Alerting, Reporting and Surveillance System for Chemical Health Threats, Phase III (ASHTIII) – Interim Report Summary

The aim of the ASHT project is to protect EU citizens from incidents involving chemicals that could have the potential to cause harm. ASHT has been co-funded by the European Commission (EC) and is designed to help European Member States (MSs) and the EC to detect and respond to these incidents in order to reduce their impact on the public.

A ‘chemical incident’ is where a toxic chemical substance escapes or is released into the environment, the food chain or introduced into a consumer product during manufacturing. Chemical incidents are mainly man made and are generally the result of accidents, criminal activity or deliberately created in order to harm people, which could include chemical suicides. Table 1 highlights some well documented serious chemical incidents.

Many chemicals are used in society for manufacturing products, food, agriculture and industry; some of these chemicals have toxic properties which can cause harm if they are not safely managed. New global and European laws have helped to ensure that these processes are now very safe and usually chemical incidents are local so the vast majority of the population are very rarely affected by such events. However history dictates that chemical incidents can have a major impact on society in terms of health, well-being, living conditions, travel, trade, economics and politics.

Table 1. Examples of chemical incidents.

<table>
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<tr>
<th>Industrial accident</th>
<th>Buncefield oil depot fire, UK (2005); Bhopal methyl isocyanate release (1984), India; Seveso industrial accident, Italy (1975)</th>
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<tr>
<td>Incidents involving foodstuff</td>
<td>Methanol contaminated alcohol, Czech republic (2012); Dioxins in pork, Ireland (2008); Melamine in Milk, China (2009)</td>
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<tr>
<td>Incidents involving consumer products</td>
<td>Magic nano-spray, Germany (2006); Aquabeads, Australia (2007)</td>
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<td>Deliberate releases</td>
<td>chemical release in subway, Tokyo (1995); use of chemicals against civilians in Syria (2013)</td>
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Sometimes incidents can affect more than one country at a time. Chemical incidents involving more than one country can arise from diverse scenarios including international trade (e.g. internet purchases) of tainted products, or because a toxic cloud (e.g. chemical fire) travels over a country’s border. Although rare, when more than one country is affected it is important that there is co-ordination between countries to ensure that the right actions are taken. All 28 European Member States have recently agreed to work together in ensuring that there are better plans and a co-ordinated response to such events.

The ASHTIIII project is a joint effort by medical and scientific experts from UK, Germany, France, Italy, Czech Republic, Lithuania and other countries and aims to support the European Union in responding to cross border chemical health hazards. Experts in the group work in poisons centres which treat and provide advice on poisonings and public health authorities which help protect, control and prevent disease outbreaks.

**A chemical exposure** is when a person, who is not adequately protected, comes into contact with a toxic substance either by eating, drinking, breathing, via the skin or in the eyes. When the exposure is sufficiently high or for a long period this can lead to **poisoning**. Someone who is poisoned exhibits **symptoms of poisoning** which vary greatly according to the type of chemical involved, part of the body affected and duration of the exposure. Mild poisoning could lead to an upset stomach or eye irritation, severe poisoning could result in long term health consequences or death.

The ASHTIIII project is now half way through and progress has been made in a number of areas which are discussed in more detail below.

A number of tools and work-streams have been developed by the group to help people analyse and communicate information about chemical incidents. These include:

- An IT platform that allows experts from different countries to alert each other about new events and also discuss how best to manage them. The platform is called the Rapid Alerting System for Chemicals (RAS-CHEM) and helps to ensure that countries and notified of events and the same information is shared between them.

- Information sheets about toxic chemicals have been developed to help decision makers (e.g. civil servants) and those responding to chemical incidents (e.g. paramedics) to have a common set of information. There are many thousands of toxic chemicals and many sources of information, these sheets help to ensure that a common set of authoritative is available in the event of a serious event.
- MSs ability to rapidly exchange and compare information on chemical exposures in the same way in order to look for emerging trends and signals is an important concept; great care has been taken to develop and test ways of doing this. The group has recently developed a system to enable different countries to compare information about exposures and poisonings to toxic products, like detergents. This was previously difficult due to different product names and ways of recording this data in each country. Previous ASHT work also led to an agreed set of terms that describe how an exposure occurred and also the symptoms of poisoning. A related work stream in the second half of the project aims to automate the process of human exposure data analysis.

- An IT tool is under development to help people who respond to incidents (e.g. paramedics) to identify hazardous substances by using the symptoms of poisoning (e.g. skin blisters). The tool is designed to work in multiple languages and allow for differences in the way we all describe injuries (e.g. eye irritation, eye redness, painful eyes).

- Lastly, independent, authoritative, timely expert advice is central to the work of both poisons centres and public health authorities at the local, regional and national level. A work stream is on-going to study if a network of toxicological experts can be created in order to support the EC in the event of a serious cross border chemical health threat within the Union.

Core work streams within the project ensure that the research and development runs efficiently and that deliverables are met on time and to a high standard. Independent peer review ensures that the project outputs are not biased and are fit for purpose. Finally information from the project is made available to the public and scientific community. If you would like more information or would like to join the project as a collaborating partner please contact ASHT@PHE.gov.uk or visit our website www.ASHT.EU

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