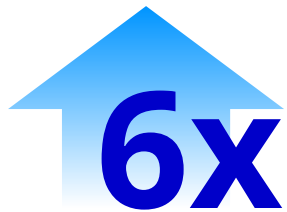


# Closing Gaps in Vaccine Preventative Care in People with Cardiovascular Disease

## Risks of Vaccine-Preventable Diseases in People with Cardiovascular Disease

In an observational, self-controlled, case-series study of adults between 2008 and 2015 (many with cardiovascular risk factors), **influenza infection** was associated with<sup>1</sup>:

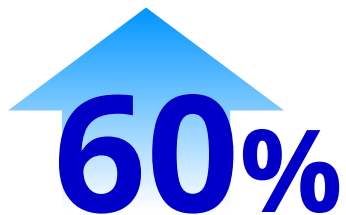


6x

**increase in the risk of hospital admission for acute myocardial infarction**

in adults with cardiovascular risk factors vs adults without

In the OPTIMIZE-HF trial of 48,612 patients **hospitalized with heart failure, pneumonia, or another respiratory process**, patients had<sup>2</sup>:



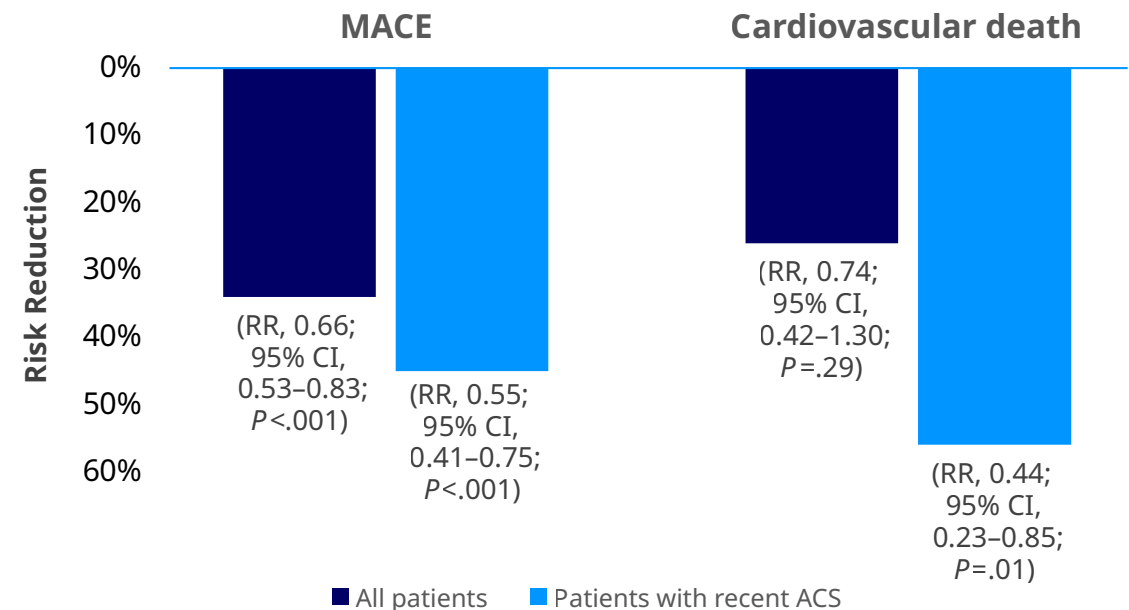
60%

**increased risk of in-hospital mortality**

(OR, 1.6; 95% CI, 1.38–1.85;  $P<.001$ )

## Benefits of Vaccinations in People with Cardiovascular Disease

In a meta-analysis of 6 randomized controlled trials published between 2000 and 2021 that included 9001 adults (52% with a cardiac history), **influenza vaccination** was associated with a **reduced risk of major adverse cardiovascular events (MACE)** and **cardiovascular mortality** compared with placebo or standard of care<sup>3</sup>:



ACS=acute coronary syndrome; OR=odds ratio; RR=risk ratio.

**References:** 1. Kwong JC, Schwartz KL, Campitelli MA, et al. Acute myocardial infarction after laboratory-confirmed influenza infection. *N Engl J Med*. 2018;378(4):345-353. 2. Fonarow GC, Abraham WT, Albert NM, et al. Factors identified as precipitating hospital admissions for heart failure and clinical outcomes: findings from OPTIMIZE-HF. *Arch Intern Med*. 2008;168(8):847-854. 3. Behrouzi B, Bhatt DL, Cannon CP, et al. Association of influenza vaccination with cardiovascular risk: a meta-analysis. *JAMA Netw Open*. 2022;5(4):e228873.

# Vaccination Recommendations in Adults with Cardiovascular Disease

## CDC/ACIP Vaccine Recommendations for Cardiovascular Disease<sup>1</sup>

Influenza	Pneumococcal	COVID-19 <sup>2</sup>	RSV <sup>2*</sup>	Zoster	Tdap	HepB	MMR	Varicella	HPV
1 dose annually	Aged 19 years and older: 1 to 2 shots over a person's lifetime	1 dose of 2024-2025 COVID-19 vaccine as authorized or approved by the FDA	Aged 60 years and older: 1 dose <sup>†</sup>	2 doses at age ≥50 years, 2 to 6 months apart	1 dose Tdap, then Td or Tdap booster every 10 years	2, 3, or 4 doses, depending on vaccine or condition	1 or 2 doses, depending on indication	2 doses, 4 to 8 weeks apart	2 or 3 doses through age 26 years, depending on age at initial vaccination or condition

➡ The American Heart Association/American College of Cardiology Foundation (ACCF) recommends that patients with cardiovascular disease receive an **annual influenza vaccine**<sup>3</sup>

➡ The American Heart Association/ACCF/Heart Failure Society of America recommends that patients with heart failure be **vaccinated against respiratory illnesses** (eg, influenza, pneumonia, and COVID-19) to reduce mortality<sup>4</sup>

ACIP=Advisory Committee on Immunization Practices; CDC=US Centers for Disease Control and Prevention; CKD=chronic kidney disease; COVID-19=coronavirus disease of 2019; FDA=US Food and Drug Administration; HepB=hepatitis B; HPV=human papillomavirus; MMR=measles, mumps, rubella; RSV=respiratory syncytial virus; Td=tetanus, diphtheria; SGLT2=sodium-glucose co-transporter-2; Tdap=tetanus, diphtheria, acellular pertussis.

\*RSV vaccination is recommended as a single lifetime dose only. Persons who have already received RSV vaccination are NOT recommended to receive another dose.<sup>2</sup>

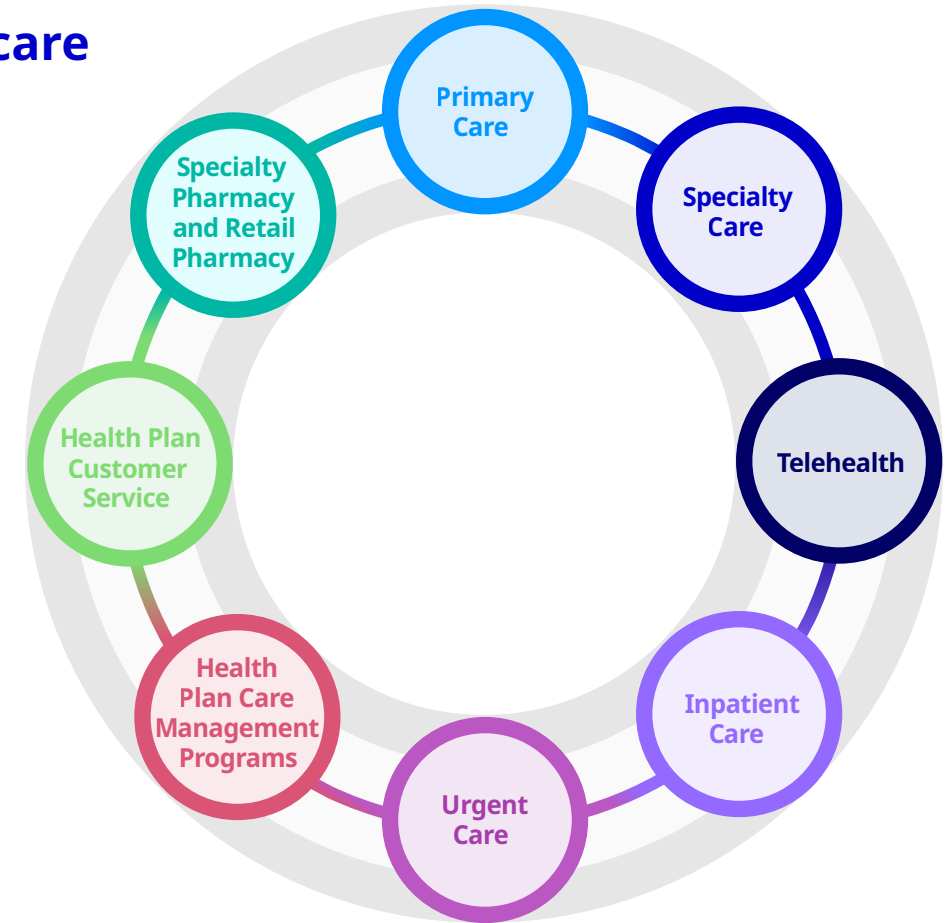
<sup>†</sup>CKD or other complications or requiring treatment with insulin or SGLT2 inhibitor.<sup>5</sup>

**References:** 1. Centers for Disease Control and Prevention. Recommended adult immunization schedule for ages 19 years or older. Updated August 14, 2024. Accessed August 26, 2024. <https://www.cdc.gov/vaccines/hcp/imz-schedules/downloads/etr/adult/adults-schedule-easy-read.pdf> 2. Centers for Disease Control and Prevention. ACIP Recommendations. Updated June 28, 2024. Accessed July 25, 2024. <https://www.cdc.gov/vaccines/acip/recommendations.html> 3. Smith SC, Benjamin EJ, Bonow RO, et al. AHA/ACCF secondary prevention and risk reduction therapy for patients with coronary and other atherosclerotic vascular disease: 2011 update: a guideline from the American Heart Association and American College of Cardiology Foundation. *Circulation*. 2011;124(22):2458-2473. 4. Writing Committee Members; ACC/AHA Joint Committee Members. 2022 AHA/ACC/HFSA guideline for the management of heart failure. *J Card Fail*. 2022;28(5):e1-e167. 5. Centers for Disease Control and Prevention. Use of respiratory syncytial virus vaccines in adults aged ≥60 years: updated recommendations of the Advisory Committee on Immunization Practices — United States, 2024. August 15, 2024. Accessed August 26, 2024. <https://www.cdc.gov/mmwr/volumes/73/wr/pdfs/mm7332e1-H.pdf>

# Points of Care Outside of the PCP Office

## Patients with Chronic Conditions Have Numerous Healthcare Encounters Outside of the PCP Office

- ➔ In a 2021 survey, 35% of patients with chronic conditions report not seeing a **PCP** in the past year<sup>1</sup>
- ➔ **Primary care** represents ~39% of office visits in patients with multiple chronic conditions. **Specialty care** represents ~61% of office visits in patients with chronic disease<sup>2</sup>
- ➔ In 2014, depending on the number of chronic conditions (1-5+)<sup>3</sup>:
  - 6% to 24% of adults had **≥1 hospitalization** per year
  - The average number of **outpatient visits** ranged from 6 to 20 per year
  - The average number of **prescription fills** ranged from 9 to 51 per year



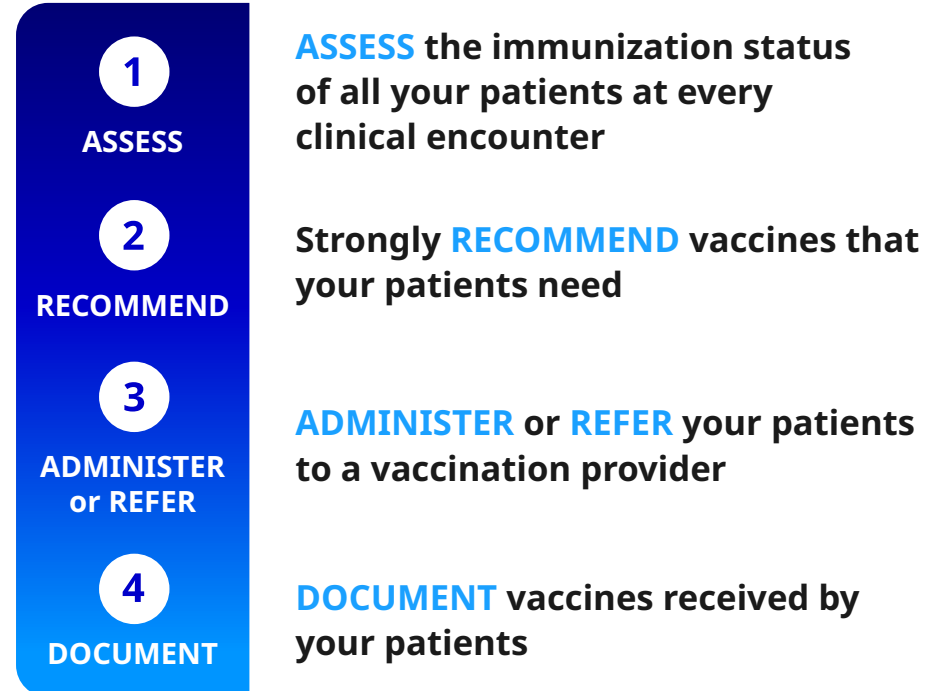
**These healthcare encounters present opportunities to ASSESS, RECOMMEND, ADMINISTER or REFER, and DOCUMENT vaccinations in patients with chronic conditions<sup>4</sup>**

PCP=primary care provider.





**References:** 1. National Foundation for Infectious Diseases. 2021 chronic health conditions surveys: gaps between healthcare professionals and adult patients. Accessed August 26, 2024. <https://www.nfid.org/infectious-diseases/2021-chronic-health-conditions-survey-gaps-between-healthcare-professionals-and-adult-patients/> 2. Ward BW, Myrick KL, Cherry DK. Physician specialty and office visits made by adults with diagnosed multiple chronic conditions: United States, 2014-2015. *Public Health Rep.* 2020;135(3):372-382. 3. Buttorff C, Ruder T, Bauman M. Multiple chronic conditions in the United States. Accessed August 26, 2024. [https://www.rand.org/content/dam/rand/pubs/tools/TL200/TL221/RAND\\_TL221.pdf](https://www.rand.org/content/dam/rand/pubs/tools/TL200/TL221/RAND_TL221.pdf) 4. Centers for Disease Control and Prevention. Standard for adult immunization practice. Updated May 2, 2016. Accessed July 12, 2024. <https://www.cdc.gov/vaccines/hcp/adults/for-practice/standards/index.html>

# Strategies and Best Practices for Prioritizing Vaccinations

## CDC Standards for Adult Immunization Practice<sup>1</sup>



## Help Improve Vaccination Rates in Patients with Chronic Conditions

-  Assess patient vaccination status at every encounter with the healthcare system to help decrease missed opportunities to vaccinate<sup>2</sup>
-  Provide a strong recommendation from an HCP and/or specialist to motivate a patient with chronic conditions to vaccinate<sup>3</sup>
-  Use specialist visits, telehealth visits, hospital stays, and post-discharge follow-up
-  Collaborate with network specialty pharmacies

**CDC Standards for Adult Immunization Practice emphasize the role of ALL HCPs—whether they provide immunization services or not—in ensuring that adult patients are fully immunized<sup>1</sup>**

HCP=healthcare professional.

**References:** 1. Centers for Disease Control and Prevention. Standard for adult immunization practice. Updated May 2, 2016. Accessed August 26, 2024. <https://www.cdc.gov/vaccines-adults/hcp/imz-standards/index.html> 2. Centers for Disease Control and Prevention. Vaccine needs assessment. A series on standards for adult immunization practice. Accessed August 26, 2024. <https://www.cdc.gov/vaccines/hcp/adults/downloads/standards-immz-practice-assessment.pdf> 3. Centers for Disease Control and Prevention. Chapter 3: Immunization Strategies for Healthcare Practices and Providers. In: Hall E, Wodi AP, Hamborsky J, Morelli V, Schillie S, eds. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. 14th ed. Public Health Foundation; 2021:30-41.