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GIS to represent health effects in association with occupational exposure

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Introduction

Belgian Occupational Health Services (OHS) collect big amounts of data when providing services to clients, e.g. health surveillance, risk assessments, surveys, etc. Most of these data are collected through several applications, e.g. electronic medical files, workplace assessment software, and stored in databases for operational reasons, i.e. keeping individual and company related data up to date and immediately available. Recently we built a data warehouse, which makes these data available for research purposes, e.g. detection and evaluation of trends in occupational diseases.

Methods

A geospatial information system (GIS) has the ability to "integrate hardware, software, and data for capturing, managing, analyzing and displaying all forms of geographically referenced information". Consequently we believe that GIS could provide an answer to the consolidated storage of data as well as the conveying of information as it specializes in conveying data connected to a specific geographical area in a visual format enabling the user to form a comprehensive informative picture of i.e. an OH related situation at hand.

Results

In the current project, we implemented and used GIS to illustrate associations between medical outcome parameters (e.g. respiratory function, hearing loss, etc.) and occupational exposure. Though GIS has the ability to store vast amounts of varying data and could provide a solution to the unification and presentation of data, the question arises as to whether it can successfully integrate and present both spatial and nonspatial data connected to a specific workplace. In order to achieve this, we developed a GIS model and evaluated it in the secondary aluminium industry. With the addition of occupational hygiene and medical data layers, a more comprehensive integrated information based view became available on OHS data.