

Monitoring health behavioural risk factors. Statistical problems linked to surveillance systems

Monitoraggio dei rischi comportamentali per la salute.

Problemi statistici legati ai sistemi di sorveglianza

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Riassunto

Le malattie croniche stanno accentrando sempre più l'attenzione degli interventi di salute pubblica in tutto il mondo, in particolar modo quelli contrastanti i fattori di rischio comportamentali, data la crescita globale del loro effetto su morbilità e mortalità. Da anni si stanno affermando come strumenti ideali per cogliere l'evoluzione di questi fenomeni i cosiddetti sistemi di sorveglianza, basati su indagini ripetute ad intervalli molto ravvicinati. Anche in Italia si sta oggi sperimentando un tale sistema. La relativa novità della disponibilità di questo flusso continuo di dati pone diversi problemi dal punto di vista metodologico e specificamente statistico. In questo intervento se ne presenterà uno schema sintetico a partire da un esame di diversi sistemi di sorveglianza sviluppati in alcuni paesi e da un esame della letteratura.

Keywords: surveillance, risk factors, methodology

1. Introduction

Since chronic diseases have become major causes of morbidity and mortality around the globe, the need of information about risk factors that can lead to these has, recently, notably gain importance. Much of the information on these now can rely on 'surveillance systems' (McQueen & Puska, 2003, Campostrini & McQueen, 2005) that can offer, beside the usual measures of prevalence, information also on the evolution of the different risk factors, on the changes and trends linked to intervention and 'natural' evolution of the phenomena. When in these surveillance systems data collection is organized in a way close to continuity, several are the statistical problems that could be of interest, particularly toward developing more informative ways to look at the data (Campostrini, 2003). Given the relative novelty of these kind of data for epidemiologists and public health social scientists, too often evolution and changes have been analysed through cross-tabulations, able to gather only little of the information regarding the dynamic that these kind of data could offer.

The aim of this presentation is that of offering a state of the art of surveillance 'around the globe', discussing specifically the theoretical and methodological aspects, what is acquired, the lessons learned, as well as what should be done in term of research, with particular attention to the 'hot' topics. These latter are defined either by the relevance of the discussion that they involve, or by the lack of existing shared solutions.

2. Methodological topics in behavioural surveillance

To highlight and discuss these topics we base on - literature studying; direct knowledge/experience; - contacts with an international network that, since 1999, is sharing the studies carried on in more than ten countries around the world, particularly meeting every two years in scientific open conferences.

The following table summarizes the different hot methodological topics to address in developing and utilizing surveillance systems. A broad distinction has been made to highlight which of these are those that require more attention, being either acquired but still problematic or, relatively, new and challenging for the scientific community.

Surveillance Topics Acquired	Acquired, still problematic	Challenging (need further studies)
Surveillance approach (importance of time perspective, etc.)	How to measure ○ Social determinants ○ Diet and physical activities ○ Urban sprawl, etc. ...	Data analysis: small area statistics Small area statistics in continuous surveys ○
Most of questionnaire development	Data collection - Is still the telephone the best way of collecting data on HRB?	Data analysis: analysis of interactions and complexity
Surveillance as a system and empowerment issues	Survey errors - Is it all in weighting? - Need for errors measurement and control	Integration ○ Data linkage, but also ○ Information linkage

The major challenge, from a statistical point of view, is not that of searching for new fancy techniques, but more on the tentative to apply already developed methods to these particularly data, seeking those that can results correct (obviously), meaningful (from a theoretical and substantial point of view), and (hopefully) reasonably applicable, since there are many researchers around the globe (not necessarily provided with incredible statistical skills) still with an important need to grasp as much as possible from their surveillance data.

References

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