



USC University of  
Southern California

# PEDIATRIC INPATIENT IMMUNIZATIONS

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Text **ALEXANDRAMIH928** to **37607**

## CONSISTENCY IS MAGIC!

The power to prevent cancer is in your hands!

HPV vaccination increases 5-fold in August at the peak of back-to-school appointments. It's time to put as many young people as possible on the path to lifelong prevention of HPV cancers.



EVERY MISSED VACCINATION  
IS A MISSED OPPORTUNITY TO STOP  
THE SPREAD OF PREVENTABLE  
DISEASE

#vaccineswork #immunizeEurope



European  
Immunization  
Week  
Prevent. Protect. Promote.



World Health  
Organization  
REGIONAL OFFICE FOR  
Europe

## Have you given a vaccine to a child while they were admitted to the hospital?

Yes **A**

No **B**

Maybe once? **C**

I don't work at a hospital,  
but I support this practice **D**

- Lower rates of vaccination coverage
- Hospitalization = risk factor for underimmunization
- Reduce disparities
- Vulnerable populations
- Barriers to outpatient immunization



- PubMed, Embase, Web of Science
- Keywords:
  - Vaccination
  - Hospitalization
  - Pediatric
  - Opportunistic
  - Quality improvement
- Themes:
  - Vaccination status
  - Accuracy of vaccine histories
  - Interventions
  - Barriers



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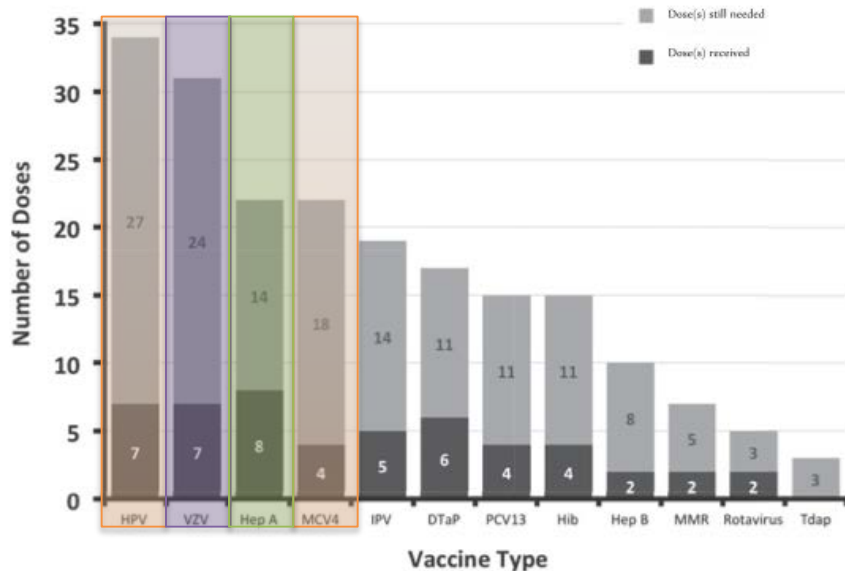
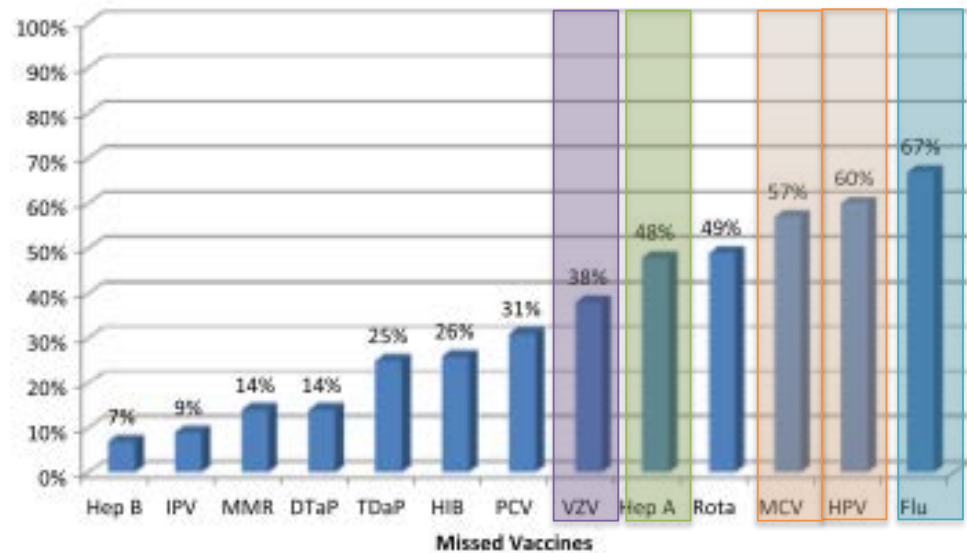
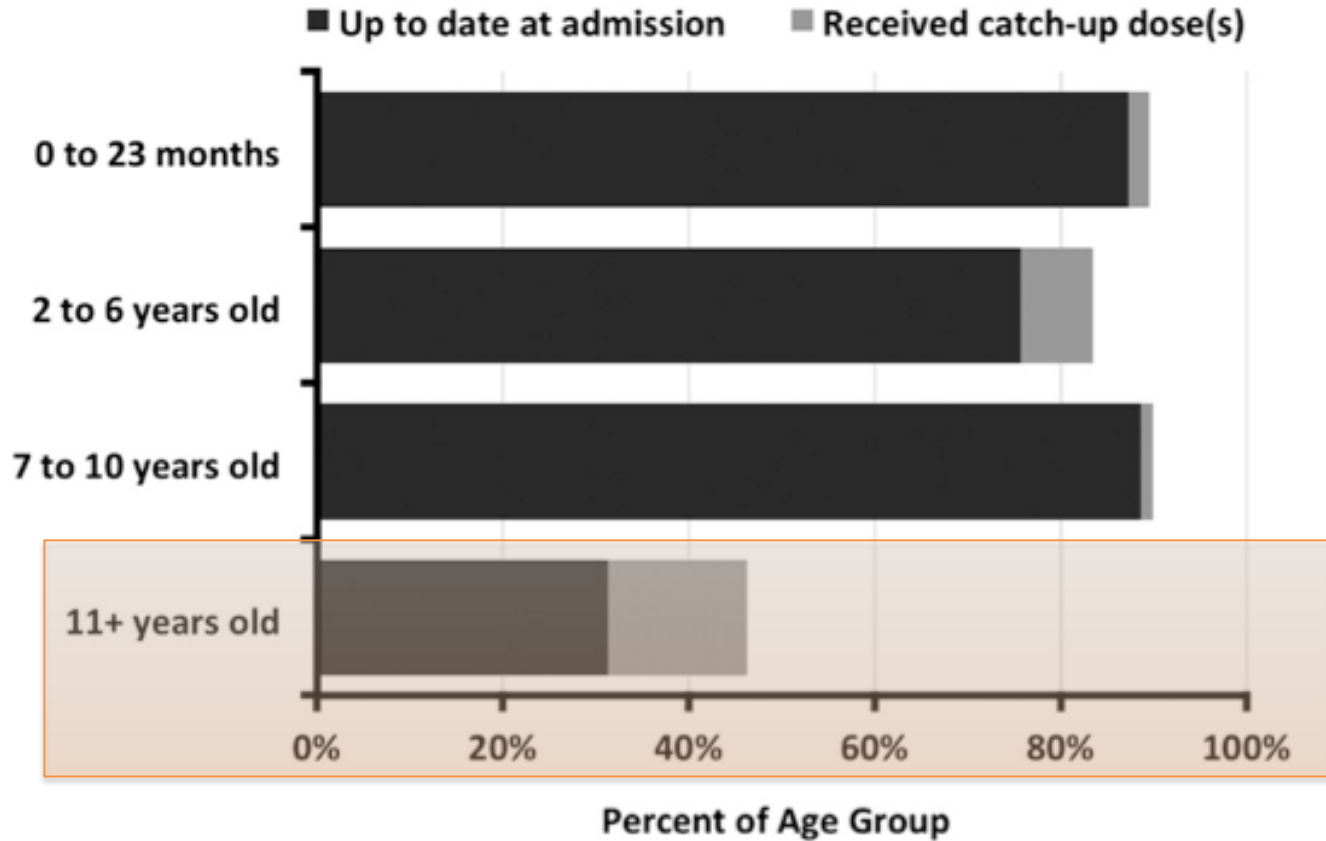


FIGURE 3 Number of catch-up doses needed ( $n=200$ ) at admission and at 1-month follow-up by vaccine type among 95 children found to be underimmunized per ACIP guidelines.





**FIGURE 2** Immunization status of children per ACIP guidelines by age group ( $n = 356$ ) pre- and postintervention.

- Factors associated with lower vaccination coverage:
  - Ethnic minority groups
  - Lower socioeconomic status
  - Self-pay patients
  - Male gender
  - Lack of daycare attendance
  - History of prior missed opportunity to immunize
  - Lack of transportation
  - Increasing age
- Missed influenza vaccine opportunities

- Documentation: 63-99%
  - Full immunization history:  
~1.5%
- Discrepancy with parental report
- Interventions:
  - Staff education
  - Visual admission form
  - Routine printing of official vaccine records

**IMMUNIZATION RECORD**  
*Comprobante de Inmunización*

THE GREAT SEAL OF THE STATE OF CALIFORNIA  
EUREKA

Name  
nombre

Birthdate  
fecha de nacimiento

Allergies  
alergias

Vaccine Reactions  
reacciones a cualquier vacuna

RETAIN THIS DOCUMENT — CONSERVE ESTE DOCUMENTO

- Single centers
- Quality improvement/pilot studies
- Strategies
  - Verify records + offer vaccines
  - Visual reminders
  - Staff education
  - Routine printing of official records
  - Catch-up plans
  - Inpatient vaccine counseling
  - Immunization champion



Figure. Comparison of the immunization status of 2006 hospitalized 0 to 2-year-old children at the time of admission and on discharge. ( $P < .0001$  for the difference between the immunizations age appropriate category between admission and discharge).

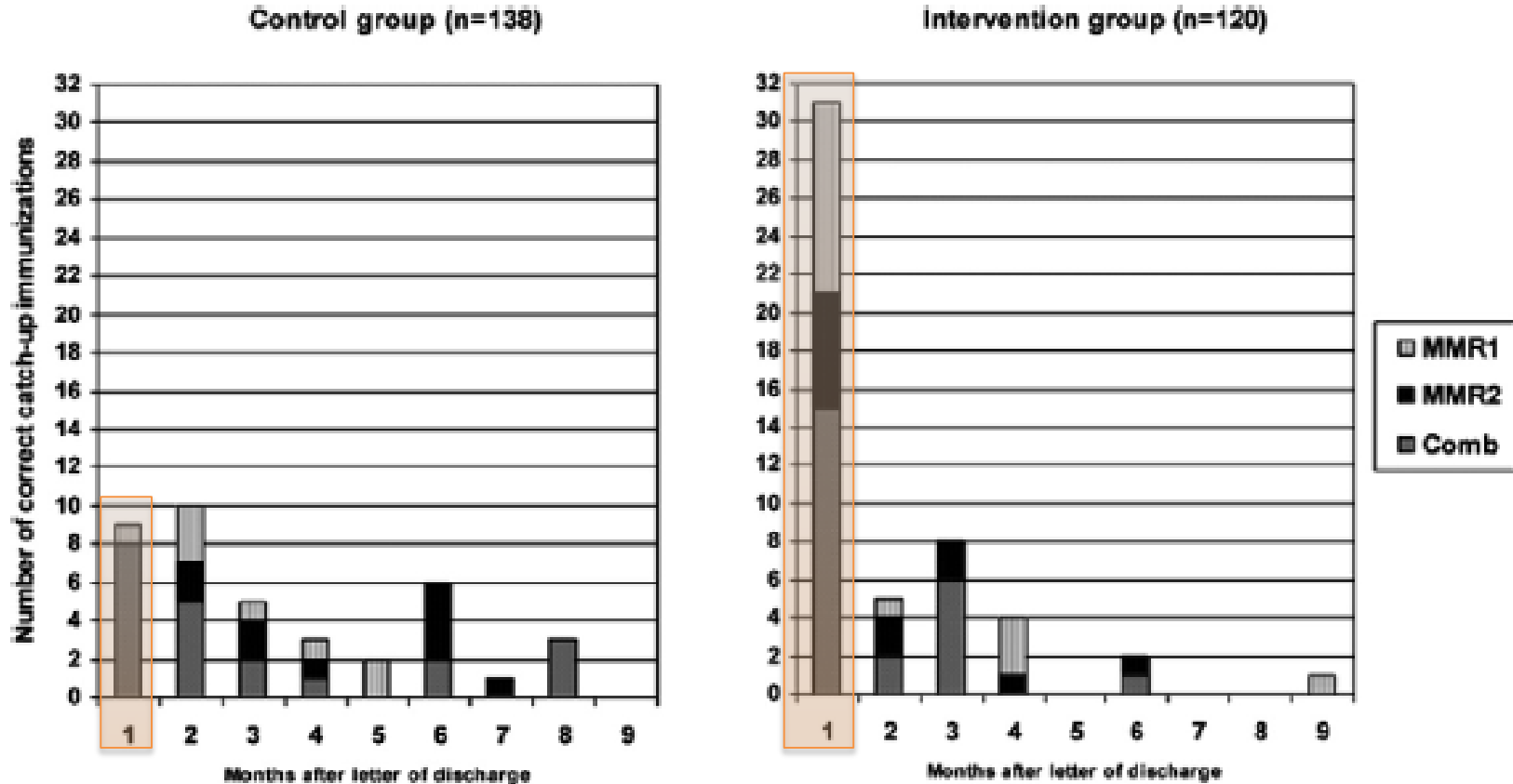


Figure 2. Comparison of catch-up immunizations performed in control and intervention study groups by month after discharge letter had been sent.

Muehleisen B et al. Assessment of immunization status in hospitalized children followed by counseling of parents and primary care physicians improves vaccination coverage: an interventional study. *J Pediatr.* 2007;151(6):704-706, 706.e701-702.

- Influenza
  - Provider reminders
  - Family education
  - EMR prompts
  - Nurse driven screening/ordering
  - Admission order set
- Pneumococcal





## Influenza Vaccination Screening

Does the patient have any reasons for not receiving the influenza vaccine today?

- Yes  
 No

Reason not to give vaccine today:

- Less than 6 months old  
 Allergic to eggs or flu vaccine  
 History of Guillain-Barre syndrome  
 Has a current temp >38.5 degrees  
 Scheduled for surgery within 48 hours  
 Already vaccinated  
 Heme/Onc/SCCA patient

Are parents interested in vaccinating their child for influenza?

- Yes  
 No

Vaccine refusal reason:

- Prefers to receive vaccine elsewhere  
 Parent thinks vaccine is unnecessary  
 Parent has concerns about vaccine  
 Wants to wait

### Meets Criteria?

A patient meets criteria if ALL of the following are met:

- No contraindications AND
- The parent or caregiver agrees to vaccination AND
- The patient needs either their first or second dose of the season (see right)

Does the patient meet criteria to receive an influenza vaccine today?

- Yes  
 No

### Request Vaccine Type Inactivated (IM) or Live (Intranasal)

Children SHOULD NOT receive the live intranasal influenza vaccine if they meet ANY of the following conditions:

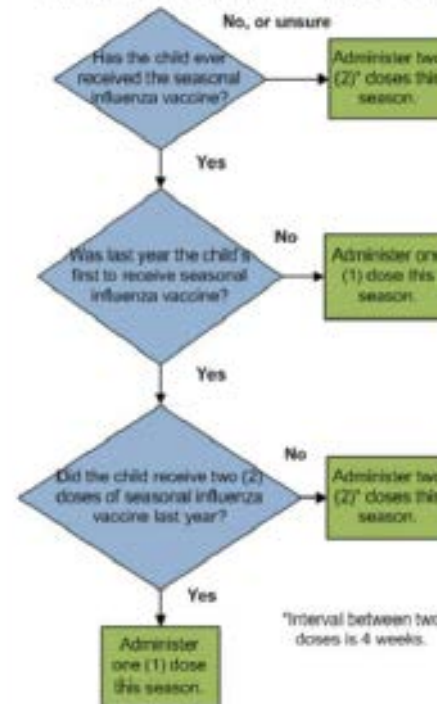
- LESS THAN 2 years of age
- Has a medical condition that places them at high risk for complications from influenza, including those with chronic heart or lung disease, such as asthma or reactive airways disease; people with medical conditions such as diabetes or kidney failure; or people with illnesses that weaken the immune system, or who take medications that can weaken the immune system
- LESS THAN 5 years old with a history of recurrent wheezing within the past 12 months
- Receiving aspirin
- Has certain muscle or nerve disorders (such as seizure disorders or cerebral palsy) that can lead to breathing or swallowing problems
- Has received a live vaccine in the past 4 weeks

Which vaccine would the patient prefer?

- Inactivated, IM  
 Live, intranasal

### Number of 2011-2012 Seasonal Influenza Vaccine Doses Recommended for Children

Infants under 6 months: No vaccine  
Children 6 months through 8 years: See algorithm below  
Children 9 years of age and older: One (1) dose only



## BARRIERS

- Accurate vaccine history
- Time constraints
- Formal policies
- Staff/physician knowledge
- Vaccine supply
- Forgetting
- Provider buy-in
- Concern about parental refusal

## STRATEGIES

- Nursing staff
- Standardized screening forms/workflow
- EMR integration with vaccine registries
- Staff education
- Partnerships with VFC

- Current practices
- Cost/benefit
- Provider attitudes
- PCP coordination
- Multicenter studies
- Next CIC summit?



- Opportunity to vaccinate in inpatient setting
- Vulnerable patient groups
- Strategies identified
- Further research needed





QUESTIONS?

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