

## What is epidemic intelligence, and how is it being improved in Europe?

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'Epidemic intelligence' can be defined as all the activities related to early identification of potential health threats, their verification, assessment and investigation in order to recommend public health measures to control them.

Epidemic intelligence is being seen as increasingly important because of the need to rapidly recognise emerging international health threats such as SARS, or any clusters of human-to-human transmission of a new influenza virus with pandemic potential. The term 'epidemic intelligence' is not used in all European countries, and may cause confusion when translated into some languages. However, this term will be used until alternatives can be defined in each country and language.

National and regional disease surveillance systems provide information on potential threats by identifying abnormal events within the temporal distribution of known disease indicators routinely collected (number of cases, rates), and changes in laboratory characteristics of pathogens. New approaches are being used to improve the capacity of surveillance systems in detecting previously unknown threats, such as monitoring of syndromes (syndromic surveillance), death rates, health service use (such as emergency hospital admissions and drug prescriptions), behaviours, and exposure to risks related to the environment, food or animals.

More recently, surveillance institutions have been actively searching for information about health threats using internet scanning tools, email distribution lists or networks that complement the early warning function of routine surveillance systems.

Primary information can be reported by individuals, the media or information scanning tools (such as GPHIN (the Global Public Health Intelligence Network), and the European Commission's Medical Information System, MedISys), and may be further processed and summarised by specific distribution lists or networks (such as ProMED-mail and the World Health Organization (WHO) Outbreak Verification List). While this approach has been successful in complementing surveillance systems for the detection of emerging threats at international level, few countries have developed standard operating procedures for epidemic intelligence or integrated these processes into their early warning activities.

The revised international health regulations (IHR), once adopted, will also have an impact on epidemic intelligence activities because they require countries to strengthen and maintain capacity to detect, assess, notify and report events that may constitute a public health emergency of international concern. The European Centre for Disease Prevention and Control (ECDC) is collaborating closely with the WHO Regional Office for Europe on the integration of the revised IHR requirements into the alert notification process.

### Improving epidemic intelligence in Europe

The ECDC is working with European national experts, the European Commission and the WHO to agree on a common Europe-wide terminology for epidemic intelligence needed for collaboration and harmonisation of methods, and a basic framework for the epidemic intelligence process that can be applied in all European countries (Figure). The ECDC will support European countries by producing a weekly confidential communicable disease threat bulletin.

**Figure.** Epidemic intelligence framework.



This framework, proposed by the ECDC and broadly accepted by the European experts, separates the evolving methods to identify previously unknown or emerging health threats from more traditional routine surveillance systems. Although there is generally overlap of these activities, it provides a useful reference for the general terms used in the epidemic intelligence process. All components of the framework, including the Europe-wide surveillance networks, are important contributors to the epidemic intelligence process.

### Future challenges

Strengthening human and communication networks will help to build a culture of timely reporting of potential health threats. An integrated response will require multidisciplinary involvement at local, regional and national levels. Sensitivities have to be addressed with regard to a potential negative understanding of the terms 'epidemic intelligence' and 'reporting culture'.

There is a need for guidelines for epidemic intelligence to be developed by the ECDC together with national authorities in Europe. This should assist countries in strengthening their own national epidemic intelligence activities.