



Brief report

Correlates of seasonal flu vaccination among U.S. home health aides

Alberto Juan Caban-Martinez^{a,*}, Anna Arlinghaus^{a,b}, Silje E. Reme^a^a Department of Environmental Health, Harvard School of Public Health, 401 Park Drive, Landmark Center Building, EAST 3rd Floor #49, Boston, MA 02215, USA^b Gesellschaft für Arbeits-, Wirtschafts- und Organisationspsychologische Forschung e.V., Achterdiek 50, 26131 Oldenburg, Germany

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ABSTRACT

Introduction: Home health aides (HAs) receive limited training and reach many older patient populations highly susceptible to influenza virus. We sought to examine socio-demographic correlates of seasonal flu vaccination receipt among HAs.

Methods: We analyzed data from the 2007 U.S. National Home Health Aide Survey, a nationally representative sample of HAs reporting on occupational status, job and demographic characteristics and receipt of seasonal flu vaccine ($n = 3377$).

Results: Seasonal flu vaccine receipt was low among all types of HAs (43.9%). After adjustment for socio-demographic indicators (i.e. age, gender, race and health insurance), home health, home care, hospice and personal care attendants were significantly less likely to report receiving seasonal flu vaccine as compared to licensed nursing assistants (adjusted odds ratio, AOR = 0.42, 95% CI [0.20–0.85]; 0.41, [0.17–0.99]; 0.50, [0.26–0.97], and 0.53, [0.26–0.99], respectively).

Conclusion: Targeted effective vaccination campaigns are needed to improve vaccination rates among home health aides.

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1. Introduction

In the United States, home health aides include a group of paraprofessionals that provide direct health care services such as changing bandages and dressing wounds, as well as delivering medications to the elderly, convalescents, or individuals with disabilities either at the patient's home or in a residential care facility [1]. These workers also provide personal care such as bathing, dressing, and grooming as required by the patient [1]. Despite their direct and close proximity to vulnerable and sick populations, many of these workers receive very little education about infectious disease control and vaccination [2,3]. Given the U.S. is experiencing an increasingly aging population and a shift in patient care to non-hospital settings [4], there will likely be an increase in demand for this health worker population and a need to understand their vaccination practices.

Current U.S. national studies on seasonal flu vaccination prevalence rates indicate that among U.S. healthcare workers, vaccination remains low at 44.8% with individuals employed as health diagnosing and treating practitioners having the highest rates (52.3%), and other healthcare support occupations (e.g. Birth

Attendants, Morgue Attendants, Phlebotomists, Patient Transporters) having the lowest (32.0%). In the same study, seasonal flu vaccination rates were highest for white collar workers other than healthcare workers (24.7%), and lowest for farm workers (11.7%) [5]. These sustained low immunization rates in the U.S. healthcare workforce are perplexing, given that (1) Medicaid in most States provides subsidy for influenza vaccine, (2) evidence for influenza vaccine being efficacious, and (3) systematic reviews of effective methods to increase immunization rates have been well documented [4,6]. Evidence from tailored interventions to increase seasonal influenza vaccination suggests that each individual and agency has their own values and internal structures that influence vaccination rates [6].

As the number of home health aide professionals increases in the United States, understanding seasonal flu vaccination rates within this workforce is paramount. In the present study we sought to describe seasonal flu vaccination rates in a nationally representative sample of U.S. home health aides and examine correlates for receipt of flu vaccination to inform the development of a tailored vaccination intervention among home health aides.

2. Methods

2.1. Data source and sample

The 2007 National Home Health Aide Survey (NHHAS) conducted by the National Center for Health Statistics includes the first

* Corresponding author at: Environmental and Occupational Medicine & Epidemiology, Department of Environmental Health, Harvard School of Public Health, 401 Park Drive, Landmark Center Building, EAST 3rd Floor #49, Boston, MA 02215, USA. Tel.: +1 617 284 8768; fax: +1 617 384 8767.

E-mail address: acaban@hsph.harvard.edu (A.J. Caban-Martinez).

Table 1
Seasonal influenza vaccination coverage estimates in U.S. home health aides by occupation type and socio-demographic correlates: the 2007 U.S. National Home Health Aide Survey.

| Occupational and socio-demographic characteristics | Sample N | Estimated U.S. home health aide population | Overall vaccination coverage [95% CI] |
|--|----------|--|---------------------------------------|
| Total all health aides | 3377 | 160,720 | 43.9 [38.9–49.1] |
| Health aide title/occupation | | | |
| Home health aide | 1866 | 99,008 | 41.3 [34.3–48.8] |
| Home care aide | 133 | 11,559 | 43.4 [27.6–60.7] |
| Hospice aide | 372 | 6898 | 48.8 [38.8–58.9] |
| Personal care attendant | 938 | 37,180 | 46.0 [38.5–53.6] |
| Other licensed nursing assistant | 68 | 6075 | 68.2 [52.5–80.6] |
| Age | | | |
| Under 25 years | 153 | 8126 | 39.7 [20.6–62.6] |
| 25–34 years old | 544 | 27,504 | 44.1 [33.8–54.9] |
| 35–44 years old | 786 | 34,350 | 36.7 [27.2–47.3] |
| 45–54 years old | 1010 | 45,846 | 43.9 [35.0–53.3] |
| 55 years and older | 884 | 44,894 | 50.0 [39.3–60.8] |
| Gender | | | |
| Female | 3251 | 150,541 | 44.1 [39.0–49.4] |
| Male | 103 | 7995 | 40.7 [23.5–60.5] |
| Race | | | |
| White | 2377 | 85,099 | 50.3 [43.2–57.3] |
| Black | 719 | 55,678 | 34.5 [26.6–43.2] |
| Other | 258 | 17,759 | 43.2 [29.2–58.4] |
| Hispanic ethnicity | | | |
| Hispanic | 235 | 13,046 | 43.1 [26.7–61.1] |
| Non-Hispanic | 3118 | 144,940 | 44.2 [39.0–49.5] |
| Education | | | |
| Less than high school or GED training | 424 | 23,732 | 32.6 [23.1–43.8] |
| High school/GED | 1695 | 71,190 | 44.3 [38.4–50.4] |
| Some college or trade school | 1105 | 54,135 | 48.7 [40.9–56.6] |
| College graduate or postgraduate | 125 | 9431 | 42.1 [23.4–63.5] |
| Marital status | | | |
| Married or living with partner | 2095 | 80,767 | 43.0 [35.8–50.4] |
| Widowed, divorced, or separated | 862 | 51,364 | 48.2 [38.9–57.6] |
| Never married | 391 | 26,342 | 38.6 [27.3–51.3] |
| Family income | | | |
| Less than \$20,000 | 100 | 8709 | 41.5 [22.8–63.0] |
| \$20,000–\$29,000 | 1420 | 66,628 | 41.6 [35.9–47.5] |
| \$30,000–\$39,000 | 642 | 32,886 | 49.6 [38.6–60.5] |
| \$40,000–49,000 | 430 | 17,345 | 49.2 [35.3–63.2] |
| \$50,000 or more | 658 | 26,726 | 46.8 [35.3–58.7] |
| Health insurance status | | | |
| Yes | 2879 | 119,651 | 47.2 [41.3–53.2] |
| No | 475 | 38,885 | 33.9 [25.7–43.1] |
| Primary language | | | |
| English | 3212 | 147,478 | 43.9 [38.6–49.4] |
| Spanish or Other | 117 | 9684 | 40.1 [27.3–54.4] |

All estimates have a relative standard error <30% indicating they meet NCHS standards of reliability and precision (NCHS, 2008).

nationally representative sample of U.S. home health aides with information on job characteristics, family life, client relations, organizational commitment and job satisfaction, workplace environment, work-related injuries, and demographics [7]. Home health aides employed by agencies that provided home health and/or hospice care were identified and selected through a complex, multistage sampling probability design. A total of 3377 interviews of aides working in agencies providing home health and/or hospice care completed a computer-assisted telephone interviewing system to collect the survey data. The unweighted response rate among persons in the sample was 79% (3377/4279) [7].

2.2. Measures

Influenza vaccination status was assessed in the NHHAS interview by response to the question: “During the past 12 months, have you received a flu shot?” Aides were asked to specify their job title, including home health aide, home care aide, hospice aide, personal care attendant, or other licensed nursing assistant. The category of “other licensed nursing assistants” includes health aides that have formal licensed training and provide basic patient care such as feeding, bathing, dressing, grooming, or moving

patients under direction of nursing staff [1]. We operationalized self-reported socio-demographic variables as follows: age (under 25 years; 25–34 years old; 35–44 years old; 45–54 years old; and 55 years and older), gender (male/female), race (White, Black, and Other), Hispanic ethnicity (Hispanic/non-Hispanic), educational attainment (less than a high school diploma; graduated high school/attained GED; attended college or technical school; or graduated college or technical school); marital status (married/living with a partner; divorced, widowed, separated; or single), family income (less than \$20,000; \$20,000–\$29,000; \$30,000–\$39,000; \$40,000–49,000; \$50,000 or more), primary language (English; Spanish or Other); and health insurance status (yes/no). Health insurance status was operationalized from respondents answering in the affirmative to one of the following two survey questions: (1) “Are you currently participating in health insurance plan available from {AGENCY}?” or (2) “Covered by other plan; covered by Medicare or Medicaid or other government insurance?”.

2.3. Data analysis

Given the complex sample survey design of the NHHAS, descriptive statistics and univariable and multivariable logistic regression

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