

## Consumer Safety

Parallel Tue 3.5

### 346 INJURY AND ACCIDENT DATA COLLECTION EFFORTS IN EUROPE IN SUPPORT OF CONSUMER PRODUCT SAFETY POLICY

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**Background** Availability of data on the external causes of injuries/accidents which includes product related information is a prerequisite to guide targeted preventive actions in the area of consumer product safety and to support market surveillance enforcement and policy efforts in the EU.

**Description of the problem** Unlike in the USA, no common injury database with meaningful information to support product safety work is currently in force in the EU. Data on injuries/accidents are collected in an extremely patchy and diverse way across Member States. Yet, the amount of data available at national level in diverse fields (e.g. injury datasets, fire statistics, poison centres) can potentially provide relevant information for market surveillance and product safety policy and enforcement purposes. However, it is frequently not comparable due to lack of harmonised methodology and classification, covers only a limited number of injury types or has a limited territorial coverage.

**Results/Changes** EC (DG JUST and DG JRC) collaborate on injuries/accident data collection for product safety and market surveillance with the aim to: map existing data collection systems on injuries/accidents of relevance for product safety and market surveillance in MS; explore innovative IT tools to improve systems' interoperability; develop a methodology to organise/filter/extract/use available data trends; identify possible alternatives/solutions with a view to increase the availability of injury/accident data useful for product safety purposes and assessing the related costs.

**Conclusions** European Commission works towards adding EU value to existing national data collections in MS on accident/injuries in support of product safety and market surveillance with traceable policy impact and societal benefits: informing and boosting the effectiveness of product safety policy actions; improving product safety standards; reducing societal burden of injuries and accidents due to unsafe products and related health costs.

### 347 USING MACHINE LEARNING TO CATEGORISE EMERGENCY DEPARTMENT DATA FOR PRODUCT SAFETY SURVEILLANCE

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**Background** Emergency departments (ED) around the world collect valuable injury data with potential to inform consumer product regulators. However, many of these systems store key information in unstructured text fields, making case identification and analysis difficult. Machine learning approaches allow auto-coding of large amounts of data, increasing the utility of these

data for surveillance. This study aimed to evaluate the performance of different classifiers for categorising mechanisms and objects involved in injury-related ED presentations.

**Methods** A sample of 100,000 cases from a special injury surveillance system was used to train the classifiers (Naïve Bayesian, support vector machine (SVM) and logistic regression) and algorithms were tested on 10,000 cases. Accuracy results of each classifier were compared. The classifier obtaining the highest accuracy was then applied to state-wide ED text to autocode the data. A sample of cases were manually coded and reviewed to assess the accuracy of the algorithm for the larger dataset.

**Results** All classifiers were found to achieve high levels of accuracy for categorising mechanism and moderate levels of accuracy for categorising objects involved. The SVM approach showed the highest accuracy, and was used to classify state-wide ED injury data. Over 75% of the statewide database was assigned a specified mechanism and almost a quarter of cases were categorised as involving a consumer product. Comparison with gold standard manual coding for a sample of cases found high accuracy of the SVM classifier for the statewide data.

**Conclusions** Consumer product regulators are increasingly requiring an evidence base to support regulatory responses, and ED data provides a valuable yet underutilised source of injury data. Machine learning approaches can be used to quickly and accurately code free text descriptions to categorise data for further extraction, analysis and interpretation.

### 348 THE BATTERY CONTROLLED: AN INTER-AGENCY PARTNERSHIP TO ADDRESS A LITTLE-KNOWN RISK TO CHILDREN

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**Background** When a child swallows or inserts a button battery into the nose or ears, it can get stuck in the throat or in the nose or ear canal. Saliva triggers an electrical current causing severe burns and tissue damage within 2 hours. This results in serious injury that may require surgery, or even the death of a child.

Between 2011 and 2013, the National Poisons Centre of New Zealand received 175 calls regarding children under 6 years swallowing or inserting batteries into their nose or ears. 63 children have also been treated at the Starship Children's Health Emergency Department from March 2009 to February 2012.

Children under 6 years old represent the greatest risk. Small children often have easy access to coin-sized batteries and devices that use them, and many parents do not know there is a risk.

**Objective** Develop an effective collaboration with government and non-government agencies, industry, design experts and medical first responders to proactively address an emerging child injury issue—the ingestion and insertion of powerful coin sized lithium batteries by children.

**Results** In April 2014, Safekids Aotearoa announced The Battery Controlled – a partnership to raise awareness about this issue and share information with the medical first responders, medical community, regulators, parents, caregivers, manufacturers and retailers.

This effort is committed to helping prevent children from swallowing coin-sized button batteries, and for parents and medical first responders to know what to do if they suspect a child has swallowed a button battery.