

INNOVATING CARE DELIVERY IN RADIOLOGY

Using a Results Clinic to Manage
Completion of Imaging Follow-Up

Debra Whorms, Tessa Cook et al

Penn Radiology
Philadelphia, PA



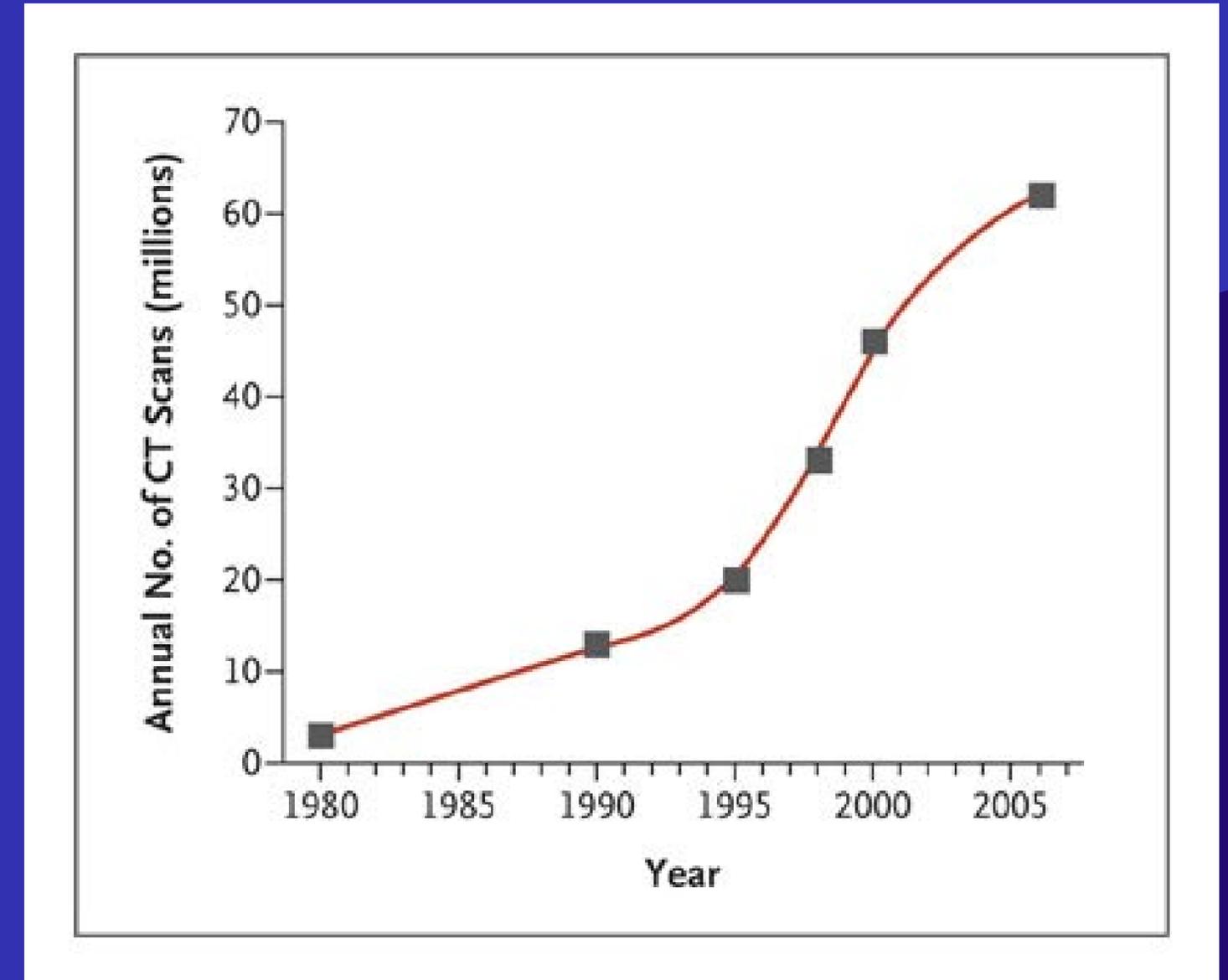
84 Million

ESTIMATED NUMBER OF CT SCANS BY 2022

1.6 Million

NEW INCIDENTAL PULMONARY NODULES (IPNs) / YEAR

Rapid rises in imaging over the last several years, resulting in increasing volumes of incidental findings requiring follow-up, increasing strain on clinicians



- Over 75 Million CT Scans Are Performed Each Year and Growing Despite Radiation Guidelines Research
- Brenner DJ, & Hall EJ (2007). Computed tomography: an increasing source of radiation exposure. The New England journal of medicine, 357 (22), 2274 PMID: 18046031
- Gould MK, Tang T, Liu IL, Lee J, Zheng C, Danforth KO, CoAE, Di Fiore JL, Suh DE. Recent Trends in the Identification of Incidental Pulmonary Nodules. Am J Respir Crit Care Med. 2015 15;192(10):1208. doi: 10.1164/rccm.201505090OC. PMID: 26214244.

The Problem

FOLLOW UP MATTERS

- Early Detection and Diagnosis, treatment
- Improved patient outcomes
- Legal and economic impacts

WHO IS RESPONSIBLE?

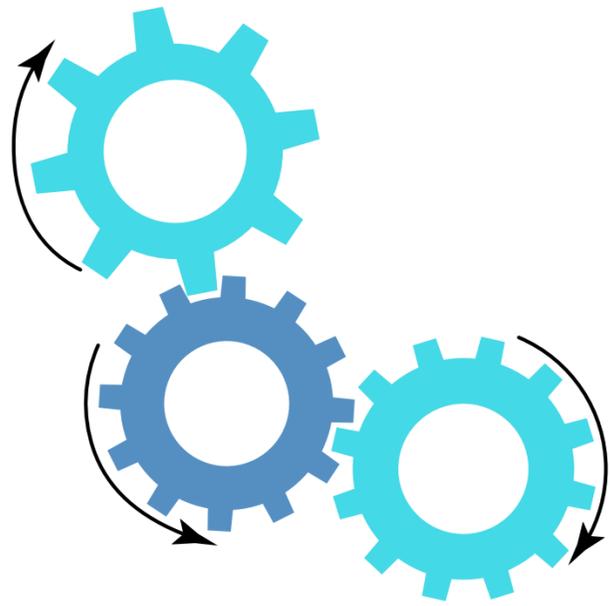
- Likelihood of follow -up depends on ordering provider specialty
- Primary care providers are overburdened

FRIVOLOUS REFERRALS

- Referrals to pulmonology and thoracic surgery
- IPNs are ubiquitous and most often are benign
- Limit access to specialists

While follow-up of incidental imaging findings is important, various systematic factors contribute to patient's falling through the cracks and not getting appropriate follow-up care



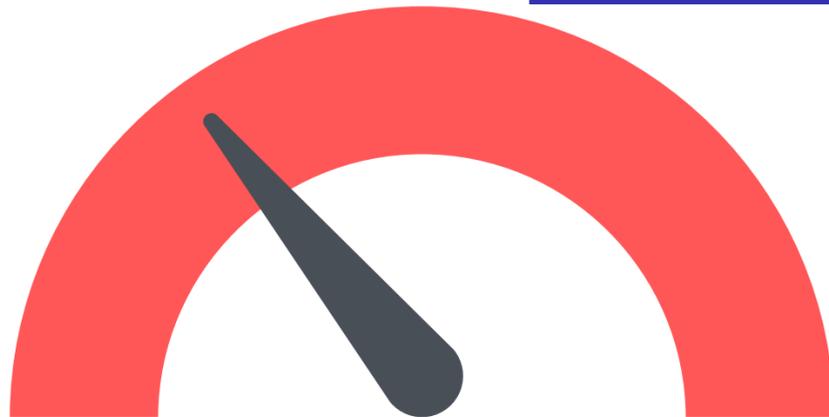


IMPROVING FOLLOW-UP OF INCIDENTAL FINDINGS

REDESIGNING
PATIENT
EXPERIENCES

STREAMLINING
PLATFORMS

UTILIZING
EXPERTS
EFFECTIVELY



Improving patient follow-up and care will require multi-faceted innovated approaches from Radiology to better monitor incidental findings and streamline follow-up care to improve current abysmally low rates of incidental follow-ups which can be as low as 30% depending on a number of factors



RESULTS CLINIC

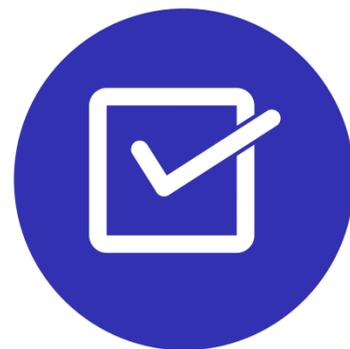
PILOT PROGRAM

Radiology and pulmonology ran clinic to coordinate follow-up of incidental pulmonary nodules in subspecialty surgical practices

AIMS



IMPROVE AND EXPEDITE
PATIENT CARE



INCREASE NUMBER OF
COMPLETED FOLLOW-UPS

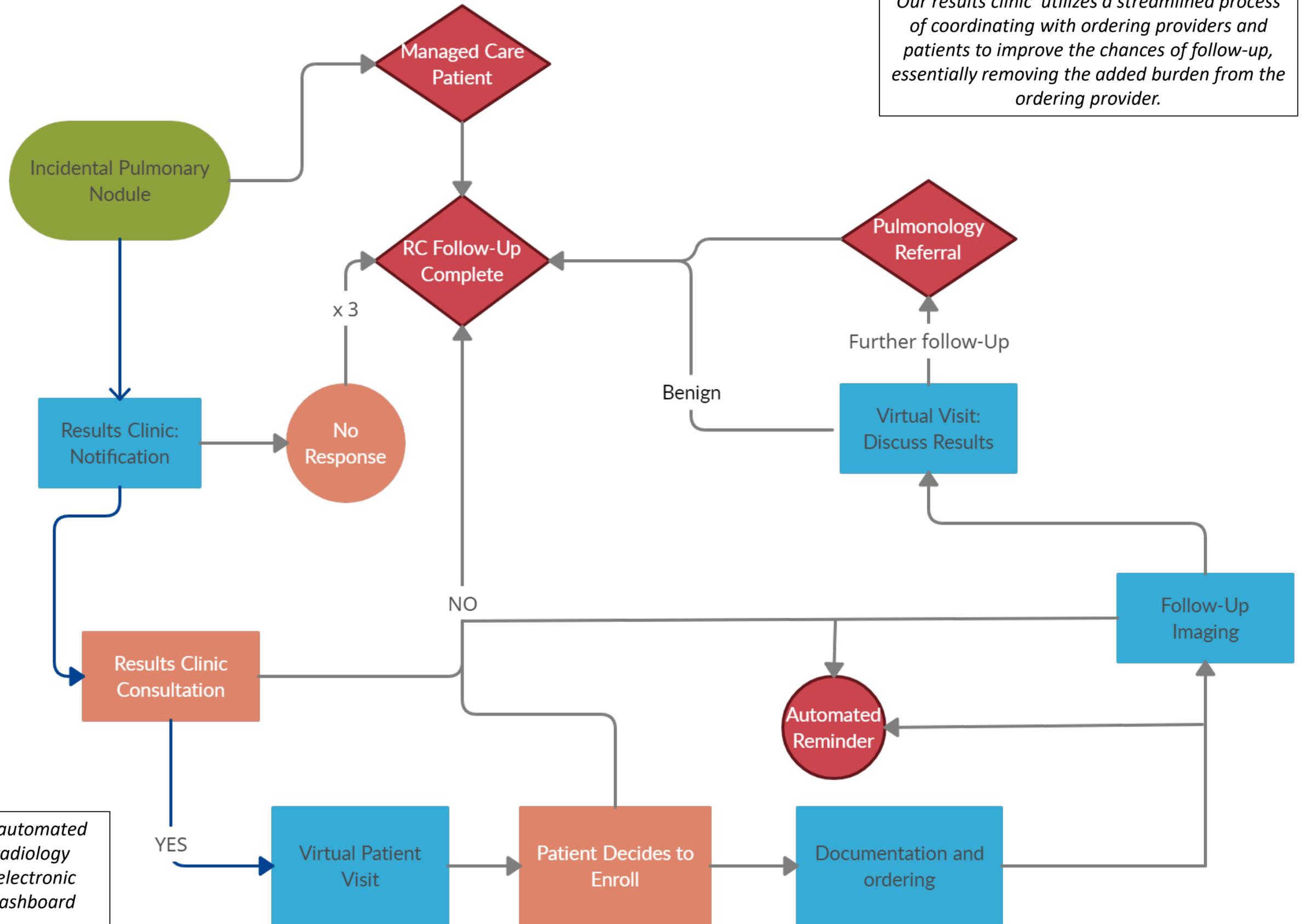
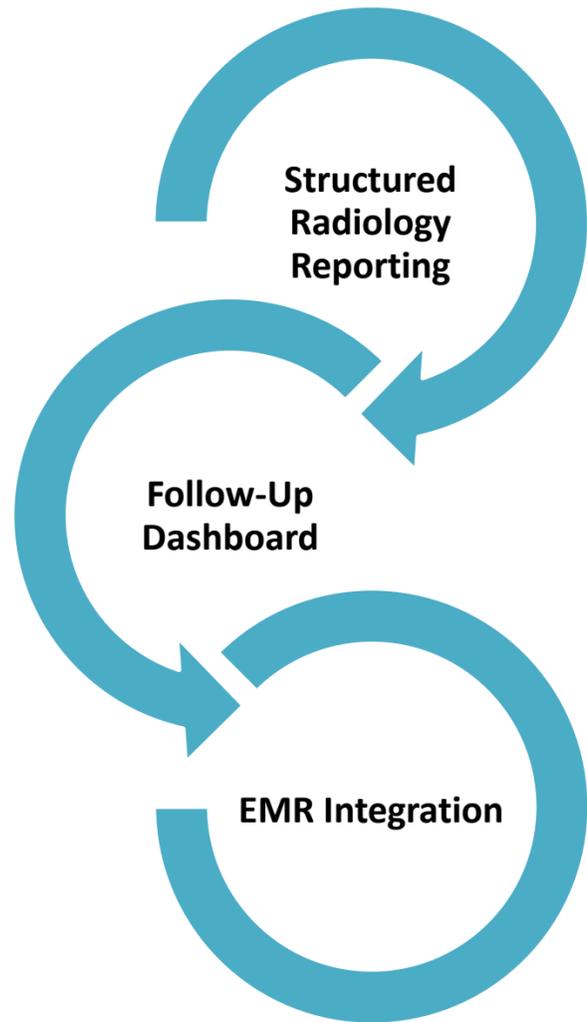


IMPROVE COMPLIANCE WITH
NATIONAL GUIDELINES



IMPROVE ACCESS TO
SUBSPECIALTY CARE

The Process



Our results clinic utilizes a streamlined process of coordinating with ordering providers and patients to improve the chances of follow-up, essentially removing the added burden from the ordering provider.

Patients requiring follow-up are determined using automated algorithms designed to generate data from our radiology reporting system and making connections to the electronic medical records and are then monitored on our dashboard which is updated daily.

FOLLOW-UP PLATFORM

A dashboard view showing a list of patients. Each patient entry includes their name, age, gender, and a list of exams. The status of each patient is indicated by a button: 'FOLLOWED' (red) or 'CLOSED' (green). A 'RECOMMENDED' banner is visible for one patient, indicating a due date for imaging.

Sample Summary dashboard view showing patients currently being followed and the status of follow-up.

A detailed view of a patient's record, showing 'Notes', 'Virtual Visit', and 'Future Imaging' sections. The 'Notes' section contains text about enrollment and intervention. The 'Virtual Visit' section shows a completed visit. The 'Future Imaging' section lists upcoming imaging studies with their dates and order status.

Dashboard intervention/management page showing enrollment status and details for virtual visits

TO: [Redacted]
 FROM: resultsclinic@penmedicine.upenn.edu
 CC: [Redacted]
 SUBJ: Penn Medicine Results Clinic Notification: Patient Needing Imaging Follow-Up
 BODY:
 Dear [Redacted],
 The Penn Medicine Results Clinic (PMRC) is monitoring patients with pulmonary nodules identified on imaging. We noticed that one of your patients had a chest exam that detected a pulmonary nodule requiring follow-up. Would you like to consult the PMRC to manage the imaging follow-up for your patient?
 The patient, [Redacted] (EMPI: [Redacted]) had a CT CHEST W IV CONTRAST PULMONARY EMBOLUS on 2020-10-14.
 • **Yes!** Please track this patient's lung nodules and keep me informed! If you are consulting the PMRC to follow the patient, please let the patient know that they will be hearing from us to set up a virtual visit. We will keep you updated as to the status of the follow-up via Telephone Encounters in Epic.
 • **No.** The follow-up of this nodule is already being managed by me or (according to the EMR) another member of the patient's care team.
 Thank you!

Sample EPIC message sent to ordering provider providing option for results clinic enrollment

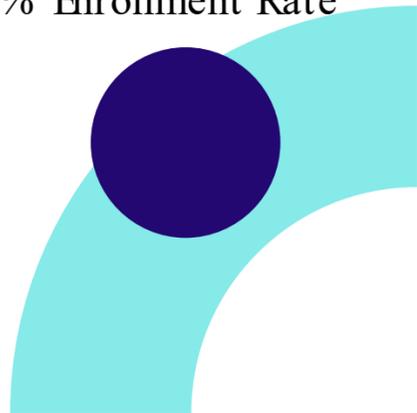
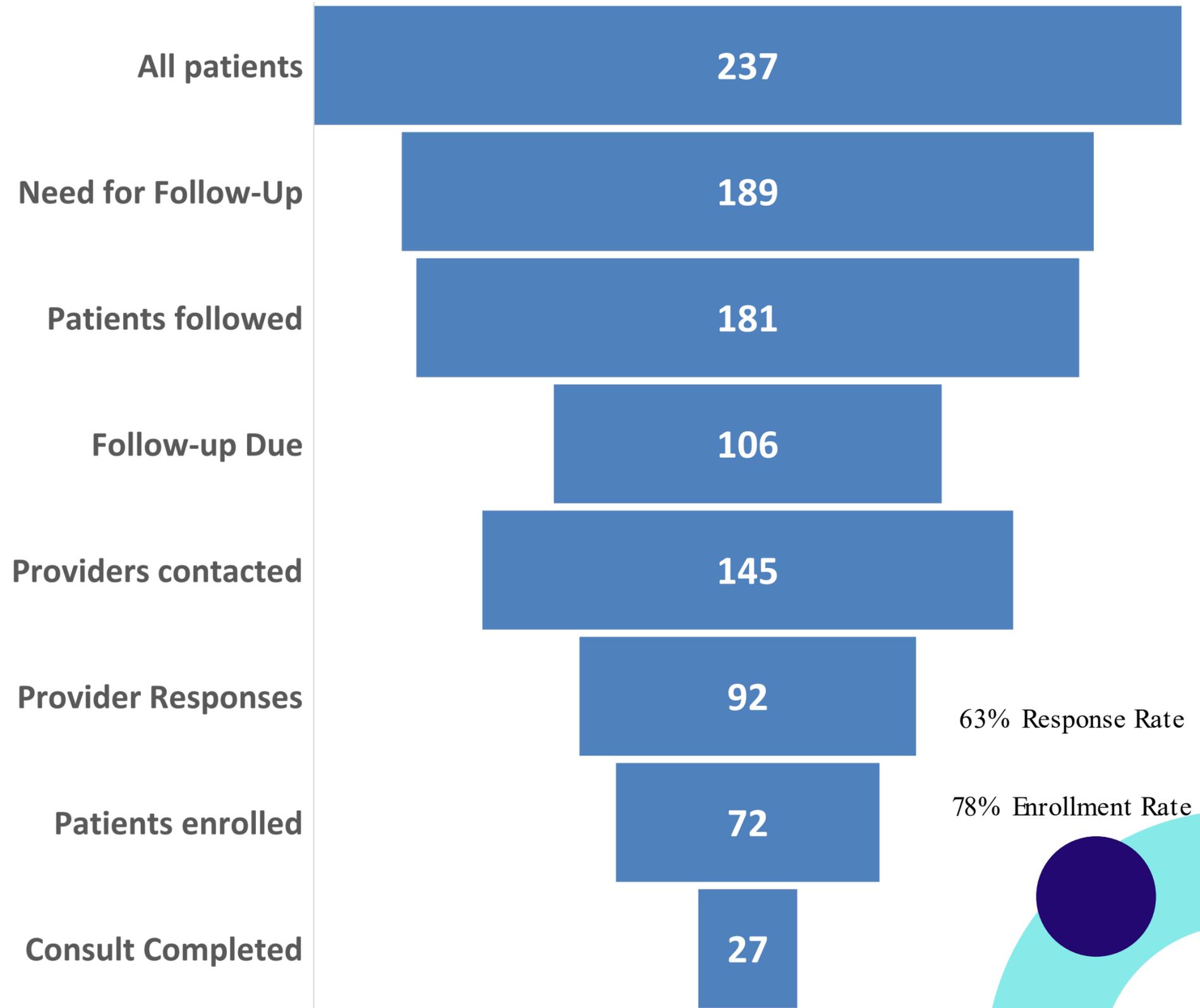
Close up view of patient summary view showing patient enrollment status, imaging details and due date for imaging recommendation

A close-up view of a patient's summary, showing a list of exams with their dates and details. A 'RECOMMENDED' banner is visible at the bottom, indicating a due date for imaging.

PRELIMINARY RESULTS

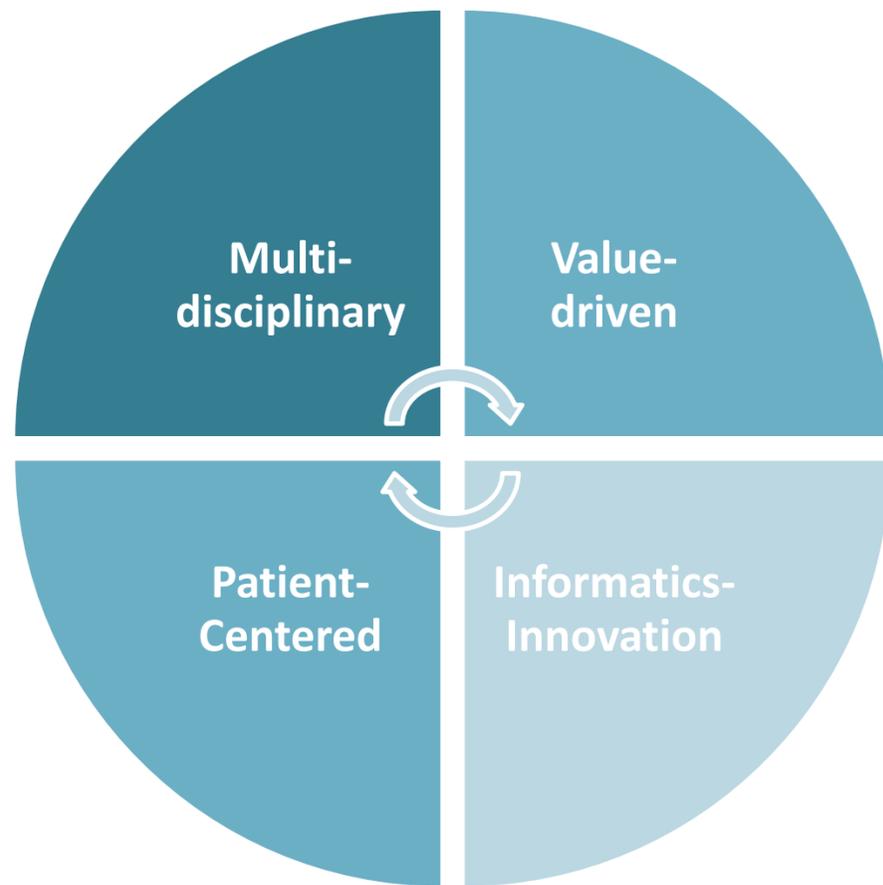
Seven months

- Implementation: March 2021 -Current
- Subspecialties Enrolled: ENT, Urology, Neurosurgery
- Daily RC dashboard updates
- Team: 1 coordinator, 1 nurse practitioner, 1 physician, 2 programmers



WHAT WE HAVE LEARNED

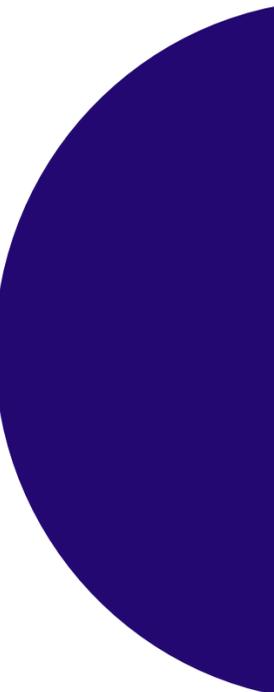
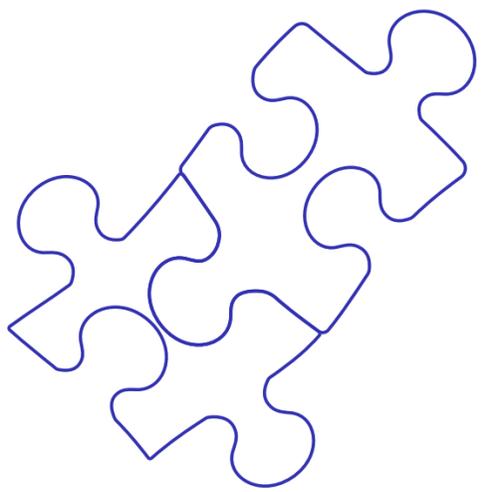
A Results Clinic is a viable strategy



- **Decreases number of incomplete/missed follow-ups**
- **Expedites patient care**
- **Increases value of care delivery**

LOOKING AHEAD

- **Non-pulmonary incidentals**
- **Non-specialty providers**



THANK YOU

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