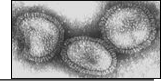


## Assessment of Influenza Vaccination Rates among Long-term Care Facility Employees in Brevard County, Florida- 2007

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## Introduction



- Every year in the United States:
  - On average, 5% to 20% of the population gets influenza
  - More than 200,000 people are hospitalized from flu complications
  - Approximately 36,000 people die from flu
- 2007-2008 Influenza Season in FL
  - Influenza rate between 0.78%-3.69% of the population (Sentinel Surveillance Data through week 11, 2008)

## Introduction

- Persons  $\geq 85$  years have the highest rates of influenza-associated primary respiratory and circulatory hospitalizations (1194.9 per 100,000 persons)
- 90% of influenza-related deaths occur among those  $\geq 65$ , with the highest death rates among those  $\geq 85$  years

□ Thompson WW, Shay DK, Weintraub E, et al. Influenza-associated hospitalizations in the United States. *JAMA* 2004;292:1333-1340.

## Introduction

- 2007 Advisory Committee on Immunization Practices (ACIP) recommends annual influenza vaccinations for:
  - persons 18-49 years with high-risk/chronic conditions
  - Persons 6 months-5 years
  - Persons  $\geq 50$  years
  - Healthcare personnel
  - Household contacts or caregivers of persons at high risk for becoming ill with influenza or transmitting the disease

## Influenza and LTC Facilities



- Nursing home/long-term care (LTC) residents may suffer higher influenza-related morbidity and mortality
  - Chronic medical conditions
  - Higher risk of exposure in institutional setting
  - Close contact with other residents
  - Close contact with people who circulate between the community and the nursing home (visitors, staff, volunteers, etc.)
- Nursing homes are mandated by Florida Statute and the Agency for Healthcare Administration (AHCA) to provide the influenza and pneumococcal vaccines to residents

## Influenza and LTC Facilities

- Flu outbreaks in LTC facilities
  - Attack rate of up to 60%
  - Case fatality as high as 30%-55%
- Vaccination of healthcare workers associated with 42% decrease in mortality among residents (OR = 0.58,  $p=0.014$ )
- Many LTC facilities provide flu vaccines to employees, but vaccination rates are low (32-57%, mean= 46%)

□ Carmen WF, Elder AG, Wallace LA, et al. Effects of influenza vaccination of health-care workers on mortality of elderly people in long-term care: a randomized controlled trial. *Lancet* 2000;355:93-97.

□ Andon W. Control of influenza in the long-term care facility: a review of established approaches and newer options. *Infect Control Hosp Epidemiol* 2000;25:59-64.

## Rationale/Purpose

1. Assess influenza vaccination rates among LTC employees in Brevard County, and particularly healthcare workers
2. Prevent influenza outbreaks in LTC facilities by educating the employees about influenza and encouraging them to get vaccinated against the disease

## Methods

- September 2007-December 2007
  1. Contact Director of Nursing (DON)/Staff Education Coordinator at each of the 19 facilities in the county
  2. Provide influenza in-service to consenting facilities
  3. Conduct employee survey (self-administered)
  4. Provide brochures, fact sheets, and extra questionnaires
  5. Follow-up
  6. Data entry/analysis

## Influenza In-service

- Description of the influenza virus
- Development of the vaccine
- Contraindications
- High-risk groups
- Control of outbreaks in LTC facilities
- Vaccine resources in the community

Influenza in Nursing Homes  
Vaccination Questionnaire for Healthcare Workers  
Brevard County Health Department

Date: / / Questionnaire #: Age: Gender: Male / Female  
Are you: a. Nursing staff, b. Medical staff, c. Housekeeping staff, d. Admin staff, e. Other?

Section A:

1. Do you get the flu vaccine between September 2006 and April 2007? Yes / No
2. If no, why not? (Circle all that apply)
  - a. The vaccine is too expensive
  - b. I don't know the vaccine is effective
  - c. I never get the flu
  - d. The vaccine will make me get the flu
  - e. I am allergic to the vaccine
  - f. I'm too busy
  - g. I don't like needles
  - h. Other (please specify) \_\_\_\_\_
3. If yes, when did you get the vaccine? Month: \_\_\_\_\_ Year: \_\_\_\_\_ What type was RT & Injection OR In \_\_\_\_\_
4. Why did you decide to get the vaccine? (Circle all that apply)
  - a. I received flu education from the Brevard County Health Department
  - b. I had to attend a class and learn about the flu
  - c. My employer said I had to get the vaccine
  - d. Other (please specify) \_\_\_\_\_
5. Where did you get the vaccine? (Circle all that apply)
  - a. BCHD (Specify which one: \_\_\_\_\_)
  - b. My physician
  - c. My employer
  - d. Other (please specify) \_\_\_\_\_
6. Does your employer offer the flu vaccine to his/her/his staff? Yes / No
7. If yes, is the flu vaccine from your employer's staff? Yes / No

Section B:

1. Do you plan to get the flu vaccine, or did you get the flu vaccine, between September 2007 and April 2008?  
Yes / No
2. If no, why not? (Circle all that apply)
  - a. The vaccine is too expensive
  - b. I don't know the vaccine is effective
  - c. I never get the flu
  - d. The vaccine will make me get the flu
  - e. I am allergic to the vaccine
  - f. I'm too busy
  - g. I don't like needles
  - h. Other (please specify) \_\_\_\_\_
3. If yes, when do you plan to get the flu vaccine or when did you get the flu vaccine?  
Month: \_\_\_\_\_ Year: \_\_\_\_\_ What type? RT & Injection OR In \_\_\_\_\_
4. What is your reason for getting the flu vaccine? (Circle all that apply)
  - a. I received flu education from the Brevard County Health Department
  - b. I had to attend a class and learn about the flu
  - c. My employer said I had to get the vaccine
  - d. Other (please specify) \_\_\_\_\_
5. Where do you plan to get the flu vaccine? (Circle all that apply)
  - a. BCHD (Specify which one: \_\_\_\_\_)
  - b. My physician
  - c. My employer
  - d. Other (please specify) \_\_\_\_\_
6. If you do not plan to get the vaccine, what would be a good incentive to get the vaccine? \_\_\_\_\_

Brevard CHD Fax: 321-454-7128 Revised: 10/2007

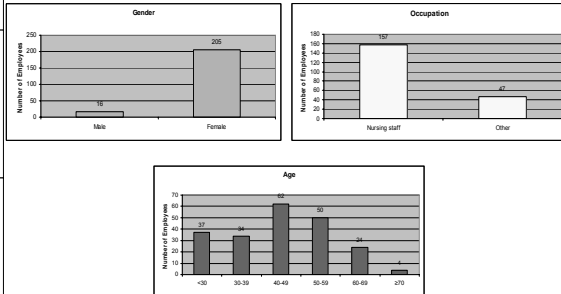
## Data analysis

- Data analysis: Epi Info® version 3.2.2.
  - Calculated frequencies of demographic variables, vaccine source/cost, and reasons for declining vaccination
  - Conducted bivariate analyses to:
    - Compare the vaccination rates for both seasons
    - Determine the effects of demographics, access to vaccine at work, and free vaccine on 2007-2008 vaccination rates

## Results

- 13/19 facilities received in-service presentations
- 12 facilities responded to survey, n= 269 respondents
- The 7 unresponsive facilities received multiple follow-up attempts from BCHD

## Demographic Frequencies



## Access to Influenza Vaccine

- Employer offers flu vaccine = 92.3%
- Vaccine from employer is free = 86.6%



## Influenza Vaccine Information

### Flu Vaccine Information

Variable	Frequency	
	2006-2007 season n=244	2007-2008 season n=261 (**incl. plan to get vacc.)
<b>Vaccinated</b>	89 (36.5%)	151 (57.9%)**
Vaccine Source = Employer	71 (79.8%)	112 (74.2%)
<b>Not vaccinated</b>	155 (63.5%)	110 (42.1%)**
Vaccine too expensive	9 (5.8%)	4 (3.6%)
Vaccine not effective	17 (11%)	10 (9.1%)
<b>I never get the flu</b>	<b>39 (25.2%)</b>	<b>30 (27.3%)</b>
Vaccine will cause the flu	20 (12.9%)	18 (16.4%)
Allergic to the vaccine	11 (7.1%)	10 (9.1%)
I am too busy	10 (6.4%)	1 (0.9%)
I don't like needles	14 (9%)	13 (11.8%)
Other (including, "No Reason" and "I just don't want it")	36 (23.2%)	21 (19.1%)

## Vaccination rates by demographic variables, access to vaccine at work, and free vaccine

Variable	Vaccination Rate (2006-2007 season) †	Vaccination Rate (2007-2008 season) ‡
Gender	Male	7 (50%)
	Female	75 (39.5%)
Occupation	Nursing staff	48 (33.1%)
	Other	23 (56.1%)
Age	<30 years	2 (5.9%)
	30-39 years	12 (37.5%)
	40-49 years	25 (43.9%)
	50-59 years	20 (43.5%)
	60-69 years	16 (76.2%)
	≥70 years	2 (50%)
Flu vaccine provided by employer	Yes	79 (41.1%)
	No	3 (16.7%)
Flu vaccine free	Yes	70 (45.2%)
	No	4 (16%)

† For 2006-2007 flu season, significant associations observed for age, occupation, employer-provided vaccines, and free vaccines.  
‡ For 2007-2008 flu season, significant association observed for free vaccine only.

## Discussion

- One-third of the LTC employees reported that they were vaccinated in the 2006-2007 flu season
- Expected to increase to over one-half by the end of the 2007-2008 flu season
- End-of-season follow-up on 3/31-04/04/08:
  - None reported flu outbreaks
  - Staff vaccination rates for facilities that received BCHD in-service: median = 47.5%, range = <1%-70%
  - Staff vaccination rates for facilities that declined in-service: median = 26.5%, range = 5%-50%

## Discussion

- Provision of free vaccines had a positive effect on employee vaccination rates (RR=1.9)
- Individuals vaccinated in the 2006-2007 flu season were 3 times more likely to get vaccinated (or plan to get vaccinated) in the 2007-2008 flu season (aRR=3.3)
  - Controlled for age, gender, and occupation

## Limitations

- ❑ Random sampling of staff from all three shifts in each facility was not conducted (potential selection bias)
- ❑ Questionnaires were self-administered and self-reported (potential information bias)
- ❑ The survey was initiated early in the flu season before many LTC facilities had the vaccine available
- ❑ Unknown whether or not those who planned to get vaccinated in the 2007-2008 flu season actually did so
- ❑ No information on socio-economic status or education level was collected; its effect on vaccination rates was not determined (potential confounding)

## Conclusion

- ❑ 2007-2008 staff vaccination rates consistent with other studies
- ❑ Evidence of increased vaccination of employees in recent years, though not as high as residents' vaccination rates
- ❑ High rates of vaccination among staff members may reduce the risk of infection/outbreaks among residents (and absenteeism)
- ❑ Most LTC employees in Brevard are <60 yrs where vaccine effectiveness should be higher (increased protection for residents)
- ❑ Many healthcare professionals are reluctant to get the flu vaccine
- ❑ Previously vaccinated employees are more likely to accept re-vaccination
  - May be related to increased trust, previous illness, education, etc.
- ❑ Free flu vaccines encourage staff to accept vaccine

## Recommendations

- ❑ More efforts needed to improve staff vaccination
- ❑ Public health interventions need to focus on:
  - Dispelling the myths about influenza and the vaccine
  - Increasing interest in receiving the vaccine
- ❑ Influenza outreach must be multifaceted:
  - Maintain relationships with the LTC facilities in the county
  - Encourage provision of free or low-cost vaccines for staff
  - Conduct educational flu sessions
  - Develop targeted educational materials
  - Conduct focus groups with healthcare staff

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**THANK YOU!**



**Questions?**