

# Effectiveness of Hospital-Based Procedures on Postpartum Vaccination with Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis (Tdap) and Seasonal Influenza (sTIV)

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## BACKGROUND

- Pertussis and influenza are associated with significant morbidity and/or mortality for pregnant women and young infants.
- Since 1995, influenza vaccine (sTIV) has been recommended during pregnancy, but uptake had been < 25% through 2008.
- Since 2006, Tdap has been recommended for household contacts of infants, including postpartum mothers; however, coverage has not exceeded 5%. Due to the recent pertussis epidemic, Tdap is now recommended in the 2<sup>nd</sup> and 3<sup>rd</sup> trimester.
- For women who have not previously been immunized, the postpartum period (PP) may be the optimal time to provide sTIV and Tdap to provide protection to mothers and their young infants.

## METHODS

- From Oct 2009 to Jul 2010, prospective, controlled evaluation of PP Tdap and sTIV vaccination at two private Los Angeles community hospitals with >2000 births/year.
- Hospital A (HspA), physician opt-in orders for Tdap and sTIV vaccination before discharge were implemented Nov 2009, followed by standing orders in Feb 2010.
- Hospital B (HspB), no formal intervention policy
- Randomly selected hospital charts reviewed for receipt of Tdap and sTIV and demographic data.
- Multivariate analyses evaluated characteristics associated with sTIV vaccination pre-delivery and PP

## RESULTS

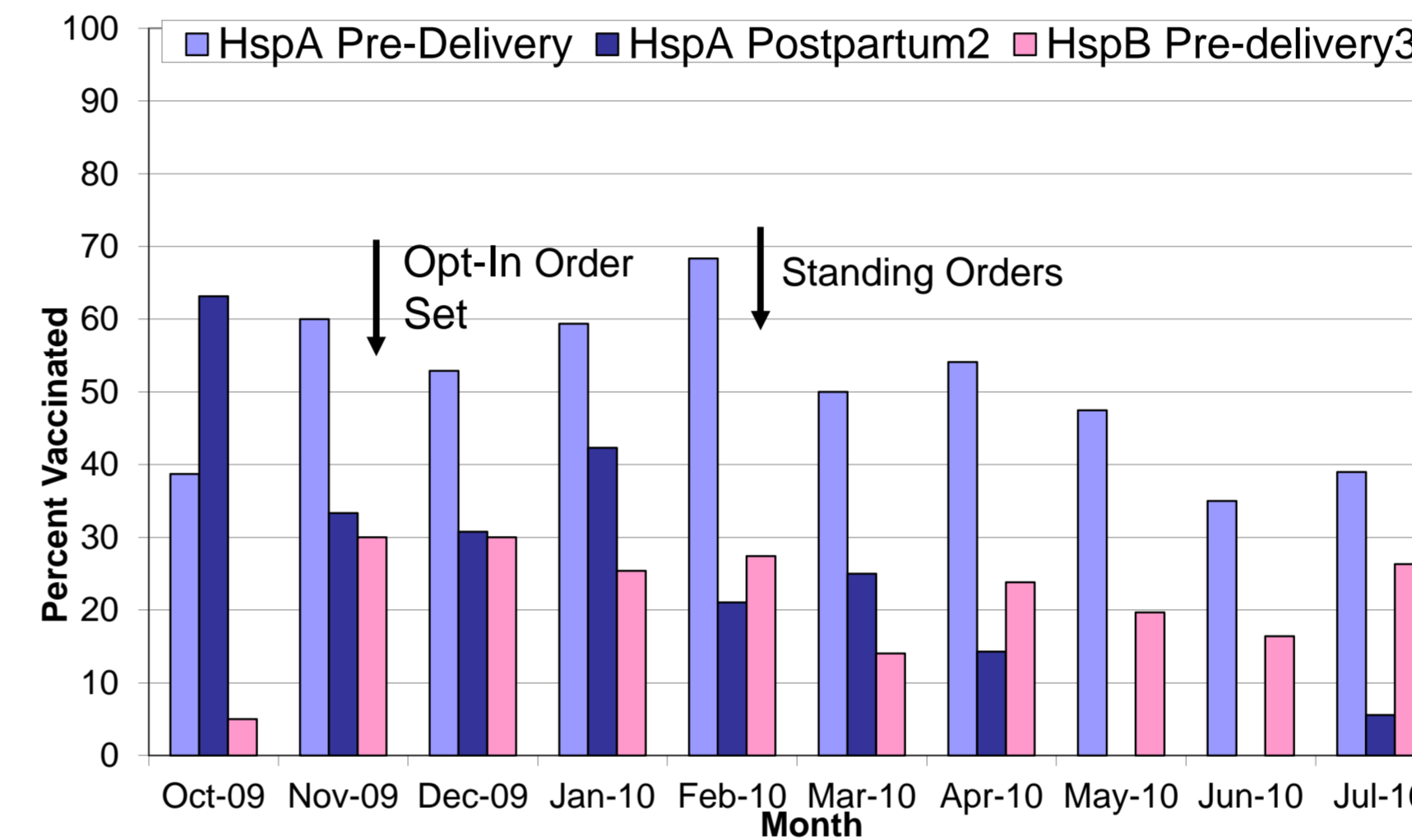
**Table 1 - Demographics Characteristics & Vaccination Coverage of PP Mothers**

	HspA	HspB
<b>DEMOGRAPHICS</b>	<b>n (%)</b>	<b>n (%)</b>
<b>Ethnicity, N*</b>	641	602
Hispanic**	113 (17.6)	180 (29.9)
<b>Race, N*</b>	638	599
White**	461 (72.3)	383 (63.9)
Black	70 (11.0)	85 (14.2)
Asian**	82 (12.8)	107 (17.9)
Pacific Islander**	17 (2.7)	23 (3.8)
American Indian	1 (0.2)	0 (0)
Other	7 (1.1)	1 (0.2)
<b>Insurance, N*</b>	637	604
HMO	231 (36.3)	192 (31.8)
PPO	264 (41.4)	224 (37.1)
MCA/MED1**	105 (16.5)	155 (25.7)
Other-including self-pay	37 (5.8)	33 (5.5)
<b>VACCINATION COVERAGE</b>	<b>n/N (%)</b>	<b>n/N (%)</b>
	<b>[95% CI]</b>	<b>[95% CI]</b>
<b>Tdap</b>		
Proportion Vaccinated PP of those eligible <sup>2</sup>	153/610 (25.1) [21.7-28.7]	N/A <sup>4</sup>
Overall <sup>3</sup>	184/658 (27.8) [24.6-31.6]	N/A <sup>4</sup>
<b>Seasonal Influenza</b>		
Proportion Vaccinated PP of those eligible <sup>2</sup>	70/313 (22.4) [17.9-27.4]	0
Overall <sup>3</sup>	407/658 (61.9) [58.0-65.6]	132/606 (21.8) [18.6-25.3]

\*Total number of charts varies by category as not all information available. Charts with specific data unavailable are not included.  
 \*\*p<0.05  
 1 MCA/MED – Medi-Cal or Medi-Caid  
 2Eligible patients had not yet received the vaccine and had no contraindications  
 3Overall includes patients who receive vaccine prior to delivery and those who were vaccinated in the hospital  
 4Pre-delivery vaccination data for pertussis not available/reported at Little Company of Mary

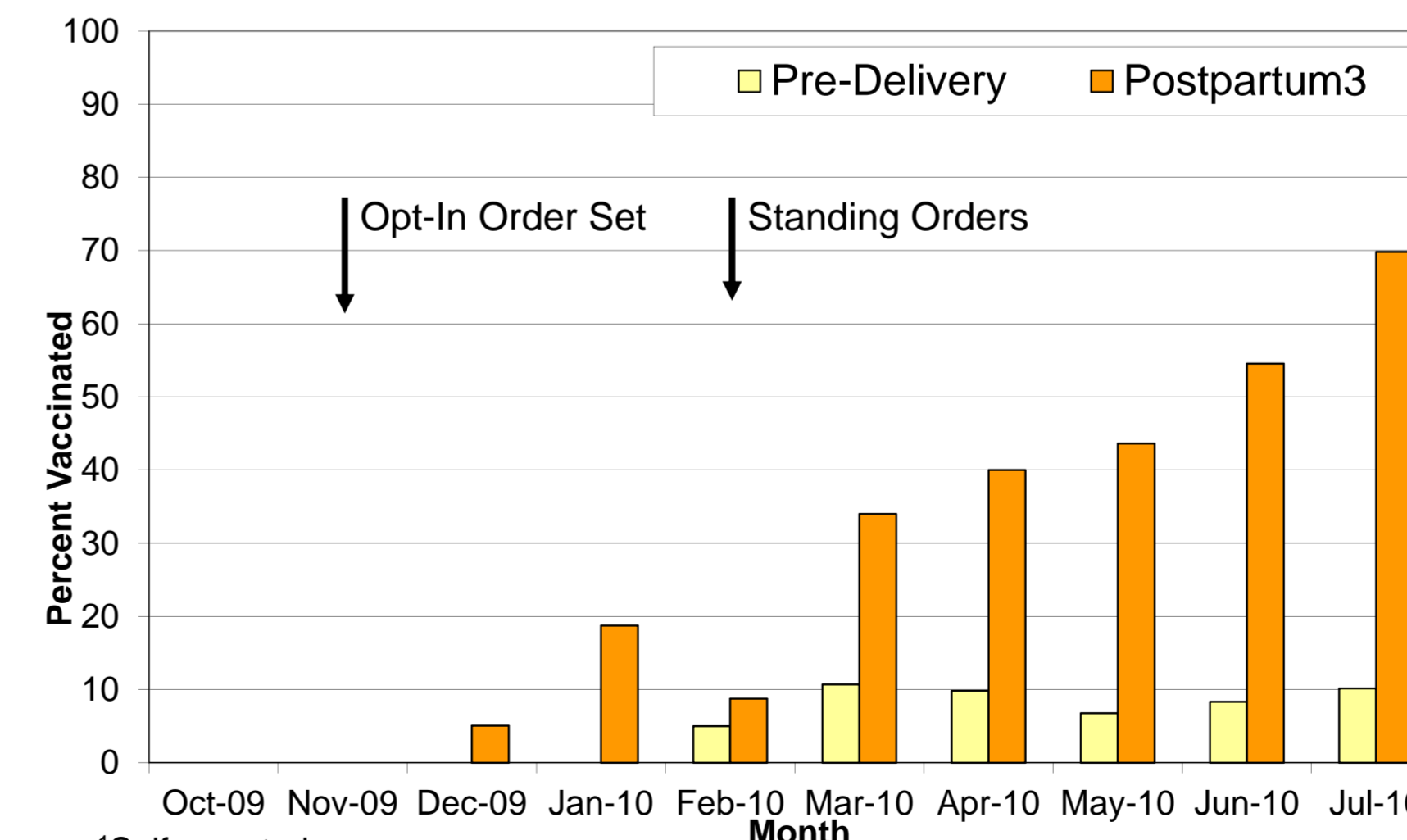
## RESULTS (con't)

**Figure 1. Proportion of PP Mothers with Pre-Delivery<sup>1</sup> or Postpartum sTIV Receipt, HspA vs HspB**



<sup>1</sup>Self-reported  
<sup>2</sup>of those eligible (not previous received influenza during pregnancy)  
<sup>3</sup>At HspB, no vaccine given postpartum

**Figure 2. Proportion of PP Mothers with Tdap Pre-delivery<sup>1</sup> and Postpartum Receipt at HspA<sup>2</sup>**



<sup>1</sup>Self-reported  
<sup>2</sup>At control hospital (HspB), no documentation of pre-delivery Tdap available and no postpartum Tdap was given.  
<sup>3</sup>of those eligible (no reported prior receipt of Tdap before delivery)

## RESULTS (con't)

**Table 2 –Demographic Characteristics and Pre-Delivery Vaccination with sTIV Among PP Mothers**

Characteristic (N)	Vaccinated n (%)	Adjusted OR <sup>1</sup> [95%CI]
<b>Hospital Site</b>		
HspA (658)	337 (51.2)	-----
HspB (606)	132 (21.8)	0.3 [0.2-0.4]
<b>Ethnicity/Race</b>		
White (570)	238 (41.8)	-----
Hispanic (284)	87 (30.6)	1.4 [0.9-2.0]
Black (155)	38 (24.5)	0.6 [0.4-1.0]
Asian (189)	77 (40.7)	1.0 [0.7-1.5]
<b>Insurance<sup>1</sup></b>		
HMO (423)	172 (40.7)	-----
PPO (488)	198 (40.6)	0.9 [0.7-1.3]
MCA/MED (260)	57 (21.9)	0.5 [0.3-0.8]

<sup>1</sup>adjusted for other factors in this table  
<sup>2</sup>HMO- Health Maintenance Organization, PPO-Pay Per Office Visit, MCA/MED- Medi-Cal/Medicaid

## CONCLUSIONS

- Hospital-based policies were effective in improving Tdap administration postpartum
- Greater impact was observed with standing orders compared to opt-in orders
- Intervention hospital more effective than control in overall pre-delivery and postpartum sTIV administration
- No apparent impact of hospital procedures on postpartum sTIV administration
- Higher than expected sTIV administration rate during pregnancy (pre-delivery)
- Media attention to 2009 influenza pandemic may be contributing factor
- Lower pre-delivery sTIV administration associated with hospital site and Medi-Cal insurance
- Hospital-based policies for postpartum vaccination may minimize barriers to immunizations.