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Increase of Scarlet fever in March 2017 in France: right or wrong signal?

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Objective

Describe a case study of validation of a scarlet fever outbreak using syndromic surveillance data sources.

Introduction

Since 2004, the French syndromic surveillance system SurSaUD® [1] coordinated by the French Public Health Agency (Sante publique France) daily collects morbidity data from two data sources: the emergency departments (ED) network Oscour® and the emergency general practitioners' associations SOS Médecins. Almost 92% of the French ED attendances are recorded by the system. SOS Médecins network is a group of 62 associations of general practitioners, dispatched all over the territory. Sante publique France received data from 61 out of 62 associations. Both data sources collect medical diagnosis, using ICD10 codes in the ED network and specific medical thesaurus in SOS Médecins associations.

These data are routinely analyzed to detect and follow-up various expected or unusual public health events all over the territory [2]. The system is also used for reassurance of decision makers. In that framework, in March 2017, the French Ministry of Health requested Santé publique France to validate a potential scarlet fever outbreak in France.

Methods

ED attendances for scarlet fever were identified using the ICD10 code "A38". SOS Médecins visits with the specific code corresponding to "scarlet fever" were considered.

The weekly numbers of ED attendances and SOS Médecins visits for scarlet fever were analyzed from 02/01/2017 (week 5) to 03/31/2017 (week 13) by age group (all ages and less than 15 years old, scarlet fever affecting mainly children) and were compared to the numbers of attendances and visits registered during the same period of the two previous years.

Analysis was conducted both at national and regional levels. In order to take into account the improvement of data quality during the study period, we also calculated proportion of attendances and visits for scarlet fever among the overall attendances (respectively visits) with medical coded information.

Results

The number of SOS Médecins visits for scarlet fever started to increase in week 9 of 2017. Almost 95% of visits concerned children aged less than 15 years old. SOS Médecins visits for scarlet fever represented 0.24% of the overall visits for the 2 age groups for weeks 11, 13 and 14. This proportion was never reached in 2015 and was observed twice in 2016, but later in the year (weeks 25 and 26).

The regional analysis showed that all French metropolitan regions contributed to the increase, even if Paris region was the most impacted. More specifically, cases were mainly located in the east part of the Paris region (in Seine-et-Marne).

In the OSCOUR® network, the analysis of the number of attendances for scarlet fever at the national level shows a limited increase from week 9 to week 12. Weekly proportion of ED attendances for scarlet fever among the total coded attendances remained comparable to those observed the two previous years on the same period.

The regional analysis also showed that 35% of attendances for scarlet fever during this period were observed in Paris area. But, number of attendances for scarlet fever in this region was comparable during this period to numbers observed the two previous years.

Conclusions

The analysis of emergency syndromic data sources enables to confirm an increase of consultations for scarlet fever in SOS Médecins associations from weeks 9 to 14, mainly for children less than 15 years old.

The large implementation of the SOS Médecins associations on the whole territory allowed us to provide a geographical location of the outbreak: mainly in the east part of Paris area. The temporal pattern of scarlet fever visits in this region may be in favor of a small cluster of cases.

The availability of data collected routinely during a long period of time by the syndromic surveillance system enables to evaluate that the outbreak occurred earlier than the previous years, but the intensity of the outbreak was similar to those observed previously.

Scarlet outbreak was not confirmed through the ED network, even if a limited increase was observed during the same period of time. The investigation of this outbreak in ED network revealed a miscoding practice in one ED structure, resulting locally in a larger number of attendances than in the other ED of Paris area.

Finally, this case study led to improve data quality and highlighted the importance of the validation step of alarms by epidemiologists, even in an automatized system.

Keywords

scarlet fever; signal validation; emergency department; emergency general prationers; France

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References

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