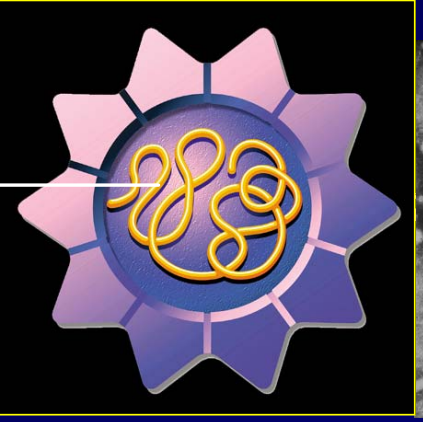
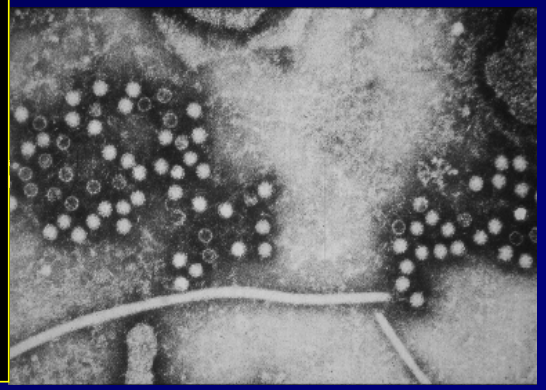




Hepatitis E in Italy

Alessandro R. Zanetti

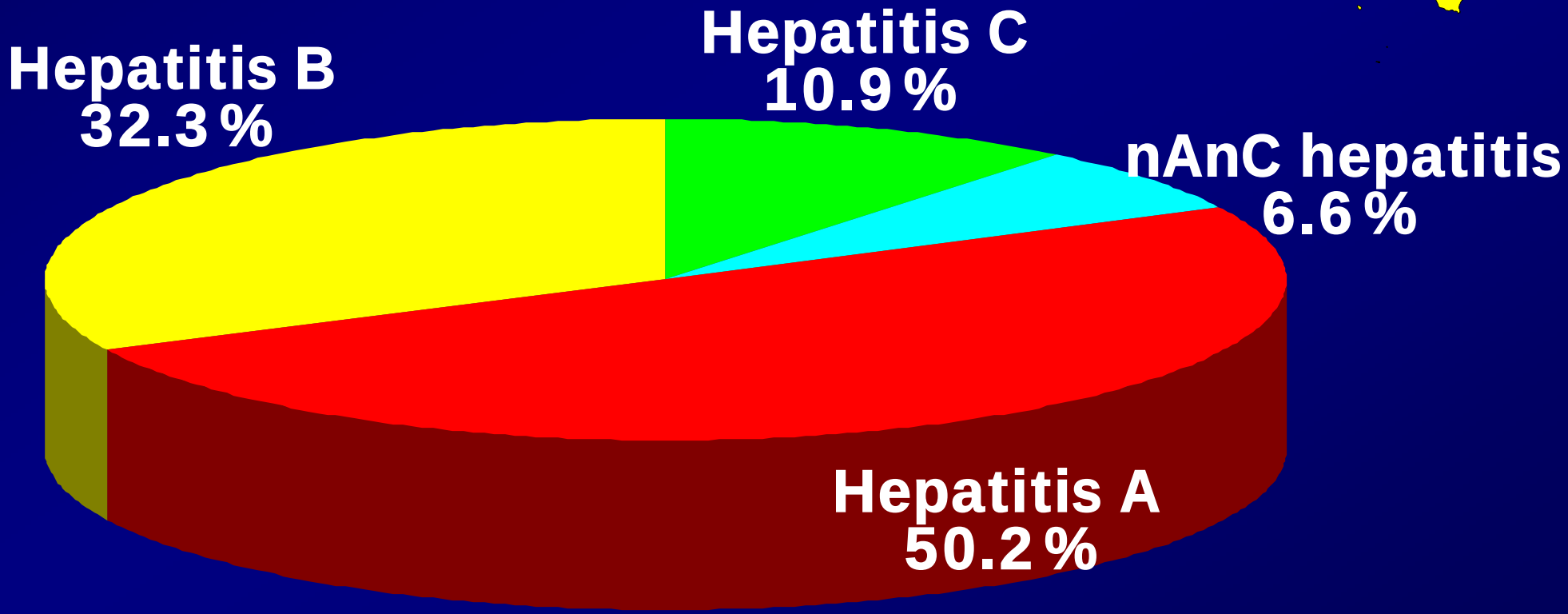
Department of Public Health-Microbiology-Virology

University of Milan, Italy

Viral hepatitis in Italy

(60 million inhabitants)

2,500 new cases/year of acute viral hepatitis (i.e. 4.2 per 100,000 inhabitants)



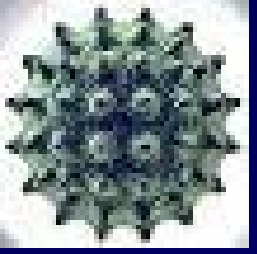
Source: SEIEVA 2003-2008

Anti-HEV prevalence in Italy

% anti-HEV		
North	Centre	South / Islands
Milan (0.95*)	Florence 1.4	Foggia 3
Genoa 1.3	S.Marino 2.3	Catania 3
Venice 2.6	Latina 3	Cagliari 5.4
		Messina 6.2

Higher rate among IVDUs expecially those infected with HIV, homosexuals and those with chronic hepatitis C.

*confirmed by WB



Hepatitis E in Italy

Site: Institute of Virology, University of Milan

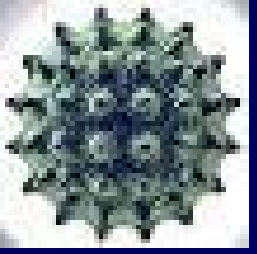
Period: January 1994 – December 2008

Study population: **601 consecutive pts with acute nAnC hepatitis**
(negativity for IgM anti-HAV, HBsAg, IgM anti-HBc, anti-HCV, HCV-RNA and exclusion of autoimmunity, alcohol or hepatotoxic drugs)

Gender: 61.5%M, 38.5%F

Age: mean 36.8 yrs, median 35 yrs, range 1-79 yrs

ALT: mean 1582 IU/L, median 1207 IU/L, range 101-12520 IU/L



Acute hepatitis E: case definition

Detection of:

HEV RNA in sera or stools by nested RT-PCR

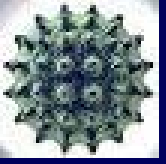
OR

IgM anti-HEV

OR

Seroconversion to anti-HEV IgG

To identify risk factors, all patients were interviewed with a pre-coded questionnaire



Laboratory diagnosis of hepatitis E

122/601 (20.3%) pts were diagnosed with acute hepatitis E
83% males; median age 31.5 yrs (3-68 yrs);
ALT median peak 2106 IU/L (122-12290 IU/L)

122
IgM and IgG anti-HEV +

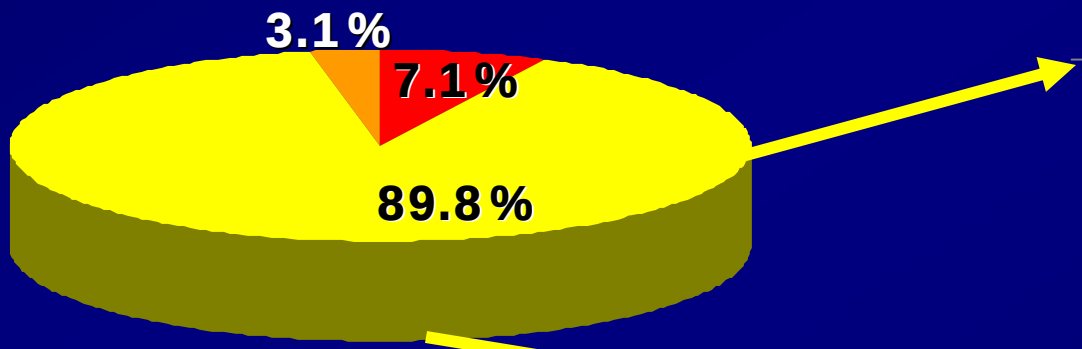
81* (66.4%)
HEV RNA + (serum samples)

37**/601 (6.2%)
IgG anti-HEV +
but both IgM anti-HEV
and HEV RNA -

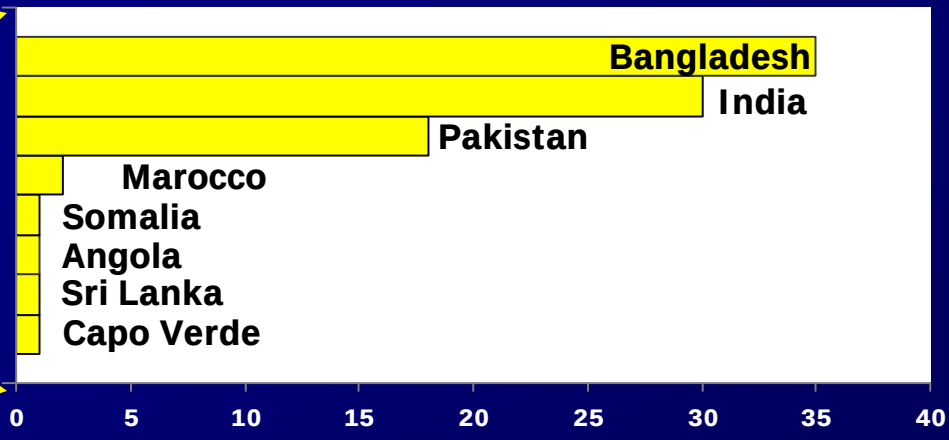
* Stools available from 36/81 patients were also HEV RNA +
** 44.8% of these patients were immigrants from or travelled to endemic areas

Risk factors associated to hepatitis E

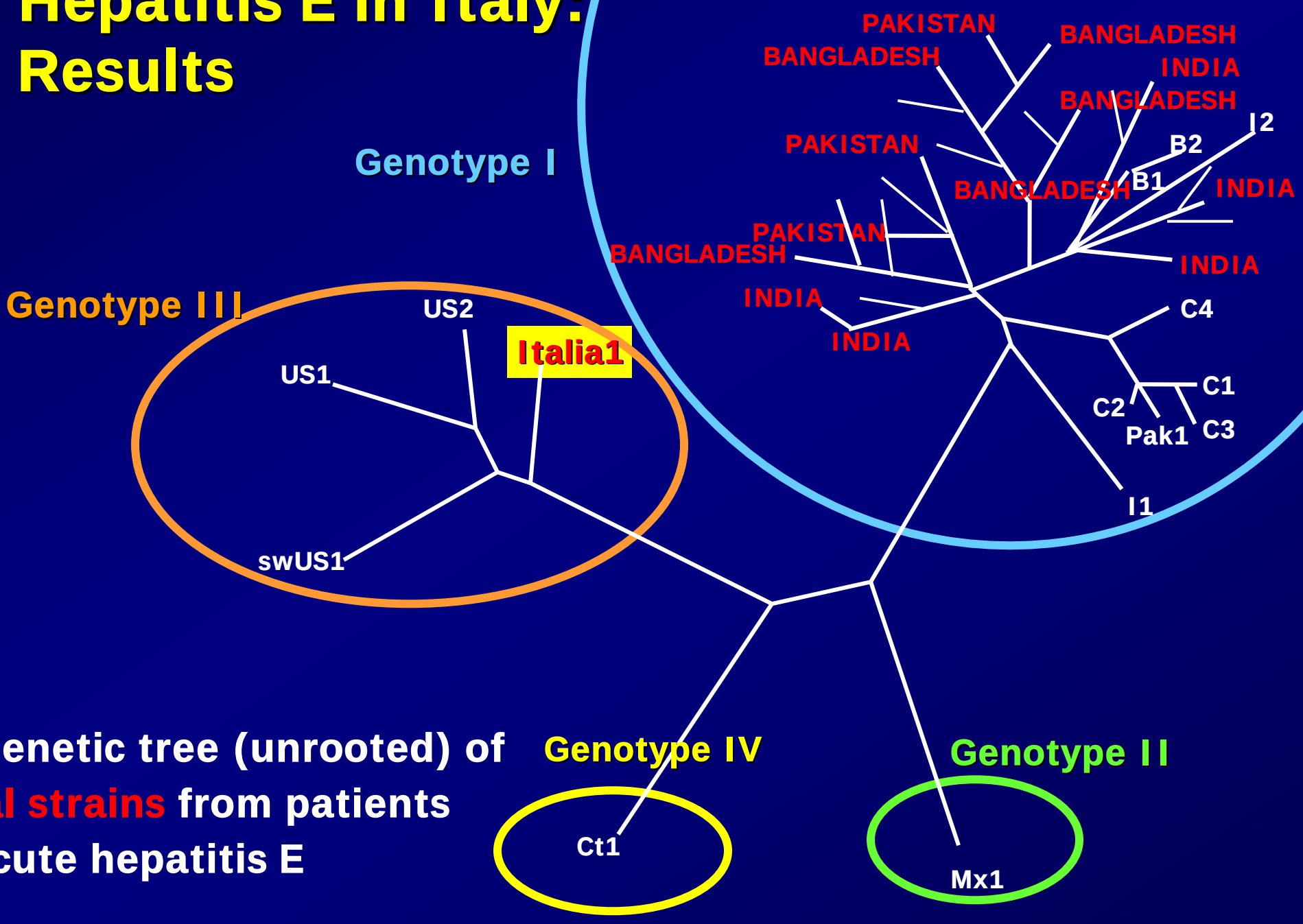
- Unknown
- Contact with an infected patient



- Travel to:



Hepatitis E in Italy: Results



Phylogenetic tree (unrooted) of **28 viral strains** from patients with acute hepatitis E

HEV RNA among farming swine and wild boars in Northern Italy

Animals	N° samples tested	HEV RNA + (RT-PCR)
[a] Randomly selected pigs*	274 stools	115 (42%)
[b] Killed wild boars	88 bile	22 (25%)

* from six different swine farms

[a] *Di Bortolo et al, Vet Microbiol 2008*
[b] *Martelli et al, Vet Microbiol 2008*

Viral hepatitis E in Italy
Conclusions - 1

- ✓ Acute clinically overt hepatitis E is quite uncommon in Italy, accounting for approx 1.2% of cases yearly reported to the surveillance system (approx 30 cases/year).

- ✓ Most acute hepatitis E are travel-related.

- ✓ Sporadic cases of non-travel related hepatitis E have been reported in non-endemic areas, including Italy.

Viral hepatitis E in Italy
Conclusions - 2

- ✓ Non-travel related diseases are usually caused by genotype 3.

- ✓ Wide-spread genotype 3 in pigs, wild boars and other mammals suggests that human infections may have zoonotic origin.

Viral hepatitis E
Conclusions - 3

- ✓ Discrepancies between anti-HEV prevalence and autochthonous hepatitis E incidence may be due to inapparent infections caused by native, attenuated HEV strains that rarely cause clinical diseases.

- ✓ Predilection of genotype 3-related disease for elderly and immunologically compromised individuals, adds weight to this hypothesis.