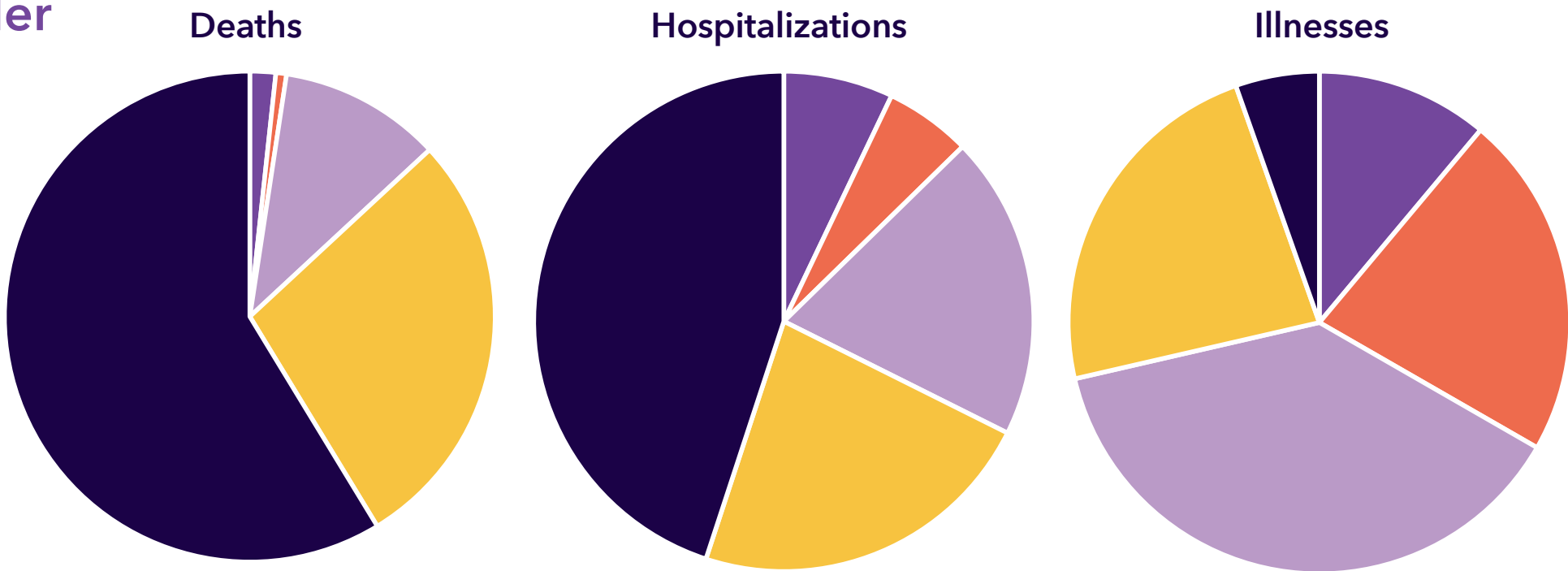


Why equating flu with just a cold is a misnomer

sanofi

Serious consequences of influenza on patient health occur in older and younger patients

During the 2019-2020 influenza season, severe disease was highest in persons 50+ while illness most affected younger patients



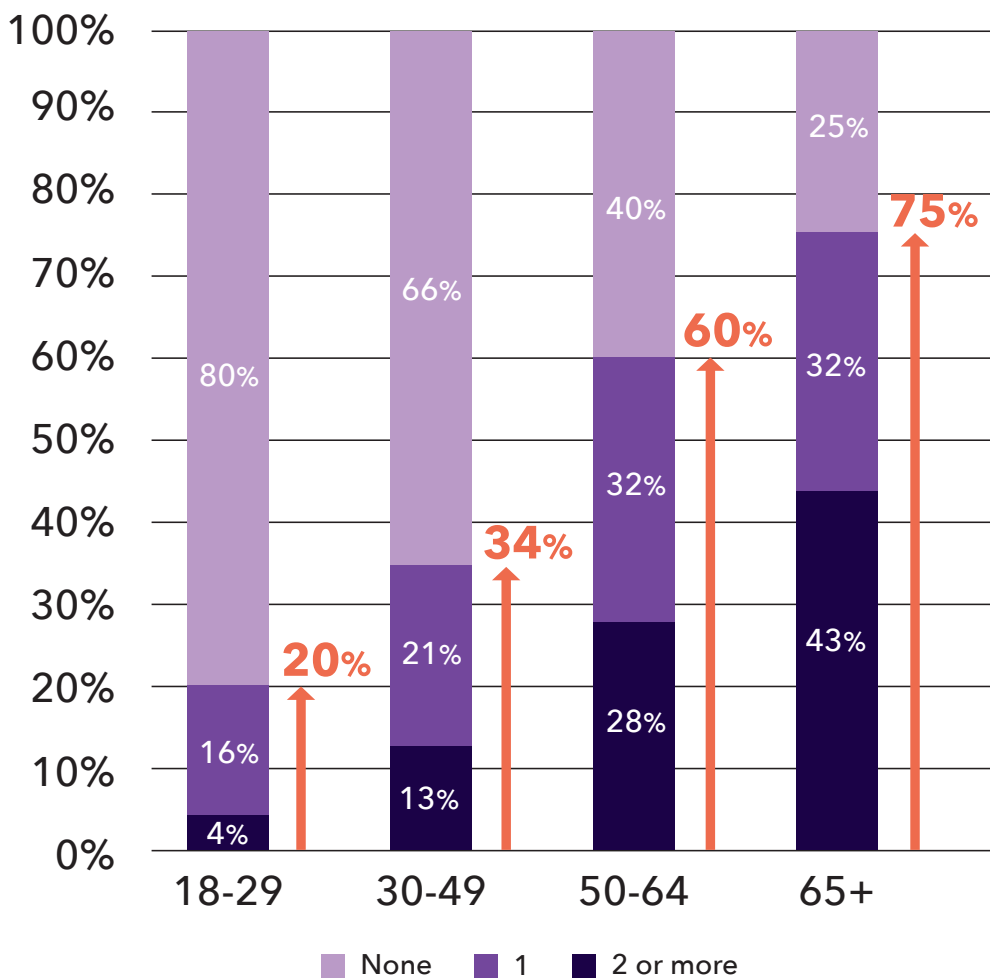
Reference: Burden of flu. Centers for Disease Control and Prevention. Updated October 7, 2022. Accessed March 14, 2024. <https://www.cdc.gov/flu/about/burden/2019-2020.html>

The majority of adults 50+ have been diagnosed with at least one chronic condition¹

- 6x Increased risk of heart attack within 7 days of influenza infection in adults with heart disease²
- ~29% Adults 65+ years of age affected by diabetes³
- ~7% Adults 65+ are living with asthma⁴

COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease.
References: 1. Boersma P, et al. Prevalence of Multiple Chronic Conditions Among US Adults, 2018. *Prev Chronic Dis* 2020; 17:200130. Accessed 15 March 2024. https://www.cdc.gov/pcd/issues/2020/20_0130.htm#ft11_down. 2. Flu and Chronic Health Conditions. NFID. Accessed March 15, 2024. <https://www.nfid.org/infectious-diseases/flu-and-chronic-health-conditions/>. 3. National Diabetes Statistics Report. CDC. Accessed March 15, 2024 <https://www.cdc.gov/diabetes/data/statistics-report/index.html>. 4. National Diabetes Statistics Report. CDC. Accessed March 15, 2024 <https://www.cdc.gov/diabetes/data/statistics-report/index.html>.

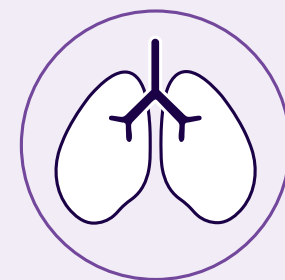
Adults living with chronic health conditions, by age¹



Often underestimated, influenza has direct and indirect impacts

Impact of infection may include:

Respiratory



- Pneumonia
 - Primary viral¹
 - Secondary bacterial²
- Asthma³
- COPD exacerbations⁴

Cardiovascular Disease



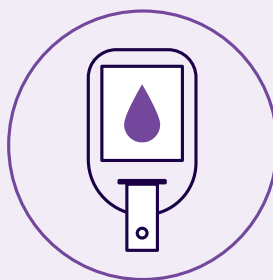
- Acute MI⁵⁻⁸
- Heart failure^{9,10}
- Myocarditis¹¹
- Stroke^{12,13}
- VTE¹⁴

Functional Decline



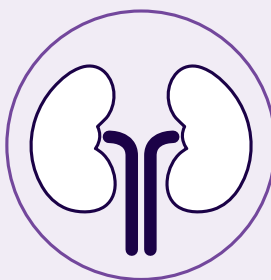
- ADL decline¹⁵
- Weight loss¹⁵
- Pressure ulcers¹⁵
- Functional loss and higher frailty¹⁶

Diabetes



- Impaired blood glucose control¹⁷
- Diabetic ketoacidosis¹⁷
- Increased abnormal glycemic events in patients with type 2 diabetes¹⁸

Renal Disease



- Rhabdomyolysis¹⁹
- Acute kidney injury¹⁹

ADL, activities of daily living; MI, myocardial infarction; VTE, venous thromboembolism.
References: 1. Murata Y, et al. *J Infect Dis*. 2007;195(7):1029-37. 2. McCullers JA. *Clin Microbiol Rev*. 2006;19(3):571-82. 3. Cates CJ, et al. *Cochrane Database Syst Rev*. 2013;(2):CD000364. 4. Kopsaftis Z, et al. *Cochrane Database Syst Rev*. 2018;6:CD002733. 5. Udell JA, et al. *JAMA*. 2013;310(16):1711-20. 6. Udell JA, et al. *Expert Rev Cardiovasc Ther*. 2015;13(6): 593-96. 7. Kwong JC, et al. *N Engl J Med*. 2018;378(4):345-53. 8. Siriwardena AN, et al. *CMAJ*. 2010;182(15):1617-23. 9. Kytomaa S, et al. *JAMA Cardiol*. 2019;4(4):363-69. 10. Panhwar MS, et al. *JACC Heart Fail*. 2019;7(2):112-17. 11. Rezakalla S, et al. *WMJ*. 2010;109(4):209-13. 12. Warren-Gash C, et al. *Eur Respir J*. 2018;51(3):pii1701794. 13. Boehme AK, et al. *Ann Clin Transl Neurol*. 2018;5(4):456-63. 14. Zhu T, et al. *Thromb Haemost*. 2019;102(6):1259-64. 15. Gozalo PL, et al. *J Am Geriatr Soc*. 2012;60(7):1260-67. 16. Andrew MK, et al. *J Am Geriatr Soc*. 2021;69(3):696-703. 17. Diepersloot RJA et al *Diabetes Care*. 1990; 13(8):876-82. 18. Samson SI, et al. *J Diabetes Sci Technol*. 2021;15(1):44-52. 19. Watanabe, T. *Eur J Pediatr*. 2013;172(1):15-22.

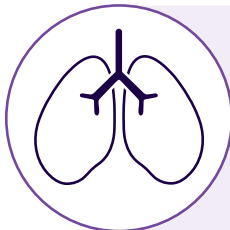
Influenza and its association with risk of pneumonia, heart attack, and stroke



~8x

Increased risk of stroke¹

Adjusted IRs^a, day 1-3 post-infection, 95% CI 1.07-56.9, n=762 individuals 40+ years of age



~8x

Increased risk of pneumonia²

Matched OR, 0-6 days after infection, 95% CI 4.8-14.5, n=3234 children 0 to 14 years of age



~10x

Increased risk of heart attack¹

Adjusted IRs^a, day 1-3 post-infection, 95% CI 2.37-40.5, n=1227 individuals 40+ years of age

^aAdjusted for age and season.
CI, confidence interval; IR, incidence ratio; OR, odds ratio.
References: 1. Warren-Gash C, et al. *Eur Respir J*. 2018;51(3):1701794. 2. Kubale J, et al. *Clin Inf Dis*. 2021;73(11):e4288-e4295.



Protecting against influenza through vaccination is associated with 36% lower risk of cardiovascular events

Influenza vaccine was associated with a lower risk of composite cardiovascular events (RR, 0.64 [95% CI, 0.48-0.86]) in a meta-analysis (6735 patients, mean age 67 years, 36.2% with a cardiac history; mean follow-up time, 7.9 months).

RR, risk ratio.
Reference: Udell JA, et al. *JAMA*. 2013;310(16):1711-20.

ACIP recommendation acknowledges increased risk in elderly patients^{1,2}

Routine annual influenza vaccination for all eligible persons ≥6 months

As of the 2023/24 flu season, the use of higher dose and adjuvanted vaccines are preferentially recommended for adults age 65 years and older

If none of the preferentially recommended vaccines are available, adults 65 years and older should get any other age-appropriate influenza vaccine instead

References: 1. Grohskopf LA, et al. *MMWR Recomm Rep*. 2023;72(No. RR-2):1-25. 2. Flu & people 65 years and older. Centers for Disease Control and Prevention. Updated August 25, 2022. Accessed March 14, 2024. <https://www.cdc.gov/flu/highrisk/65over.htm> 3. Flu vaccination coverage, United States, 2022-23 influenza season. Centers for Disease Control and Prevention. Updated October 18, 2022. Accessed March 14, 2024. <https://www.cdc.gov/flu/fluview/coverage-2223estimates.htm> 4. Healthy people 2030. U.S. Department of Health and Human Services. Accessed June 7, 2022. <https://health.gov/healthypeople/objectives-and-data/browse-objectives/vaccination/increase-proportion-people-who-get-flu-vaccine-every-year-iiid-09>



Influenza and its serious complications are underestimated: supporting the need for widespread influenza vaccination in all eligible patients

Vaccination coverage, 2022-2023 influenza season³

