Introduction

Immunization information systems (IIS) are computerized databases that record immunization doses administered by participating providers to people residing within a specific jurisdiction. The IIS can be a powerful tool to track and analyze patterns in immunization rates, identify missed opportunities to vaccinate, and identify underserved populations—all with the ultimate goal of increasing immunization rates.

The IIS can be used in many ways to increase vaccination rates in teens. Immunization programs can centrally track rates, send reminders or other education outreach to teens and their families. Providers can review their patient population for those eligible for adolescent vaccines, track and manage their vaccine inventory, monitor for missed opportunities and send reminders that a teen is due for immunizations. In the case of public access to the IIS, teens and their parents can check vaccination status on their own and be prepared to talk to their provider about immunizations. Additional modules in the IIS can allow specific institutions such as schools, local health departments and prisons to monitor vaccination rates of their populations and target activities to increase vaccination rates among adolescents.

The Community Preventive Services Task Force recommends several IIS practices as methods to increase vaccination rates, including reminder/recall, provider assessment and feedback, provider reminders, vaccine management, and vaccine preventable disease (VPD) outbreak response.1 Immunization Programs can use data from the IIS to conduct centralized reminder/recall to inform families that their teen is due for or past due for a recommended vaccination by sending postcards, texts, letters, and emails or by making telephone calls. Pairing the IIS with a provider feedback strategy such as AFIX can help providers identify adolescent patients who are passed due for vaccines and reduce missed opportunities to vaccinate. IISs are also used to manage vaccine inventory and can provide guidance to providers on how much vaccine should be ordered based on their patient information, therefore ensuring providers have enough vaccine on hand. The activities highlighted in this chapter relate to how Immunization Programs can support IIS reminder/recall for adolescents:

- **Getting Started:** Centralized, local health department-based adolescent recall (Illinois)
- **Moving Forward:** Quarterly adolescent immunization recall (North Dakota)
- **Taking It to the Next Level:** Development of IIS-based text message recall functionality (New York City)

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**DATA HIGHLIGHT:**

**How Many Immunization Programs Conduct Centralized Reminder Recall?**

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<tr>
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<th>N/A: Do not conduct</th>
<th>Postcard</th>
<th>Texting</th>
<th>Letter</th>
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<td>2%</td>
<td>17%</td>
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*Data from the 2017 AIM Annual Survey: 55 of 64 Immunization Programs responded to the survey.

American Immunization Registry Association (AIRA) repository of information: [http://repository.immregistries.org/resources/search/adolescent](http://repository.immregistries.org/resources/search/adolescent)


AIM Centralized Reminder/Recall Webinar

AIM hosted a webinar in October 2015 about centralized reminder recall. Andrew Gess, Public Sector Lead at Pfizer Inc., provided an overview of a Patient Centered Medical Home (PMCH) and how reminder/recall fits with the National Committee for Quality Assurance (NCQA) PMCH recognition. AIM members from Nevada, Utah and Missouri shared their centralized reminder/recall program experiences using a Pfizer-sponsored program, including program setup, lessons learned and evaluation results. [www.immunizationmanagers.org/page/ReminRecWebinar](http://www.immunizationmanagers.org/page/ReminRecWebinar)
Overview of activity
Using its IIS, the Illinois Department of Public Health (IDPH) Immunization Section worked with local health departments (LHDs) to conduct a centralized recall of adolescents who had initiated but not yet completed the HPV vaccine series.

Ages targeted
Adolescents age 11 through 18 years

Background/impetus for the activity
In 2014, the Illinois Immunization Program received an HPV-specific Prevention and Public Health Fund (PPHF) award. One of the activities under this grant was conducting IIS-based recall of adolescents for HPV vaccine. The Illinois Comprehensive Automated Immunization Registry Exchange (I-CARE) is a homegrown IIS. Though there is no state mandate for immunization providers to report to I-CARE, reporting is a requirement for participation in the Vaccines for Children (VFC) program.

Description of activity
In 2015, the Illinois Immunization Program began recruiting volunteers among its 96 autonomous LHDs to conduct centralized recall for adolescents age 11 through 18 years who had initiated but not yet completed the HPV vaccine series. Participating LHDs received training from state program staff on using I-CARE’s reminder/recall functionality and were asked to refresh their I-CARE active patient list. LHDs were instructed to identify patients as “active” if they had visited the LHD clinic for any service within the past 3 to 5 years (LHDs determined the specific timeframe within the 3- to 5-year window).

The Immunization Program then generated an Excel file of mailing addresses for recall-eligible adolescents from I-CARE and shared this file with an outside vendor to prepare mailing labels. The outside vendor also was responsible for supplying the bifold postcard, which was modelled after the HIPAA-compliant version used by the City of Chicago Immunization Program. The postcard included a picture representative of the state’s adolescent population, and contained a general message (in English and Spanish) about vaccines recommended for adolescents. Postcards were sent in May 2016. HPV coverage rates were measured in September 2016.

Role of Immunization Program and other agencies/groups involved
The Immunization Program managed the project as part of its HPV PPHF grant activities. Its partner, EverThrive Illinois, was responsible for adapting Chicago’s version of the postcard for the state’s use, and working with an outside vendor to prepare the recall mailing. LHDs that agreed to participate were responsible for refreshing their patient list and running an adolescent coverage level report in I-CARE, as well as being prepared for a potential uptick in demand for adolescent vaccines.
**Dissemination**
Postcards were mailed to parents of adolescents. The Program communicated regularly with participating LHDs throughout the project.

**Intersection with other program activities**
In conjunction with the recall project, I-CARE was updated to include functionality for public and private providers to run adolescent coverage level reports.

**Funding**
The recall effort was funded by a 2014 HPV-specific PPHF award.

**Staffing**
Program staff recruited and trained LHDs, made necessary updates to I-CARE, downloaded the recall mailing list from I-CARE, and helped prepare mailing pieces. Program staff also responded to any telephone calls from parents related to the recall and received undeliverable postcards.

**Implementation status**
The recall effort has been completed. The program is not planning any additional centralized recall efforts, but provides technical assistance for LHDs or other providers who need help with their own recall.

**Successes**
- 26 LHDs agreed to participate and 37,000 postcards were mailed.
- 12% of adolescents who were mailed a postcard received a follow-up HPV vaccine within 4 months.

**Challenges**
- Mailing address is not a required field in I-CARE to create a patient profile. The Program wants to capture as much data as possible, and if a complete address was a mandatory field, many patients’ data would not be accepted into I-CARE. In some cases, there may be an existing, duplicate record in I-CARE that contains more complete information, to which incoming records with incomplete addresses can be matched.
- LHD-based recall can be challenging because LHDs are usually not the medical home for adolescents. If providers are not reporting doses administered to I-CARE, then LHDs will not have accurate information on immunization status, and therefore some adolescents identified as being “active” patients for an LHD may not actually be eligible for recall because they have received the recommended doses elsewhere.
Other lessons learned/Advice to other programs

- The Program found this to be a good one-time experience, but generally thinks that reminder/recall is best handled at the provider level versus a centralized effort. Provider-level reminder/recall gives providers more control over the process and puts the responsibility on them to monitor their coverage levels and manage their active patient lists. Providers also have the option to run reminder/recall from their own electronic health records (EHRs).

- Addresses were not validated prior to generating the recall list, and the undeliverable rate was 16%. A portion of the undeliverable notices were due to invalid mailing addresses (versus outdated addresses for the intended recipients). The Program now uses geocoding data provided free of charge by the Illinois Department of Transportation to verify that addresses in I-CARE are valid. This process determines whether an address is deliverable, not whether a specific person resides at that address. Validating addresses helps avoid spending time and money on undeliverable mail pieces.

Relevant resources
Not applicable

For more information
Contact Gina Lathan, Illinois Department of Public Health Immunization Section Chief, at (217) 785-1455 or Gina.Lathan@illinois.gov.
Overview of activity
The North Dakota Department of Health (NDDoH) Immunization Program implemented a centralized, statewide recall of adolescents age 12 to 17 years using data from their immunization registry in an effort to increase immunization rates.

Ages targeted
Adolescents age 12 to 17 years

Background/impetus for the activity
In 2012, the NDDoH Immunization Program received a PPHF funding award specific to adolescent recall. The Program applied for the funding to address low adolescent immunization rates, as well as low utilization by immunization providers of the state registry’s reminder/recall functionality. Coverage rates for adolescents age 11 to 18 years, according to data from the North Dakota Immunization Information System (NDIIS), were: 58% for at least one dose of Td/Tdap vaccine; 56% for at least one dose of MCV4; and 12% for three doses of HPV vaccine. Healthy People 2020 goals are 80% for Tdap and MCV4 and 60% for HPV series completion.

Description of activity
In April 2013, the Immunization Program initiated a centralized, statewide recall effort of adolescents 12 to 17 years. The Immunization Program utilized information from the NDIIS to recall adolescents age 12 to 15 years who were at least 30 days overdue for their first dose of Tdap, first dose of MCV4, second or third dose of HPV, or first or second dose of varicella vaccines. A parallel recall was conducted for adolescents age 16 to 17 years who were at least 30 days overdue for their first dose of Tdap, second dose of MCV4, second or third dose of HPV, or second dose of varicella vaccines.

Program Practice Interviews
www.immunizationmanagers.org/page/PPInterviewND

AIM collected short video clips of Immunization Program Managers detailing activities designed to increase awareness and vaccination rates of adolescent vaccines. Each clip covers the basic program activities, working with partners, and unique factors. The program managers also detail their lessons learned.

The video clip focusing on IISs features details about the North Dakota Centralized Reminder/Recall for Adolescents. Molly Howell, North Dakota Immunization Program Manager, discusses the state’s immunization reminder/recall project aimed at increasing vaccination rates in adolescents age 12 through 17 yrs.
Recall was initially conducted by telephone, using an automated dialing system, and regular mail, using postcards. Every adolescent eligible for recall received both a call and a postcard. Both methods used a general notice informing the parents/guardians that their adolescent was due or past due for immunizations, and advised them to contact a health care provider or local public health unit. To conduct the recall, NDIIS staff utilized existing reminder/recall functionality in the NDIIS to identify adolescents who were at least 30 days past due for the vaccines of interest and then exported their contact information to a spreadsheet. Address information was checked against the US Postal Service National Change of Address (NCOA) dataset, while telephone data were submitted to Thomson Reuters for updating. Updates to contact information identified through this process were entered into NDIIS.

The Immunization Program has made several improvements to the adolescent recall process over time, and now mails letters instead of postcards and has discontinued telephone recall.

Role of Immunization Program and other agencies/groups involved
The Immunization Program planned and implemented this activity. The ND Immunization Advisory Committee provided input into the design and wording of postcards and letters, and the decision on which vaccines should be included in the recall. When the recall effort included telephone calls, the Program sent telephone data to a third-party autodialer service. Mailed notices were, and continue to be, sent out through the state’s Central Duplicating Services.

Dissemination
Beginning with the initial recall effort, the Immunization Program has informed health care providers prior to recall notices being distributed via its VFC provider listserv, so that they can prepare for parent calls and have an adequate vaccine supply on hand. The Program informs providers which vaccines are included in the recall and encourages them to use the forecasting tool in the NDIIS to determine which vaccines are needed by individual patients. The Program now also issues a public news release about upcoming recalls.

Intersection with other program activities
Over time the Immunization Program has added recall efforts targeted to infants, kindergarten-aged children, seventh graders, and adolescents who have not initiated the HPV vaccine series. The Program is also piloting adult recall in three counties (for pneumococcal and zoster vaccines).

Funding
The recall effort was initially funded by a 3-year PPHF cooperative agreement, and now relies on PPHF funding in the general immunization cooperative agreement.
Staffing
For the ongoing recall effort, NDIIS staff run each recall report, send the spreadsheet to Central Duplicating Services to process for distribution, and enter into the NDIIS the address changes identified from the NCOA dataset. Program staff also handle parent telephone calls and provider questions related to the recall effort.

Implementation status
The adolescent recall effort began in April 2012, with the first recall notices distributed in April 2013. The recall effort is ongoing and typically is conducted quarterly.

Successes
• During the initial PPHF grant period, approximately 424,000 individual recalls were conducted.
• Statewide immunization recall has been an effective method of increasing adolescent vaccination rates. During the initial grant period, significant increases in immunization rates were seen in the NDIIS:
  – Adolescents age 13 to 15 years: from 72% to 78% for at least one Td/Tdap dose; 68% to 77% for at least one MCV dose; for HPV series completion, 23% to 36% in females and 4% to 27% in males; and 54% to 76% for at least two varicella doses.
  – Adolescents age 16 to 18 years: from 69% to 76% for at least one Td/Tdap dose; 60% to 75% for at least one MCV dose; for HPV series completion, 31% to 43% in females and 4% to 27% in males; and 39% to 66% for at least two varicella doses.
• Data quality in the NDIIS has improved due to address submission to the USPS NCOA, with more than 13,000 addresses updated in the NDIIS. In addition, more than 9,500 adolescents in the NDIIS were marked as “moved” or “gone elsewhere” (MOGE). Less than 0.5% of postcards or letters mailed were returned to the NDDoH as undeliverable; children with undeliverable recall notices are marked as lost-to-follow-up in the NDIIS.
• The Immunization Program conducted a provider satisfaction survey regarding the recall effort, and the feedback from providers was mostly positive. Providers indicated that they like recall being conducted centrally, and that the recall effort has helped spread out demand for adolescent immunization beyond the summer months. Providers also expressed interest in recall for other populations, which the Immunization Program has since implemented.

Challenges
• The initial recall effort used postcards with a broadly worded recall notice; Program staff and providers fielded numerous calls from parents wondering which vaccines their adolescent needed. As a result, the Program switched to using letters to allow for dissemination of additional information because letters can specify adolescents’ names and which vaccines are due. Postage costs are higher for letters than postcards, but the burden on staff for fielding calls has been greatly reduced.
• Providers do not always utilize the forecasting functionality in the NDIIS, and there have been some issues with providers telling parents that their adolescent is up-to-date, leading parents to call the Program wondering why they received a recall notice. The issue has most often occurred with the second doses of MCV4 and varicella vaccine. To address the issue, the Program continues its provider education efforts around current ACIP recommendations and NDIIS functionality.
• The Immunization Program has inadvertently recalled deceased children. Though deceased individuals are removed from the NDIIS based on vital records data, sometimes
records have slipped through the cracks based on the timing of adding records to NDIIS. An ongoing process was created to ensure this situation does not occur. An ongoing challenge is that the Program is not notified of out-of-state deaths.

- The Program realized that because local Air Force bases do not enter vaccine doses into the NDIIS, there is no historical data for those adolescents and therefore recall may not be accurate. For this reason, individuals with Air Force base addresses are excluded from recall efforts.

Other lessons learned/Advice to other programs
- After a few quarters of the recall effort, the State Attorney General’s Office advised the NDDoH that automated phone calls could not be used to contact parents for immunizations per the state’s “Do Not Call” Law. The autodialer portion of the recall effort was therefore discontinued. Before launching a similar effort, Immunization Programs should check whether the recall could violate any state laws.
- Some parents are uncomfortable with receiving recall notices by telephone and wondered how the NDDoH accessed their phone number. Programs should take this into consideration when deciding on which contact methods to use.
- The Immunization Program, together with the ND Immunization Advisory Committee, decided not to include the first dose of HPV vaccine in the recall. Coverage rates were so low that most adolescents would have been included in the recall (increasing the cost), and the Program wanted to avoid potential pushback from parents that could negatively impact their seeking other recommended vaccines. The Program now conducts a separate recall effort specific to initiating the HPV vaccine series.
- For parents/guardians who do not want to receive recall notices, the Immunization Program created an opt-out form on its website, which provides a simple way for parents/guardians to permanently opt-out of the recall if they so choose.
- Recall efforts that include 18-year-olds should be sent to the adolescent directly, not the parent, as they are considered an adult.
- It is important to notify providers prior to distributing recall notices, so they can prepare for an increase in phone calls from parents with questions and appointment requests, and have an adequate supply of vaccine.
- Using a tool, such as USPS NCOA, to identify address changes prior to distributing recall notices helps to minimize undeliverable mail and associated costs.

Relevant resources
- North Dakota Immunization Recall website, with includes information on all of the Program’s recall efforts, including sample letters and overall schedule: [www.ndhealth.gov/Immunize/NDIIS/AdolescentRR.aspx](http://www.ndhealth.gov/Immunize/NDIIS/AdolescentRR.aspx)

For more information
Contact Program Manager Molly Howell, North Dakota Immunization Program Immunization, at (701) 328-4556 or mahowell@nd.gov.
Reminding and recalling adolescents using an IIS can provide an opportunity to assess the entire health of an adolescent – extending health benefits beyond immunizations.”

— Rebecca Coyle, MSEd, Executive Director, American Immunization Registry Association (AIRA)
Overview of activity
The New York City (NYC) Department of Health and Mental Hygiene (DOHMH) Bureau of Immunization developed text message recall functionality in its IIS.

Ages targeted
All ages, including adolescents.

Background/impetus for the activity
The NYC Bureau of Immunization implemented text message recall functionality in its IIS, called the Citywide Immunization Registry (CIR), with support from PPHF for increasing adolescent immunization rates. Text message functionality was a target for CIR improvements based on:

- Pew Research Center data demonstrating the popularity of texting, especially among underserved populations;
- Data from a survey of NYC parents indicating that text messages are their preferred method for receiving reminder/recall notifications;
- Published evidence on the effectiveness of text messages to increase vaccination; and
- Challenges associated with other types of provider-based recall, such as mailing costs and provider staff time for making calls or preparing mailings.

Description of activity
Prior to implementation of text message functionality, the CIR supported telephone- and mail-based reminder/recall. Beginning in March 2013, the Immunization Program began implementing the option to send text messages. The Program made “back end” programming changes to the CIR, modified the CIR’s online user interface known as the Online Registry, and established a connection with a mobile platform vendor for text message distribution. Text message recall was piloted with five private provider facilities during June and July 2015, and was launched for use by all providers on August 27, 2015. The text messaging service is free for providers.

One of the key CIR updates for supporting text messaging was to create separate fields in the database for mobile and landline telephone numbers. To initially populate the mobile number field for existing CIR records, the Program sent a list of the last known home phone numbers of patients age 0 to 18 years to a third-party vendor who identified which numbers were for mobile phones. About 1.1 million (80%) of the existing home phone numbers were determined to be mobile numbers. These numbers were then used to populate the new mobile number field for the corresponding patients. To enable providers to report mobile phone numbers, the field was added to the “Update Patient Information” screen in the Online Registry. To facilitate data entry, the user can indicate that the home number is the same as the mobile number, in which case the home number automatically populates the mobile phone number field. (See screen shot on top of page 15).
Another field added to the “Update Patient Information” screen was text opt-out status. All patients with a mobile number in CIR are defaulted to receive text messages (i.e., opt-out status is “no”). Providers can manually change a patient’s opt-out status from this screen at any time if the patient does not want to receive text messages or if the provider wants to obtain patient consent before sending text messages. Providers can view their list of patients in the online registry and view the status “Accepts Text (Yes/No)” for each record:

Providers can set up text message recall jobs in the online registry by selecting “text message” as the recall contact method, and then by choosing:

1. Which patients to recall, either from a previously generated list of patients or by selecting recipients based on age, gender, and vaccine options;
2. The date for one-time text messages or the date range for recurrent messages, which are sent every 28 days and include patients who newly meet the initial recall selection criteria; and
3. Wording of the message, either a default message or a custom message of 130 characters (See default message wording in screen image to the right.).

The text message includes directions for recipients to opt out of receiving future messages (i.e., respond “STOP”) (Recipients are informed they may opt in again by replying “Oops.”). Those who opt out via text message reply are tracked by both the mobile platform vendor and the CIR. Texted replies can be reviewed and managed for follow-up through an online dashboard provided by the mobile platform vendor. (See screen shot on top of page 16)
Role of Immunization Program and other agencies/groups involved
The Program worked with the CIR’s computer consulting vendor to develop and implement text message functionality in the CIR, and with the NYC DOHMH legal team to determine permissible text message content and the allowable parameters for consent. DOHMH colleagues provided access to a mobile phone number verification vendor who made the initial identification of mobile numbers in the home number field of existing CIR records. A mobile platform vendor, Mobile Commons, was selected and continues to provide text message distribution and tracking.

Dissemination
The Program has used multiple channels to inform providers about CIR’s text message recall functionality, including Assessment, Feedback, Incentives, and eXchange (AFIX) visits, on-site trainings, webinars, presentations to physician organizations (e.g., local American Academy of Pediatrics chapter), the NYC Coalition for Childhood Immunization Initiatives, and special projects with hospital networks. In addition, the Program has developed detailed guidance for providers on using the text message recall functionality that is available on its website. As part of these outreach efforts, the Program has been encouraging providers to add mobile phone numbers to the CIR, which can be done manually through the online registry or by populating the field in electronic health record (EHR) data automatically submitted to the CIR via Health Level Seven International (HL7) messaging. The online registry includes prompts to add mobile numbers.

Intersection with other program activities
Use of the CIR is well integrated with the full scope of the Program’s programmatic activities. This effort overlaps most closely with provider education efforts and AFIX visits. Text message functionality is an important tool for outbreak response and emergency preparedness activities.
**Funding**
This activity was funded with a combination of a 2012 PPHF grant for utilizing IISs to improve adolescent immunization coverage and a 2013 PPHF grant specific for increasing HPV vaccination coverage in adolescents. Annual operational costs are approximately $10,000 for a yearly subscription with a mobile platform vendor. This subscription allows up to 100,000 text messages to be sent per month.

**Staffing**
Within the Program, this effort was largely managed by one full-time staff person with input from several other Program staff. Additional staff were involved in provider trainings and outreach.

**Implementation status**
CIR text message recall functionality is up and running. Plans for future CIR enhancements include adding text message reminder functionality, email reminder/recall capability, and options for conducting reminder/recall in other languages such as Spanish.

**Successes**
- Following initial implementation, approximately 200 providers were trained on sending text message recall via the CIR during September and October 2015.
- As of March 2017, 145 unique facilities have used text message recall at least once, accounting for more than 1,200 recall jobs and nearly 280,000 individual text messages sent. The types of providers utilizing the text message feature include private provider offices, federally qualified health centers, and hospitals.
- The proportion of opt-out replies has been low at approximately 7.6%.
- Since the time when recall by text message became an option, more providers have used text message recall than letter recall, more text recall jobs than letter recall jobs have been run, and more patients have been sent texts than letters.
- An evaluation of 171 text message recall jobs, completed by 62 facilities during August to December 2015, found that 11% (3,414/31,388) of patients receiving text messages were vaccinated within 28 days compared to 6% (2,345/39,502) of patients who were eligible for recall but not texted.

**Challenges**
- The Program had to do significant work related to the legal considerations of sending unsolicited text messages. At the time, the NYC DOHMH did not have any policy or clear guidelines related to text messaging. Federal communications law prohibits sending unsolicited texts, but the NYC Legal Department determined that the NYC Health Code provides the authority to do so. In the event that the Program’s unsolicited recall texts may have prompted widespread opposition, the Program decided to purchase its own text short code (a 5-digit number identifying the text sender), through its mobile platform vendor, Mobile Commons, rather than utilize the existing short code used by the DOHMH.
- Prior to developing text messaging, the CIR database did not capture the patient’s mobile phone number in a separate field. When the texting functionality was added, the CIR’s processing of HL7 messages received from provider EHRs was changed to allow the identification and utilization of the patient’s mobile phone number. HL7 includes more contact types than the CIR database structure allows. To appropriately populate the mobile phone field in the CIR, a series of business rules were developed that
determined which contact type (e.g., mother, father or guardian) was to be used as the source to populate the mobile phone number field in the CIR for the pediatric patient. Further, mobile phone number is not a required field so it is still scarcely populated in HL7 messages from provider EHRs. The Program plans to establish a contract with a mobile number validation vendor to continue to identify newly reported phone numbers as mobile numbers to populate and update the mobile phone number field in the CIR.

- A recent analysis of failed text messages revealed that certain mobile carriers or plans do not enable receipt of text messages from short codes. This accounted for most of the undelivered messages which, for some carriers, resulted in a message failure rate of more than 30%.
- The Program required several rounds of testing to address unanticipated programming challenges related to communication between servers (data goes from the CIR server to a DOHMH central IT server, to the Mobile Commons server, then to an SMS aggregator and finally to patients’ mobile phones).

Other lessons learned/Advice to other programs

- Success of text message recall is dependent on the extent to which a mobile phone number field is populated within an IIS. Sending existing phone number data to a third-party mobile phone number validation vendor can jumpstart populating the mobile phone number field in the IIS.
- The CIR’s current text message recall system does not fully support bidirectional communication between providers and patients. Immunization program staff must monitor patient responses and follow-up with providers, if needed.
- Immunization Programs will need to determine their own policies and legal authority around patient consent for text messaging.
- Plans for developing text message functionality should include consideration of the costs for long-term use of a mobile platform vendor to distribute and track text messages.

Relevant resources

- Presentation at 2016 AIRA National Meeting on implementation of text message recall in CIR: http://repository.immregistries.org/resource/track-b-iis-fundamentals/

For more information
Contact the NYC Bureau of Immunization at nycimmunize@health.nyc.gov.