

# DESIGNING AN EPIDEMIOLOGICAL STUDY ON PFAS EXPOSED POPULATION IN VENETO REGION

**National Mortality and Hospitalization databases  
available at the  
Istituto Superiore di Sanità (ISS)**

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- ✓ **Mortality** and **Hospitalization** archives available at Istituto Superiore di Sanità (**ISS**) for a long time
- ✓ Based on **current data** from the National Institute of Statistics (Istat) and the Ministry of Health, respectively
- ✓ Set up by the **Statistics Service** of ISS

**All current data share the same smallest geographical level available:  
municipality level**

**This allows to study target geographical areas (such as contaminated sites), that are composed by single or aggregated municipalities**

- ✓ In Italy : ~ **8,000 municipalities**
- ✓ Population ranging from a few thousands to some millions
- ✓ Definition of some municipalities has been changing during time:
- ✓ some municipalities have been suppressed, others have been modified and others have been created....



**Procedures for taking into account  
such dynamics should be adopted**

## **Mortality 1) the DB**



### **Data Sources:**

✓ death records

from National Institute of Statistics

✓ population data

### **Time period:**

Long time series: **1980 – 2014 (most recent data released )**

According to an European Regulation, 24 months of maximum delay are allowed.

## **Mortality    2) Codification of mortality data**

### **International Classification of Disease (ICD)**

- ✓ revised approximately every 10 years;
- ✓ the purpose of the revision is to stay abreast of medical advances in terms of disease nomenclature and etiology
- ✓ Current Revision: 10th (**ICD-10**), adopted in Italy since 2003 (Until 2002, ICD-9).
- ✓ ICD–10 differs from ICD–9 in **several respects**.
- ✓ ICD–10 is **far more detailed** than ICD–9, with about 12,000 categories compared with 5,000.
- ✓ **It allows morphological classification of cancers**

## An example of more detailed disease classification introduced by ICD-10 : MESOTHELIOMA

In ICD 9 163 Malignant Neoplasm of Pleura

In ICD-10 C45, Mesothelioma, subdivided into:

C45.0 Mesothelioma of pleura  
[Excl.:other malignant neoplasms of pleura ([C38.4](#)) ]

C45.1 Mesothelioma of peritoneum

C45.2 Mesothelioma of pericardium

C45.7 Mesothelioma of other sites

C45.9 Mesothelioma, unspecified

## Mortality 3) the Multiple-causes-of-Death DB



- ✓ Records for each death, contained in the **Mortality DB**, include only the “**underlying cause of death**”  
defined by WHO as “*the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury*”, codified in accordance with the rules of the ICD.
- ✓ Since **1996** also **all** the causes and conditions reported on death certificate, written in full, are available
- ✓ Among them, “Other morbid conditions” are particularly interesting in the study of non lethal pathologies

# Hospitalization 1) the DB



## Data sources

- ✓ Italian Hospital Discharge Records (HDR, in Italian “SDO”, Schede di Dimissione Ospedaliera) from Ministry of Health
- ✓ population data from National Institute of Statistics

**Time period:** 2005-2015 (most recent data released by Ministry of Health)



## Hospitalization 2) data collected

**Information** on hospitalizations contained in HDRs are collected by **all** Italian public and private hospitals and are then transmitted to the Ministry of Health.

The data collected include:

- ✓ information such as demographics (gender, date and place of birth, place of residence and so on),
- ✓ main diagnosis and up to five secondary diagnoses

To code diagnoses, **ICD 9-CM** (International Classification of Diseases-Clinical Modification, 9th Revision) is used.

## Hospitalization 3)

### The choice of diagnosis, main vs all

Use of Hospitalization data to describe health status of populations, in particular residents in contaminated sites, has been studied.

In this framework, studies comparing hospitalization data with detailed case histories have been carried out, suggesting to take into consideration only the **main diagnosis** reported in the hospitalization data.

### Use of the first hospitalization

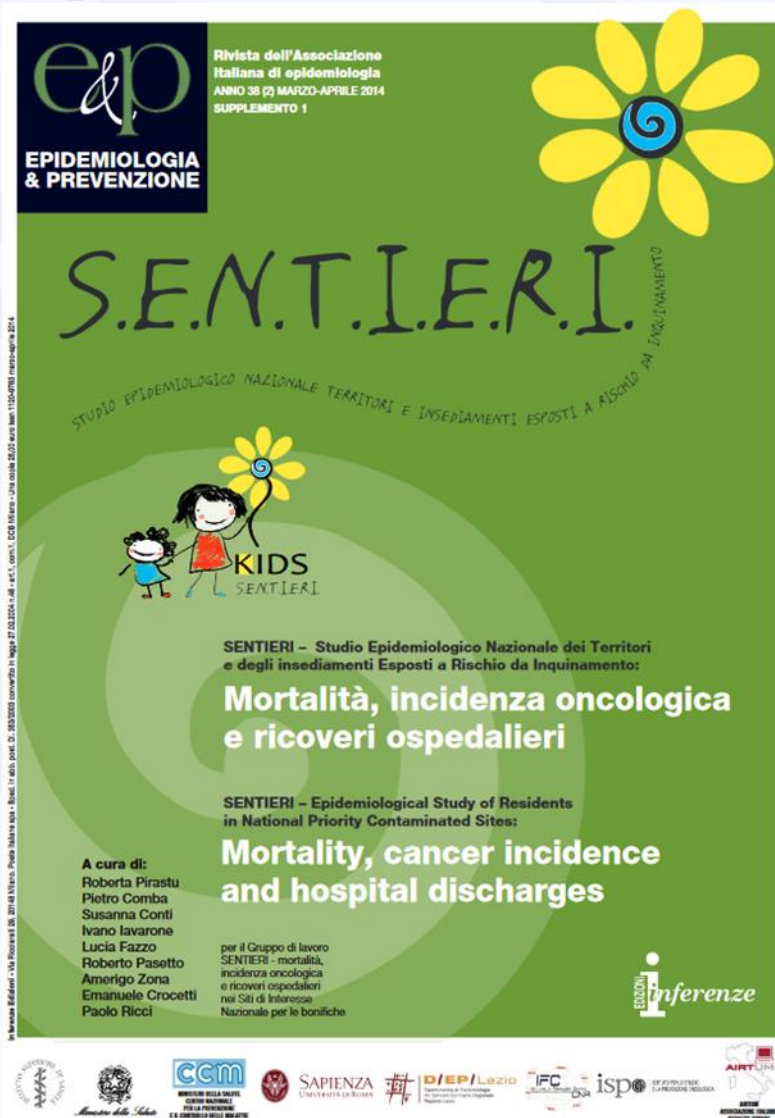
If, during the study period, an individual has been hospitalized for the same diagnosis more than once, only the first hospitalization should be considered.

## Hospitalization 4) hospitalized persons vs hospitalizations

In the Hospitalization Data Base, each discharge record contains an anonymous **code**, **unique** for each individual

→ it is possible to analyze the information regarding hospitalized **persons** (in all Italian hospitals, public and private)

not only the **hospitalizations**.



An example of epidemiological analysis regarding contaminated sites, based on Mortality and Hospitalization Data from ISS

..... *Thank you very much  
indeed for your kind attention....*

