CONSISE Epidemiology Working Group:

*Summary discussions and future plans*

Maria D Van Kerkhove, PhD

CONSISE International Meeting
Cape Town, South Africa, 3-4 September 2013
Aims of CONSISE’s Epi Working Group

• **Overall aims**
  
  – Working together with laboratory working group: Recommend best practices and standardize influenza seroepidemiology studies for pandemic, epidemic, zoonotic influenzas and emerging respiratory viruses
  
  – Provide support to countries who wish to carry out seroepidemiology studies for, primarily flu, but also other emerging respiratory pathogens

  • Tools: protocol templates & questionnaires
  
  • Recommendations on which study to conduct when
  
  • Guidance on adaptation of tools to meet specific objectives and contexts
  
  • Guidance and support of implementation of study
  
  • Coordination of lab support if capacity does not exist in country
  
  • Analysis and writing up of findings
Epidemiology Working Group Session:

PROTOCOL DEVELOPMENT
Protocols fully drafted and reviewed

• Influenza Protocol Working Drafts
  – Prospective Longitudinal Cohort for Pandemic Influenza
    • Lead: Steven Riley
  – Household Transmission Study
    • Leads: Ben Cowling/Richard Pebody
  – Close Contact Serologic Investigation for Zoonotic influenza
    • Leads: Maria Van Kerkhove/Marianne van der Sande

• Ready to be shared
  – Assessment of Health Care Workers
    • Leads: Tony Mounts/Maria Van Kerkhove
Protocols still under development

• Influenza Protocol Working Drafts
  – Serial Cross-sectional Seroepidemiological Investigation
    • Leads: Tony Mounts/Maria Van Kerkhove/Heath Kelly
  – Closed Setting Transmission study
    • Leads: Peter White/Vernon Lee
  – Routine/Residual Sera
    • Leads: Angus Nicoll/Olav Hungnes/Richard Pebody/Katja Hoschler
Discussion Points

• **Sharing and open access**
  -- CONSISE has adopted the Creative Common License

**LICENSE**

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  -- Will add acknowledgement statement

• **Revision – how do we reach consensus?**
  -- AGREEMENT: We don’t. We revise and post. If required, post modifications from feedback later

• **What is the best way to provide these templates?**
  -- Online as protocol templates

• **Validation needed: Strobe-like checklist**
Epidemiology Working Group Session:

QUESTION BANK
Headings

• Demographics
• Health and vaccination history
• Exposures (animal, food, environment)
• Travel history and exposure
• Illness, diagnosis and management
• Access to care
• Health seeking behavior
• Care givers
• Health care workers
Question Bank

• **Stage 1 Focus: Data Collection**
  – Finalize the list of questions under headings
    • Instructions, General Questions, Specific Questions
    • Include recommendations on translation/back translation
  – Recommendations on which studies to include for which protocols

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>Background Demographics</td>
</tr>
<tr>
<td>x x x x x x x x</td>
<td>Q1</td>
</tr>
<tr>
<td>x x</td>
<td>Q2</td>
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<tr>
<td>x x</td>
<td>Q3</td>
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<tr>
<td>x x</td>
<td>....</td>
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<th>Question</th>
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<tr>
<td>1 2 3 4 5 6 7</td>
<td>Animal Exposures</td>
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</table>

• **Stage 2 Focus: Data Management**
Epidemiology Working Group Session:

FIELD VALIDATION – EXPERIENCE FROM THE FIELD
Experience from the Field

• **South Africa: NICD**
  – Modification of the household transmission study
  – Interaction with protocols lead (Ben Cowling) when developing their own study

• **Opportunities for further field validation**
  – MERS-CoV Protocols: Bangladesh, Egypt
    • Protocols will be shared with CONSISE members and we will explore how to support implementation
  – Flu Protocols
    • Household Transmission Study –Hong Kong (on going); Kenya (possible to implement)
    • Longitudinal Study: Mongolia (planned), Hong Kong (several on going)

• **ADD FEEDBACK FROM LAB GROUP**
FIELD VALIDATION – ADAPTATION OF GENERIC PROTOCOLS FOR FLU/MERS-COV
Lessons learned

• Impossible to anticipate all of the questions in advance

• Preliminary questions change over time

• Not every critical question can be answered by serologic assays, but templates were helpful to have as tool to modify

• CONSISE network is a useful resource to call upon for advice
Epidemiology Working Group Session:

SIMULATION STUDIES
Simulation Studies

- Simulation permits accurate power calculations for seroepidemiology studies
- Incorporates baseline titre distributions and boosting on infection
- No real difference between cross-sectional and longitudinal for 2009 pandemic
- Likely substantial differences for seasonal strains, but subject of ongoing work
Epidemiology Working Group Session:

TIMELINE OF PROTOCOL RECOMMENDATIONS DURING AN OUTBREAK
Background

- Each Protocol has specific objectives and an ideal timing to be implemented with respect to an epidemic
  - Will be virus specific
  - Will be context specific
  - Feasibility

- Recommendations needed
  - Timing vs public health question or both

- Links with ISARIC
Timing is critical

• During a pandemic/severe epidemic, the availability of data will not match the information needs of policy makers, meaning key decisions will be made using limited data

What is the impact of infection?

What are the features of the infection?

How can further infections be prevented?

Has the virus drifted?

NOTIFICATIONS

☼

2009 2010 2011

Timing is critical
How do we illustrate our recommendations?

<table>
<thead>
<tr>
<th>Public Health Question</th>
<th>Data Needs to address question</th>
<th>Investigation</th>
<th>Protocol template</th>
<th>Examples of published studies</th>
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<tbody>
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</table>

But does not address recommendation on WHEN study should be conducted
## Research Question

<table>
<thead>
<tr>
<th>Study Design</th>
<th>Longitudinal Study</th>
<th>Serial cross-sectional study</th>
<th>Transmission studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the age-specific prevalence of cross-reactive antibodies?</td>
<td>x (pre-pandemic sera)</td>
<td>x (pre-pandemic sera)</td>
<td>somewhat no</td>
</tr>
<tr>
<td>What is the age-specific cumulative incidence?</td>
<td>x (ideal - est from paired sera)</td>
<td>x (good, est by taking difference in pre and post sero+)</td>
<td>yes (but in limited numbers) somewhat</td>
</tr>
<tr>
<td>What is the age-specific infection severity (e.g., IFR, infection: hospitalization)</td>
<td>x (if can match population with severe cases)</td>
<td>x (more difficult)</td>
<td>x (quick, not necessarily adequate sample size, but informative) x (potentially useful but limited to school age children)</td>
</tr>
<tr>
<td>What proportion of cases are asymptomatic?</td>
<td>very difficult</td>
<td>very difficult</td>
<td>x (ideal study methodology) x (potentially useful but limited to school age children)</td>
</tr>
</tbody>
</table>

*will depend on epidemiology of new virus and country settings

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This table was based on a 2009-like virus; but could and should be developed for a more severe scenario
Solution?

• **Decision to focus on table format, that timing wasn’t that critical for all protocols**
  – Is for population based protocols

• **Two Tables will be drafted**
  – Recommendations on study designs to address research questions
  – Feasibility of each study design
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Epidemiology Working Group Session:

ETHICAL PRE-APPROVAL
Discussion and Decisions

• Support users to obtain pre-ethical approval?
  – Yes

• WHO ethical approval for templates?
  – Yes
Thank you!