

# Effect of Text Message-Based Patient Communications on Pharmacy Lead Time

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## Abstract

**BACKGROUND:** At its root, lead time is a concept that calls for processing of orders in advance. In the home infusion setting, it allows for reduced shipping costs, adequate time for compounds to reach appropriate refrigerated temperatures prior to shipping, and increased flexibility in processing stat orders. Timely communication with patients plays an important factor in lead time, as the current refill process requires communication with patients prior to dispensing. This organization has experienced challenges at times in reaching patients who are often not free to talk, unavailable, or generally hard to get a hold of, and this study will look to improve this communication by utilizing text messaging as refill reminders.

**PURPOSE:** This study will measure the effect on attaining lead time when using text message-based communications for processing refills.

**METHODS:** We conducted a study of prescription data obtained from one branch of this national provider organization. This was a performance improvement project approved by this organization's Corporate Review Board. Data will be collected for three months prior to and approximately two months post implementation of the use of text messages.\*\* An estimated 900 orders for each group will be gathered. All new and existing patients will be offered the opportunity to receive text message reminders. Prescription data will include specialty medications and antibiotics not dose-dependent on lab results (vancomycin and aminoglycosides are excluded). Flushes and orders filled for the first time will be excluded. The primary endpoint for this study will evaluate the percentage of prescriptions that attained lead time. Lead time will be attained when the compounding instructions for the IV room are printed before 12:00 PM, two days before the scheduled delivery date. Secondary endpoints will include an evaluation of the average number of days prior to shipment that the compounding instructions are printed and of the percentage of orders that attained lead time for patients who enrolled and did not enroll in text messages.

**RESULTS:** In the pre-implementation group, 936 orders were analyzed. In the post-implementation group, 622 orders were analyzed, with 2 of those from antibiotic patients and 69 of those from specialty patients enrolled in text messages. The pre-implementation group had 72% (674/936) of orders attaining lead time versus the 59% (365/622) of orders in the post-implementation group. Orders from specialty patients enrolled in text messages reached lead time 68% (47/69) of the time and were printed on average 5.8 days prior to delivery, whereas orders from specialty patients not enrolled reached lead time 64% (217/337) of the time and were printed on average 4.1 days prior to delivery.

**DISCUSSION:** Although we did not see our expected increase in attaining lead time for orders overall, we did see a higher proportion of orders attaining lead time from patients enrolled in receiving text message alerts. More data, however, is needed to further pursue text messaging as a viable alternative in improving patient communication.

**CONCLUSION:** In conclusion, this preliminary data shows progress toward finding a solution for improved communication with patients to positively impact pharmacy lead time.

## Background

Overall branch efficiency can be reflected by the extent lead time is attained. In this age of technology, where most individuals have access to a cellular phone, providing an additional option for a preferred method of communication may prove to improve patients' responses. This study will look to improve our communication with patients by utilizing text messaging as refill reminders.

**Disclosures:**  
 The authors of this presentation have nothing to disclose.

## Objectives

In an effort to improve this organization's process of reaching patients, this study will measure the effect on attaining lead time when using text-message based communications for processing refills.

## Methodology

We conducted a pre and post quasi-experimental study of prescription data obtained from one branch of this national provider organization. This performance improvement project was approved by this organization's Corporate Review Board.

### Study Population:

Prescription data was collected for three months prior to and approximately two months post implementation\*\* of the use of text messages.

### Inclusion Criteria

- 1) Specialty Orders
- 2) Antibiotic Orders

### Exclusion Criteria

- 1) Flushes
- 2) Orders filled for the first time
- 3) Dose-dependent lab results (vancomycin and aminoglycosides)

### Text Messaging Process

All new and existing patients were offered the opportunity to receive text message reminders. When patients verbally committed to enroll in the program, official paperwork was sent to the patient for signature. Once the required paperwork was signed and returned, the patient would then be considered enrolled into the text messaging program. Whenever an upcoming shipment of medication was required for these patients, the pharmacy technician would text message the patients through a web-based application called SMS Assistant. The technicians were limited to using the following phrase when text messaging a patient:

"Coram: In order to ship your order this week, we must speak to you before (DATE). Please contact us at (PHONE NUMBER) and ask for (TECHNICIAN'S NAME). Thank you!"

### Lead Time

This study analyzed one branch's lead time to evaluate how efficient the operation was while utilizing text messages. Lead time was attained when the compounding instructions for the IV room were printed at or before 12:00 PM, two days prior to the scheduled delivery date. This would allow for adequate amounts of time for the processing and storage of medications.

### Primary Endpoint

- 1) Evaluation of the percentage of prescriptions that attained lead time

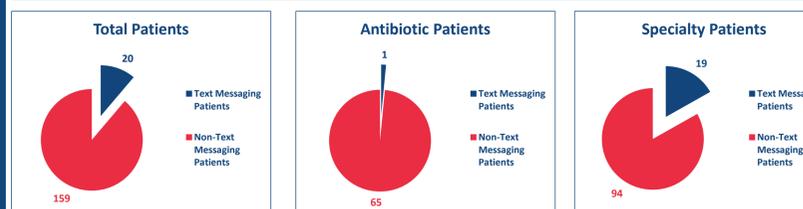
### Secondary Endpoint

- 1) Evaluation of the average number of days prior to shipment that the compounding instructions were printed
- 2) Percentage of orders that attained lead time for patients who enrolled and did not enroll in text messages

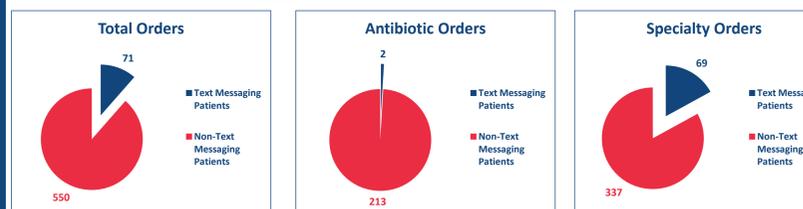
\*\*Implementation date of text messaging: January 1, 2016

## Baseline Characteristics

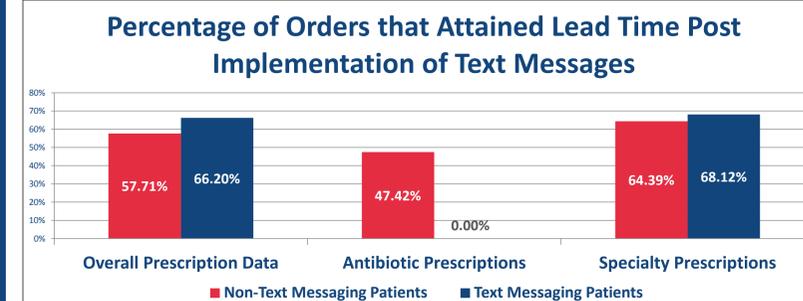
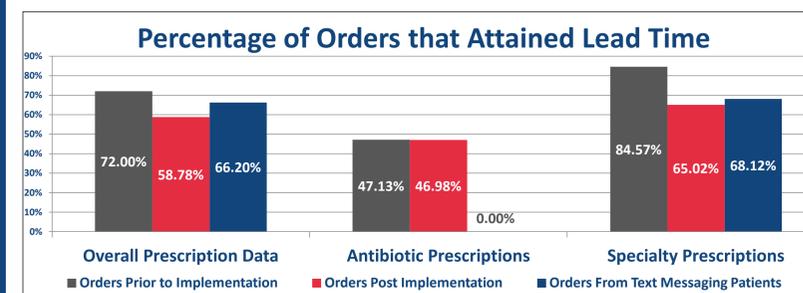
### Eligible Patients After Implementation of Texts



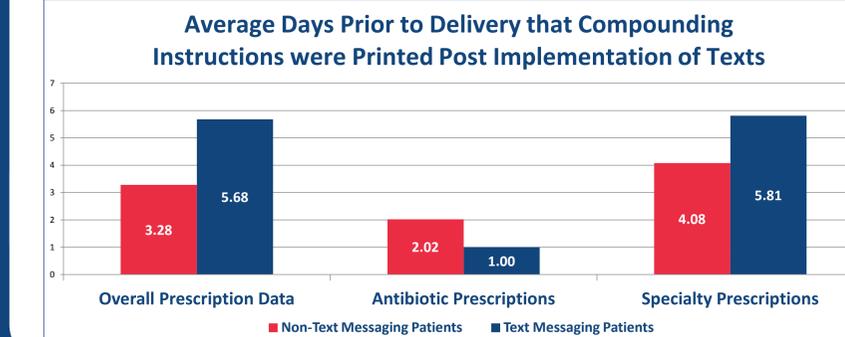
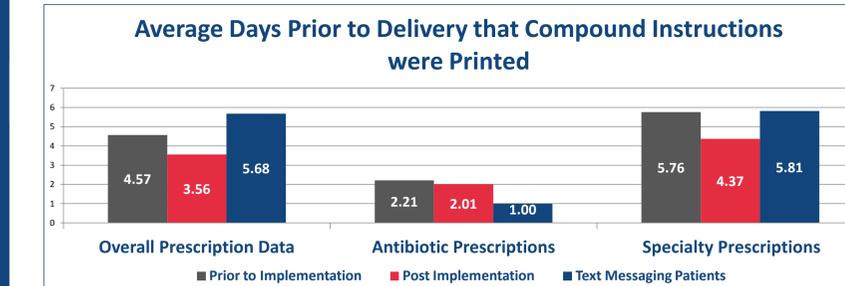
### Orders for Eligible Patients After Implementation of Texts



## Orders that Attained Lead Time



## Average Number of Days Prior to Delivery



## Results

In this study, a total of 936 orders (622 specialty and 314 antibiotic) prior to implementation were evaluated. A total of 621 orders (406 specialty and 215 antibiotic) post implementation were evaluated, with 71 of those orders (69 specialty and 2 antibiotic) from text messaging patients. 72% (674/936) of orders attained lead time in the pre-implementation cohort, with 47% (148/314) for antibiotic orders and 85% (526/622) for specialty orders. This was compared to the 59% (365/621) of orders in the post-implementation cohort who attained lead time, with 47% (101/215) for antibiotic orders and 65% (264/406) for specialty orders. Within the post-implementation cohort, 58% (318/550) of orders in the non-text messaging group attained lead times, with 47% (101/213) for antibiotic orders and 64% (217/337) for specialty orders, whereas 66% (47/71) of orders in the text messaging group attained lead time, with 0% (0/2) for antibiotic orders and 68% (47/69) for specialty orders.

In regards to the average number of days prior to delivery that the compounding instructions were printed, pre-implementation orders observed an average of 4.57 days (4273/936), with 2.21 days (693/314) for antibiotic orders and 5.76 days (3580/622) for specialty orders. The post-implementation orders saw an average of 3.56 days (2209/621), with 2.01 days (433/215) for antibiotic orders and 4.37 days (1776/406) for specialty orders. Within the post-implementation group, non-text messaging orders saw an average of 3.28 days (1806/550), with 2.02 days (431/213) for antibiotic orders and 4.08 days (1375/337) for specialty orders, whereas text messaging orders saw an overall average of 5.68 days (403/71), with 1 day (2/2) for antibiotic orders and 5.81 days (401/69) for specialty orders.

## Conclusions

Although overall efficiency was not improved post implementation of text messaging, there were observed improvements when comparing enrolled and non-enrolled patients. This preliminary data shows progress toward finding a solution for improved communication. Further research is required to validate the impact of text messaging on pharmacy lead time.