



NEONATAL SCREENING FOR CONGENITAL HYPOTHYROIDISM: ANALYSIS OF A LARGE COHORTE OF AFFECTED PATIENTS (1987-2017) AND THE RELATIONSHIP WITH PERFLUOROALKYLATED SUBSTANCES (PFAS) IN NORTH-EASTERN ITALY

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INTRODUCTION

- In 2006 the Project PERFORCE concluded an investigation aimed at assessing exposure to PFAS substances in the European environment; the Waters from European rivers were analysed. The river Po (northern Italy) showed the highest concentrations of PFOA.
- Positive associations with thyroid metabolism were consistently reported and children are primarily affected by these pollutants.
- Variations of incidence of Congenital Hypothyroidism (CH) have been shown in recent years by different studies.

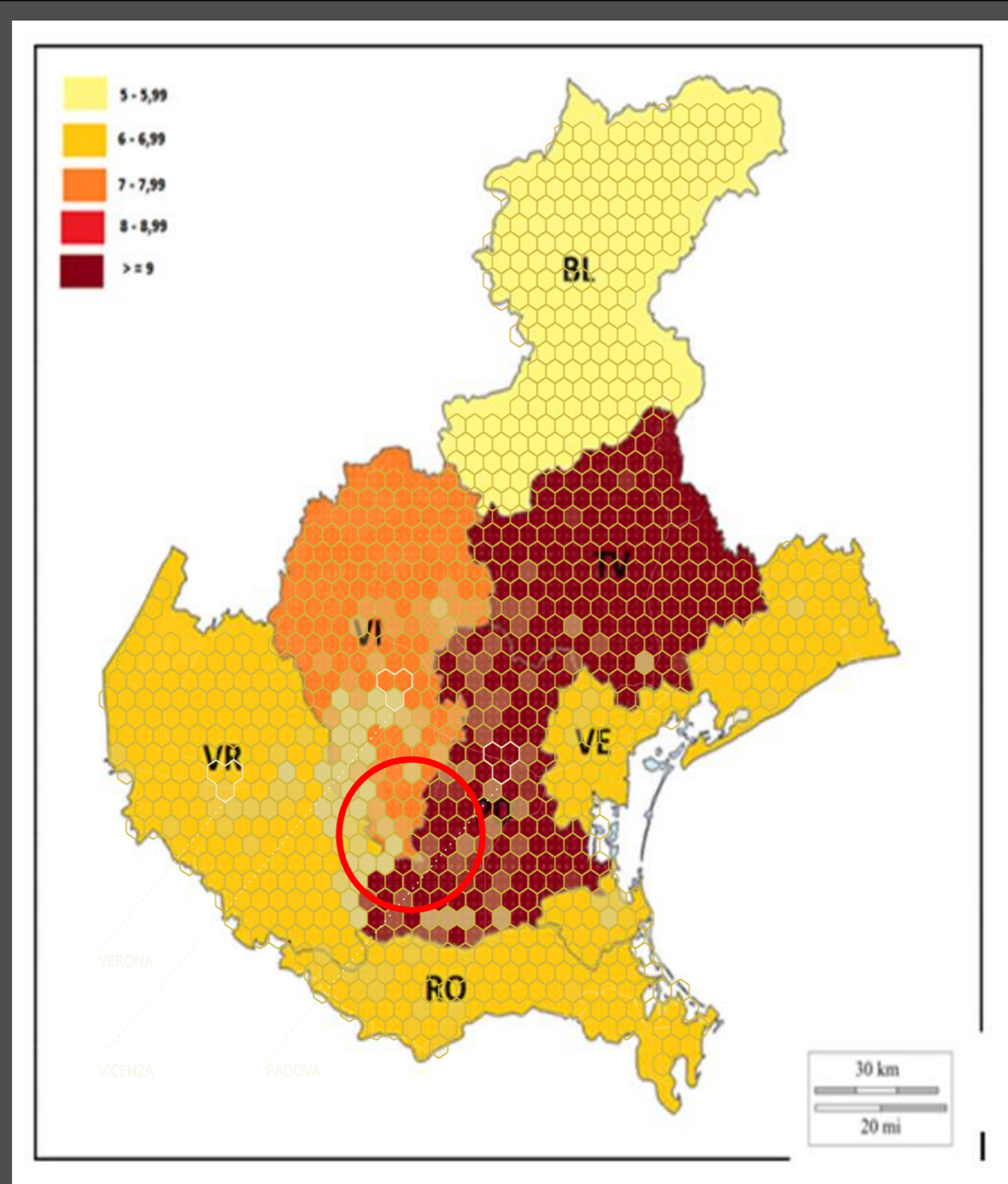
AIMS OF THE STUDY

We sought to determine whether the incidence of CH in north-eastern Italy has changed in relation to some endocrine disruptors and their potential effect on maternal and newborn health

METHOD AND MATERIALS

- We analyzed data from the regional neonatal screening program for CH during the period 1987-2017 (more than 500 newborn with CH).
- We valuated personal, biological and health data about both the mothers and the children.
- Environmental monitoring data about PFAS were provided by Arpav

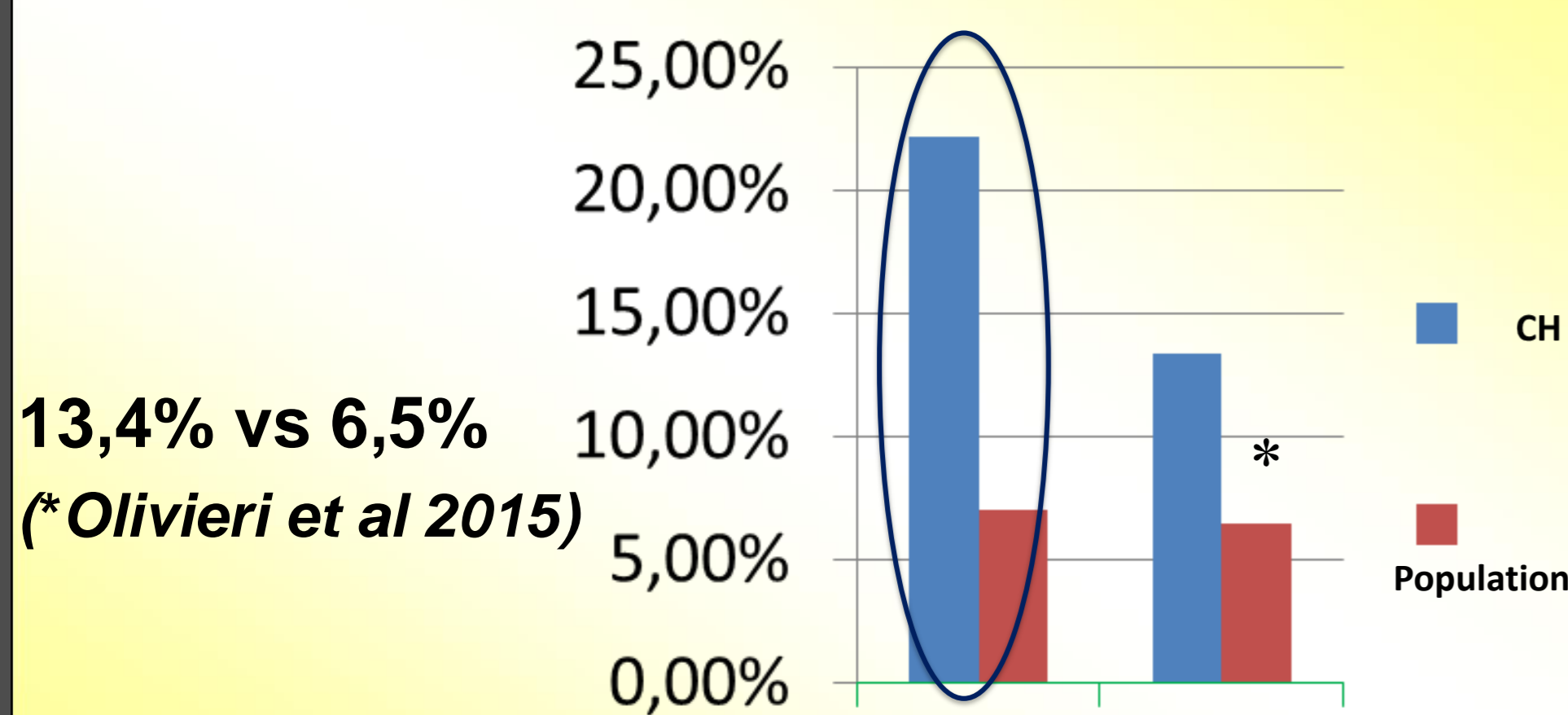
RESULTS



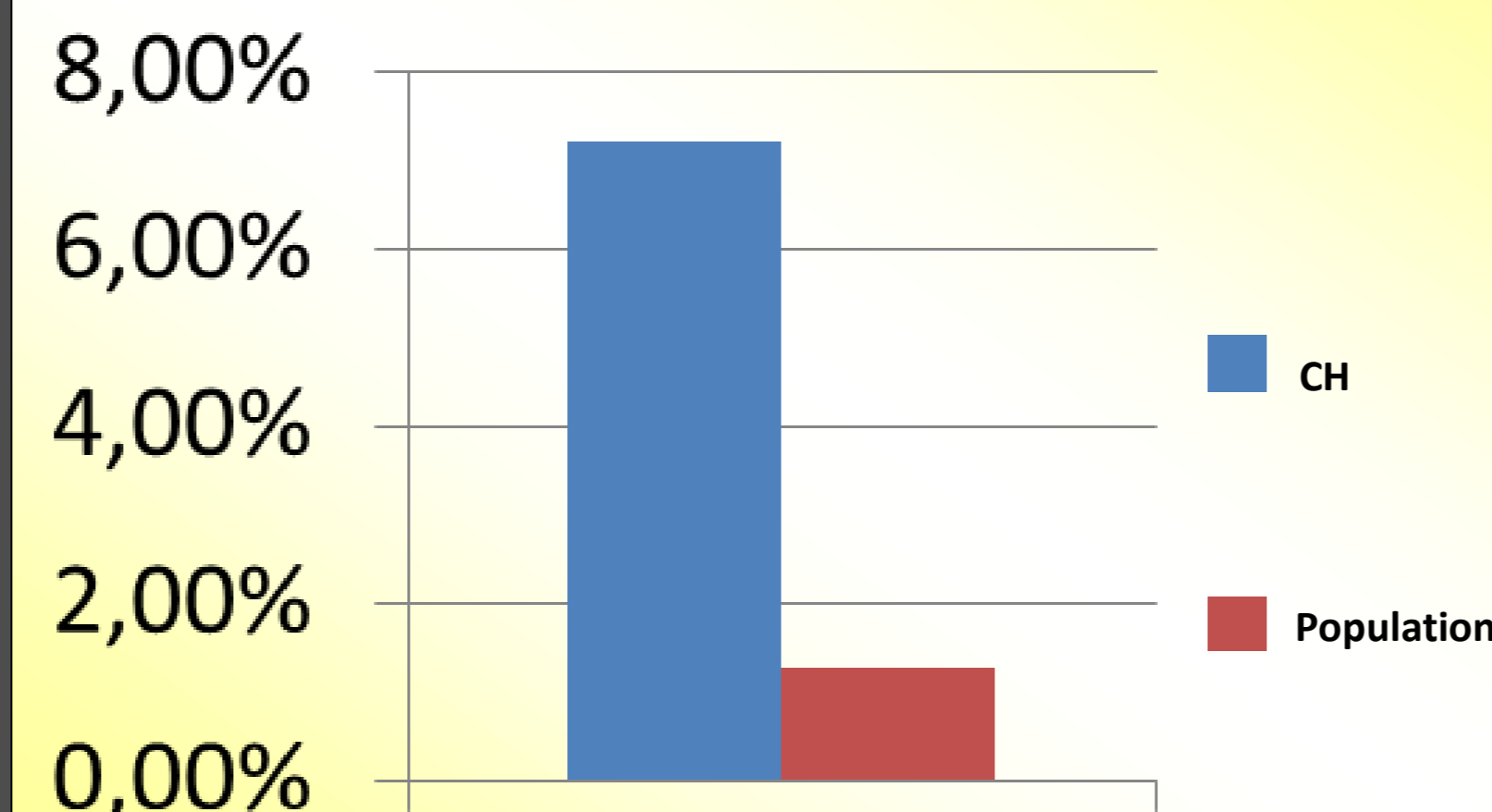
- The incidence of CH increased in North-eastern Italy during the past years, as the percentage of ectopic glands (average incidence 1:2128)

- There's an area with an increased number of cases, partially comparable to the area polluted by PFAS.

Prematurity 22,2% vs 7% (2012)



Multiple pregnancies 7,2% vs 1-1,25%



- This study showed an higher rate of prematurity compared to general population (22% vs 7%)
- and an higher number of multiple pregnancies among mothers of CH children.

CONCLUSIONS

- The greater incidence could partially be due to lowering cut-off, but there's also a real increase of this condition in the population.
- The area with an increased number of cases is partially comparable to the area polluted by PFAS and more investigations are ongoing to establish the potential correlation.
- Some aspects of pregnancy show different percentages of CH compared to the general population (multiple pregnancies, pre-term births and caesarean sections).