

Incidental Nodules

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Overview

- Why?
- How?
- Outcomes
- Future

Why?

Urgent problem

- Unmet clinical need
 - Late discovery leading to advanced disease
- Missed opportunity
- Broken promise to patient
- Prevent “lost to follow-up”
- Assist Primary Care
 - Flooded inbox
 - Complex and lengthy reports
- Reduce Liability

Easy to do

- This is business you already have
- Technology solution is easy and scalable
- Medium effort, high impact
- Requires focus and discipline

Why?

Aligns to Wellstar System Goals

- Fulfill Wellstar “Brand Promise” to Patient
- Reduce mortality
- Improve Population Health
- Improve patient experience and customer service
- Leave no-one behind

Why?

Wellstar Health System 2019

- 10,000 CTs Chest annually *for problems other than the lung*
 - 130,000 images of all types that include the lung
- Emergency Rooms and Hospitalists
- No formal follow-up program
- Estimated 100 - 250 unmanaged / undetected lung cancers annually

HOW?

PUSH or PULL

How?

PUSH

- **Highlight** Incidental Findings
- Send to ordering physician

PULL

- Search for Incidental Findings
- Act on and *close the loop* on Incidental Findings

PUSH Technique

- Radiologist reads report
- **Highlights** incidental findings
 - Color coding
 - Place in Report Summary
- Report is sent to Inbox
 - ER physician
 - Hospitalist
 - Primary Care
- Report is sent to MyChart
- Recipient is responsible
 - Identification
 - Work-up
 - Referral
- Open-ended: no follow up by Incidental Nodule Team
 - Resolution of Incidental Finding cannot be determined

PULL technique

- Identify those at risk
 - Natural Language Processing
- Personally contact Primary Care and/or Patient

- Navigate the patient
- Manage Findings by Multi-disciplinary Team via protocol

PULL via Natural Language Processing Engine

Inclusion Criteria

- Nodule terms
 - Nodule
 - Lesion
 - Mass
 - Opacity
- Pulmonary terms
 - Apical
 - Hilar
 - Interstitial
 - Pleural

Exclusion Criteria

- Departmental terms
 - ICU
 - CCU
 - NICU
 - Pulmonary Rehab
 - Oncology
- Radiology terms
 - Non-lung views

Natural Language Processing

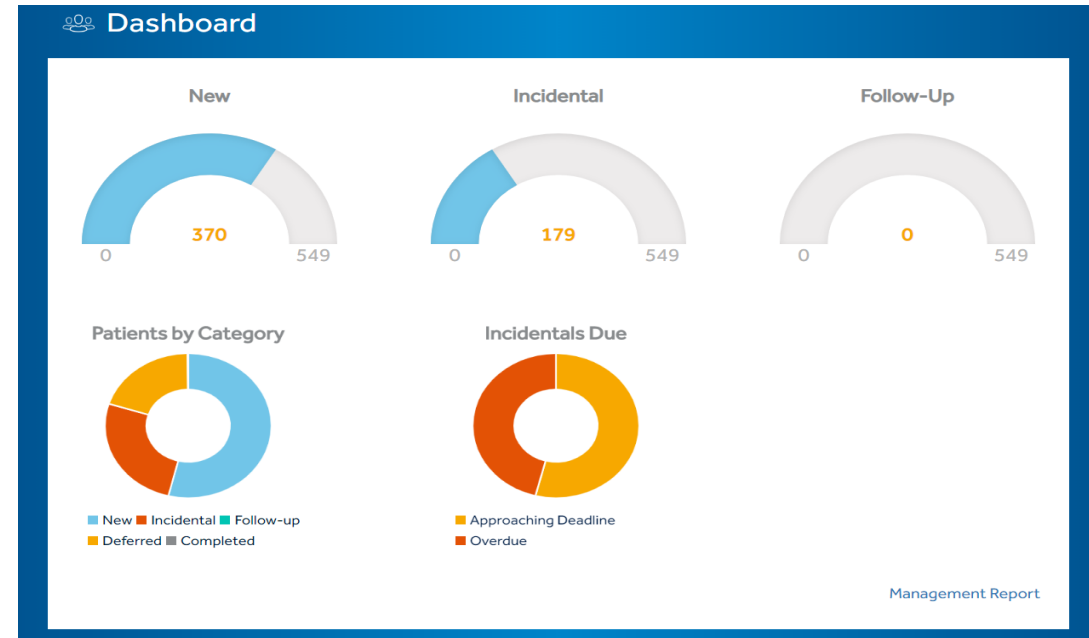
PULL the findings

- NLP Engine looks for abnormal findings
 - Specific terms
 - Specific organ systems
- ILN Report Coordinators review reports and refer by protocol

Released By: KEVIN S EARLY, MD 9/17/2020 12:50 AM The Results Reporting Office (F1) will complete appropriate follow-up actions based on defined processes. F1 EXAM: KH CT ABDOMEN/PELVIS W/O IV CONTRAST TECHNIQUE: CT scan of the abdomen and pelvis with multiplanar reformatted images generated from the data set without IV contrast. Dose reduction techniques were utilized. CLINICAL INDICATION: urinary frequency, incontinence and hematuria. Pain FINDINGS: COMPARISON: No comparison studies are available at this time. Liver: Hepatic steatosis. Lower chest: 5 mm pleural-based noncalcified pulmonary nodule left lower lobe image 15. Additional smaller pulmonary nodules are seen in the left lower lobe. Pancreas: Normal. Gallbladder: Normal. Adrenals: Normal. Spleen: Normal. Gastrointestinal: The stomach, small bowel, and colon appear normal. The appendix is not identified, but there is no evidence of inflammation. Kidneys: 3 mm calculus in the right kidney, nonobstructing.. No evidence of hydronephrosis. Left kidney normal. Vasculature: Abdominal and pelvic vasculature appears normal on unenhanced images. Pelvis: Prostate and seminal vesicles are normal. Bones: No destructive osseous lesion. Lymph nodes: No enlarged lymph nodes. Nonobstructing right renal calculus IMPRESSION: . . of the chest at 12 months could be performed. There are noncalcified solid and/or part solid nodules as above. Per 2017 Fleischner Society guidelines, the recommendation for a patient with multiple < 6 mm noncalcified nodules is usually no followup scan. In a high risk patient, optional CT scan

Daily Dashboard

- New reports come into the **Daily Dashboard**
- Coordinators review pts within this bucket
 - Enroll in the program, as shown in the *Incidental* bucket
 - Defer to clinical team for review & enrollment.
- Patients are tracked through each step of the program via the **Incidental Dashboard**.



Incidental Dashboard

Recommendation Selection



Recommendation Letter



Order Summary



Appointment Reminder



Radiology Report

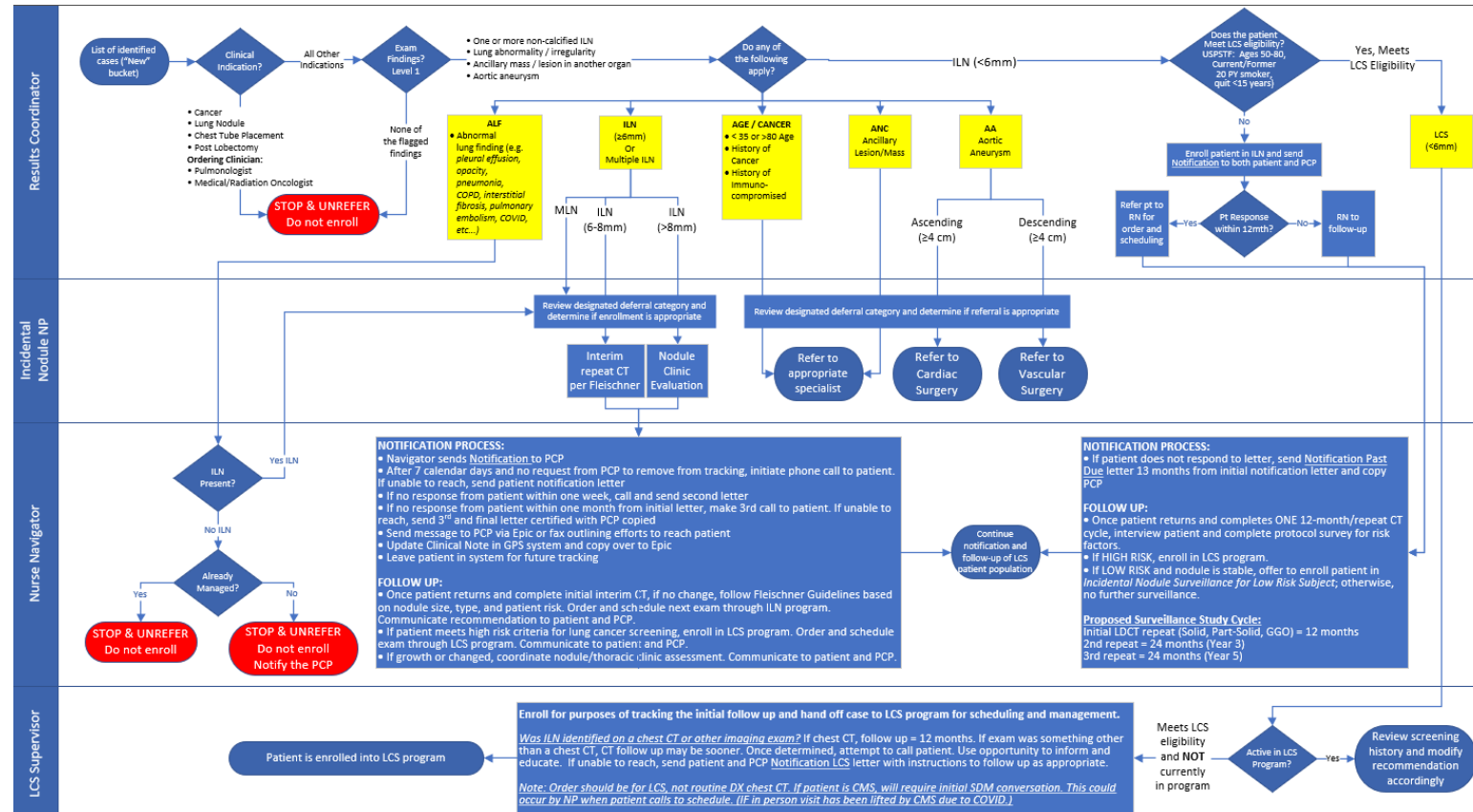


Tracking Dashboard

PULL: Nodule Management

CLOSE THE LOOP

- Coordinators refer cases by protocol
- Navigators and Nurse Practitioner initiate management
- Refer to Incidental Nodule Clinic



OUTCOMES

Closing the loop on Incidental Findings

Wellstar

12 months: October 2020 – October 2021

Incidental Lung Nodule Program

- 10,000 CT scans of the Chest
- 130,000 images of other types

Incidental Lung Nodule Program Update

10/15/2021

Number of patients enrolled for further scanning	4,871
Total patients identified & reviewed by ILN coordinators	51,628
Number of patients deferred to NP & RN for clinical review	26,546
Number of cases reviewed by MDs	610
Number of patients identified to be seen in ILN clinic; # seen	250;144
EBUS/biopsy performed/scheduled ; surgeries performed	46;20
Number of cancers diagnosed since inception	28
Number of days since program launch	368

FUTURE

Abdomen and Pelvis Incidental Findings

Incidental Findings of Abdomen and Pelvis

75,000 Annual CTs Abdomen and Pelvis

- 51,000 in the Emergency Departments
- 7,000 by Hospitalists
- 17,000 outpatient

Program Development: Abdomen and Pelvis

- Set up NLP terms
- Set up NLP scans
- Staff for Report Coordinators
- Establish Navigators

- Create Synchronous Multi-disciplinary teams
 - Hepato-biliary
 - Renal / Genito-urinary
 - Pelvic
 - Vascular
- Patient management by protocol

CONCLUSIONS

Key Elements

Incidental Findings Programs

Urgent problem

- Missed opportunity
- Broken promise to patient
- Liability

Easy to do

- This is business you already have
- Technology solution is easy and scalable
- Medium effort, high impact
- Requires focus and discipline
- Assemble your physician colleagues
- Recruit lay board members

Key Elements

Fantastic return

- Demonstrates the “system” cares
- Benefits entire community
- Mortality and morbidity reduction
- Cost reduction on Population Health basis

Financially Sustainable

- Proforma supports assumptions
- Aligns with Lung Screening Program