Text4baby as a Surveillance Tool for Influenza Vaccination

Overview

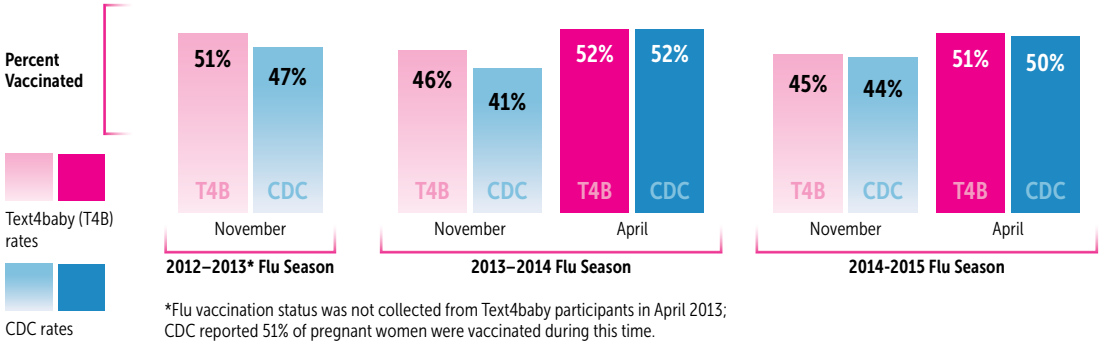
The influenza (flu) vaccine has been shown to protect pregnant women and their infants from flu and flu-related complications that can cause severe illness and adverse pregnancy outcomes. Although flu vaccine coverage among pregnant women has slowly increased over the past 5 years—from 44% during the 2010–2011 flu season to 50% during the 2014–2015 flu season, according to an annual Centers for Disease Control and Prevention (CDC) survey—coverage is still not approaching the population level.

Maternal flu vaccination was identified as a critical issue to target at the inception of Text4baby. Starting with the 2011–2012 flu season, Text4baby has collected data via text surveys on reported receipt of the flu shot, barriers to getting the flu shot, and requests for text-based flu shot reminders. Text4baby holds promise as a surveillance tool given its ability to collect timely data, reach (as of July 2016, more than 480,000 participants are enrolled), and diverse participant population. Figures 1 and 2 below show national and state-specific flu vaccine coverage for pregnant Text4baby participants.

Monitoring National Flu Vaccine Coverage Among Pregnant Women

Text4baby flu vaccine surveys are modeled on the annual CDC internet panel surveys of pregnant women and influenza vaccination with regard to both content and timing. The surveys assess vaccine coverage among pregnant women during both the early [November] and late [April] flu season. Figure 1 shows how flu vaccine coverage of pregnant Text4baby participants compares with national coverage rates reported by the CDC. External validity of Text4baby flu vaccine coverage for pregnant women is supported by the similarity between Text4baby and CDC rates. Consistency in Text4baby vaccine coverage across years suggests good internal reliability.

Figure 1: Flu Vaccine Coverage Among Pregnant Women, Early November and Mid-April for the 2012-13 through 2014-15 Flu Seasons, Text4baby Flu Vaccine Survey and CDC Internet Panel Survey[1-3]



*Flu vaccination status was not collected from Text4baby participants in April 2013; CDC reported 51% of pregnant women were vaccinated during this time.

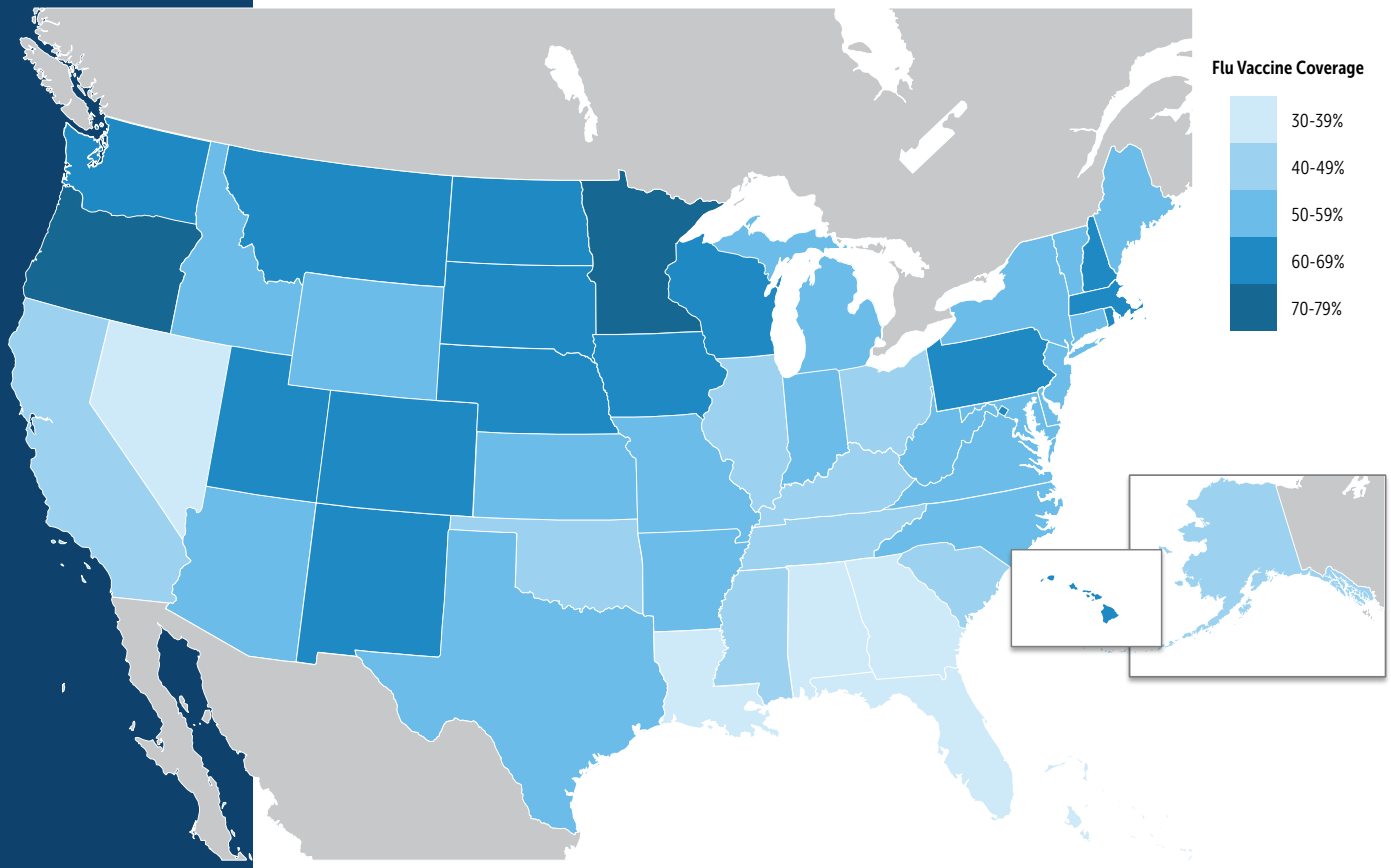
Text4baby is the nation's only free mobile information service for pregnant women and mothers of infants <1 year old designed to promote maternal and child health through text messaging.

Text4baby is jointly operated by **ZERO TO THREE** and **Voxiva, Inc.**

Monitoring State-Specific Vaccine Coverage Among Pregnant Women

CDC's Pregnancy Risk Assessment Monitoring System (PRAMS), an ongoing survey on maternal attitudes and experience around pregnancy, has in the past collected data on flu vaccination, however the most recent available data is for 29 states and New York City from the 2009–2010 influenza season. State-specific flu vaccination coverage for pregnant Text4baby participants for the 2014–2015 flu season are presented in Figure 2 below; variation in state-specific flu vaccination coverage for pregnant women was mostly consistent with trends observed in 2009–2010 among PRAMS participating states.[4]

Figure 2: End of Season (April) Flu Vaccine Coverage Among Text4baby Pregnant Participants, by State: 2014–2015 Flu Season[3]



Conclusion

Both national and state-level vaccine coverage rates for pregnant Text4baby participants have shown consistency with more complex and rigorous surveillance efforts of pregnant women. The extensive reach of Text4baby and its ability to collect real-time data position it as a unique tool for broad and timely monitoring and surveillance. These findings demonstrate how Text4baby can be used as a surveillance tool and support opportunities for targeted national and state-specific public health programming.

Endnotes

1. For the 2012–2013 November Text4baby estimate: Text4baby-eligible respondents included anyone who was pregnant at the time of the October survey who responded to the October (sent October 16 & October 18) or November (sent November 27 or one week after receipt of vaccine date reminder) survey (n = 23,503). Those who responded, "I already got it" to the October survey asking if participants planned to get the flu shot this year or "Yes" to the November survey asking if participants got the vaccine were counted as vaccinated. See www.cdc.gov/flu/fluvaxview/pregnant-women-2012.htm and www.cdc.gov/flu/fluvaxview/pregnant-women-nov2013.htm for information on CDC calculations. See www.ncbi.nlm.nih.gov/pubmed/26232904 for more information on the Text4baby 2012–2013 flu module.

2. For the 2013–2014 November and April Text4baby estimates: Text4baby-eligible respondents were either pregnant at the time of the survey or had recently been pregnant (for November survey [sent November 19, November 21, and November 25]—anyone who was pregnant at any point from August 1 through time of the survey, n = 22,116; for April survey [sent April 8 & April 10]—anyone who was pregnant at any point from October 1 through time of the survey, n = 21,981). Participants were asked if they received the vaccine since October 2013. Eligible respondents who reported "Yes, I got it during pregnancy" were counted as vaccinated. See www.cdc.gov/flu/fluvaxview/pregnant-women-nov2013.htm and www.cdc.gov/flu/fluvaxview/pregnant-women-nov2014.htm for information on CDC calculations.

3. For the 2014–2015 November and April Text4baby estimates: Text4baby-eligible respondents were either pregnant at the time of the survey or had recently been pregnant (for November survey [sent November 11]— anyone who was pregnant at any point from August 1 through time of the survey, n = 17,565; for April survey [sent April 14]—anyone who was pregnant at any point from October 1 through time of the survey, n = 15,111). Participants were asked if they received the vaccine since July 2014. For November, eligible respondents who reported "Yes, I got it while pregnant" were counted as vaccinated. For April, eligible respondents who reported "Yes, I got it while pregnant" to the November or April survey were counted as vaccinated (unlike the previous year, those who reported vaccination in November were not asked the question again in April, so data was combined). NOTE: calculations do not include eligible participants who received the survey in September and depending on methodology used we found the prevalence rate varied from 39–45% for November and from 46–51% for April. See www.cdc.gov/flu/fluvaxview/pregnant-women-nov2014.htm and www.cdc.gov/mmwr/preview/mmwrhtml/mm6436a2.htm for information on CDC calculations.

4. State-specific influenza vaccination coverage among women with a recent live birth-Pregnancy Risk Assessment Monitoring System, 2009–10 influenza season. See www.cdc.gov/flu/fluvaxview/prams-flu-tables.htm#table1

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