

# Assessment of Hepatitis E virus prevalence and quantitative levels in different food categories in Italy



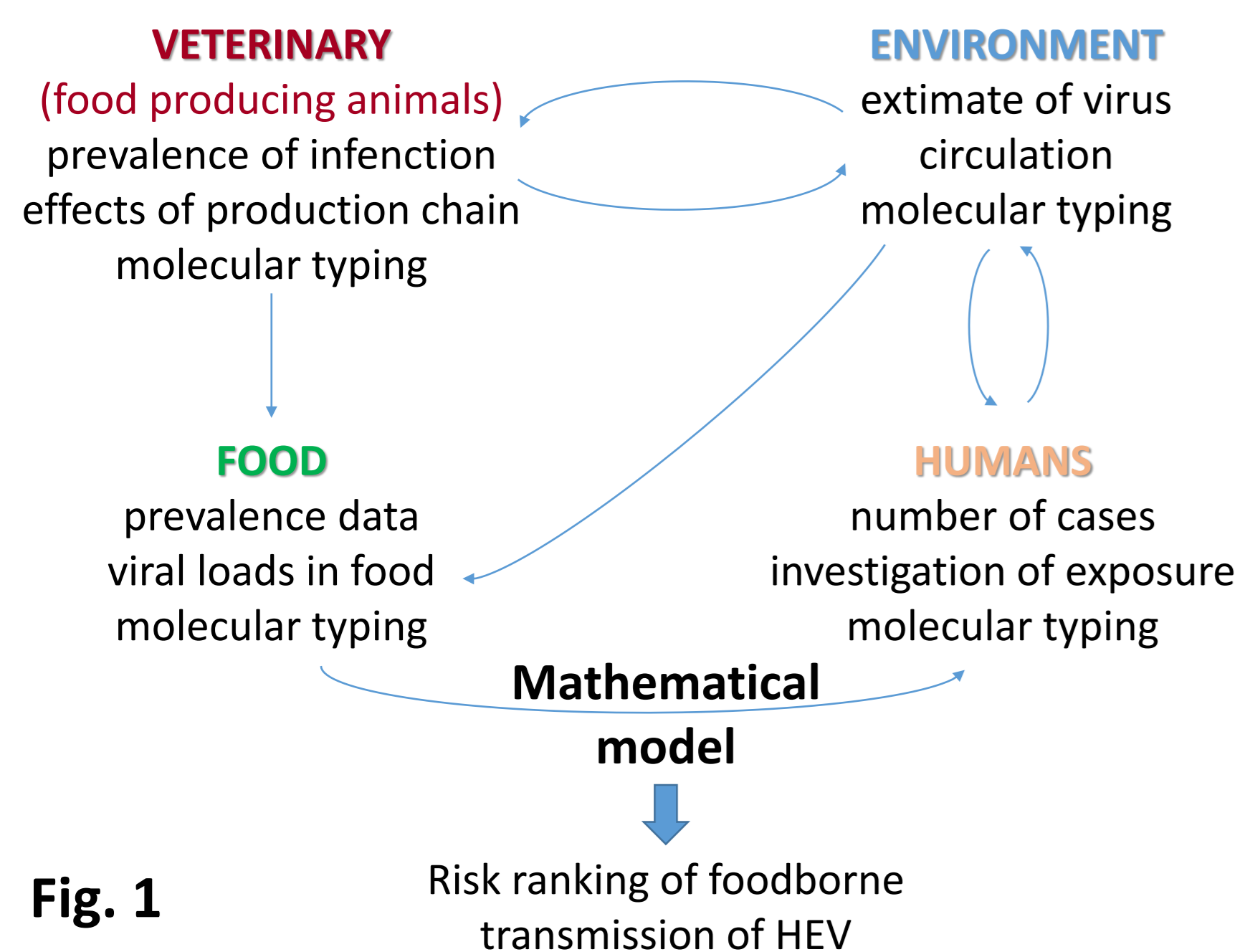
D. De Medici<sup>1</sup>, A. Guercio<sup>2</sup>, M.N. Losio<sup>3</sup>, P. De Santis<sup>4</sup>, G. Purpari<sup>2</sup>, E. Pavoni<sup>3</sup>, T. Vicenza<sup>1</sup>, L. Cozzi<sup>1</sup>, B.M. Varcasia<sup>4</sup>, S. Di Pasquale<sup>1</sup>, S. D'Amato<sup>5</sup>, E. Suffredini<sup>1</sup>, P. Schembri<sup>6</sup>

<sup>1</sup> Istituto Superiore di Sanità, Department of Food Safety, Nutrition and Veterinary Public Health, Italy; <sup>2</sup> Istituto Zooprofilattico Sperimentale of Sicily, Italy; <sup>3</sup> Istituto Zooprofilattico Sperimentale of Lombardy and Emilia Romagna, Italy;

<sup>4</sup> Istituto Zooprofilattico Sperimentale of Lazio and Tuscany, Italy; <sup>5</sup> Ministry of Health, DG for Health Prevention, Italy <sup>6</sup> Region Sicily, Health Directorate, Italy

## Introduction

Autochthonous cases of Hepatitis E are increasing in developed countries. Infection is mostly ascribed to consumption of raw or undercooked pork or game meat. Pigs and wild boars are the main reservoirs of Hepatitis E virus (HEV). Further to this, HEV has been detected in foods as bivalve shellfish, vegetables and water.



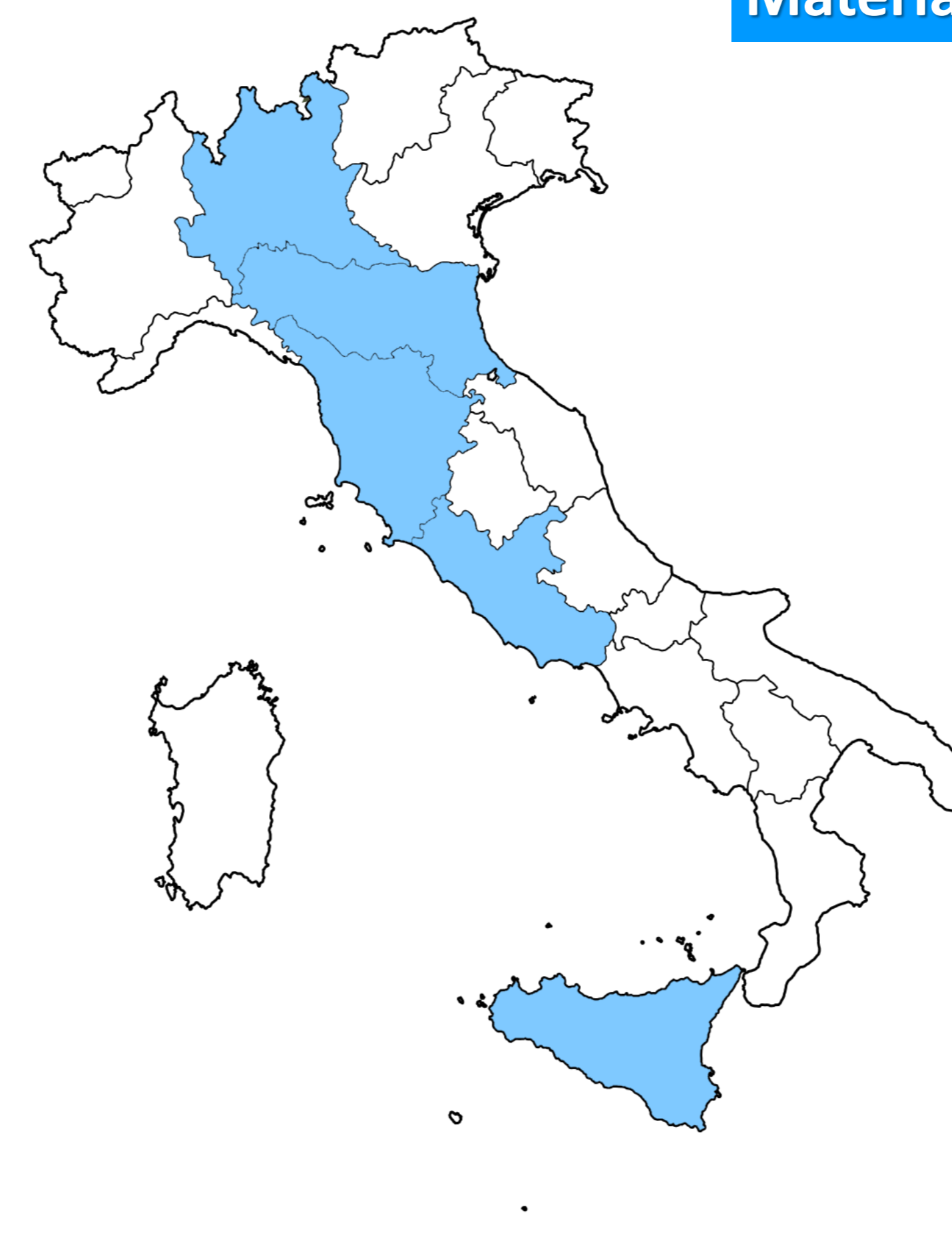
To have hindsight on the relevance of HEV foodborne transmission, a nationwide surveillance was initiated for the detection and quantification of HEV in different product types (Italian Ministry of Health; CCM2016 project 'HEV: One Health approach for risk assessment' Fig. 1).

Fig. 1

## Results

- ✓ **None** of the **leafy vegetable and milk** samples showed the presence of HEV
- ✓ One **shellfish** sample showed the presence of the virus (prevalence in the food category: **0.9%**, C.I.95%: 0.01%-5.3%) at a concentration of  $6.4 \times 10^2$  g.c./g
- ✓ **Raw pork sausage containing liver**: 6/67 samples showed the presence of HEV, with prevalence in the food category: **9.0%**, C.I.95%: 3.8%-18.5% (<LOQ to  $8.8 \times 10^2$  g.c./g)
- ✓ **Raw pork sausage not containing liver**: 1/64 sample showed the presence of HEV. Prevalence in the food category: **1.6%** (C.I.95%: 0.01%-9.1%) with a concentration below the analytical LOQ ( $\sim 40$  g.c./g)

## Materials and Methods



### ➤ 414 food samples



- Samples collected between **May 2017 and March 2019** in different Italian Regions (Northern, Central and Southern Italy, see map).

- Analysis carried out with standardized extraction and real-time RT-PCR protocols. Process, extraction and inhibition controls were used to ensure quality of results.

## Conclusions

HEV is rarely detected in non-meat products collected in Italy, while higher virus prevalence can be predicted for pork-based food products. The results of this study put the Italian prevalence values in the lower range of published prevalence data. Further studies are needed to improve precision of the prevalence values estimated for the different food categories.