SPARC

Study of Perfusion and Anatomy's Role in CAD

Meeting Agenda

- **Welcome and Introductions**
- **Study overview and objectives**
- **Updated enrollment eligibility criteria**
- **Recruitment update, goals, and timeline**
- **Demographics of enrolled participants**
- **Common mistakes on data submissions**
- **SPARC QA imaging program**
- **Importance of AG Mednet**
- **Final Notes - Q&A session**

SPARC Organization

Principal Investigators

Rory Hachamovitch, MD

Marcelo Di Carli, MD

SPARC Coordinating Center and Image Repository Lab

Brigham and Women's Hospital

Boston, MA

Project Manager – Lisa Cantagallo

IT Manager – Jon Hainer

Webmaster – Jeselle Gierbolini

Data Management Center

Campbell University School of Pharmacy Clinical Research Center

Morrisville, NC

Data Management Center PI:

James Johnson, Ph.D

Brenda Jamerson, PharmD

Project Manager – Barbara Johnson, MS, RPh

IT Image Data Transfer Company

AGMednet

SPARC Trial Sponsors

- Bracco Diagnostics Inc.
- Astellas Pharma US, Inc.
- GE Healthcare Company
- Siemens Medical Solutions

Why SPARC ?

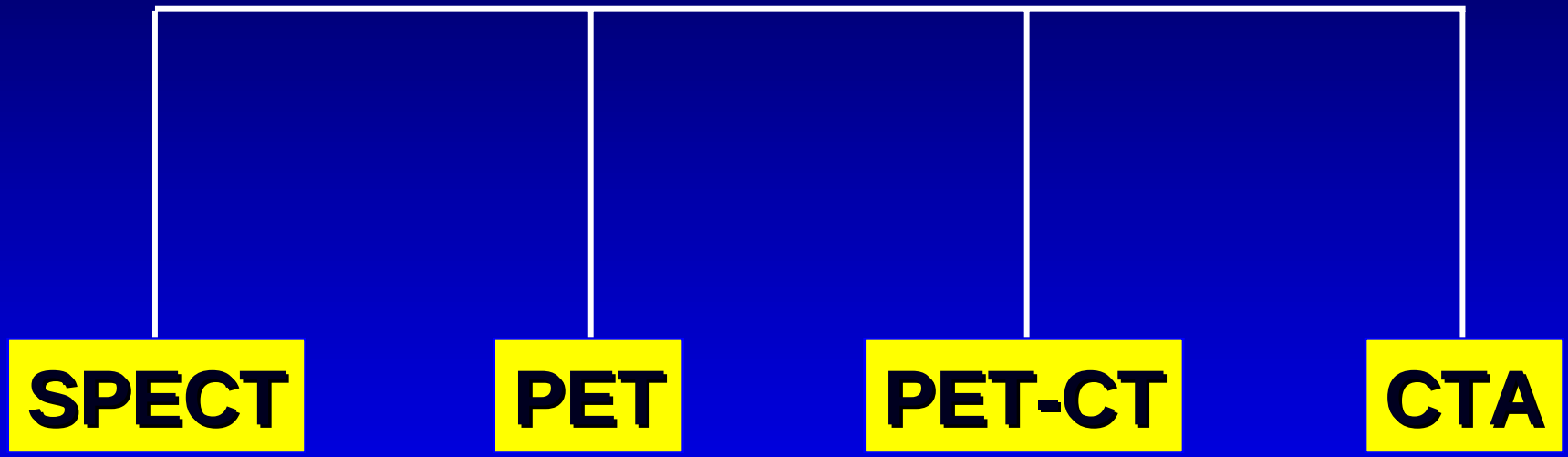
- **Cardiologists don't know which test to use**
  - Are they all equivalent?
  - Which test for which patient? How use the results of testing?
  - What are the cost implications?
- **Payors won't pay for new technology…unless**
  - Clinical evidence
  - Cost-effectiveness
- **Prospective multi-center vs multiple single-center studies**
  - Study design – diverse demographics and individual center expertise
  - Statistical power – large database
  - Abbreviated time-line for validation

SPARC – Design

Two components:

- A Pilot CT coronary angiographic study
- The Main Study
  - ✓ Impact of SPECT, PET, PET-CT and CTA on Resource Utilization
  - ✓ Prognostic Implications of SPECT, PET, PET-CT and CTA

For any given site to participate in this study they must recruit into two or more of these modality arms.



All imaging studies (i.e., SPECT, PET, PET-CT, and CTA) will be acquired and reconstructed according to each site's usual imaging protocols. Sites will be required to evaluate imaging results based on the guidelines provided.

Primary Objective

- Assess the impact of Myocardial Perfusion (stress SPECT and stress PET), CT Coronary Angiography (CTA), and combined Myocardial Perfusion-CTA Imaging (PET-CT) on post-test resource utilization.

- Determine the incremental prognostic value of stress SPECT, stress PET, CTA, and PET-CT for predicting cardiac death and nonfatal myocardial infarction following a procedure.

Secondary Objectives

- Assess the diagnostic accuracy of these modalities for detection of obstructive epicardial coronary stenosis as assessed by cardiac catheterization.
- Assess the risk-adjusted referral rate to revascularization within 90 days of cardiac catheterization after the index noninvasive imaging study.
- Assess the use of and change in cardiac medications at 90 days and one year after the index noninvasive imaging study.

Secondary Objectives

- Determine the combined occurrence of (1) death from any cause, (2) nonfatal myocardial infarction, and (3) late (>6 month) referral to revascularization after the index noninvasive imaging study.
- Determine the cost-effectiveness of strategies incorporating different noninvasive imaging modalities.

Study Design and Plan

- Prospective, open-label, multicenter, sequentially sampled, observational registry.
- Stable patients presenting at each site for a stress SPECT, stress PET, CTA, and PET-CT meeting inclusion/exclusion criteria are candidates for enrollment.
- All imaging studies (i.e., SPECT, PET, PET-CT, and CTA) will be acquired and reconstructed according to each site's usual imaging protocols. Sites will be required to evaluate imaging results based on the guidelines provided.

Follow-up

- Enrolled patients will be contacted up to 3 additional times after the index test:
  - ✓ 90-days
  - ✓ 365-days (1 Year)
  - ✓ 730-days (2 Years)

- Scripted telephone follow-up will be performed by the data management center on all patients to determine:
  - ✓ Occurrence of catheterization within 90 days of index testing.
  - ✓ 90-day and 1-year medication usage and changes.
  - ✓ Occurrence of revascularization, non-fatal MI, or death at any time during follow-up interval (2 years).

Updated Enrollment Eligibility

In order to standardize the definitions of “intermediate to high pretest likelihood of CAD” in patients without prior CAD, patients falling under any of the following categories are considered **ELIGIBLE** to enroll:

- **Non-diabetic men**
  - ✓ Typical angina in men ≥ 30 years
  - ✓ Atypical angina in men ≥ 40 years
  - ✓ Any form of chest pain in men ≥ 50 years
- **Non-diabetic women**
  - ✓ Typical angina in women ≥ 40 years
  - ✓ Atypical angina in women ≥ 50 years
  - ✓ Any form of chest pain in women ≥ 75 years

Updated Enrollment Eligibility

- **Diabetic men and women**
  - ✓ With any form of chest pain in diabetics ≥ 30 years: all eligible

  Without chest pain (one of the following):
  - ✓ Abnormal rest ECG: Q waves, LBBB, LVH with ST segment abnormalities
  - ✓ PAD or cerebrovascular disease
  - ✓ Dyspnea
  - ✓ Age > 50 years
  - ✓ Agatston score >400 on a calcium CT scan

- **Any patient with LBBB without a history of non-ischemic cardiomyopathy**

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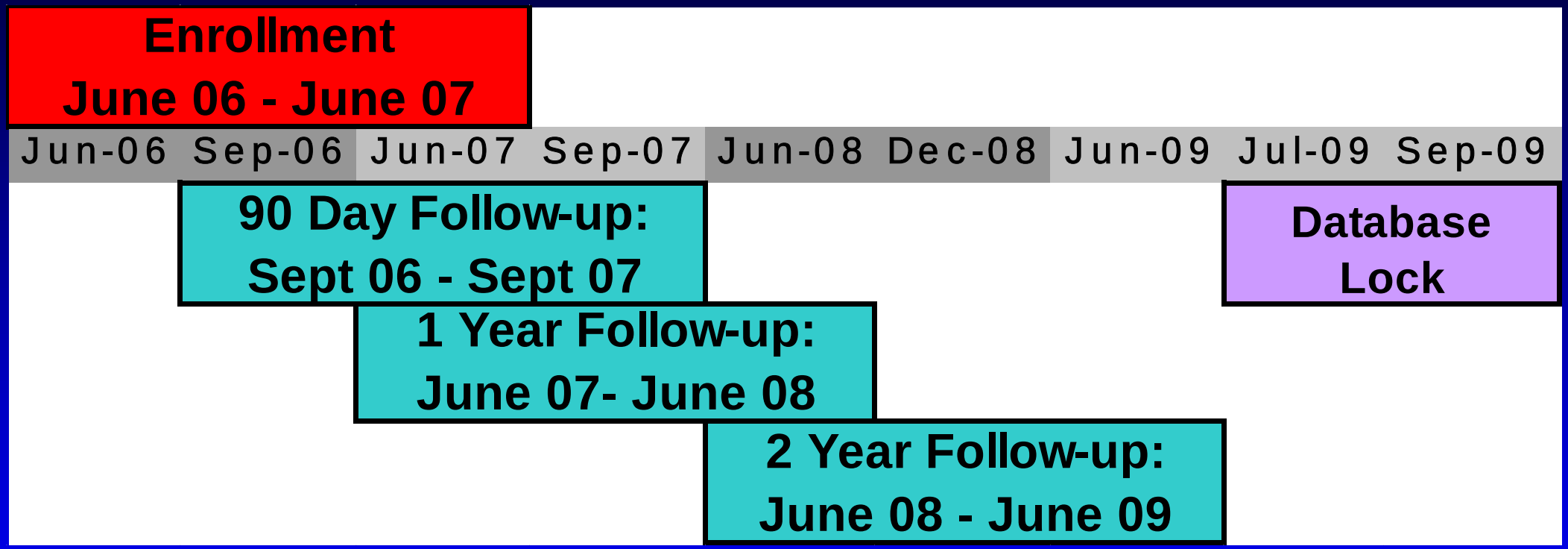
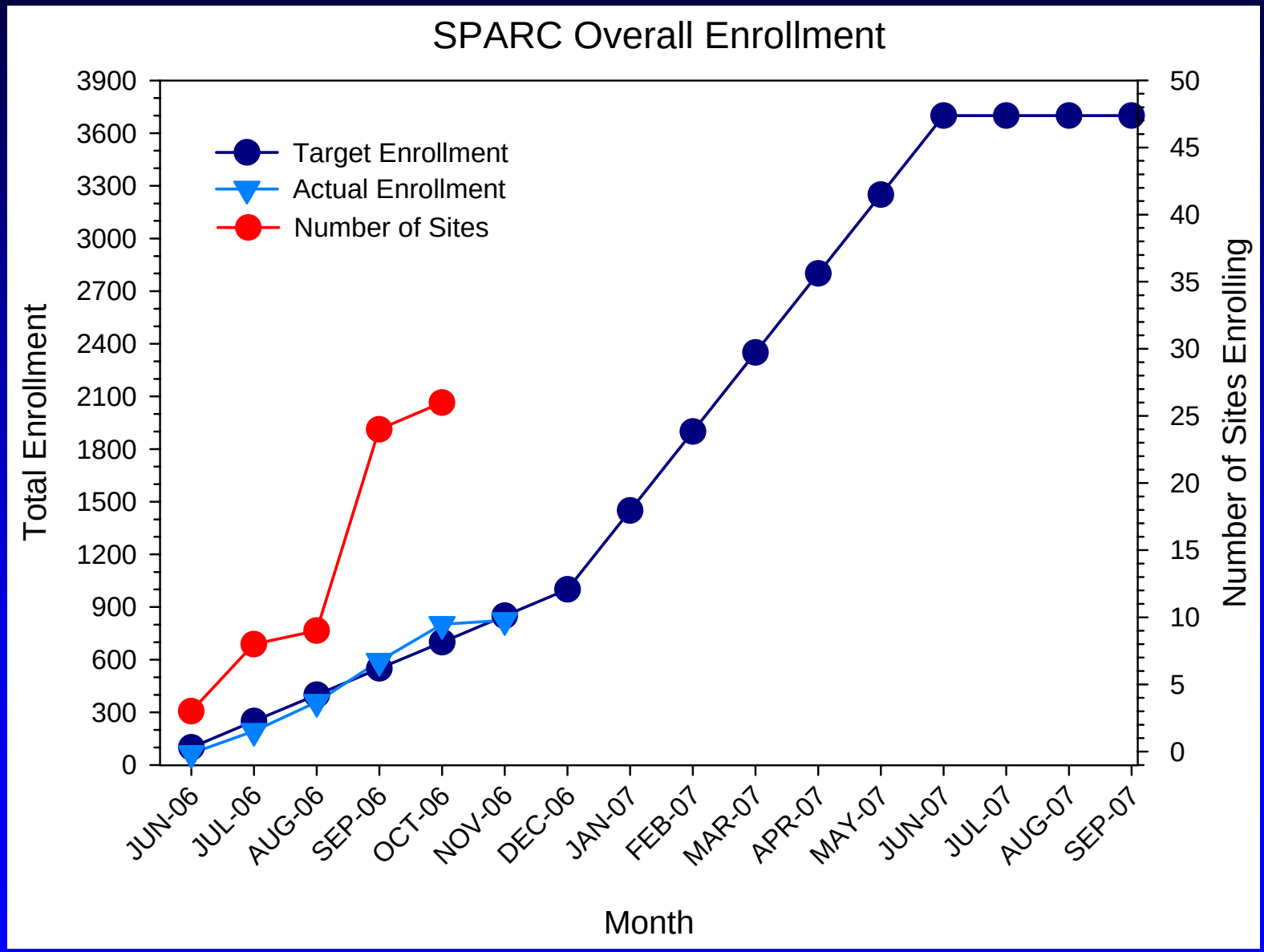
SPARC Timeline

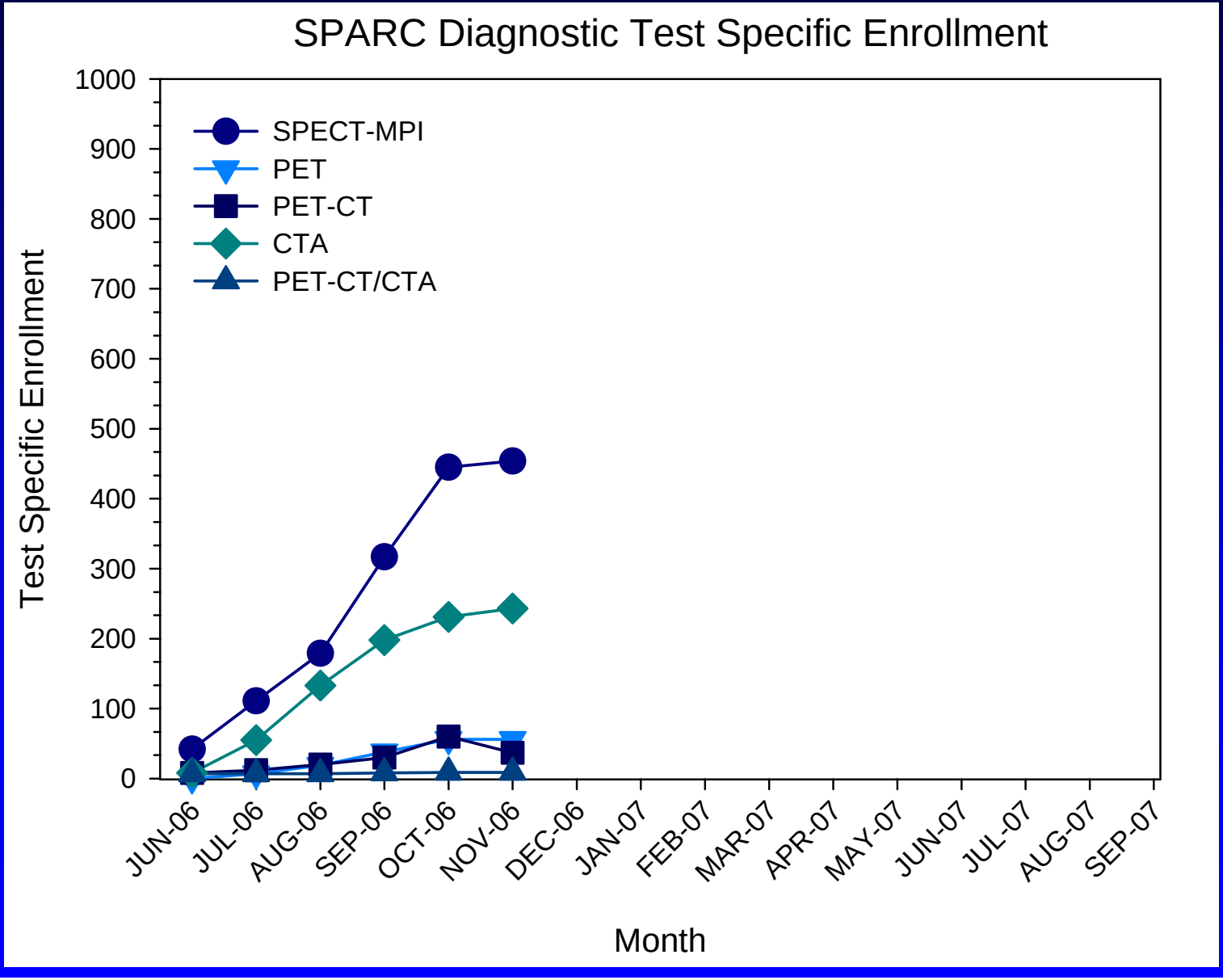


- SPARC Enrollment – June 2006 to June 2007
- Participant follow-up period is complete by July 1, 2009
- 1st SPARC Milestone is 1000 subjects enrolled by Dec. 31, 2006

Current Enrollment as of 03NOV2006

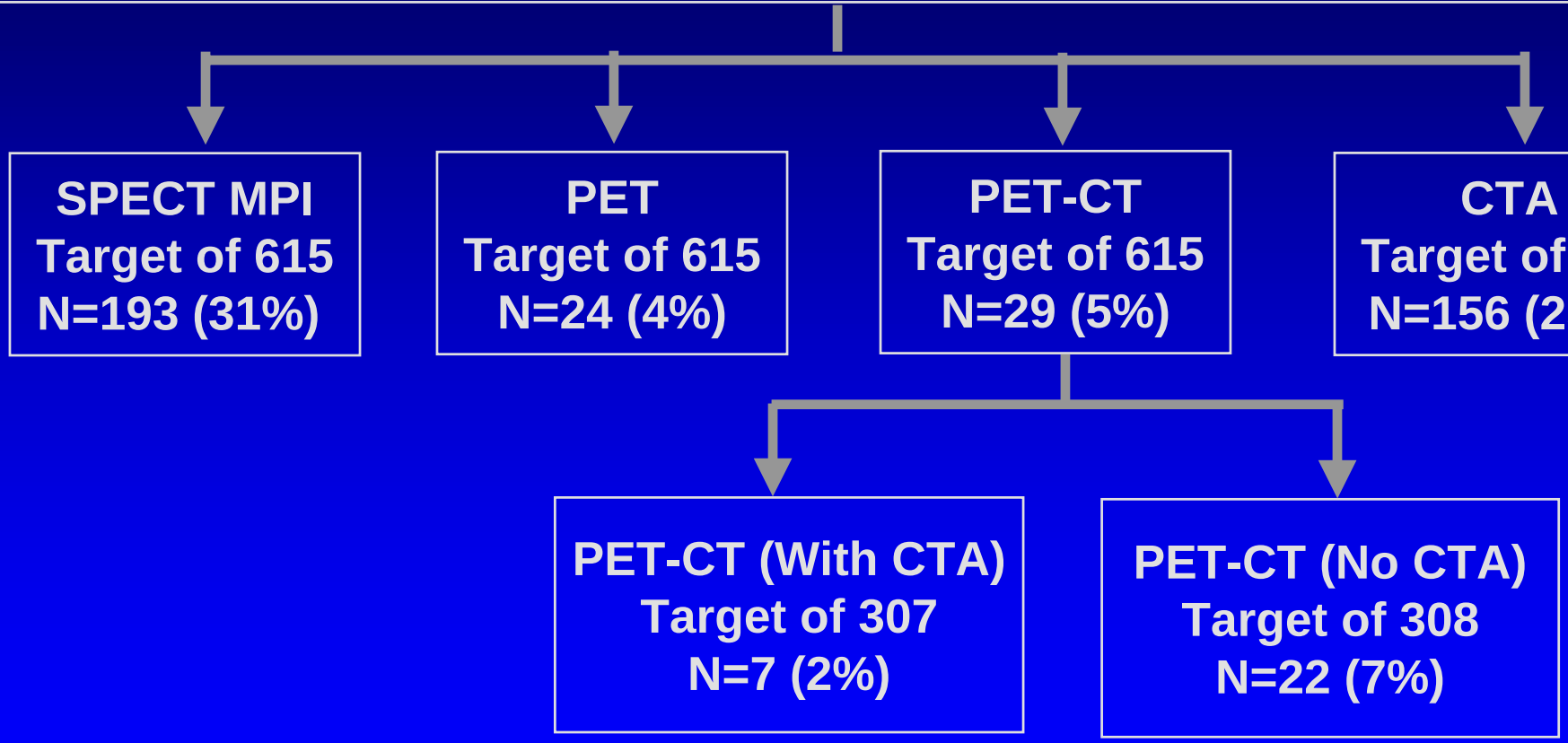


Current Enrollment as of 03NOV2006

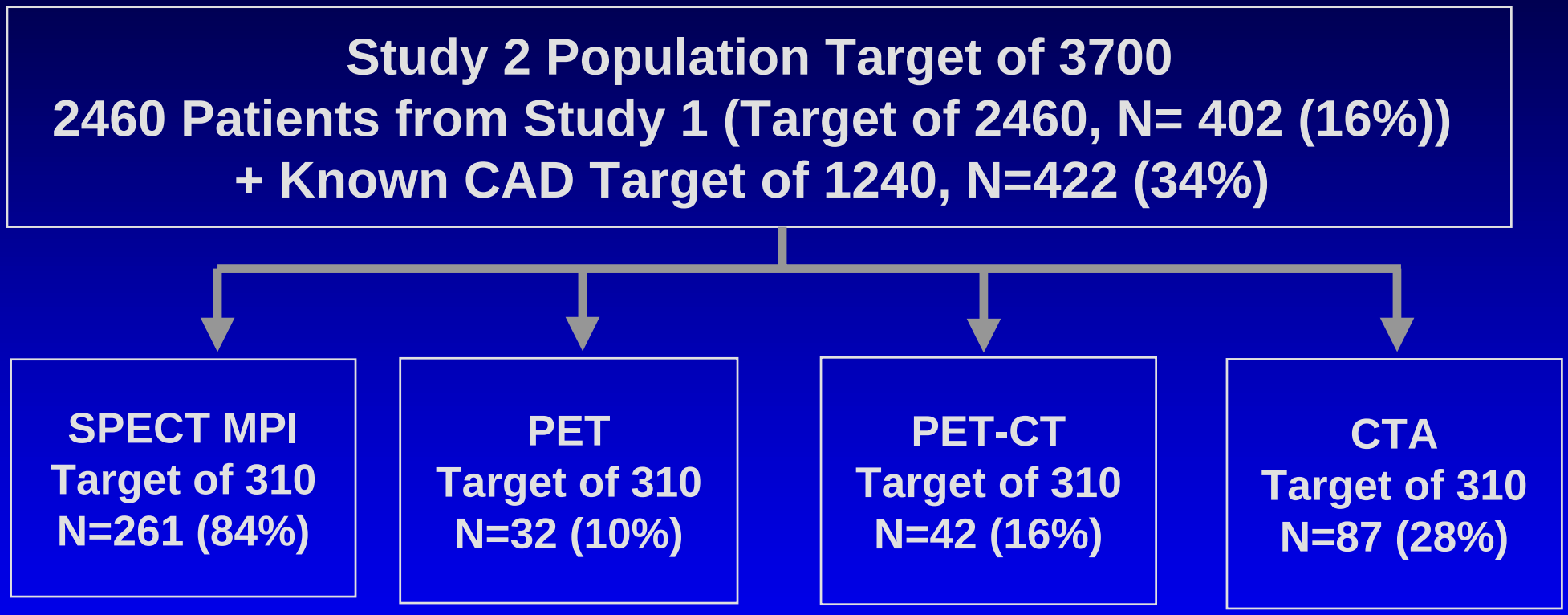


Current Enrollment as of 03NOV2006

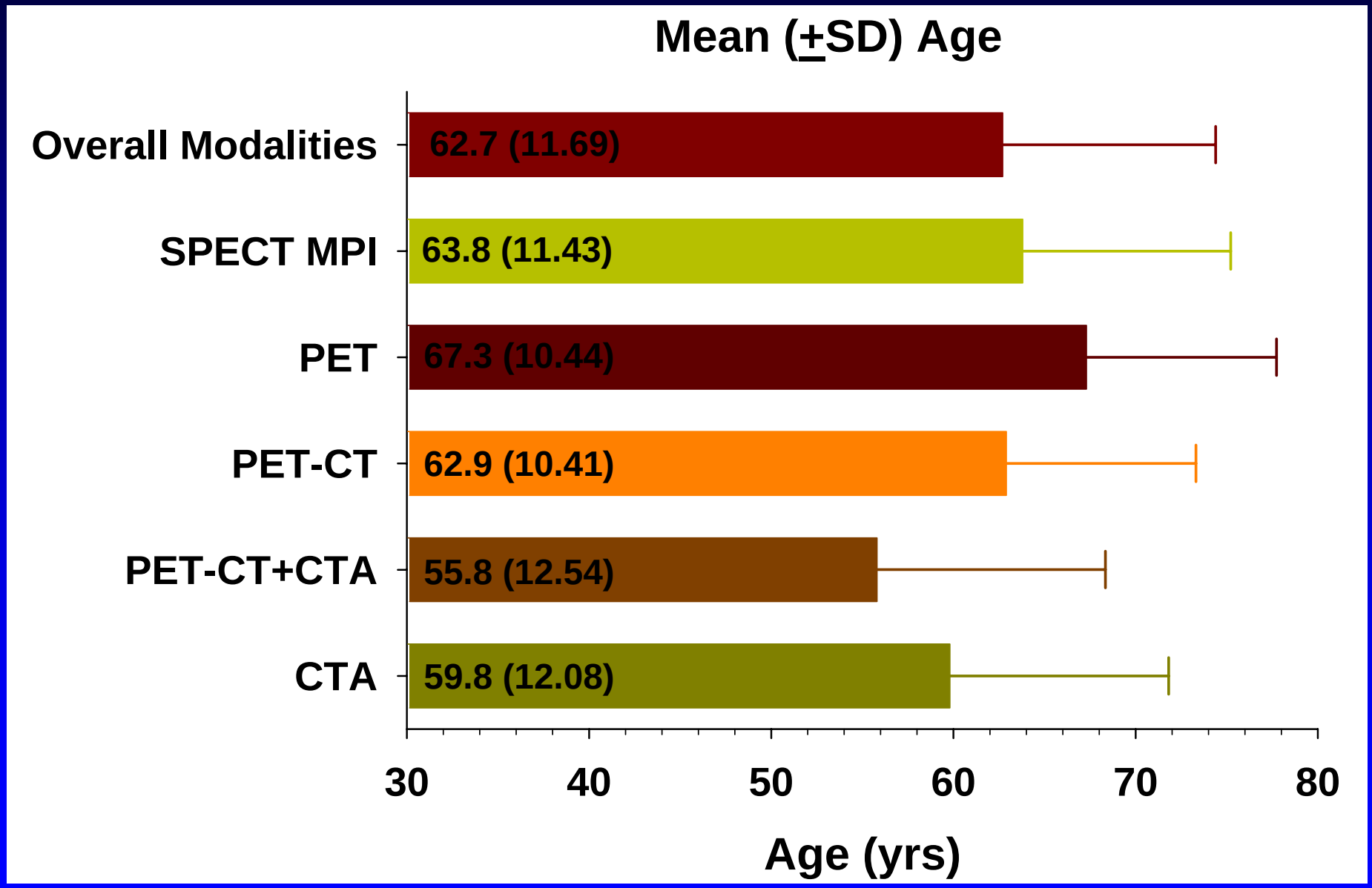
Study 1 Population: Intermediate/High Pretest Likelihood for CAD
Target N=2460, Current N=402 (16%)



Current Enrollment as of 03NOV2006



Population Descriptions as of 03NOV2006



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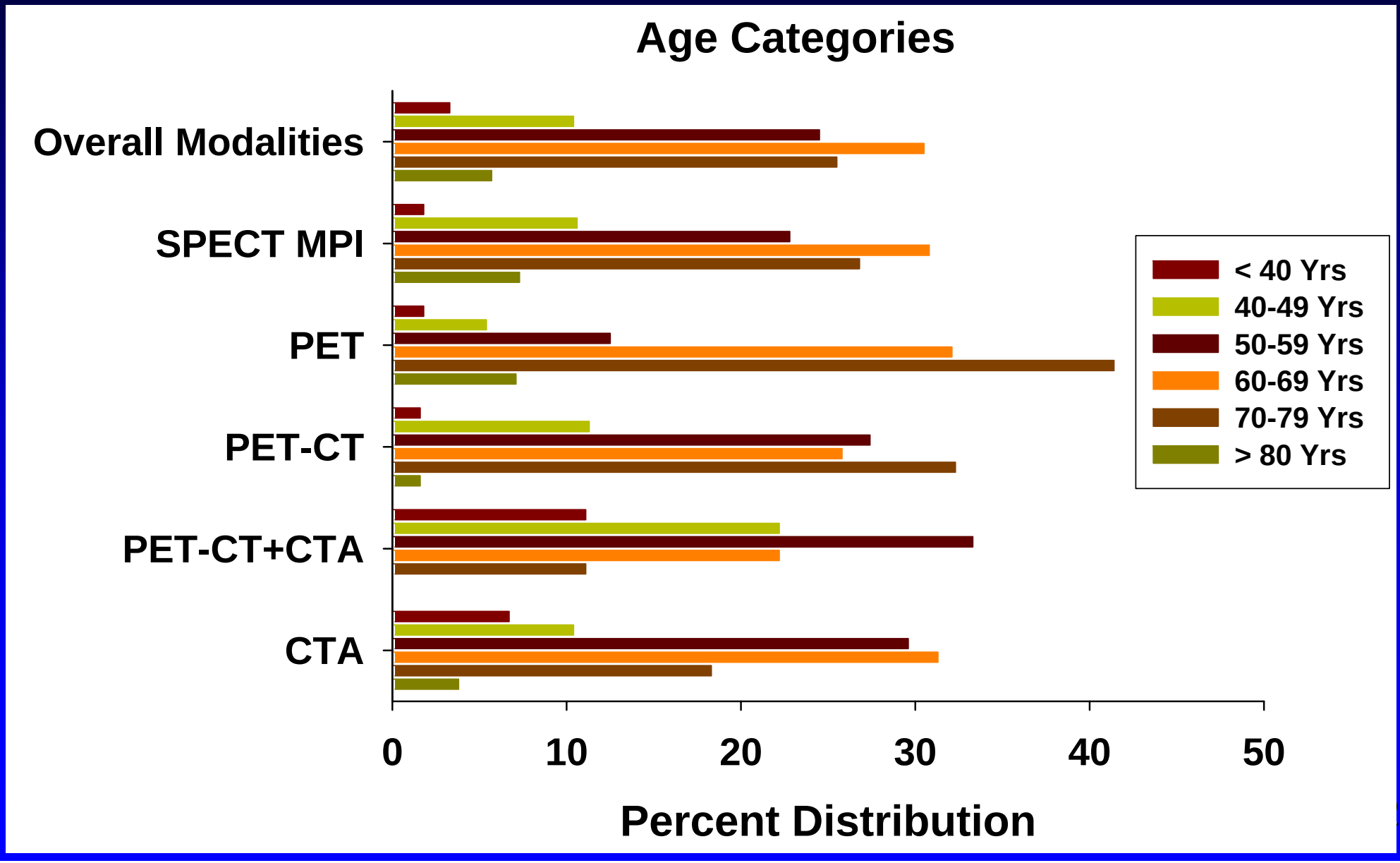

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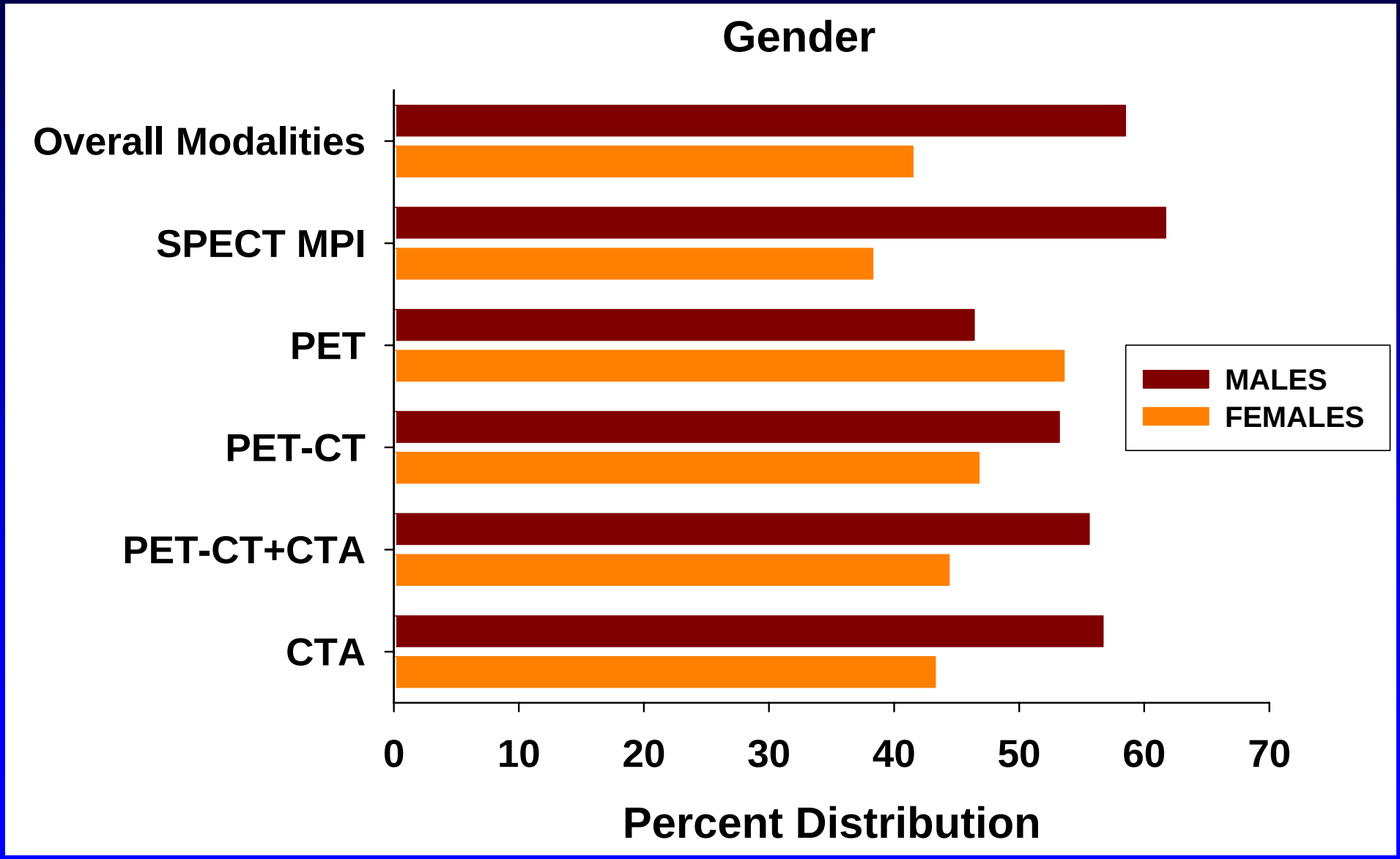
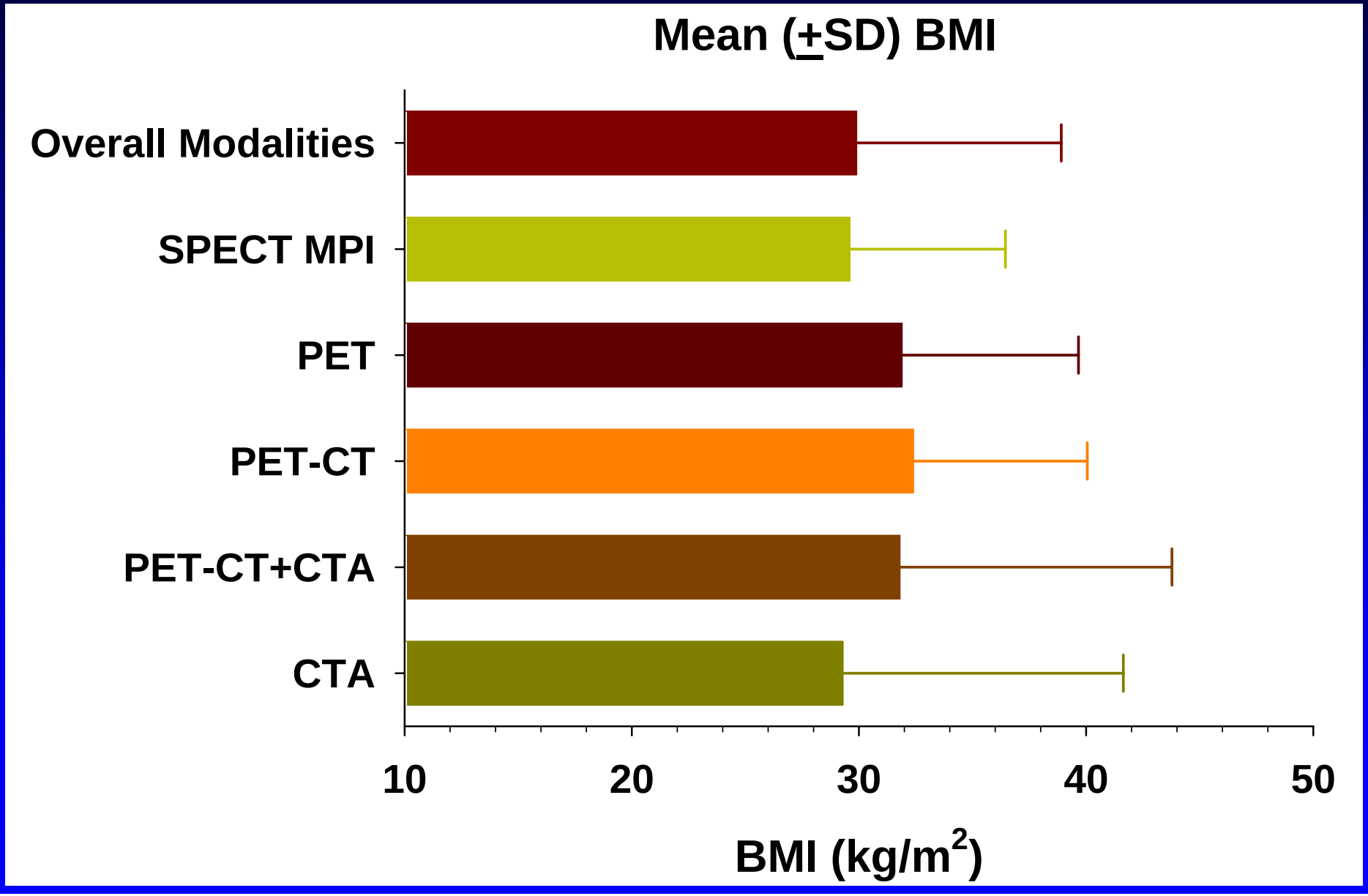
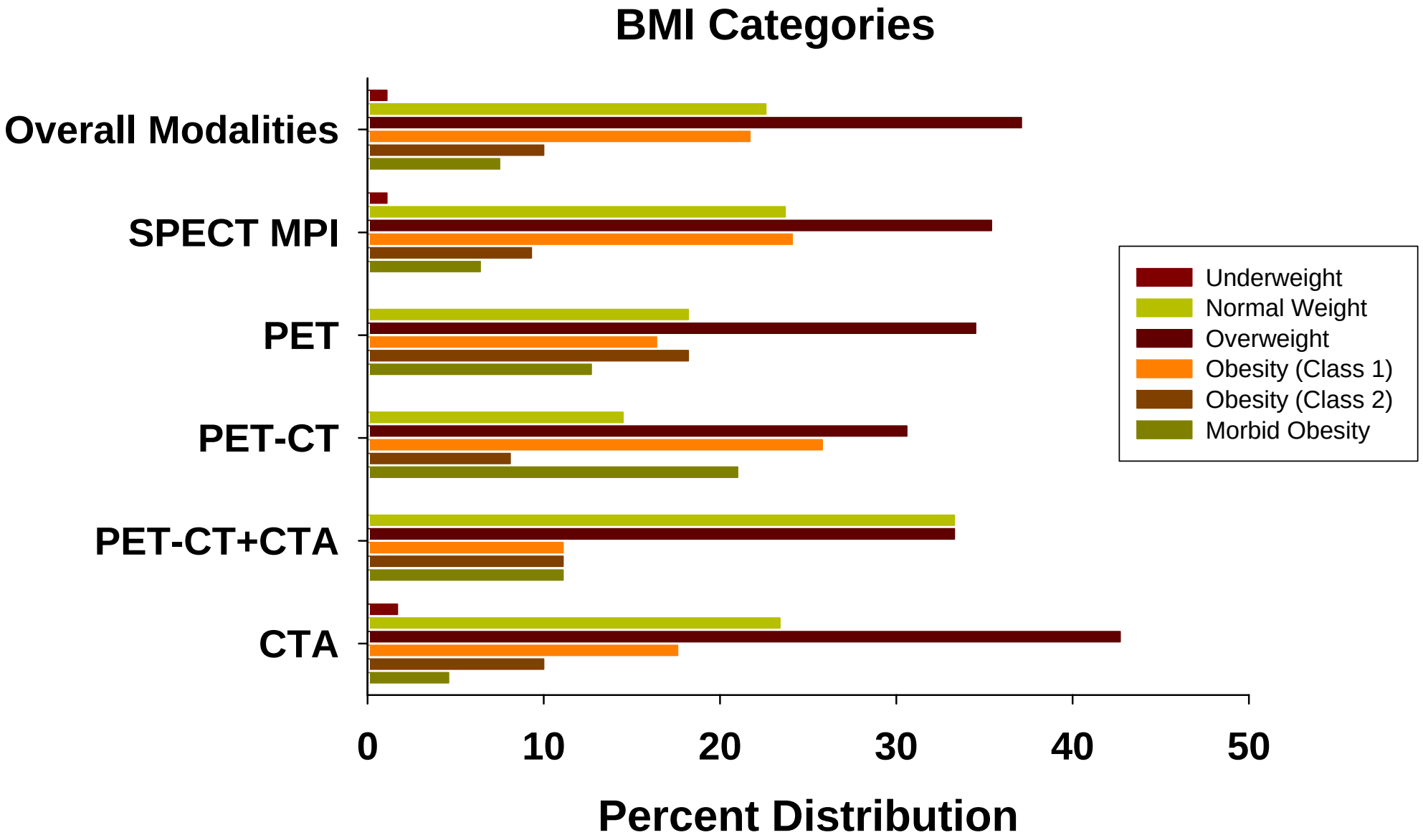


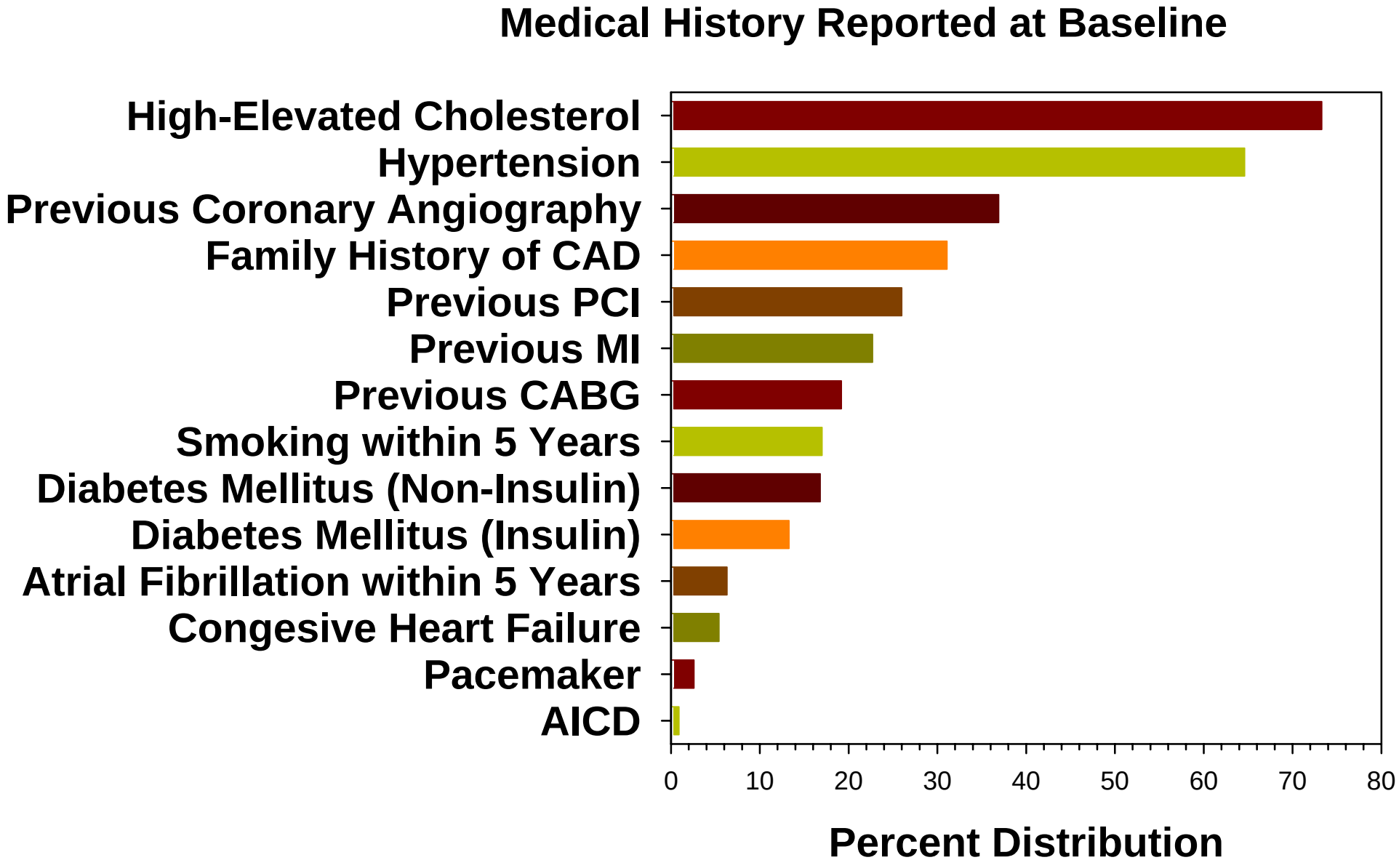
Population Descriptions as of 03NOV2006



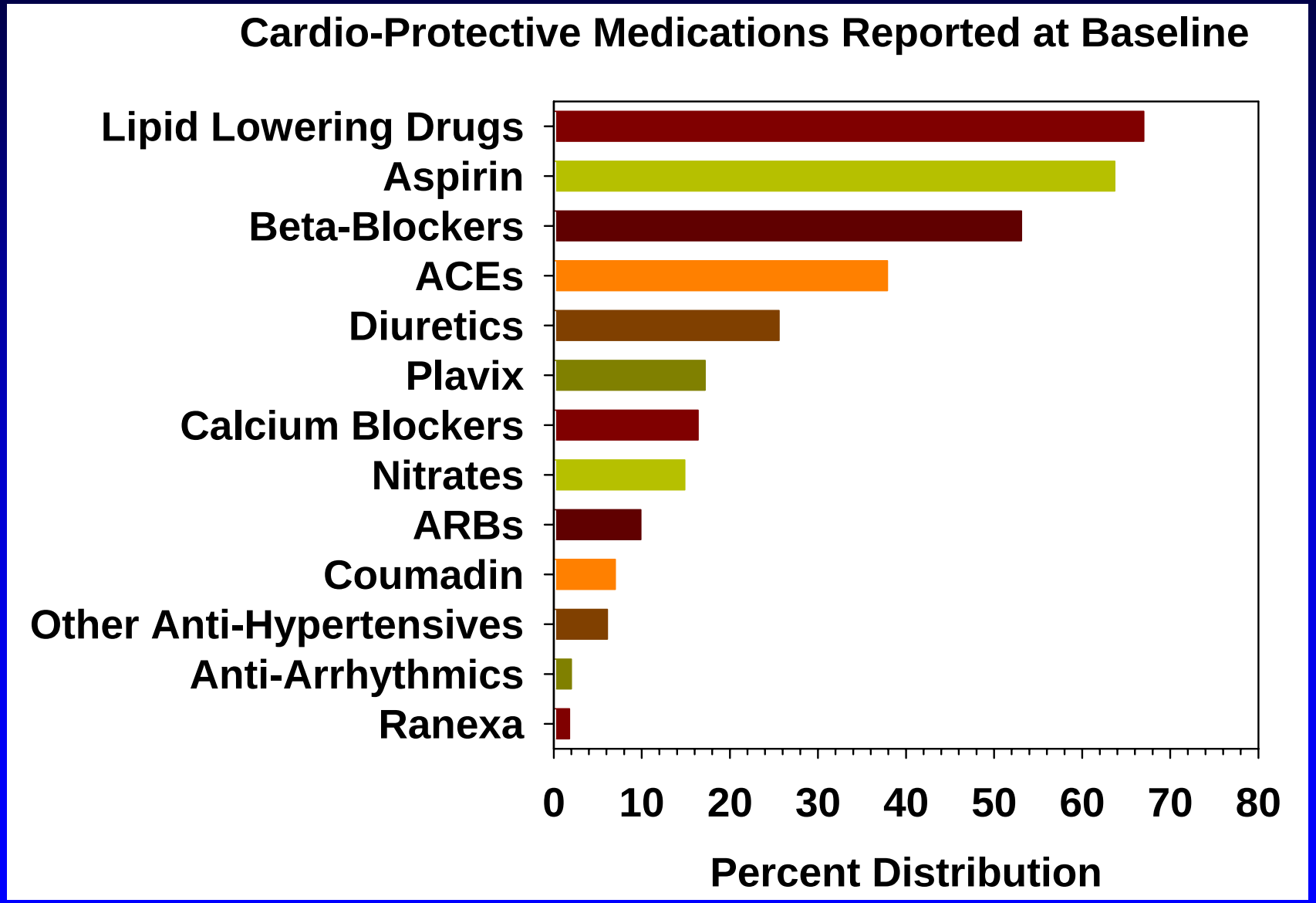
Population Descriptions as of 03NOV2006



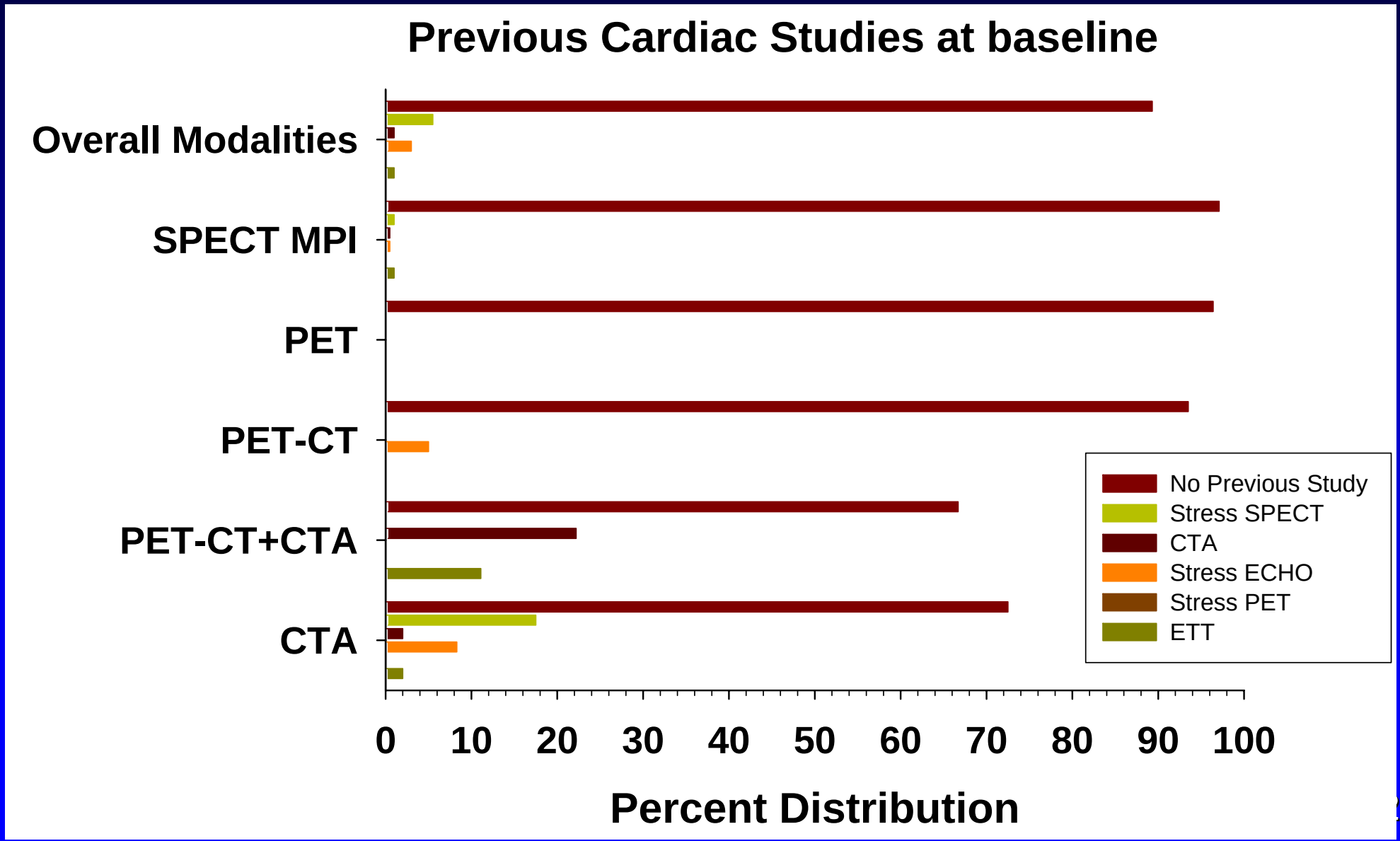
Population Descriptions as of 03NOV2006



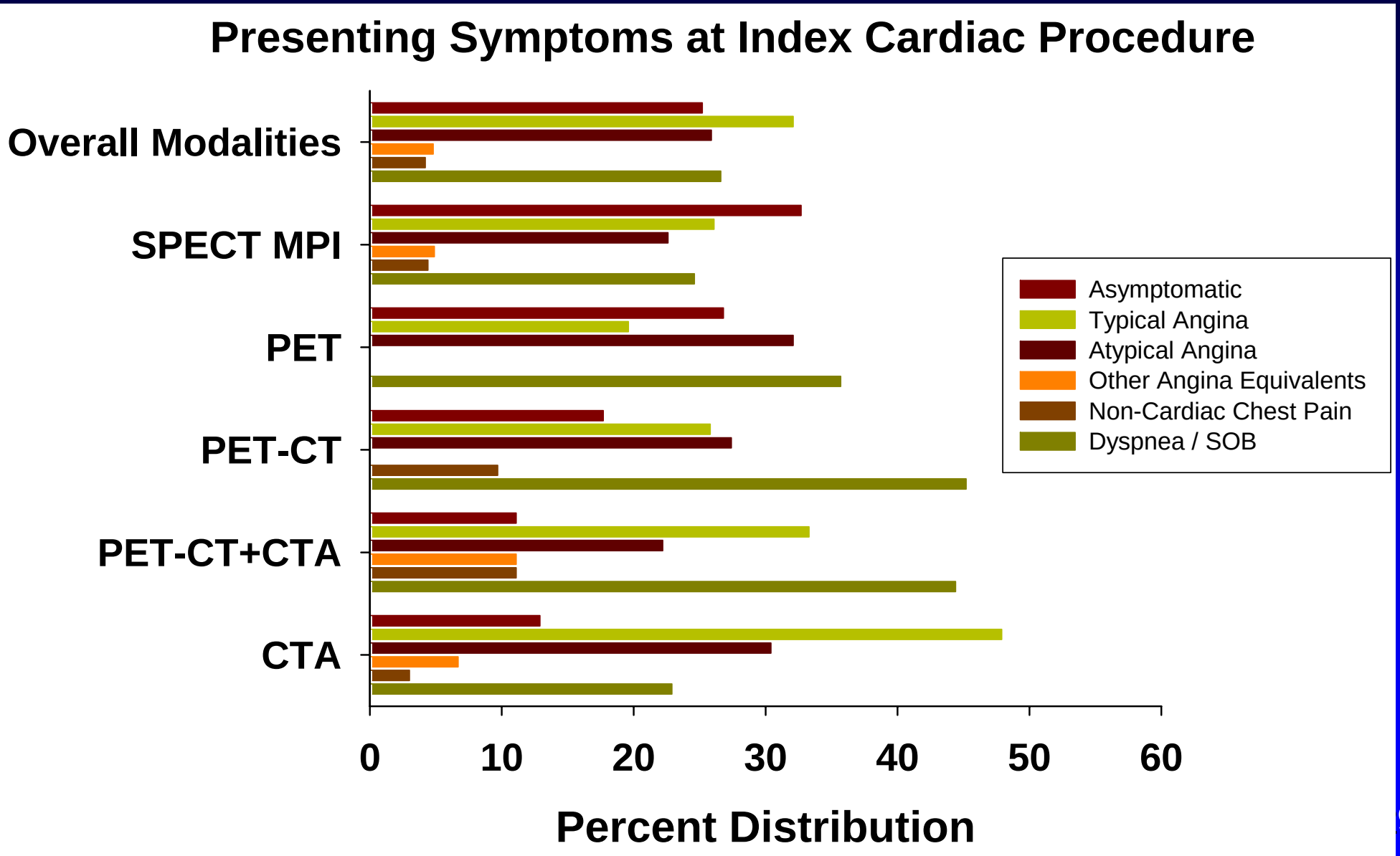
Population Descriptions as of 03NOV2006



Population Descriptions as of 03NOV2006



Population Descriptions as of 03NOV2006



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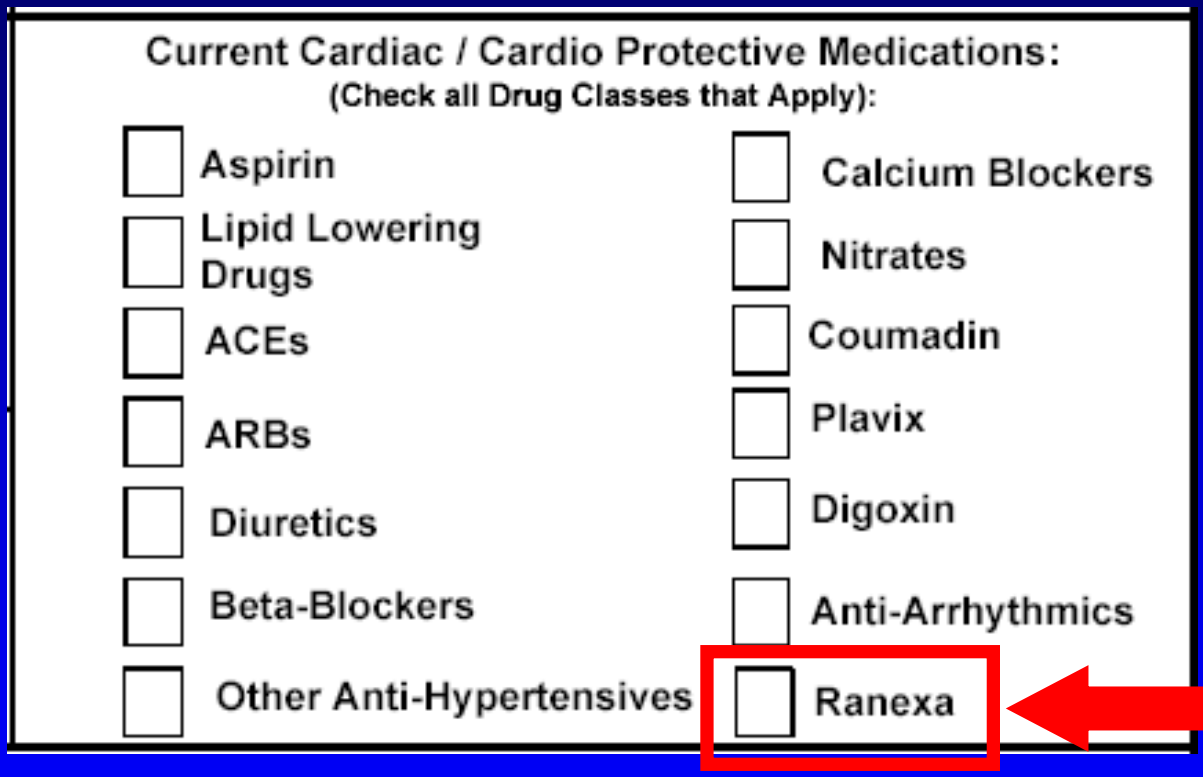
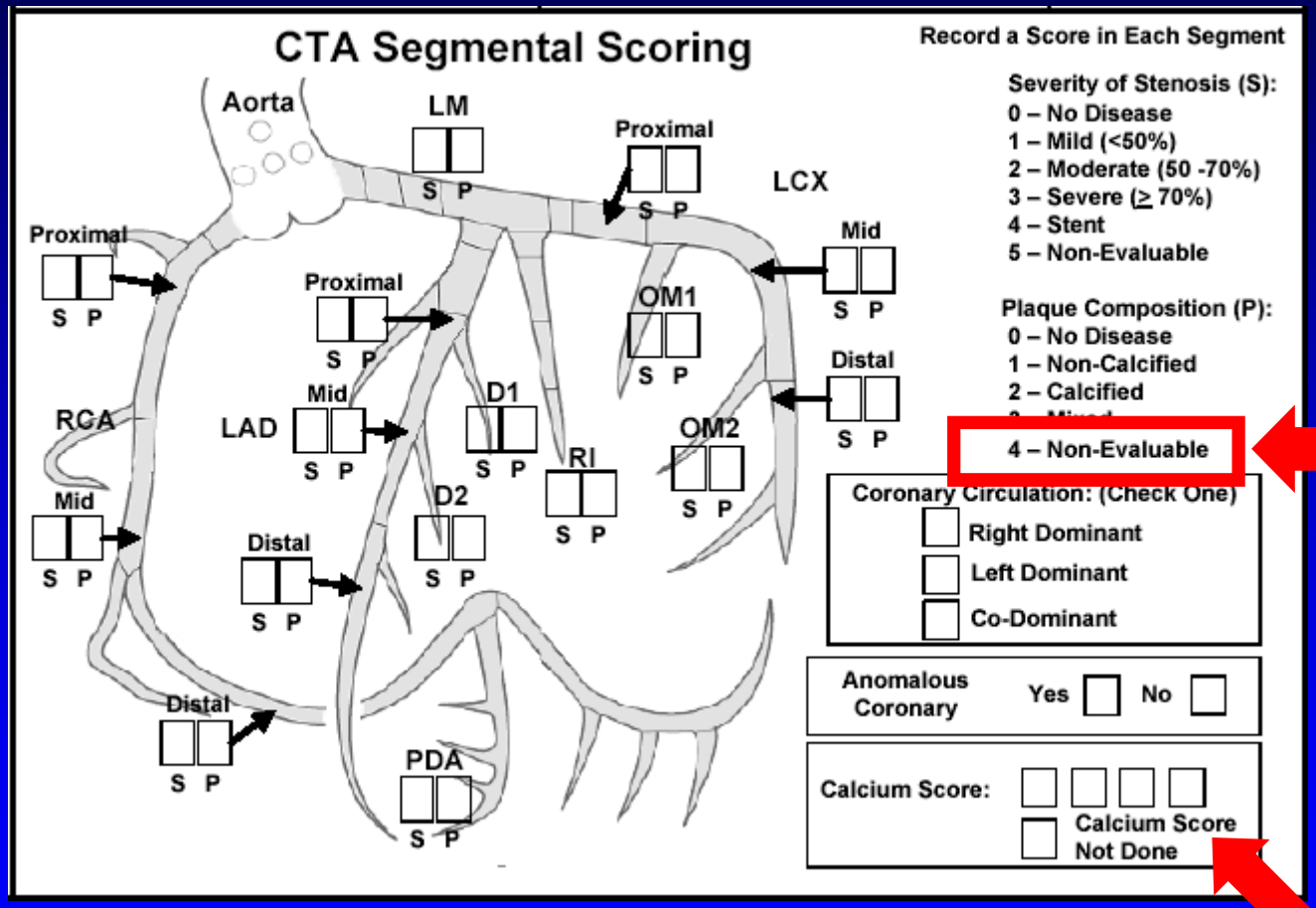
CRF Update to Baseline Medications



Important to make sure that each Patient enrolled has a complete review of their current cardiac medications

Ranexa has been added to the list of Baseline Cardio Protective Medications

CRF Update to CTA Segmental Scoring



Clarification to Plaque Composition Scoring.

Added 4 (Non-Evaluable) to Plaque Composition to correspond to the Severity of Stenosis score of 5 (Non-Evaluable)

Please ensure that the Calcium Score is entered or Not Done is Checked

Data Coordinating Center

- In the first 800 Patients we have identified the following common issues:
  - ✓ Legible Patient Contact Information.
  - ✓ Insert Sequential Patient number…Not Patient's Initials.
  - ✓ Date of Birth is not the Date of Procedure or Date of Informed Consent.
  - ✓ Stress Hemodynamics missing and/or incomplete.

- These issues result in a call back from the DCC for clarification and confirmation.

Legible Patient Contact Information

Patient Contact: (Primary Contact Information: If more than 1 contact location or phone please put all available contact information, and dates, on this form)

Name: _____

Address: _____

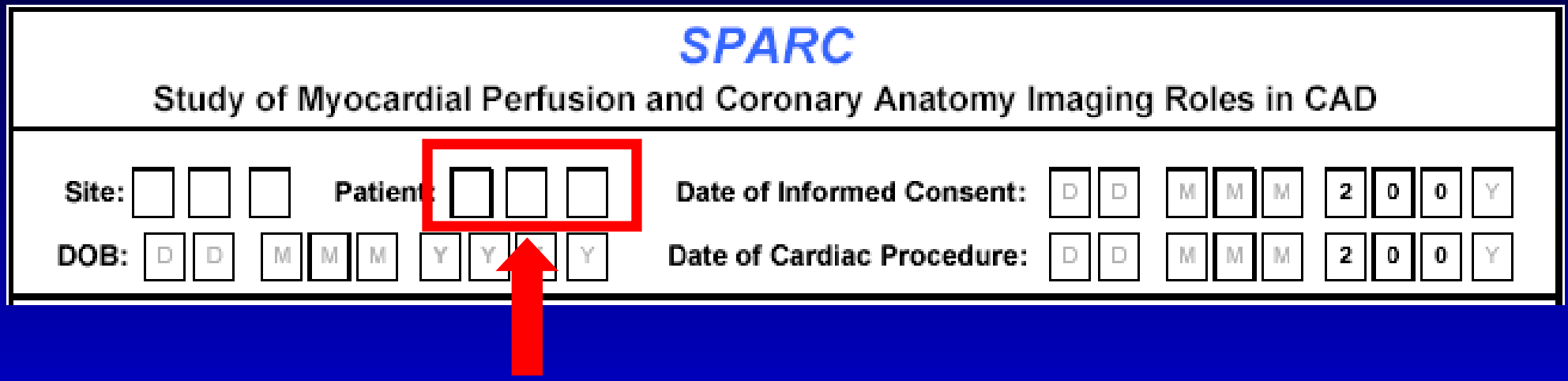
City/State/Zip Code: _____

Home Phone: _(____)_____ Cell Phone: _(____)_____

Email Address: _____

Patient Contact Information Illegible. Please ensure that the information is PRINTED and Legible. Also make sure that the Phone Number is active. This will reduce the number of call backs to the Site to clarify this information. If possible, see if the patient will also provide a day time phone number.

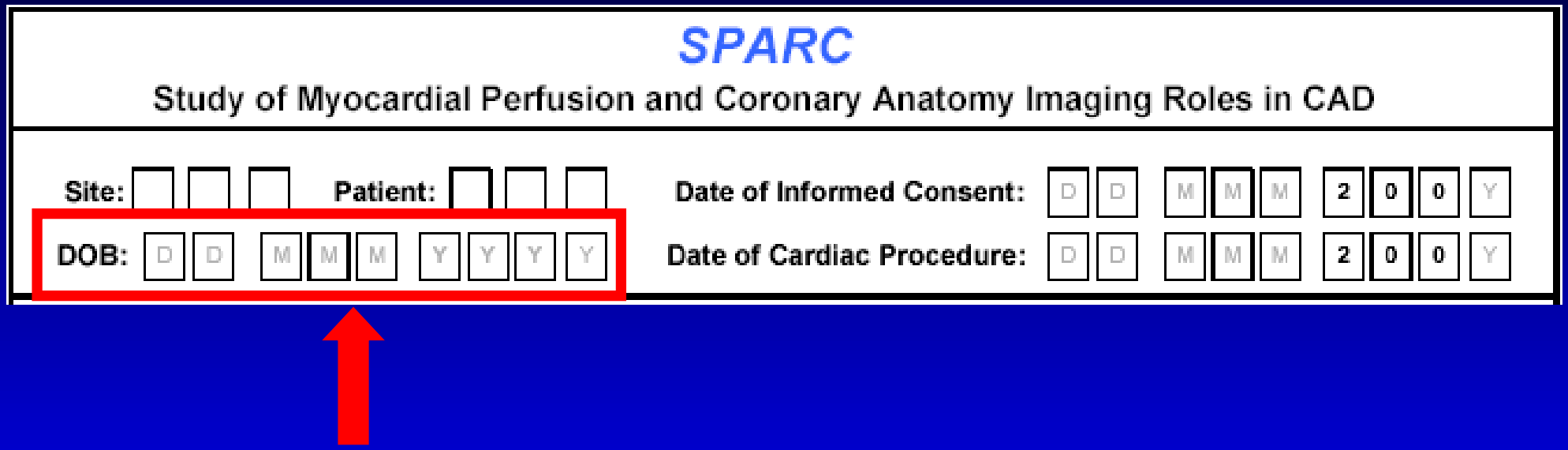
Sequential Patient Number



Please insert the Sequential Patient Number (001, 002, 002,…,xxx).

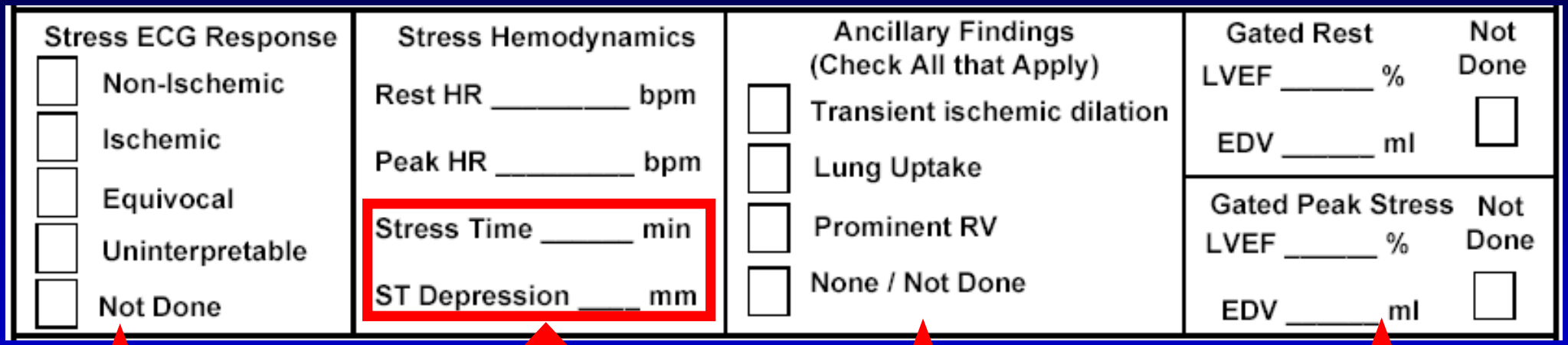
We must call if the patient's initials are inserted into this field.

Date of Birth ≠ Date of Procedure or Consent



Date of Birth is often times not recorded correctly…and the Date of Procedure or Date of Informed Consent is often substituted.

Missing Stress Hemodynamics



Missing Data for Stress Time and ST Depression

Missing Data Stress ECG Responses, Ancillary Findings, Gated Rest, Peak Stress……If Not Done, Please Check “Not Done”.

Data Coordinating Center

- The DCC wishes to thank each and every Site Research Coordinator for their prompt attention to help clarify data issues.

- Please do not forget to FAX in the CRFs within 72 hours of a patient's completion of the study.

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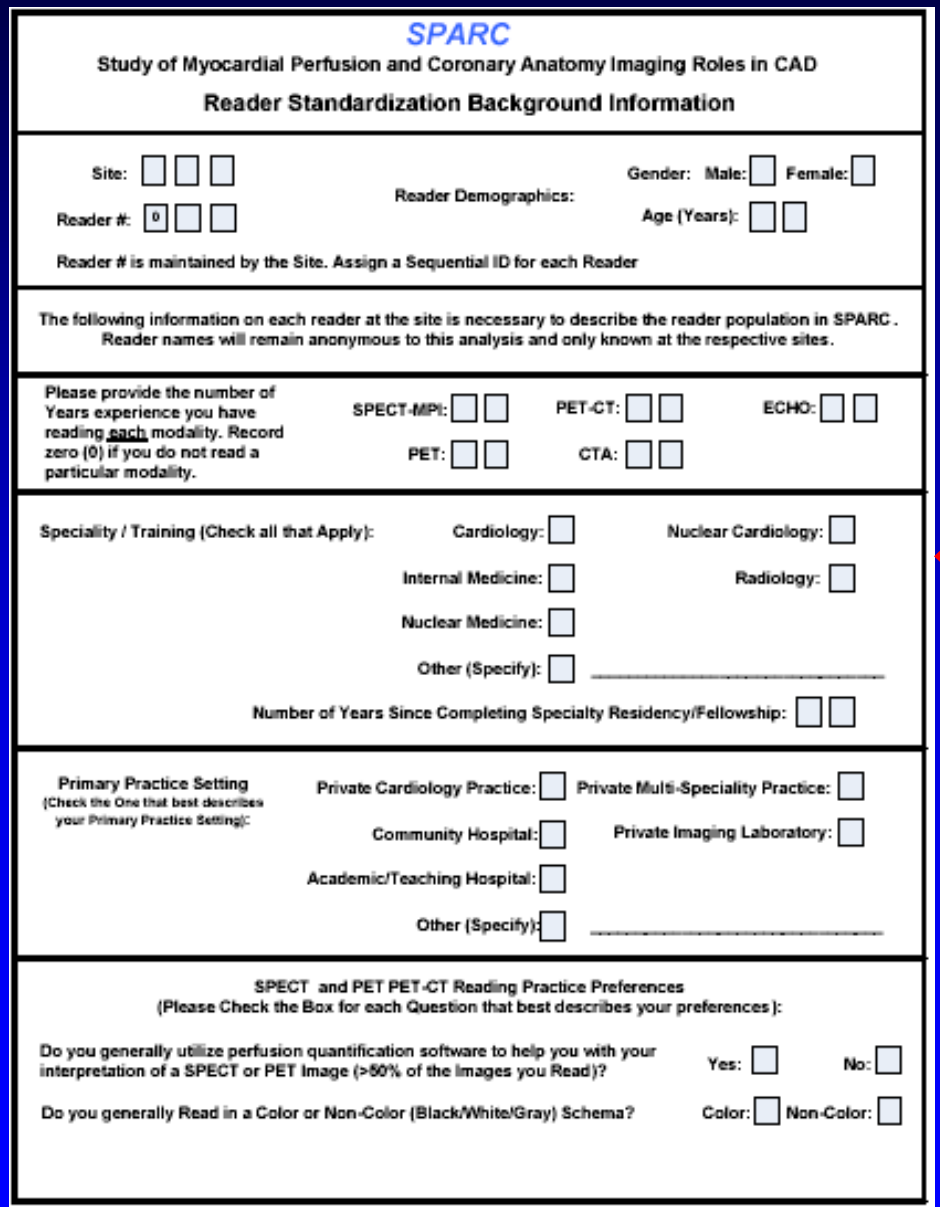
Reader Standardization

- Reader Standardization Packages have been sent to each site for SPECT and PET.
- Please have every Investigator who reads for SPARC (SPECT and/or PET) complete the package.
- This information is needed to compute a standard correction factor for each site to normalize the results across centers.

Reader Standardization



SPARC

Study of Myocardial Perfusion and Coronary Anatomy Imaging Roles in CAD

Reader Standardization Background Information

Site: ☐☐☐

Reader #: 0☐☐

Reader Demographics:

Gender: Male: ☐ Female: ☐

Age (Years): ☐☐

Reader # is maintained by the Site. Assign a Sequential ID for each Reader

The following information on each reader at the site is necessary to describe the reader population in SPARC. Reader names will remain anonymous to this analysis and only known at the respective sites.

Please provide the number of Years experience you have reading each modality. Record zero (0) if you do not read a particular modality.

SPECT-MPI: ☐☐ PET-CT: ☐☐ ECHO: ☐☐

PET: ☐☐ CTA: ☐☐

Speciality / Training (Check all that Apply):

Cardiology: ☐ Nuclear Cardiology: ☐

Internal Medicine: ☐ Radiology: ☐

Nuclear Medicine: ☐

Other (Specify): ☐ _____

Number of Years Since Completing Specialty Residency/Fellowship: ☐☐

Primary Practice Setting

(Check the One that best describes your Primary Practice Setting):

Private Cardiology Practice: ☐ Private Multi-Speciality Practice: ☐

Community Hospital: ☐ Private Imaging Laboratory: ☐

Academic/Teaching Hospital: ☐

Other (Specify): ☐ _____

SPECT and PET PET-CT Reading Practice Preferences

(Please Check the Box for each Question that best describes your preferences):

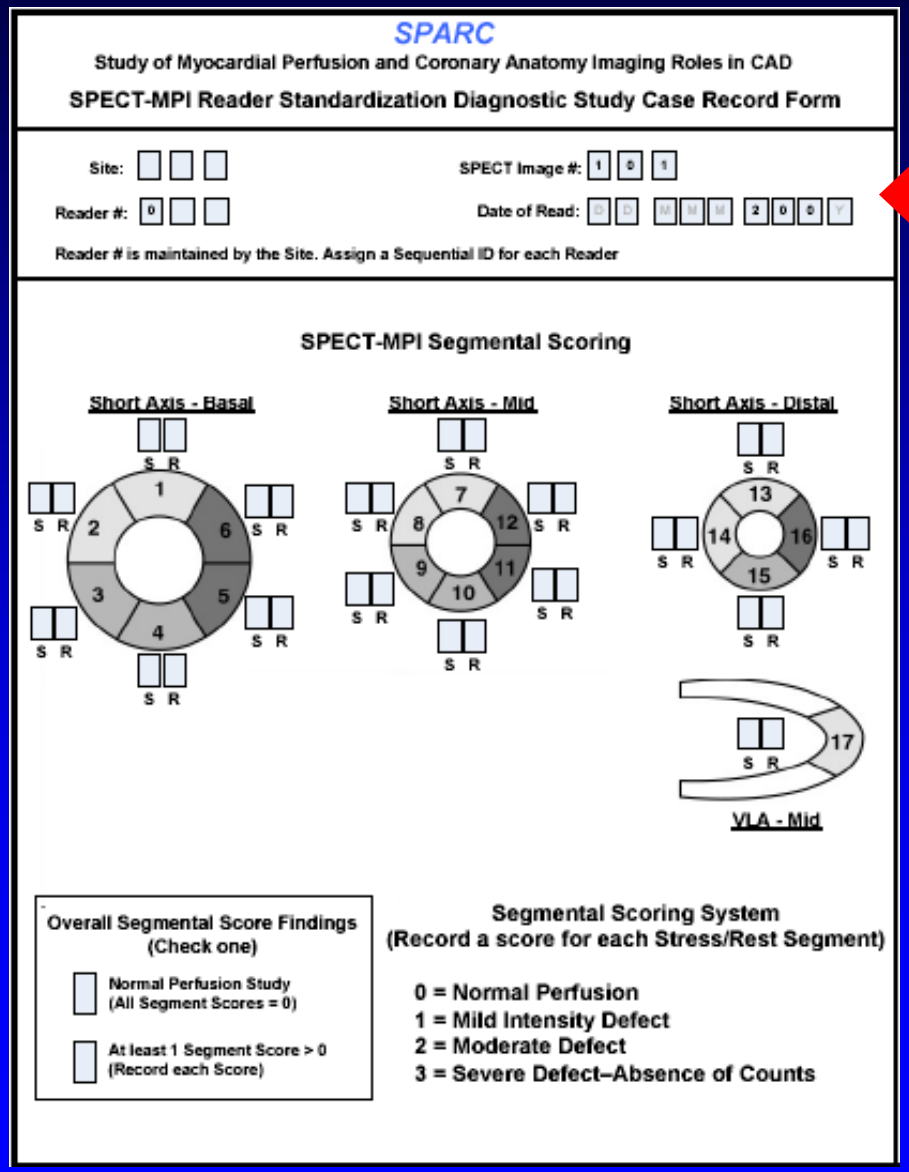
Do you generally utilize perfusion quantification software to help you with your interpretation of a SPECT or PET Image (>50% of the Images you Read)? Yes: ☐ No: ☐

Do you generally Read in a Color or Non-Color (Black/White/Gray) Schema? Color: ☐ Non-Color: ☐

We need to have each reader complete the general background information.

All Readers will remain anonymous. And known only to the individual site.

Reader Standardization



SPARC

Study of Myocardial Perfusion and Coronary Anatomy Imaging Roles in CAD

SPECT-MPI Reader Standardization Diagnostic Study Case Record Form

Site: ☐☐☐ SPECT Image #: 101

Reader #: 0☐☐ Date of Read: DD MMM 2009

Reader # is maintained by the Site. Assign a Sequential ID for each Reader

SPECT-MPI Segmental Scoring

Short Axis - Basal

Short Axis - Mid

Short Axis - Distal

VLA - Mid

Overall Segmental Score Findings (Check one)

☐ Normal Perfusion Study (All Segment Scores = 0)

☐ At least 1 Segment Score > 0 (Record each Score)

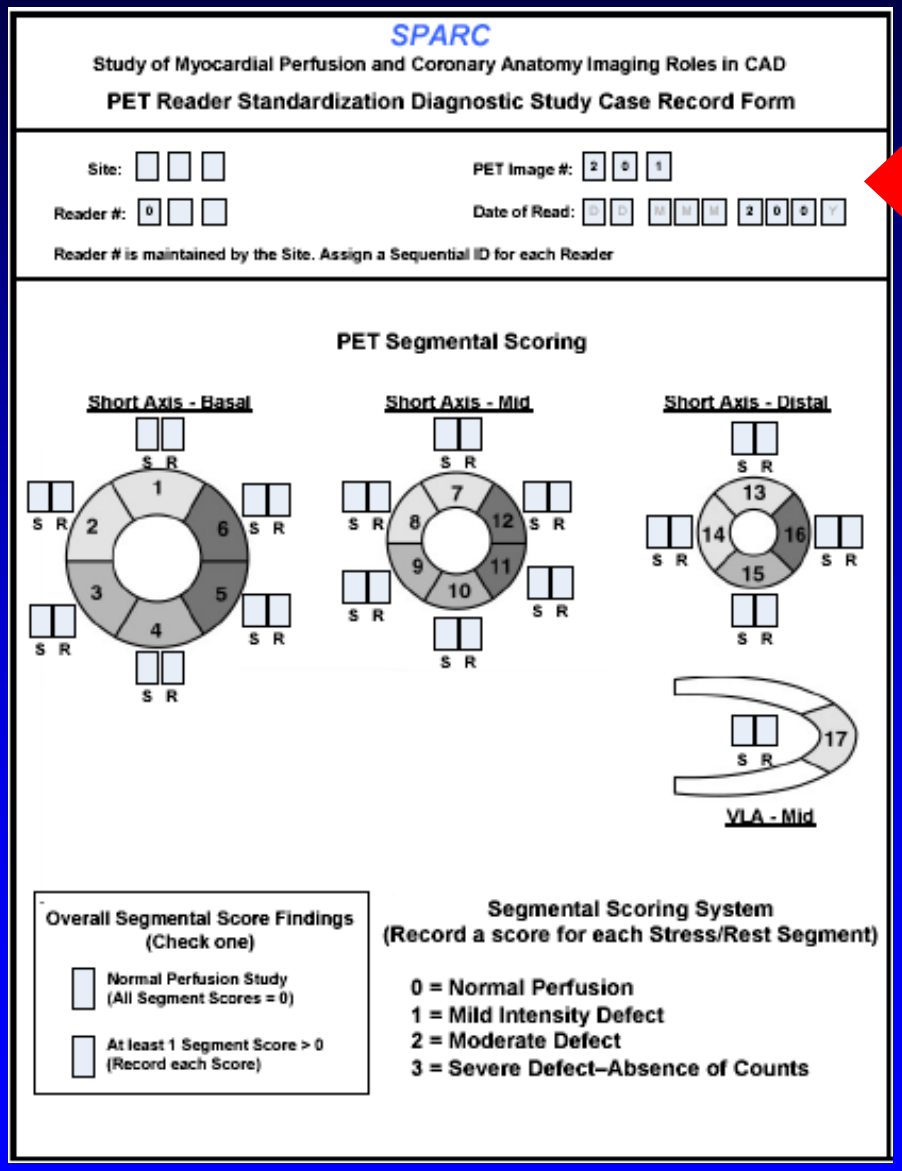
Segmental Scoring System (Record a score for each Stress/Rest Segment)

0 = Normal Perfusion
1 = Mild Intensity Defect
2 = Moderate Defect
3 = Severe Defect–Absence of Counts

Complete one form for each of the SPECT MPI cases (101 to 112).

Each Reader should complete All cases in the package.

Reader Standardization



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Study of Myocardial Perfusion and Coronary Anatomy Imaging Roles in CAD

PET Reader Standardization Diagnostic Study Case Record Form

Site: ☐☐☐ PET Image #: 201

Reader #: 0☐☐ Date of Read: ☐☐ MMM 2000

Reader # is maintained by the Site. Assign a Sequential ID for each Reader

PET Segmental Scoring

Short Axis - Basal

Short Axis - Mid

Short Axis - Distal

VLA - Mid

Overall Segmental Score Findings (Check one)

☐ Normal Perfusion Study (All Segment Scores = 0)

☐ At least 1 Segment Score > 0 (Record each Score)

Segmental Scoring System (Record a score for each Stress/Rest Segment)

0 = Normal Perfusion
1 = Mild Intensity Defect
2 = Moderate Defect
3 = Severe Defect–Absence of Counts

Complete one form for each of the PET cases (201 to 210).

Each Reader should complete All cases in the package.

AG Mednet Image Transfer

To receive your SPARC image transfer hardware please complete and submit a SPARC AG Mednet Participant Information Form

Benefits of using the AG Mednet image transfer equipment are:

Security

- ✓ All communication is outbound from a private network address in the form of a DICOM push. There is no query retrieval function built into this system.
- ✓ Studies are encrypted and routed over a private 10 Gigabit Network

Efficiency

- ✓ Send from any PACS or Modality directly to SPARC repository using designated AE Title
- ✓ AG Mednet patented solution enables rapid exchange of lossless DICOM studies over wide area networks
- ✓ The AG Mednet system will save your lab technicians precious time by making the cumbersome task of downloading, burning and shipping individual CDs no longer necessary.

Final Study Notes

Present study goals include:

- Increasing SPARC enrollment, especially in the PET and PET-CT arms of the study
- Installation of the AG Mednet image transfer system at all enrolling institutions
- Assisting sites in addressing data submission queries
- Compiling completed QA SPECT and PET test cases
- Completing the Pilot CTA portion of SPARC

Thank you all for your outstanding contributions to SPARC