



## Detection of Hepatitis C Virus (HCV) in semen from HIV- infected men who have sex with men (MSM) during acute HCV infection

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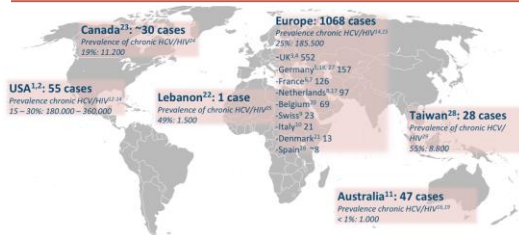
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## Epidemic of HCV in HIV-MSM



European AIDS Treatment Network (NEAT)

1:Luettkemeyer JMS 2006; 2:Cox Gastroenterology 2008; 3:Graudon Sex Transm Infect 2008; 4:Ruf Eurosurveill 2008; 5:Vogel CID 2009; 6:Gambo, Euro Surveill 2009; 7:Morris Eur J Gastro Hepat 2011; 8:Edwards AIDS 2009; 9:Reusch CID 2009; 10:Galici 4th Work. HIV & Hep. Conf. 2008; 11:Ma News CID 2009; 12:Sherran CID 2002; 13:Backus JMS 2005; 14:UNAIDS Report 2008; 15:Soriano JID 2008; 16:Ma News CID 2011; 17:Avonds Neth J Med 2011; 18:Neukam HIV Med 2011; 19:Piabero PLoS One 2011; 20:Bo, Euro Surveill 2010; 21:Barbot Sexual JID 2011; 22:Dionne-Osim Lancet Infect Dis 2009; 23:Hull personal conversaCon 2011; 24:Remis Public Health Agency of Canada 2002; 25:UNGASS Country progress Report 2010; 26:Soriano personal conversaCon 2011; 27:Boesecke 18thCROI Boston 2011 abstract #113; 28:Sun Liver InternatJornal 2011; 29:Lee J F Med Assoc 2008

## Disclosure of interest

- No financial disclosures to report.

## Sexual transmission of HCV in HIV-MSM

- Traditional view = HCV transmission via parenteral exposures
- HOWEVER:** distinct **absence of parenteral risk factors** (eg. IDU)
- Incident HCV-infection associated with:
  - Receptive unprotected-anal-intercourse (UAI) <sup>1,2,3</sup>
  - Receptive UAI with ejaculation (but not without) <sup>4</sup>
  - Douching prior to anal intercourse <sup>1</sup>

**Transmission via semen?**

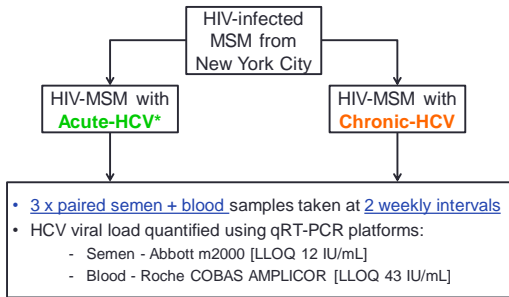
## HCV in semen

- 15-20 studies
- Detection rates: 12-36% (chronic-HCV)
- Detection of HCV in semen associated with:
  - ? HIV-infection <sup>5,6</sup>
  - ? Blood HCV viral load (VL) <sup>5,7</sup>
  - ? Acute HCV infection <sup>8</sup>
- Acute infection poorly characterized

## Aim of study

- To compare levels of seminal HCV between HIV-infected MSM with acute & chronic HCV infection.

## Methods



## Results – Baseline characteristics

	Acute	Chronic	p value
No. of participants	21	12	-
Median age (IQR)	36 (31-46)	52 (38-55)	<b>0.007</b>
HCV infection no.			
Primary	17	12	0.271
Re-infection	4	0	
Genotype (%) 1a	20 (95)	9 (75)	0.13
Median blood HCV VL log IU/mL (IQR)	5.5 (3.8-6.2)	6.6 (6.2-6.9)	<b>0.006</b>
Median ALT, U/L (IQR)	231 (87-492)	62 (46-105)	<b>0.001</b>

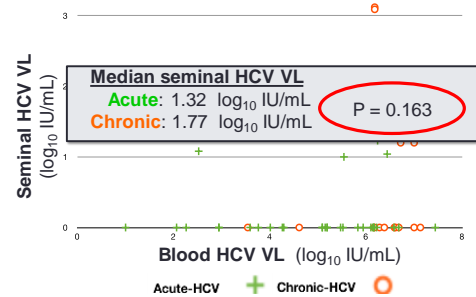
\*IQR = interquartile range

## Results – Detection of seminal HCV

	Detected	Not detected	p value
No. of participants (%)	11 (33)	12 (67)	-
No. of semen samples (%)	16 (27)	43 (73)	-
Median Age (IQR)	43 (35-49)	37 (33-46)	0.256
HCV Status			
Acute HCV (%)	8 (21)	30 (79)	0.159
Chronic HCV (%)	8 (38)	13 (62)	
Median blood HCV VL log IU/mL (IQR)	6.4 (6.2-6.9)	5.5 (4.3-6.4)	<b>0.002</b>
Median ALT, U/L (IQR)	107 (66-507)	99 (60-222)	0.302

\*IQR = interquartile range

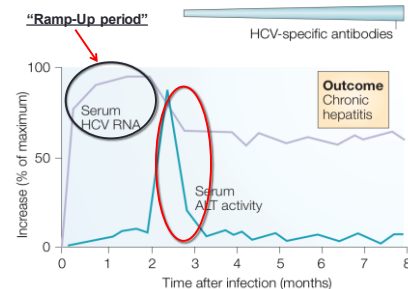
## Results – Semen & Blood HCV VLs



## Discussion

- No significant differences between acute & chronic seminal HCV measures
- Results comparable to previous studies
- Seminal HCV levels likely determined by corresponding blood HCV level
- Blood HCV levels are highest during early 'acute' HCV
  - > ? Increased infectiousness

## Discussion



Rehermann & Nascimbeni, 2005

## Conclusion

- Epidemic of HCV in HIV-MSM is ongoing
- Seminal HCV has been implicated in sexual transmission
- Detection of seminal HCV during acute & chronic HCV-infection reinforces importance of protected sex amongst HIV-MSM
- Future research should focus on analysis of seminal HCV levels during the 'ramp-up' phase of acute HCV

## Acknowledgements

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- The team of collaborating researchers at The University of California, San Diego, CA, US: David Smith & Sara Gianella.
- The patients and staff of The Mount Sinai Hospital, New York, NY, US

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