Overview of the WHO Manual for Estimating Seasonal Influenza Disease Burden

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• Primary goal was to create a "cookbook" how-to guide for influenza disease burden estimates
• Target- low and middle income countries
• Focus on hospitalized fraction of respiratory infection spectrum
• Utilise existing SARI surveillance data
  ➢ build on WHO surveillance strategy
  ➢ companion to the surveillance guideline
• Use basic mathematical methods accessible to those with epidemiological training
Project implementation

- User input from sample of WHO member states- 27 responded
- Independent Technical Advisory Panel set up- met in May 2011
- Engaged Agence de Médecine Préventive (AMP) to advise on the instructional design and help develop some activities (including assessments) within the manual
- Preliminary review by WHO in November 2011
- Desktop pilots at surveillance sites in India and Ghana- Dec 2011 and Jan 2012
The Manual

- Targeted at epidemiologists and data analysts with basic epi training in low and middle income countries
- Tools for different scenarios – SARI sentinel sites, hospitals not included as SARI sentinel, ILI surveillance
- Theoretical concepts accompanied by worked examples – work sheets in appendix
Preparation phase

- **Identifying** data sources
- **Screening** available data
  - Essential data
  - Desirable data
- **Reviewing** data for quality and relevance
  - Completeness
  - Representativeness
  - Accuracy
  - Potential for bias
- Structured into **parts** depending on type (SARI, Hospital, ILI) and level (sentinel site/national)
Analysis phase

- Issues with **numerator** (case counts)
- Issues with **denominator** (population at risk)
  - Catchment population- **known**
  - Catchment population- **knowable**
  - Catchment population- **unknowable**
- Concepts and tools to estimate catchment population- desk-based administrative method- Hospital Admission Survey
- Focus is on the “**knowable”** scenario –most often encountered globally in low resourced countries
Sentinel site with “knowable population”

- **Define catchment area**: smallest administrative area from which you can identify case origin and for which data are available.
- **Hospital Admission survey**: proportion of pneumonia admitted at sentinel institution from administrative records of major facilities in the area.
Sentinel site with “unknowable population”

- Alternatively and/or additionally, determination of proportion of SARI admissions associated with influenza
  - Useful adjunct even if primary parameter of interest is incidence
Burden estimation in risk groups

- Burden by risk groups
  - Pregnant women and those with chronic medical conditions
  - Case counts may be too small to be meaningful but manual discusses possible approaches (comparing proportion positive for influenza, odds ratio) depending on ascertainment status for co-morbidity
  - May be more useful as data accumulates over multiple years
Other aspects

- **ILI**
  - Not thought to be practical but do address in a separate chapter

- **Mortality**
  - Limited to estimating in-hospital case fatality ratios (hCFRs) and comparing hCFR in vulnerable groups with the “healthy” population
Burden estimation
national level

- Check distribution of sentinel sites (climatic areas and demographic regions)

- Check for similarity in case definitions and sampling strategies; representativeness of catchment population
  - pooled median estimates
  - descriptive analysis
Interpretation phase

- Chapter on interpreting results
  - Role of chance, bias, sensitivity of case definition
  - Influenza seasonality
  - Analysing time trends
Summary

- Addresses some of the key concerns regarding surveillance data
  - Lack of epi analysis, interpretation
  - Lack of burden reporting
  - No cause of death surveillance even in hospitalised cases
  - Poor co-ordination among reporting sites
  - Sites often not representative
  - Lack of standardised case definition
  - Lack of laboratory confirmation
  - Limited understanding of seasonality

- Summary measures
  - Incidence / proportion of Influenza-associated SARI
  - Influenza associated SARI mortality in hospital
  - Delineate “influenza season”
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TRIALS

"Before the fruits of prosperity can come, the storms of life need to first bring the required rains of testing, which mixes with the seeds of wisdom to produce a mature harvest."

- Lincoln Patz

Why not try it out???