Katharine Yao, MD
Chief, Division of Surgical Oncology
Department of Surgery

1. BREAST SCREENING

NO DISCLOSURES

Question #1: No correct answer

- When do you recommend patients start screening and at what interval:
  1. Annual starting at 40yo
  2. Annual starting at 50yo
  3. Biennial starting at 50yo
  4. Let the patient decide
  5. Annual starting at 40yo and then biennial at 50yo

www.NCCN.org/professionals

Screening Mammogram Recommendations

Society	Age to start	Interval
American Cancer Society	45yo	Every yr 45-55yo Every 2 yrs >55yo
USPTF	50yo	Every 2 yrs
American College of Radiology	40yo	Every year
American College of Obstetricians and Gynecologists	40yo	Every year
American Academy of Family Physicians	50yo	Every 2 yrs

Screening MGM Facts

- No trials have shown that MGM improves overall survival, only breast cancer specific mortality
- MGM increased the number of early stage cancers but has not impacted later stage cancers
- Approximately 30% of cancers are overdiagnosed

Bleyer and Welch HG et al NEJM 2012; 367:1998

3D Tomosynthesis Mammography Retrospective Study

- Total of 454, 000 screening MGMs
- Decreases call back rates
  - Digital MGM 10.5%
  - Tomosynthesis MGM 8.9%
- Improves cancer detection rates
  - Increased from 4.2/1000 to 5.4/1000 screens
  - Invasive cancer detection 2.9 to 4.1/1000 screens
- ?? Disease specific mortality benefit
- 43% of all screening MGMs are 3D tomosynthesis

Friedwald S et al JAMA 2014; 311:2499
JAMA Intern Med 2019; 179:1292

TMIST Trial

Enrollment goal:
164, 496 women

Asymptomatic Women
40-74yo
No prior breast cancer

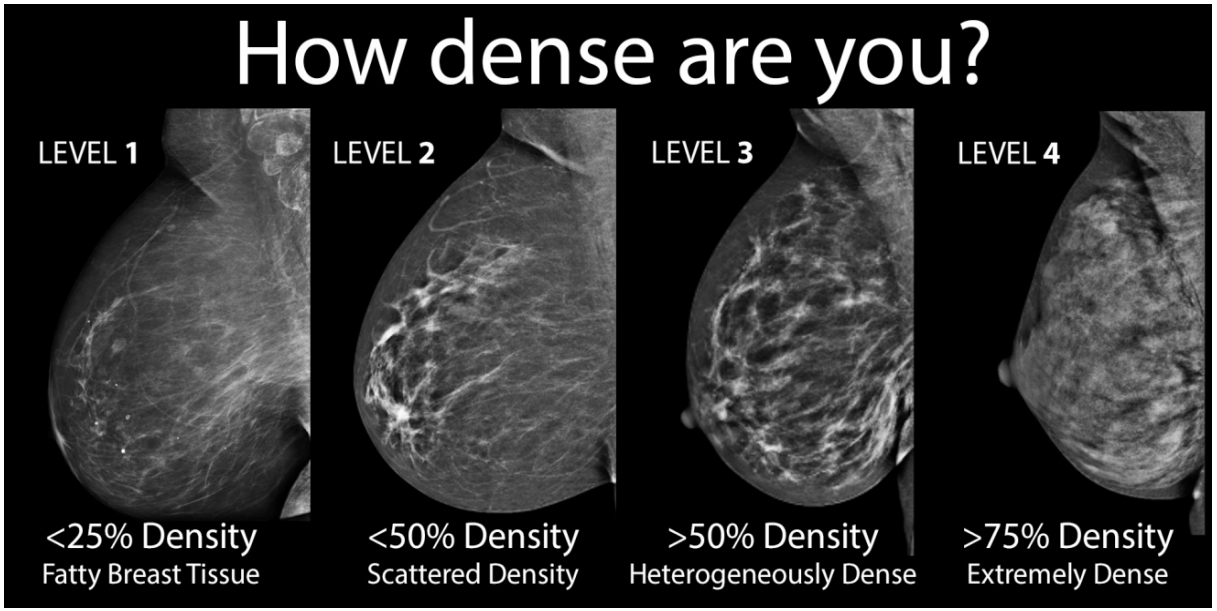
Digital Mammography

Tomosynthesis Mammography

Primary endpoint:
- **Advanced cancers:**
- **Metastases**
- **Node positive**
- **>2cm**
- **>1cm, triple negative or HER2neu +**

Dense Breast Tissue

Are You DENSE?
exposing the best-kept secret®



Prevalence of Dense Breast Tissue

- 43% of US women 40-74yo have heterogenous or dense breast tissue
  - 44% of these women are 40-49yo
- Equivalent to 27 million women

Sprague BL et al, JNCI 2014; 106: 1-6

Question #2: correct answer 5

- Regarding breast density, Illinois Law requires:
  1. Must inform patients of their density
  2. Must inform patients of the consequences of dense breast tissue
  3. Must cover supplemental U/S for patients with dense breast tissue
  4. Must provide coverage for supplemental U/S at no additional cost to the patients
  5. All of the above

Illinois Public Act Senate Bill 098-0502

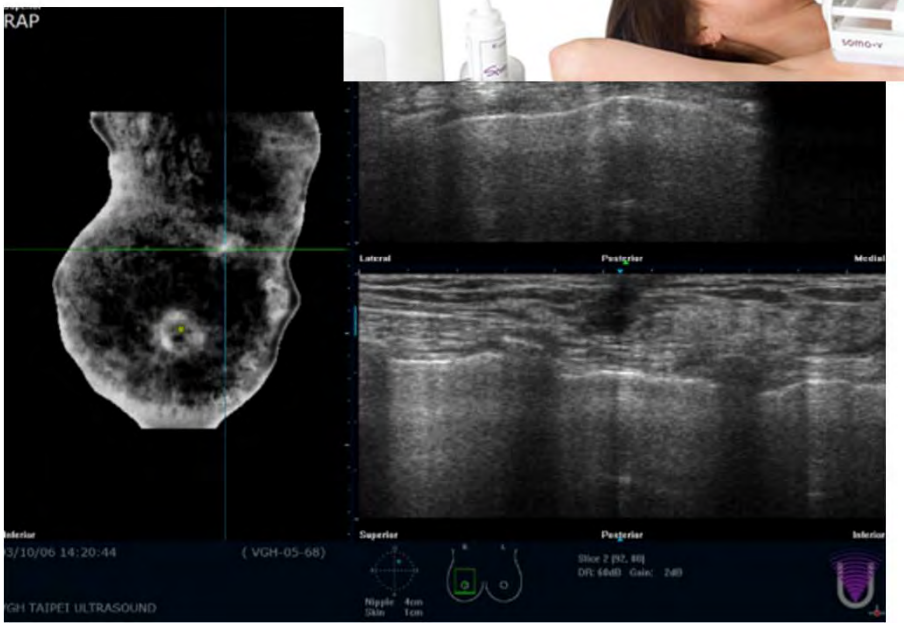
- Providers of mammography services
  - Are required to provide EDUCATIONAL MATERIAL to our patient population AND
  - Per amendment C-15, inform patients of the “meaning and consequences of dense breast tissue” under the guidelines of the BIRADS of the ACR

Illinois State Law

- If a routine mammogram reveals heterogeneous or dense breast tissue, insurance coverage
  - must provide for a comprehensive ultrasound screening of an entire breast or breasts, when determined to be medically necessary by a physician

- The required coverage for mammograms and ultrasound screenings must be provided
  - at no cost to the insured (*i.e., co-pays or deductibles may not be applied) if a preferred provider is utilized.*

Automated Breast U/S (ABUS)



ABUS Studies

Study	Year	No pts	Cancer detection with MGM vs ABUS	Recall rate MGM vs ABUS	Other
Kelly et al-8 facilities	2009	4419 High risk	3.6/1000 vs 7.2/1000	4.2% vs 9.6%	90% of inv cancers <2cm
Somo-Insight Trial-multictr	2015	15, 318 Dense pts	5.4/1000 vs 7.3/1000	15% vs 18%	93% of ca detected were invasive

Brem et al Radiology 2015; 274:663
Kelly et al Eur Radiology 2010;20:734

Question #3: Correct answer 1

- All of the following patients are candidates for annual screening breast MRI except:
  1. Dense breast tissue without any other risk factors
  2. Lifetime risk >20% based on family history
  3. BRCA 1 and BRCA 2 gene mutation carrier
  4. H/o chest wall radiation prior to 30yo

High Risk Screening with MRI Alternating with MGM q6 mos

- American Cancer Society guidelines:
  - Women with a >=20-25% lifetime risk of developing breast cancer, including women with a family history of breast cancer
    - Defined by risk models largely dependent on family history
    - Radiation to the chest between 10-30yo
    - Gene mutation carriers
  - No ABUS needed if a pt is undergoing MRI

Saslow et al CA Cancer J Clin 2007; 57(2): 75

MRI Trial

ECOG-ACRIN cancer research group
Reshaping the future of patient care

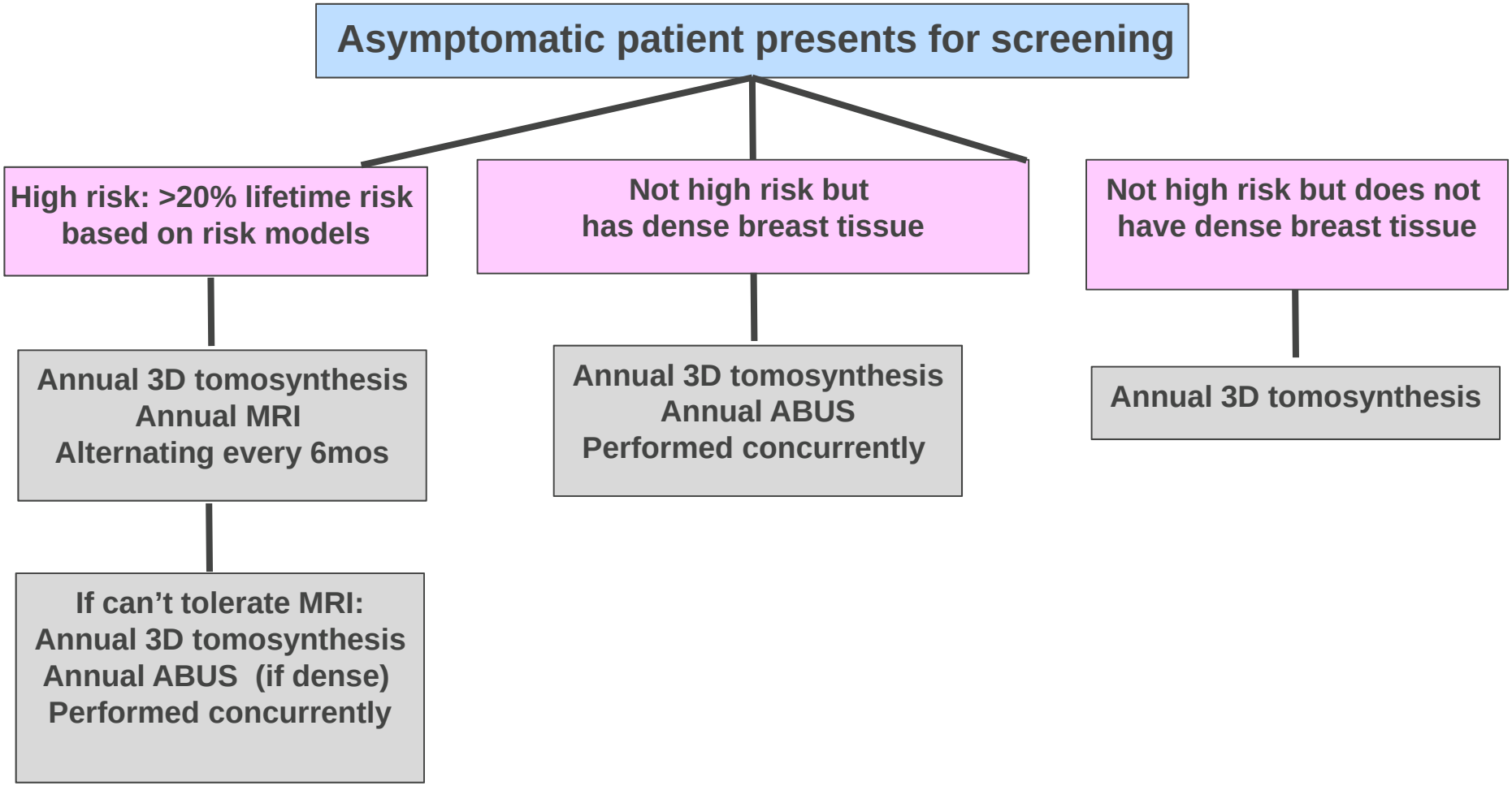
- Randomized trial of abbreviated MRI vs 3D tomosynthesis
- Eligibility criteria:
  - Category 3 or 4 breast density
  - No family history
- Primary endpoint: detection of invasive cancers
- Results pending

Downsides of MRI?

- Claustrophobia
- Long test for patients
- Long test to read for radiologists
- MRI contrast-gadolinium

www.fda.gov

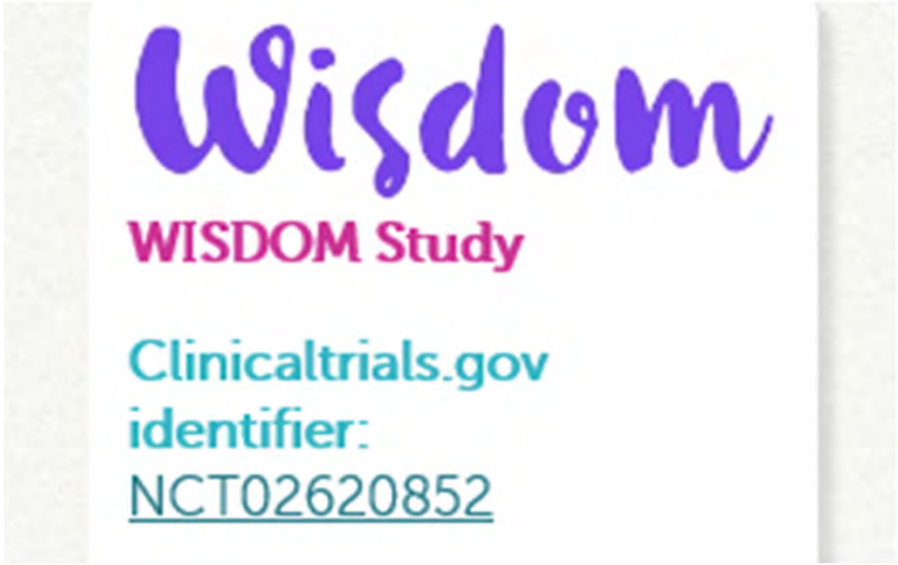
Recommendations



Conclusions/Future Directions

- Days of annual (or biennial) MGM alone for everyone are numbered-need to move to personalized screening
- More data needed on ABUS
- Need better ways to identify those who are at high risk

Personalized Screening



THANK YOU

Extra slides

Principles of Screening MGM

- Women should be counseled about risks and benefits, shared decision making
- Consider life expectancy <=10yrs
- No upper limit to screening MGM
- Inform about dense breast tissue, risks and benefits of supplemental screening
- No support for thermography, sestamibi scan, PET scan

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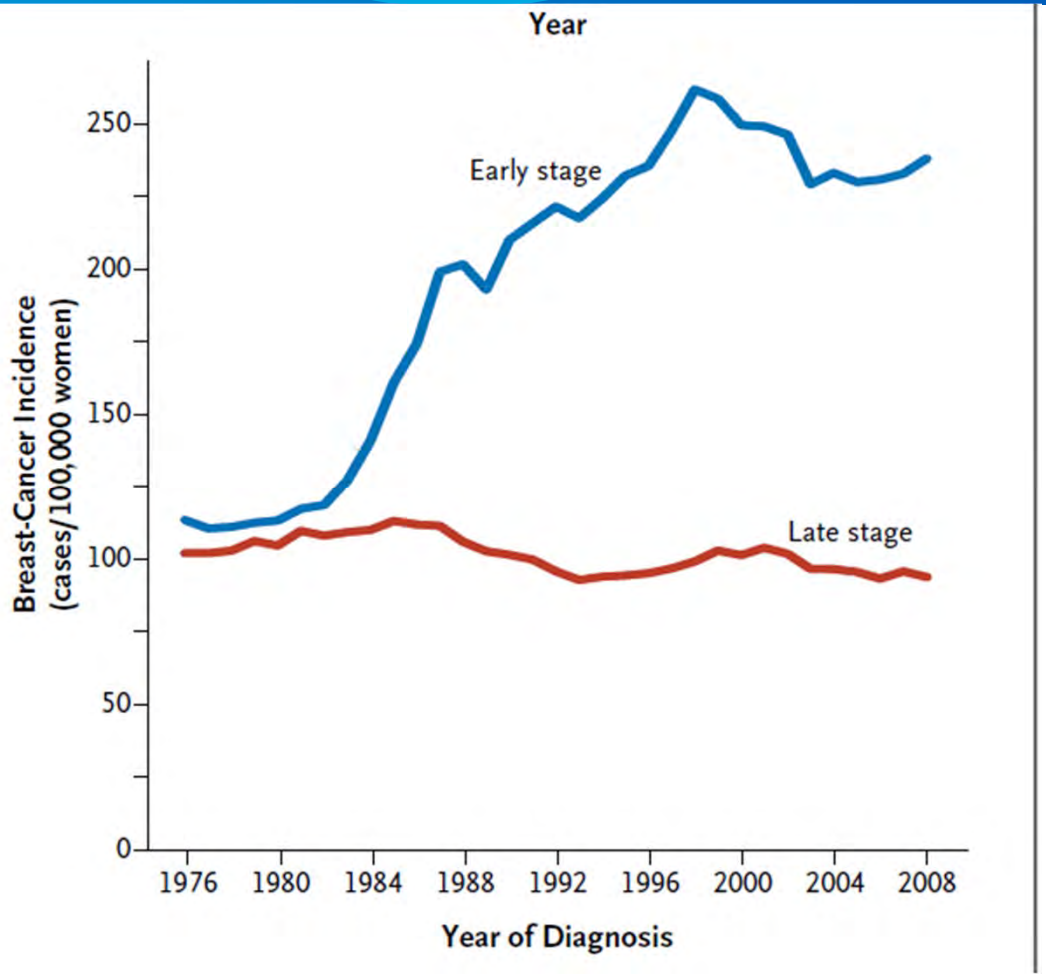
Overdiagosis of Cancers

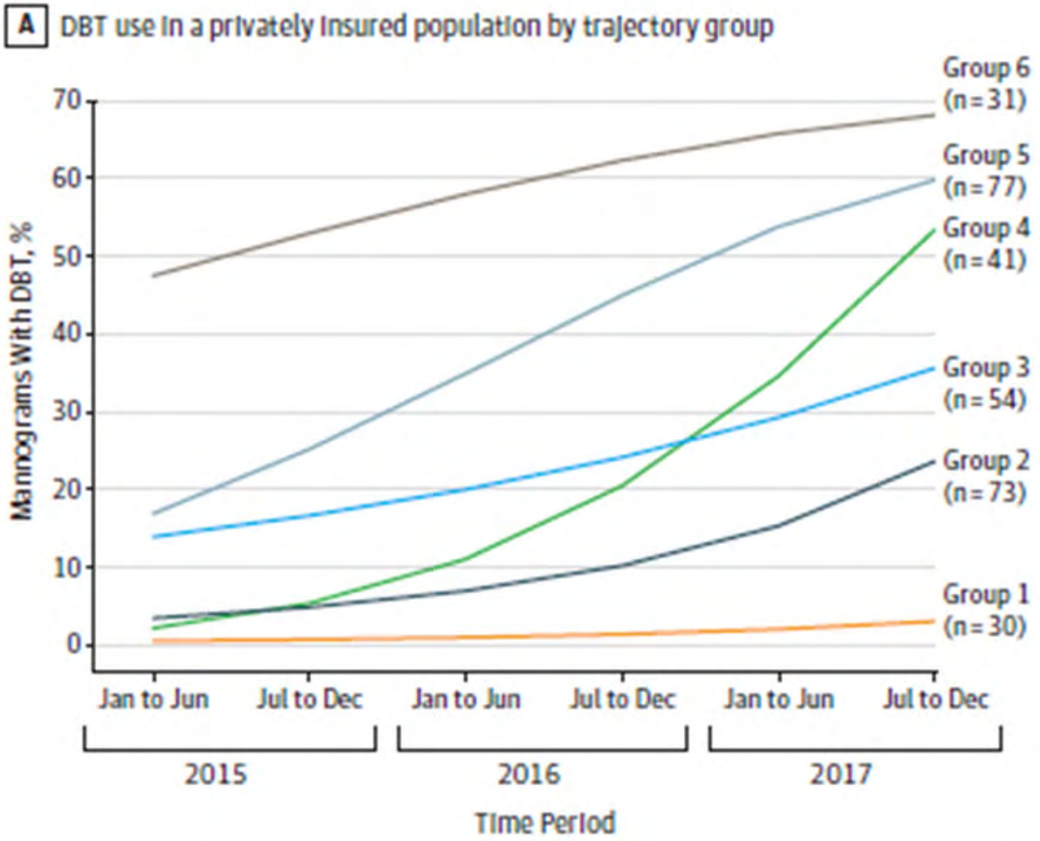
31% of all breast cancers are overdiagnosed



Bleyer and Welch HG et al NEJM 2012; 367:1998

Adoption of 3D Tomosynthesis into Practice

- **2015-2017**
- **BCBS claims**
- **Overall 43% of all screening exams were 3D tomosynthesis**



JAMA Intern Med 2019; 179:1292

TMIST

Eligibility:

- Annual screening-
  - Premenopausal
  - Postmenopausal with other risk factors (dense, FHx, high risk lesion)
- Biennial screening
  - Postmenopausal women

Handheld Screening U/S

Trial	No	Cancer detection rate	False positives	Other
ACRIN 6666-multicenter Year 2012	2309 Dense High risk	76./1000 to 11.8/1000	MGM 1:40 U/S 1:10	Used digital MGM
ASTOUND (3D)-5 ctrs in Italy Year 2016	3231 Dense	4.1/1000 to 7.1/1000	No difference in recall for any testing or biopsy	Used 3D MGM

Berg WA et al JAMA 2012; 307: 1394-4040
Tagliafico et al JCO 2016

Automated Breast Screening U/S at NorthShore

- Performed over XXX ABUS exams
- Performed for those patients with breast density:
  - Heterogenously dense
  - Dense, extremely dense
- Performed concurrent to MGM

Downsides of 3D Tomosynthesis?

- Hospital to upgrade equipment
- Learning curve for radiologists
- Increased radiation exposure?
  - Reconstructed images lessens radiation exposure

Downsides of ABUS?

- Hospital to buy new equipment
- May not be reimbursed
  - Patients
  - Hospitals
- Learning curve for radiologists
- False positives/recall rates??