환경부 보도자료 다시 대한민국! 새로운 국민의 나라

보도시점 2023. 12. 10.(일) 12:00 (월요일 조간) 배포 2023. 12. 8.(금)

화학사고로 인한 주민 건강영향조사 10년간의 경험, 세계에 알린다

- 화학물질안전원-세계보건기구 아시아·태평양 환경보건센터, '화학사고 건강영향 관리 사례연구' 기술문서 발간

환경부 소속 화학물질안전원(원장 박봉균)은 화학사고로 인한 주민 건강영향조사 경험을 공유하기 위해 세계보건기구(WHO) 아시아·태평양 환경보건센터와 공동으로 '화학사고 건강영향 관리 사례연구' 기술문서(Technical document)를 발간한다고 밝혔다.

이번 기술문서는 '국제 화학물질 관리에 대한 전략적 접근(Strategic Approach to International Chemicals Management)' 사업의 일환이며, 우리나라 화학사고 건강영향조사 기법을 국제사회와 공유하고 국제협력을 통한 선제적인 화학사고 예방과 대응을 위해 제작됐다.

본 문서는 △화학물질관리의 변화, △건강영향조사 방법, △건강영향조사 피해판정 방법, △사고로부터 얻은 교훈, △다른 국가에 권고하는 사항으로 구성됐다.

2014년부터 10년간 이뤄진 국내 건강영향조사 절차와 특징을 소개했으며, 특히 2012년 9월 27일 경북 구미 4공단에서 발생한 불산가스 누출 사고 이후 △화학사고 조사를 위한 법적 체계의 마련, △지역 거점 의료기관과 협력을 통한 상시대비 체계 구축, △피해자 정신건강 관리 및 건강피해 판정, △만성건강 확인을 위한 추적조사 지원 등의 내용을 중점적으로 다루고 있다.

아울러 화학물질안전원은 올해 7월 14일 세계보건기구(WHO) 아시아·태평양 환경보건센터와 ‘화학사고 공중보건관리를 위한 국제회의’를 개최하여 국내 사례를 서태평양 지역 국가들과 공유한 바 있으며, 앞으로도 지속적으로 화학사고 건강영향조사 기법을 고도화하고 관련 경험을 전파하는 데 앞장설 계획이다.

이번 기술문서는 12월 11일부터 화학물질안전원 누리집(nics.me.go.kr)과 세계보건기구 누리집(iris.who.int)에서 누구나 열람할 수 있다.

아킴 알리(Akeem ali) 세계보건기구 아시아태평양 환경보건센터 센터장은 "우리 기관은 서태평양 지역의 세계보건기구 회원국들이 화학물질 안전과 관련된 문제를 포함한 환경문제를 해결할 수 있도록 지원하고 있다"라며, "이번 기술문서는 협력 기관인 화학물질안전원과 함께 환경과 보건 문제에 대한 능력과 역량 향상을 위해 발간되었다"라고 밝혔다.

박봉균 화학물질안전원장은 “이번 기술문서는 최근 10년간의 화학사고에서 얻은 주민 건강관리 경험을 담았다”라며, “우리나라의 앞선 경험을 바탕으로 화학사고 대응에 어려움을 겪는 아시아 국가와 세계보건기구 회원국에게 도움이 되길 기대한다”라고 밝혔다.

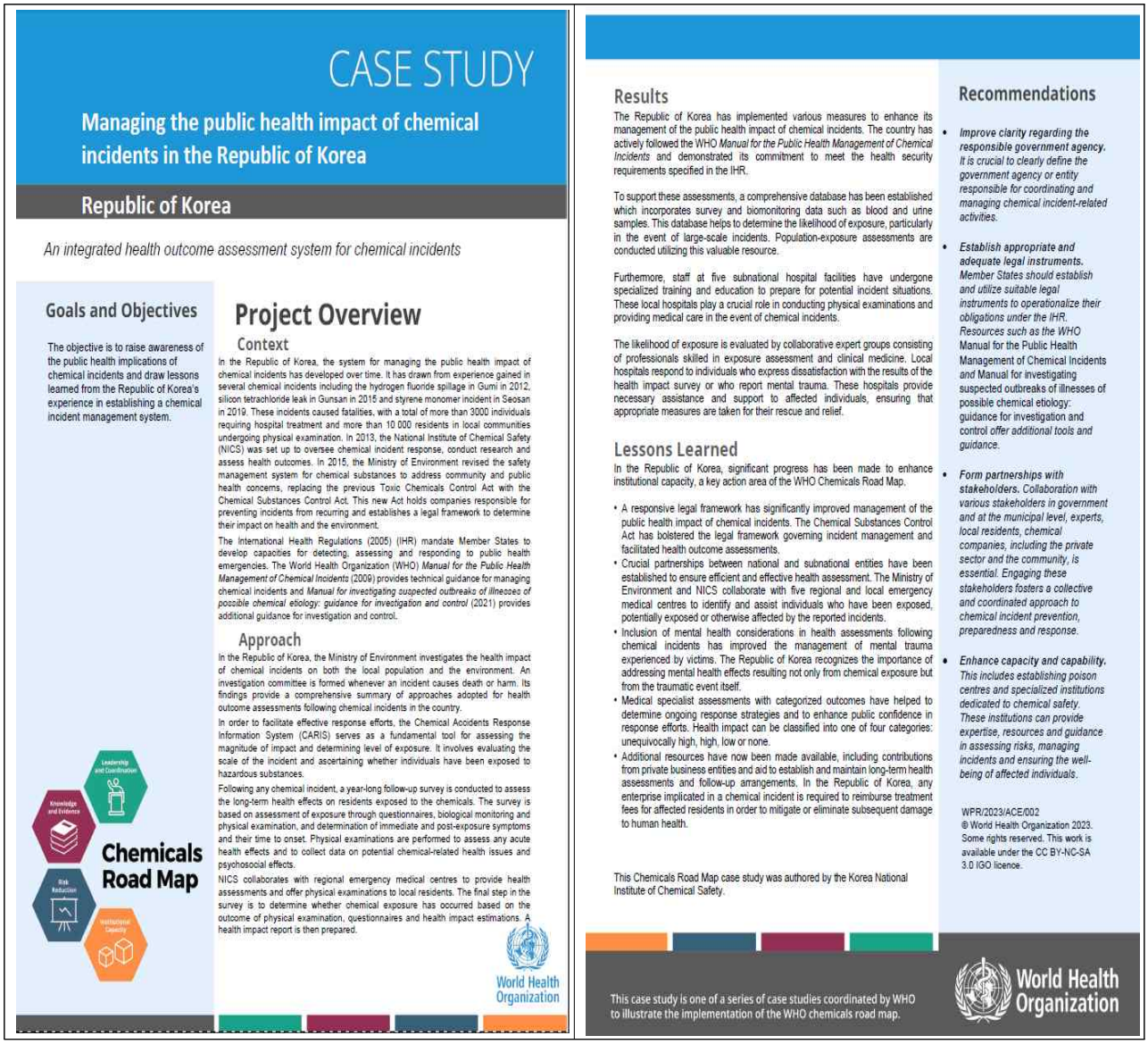
붙임 1. ‘화학사고 건강영향 관리 사례연구’ 기술문서.
2. 화학사고 영향조사 개요.
3. 세계보건기구 아시아·태평양 환경보건센터 개요. 끝.

담당 부서	화학물질안전원 화학사고조사팀	책임자	과 장	황승율 (043-830-4190)
		담당자	연구사	조아름 (043-830-4198)

붙임 1 ‘화학사고 건강영향 관리 사례연구’ 기술문서

□ 화학물질안전원 세계보건기구 공동 발간 문서

- 제목: Managing the public health impact of chemical incidents in the Republic of Korea



CASE STUDY

Managing the public health impact of chemical incidents in the Republic of Korea

Republic of Korea

An integrated health outcome assessment system for chemical incidents

Goals and Objectives

The objective is to raise awareness of the public health implications of chemical incidents and draw lessons learned from the Republic of Korea's experience in establishing a chemical incident management system.

Project Overview

Context

In the Republic of Korea, the system for managing the public health impact of chemical incidents has developed over time. It has drawn from experience gained in several chemical incidents including the hydrogen fluoride spillage in Gumi in 2012, silicon tetrachloride leak in Gunsan in 2015 and styrene monomer incident in Seosan in 2019. These incidents caused fatalities, with a total of more than 3000 individuals requiring hospital treatment and more than 10 000 residents in local communities undergoing physical examination. In 2013, the National Institute of Chemical Safety (NICS) was set up to oversee chemical incident response, conduct research and assess health outcomes. In 2015, the Ministry of Environment revised the safety management system for chemical substances to address community and public health concerns, replacing the previous Toxic Chemicals Control Act with the Chemical Substances Control Act. This new Act holds companies responsible for preventing incidents from recurring and establishes a legal framework to determine their impact on health and the environment.

The International Health Regulations (2005) (IHR) mandate Member States to develop capacities for detecting, assessing and responding to public health emergencies. The World Health Organization (WHO) *Manual for the Public Health Management of Chemical Incidents* (2009) provides technical guidance for managing chemical incidents and *Manual for investigating suspected outbreaks of illnesses of possible chemical etiology: guidance for investigation and control* (2021) provides additional guidance for investigation and control.

Approach

In the Republic of Korea, the Ministry of Environment investigates the health impact of chemical incidents on both the local population and the environment. An investigation committee is formed whenever an incident causes death or harm. Its findings provide a comprehensive summary of approaches adopted for health outcome assessments following chemical incidents in the country.

In order to facilitate effective response efforts, the Chemical Accidents Response Information System (CARIS) serves as a fundamental tool for assessing the magnitude of impact and determining level of exposure. It involves evaluating the scale of the incident and ascertaining whether individuals have been exposed to hazardous substances.

Following any chemical incident, a year-long follow-up survey is conducted to assess the long-term health effects on residents exposed to the chemicals. The survey is based on assessment of exposure through questionnaires, biological monitoring and physical examination, and determination of immediate and post-exposure symptoms and their time to onset. Physical examinations are performed to assess any acute health effects and to collect data on potential chemical-related health issues and psychosocial effects.

NICS collaborates with regional emergency medical centres to provide health assessments and offer physical examinations to local residents. The final step in the survey is to determine whether chemical exposure has occurred based on the outcome of physical examination, questionnaires and health impact estimations. A health impact report is then prepared.

Chemicals Road Map

World Health Organization

Results

The Republic of Korea has implemented various measures to enhance its management of the public health impact of chemical incidents. The country has actively followed the WHO *Manual for the Public Health Management of Chemical Incidents* and demonstrated its commitment to meet the health security requirements specified in the IHR.

To support these assessments, a comprehensive database has been established which incorporates survey and biomonitoring data such as blood and urine samples. This database helps to determine the likelihood of exposure, particularly in the event of large-scale incidents. Population-exposure assessments are conducted utilizing this valuable resource.

Furthermore, staff at five subnational hospital facilities have undergone specialized training and education to prepare for potential incident situations. These local hospitals play a crucial role in conducting physical examinations and providing medical care in the event of chemical incidents.

The likelihood of exposure is evaluated by collaborative expert groups consisting of professionals skilled in exposure assessment and clinical medicine. Local hospitals respond to individuals who express dissatisfaction with the results of the health impact survey or who report mental trauma. These hospitals provide necessary assistance and support to affected individuals, ensuring that appropriate measures are taken for their rescue and relief.

Lessons Learned

In the Republic of Korea, significant progress has been made to enhance institutional capacity, a key action area of the WHO Chemicals Road Map.

- A responsive legal framework has significantly improved management of the public health impact of chemical incidents. The Chemical Substances Control Act has bolstered the legal framework governing incident management and facilitated health outcome assessments.
- Crucial partnerships between national and subnational entities have been established to ensure efficient and effective health assessment. The Ministry of Environment and NICS collaborate with five regional and local emergency medical centres to identify and assist individuals who have been exposed, potentially exposed or otherwise affected by the reported incidents.
- Inclusion of mental health considerations in health assessments following chemical incidents has improved the management of mental trauma experienced by victims. The Republic of Korea recognizes the importance of addressing mental health effects resulting not only from chemical exposure but from the traumatic event itself.
- Medical specialist assessments with categorized outcomes have helped to determine ongoing response strategies and to enhance public confidence in response efforts. Health impact can be classified into one of four categories: unequivocally high, high, low or none.
- Additional resources have now been made available, including contributions from private business entities and aid to establish and maintain long-term health assessments and follow-up arrangements. In the Republic of Korea, any enterprise implicated in a chemical incident is required to reimburse treatment fees for affected residents in order to mitigate or eliminate subsequent damage to human health.

This Chemicals Road Map case study was authored by the Korea National Institute of Chemical Safety.

Recommendations

- *Improve clarity regarding the responsible government agency. It is crucial to clearly define the government agency or entity responsible for coordinating and managing chemical incident-related activities.*
- *Establish appropriate and adequate legal instruments. Member States should establish and utilize suitable legal instruments to operationalize their obligations under the IHR. Resources such as the WHO* Manual for the Public Health Management of Chemical Incidents *and* Manual for investigating suspected outbreaks of illnesses of possible chemical etiology: guidance for investigation and control *offer additional tools and guidance.*
- *Form partnerships with stakeholders. Collaboration with various stakeholders in government and at the municipal level, experts, local residents, chemical companies, including the private sector and the community, is essential. Engaging these stakeholders fosters a collective and coordinated approach to chemical incident prevention, preparedness and response.*
- *Enhance capacity and capability. This includes establishing poison centres and specialized institutions dedicated to chemical safety. These institutions can provide expertise, resources and guidance in assessing risks, managing incidents and ensuring the well-being of affected individuals.*

WPR/2023/ACE/002

This case study is one of a series of case studies coordinated by WHO to illustrate the implementation of the WHO chemicals road map.

World Health Organization

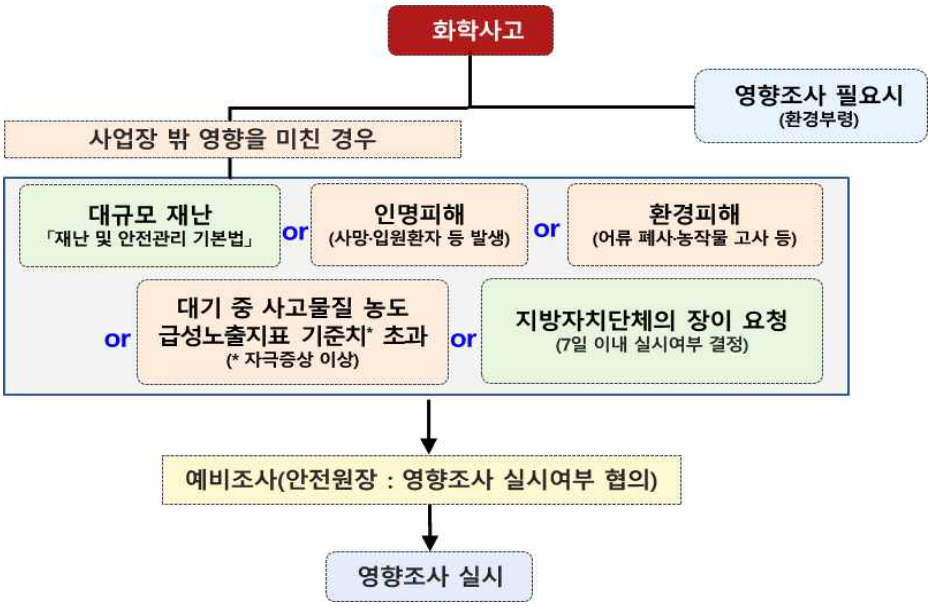
붙임 2 화학사고 영향조사 개요

□ 화학사고 영향조사

○ **(법적근거)** 화학사고의 원인 규명, 사람의 건강이나 환경피해의 최소화 및 복구 등을 위하여 실시(「화학물질관리법」 제45조)

○ **(실시기준)** 화학사고 조사단 구성·운영 및 영향조사에 관한 지침(환경부 훈령 제1305호)

- 화학사고로 **사업장 밖**의 ① **인명피해**(사망 또는 입원환자 등) 발생 ② **환경피해**(어류폐사 또는 농작물 고사 등) 발생 ③ 사고물질농도의 **급성노출 기준치 초과** ④ **대규모 재난**(「재난 및 안전관리기본법」 제14조 및 시행령 제13조) ⑤ **지자체 요청** 등의 경우



○ **(화학사고 조사단)** 단장을 포함한 **20명 이내의 정부·민간위원**으로 구성

- **(정부위원)** 관계기관* 또는 관계기관 소속한 전문가 중 유역환경청장이 임명

  * 유역환경청, 과학원, 안전원, 조사지역 지자체 및 보건환경연구원, 그 밖의 관계 행정 및 연구기관 등

- **(민간위원)** 환경* 및 주민건강** 영향조사 관련 분야에 대한 전문지식 및 경험이 풍부한 자 중 유역환경청장이 위촉

  * 화학, 화학공학, 환경공학, 환경분석학, 환경독성학, 환경보건학, 생태학, 산림학 전공 전문가 등

  ** 직업환경의학, 응급의학, 호흡기내과학, 정신건강의학 전공 전문가 등

붙임 3 세계보건기구 아시아·태평양 환경보건센터 개요

□ 2019년 **환경부, 서울시, WHO(세계보건기구)**가 **양해각서(MOU)**를 체결하여 우리나라(서울)에 **WHO 아시아·태평양 환경보건센터(WHO ACE)***를 설치·운영

* WHO ACE, The World Health Organization Asia-Pacific Centre for Environment and Health in the Western Pacific Region

□ **(목표)** ① 기후와 환경 관련 정책수립을 위한 과학적 정보와 증거 강화
② 건강과 복지를 증진하기 위해 회원국의 정책수립과 시행 지원
③ 회원국의 기술 역량 강화 및 프로그램의 개발

□ **(운영)** 대기·에너지, 기후변화, 물·생활환경 등 **3개팀**으로 구성·운영

○ **(대기질·에너지·보건)** 에너지 및 대기질과 관련된 정책이 건강에 미치는 영향을 다루며, 대기오염으로 인한 사망률을 감소시키는 UN 지속가능 발전목표에 초점을 맞춤

○ **(기후변화·보건)** UN 지속가능 발전목표에 따라 기후변화의 영향을 받은 질병으로 인한 사망률을 낮추기 위해서 태평양 지역과 같이 기후변화에 취약한 국가 및 지역이 기후 회복적 보건 시스템을 도입할 수 있도록 지원

○ **(물·생활환경)** 환경으로 인한 질병 부담을 낮추고 위생 및 안전한 식수에 대한 접근성을 높이기 위해서 화학안전, 보건, 수송안전, 환경소음, 물, 하수, 위생, 폐수 등과 같은 문제를 다루고 있음