

# A MANUAL

for Estimating  
Disease Burden  
Associated With  
Seasonal Influenza

The influenza disease  
burden manual

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[http://apps.who.int/iris/bitstream/10665/178801/1/9789241549301\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/178801/1/9789241549301_eng.pdf?ua=1)

# Main points

- The WHO disease burden manual is based on sentinel surveillance data with influenza confirmation (focusing on SARI data)
- Gives methods on how to estimate the denominator
- Is based on extrapolation
- Depends on good understanding of the case ascertainment biases and has limitations when case numbers in risk groups or age groups are small
- Is the basis for the economic burden tool



# Main concepts

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- **Based on sentinel surveillance**
- **Comparable case definitions**
- **SARI or ILI**
- **Needs denominator data**



# Three components of influenza sentinel surveillance

## 1. Outpatient consultations

- **ILI** Influenza Like Illness

## 2. Patients admitted to hospitals

- **SARI** Severe Acute Respiratory Infection (severe ILI)

## 3. **Laboratory**

- Confirmation and characterization of influenza virus



Plus information on population from which the cases arise

**Table 2: Summary data**

At SARI sentinel site, Hospital not designated as SARI sentinel site or ILI sentinel site	
Essential data	Number of new SARI/ALRI/ILI cases admitted/seen*
	Number of SARI/ALRI/ILI cases that were sampled*
	Number of SARI/ALRI/ILI sampled cases that were positive for influenza*
	Number of new hospital admissions to wards with SARI/ALRI patients/Number of outpatient visits to ILI site* <sup>5</sup>
	Midyear population of Catchment area* <sup>5</sup>
Desirable data	Crude birth rate of catchment area/reference population
	Prevalence of chronic medical conditions in catchment population
	Number of death among SARI/ALRI cases admitted*
	Number of death among SARI/ALRI cases that were sampled*
	Number of death among SARI/ALRI cases that were positive for influenza(if possible by subtype)*
	Number of samples positive for influenza by subtype
Number of samples positive for other respiratory viruses e.g. RSV	

<sup>5</sup> Essential is either number of admission or midyear population

\* Where possible data should be extracted by

- Age groups
- Gender
- Chronic medical conditions
- Pregnancy status

# Characteristics and limitations of surveillance data

**Difficulty to define what population is seeking care at the health facility**

- **Small percentage of persons will seek health care**
- **Limited accessibility to health care – mobile, remote, vulnerable, unregistered population**
- **Dilution of cases when there are other health care providers in same area**
- **Therefore – crude incidence rates need to be adjusted for proportion that seeks SARI health care in other health facilities in catchment area of sentinel facility**



# Calculation of adjusted SARI admission rates

## Four main steps

- A. Define the catchment area of the sentinel facility**
- B. Calculate the crude SARI admission (incidence) rate for the catchment area**
- C. Define adjustment factor, adjusting for health seeking in other facilities than the sentinel facility**
- D. Calculate the adjusted SARI hospitalization rate for the sentinel hospital**



# Proportion of the population actually visiting the sentinel site:

- **Hospital Admission Survey (HAS)**
  - Checking admissions in neighboring hospitals to estimate fraction of catchment area, who went to the surveillance site
- **Health Utilization survey (HUS)**
  - Population based survey – will also give information on fraction that did not seek health care
  - Costly





# The WHO burden estimate manual

- Standardizes the estimation of burden  
will help to make comparisons
- Uses surveillance data (which are not perfect)
- Needs to be adjusted and interpreted for missing data- biases
- Does not include all influenza cases and focuses mainly on hospitalized patients
- Will not be able to estimate risk group burden in most cases



# WHO Main Strategy to come to a global influenza disease burden estimate

- **Using the Burden of disease manual and economic tool as standard to normalize**
- **Use estimates derived with other methods to triangulate**
- **Mapping of existing knowledge**
  - **Literature reviews**
  - **Using networks to find unpublished data**
  - **Hold consultations to find and understand gaps**
- **Use international expertise to join results**
- **Aim to have a global and regional representative estimate by end 2016**



# Important

- **Your data/studies need to be communicated/published to be able to feed into the global/regional estimate!!**



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