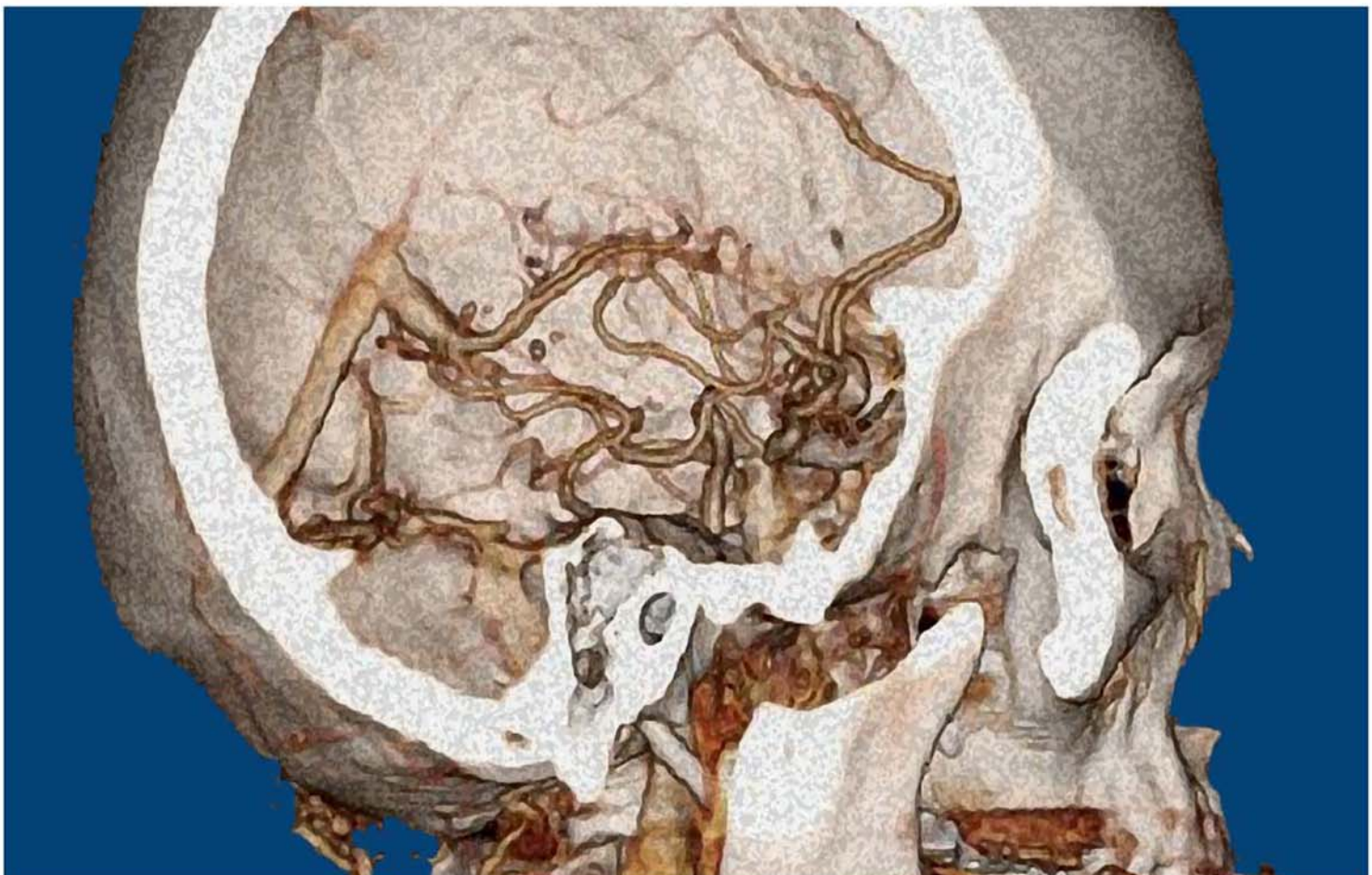


**2009 Radiological Society of North America  
Annual Meeting**

**McCormick Place - Chicago, IL  
November 29 - December 4**

**ACRIN Abstract Presentations and Network Overview**



## A Message from ACRIN's Network Chair

As we near the end of ACRIN's 10<sup>th</sup> anniversary of conducting multi-center imaging trials, it is with great pride that we take stock of our successes made possible by the commitment of hundreds of imagers throughout the United States and abroad. Since its inception, ACRIN has initiated more than 30 clinical trials, enrolled nearly 77,000 trial participants, and, most importantly, ACRIN's published results have positively affected patient care.

The outlook for the next ten years portends to be equally significant as ACRIN researchers develop protocols and support clinical trials that further ACRIN's three overarching goals of 1) screening of populations at high risk for cancer, 2) diagnosing and staging disease to guide targeted therapy, and 3) investigating biomarkers of treatment response. This past year alone, ACRIN activated seven multi-center trials that have imaging biomarker validation as the primary aim. Many protocols addressing other clinically significant imaging aims are in development:

- A trial of FDG-PET/CT for staging of head and neck cancer in the patient with clinically-defined negative neck will activate early in 2010
- Also activating early next year, a trial evaluating the use of dynamic contrast-enhanced (DCE) CT and DCE MRI for diagnosing hepatocellular cancer is being conducted with the endorsement of the national Organ Procurement and Transplantation Network
- A trial in development to be carried out with ACOSOG will evaluate the effect of pre-operative MRI for women with breast cancer who are planning breast-conserving surgery

A natural outgrowth of ACRIN's extensive research infrastructure has been its recent expansion to investigate the role of imaging in the areas of cardiovascular and neurological diseases. Made possible through several funding sources, the Cardiovascular Committee has launched its first trial evaluating the safety and effectiveness of CT angiography in triaging low-risk patients who present in the emergency room with chest pain, and the Neurosciences Committee recently held its first meeting to begin prioritizing research concepts.

ACRIN's past accomplishments and exciting future are made possible through several significant funding sources. From the beginning, the National Cancer Institute (NCI) has been an important ACRIN partner—especially in helping to secure maximum funding as available research dollars have declined. Most recently, with NCI support, ACRIN secured over \$5 million through the American Recovery and Reinvestment Act to expedite carrying out trials that would have had a significantly longer implementation horizon. Funding from the ACRIN Fund for Imaging Innovation (which comprises donations from the American College of Radiology, industry partners and radiologists nationwide) and the State of Pennsylvania (through the Tobacco Settlement Fund) has been integral for ACRIN's expansion into cardiovascular and neurosciences research.

I encourage you to peruse our 2009 RSNA book to learn about ACRIN scientific presentations at this year's meeting, and to talk with ACRIN representatives about the expanded services of our imaging core laboratory and how you can participate in ACRIN's research.

Sincerely,



Mitchell Schnall, MD, PhD  
ACRIN Network Chair

# Abstract Presentations and Network Overview

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# ACRIN Abstract Presentations Schedule

## *Sunday, November 29*

### **10:55 am, Room E353A**

**Title:** Patient Acceptance and Tolerance of CT Colonography versus Optical Colonoscopy during the National ACRIN CT Colonography Trial

**Authors:** Siewert B, Gareen I, Vanness D, Herman B, Johnson CD, Gatsonis C

### **10:55 am, Room E450B**

**Title:** Reproducibility of Cartilage T1rho in a Multi-Institutional/Multi-Vendor Network

**Authors:** Mosher T, Zhang Z, Boudhar S, Olson C, Witschey W, Fenty M, Milestone B, Morrison W, Reddy R, Kwok K

### **11:45 am, Room E353A**

**Title:** Sensitivity of CT Colonography for the Detection of Nonpolypoid Adenomas Using Restricted Criteria in the ACRIN 6664 National CT Colonography Trial

**Authors:** Fidler J, Zhang Z, Herman B, Fletcher J, Dachman A, Johnson C

### **2:00 pm, Room S406A**

**Title:** Imaging in a Phase II Study of Bevacizumab with or without Irinotecan in Recurrent Glioblastoma

**Authors:** Sorensen A, Zhang Z, Snyder B, Girardi V, Gilbert M, et al.

## *Tuesday, December 1*

### **9:20 am, Arie Crown Theater**

**Title:** Screening Breast Ultrasound as a Supplement to Mammography: Yield of Annual Screening in ACRIN 6666

**Authors:** Berg W, Zhang Z, Cormack J, Lehrer D, Bohm-Velez M, Pisano E, et al.

### **11:30 am, Room S102D**

**Title:** Comparative Effectiveness and Cost-Effectiveness of Digital Mammography and MRI for Breast Cancer Screening in BRCA1 Gene Mutation Carriers

**Authors:** Lee J, Kalnins A, Pisano E, Gatsonis C, McMahon P, Kong C, Kopans D, Ryan P, Halpern E, Gazelle G

### **11:30 am, Arie Crown Theater**

**Title:** False Positives Induced by Annual Screening US Added to Mammography: ACRIN 6666

**Authors:** Berg W, Zhang Z, Cormack J, Lehrer D, Bohm-Velez M, Pisano E, Jong R, Evans W, Morton M, et al.

### **11:50 am, Arie Crown Theater**

**Title:** Supplemental Yield and Performance Characteristics of Screening MRI after Combined Ultrasound and Mammography: ACRIN 6666

**Authors:** Berg W, Zhang Z, Cormack J, Jong R, Barr R, Lehrer D, et al.

### **4:00 pm, Room E353C**

**Title:** ACRIN 6673: Multicenter Feasibility Study of Percutaneous Radiofrequency Ablation of Hepatocellular Carcinoma (HCC) in Cirrhotic Patients

**Authors:** Dodd G, Duan F, Herman B, Girardi V, Gorelick J, Hartfeil D, Taylor T

## *Thursday, December 3*

### **11:20 am, Arie Crown Theater**

**Title:** Assessing Residual Disease in Breast Cancer Patients Post Neoadjuvant Chemotherapy Prior to Surgery: Findings of the American College of Radiology Imaging Network Trial 6657

**Authors:** Lehman C, Marques H, Bernreuter W, Pisano E, Rosen M, Hylton N

## *Friday, December 4*

### **10:50 am, Room E451A**

**Title:** CAD System Marking of Digital Mammograms of DMIST Cancers

**Authors:** Cole E, Pisano E, Zhang Z, Marques H, Gatsonis C, Kuzmiak C, Chayakulkheer J, Yaffe M, et al.

# Abstract Presentations

Sunday, November 29

**Title:** Patient Acceptance and Tolerance of CT Colonography versus Optical Colonoscopy during the National ACRIN CT Colonography trial

**Authors:** Siewert B, Gareen I, Vanness D, Herman B, Johnson C, Gatsonis C

**Time:** 10:55 am

**Location:** Room E353A

**Background/Purpose:**

Colorectal cancer screening must be repeated on a regular basis. Understanding patient perceptions and willingness to be rescreened will help to determine future compliance rates. The purpose of this study was to compare National CT Colonography Trial (NCTCT) screening participant experiences with CT colonography (CTC) and optical colonoscopy (OC), willingness to return for each procedure, and procedure preference.

**Methods:**

NCTCT participants underwent a single bowel preparation (BP). Participants were scheduled to receive CTC, followed by sedation and OC. Participants were asked to complete a questionnaire two weeks post-exam on physical discomfort and embarrassment during BP, CTC and OC and willingness to repeat CTC and OC (with or without BP) at different time intervals. McNemar's Test and logistic regression were used for statistical analysis.

**Results:**

Two thousand, three hundred and ten of 2600 patients (89%) responded (1224 women, 1086 men). Mean age was 58.39 years (range 50-86). The participant population was 85% Caucasian, 11% African American and 4% other. Severe discomfort was reported by 7.1% participants with BP, 6.3% with CTC, and 2.2% with OC. Severe embarrassment was reported by 1.6% participants with BP, 1.3% with CTC, and 0.7% with OC.

Forty-six percent of participants preferred CTC, 27.4% reported no preference, and 24.9% preferred OC ( $p < 0.001$ ). Repeat screening with CTC is currently recommended every 5 years and with OC every 10 years. 80.5% of the participants were willing to be screened again with CTC in 5 years and 97.5% were willing to be screened again with OC in 10 years ( $p < 0.001$ ). If the screening interval for CTC were extended to ten years, 93.7% of participants were willing to return for screening ( $p < 0.001$ ). If BP were unnecessary, 91.0% were willing to be rescreened with CTC in 5 years and 97.5% were willing to be rescreened with OC in 10 years ( $p < 0.001$ ).

**Conclusions:**

NCTCT participants preferred CTC to OC, but their willingness to undergo repeat CTC was limited by the shorter interval between screenings currently recommended for CTC as opposed to OC. Improvements in technology that would eliminate the need for bowel preparation or extend the recommended screening interval would likely improve adherence to recommended repeat screening. Work funded by Grants U01 CA079778 and U01 CA080098.

# Abstract Presentations

Sunday, November 29

**Title: Reproducibility of Cartilage T1rho in a multi-institutional/multi-vendor network**

**Authors:** Mosher T, Zhang Z, Boudhar S, Olson C, Witschey W, Fenty M, Milestone B, Morrison W, Reddy R, Kwok K

**Time:** 10:55 am

**Location:** E450B

**Background/Purpose:**

Cartilage T1rho has been proposed as an MRI biomarker in assessment of cartilage proteoglycan content. The purpose of this study is to assess reproducibility of knee cartilage T1rho in a multi-institutional/multi-vendor network.

**Methods:**

Fifty-three participants were recruited into the study at 5 centers in the ACRIN-PA Network. Participants were divided into 3 cohorts, normal, minimal osteoarthritis and moderate osteoarthritis. T1rho magnetization was prepared using a 3 pulse cluster consisting of two 90° hard pulses and a low power spin lock pulse, and imaged with coronal and axial 2D balanced fast field echo sequences at 3.0T. A series of 5 T1rho weighted images was obtained by varying the duration of the spin lock (TSL: 1ms, 10ms, 20 ms, 30 ms, 40 ms). T1rho maps were calculated by fitting the signal intensity of the T1rho images on a pixel by pixel basis. Cartilage regions of interest were segmented by location in the joint (medial femoral, lateral femoral, medial tibial, lateral tibial and patella) as well as regions based on distance from the articular surface (deep, middle and surface zone).

Each participant underwent 4 sequential MRI evaluations within a 4 week period to calculate precision error. Intraclass correlation coefficient (ICC) was calculated for each cohort, location and region.

**Results:**

The final analysis cohort comprised 50 participants, due to 3 early dropouts. For patella analysis, we excluded 12 cases from one site due to inaccurate parameter setting. There were 18, 16, and 16 participants in the cohorts of normal, mild OA and moderate OA, respectively. Reproducibility of T1rho, measured by ICCs, had a wide range. Reproducibility of measurements made on patella, across all cohorts and regions were significantly higher than other locations, which ranged from 0.82 to 0.93, with the 95% CI lower bound as low as 0.52. For other locations, ICCs ranged from 0.25 to 0.84 with the lower bound of the 95% CI as low as 0.7 out of 9 ICCs on patella, as well as 2 out of 36 ICCs on other measurements were at least 0.6. 3 ICCs for measurements on patella in the normal cohort were at least 0.75. Finally, ICC for measurement on patella deep zone were at least 0.85.

**Conclusions:**

Reproducibility of regional cartilage T1rho is moderate and greater in patella compared to other regions. Work funded by Grants U01 CA079778 and U01 CA080098.

# Abstract Presentations

Sunday, November 29

**Title: Sensitivity of CTC for the Detection of Nonpolypoid Adenomas Using Restricted Criteria in the ACRIN 6664 National CTC Trial**

**Authors:** Fidler J, Zhang Z, Herman B, Fletcher J, Dachman A, Johnson C

**Time:** 11:45 am

**Location:** Room E353A

**Background/Purpose:**

To determine the sensitivity of CTC for the detection of nonpolypoid adenomas in the colon using restricted criteria.

**Methods:**

Two thousand, five hundred thirty-one patients underwent CTC and colonoscopy as part of the ACRIN 6664 Trial. CTC exams were read by two separate blinded radiologists either by primary 2D or 3D technique. Morphology of detected polyps was recorded at CTC and colonoscopy. CTC and colonoscopy photographs of all polyps  $\geq 5$ mm that were classified as flat were retrospectively reviewed by an unblinded gastroenterologist and radiologist to assure that the polyp met a restricted criteria of flat defined by both (i) height of  $\leq 3$ mm and (ii) height  $\leq$  one-half polyp. Prospective sensitivity was compared between primary 2D and 3D interpretations. Conspicuity rank was retrospectively evaluated using lung, soft tissue, and colon window settings, and 2D and 3D projections.

**Results:**

A total of 374 adenomas or adenocarcinomas  $\geq 5$ mm in size were detected by colonoscopy. 19/374 (5.1%) met the restricted criteria for a nonpolypoid adenoma yielding an overall screening prevalence of 0.75% (19/2531). The mean size was 9.3mm (range 5-25mm; 8mm median). Advanced adenomas ( $\geq 1$ cm (n=6), high grade dysplasia (n=2) or villous component (n=3)) were seen in 8/19 (42.1%). The overall sensitivity for CTC was 0.68 (13/19), CI (0.43, 0.87). The individual sensitivity for primary 2D technique was 0.47 (9/19), CI (0.24, 0.71). The individual sensitivity for primary 3D technique was 0.32 (6/19), CI (0.13, 0.57). Incorporating 2D and 3D improved sensitivity significantly compared with 3D detection ( $p=0.008$ ), as well as 2D detection ( $p=0.046$ ). There was no significant difference between 2D and 3D detection ( $p=0.37$ ). For nonpolypoid adenomas  $\geq 1$ cm in size the sensitivity was 66.7% (4/6). Retrospective review of the CTC exams identified 4/6 polyps not detected prospectively. There was no significant difference in polyp conspicuity rank for lung, soft tissue and colon window which was 2.47, 2.53, and 2.65 respectively ( $p>0.18$ ). Polyp conspicuity was better with 2D (n=7), 3D (n=2) or equal (n=8).

**Conclusions:**

In this group of screening study participants, nonpolypoid flat adenomas had a low prevalence with approximately 40% representing advanced adenomas. These lesions are more difficult to detect than polypoid lesions but the majority are visible. An interpretation technique incorporating both 2D and 3D optimizes sensitivity. Work funded by Grants U01 CA079778 and U01 CA080098.

# Abstract Presentations

Sunday, November 29

**Title: Imaging in a Phase II Study of Bevacizumab with or without Irinotecan in Recurrent Glioblastoma**

**Authors:** Sorensen A, Zhang Z, Snyder B, Girardi V, Gilbert M, et al.

**Time:** 2:00 pm

**Location:** S406A

**Background/Purpose:**

Imaging has increasingly been used as a biomarker for biological response in human drug development. ACNRIN 6677 seeks to incorporate central MRI methods as part of a Phase II study of an anti-angiogenic agent, bevacizumab, in recurrent glioblastoma. Because angiogenesis is a key component of glioblastoma, therapies directed at vascular endothelial growth factor are increasingly of interest. A cooperative group study, RTOG 0625, is underway to study the combination of bevacizumab with a cytotoxic agent, irinotecan. ACNRIN 6677 is a companion study that includes central MRI interpretation and, at advanced sites, dynamic contrast enhanced MRI, dynamic susceptibility contrast perfusion MRI, and MR spectroscopy.

**Methods:**

RTOG 0625 included adult patients with confirmed glioblastoma or gliosarcoma treated with bevacizumab (10mg/kg) and with or without irinotecan (200mg/m<sup>2</sup>) both given IV q 2 weeks. The overall accrual goal is 121 patients. The primary endpoint was six month progression-free survival (6-mPFS). The Macdonald criteria were used to assess response.

**Results:**

Enrollment is still underway, with 101 patients enrolled and centralized collection of imaging and trial data completed at time of writing. Central collection of MRI data will allow central interpretation (volumetric analyses and advanced MR analysis). Interim analysis based on local interpretation was performed on 93 patients (3 ineligible; 5 excluded due to inadequate image quality or lack of lesion detection at baseline). The median size of the cross-sectional tumor area at largest slice was 9.6cm<sup>2</sup>, range 0.06 to 70.9cm<sup>2</sup>. At time of writing, 3 subjects had complete response, 24 had partial response, 35 had stable disease, and 31 had progressive disease. 6-mPFS was 38%; median duration of response was 112 days and median time to progression was 138 days. Further data collection is underway.

**Conclusions:**

Multicenter imaging in a collaborative group setting is feasible. Initial data corroborate earlier reports of efficacy of bevacizumab in the recurrent setting. Work funded by Grants U01 CA079778 and U01 CA080098.

# Abstract Presentations

Tuesday, December 1

**Title: Screening Breast Ultrasound as a Supplement to Mammography: Yield of Annual Screening in ACRIN 6666**

**Authors:** Berg W, Zhang Z, Cormack J, Lehrer D, Bohm-Velez M, Pisano E, et al.

**Time:** 9:20 am

**Location:** Arie Crown Theater

**Background/Purpose:**

To compare the cancer detection rate (yield) of combined mammography plus ultrasound to mammography alone in incidence screens of ACRIN 6666.

**Methods:**

Two thousand, eight hundred nine women at elevated risk for breast cancer with nonfatty breasts were recruited from 4/04 to 2/06 from 21 IRB-approved sites to undergo mammography (M) or physician-performed ultrasound (US) exams, randomized in order, masked, and interpreted by different physicians prior to integrated interpretation, with screening at time 0 (year 1), 12 (year 2), and 24 months (year 3). Reference standard is based on biopsy and/or 12-month follow-up for each screen. Results from screens in years 2 and 3 were compared to those in year 1.

**Results:**

Two thousand, six hundred forty-eight eligible women had reference standard for the first screen [mean age 55.2 yr, range 25-91], and were at elevated risk due to: personal history of breast cancer (53%); familial high-risk by Gail or Claus models (43%); prior ADH/ALH/LCIS/atypical papilloma (3%); BRCA-1 or -2 mutation (1%).

In year 1, of 2648 screened, cancer was found in 36 (1.4%) women: 8 on both M and US; 12 M alone; 12 US alone; 4 neither. In year 2, of 2487 screened, 28 (1.1%) had cancer: 7 on both M and US; 6 on M alone; 9 on US alone; 6 neither. In year 3, of 1921 screened, 46 (2.4%) had cancer: 7 on M and US; 14 on M alone; 9 on US alone; 16 neither (with 8 seen only on MRI).

Supplemental yield of US was 4.2/1000 in year 1 (95% CI 1.1 to 7.2); 4.0/1000 in year 2 (95% CI 1.1 to 6.9); and 4.7/1000 in year 3 (95% CI 0.8 to 8.6). 110 participants were diagnosed with cancer, including 23 (21%) DCIS and 87 invasive, with 12/66 (18%) node positive among those staged. Of participants with cancer seen only on US, 28/30 (93%) were invasive, with median size of 10 mm (range 2 to 40), and 1/24 (4.2%) was node positive among those staged. Of 26 participants with cancer not depicted by M or US, only 8 presented clinically in the interval between screens, for an interval cancer rate of 7.3%. There was no difference in supplemental yield of US among the 41.3% of exams performed with digital vs. film-screen mammography.

**Conclusions:**

The supplemental yield of screening US after mammography is constant, averaging 4.3 per 1000 annual screens [95% CI 2.7 to 6.0] among women at elevated risk of breast cancer. Work funded by grants CA079778 and CA80098.

# Abstract Presentations

Tuesday, December 1

**Title:** Comparative effectiveness and cost-effectiveness of digital mammography and MRI for breast cancer screening in BRCA1 gene mutation carriers

**Authors:** Lee J, Kalnins A, Pisano E, Gatsonis C, McMahon P, Kong C, Kopans D, Ryan P, Halpern E, Gazelle G

**Time:** 11:30 am

**Location:** Room S102D

**Background/Purpose:** To evaluate the comparative effectiveness and cost-effectiveness of digital mammography and breast magnetic resonance imaging (MRI) screening in BRCA1 mutation carriers.

**Materials and Methods:**

Using a Markov Monte Carlo model, we compared 4 annual screening strategies versus clinical surveillance without imaging for a cohort of 25 year old BRCA1 mutation carriers: 1) Film Mammography (FM), 2) Digital Mammography (DM), 3) FM+MRI and 4) DM+MRI. The model projected quality adjusted life expectancy (QALYs) and lifetime costs. Incremental cost-effectiveness ratios (ICERs) comparing strategies were calculated. Input parameters were obtained from the medical literature, DMIST (ACRIN Protocol 6652), existing databases, and calibration. Screening and diagnostic costs were derived from Medicare reimbursement rates. Additional costs and quality of life weights were derived from the medical literature. Costs and QALYs were discounted by 3% annually.

**Results:**

In the base case analysis, DM alone was more effective than FM alone (44.54 QALYs vs 44.38 QALYs). DM+MRI was more effective than FM+MRI (44.63 QALYs vs. 44.57 QALYs). Annual DM+MRI was most effective, and also had the highest lifetime costs (\$116,073). The relative benefit of DM over FM varied with estimates of mammographic sensitivity for both DM and FM, but the rank order of strategies remained stable as diagnostic test performance was varied across a clinically plausible range. Cost-effectiveness analysis indicated that DM strategies were more cost-effective than the respective FM strategies. The incremental cost of adding MRI to DM was \$136,583/QALY gained. Sensitivity analysis demonstrated that the ICER for DM+MRI would decrease below \$100,000/QALY only if the cost of a breast MRI examination decreased to \$402 (base case: \$604) or if mutation penetrance increased beyond 91% (base case: 65%).

**Conclusions:**

Annual DM+MRI is the most clinically effective strategy for screening BRCA1 carriers. Unless the cost of a breast MRI decreases substantially, adding MRI to DM will likely cost >\$100,000 per additional QALY gained. Supported in part by NIH grants 1K07CA128816, U01CA80098, U01-CA79778.

# Abstract Presentations

Tuesday, December 1

**Title:** False Positives Induced by Annual Screening US Added to Mammography: ACRIN 6666

**Authors:** Berg W, Zhang Z, Cormack J, Lehrer D, Bohm-Velez M, Pisano E, Jong R, Evans W, Morton M, Mahoney M, Larsen L, Barr R, Farria D, Mendelson E, Marques H, Adams A, Gabrielli G

**Time:** 11:30 am

**Location:** Arie Crown Theater

**Background/Purpose:**

To investigate the rates of recall, biopsy, and short interval follow-up and rates of malignancy for each, when annual screening ultrasound is added to mammography in women at elevated risk of breast cancer.

**Methods:**

Two thousand, eight hundred nine women at elevated risk for breast cancer with nonfatty breasts were recruited from 4/04 to 2/06 from 21 IRB-approved sites to undergo mammography (M) or physician-performed ultrasound (US) exams, randomized in order, masked, and interpreted by different physicians prior to integrated interpretation, with screening at time 0 (year 1), 12 (year 2), and 24 months (year 3). Reference standard is based on biopsy and/or 12-month follow-up for each screen. PPV1 (cancers/cases recalled for additional imaging) and PPV2 (cancers/biopsies recommended after workup) were calculated.

**Results:**

Two thousand, six hundred forty-eight participants had reference standard for year 1; 2487 for year 2; and 1921 for year 3. In year 1, 20 cancers were identified mammographically and 31 after M+US, with PPV1 = 7.2% (20/279) for mammography and 6.9% (31/448) for M+US and PPV2 = 22% (19/87) for mammography and 10.7% (31/289) for M+US. In year 2, 16 cancers were identified mammographically and 25 after M+US, with PPV1 = 6.2% (16/260) for mammography and 6.7% (25/373) for M+US and PPV2 = 25% (15/61) for mammography and 13.0% (24/184) for M+US. One cancer was followed or dismissed in each of years 1 and 2 after workup. In year 3, 23 cancers were identified mammographically and 31 after M+US, with PPV1 = 13.1% (23/175) for mammography and 11.5% (31/270) for M+US and PPV2 = 40% (23/57) for mammography and 19.5% (31/159) for M+US. Short interval follow-up was recommended as follows: year 1, 109/2648 (4.1%) on mammography and 336 (12.7%) after M+US; year 2, 59/2487 (2.4%) on mammography and 139 (5.6%) after M+US; and year 3, 29/1921 (1.5%) on mammography and 87 (4.5%) after M+US. Of 197 participants recommended for short-interval follow-up on mammography, 1 (0.5%) was diagnosed with cancer before the next screen, compared to 4/562 (0.7%) after M+US.

**Conclusions:**

PPV1 and PPV2 of M+US increased in year 3 compared to the prevalence screen. Rates of short interval follow-up prompted by US decreased on incidence screens. Work funded by grants CA079778 and CA80098.

# Abstract Presentations

Tuesday, December 1

## **Title: Supplemental Yield and Performance Characteristics of Screening MRI After Combined Ultrasound and Mammography: ACRIN 6666**

**Authors:** Berg W, Zhang Z, Cormack J, Jong R, Barr R, Lehrer D, et al.

**Time:** 11:50 am

**Location:** Arie Crown Theater

### **Background/Purpose:**

To determine the supplemental cancer detection rate (yield) of screening contrast-enhanced MRI after combined mammography (M) and ultrasound (US) in women at elevated risk of breast cancer.

### **Methods:**

Two thousand, eight hundred ninety women at elevated risk of breast cancer were enrolled in the ACRIN 6666 screening US protocol at 21 institutions. Fourteen institutions met technical and experience requirements for a substudy of supplemental screening with MRI. Women who had completed 0, 12, and 24 month M+US screens were considered for a single contrast-enhanced MRI after the 24 month M+US screen (from 8/06 through 4/08). Of 1215 women approached, 705 enrolled, and 627 eligible women completed an MRI examination within 91 days of M+US. Reference standard is based on biopsy and/or 12 month follow-up.

### **Results:**

Reference standard was available for 463 participants [mean age 55 yrs, range 26-85] at elevated risk due to: personal history of breast cancer (39.5%); familial high risk by Gail or Claus models (56.6%); prior ADH/ALH/LCIS/atypical papilloma (3.0%); BRCA-1 or -2 mutation (0.7%); prior chest/mediastinal radiation therapy (0.2%). Sixteen women were diagnosed with breast cancer: 5 (31%) DCIS and 11 invasive cancer, with 1/9 (11%) node positive among those staged. Based on BI-RADS score  $\geq 4a$ , 2 participants' cancers were seen only on M; 2 on M and MRI; 2 only on US; 1 on M and US; 8 (50%) only on MRI; one DCIS was BI-RADS 3 on MR, recommended for 6 month follow-up, but biopsied. Of 8 cancers credited to MRI only, 1 (13%) was DCIS and 7 were invasive, with all 6 staged having negative nodes. Supplemental yield of MRI after M+US was 15.1/1000 [95% CI 0.33 to 29.9,  $p = .039$ ]. AUC for M+US+MRI was 0.95 [95% CI 0.90 to 0.98] compared to 0.68 for M+US [95% CI 0.43 to 0.86] ( $p = .024$ ) and 0.94 for M+MRI [95% CI 0.87 to 0.97] ( $p=0.26$ ). AUC for MR alone: 0.87 [95% CI 0.74 to 0.94], sensitivity 63%. Among 93 participants recommended for additional imaging or biopsy on MRI, 13 had cancer (PPV1 = 14%, 95% CI 8 to 23). Of 52 participants with biopsy recommended based on MRI, 11 (PPV2 = 21%, 95% CI 10 to 35) had cancer.

### **Conclusions:**

After 3 years' screening with M+US, adding MRI increased the cancer detection rate among women at elevated risk of breast cancer. Work funded by grants CA079778 and CA80098.

# Abstract Presentations

Tuesday, December 1

**Title: ACRIN 6673: Multicenter Geasibility Study of Percutaneous Radiofrequency Ablation of Hepatocellular Carcinoma (HCC) in Cirrhotic Patients**

**Authors:** Dodd G, Duan F, Herman B, Girardi V, Gorelick J, Hartfeil D, Taylor T

**Time:** 4:00 pm

**Location:** Room E353C

**Background/Purpose:**

To estimate the proportion of patients with HCC and cirrhosis undergoing solitary or repetitive percutaneous radiofrequency (RF) ablation treatment sessions whose livers have no identifiable tumor by CT scan at 18 months following initiation of therapy.

**Methods:**

A total of 45 eligible subjects [29 men, 16 women, average age 61 (range, 40 to 81)] with HCC (1-3 tumors  $\leq$  3cm, or 1 tumor  $>$ 3cm and  $\leq$ 5cm) and cirrhosis (MELD  $<$  15) were enrolled at 15 participating institutions. The number of subjects with 1, 2, or 3 tumors at enrollment was 36, 6, and 3, respectively. All patients were treated using the same type of ablation device, a standardized ablation protocol, and followed by CT scans every 3 months.

**Results:**

Based on the data from the treatment sites, 12 patients completed the 18 month follow-up and 33 dropped out (15 were transplanted, 5 died, 3 withdrew from the study, 7 started nonprotocol treatment, 1 developed extrahepatic tumor, 2 were lost to FU). Of the 12 completers, 9 were tumor free and 3 had tumor at untreated sites in the liver. None of the completers had tumor at the treated sites. The result of the primary aim to control hepatic tumor at 18 months was 9/19 (47%) (90% Exact CI: 0.24, 0.71) when failures include 3 patients who completed study with tumor at 18 months, 2 who died from tumor, 1 who developed extrahepatic tumor, and 4 with viable tumor who received other treatment after enrollment and before 18 months. If success includes the subjects who were transplanted the success rate was 24/34 (71%) (90% Exact CI: 0.53, 0.85). The local tumor eradication rate for all 45 subjects was 32/45 (71%) (90% Exact CI: 0.58, 0.82).

**Conclusions:**

Solitary or repetitive percutaneous RF ablation treatment sessions are effective for local eradication of HCC in subjects with cirrhosis and can maintain select patients free of tumor for 18 months from initiation of treatment. ACRIN receives funding from the National Cancer Institute through the grants U01 CA079778 and U01 CA080098.

# Abstract Presentations

Thursday, December 3

**Title: Assessing Residual Disease in Breast Cancer Patients Post Neoadjuvant Chemotherapy Prior to Surgery: Findings of the American College of Radiology Imaging Network (ACRIN) Trial 6657**

**Authors:** Lehman D, Marques H, Bernreuter W, Pisano E, Rosen M, Hylton N

**Time:** 11:20 am

**Location:** Arie Crown Theater

## **Background/Purpose:**

To determine the most accurate method to assess residual disease post chemotherapy, prior to surgery in patients with locally advanced breast cancer. ACRIN 6657 is a multi-center study of MRI for measurement of breast tumor response to neoadjuvant chemotherapy.

## **Methods:**

This IRB approved study enrolled women between May 2002 and March 2006 who had 3 cm or greater invasive breast cancer receiving anthracycline-cyclophosphamide neoadjuvant chemotherapy followed by a taxane. Contrast-enhanced MRI was performed after neoadjuvant therapy completion but prior to surgery. Size measurements of residual disease included clinical (C), mammographic longest diameter (MGLD), MRI longest diameter (MRLD) and MRI volume (MRV). Linear dimension was measured by the radiologist for MGLD and MRLD; MRV was calculated by computer using signal enhancement ratio thresholds. Pathologic residual disease size (PS) was measured by the pathologist. Lesion type was characterized by mass versus regional type and single versus multiple. Pearson correlation coefficients were calculated to assess correlations between PS and pre-surgery tumor measurements.

## **Results:**

Two hundred thirty-seven patients were enrolled at 9 institutions. 216 patients with complete imaging formed the analysis set. Overall, PS was most highly correlated with MRLD ( $r=0.40$ ,  $p<0.0001$ ), followed by MRV and C ( $r=0.37$ ,  $p<0.0001$  for both), and not significantly correlated with MGLD ( $r=0.14$ , ns). For single masses, PS was most strongly correlated with MRV ( $r=0.39$ ,  $p=0.0013$ ) and C was slightly correlated ( $r=0.27$ ,  $p=0.0238$ ). For single regional enhancements, PS was most highly correlated with MRLD ( $r=0.50$ ,  $p=0.0028$ ) followed by MRV ( $r=0.40$ ,  $p=0.0139$ ), and C ( $r=0.38$ ,  $p=0.0178$ ). MGLD was not significantly correlated with PS for single masses ( $r=0.22$ , ns) or for regional enhancements ( $r=-0.02$ , ns).

## **Conclusions:**

Across all lesions, longest diameter by MRI was the best correlate to PS, while MRI volume was the best correlate to PS for the subgroup of single masses. Mammography diameter did not correlate with PS overall, or for subgroups of single mass lesions or single regional enhancements. Work funded by NIH/ACRIN Grant U01 CA79778 and U01 CA080098.

# Abstract Presentations

Friday, December 4

**Title: CAD System Marking of Digital Mammograms of DMIST Cancers**

**Authors:** Cole E, Pisano E, Zhang Z, Marques H, Gatsonis C, Kuzmiak C, Chayakulkheer J, Yaffe M, Hendrick R, Nishikawa R, Conant E, Fajardo L, Baum J

**Time:** 10:50 am

**Location:** Room E451A

**Background/Purpose:**

To determine the sensitivity of two computer-aided detection systems, ICAD SecondLook v7.2 and R2 Image Checker v9.0 for digital mammography, in the marking of cancers using cancer cases from the ACRIN DMIST study.

**Methods:**

Available digital mammograms of the 335 cancer cases from the DMIST study stored in the ACRIN DMIST image archive were analyzed by the two CAD systems. Sensitivity was measured relative to patient age, lesion type, breast density, menopausal status, histology of cancer, and tumor size. One hundred seventy-nine digital mammograms were evaluated with the ICAD system and displayed using a Sectra Review workstation. 227 digital mammograms were evaluated with the R2 ImageChecker v8.1 for Digital Mammography and displayed using a Hologic Mammography Review Workstation.

Two radiologists reviewed the CAD marks generated (one radiologist per system) for each available case recording the number and locations of CAD marks and whether or not each CAD mark location corresponded with known cancer location. Cancer location had been previously established by another radiologist using the DMIST data.

**Results:**

The overall sensitivity of ICAD was 0.74 [95% CI: (0.67, 0.80)]. The overall sensitivity of R2 was 0.71 [95% CI: (0.65, 0.77)]. The mean number of false positive marks per case was 2.5 for ICAD (Range (0, 9)); and 2.0 for R2 (Range (0, 7)). In an exploratory analysis using regression modeling, the sensitivities for both ICAD and R2 did not appear to vary significantly relative to patient age, breast density, menopausal status, cancer histology and tumor size.

Of the 179 cancer cases evaluated with ICAD, 132 were marked by the ICAD system. 14.4% (19/132) of these cancers were detected by film alone, 18.2% (24/132) were detected by digital alone, and 22.0% (29/132) were detected by neither film nor digital in primary DMIST interpretations. Of the 227 cancer cases evaluated with R2, 162 were marked by the R2 system. 15.4% (25/162) were detected by film alone, 17.3% (28/162) were detected by digital alone, and 21.0% (34/162) were detected by neither film nor digital in primary DMIST interpretations.

**Conclusions:**

Our results suggest that the usage of CAD in interpretation of digital screening mammograms might lead to increased cancer detection by radiologists. A reader study with radiologists with and without these CAD systems using the same DMIST cases is ongoing. Work funded by the ACRIN Fund for Imaging Innovation.

# Additional RSNA Presentations

In addition to ACRIN-related presentations, investigators participating in ACRIN's research are involved in a wide variety of other RSNA educational activities that are provided below. Additionally, as ACRIN is a member of the National Cancer Institute's Clinical Trials Cooperative Group Program, the many NIH-sponsored activities are also provided.

## Other Presentations by ACRIN Investigators

### Abstract Presentations

#### **November 30**

##### **11:20 am, Room S102D**

**Title:** Disclosing Harmful Mammography Errors to Patients

**Authors:** Gallagher TH, Cook AJ, Brenner RJ, Carney PA, Miglioretti DL, Geller B, Kerlikowske K, Onega T, Rosenberg RD, Yankaskas B, Lehman CD, Elmore JG

#### **December 2**

##### **11:40 am, Room E450A**

**Title:** Outcomes of Targeted Ultrasound Evaluation in Women Under 30 Years of Age with Focal Breast Signs or Symptoms

**Authors:** Loving VA, DeMartini WB, Eby PR, Gutierrez RL, Peacock S, Lehman CD

##### **11:50 am, Room E450A**

**Title:** Contribution of Mammography to Ultrasound Evaluation of Women 30 to 39 Years of Age with Focal Breast Signs or Symptoms

**Authors:** Portillo MS, DeMartini WB, Eby PR, Gutierrez RL, Liu F, Lehman CD

#### **December 3**

##### **11:20 am, Arie Crown Theater**

**Title:** Accuracy and Efficiency of Computer Aided Diagnostics in Novice and Expert Breast MRI Readers

**Authors:** Lehman CD, Blume J, DeMartini WB, Hylton N

### Courses

#### **November 29**

##### **2:00 – 3:30 pm, Room RC150**

**Course title:** MR-Guided Breast Biopsy Workshop

**Lecturer:** Constance Lehman, MD, PhD

#### **November 30**

##### **4:30 – 6:00 PM, Room S502AB**

**Course title:** Assessing Therapeutic Response to Cancer Treatment: Do Advanced Techniques Make a Difference?

**Co-Lecturer:** David Mankoff, MD, PhD

##### **4:30 – 6:00 PM, Room S505AB**

**Course title:** Rapid Progression of Cartilage Damage

**Lecturer:** Timothy J. Mosher, MD

#### **December 1**

##### **4:30 – 6:00 pm, Room RC415**

**Course title:** Current Indications and Quality Determinants Refresher Course

**Lecturer:** Constance Lehman, MD, PhD

#### **December 2**

##### **4:30 – 6:00 pm, Room E450A**

**Course title:** Breast Imaging Cases that Challenge the Experts Interactive Session

**Lecturer:** Constance Lehman, MD, PhD

# Additional RSNA Presentations

## National Institute of Health Sponsored Presentations

### CaBIG Talks

#### November 30

**8:30 am, Room RC226C**  
Image Exchange and Distribution (Informatics in Practice)-Image CD Importation  
**Presenter:** Bradley J. Erickson, MD, PhD

**2:30 pm, Room II23A**  
RadLex- Background, motivations, and demonstration  
**Presenter:** Curtis P. Langlotz, MD, PhD

**2:30 pm, Room II23B**  
RadLex- Technical capabilities of RadLex in Protégé: From lexicon to ontology”  
**Presenter:** Daniel L. Rubin, MD

#### December 1

**4:30 pm, Room RC426B**  
How to Select a 3D System for Your Environment  
**Presenter:** Bradley J. Erickson, MD, PhD

**10:30 am, Room II31**  
The RSNA Reporting Initiative: Developing a Library of Best-Practices Radiology Report Templates  
**Presenter:** Curtis P. Langlotz, MD, PhD

**3:00 pm, Room SSJ11**  
ISP: Health Services, Policy, and Research (Reporting)  
**Presenter:** Curtis P. Langlotz, MD, PhD

**4:30 pm, Room RC430A**  
RadLex-Terminology-enabled Voice Recognition and Structured Reporting  
**Presenter:** Curtis P. Langlotz, MD, PhD

**8:30 am, Room RC330C**  
Integration Strategies for Radiology Systems (Informatics: Advances)-DICOM WG23 Plug-ins  
**Presenter:** Lawrence R. Tarbox, PhD

**4:30 pm, Room RC430B**  
Utility of Terminologies for Image Annotation and Information Retrieval  
**Presenter:** Daniel L. Rubin, MD

**11:30 am, Room SSG10**  
iPAD: A Tool for Creating Semantic Annotations in Radiology Images  
**Presenter:** Daniel L. Rubin, MD

#### December 2

**8:30 am, Room RC530B**  
CAD for the Rest of the Body (Informatics: Advances)- The Brain  
**Presenter:** Bradley J. Erickson, MD, PhD

**4:30 pm, Room SFN05**  
Structured Reporting: How Much Structure Is Enough?  
**Presenter:** Curtis P. Langlotz, MD, PhD

**2:30 pm, Room IA41**  
Rapid Application Development with XIP™—The eXtensible Imaging Platform  
**Presenter:** Lawrence R. Tarbox, PhD

#### December 3

**8:30 am, Room IA41**  
Imaging as a Biomarker (Informatics: Advances)- “Imaging in Clinical Trials”  
**Presenter:** C. Carl Jaffe, MD

#### December 4

**8:30 am, Room**  
New Concepts and Challenges in Assessing Response to Cancer Therapy (An Interactive Session)- Principles of Response Assessment  
**Presenter:** C. Carl Jaffe, MD

### Posters

**caBIG™ Annotation and Image Markup (AIM) : A Ten Minutes Tutorial**  
Pattanasak Mongkolwat, PhD

**An Open Source, Reference Implementation of caBIG™ Annotation and Image Markup (AIM)**  
David Samuel Channin, PhD, Pattanasak Mongkolwat, PhD

**Reading Room of the Future exhibit at RSNA 2009: NCI’s Cancer Biomedical Informatics Grid’s (caBIG’s) Annotation and Image Markup (AIM) Open Source Project**  
David Samuel Channin, PhD, Pattanasak Mongkolwat, PhD

Since the network’s inception, ACRIN has evolved to be a critical component of the National Cancer Institute’s clinical trials program and a respected part of the cancer research and advocacy community. With funding made available by the ACRIN Fund for Imaging Innovation and the state of Pennsylvania, ACRIN has embarked on research outside the field of radiology to answer other important imaging questions. At the 10<sup>th</sup> year of conducting imaging research, we acknowledge ACRIN’s accomplishments.

<b>Date</b>	<b>Milestone</b>
<b>Jan. 1998</b>	ACR Board Chair Ronald Evens, MD recruits Bruce Hillman, MD to respond to the NCI’s request for application to implement a medical imaging research network.
<b>Mar. 1999</b>	ACRIN receives funding commitment of \$23 million to establish a network and to conduct multi-center clinical trials through January 2003 under the direction of Bruce Hillman, MD. Constantine Gatsonis, PhD, leads a linked biostatistics and data management grant and works with Dr. Hillman to develop the new network.
<b>Nov. 1999</b>	ACRIN launches its first multi-center clinical trial: Role of Radiology in the Pretreatment Evaluation of Invasive Cervical Cancer (ACRIN 6651) in cooperation with the Gynecologic Oncology Group (GOG).
<b>July 2000</b>	A retrospective study of CT colonography is activated; the results are critical for justifying a future prospective trial.
<b>Oct. 2001</b>	ACRIN launches the digital mammography trial (ACRIN 6652 – DMIST) with \$ 26.5 million of supplemental funding from the NCI.
<b>Aug. 2002</b>	ACRIN activates the National Lung Screening Trial (NLST - ACRIN 6654) with \$100 million of supplemental funding from the NCI. Nearly 20,000 participants are enrolled.
<b>May 2002</b>	ACRIN collaborates with NCI cooperative group CALGB to conduct the trial <i>Contrast-Enhanced Breast MRI for Patients Undergoing Neoadjuvant Treatment for Locally Advanced Breast Cancer</i> . Nesting an imaging trial in the context of a therapeutic trial becomes an important and often followed ACRIN model.
<b>Sept. 2003</b>	ACRIN activates first prostate cancer trial: <i>MR Imaging and MR Spectroscopic Imaging of Prostate Cancer Prior to Radical Prostatectomy: A Prospective Multi-Institutional Clinicopathological Study</i> (ACRIN 6659). The study demonstrates ACRIN’s capability to conduct clinical trials involving new and advanced technology.
<b>Mar. 2004</b>	ACRIN receives a renewal funding commitment of nearly \$16 million to conduct multi-center clinical trials of medical imaging through December 2007 under the direction of Bruce Hillman, MD and Constantine Gatsonis, PhD.
<b>April 2004</b>	The trial “Screening Breast Ultrasound in High-Risk Women (ACRIN 6666) is activated and 20 sites participate in the trial that accrued more than 2800 women.
<b>Feb. 2005</b>	The National CT Colonography Trial is launched with \$7 million of supplemental funding from the NCI. Fifteen sites recruited more than 2600 participants.
<b>May 2005</b>	The National Oncologic PET Registry is launched. The goal of NOPR is to provide Medicare with “coverage with evidence” data about the role of PET imaging in managing the care of patients with cancer to determine PET reimbursement policy.

<b>Sept. 2005</b>	ACRIN trial results are published in the <i>New England Journal of Medicine</i> for the first time. The trial “Diagnostic Performance of Digital vs. Film Mammography for Breast Cancer Screening” described the benefit of digital mammography.
<b>May 2006</b>	Bruce Hillman, MD and the ACR, raise \$7 million for the ACRIN Fund for Innovative Imaging. The ACR contributes \$2 million. General Electric and Siemens each contribute \$1 million. The fund is first used to establish the ACRIN Cardiovascular Committee and fund a study exploring the value of computer-aided detection (CAD) for digital mammography.
<b>Nov. 2006</b>	The first ACRIN Pennsylvania Network trial is launched: A Multi-Center Trial on MR Image Markers of Knee Articular Cartilage Damage in Osteoarthritis—funded by the Pennsylvania Department of Health’s Commonwealth Universal Research Enhancement Program with funds from the Tobacco Settlement Act.
<b>Mar. 2007</b>	The results of the “MRI Evaluation of the Contralateral Breast in Women With a Recent Diagnosis of Breast Cancer” are published in the <i>New England Journal of Medicine</i> and describe the benefit of an MRI scan of the opposite breast for women with cancer diagnosed in one breast by mammogram and clinical exam.
<b>Jan. 2008</b>	Mitchell Schnall, MD, PhD, assumes ACRIN network chair role having served as deputy chair throughout Dr. Bruce Hillman’s tenure. Dr. Hillman completed his two terms as network chair as allowed for by ACRIN bylaws.
<b>Mar. 2008</b>	ACRIN receives a funding commitment of nearly \$26 million to conduct clinical trials of medical imaging through January 2012 under the direction of Mitchell Schnall, MD, PhD.
<b>May 2008</b>	The <i>Journal of the American Medical Association</i> publishes “Combined Screening with Ultrasound and Mammography Compared to Mammography Alone: Results of the First-Year Screen in ACRIN 6666” that describes the benefit of ultrasound in women at high risk as well as the risk of an unnecessary biopsy.
<b>Sept. 2008</b>	The National CT Colonography (CTC) Trial results are published in the <i>New England Journal of Medicine</i> that demonstrate that CTC is as effective as optical colonoscopy at detecting polyps most likely to become cancers.
<b>April 2009</b>	Medicare announces reimbursement for the vast majority of PET scans. The agency looks to the NOPR to continue data collection as it relates to treatment response. More than 1900 PET facilities participate in the project.
<b>July 2009</b>	ACRIN activates its first cardiovascular trial to evaluate if CT angiography can be used safely and effectively to triage low-risk patients who present in the ED with chest pain.
<b>Oct. 2009</b>	ACRIN announces five trials that will evaluate imaging as a biomarker to determine cancer treatment response or predict survival.
<b>Nov. 2009</b>	At the end of its 10 <sup>th</sup> year of operation, ACRIN has accrued nearly 77,000 participants, collected more than 22 million images and has published over 50 scientific papers. In addition, over \$100 million has been distributed to participating facilities in support of carrying out ACRIN clinical trials.

# ACRIN Scientific Objectives and Leadership

## Research Goal

The American College of Radiology Imaging Network (ACRIN) is conceived as an integrated group of imaging researchers, other physician specialists, and basic and clinical scientists, patient advocates and a wide array of research support personnel. In the next funding period, ACRIN will continue to pursue its broad goal of:

Through clinical trials of diagnostic imaging and image-guided therapeutics technologies, ACRIN seeks to develop information that:

- Lengthens and improves the quality of cancer patients' lives
- Results in the earlier diagnosis of cancer

## Primary Research Objectives

ACRIN has developed three primary research objectives that will drive scientific strategy and clinical trial development over the next funding period. These objectives support ACRIN's broad goal by establishing imaging as an important tool in the development and monitoring of targeted interventions for cancer treatment and prevention.

1. Screening of populations at high risk for cancer, including:
  - tailored, organ-specific screening
  - combining in vitro and imaging techniques
  - surveillance for recurrence
2. Diagnosing and staging disease to guide targeted therapy, including:
  - anatomical and functional characterization
  - image-guided therapy
  - imaging phenotype
3. Investigations of biomarkers of treatment response, including:
  - general response markers (anatomic and functional)
  - targeted response markers (perfusion), and adaptive trials

## Scientific Leadership

**Network Chair:** Mitchell Schnall, MD, PhD  
University of Pennsylvania

**Deputy Co-chair:** Denise Aberle, MD  
University of California, Los Angeles

**Deputy Co-chair:** Barry Siegel, MD  
Washington University

**Network Statistician:** Constantine Gatsonis, PhD  
Brown University

# ACRIN Scientific Objectives and Leadership

## Scientific Committees

ACRIN's eight scientific committees develop research strategies that encompass both the network's overarching research agenda and critical imaging questions related to specific diseases. Information about the specific strategies of the committees listed below can be found on the ACRIN Web site at [www.acrin.org](http://www.acrin.org).

### Abdominal Committee

**Chair:** Terence Wong, MD, PhD  
Duke University

### Breast Committee

**Chair:** Constance Lehman, MD, PhD  
University of Washington

### Cardiovascular Committee

**Chair:** Pamela Woodard, MD  
Washington University

### Experimental Imaging Sciences Committee

**Chair:** David Mankoff, MD, PhD  
University of Washington

### Gynecologic Committee

**Chair:** Susanna Lee, MD, PhD  
Massachusetts General Hospital

### Head and Neck/Neuro

**Chair:** Gregory Sorensen, MD  
Massachusetts General Hospital

### Neurosciences Committee

**Chair:** Gregory Sorensen, MD  
Massachusetts General Hospital

### Thoracic Committee

**Chair:** Caroline Chiles, MD  
Wake Forest University

# ACRIN Participation

ACRIN has established a dynamic clinical trials infrastructure and developed numerous protocols since its establishment in 1999 as a National Cancer Institute clinical trials cooperative group. These trials have the potential for altering and expanding the role of medical imaging and image-guided therapy in the diagnosis and treatment of cancer. More recently, ACRIN has expanded its imaging research focus to include other disease processes such as cardiovascular, osteoarthritis, and Alzheimer's disease.

Investigators from all imaging settings and researchers from other disciplines with an interest in imaging are encouraged to participate in ACRIN research activities. Currently, nearly 100 academic and community-based medical facilities in the United States regularly participate in ACRIN clinical trials.

## Participation Benefits

In addition to supporting research to enhance the practice of imaging, other rewards of ACRIN participation include the:

- Option to participate in one or several trials—depending upon an imaging interests and facility resources
- Potential for improving local medical care
- Opportunity to promote participation in cutting edge research
- Access to multicenter data for performing ancillary research
- Development of new or honing of existing skills
- Collaboration with international leaders in the field
- Enhance practice revenue
- Opportunity to advance research ideas

## Who can Participate

ACRIN's network brings together a wide range of professionals:

- Imagers from academic centers, community hospitals, and freestanding facilities
- Other specialty clinicians and methodologists with an interest in imaging
- Clinical research associates and imaging technologists
- Other cooperative groups
- Representatives of industry
- Health insurance payers

## How to Participate

Visit the ACRIN Web site to learn how you can:

- Participate in one or more of ACRIN's clinical trials
- Join an ACRIN committee and learn about the goals of the various scientific and scientific support committees
- Attend the ACRIN Annual Meeting that is open to all interested

[www.acrin.org](http://www.acrin.org)

# ACRIN Funding Sources

ACRIN is a National Cancer Institute (NCI) cooperative group and receives additional financial support from contributors to the ACRIN Fund for Imaging Innovation and other industry and governmental partners.



**NCI Fiscal Year 2009 Funding: \$ 14,241,526**



**Commonwealth Universal Research Enhancement Program  
CURE Fiscal Year 2009 Funding: \$ 967,270**

## ACRIN Fund for Imaging Innovation Contributors

### Corporate Contributors

#### \$1,000,000 Contribution

ACR Foundation

GE Healthcare

Siemens Medical Solutions USA

#### \$250,000 Contribution

Bracco Diagnostics

Hologic

Toshiba America Medical Systems

#### \$100,000 Contribution

E-Z-EM

Eastman Kodak Company

#### \$500,000 Contribution

Agfa

Berlex (in concert with Schering, AG)

Philips Medical Systems

#### \$150,000 Contribution

Fujifilm Medical Systems USA

Vital Images

Hitachi

## ACRIN Fund for Imaging Innovation Contributors

### Individual Contributors

#### **\$25,000 Contribution**

Thomas B. Fletcher, MD, FACR

#### **\$10,000 Contribution**

James P. Borgstede, MD, FACR &  
Martha Borgstede  
R. Nick Bryan, MD, PhD &  
Jean Bryan  
Elsevier  
Ronald G. Evens, MD, FACR &  
Hanna Evens  
Milton J. Guiberteau, MD, FACR &  
Laura Guiberteau  
Lawrence A. Liebscher, MD, FACR &  
Mary Liebscher  
Barry D. Pressman, MD, FACR &  
Sandy Pressman

#### **Contribution of \$5,001 – \$7,500**

A. Joseph Borelli, Jr., MD  
Paul H. Ellenbogen, MD, FACR &  
Macki Ellenbogen  
Arl Van Moore, Jr., MD, FACR &  
Marie K. Moore  
Michael M. Raskin, MD, FACR &  
Sherry Raskin  
James H. Thrall, MD, FACR &  
Jean Thrall



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