

did not mention the rationale for alternative therapy, and this approach may overestimate inappropriate prescribing. This study was observational and retrospective in nature, but it provides useful insight on ambulatory CDI management. We hypothesize that ambulatory care providers are unfamiliar with the updated recommendation to prescribe oral vancomycin first. E-mail newsletter education regarding the revised guidelines was provided to inpatient and outpatient prescribers in the health system in early 2018, but it appears to have been ineffective to communicate this practice change.

Ambulatory CDI treatment may represent a missed opportunity for institutional ASPs to minimize associated morbidity. A focused effort is needed to improve the quality of CDI management in outpatient setting.

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# Influenza vaccination medical waivers among healthcare workers at an academic health system

Julia C. Barnes MS<sup>1</sup>, Megan LeClair-Netzel DNP, RN, AGCNS-BC<sup>2</sup>, Nicole Kalscheur MSN, RN<sup>2</sup>, Mallory Wagner<sup>2</sup>, Emma Gracon MSN, APNP<sup>2</sup>, Maggie Steingraber-Pharr MSN, APNP<sup>2</sup>, Beth Potter MD<sup>2,3</sup>, Freddy Caldera DO, MS<sup>4</sup> and Mary S. Hayney PharmD, MPH<sup>1</sup> 

<sup>1</sup>School of Pharmacy, University of Wisconsin–Madison, Madison, Wisconsin, <sup>2</sup>Employee Health Services, University of Wisconsin–Madison, Madison, Wisconsin, <sup>3</sup>Department of Family Medicine and Community Health, University of Wisconsin–Madison, Madison, Wisconsin and <sup>4</sup>Division of Gastroenterology and Hepatology, Department of Medicine, School of Medicine & Public Health, University of Wisconsin–Madison, Madison, Wisconsin

Despite being a condition for ongoing employment, a smaller proportion of employees at the University of Wisconsin Hospitals and Clinics (UWHC) receive the annual influenza vaccine than at other large academic institutions.<sup>1</sup> This difference can be attributed to relatively high rates of personal conviction waiver and medical waiver submission among healthcare personnel (HCP). According to the Advisory Committee on Immunization Practices (ACIP), the only absolute medical contraindication to the influenza vaccine is a personal history of severe allergic reaction to any influenza vaccine components or the vaccine itself.<sup>2</sup> For the 2019–2020 influenza season, Employee Health Services (EHS) staff reviewed all medical waivers pertaining to the influenza vaccine, implemented ACIP-compliant standards for approval of new medical waivers, and provided HCP specific education pertaining to vaccine safety. The impacts of such measures on the annual influenza vaccination rate at UWHC were then evaluated.

## Methods

Medical waivers for the influenza vaccine were categorized according to the reason for requesting a medical exemption following the 2018–2019 and 2019–2020 seasons. A nurse practitioner or physician informed employees having prior medical waivers who were not in compliance with ACIP recommendations by telephone that they were required to submit a revised medical waiver, to receive the influenza vaccine, or to complete a personal conviction waiver for the 2019–2020 influenza season. In many cases, the employee also received an e-mail message from EHS with information about the safety of the influenza vaccine for specific populations. The primary outcome was the overall influenza vaccine compliance rate for employees at UWHC, and the secondary outcome was the change in vaccination rate of employees with previous medical waivers in 2019–2020 compared with 2018–2019.

## Results

Of the 131 employees with a prior medical waiver on file, EHS approved 35 medical exemptions (27%) based on the updated ACIP guidelines. Of the remaining 96 employees, 14 were no longer employees of UWHC and 82 were required to take action to remain compliant with the seasonal influenza vaccination requirement (Table 1). Only 19 of the 82 individuals (23.1%)

**Author for correspondence:** Mary S. Hayney, E-mail: [mary.hayney@wisc.edu](mailto:mary.hayney@wisc.edu)

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**Table 1.** Characteristics of Employees With and Without a Medical Waiver for the 2018–2019 and 2019–2020 Flu Seasons

Characteristic	Employees With a Medical Waiver in 2018–2019, No. (%)	Tracked UW Health Employees in 2018–2019, No. (%)	Employees With a Medical Waiver in 2019–2020, No. (%)	Tracked UW Health Employees in 2019–2020, No. (%)
Total no.	131	15,135	33	15,541
Age, average y ± SD	48.5 ± 10.5	41.4 ± 12.4	48.6 ± 11.4	40.8 ± 12.3
Male gender	13 (10.0)	3,925 (25.9)	5 (15.2)	3,955 (25.4)
Work area				
Hospital	56 (42.7)	9016 (59.6)	18 (54.5)	9156 (58.9)
Clinic	46 (35.1)	3529 (23.3)	10 (30.3)	3693 (23.8)
Administrative	28 (21.4)	2564 (16.9)	5 (15.2)	2692 (17.3)
Works from home	1 (0.8)	26 (0.2)	0 (0)	0 (0) <sup>a</sup>
<b>2019 outcomes</b>				
Reason for waiver submission	Received vaccine	Medical Waiver	Personal Waiver	Terminated
All reasons (N=131)	19 (14.5)	31 (23.7)	67 (51.1)	14 (10.7)
History of severe allergic reaction to the influenza vaccine (N=35)	2 (5.7)	26 (74.3)	3 (8.6)	4 (11.4)
History of severe allergic reaction to egg (N=22)	3 (13.6)	1 (4.6) <sup>b</sup>	16 (72.7)	2 (9.1)
History of GBS within 6 weeks of receiving the influenza vaccine (N=12)	1 (8.3)	2 (16.7) <sup>c</sup>	5 (41.7)	4 (33.3)
Flu-like symptoms following the influenza vaccine (N=19)	4 (21.1)	1 (5.3) <sup>c</sup>	14 (73.7)	0 (0)
Injection site reaction or SIRVA (N=11)	3 (27.3)	0 (0)	7 (63.6)	1 (9.1)
Exacerbation of an inflammatory condition, (N=10)	2 (20.0)	1 (10.0) <sup>c</sup>	6 (60.0)	1 (10.0)
Other condition or other reaction, (N=15)	1 (6.7)	0 (0)	12 (80.0)	2 (13.3)
Temporary contraindication, (N=5)	3 (60.0)	0 (0)	2 (40.0)	0 (0)
Personal conviction waiver misfiled as a medical waiver, (N=2)	0 (0)	0 (0)	2 (100.0)	0 (0)

Note. SD, standard deviation. GBS, Guillain-Barre syndrome; SIRVA, shoulder injury related to vaccine administration.

<sup>a</sup>Employees who worked from home were exempt from the influenza vaccine requirement in 2019–2020.

<sup>b</sup>Compliance status not updated to remove medical exemption.

<sup>c</sup>Medical waivers approved by EHS nurse practitioners based on individual circumstances.

received the 2019–2020 influenza vaccine. A greater proportion of employees with previous severe allergic reactions to egg products submitted personal waivers in 2019–2020 compared to both those with common side effects from the influenza vaccine (eg, flu-like symptoms, injection site reaction or shoulder injury related to vaccine administration; odds ratio [OR], 1.14; 95% confidence interval [CI], 0.34–3.87) as well as employees with reactions not commonly associated with the vaccine (eg, Guillain-Barré syndrome, exacerbation of an inflammatory condition, or other; OR, 1.62; 95% CI, 0.51–5.12). Neither difference was statistically significant. Employee Health Services administrators approved medical waivers for 2 employees who were hired after the 2019–2020 influenza season: 1 for a history of anaphylaxis and 1 for history of Guillain-Barré following the influenza vaccine. Following medical waiver review, policy changes and HCP educational interventions, the overall employee influenza vaccination rate at UWHC increased from 93.4% in 2018–2019 to 94.78% in 2019–2020 ( $P \leq .0001$ ).

## Discussion

Few HCP requesting an influenza vaccine waiver have a true medical contraindication. After updating the medical waiver policy

to be in compliance with ACIP recommendations, two-thirds of employees with invalid medical waivers chose to submit personal conviction waivers in 2019–2020 instead of receiving the influenza vaccine. To help improve compliance, EHS provided educational information about the importance and safety of influenza immunization as employees were informed about the policy update in addition to routine efforts to inform HCP about the seasonal influenza vaccine.

Even though relatively few employees report valid medical contraindications to the influenza vaccine, confirming the type and severity of a past reaction is an ongoing challenge. Employee health departments must frequently rely on imperfect information such as employee reports<sup>3</sup> of reactions occurring years prior or during childhood. Although our study shows poor acceptance of the information provided to the employees by EHS regarding the safety and benefits of the influenza vaccine as employees shifted their waiver from medical to personal, 23% of employees formerly having a medical waiver without true contraindication did receive an influenza immunization the following year. Furthermore, the combined interventions including auditing the medical waiver list, editing the waiver protocol per ACIP guidelines, and providing employees with more educational materials did improve the overall influenza vaccination compliance rate at UWHC.

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