Multiphasic Plan-Do-Study-Act Interventions Continue to Improve the Appropriateness of Further Workup for Incidental Thyroid Nodules

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No conflicts to disclose.
2015 ACR White Paper introduced incidental thyroid nodule (ITN) reporting guidelines to reduce unnecessary workup of thyroid nodules

Our institution’s baseline rate of inappropriate ITN follow-up recommendations found on chest and neck CTs was 88%

Project aims to improve quality of ITN reporting and decrease the rate of inappropriate ITN follow-up recommendations to <50% from October 1, 2019 to January 31, 2020

Use current 2015 ACR guidelines for ITN reporting

Implement three major Plan-Do-Study-Act (PDSA) interventions to achieve and sustain the highest improvement in quality of recommendations
• Registered demographic, clinical, and imaging data into R-SCAN to generate ACR appropriateness criteria scores for ITN follow-up recommendations

• Scores <5 were grouped as inappropriate recommendations
• Retrospective chart review of ~10,000 chest and neck CTs from Feb 1, 2019 to Jan 31, 2020
• Total of 344 ITNs were reported
• Recorded demographic, clinical, and imaging data of all 344 studies
Methods

- Implemented 3 major PDSA intervention phases over 18 weeks with multiple smaller follow-up interventions
  - **Plan**: To decrease inappropriate recommendations to <50%
  - **Do**: Educate faculty and residents of ACR guidelines for ITN reporting
  - **Study**: Retrospective chart review
  - **Act**: Determine additional interventions for further improvement
Methods

**Phase 1: Faculty education**
- Oral presentation of white paper guidelines
- E-mail containing ITN guidelines

**Phase 2: Resident education**
- Oral presentation of white paper guidelines
- Posted algorithm above reading stations and on the hospital website

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### White Paper Algorithm

**Incidental Thyroid Nodule Detected on CT**

- **Suspicous finding on CT** (i.e. invasive features, abnormal surrounding lymph nodes)
  - Evaluate with Thyroid Ultrasound

- **Limited life expectancy & comorbidities**
  - Age < 35 years
    - < 1 cm: No further evaluation
    - ≥ 1 cm: Evaluate with thyroid US
  - Age > 35 years
    - < 1.5 cm: No further evaluation
    - ≥ 1.5 cm: Evaluate with thyroid US

- **No suspicious CT findings**

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Phase 3: Created a dictation macro to standardize reporting of ITNs

- Includes a drop-down selection menu for:
  - Size of nodule
  - Age of patient
  - ACR ITN Guidelines

DISCUSSION:

Thyroid: A thyroid nodule measures [measurement], given the patient is [greater/lesser] than 35 years old, this nodule [meets/does not meet] the 2015 ACR ITN criteria for follow-up thyroid US.

[ Follow-up with US for nodules IF:

$< 35 \text{ yo: } \text{nODULES} >/) = 1.0 \text{ cm}$

$/>/) = 35 \text{ yo: } \text{nODULES} >/) = 1.5 \text{ cm}$

OR suspicious findings on CT/MRI/US: abnormal LYMPH NODES (large, calcifications, cystic components, enhancement), INVASION of local tissues by thyroid nodule or PET avid ]

IMPRESSION:
Results

• From Baseline to Phase 1: Significantly increased average appropriateness scores from 4.07 to 4.9 (p<0.01)

• From Phase 1 to Phase 2: Slightly decreased average appropriateness scores from 4.9 to 4.76 (p=0.68)

• From Phase 2 to Phase 3: Significantly increased appropriateness scores from 4.76 to 6.55 (p<0.01)
An initial decrease in studies dictated with appropriateness score <5 corresponds with the first interventional phase, faculty education. Further decline corresponds with the third interventional phase, implementing a standard dictation macro for incidental thyroid nodules (ITNs). The target goal of decreasing inappropriate recommendations for ITNs in our practice to <50% was met between Weeks 15 and 16.

Results
Conclusion

• Multiple PDSA interventions are needed for continued improvement in quality and appropriateness of ITN follow-up recommendations.

• After the third intervention phase, the rate of inappropriate recommendations for ITNs was below 50% and sustained for greater than 2 weeks.

• Additional interventions, such as implementing resident score cards and adjusting our target goal to <25%, will be necessary to continue our goal for best practices.