

Case study



Outbreak investigation around extensive environmental contamination in an artisanal area of Morocco: a teaching case-study

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Abstract

Environmental lead exposure has a proven risk to human health, especially for children. It causes a nervous system effects with irreversible consequences which generate important and entirely avoidable health expenses. This chronic exposure poses problems in clinical diagnosis, identifying sources of contamination, and detection at the laboratory level because of the lack of awareness and training of health professionals. This case study simulates an outbreak investigation including laboratory confirmation, active case finding, etiological study and implementation of control measures. After completing this case study, the participant will be competent to apply epidemiological principles to respond to the outbreaks as they occurred and suggest steps toward development of policy recommendations based on the context of environmental lead exposure. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating an outbreak in preparation for the actual real-life experience of such outbreak Investigation around extensive lead

environmental contamination.

How to use this case study

General instructions: this case study should be used as adjunct training material for novice epidemiology trainees to reinforce the concepts taught in prior lectures. The case study is ideally taught by a facilitator in groups of about 20 participants. Participants are to take turns reading the case study, usually a paragraph per student. The facilitator guides the discussion on possible responses to questions. The facilitator may make use of flip charts to illustrate certain points. Additional instructor's notes for facilitation are coupled with each question in the instructor's guide to aid facilitation.

Audience: this case study was developed for novice field epidemiology students. These participants are commonly health care workers working in the county departments of health whose background may be as medical doctors, nurses, environmental health officers or laboratory scientists who work in public health-related fields. Most have a health science or biology background.

Prerequisites: before using this case study, participants should have received lectures on disease surveillance and outbreak investigation.

Materials needed: Flash drive, flip charts, markers, computers with MS Excel

Level of training and associated public health activity: Novice – Outbreak Investigation around extensive environmental lead contamination in an artisanal place of Morocco

Time required: 3-4 hours

Language: English

Case study material

- Download the case study student guide
- Request the case study facilitator guide

Competing interest

The authors declare no competing interests.

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Annexe

Annex 1: Lead Cohort Data

References

1. World Health Organization. [Exposure to lead: a major public health concern](#). WHO, Geneva, Switzerland. 2010. Accessed on 04 March 2019.

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