Towards Integrated Syndromic Surveillance in Europe?

Duncan Cooper - Born in Bradford Research Study, UK

Triple-S partners including Anette Hulth, Alexandra Ziemann, Jean-Baptiste Perrin, Mark Kanieff, Marta Sala Soler
Outline

• Context
• The Triple-S project
• European site visits
• Overview of systems in Europe
• Veterinary syndromic surveillance
• Emerging themes
• Guidelines for Europe
Context

**ISDS conferences - New York 2003, Boston 2004**
Critical mass of public health professionals in Europe

**Context**

*euromo*omo - The European Mortality Monitoring Project

TRIPLE-S
Syndromic Surveillance Systems in Europe
Context

EUROPEAN COMMISSION

Executive Agency for Health and Consumers

€800k over 3 years
Triple-S aims

Overview of syndromic surveillance systems in Europe

Support harmonization of the main data sources for morbidity syndromic surveillance.

Support the development and implementation of syndromic surveillance systems

Develop synergies between animal and human syndromic surveillance systems

Promote dialogue between syndromic and traditional surveillance networks
Triple-S partners

Associated Partners
National public health institutes
France, England, Scotland, Belgium, Italy, Greece, Finland, Sweden, Hungary, Denmark,
Maastricht University, Marseille University

Collaborating partners
Spain, Italy, Portugal, Netherlands

Advisory board
European Centre for Disease Prevention and Control (ECDC)
European Commission
ISDS
World Health Organization Europe
Triple-S work packages

Work package 1: Coordination of the project

Work package 2: Dissemination of the project

Work package 3: Evaluation of the project

Work package 4: Inventory of existing systems

Work package 5: Site visits, knowledge transfer, data source description

Work package 6: Guidelines for implementing syndromic surveillance in Europe
Triple-S outputs

- Network of contacts
- Knowledge exchange
- Inventory of systems
- Data source descriptions
- Guidelines for implementing syndromic surveillance
- Proposal for a EU strategy for Syndromic surveillance
Triple-S Stakeholders

- Triple-S partners
- Member state and European policy makers (ECDC networks, EU)
- The public health community (human and animal disease surveillance)
- The scientific community
European site visits

- Mutual knowledge exchange
- Gather information
- Not for evaluation purposes
- Inform guidelines

Eight country visits (2011-2012)
Emerging themes
European site visits

Huge differences in data source structure

Those considering and developing systems require training in syndromic data sources

A framework rather than standardized/harmonized system was requested

The visits expanded horizons from infectious disease event detection to also include:
- mass gathering surveillance
- non-communicable health impact, e.g., environmental threats
- reassurance - nothing is happening as well as detection
Emerging themes
European site visits

Best practice

Collaboration with data providers repeatedly emphasised

Need to understand health systems and health seeking behaviour

Link to animal health surveillance

Best practice methodology – is there one?
Inventory of systems across Europe

Inventory of human syndromic surveillance systems - 2011

Brief questionnaire to identify systems sent to 28 EU countries
24 responses
7 replied that no system exists
17 countries reported 35 systems

22 currently active systems, 5 pilot systems, 4 systems for mass gathering events, and 2 planned systems

In depth questionnaire to obtain further information

Inventory still open http://www.syndromicsurveillance.eu/systems-in-europe
Syndromic surveillance across Europe

UK (Scotland): Syndromic Surveillance in Scotland


UK (England & Wales): 1. HPA GP out-of-hours Syndromic Surveillance System; 2. EDSSS (Emergency Department Syndromic Surveillance System)

Ireland: 1. GP influenza sentinel surveillance system; 2. GP sentinel surveillance system; 3. Sentinel school surveillance; 4. Sentinel hospital surveillance system; 5. GP out-of-hours syndromic surveillance system

France: 1. ASTER (Alerte et surveillance en temps réel); 2. SurSaUD (Surveillance Sanitaire des Urgences et des Décès)

Denmark: 1. Surveillance of influenza-like illness recorded by Danish medical on call service; 2. BioAlarm

The Netherlands: SuNN (Surveillance Network Netherlands)

Belgium: UREG (Emergency Registration)

Germany: 1. GrippeWeb; 2. Epilag

Germany: Intensified Surveillance of Women’s World Cup 2011

Lithuania: Temporary syndromes surveillance system for European basketball championship (2011)

Hungary: National Special Medical Information System

Cyprus: Network for surveillance and control of communicable diseases

Italy: 1. Syndromic surveillance system of respiratory infections, gastroenteritis, acute hepatitis, fever and other diseases; 2. Emergency room admission surveillance; 3. The Latium Region syndromic surveillance system; 4. Syndromic surveillance system for epidemic prone diseases set up following increased migration flows

Italy: Integrated surveillance system for the 2006 Winter Olympic and Paralympic Games in Italy (Turin)
Inventory of systems across Europe

Functions / objectives

- Outbreak detection
- General public-health surveillance
- Detection of other public health threats
- Food poisoning
- Health surveillance at mass gathering events
- Measure health impact of extreme weather events
- Chemical poisoning
- Measure health impact of manmade disasters
- Measure health impact of natural disasters
- Other
Inventory of systems across Europe

Data sources
Inventory of systems across Europe

Data sources

Europe

United States

ED & primary care main sources
US – more variety of sources
Inventory of systems across Europe

**Syndromes**

- Other
- Influenza-like illness
- Respiratory illness
- Gastrointestinal illness (lower)
- Diarrhoea
- Gastrointestinal illness (upper)
- Shortness of breath
- Rash
- Hemorrhagic illness
- Fever
- Sun/heat stroke
- Specific infection
- Asthma
- Death
- Botulism-like illness
- Neurological symptoms
- Enterovirus-related infection syndrome
- Lymphadenitis
- Blood poisoning
- Localized cutaneous lesions

%
Inventory of systems across Europe

Dissemination

Nearly all systems report via email and web

Dissemination
• Real time (3)
• Weekly (19)
• Only in response to statistical alarms (5)
• Monthly (1)
**Emerging themes**

**European inventory**

Primary aim of systems is outbreak detection, particularly for respiratory disease / influenza

Emergency department and primary care (GP) are the main data sources

Cost effective, high quality, timely data described by most systems

*BUT*

Some resource intensive systems lacking coding structures or automation

Full results not available yet
Veterinary syndromic surveillance
http://www.syndromicsurveillance.eu/systems-in-europe/vet-systems

Inventory of existing or planned veterinary syndromic systems
Scoping - 45 candidate systems identified
Inventory - 27 questionnaires sent, 24 returned

Very few systems are operational yet - still at an early stage.

Identified need for information / technical help regarding data analysis and alert response

“Animal - human synergy” interests
- Common statistical and epidemiological issues → Knowledge transfer (methods, expertise)
- Common threats: zoonoses, animal sentinel → Share important signals, investigation findings
- Importance of ‘synergy’ networks
Veterinary syndromic surveillance

“Developing synergies between human and animal health SyS systems”
Dissemination, so far

- press release announcing the project
- translated into four other languages
EUROPEAN INSTITUTES FOR DISEASE PREVENTION AND CONTROL COLLABORATE TO IMPROVE PUBLIC HEALTH SURVEILLANCE

A. Hulth (anette.hulth@smi.su)1, A. C. Vis2

1. Smittskyddsinstitut (Swedish Institute for Communicable Disease Control, SMI), Stockholm, Sweden
2. Institut de Veille Sanitaire (French Institute for Public Health Surveillance, InVS), Saint Maurice, France

A new Public Health Action Programme called Triple-S (Syndromic Surveillance Survey, Assessment towards Guidelines for Europe) started in September 2010 and will end in August 2013. The aim of the Triple-S project is to increase the European capacity for real time or near real time surveillance and monitoring of the health burden of expected and unexpected health-related events. During the period mentioned, the project will review and analyse
Assessment of syndromic surveillance in Europe

Potential public health threats are generally detected through specific surveillance systems based on predetermined diseases and rapid biological confirmation. However, such systems are not rapid and they do not detect all health hazards, especially unexpected threats. Syndromic surveillance can support public health professionals in this endeavour.

The idea was first put into practice in the late 1990s with the aim of providing early warning of disease outbreaks and potential bioterrorist action ...

The Triple S project partners involved in this Comment are: Marta Sala Soler, Anne Fouillet, Anne Catherine Viso, Loïc Josseran, French Institute for Public Health Surveillance, 94415 Saint-Maurice, France; Gillian E Smith, Alex J Elliot, Health Protection Agency West Midlands, Real-time Syndromic Surveillance Team, Birmingham, UK; Jim McMenamin, Health Protection Scotland/NHS National Services Scotland, Glasgow, UK; and Alexandra Ziemann, Thomas Krafft, GEOMED Research Forschungsgesellschaft mbH, Maastricht University, School for Public Health and Primary Care, Maastricht, Netherlands.
syndromic surveillance

HPA - Real-time Syndromic Surveillance
http://www.hpa.org.uk...Topics Infectious Diseases Infections A-Z
2 Oct 2012 – Definition of syndromic surveillance, work of the team and latest bulletins.

CDC - Meaningful Use - Syndromic Surveillance (SS)
http://www.cdc.gov/ehr/meaningfuluse/syndromic.html
27 Jul 2012 – Syndromic surveillance uses individual and population health indicators ... the syndromic surveillance data compiled through Meaningful Use ...

Clinical surveillance - Wikipedia, the free encyclopedia
http://en.wikipedia.org/wiki/Clinical_surveillance
Jump to Syndromic surveillance: Syndromic surveillance is the analysis of medical data to detect or anticipate disease outbreaks. According to a CDC ...

What is syndromic surveillance?
by KJ Henning - 2004 - Cited by 194 - Related articles
24 Sep 2004 – What is syndromic surveillance? Henning KJ, New York City Department of Health and Mental Hygiene, 125 Worth Street, CN-6, New York, NY ...

Triple-S – the syndromic surveillance project
http://www.syndromicsurveillance.eu/
The Public Health Action Programme Triple-S (Syndromic Surveillance Survey, Assessment towards Guidelines for Europe, grant agreement GA 2009.11.12) ...

International Society for Disease Surveillance
http://www.syndromic.org/
ISDS. International Society for Disease Surveillance. About ISDS · Partner Organizations · Events Calendar · Annual Conference · Committees · Conference
Towards Integrated Syndromic Surveillance in Europe?
European Centre for Disease Surveillance (ECDC)

Figure 2: Epidemic intelligence framework

Syndromic surveillance

Indicaor-based component
“Surveillance” systems

Event-based component
Event monitoring

Data

Events

Collect
Analyze
Interpret

Capture
Filter
Validate

Assess

Public health
Alert

Investigate

Control measures

Disseminate

Confidential: EWRS...
Restricted access: network inquiries, ECDC threat bulletin
Public: Eurosorveillance, press release, web site

Eurosorveillance, Volume 11, Issue 12, 01 December 2006. Epidemic intelligence

HealthMap
ProMed

Syndromic surveillance
EU Directive 2011/24/EU
Patients’ rights in cross-border healthcare

EU aims to ensure that the EHR can cross borders effectively
Emergency data and patient summaries included in a minimum EHR

European GPs using a computer during consultation, in % (EC Study 2007)

Random samples of 6,789 GPs in 29 countries

Source: empirica: eHealth use among GPs in Europe 2007, Bonn, April 2008
Integrated syndromic surveillance in Europe?

*How far do we go with integration / harmonisation?*

Guidelines structured around different stages of implementation
Getting started » Data source » Analysis » Communication » Evaluation

Data - simple minimum dataset ✗

Analysis – syndromes/data/methods country dependent. Lexicon ✗

Communication - through existing structures national/European (ECDC, WHO, World Organization of Animal Health, IHR ✓)

Common evaluation criteria - CDC Framework for Evaluating Public Health Surveillance Systems for Early Outbreak Detection ✓

Checklist at every stage – best practice when applicable ✓
Integrated syndromic surveillance in Europe?

Integrated reporting rather than integrated data collection and analysis

Step by step guide to setting up a system

Minimum requirements at each stage of implementation

Best practice from around Europe
Future

Project funded to deliver by April 2012

Afterwards?

ECDC

or

European Society
Website

www.syndromicsurveillance.eu

Thanks for listening