Exposure Database on Lung Carcinogens (ExpoSYN) for Standardized Exposure Assessment for Pooled Analysis of Case Control Lung Cancer Studies (SYNERGY)

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BACKGROUND – The International Agency for Research on Cancer (IARC) is conducting a large pooled analysis of case-control studies on the interaction of occupational carcinogens in the development of lung cancer (SYNERGY). A quantitative job-exposure matrix (JEM) will be used to assign exposure to five major lung carcinogens (i.e. asbestos, chromium, nickel, polycyclic aromatic hydrocarbons (PAH) and respirable crystalline silica) to about 30,000 subjects. We created a large database with exposure measurement data (ExpoSyn) to be able to model the JEM.

METHODS – Data collection started in September 2007 and will close in June 2010. Existing exposure measurement databases were identified and the owners were asked for collaboration. Furthermore, research institutes all over Europe and Canada were approached in order to find additional data. Results of individual inhalation measurements were required, preferably personal measurements. Data entry was performed locally, according to a standardized protocol. Provided data were inspected centrally before entry into the ExpoSyn database to correct obvious mistakes and to improve consistency in coding. All data in the ExpoSYN database is anonymous.

RESULTS – So far, 96,419 measurements from 20 countries have been included in the database. The major contributing countries so far are the UK (37% of all measurements), Norway (21%) and France (15%). Measurements were divided over the five agents as follows: asbestos (29%), chromium (19%), nickel (16%), PAH (8%), and respirable silica (28%). The data covers a time period from 1965 until now. However, only few data was available from before 1975.

CONCLUSION - The ExpoSYN database is in our view a unique database, because it includes exposure data from all over Europe and Canada. In June 2010 the ExpoSYN database is expected to contain about 300,000 data points. This amount of data will allow the elaboration of an industry, job, country, and time-period specific quantitative JEM that will allow for the first time data-driven quantitative exposure assessment in a pooled-analysis of lung cancer case-control studies from various European countries and Canada.