



DI EP Lazio

Dipartimento di Epidemiologia
del Servizio Sanitario Regionale
Regione Lazio

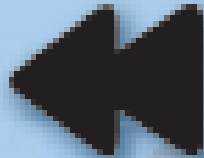


ASL
ROMA 1

SISTEMA SANITARIO REGIONALE



REGIONE
LAZIO



#Rewind - Passato

Tra spazio e tempo...

Una questione di esposizione

Massimo Stafoggia

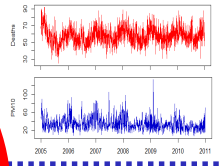
Convegno AIE Primavera 2019

TIMELINE

The Case-Crossover Design: A Method for Studying Transient Effects on the Risk of Acute Events
Miettinen Oskari
A case-control design involving any acute event may be used when the exposure to the risk factor is transient and the exposure is self-reported. The case-crossover design is a special case of the case-control design. It is used to study the effect of transient exposures on the risk of acute events. The design is based on the comparison of the exposure to the risk factor at the time of the acute event (the case) with the exposure to the risk factor at other times (the controls). The design is particularly useful for studying the effect of transient exposures on the risk of acute events. The design is based on the comparison of the exposure to the risk factor at the time of the acute event (the case) with the exposure to the risk factor at other times (the controls). The design is particularly useful for studying the effect of transient exposures on the risk of acute events.



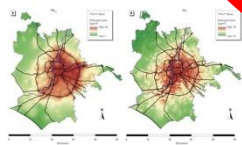
2003
Primi studi di **serie temporale**



2005
Il primo **case-crossover**

2007-2013
Studi multicentrici **EPIAIR, MEDPARTICLES**

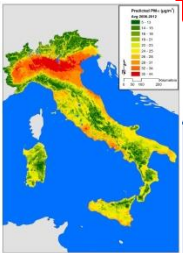
2013
... e lo Studio Longitudinale Romano (**RoLS**)



2010-2013
Studi di **coorte**:
Il progetto **ESCAPE...**



2015
Il primo modello **spazio-temporale** di esposizione



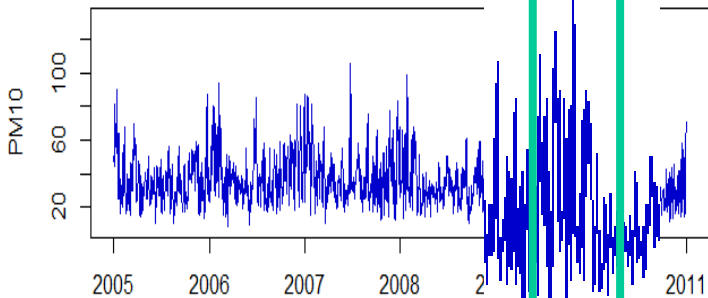
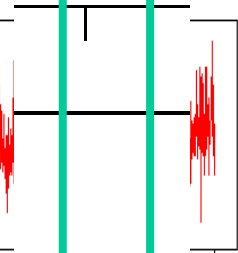
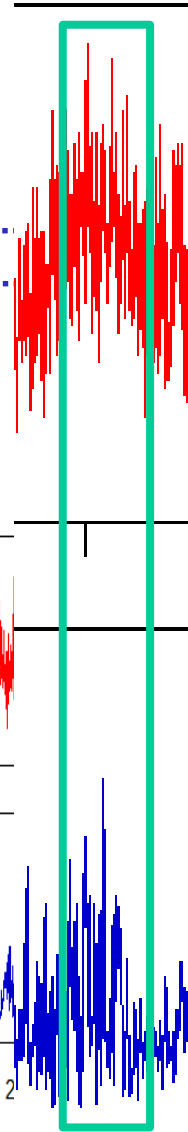
2017-2019
Big Data in E. Ambientale
Progetto **BEEP**



UNA QUESTIONE DI TEMPO...



Serie temporale
per lo studio
di **effetti acuti**



IPOTESI STATISTICA



UNA QUESTIONE DI SPAZIO...



**Serie
temporale**
per lo studio
di **effetti acuti**

**Studio di
coorte**
per lo studio di
effetti cronici

QUESITO STATISTICO

c'è una correlazione tra la
distribuzione spaziale di inquinante
(E) e quella dei decessi (D), al netto di
fattori di confondimento individuali?

IL CASE-CROSSOVER



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The Case-Crossover Design: A Method for Studying Transient Effects on the Risk of Acute Events

Malcolm Maclure

A case-control design involving only cases may be used when brief exposure causes a transient change in risk of a rare acute-onset disease. The design resembles a retrospective nonrandomized crossover study but differs in having only a sample of the base population-time. The average incidence rate ratio for a hypothesized effect period following the exposure is estimable using the Mantel-Haenszel estimator. The duration of the effect period is assumed to be that which maximizes the rate ratio estimate. Self-matching of cases eliminates the threat of control-selection bias and increases efficiency. Pilot data from a study of myocardial infarction onset illustrate the control of within-individual confounding due to temporal association of exposures. *Am J Epidemiol* 1991;133:144-53.

case-control studies; crossover studies; epidemiologic methods; statistics

“Returning to first principles, as defined by the case-base paradigm, we asked the question, who would be the best representatives of the population base that produced the cases? A simple answer was the cases themselves”

“The case crossover design is the counterpart to a cohort study with crossover of subjects between periods of exposure and non exposure”

“In these studies, each subject serves as his or her own time (days) ultimate form of statistical adjustment for confounding by constant subject characteristics”.

Maclure M. The Case-Crossover Design: A Method for Studying Transient Effects on the Risk of Acute Events. *Am J Epidemiol*. 1991;133:144-53.

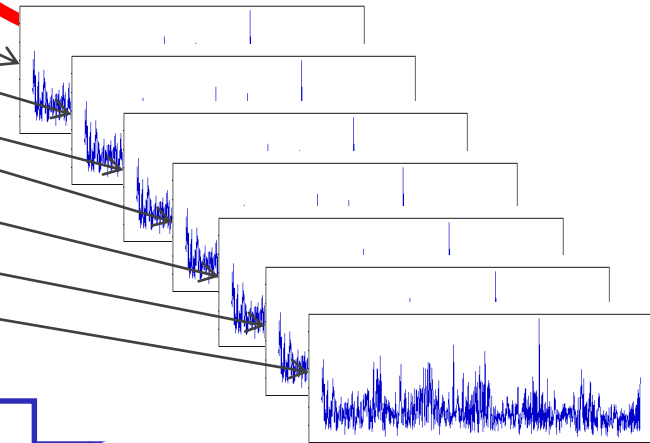
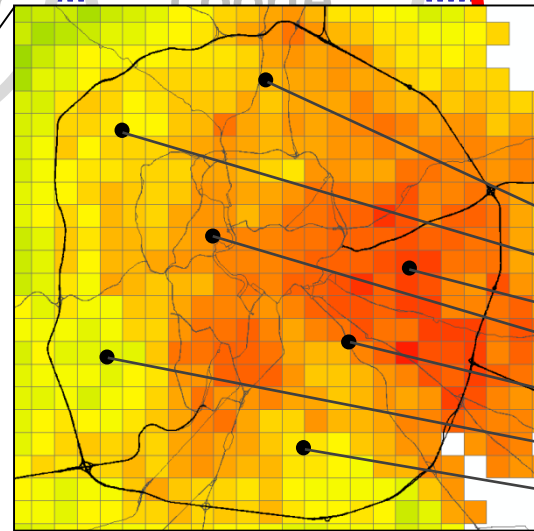
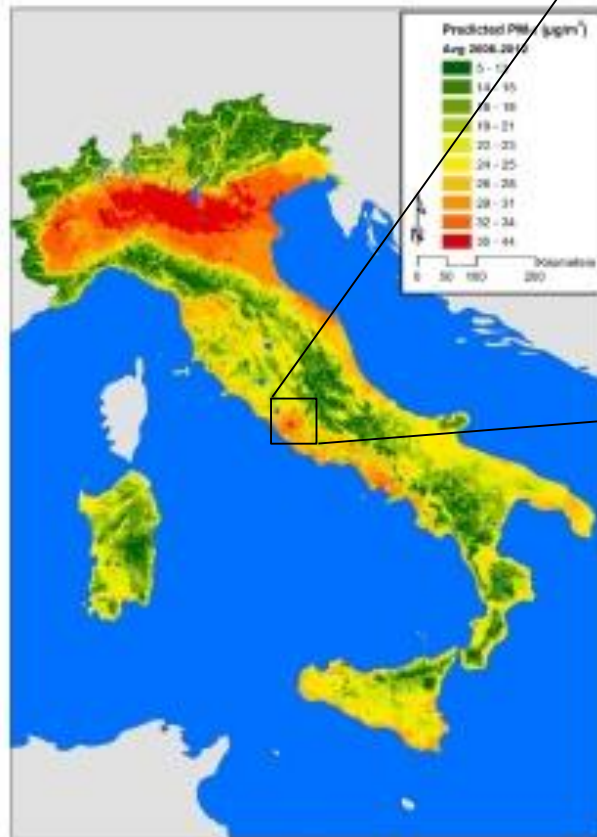
ESPOSIZIONE SPAZIO-TEMPORALE

Serie
temporali

Case-
crossover

Studi di
coorte

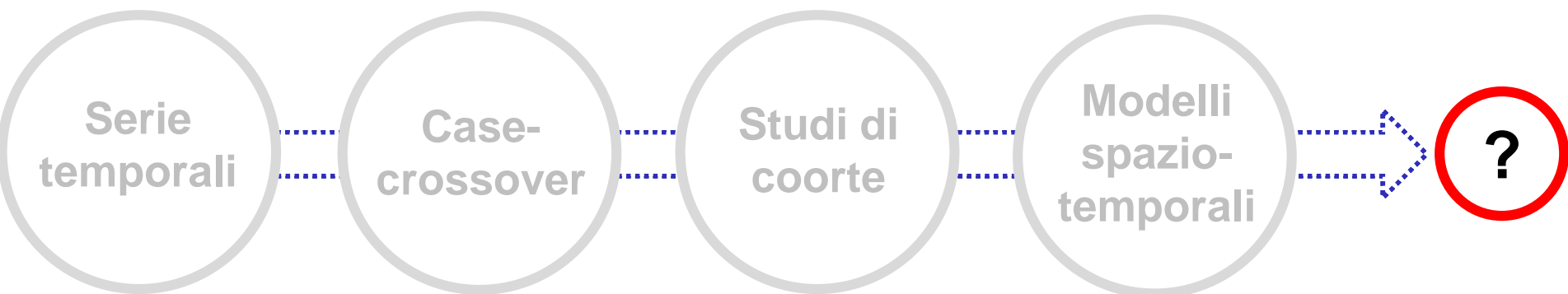
Modelli
spazio-
temporali



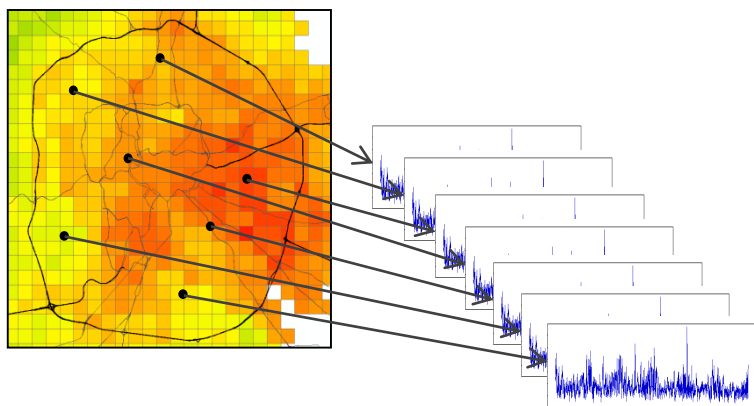
Case-crossover per lo studio di **effetti acuti**, con esposizione giornaliera individuale

Contrasto di esposizione **nel tempo** (giorni) e **nello spazio** (individui)

UN APPROCCIO UNIFICATO



Uso di dati spaziotemporali individuali di esposizione per la stima degli **effetti congiunti di breve e lungo periodo** dell'inquinamento atmosferico sulla salute



Grazie per l'attenzione

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