



## The BIGEPI project

# SCIENCE-BASED POLICY MAKING IN OCCUPATIONAL SAFETY AND HEALTH Scientific workshop

12 Ottobre 2023

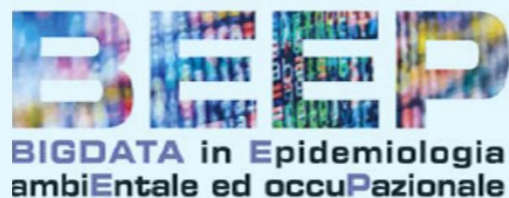
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## Research Activity Plan 2016-2018, Scientific Research – INAIL BRiC Call 2016 Edition

Uso di Big data in Epidemiologia  
ambiEntale ed occuPazionale (BEEP):  
effetti dell'inquinamento atmosferico,  
delle variabili meteo-climatiche e del  
rumore sulla salute della popolazione  
generale, con particolare attenzione  
alle aree metropolitane, e sul rischio  
di incidenti in popolazioni di  
lavoratori.



**Project duration:** 29/06/2017-28/12/2019

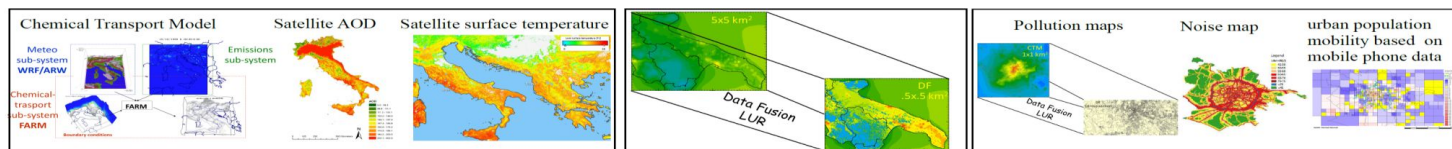
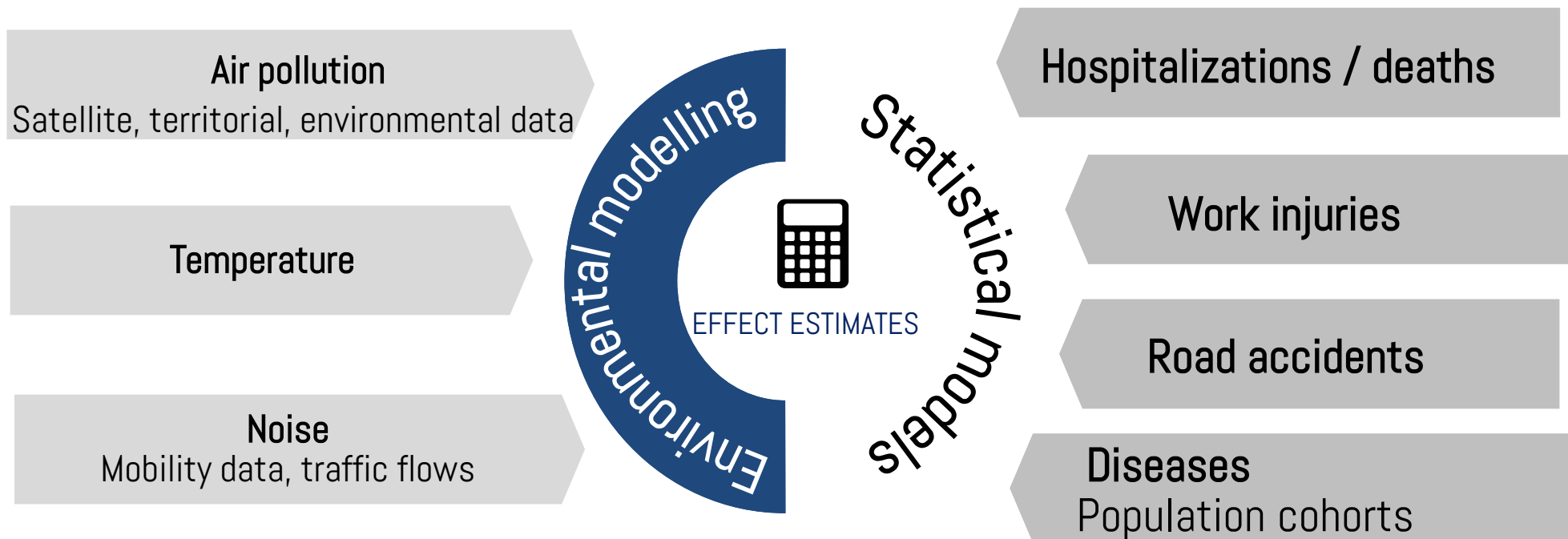
## Research Activity Plan 2019-2021, Scientific Research – INAIL BRiC Call 2019 Edition

Uso di BIG data per la valutazione  
degli Effetti sanitari acuti e cronici  
dell'inquinamento atmosferico nella  
Popolazione Italiana



**Project duration:** 1/10/2020-31/03/2023

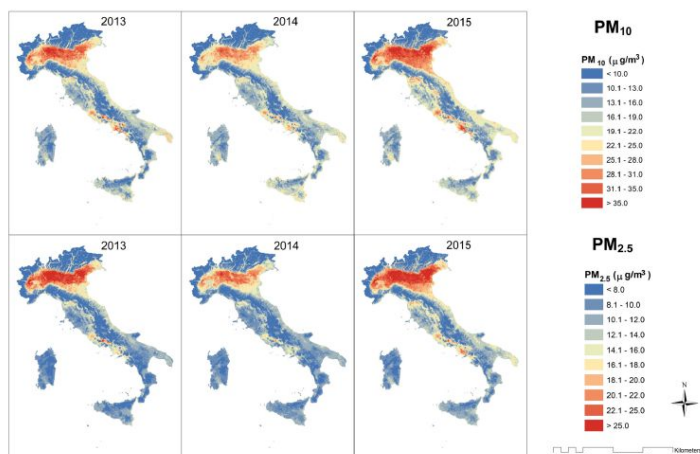
# BEEP project interdisciplinarity



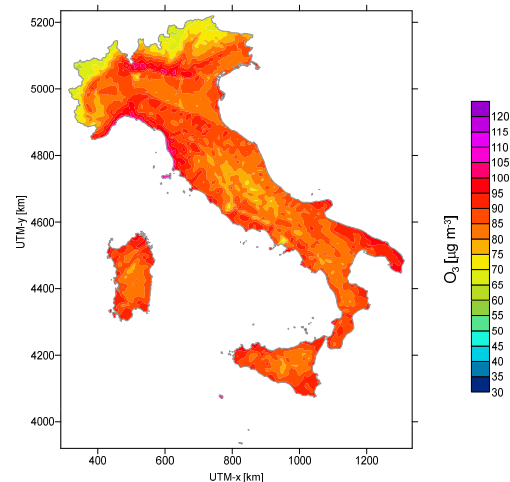
**Big Data:** large amount of geographical, environmental, socio-demographic and health data to obtain overall information not available using the single data sources.

# Environmental exposure – Air pollution and temperature at 1 Km resolution

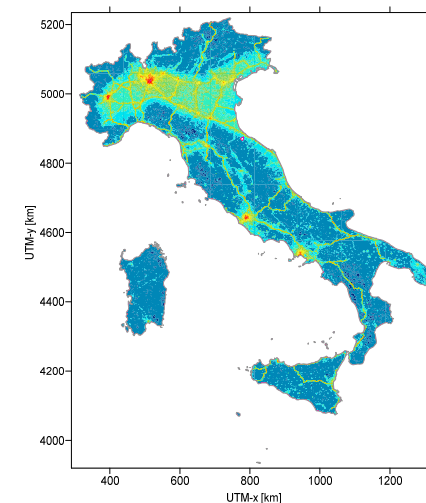
**PM<sub>10</sub> PM<sub>2.5</sub>**



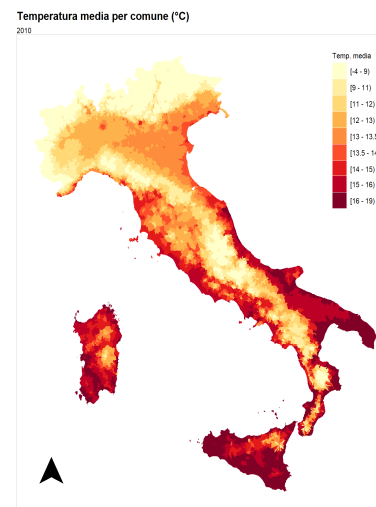
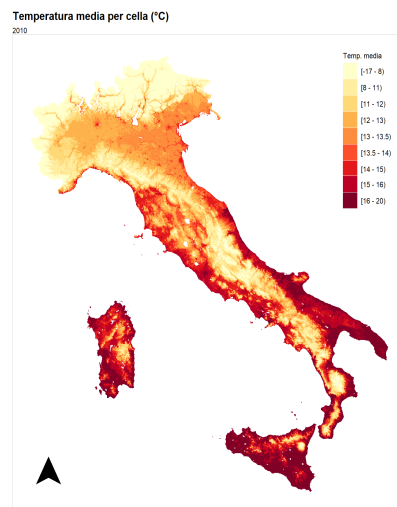
**O<sub>3</sub>**



**NO<sub>2</sub>**



**Temperature**



# BIGEPI study population



# BIGEPI project interdisciplinarity

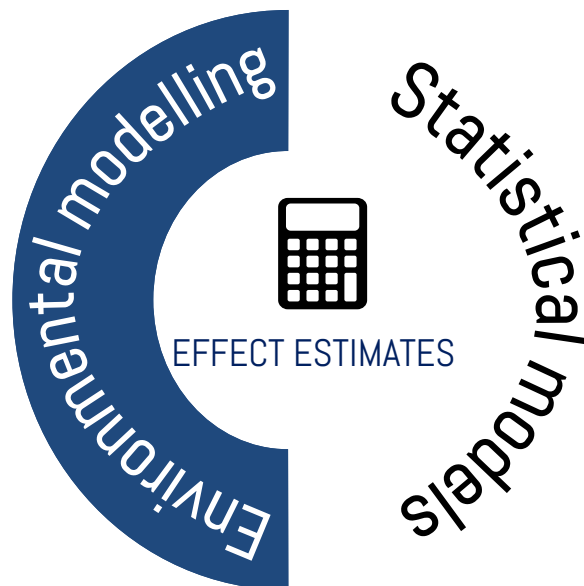


Air pollution

Temperature

Occupational history  
(INPS data)

Occupational exposure  
(Questionnaire data)



Hospitalizations / deaths  
(national level and metropolitan  
longitudinal studies)

Symptoms/diagnosis/  
clinical tests  
(population sample studies)



# DATABASE INTEROPERABILITY

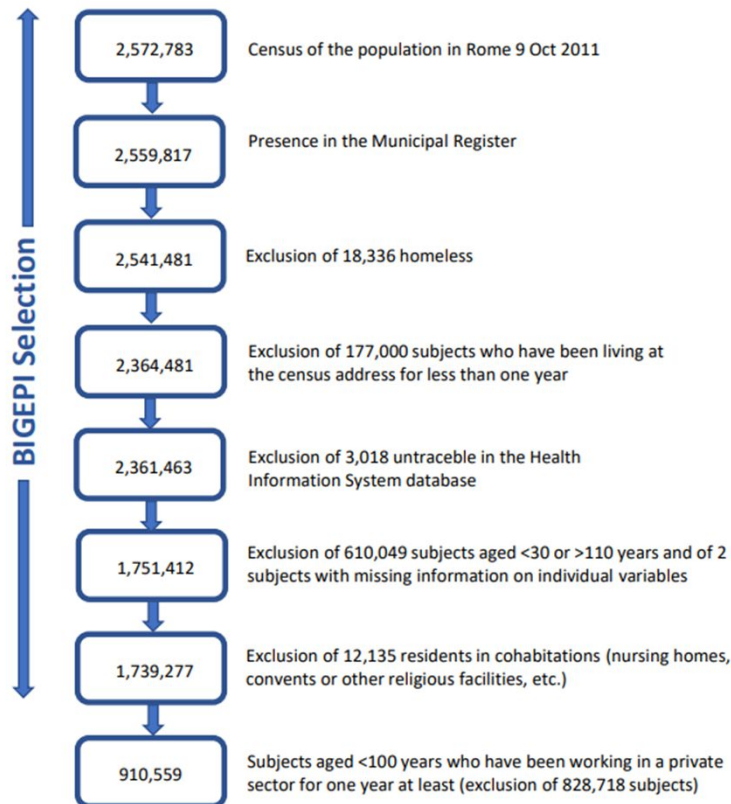


Figure 1. Flow-chart of the study population selection

## METROPOLITAN LONGITUDINAL STUDIES:

Subjects residents in cities as of 9-10-2011 (from Registry Office) included in the 2011 Census, not “homeless” or “living in nursing homes” traceable in regional informative systems (to obtain information on **deaths, hospitalizations....**)

## INPS ARCHIVE LINKAGE (1974-2011):

**Contribution data of workers in private sector companies** with at least one employee, registered in the INPS archives since 1974.

Companies are classified according to the branch of economic activity using an internal INPS code (CSC) which can be converted into an international code (ATECO 81) using specific tables.

Economic activities have been aggregated into 25 categories with similar occupational exposures:

agriculture and fishing, steel, paper and printing, pharmaceutical, manufacturing, textile, energy and water, food and tobacco, non-metal mining, glass and cement, metal processing, electrical construction, footwear and wood, construction, trade, hotel and restaurant sectors, transport, insurance, healthcare, services, laundries, waste treatment, hairdressers, cleaning and petrol stations.

Occupational exposure was defined as belonging to the work sector with the longest working duration.



## Nationwide epidemiological study for estimating the effect of extreme outdoor temperature on occupational injuries in Italy



International Journal of  
*Environmental Research  
and Public Health*

2023



*Article*

## Sector of Employment and Mortality: A Cohort Based on Different Administrative Archives

**1) SETTORE OCCUPAZIONALE E MORTALITÀ RESPIRATORIA NEGLI STUDI  
LONGITUDINALI DI ROMA E TORINO**

**2) IL RUOLO DELL'ESPOSIZIONE A INQUINANTI AERODISPERSI NEL LUOGO DI LAVORO  
SULLA PREVALENZA E GRAVITÀ DELLA MALATTIA RESPIRATORIA CRONICA IN ITALIA**

# TAKE HOME MESSAGE

Although the scientific community shares the need for an integrated analysis of environmental, occupational and lifestyle risk factors, in many environmental epidemiological studies, attention to the occupational risks appears absent or inadequate; similar reverse situation with environmental exposure in occupational epidemiology studies.

Need to define a method that allows to overcome these limitations.

Need to consider the employment history (and not just the occupation at the time of the survey) in cohort studies or cross-sectional studies.

# Interdisciplinary collaborations in environmental and health sectors





**Grazie per l'attenzione**

**<https://bigepi.it/index.php/it/>**