

## SYNOPSIS

03/25/2020

# Review of “Case-fatality rate and characteristics of patients dying in relation to COVID-19 in Italy”

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## One-Minute Summary

- This study investigated the **case fatality rate (CFR) among confirmed coronavirus disease 2019 (COVID-19) cases (N=22,512) in Italy**, using Italian National Institute of Health surveillance data up to March 17, 2020
- **CFR was higher in Italy (1,625/22,512; 7.2%) compared to that in China (1,023/44,672; 2.3%)**
  - **0-69 years:** for each ten year age band within this range of ages, CFR was similar for Italy and China
  - **70-79 years:** Italy CFR = 12.8%\* vs. China CFR = 8.0%
  - **≥ 80 years:** Italy CFR = 20.2% vs. China CFR = 14.8%
- **Characteristics for a subset of the deaths in Italy after detailed chart review (n=355):**
  - **Mean age (SD):** 79.5 years (8.1)
  - **Mean number of pre-existing conditions per patient (SD):** 2.7 (1.6)
  - **Pre-existing conditions:** diabetes (35.5%), heart disease (33.0%), atrial fibrillation (24.5%), cancer (20.3%), history of stroke (9.6%), and dementia (6.8%). Only 0.8% of patients who died had no pre-existing conditions and 25%, 26%, and 49% had 1, 2, and ≥3 pre-existing conditions, respectively.
- **CFR in Italy was higher than other countries, potentially due to:**
  - **Older population:** Approximately 23% of Italy’s population is ≥65 years, differing from other countries. In Italy, 37.6% of the COVID-19 cases were ≥70 years, compared to 11.9% in China.
  - **Definition of COVID-19-related death:** In Italy, a COVID-19-related death was defined as any fatality in a laboratory-confirmed case (via PCR), regardless of pre-existing conditions that may have caused death. Differences in definitions of COVID-19-related deaths may therefore contribute to variations in CFR.
  - **PCR testing strategy:** As of February 25, 2020, symptomatic and asymptomatic contacts of confirmed cases were no longer tested, leaving only severe clinical cases requiring hospitalization who were tested. This change would exclude less severe cases from the denominator used to calculate CFR.

## Additional Information

- CFR was defined as the number of COVID-19 cases who died divided by the total number of cases (those lab confirmed by PCR). Specimen type was not reported.
- Chinese case and mortality counts were based on surveillance data reported in China CDC Weekly as of February 11, 2020.

## PHO Reviewer's Comments

- The authors acknowledge that there is no standardized definition for COVID-19-related deaths, which may influence country-specific CFRs and comparisons made among countries.
- Patients may have died after the end of the surveillance period (March 17, 2020); therefore, the CFR may have changed.
- Details on how the subsample of 355 patients with COVID-19 who died in Italy and underwent detailed chart review were selected were not provided; the generalizability of these findings to all COVID-19 related deaths in Italy is therefore unknown.
- \*The authors reported a CFR of 12.8% for 70-79 years cohort but the [reference](#) stated this was 12.5%.

## Citation

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