

# Carrots and Sticks:

## *Influenza Vaccination of Healthcare Workers*

**Susan Coffin**

**Children's Hospital of Philadelphia**

**June, 2010**



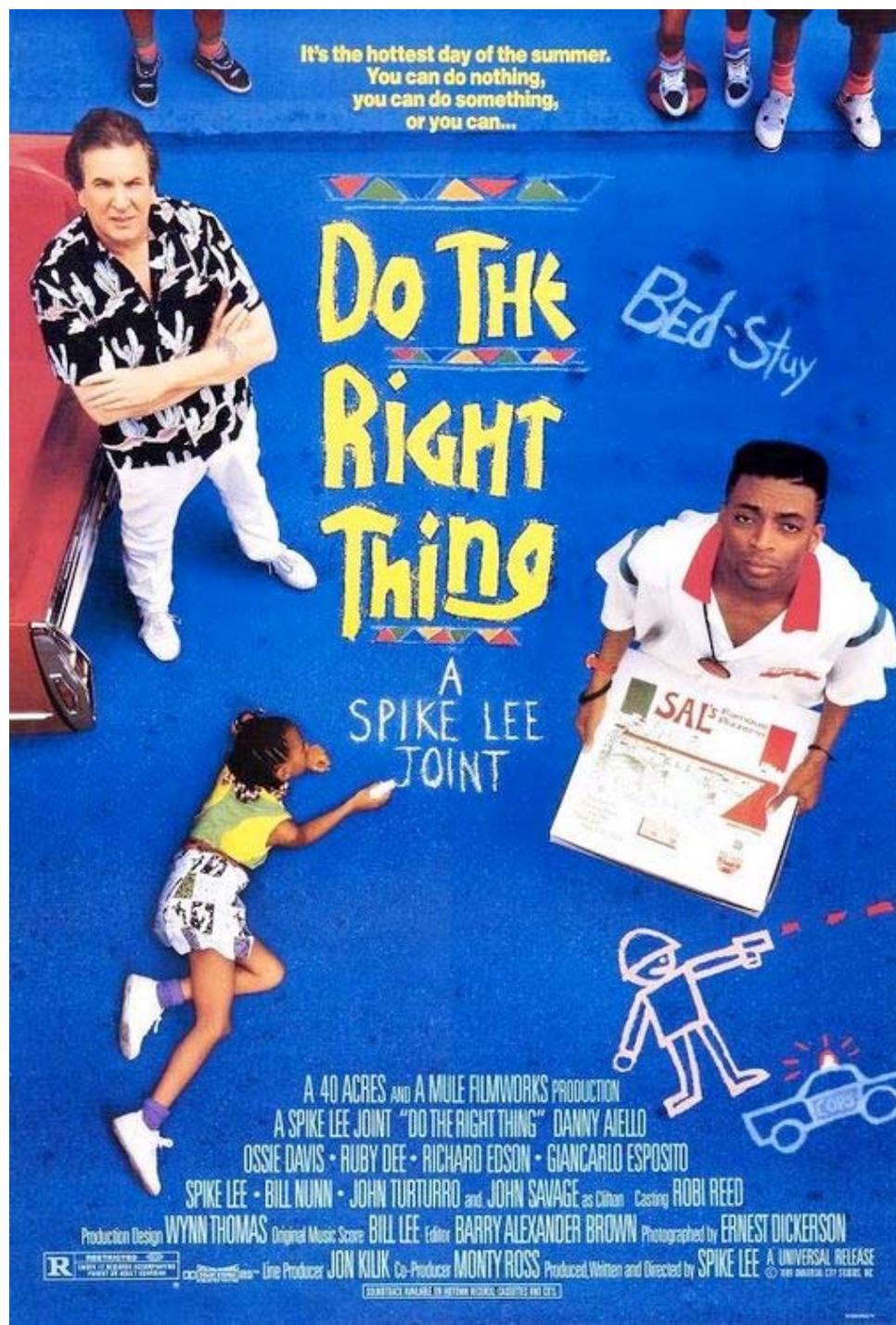
# Overview

Rationale behind HCW influenza vaccination

Barriers to HCW vaccination

Implementing a mandatory flu vaccination program at CHOP

Discussion....



# HCW Flu Vaccination: Why do we care?



## Prevent disease in patients

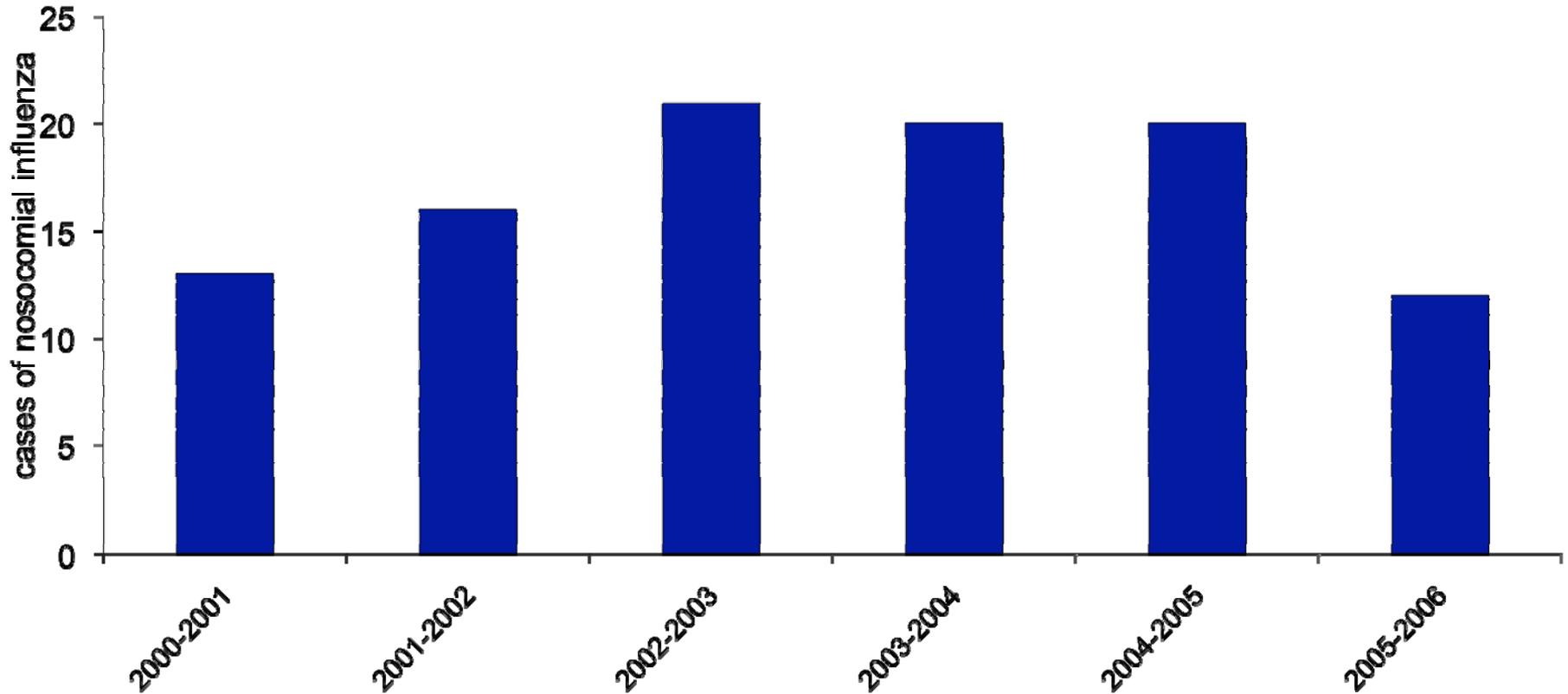
- 2 cases of probable fatal nosocomial influenza in 1<sup>st</sup> report of pediatric influenza deaths (2003-2004)<sup>1</sup>
- Influenza likely cause of ~10% of pediatric patients with nosocomial ARI<sup>2</sup>

## Prevent disease in healthcare workers

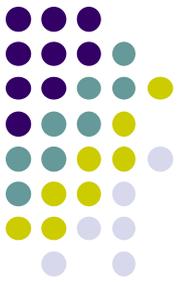
- Personal and economic benefits to employee
  - Fewer missed days of work due to illness
- Economic benefits to employer
  - More stable workforce

<sup>1</sup>Bhat et al NEJM 2005; <sup>2</sup>Vayalumkal, ICHE, 2009

# Nosocomial Influenza at CHOP (2000-2006)



# Complications experienced by 56 patients with nosocomial influenza\*



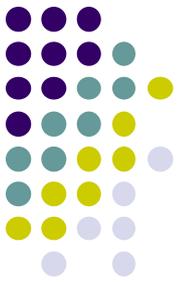
---

	<u>Number (%)</u>
Death	2 (3.6%)
Respiratory failure	3 (5.4%)
Suspected bacterial pneumonia	12 (21.4%)
Bacteremia	1 (1.8%)

---

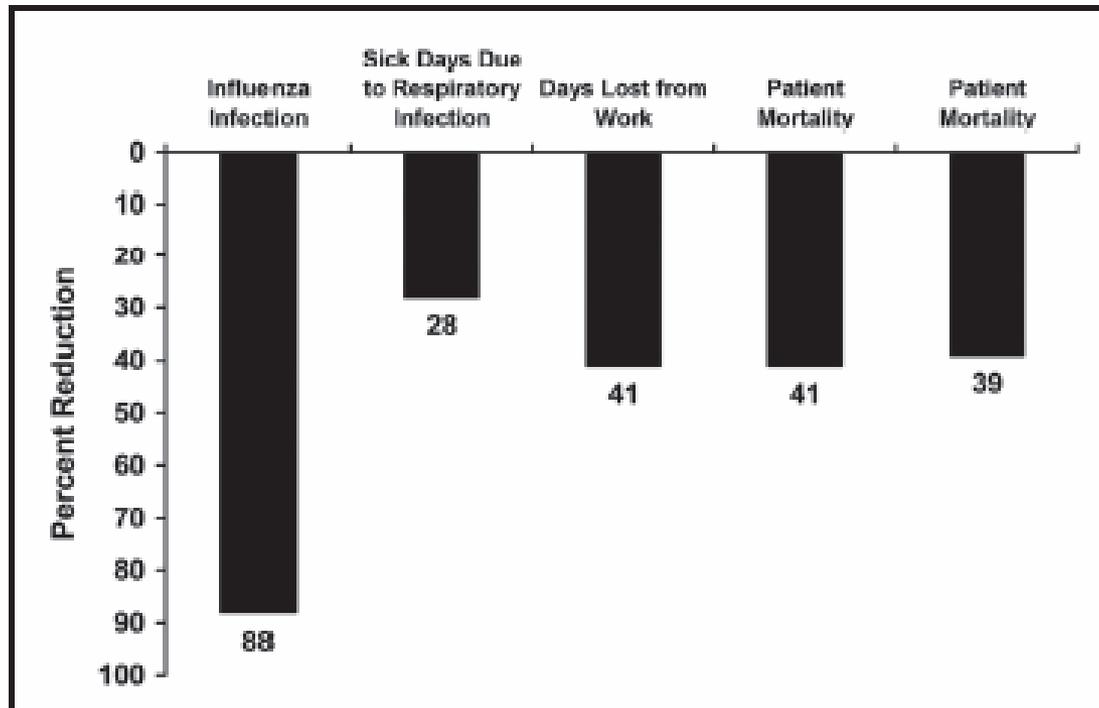
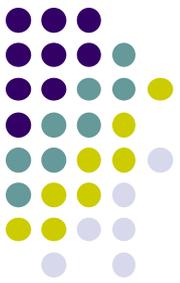
\*2000-2004; complications determined by detailed chart review

# Preventing nosocomial influenza: challenges



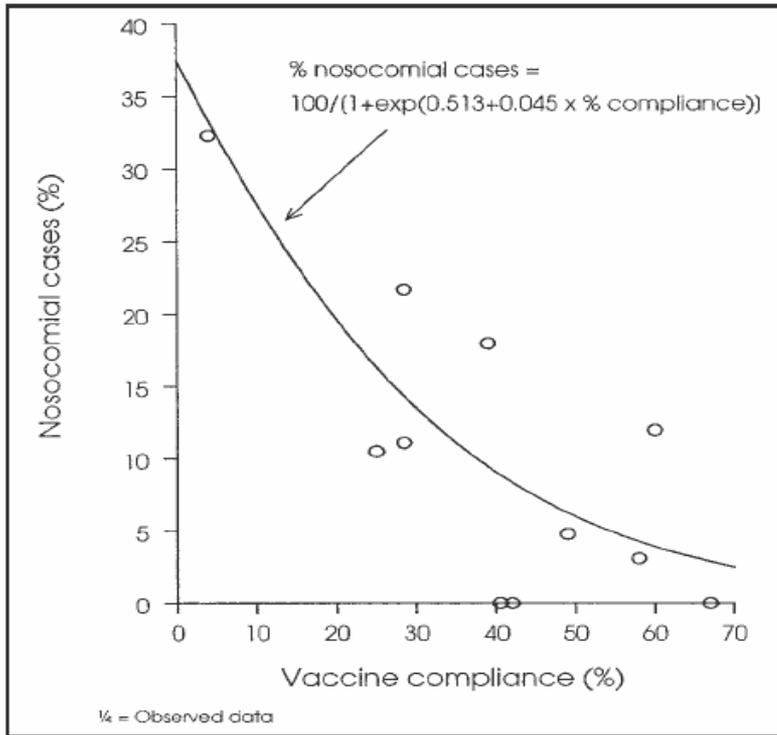
- Virus primarily transmitted by large respiratory droplets
  - Minimal benefit from hand hygiene
- Virus can be shed 24 hrs before symptom onset
- Adults can have asymptomatic infections
  - 20-50% of infected HCW were asymptomatic
- Many hospitalized pediatric patients too young to receive vaccine or unable to mount protective immune response

# Direct Benefits of HCW Vaccination



**FIGURE 1.** Percent of reduction in noted outcomes in healthcare workers receiving influenza vaccination.<sup>35-39</sup> The two bars noting reductions in patient mortality data after healthcare worker vaccination reflect data from two separate studies.<sup>36,37</sup> All values were statistically significant when compared with those for unvaccinated control healthcare workers ( $P < .05$ ).

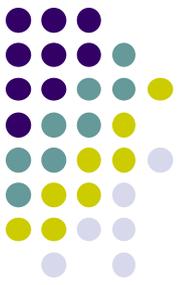
# Vaccination reduces the rate of nosocomial influenza



**FIGURE 4.** Estimated logistic regression model of the predicted proportion of influenza cases that were nosocomial among patients based on health-care worker vaccine compliance.

- Observational study at University of Virginia hospital
- Over 13 seasons
- Increasing vaccination rate among HCW associated with reduced proportion of nosocomial influenza (32% in 1987-88 to 3% in 1998 - 99)

# What level of HCW vaccination is ideal?

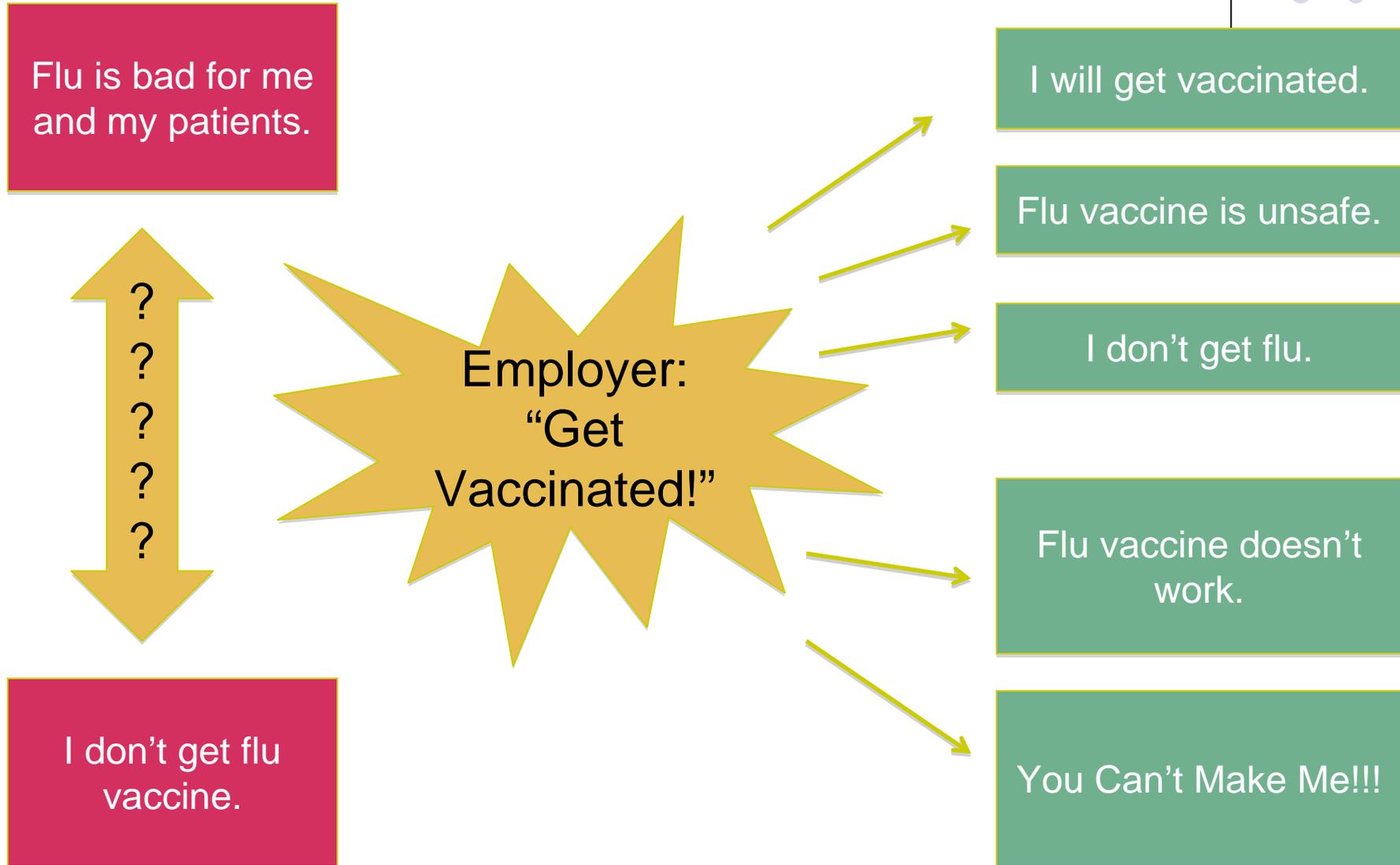
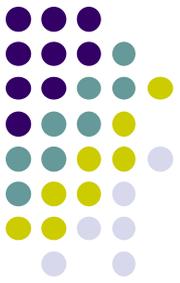


- Likely related to proportion of vaccinated staff and patients...
  - Retrospective study of 301 nursing homes (2004-2005)
  - **Combined immunization rate** of staff and residents inversely associated with risk of outbreak
  - 60% reduced risk of outbreak associated with staff immunization rates of 55% and resident immunization rates of 89% (OR 0.41; CI 0.19, 0.89)



# OVERCOMING BARRIERS

# Cognitive Dissonance 101



# Strategies that work

- Education
  - Risks of disease<sup>1,2</sup>
  - Vaccine safety and efficacy<sup>2</sup>
- Internal marketing<sup>1,3</sup>
- Improving access to vaccine
  - Mobile carts<sup>1,2</sup>
  - Walk-in clinics, after-hours clinics<sup>2</sup>
- Expanding responsibility
  - Vaccine deputies<sup>1</sup>
  - Charge nurses as educators<sup>2</sup>

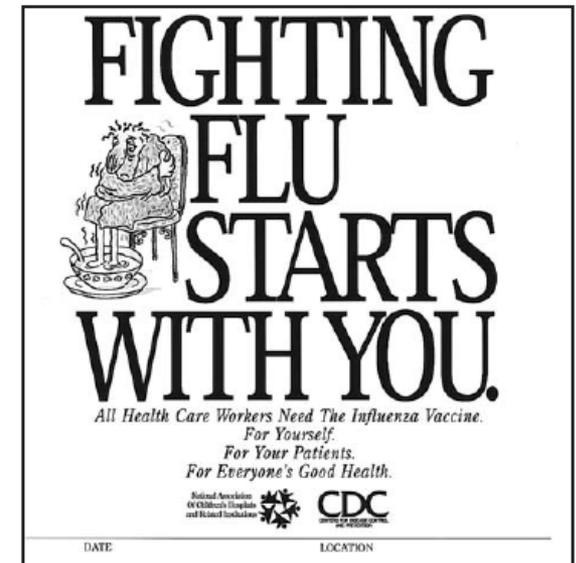
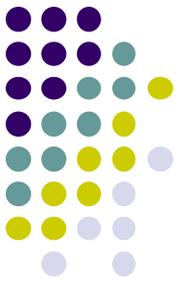


FIGURE 1. Pediatric Prevention Network poster encouraging influenza immunization for healthcare workers.

# Wake Forest Declination Form (2005)



*“I realize I am eligible for the flu shot and that my refusal of it may put patients, visitors, and family with whom I have contact, at risk should I contract the flu. Regardless . . . .”*

Adoption was associated with doubling of immunization rates (35% to 70% over 4 yr period)

# Why CHOP HCW decline flu vaccine

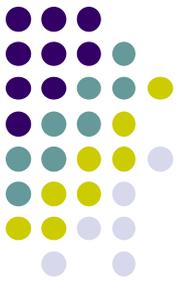


---

	<u>2005-2006</u>	<u>2006-2007</u>
Allergy/Reaction		
Rec'd vaccine elsewhere		
Concern about side effects		
Never get flu		
Personal choice		
Religious		
Other		
Pregnancy		
Fear of needles		
<b>TOTAL</b>	<b>276</b>	<b>392</b>

---

# Why CHOP HCW decline flu vaccine

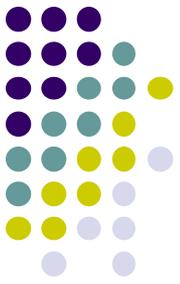


---

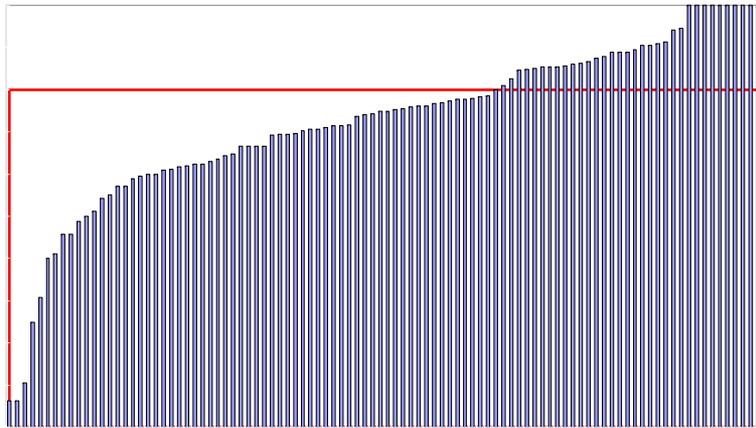
	<u>2005-2006</u>	<u>2006-2007</u>
Allergy/Reaction	39	26
Rec'd vaccine elsewhere	36	6
Concern about side effects	34	193
Never get flu	9	27
Personal choice	119	53
Religious	1	0
Other	32	15
Pregnancy	11	5
Fear of needles	7	0
<b>TOTAL</b>	<b>276</b>	<b>392</b>

---

# Vaccination of non-physicians:

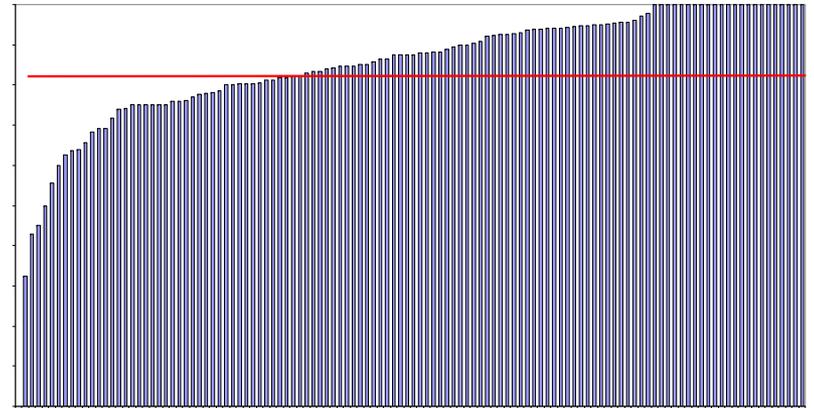


2007-2008



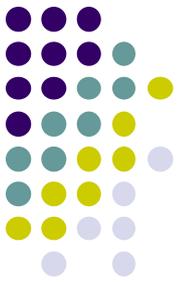
34% of clinical sites  $\geq 80\%$  (34/99)  
72.6% vaccinated (2903/3998)

2008-2009

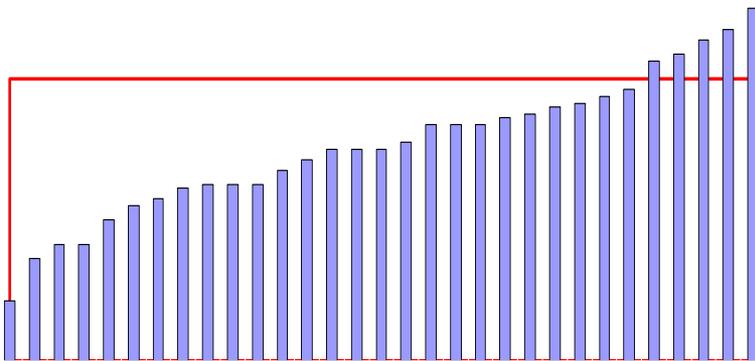


74% of clinical sites  $\geq 80\%$  (87/118)  
82.8% vaccinated (3608/4358)

# Vaccination of physicians

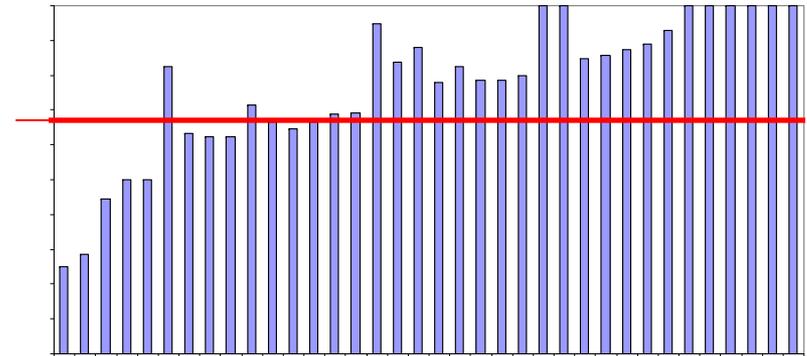


2007-2008



16% MD groups  $\geq 80\%$  (5/31)

2008-2009

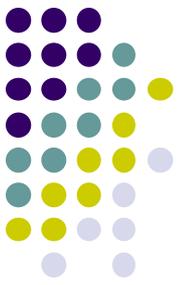


53% MD groups  $\geq 80\%$  (19/36)

22% MD groups fully vaccinated (8/36)

81% of MDs vaccinated (623/777)

# Are Declination Forms Enough?



## PRO

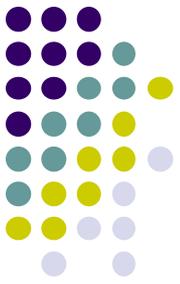
- HCW vaccination no longer a “passive decision”
- Provides final opportunity to frame issue
- Creates focus on individual accountability

## CON

- Signals acceptance of non-vaccination
- Polarizing effect reported by some



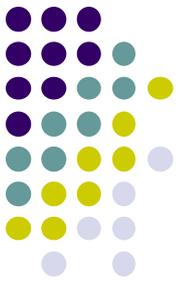
# 2009-2010 CHOP Employee Influenza Vaccine Program



***July, 2009: “The CHOP Patient Safety Committee recommends mandatory annual influenza vaccine for all staff\* working in buildings where patient care was provided or whom provide patient care.”***

***\*includes clinicians, support staff, volunteers, students; vendors informed of policy and asked to ensure compliance.***

# Key Strategies, 2009-2010



## PROGRAM ELEMENTS

- Create accurate list of targeted staff and assure ability to provide timely, accurate reports
- Establish method for evaluating requests for medical and religious exemptions
- Determine timeline and educate

# Program Timeline, 2009-2010



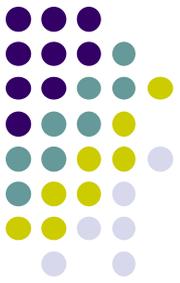
## PLAN:

- 6 week program (9/15-10/31/09)
- 2 week furlough for staff unvaccinated and without exemption as of 11/1/09
- Termination if unvaccinated and without an exemption as of 11/15/09

## REALITY:

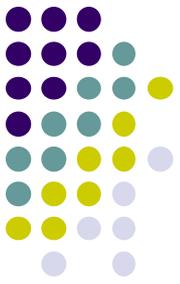
- 2 week extension due to delays in receipt of seasonal flu vaccine

# What happened: 2009-2010



- >9000 HCW vaccinated
- 50 persons established medical exemptions
- 2 persons established religious exemptions
- 145 received temporary suspension
- 9 persons terminated

# Anonymous survey to assess attitudes toward mandate



- Random sample of all targeted employees
- 20 item questionnaire adapted from validated previously published instrument
- Domains
  - Previous experience with influenza / influenza vaccination
  - Reasons for previous vaccination or non-vaccination
  - Attitudes toward current influenza mandate and other workplace mandates
  - Attitudes toward vaccines in general
  - Sociodemographic characteristics

# Preliminary Results: survey



- 53% response rate
- 60% < 45 years of age
- 66% have worked at CHOP <10 years
- 8.5% had never received flu vaccine before
- >90% felt they had received info they needed from CHOP to make decision about flu vaccination

# Preliminary results: rationale for prior decisions



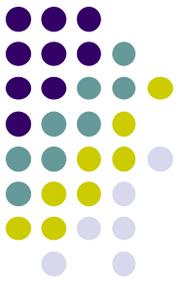
## Previously vaccinated

- Protection of self, family and patients
- Job responsibility
- Education received at work

## Not previously vaccinated

- Not being at high risk
- Fear of side effects
- Belief that vaccine is not effective

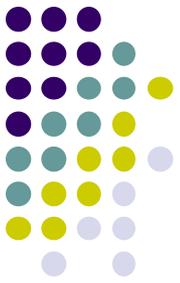
# Preliminary results: attitudes toward mandate



	CLINICAL	NON-CLINICAL
Agree with mandate	56%	41%
Intended to receive vax before mandate	80%	49%
Considered declining vax before mandate	10%	39%

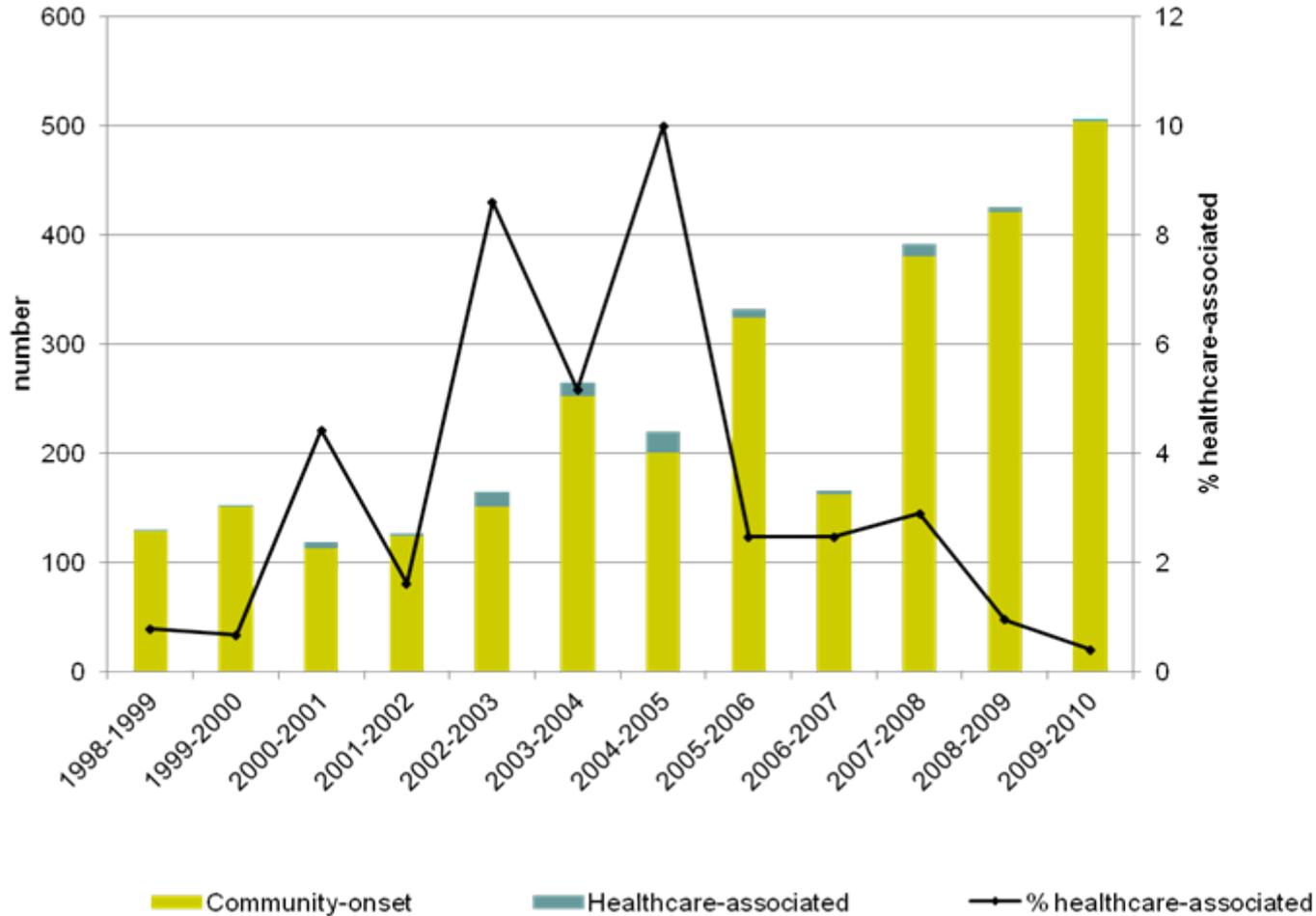
~55% of both groups agree that societal rights outweigh individual rights when it comes to vaccination

# Results: Survey

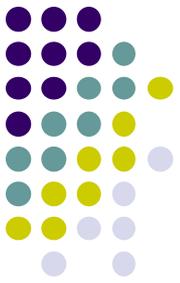


- ~85% of both groups agree that parents have an obligation to make sure their children receive recommended vaccines
- 85-90% of both groups agree with policies for requiring vaccination or screening for TB, HepB, measles, rubella and varicella

# Do Mandates Improve Patient Outcomes?



# The Team...



## Occupational Health

- Mary Cooney
- Sue Price
- Barbara Spiotto
- Karla Abdullah
- Sandy Kittell
- Kadya Hester-Bey
- Sharon Burt

▪

## ID Pharmacist

- Talene Metjian

## Department Chairs

## Infection Control

- Keith St. John
- Eileen Sherman
- Brie Alexander
- Susy Rettig
- Sarah Smathers
- Eva Teszner

## Human Resources

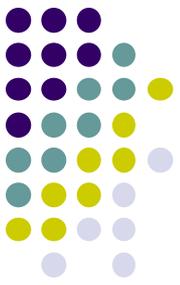
- Alex Jorgenson
- Rob Croner
- Virginia Byrd

## Senior Administration

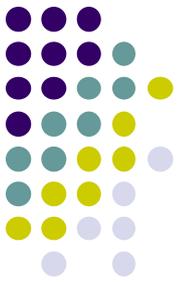


# Discussion

# History and Influencing Factors



Season	% Vaccinated	Program Changes
2004-2005	57	First formalized program; collaboration with IPC
2005-2006	69	Unit flu captains; reports by unit; voluntary declination forms
2006-2007	73	Increased leadership involvement; multi-disciplinary approach
2007-2008	90	Part of institutional strategic safety plan ; early planning, public relations; logo ,T-shirts, posters; Mandatory participation – vaccine or declination
2008-2009	92	Consequence for non-participation (performance eval) Physician leadership involvement
2009-2010	99.6	Mandatory vaccine supported by Patient Safety Committee



# Labor Relations 101

- 2 meetings to negotiate
  - Impasse declared
- Grievance filled
  - CHOP: Termination for just cause
    - “Behaviors that are detrimental to the institution
    - “insubordination”
  - Union: Breach of contract
    - Not included in negotiated contract

# Quotes from 10/26/09 negotiation:



- “You’re not making sure everyone who comes into CHOP is vaccinated.”
- “Why can’t we just wear masks all winter?”
- “No other institutions or regulatory groups support this.”
- “This discriminates against employees who have less access to educational resources on the internet.”