The European Chemical Emergency Network (ECHEMNET) - an EU-level network of experts to respond to cross-border chemical incidents

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Public Health England
Key messages

• Alerting and reporting – RASCHEM and Event based surveillance

• Rapid risk assessment of cross border chemical incidents

• A network of expert risk assessors
EU Decision for Serious Cross Border Threats to Health (1082/2013/EU)

- The Decision sets provisions on notification, ad-hoc monitoring, risk assessment and coordination of public health measures following serious cross border threats to health from biological, chemical, environmental events as well as events that have an unknown origin; it does not cover radiation.

- The instrument applies to all the 28 European Union (EU) Member States (MSs) and is comparable to the new International Health Regulations (IHR) in its content and requirements, adopting the all-hazards approach.

- However where IHR involves bilateral communication between signatory Member States and WHO, Decision 1082/2013/EU is multilateral in its nature.
Alerting and reporting

• RASCHEM (Rapid Alerting System for Chemicals) – Informal risk assessment & discussion platform for use by Poisons Centres and Public Health Authorities

• Early Warning Response System (EWRS) & International Health Regulations (IHR) – Reporting through National Focal Points for serious cross border threats to health.

• Reporting through other systems for other sectors – RAPEX, RASFF
Event-based surveillance

- European and global media monitoring systems and other sector reporting systems
- Key word searches (chemical, toxic, deliberate, accident)
- Daily trawl through (Medisys, GPHIN, Promed, AlertMap, Google Alerts, EDIS, RAPEX, RASFF)
- Twitter and Google News
- Notified by project partners, associated experts and other organisations
### Rapid Alert System for Chemicals (RASCHEM)

**CLINICAL SUMMARY**

<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>RAPEX</td>
<td>Skin peel solution with high levels of lactic and glycolic acid. Potential for burns and corrosive injuries. No reported exposures</td>
<td>Austria</td>
</tr>
<tr>
<td>Webcrawlers</td>
<td>22 people with nausea, anxiety and breathing difficulty in farm</td>
<td>Spain</td>
</tr>
<tr>
<td>Webcrawlers</td>
<td>Nine people with breathing difficulty possibly following inhalation of gas (from a cleaning product) at municipal swimming pool</td>
<td>Spain</td>
</tr>
<tr>
<td>UK NPIS</td>
<td>Recall of Nigeria Taste Brown Beans due to the risk of contamination with Aluminium Phosphate; no reported exposures in UK</td>
<td>&gt;1 country in Europe (incl. EU Member States)</td>
</tr>
<tr>
<td>Webcrawlers</td>
<td>A new synthetic cannabinoid has led to 25 deaths and 700 people requiring medical attention in Russia</td>
<td>Russian Federation</td>
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<tr>
<td>UK CRCE</td>
<td>Notification from RAPEX (A12/1558/14) of jewellery item (hairclip) with 40.3 percent cadmium content. No reported injuries.</td>
<td>Poland</td>
</tr>
<tr>
<td>Webcrawlers</td>
<td>3rd degree burns caused by explosion of organic solvents</td>
<td>Germany</td>
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</tbody>
</table>

**N = 15 posts**
• RASCHEM users in 12 MSs – 40 users
• Requests from 4 non-EU countries
EU Scientific Committees

Statement by the Commission

• Where a risk assessment concerning a serious cross border threat to health falls outside the mandates of the agencies of the Union, the Commission undertakes obtaining such a risk assessment by means of expert groups.

• The Commission will, as a priority, have recourse to the Scientific Committees established by Commission Decision 2008/721/EC of 5 August 2008 setting up an advisory structure of Scientific Committees and experts in the field of consumer safety, public health and the environment and repealing Decision 2004/210/EC.

2011/0421 (COD)
Skills Framework

Is this you?

<table>
<thead>
<tr>
<th>Hazard Assessment &amp; Characterisation</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicology</td>
<td>☐</td>
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<tr>
<td>Physiology</td>
<td>☐</td>
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<tr>
<td>Public Health Science</td>
<td>☐</td>
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<tr>
<td>Environmental Science (water, air, land)</td>
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<tr>
<td>Information Science (pubmed)</td>
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<tr>
<td>Dose Response (IDLH, PAC, TEEL, Acute Exposure Guideline Values, Occupational Standards, Toxicity Thresholds)</td>
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<tr>
<td>Biochemistry &amp; Molecular Biology</td>
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<tr>
<td>Chemistry</td>
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<tr>
<td>Pharmacology</td>
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<tr>
<td>Food science (food processes and agriculture)</td>
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<tr>
<td>Other:</td>
<td>☐</td>
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</tbody>
</table>

If Toxicology:
- General toxicology
- Clinical/Medical Toxicology
- Forensic Toxicology
- Agent Specific Toxicity
- Eco/Environmental Toxicology
- Current Tox, Issues & Controversies
- Experimental Design
- Anatomy / Pathology
- Regulatory Toxicology
- Non-medical (human) toxicologist
- Medical clinical toxicologist
- Occupational toxicology
- Veterinary
- Other:

If Agent Specific Toxicity:
- Acutely toxic substances, such as carbon monoxide, hydrogen sulphide, hydrogen cyanide, acrylonitrile
- Irritating/corrosive substances, such as chlorine, ammonia, sulphur dioxide, hydrogen chloride (hydrochloric acid)
- Pulmonary (lung) toxicants, such as phosgene, oxides of nitrogen
Rapid Risk Assessment of public health threats from chemicals

### Exercise Quicksilver

#### Rapid Risk Assessment – Summary

<table>
<thead>
<tr>
<th>Title:</th>
<th>24/09/2014</th>
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<tbody>
<tr>
<td>Release of Toulene diisocyanate following explosion of a container at BorsodChem Zrt chemical factory in Kazinbarcika, Hungary.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Date:</th>
<th>Number of Update</th>
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<tr>
<td>24/09/2014</td>
<td>1</td>
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#### Key updates in this document

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#### Key conclusions

The uncontrolled release of 1000 tons Toulene diisocyanate into the environment from the BorsodChem Zrt chemical factory on the 24th September 2014 represents a serious (immediate and long term) risk to health of those living locally and also persons in a downwind direction.

The current area affected covers parts of Northern Hungary and Slovakia, the risk of further spread is unknown. There is an immediate need for clear and consistent advice to the public on sheltering in place or evacuation which should be based upon further information from the incident (e.g. weather conditions, duration of release, other chemicals involved, and contamination of drinking water).

There is likely to be a growing high demand on local healthcare facilities and first responders along with a need for adequate personal protective equipment and decontamination facilities. Modelling data suggests that toxic levels of pollutant will affect both local and cross border (Slovakia) areas over a wide area.

Very high levels of TDI in the immediate vicinity of the incident are likely to be at levels that are immediately dangerous to life. Information from plume modelling suggests that airborne concentrations are likely to cause moderate to severe injuries over a distance of at least 30km.
Rapid Risk Assessment of public health threats from chemicals

Summary risk assessment (from below)

- Estimates of consequences: Severe
- Level of overall risk: Very high risk
- Level of confidence in risk assessment: High confidence

This risk assessment is based on the identity of the agent released and the exposure scenarios. There is some uncertainty about the duration of the release and if any other chemicals are involved. Air sampling data and predicted weather patterns is not yet available so there is some uncertainty about continued exposure levels. Further information on local resources, weather conditions and contamination of drinking water, agricultural land and livestock is required. There is currently no information on the local population or those in the path of the chemical plume (e.g. sensitive populations, social deprivation). Environmental recovery and decontamination options should also be explored.

Requested by: European Commission
Date of request: 24/09/2014

Why was the RRA requested, including critical questions?

- To evaluate the risk to public health.
  - What are the immediate and longer term public health risks associated with exposure to TDI?
  - What advice can be given to reduce the risk of further exposure?

Rapid health risk assessment working group:
Conclusions

• **Rapid Alert system for Chemical Health Threats (RASCHEM)** is a platform for the informal notification and technical discussion of emerging chemical incidents.

• To enhance our situational awareness we developed an **Event Based Surveillance (EBS) strategy** to detect emergent chemical threats in the EU.

• We have demonstrated that producing **high quality, accurate and defensible documents**, during the acute phase of a cross border incident, for use by EU MSs and the Commission is **feasible with a relatively small budget and limited pool of experts**.

• We are continuing to develop our network and working mechanisms to be able to respond effectively and robustly to emerging threats; these systems will be tested in exercises in 2015.
And finally...

• Can you access RASCHEM?

• Are you a member of the network?

• Would you like our Event Based Surveillance weekly digest?
Acknowledgements

European Chemical Emergency Network (ECHEMNET)

Rob Orford, Charlotte Hague, Mark Griffiths, Herbert Desel, Andreas Schaper, Lisbeth Hall, Sally Hoffer, Marjolein Groot, Cisca Stom, Ann Goransson Nyberg, Per Leffler, Elisabeth Wigenstam, Agneta Plamboeck, Jiri Trnka, María del Carmen García Cazalilla, Manuel González Guzmán, Jesus Ocaña García-Donas, Jose Javier García del Aguila, Raquel Duarte-Davidson
Acknowledgements

Alerting, Reporting and Surveillance System for Chemical Health Threats, Phase III (ASHTIII)

Rob Orford, Charlotte Hague, Monique Mathieu-Nolf, Laura Settimi, Herbert Desel, Martin Ebbecke, Daniela Pelclova, Sergey Zakharov, Gabija Dragelyte, Robertas Badaras, Erik Andrew Richard Adams, Gillian Jackson, Franca Davanzo, Fabrizio Sesana, Al Bronstein, Raquel Duarte-Davidson
Thank you for listening

www.echemnet.eu

Please contact ECHEMNET@phe.gov.uk

Co-funded by the 2nd EU Health Programme