

# Influenza in cardiovascular disease (CVD) and the impact of vaccination: Highlights from ESC 2022

## Impact of myocardial injury on mortality and adverse events in hospitalised patients with influenza: A prospective cohort study

Presenter: Amabile Valotta

Study size: n=145<sup>1</sup>

### Key findings

Influenza-related myocardial injury is:



prevalent in hospitalised patients with influenza<sup>1</sup>



associated with a high probability of short- and mid-term adverse events (AEs)<sup>1</sup>



hs-cTnT is a useful marker to identify patients with myocardial injury who are at risk of AEs<sup>1</sup>

## Evidence on influenza as a trigger for cardiovascular (CV) events and the impact of vaccination

Presenter: Ankeet Bhatt

An overview of published evidence

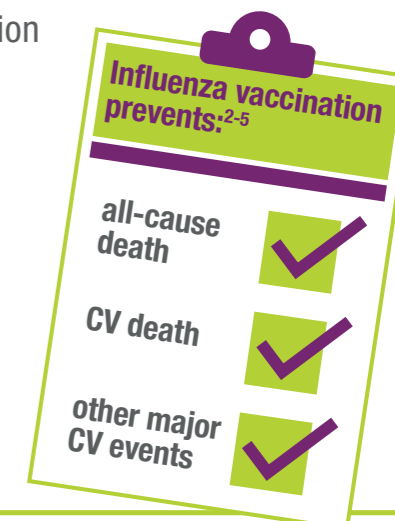
Several major professional societies recommend influenza vaccination in patients with CV<sup>6-10</sup>



Despite the recommendations, influenza vaccination rates in patients with CVD remain suboptimal<sup>11</sup>



There is a need for novel vaccine implementation strategies, including promoting annual influenza vaccination, in order to ensure high quality cardiovascular care



## DANFLU-1: Feasibility of a pragmatic randomised trial to assess the relative effectiveness of high-dose (HD) versus standard-dose (SD) QIV on severe cardiorespiratory outcomes in elderly adults

Presenter: Niklas Dyrby Johansen

Study size: n=12,551<sup>13</sup>

### Key findings

rVE  
**64.4%**  
[95% CI 24.4–84.6%]

The incidence of **all-cause mortality** was significantly lower in the QIV-HD versus QIV-SD group\*<sup>13</sup>

rVE  
**48.9%**  
[95% CI 11.5–71.3%]

The incidence of **all-cause mortality** was significantly lower in the QIV-HD versus QIV-SD group\*<sup>13</sup>

A pragmatic, randomised trial of **QIV-HD** vs QIV-SD relying solely on registry-based data collection was concluded to be feasible<sup>13</sup>

## Double-dose versus standard dose quadrivalent influenza vaccine (QIV) on major cardiopulmonary events in patients with acute coronary syndromes (ACS): The VIP-ACS trial

Presenter: Remo Furtado

Study size: n=1801 adults hospitalised for ACS<sup>11</sup>

**Double dose** of quadrivalent influenza vaccine (QIV) was administered during hospitalisation for ACS<sup>11</sup>  
**Single-dose** QIV was administered 30 days after discharge<sup>11</sup>

### Key finding

Win ratio  
**1.02**  
(95% CI 0.79–1.32, p=0.84)<sup>12</sup>

**Double-dose** QIV did not reduce cardiorespiratory events compared with **single-dose**.<sup>12</sup>

The results do not undermine the importance of influenza vaccination in patients with high CV risk<sup>12</sup>

**“We call on healthcare professionals to work together to break down the barriers to influenza vaccination in people with CVD and find new strategies to reach this vulnerable patient group” GII**

**Footnote:** CI, confidence interval; ESC, European Society of Cardiology; rVE, relative vaccine efficacy; VIP-ACS, Vaccination against Influenza to Prevent cardiovascular events after Acute Coronary Syndrome. \*These findings require confirmation in a fully powered future trial.

**References:** 1. Biasco L, et al. Association among myocardial injury and mortality in Influenza: A prospective cohort study. *Int J Cardiol* 2022;S0167-5273(22)01182-2. doi: 10.1016/j.ijcard.2022.08.016. 2. Modin D, et al. Influenza vaccine in heart failure. *Circulation* 2019;139(5):575-586. doi: 10.1161/CIRCULATIONAHA.118.036788. 3. Udell JA, et al. Association between influenza vaccination and cardiovascular outcomes in high-risk patients: a meta-analysis. *JAMA* 2013;310(16):1711-1720. doi: 10.1001/jama.2013.279206. 4. Behrouzi B, et al. Association of influenza vaccination with cardiovascular risk: A meta-analysis. *JAMA Netw Open* 2022;5(4):e228873. doi: 10.1001/jamanetworkopen.2022.8873. 5. Fröbert O, et al. Influenza vaccination after myocardial infarction: A randomized, double-blind, placebo-controlled, multicenter trial. *Circulation* 2021;144(18):1476-1484. doi: 10.1161/CIRCULATIONAHA.121.057042. 6. Davis MM, et al. Influenza vaccination as secondary prevention for cardiovascular disease: a science advisory from the American Heart Association/American College of Cardiology. *Circulation* 2006;114(14):1549-1553. doi: 10.1161/CIRCULATIONAHA.106.178242. Erratum in: *Circulation*. 2006 Nov;114(22):e616. 7. Smith SC Jr, et al. AHA/ACC 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. doi: 10.1161/CIR.0b013e318235eb4d. Erratum in: *Circulation*. 2015 Apr 14;131(15):e408. 8. Yancy CW, et al. 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol* 2013;62(16):e147-239. doi: 10.1016/j.jacc.2013.05.019. 9. Piepoli MF, et al. 2016 European guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and other societies on cardiovascular disease prevention in clinical practice (constituted by representatives of 10 societies and by invited experts). Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR). *Eur Heart J* 2016;37(29):2315-2381. doi: 10.1093/eurheartj/ehw106. 10. Diabetes Canada Clinical Practice Guidelines Expert Committee, Husein N, Chetty A. Influenza, pneumococcal, hepatitis B and herpes zoster vaccinations. *Can J Diabetes* 2018;42 Suppl 1:S142-S144. doi: 10.1016/j.cjcd.2017.10.016. 11. Fonseca HAR, et al. Influenza vaccination strategy in acute coronary syndromes: The VIP-ACS trial. *Eur Heart J* 2022; 00:1-11. doi: 10.1093/eurheartj/ehac472. 12. Furtado R, et al. Double-dose versus standard dose quadrivalent influenza vaccine on major cardiopulmonary events in patients with acute coronary syndromes: The VIP-ACS (Vaccination against Influenza to Prevent cardiovascular events after Acute Coronary Syndrome) trial. European Society of Cardiology Congress, 26–29 August, 2022. Barcelona, Spain. 13. Johansen ND, et al. DANFLU-1: Feasibility of a pragmatic randomised trial to assess the relative effectiveness of high-dose (QIV-HD) versus standard-dose quadrivalent influenza vaccine (QIV-SD) on severe cardiorespiratory outcomes in elderly adults. European Society of Cardiology Congress, 26–29 August, 2022. Barcelona, Spain.