

# Influenza Immunization Challenge Recognition Event May 7: 1045-1130



**DR. W GARY SMITH  
PAEDIATRICIAN  
ASSOCIATE PROFESSOR  
DEPARTMENT OF PAEDIATRICS  
UNIVERSITY OF TORONTO**

# Conflict of Interest



**NONE-ALTHOUGH ALL  
PAEDIATRICIANS ARE BIASED  
TOWARDS IMMUNIZATION**

**HOWEVER I DO WANT YOU TO STAY  
AWAKE SO THERE WILL BE A QUIZ  
DURING THE TALK**

# How it began



Audit of Influenza Vaccination in the  
Regional Paediatric Asthma Clinic (RPAC)  
with comparisons of outcomes over the  
Influenza Season  
2012-2013

# Purpose



- To audit the compliance of paediatric asthma patients with Influenza Vaccination during the 2012-2013 influenza season and assess relevant asthma related outcomes

# BACKGROUND



- The recommendation for Influenza Vaccination indicates that all children > 6 months of age be immunized, specifically children with asthma are highlighted in the recommendations.
- As a routine the six paediatricians and the Certified Asthma Educators in the clinic discuss the need for influenza vaccination on each visit prior to the onset and during the influenza season.

# Method



- An audit of consecutive patients during the influenza season was undertaken.
- Specifically a preset information data sheet was used to collect information: subject number, chart number, attending paediatrician (Numbered 1-6), age in years, influenza shot received (Y/N), unscheduled ER/hospital visits (Y/N), prednisone required (Y/N), antibiotics prescribed for illness (Y/N)

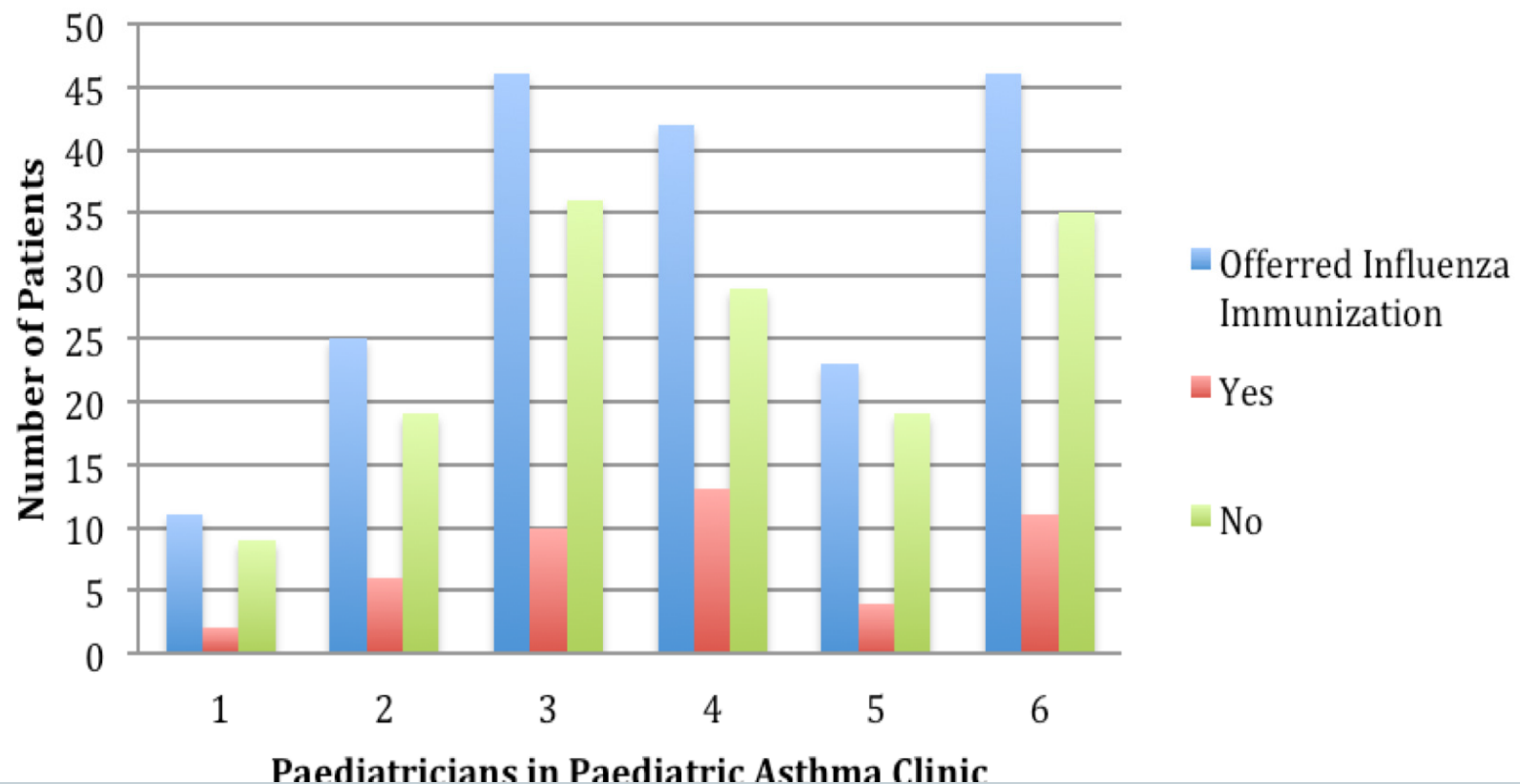
# Results



- A total of 193 patients were audited.
- Of the total, 24% received the influenza vaccination.
- Although different numbers of patients were present in each of the paediatrician's caseload the percent receiving vaccination was similar.

# Patterns of Immunization

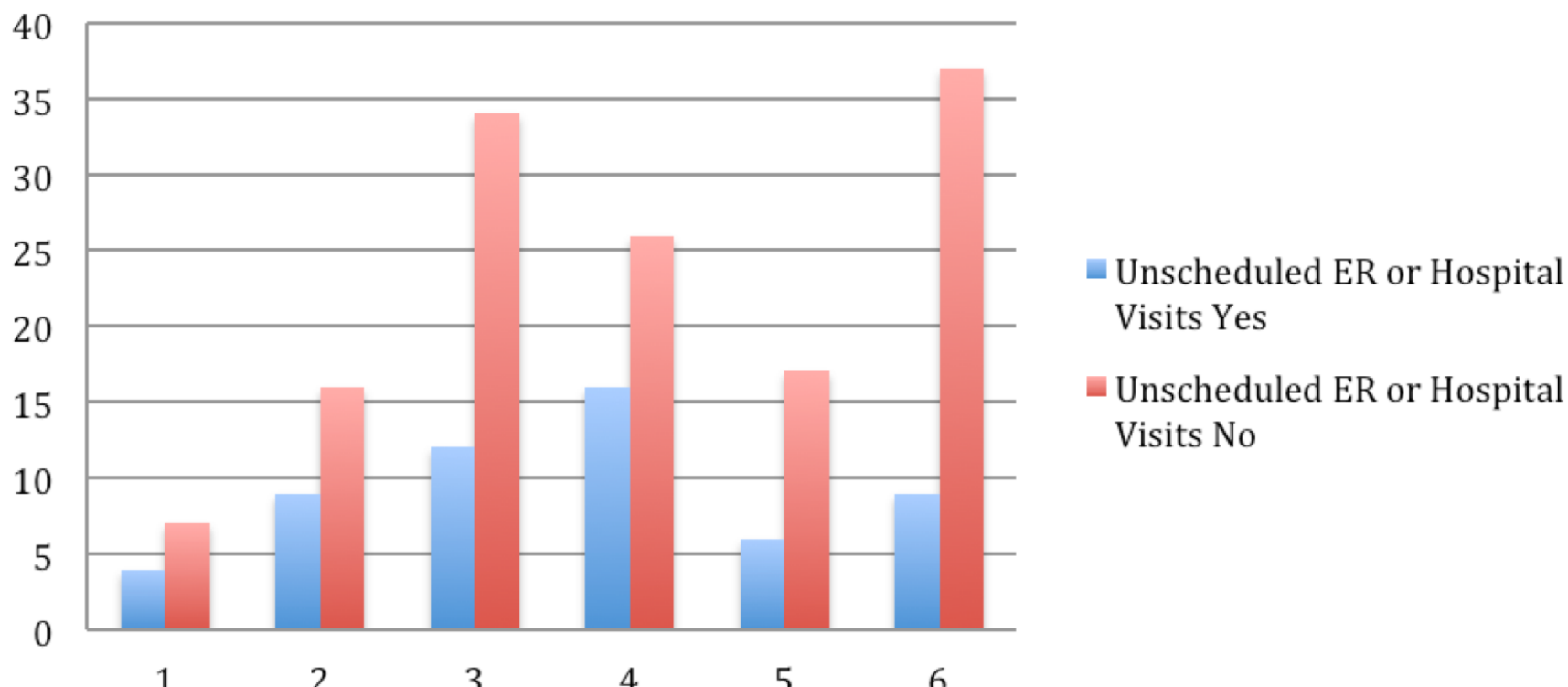
## Patterns of Influenza Immunizations in a Regional Paediatric Asthma Clinic



Unscheduled Emergency room or hospital visits were significantly higher for those who were not vaccinated

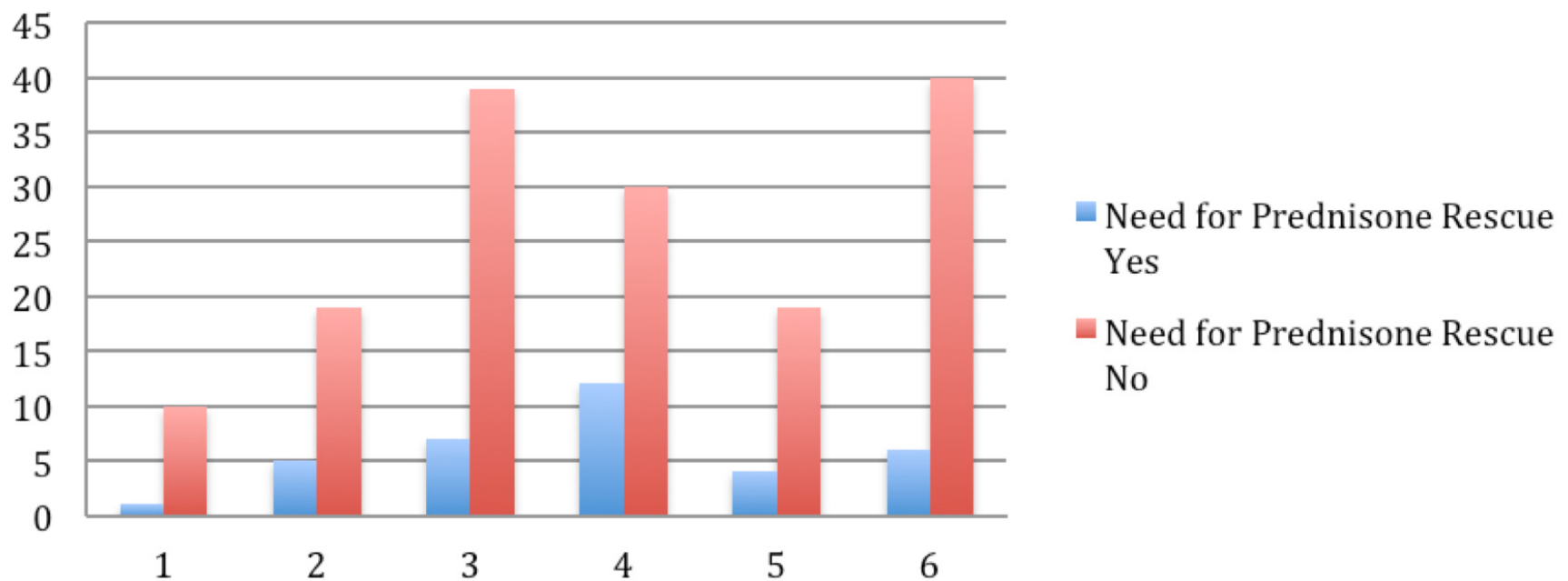


## Comparison of Vaccinated Children (YES) vs Unvaccinated Children (NO)



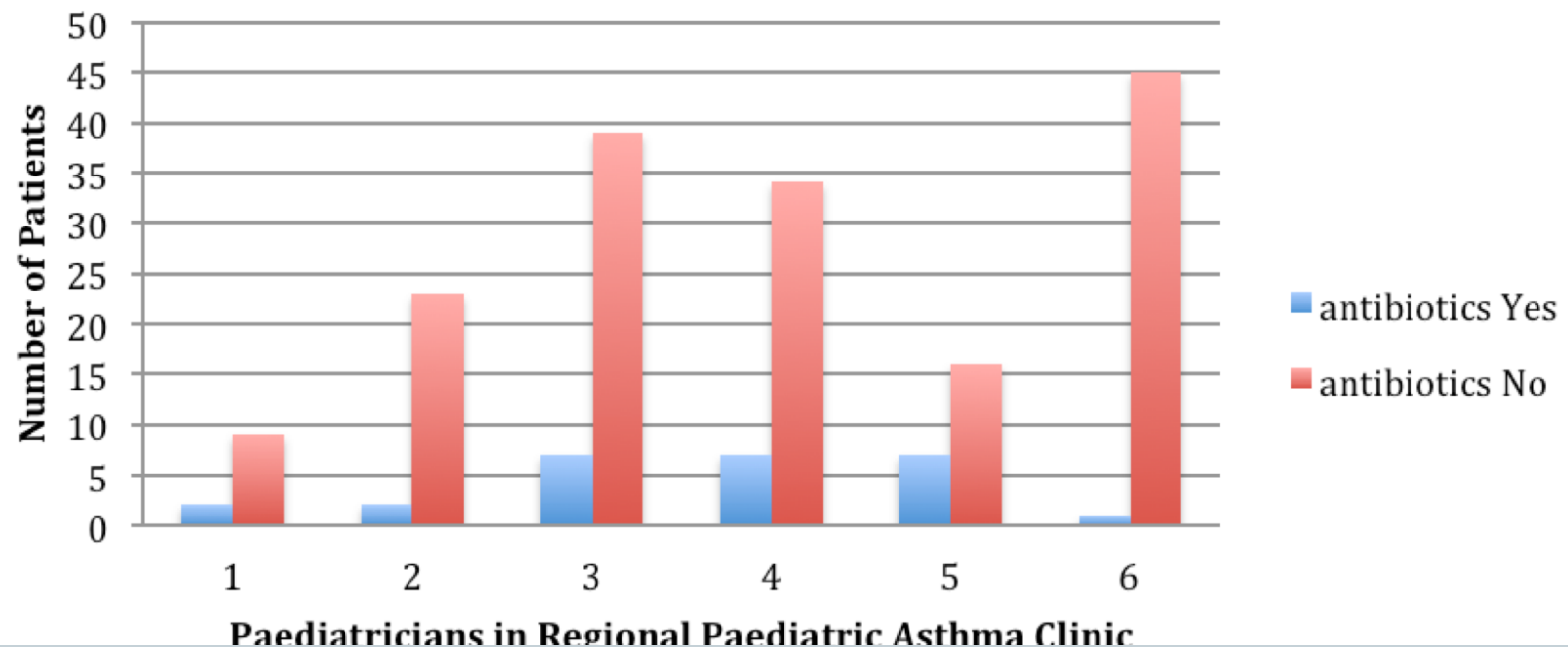
Need for Prednisone Rescue was Significantly higher in the unvaccinated population

## Need for Prednisone Rescue of Vaccinated Children (YES) vs those not Vaccinated (NO)



Finally the use of antibiotics during the influenza season was significantly lower in those children who were vaccinated.

### **Comparison of Outcome of Antibiotic Use in Influenza Vaccinated Children (YES) vs No Vaccination**



# Conclusions



- Despite significant efforts on the part of physicians and asthma educators only a small number of children in this high-risk group were vaccinated during this period of time.
- Outcome measures specifically directed towards asthma morbidity were significantly increased in the unvaccinated population.
- This led us to consider what were the barriers to influenza immunization in our hospital

# Influenza Immunization in a Community Hospital **What are the Barriers?**



W. GARY SMITH  
PROGRAM MEDICAL DIRECTOR  
(WITH ASSISTANCE FROM SUE SURRY AND  
LISA SIMON  
ASSOCIATE MEDICAL OFFICERS OF HEALTH)

# Objective



1) To survey health care workers (HCWs) in the 5 areas of the hospital that are part of medical directors portfolio:

- ◆ Did the respondent have/have not the flu vaccine
- ◆ What were their reasons for their actions
- ◆ What is their job description i.e. MD, RN, RPN clerical, other

2) Analyze themes with responses and comment

3) Present results

# Background



- Influenza affects 10-25% of Canadians each year, and 20-35% of children
- 20,000 hospitalization and 2,000-8,000 deaths/yr
- Influenza causes the highest number of deaths among vaccine preventable diseases
- Our patients are among the most vulnerable
- Vaccination protects HCWs and is the most effective way to reduce the impact of influenza among HCWs and patients
- HCW vaccination rates fall considerably below public health target of 90% (usually around 50%).

# Background



- Influenza viral infection: sudden onset of fever, headache, malaise, myalgia and cough
- Remember not all viral infections in winter are influenza i.e. I still got sick this winter even though I got the shot
- Usually children recover 3-7 days
- However: encephalitis, myocarditis, secondary bacterial infection

# The BUG



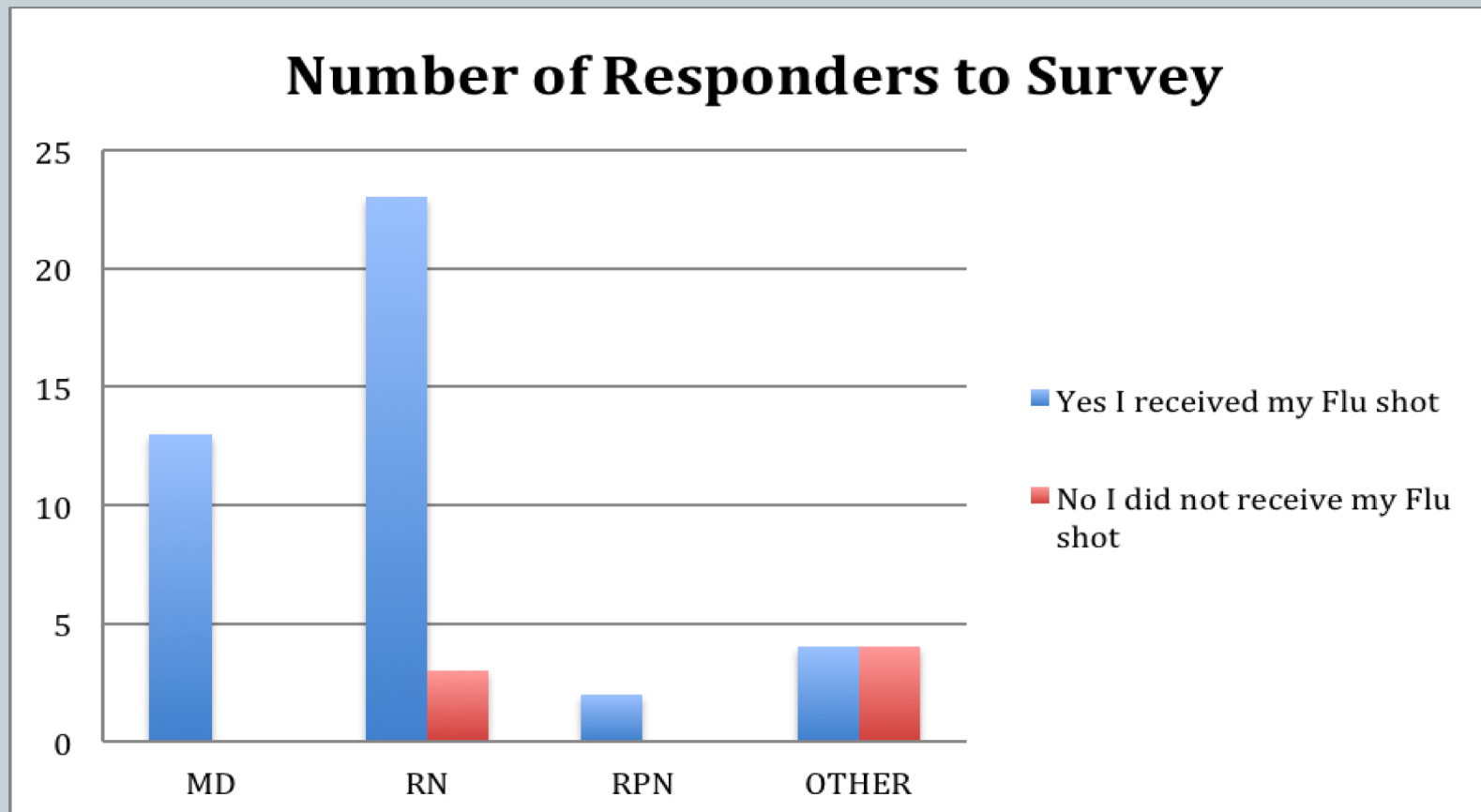
- Orthomyxovirus A,B,C
- Epidemics=A,B, both included in vaccine
- A is further classified into hemagglutinin (HA) and neuraminidase (NA) [i.e. H1N1]
- Spread by droplets(coughing, sneezing) and by droplet contaminated surfaces
- Highest attack rates in school aged children
- Infectious 24 hr prior to symptoms

# Why examine this



- Community outbreak during 2012-2013 season
- Hospital policy that any HCW who did not have vaccination needed to wear a mask
- I was surprised with how many people were wearing masks
- ?What were the barriers to getting the vaccine
- Put out ballot boxes for 10 days in each of the areas (Paeds, NICU, Obs, Psych and MD mailbox area)
- Information was anonymous, no identifying information except profession

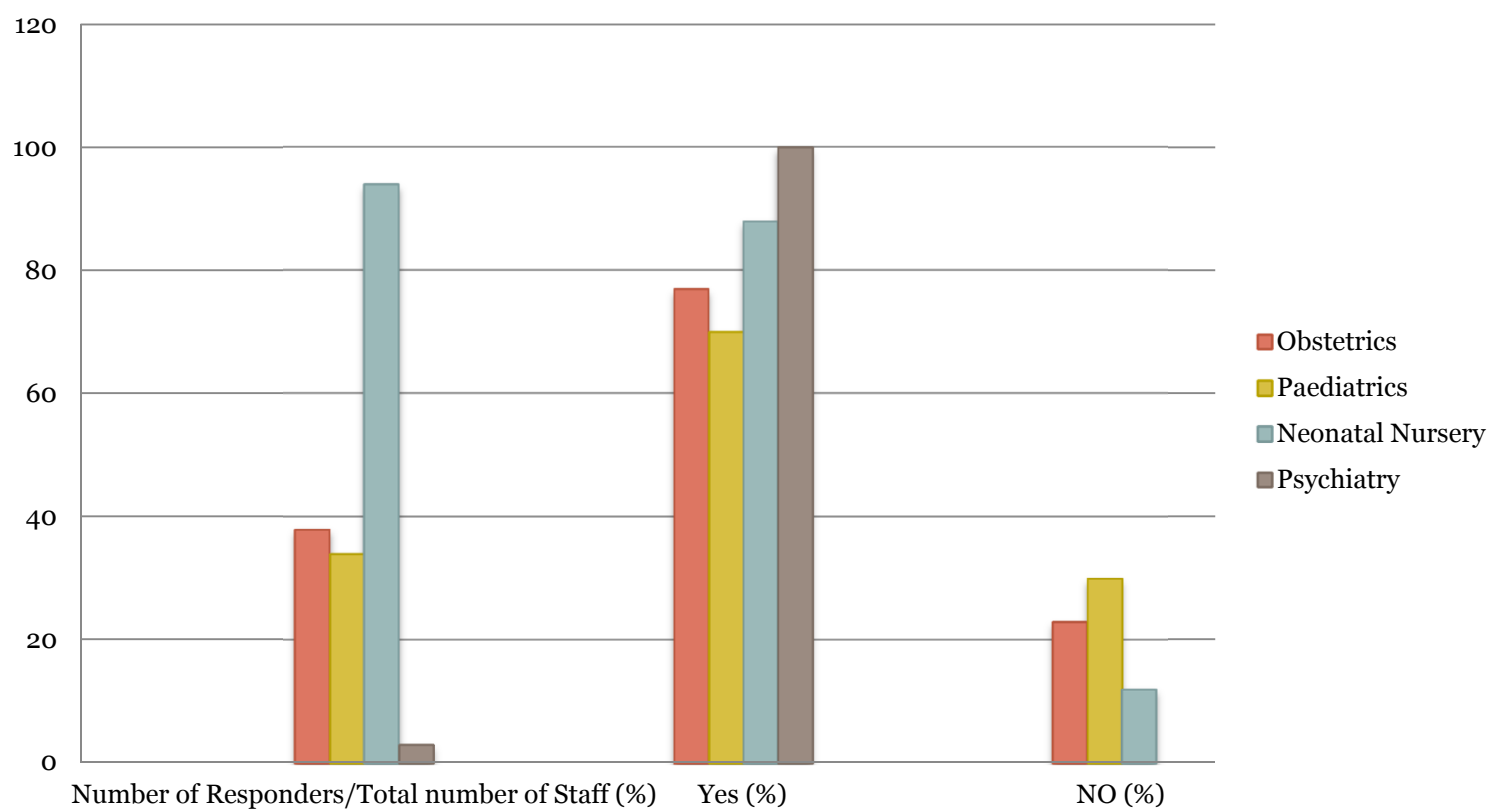
# What did we find



What we found- in all areas the number of responders who received their vaccination ranged from 70%-100%



### Survey Results in Program Areas



## OSMH Influeza Vaccination Data 2012/2013

12-Aug-13

Department Name	Total Number of Staff	Staff Vaccinated	Percent
OBS	38	22	57.89%
NICU	18	17	94.44%
Paediatrics	21	15	71.43%
Psychiatry	34	23	67.65%

# Yes Themes



- Protect myself, my family and my patients
- Having seen patients with Influenza –I don't want it
- Got it because I don't want to wear mask
- Was bullied/pressured to get shot by hospital

# Bullied?



- Definition: Bullying may be defined as the activity of repeated, aggressive behavior intended to hurt another person, physically or mentally
- According to the Workplace Bullying and Trauma Institute- workplace bullying is "repeated, health-harming mistreatment, verbal abuse, or conduct which is threatening, humiliating, intimidating or sabotage that interferes with work, or some combination of the three"
- Mask wearing was not meant to be punitive rather was another measure to protect patients
- Hard to place a request for protection of patients in the arena of bullying

# No Themes

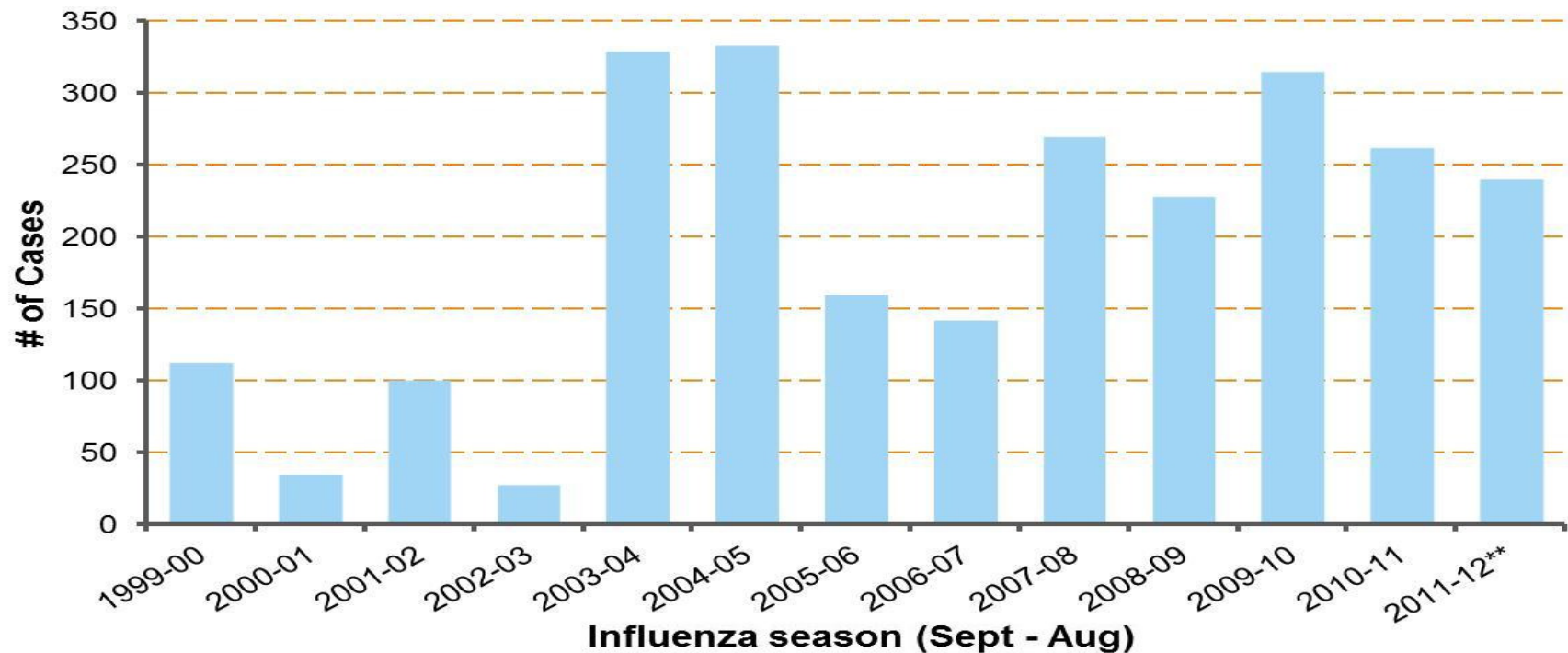


- Three main areas:
  - ◆ Not worried about getting the flu
  - ◆ Worried about what is in the flu shot
  - ◆ Philosophically object to process

# No Themes- Not Worried about getting Influenza



**Number of Influenza Cases\* in  
Simcoe Muskoka, 2000-2012**



Data Sources: Integrated Public Health Information System (iPHIS), extracted June 2012

\* Confirmed Cases

\*\*2011-2012 cases are from Sep 1, 2011 - May 29, 2012

# No Themes- Not Worried about getting Influenza



- In Canada in 2012-2013 it is estimated that 31,000 people got the flu
- Estimated deaths in Canada is 4,000 per year
- Healthy people die of the flu and children are most vulnerable
- The body cannot naturally protect against the various strains of Influenza that come out seasonally

## No Themes-

# Worried about what is in the vaccine



- **People get the flu from the vaccine:** The trivalent flu shot is an inactivated, killed, non-infectious virus and therefore cannot give you the flu.
- **Egg Allergy:** the flu vaccine is grown in embryonated chicken eggs and contains residual amounts of ova-albumin (<1.2mcg/ml)
- Recent study+American College of Allergy + American Academy of Paediatrics + NACI indicates that even anaphylactic to egg children can have the vaccine but should be observed for 30 min post injection

# No Themes (continued)



- **Risk of Alzheimers:**
  - Most formulations contain trace amounts of formaldehyde—remember that the human body also has formaldehyde—an infant's body has 10 times the amount that is in the vaccine
  - Concern linked to Thimerasol
  - WHO and others= no risk
  - Note thimerasal contains ethyl mercury, not methyl mercury
  - Thimerasol phased out of vaccines in USA to quell public concern
  - Canadian study showed a reduced risk of Alzheimers with Flu vaccine


## NO themes (Continued)



- **Risk of Guillain Barre Syndrome:**
  - Annual incidence is 1-2.3/100,000 people
  - Has been linked to infectious triggers (including influenza infection)
  - Risk with influenza infection = 4-7 cases/100,000 influenza Infections
  - Has been associated with vaccination especially 1976 swine flu vaccine
  - Risk of GBS following influenza infection is 40-70 x greater than the postulated risk following vaccination

# NO Themes

## Philosophically Object to Process



- **Don't want foreign chemicals in my body:**
- Children can respond to about 10,000 different antigens at any one time
- Bacteria and viruses expose a child to large numbers of antigens at once—far more than are found in vaccines.
- We routinely ingest foreign material which is absorbed into our bodies i.e. coffee=sugar,cream,sweetener, caffeine.  
A personal anecdote –scotch –single malt from the foreign land of Scotland

However I understand that for many this is a belief .(**Belief** is the psychological state in which an individual holds a conjecture or premise to be true.). Beliefs cannot be changed with knowledge transfer

## NO Themes (continued)



- **Shot is not good enough:**
  - Efficacy and effectiveness of vaccine in children is 59-82%
  - Vaccination of HCW decreases morbidity and all cause mortality among patients
- **Physicians recommend against it:**
  - The author spoke to the physician who was identified. This physician does not advise against the shot—he merely discusses the issue that the shot is at times not that effective depending on the match. He has absolutely no safety concerns

# No Themes Continued



- **Had recent unknown autoimmune disease and am wary:**

A reasonable precaution until etiology is evident

- **Long Term safety risks:**
  - No identified risks long term from vaccines and specifically none from Influenza

# National Advisory Committee on immunization (2013)



- “In the the absence of contraindications, refusal of HCW’s who have direct patient contact to be immunized against influenza implies failure in their duty of care to patients”