

# Description of the Nature of Accidental Misuse of Chemicals and Chemical Products (DeNaMiC)

Project Duration: September 2006 – March 2009

S Wyke and R Duarte-Davidson (1)  
M McParland, K Kennedy, N Sutton, J Edwards and Z Tizzard (2)  
H Desel, R Wagner and K Bauer (3)  
M Mathieu-Nolf, J C Linke, D Peucelle, C Cezard and P Nisse (4)  
A Heiland, G Heinemeyer, O Lindtner and T Reudiger (5)  
J Tempowski (6)



## Introduction

The DeNaMiC project seeks to provide an overview of the nature and extent of accidental poisoning from chemicals in household chemical consumer products in the European region and detail information on the circumstances of where and why such exposures occur (eg, in the home due to unsatisfactory storage).

The first step in the process was to define and limit the events and scope of data to be analysed and collected to only include accidental poisonings and exposure to household chemical consumer products and agree the definitions for a 'consumer product' and 'circumstances of exposure'. Key components included identifying and assessing the existing reporting systems employed by Poisons Centres to determine where there are gaps in information and to summarise accidental poisoning following exposure to these agents.

## Project Findings to Date

Attempts to compare product classification schemes between poisons centres involved in the DeNaMiC project demonstrated that there was good comparability between some parts of individual classification schemes, but not in others. In some cases there was a good degree of compatibility and similarity in terms of matching product classifications at the highest (and broadest level), eg, drain and oven cleaners. However, upon examination of more detailed sub-levels of product classification it became clear that the scope of products encompassed by the higher levels of classification differed significantly between poison centre's individual schemes (eg, fire products). These findings limited the degree of product matching and mapping between poisons centres, and as such restricted the possibility of performing a detailed analysis.

A literature analysis to identify available published information relevant to the scope of the DeNaMiC project identified 156 publications. However only 37% contained relevant information on accidental poisoning with household chemical consumer products. It was not possible to conduct a statistical analysis on this information as the data was too heterogeneous. European poisons centres annual reports (available in English) were also consulted, however the information within these reports was varied and highlighted the lack of an agreed standard reporting format for poisons centres to publish their activities throughout the European Union.

A retrospective analysis was conducted on poisons information enquiries made to Lille and Göttingen (approximately 27,000 cases each). The key data fields for the purposes of analysis were identified and compared between both poison centres. In some cases there was a direct comparison, eg, sex, and in other key data fields there was limited comparability, eg, location of exposure. With some adjustments it was possible to conduct a statistical analysis on paired parameters of key data fields.

The conclusions of the statistical analysis were

- The majority of accidental poisonings and exposures to household chemical consumer products in children result in no symptoms.
- Children are more frequently involved in accidental poisoning exposures to household chemical consumer products and cosmetics.
- Overall there was no significant difference between male and female exposures to household chemical consumer products, however females are more frequently involved in accidental poisonings with cosmetics and males with domestic pesticides.
- Children have a lower incidence of exposure to potentially corrosive or other hazardous household cleaning products than adults, but have a higher incidence of accidental poisoning and exposure to sanitary cleaning products.
- Exposures to potentially corrosive or other hazardous household cleaning products are associated with a significantly higher incidence of reported symptoms than other household cleaning products.



## Acknowledgements

D Pelclova and K Mrazova. Toxicology Information Service, Prague, Czech Republic.

This research project has been funded through the Long-range Research Initiative (LRI) which is governed by the chemical industry association CEFIC (Europe) to address emerging and existing health and environmental issues.

- (1) Health Protection Agency, Centre for Radiation, Chemical and Environmental Hazards, Chemical Hazards and Poisons Division, WHO Collaborating Centre, 5th Floor Neuadd Meirionnydd, Heath Park, Cardiff CF14 4YS.
- (2) Medical Toxicology Unit, Guy's and St Thomas', NHS Foundation Trust, London, UK.
- (3) GIZ-Nord Poisons Centre, University Medical Center, Göttingen, Germany.
- (4) CHRU de Lille Poison Centre, Lille, France.
- (5) The Federal Institute for Risk Assessment, Berlin, Germany.
- (6) International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland.

Guy's and St Thomas' NHS Foundation Trust

BfR  
Risiken erkennen – Gesundheit schützen

Centre Hospitalier Régional  
Universitaire de Lille

GIZ-Nord  
GIZ Informationszentrum  
Nord

TIS  
TOXIKOLOGICKE INFORMACNI STREDISKO