

# Combined Approach to Building a Successful and Sustainable Breast Procedure Workshop

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Allison Aripoli MD, Lindsay Miner MD, Onalisa Winblad MD, Ashley Huppe MD,  
Jessica Peterson MD, and Marc Inciardi MD

No disclosures.



Department of Radiology, Breast Imaging Section  
The University of Kansas Health System

# Background

- Increasing emphasis on simulation training in graduate medical education
  - Decreases patient adverse patient outcomes
  - Trainees acquire skills through deliberate practice
  - Trainees develop procedural aptitude without fear of harming patients
- The need for clinical skills in breast imaging allows for use of simulation-based education
  - Diagnostic skills and clinical reasoning
  - Procedural planning skills
  - Procedural and psychomotor skills
- Simulation is an adjunct for learning, not a replacement

# Background

- Challenges with breast phantom models
  - Limited by cleanliness (raw meat model)
  - Excessive production time (recipe-based gel phantom model)
  - Limited longevity/ability to use repeatedly
- Challenges of teaching ultrasound-guided breast procedures
  - Often anxious and nervous patient population
  - Non-sedated procedure
  - Little margin for error (accurate diagnosis, radiology-pathology concordance)
- Challenges of annual/biannual procedure workshop
  - Difficult to align with trainee rotations for immediate utilization of skills

# Purpose

- To develop a Breast Imaging procedures workshop that addresses:
  - Principles of procedural planning and clinical reasoning skills included in the ACR/SBI Resident and Fellowship Training Curriculum
  - Procedural aptitude with a sustainable simulation model

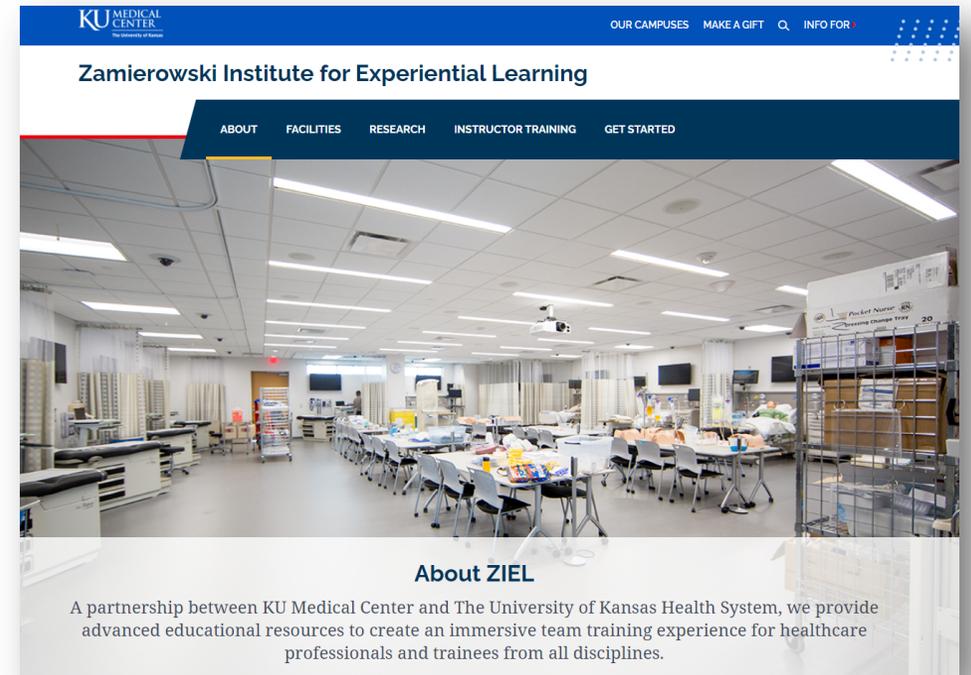
## **The ACR/Society of Breast Imaging Resident and Fellowship Training Curriculum for Breast Imaging, Updated**

### **XI. Interventional procedures**

- A. Principles, indications and contraindications, equipment, preparation, technique, advantages, disadvantages, accuracy, and auditing for:
  1. Needle-wire localization (and other localization methods as applicable) guided by mammography, ultrasound and MRI
  2. Core needle biopsy by stereotactic, ultrasound, and MRI guidance
  3. Fine needle aspiration, if available, with ultrasound guidance
  4. Cyst aspiration with ultrasound guidance
  4. Targeted ultrasound to substitute ultrasound guidance for MRI guidance where possible
  5. Seroma and other fluid-collection aspirations with ultrasound guidance
  6. Use and limitations of using markers to indicate the site of percutaneous biopsy
  7. Specimen radiography, including paraffin block radiography
  8. Galactography, if available

# Methods/Materials

- Two-part educational workshop
- Developed in collaboration with The University of Kansas Medical Center Zamierowski Institute for Experimental Learning (ZIEL)
  - ZIEL provides advanced educational resources in creating simulation and experimental learning
  - ZIEL team members guided development of program without use of the simulation facility or resources



# Methods/Materials

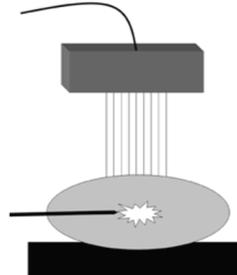
- Part 1: 45-minute didactic session
  - Indications/contraindications
  - Patient consent process
  - Equipment
  - Preparation
  - Technique of ultrasound-guided procedures
  - Table-top simulation of selected biopsy cases for imaging review and procedural planning
- Part 2: 45-minute hands-on ultrasound simulation
  - Manufactured breast phantom
  - Psychomotor skills practice

# Methods/Materials

- Part 1: 45-minute didactic session (example Powerpoint slide)

## Ultrasound Guided Biopsy

- Positioning
  - Optimal position to maximize safety and ease of access to target lesion
    - Elevating and flattening the breast
    - Wedges, arm position, rolled towels
    - Operator hand positioning
    - Plan for entering the skin
      - Transducer positioning for needle entry parallel to chest wall and perpendicular to ultrasound beam
    - Assess surrounding structures



# Methods/Materials

- Part 2: 45-minute hands-on ultrasound simulation (in a standard patient room )



# Results

- Workshop offered during each 4-week breast imaging rotation during the first 1-2 weeks
- Required for trainee's first rotation on breast imaging (resident or fellow)
- Seven workshops have been conducted, each with 2-3 trainees and 1-2 breast imaging faculty
  - Allows 1:1 or 1:2 learning
  - Skills acquired during breast rotation for greatest applicability
  - Because workshop is offered on all breast rotations and multiple times per year, trainees are able to build and fine-tune skills

# Results

- Resident feedback:
  - “I liked the hands-on experience without the pressure of a patient being present.”
  - “I liked the immediate feedback from staff as I was working on practicing with the ultrasound probe and biopsy device.”
  - “I think the workshop gives some confidence before going to work on patients.”
  - “As a senior resident, I think the Powerpoint was the most helpful. It was short and basic, but covered the major points. I hadn’t been on breast imaging for awhile so a lot of that knowledge was dormant.”

# Results

- Two-part workshop structure
  - Allows scheduling flexibility for faculty and trainees
  - Addresses different aspects of breast procedures
- Sustainability achieved
  - With use of re-usable manufactured breast phantom
  - Ability to schedule into the workday
  - Re-use of biopsy devices

# Results

- Challenges exist in teaching US-guided breast procedures
- A successful training program can be implemented which emphasizes:
  - Procedural planning
  - Procedure preparation
  - Interpersonal anxiety-relieving interactions with patients
  - Hands-on simulation training

# Conclusions

- A workshop model that combines a two-part interactive didactic session followed by simulation training with a breast phantom is an attractive method to:
  - Introduce ultrasound guided procedures to trainees
  - Allow trainees to obtain hands-on experience prior to performing breast procedures on patients
- Our hope is that other programs will use and improve on this model!

# References

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