



IN PATIENTS 50+, FLU CAN HAVE A DEVASTATING IMPACT¹⁻⁵

INFLUENZA AND CARDIOVASCULAR DISEASE

RETROSPECTIVE SELF-CONTROLLED CASE SERIES STUDY

COMPARISON OF AN INDIVIDUAL'S RISK FOR A SEVERE CARDIOVASCULAR EVENT FOLLOWING AN INFLUENZA DIAGNOSIS VERSUS THEIR RISK DURING A BASELINE PERIOD WHEN INFLUENZA ILLNESS WAS NOT REPORTED:

WITHIN 3 DAYS POST-INFLUENZA INFECTION:

~10x increased risk of a
FIRST HEART ATTACK¹
Incidence Ratio=9.80 (95% CI, 2.37-40.5) n=1,227

~8x increased risk of a
FIRST STROKE¹
Incidence Ratio=7.82 (95% CI, 1.07-56.9) n=762

STUDY DESIGN¹

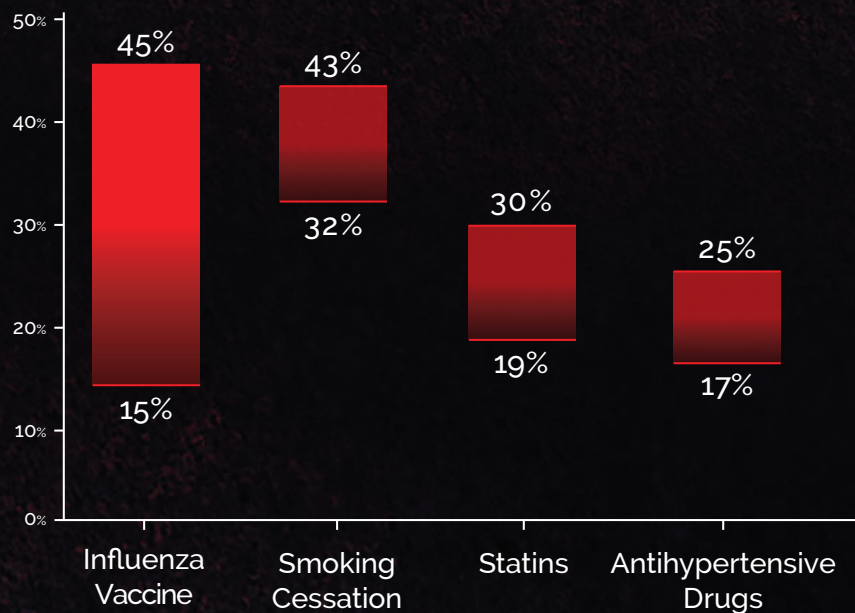
Subjects: 40+ years of age | **Study period:** Jan 2004 - Dec 2014

Inclusion criteria: laboratory-confirmed respiratory infection and a first AMI^a or first stroke

^a AMI = Acute myocardial infarction.

AVOIDING INFLUENZA MAY REDUCE THE RISK OF HEART ATTACK⁶

META-ANALYSIS: ESTIMATES
OF INTERVENTIONAL EFFICACY
IN SECONDARY PREVENTION
OF MYOCARDIAL INFARCTION⁶



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INFLUENZA AND DIABETES COMPLICATIONS

STUDIES HAVE SHOWN THAT COMPARED TO HEALTHY ADULTS, ADULTS LIVING WITH DIABETES MAY BE AT:

3x higher risk of **HOSPITALIZATION**³ **4x** higher risk of **ICU^b ADMISSION**³

STUDY DESIGN³

Subjects: 162 patients aged <1 to 85 years hospitalized for influenza

Study period: May 25–July 1, 2009

Inclusion criteria: positive for influenza A(H1N1)p and hospitalized

2x higher risk of **DEATH** after influenza hospitalization^{4,5}

STUDY DESIGN⁵

Subjects: 252 patients ≥18 years

Study period: Apr 29, 2009–Mar 31, 2010

Inclusion criteria: fatal cases of lab-confirmed influenza A(H1N1)p

AVOIDING INFLUENZA CAN HELP REDUCE THE RISK OF SEVERE OUTCOMES⁷

IN 124,503 ADULTS WITH TYPE 2 DIABETES MELLITUS, INFLUENZA VACCINATION WAS ASSOCIATED WITH SUBSTANTIAL REDUCTIONS IN HOSPITAL ADMISSION RATES⁷



LEARN MORE ABOUT THE RISKS OF INFLUENZA AT INFLUENZA.COM

^b ICU = Intensive care unit. ^c Not significant.

REFERENCES: 1. Warren-Gash C, Blackburn R, Whitaker H, McMenamin J, Hayward AC. Laboratory-confirmed respiratory infections as triggers for acute myocardial infarction and stroke: a self-controlled case series analysis of national linked datasets from Scotland. *Eur Respir J*. 2018;51. doi:10.1183/13993003.01794-2017. 2. Kwong JC, Schwartz KL, Campitelli MA, et al. Acute myocardial infarction after laboratory-confirmed influenza infection. *N Engl J Med*. 2018;378:345-353. 3. Allard R, Leclerc P, Tremblay C, Tannenbaum T-N. Diabetes and the severity of pandemic influenza A (H1N1) infection. *Diabetes Care*. 2010;33:1491-1493. 4. Hulme KD, Gallo LA, Short KR. Influenza virus and glycemic variability in diabetes: a killer combination? *Front Microbiol*. 2017;8:861. 5. Wilking H, Buda S, von der Lippe E, et al. Mortality of 2009 pandemic influenza A (H1N1) in Germany. *Euro Surveill*. 2010;15 pii:19741. 6. MacIntyre CR, Mahimbo A, Moa AM, Barnes M. Influenza vaccine as a coronary intervention for prevention of myocardial infarction. *Heart*. 2016;102:1953-1956. 7. Vamos EP, Pape UJ, Curcin V, et al. Effectiveness of the influenza vaccine in preventing admission to hospital and death in people with type 2 diabetes. *CMAJ*. 2016;188:E342-E351.