

The Effect of Using the  
**Summary Code**  
in ED CT  
**Radiology Reports**  
on the

**Compliance Rate**  
of  
**Recommended**  
**Follow-up Studies**

This research was approved  
by Hartford Hospital  
Institutional Review Board:  
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# Authors & Disclosure:

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# Background: Current State

- A large number of CT scans are ordered by the ED daily to triage & manage patients.
- Complex reports and ambiguous verbiage
  - Can delay treatment & cause harm
  - Can lead to incomplete transition of care
- Recommendations for further evaluation of unexpected findings may not be performed
- Multiple studies showed that majority of incidental findings on CT scans lack appropriate follow-up due to **uncertainty of recommendation** from the radiologists' end.
  - *J Emerg Med.* 2010 Apr;38(3):346-50

# Proposed Summary Code for Future ED CT Reports:

- SC1 – Negative or significant findings are unlikely.
  - No recommendation for further imaging evaluation is indicated.
- SC2 – Findings of potential importance
  - **Further evaluation will likely be needed.**
  - Follow-up is not necessary for this episode of care.
- SC3 – Findings of potential clinical significance.
  - Follow-up recommended, likely **require further imaging or clinical diagnostic evaluation** in the acute setting to determine significance.
- SC4 – Diagnostic positive results: [indicate finding].
- SC5 – Critical finding; specialty care providers will define a clinical management plan without further imaging evaluation

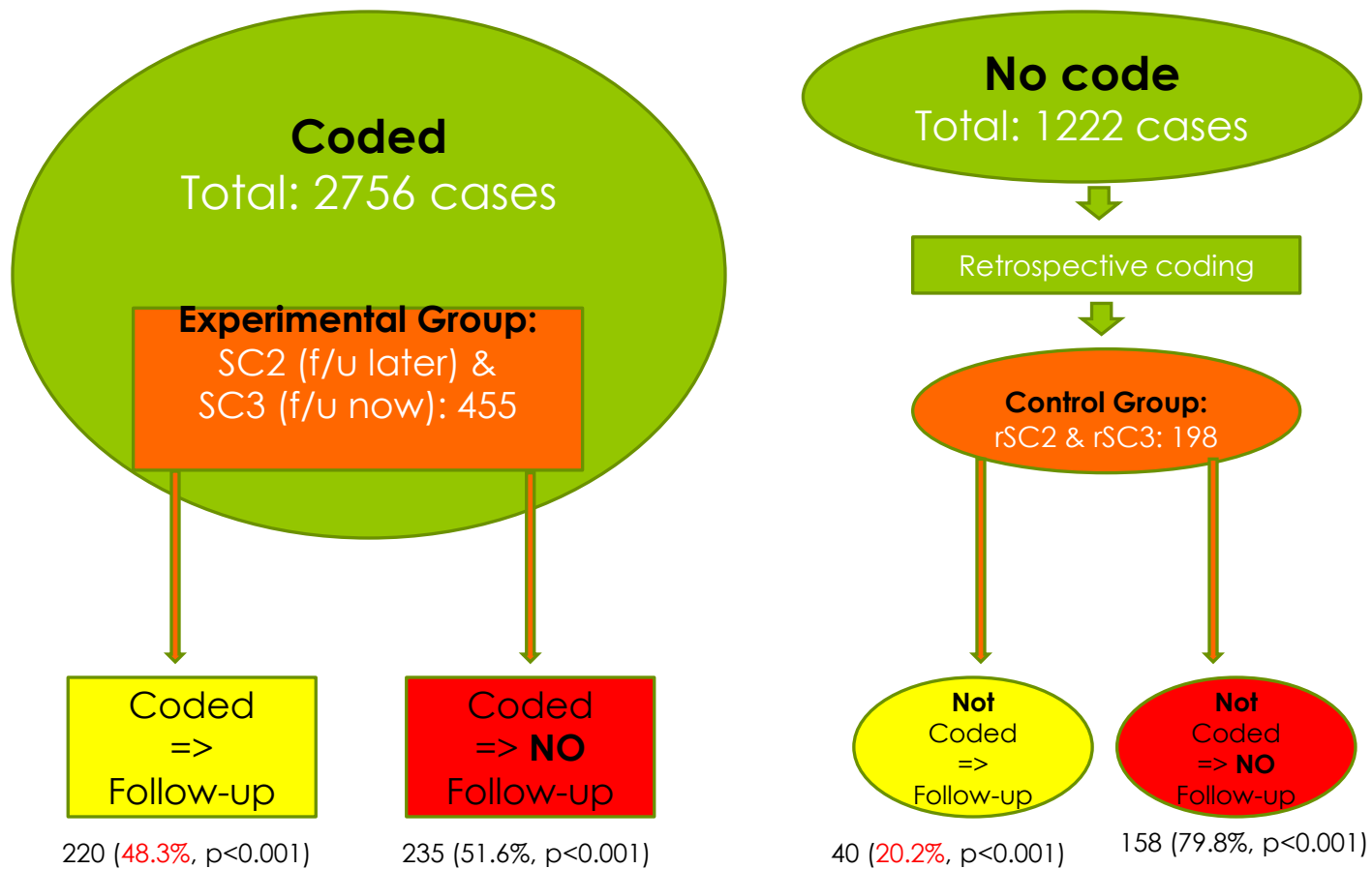
# Methods

- Single-center, cross-sectional follow-up of a prospective study.
- Inclusion criteria:
  - Patients requiring a CT while visiting the ED from 8/1/2016-10/31/2016
- Exclusion criteria:
  - CTAs
  - Pregnancy
  - <18 years of age

# Outcome measures:

- Independent evaluation by radiologists/residents and ED physicians
- All CT's receiving a SC2 or SC3 code prospectively or **retrospectively** assigned a SC2 or SC3 code if one was not given.
- Clinical success defined as:
  - Assigned code SC2 or SC3, **and**
  - Received recommended study within one-year from date of recommendation
- Chi-square and ANOVA tests were performed.

# Comparison: Compliance



# Compliance: Patient factors

Coded  
=>  
Follow-up

220 (48.3%, p<0.001)

Coded  
=> **NO**  
Follow-up

235 (51.6%, p<0.001)

Not  
Coded  
=>  
Follow-up

40 (20.2%, p<0.001)

Not  
Coded  
=> **NO**  
Follow-up

158 (79.8%, p<0.001)

Insurance				
Medicare	31%	34%	36%	34%
Medicaid	31%	30%	30%	31%
Private	33%	35%	32%	32%
Self-pay	5%	1%	2%	3%
	p>0.05			
<b>Underserved</b>	45%	73%	46%	77%
Zip codes				
	p<0.05			



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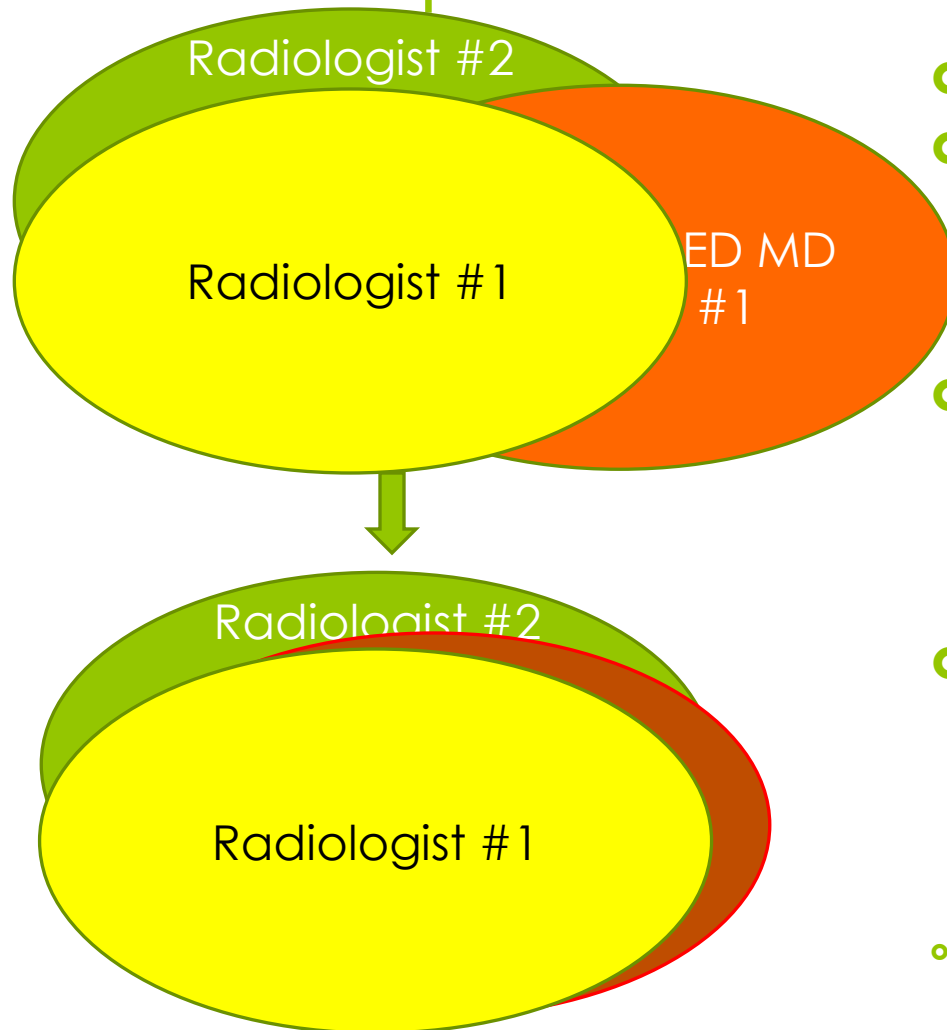
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Demographics				
% Female	54%	52%	53%	51%
Average age	58 years	56 years	57 years	56 years
Ethnic origin				
White	65%	61%	64%	60%
Black	14%	12%	15%	13%
<b>Hispanic</b> (p<0.05)	<b>17%</b>	<b>27%</b>	<b>18%</b>	<b>27%</b>
Other	4%	0%	3%	0%

# Interdepartmental Differences in Interpretation of CT Recs\*



- All agree: 48% ( $p < 0.05$ )
- Radiologists agree with each other: 79% ( $p < 0.05$ )
  - But disagree w ED: 31%
- At least one radiologist disagrees with ED: 53%
  
- When given a prior code, ED disagrees with both radiologists: 3% ( $p < 0.05$ )
  
- \*Using 100 cases with positive findings that are potentially ambiguous

# Study Strengths & Weaknesses:

- Cross-sectional follow-up of prospective study
- Compared variability in interpretation of results by at least two practicing radiologists
- Contrast variability in interpretation of same results by practicing ED physicians
- Demographics prove minimal potential confounders (age, gender, ethnic origin\* and insurance).
- Retrospective control group with potential selection bias
  - Addressed by having 2 investigators evaluating each study.
  - If both agree, the code was recorded as such
  - If no agreement, third investigator would break the tie
- Follow-up study is not necessarily more readily available everywhere as demonstrated by underserved areas.
- Hispanic patients having a non-proportionally higher percentage of no follow-up.

# Discussion:

## Healthcare consideration

- Growing trend.
- BI-RADS success, now liver and prostate.
- Standardized summary lexicon for ED reporting of CT results may achieve:
  - Clear interdepartmental communication
  - Clear provider-patient instructions
  - Clear inpatient-outpatient transition of care
- To maximize patient satisfaction and care

# Discussion:

## Non-healthcare consideration

- Ethical considerations
  - Medical justice vs personal impact of cancer
  - **White Paper of the ACR Incidental Findings Committee** JACR, 2010;7(10)754-73
- Legal/Malpractice consideration
  - No follow-up of potential cancerous findings
  - Average malpractice settlement: \$2-3 millions/case
- Business consideration:
  - Tax-deduction for providing care in HPSA
  - Loss revenue from follow-up studies

# Addressing Health Disparities:

- To Whom It May Concern
  - “With growing numbers of patients accessing their radiology reports, it matters more than ever what you say...”
  - “The ultimate goal should be to create a patient-facing report in a format that is both easy to understand and visually appealing to patients.”
    - ACR Bulletin, 2017;72(12)10-12
- To encourage follow-up amongst Hispanic patients, including the following statement may help:
  - “Hay hallazgos en este informe que su médico debe seguir. Si no puede pagar la prueba de seguimiento, comuníquese con nuestro asesor de \_\_\_\_\_ Hospital.”

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