



Review

EU alerting and reporting systems for potential chemical public health threats and hazards



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ABSTRACT

A number of European and international IT platforms are used to notify competent authorities of new potential chemical exposures. Recently the European Parliament and the Council of European Union adopted new legislation that aims to improve the co-ordinated response to cross border health threats (Decision 1082/2013/EU). The Decision, inter alia, sets provisions on notification, ad hoc monitoring and coordination of public health measures following serious cross border threats to health from biological, chemical and environmental events as well as events that have an unknown origin. The legal instrument applies to all European Union Member States and is comparable to the International Health Regulations in its content, requirements and adoption of a multiple hazards approach. An inter-sectoral and multidisciplinary response to events with potentially dangerous cross border exposure pathways is often required. For example, European Poisons Centres may be aware of cases of toxic exposure to a product and, in parallel, trading standards may be aware of the same product due to a breach of consumer product standards. Whilst both cases would have been recorded for separate purposes in different alerting systems, they relate to the same exposure pathway; therefore a process for linking these records would allow a more robust approach to risk assessment and risk mitigation. The Decision seeks to reconcile this issue for serious threats by linking relevant platforms into one overarching higher level risk management IT platform called the Early Warning Response System (EWRS). This system will serve to link other sectors within the European Commission (EC) to public health (e.g. medicines), as well as other EU agencies and international bodies via co-notification features. Other European alert systems will be linked to EWRS to facilitate information sharing at both the assessment and management levels. This paper provides a timely overview of the main systems run by the EC and other international organisations that provide alerts following chemical incidents that have, or may have, the potential to affect public health. The advantages and further considerations of linking these different systems and sectors are also highlighted. Recommendations are made with the purpose of ensuring that modifications to these systems made to satisfy with EU legislation enable a more timely coordinated response and greater awareness of events in Europe, thereby reducing the public health impact from chemical exposures.

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1. Introduction

A number of systems have been developed within the European Union (EU) to alert, notify, report and share information on chemical hazards that may present a risk to public health in European Union (EU) Member States (MSs). These systems cover different sectors including medicines, emerging and illicit drugs, food stuffs, consumer products, industrial accidents, deliberate releases, incidents of unknown aetiology, notifications under International Health Regulations (IHR) and events detected by EU Poisons Centres and Public Health Authorities (see Table 1). Each of these systems has been developed to notify and distribute timely warnings to competent authorities, public organisations, governments, regulatory authorities and public health officials to enable them to take effective action to minimise and manage the risk to public health.

The alerting systems (Table 1) have evolved separately from discrete European legislation and often involve different sectors with differing reporting requirements. For example the underpinning legal instruments describing these systems include consumer protection, control of medical devices and medicines and protection of food and feedstuff supply. A basic aim for each alerting system is to protect human health and reduce risks and yet, until recently, there has been limited communication between the different alerting systems. Understanding how these platforms can be better linked is important to allow greater awareness of events that are relevant across sectors. Factors that may

limit communication and information sharing include different national and international contact points for reporting events to different systems; reporting platforms hosted separately and requiring different security access; differing reporting requirements (e.g. event control, assessment or hazard information) and the extensive use of free text which is inherently difficult to codify.

It is clear from numerous historical examples (BMCCDDA, 2011; Collins, 2013; GIZ-Nord PC, 2012; Gossner et al, 2009) that chemical threats can emerge from varied sources, may affect multiple sectors and importantly have an associated public health risk. The disparate nature of the origins of such threats means that it is difficult to have a clear picture of all emerging events. In a recent MS consultation on 'Health Security in the European Union' 84% of respondents thought that there should be better interconnectedness between existing alerting and notification systems (EC, 2011). This requirement has now been acted upon with the adoption, in November 2013, of Decision 1082/2013/EU for serious cross border threats to health (EU, 2013). Within the Decision there is agreement that one platform, the Early Warning Response System (EWRS), will become the main focal point for national risk managers to receive timely communication and alerts for all serious transboundary health threats including those of a biological (e.g. communicable diseases and biotoxins), chemical, environmental and unknown origin. The Decision excludes radiation as this is covered by the Euratom Treaty (Euratom, 1957). Furthermore within Decision 1082/2013/EU there is recognition that mechanisms need to be put

Table 1
European and international reporting and alerting systems for chemical health threats with examples of incidents reported. Grey shaded cells indicate systems that reach beyond Europe.

Incident or substance type	Reporting Authority or System	Example of chemical Incidents/Intoxications covered by different alerting system
Incident of international concern	International Health Regulations (IHR) – World Health Organization	<ul style="list-style-type: none"> Methanol intoxications from tainted spirits in Czech Republic and neighbouring MSs, 2012 (Pelclova 2013) Global alert following intoxications and deaths in Pakistan and Paraguay from ingestion of cough syrup containing Dextromethosol, 2013 (WHO, 2013a, 2013b, 2013c)
Industrial Accidents	UNECE Convention on Transboundary Effects of Industrial Accidents. Industrial Accident Notification (IAN) system	<ul style="list-style-type: none"> Release of hydrogen sulphide from refinery with transboundary effects, Antwerp, Belgium 2008 (IMPEL, 2009). Massive release of red sludge after failure of a containment dam, Hungary, 2010
Major accidents	Seveso II Directive reporting requirements using the eMARS	<ul style="list-style-type: none"> Seveso industrial disaster Italy, 1976 (Homberger E, 1979) Buncefield Oil Depot Fire UK, 2005 (Buncefield Major Incident Investigation Board, 2008)
Medicaments	European Medicines Agency (EMA)	<ul style="list-style-type: none"> OxyElite sport supplement linked to acute hepatitis, 2013 (Medicines and Healthcare Products Regulatory Agency, 2013) Side effects of veralipride menopause treatment, 2007 (World Health Organization, 2007)
Illicit and Emerging drugs	REITOX system – European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)	<ul style="list-style-type: none"> Deaths from white powders containing fentanyl, Europe, 2011 (Belgian Monitoring Centre for Drugs and Drug Addiction, 2011)
Consumer products	Rapid Alerting System for Consumers Products (RAPEX)	<ul style="list-style-type: none"> 1,4 Butanediol in Bindeez toys, Global, 2007 (Runnacles and Stroobart, 2008) (Gunja et al., 2008) Magic Nanospray intoxications, Germany, 2006 (Thayer, 2006) (GIZ–Norde Poisons Centre, 2006)
Foodstuff (and feedstuff)	Rapid Alerting System for Food and Feedstuff (RASFF)	<ul style="list-style-type: none"> Melamine in baby formula, China, 2007 (Parry, 2008) Ciguatera fish poisoning outbreak in Europe, 2011 (GIZ–Norde Poisons Centre, 2012) 2,4 Dinitrophenol in slimming aids, Global 2013 (FDA, 2013a, 2014b)
Serious Cross Border Health Threats (formerly biological and unknown)	Early Warning Response System (EWRS)	If the events had occurred after publication of Decision 1082/2013/EU many of the above may have been posted due to seriousness and potential or actual transboundary nature of the events
Chemical incidents of European Public Health or Poisons Centres interest	Rapid Alerting System for Chemicals (RASCHEM)	All of the above incidents may have been posted if RASCHEM was live due to the potential impacts on public health and potential interest to EU Poisons Centres

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