

This Issue

Views **25,494** | Citations **0** | Altmetric **569**

PDF

 Full Text Share

Original Investigation

September 3, 2019

N95 Respirators vs Medical Masks for Preventing Influenza Among Health Care Personnel

A Randomized Clinical Trial

Lewis J. Radonovich Jr, MD¹; Michael S. Simberkoff, MD^{2,3}; Mary T. Bessesen, MD^{4,5}; [et al](#)[» Author Affiliations](#)

JAMA. 2019;322(9):824-833. doi:10.1001/jama.2019.11645

Visual
AbstractEditorial
Comment

Key Points

Question Is the use of N95 respirators or medical masks more effective in preventing influenza infection among outpatient health care personnel in close contact with patients with suspected respiratory illness?

Findings In this pragmatic, cluster randomized clinical trial involving 2862 health care personnel, there was no significant difference in the incidence of laboratory-confirmed influenza among health care personnel with the use of N95 respirators (8.2%) vs medical masks (7.2%).

Meaning As worn by health care personnel in this trial, use of N95 respirators, compared with medical masks, in the outpatient setting resulted in no significant difference in the rates of laboratory-confirmed influenza.

Our website uses cookies to enhance your experience. By continuing to use our site, or clicking "Continue," you are agreeing to our [Cookie Policy](#) | [Continue](#)

Abstract

Importance Clinical studies have been inconclusive about the effectiveness of N95 respirators and medical masks in preventing health care personnel (HCP) from acquiring workplace viral respiratory infections.

Objective To compare the effect of N95 respirators vs medical masks for prevention of influenza and other viral respiratory infections among HCP.

Design, Setting, and Participants A cluster randomized pragmatic effectiveness study conducted at 137 outpatient study sites at 7 US medical centers between September 2011 and May 2015, with final follow-up in June 2016. Each year for 4 years, during the 12-week period of peak viral respiratory illness, pairs of outpatient sites (clusters) within each center were matched and randomly assigned to the N95 respirator or medical mask groups.

Interventions Overall, 1993 participants in 189 clusters were randomly assigned to wear N95 respirators (2512 HCP-seasons of observation) and 2058 in 191 clusters were randomly assigned to wear medical masks (2668 HCP-seasons) when near patients with respiratory illness.

Main Outcomes and Measures The primary outcome was the incidence of laboratory-confirmed influenza. Secondary outcomes included incidence of acute respiratory illness, laboratory-detected respiratory infections, laboratory-confirmed respiratory illness, and influenzalike illness. Adherence to interventions was assessed.

Results Among 2862 randomized participants (mean [SD] age, 43 [11.5] years; 2369 [82.8%] women), 2371 completed the study and accounted for 5180 HCP-seasons. There were 207 laboratory-confirmed influenza infection events (8.2% of HCP-seasons) in the N95 respirator group and 193 (7.2% of HCP-seasons) in the medical mask group (difference, 1.0%, [95% CI, -0.5% to 2.5%]; $P = .18$) (adjusted odds ratio [OR], 1.18 [95% CI, 0.95-1.45]). There were 1556 acute respiratory illness events in the respirator group vs 1711 in the mask group (difference, -21.9 per 1000 HCP-seasons [95% CI, -48.2 to 4.4]; $P = .10$); 679 laboratory-detected respiratory infections in the respirator group vs 745 in the mask group (difference, -8.9 per 1000 HCP-seasons, [95% CI, -33.3 to 15.4]; $P = .47$); 371 laboratory-confirmed respiratory illness events in the respirator group vs 417 in the mask group (difference, -8.6 per 1000 HCP-seasons [95% CI, -28.2 to 10.9]; $P = .39$); and 128 influenzalike illness events in the respirator group vs 166 in the mask group (difference, -11.3 per 1000 HCP-seasons [95% CI, -23.8 to 1.3]; $P = .08$). In the respirator group, 89.4% of participants reported "always" or "sometimes" wearing their assigned devices vs 90.2% in the mask group. Our website uses cookies to enhance your experience. By continuing to use our site, or clicking "Continue," you are agreeing to our [Cookie Policy](#) | [Continue](#)

Conclusions and Relevance Among outpatient health care personnel, N95 respirators vs medical masks as worn by participants in this trial resulted in no significant difference in the incidence of laboratory-confirmed influenza.

Trial Registration ClinicalTrials.gov Identifier: [NCT01249625](#)

Editorial

Respiratory Protection of Health Care Personnel to Prevent Respiratory Viral Transmission

 **Full Text**

Advertisement

Read More About

Infection Control

Infectious Diseases

Influenza

Occupational Health

 [Browse and subscribe to JAMA Network podcasts!](#)

Trending

Opinion

Thyroid Function Test Abnormalities During Pregnancy

August 20, 2019

News

Nasal Glucagon Approved for Severe Hypoglycemia

September 3, 2019

News

Ventilator Recall

August 20, 2019

Our website uses cookies to enhance your experience. By continuing to use our site, or clicking "Continue," you are agreeing to our [Cookie Policy](#) | [Continue](#)

Select Your Interests

Advertisement

JOB LISTINGS ON JAMA CAREER CENTER®

Academic Hospitalist

Hartford, Connecticut

Internal Medicine - Clinical & Education Leader

Newark, Delaware

Physician - Internal Medicine

Indiana

Further your Hospital Medicine career in Kansas City

Kansas City, Kansas

Physician - Cardiology Invasive-Interventional

Indiana

See more at JAMA Career Center

Others Also Liked

Powered by TREND MD

Trending

Thyroid Function Test Abnormalities During Pregnancy

JAMA | Opinion |

August 20, 2019

Preexisting Antibodies in Patients Treated With Anti-PD-1 for Advanced Non-Small Cell Lung Cancer

JAMA Oncology |

Research | March 1, 2019

Efficacy of Technology-Enhanced Community Health Nursing in Females With PID

JAMA Network Open |

Research | August 7, 2019

Our website uses cookies to enhance your experience. By continuing to use our site, or clicking "Continue," you are agreeing to our [Cookie Policy](#) | [Continue](#)

Our website uses cookies to enhance your experience. By continuing to use our site, or clicking "Continue," you are agreeing to our [Cookie Policy](#) | [Continue](#)