HEPATITIS C ELIMINATION IN GREECE

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Disclosures

- Research Grants: Gilead
- Advisory Boards: BMS, Gilead
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- Co-Chair, Hepatitis B & C Public Policy Association, supported by AbbVie, BMS, Gilead

Burden of infection - Burden of disease - Elimination

Prevalence of HCV in general population

- WHO: 1.5%
- ECDC: 1.0 - <2.0%
- Papatheodoridis et al, 2014*:
  1.87% (18-70 yrs)
  1.5% (including all ages)
- Karakosta et al, 2015**: 1.5%

*Telephone survey (n=10000)

**Multistage stratified random sampling (n=3566)

HCV prevalence in Greece

- General population: 1.5 – 2.0%
- IDUs: 50 - 100%
- Hemodialysis patients: 8.4 (0-52)%
- Blood donors: 0.2 – 0.5%
- Army recruits: 0.3%
- Endemic foci: 5 – 10%
- Albanian immigrants: 1.5 – 2.5%
- Egyptian immigrants: 20 – 25%
- HIV infected: 10-100%

Hepatitis C in Greece: Prevalence

Prevalence

(all ages & correcting for high risk individuals not included in the survey e.g. homeless people, imprisoned PWID, Roma)

→ **1.5%**

(Papatheodoridis et al, J Viral Hep 2014)

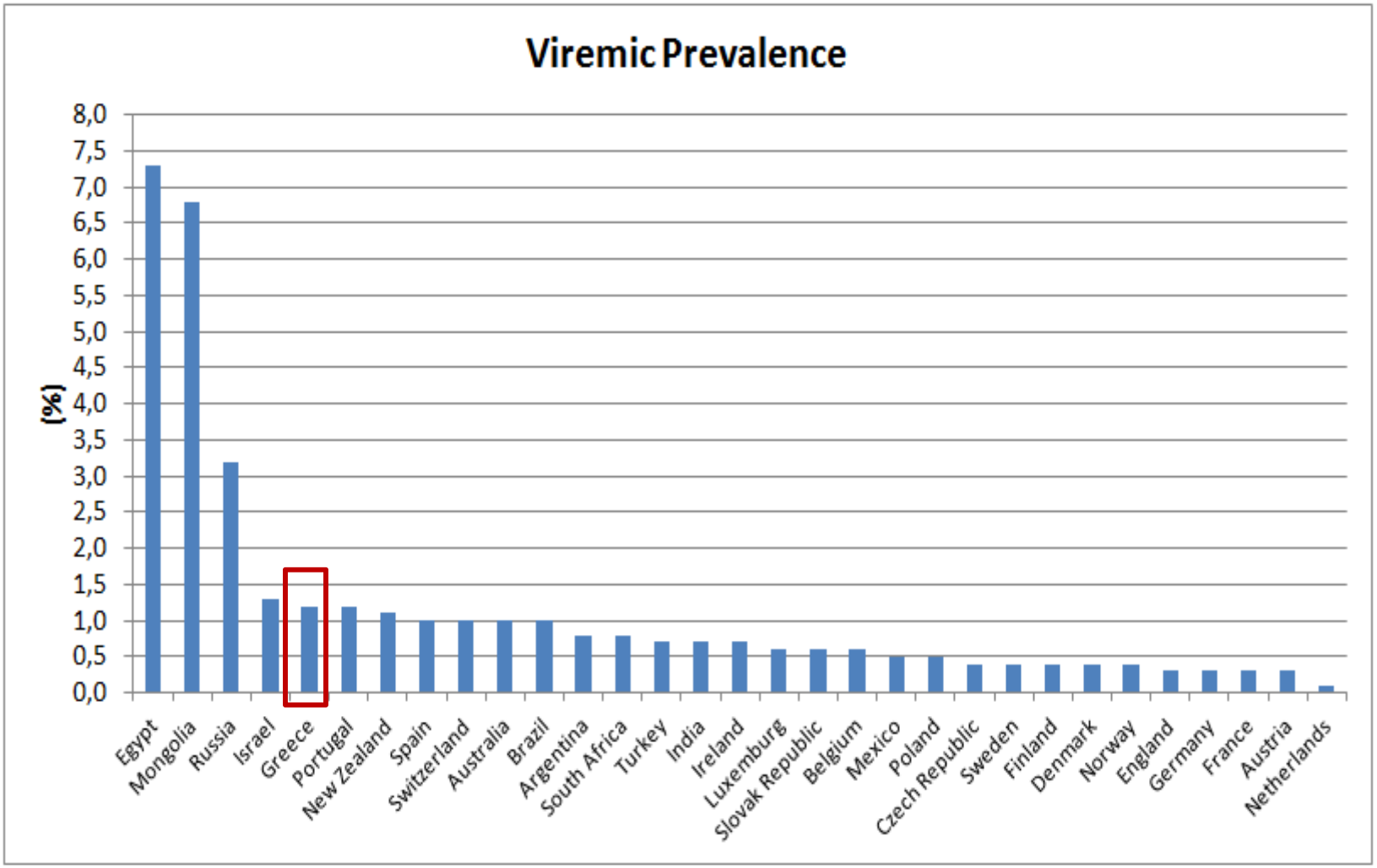
Viremic prevalence

(80% viremic)

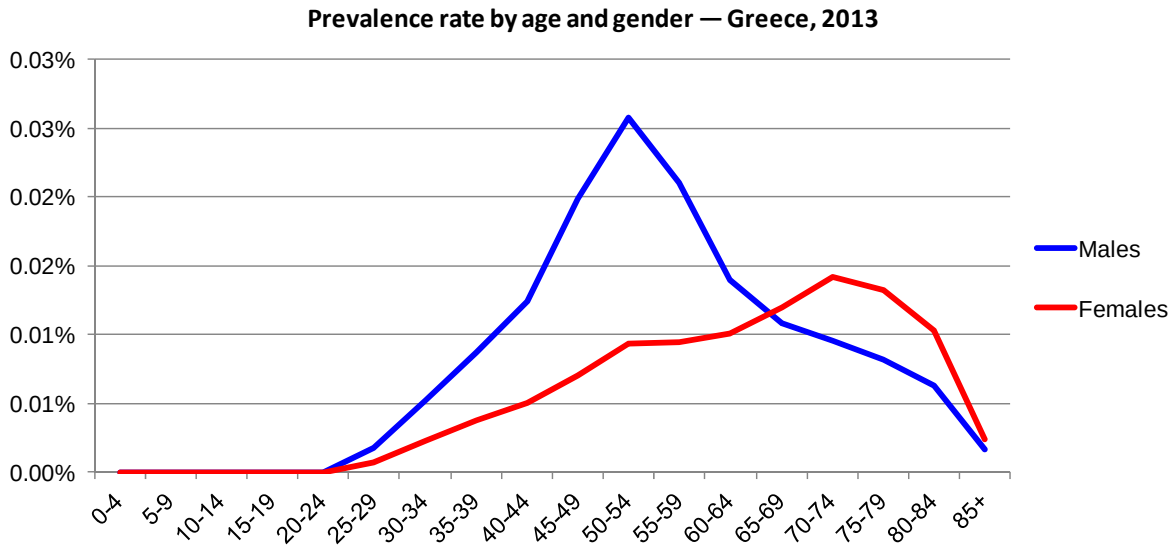
→ **1.2%**

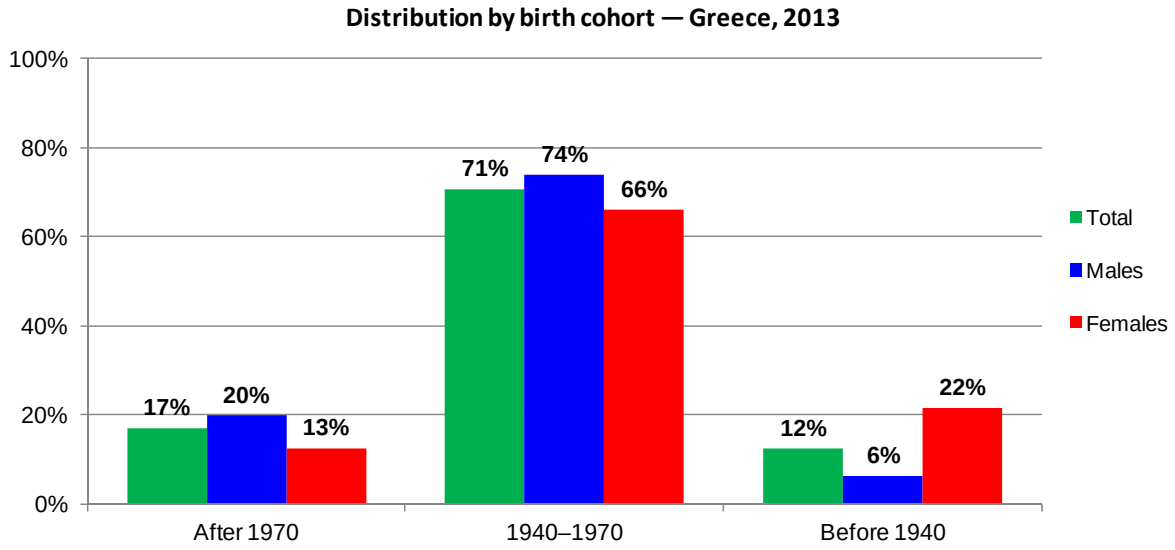
→ **134.000 persons**

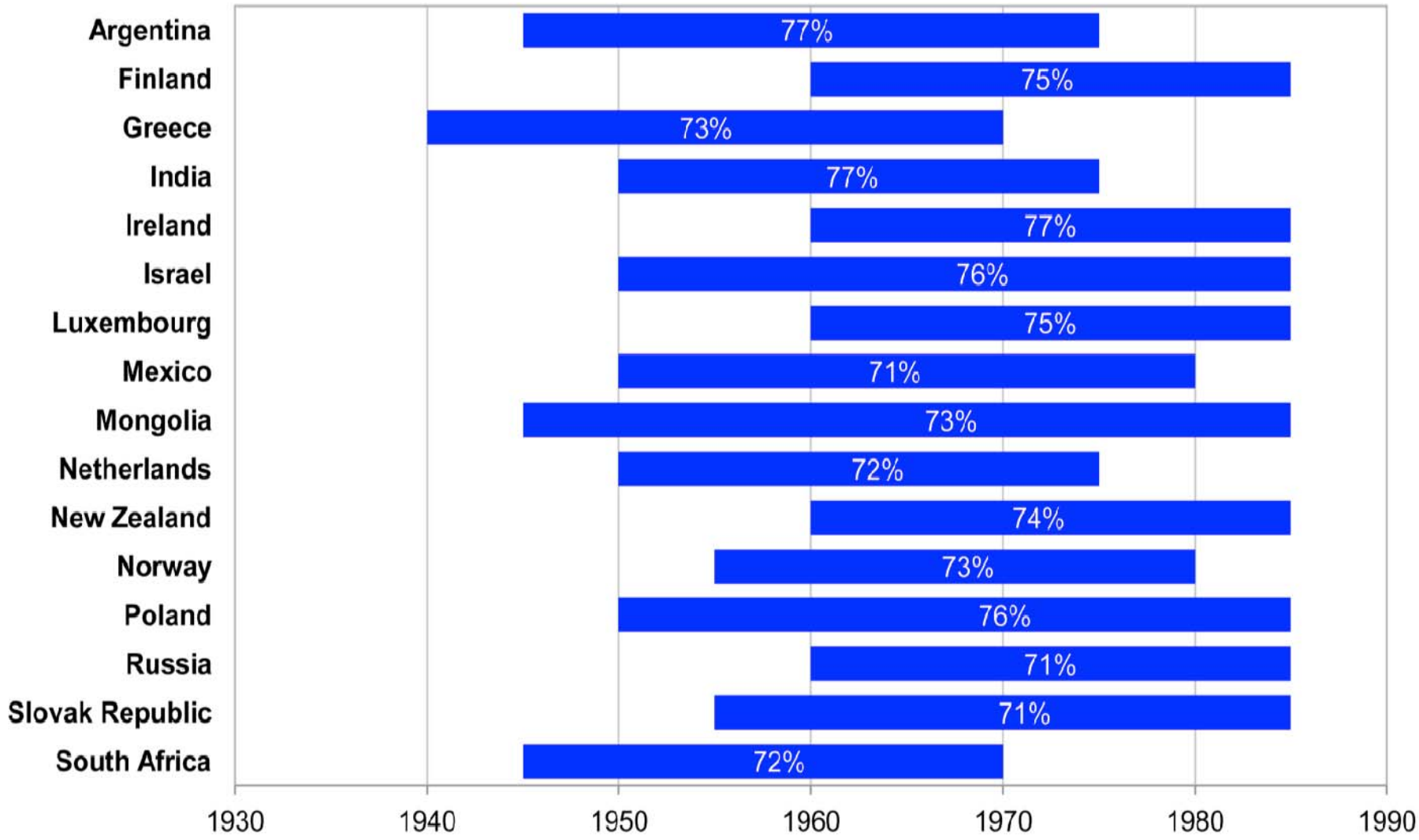
with chronic hepatitis C in Greece


Viremic Prevalence
(%)
8,0
7,5
7,0
6,5
6,0
5,5
5,0
4,5
4,0
3,5
3,0
2,5
2,0
1,5
1,0
0,5
0,0
Egypt
Mongolia
Russia
Israel
Greece
Portugal
New Zealand
Spain
Switzerland
Australia
Brazil
Argentina
South Africa
Turkey
India
Ireland
Luxemburg
Slovak Republic
Belgium
Mexico
Poland
Czech Republic
Sweden
Finland
Denmark
Norway
England
Germany
France
Austria
Netherlands

Prevalence Age and Gender Distribution – Katsoulidou 2006 (Birth cohorts aged to 2011 and took into account mortality)

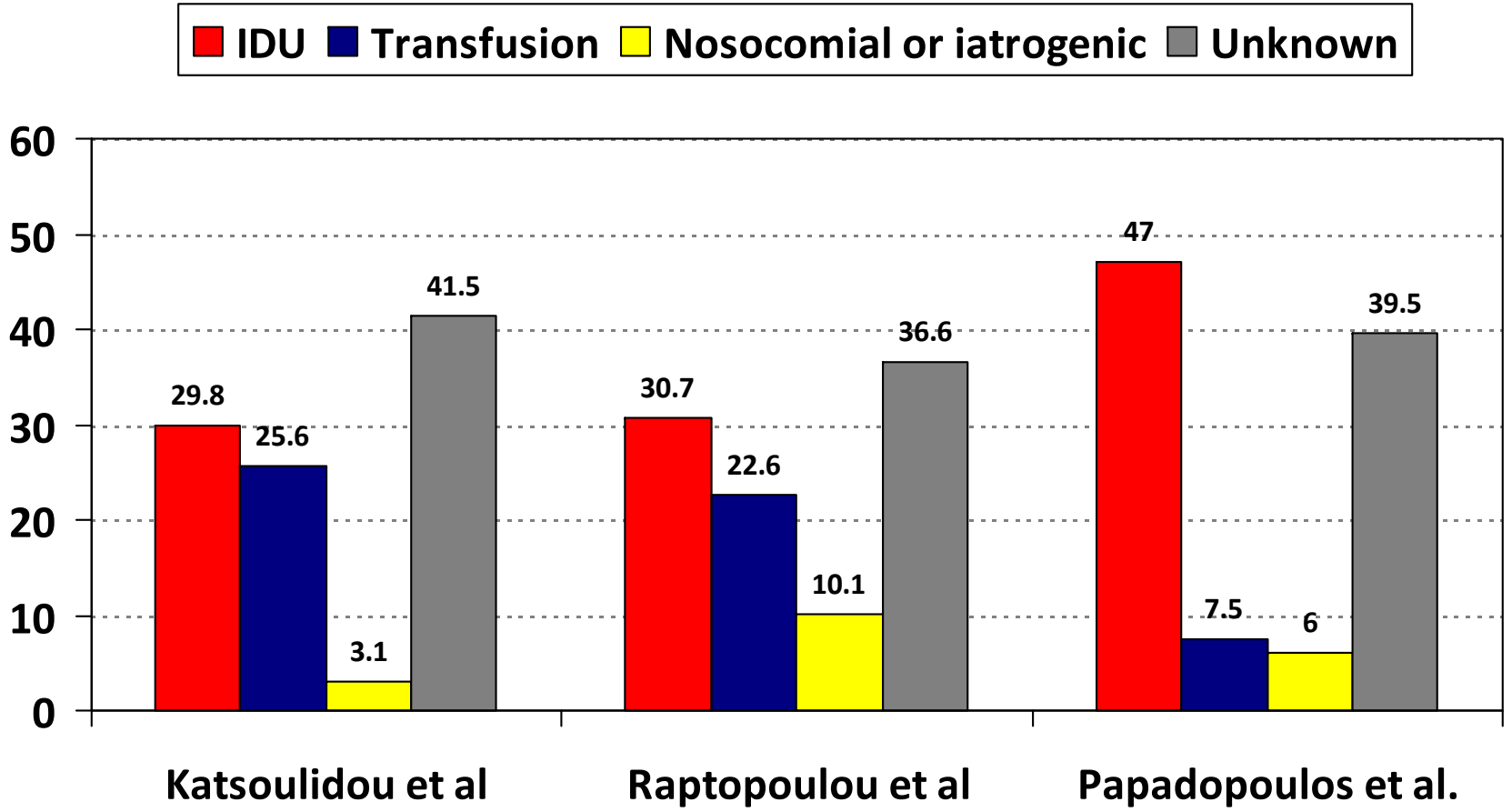






Gane et al. JVH, 2015. 22, (Suppl S1), 46-73

Distribution of CHC patients in transmission groups

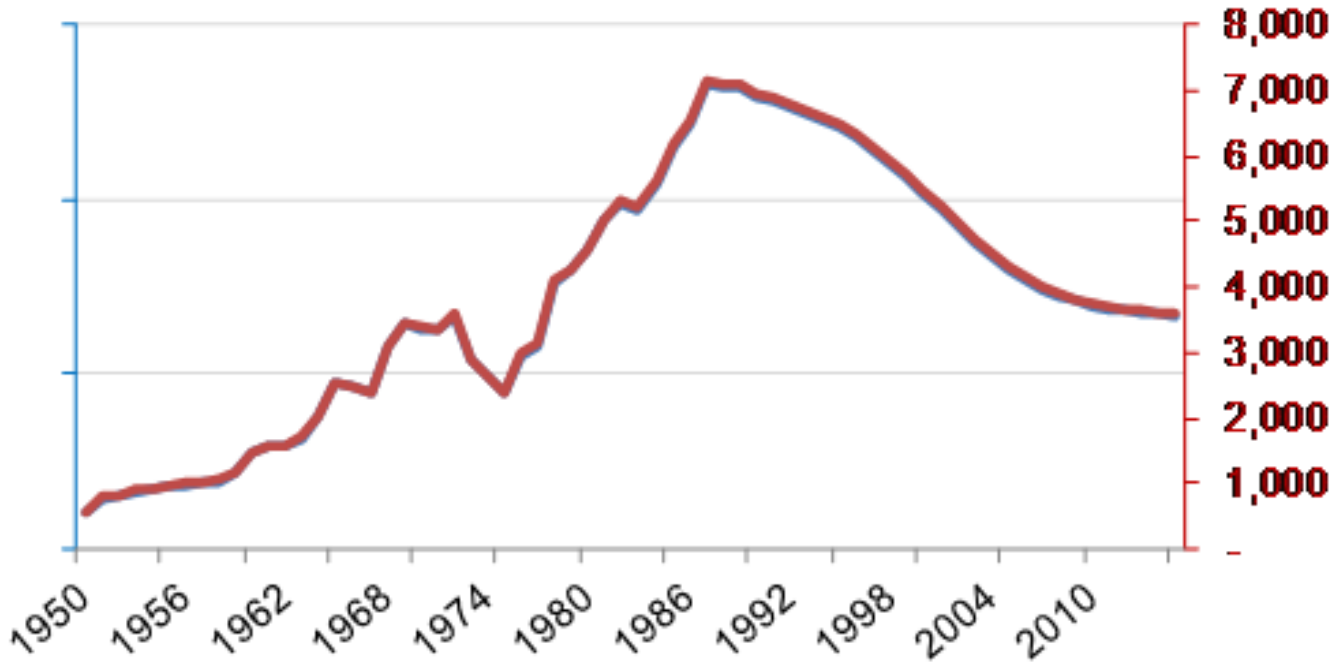


Comparison of incidence estimate with estimates from other countries

Country	Incidence (1990)
USA ▪ Williams, 1999	9.3 new infections/10.000 population
FRANCE ▪ Deuffic et al, 1999	4.4 new infections/10.000 population
GREECE	5.0 new infections/10.000 population

Hepatitis C in Greece: Incidence

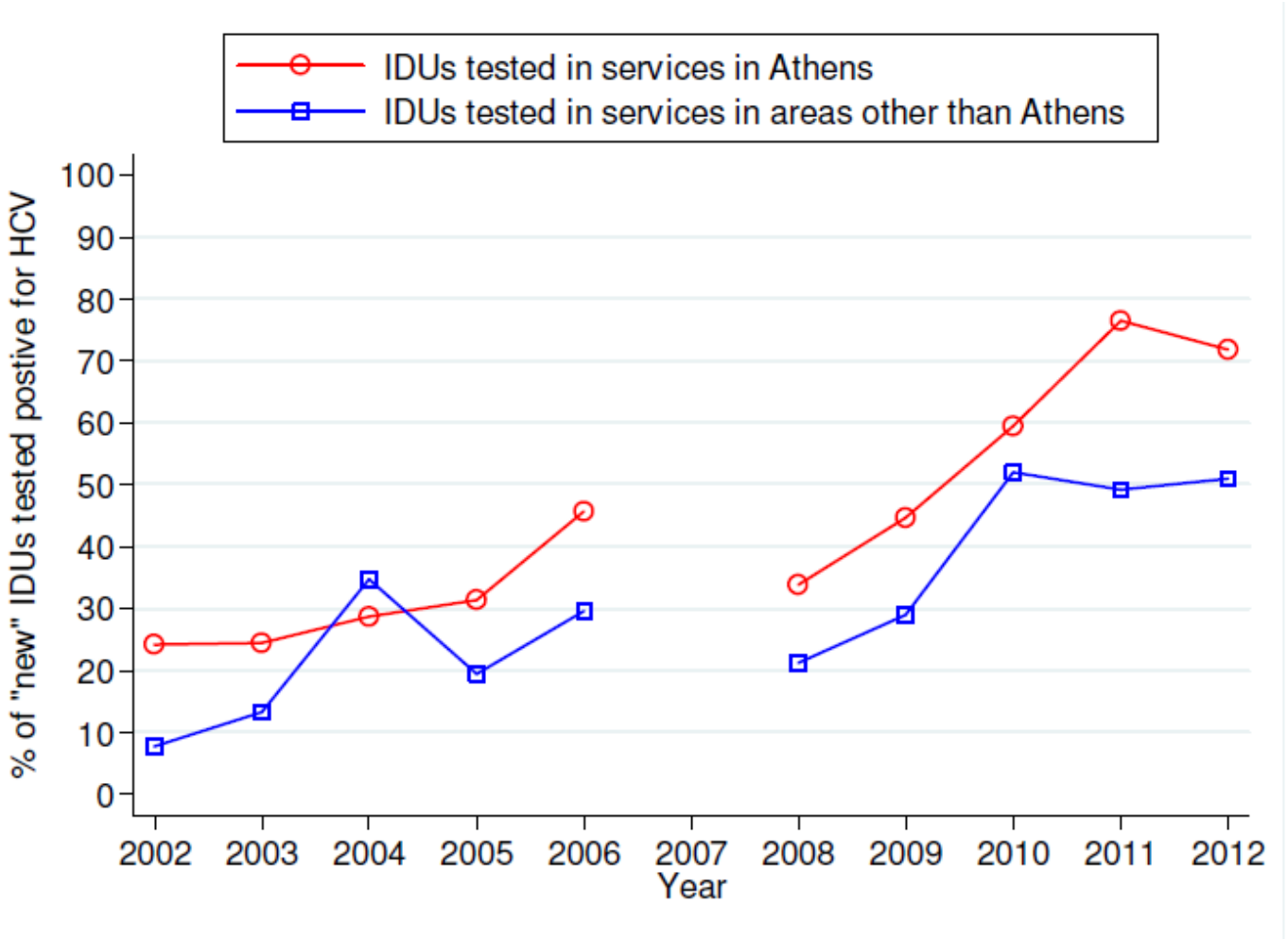
New infections



Nowadays, approximately 3,700 new infections per year

Sypsa et al. J Viral Hep 2003
Saraswat et al, J Viral Hep, 2015

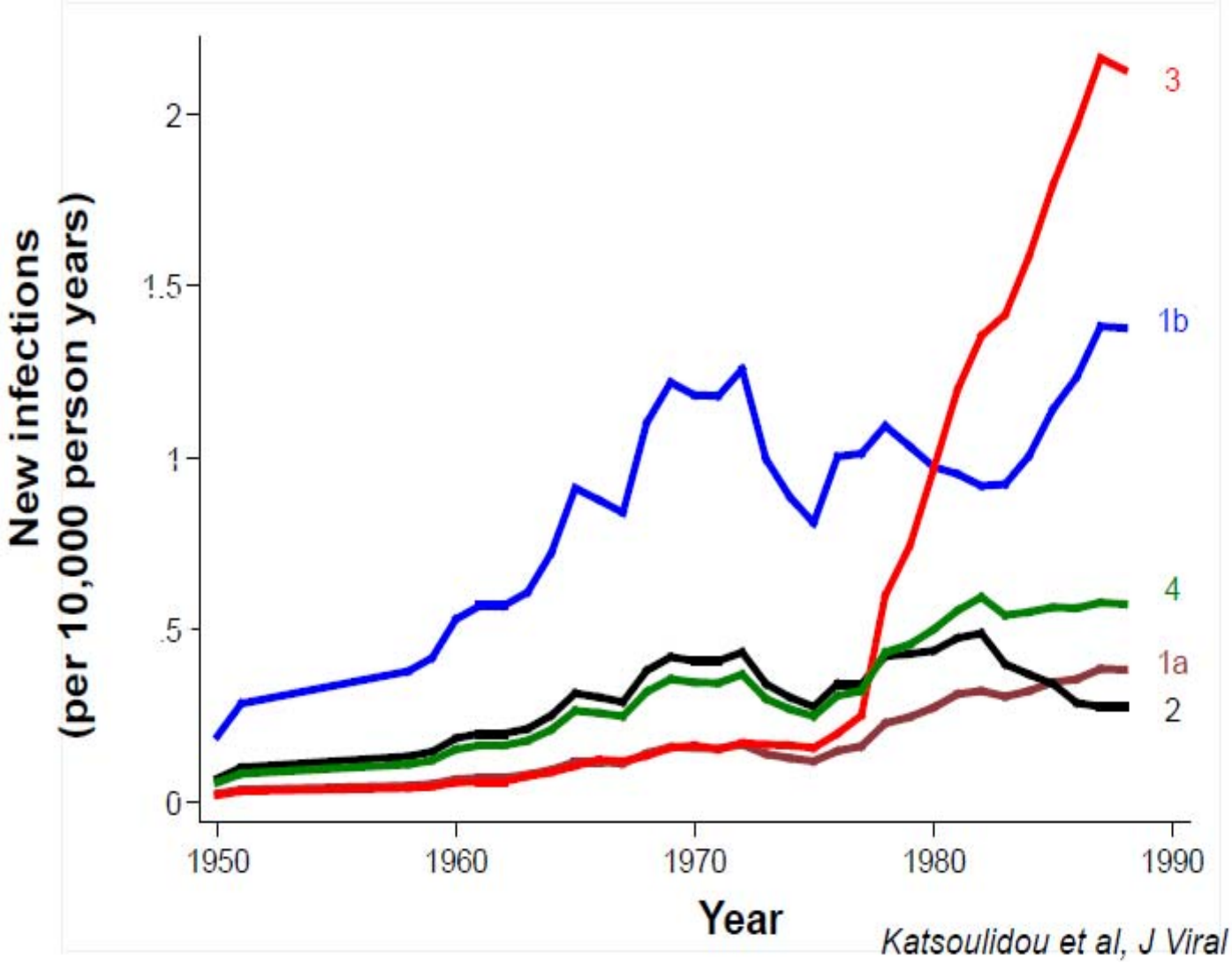
Prevalence of anti-HCV among “new” injectors in Greece



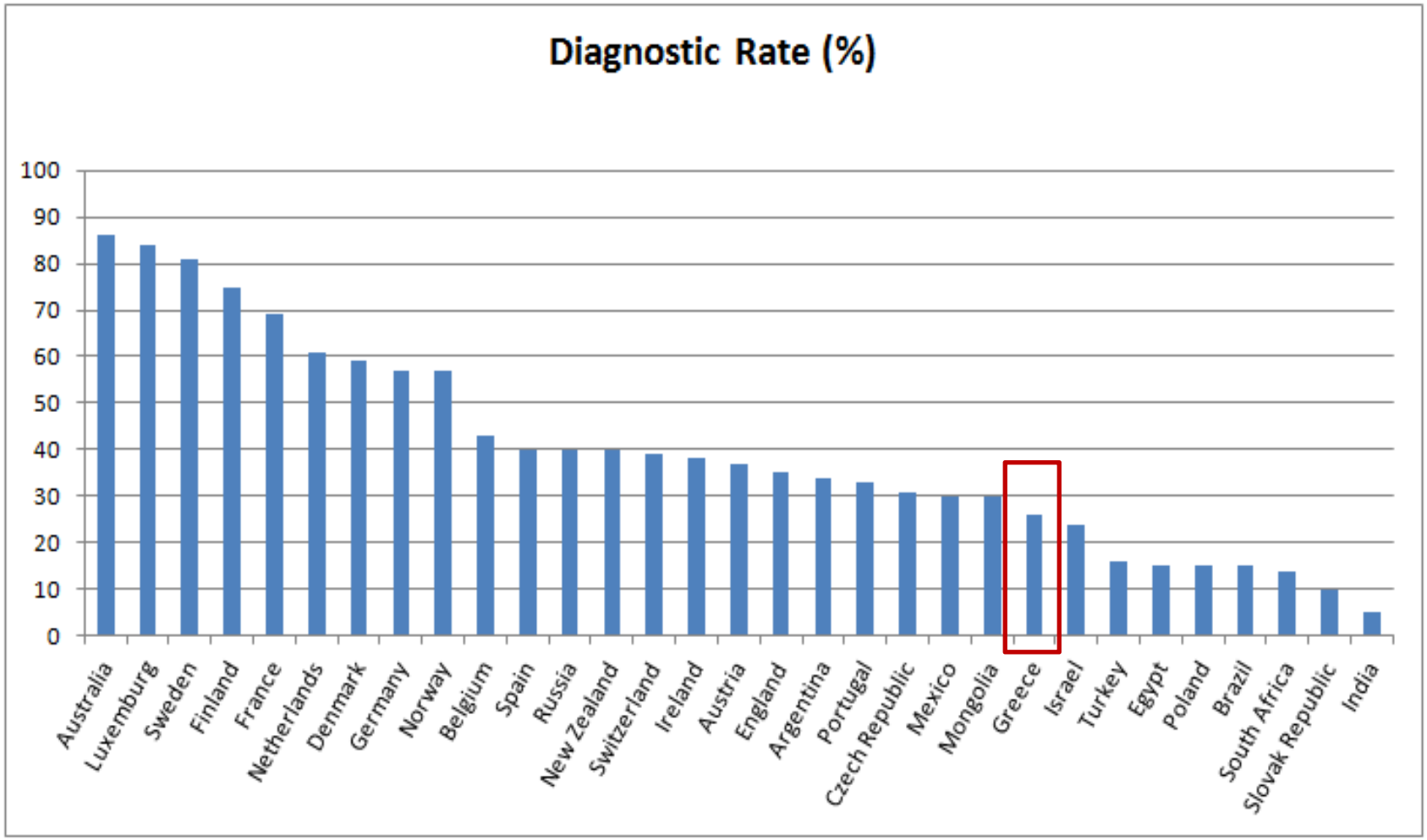
New injectors: duration of injecting drug use<2 years

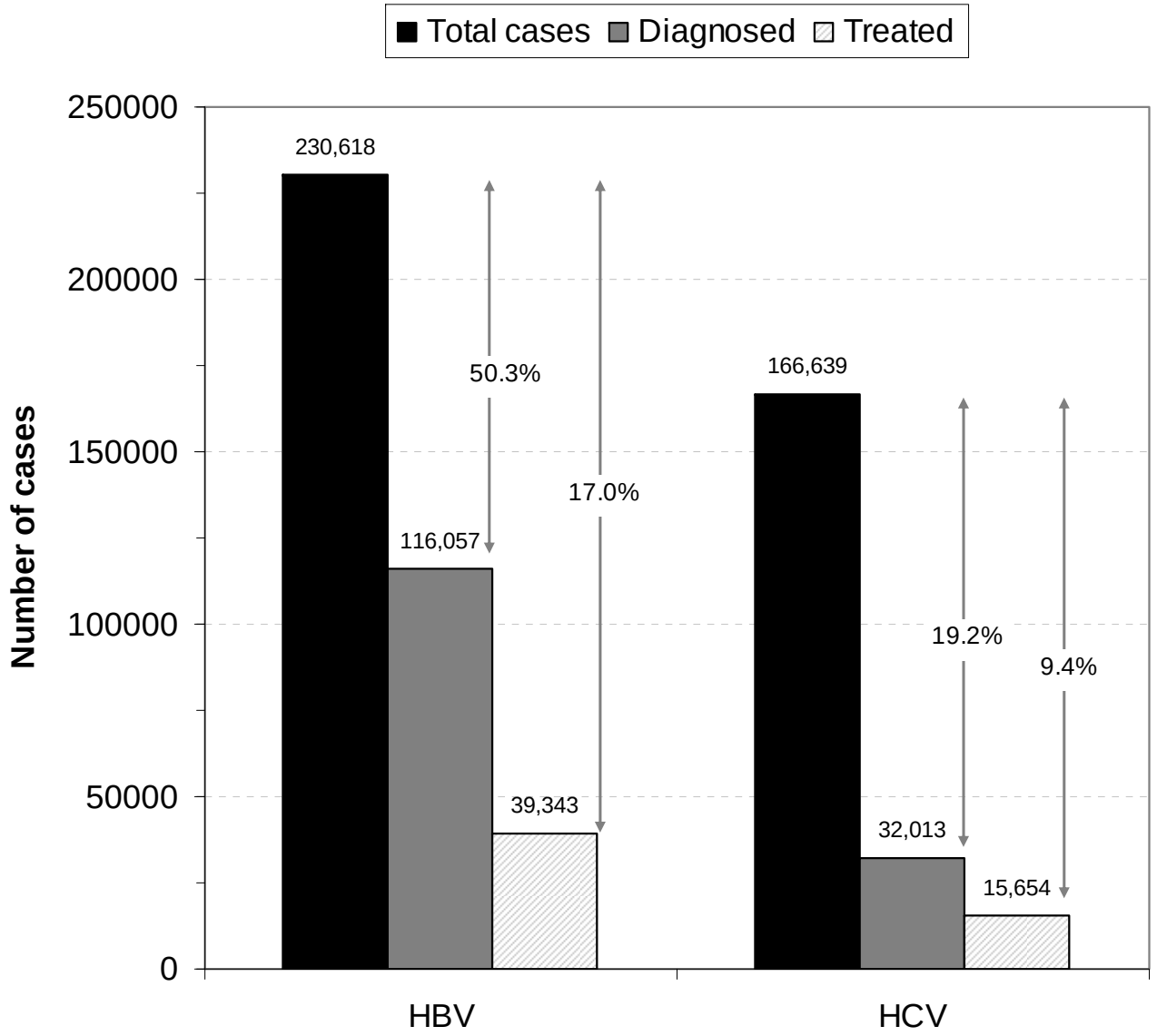
Paraskevis et al, PLoS One, 2013

Estimated incidence of HCV infection (1940-1990) in Greece by genotype



Katsoulidou et al, J Viral Hepat (2005)

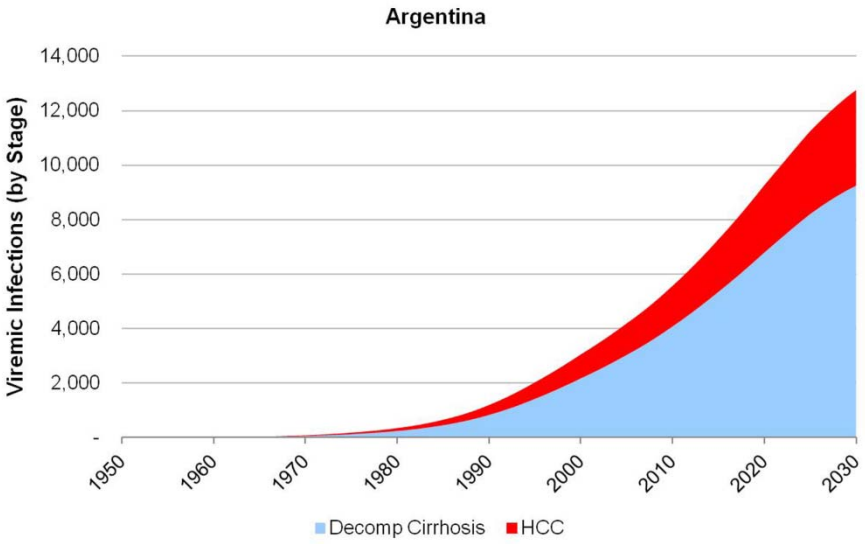

Diagnostic Rate (%)
100
90
80
70
60
50
40
30
20
10
0
Australia
Luxemburg
Sweden
Finland
France
Netherlands
Denmark
Germany
Norway
Belgium
Spain
Russia
New Zealand
Switzerland
Ireland
Austria
England
Argentina
Portugal
Czech Republic
Mexico
Mongolia
Greece
Israel
Turkey
Egypt
Poland
Brazil
South Africa
Slovak Republic
India

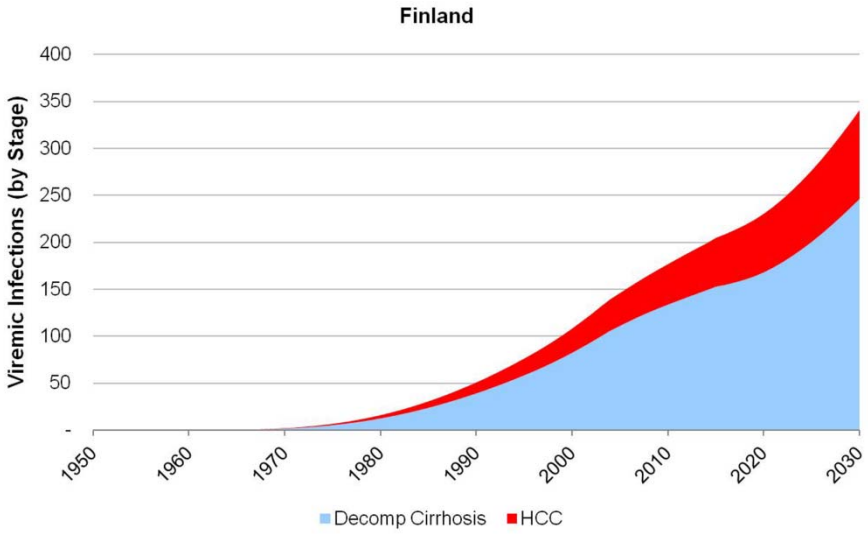


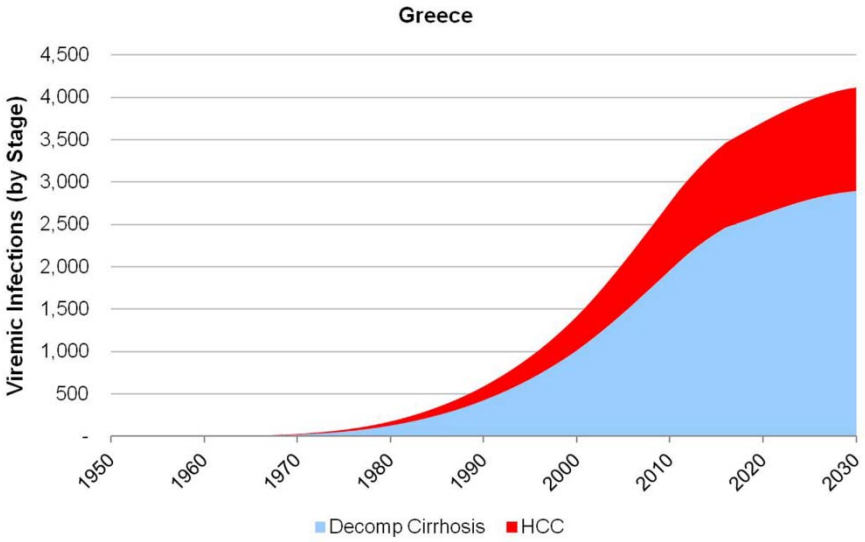
Papatheodoridis G et al. J Viral Hepatitis 2014

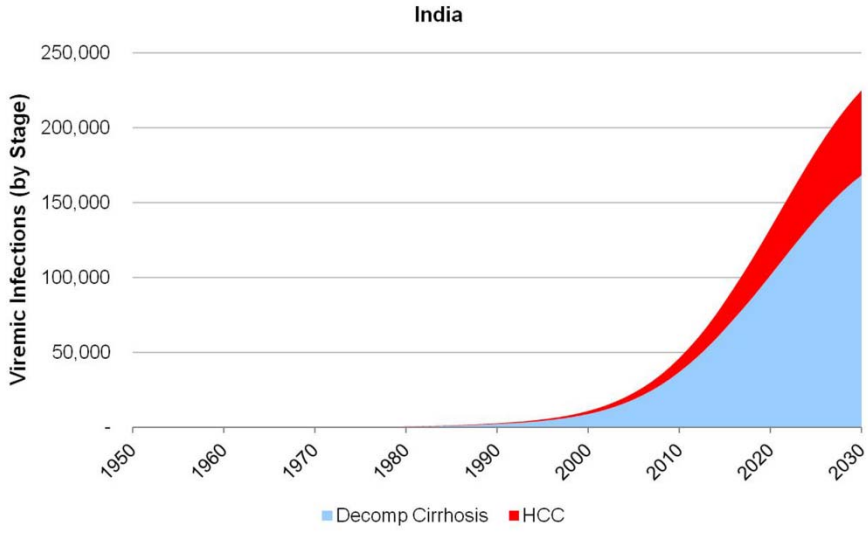
HCC and Decompensated Cirrhosis, 1950-2030

Argentina, Finland, Greece and India





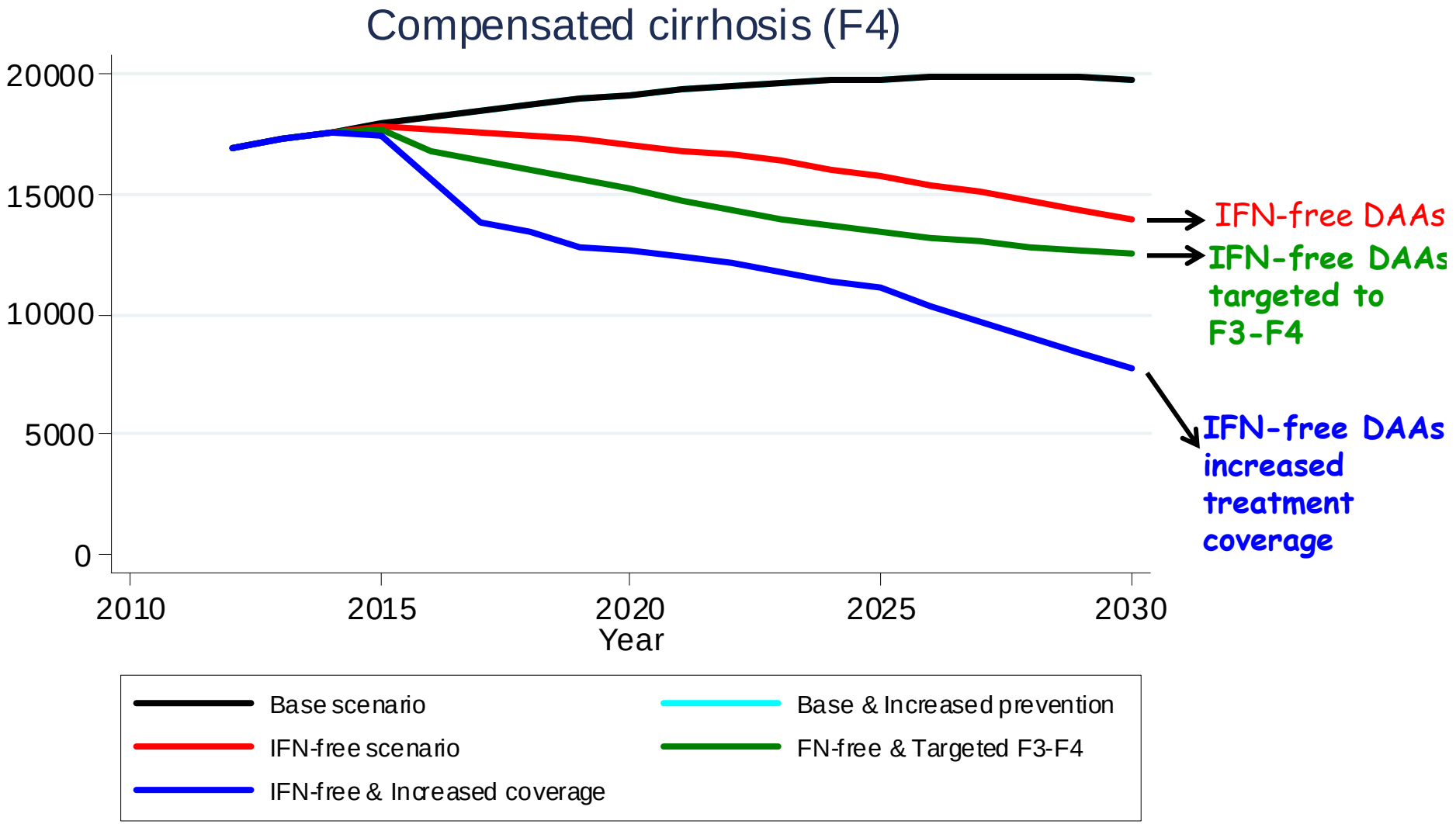


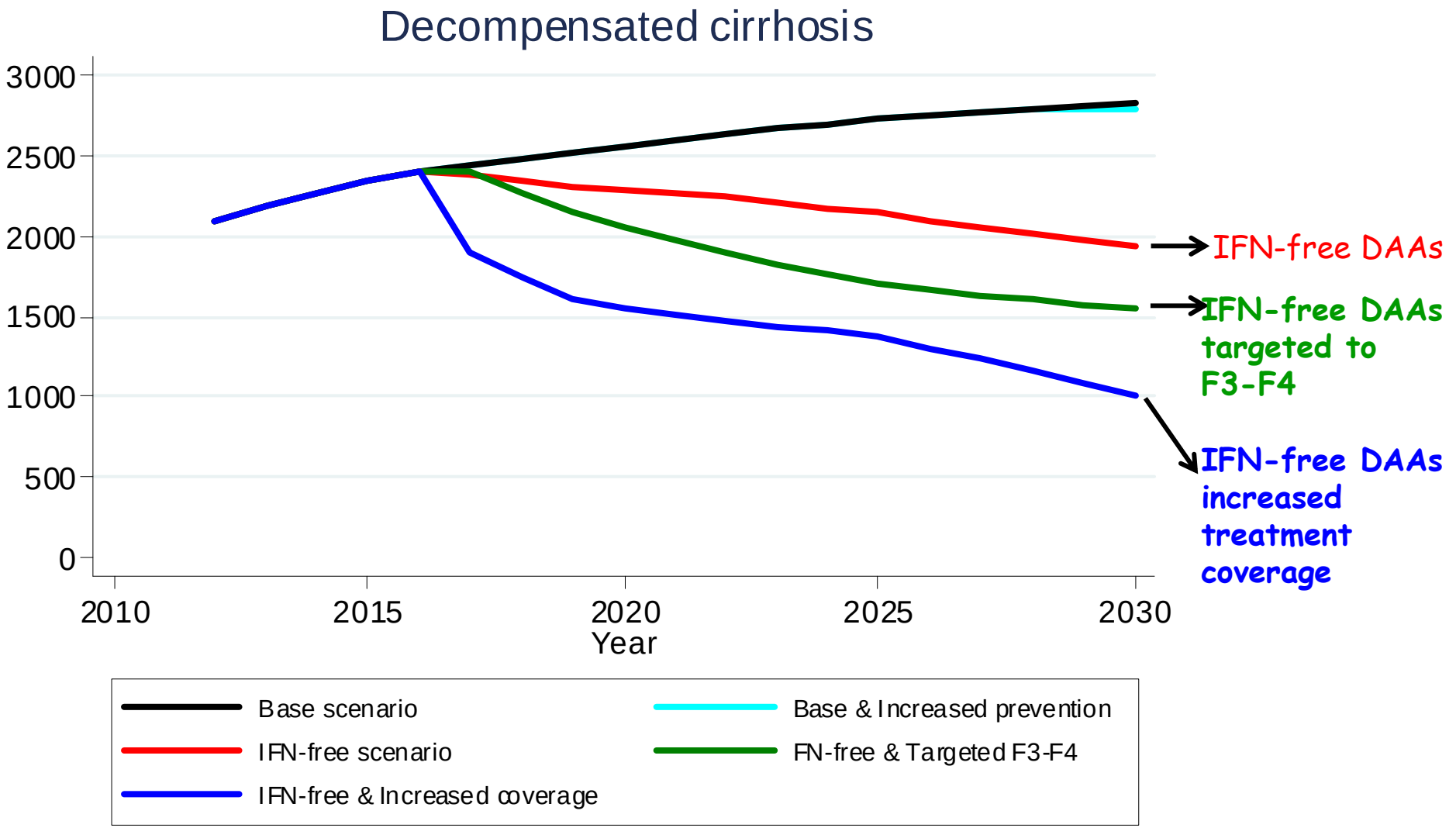


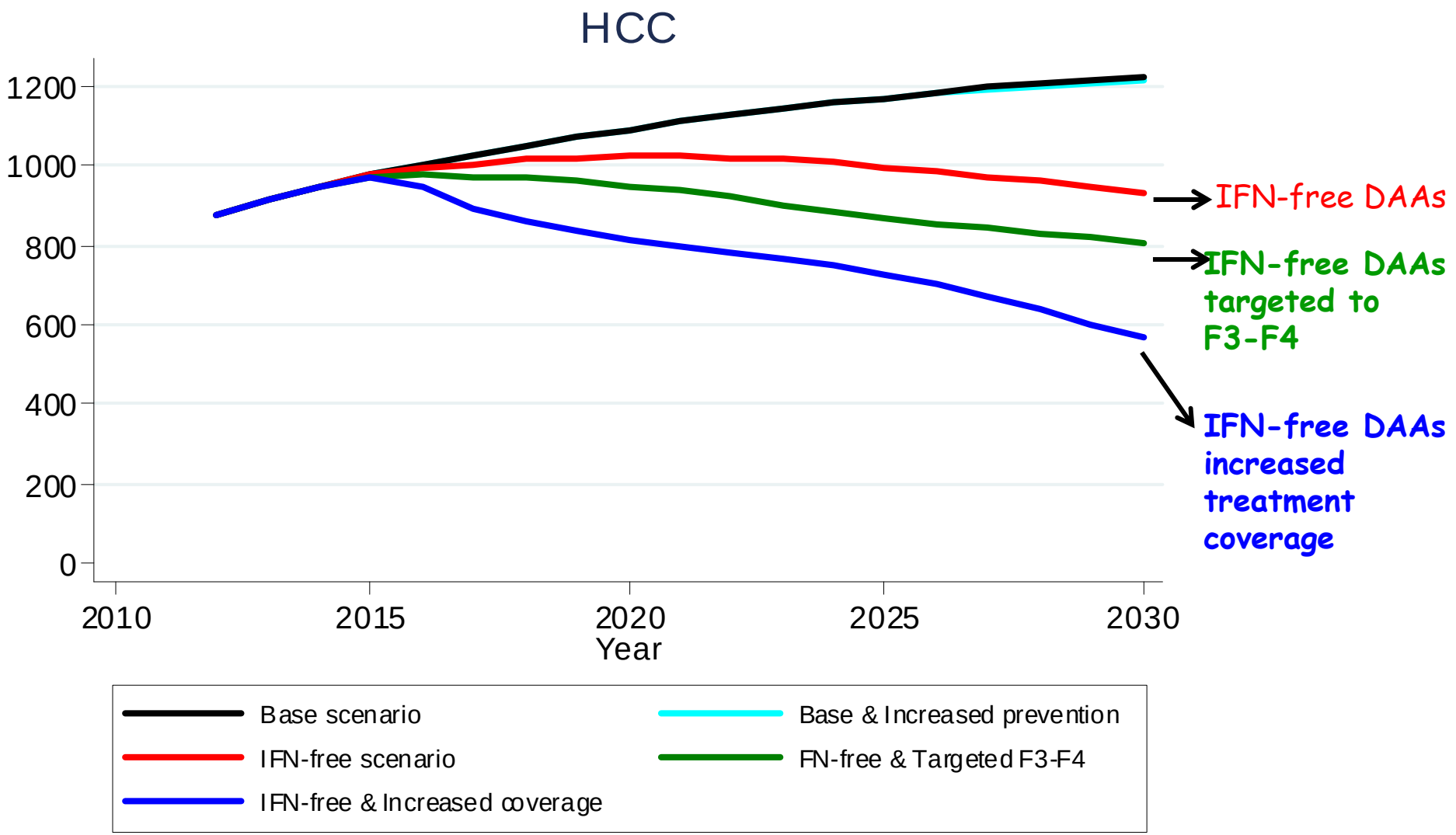
Hatzakis A et al. J Viral Hepat 2015; 22 Suppl S1: 26-45.

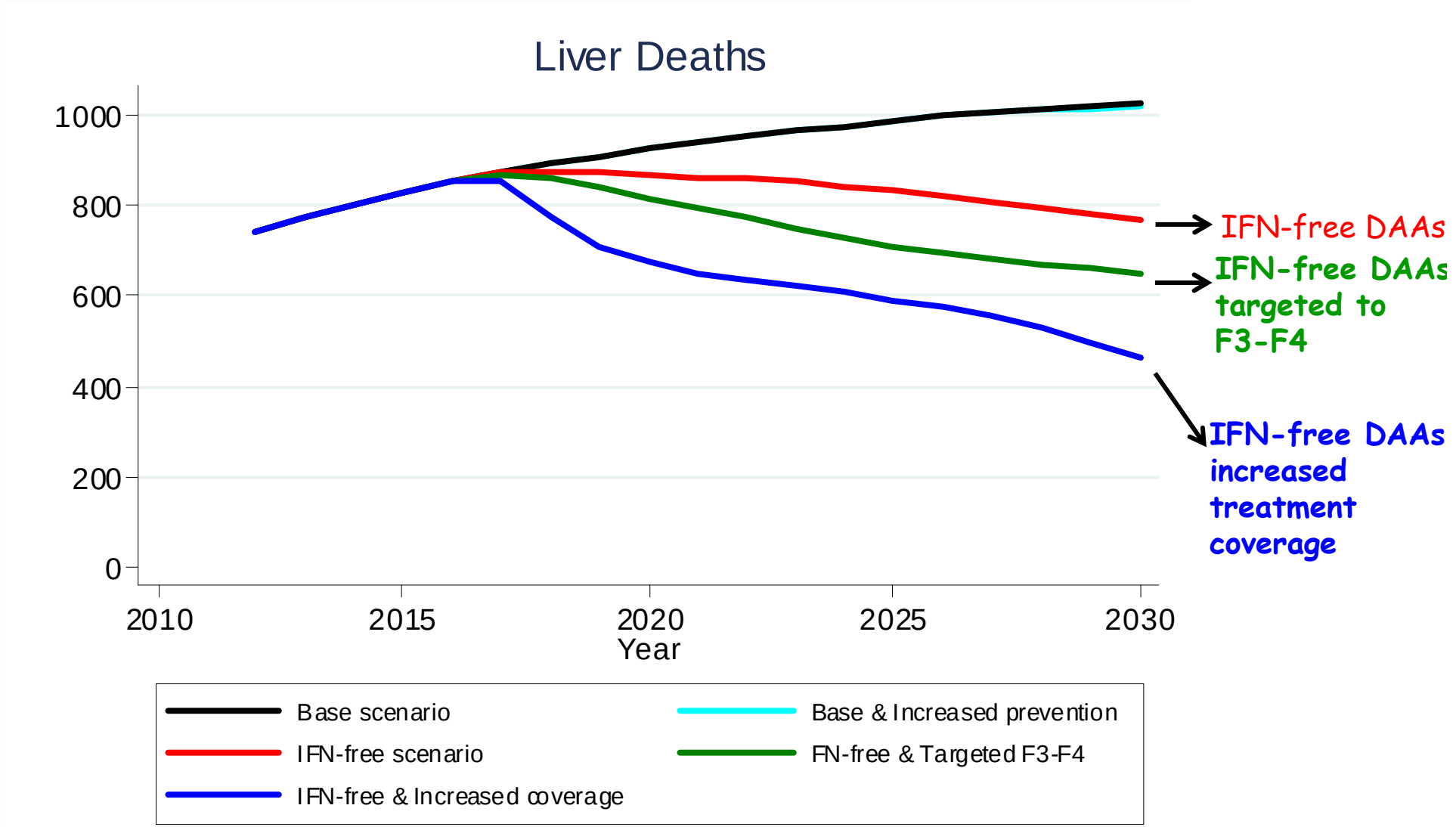
Scenarios depending on assumptions concerning treatment and prevention

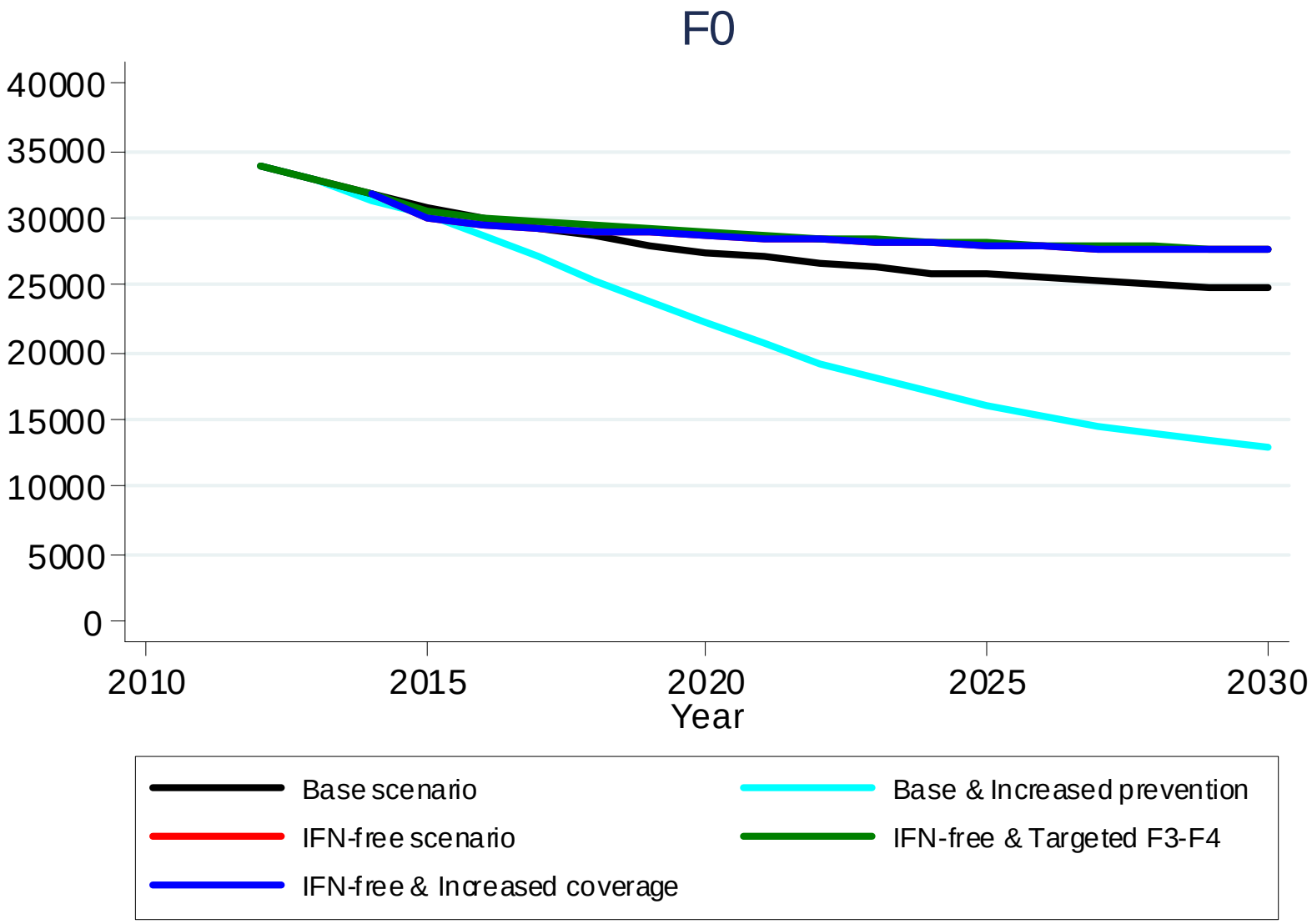
	SVR	Treatment coverage	Fibrosis stage
Scenario A —— Base scenario Peg-Interferon +RBV with/without BOC/TVR	65%-90%	~2000/year	All
Scenario B —— Base & Prevention	65%-90%	~2000/year	All
	10% decline in new infections/year (2013-2020)		
Scenario C —— IFN-free scenario	up to 95%	~2000/year	≥F2
Scenario D —— IFN-free scenario & Targeted to F3-F4	up to 95%	~3000/year in 2015-2016 ~2000/year in 2017-2030	≥F3 (≥F2 since 2025)
Scenario E —— IFN-free scenario & increased treatment coverage	up to 95%	~5000/year in 2015-2020 ~2500 in 2021-2030	≥F3 (≥F2 since 2017)


Compensated cirrhosis (F4)
20000
15000
10000
5000
0
2010
2015
2020
2025
2030
Year
IFN-free DAAs
IFN-free DAAs targeted to F3-F4
IFN-free DAAs increased treatment coverage
Base scenario
IFN-free scenario
IFN-free & Increased coverage
Base & Increased prevention
FN-free & Targeted F3-F4

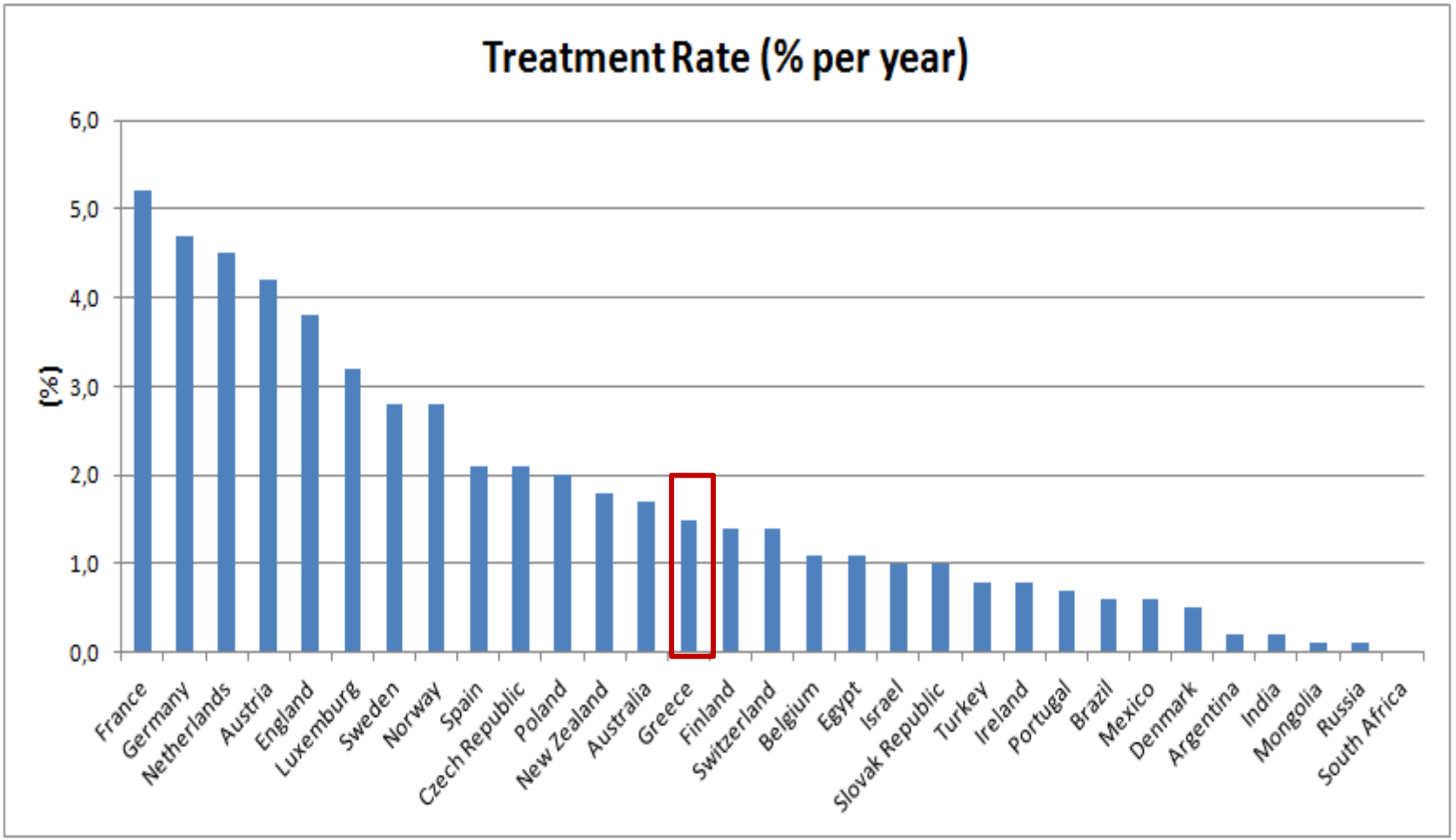

Decompensated cirrhosis
3000
2500
2000
1500
1000
500
0
2010
2015
2020
2025
2030
Year
IFN-free DAAs
IFN-free DAAs targeted to F3-F4
IFN-free DAAs increased treatment coverage
Base scenario
IFN-free scenario
IFN-free & Increased coverage
Base & Increased prevention
FN-free & Targeted F3-F4


HCC
1200
1000
800
600
400
200
0
2010
2015
2020
2025
2030
Year
IFN-free DAAs
IFN-free DAAs targeted to F3-F4
IFN-free DAAs increased treatment coverage
Base scenario
IFN-free scenario
IFN-free & Increased coverage
Base & Increased prevention
FN-free & Targeted F3-F4


Liver Deaths
1000
800
600
400
200
0
2010
2015
2020
2025
2030
Year
IFN-free DAAs
IFN-free DAAs targeted to F3-F4
IFN-free DAAs increased treatment coverage
Base scenario
IFN-free scenario
IFN-free & Increased coverage
Base & Increased prevention
FN-free & Targeted F3-F4


F0
40000
35000
30000
25000
20000
15000
10000
5000
0
2010
2015
2020
2025
2030
Year
Base scenario
IFN-free scenario
IFN-free & Increased coverage
Base & Increased prevention
IFN-free & Targeted F3-F4

HCV treatment


Treatment Rate (% per year)
(%)
6,0
5,0
4,0
3,0
2,0
1,0
0,0
France
Germany
Netherlands
Austria
England
Luxemburg
Sweden
Norway
Spain
Czech Republic
Poland
New Zealand
Australia
Greece
Finland
Switzerland
Belgium
Egypt
Israel
Slovak Republic
Turkey
Ireland
Portugal
Brazil
Mexico
Denmark
Argentina
India
Mongolia
Russia
South Africa

Number of cases by fibrosis stage in Greece, 2012 (total cases, diagnosed cases)

	Estimates of the total number of chronic hepatitis C cases	Estimated number of diagnosed cases
F0	33,784 (25.3%)	
F1	36,265 (27.2%)	
F2	20,606 (15.4%)	
F3	23,822 (17.9%)	**7,147**
F4-comp.	16,867 (12.6%)	**6,747**
F4-decom.	2,101 (1.6%)	**2,101**
Total	133,445	

Approx. 16,000 persons ≥F3 & diagnosed

Hatzakis et al, J Viral Hep 2015

Papatheodoridis et al, J Viral Hep 2014

Available DAAs in Greece

1) Sofosbuvir
2) Simeprevir
3) Declatesvir
4) Sofosbuvir/Ledipasvir
5) Paritaprevir/Ritonavir/Omitasvir
6) Dasabuvir

- ~600 F3/F4 CHC patients have been treated so far
- Current demand: ~ 16.000 patients with CHC F3/F4 who know their status

National Hepatitis Plan

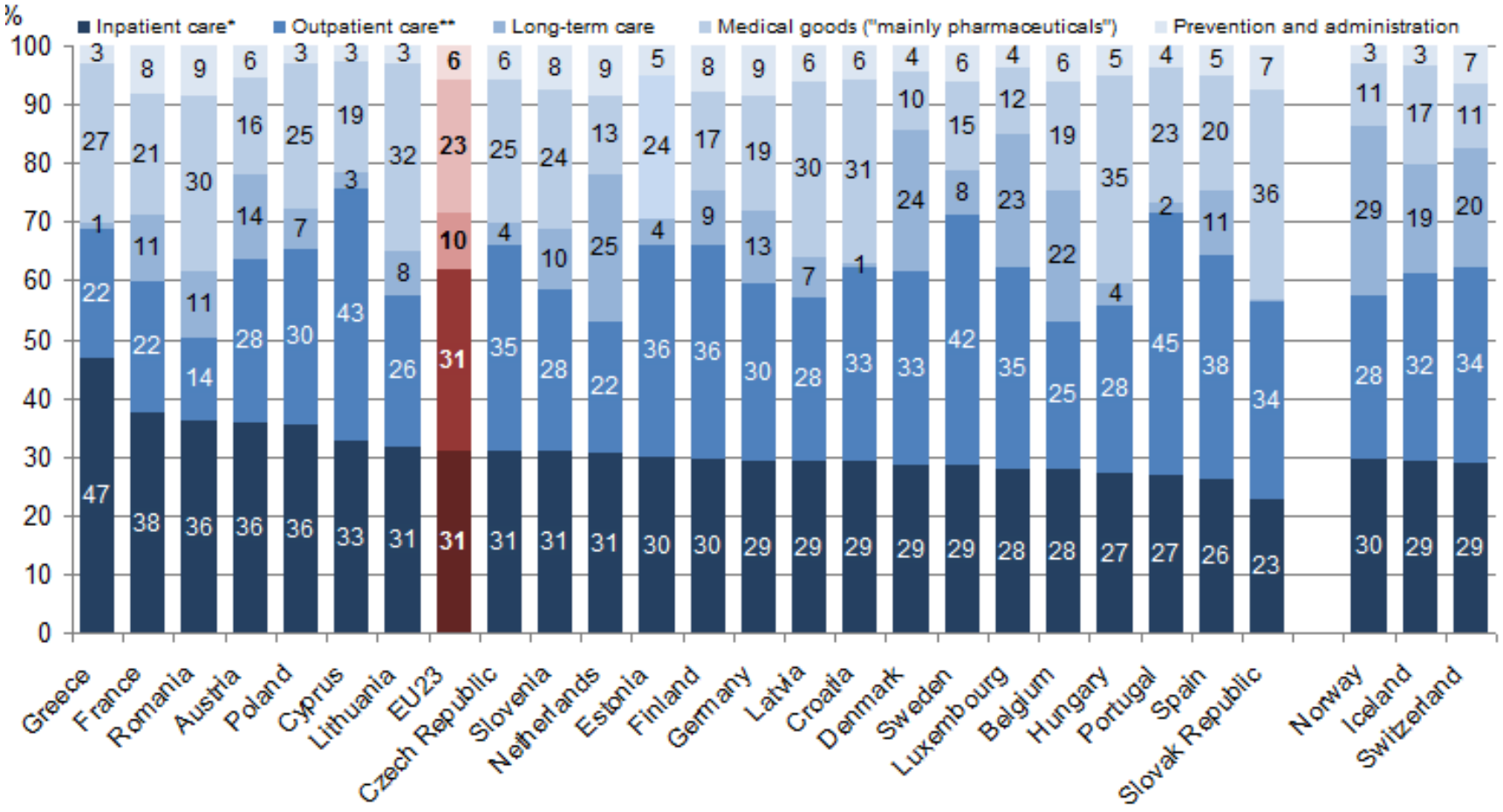
- None.
- No official activities.
- NGOs are very active.
- National Hepatitis Treatment Registry (available July 2015)

Greece: Health Care System

GDP and Social Expenditures (OECD, 2007/08 - 2012/13)

Source: OECD, Society at a Glance 2014 Highlights: GREECE The crisis and its aftermath, March 2014.

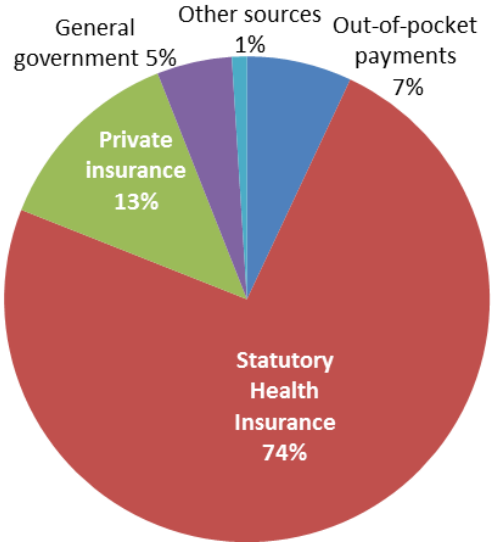
Current health expenditure by function, 2012 (or nearest year)



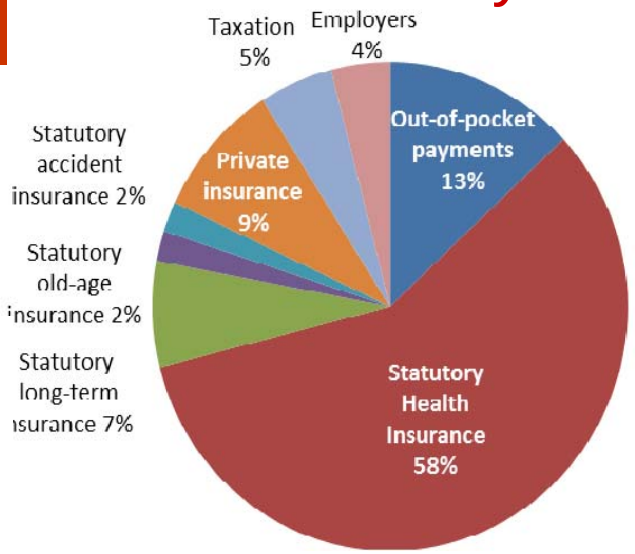
Source: OECD Health Statistics 2014, http://dx.doi.org/10.1787/health-data-en, Eurostat Statistics Database for non-OECD countries.

Sources of fund

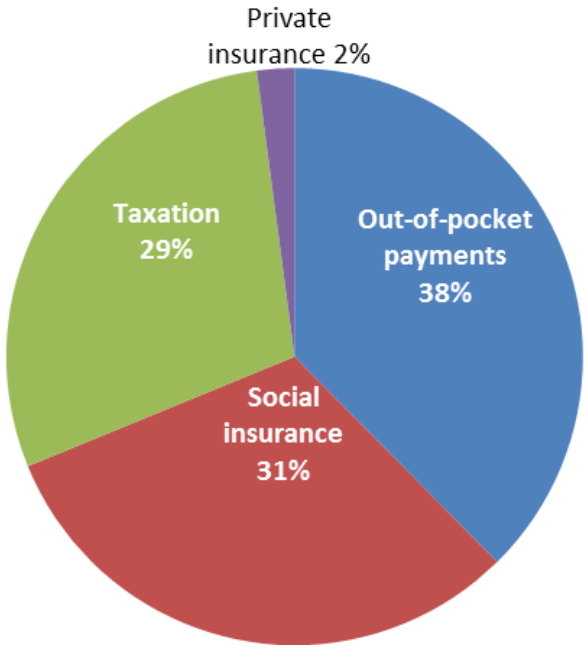
France



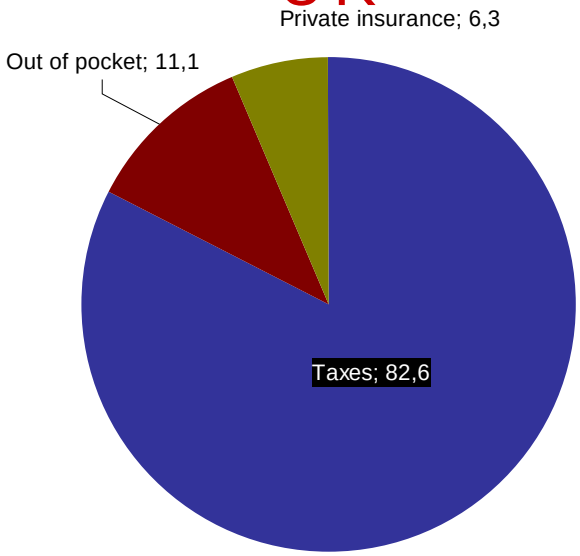
Germany



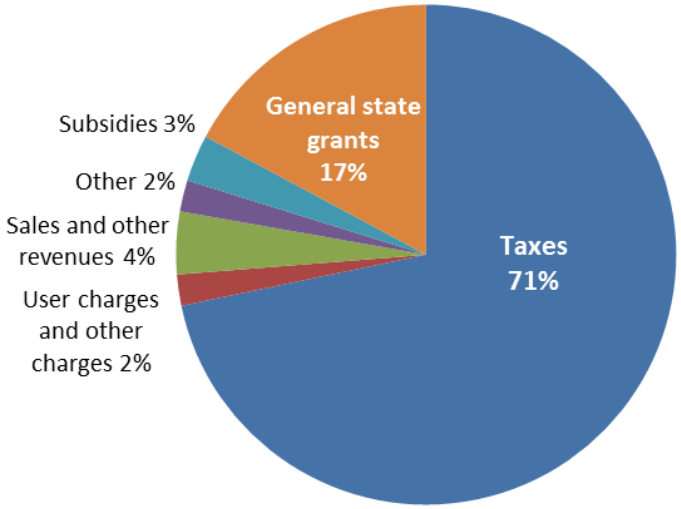
Greece



UK



Sweden



Challenges for HCV elimination in Greece

1) High HCV prevalence
2) Low diagnostic rate
3) Moderate hepatitis awareness
4) No National Hepatitis Plan
5) Current austerity measures do not favour prevention and treatment upscale

Conclusions (1)

1) HCV prevalence 1.5% (134.000 CHC infections).
2) HCV incidence among PWIDs is on rise.
3) Surveillance of HCV is problematic with variable and low reporting rate.
4) Proportion of PWIDs and HCV-3 are increasing.
5) Low diagnostic rate (~20%).
6) Modeling studies suggest that HCV cannot be eliminated up to 2030 with treatment upscale alone.

Conclusions (2)

7) DAAs are available although treatment expansion is currently problematic.
8) No National Hepatitis Plan.
9) Prevention services for PWIDs are especially problematic.
10) Good International Practices in Surveillance, Prevention, Care and Treatment should be promoted.
11) Deep economic recession and cuts in health spending is a major barrier for rational hepatitis policies.