



HHS Public Access

Author manuscript

Am J Infect Control. Author manuscript; available in PMC 2018 November 01.

Published in final edited form as:

Am J Infect Control. 2017 November 01; 45(11): 1254–1258. doi:10.1016/j.ajic.2017.04.008.

Working with influenza-like illness: Presenteeism among US health care personnel during the 2014–2015 influenza season

Sophia Chiu, MD, MPH^{a,b,*}, Carla L. Black, PhD^c, Xin Yue, MPS, MS^c, Stacie M. Greby, DVM, MPH^c, A. Scott Laney, PhD^d, Angela P. Campbell, MD, MPH^e, and Marie A. de Perio, MD^a

^aDivision of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Cincinnati, OH

^bEpidemic Intelligence Service, Centers for Disease Control and Prevention, Cincinnati, OH

^cImmunization Services Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA

^dRespiratory Health Division, National Institute of Occupational Safety and Health, Centers for Disease Control and Prevention, Morgantown, WV

^eInfluenza Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA

Abstract

Background—Health care personnel (HCP) working while experiencing influenza-like illness (ILI) contribute to influenza transmission in health care settings. Studies focused on certain HCP occupations or work settings have demonstrated that some HCP often continue to work while ill.

Methods—Using a national nonprobability Internet panel survey of 1,914 HCP during the 2014–2015 influenza season, we calculated the frequency of working with self-reported ILI (ie, fever and cough or sore throat) and examined reasons for working with ILI by occupation and work setting.

Results—Overall, 414 (21.6%) HCP reported ILI, and 183 (41.4%) reported working with ILI (median, 3 days; range, 0–30 days). Pharmacists (67.2%) and physicians (63.2%) had the highest frequency of working with ILI. By work setting, hospital-based HCP had the highest frequency of working with ILI (49.3%). The most common reasons for working while ill included still being able to perform job duties and not feeling bad enough to miss work. Among HCP at long-term care facilities, the most common reason was inability to afford lost pay.

Conclusions—More than 40% of HCP with ILI work while ill. To reduce HCP-associated influenza transmission, potential interventions could target HCP misconceptions about working while ill and paid sick leave policies.

*Address correspondence to Sophia Chiu, MD, MPH, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, 1090 Tusculum Ave, Mailstop R-9, Cincinnati, OH 45226-1938. yjx9@cdc.gov (S. Chiu).

SC, CLB, SMG, ASL, APC, and MADP are employees of the Centers for Disease Control and Prevention. The findings and conclusions are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Conflicts of interest: None to report.

Keywords

Ill; Sick leave; Occupational health

Influenza infections are associated with thousands of deaths in the United States each year. Depending on the particular influenza virus types and subtypes in circulation from season to season, the annual rate of influenza-associated death ranged from 1.4–16.7 deaths per 100,000 persons from 1976–2007.¹ Most influenza-associated deaths occur among adults aged ≥ 65 years, with an average rate of 66.1 deaths per 100,000 persons during the same time period.¹ An estimated 19.1 million persons with influenza illness sought medical care and 974,000 persons were hospitalized in US health care settings during the 2014–2015 influenza season.²

Health care settings are known sites of influenza transmission. Transmission in health care settings, where there is a higher concentration of elderly persons and individuals with immunosuppression or severe chronic disease, is a major concern. Influenza outbreaks in long-term care settings have high attack rates, ranging from 25%–60%.³ Annual vaccination against seasonal influenza is recommended for all health care personnel (HCP).⁴ However, 77.3% of HCP surveyed during the 2014–2015 influenza season reported receiving influenza vaccination,⁵ which is below the Health People 2020 goal of a 90% vaccination rate among HCP.⁶

Working while ill, or presenteeism, by HCP while experiencing influenza-like illness (ILI) increases the likelihood of influenza transmission to coworkers and patients.^{7–9} In hospital settings, in-patients exposed to at least 1 contagious HCP were more than 5 times more likely to develop hospital-acquired ILI than inpatients with no documented exposure in the hospital.⁸ The Centers for Disease Control and Prevention recommend that HCP with ILI not work until they are afebrile for at least 24 hours.⁴ Despite this recommendation, HCP often continue to work with ILI.^{10–12}

Understanding more about the phenomenon of HCP working while experiencing ILI will help HCP employers, infection preventionists, and occupational health and safety professionals develop effective interventions to reduce presenteeism, which constitutes a public health hazard.¹³ Previous studies documenting HCP working while ill have focused on specific health care occupations or were conducted in a single institution or type of work setting.^{11,12} Thus, we sought to describe the magnitude of and characterize reasons for working with ILI across a range of occupation types and work settings among HCP in the United States.

METHODS

Each year since 2009, the Centers for Disease Control and Prevention has conducted Internet panel surveys to provide timely estimates of influenza vaccination coverage among US HCP.^{5,14–18} Since the 2011–2012 influenza season, HCP have been recruited via national nonprobability Internet panels through a contract with Abt Associates, Inc (Cambridge, MA), using 2 national opt-in Internet sources, as previously described.^{5,16–18} Clinical professional

HCP (ie, physicians, nurse practitioners, physician assistants, nurses, dentists, pharmacists, allied health professionals, and students) and nonprofessional HCP (ie, technicians, technologists, and emergency medical technicians or paramedics) were recruited from the current membership roster of Medscape, a medical Web site. Other HCP, such as assistants, aides, and nonclinical personnel who reported working in a health care setting or having had patient contact, were recruited from general population Internet panels operated by Survey Sampling International (Shelton, CT). HCP were recruited through E-mail and messages on Medscape and panel Web sites for the study, which was conducted March 31–April 15, 2015.

The annual Internet panel survey among US HCP includes elements about demographic characteristics, occupation, work setting, self-reported influenza vaccination, and employer vaccination policies. For the 2014–2015 influenza season, we included additional questions asking HCP about working or missing work when experiencing ILI from October 1, 2014–April 15, 2015. We defined ILI as fever (without a specified temperature cutoff) and sore throat or cough. We asked about the number of days worked with ILI, reasons for working with ILI, and whether medical evaluation was sought. Respondents were asked to select all of the 12 reasons for working with ILI that applied to them from a list generated after the authors reviewed and discussed the literature.^{19–21} They could also write in any reasons not on the list. This anonymous survey took approximately 10–15 minutes to complete.

We categorized HCP into 8 occupation types and 4 work settings. Occupation types included physicians; nurse practitioners/ physician assistants; nurses; pharmacists; assistants/aides; allied health professionals, technicians, and technologists (other clinical HCP); nonclinical HCP; and students. Work setting categories consisted of hospitals, ambulatory care or physician offices, long-term care facilities, and other clinical settings. For HCP who indicated that they work in >1 setting, we chose to categorize them into 1 work setting in the following hierarchical order: hospital, ambulatory care or physicians office, long-term care facility, and other clinical setting.

We weighted responses to the US HCP population by age, sex, race/ethnicity, work setting, and census region based on Bureau of Labor Statistics²² and US Census Bureau²³ data. Weighted percentages are presented. Statistical measures were calculated with an assumption of random sampling, although the data arose from an opt-in Internet panel. We used the χ^2 test to assess differences between groups, with a significance level of $P < .05$. We used SAS version 9.3 (SAS Institute Inc, Cary, NC) and SUDAAN (RTI International, Research Triangle Park, NC) for statistical analysis. We calculated the frequencies of reasons for working with ILI overall and by occupation type and work setting.

RESULTS

The final analytic sample consisted of 1,914 HCP.⁵ During the 2014–2015 influenza season, 414 (21.6%) respondents had self-reported ILI. Among HCP with self-reported ILI, the median number of missed work days was 2 days (range, 0–30 days), 57.3% visited a medical provider for symptoms relief, and 25.2% were told they had influenza. Of the 414 HCP with

self-reported ILI, 183 (41.4%) reported working during their illness, for a median duration of 3 days (range, 0–30 days).

Clinical professional HCP had the highest frequency of working with ILI (44.3%). There was no significant difference compared with clinical nonprofessional HCP (39.4%; $P = .51$) or nonclinical HCP (40.4%; $P = .65$) (Table 1). Pharmacists (67.2%) and physicians (63.2%) had the highest frequency of working with ILI. Compared with physicians, a lower proportion of assistants and aides (40.8%; $P = .02$), nonclinical HCP (40.4%; $P = .02$), nurse practitioners/physician assistants (37.9%; $P = .03$), and other clinical HCP (32.1%; $P < .01$) reported working with ILI. Compared with hospital-based HCP, who had the highest frequency of working with ILI (49.3%), fewer HCP at long-term care facilities worked with ILI (28.5%; $P = .01$) (Table 1).

HCP who reported working with ILI did not differ by age group or job characteristics (Table 2). Similar proportions of HCP who reported working with ILI had worked for 3 years or more at their current job (43.7%) versus <3 years (35.4%; $P = .25$). There was no significant difference in working with ILI among HCP who work in an obstetrics unit or around seriously ill patients (44.5%) versus those who work with different patient populations (40.0%; $P = .53$).

Regarding vaccination status, 44.6% of HCP who reported working with ILI received influenza vaccination during the 2014–2015 season, compared with 29.2% who were not vaccinated ($P = .03$). However, data on the timing of ILI relative to vaccination were not available. Therefore, it was not possible to determine the proportion of HCP who had received influenza vaccination by the time of their ILI episode.

All nonstudent HCP who worked with ILI ($n = 179$) cited at least 1 reason when asked why they worked with ILI. The frequency of each reason overall and by work setting is presented in Figure 1. Overall, the 5 most common reasons were “I could still perform my job duties,” “I wasn’t feeling bad enough to miss work,” “I did not think I was contagious or could make other people sick,” “I have a professional obligation to my coworkers,” and “It is difficult for me to find someone to cover for me.” For HCP working with ILI who cited “I wasn’t feeling bad enough to miss work” as a reason, 39% reported seeking medical attention for their symptoms, as did 54% of HCP who cited “I did not think I was contagious or could make people sick.” The 5 most common reasons reported across occupation types were similar to those reported overall. By work setting, HCP in long-term care settings most frequently cited “I could not afford to lose the pay” (49.8%; $n = 12$) (Fig 1).

DISCUSSION

In this national nonprobability survey, 41.4% of HCP with self-reported ILI worked while ill. This is lower than findings from previous studies of specific health care occupations and more localized settings. Approximately 56% of clinicians at a large children’s hospital reported working during an acute respiratory illness.¹¹ Only 31% of HCP in ambulatory settings reported always taking sick leave while experiencing ILI.¹² Our findings suggest differences in working with ILI by occupation and work setting. Physicians and pharmacists

reported working with ILI more frequently than HCP in other professions. A lower proportion of HCP working in long-term care facilities reported working with ILI.

The distribution of the magnitude and reasons for presenteeism during ILI across occupation type and work setting might have implications for the type of interventions and future research directions needed to reduce this phenomenon. Commonly cited reasons for working with ILI overall, such as perceptions of ability to perform job duties, not feeling bad enough to miss work, and sense of professional obligation, reflect misconceptions about working during ILI. Training to change social and cultural norms of HCP, such as the expectation to work unless experiencing severe symptoms among clinicians,¹¹ might address these misconceptions. Different strategies for modifying norms might be needed for different health care occupations. For example, physicians develop their sense of professional identity and adopt professional norms and values over a long period of training,²⁴ which may differ from the experience of nonclinical HCP.

Clear communication of workplace policies and expectations regarding taking sick leave during ILI by employers is another approach. HCP aware of their institution's outbreak control measures are less likely to work while symptomatic.²⁵ For HCP who cited the 2 most commonly cited reasons for working with ILI in this survey, "I could still perform my job duties" and "I wasn't feeling bad enough to miss work," the decision to work or not work while experiencing ILI might have focused on their individual perceptions of ability to work relative to symptom severity. Employers can convey that the perspective of infection control at the institutional level is important for HCP to consider when deciding whether to work during ILI. For example, 1 academic medical center instituted a triage system requiring HCP with fever or upper respiratory symptoms to undergo evaluation and viral testing.²⁶ This system provided symptomatic HCP with more information regarding their risk to others. This institution also instituted mandatory absence from work for at least 7 days if testing was positive for influenza.²⁶

Sick leave policy may be another potential way to reduce HCP presenteeism during ILI. Unlike HCP in other settings, HCP in long-term care settings who reported working with ILI most commonly cited not being able to afford lost pay. This reason may be amenable to changes in paid sick leave policy.²⁷ However, because the details of sick leave policies at the respondents' workplaces were not available, we were not able to evaluate the influence of specific policies on working with ILI.

The proportion of HCP working in obstetrics units or around seriously ill patients who reported working with ILI was similar to the proportion of HCP who work with other patient populations. Having institution-level resources to accommodate sick leave, such as a "jeopardy system" whereby some clinicians are held in reserve to back up sick colleagues,²⁶ may help reduce common perceived barriers to taking sick leave when the risk of transmission to others is taken into account. Such barriers include difficulty in finding coverage and desire to not burden colleagues.¹¹

To address the third most common reason cited for working with ILI ("I did not think I was contagious or could make other people sick"), clinicians can encourage their HCP patients to

refrain from working with ILI. More than half of HCP who cited this reason for working with ILI had sought medical attention. In addition, employers can remind HCP that influenza is likely transmissible from 1 day before to 5–7 days after symptom onset.^{28,29}

Receiving influenza vaccination at any time during the 2014–2015 influenza season was associated with working with ILI. Influenza vaccination receipt might reduce symptomatic HCPs' perceived risk of having influenza and transmitting it to others. However, lack of data on whether HCP were vaccinated at the time of an ILI episode precluded further analysis of how influenza vaccination status might affect working with ILI. Another possibility is that HCP who work with ILI are more likely to be physicians or pharmacists or to work in hospitals, groups more likely to receive influenza vaccination.⁵ Further research characterizing the factors shaping risk perception and presenteeism behavior can help inform targeted strategies to reduce working with ILI among HCP.

Limitations

This study has several limitations. First, because data from an opt-in Internet panel do not arise from a random sample, results of statistical analysis performed under the assumption of random sampling might not be generalizable to all US HCP. Results from this panel survey with a relatively small sample size should be interpreted as a guide for identifying differences among US HCP in different occupations and work settings. However, trends in vaccination coverage rates among HCP in past versions of this annual survey were similar to rates derived from the National Health Interview Survey, a national survey with probability-based representative sampling of households.³⁰ Second, the timing of symptoms, a marker of infectivity, relative to working during an episode of ILI is unknown. Third, symptom severity and duration, factors that might influence the decision to work with ILI, were not directly assessed. For example, we did not specify a temperature cutoff as part of the definition for ILI, which may have led to overestimation of how many HCP had symptoms consistent with influenza. In addition, some HCP reported having fever and cough or sore throat for up to 30 days. However, more than half of HCP with ILI reported seeking medical attention for their symptoms. Fourth, all results were based on self-report and may be subject to recall bias.

CONCLUSIONS

Our study results suggest that presenteeism with ILI is common among US HCP across occupations and work settings, and illustrates a wide spectrum of reasons for working with ILI. Given that more than half of HCP with ILI sought medical attention, clinical encounters are opportunities for medical providers to reinforce recommendations to HCP to refrain from working with ILI. To reduce HCP-associated influenza transmission, interventions should target HCP misconceptions about working while ill and consider the influence of paid sick leave policies.

Acknowledgments

The authors thank the Abt Associates staff for their contributions to data collection.

References

1. Centers for Disease Control and Prevention. Estimates of deaths associated with seasonal influenza—United States, 1976–2007. *MMWR Morb Mortal Wkly Rep.* 2010; 59:936–99.
2. Centers for Disease Control and Prevention. [Accessed December 23, 2016] Estimated influenza illnesses and hospitalizations averted by vaccination—United States, 2014–15 influenza season. Available from: <http://www.cdc.gov/flu/about/disease/2014-15.htm>
3. Centers for Disease Control and Prevention. Influenza vaccination of health-care personnel: recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP). *MMWR Morb Mortal Wkly Rep.* 2006; 55(RR02):1–16. [PubMed: 16410759]
4. Centers for Disease Control and Prevention. [Accessed December 23, 2016] Prevention strategies for seasonal influenza in healthcare settings: guidelines and recommendations. Available from: <http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>
5. Centers for Disease Control and Prevention. Influenza coverage among health care personnel—United States, 2014–15 influenza season. *MMWR Morb Mortal Wkly Rep.* 2015; 64:936–99.
6. Department of Health and Human Services (US). [Accessed March 24, 2017] Health People 2020: immunization and infectious diseases. Available from: <https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/objectives>
7. Huttunen R, Syrjanen J. Healthcare workers as vectors of infectious diseases. *Eur J Clin Microbiol Infect Dis.* 2014; 33:1477–88. [PubMed: 24798250]
8. Vanhems P, Voirin N, Roche S, Escuret V, Regis C, Gorain C, et al. Risk of influenza-like illness in an acute health care setting during community influenza epidemics in 2004–2005, 2005–2006, and 2006–2007: a prospective study. *Arch Intern Med.* 2011; 171:151–7. [PubMed: 21263105]
9. Yassi A, McGill M, Holton D, Nicolle L. Morbidity, cost and role of health care worker transmission in an influenza outbreak in a tertiary care hospital. *Can J Infect Dis.* 1993; 4:52–6. [PubMed: 22346421]
10. Ablah E, Konda K, Tinius A, Long R, Vermie G, Burbach C. Influenza vaccine coverage and presenteeism in Sedgwick County, Kansas. *Am J Infect Control.* 2008; 36:588–91. [PubMed: 18926313]
11. Szymczak JE, Smathers S, Hoegg C, Klieger S, Coffin SE, Sammons JS. Reasons why physicians and advanced practice clinicians work while sick: a mixed-methods analysis. *JAMA Pediatr.* 2015; 169:815–21. [PubMed: 26146908]
12. Turnberg W, Daniell W, Duchin J. Influenza vaccination and sick leave practices and perceptions reported by health care workers in ambulatory care settings. *Am J Infect Control.* 2010; 38:486–8. [PubMed: 20176412]
13. Widera E, Chang A, Chen HL. Presenteeism: a public health hazard. *J Gen Intern Med.* 2010; 25:1244–7. [PubMed: 20549378]
14. Centers for Disease Control and Prevention. Interim results: influenza A (H1N1) 2009 monovalent and seasonal influenza vaccination coverage among health-care personnel—United States, August 2009–January 2010. *MMWR Morb Mortal Wkly Rep.* 2010; 59:357–62. [PubMed: 20360669]
15. Centers for Disease Control and Prevention. Influenza coverage among health care personnel—United States, 2010–11 influenza season. *MMWR Morb Mortal Wkly Rep.* 2011; 60:1073–7. [PubMed: 21849963]
16. Centers for Disease Control and Prevention. Influenza coverage among health care personnel—United States, 2011–12 influenza season. *MMWR Morb Mortal Wkly Rep.* 2012; 61:753–7. [PubMed: 23013720]
17. Centers for Disease Control and Prevention. Influenza coverage among health care personnel—United States, 2012–13 influenza season. *MMWR Morb Mortal Wkly Rep.* 2013; 62:781–6. [PubMed: 24067582]
18. Centers for Disease Control and Prevention. Influenza coverage among health care personnel—United States, 2013–14 influenza season. *MMWR Morb Mortal Wkly Rep.* 2014; 63:805–11. [PubMed: 25233281]

19. Bracewell LM, Campbell DI, Faure PR, Giblin ER, Morris TA, Satterthwaite LB, et al. Sickness presenteeism in a New Zealand hospital. *N Z Med J*. 2010; 123:31–42. [PubMed: 20581910]
20. Jena AB, Meltzer DO, Press VG, Arora VM. Why physicians work when sick. *Arch Intern Med*. 2012; 172:1107–8. [PubMed: 22710803]
21. Krane L, Larsen EL, Nielsen CV, Stapelfeldt CM, Johnsen R, Risør MB. Attitudes towards sickness absence and sickness presenteeism in health and care sectors in Norway and Denmark: a qualitative study. *BMC Public Health*. 2014; 14:880. [PubMed: 25160059]
22. U.S. Census Bureau. [Accessed April 26, 2017] Current population survey monthly labor force data. Sep. 2014 Available from: <https://www.census.gov/programs-surveys/cps.html>
23. Bureau of Labor Statistics Occupational Employment Statistics. [Accessed February 15, 2016] National Industry-Specific Occupational employment and wage estimates. May. 2013 Available from: <http://www.bls.gov/oes/current/oesrsci.htm>
24. Stern DT, Papadakis M. The developing physician—becoming a professional. *N Engl J Med*. 2006; 355:1794–9. [PubMed: 17065641]
25. LaVela S, Goldstein B, Smith B, Weaver FM. Working with symptoms of a respiratory infection: staff who care for high-risk individuals. *Am J Infect Control*. 2007; 35:448–54. [PubMed: 17765556]
26. Tanksley AL, Wolfson RK, Arora VM. Changing the “working while sick” culture: promoting fitness for duty in health care. *JAMA*. 2016; 315:603–4. [PubMed: 26864414]
27. Kumar S, Grefenstette JJ, Galloway D, Albert SM, Burke DS. Policies to reduce influenza in the workplace: impact assessments using an agent-based model. *Am J Public Health*. 2013; 103:1406–11. [PubMed: 23763426]
28. Hamborsky, J. Kroger, A., Wolfe, S., editors. Centers for Disease Control and Prevention. *Epidemiology and prevention of vaccine-preventable diseases*. 13. Washington (DC): Public Health Foundation; 2015.
29. Centers for Disease Control and Prevention. [Accessed December 23, 2016] Seasonal influenza, more information. Available from: <http://www.cdc.gov/flu/about/qa/disease.htm>
30. Centers for Disease Control and Prevention. Surveillance of influenza vaccination coverage—United States, 2007–08 through 2011–12 influenza seasons. *MMWR Surveill Summ*. 2013; 62:1–28.

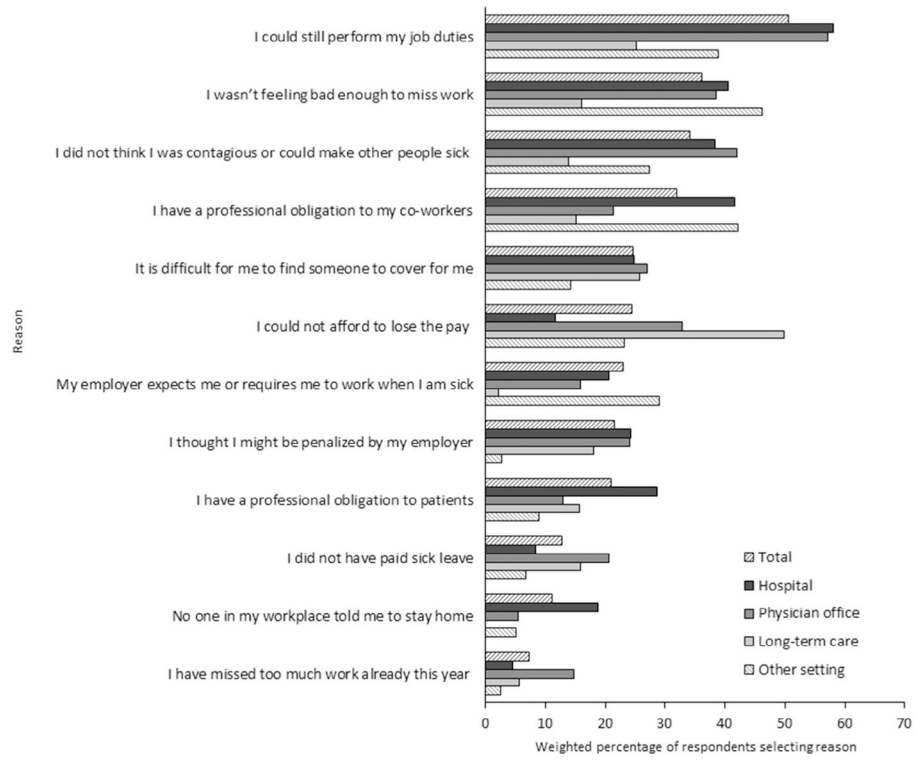


Fig 1. Reported reasons for going to work with influenza-like illness, by work setting (n = 179), Internet panel survey, United States, 2014–2015 influenza season. Respondents were asked to select all of the reasons why they went to work with influenza-like illness. None supplied a reason that was not on the list.

Table 1

Percentage of health care personnel* (HCP) who reported working with influenza-like illness, by occupational type and work setting, Internet panel survey, United States, 2014–2015 influenza season

Occupation type or work setting [†]	n/N	Weighted % [‡]	P value
Overall	183/414	41.4	
Occupation type			
Clinical professional [§]	88/191	44.3	Referent
Clinical nonprofessional	63/152	39.4	.51
Nonclinical ^{//}	32/71	40.4	.65
Physician			
Physician	28/46	63.2	Referent
Nurse practitioner/physician assistant	11/29	37.9	.03
Nurse	21/43	46.9	.13
Pharmacist	11/19	67.2	.76
Assistant/aide	33/76	40.8	.02
Other clinical HCP [¶]	45/124	32.1	<.01
Nonclinical HCP [#]	32/71	40.4	.02
Work setting			
Hospital	78/151	49.3	Referent
Ambulatory care/physician office ^{**}	49/111	45.7	.67
Long-term care setting	24/73	28.5	.01
Other clinical setting ^{††}	32/79	31.7	.09

* HCP were defined as persons who worked in a place where clinical care or related services were provided to patients, or whose work involved face-to-face contact with patients, or who were ever in the same room as patients.

[†] Respondents with >1 work setting were classified into 1 work setting category using the hierarchy of hospital, ambulatory care, or long-term care, in that order.

[‡] Weights were calculated based on each occupation type, by age, sex, race/ethnicity, work setting, and US Census region to represent the US population of HCP. Work setting and overall occupation are presented as weighted estimates of the total sample. Where the groups are stratified by work setting, the estimates are presented as weighted estimates of the occupation group subsample of each work setting subgroup.

[§] Includes students in a medical-related field.

^{//} Technicians, technologists, and emergency medical technicians or paramedics, as well as administrative support staff members or manager and administrative support staff members mentioned in footnote^{††}.

[¶] Allied health professional, technician, or technologist.

[#] Administrative support staff members or manager and nonclinical support staff members (including foodservice workers, laundry workers, janitors, and members of the housekeeping and maintenance staffs).

^{**} Includes physician office, medical clinic, and other ambulatory care settings.

^{††} Dentist office or dental clinic, pharmacy, laboratory, public health setting, health care education setting, emergency medical services setting, or other setting where clinical care or related services were provided to patients.

Table 2

Percentage of health care personnel* who reported working with influenza-like illness, by age and job characteristics, Internet panel survey, United States, 2014–2015 influenza season

Characteristic	n/N	Weighted % [†]	P value
Age, y			
18–34	55/111	42.3	Referent
35–49	74/157	45.6	0.68
50	54/146	34.7	0.33
Years in current job			
3	135/304	43.7	0.25
<3	48/110	35.4	Referent
Works in obstetrics unit or around seriously ill [‡] patients			
Yes	76/156	44.5	0.53
No	107/258	40.0	Referent
Vaccinated during 2014–2015 influenza season			
Yes	154/328	44.6	.03
No	29/86	29.2	Referent

* Health care personnel were defined as persons who worked in a place where clinical care or related services were provided to patients, or whose work involved face-to-face contact with patients or who were ever in the same room as patients.

[†]Weights were calculated based on each occupation type, by age, sex, race/ethnicity, work setting, and US Census region to represent the US population of health care personnel.

[‡]Patients in an intensive care unit, burn unit, or emergency room.