Monitoring and assessing vaccine safety – an EU perspective

Kari Johansen, Piotr Kramarz, Pier Luigi Lopalco, Johan Giesecke
February 10, 2012
What is the role of ECDC*?

Identify, assess & communicate current & emerging health threats to human health from communicable diseases (ECDC Founding Regulation (851/2004), Article 3)

- EU level disease surveillance
- Scientific opinions and studies
- Early Warning and Response System
- Technical assistance and training
- Epidemic Intelligence
- Communication to scientific community
- Communication to the general public

*www.ecdc.europa.eu
Outline

• EU Preparedness to investigate vaccine safety signals
• Creation of the VAESCO network
• Accomplishments so far by the network
• Need for capacity building
Preparedness to detect vaccine safety signals in EU/EEA Member states
Preparedness to detect vaccine safety signals in EU/EEA Member states

Eudravigilance database

Signal Detection
NRA/EMA
Preparedness to validate and assess vaccine safety signals....

Eudravigilance database

Signal Detection
NRA/EMA

Signal Assessment
NRA/PHI/ECDC
Preparedness to validate and assess vaccine safety signals....

Eudravigilance database

Immunization registries and clinical outcome databases

Signal Detection
NRA/EMA

Signal Assessment
NRA/PHI/ECDC
Preparedness for risk assessment and management.....
Creation of an EU/EEA network with capacity to assess vaccine safety signals
Establishment of an EU/EEA network for validation and association studies

• Since 2008, ECDC funds a consortium of researchers in 10 EU/EEA MS

• VAESCO - Vaccine Adverse Event Surveillance and Communication

• Project was accelerated due to use of new pandemic vaccines
Source population has varied over time and study ~ 50 million individuals representing up to 250 million person-years.
WE ARE A EUROPEAN RESEARCH NETWORK

We work together for the highest quality of vaccine safety data
We establish a shared vaccine safety research infrastructure
We conduct collaborative vaccine safety studies
We communicate timely and accurate findings

MISSION STATEMENT

High quality vaccine safety information in Europe
by standardizing methodologies, facilitating data comparability
and building collaborative networks.

PRIMARY AIM

To develop guidelines and a sustainable infrastructure
for post licensure vaccine safety assessment
in the European Region.
Accomplishments so far....
Proof of concept that data linkage data can be shared across country borders

Data pooled from Denmark and the UK using the MMR vaccine and the known adverse event thrombocytopenic purpura*

Conclusions from this first attempt of data linkage

• Cumbersome
• A software needed to extract relevant data from medical data bases
Creation of a European Vaccine Safety Data linkage system

EUROPEAN LEVEL
Pooling of national/regional **aggregated** data at Erasmus University Medical Center

*This comes from the drug safety area where it is proven to work well and also in the US CDC Vaccine Safety Datalink system*
On-going background incidence studies – validation needed in a sample

- Anaphylaxis
- Thrombocytopenic purpura
- GBS
- Convulsions
- Narcolepsy
- Others; Bell’s palsy, neuritis, encephalitis, vasculitis, transverse myelitis, autoimmune hepatitis, spontaneous abortion and sudden death
Person time for background rates

- Over 260 million PY
- 50 million subjects
Background rates of GBS in EU (pooled analysis, age-specific)
9 countries: GBS Incidence rate over time*

*51st ICAAC, Chicago, September 19, 2011
On-going association studies

• **Assessment of GBS and pandemic vaccines**
  - CCS – published*
  - SCCS in manuscript

• **Assessment of narcolepsy and pandemic vaccines**
  - CCS
  - Case definition finalized together with network of narcolepsy researchers
  - Report due end of February

*Dieleman et al BMJ 2011;343:d3908 doi: 10.1136/bmj.d3908
5 countries: H1N1 vaccine and GBS*

Case control
N = 156 cases
N = 1198 controls

Pooled adjusted OR: 1.0 (95%CI: 0.3 - 2.7)

*Dieleman et al BMJ 2011;343:d3908 doi: 10.1136/bmj.d3908
Immediate future of VAESCO

• Lessons learned exercise end of 2011

• Training workshops February 2012 focusing on background incidence studies and association studies based on developed tools
  – Partner countries (2 days)
  – Non-partner countries (2 days)
Need for capacity building
Why do we need EU-wide studies?

- EU/EEA regions with different vaccines (e.g. different vaccines, adjuvants vs no adjuvants)
- Subpopulations (different age groups, pregnant women, etc)
- Extremely large sample sizes for risk estimation of extremely rare events
- Other possible risk factors in addition to vaccines
  - genetics
  - concurrent infection
Population Narcolepsy Incidence Rates 2009-2010
(per 100,000 person-years)

- By health care regions

North region (0.25)
Uppsala-Örebro region (1.88)
Stockholm region (0.99)
South-East region (2.14)
West region (2.31)
South region (2.99)
Challenges to address

• Building and linking vaccination registries with other health registries in more MS - available in 9 EU/EEA MS (or regions of MS)
• Creating infrastructure for epidemiological studies of any vaccine
• Sustainable model of funding
• ToR of various players: MS, EMA, ECDC, EC
Future - role of communication/media
MMR Vaccination Scandal Story.....

For the ten years that the MMR controversy raged...

The media in Britain fell over themselves to promote and support Dr. Wakefield.

Sensationally highlighting the story...

Most newspapers, with only a few exceptions, uncritically swallowed whole the study’s feeble evidence.

While downplaying and even ignoring studies which found no connection between MMR and autism.

Wakefield was far from alone in creating this health scare.
Thank you