



University of Pittsburgh

Challenges to Improving Immunization Rates in LTC Residents and HCW

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Conflicts of Interest

- Dr. Nace is the Principal Investigator on an **investigator initiated grant** evaluating the immunogenicity of regular versus high dose influenza vaccine in nursing home residents.
- Dr. Nace does not have any additional conflicts to disclose.



Objectives

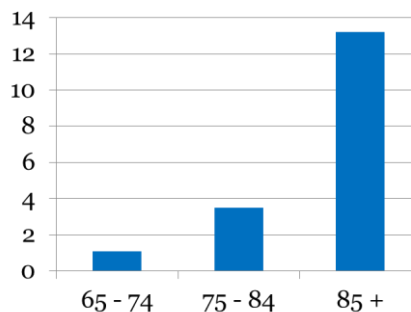
- Describe the importance of LTC
- Discuss the limitations of resident vaccination
- Highlight importance of HCW vaccination
- Describe challenges and potential strategies to address HCW vaccination



LTC Population

- **Nursing Homes (NH)**
 - 1.3 – 1.6 Million Residents
 - 40% Lifetime Risk of NH Admission
- **Assisted Living (ALF)**
 - > 28,000 Facilities
 - > 1 Million AL Residents

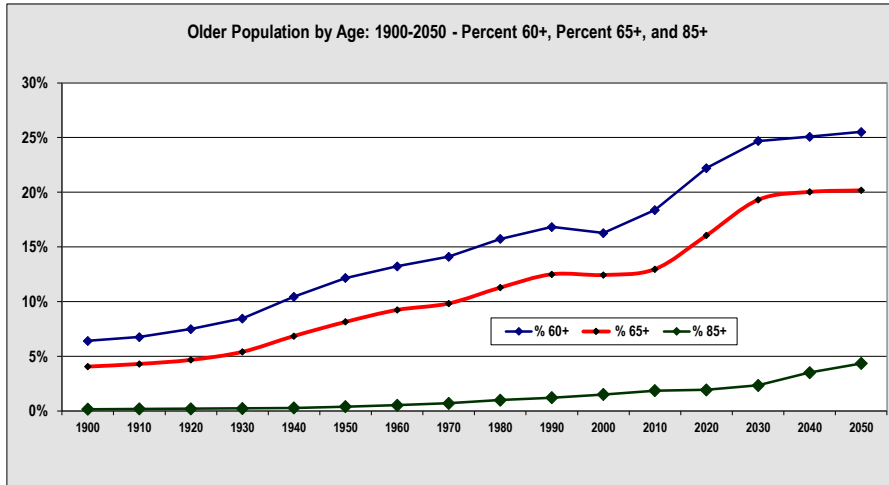
Percent of Older Adults Residing in Nursing Homes



Administration on Aging. A Profile of Older Americans: 2011
http://www.aoa.gov/Aging_Statistics/Profile/2011/docs/2011profile.pdf



Aging of the U.S. Population



Influenza Vaccine Coverage U.S.

Adults 65+ Years¹

2007-08	2008-09	2009-10	2010-11
72.3%	74.0%	69.6%	66.6%

U.S. Nursing Home Influenza Vaccine Coverage²

Median = **72.7%** (49.4%-80.9%)

1. CDC <http://www.cdc.gov/flu/professionals/vaccination/trends/age-groups.htm> (8/20/2013)
2. Bardenheier B, et al. JAMDA 2012;13:470-476



Nursing Home Outbreaks Despite Vaccination

Navarre, Spain 2012

	NF 1	NF 2	NF 3
Residents	66	22	523
Mean Age	80.3 (42-97)	81.2 (59-97)	86.4 (62-104)
2010-11 Vaccine Coverage Rate	97%	91%	82%
Cases ILI	44	4	15
Attack Rate	67%	18%	2.9%
Attack Rate Vaccinated	66%	20%	2.6%
Attack Rate Unvaccinated	100%	0%	4.1%
Influenza Related Hospitalizations	2	1	0
Influenza Related Deaths	1	1	0

Castilla J, Cia F, Zubicoa J, et al. Influenza outbreaks in nursing homes with high vaccination coverage in Navarre, Spain, 2011/12. Euro Surveill. 2012;17(14):pii=20141.



Nursing Home Outbreaks Despite Vaccination

Wisconsin 1992-1994

Variable	1992-1993	1993-1994
Influenza Type	B	A
Total Residents	690	670
Age	76 (± 10)	76 (± 10)
Male	80%	78%
Residents Vaccinated (%)	86%	89%
Nursing Staff Vaccinated (%)	56%	46%
Cases	104 (15.5%)	68 (9.8%)
Vaccination Rate Cases	85%	90%

•Circulating strains matched both years (B/Panama/45/90-like; A/Beijing/32/92-like/H3N2)

•Case = ILI and culture confirmation

Drinka P, et al. Outbreaks of influenza A and B in a highly immunized nursing home population. J Fam Pract 1997;45:509-514.



Nursing Home Outbreaks Despite Vaccination Rochester, MN 1996

Variable	Residents	HCW
Number	62	67
% Vaccinated	95%	72%
Age	87 (±4)	-
Attack Rate	44% (n=27)	24% (n=16)
Vaccination Rate Among Cases	96% (n=26)	52% (n=9)

•A/Wuhan/H3N2 matched the vaccine strain, A/Nanchang/H3N2

•Authors felt findings more consistent with decreased host response rather than vaccine failure due to rates among older residents vs younger staff.

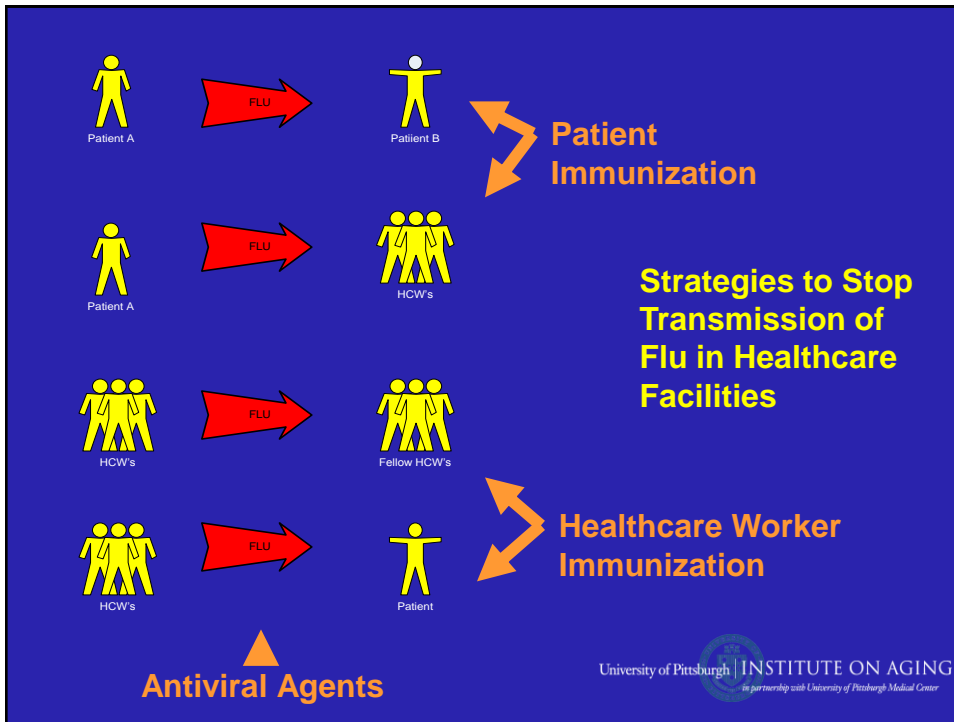
Kuhle CL, et al. An influenza outbreak in an immunized nursing home population: Inadequate host response or vaccine failure? Annals Long-Term Care 1998;6(3):72.

Frail LTC Residents at High Risk

- **LTC environment**
 - Close contact with HCW
 - Frequent contact with other residents
 - Structure of units/buildings
 - Poor accessibility of accurate, timely diagnostic tests
- **Resident characteristics**
 - Frail
 - Comorbid illness
 - Medications that impact immune function
 - Nutritional status
- **Case Fatality Rates = 0-55%**
- **Influenza factors**
 - Symptoms nonspecific, so mimics other conditions

Nace DA, Drinka P, Mann J, Poland GA. LTC Information Series: Immunization in the Long-Term Care Setting. 2nd ed. Columbia, MD: American Medical Directors Association; 2010.

Morens DM, Rash VM. Lessons from a nursing home outbreak of influenza A. Infect Control Hosp Epidemiol 115:16:275-280.



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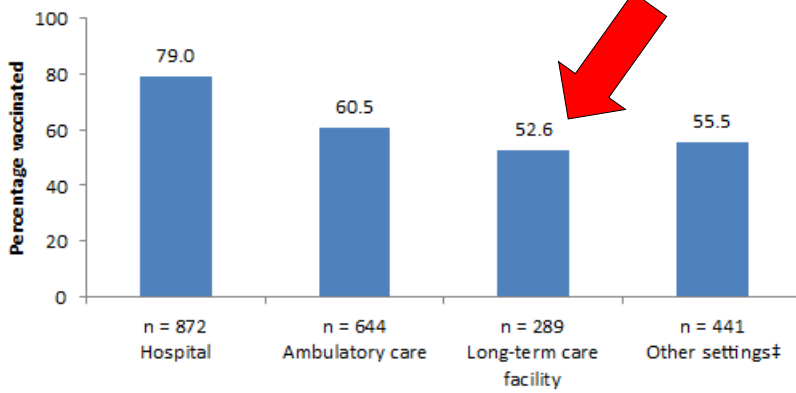
Impact of Healthcare Worker Immunization on Mortality of Nursing Home Residents

Study	HCW Non-Vaccinated Homes	HCW Vaccinated Homes	Confidence Intervals
Potter 1997	17%	10%	0.4 -0.8
Carman 2000	22.4%	13.6%	0.4-0.84

* Potter, J et al. *J Infect Dis* 1997
* Carman WF, et al. *Lancet* 2000

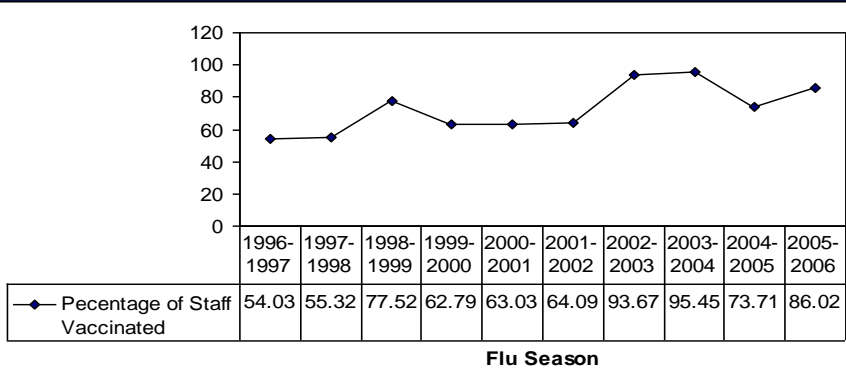


Figure 3. Flu vaccination coverage among health care personnel by work setting, Internet panel survey, United States, early November 2013



<http://www.cdc.gov/flu/fluview/hcp-ips-nov2013.htm>

BHWP HCW Rates



Nace DA, Hoffman EL, Resnick NM, Handler SM. Achieving and Sustaining High Rates of Influenza Immunization Among Long-Term Care Staff. *J Am Med Dir Assoc* February 2007; 8(2):128-133.

PLTCVP HCP Results

Facility	2002 (%)	2003 (%)	Raw Change (%)
Collaborative Group	39.2	50.1	10.9
Facility A	56.9	67.2	10.3
Facility C	14.3	36.2	21.9
Facility E	46.4	46.8	0.4
Non-collaborative Group	29.3	25.8	-3.5
Facility B	23.1	12.5	-10.6
Facility D	47.1	30.3	-16.7
Facility F	17.8	34.7	16.9

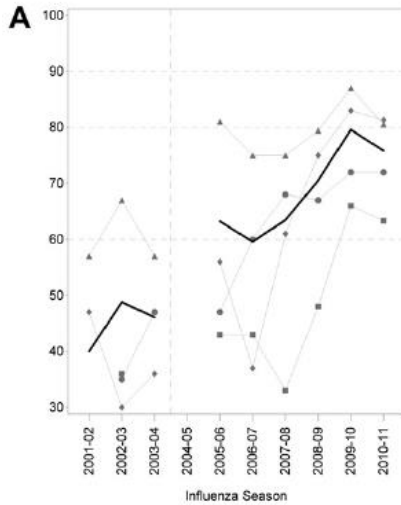
Nace DA, Perera S, Handler SM, Muder R, Hoffman EL. Increasing influenza and pneumococcal immunization rates in a nursing home network. J Am Med Dir Assoc 2010
DOI:10.1016/j.jamda.2010.05.002.



Staff Turnover

- Prevalent issue
 - 44.9% turnover rate in 2010
- Focus groups identified staff turnover as major barrier to HCW immunizations
 - Frequent key staff changes = frequent policy changes
 - Vaccination culture never has chance to develop

http://www.ahcancal.org/research_data/staffing/Documents/REPORT%20OF%20FINDINGS%20NURSING%20FACILITY%20STAFFING%20SURVEY%202010.pdf

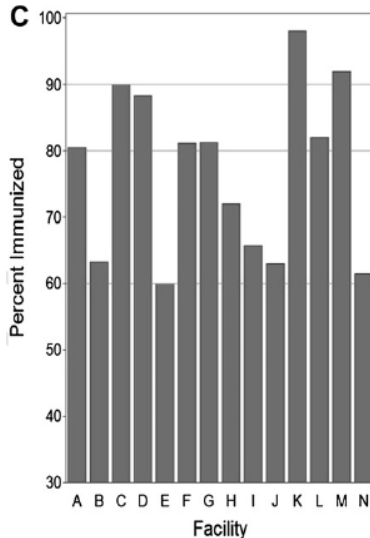


Vaccination Rates RISE Program

Nace DA, et al. Impact of the Raising Immunizations Safely and Effectively (RISE) Program on healthcare worker influenza immunization rates in long-term care settings. *J Am Med Dir Assoc* 2012;13(9):806-10.



Vaccination Rates RISE Program 2010-2011



HP 2020

HP 2010

Nace DA, et al. Impact of the Raising Immunizations Safely and Effectively (RISE) Program on healthcare worker influenza immunization rates in long-term care settings. *J Am Med Dir Assoc* 2012;13(9):806-10.



Strategies for Success

- Cede Vaccination Policy to Pharmacy Control
- Standing Orders
- Eliminate Consent Forms
- Require Declinations

AHRQ Innovations Exchange

<http://www.innovations.ahrq.gov/content.aspx?id=4095>



Pharmacy Role

- Distribution of educational materials
- In-service training
- Annual campaign
- Performance monitoring and feedback
- Ongoing email communication

AHRQ Innovations Exchange

<http://www.innovations.ahrq.gov/content.aspx?id=4095>



Getting Started

- Approach your LTC pharmacy
- Start with few early adopters
- Offer education and training support
- Do not expect immediate results

AHRQ Innovations Exchange

<http://www.innovations.ahrq.gov/content.aspx?id=4095>



Sustaining Progress

- Monitor and share data
 - Incorporate into your QAPI process
- Keep abreast of state and national requirements
- Consider mandatory vaccination programs

AHRQ Innovations Exchange

<http://www.innovations.ahrq.gov/content.aspx?id=4095>



Communicating with HCW An Approach for Opinion Leaders

- **S** – Consider the Setting for Interaction
- **P** – Ask for HCW's Perception about Vax
- **I** – Seek Invitation to Share Information
- **K** – Transfer Knowledge Appropriately
- **E** – Explore Emotions, Emphasizing
- **S** – Summarize and Strategize

<http://theoncologist.alphamedpress.org/content/5/4/302.full>



Conclusions

- Despite vaccination, frail LTC residents remain at risk for influenza
- LTC healthcare worker vaccination rates are lower than other settings
- Staff turnover is an important challenge to vaccination that must be considered
- Bundled approaches appear to be successful in addressing HCW vaccination