



## Preparedness for a major incident: Creation of an epidemiology protocol for a health protection register in England



R.M. Close<sup>a,b,c,\*</sup>, H. Maguire<sup>c,d</sup>, G. Etherington<sup>e</sup>, C.R. Brewin<sup>f</sup>, K. Fong<sup>g</sup>, V. Saliba<sup>h</sup>, R.M. Barker<sup>i</sup>, G.S. Leonardi<sup>a,j</sup>

<sup>a</sup> Department of Epidemiology, Centre for Radiation, Chemical and Environmental Hazards, Public Health England, UK

<sup>b</sup> Field Epidemiology Training Programme (FETP), Public Health England, UK

<sup>c</sup> European Programme for Intervention Epidemiology Training, ECDC, Stockholm, Sweden

<sup>d</sup> Field Epidemiology Services, Public Health England, Victoria, London, UK

<sup>e</sup> Department of Toxicology, Centre for Radiation, Chemical and Environmental Hazards, Public Health England, UK

<sup>f</sup> Department of Psychology, University College London, UK

<sup>g</sup> Department of Emergency Medicine, University College Hospital, London, UK

<sup>h</sup> North East & North Central London Health Protection Team, Public Health England, London, UK

<sup>i</sup> Emergency Response Department, Public Health England, UK

<sup>j</sup> London School of Hygiene and Tropical Medicine, London, UK

### ARTICLE INFO

Available online 10 June 2014

#### Keywords:

Health register

Major incident

Epidemiological follow-up

### ABSTRACT

Large incidents and natural disasters are on the increase globally. They can have a major impact lasting many years or decades; and can affect large groups of people including those that are more susceptible to adverse consequences. Following a major incident, it may be considered necessary to establish a register of those people affected by the incident to provide appropriate advice on relevant immediate and longer-term public health interventions that may be required, provide reassurance to the public that their care is paramount, to reassure the worried well to avoid them inappropriately overwhelming local services, and to facilitate epidemiological investigations.

Arrangements for the prompt follow-up of populations after large incidents or disasters have been agreed in England and a protocol for establishing a register of individuals potentially affected by a large incident has been developed. It is important for countries to have a protocol for implementing a health register if the circumstances require one to be in place, and are supported by Public Health Authorities. Health registers facilitate the initial descriptive epidemiology of exposure and provide the opportunity of carrying out long term analytical studies on the affected population. Such epidemiological studies provide a greater understanding of the impact that a large incident can have on health, which in turn helps in the planning of health care provision. Registers can also assist more directly in providing access to individuals in need of physical and mental health interventions. The challenge that still remains is to formally pilot the register in the field and refine it based on that experience.

© 2014 Elsevier Ltd. All rights reserved.

### 1. Introduction

Large incidents involving chemical, biological, radiation and nuclear (CBRN) agents as well as natural disasters are on the increase globally (WHO, 2009). Such incidents, as well as transportation accidents and mass attacks on the general population can have a major impact on physical and mental health lasting many years or decades; and can affect large groups of people including those that are more susceptible to adverse consequences such as children, the elderly and pregnant

women. There is also a growing public interest in the impact of major incidents on health (Palmer et al., 2000).

There are many examples of natural and manmade disasters with major impacts; some of these led to a health register being established whilst others did not. In 1986 a chemical factory in Schweizerhalle, Switzerland caught fire and burned down. The factory contained 1300 tonnes of chemicals which were mostly agrochemicals; a large cloud developed and was driven by winds to Basel. A toxic stream from fire water run off flowed into the river Rhine and had international consequences (WHO, 1997). Environmental sampling was undertaken and a health register was established and the population was followed over time; the main health effects observed were an increase in respiratory symptoms and a considerable psychological strain on the population.

\* Corresponding author at: Department of Epidemiology, Centre for Radiation, Chemical, and Environmental Hazards, Public Health England, Chilton, Didcot, Oxon OX11 0RQ UK

E-mail address: [rebecca.close@phe.gov.uk](mailto:rebecca.close@phe.gov.uk) (R.M. Close).

In 1988 in the UK, 20 tonnes of aluminium sulphate solution was discharged into the wrong tank at Lowermoor Water Treatment Works, Camelford. Contaminated water entered the distribution network, causing mains water to have increased concentrations of aluminium sulphate (COT Lowermoor Subgroup, 2005). A health register was not established following this incident, but due to the on-going nature of public concern regarding water contamination following this event, a health register and health follow-up would likely have been beneficial to alleviate concerns over public health.

An explosion and fire at a fireworks depot occurred in the Netherlands in May 2000, completely destroying the surrounding residential area and injuring almost 1000 people and killing 22. Following this incident a health register was established and implemented effectively, allowing follow-up surveys of those directly affected and ongoing health monitoring by healthcare professionals to take place (Rorda et al., 2004).

In Japan in 2011, the Tōhoku earthquake and tsunami caused massive human distress, with over 100,000 people being evacuated from their homes and 19,000 deaths (World Nuclear Association, 2012). It also led to a series of equipment failures, nuclear meltdowns and releases of radioactive materials at the Fukushima Nuclear Power Plant, although there is no evidence of any deaths occurring as a result of radiation exposure following the Fukushima accident (WHO, 2013). Due to the nature of the accident, authorities acted quickly in setting up a health register and several follow-up surveys and studies on populations are on-going.

In June 2013, the North Indian states of Uttarakhand and Himachal Pradesh experienced heavy rainfall causing devastating floods and landslides which led to a huge population evacuation and caused the loss of 120 lives as of 11th July 2013 (DNA, 2013).

Following a major incident, it is important that public health agencies are able to respond in a coordinated manner. Central to the public health response is the ability to provide appropriate advice, information, and treatment to people affected both in the short- and long-term. In London on 7th July 2005, a series of bombs struck across the public transport system during morning rush hour resulting in injuries to over 770 and 52 fatalities (BBC News, 2005). Collaboration between the Health Protection Agency (HPA; now part of Public Health England; PHE) and National Health Service (NHS) providers in organising the response by mental health services staff to the London bombings in 2005 pinpointed difficulties in identifying affected individuals (Brewin et al., 2009). The need to consider epidemiology follow-up of those involved or affected by an incident prompted the development of a new protocol (Leonardi and Aus, 2006). On 26 May 2006 a workshop was held on population registries following incidents, reviewing data protection, legal and public health issues arising from the possible need to follow up members of the public affected by events such as the London bombings, natural disasters, chemical and radiation incidents. This encouraged the development of epidemiological protocols for establishing registers of affected people following large incidents.

The purpose of establishing a register is to identify the population affected by or exposed to the incident so that 1) appropriate advice on relevant immediate interventions can be provided, 2) access can be facilitated to the appropriate services, 3) reassurance can be provided to the public, 4) assessment of the health impact of the incident can be initiated, and 5) the longer-term health implications of the incident can be investigated. Those affected by or exposed to an incident can often disperse quite quickly following an incident and the rapid establishment of mechanisms to activate a register will help to ensure that the register is as complete as possible.

Epidemiology can be a useful tool to assess the health burden associated with a major incident even when the nature of the exposure is not known. The goal of the epidemiological investigation is to identify subgroups of the population who are at higher risk of disease and who will benefit the most from specific interventions. Epidemiological information can also be used to develop prevention strategies and should inform management actions (HPA, 2012).

Routine data is often insufficient to adequately capture health impacts of an incident and a health register may be the only way to capture the range of potential exposures and outcomes and follow up exposed populations over time.

Basic epidemiological information (i.e. name and address) may be collected by questionnaire or other methods (e.g. electronic data capture) and stored in a database which then constitutes a basic health register (Morgan and Odams, 2012). Health registers are key to facilitating communication between relevant services and to affected individuals, as well as enabling emergency and health services to better assess the health impact and identify longer-term health implications of an incident. In England, prior to 2012, there was not a standardised procedure or protocol for establishing a Health Register to systematically collate data in the immediate aftermath of a major incident (London Emergency Services Liaison Panel, 2012) so HPA (now part of PHE) agreed to develop an epidemiological procedure to generate a health register to address this gap.

## 2. Methods

A working group for the study was established for the Health Register Project (HRP), which included Delivery and Operational sub-groups. The Delivery Group (DG) was responsible for determining the requirements for triggering the establishment of a health register. Members were experts from many fields, including Infectious Disease Surveillance and Control, Emergency Response and other specialist in radiation, chemical and Environmental Hazards. It also included representatives from Department of Health (DH), Home Office and NHS London.

The Operational Group (OG) included subgroups for (i) epidemiology; (ii) data sharing and; (iii) communications with representation from across HPA and a number of Hospital Trusts and the Police National CBRN Centre. The OG and DG determined that a key requirement for a health register is to be able to establish rapidly following a variety of major incidents or sudden events resulting in casualties (or their likelihood).

The epidemiology subgroup was responsible for developing the epidemiology protocol and was chaired by one of the authors (HM). Members included experts in public health, environmental and field epidemiology, health response to disasters, radiation dose assessment, clinical psychology, and Accident and Emergency medicine.

A literature review was undertaken of incidents or events when a health register was used, or should have been considered, and included; UK events such as the incident affecting drinking water supplies at Camelford (UK) in 1988 (COT Lowermoor Subgroup, 2005), the London bombings of 7th July 2005 (Brewin et al., 2009; Brewin et al., 2010), the Buncefield oil depot fire in December 2005 (Hoek et al., 2007; HPA, 2006), and the alleged poisoning of a Russian dissident with polonium-210 in 2006 (Maguire et al., 2010). Other events from a number of countries included the large aircraft crash, in Amsterdam, in 1992 (Slotje et al., 2005), an explosion at a fireworks depot in Enschede, the Netherlands, 2000 (Rorda et al., 2004), the explosion at the AZF fertiliser factory in Toulouse, France in 2001 (Lang et al., 2007) and the collapse of the World Trade Centre (World Trade Centre Registry, 2004).

Unpublished literature were also included in the review including internal HPA reports covering incidents such as the polonium-210 incident, the Wigan coal tip fire follow-up, a diesel spillage in drinking water in Cornwall, as well as student dissertations from various countries such as Soler et al. (2010). In addition, views about methodological and practical aspects were obtained from a broad range of experts and stakeholders (Police, Ambulance, NHS Emergency Departments, Hospital Managers, Communication specialists).

The study group proposed four key objectives for a protocol: (1) how to identify the population affected; (2) how to recruit the population affected onto the health register; (3) how the information gathered

Download English Version:

<https://daneshyari.com/en/article/4422743>

Download Persian Version:

<https://daneshyari.com/article/4422743>

[Daneshyari.com](https://daneshyari.com)