Healthcare Organization Commitment

### Contact Details

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### Commitment Details

**Commitment Name**  
Maximize Maternal Immunization

**Participants**  
KuoJen Tsao, MD  
Dr. Rahul Gupta, MD, MPH, MBA, FACP

**What Patient Safety Challenge does your Commitment address?**

**Commitment Start Date**
How Many Hospitals Will This Commitment Represent
0

Action Plan
Critical elements include Nurse Vaccine Champions (NVCs) trained in Motivational Interviewing (MI) who can meet with mothers who refuse vaccination, and integration across all areas of opportunity for immunization, including the prenatal clinics, postpartum unit and NICU. Over the past 2 years, a team led by Susan H. Wootton, M.D. at UTHealth has been working to improve maternal vaccinations rates against pertussis and influenza. Starting in July 2014, with funds from UT System Quality Improvement Grant, a multicomponent intervention incorporating standard vaccine screening, electronic tasks tied to standing vaccine orders, and stakeholder reports summarizing vaccination rates have been initiated across three arenas of maternal/infant care: 1) UT prenatal clinics (n=3); 2) Memorial Hermann Hospital (MHH) postpartum unit (~400 deliveries/month); and 3) MHH NICU (80 admissions/month). In addition, designated nurse leaders from all sites (prenatal, postpartum and NICU) were trained as NVCs in MI to meet with mothers who refused vaccination. Tdap vaccination rates of eligible postpartum women (i.e., had not already received prenatally) increased from 0% to 60%. Moving forward, efforts will focus on: 1) optimizing timing of maternal vaccine delivery; and 2) increasing influenza and pertussis vaccination rates to our goal of 90%. As of now, only 30% of our postpartum mothers receive Tdap during pregnancy and only 40% receive the influenza vaccine during pregnancy. In addition to NVCs and the processes described above, we will generate examples of standard operating procedures (SOPs) that can be replicated in other sites and barriers to vaccines so that these can be anticipated and overcome in other sites. We know from previous experience with patient safety initiatives that checklists will be critical and will need to be part of the SOPs. Examples of barriers include availability of Tdap and influenza vaccines in all of the settings and lack of knowledge regarding billing codes. Progress toward the goal of full medically appropriate compliance will include reporting of progress to the local perinatal practice community and most importantly the NVCs. To expand this nationally will require an organizational champion, such as the Patient Safety Movement. Our goal is to promote this initiative nationally so that maternal immunization in pregnancy will become a national perinatal safety practice, and lack of maternal immunization will be recognized as a medical error.

Commitment Timeline

Impact Details

Lives Lost in Last Calendar Year
0
How many lives do you expect to spare from harm in the next calendar year?
0

How many lives do you expect to save in the next calendar year?
0

Methodology for Determining Lives Saved
We estimate in the following manner the number of stillbirths to women unvaccinated for influenza that could be averted if 100% of U.S. pregnant women would be vaccinated. The number of stillbirths in 2013 determined by the CDC’s National Center for Health Statistics fetal death data is 23,595 [MacDorman MF et al., 2015]. We estimate that ¾ of pregnancies are to women who are pregnant during the four month flu season and that the number of stillbirths will be proportionate to the number of women pregnant during flu season; therefore, 0.75 of 23,595 stillbirths will be the number of stillbirths to women pregnant during flu season, which is 17,696. We assume that vaccination coverage for women undergoing stillbirth is equal to that for all women or 49.7% unvaccinated [Ding H et al., 2015]; therefore, the number of stillbirths to unvaccinated women would be .497 of 17,696 or 8,795. Regan et al. showed that stillbirth was 51% less likely among vaccinated versus unvaccinated women [Regan AK et al., 2016], and therefore the risk reduction of .51 multiplied times 8,795, the number of stillbirths to unvaccinated women would be 4,485 or approximately 4,500 potential stillbirths averted if 100% of pregnant women would be vaccinated against seasonal flu in the U.S. The available data do not allow us to calculate the absolute number of patients that would be spared harm per year from pertussis by this commitment. However, it has been shown that maternal vaccination during pregnancy protects against hospitalization in neonates with pertussis and results in shorter hospital stays, fewer ICU admissions, less intubation and death [Winter K et al., 2016]. When the investigators controlled for variables in the babies including age, race/ethnicity, and onset (year), maternal immunization with Tdap continued to have a protective effect against hospitalization (OR 3.3), showing a significant protection relative to the offspring of mothers who were not immunized with Tdap during pregnancy. References: MacDorman MF, Gregory EC. Fetal and perinatal mortality: United States, 2013. Natl Vital Stat Rep 2015;64(8):1-24. Ding H, Black CL, Ball S, et al. Influenza vaccination coverage among pregnant women — United States, 2014-15 influenza season. MMWR Morb Mortal Wkly Rep 2015;64(36):1000-5. Regan AK, Moore HC, de Klerk N, et al. Seasonal trivalent influenza vaccination during pregnancy and the incidence of stillbirth: population-based retrospective cohort study. Clin Infect Dis 2016;62(10):1221-7. Winter K, Harriman K. Impact of Maternal Tdap Vaccination During Pregnancy on Infant Pertussis Severity [poster abstract]. Available at: https://idsa.confex.com/idsa/2015/webprogram/Paper52424.html. Accessed May 31, 2016.