

Radiology Pre-appointment Communication Systems: Impact on Reducing Missed Care Opportunities for Out-Patient CT exams

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Introduction

Missed care opportunities (MCO) can lead to delayed patient care, poor health care outcomes and reduced scanner operational efficiency

- For this project MCO was defined as **patients who do not arrive for their scheduled appointment without canceling OR canceled on day of appointment**

Purpose of this project was to assess the impact of a pre-appointment reminder communication system (primarily via texting) in reducing MCO for out-patient CT at our institution

- Our institution has over 1500 beds and is a tertiary care center with cancer hospital
- Serves patients over wide geographic zone (primarily patients from across state of CT, but also reaches populations in NY, MA, and RI)

Methods

Implemented a pre-appointment texting system on 8/24/2023 at 4 out-patient CT locations in our institution

- 2 hospital-based locations and 2 free standing out-patient medical locations

Patients with a listed cell phone received text messages, and other patients received Interactive Voice Response phone calls

Novel pre-appointment texting program implemented that included:

- Appointment reminders
- Information on what to expect and how to prepare for their specific CT scan
- Way-finding (detailed parking information and directions from parking to check in location)
- Niche reminders for select tests to remind patients of dietary restrictions (e.g. NPO rules for CT enterography, no caffeine details for coronary studies, etc)

Content developed in English and Spanish

Methods

Hello [REDACTED]
Please confirm you will be coming for your Radiology appointment on [REDACTED] 2024 at 10:00 AM at Park Avenue Medical Center CT.

Please arrive 15 minutes prior to your appointment time.

We are located at 5520 Park Avenue, Suite 1-400, Trumbull, Connecticut, 06611.

Add appt. to Calendar:
[https://link.rx.health/\[REDACTED\]](https://link.rx.health/[REDACTED])

Children under 17 years of age, accompanying patients for appointments, cannot be left alone. If you need to bring a child along with you, please also bring an adult to watch them.

To confirm/cancel your appointment click link below: (you will be asked to enter your Date of Birth)
[https://link.rx.health/\[REDACTED\]](https://link.rx.health/[REDACTED])

Or
To confirm your appointment, please reply 1.
To cancel your appointment, please reply 7

Thank you for confirming this appointment.
Please remember to bring your insurance card and photo ID.

We look forward to seeing you.

Please call [833-772-\[REDACTED\]](tel:833-772-[REDACTED]) for questions or to reschedule.

+ Text Message

Screenshots of text messages sent to the phone of a patient. The images have been edited to improve readability and preserve patient anonymity

Hello [REDACTED],
We look forward to seeing you during your CT exam at Park Avenue Medical Center CT on [REDACTED] 2024 at 10:00 AM.

Please arrive 15 minutes prior to your appointment time.

We are located at 5520 Park Avenue, Suite 1-400, Trumbull, Connecticut, 06611.

For parking and driving directions to your appointment click here:
[https://link.rx.health/\[REDACTED\]](https://link.rx.health/[REDACTED])

Please click the link below for information on what to expect during your appointment and how to prepare.
[https://link.rx.health/\[REDACTED\]](https://link.rx.health/[REDACTED])

Children under 17 years of age, accompanying patients for appointments, cannot be left alone. If you need to bring a child along with you, please also bring an adult to watch them.

If you would like to reschedule, please reach out to us at: [833-772-\[REDACTED\]](tel:833-772-[REDACTED])

Thank you for choosing Yale New Haven Health.

Methods


Screenshots of web pages detailing parking and direction instructions (left) and information on what to expect and how to prepare for the examination (right)

Radiology and Biomedical Imaging
Parking Instructions
[ver en español](#)

Yale
NewHaven
Health

Bridgeport Hospital
Park Ave Medical Center
East Pavilion
[5520 Park Ave, Trumbull](#)

Click image for larger view




Parking

Park Ave Medical Center Garage
[5520 Park Ave, Trumbull](#)
(After entering the entrance to 5520 Park Ave, continue straight, the parking garage is located across from the East pavilion.)
Parking Cost: Free

Directions to the Department from the Parking Garage

- After parking, follow signs to the East Pavilion entrance.
- After entering the main entrance, stop at the information desk for directions to the department.
Women's Radiology: Suite 1-401
All other Radiology visits: Suite 1-400
- A receptionist will check you in at the desk upon arrival.

Site Map



Radiology and Biomedical Imaging
Pre-Exam Information and Instructions
[ver en español](#)

Yale
NewHaven
Health

Computed Tomography (CT) without IV Contrast



A Computed Tomography (CT) is a diagnostic imaging test that is fast, painless, noninvasive, and accurate.

How Should You Prepare?

- There are no restrictions in your diet required prior to this test, but we advise avoiding a large meal prior to your appointment if possible.
- Take all medications as directed by your doctor.
- Clothing containing metal zippers, wires, clasps, and snaps may need to be removed prior to your exam. If possible, wear clothing without these features with no metal in the area being imaged.

Before Arriving for Your Exam

- Children under 17 years old, accompanying patients for appointments, **cannot be left alone**. If you need to bring a child along with you, please also bring an adult to watch them.

After Arriving

- A radiology nurse or technologist will ask you a few questions regarding your medical history.

Abdomen Pelvis Exams Only

- For some exams of the Abdomen or Pelvis, you may be asked to drink oral contrast. The oral contrast improves the image quality by highlighting your intestines and making them more visible on the scan.
- Please tell the technologist, radiology nurse and/or physician if you are allergic to the iodinated contrast.
- If you are asked to take contrast orally, you will then be asked to wait 45-60 minutes for the contrast to reach your abdomen/pelvis area.
ATTENTION Females (ages 10 to 55) to ensure Radiation Safety, the following is YNH Policy on pregnancy test for this Radiology exam.
> PARENTS: A pregnancy test is required on all females (ages 10 to 17) prior to the start of the exam.
> Females (ages 18 to 55) may either sign a waiver stating that there is no chance that you could currently be pregnant, or have the choice to take a pregnancy test prior to the exam

During Your Exam

- While positioning you on the exam table, the technologist will explain your procedure and answer any questions you may have.
- Most often, you will be asked to lie flat on your back.
- The table you are on will slide into the scanner. The scanner is open at the back and the front, allowing you to see out. The technologist will always be able to see and hear you during your exam.
- You will be asked to hold still and may be asked to hold your breath. You will only be inside the machine for a few minutes.

Exam Duration

- Time drinking contrast: 45-60 mins (if required).
- Your scan will take approximately 10-20 minutes, with only a few minutes inside the actual machine.

After Your Procedure

- There are no restrictions placed on you after this procedure. You may eat and drive as normal.
- If you were given oral contrast, you may experience some indigestion and loose stool. This is expected.
- Your exam will be interpreted by a Radiologist (a doctor who is an expert in understanding these exams).
- A report will be sent to your provider, who can review the results with you.

[CLICK HERE](#) for information on Computed Tomography exams at Radiologyinfo.org
(Exam preparation instructions on this informational site may differ from YNH's, please follow our instructions.)

Radiologyinfo.org is the public information resource developed by health care professionals in collaboration with patients. It was established to inform and educate the public about how various x-ray, CT, MRI, ultrasound, radiation therapy and other procedures/exams are performed and what you may experience during your procedure. Radiologyinfo.org is sponsored by the Radiological Society of North America (RSNA) and the American College of Radiology (ACR).

Thank you for choosing
Yale New Haven Health.
We are looking forward to providing you
"With the Greatest of Care."

CT_w0 - Rev: 6-2024

Metrics

SMART Goal: To decrease MCO by 10% over 3 months

Data analysis done for period 6 months prior to, and 6 months after go-live date

Outcome metric

- MCO rate: number of MCO/total scheduled scans

Process metric

- Patient engagement with text messages
 - *A response to the message was considered engagement*

We additionally performed subgroup analysis to study health equity differences based on age, race and ethnicity

Results

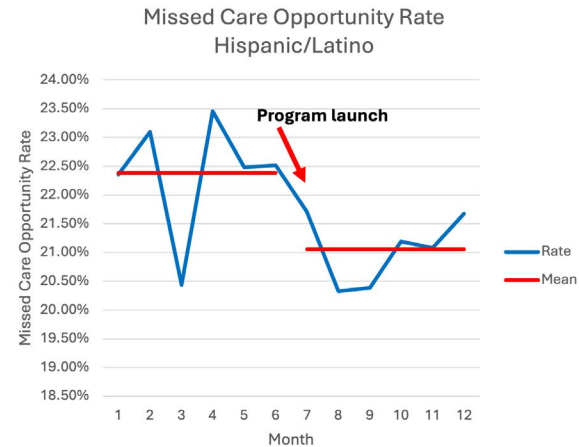
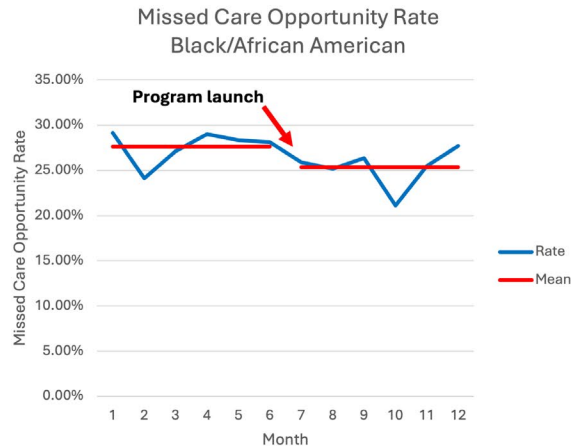
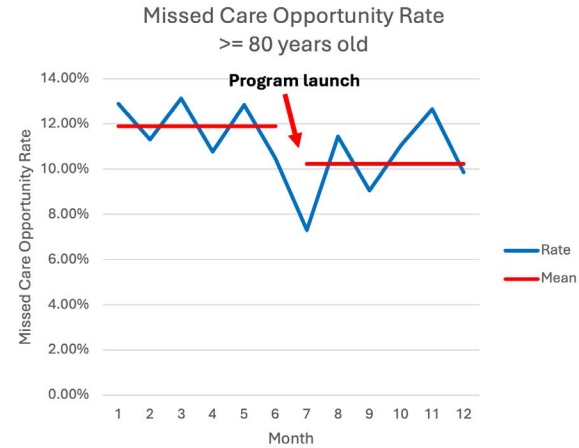
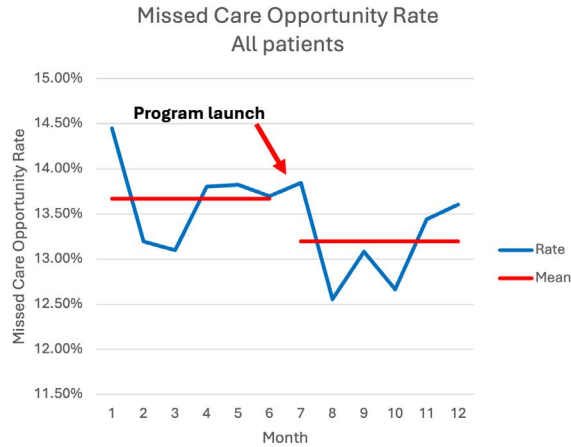
46,581 appointments for CT scans created between 2/24/2023 and 2/23/2024

Communication was primarily (97%) via texting (22697/23471), with 3% (774/23471) receiving IVR calls

Engagement with the program similar across all groups, ranging from 79-81%

Patient initiated appointment cancellation was 11% (2544/22697) via text message and 15% (114/774) for IVR phone calls.

MCO rates for all patients and select demographics



Results: Subgroup analysis

Reduction in MCO noted across all groups, with greater impact in elderly, African Americans and Hispanic/Latino groups

	Baseline	Post-launch	Relative Reduction %	Absolute Reduction %
All patients	13.67% (3159/23110)	13.20% (3097/23471)	3.47%	0.47%
≥ 80 years old	11.90% (299/2513)	10.24% (262/2558)	13.92%	1.66%
African American	27.64% (866/3133)	25.36% (760/2997)	8.26%	2.28%
Hispanic/Latino	22.39% (544/2430)	21.06% (502/2384)	5.94%	1.33%

Discussion

Nominal relative reduction in MCO across all groups (3.47%)

More robust relative reduction in MCO rate for African American (8.26%) and Hispanic/Latino (5.94%) groups

- Suggests that our unique pre-appointment texting program may represent a better way to engage these populations to encourage out-patient CT completion

Additional benefits include:

- Better engaged and more informed patients (around 80% of patients interacted with messages)
- Revenue generation: Better utilization of out-patient scanner slots

Limitations:

- We did not correlate the results with poverty indices or other social determinants of health
- We did not formally study patient rating of the program
 - We do ask this and monitor this via our voluntary post appointment patient experience surveys and review the comments bi-weekly as a team