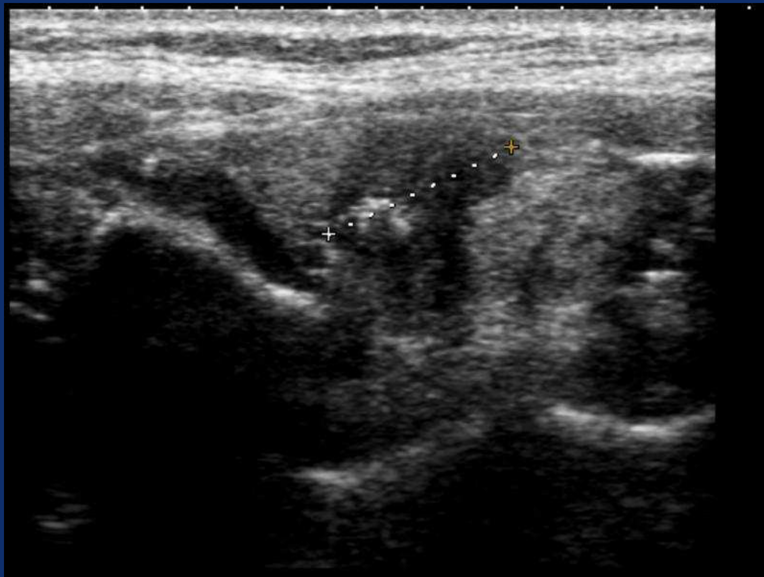
Thyroid Biopsy Specialists – An Innovative Role for Radiology Assistant

Ghai S, Atri M, Bret PM, Menezes R, Jia Y, Maan KA, Javed W, Boci R



Sangeet Ghai, MD, FRCR
Abdominal Imaging
Assistant Professor, Faculty of Medicine
Sangeet.ghai@uhn.ca

Medical Imaging • University Health Network • Mount Sinai Hospital
Women's College Hospital • University of Toronto

Radiology Assistant - History

- Physician extenders
  - Physician Assistants (PAs)
  - Nurse Practitioners (NPs)

Have been involved in delivery of medical care in the North America for >25 years

In 2003 – ACR approved the new position of Radiology Assistant – outlined roles and responsibilities

Radiology Assistant – Current Role

- Interventional Radiology (MRTs and NPs)
  - PICC lines
- Fluoroscopy for certain procedures
  - Speech swallow
  - HSG

THYROID NODULES

- Increase in use of ultrasound for thyroid has led to marked increase in detection of the number of thyroid nodules and in turn biopsy requests
- Upto 50% of general population on autopsy will have thyroid nodules
- Cancer is seen in 9-13% of patients undergoing FNA

- **Increased wait times**

  (>3 months in our hospitals)

CYTOPATHOLOGY YIELD RATES

- Inconsistency in techniques, training amongst physicians performing thyroid biopsy (residents, fellows, staff)
- Low adequacy rates (~70%) in our hospitals

(Bethesda System for Reporting Thyroid Cytopathology)

- Increased number of repeat biopsies

- Increased wait times

THYROID BIOPSY

- Complaints from clinicians
  - increased wait times
  - low yield

- Decreased interest in these procedures amongst some physicians

Answer to this:

- Innovative Idea! put forward by Chief of Radiology

Could we train our Sonographers or MRTs to do thyroid biopsies?

'THYROID BIOPSY SPECIALISTS'

Approval from staff radiologists was the first step

PROCESS & OBSTACLES

- **CMPA** (Canadian Medical Protective Association) approval
- **CPSO** (College of Physicians & Surgeons of Ontario) approval
- **CSDMS** (Canadian Society of Diagnostic Medical Sonographers) for coverage
- **Hospital legal department** for employee coverage
- **Hospital MAC** (Medical Advisory Committee) approval

CMPA - approval

'CMPA members would be eligible for assistance for their involvement in the professional work of medicine. Delegation of a medical act could be considered as part of the professional work of medicine'

Ensure that they are in compliance with requirements of the regulated College in their jurisdiction

If physician is not the employer, it is desirable to make the employer (hospital) aware and consent to such delegation.

CPSO requirements

- Policy for delegation of controlled acts
  - Remains responsibility of physician
  - Identify the individual performing the act and be aware of the skills
  - Establish a process for delegation – education, maintenance of competence
  - Ensure informed consent where feasible
  - Consider liability, billing issues

Liability Insurance Coverage for individual to whom the act is delegated

CSDMS – liability insurance coverage may be compromised if practicing outside the boundaries of our sonographic training.

Liability department of our Hospital - Sonographers who are employees of UHN are covered under the liability policy for work done for and on behalf of the hospital

Liability coverage would be provided by the Hospital if the Hospital MAC approves the delegation

Hospital MAC

- Approval after 2nd meeting

  - concerns about adequacy rates were brought up in the first meeting

- Approval of Delegated Act

  - Training program

  - Quality monitoring

WHOM TO TRAIN

- MRT (Medical Radiation Technologists) training would include

  - Ultrasound training

  - Biopsy training

- Sonographers

  - Biopsy training only

  - Added advantage of a degree of hand-eye co-ordination (ultrasound)

Interview Process

- Opened initially to Sonographers across the different hospital sites
- Good response
- 4 were selected after an interview process

  - ~ 1 week every 4 weeks (so that not monotonous / repetitive)

  - rest of the time (75%) – ultrasound as before

Training Program

- 1 day of didactic talks
- Phantom training
- Observe ~20 biopsies
- Hands on one-to-one training with the staff radiologist

Training Day Program
1 Day of Didactic Presentations

- Neck Anatomy
- Thyroid ultrasound
- Ultrasound features of malignant nodules
- Thyroid biopsy guidelines
- Informed consent

Training Day Program

- FNAB techniques – video demonstration
- EPR training
- Pathologists’ perspective – Tips and Tricks for aspiration techniques
- Written test – pass score of 80%

THYROID BIOPSY ASSISTANT TRAINING DAY.docx (Protected View) - Microsoft Word

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THYROID BIOPSY ASSISTANT TRAINING DAY – APRIL 27, 2011

Location: 1 NC SB Room 443 – Advanced Imaging Education Center

8.15 AM	Introduction
8.30 – 9AM	Neck Anatomy (Dr Chawla)
9 – 9.30AM	Thyroid Ultrasound (Dr Salem)
9.30 – 10AM	US features of Thyroid Malignancy (Dr Ghai)
10 – 10.15AM	Break
10.15 – 11.45AM	JDMI Thyroid Biopsy Guidelines (Dr Ghai) Consent for Thyroid Biopsy
Lunch break	
12.45 – 1.45PM	Video Demonstration 'FNAB Techniques' (Dr Ghai)
1.45 – 2PM	Break
2 – 3PM	EPR Training
3 – 4PM	Pathologists' perspective – slide preparation (Dr Geddie & Dr Santos) Tips & Tricks for aspiration techniques
4 – 4.30PM	Written test

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Phantom training

- Proper thyroid phantoms were obtained *(www.bluephantom.com)*
- On a Saturday – 4 ultrasound rooms with phantoms
- 2 staff for hands-on technique
- Additional targets were also created

Observation Period

- All 4 specialists together
- Observed about 20-25 nodule biopsies
- About 5 afternoons in the biopsy center

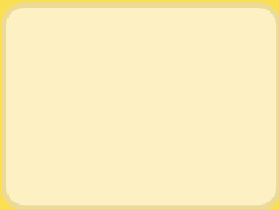
One on One Training

- Each of the 4 specialists for about 3 weeks each, one at a time
- 30-50 nodules for each
- Signed off once satisfied with their hand-eye co-ordination and biopsy technique

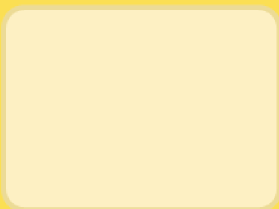
Biopsy Process

- Live on 8th August 2011
- Second Room (Room 2) was opened up adjacent
- Specialists take approval for biopsy from the radiologist after the US
- Radiologist always at hand to help out if required

Room 1 (Deep Abdominal)



Control Room



Room 2 (Thyroid)

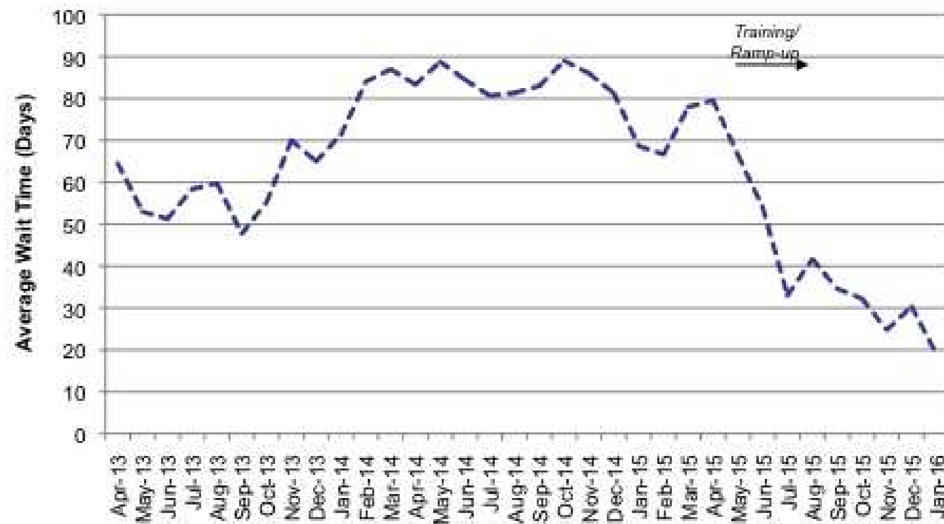
Biopsy Work-flow

- About 7 patients booked every day of the week (4 +3)
- If no ultrasound at JDMI <6months, then an ultrasound is repeated
- Biopsy upto 2, sometimes 3 nodules in same sitting
- On-site cytopathology support for repeat biopsies, if previous inadequate biopsy

RESULTS

- Wait times
- Yield rates
- Complications

Wait times



Adequacy Rates

- Overall >80% adequacy rates (in the first 1200 nodules)

  78% (UHN) and >85% (MSH) at the 2 pathology sites where samples are sent from our practice
- Cancer or suspicious for cancer in about 8.3%
- Has led to decreased repeat biopsies

Adequacy Rates - UHN

Bx Specialist	Insufficient	Benign	Malignant/ Suspicious for Malignant	Total
1				391
2				323
3				173
4				318
Total	264	841	100	1205

Complications

- No major complication from the over 1200 nodules done by the specialists so far

Conclusion

- Implementation has been a success
- Provided added competency and consistency in the service thereby improving quality of service to our patients (decreased wait times and increased adequacy rates)
- Provides new opportunities for professional enhancement to the Specialists

Thank You