1026 DESING ONTOLOGY FOR KIDS DESIGN DATABASE

[1,2]Kun Zhang, [1]Yoshifumi Nishida, [1]Koji Kitamura, [3]Yoshiki Mikami. [1]*International Research Fellow of the Japan Society for the Promotion of Science, Human Informatics Research Institute, National Institute of Advanced Industrial Science and Technology, Tokyo, Japan*; [2]*School of Safety Science and Engineering, Henan Polytechnic University, Jiaozuo, Henan, P. R. China*; [3]*Department of Nuclear System Safety, Nagaoka University of Technology, Nagaoka, Niigata, Japan*

Background Child injury has been a significant societal problem in many countries and various data-mining methodologies have been employed to extract useful information from various injury data sources. However differences of frameworks and vocabularies used by these different sources hinder the integrated analysis across the different source data. The study aims to develop a conceptual child injury data model, Child Injury Information Ontology (CIIO), and to apply this model to Kids Design Database (KDDB) for capturing useful information for various stakeholders relating to product safety issues.

Methods Firstly, Kids Injury Information Description Framework (KIIDF), a rearranged and non-duplicating set of all attributes of KDDB's four different databases, is presented. Secondly, an ontology of KIIDF is created using Basic Formal Ontology (BFO) methodology and Ontologies Inverse Engineering (OIE) technique. An ontology editor named "Hozo" is employed for this purpose.

Results Conceptual model of kids injury information with fifty conceptual-level attributes, which are organised into five conceptual categories (host, vector, agent, environment and consequences), and a series of vocabulary standards for the description of those attributes have been produced. Thus, an adequate ontology for child injury information has been obtained. Usefulness of CIIO is presented through the comparative analysis of two product domains, products designed for children and products designed for adults. The conventional analysis indicates that the latter is safer, but not actually safer when CIIO based analysis were made. In order to provide effective protection for children, more care needs to be taken in the design of products for adults.

Conclusions CIIO is a powerful tool for the integration and cross-referencing of various types of child injury information. CIIO would be useful for various data mining works for injury prevention at both social and technical levels.

1027 NETTIVIHJE – COMBATING ONLINE CHILD SEXUAL ABUSE

Laura Keisanen, Nina Vaaranen-Valkonen. *Save the Children Finland, Finland*;

Background Online sexual violence, exploitation and abuse of children are some of the worst forms of harm inflicted to children. Under the Convention of the Rights of Child and other international treaties (Lanzarote and Budapest Convention) all children have the right to be protected from harm. The directive (2011/93/EU) of EU Parliament and Commission clearly states that all EU countries have to prevent child sexual abuse, strengthen and promote national hotlines and make sure that online child sexual abuse material (CSAM) is removed quickly both within and outside EU.

Methods Save the Children Finland maintains Finnish Hotline (Nettivihje), which offers the public a way to anonymously report CSAM they suspect to be illegal. Nettivihje is also a member of International Association of Internet Hotlines network **INHOPE** which is an active and collaborative network of 51 hotlines in 45 countries worldwide. Nettivihje has been in operation since 2002 and in the beginning of the year 2015 it received the largest number ever reports per six month (2138). More than 30% of these reports were assessed as indecent sexual images of children or illegal CSAM.

Results Nettivihje took part in the pilot phrase of the EU Commission's *"BIK NET project 2014"* and is still actively involved in the development and implementation of the software solution IC-CAM (*I see child sexual material*). This solution has enhanced the global fight against CSA online and speeded up the notice-and- takedown times without jeopardising criminal investigations. The solution has streamlined the work, enabling process more CSAM reports to LEA and Interpol. This collaboration gives them more possibilities to identify and rescue child victims.

Conclusions International co-operation promotes the child rights, protect abused children from further victimisation and ensures focus on child protection online. One single report to Nettivihje makes a word of difference.

1028 FACING INFORMATION CHALLENGE IN INJURY SURVEILLANCE WITH OPEN SOURCE SOLUTION

[1]Megha Ganewatta, [1]Achala U Jayatilleke, [1]Pamod Amarakoon, [2]Roshan Hewapathirana.. [1]*Post Graduate Institute of Medicine, University of Colombo, Sri Lanka*; [2]*Health Informatics Society of Sri Lanka.*

Background Injuries are a major public health issue in low and middle-income countries (LMIC) where lack of information has been identified as a key stumbling block in injury prevention. LMIC cannot afford to use proprietary software due to high costs. Currently there is a lack of free and open source (FOSS) injury surveillance systems (ISS). However, District Health Information Software version 2 (DHIS2) is a web-based generic FOSS framework which is widely implemented in over 50 countries providing a wide range of possibilities for building information systems for a range of public health issues.

Methods We decided to use DHIS2 to face the challenge of carving out an ISS out of a generic public health information system framework. Features that were lacking in the native application were improvised using JavaScript. Data elements and datasets were defined abiding the WHO guidelines. The system was piloted at a base hospital in Sri Lanka with a daily turnover of 10 injury patients and later at a tertiary care hospital with a daily turnover of 70 during past 8 months.

Results Generic DHIS2 platform was flexible enough to be customised to a functional ISS. The system inherited features inherent to the DHIS2 framework, such as data validation, data backup and handling missing information in addition to the customised injury surveillance functionalities. Further, it allowed changing data and process needs without major rework. The report dashboard had detailed visualisations where injury information could be analysed in different tabular and graphical representations. However, inbuilt graphical user interfaces and workflows seemed to restrict the efficiency of data entry to a certain extent.

Conclusions Our study reveals that DHIS2 has the potential to be customised as a low cost and sustainable ISS. The source code of our ISS is freely available and free to modify, so anyone could customise it to suite their own national needs withstanding the uniqueness of country specific ISS requirements.