Use of non-health EU databases for health surveillance. En-risk application

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Background:
To combine health information and environmental health determinants is key, for epidemiological monitoring and health risk studies but its integration represents a challenge that requires specific expertise. An example of a potentially useful source of significant environmental data relevant for health is the European Pollutant Release and Transfer Register (E-PRTR), which allows estimating exposure to industrial pollution. Our aim was to develop an easy-to-use tool that allows to perform a screening suggesting the presence/absence of excess risk of a disease linked to residential proximity to industrial pollution.
Methods:
En-risk: java interactive tool was developed to merge E-PRTR information and municipal mortality/morbidity data, to perform an exploratory spatial analysis of association between them by type of industrial facility using distance as proxy of exposure. The application needs cartography of the country and a database of the annual observed deaths (mortality) or cases (morbidity) and population broken down by age groups and sex per municipality. With this it calculates the expected number of deaths, the distance from the municipal centroids to the industrial location (classifying municipalities as exposed or not exposed), and perform the statistical analyses. Municipal lung cancer deaths (2005-2009) in Spain provided by the National Institute of Statistics were analyzed with this application as an example.
Results:
En-risk gives a table of Relative Risk of mortality/morbidity due to exposure to industrial pollution by industrial sector and sex. The analysis in lung cancer deaths showed an excess of mortality associated to proximity to several industrial sectors.
Conclusions:
En-risk facilitates the study of the relationship between industrial pollution and health around Europe. It can be used by public health services to identify health problems.