I-MOVE: Influencing Monitoring Vaccine Effectiveness in Europe

**What is I-MOVE?**

**Influenza vaccine**
- Reformulated each year
- Recommended in all Member States of the European Union/European Economic Area (EU/EEA) to
  - Groups at risk of complications
  - Certain professional categories

Until 2007: no routine evaluation of influenza vaccine effectiveness (IVE) in EU/EEA.
In 2007, ECDC developed a network composed of 18 European Public Health Institutes and EpiConcept, the coordinating hub, to monitor seasonal and pandemic IVE in the EU/EEA: I-MOVE (Influenza Monitoring Vaccine Effectiveness in Europe).

**I-MOVE phases**

**Preparation phase 2007/8**
- Literature review
- Surveys of EU MS
- Expert consultations

**Implementation phase 2008/9-2011/12**
- Multicentre case control study
- Cohort studies with nested case control
- Screening method studies
- Other partner institutes from
  - Australia
  - Belgium
  - Canada
  - ECDC
  - EpiConcept
  - Portugal
  - Romania
  - Sweden
  - Spain
  - Valencia, Spain
  - Germany
  - Greece
  - Molise, Italy
  - The Netherlands
  - Norway
  - USA

**I-MOVE: a consolidated network for measuring IVE**
- Estimates from several countries, several designs
- Laboratory confirmed outcome
- Control for positive / negative confounders
- Early estimates in seasons or pandemics
- Influenza VE by age group, subtype, target group for vaccination
- Contribution to strengthen influenza surveillance in the EU
  - Use of ILI EU case definition
  - Systematic sampling – based on existing sentinel networks

**Key methods**

**Multicentre case control studies**
- Based on influenza sentinel networks at GP level
- Systematic selection of influenza-like illness (ILI) patients to be swabbed (all study sites since 2010-11)
- Cases: ILI patients positive for influenza
- Controls: ILI patients negative for influenza
- Common covariates to adjust for positive and negative confounding
- Logistic regression including all potential confounding factors.

**Cohort studies**
- Large electronic GP databases
- All ages
- Outcomes: ILI, all respiratory illness, hospitalisations, mortality, lab-confirmed influenza
- Adjustment for positive and negative confounding
- Poisson/Time dependent Cox regression (person-time analysis)

**Adjusted influenza vaccine effectiveness estimates 2008-9/2011-12 (multicentre case control study)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Age group</th>
<th>Overall</th>
<th>Seasonal vaccine 2008-9</th>
<th>Pandemic vaccine 2009-10</th>
<th>Seasonal vaccine 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008/9</td>
<td>196-74</td>
<td>Overall</td>
<td>65.4%</td>
<td>65.9%</td>
<td>66.0%</td>
</tr>
<tr>
<td>2009/10</td>
<td>75+</td>
<td>Overall</td>
<td>65%</td>
<td>67%</td>
<td>67%</td>
</tr>
<tr>
<td>2010/11</td>
<td>&lt;65</td>
<td>Overall</td>
<td>78%</td>
<td>66%</td>
<td>56%</td>
</tr>
<tr>
<td>2011/12</td>
<td>65-64</td>
<td>Overall</td>
<td>73%</td>
<td>60%</td>
<td>51%</td>
</tr>
</tbody>
</table>

**Discussion**

- Excellent scientific exchanges
  - within Europe and with international experts (Canada, US, Australia)
  - annual meeting
- Communication
  - 28 articles published
  - I-MOVE results included in meta-analysis (Lancet Infect Dis. 2012 Jan;12(1))
  - Since 2009/10
    - preliminary results communicated to EMA, WHO, ECDC
- Dedicated website:
  - https://sites.google.com/site/epiflu/home