



BULL'S EYE AWARD
2016 SUBMISSION FORM

IMMUNIZATION PROGRAM INFORMATION

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BULL'S EYE INFORMATION

Title

Implementation of Provider-Based Text Message Recall through an Immunization Information System

Keywords (up to 5 main terms/phrases that describe the initiative)

IIS, Text Message Reminder/Recall

Is this initiative Evidence / Guideline Based? *(if yes, please include reference below)* _X_Yes _No

Reference: Jacob V, Chattopadhyay SK, Hopkins DP, Murphy-Morgan J, Pitan AA, Clymer JM, Community Preventive Services Task Force. Increasing coverage of appropriate vaccinations: a Community Guide systematic economic review. *Am J Prev Med.* 2016;50(6):797-808.

Background (scope of the immunization need or problem)

Reminder and recall systems are an evidence-based strategy to increase immunization coverage among children and adolescents. However, recall lists can be large and overwhelming for providers with large patient populations. In particular, this may be the case for providers with adolescent patients who have not completed the meningococcal or human papillomavirus (HPV) vaccine series. Providers and office staff often do not have the time or resources to call or mail a letter to every patient due a vaccine(s). As cell phone use has increased, text messaging has emerged as a novel, effective approach for providers to use to conduct reminder/recall.

Description

Describe the initiative's goals and objectives.

The Bureau of Immunization (BOI) of the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) received Prevention for Public Health Funds (PPHF) grant funding to expand and enhance the recall function in NYC's Immunization Information System (IIS), the Citywide Immunization Registry (CIR), by adding provider-based text message recall functionality to alert parents of vaccines their

children are due. The enhancements were designed to allow providers to select their recall parameters (patient age, gender, and vaccine types due) and send parents text messages using a default message template or custom language. The recall jobs can be set to occur once on a specified date or recur every 28 days over a specified time period. This new functionality helps alleviate the burden on provider staff to recall patients via more resource-intensive methods like phone calls and mailed letters. Further, the recurrent text message feature allows providers to routinely recall patients with minimal effort.

What were the main implementation activities?

We worked with a software vendor, mobile platform vendor, and our legal team to implement the provider-based text message recall functionality in our IIS, the CIR. Since there was no Agency-wide policy in place for text messaging, we needed to have several meetings with our legal team to determine permissible content for these provider-based text messages and the appropriate consent process for texting parents of patients.

Implementation of the provider-based text message recall functionality in the CIR also involved work with our software vendor and mobile platform vendor. We had to overcome several technical challenges as the complexities of integrating the text message platform with the CIR and testing to ensure that information was communicated properly between servers was very time consuming and introduced several unanticipated challenges.

Once the legal concerns were resolved and development work was completed, we pilot tested the functionality at five provider sites. Following deployment, we conducted trainings on-site, via webinar (live), and at the NYC Coalition for Childhood Immunization Initiatives meeting. We estimate that approximately 200 providers were trained between September and October 2015.

To increase availability of parent and patient mobile phone numbers in the CIR, which is critical for use of the text message functionality, we worked with colleagues at the NYC DOHMH to access a third-party list of verified mobile phone numbers in NYC. These numbers were compared to parent and patient home phone numbers stored in the CIR. For parents or patients with a home phone number that was also found to be a mobile phone number, and the parent or patient did not already have a mobile phone entered in the CIR, the mobile phone number was added. Through this method, 1,176,880 patient records in the CIR were updated to include a mobile phone number, which had a great impact on the number of recall texts that could be sent.

Where and when did the initiative take place?

The text message functionality was deployed on August 27, 2015 and has since been made available to all pediatric immunizing provider sites in NYC.

How much staff time was involved?

One full-time DOHMH BOI staff member, as well as the time contributed by the software developers.

What were the costs associated with the activity? What was the funding source?

BOI utilized funds from the 2012 and 2013 PPHF awards to develop and implement the text message recall enhancements in our IIS, the CIR. We estimate total costs at \$400,000, including immunization program personnel, software development, and mobile platform infrastructure.

Identify the target population that the initiative affected. The target population for recall was children 0-18 years of age due or overdue for one or more vaccine(s). Providers are able to set up the recall text messages to target patients based on age, gender, and vaccine type(s) due.

If partners were involved, include who was involved, and how.

We worked closely with our software development vendor, mobile platform vendor, and DOHMH legal team to develop the text message enhancements and collaborated with 121 provider facilities which implemented the recalls.

Timeframe of Implementation (Start and Stop Dates)

March 2013 – August 2015 for development and implementation of the text message reminder/recall enhancements in our IIS. These enhancements were made available to NYC pediatric immunization providers at the end of August 2015 and remain available currently.

Evaluation Data: Was the implementation and/or effectiveness of this initiative assessed? (if “yes” or “limited,” provide any data that is available) Yes No Limited

Data: From August 27, 2015 through July 2016, a total of 121 facilities used the text message recall functionality at least once. Approximately 60% of these sites were private provider offices and 40% were hospitals or federally-qualified health centers. During the same time period, a total of 607 text message jobs completed (65% one-time jobs; 35% recurrent jobs), resulting in over 156,743 text messages sent to 71,281 unique patients.

We also compared text message utilization following implementation to utilization of the existing IIS letter recall functionality. From August 27th through July of 2016, the number of facilities using letter recall was 83 compared to 121 facilities that used text message recall (1.5X more) , and there were 234 recall letters jobs completed versus 607 text message jobs (2.6X more), demonstrating greater utilization of texts than letter recall. The number of patients included in the 234 letter jobs was 25,044 compared to the 71,281 patients sent a text (2.8X more), demonstrating far larger patient reach.

Finally, we evaluated the impact of text message recall by looking at vaccine receipt among patients who received a text versus those who did not. We looked at 556 text message recall jobs completed by 116 facilities between August 27, 2015 and June 30, 2016. These jobs included 149,849 patients who were not up-to-date based on the age, gender, and vaccines due criteria specified for each text message job. Of these patients, 43% had a mobile phone number, so they received a text, while 57% of patients did not have a mobile phone number at the time the job was scheduled, so they were not texted. If a patient received a text but opted out at any time, they were excluded from the texted group. Next, we looked at the number of patients in each group who returned to the facility that texted them to receive vaccination. After restricting the vaccination window to within 28 days of the first text message job, we found that 10% of patients texted were vaccinated compared to only 5% of patients who were not texted, suggesting that the recall text messages were impactful.

Conclusions / Lessons Learned / Key Factors for Success

We found that text messaging is an acceptable recall method among NYC providers and recipients, as demonstrated by our modest opt out rate. We observed greater utilization of text message recall by facilities than letter recall. Text messages allow for larger, faster patient reach than letter recall, allowing providers to quickly contact upwards of thousands of patients with one job, which is particularly important in outbreak or emergency situations. Our preliminary findings also demonstrate greater patient vaccination following receipt of a recall text message, suggesting that it is an effective method for increasing vaccination rates. However, it takes time, resources, and effort for immunization program staff and their vendors to enhance IIS-based reminder/recall tools and to train providers to use them. When building provider-based tools, promotion and training of providers is as critical as working with legal, software, and other vendors in order to achieve high utilization of these tools. Even if you build great reminder/recall functionality in an IIS, its value lies in provider utilization.

Check if any of the following are being submitted to complement your submission:

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| <input type="checkbox"/> Sample of materials produced | <input type="checkbox"/> Video/audio clip |
| <input type="checkbox"/> Press release | <input type="checkbox"/> Website URL |
| <input type="checkbox"/> Promotional materials | <input type="checkbox"/> Tables or graphs |
| | <input type="checkbox"/> Other — Explain: _____ |