






اپیدمیولوژی عفونت‌های منتقله از خون (در ایران و خراسان رضوی)

بخش اول - هیپاتیت‌های ویروسی ۲. هیپاتیت C

مرکز تحقیقات عفونت‌های منتقله از خون
سازمان جهاددانشگاهی خراسان رضوی

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Epidemiology of HCV infection

Worldwide, 71 million (62-79 million) persons are chronically infected with HCV, corresponding to a prevalence of 1.0% (0.8-1.1%)

Nearly 400 000 people die each year from hepatitis C, mostly from cirrhosis and HCC.

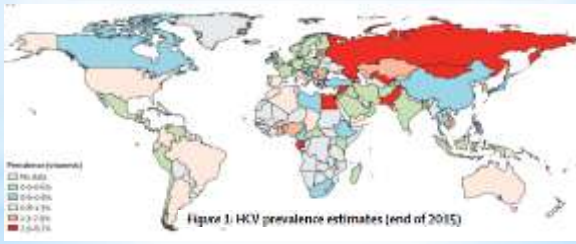
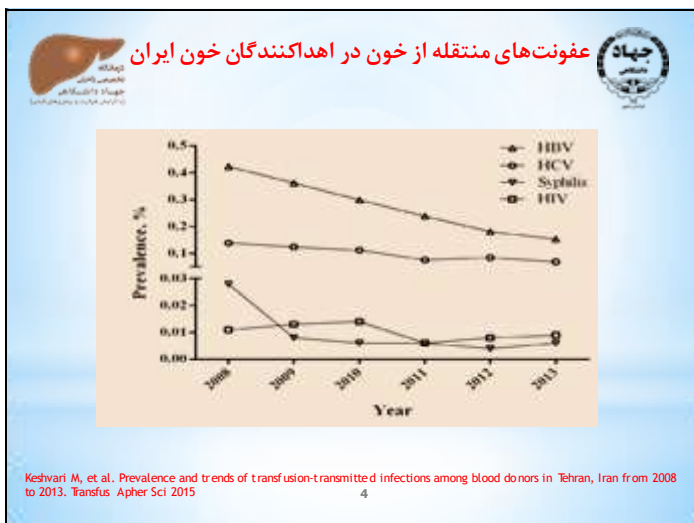


Figure 1. HCV prevalence estimates (end of 2015)

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Razavi H, et al. Global prevalence and genotype distribution of hepatitis C virus infection in 2015: a modelling study. *Lancet Gastroenterol Hepatol* 2017;2(3):161-176.,

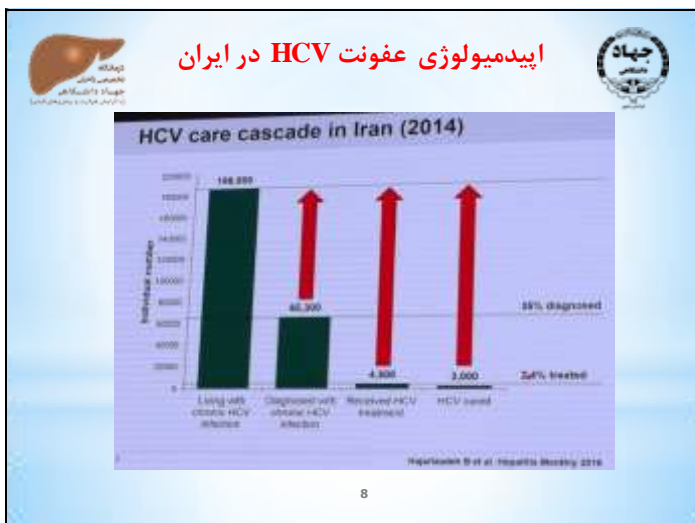


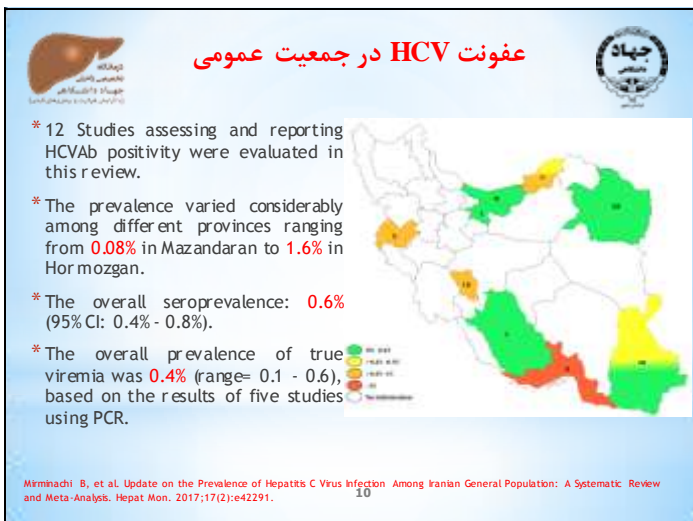
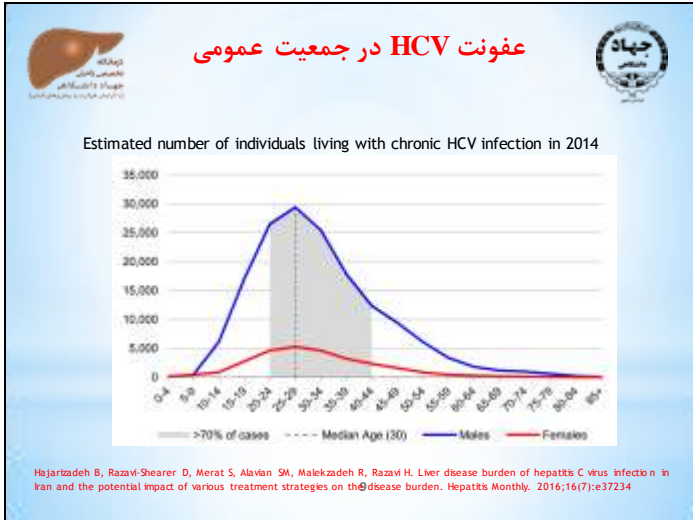







اپیدمیولوژی HCV در ایران

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عفونت HCV در گروه‌های کم خطر



Populations at low risk

- * Blood donors, children, healthy adults, pregnant women, and army recruits
- * Pooled HCV prevalence: **0.3% (95% CI: 0.2-0.4%)**

Study group	No. of measures	Range (%)	Median (%)
Blood donors	72	0 - 3.1	0.3
pregnant women	6	0 - 0.8	0.3
Other populations	44	0 - 2.4	0.5
Total	122	0 - 3.1	0.3

Mahmud S, et al. The epidemiology of hepatitis C virus in Iran: Systematic review and meta-analyses. Scientific Reports, 2018; 8:150

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عفونت HCV در گروه‌های پرخطر



Population at high risk

- * HIV patients, PWID, hemodialysis, hemophilia, and thalassemia patients, and patients with bleeding disorders
- * Pooled HCV prevalence: **32.1% (96% CI: 28.1-36.2%)**, PWID: **52.2% (46.9%-57.5%)**

Study group	No. of measures	Range (%)	Median (%)
Hemodialysis patients	41	0 - 31.4	8.3
Thalassemia patients	58	0 - 68.9	16.6
Hemophilia patients	25	6 - 90	54
PWID	56	11.3 - 88.9	51.4
HIV+ patients	25	3.9 - 89.3	67.7
Total	208	0 - 90	26.3

Mahmud S, et al. The epidemiology of hepatitis C virus in Iran: Systematic review and meta-analyses. Scientific Reports, 2018; 8:150

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عفونت HCV در گروه‌های پرخطر



* IDUs, prisoners, drug-dependent individuals, drug-dependent prisoners, FSWs

* 46 records from 2003 to 2016 with 34,755 participants

Study group	pooled (%)	CI 95%(%)
IDUs	41.3	29.8 - 53.3
Prisoners	22.9	13.5 - 33.8
drug-dependent prisoners	24.6	36 - 58
drug-dependent	16.2	12.6 - 20.1
FSWs	8.12	4.4-13.4
Total	32.3	26 - 29

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Nematollahi S, et al. Prevalence of hepatitis C virus infection among high-risk groups in Iran: a systematic review and meta-analysis. *Public Health* 161,2018; 90-98.






عفونت HCV در معتادین تزریقی

* 13,821 drug users outside of prison from 24 original studies during 2001-2012

History		pooled (%)	CI 95%(%)
Injection	Yes	45	37-54
	No	8	4-13
IDU + Imprisonment	Yes	58	39-77
	No	44	20-68
IDU + Needle sharing	Yes	57	41-71
	No	49	26-71
IDU + Tattoos	Yes	72	55-88
	No	55	40-70

Malekinejad M, et al. High hepatitis C virus prevalence among drug users in Iran: systematic review and meta-analysis of epidemiological evidence (2001-2012). *International Journal of Infectious Diseases* 40(2015) 116-130.






عفونت HCV در زندانیان

- * 17 articles with 18,693 prisoners, between 2004 and 2016
- * Pooled HCV Ab prevalence: **28% (96% CI: 21-36%)**
 - * Prisoners who inject drugs 53% (42-64)
 - * Prisoners who make use of drugs 25% (11-38)
 - * General (non-risk) 19% (10-29)

Behzadfar M, et al. Prevalence of hepatitis C virus infection among prisoners in Iran: a systematic review and meta-analysis. *Harm Reduction Journal* (2018) 15:24.

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عفونت HCV در بیماران دیالیزی

- * 54 studies with 23,921 participants, between 1990 and 2015
- * The prevalence varied from 0% (Tehran and Zanjan) to 55.9% (Kerman)
- * The national prevalence: 1.3% - 14.4%
- * Pooled HCV prevalence: **11% (96% CI: 10-13%)**
 - * ELISA **12% (96% CI: 10-14%)**
 - * RIBA **9% (96% CI: 5-13%)**
 - * PCR **11% (96% CI: 6-15%)**
- * 21 studies from 2006 to 2016
- * Overall prevalence of HCV Ab: **12% (95% CI: 9%-15%)**

Ramezan Ghorbani N, et al. Prevalence of hepatitis C infection in Iranian hemodialysis patients: An updated systematic review and meta-analysis. *J Res Med Sci.* 2017; 22: 123.

Ashkani-Esfahani S, et al. Prevalence of hepatitis C virus infection among hemodialysis patients in the Middle-East: A systematic review and meta-analysis. *World J Gastroenterol* 2017;23(1): 151-166.

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عفونت HCV در گروه‌های پرخطر

* در سالهای اخیر کاهش شیوع هپاتیت C در گروه‌های پرخطر:

- * بیماران دیالیزی از حدود ۲۰٪ به زیر ۲٪
- * در بیماران تالاسمی از ۳۰٪ به زیر ۲٪
- * در بیماران هموفیلی از بالای ۵۰٪ به زیر ۲۰٪
- * در زندانیان از بالای ۴۰٪ به زیر ۱۰٪ (به دلیل اقدامات کاهش آسیب مثل توزیع سرنگ و سوزن یک بار مصرف و درمان جایگزینی یا متادون)
- * در سال ۱۳۹۴، از ۵۵۰۸ نفر زندانی (۳۰ زندان از ۱۳ استان کشور): HBV ۳/۳٪ و HCV ۱۲/۸٪
- * در سال ۱۳۹۵، از ۶۴۸۱ نفر زندانی (۳۰ زندان از ۱۰ استان کشور): HBV ۱/۲٪ و HCV ۸/۲٪

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عفونت HCV در گروه‌های با خطر متوسط



Population at intermediate risk

- * healthcare workers, household contacts of HCV+ patients, female sex workers (FSWs), prisoners, homeless people, and drug users (non-IDUs)
- * Pooled HCV prevalence: 6.2% (95% CI: 3.4-9.6%)

Study group	No. of measures	Range (%)	Median (%)
Prisoners	15	0.7 - 37.9	4.1
Homeless people	10	0 - 48	3
Household contacts	5	0 - 3.3	2.2
Healthcare workers	11	0 - 37	0
Drug users (not specified route)	13	3.4 - 36.1	14.5
Total	70	0 - 48	3.3

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Mahmud S, et al. The epidemiology of hepatitis C virus in Iran: Systematic review and meta-analyses. *Scientific Reports*, 2018; 8:150






عفونت HCV در کودکان خیابانی

- * 4 articles with 1691 samples, between 2006 and 2017
- * The mean ages ranged from 10.1 to 15.6 years
- * Pooled HCV Ab prevalence: **2.4% (95% CI:1.8-3.3)**
- * The risk factors: tattoos, cigarette smoking, drug addiction, alcohol abuse, sexual violence, unprotected sexual intercourse and parents with a history of injection drug use.

Behzadifar M, et al. Prevalence of hepatitis C virus among street children in Iran. Infectious Diseases of Poverty (2018) 7:88.

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عفونت HCV در بیماران خاص

Special clinical populations

- * Liver related conditions (chronic liver disease, acute viral hepatitis, HCC, and liver cirrhosis)
- * Special clinical populations for which the level of HCV risk of exposure could not be ascertained such as lichen planus patients.
- * Pooled HCV prevalence: **4.6% (95% CI: 3.2-6.1%)**, Liver conditions **7.5% (4.3%-11.4%)**

Study group	No. of measures	Range (%)	Median (%)
HBV patients	---	0 - 18	10.3
Viral hepatitis patients	9	0 - 34.9	6.1
Patients with liver cirrhosis	5	1.7 - 14.9	7.3
Total	72	0 - 69.1	3.2

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Mahmud S, et al. The epidemiology of hepatitis C virus in Iran: Systematic review and meta-analyses. Scientific Reports, 2018; 8:150

اپیدمیولوژی عفونت HCV در ایران

Population	HCV (%)
General population	0.6
Low risk population (BDs, healthy people, pregnant women)	0.3
Street children	2.4
Intermediate risk population (HCWs, household contacts, FSWs, prisoners, homeless people, and drug users)	6.2
Liver conditions	7.5
FSWs	8.12
Dialysis	11
Non-injecting addicts	16.2
Prisoners	19-22.9
Drug-dependent prisoners	24.6-25
High risk population (HIV patients, PWID, MTP)	32.1
PWID	41.3-52.2
PWID prisoners	53-58

عفونت HCV در جمعیت عمومی مشهد

Original Article

Prevalence of Hepatitis C Virus Infection in General Population of Mashhad, Northeastern Iran

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Methods: During 2009, 1678 people between 1 to 90 yr old with the mean age of 29.1±18.5 yr were selected randomly by multistage sampling from different geographical regions of the city proportionate to sex and age distribution of population in 2006 census. ELISA was used to screen for antibodies and RT-PCR tested the positive samples.

Results: HCV infection was detected in 7/1654 cases; overall prevalence of the infection was 0.42% (95%CI: 0.17-0.67%), 0.80% and 0.11% among males and females, respectively (P= 0.051). One HCV-affected subject was also positive for hepatitis B surface antigen (HBsAg), however, no cases showed HIV or HTLV seropositivity.

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عفونت HCV در بیماران تالاسمی مشهد

Distribution of Hepatitis C Virus Genotypes in Patients with Major β -Thalassemia in Mashhad, Northeast Iran

Saeed Ahmadi-Ghezelkashi¹, Zahra Badier², Hamid Reza Sima^{1,3},
 Mohammad Reza Hediyari-Moghadam⁴, Meysam Habibi⁴, Mohsen Khamooshi⁵, Ahmad Azimi⁶

METHODS
 Medical records of all 550 patients with major β -thalassemia who referred to Thalassemia-Hemophylax Center of Mashhad (Sarvar Clinic) were reviewed from October to November 2011.

RESULTS
 HCV antibodies were detected in 37 individuals (6.73%) including 17 men and 20 women with mean age of 25.2 ± 8.4 years. The PCR analysis was performed for 27 patients, of whom HCV RNA was detected in 17 patients (63.0%). Viral titers were investigated in 14 subjects and a high

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عفونت‌های منتقله از خون در زندانیان خراسان رضوی

Prevalence and Sero-prevalence of HBV, HCV, KSHV, and HTLV-I among Razavi Khorasan Prisoners in Iran

Pathogen	Prevalence (%)	Seroprevalence (%)
HBV	2.1%	4.2%
HCV	19.3%	24.5%
KSHV	4.4%	2.2%
HTLV-I	2.0%	1.4%

Figure 1. Prevalence and sero-prevalence of HBV, HCV, KSHV, and HTLV-I among Razavi Khorasan Prisoners in Iran

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Khajedaluee M, et al. Sero-Prevalence of Bloodborne Tumor Viruses (HCV, HBV, HTLV-I and KSHV Infections) and Related Risk Factors among Prisoners in Razavi Khorasan Province, Iran, in 2008. *Hep Mon*, 2016;16(12):e31541.