Presentation Overview

1. **Introduction**

2. Description of a Rapid Mortality Surveillance System

3. Establishing Baseline Mortality, Excess Mortality Analysis and Data Use

Lack of Testing Leads to Global Uncertainty

- Counting COVID-19 'cases' is fraught
  - Testing usually restricted to clinical settings
  - Many more non-fatal cases than can be confirmed – but how many?

- Counting COVID-19 deaths also complicated and may be delayed
  - Need to implement ICD rules
  - Systems that aren't fully digitized may take time to produce data

# Hospital Data Alone May Miss the Whole Picture

- Misses deaths that occur in the community
  - In many countries this is the norm
  - May be up to 70% of deaths

- This may increase under pandemic conditions
  - Over-stretched health care systems
  - Changes in care seeking behavior

- Need some means to account for these deaths as well

Vital Strategies

Rapid Surveillance of All Deaths

- Provides awareness of trajectory and distribution of health impacts

- To generate mortality information with speed and simplicity

- To count all deaths by age, sex, place of occurrence

- Avoids measurement ambiguity and delays in attempting to assign cause of death

- Creates ability to use cause of death data where already available to analyze excess mortality

- To leverage existing systems and fill performance gaps in CRVS system

Weekly number of deaths in 2020

Weekly number of deaths

Age group 65 years and above

Age group 0 to 64 years
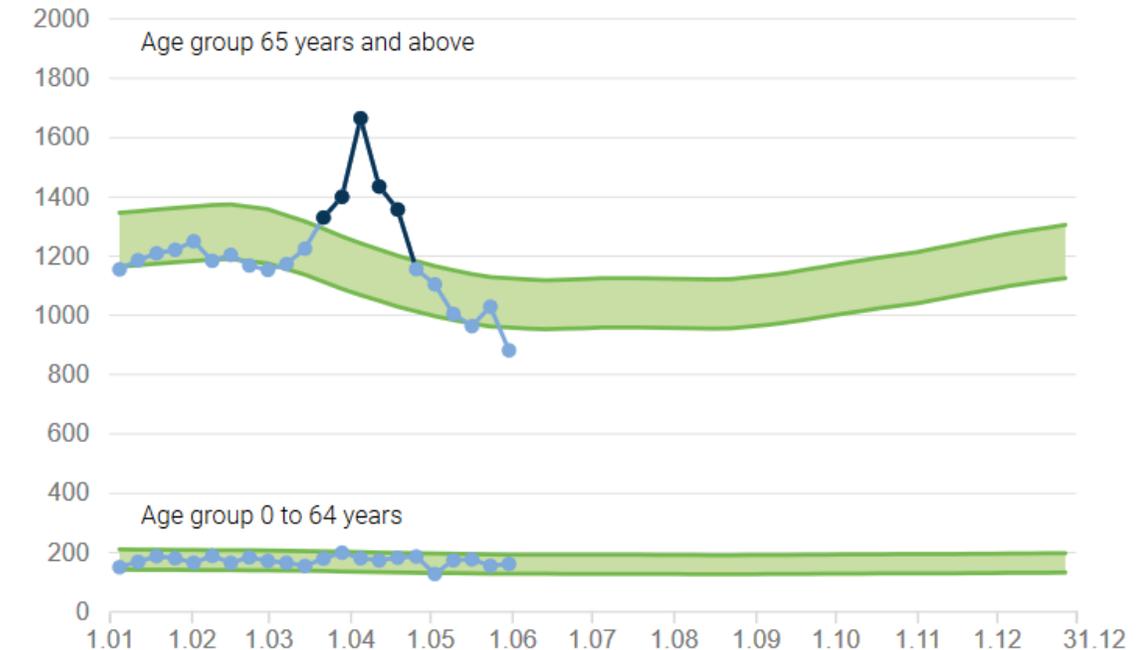
Upper and lower limit of the statistically expected value

Number of deaths (extrapolation)

The number of deaths is extrapolated for the current period on the basis of cases reported up to the previous day, taking into account the time delay for submitting a notification

Source: FSO – Cause of death statistics

Data status: 09.06.2020

© FSO 2020

Vital
Strategies

Facility-based reporting

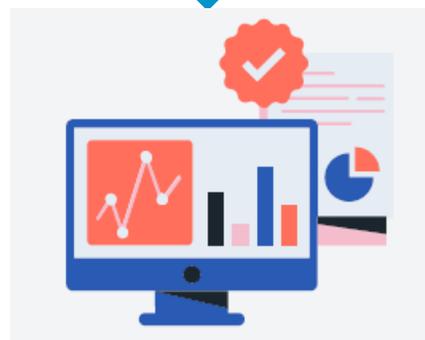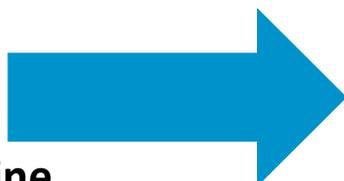**Community-based reporting**

Medico-Legal Death Investigation*
* where significant numbers of deaths are reported only through MLDI system
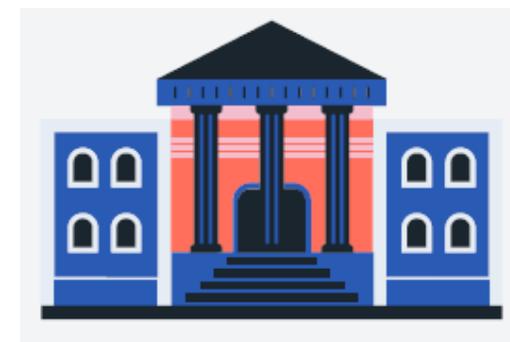
Daily or Weekly Transmission

Historical / Baseline Mortality

Excess Mortality Analysis

Decision Making

Vital Strategies

Additional System Considerations

- Selection of sites as representative as possible
  - Additional sites focused on vulnerable populations

- Five data elements for every death:
  - Date of death
  - Age at death
  - Sex
  - Location of usual residence
  - Place of death (in or outside of health facility)

- Historical source or estimate of baseline mortality
  - Particularly in countries where CRVS is not digitized

- What about cause?
  - Where feasible and will not slow reporting of total mortality

Vital Strategies

Outputs of Rapid Mortality Surveillance

- **Indicators:**
  - Number of deaths by age, sex, location
  - Death rates by age, sex, location

- **Percent deviation from historic/estimated average deaths by:**
  - Sex
  - Age groups: 0 – 14, 15 – 59, 60+, Total
  - Location of usual residence
  - Place of death (in or outside of a health facility)

Creates the Ability to See Change from Historical Norms of Mortality

Vital
Strategies

Historical Data and Excess Mortality Analysis

Excess mortality = Reported deaths − Expected deaths

- Calculating "expected deaths"
  - Ideally 3-5 years of historical mortality data by week, sex, and age categories
  - If no historical baseline data available
    - compare trends over time as implementation occurs
    - estimate mortality rates based upon population projections
- Adjust for admissions data (in facilities) and population data (in communities)
- TOOLS: excess mortality calculator, templates for facility- and community-based data, reference materials

Vital Strategies

Excess Mortality
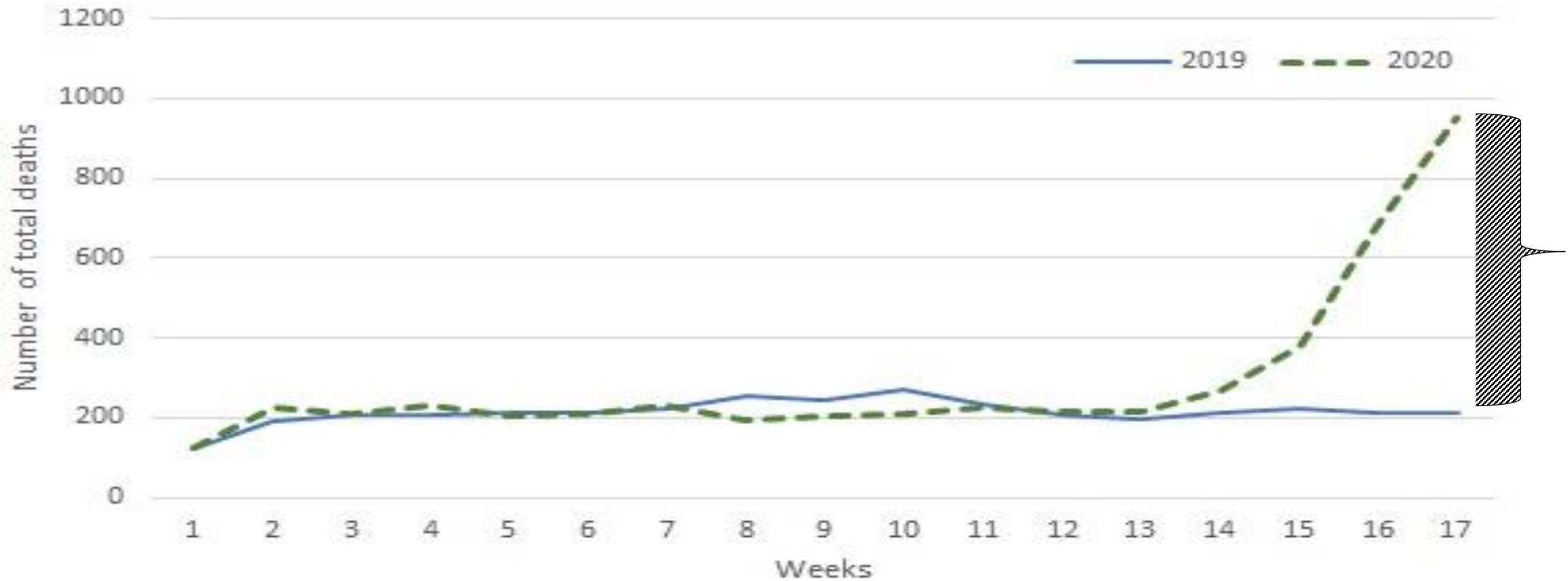
Data Use

- Monitor direct and indirect mortality-related impact of event on the population and health care system

- Monitor impact of public health measures and mortality

- Identify specific high-risk groups and disparities in disease-burden

- Expose gaps in disease surveillance

Shared with decision-makers to inform action!

Vital Strategies

Conclusion

- Real-time mortality surveillance is critical for routinely monitoring public health and in emergencies

- Civil registration and vital statistics systems can be leveraged for real-time mortality surveillance and, where needed, mortality surveillance can be leveraged to strengthen CRVS systems

- Where real-time mortality surveillance is not available, short-term rapid mortality surveillance approaches can be used to establish real-time mortality data

- Rapid mortality surveillance approaches should leverage existing systems

- Real-time mortality surveillance can generate estimates of excess mortality, helps us understand disease transmission and epidemiology, help to identify and mitigate health threats

Vital Strategies

Resources

- →
- https://www.who.int/publications/i/item/revealing-the-toll-of-covid-19

- Excess Mortality Calculator and Tools

- https://preventepidemics.org/covid19/resources/excess-mortality/

MAY 2020

Revealing the Toll of COVID-19:
A Technical Package for Rapid Mortality Surveillance and Epidemic Response

World Health Organization · Bloomberg Philanthropies · DATA FOR HEALTH INITIATIVE · RESOLVE IN SAVING LIVES · Vital Strategies

African Union · AFRICA CDC · ECA · CDC Foundation

Strategies