

ESR Epidemiological Skills Development Programme

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Module 3.1

# Advanced Outbreak Investigation

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Course outline

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# Overall aims, objectives and learning outcomes

## Purpose of course

This course is part of the suite of courses being offered under the ESR NCBID epidemiological skills development programme. It is one of a group of level three courses intended for people who have experience in outbreak investigations and have or are expected to take a leadership role in the investigation of significant outbreaks and aberrant events.

Combined with on the job experience and related professional development, the course will enhance the ability of participants to take a lead role in significant, more complex local outbreak investigations, and support national outbreak investigations.

It will provide an opportunity to:

- Reflect on professional practice
- Refresh and build on knowledge of outbreak investigations
- Work through issues likely to arise in more complex investigations.
- Share experience and expertise with others.

The course will be built around an evolving case study and focus on investigation methods beyond those used in a simple common event cohort investigation.

## Intended audience

Disease investigators who have at least three years experience investigating outbreaks of infectious disease and have taken or will be expected to take a lead in more complex outbreak investigations.

## Competencies

The course will develop competencies in the following areas:

- Surveillance/assessment
- Epidemiological concepts
- Investigation Skills
- Epidemiological analysis
- Communication
- Prevention and control
- Project management and leadership.

## Prerequisites

Course attendees are expected to have led outbreak investigations and to be familiar with basic epidemiological concepts covered in the *Module 2.1 Outbreak Investigation and Control Course* (see course overview at [www.esr.cri.nz](http://www.esr.cri.nz) key works: Skills and Training)

## Desired Learning Outcomes

On successful completion of this course participants will **know/understand**:

- Trigger points for conducting an outbreak investigation study for a dispersed outbreak
- How to generate hypotheses about the source of an outbreak and mode of transmission
- The most efficient study design to test hypotheses for a dispersed outbreak (including the case definition and an appropriate comparison group)
- Three ways to select a comparison group for a study and the advantages and disadvantages of each
- The importance of effective interagency communication between agencies in outbreaks
- The relative merits of various control measures based on changes in product processing (or design) consumer or producer behaviours

On successful completion of this course participants will **be**:

More prepared to lead or collaborate effectively on an epidemiological investigation of a dispersed outbreak.

## Additional expectations

Participants should be prepared to work on course tasks in the first evening, in order to successful complete day two.

## Session content overview

### Session 01: Introduction and scene setting

- Welcome, house keeping, introductions.
- Overview of the Epidemiological Skills Development Programme
- Overview of this course including learning objectives
- Introduction of the case study scenario

### Session 02: Detection and assessment

- Preparation
- Detecting dispersed outbreaks
- Ways to establish background levels
- Case definitions

### Session 03: Developing a hypothesis

- Hypothesis generating
- Describing and summarising the case data
- Developing a hypothesis
- Putting the pieces together
- Establishing an outbreak team including establishing links with other agencies

### Session 04: The Epidemiological investigation

- Appropriate study design to test hypothesis
- Selecting controls and avoiding bias
- Matching
- Time periods for asking about exposures
- Study protocols
- Interview procedures and training

### Session 05: Analysing the results

- Measure of association for an unmatched case control study
- Calculating measures of association
- Simple stratified analysis
- Interpreting the results
- Possible explanations for associations

### Session 06: Potential complementary investigations

- Traceback investigations

- Additional laboratory techniques
- Implications of negative lab results

### **Session 07: Control and communications**

- Appropriate immediate and longer term control measures
- Innovative ways to communicate results and findings –
- Useful ways to summarise information for different audiences

### **Session 08: Communicating findings**

- Student presentations
- Feedback on presentations

## **Assessment**

Assessment for the course will be on the basis of presentations on the last day of the course. Participants will achieve a **pass** for the course if the presentation is assessed as being satisfactory.