

HBV and HCV Epidemiology In Israel



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Disclosures

- Advisory boards (international): Merck
- Consultant: Janssen, Merck, Roche
- Advisory committees or review panels: Merck, Janssen
- Speaker: Merck, Janssen, Roche, Novartis

HBV and HCV Epidemiology in Israel

- Epidemiological data of hepatitis B and hepatitis C virus infection in Israel is limited as large population-based studies have not been performed so far.
- The aim of these studies was to collect epidemiological, co-morbidities and natural history data of HBV and HCV infection in the largest population-based study ever performed in Israel.

HBV and HCV Epidemiology in Israel

Methods

- Data were obtained from the computerized records and database of Clalit Health Services (CHS) (established in the year 2000). The database contains information regarding demographic parameters, laboratory tests and pharmacy records, hospitalization and primary care physician records and death-related data.

HBV Epidemiology in Israel

HBsAg positivity among CHS insured individuals

Age (yrs)	CHS	No. tested	% tested	No. pos	pos rate/100
All	3,843,868	870,124	22.6	15,258	1.75%
0-19	1,291,881	79,245	6.1	1181	1.45%

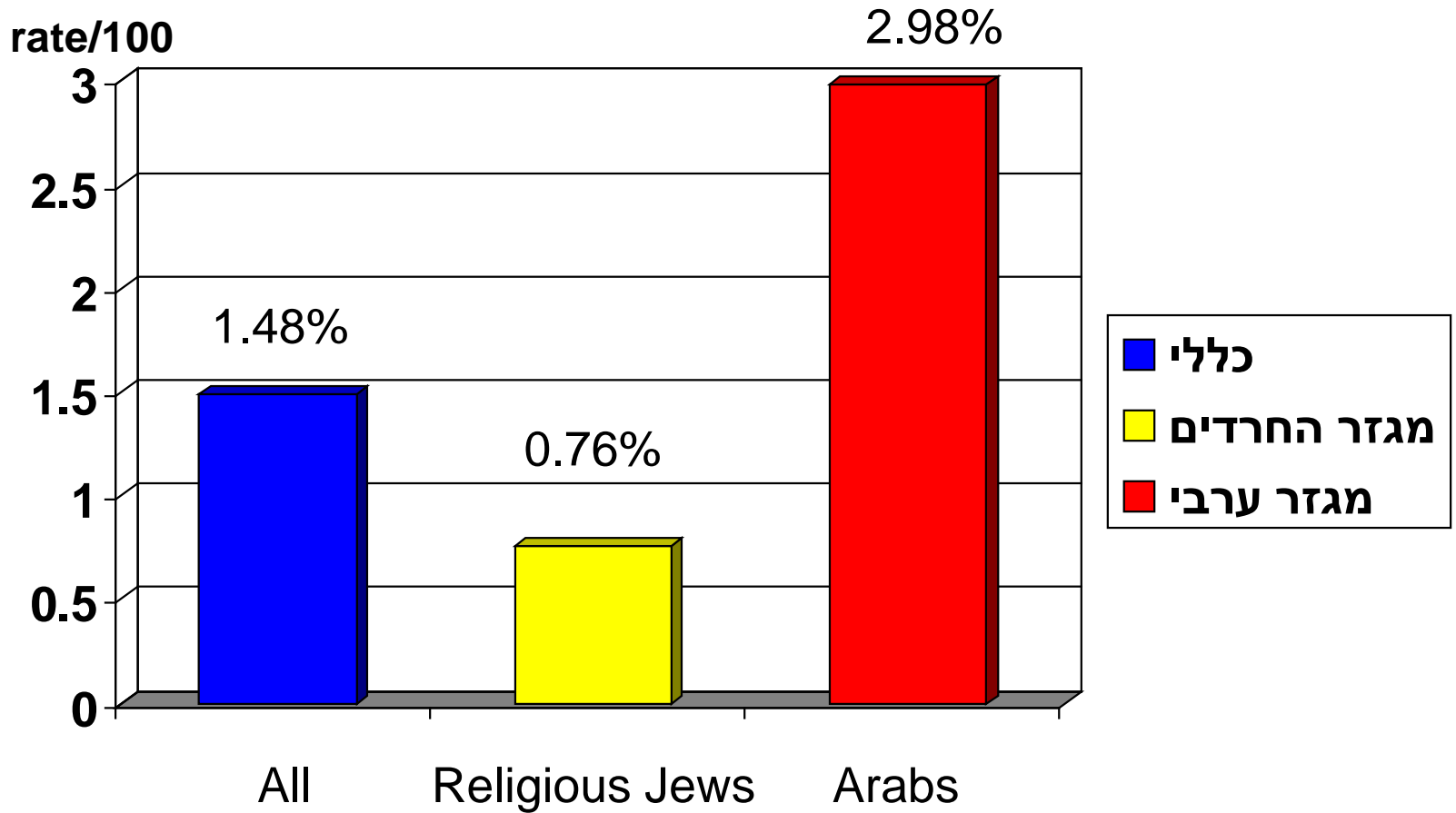
Prevalence HBV Infection in Israel

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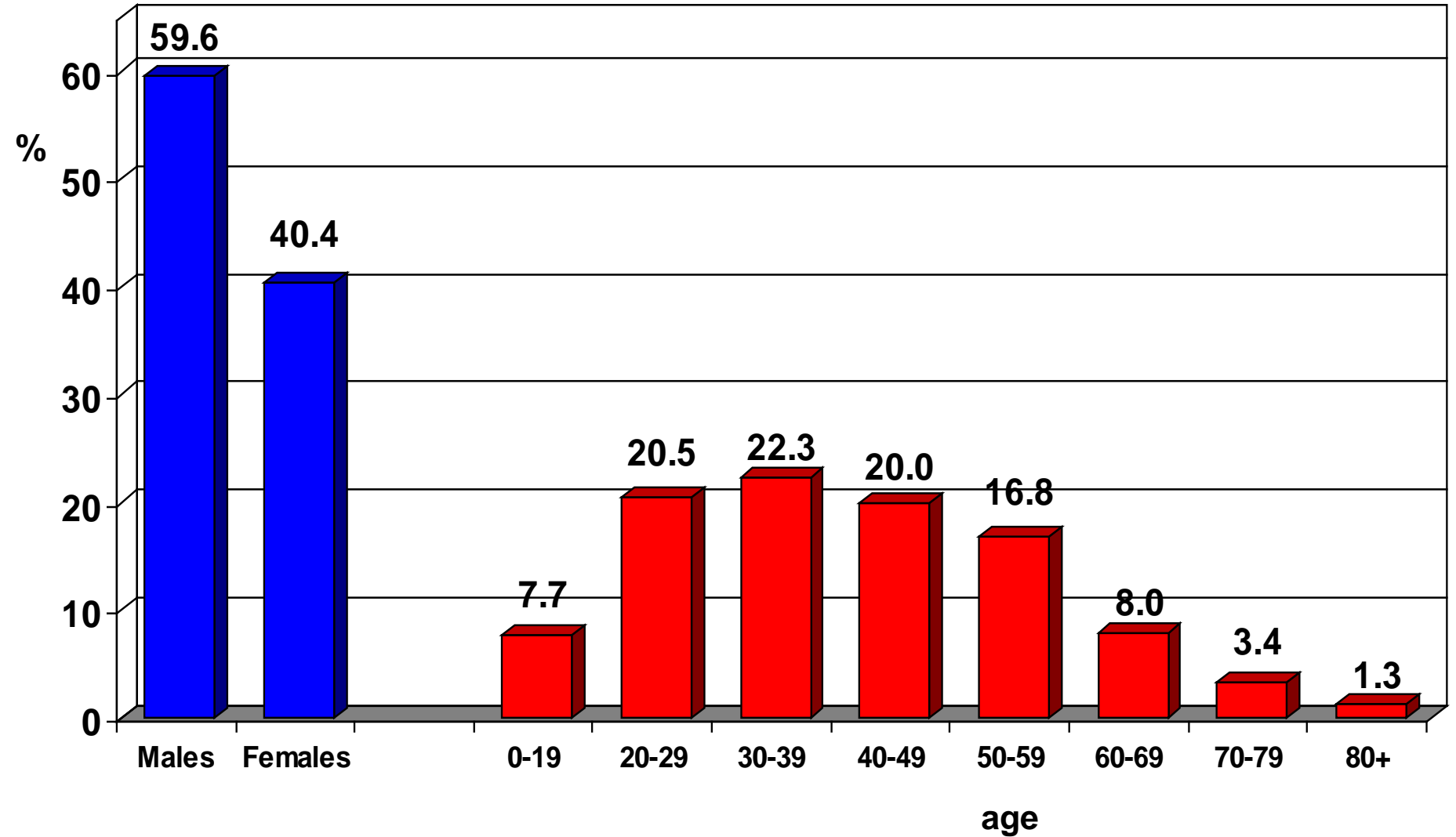
HBsAg Seropositivity rate per 100, by religion



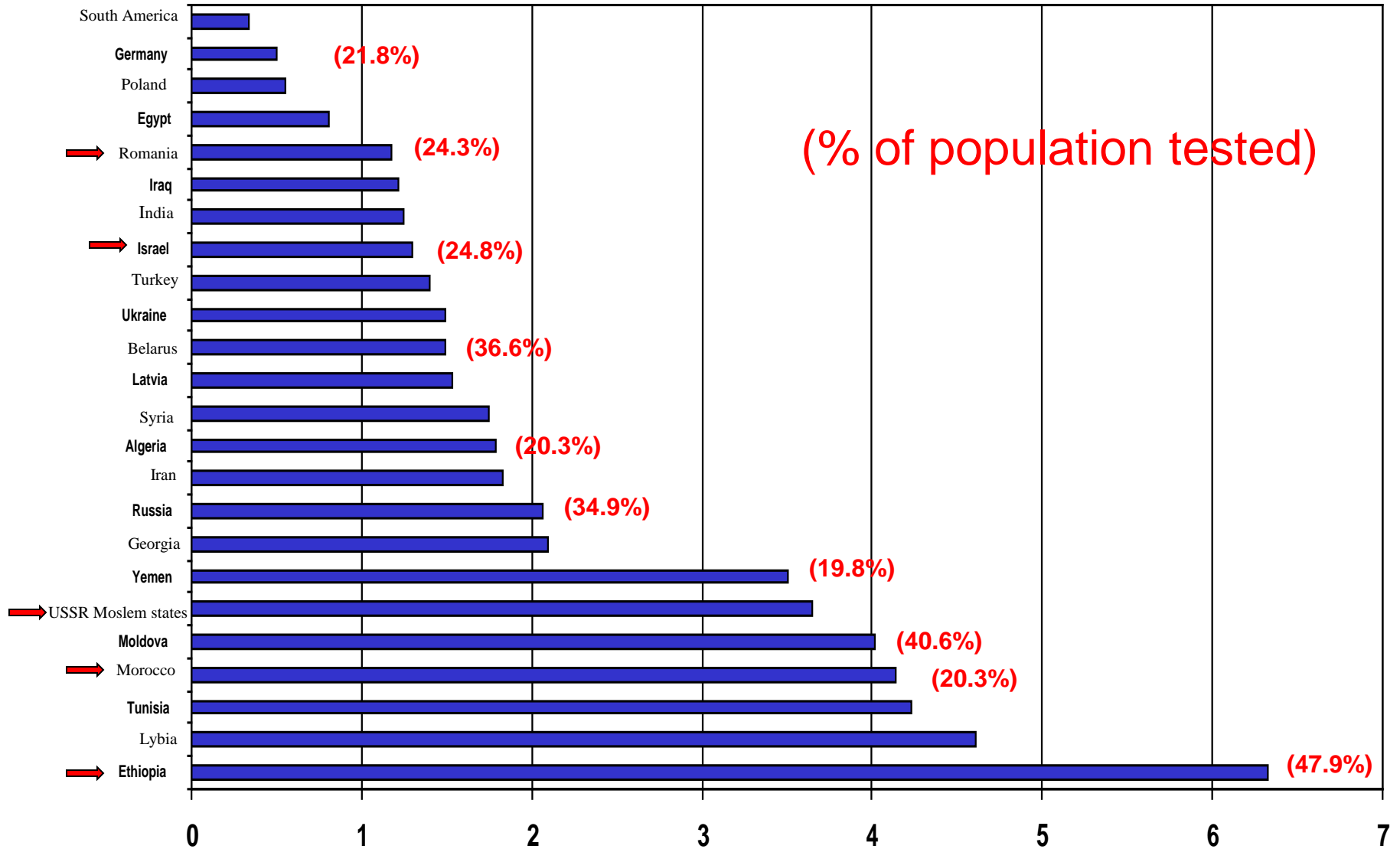
Prevalence HBsAg by Gender

Gender	CHS	No. tested	% tested	No. pos	pos rate/100
Male	1,929,822	340,059	17.6	9080	2.67%
Female	1,986,368	529,940	26.7	6174	1.16%

Age and sex distribution of HBsAg positives

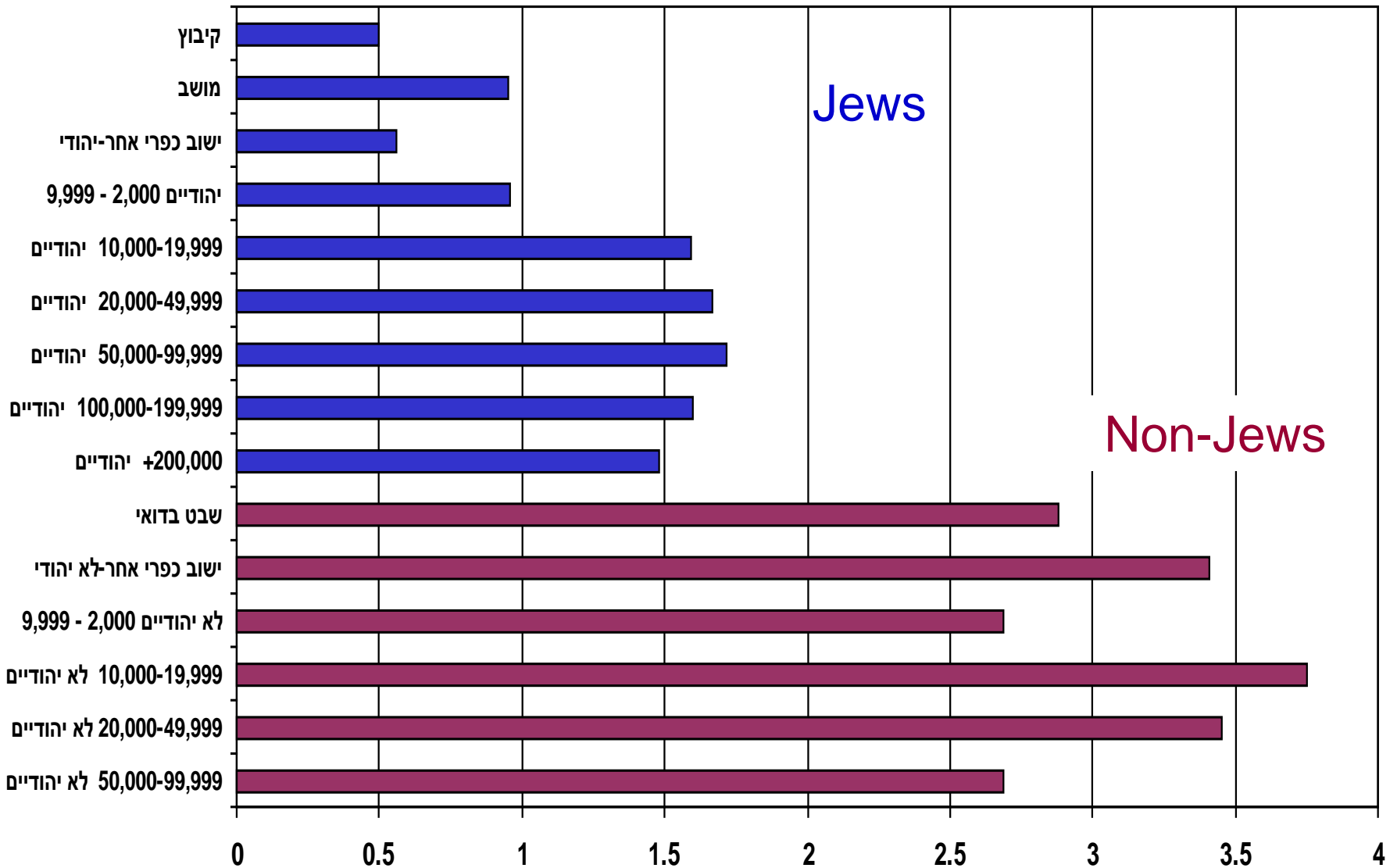


Seropositivity rate/100, by country of birth - top 24 countries



seropositivity rate/100 tested

Seropositivity rate per 100, by type of settlement



Hepatitis B from lab results, n=15,240

seropositivity rate/100 tested

Seropositivity rate by type of settlement (577): "top 15"

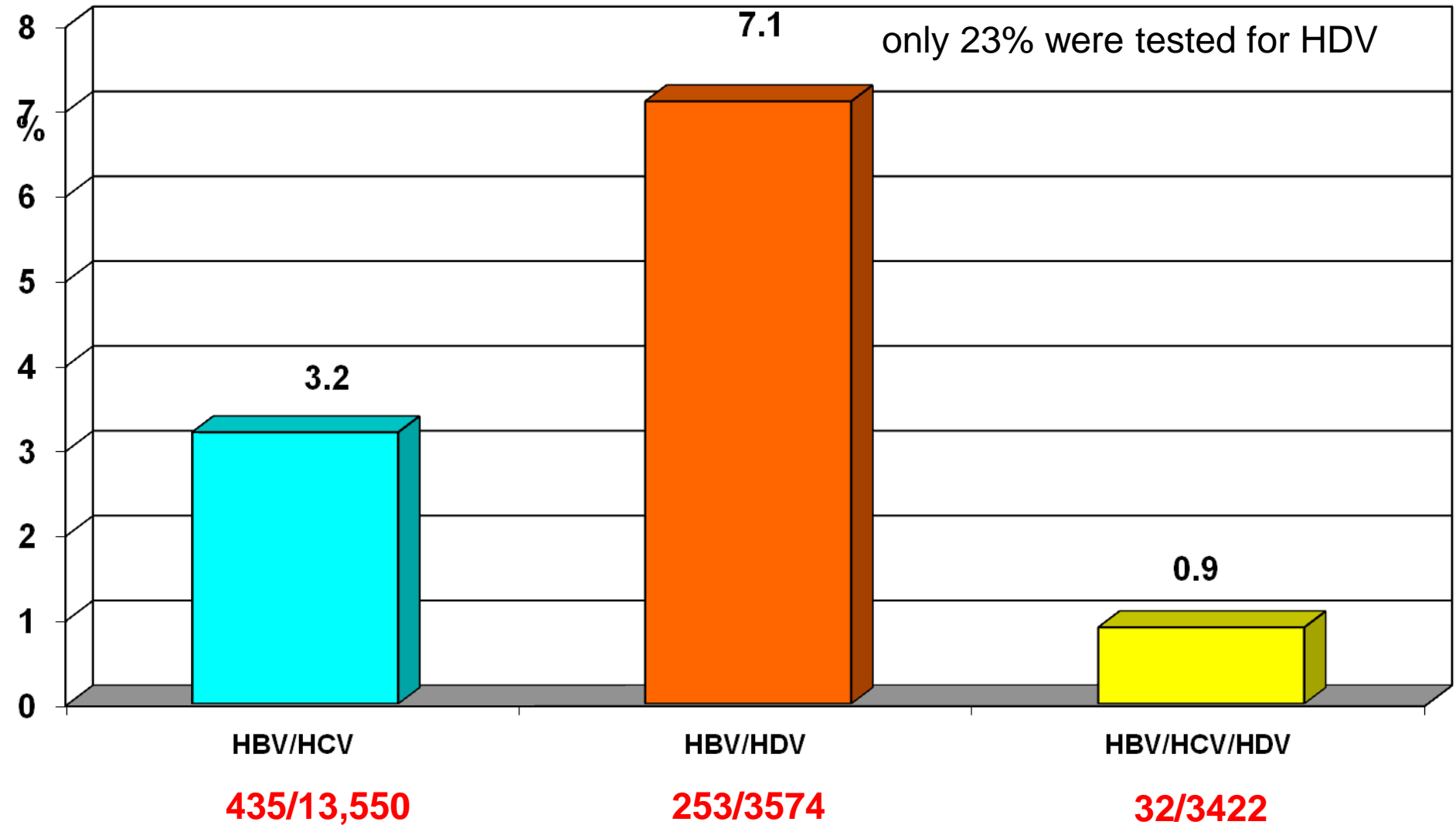
prevalence rate/tested	HBsAg +	% tested	No. tested	CHS population	יישוב
9	132	38	1464	3844	כסרא-סמיע
8.1	228	28	2784	9815	עין מאהל
6.4	346	27	5341	19200	סחנין
5.9	94	21	1602	7418	ירכא
5.2	113	23.8	2174	9131	ריינה
5	310	24	6137	25471	תמרה
5	19	19	374	1970	שייח' דנון
4.8	77	25	1589	6368	אבו סנאן
4.6	52	25	1303	5084	דיר אל-אסד
4.6	63	15	1353	8886	כבול
4.5	205	38	4528	11886	כפר מנדא
4.5	54	8.6	1198	13881	מג'דל כרום
10.2	13	51	127	249	דמיימה
3.7	197	26	5322	19906	אור יהודה
3.75	358	21	9541	25471	רמלה

Prevalence of HBcAb “only” (HBsAg-/ HBcAb +) and HBeAg

CHS	No. tested for both HBsAg and HBcAb	% tested	No. HBcAb only	pos rate/100
3,843,868	271458	31%	45527	17.5 %

CHS	No. tested for HBeAg	% tested	No. HBeAg positive	pos rate/100
3,843,868	12,475	82%	1136	9.1%

HBV co-infection with HCV and HDV



HBV Epidemiology in Israel: Summary

- This is the first and the largest epidemiological study on HBV infection ever performed in Israel.
- The estimated prevalence of chronic HBV infection in CHS insured individuals in Israel~ 1.75%.
- The prevalence is higher in the Arabic population and in some rural Arabic settlements the prevalence of HBV infection may reach 5-9%

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HBV Epidemiology in Israel: Summary

- Further analysis of available data will explore more detailed information about virological status (HBeAg), HBV infection in the specific populations (**pediatric population, pregnant women, specific ethnic groups, patients with CRF etc.**), treatment outcome, co-morbidities and natural history.
- This data may assist in screening and planning treatment strategies in Israel.

HCV Epidemiology in Israel

Source	Population	Sample size	Prevalence	Source
Flatau E, 1993	Jewish Ethiopian immigrants	200	3%	
Stern M. 1995	Blood donors (Hadassah)	19,000	0.44%	82.7% PCR+, 28% risk factors (BT, IDU)
Bar-Shany S 1995	Blood donors	136,977	0.66% (M), 0.55% (F)	Prevalence higher in immigrants from former USSR and eastern Europe
Gligberg F., 1997	Bukharian Jewish immigrants from Tajikistan and Uzbekistan	102	26.5%	None of HCV+ had BT or were IDU
Bogomolski-Yahalom V 1997	HCV+ patients and hemodialysis pts	63	Not relevant	HCV G1 65.5%
Shemer-Avni Y 1998	Blood donors from Gaza strip	1509	2.2%	Most common genotype : 1b

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Source	Population	Sample size	Prevalence	Comments
Almog R, 1999	Immigrants from former USSR, candidates for military service	1182	1.3%	Prevalence associated with COB
Sermoneta-Gertel S 2001	Health workers in Hadassah hospitals in Jerusalem	4287	0.9%	Israeli born 0.1%, in Central Asia republics of former USSR 5.7%.
Lurie Y 2006	Patients with acute HCV infection	29	Not relevant	medical procedures-65.5% IDU 20.6%
Maor Y, 2006	Hemophilic patients in one center born before 1986	239	75%	87% were RNA +, G1 in 80% of HCV
Kerzman H 2007	Blood donors	434	Not relevant.	Case control study of 434 blood donors:
Loebstein R, 2008	Drug users	1443	35.7%	73.9% from eastern Europe and 19.6% of native Israelis were HCV positive


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HCV Epidemiology in Israel

Data from Magen David Adom (MDA):

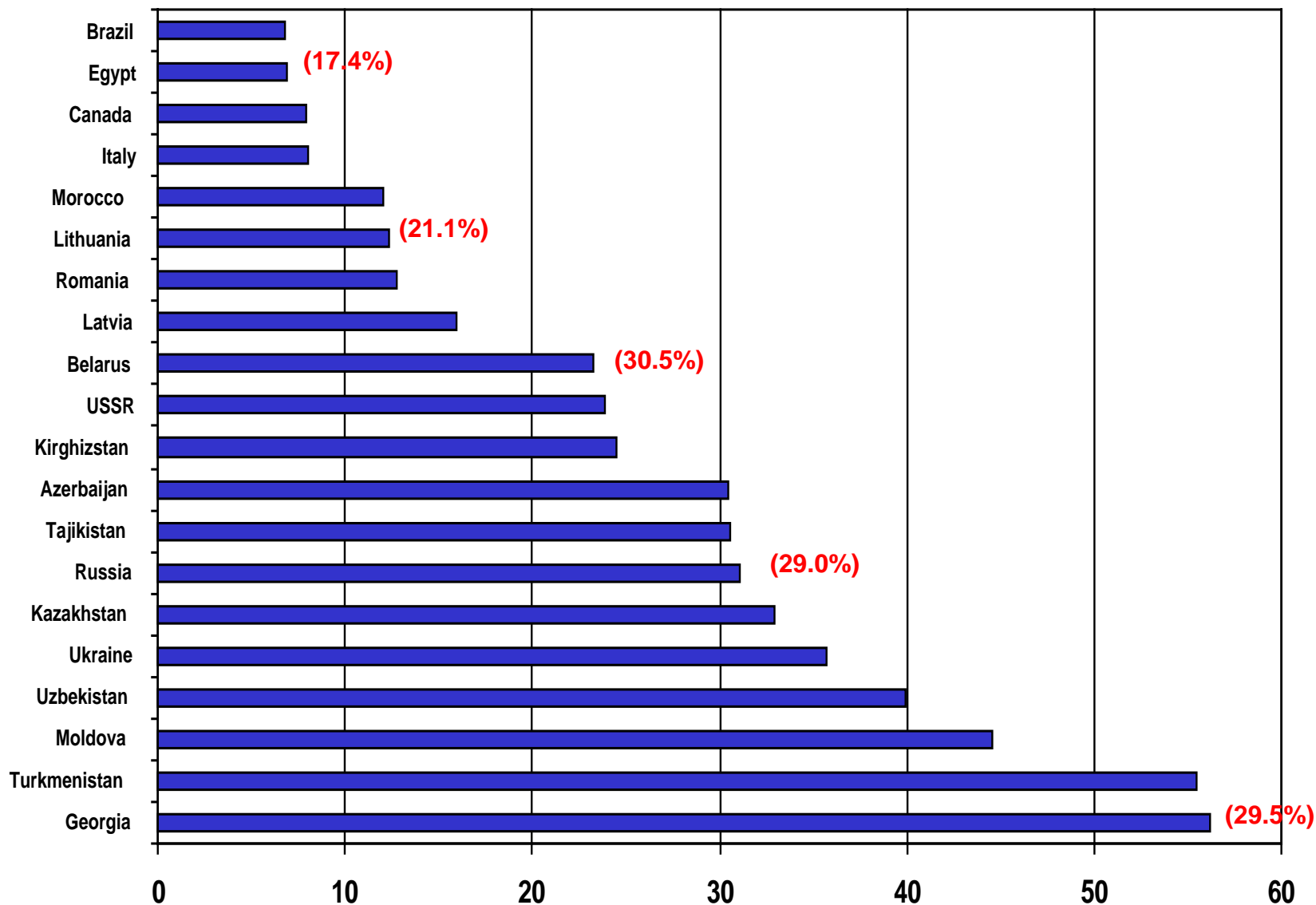
- Seroprevalence of HCV among all blood donors (BD) in 2000 was 0.1% (240 of 220,000)
- 0.8% (168/22000) among immigrants (BD) from the former USSR in 1990s
- 0.04% (72/198,000) detected among native Israeli BD.

Prevalence HCV Infection in Israel

- CHS insured individuals: 3,926,182 (including children)
- Age >20 y/o: 2,658,885
- Tested for HCV infection: 789,689 (20.1%)
age >20: (29.7%)
- 18406 were HCV+: 2.3%
- 3067 died  prevalence 1.96%

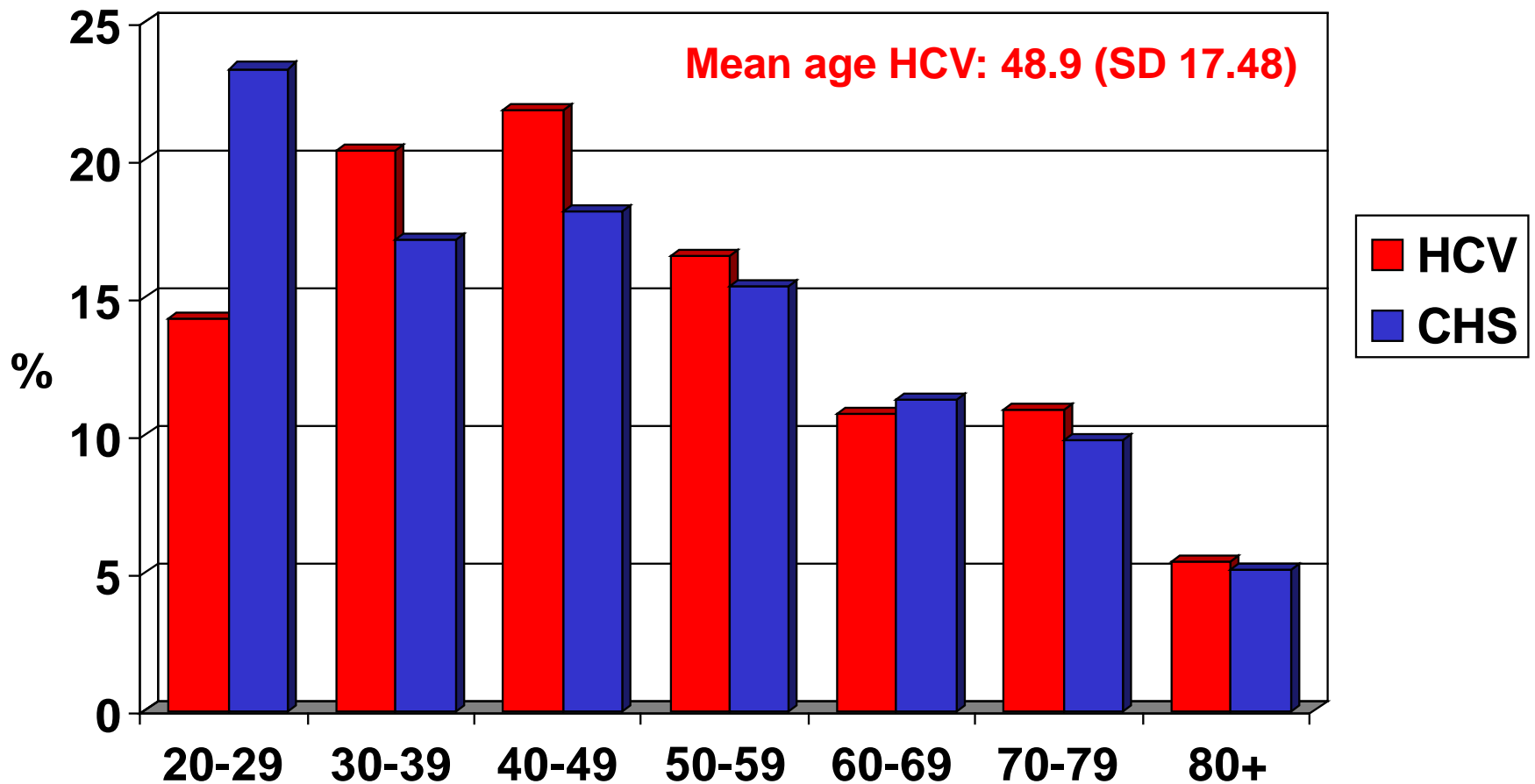
Seropositivity rate per 1,000, by country of birth - top 20 countries

(% of population tested) (14.7%-32.8%)

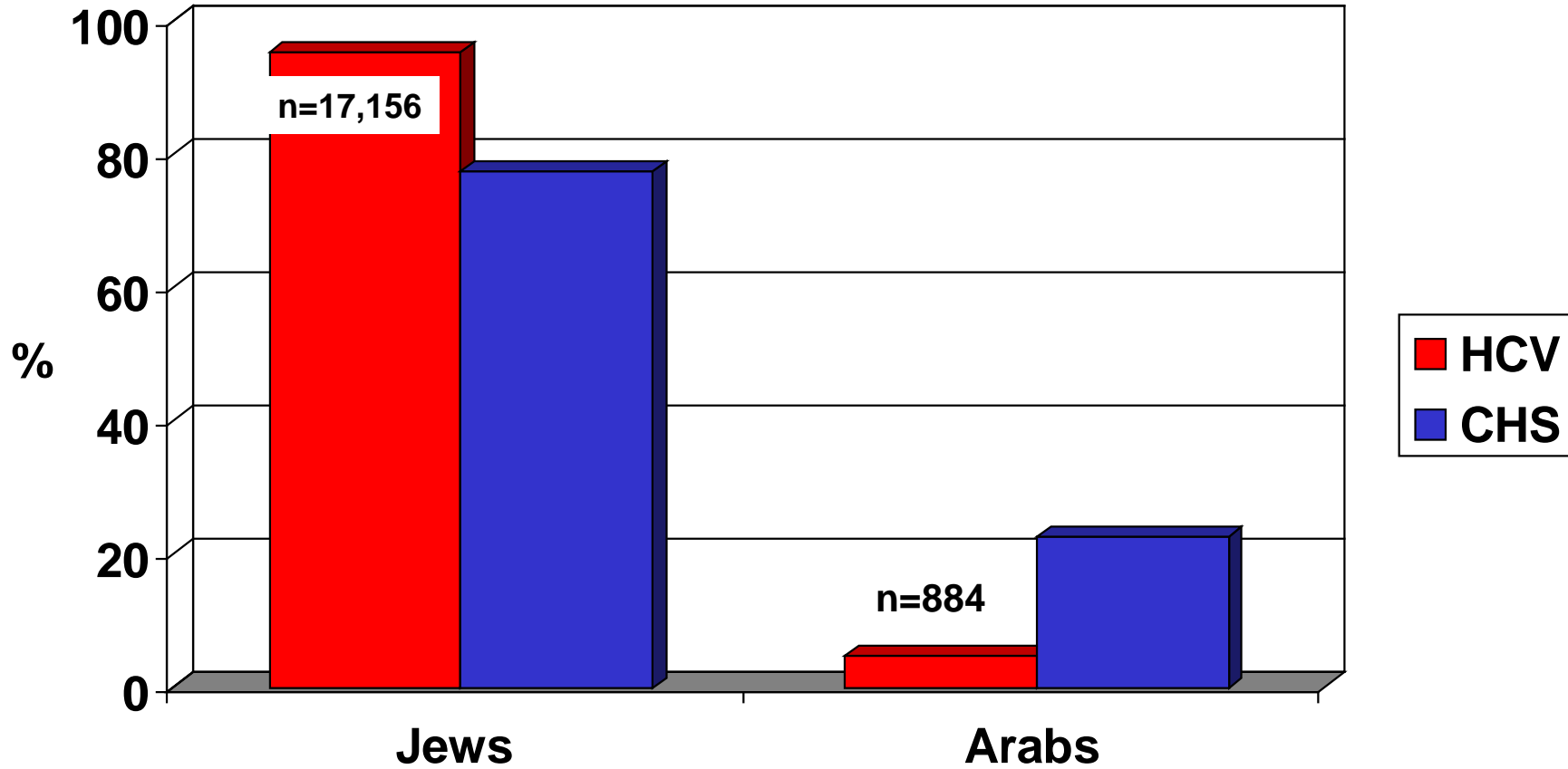


HCV in Israel

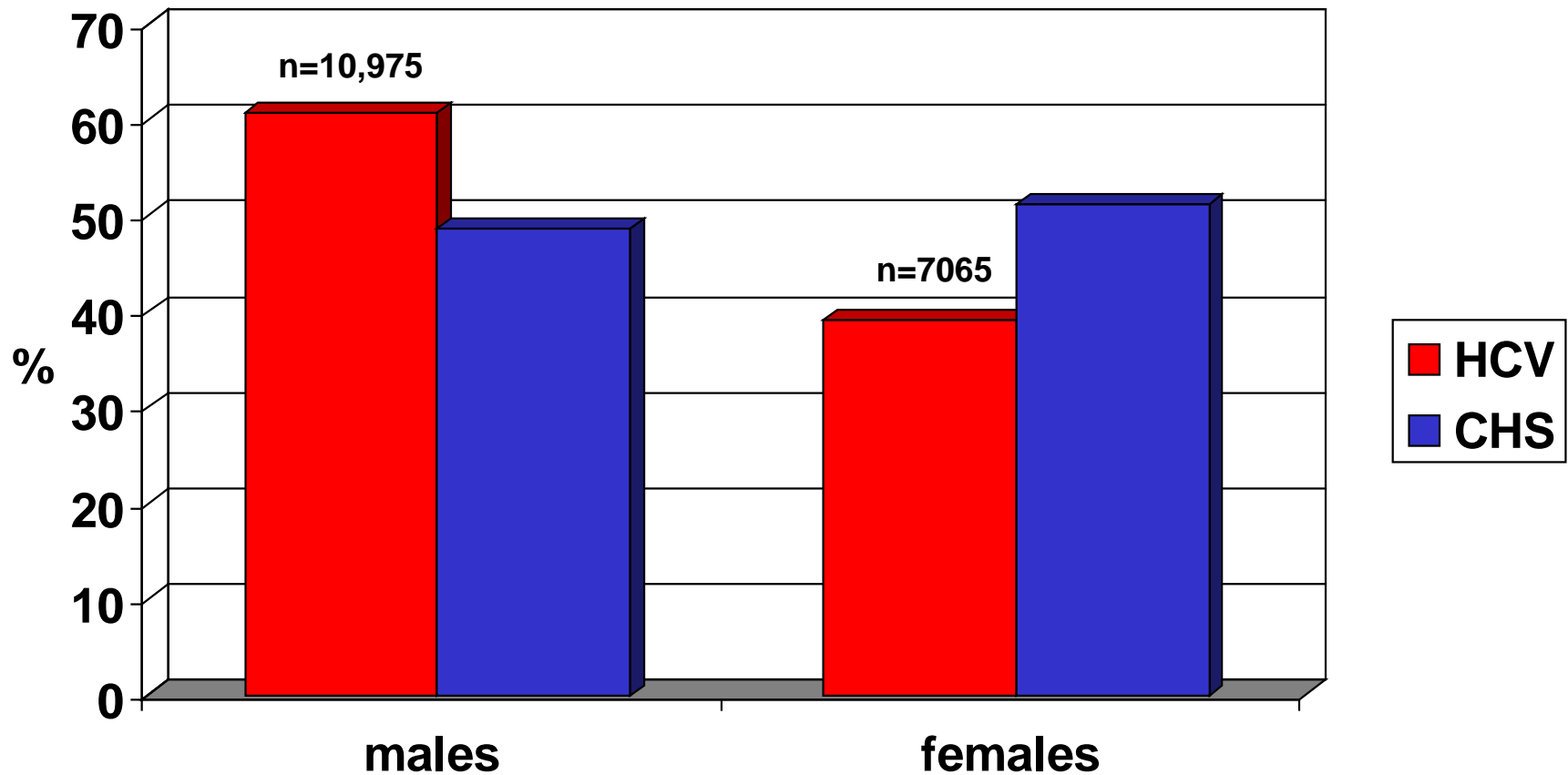
Age distribution – HCV vs CHS



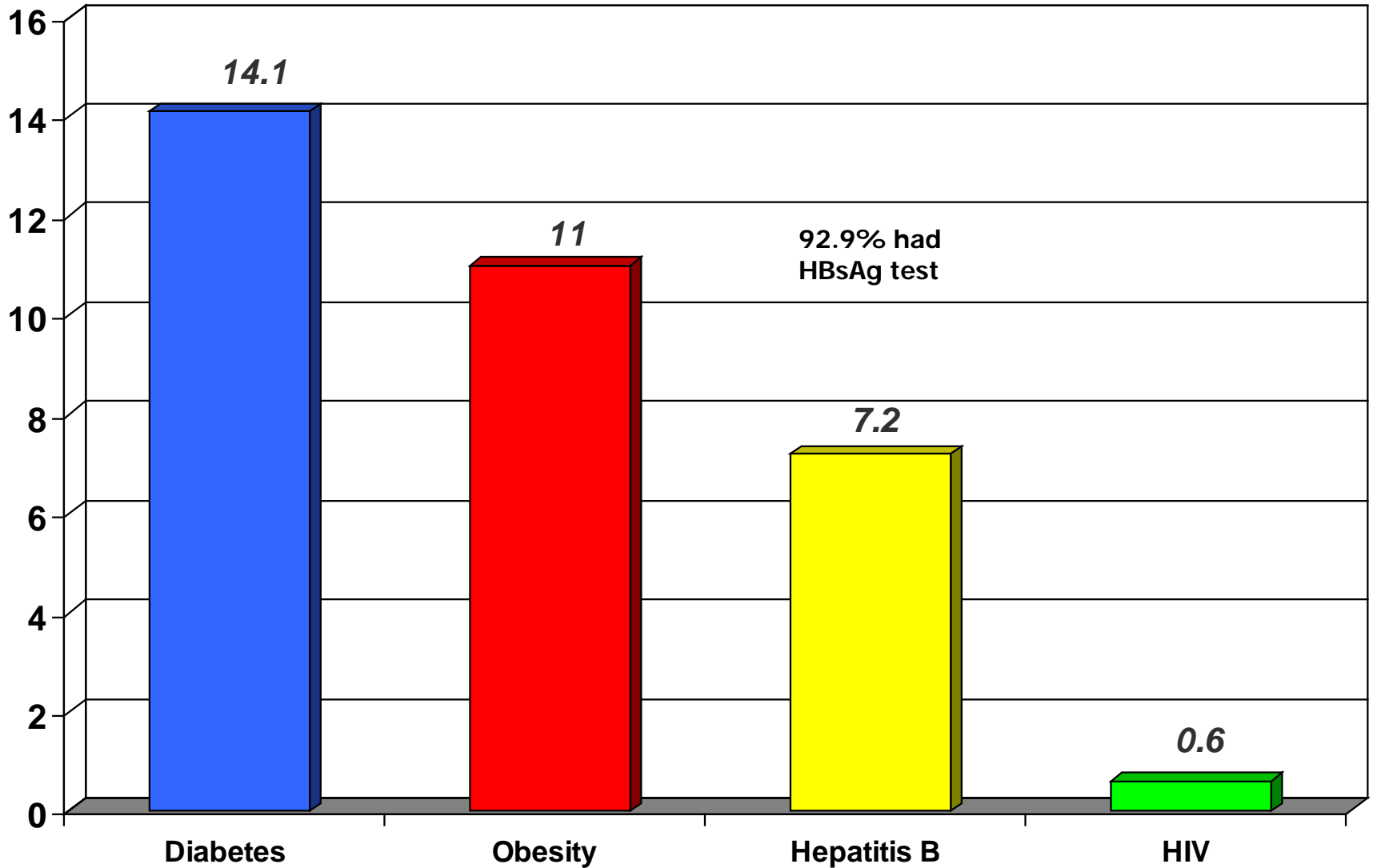
HCV in Israel: Distribution By religion



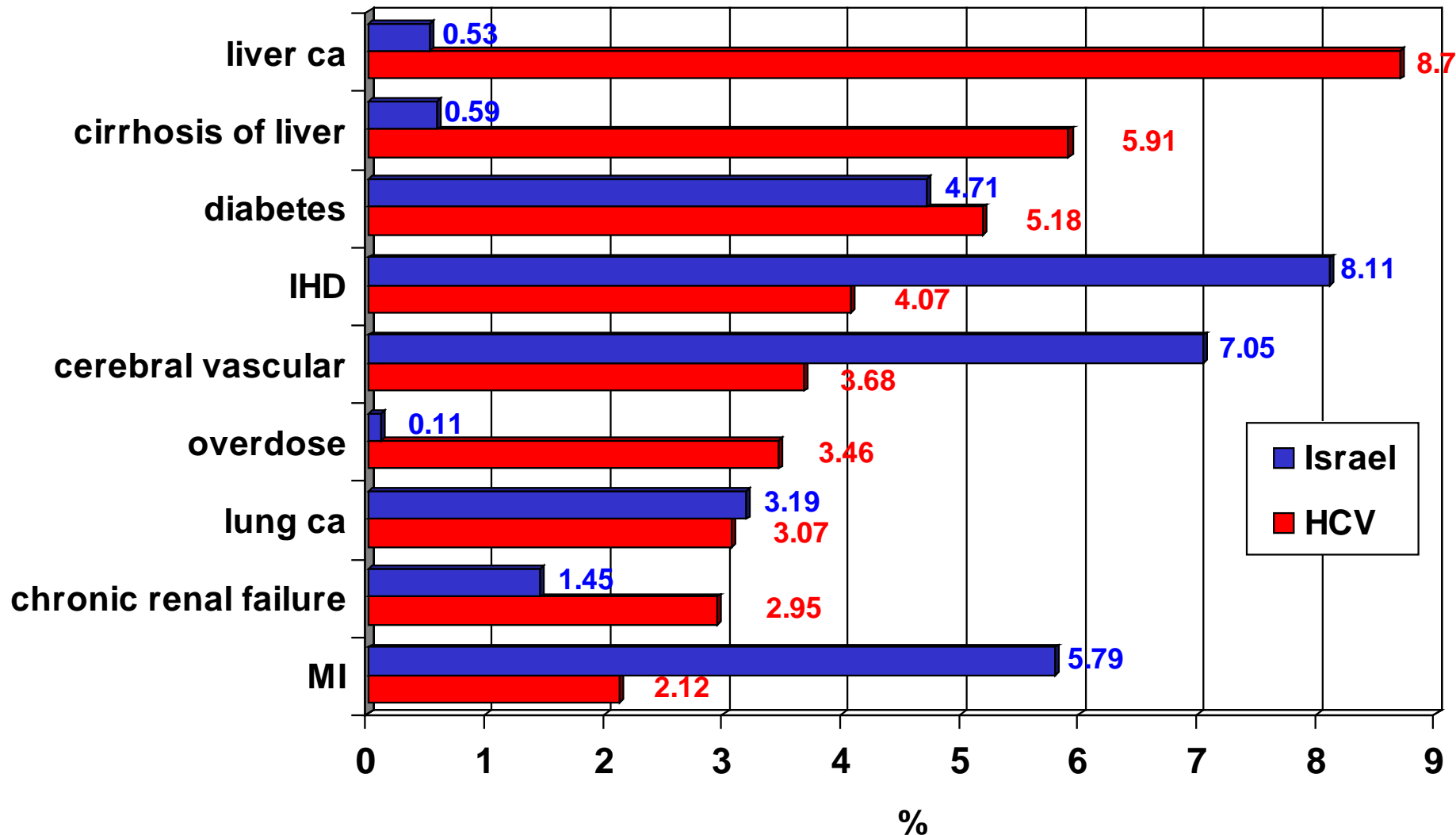
HCV in Israel: Distribution By Gender



% of HCV pts with selected comorbidities



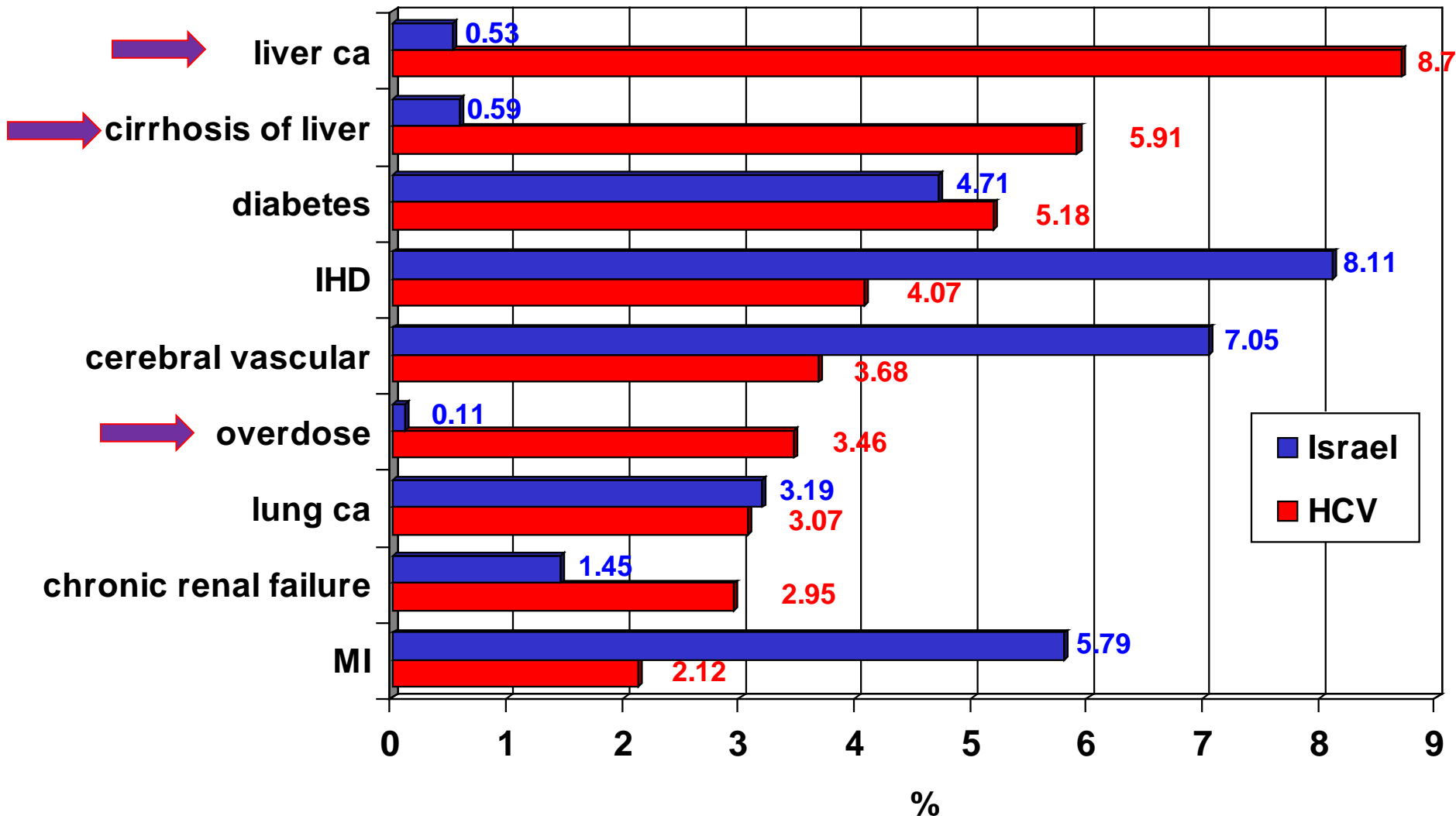
Top causes of death in HCV pts and Israel (not only CHS)



Hepatitis C from lab results, n=18,406

10/2010

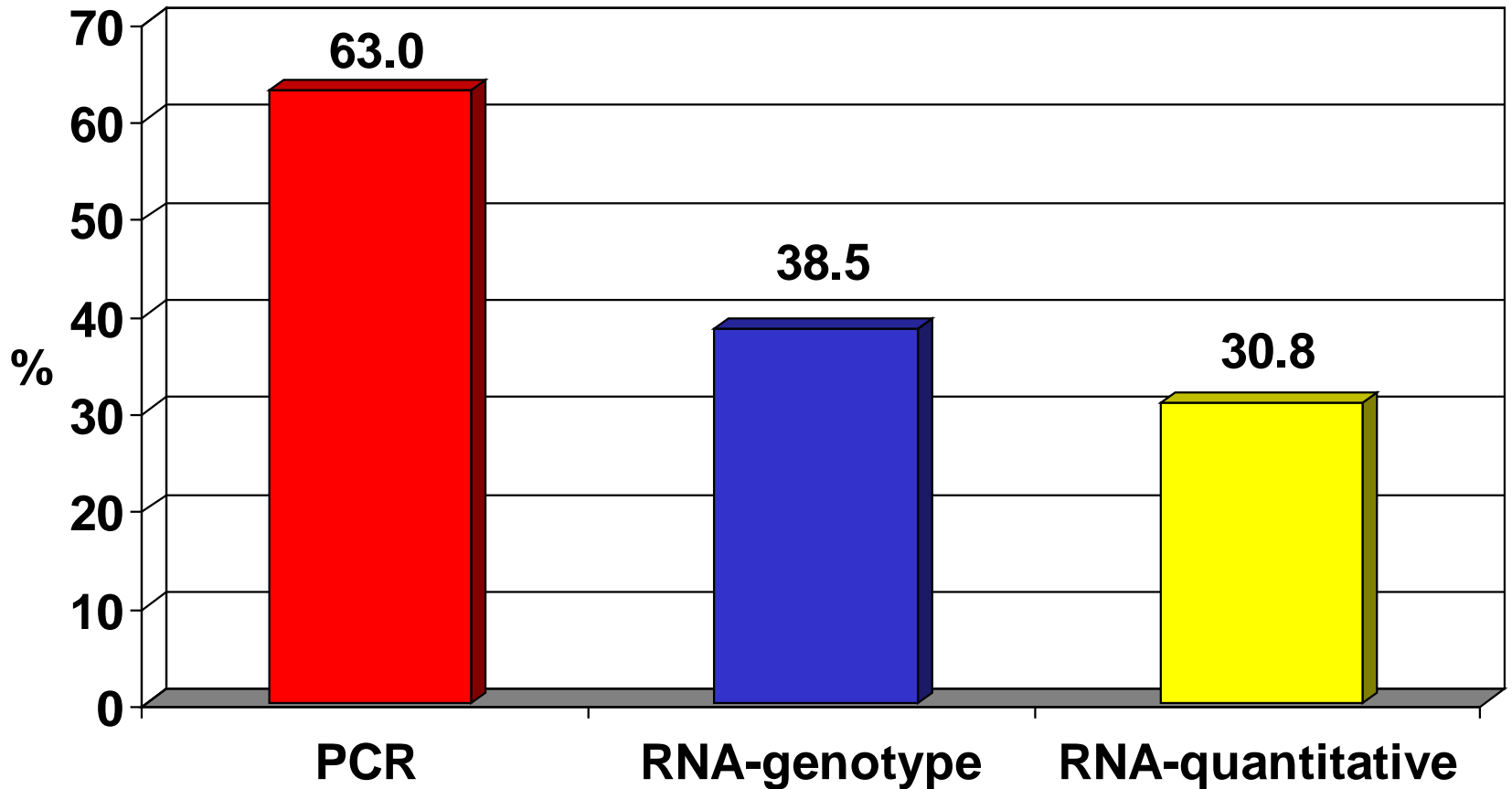
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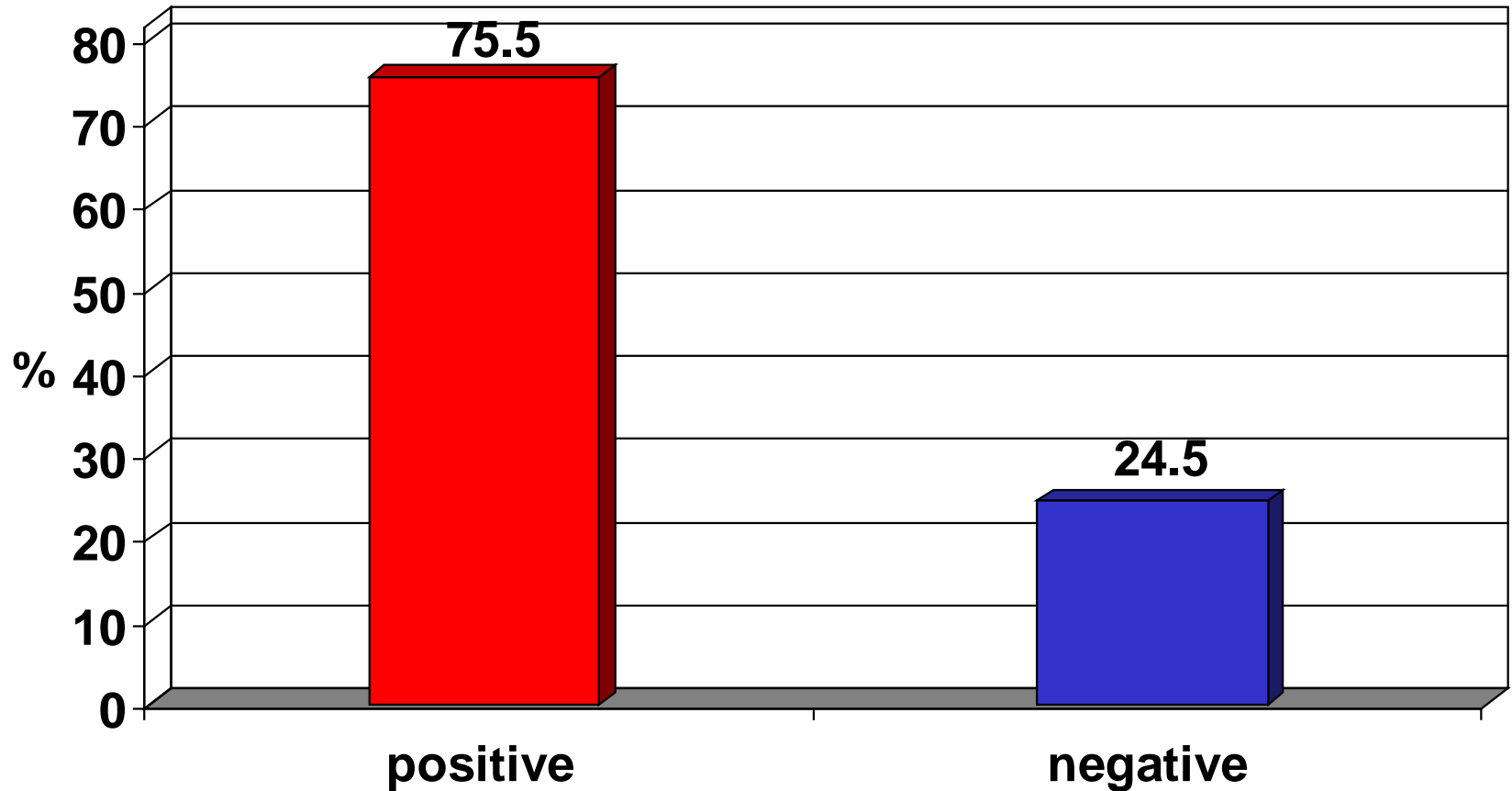
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HCV-RNA (PCR) testing in HCV-positive patients in Israel

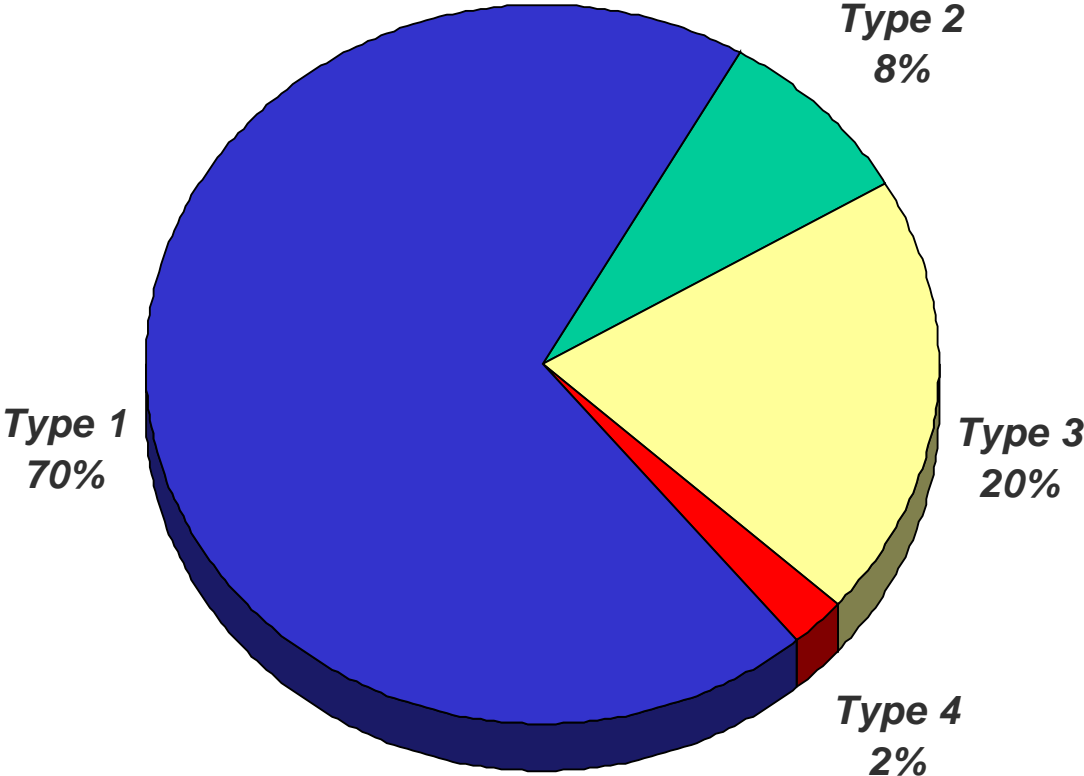


PCR results

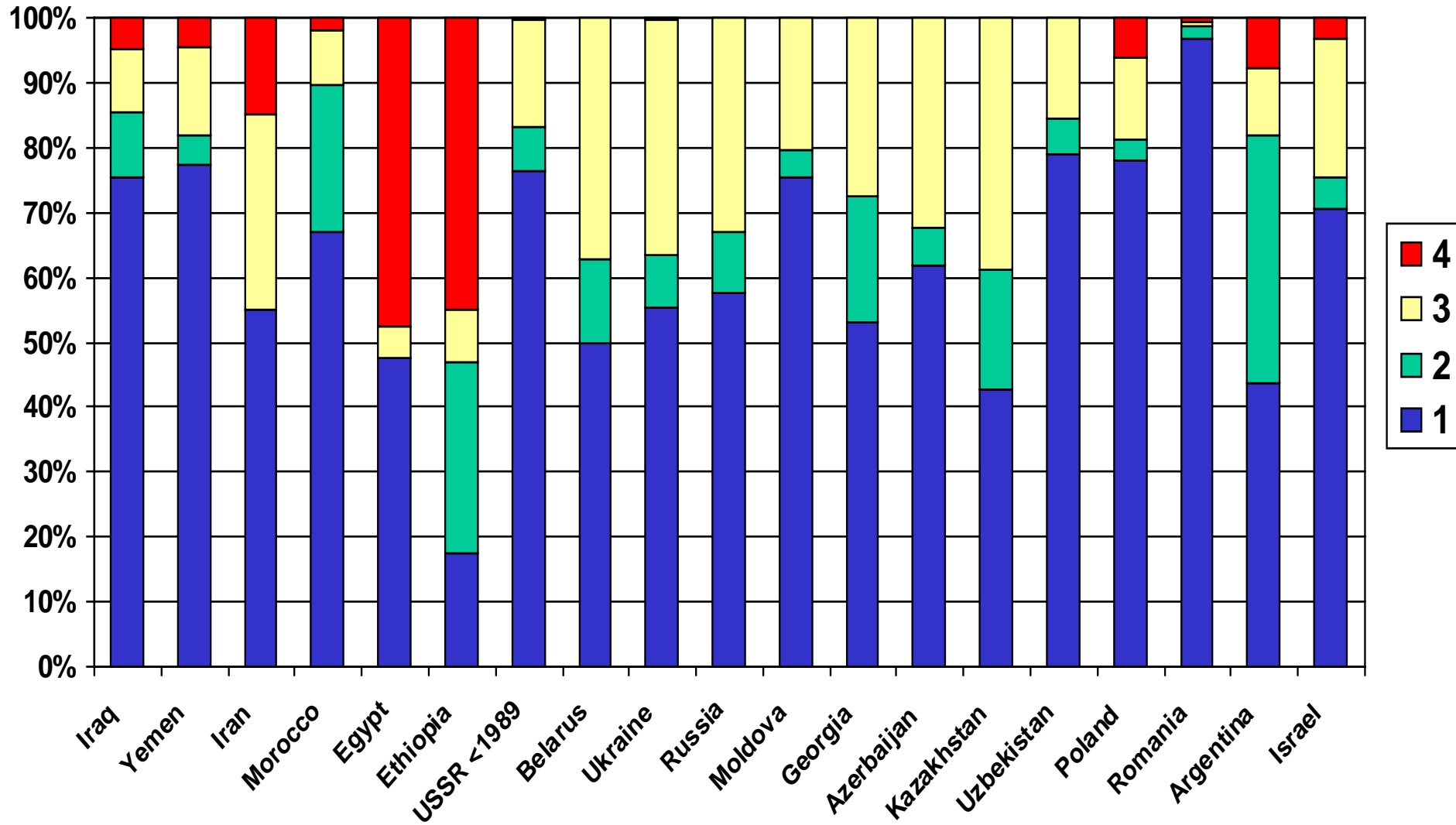


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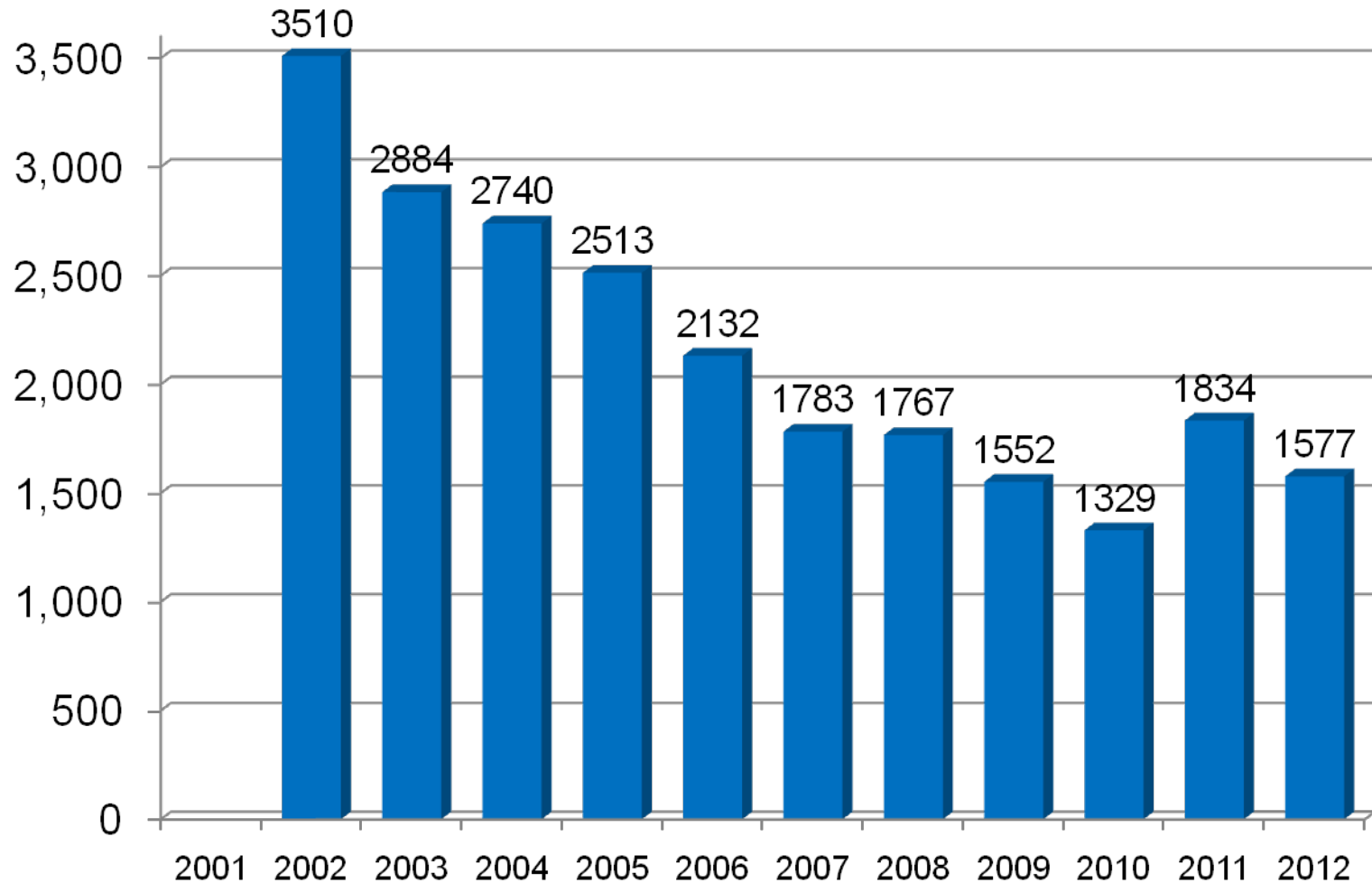
HCV genotypes



HCV genotypes by country of birth (n=5,364)

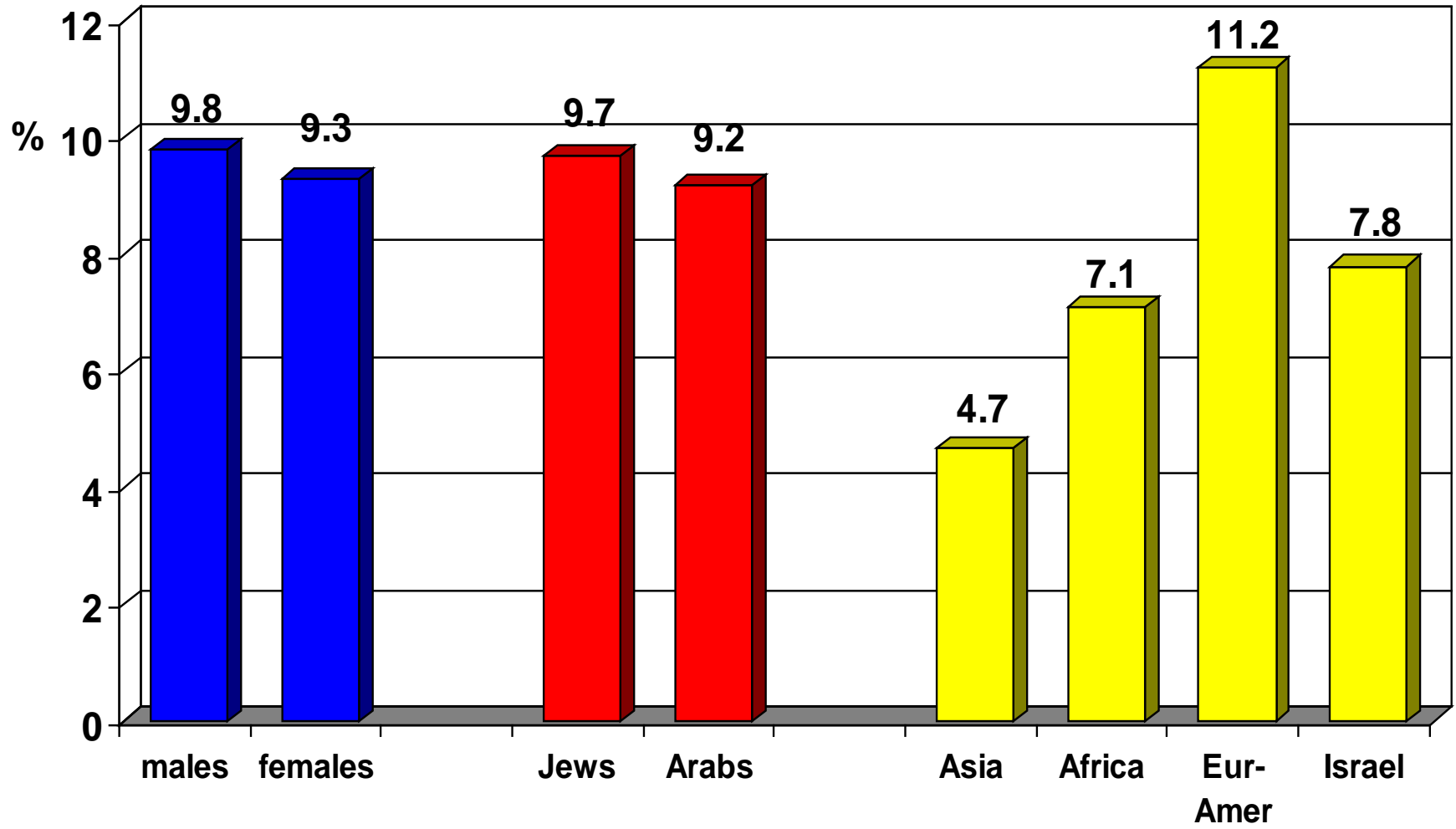


Number of HCV cases diagnosed by year



Rate of HCV Patients Who Received Treatment

(overall: $1739/18,040 = 9.6\%$)



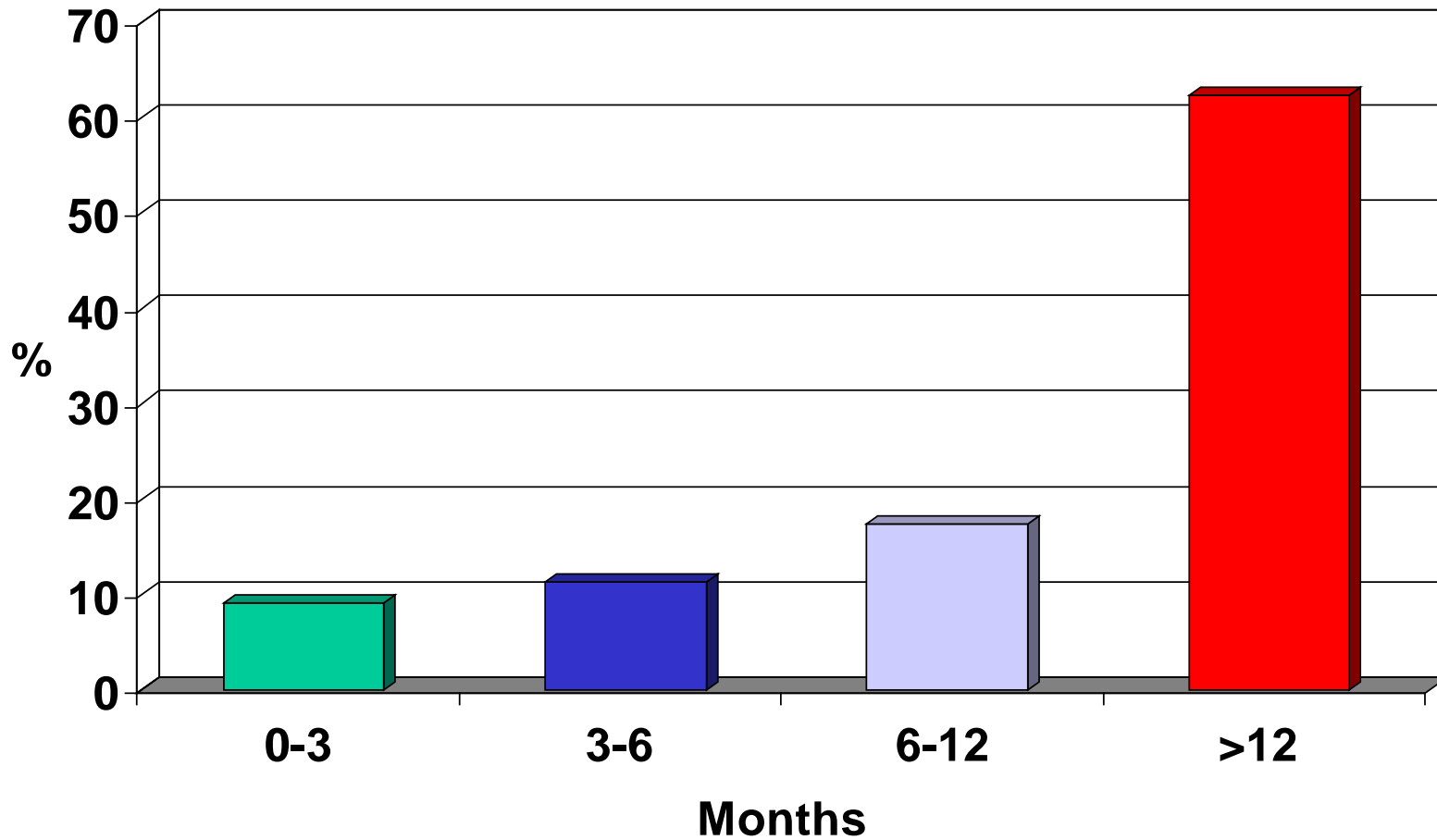
Up to 300 pts received treatment in clinical trial, not thru CHS

Country of birth (Jews)

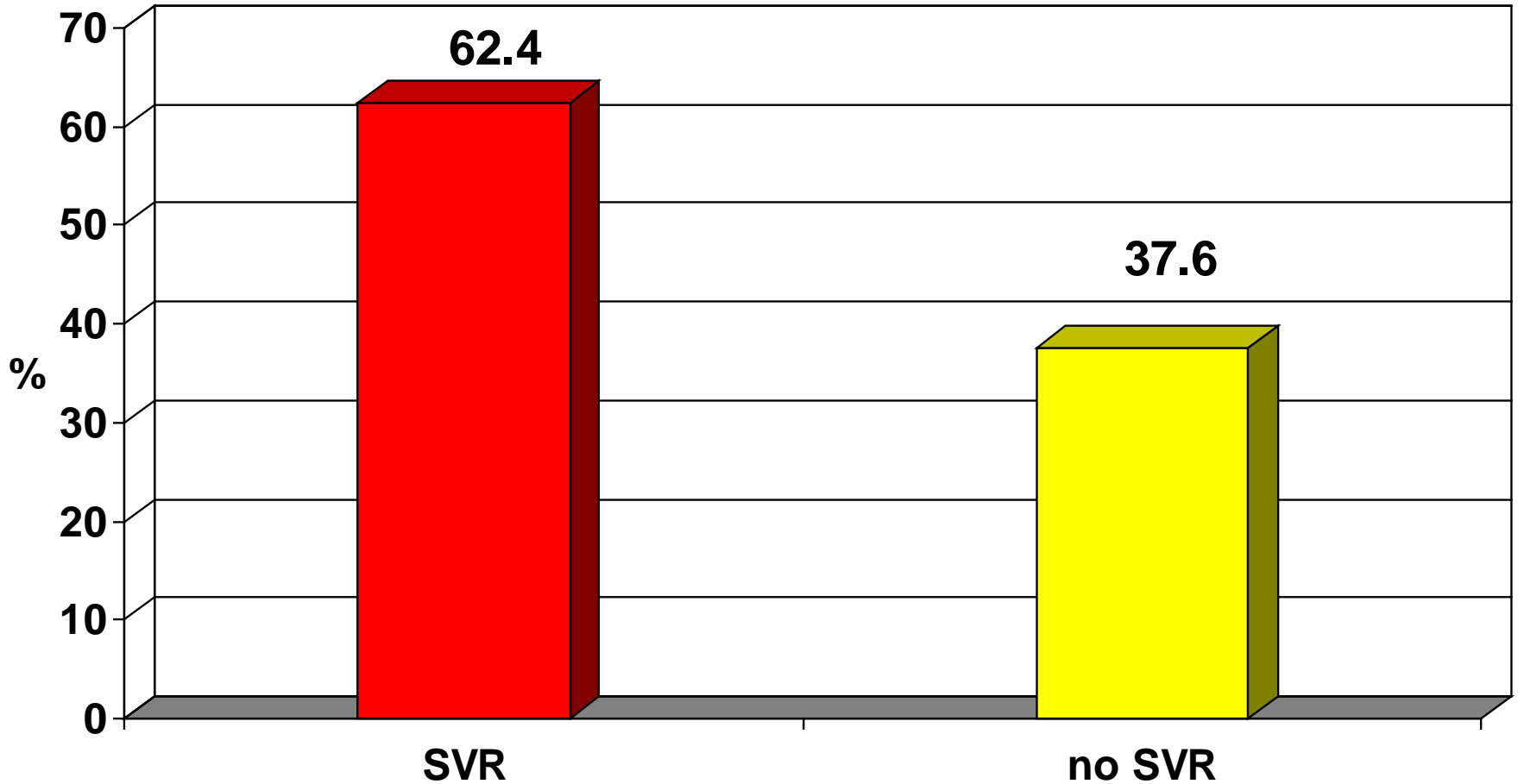
HCV Epidemiology in Israel 2001-2010

- % of HCV patients Treated with Anti-Viral therapy
- Total: 1739 + 300 (clinical trials) = 2039
- HCV+ patients: 18,406
- ~ 30%-40% are not eligible for treatment
- Actual estimated treatment rate: ~ 16%-18%

Time from diagnosis to treatment

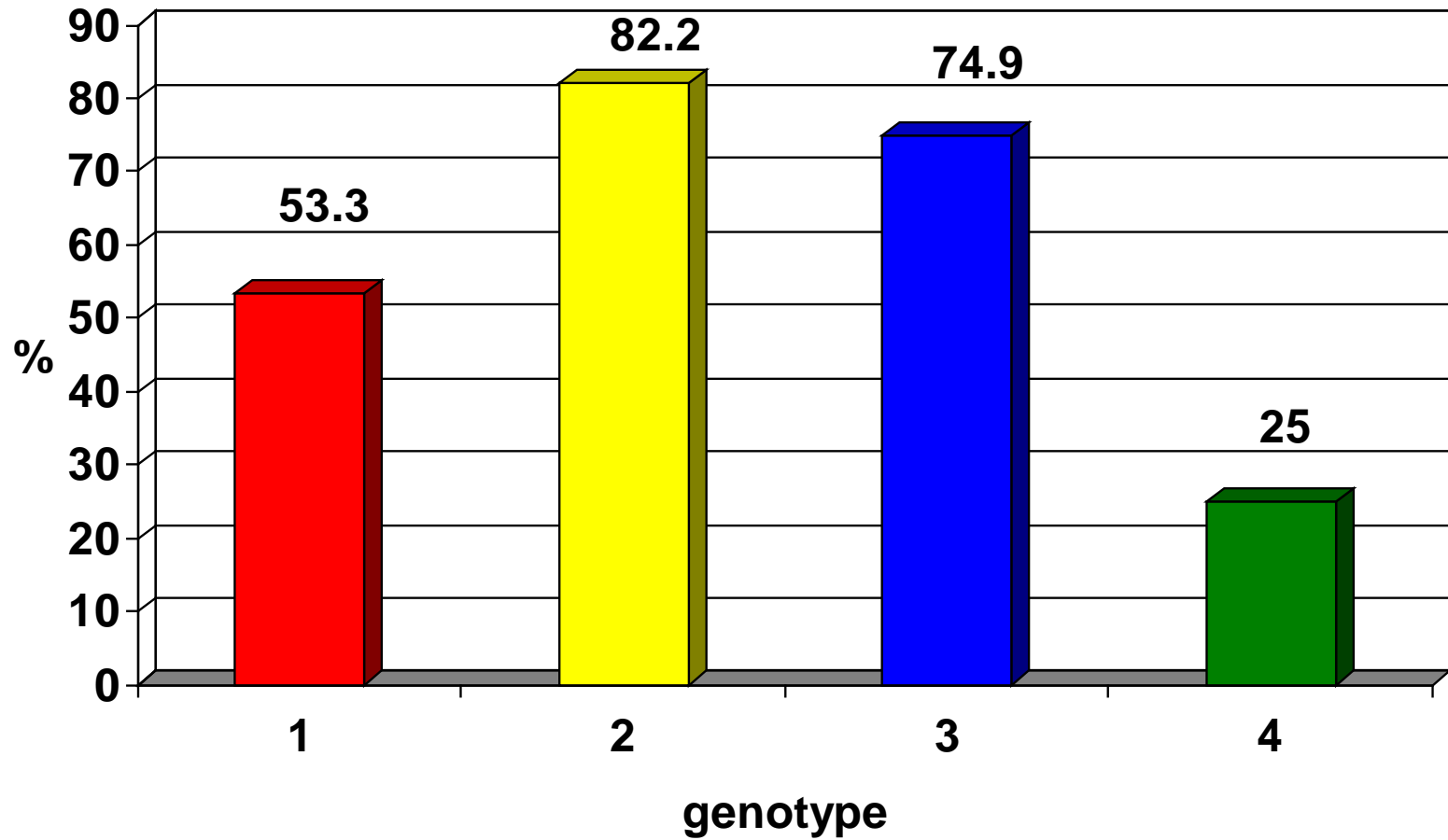


SVR in treated patients: all genotypes (n=1423)



Data on 1423 patients with treatment and follow-up lab test

Percent SVR by genotype



HCV Epidemiology in Israel: Summary

- This is the first and the largest epidemiological study on HCV infection ever performed in Israel.
- The estimated prevalence of chronic HCV infection in Israel is ~ 2%.
- The prevalence was associated with country of origin and was as high as >4% in some countries of the former USSR.
- PCR was positive in 75.5% and the most frequent genotype was genotype1 (70%).

HCV Epidemiology in Israel: Summary

- Less than 20% of the eligible candidates were treated.
- In more than 60%, time elapsed from diagnosis to initiation of treatment was > 12 months.
- Overall 62.4% achieved SVR (53.3% G1 patients).
- More efforts should be directed to increase the number of diagnosed and treated patients.

THANK YOU

