

Implementation of Provider-Based Text Message Recall through an IIS

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Overview of IIS-based reminder/recall

Citywide Immunization Registry (CIR)

- NYC's immunization information system (IIS)
- Mandatory reporting of immunizations for patients 0-18 years of age
- 6 million patient records
- 82 million immunization records
- ~1,800 pediatric care providers enrolled in the CIR
 - >90% report regularly

IIS-Based Reminder/Recall (R/R) in NYC

- Online Registry (OR)
 - Report patients' immunizations to the CIR
 - Look up patients' immunization records in the CIR
 - Access clinical decision support to identify vaccines due
 - Generate coverage reports
 - R/R tools
- R/R functionality
 - Lists of patients not up-to-date
 - Letters and labels to mail to patients not up-to-date

R/R Challenges

- Recall lists can be large and overwhelming
- Lack of staff time to call or mail letters
- Mailings are costly
- Recent survey of parents in NYC shows text messages are preferred R/R method*
 - 88% were also comfortable receiving health-related texts from provider
- Text messages shown to be an effective method for increasing on-time receipt of vaccine doses

* Hofstetter, et al. Parental and provider preferences and concerns regarding text message reminder/recall for early childhood vaccinations. Prev Med. 2013 Aug;57(2):75-80.

Who texts?

- **90%** of American adults own a cell phone
- **80%** of cell phone owners use text messaging
- Hispanics text **1.5X** more than Caucasians
- African Americans text **2X** more than Caucasians
- Households earning <\$30K text **2X** more than households earning >\$75K
- **90%** of all text messages are read within 3 minutes

Development of text message recall enhancements and challenges to implementation

Grant Funding and Timeline

- 2012 PPHF award
 - Area 6: Utilization of IIS to Improve Adolescent Vaccination Coverage
- 2013 PPHF award
 - Increasing HPV Vaccination coverage Rates among Adolescents
- Piloted June-July 2015 at 5 private provider sites
- Launched August 27, 2015

Text Message Recall Enhancements

A

- ☐ All patients in MyList
- Specific Age**
 - ☐ 7-11 month olds
 - ☐ 19-35 month olds
 - ☐ 24-35 month olds
 - ☐ 11-18 year olds
 - ☐ 13-17 year olds
 - ☐ 19+ year olds
- ☐ **Age Range**
From ≥ ☐ years ☐ months
To < ☐ years ☐ months
- ☐ **DOB Range**
Include patients born between / /
and / /

B

Gender

☒ Male

☒ Female

C

For immunization series:

☐ Include patients who are missing:

- ☐ Any age-appropriate immunization
- ☐ Any age-appropriate immunization from the series below only:
 - ☐ Influenza
 - ☐ HepB
 - ☐ Rotavirus
 - ☐ DTaP
 - ☐ Hib
 - ☐ Pneumo. Conjugate
 - ☐ Pneumo. Polysaccharide
 - ☐ Polio
 - ☐ Tdap
 - ☐ MMR
 - ☐ Varicella
 - ☐ HepA
 - ☐ Meningococcal
 - ☐ Human Papillomavirus

☐ Include patients who do not have the # of specified valid doses from the series chosen below:

--0--	Influenza	--0--	Pneumo. Conjugate	--0--	MMR
--0--	HepB	--0--	Pneumo. Polysaccharide	--0--	Varicella
--0--	Rotavirus	--0--	Polio	--0--	HepA
--0--	DTaP	--0--	Tdap	--0--	Meningococcal
--0--	Hib	--0--		--0--	Human Papillomavirus

D

Enter the date range this message will run.

NOTE: All recurrent jobs will run every 28 days from your start date. Once this job is created, you may stop future recurrent messages by turning off the job on the Reminder/Recall Job List.

From / /

To / /

Select Message. This message will be sent to each patient on your recall list.

☒ **Use default message**

☐ Fill in the fields for the sample message provided.

Your child born in CIR will insert patient birth YEAR here is overdue for immunization. To schedule, please call

FACILITY NAME (up to 33 characters):

Characters remaining: 33

at **CONTACT NUMBER:**

☐ **Use custom message**

☐ Type in your message.

132 character limit

Characters remaining: 132

NOTE: To allow patients to opt out of receiving text message reminders, the line "To stop reminders, text stop" will be added to the end of your message.

Patients who text "stop" will not receive any future text messages via the CIR.

Please note that it is your responsibility to adhere to the laws, rules, and regulations that apply to the disclosure of confidential and sensitive information in the content of your custom text message.

Cancel ✖

Clear

Continue ➡



→ Select patient age and gender.

A

☐ All patients in MyList

Specific Age

☐ 7-11 month olds ☐ 11-18 year olds
☐ 19-35 month olds ☐ 13-17 year olds
☐ 24-35 month olds ☐ 19+ year olds

☐ **Age Range**

From ≥ ☐ years ☐ months
To < ☐ years ☐ months

☐ **DOB Range**

Include patients born between
 / /
and
 / /

B

Gender

☒ Male
☒ Female

→ Select vaccine(s) due.

C

For immunization series:

Include patients who are missing:

☐ Any age-appropriate immunization

☐ Any age-appropriate immunization from the series below only:

☐ Influenza

☐ HepB

☐ Rotavirus

☐ DTaP

☐ Hib

☐ Pneumo. Conjugate

☐ Pneumo. Polysaccharide

☐ Polio

☐ Tdap

☐ MMR

☐ Varicella

☐ HepA

☐ Meningococcal

☐ Human Papillomavirus

☐ Include patients who do not have the # of specified valid doses from the series chosen below:

--0-- ▼ Influenza

--0-- ▼ HepB

--0-- ▼ Rotavirus

--0-- ▼ DTaP

--0-- ▼ Hib

--0-- ▼ Pneumo. Conjugate

--0-- ▼ Pneumo. Polysaccharide

--0-- ▼ Polio

--0-- ▼ Tdap

--0-- ▼ MMR

--0-- ▼ Varicella

--0-- ▼ HepA

--0-- ▼ Meningococcal

1 Human Papillomavirus

→ Schedule your text message job.

D

Enter the date range this message will run.

NOTE: All recurrent jobs will run every 28 days from your start date. Once this job is created, you may stop future recurrent messages by turning off the job on the Reminder/Recall Job List.

From

 / /

To

 / /

→ Select text message content.

Select message (default recommended.) This message will be sent to each patient on your recall list.

- ☒ **Use default message**
Fill in the fields for the sample message provided.

Your child born in
CIR will insert patient birth YEAR here
is overdue for immunization. Call

FACILITY NAME (up to 42 characters):
Characters remaining: 42

at **CONTACT NUMBER:**
to schedule.

- ☐ **Use custom message**
Type in your custom message.
Make sure to include your facility name.

(Messages are limited to Latin alphabets.)

130 character limit

Characters remaining: 130

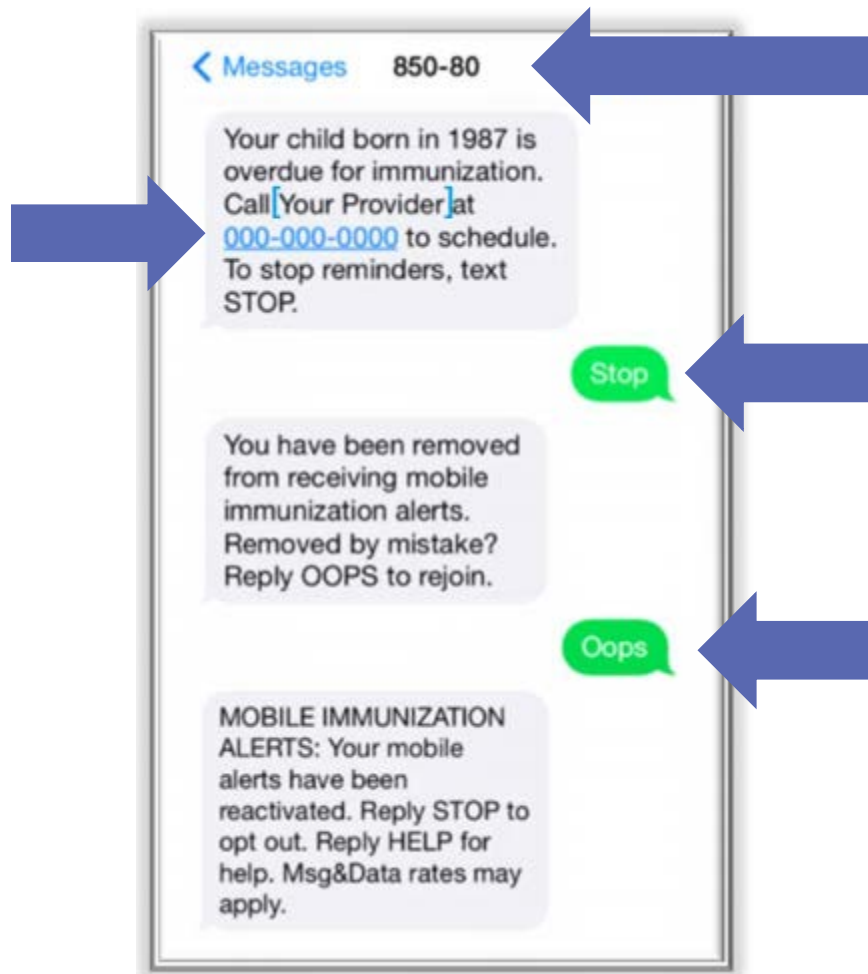
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Please note that it is your responsibility to adhere to the laws, rules and regulations that apply to the disclosure of confidential and sensitive information in the content of your custom text message.

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Sample Text Message



Short Code: 850-80

Number that recipients see when texted.

Opt out of receiving messages by replying **STOP**.

Opt back in to receive messages by replying **OOPS**.

Mobile Phone Match

- 110,894 patients had a mobile phone number in the CIR at the time of implementation
- Access to purchased list of verified mobile phone numbers
- Patients with a home phone verified as mobile phone added to CIR mobile phone field
- 1,176,880 home phones “matched” and were used to populate mobile phone field

Technical Challenges

- Scheduling delays
 - Several Bureau projects to balance
- Several rounds of testing to ensure proper communication between servers
 - Unanticipated programming challenges



Legal Considerations

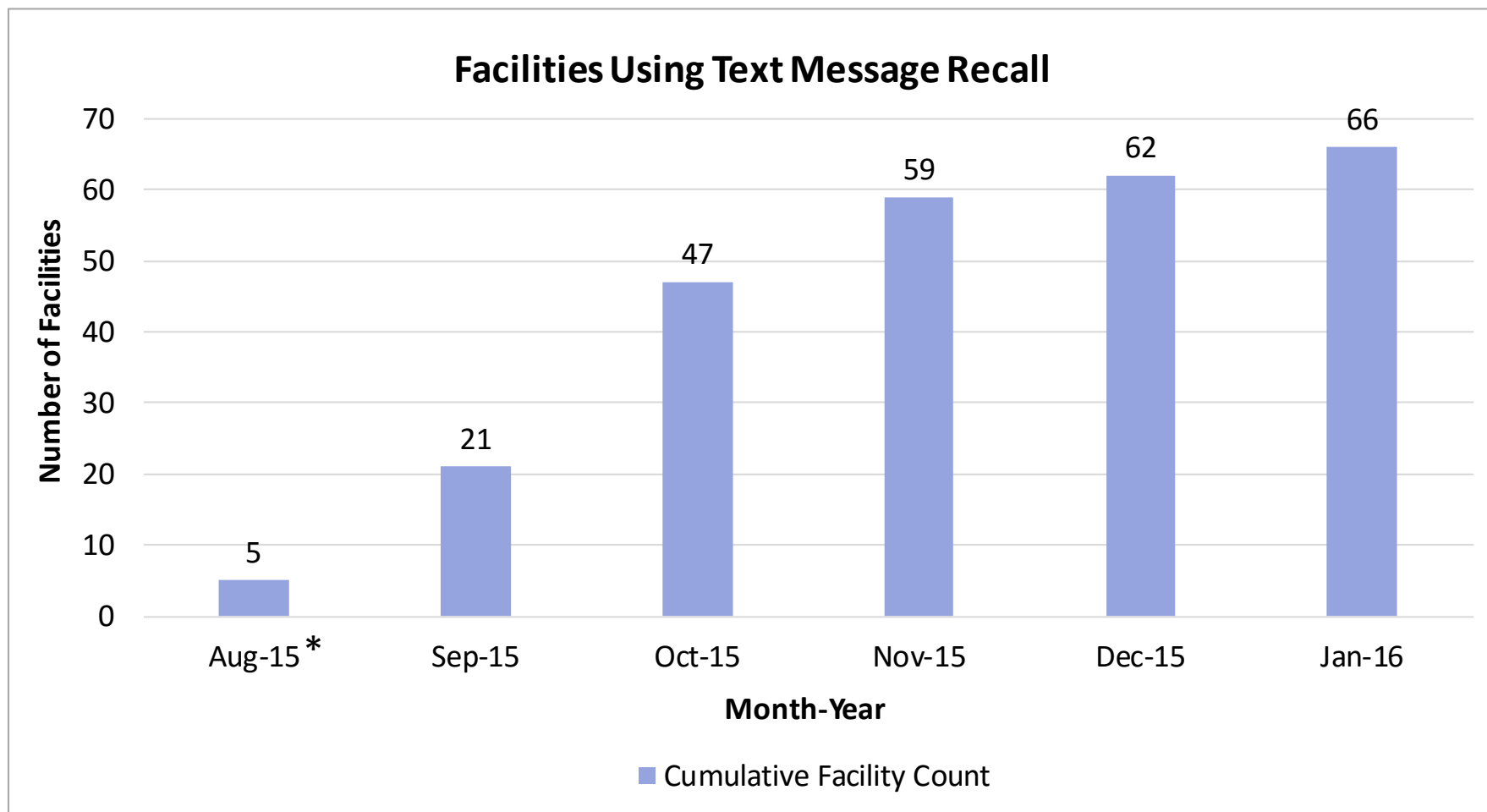
- No agency-wide policy or clear guidelines for text messaging
- Permissible content of text messages
 - Health Insurance Portability and Accountability Act of 1996
- Patient consent
- Other legal considerations
 - Data Security Risk Assessment
 - Disclaimers

Evaluation of Text Message Recall

Evaluation of Text Message Recall

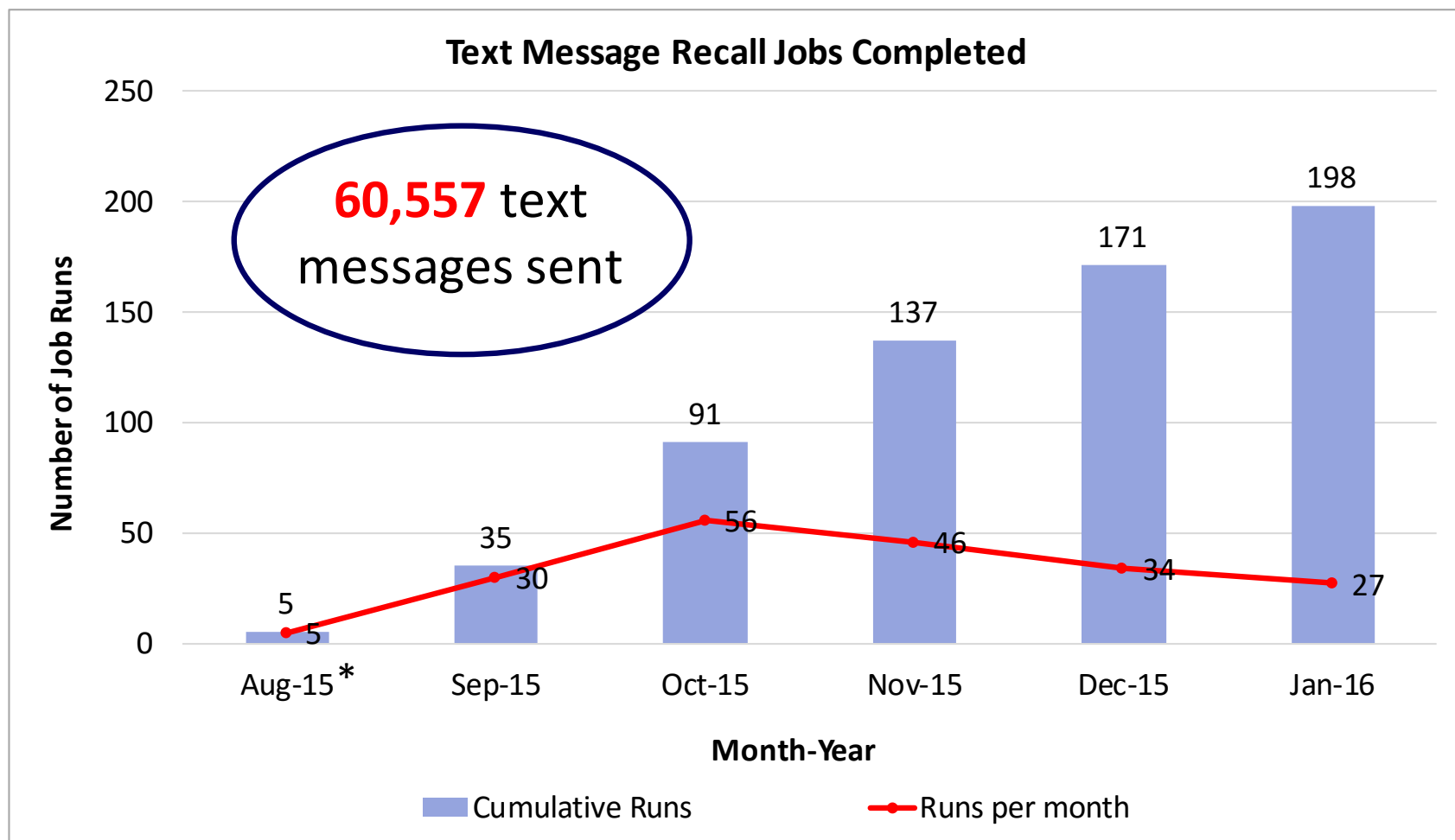
1. Text message recall utilization
2. Text message recall patient reach
3. Text message versus letter recall
4. Impact of text message recall
 - Patients included in text message recall jobs completed between 8/27/15 and 12/31/15
 - Examined patient receipt of ≥ 1 vaccine dose within 28 days of first recall text message

1. Text Message Recall Utilization (1)



* Includes facilities using text message recall since the full launch on August 27, 2015.

1. Text Message Recall Utilization (2)



* Includes facilities using text message recall since the full launch on August 27, 2015.

2. Text Message Recall Patient Reach

- 36,056 patients sent ≥ 1 text message
 - 5.5% opted out (n= 1,996)
- 44 mobile phone numbers were undeliverable
 - Not a mobile phone number (n=42)
 - Phone was deactivated (n=2)
- Common patient replies
 - Wrong number/wrong person
 - Spanish speaking
 - Thank you
 - Child doesn't need shots

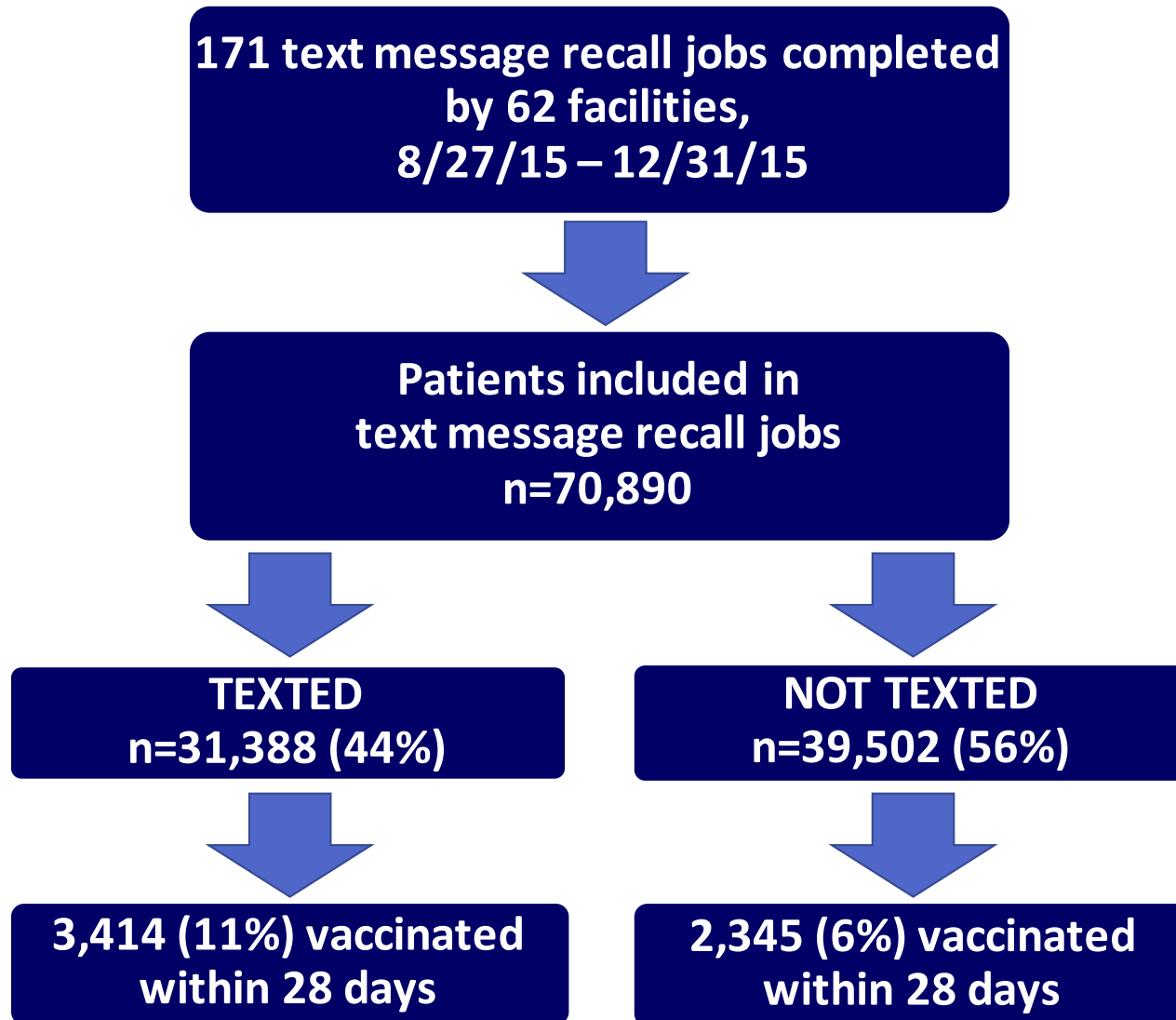
3. Text Message Versus Letter Recall

- Recall utilization between 8/27/15 and 1/31/16:

	Recall letter	Recall text
Recall jobs completed:	121	198
Facilities using recall:	48	66

- Greater utilization of text message recall than letter recall

4. Impact of Text Message Recall



Conclusions and Future Work

Conclusions

- Text messaging is an acceptable recall method among NYC providers and recipients
- Greater utilization of text message recall by facilities than letter recall
- Larger, faster patient reach than letter recall
 - Contact thousands of patients with one job
- Preliminary findings demonstrate greater patient vaccination following a recall text

Challenges to Consider

- Mobile phone capture
 - Providers must manually enter mobile phone numbers
- No bidirectional communication between provider and patient
 - Staff time required to monitor patient responses and follow-up with providers
- Patient consent
- Costs to build and sustain text messaging service

Coming Up

- Spanish language texts
 - Expected April/May 2016
- Agency-wide text message policy
- Updates to HL7 Web Service that allow providers to send mobile phone data
- Evaluation of text message versus letter recall during recent pertussis outbreak

Thank you!

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