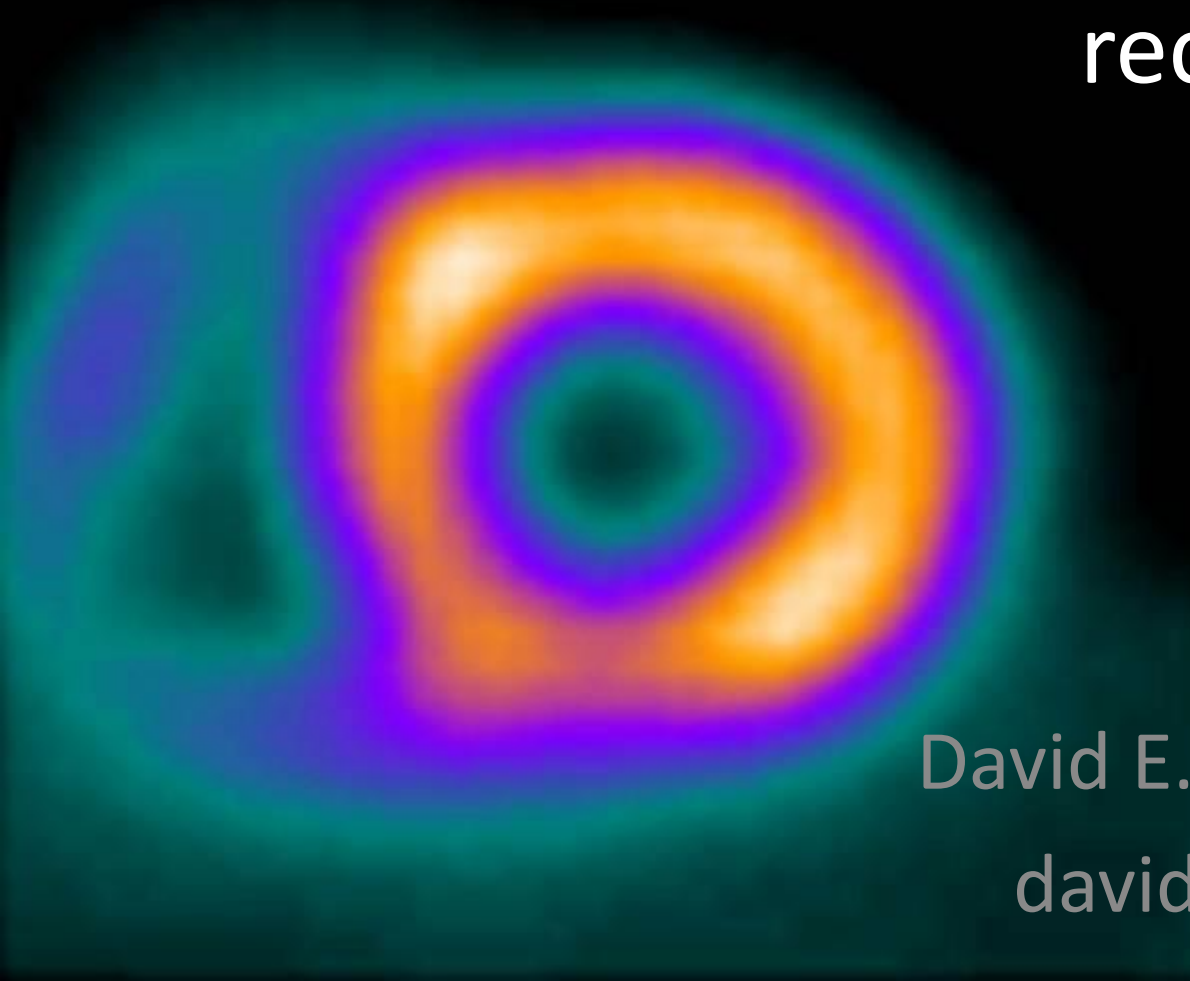


A simplified approach to stress-first  
nuclear myocardial perfusion imaging:  
implementation of ASNC Choosing Wisely  
recommendations

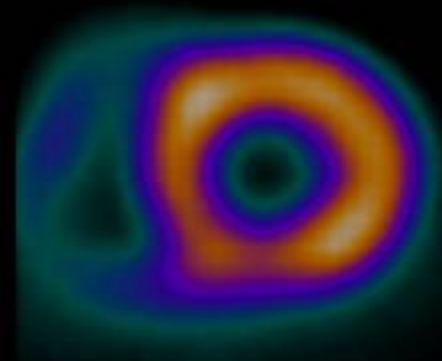


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# Background

- Stress only imaging has similar outcomes to rest/stress imaging
- ALARA and stress first imaging is recommended by professional societies
- Only 16% of labs in North America routinely perform stress only MPI

Chang J Am Coll Cardiol 2010;55:221  
Cerqueira J Nucl Cardiol 2010;17:709  
Einstein Eur Heart J 2015;36:1689



# Choosing Wisely



*An initiative of the ABIM Foundation*

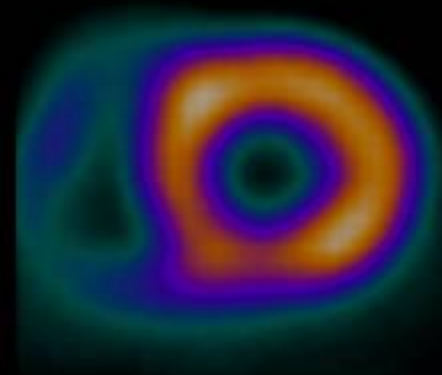


5

**Use methods to reduce radiation exposure in cardiac imaging, whenever possible, including not performing such tests when limited benefits are likely.**

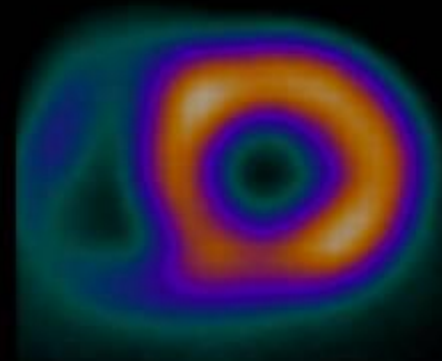
# Methods

- Stress first/only protocol
- All patients eligible
  - Regadenoson 0.4 mg
  - 9-13 mCi Tc-99m<sup>\*</sup>-tetrofosmin
  - SPECT with 16 slice CT-AC and prone
  - Immediate review by physician
    - If abnormal, proceed with rest imaging



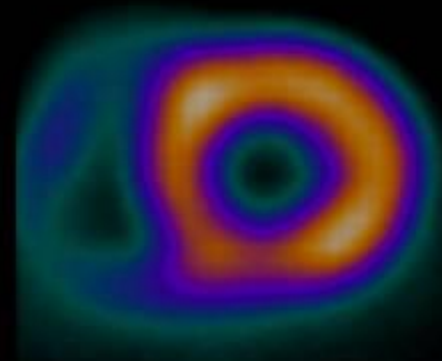
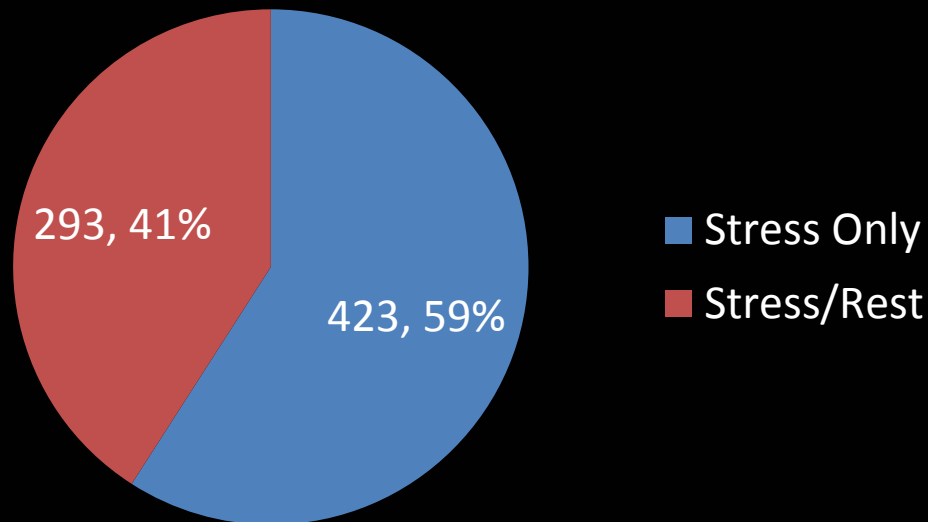
# Methods

- Primary Outcome
  - Estimated effective radiation dose
- Secondary Outcomes
  - Rate of abnormal SPECT
  - Cardiac Catheterization
  - Percutaneous Coronary Intervention

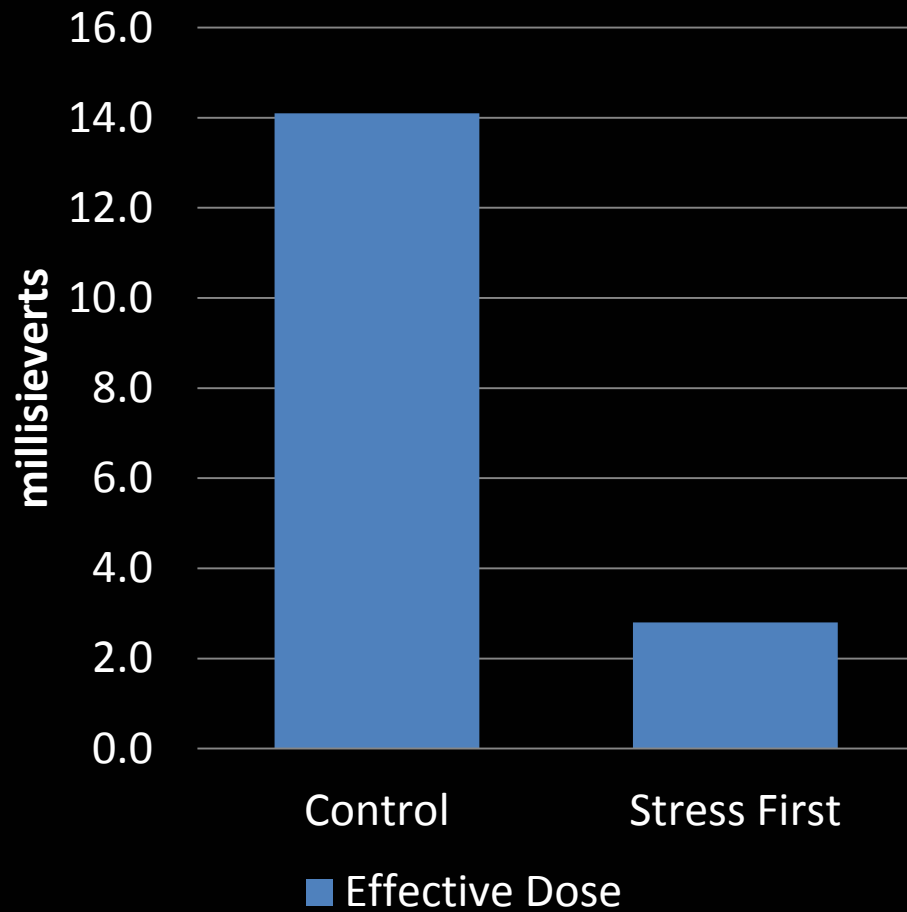


# Results

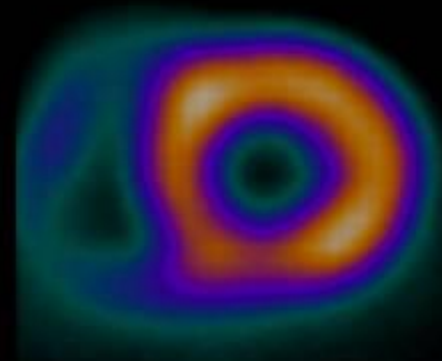
- 1,140 patients
- Control n=424 (July 16-Nov 16)
- Stress first n=716 (Nov 16-May 17)



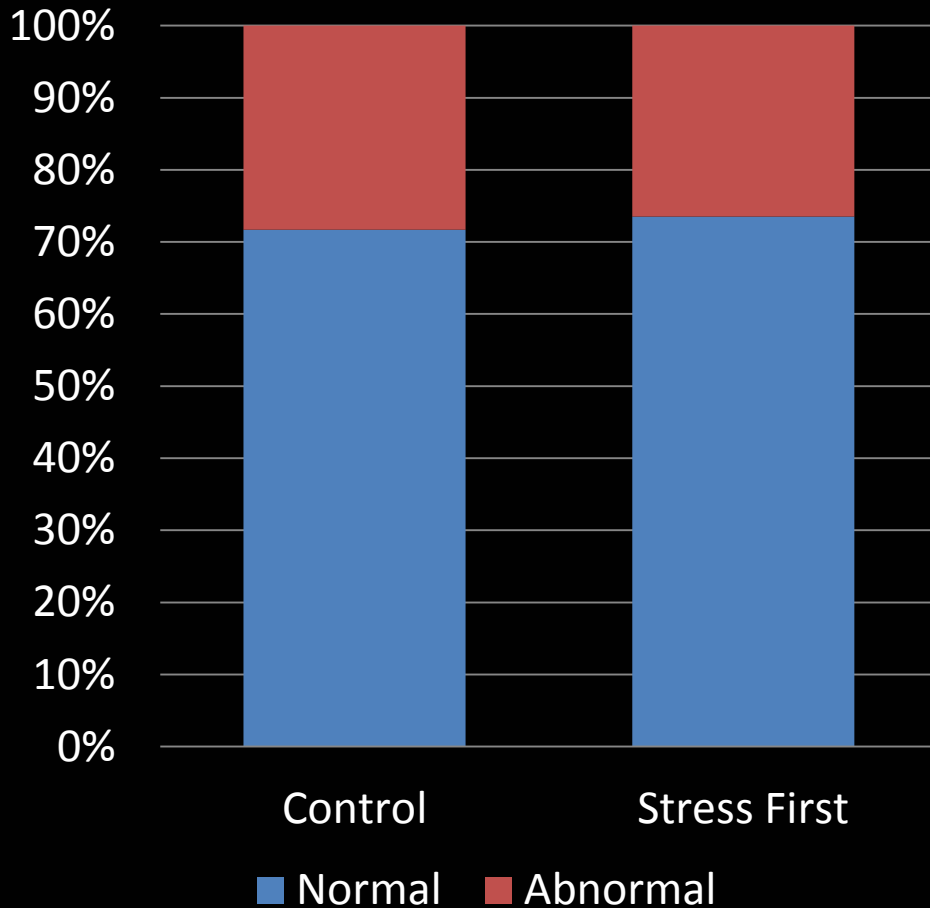
# Effective Dose (median)



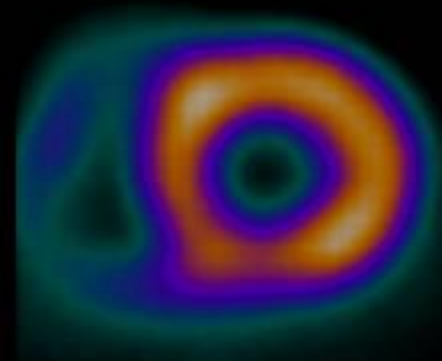
•  $P < 0.0001$



# Rate of Abnormal SPECT



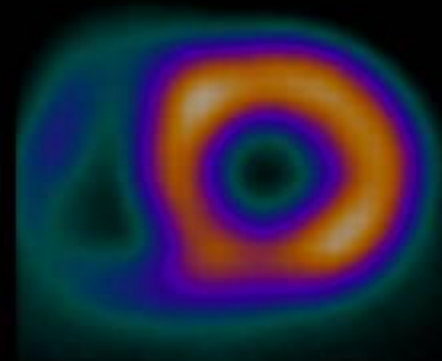
- $p=0.54$
- OR 0.92
- 95% CI 0.69-1.21





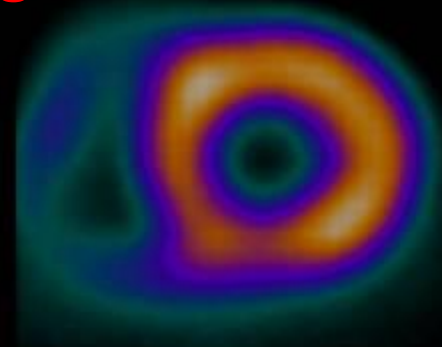
# Angiography/Intervention

- Control cohort
  - Coronary angiography: 1.0% (n=3)
  - Coronary intervention: 0.7% (n=2)
- Stress first
  - Coronary angiography: 1.1% (n=8)
  - Coronary intervention: 0.3% (n=2)



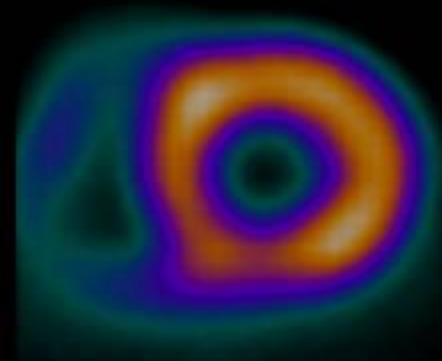
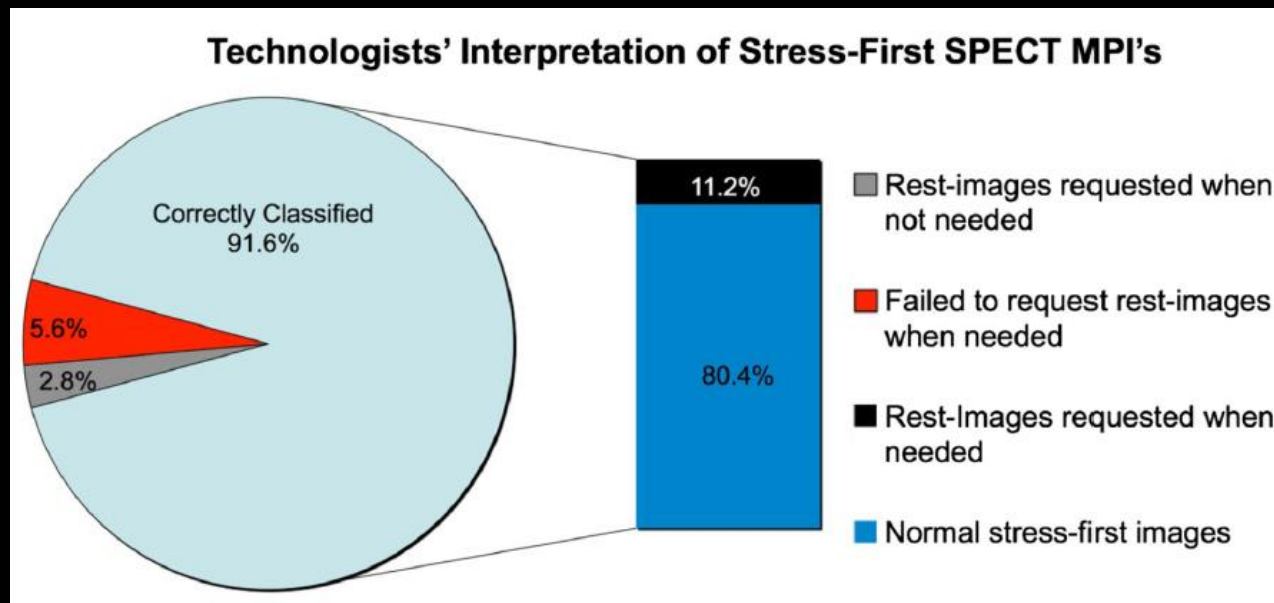
# Discussion

- How can this be implemented elsewhere?
- Theoretical Domains Framework (Imp Sci)
  - Not barriers: Knowledge, Skills, Professional Norms
  - Possible barriers: Empowerment, Decision-making, Prioritization, Practice Change
  - Barriers: Compensation, Resources, Organizational Culture



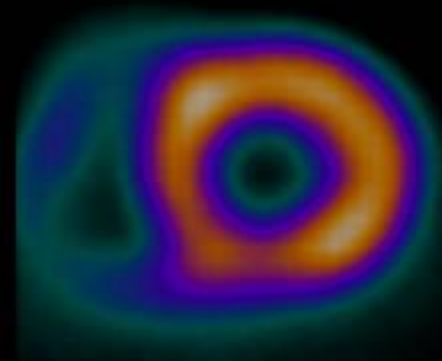
# Discussion

- How can this be implemented elsewhere?
  - Technologist/Computer assist with stress first



# Discussion

- How can this change the field of nuclear cardiology?
  - If stress first was ~30%, would avoid 14 mil mSv
- Simplified, expanded approach to stress first
  - If stress first was ~60%, would avoid 31 mil mSv
- Improving efficiency
  - Greater DCBN
  - Less outpatient/staff time



# Thank you



**VA**  
**HEALTH**  
**CARE**

Defining  
**EXCELLENCE**  
in the 21st Century

- Gainesville VA Team
  - Randy Jeffrey MD
  - David E. Winchester MD
  - David C. Wymer MD
  - Vicente Taasan MD
  - Anita Wokhlu MD

