



Case Studies: Multicenter Clinical Trials “Development of a Clinical Trials Network by SNM”

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Drugs without IP



- **FDG**
- **FLT**
- **FDOPA**
- **FMISO**
- **C-11 acetate**

- No company owns the rights
- No company will solely benefit
- No company will sponsor the trials
 - SNM ?
 - NCI ?
 - Industry consortium ?

From SNM-FDA meeting April 20, 2008

SNM is Looking to Develop Best Practices for Clinical Trials with Imaging Biomarkers

- Imaging biomarker production standards
- Patient selection/prep standards
- Image acquisition standards
- Vendor platform standards for display and analysis
- Standard analytical approaches
- Phantoms
- Hybrid technologies

From SNM-Pharma meeting November, 2008

Network 2008 Accomplishments

Phase I Baseline Work

- September '08
 - Approved multicenter IND for FLT
 - Round 1 of Imaging Site Registry Applications (130+)
- October '08
 - Launch of phantom program (alpha phase)
- November '08
 - Detailed 3 year plan with budget was developed & approved by the SNM Board of Directors



Oncology chest phantom & scan
with mock lesions

Images courtesy of Paul
E. Christian

From SNM BOD meeting March, 2009

The Beginning

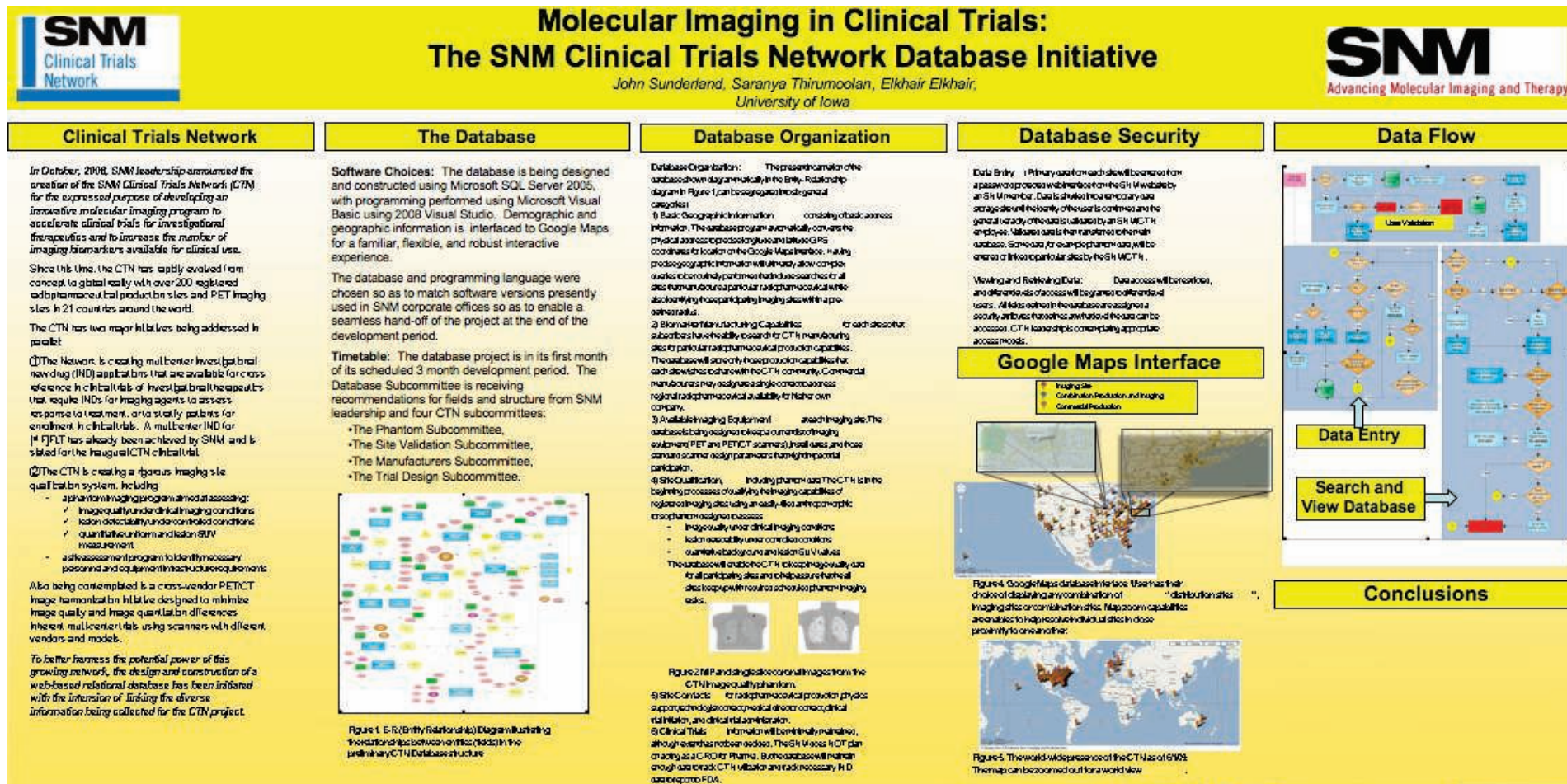
- In October 2008, SNM leadership announced the creation of the SNM Clinical Trials Network with notification that FDA approved SNM's first IND (F-18 Fluorothymidine)
- Two-day Workshop in Clearwater Beach, Florida.
 - Provided an opportunity to learn how SNM's new Clinical Trials Network can facilitate faster and more cost-effective drugs and biologics development through the improved integration and standardization of imaging biomarkers into therapeutic clinical trials.
- Following the Mid-Winter Meeting, SNM has continued to further define the structure of the Clinical Trials Network. Committees are being organized to cover the general areas of Quality Overview, Site Validation, Trial Design, Education, and Databases.

From SNM Annual meeting June, 2009

Organization

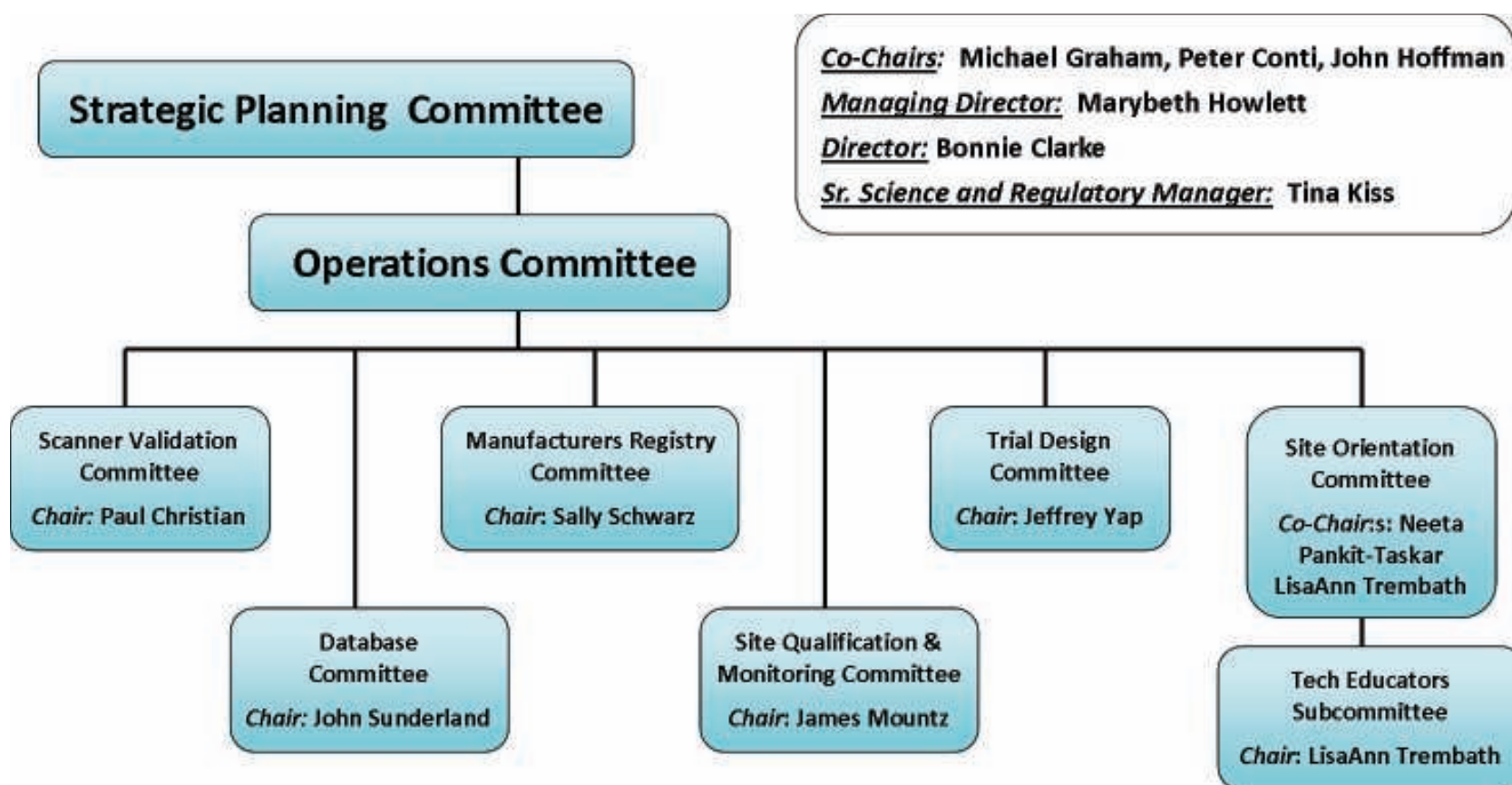


From SNM Annual meeting June, 2009



From SNM Annual meeting June, 2009

CTN Organizational Chart



From SNM Mid Winter meeting January, 2010

Accomplishments

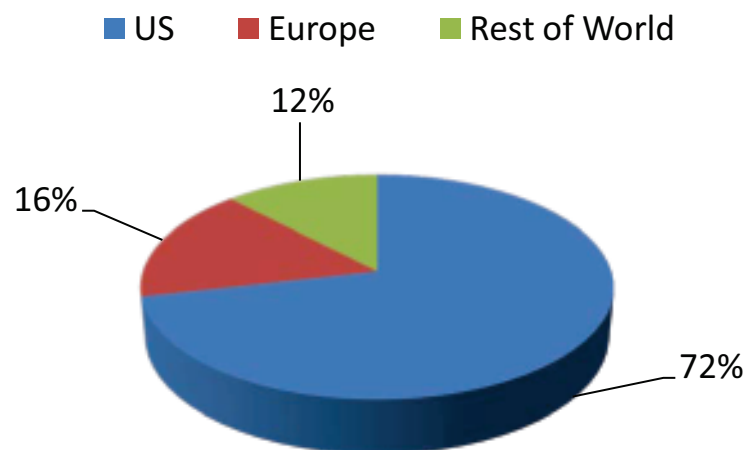
- First SNM multicenter IND for an investigational imaging biomarker
- First three founding members from the pharmaceutical development community on board
- 200+ members of both the imaging site and manufacturers registries
- Over 25% participation from outside the U.S.
- Development and launch of a clinical oncology phantom program
- Many on-going educational activities to inform about the Network and advance the awareness and understanding of the “Practice of Clinical Trials” within the imaging community
 - Community Workshop to be held Feb 1-2, 2010 in Albuquerque

From SNM Mid Winter meeting January, 2010

CTN Registries (April 2010)

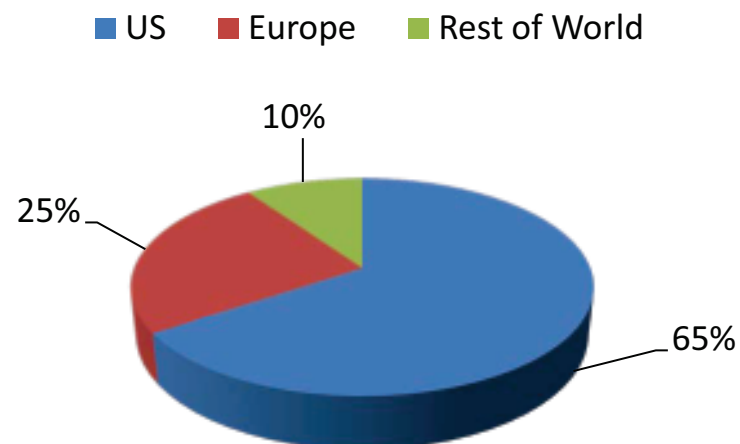
Consistent Interest and Growth

Imaging Site Registry (238 Sites)

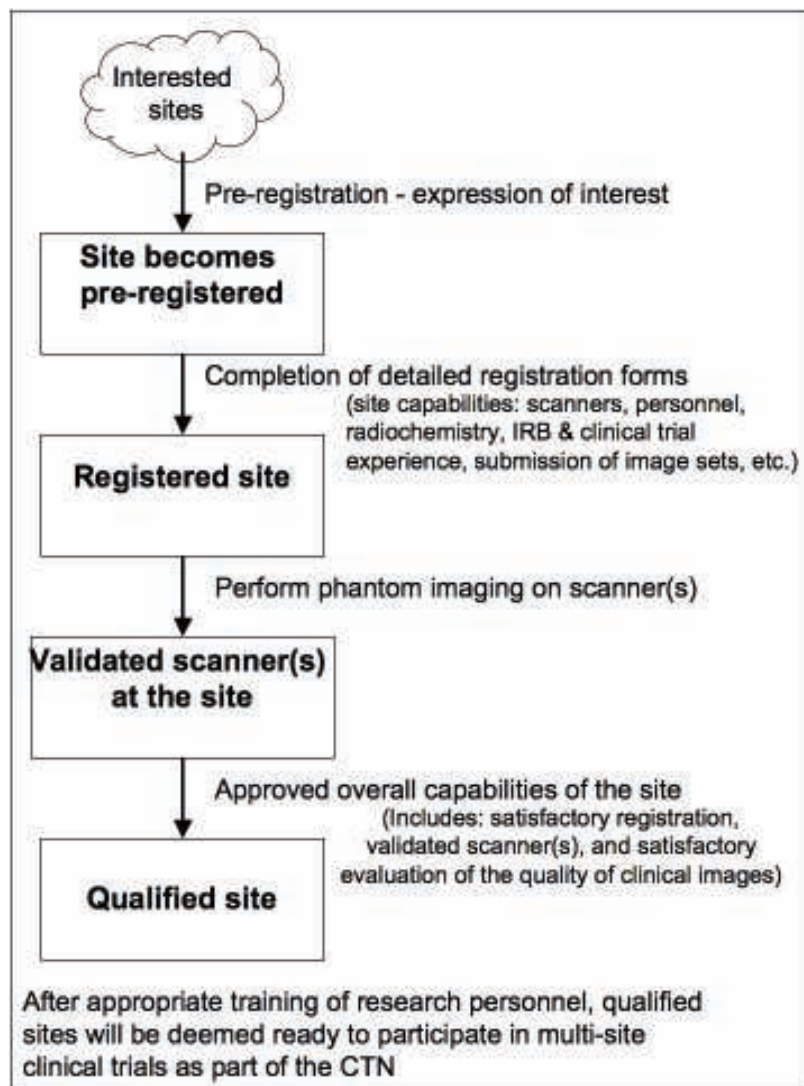


April 2010

Manufacturer's Registry (206 Sites)



April 2010



Site Qualification Process

- Registration in CTN site database: online completion of site-specific information
- Scanner Validation
- Sites must meet a set of minimum requirements related to research infrastructure, access to experimental imaging agents, validated equipment and experience of imaging personnel

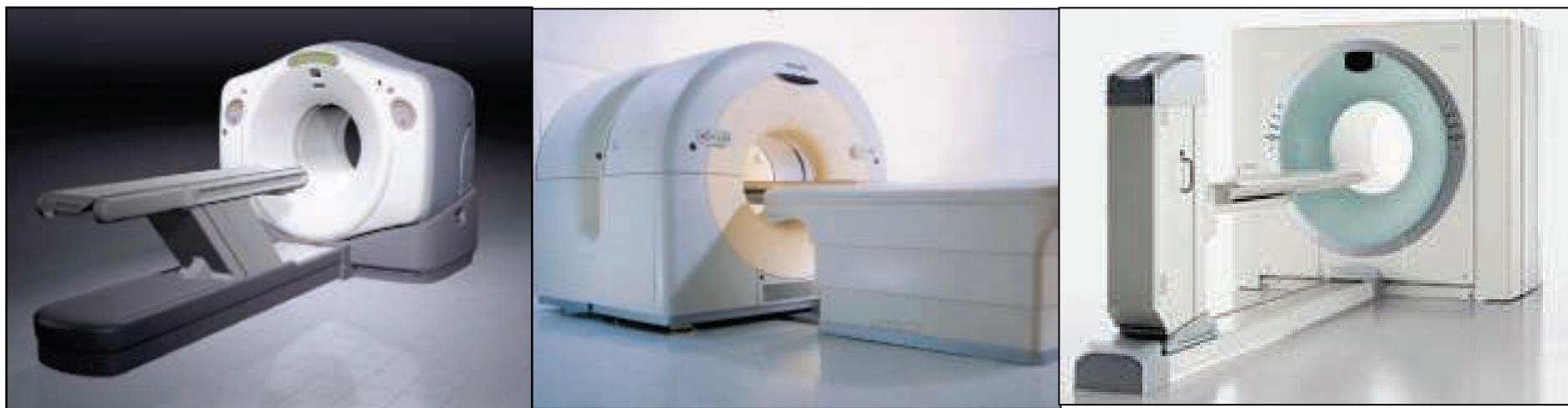
Problems Discovered During Scanner Validation Process

- Extreme time delays at certain sites (>65%)
 - Find time in clinical schedule (>20%)
 - Personnel unable to correctly prepare DICOM CD of images (44%)
- Sites filled phantom incorrectly (7%)*
- Dose calibrators not working properly (3%)

* <1% since online video demonstration became available in Jan 2010.

Lesson Learned: Instructions are being revised to include step-by-step guide for burning images scanned on each of the three main vendor's equipment to reduce site errors in CD preparation and time delays.

CTN Scanner Validation



- **Validated scanners** **31**
- **Sites currently imaging phantoms** **19**
- **Sites waiting for phantoms** **>17**

Training and Education

Curriculum courses offered for all imaging site personnel:

- Following clinical research imaging protocols
- Improving image quality / troubleshooting
- Monitoring QC and QA: equipment and imaging procedures
- Source documentation and CRF completion
- Accurate documentation and reporting of violations, deviations and AEs/SAEs



CTN recognizes key role of molecular imaging technologists
in promoting and improving imaging in clinical research

CTN Long-Term Goals

- One new IND per year – based on pharmaceutical & community need
- Expand phantom program to include cardiac and brain scenarios; can be designed to be study-specific
- Reach beyond PET biomarkers
- Assist with developing standardized imaging acquisition guidelines, processing and data analysis, and improved protocol development
- Work with imaging CROs to develop global standardized site qualification process; baseline and study specific capabilities



Long-Term Goals, cont.

- Expand multicenter IND capability for imaging biomarkers
 - Non-proprietary - Proprietary
 - Individual academic investigator-driven
- Facilitate quantitative imaging in biomarker clinical trials
 - Phase I, Phase II assessing chemotherapy agents with Pharma
 - Multicenter NIH-sponsored similar trials
 - Proprietary agents in Oncology, Cardiology, Neurology

