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Title: Real time monitoring of seasonal allergic rhinitis using drug sales data

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Background

Assessment of the epidemiological evidence of short-term links between pollen exposure and seasonal allergic rhinitis requires the availability of health indicators. Anti-allergic drug consumption within general population is a data source which can be used for this purpose. The purpose of the OpenHealth.fr project is to design and publish indicators to monitor the health of the French population. These indicators are based on the analysis of medication sales data from pharmacies. Currently five indicators are published daily, including one covering the incidence of allergies.

Method

The data that is used is data from the sale of medication used to treat seasonal allergic rhinitis. These are mainly antihistamines. Since 01/01/2009, the data has been sent every day by over 4600 pharmacies that are representative of pharmacies in metropolitan France (21% of all pharmacies). This data is used to build an Advanced Health Indicator ("Indicateur Avancé Sanitaire", or IAS). The IAS is standardised at the local level using the values observed in January each year. Spatio-temporal dynamics of allergic reactions are visualized using iso-demographic maps and time series.

Results

At a national level, Temporal dynamics are characterised by a seasonal occurrence of allergic reactions with two main peaks: in March-April and in May-June. The dates for these peaks vary by about one month from one year to the next. At the local level many phenomena can be observed: an increase in symptoms at the end of January around the Mediterranean region, a peak of activity in late August and early September in the Rhône valley... At their peaks, the IAS values are 50 to 100% greater than in periods where there is no pollen activity.

Conclusion

The peaks in allergic reactions described by the IAS are concomitant with the main peaks in pollen activity: Cypress in late winter around the Mediterranean, broadleaved trees and then grasses at the national level in spring, ragweed in the Rhône valley in late summer. These results are to be compared with those of general practitioner networks. They could be used to better understand the relative importance of the different allergens in terms of public health, as well as the interactions between pollination and pollution.