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## Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

# IMPACT OF TRANSITIONING FROM SPECT TO PET ON MYOCARDIAL ISCHEMIA DETECTION: EXPERIENCE FROM A HIGH VOLUME "REAL WORLD" PRACTICE

Poster Contributions
Poster Hall B1
Sunday, March 15, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Cardiac SPECT Imaging
Abstract Category: 19. Non Invasive Imaging: Nuclear
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**Background:** Myocardial Perfusion Imaging (MPI) with PET technology has been shown to improve ischemia detection compared to SPECT, however limited data are available comparing the modalities in clinical practice. We report the impact of transitioning from SPECT testing to PET on the ability to assess myocardial ischemia at a large tertiary care referral center.

**Methods:** Consecutive SPECT or PET studies performed at the Intermountain Heart Institute between January to June 2012 and June to December 2013, respectively, with associated cardiac catheterization within 30 days from MPI were evaluated. A retrospective review of the MPI study and catheterization was performed by 2 cardiologists blinded to the previous interpretation of these studies and the subject's clinical data. Presence or absence of ischemia on MPI as well as the presence or absence of significant coronary stenosis on the corresponding catheterization were determined by each reviewer, and disparate interpretations required a consensus from the reviewers.

**Results:** With respect to this clinical sample, PET had significantly higher predictive power then SPECT (see table).

**Conclusion:** Transition from SPECT to PET substantially increased accuracy for ischemia detection, translating to fewer diagnostic catheterizations with a concomitant increase in PCI. The full impact on reduction of unnecessary invasive procedures and cost reduction in clinical practice will require further study.

| SPECT | PET |
|---|---|
| Sensitivity: 94.66% (89.3%, 97.82%)<br>Specificity: 30.30% (19.59%, 42.85%)<br>PPV: 72.94% (83.43%, 92.95%)<br>NPV: 74.07% (40.78%, 84.61%) | Sensitivity*: 100.00% (97.91%, 100%)<br>Specificity*: 88.00% (68.78%, 97.45%)<br>PPV*: 98.31% (95.15%, 99.65%)<br>NPV*: 100.00% (84.56%, 100%) |
| *Legend: NPV= negative predictive value; PPV= positive predictive value*<br>*Indicates a PET accuracy estimate which was statistically significant when compared to SPECT predictive estimate (p<0.01). Statistical comparisons done using chi-square and Fisher exact test. | |