Surveillance of ENT diseases in children during winter

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Abstract

Acute ear, nose, and throat (ENT) diseases in children mainly occur during the winter season and are the main sources of consultation. These pathologies are very frequent but their epidemiological surveillance is almost inexistent. In this context, we set up a national observatory. A cumulative number of 369,258 consultations was collected during the last 2 winter seasons. The incidence rate of the observed diseases was estimated. Time-space results were provided online by interactive and direct access, or by newsletters including weekly national and regional reports. This study demonstrates the feasibility of setting up each winter such a surveillance system, based on a new generator of a real time platform of surveillance that we developed. It is a support for better understanding winter spread of ENT diseases in children as well as a tool for public health decision making.

Keywords:

Communicable diseases, ENT diseases, Information, Public health, Informatics.

Materials and Methods

A national observational descriptive study "Hivern@le" was based on a network of 1500 general practitioners, pediatricians and ENT specialists. The monitoring protocol observed by each physician in the network was based on their declarations. By contractual agreement at least one connection per week was required to register the cases of the former week. Incidence rates were estimated in real time and stored in a data warehouse in order to optimize on-line access to tables, charts, graphs and maps.

The hivern@le website is equipped with a geographical information system allowing the diffusion of maps. This functionality allows the cartographic visualization of the spatial distribution of the cases collected during a given period. Hivern@le is based on an n-tier information system via the internet which allows real-time collection of epidemiological data. National reports were provided on-line each week which contained the maps, and time series (tables and curves) relative to each disease. A regional newsletter was also sent weekly to the observers.

Results

From the observed data, one can estimate that the mean number of consultations per season for the 3 ENT diseases studied was 18.6 millions, in French children, during 2 consecutive winters. The population of children aged less than 15 years old in metropolitan France being 11.3 millions, it gave an average of 1.65 visits per season for each child during each winter. This is more than 15 times greater than the motives of consultation for Influenza-like illnesses.

Conclusion

Hivern@le outlines the huge number of consultations for ENT diseases in children during winter in metropolitan France.

- At an individual level, ENT diseases are a source of repeated antibiotic treatments.
- At a social level ENT diseases are a source of absence to school. For parents it is a source of work leave in order to stay home with their sick child.
- At an economical level, ENT diseases lead to important costs. We estimated that the mean direct costs for ENT consultations are close to 1 billion € per season in France.

This observatory enabled us to demonstrate the effectiveness and efficiency of such a tool. This system benefits from more than twenty years of experience in the field of real time surveillance of communicable diseases. Moreover, it provided physicians with real time information concerning outbreak and evolution together with comparison on the spatiotemporal patterns.

It can be used and adapted to other types of monitoring needs for communicable or chronic diseases. It allows sharing common means for setting up complete systems of surveillance in short time period with reduced costs. There is a demand for implementing tools which allow quick reactivity in terms of setting up the network, organizing proper remote data acquisition, enabling real-time analysis and reporting.

This health platform helps to better understand the spread of communicable diseases in order to contribute to a rationalization of the public health approach.