

# MORTALITY, MORBIDITY, AND HOSPITALISATIONS DUE TO INFLUENZA LOWER RESPIRATORY TRACT INFECTIONS, 2017: AN ANALYSIS FOR THE GLOBAL BURDEN OF DISEASE STUDY 2017

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## ABSTRACT

Although the burden of influenza is often discussed in the context of historical pandemics and the threat of future pandemics, every year a substantial burden of lower respiratory tract infections (LRTIs) and other respiratory conditions (like chronic obstructive pulmonary disease) are attributable to seasonal influenza. The Global Burden of Disease Study (GBD) 2017 is a systematic scientific effort to quantify the health loss associated with a comprehensive set of diseases and disabilities. In this Article, we focus on LRTIs that can be attributed to influenza. Methods: We modelled the LRTI incidence, hospitalisations, and mortality attributable to influenza for every country and selected subnational locations by age and year from 1990 to 2017 as part of GBD 2017. We used a counterfactual approach that first estimated the LRTI incidence, hospitalisations, and mortality and then attributed a fraction of those outcomes to influenza. Findings: Influenza LRTI was responsible for an estimated 145 000 (95% uncertainty interval [UI] 99 000–200 000) deaths among all ages in 2017. The influenza LRTI mortality rate was highest among adults older than 70 years (16.4 deaths per 100 000 [95% UI 11.6–21.9]), and the highest rate among all ages was in eastern Europe (5.2 per 100 000 population [95% UI 3.5–7.2]). We estimated that influenza LRTIs accounted for 9 459 000 (95% UI 3 709 000–22 935 000) hospitalisations due to LRTIs and 81 536 000 hospital days (24 330 000–259 851 000). We estimated that 11.5% (95% UI 10.0–12.9) of LRTI episodes were attributable to influenza, corresponding to 54 481 000 (38 465 000–73 864 000) episodes and 8 172 000 severe episodes (5 000 000–13 296 000). Interpretation: This comprehensive assessment of the burden of influenza LRTIs shows the substantial annual effect of influenza on global health. Although preparedness planning will be important for potential pandemics, health loss due to seasonal influenza LRTIs should not be overlooked, and vaccine use should be considered. Efforts to improve influenza prevention measures are needed. Funding: Bill & Melinda Gates Foundation.

## KEYWORDS

Age distribution, Article, Controlled study, Disease severity, Eastern Europe, Geographic distribution, Global disease burden