal HPV is common. Twenty-two percent of men who were not infected with HPV-16 at baseline acquired an anal HPV-16 infection over a four-year period. Thus, even in highly pre-exposed men, the incidence rate of hrHPV infections is high. In 2017, collection of anal and penile swabs from ACS participants continued and these will be stored for future studies. The H2M3 study is a collaboration between GGD Amsterdam, ACS, and Crucell.

AMPrEP project in H-TEAM

The Amsterdam pre-exposure prophylaxis (AMPrEP) project is a prospective, longitudinal, open-label demonstration study. The aim of the study is to assess the uptake and acceptability of daily versus event-driven PrEP among MSM and transgender persons (TG) at increased risk for HIV infection, as part of a comprehensive HIV reduction package offered at a large STI clinic.

In total, 374 MSM and 2 TG were enrolled between August 2015 and May 2016 at the STI outpatient clinic of the GGD Amsterdam. In 2017, 35 ACS participants also participated in the AMPrEP project at their own initiative. Participants were asked to return for follow-up visits one month after the PrEP start visit and then every three months. At every visit, participants fill in questionnaires on risk behaviour, adherence and general wellbeing and are screened for STI and HIV. Participants were provided with PrEP until June 2018.

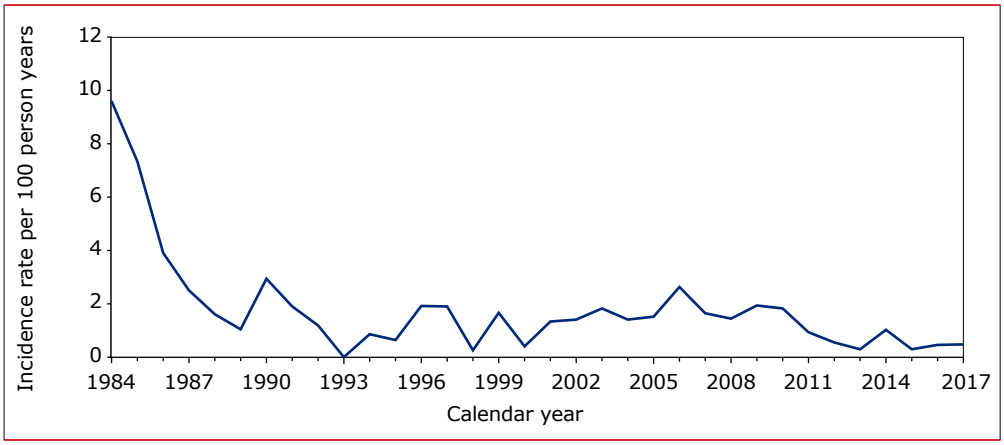
The AMPrEP project is part of the HIV Transmission Elimination Amsterdam (H-TEAM) initiative, a multidisciplinary and integrative approach to stop the epidemic (www.hteam.nl).

The HIV epidemic

HIV incidence

In 2017, 2 MSM participating in the ACS seroconverted for HIV. The observed HIV incidence among MSM has remained relatively stable in recent years and was 0.5 per 100 person years in 2017. *Figure 1* shows the yearly observed HIV incidence rate for MSM from the start of the ACS through 2017, respectively.

Figure 1: HIV incidence per calendar year in the Amsterdam Cohort Studies (ACS) among men who have sex with men (MSM), 1984–2017.



Transmission of therapy-resistant HIV strains

In 2018, no surveillance of transmission of drug-resistant HIV-1 strains was performed.

Combination antiretroviral therapy (cART) uptake

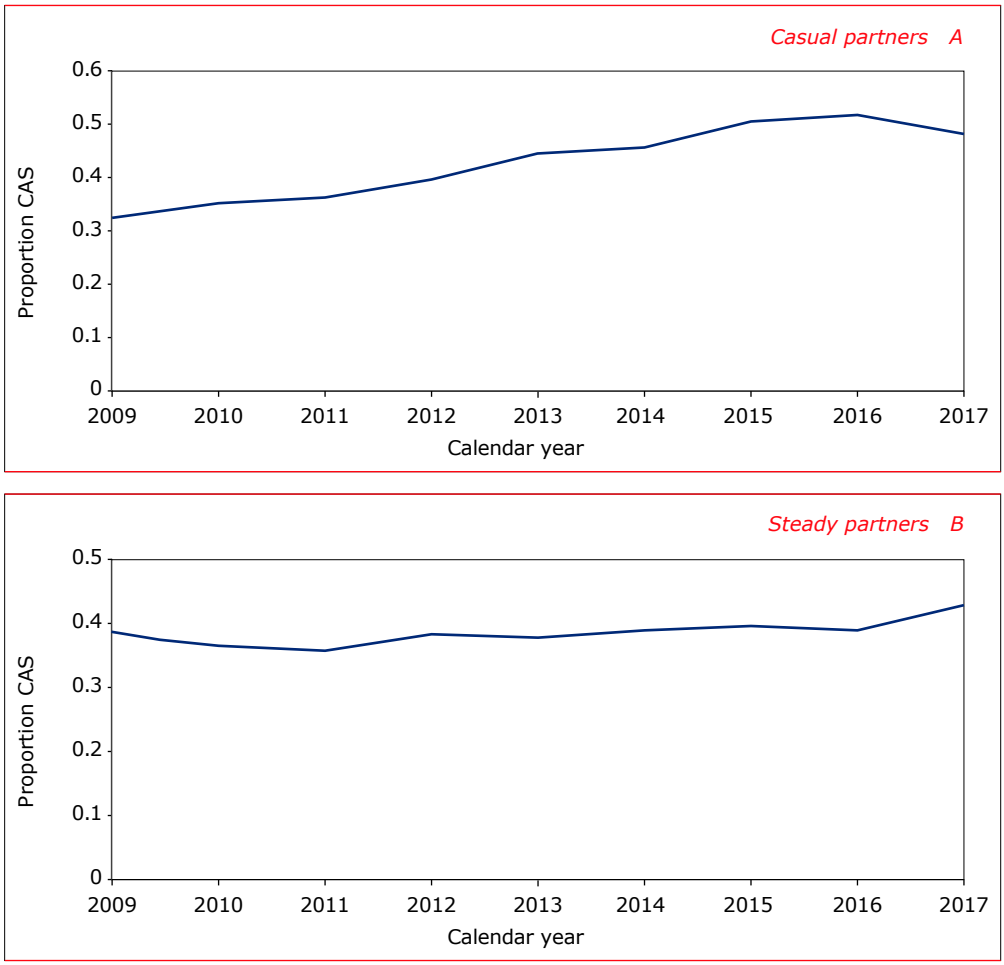
Of the 344 HIV-positive MSM included in the ACS, treatment data were available for 329 MSM in 2017. Of these, 306 (94%) received some form of antiretroviral therapy in 2017.

Risk behaviour of MSM in ACS

Condomless anal sex (CAS) with a steady partner was reported by 256/583 (43.9%) HIV-negative MSM in active follow up at their last cohort visit, compared with 209/461 (45.3%) who reported CAS with a casual partner.

Trends in CAS among HIV-negative MSM participating in the ACS, especially CAS with casual partners, continue to show a gradual increase from 2009 onwards. (*Figure 2*). The use of pre-exposure prophylaxis was reported by 60/655 (9.2%) HIV-negative MSM in active follow up.

Figure 2: *Trend in proportion of condomless anal sex (CAS) with A) casual partners and B) steady partners among HIV-negative men who have sex with men (MSM) in the Amsterdam Cohort Studies (ACS), 2009-2017.*



Legend: *CAS=condomless anal sex,*

STI screening among MSM in ACS

Since October 2008, all MSM in the ACS have been routinely screened for chlamydia and gonorrhoea by polymerase chain reaction (PCR) techniques using urine samples and pharyngeal and rectal swabs. Cases of syphilis are detected by Treponema pallidum haemagglutination assay (TPHA). In 2017, 684 MSM from the ACS were screened for STIs. The overall prevalence of any STI (i.e., chlamydia, gonorrhoea, syphilis, and HCV) was 14.9% (93/625) among HIV-negative MSM and 39.0% (23/59) among HIV-positive MSM.

ACS 2017 research highlights

DC-SIGN polymorphisms associate with risk of hepatitis C virus infection among men who have sex with men but not among injecting drug users

We aimed to identify whether genetic polymorphisms within L-SIGN or DC-SIGN correlate with hepatitis C virus (HCV) susceptibility. A men who have sex with men (MSM) and an injecting drug users (IDU) cohort of HCV cases and multiple-exposed uninfected controls were genotyped for numerous L-SIGN and DC-SIGN polymorphisms. DC-SIGN single nucleotide polymorphisms (SNPs) –139, –871, and –939 correlated with HCV acquisition in the MSM cohort only. When the same SNPs were introduced into a transcription activity assay they demonstrated a reduction in expression with predicted alteration in binding of transcription factors. DC-SIGN promoter SNPs correlated with risk of HCV acquisition via sexual but not IDU exposure, likely through modulation of mRNA expression levels.

Steba GS, Koekkoek SM, Vanhommerig JW, Brinkman K, Kwa D, Van Der Meer JTM, Prins M, Berkhout B, Tanck M, Paxton WA, Molenkamp R, Schinkel J; MSM Observational Study of Acute Infection with Hepatitis C (MOSAIC) Study Group and Amsterdam Cohort Studies (ACS).

J Infect Dis. 2018 Jan 17;217(3):353-357. doi: 10.1093/infdis/jix587

HIV and hepatitis C treatment uptake among people who use drugs participating in the Amsterdam Cohort Studies, 1985–2015

HIV-positive people who use drugs (PWUD) start antiretroviral therapy (ART) later than other risk groups, and among HCV-positive PWUD, HCV treatment uptake is low. Since 2014, HCV direct-acting antivirals (DAAs) are available and reimbursed in the Netherlands. Temporal trends in ART and HCV-treatment uptake among PWUD in the ACS from 1985 through 2015 were described. Treatment uptake was defined by: treatment initiation (the proportion initiating any kind of ART/HCV treatment when treatment-naïve) and coverage (the proportion ever treated for HIV/HCV) among all HIV-/HCV-RNA-positive PWUD. Each was calculated per calendar year. We estimated the cumulative probability of ART uptake in the pre-

cART (<1996) and cART era (January 1, 1996) among HIV seroconverters, with all-cause mortality as a competing risk. Of 1,305 PWUD, 263 (20.2%) were HIV-antibody positive and 810 (62.1%) were HCV-antibody positive, at study entry. ART coverage increased over time, from 5.7% in 1990 and 42.2% in 1996 to 91.7% in 2015. The proportion initiating ART ranged from 4.8% in 1990 to 33.3% in 2011. At 8 years after HIV seroconversion, cumulative probability of ART uptake was 42.5% in the pre-cART era and 61.5% in the cART era. HCV treatment initiation peaked in 2006 (9.7%). HCV-treatment coverage was 43.9% in 2015 but lower among HIV-coinfected (23.5%) than HCV-monoinfected PWUD (52.5%). In 2015, 3.0% initiated HCV treatment with DAAs. We observed an increase in ART and HCV-treatment coverage among PWUD over time. As expected, ART uptake was higher in the cART era than the pre-cART era. Although in 2015 HCV treatment coverage was relatively high, DAA uptake was still low.
van Santen DK, van der Helm JJ, Lindenburg K, Schim van der Loeff M, Prins M. *Int J Drug Policy.2017 Sep;47:95-101. doi: 10.1016/j.drugpo.2017.05.026. Epub 2017 Jun 9.*

Steering committee

In 2017, the steering committee met three times. Nine proposals for use of data and/or samples (serum/PBMC) were submitted to the committee: Two from the AMC Medical Microbiology department, five from the AMC Experimental Immunology, and two from GGD Amsterdam. Three of the proposals were collaborations with groups outside the ACS. Seven requests were approved of which two after major revisions recommended by the ACS steering committee; for the remaining 2 proposals, pilot experiments were requested.

Publications in 2017 that include ACS data

Sexual risk behaviour trajectories among MSM at risk for HIV in Amsterdam, the Netherlands
Basten M, Heijne JCM, Geskus R, Den Daas C, Kretzschmar M, Matser A.
AIDS. 2018 Jun 1;32(9):1185-1192. doi: 10.1097/QAD.0000000000001803

Reference curves for CD4 T-cell count response to combination antiretroviral therapy in HIV-1-infected treatment-naïve patients
Bouteloup V, Sabin C, Mocroft A, Gras L, Pantazis N, *et al.* Standard Reference. Distribution of CD4 Response to HAART Project Team for the Collaboration of Observational HIV Epidemiological Research Europe (COHERE) in EuroCoord.
HIV Med 2017 Jan;18(1):33-44

From clinical sample to complete genome: comparing methods for the extraction of HIV-1 RNA for high-throughput deep sequencing
Cornelissen M, Gall A, Vink M, Zorgdrager F, Binter S, *et al.* BEEHIVE Consortium.
Virus Res. 2017 Jul 15;239:10-16. doi: 10.1016/j.virusres.2016.08.004. Epub 2016 Aug 4

NK cells in self-limited HCV infection exhibit a more extensively differentiated, but not memory-like, repertoire
de Groen RA, Groothuismink ZMA, van Oord G, Kootstra NA, Janssen HLA, *et al.*
J Viral Hepat. 2017 Nov;24(11):917-926. doi: 10.1111/jvh.12716. Epub 2017 May 17

Analysis of resistance-associated substitutions in acute hepatitis C virus infection by deep sequencing across six genotypes and three continents
Eltahla AA, Rodrigo C, Betz-Stablein B, Grebely J, Applegate T, *et al.* InC3 Study Group.
J Viral Hepat. 2017 Jan;24(1):37-42. doi: 10.1111/jvh.12615. Epub 2016 Sep 25

Hepatitis C virus prevalence and level of intervention required to achieve the WHO targets for elimination in the European Union by 2030: a modelling study
European Union HCV Collaborators.
Lancet Gastroenterol Hepatol. 2017 May;2(5):325-336. doi: 10.1016/S2468-1253(17)30045-6. Epub 2017 Mar 15

HIV-1 blocks the signaling adaptor MAVS to evade antiviral host defense after sensing of abortive HIV-1 RNA by the host helicase DDX3
Gringhuis SI, Hertoghs N, Kaptein TM, Zijlstra-Willems EM, Sarrami-Forooshani R, *et al.*
Nat Immunol. 2017 Feb;18(2):225-235. doi: 10.1038/ni.3647. Epub 2016 Dec 26

Anal HPV 16 and 18 viral load: a comparison between HIV-negative and HIV-positive MSM and association with persistence
Marra E, King A, van Logchem E, van der Weele P, Mooij SH, *et al.*
J Med Virol. 2018 Jan;90(1):76-83. doi: 10.1002/jmv.24898. Epub 2017 Oct 17

Design and crystal structure of a native-like HIV-1 envelope trimer that engages multiple broadly neutralizing antibody precursors in vivo
Medina Ramirez M, Garces F, Escolano A, Skog P, de Taeye SW, *et al.*
J Exp Med. 2017 Sep 4;214(9):2573-2590. doi: 10.1084/jem.20161160. Epub 2017 Aug 28

Multiplex flow cytometry-based assay to study the breadth of antibody responses against E1E2 glycoproteins of hepatitis C virus
Merat SJ, van de Berg D, Bru C, Yasuda E, Breij E, *et al.*
J Immunol Methods. 2018 Mar;454:15-26. doi: 10.1016/j.jim.2017.07.015. Epub 2017 Aug 30

Immunological and virological response to antiretroviral treatment in migrant and native men and women in Western Europe; is benefit equal for all?
Migrant Health Working Group for the Collaboration of Observational HIV Epidemiological Research in Europe (COHERE) in EuroCoord.
HIV Med. 2018 Jan;19(1):42-48. doi: 10.1111/hiv.12536. Epub 2017 Jul 25

Spontaneous clearance of hepatitis C virus infection among human immunodeficiency virus-infected men who have sex with men
Newsum AM, Schinkel J, van de Laar TJW, van der Meer JTM, Prins M.
Open Forum Infect Dis. 2017 Jun 16;4(2):ofx090. doi: 10.1093/ofid/ofx090. eCollection 2017 Spring

Phylogenetic analysis of full-length, early infection, hepatitis C virus genomes among people with intravenous drug use: the InC(3) Study
Rodrigo C, Eltahla AA, Bull RA, Luciani F, Grebely J, *et al.*; InC3 Collaborative.
J Viral Hepat. 2017 Jan;24(1):43-52. doi: 10.1111/jvh.12616. Epub 2016 Nov 3

DC-SIGN polymorphisms associate with risk of hepatitis C virus infection among men who have sex with men but not among injecting drug users
Steba GS, Koekkoek SM, Vanhommerig JW, Brinkman K, Kwa D, *et al.*
J Infect Dis. 2018 Jan 17;217(3):353-357. doi: 10.1093/infdis/jix587

Lack of decline in hepatitis C virus incidence among HIV-positive men who have sex with men during 1990-2014
van Santen DK, van der Helm JJ, Del Amo J, Meyer L, D'Arminio Monforte A, *et al.*; CASCADE Collaboration in EuroCoord.
J Hepatol. 2017 Aug;67(2):255-262. doi: 10.1016/j.jhep.2017.03.038. Epub 2017 Apr 12

HIV and hepatitis C treatment uptake among people who use drugs participating in the Amsterdam Cohort Studies, 1985-2015
van Santen DK, van der Helm JJ, Lindenburg K, Schim van der Loeff M, Prins M.
Int J Drug Policy. 2017 Sep;47:95-101. doi: 10.1016/j.drugpo.2017.05.026. Epub 2017 Jun 9

CD4 cell count response to first-line combination ART in HIV-2+ patients compared with HIV-1+ patients: a multinational, multicohort European study
Wittkop L, Arsandaux J, Trevino A, Schim van der Loeff M, Anderson J, *et al.* On half of the COHE in EuroCoord and ACHIeV2e Study Group.
J Antimicrob Chemother. 2017 Oct 1;72(10):2869-2878. doi: 10.1093/jac/dkx210

Theses in 2017 that include ACS data

S.W. de Taeye – 9 March 2017: Stabilization of HIV-1 envelope glycoprotein trimers to induce neutralizing antibodies. University of Amsterdam. Supervisors: Prof. B. Berkhout & Prof. R.W. Sanders