



MR/US FUSION-GUIDED PROSTATE BIOPSY IMPROVES CLINICALLY SIGNIFICANT PROSTATE CANCER DETECTION FOR BIOPSY-NAÏVE PATIENTS ACROSS DIVERSE PRACTICE SETTING

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Introduction/Objectives

- There is added value in performing systematic biopsy in addition to targeted biopsy for biopsy naïve patients with suspicious MR findings
- For patients with PIRADs ≥ 3 lesion on MR
 - All patients: standard biopsy alone misses 12% and targeted biopsy alone misses 10% of clinically significant prostate cancer
 - Biopsy naïve population: standard biopsy alone misses 7.5% and targeted biopsy alone misses 5.2% (MRI FIRST)
- Prior reports are predominantly multicenter trials from large academic centers with significant expertise
- The added value of MR targeted biopsy for biopsy naïve patients in the community setting is largely unknown



Methods

The Michigan Urological Surgery Improvement Collaborative (MUSIC) registry maintains a prospective prostate MR and fusion biopsy database with technical, patient, provider, and lesion level data



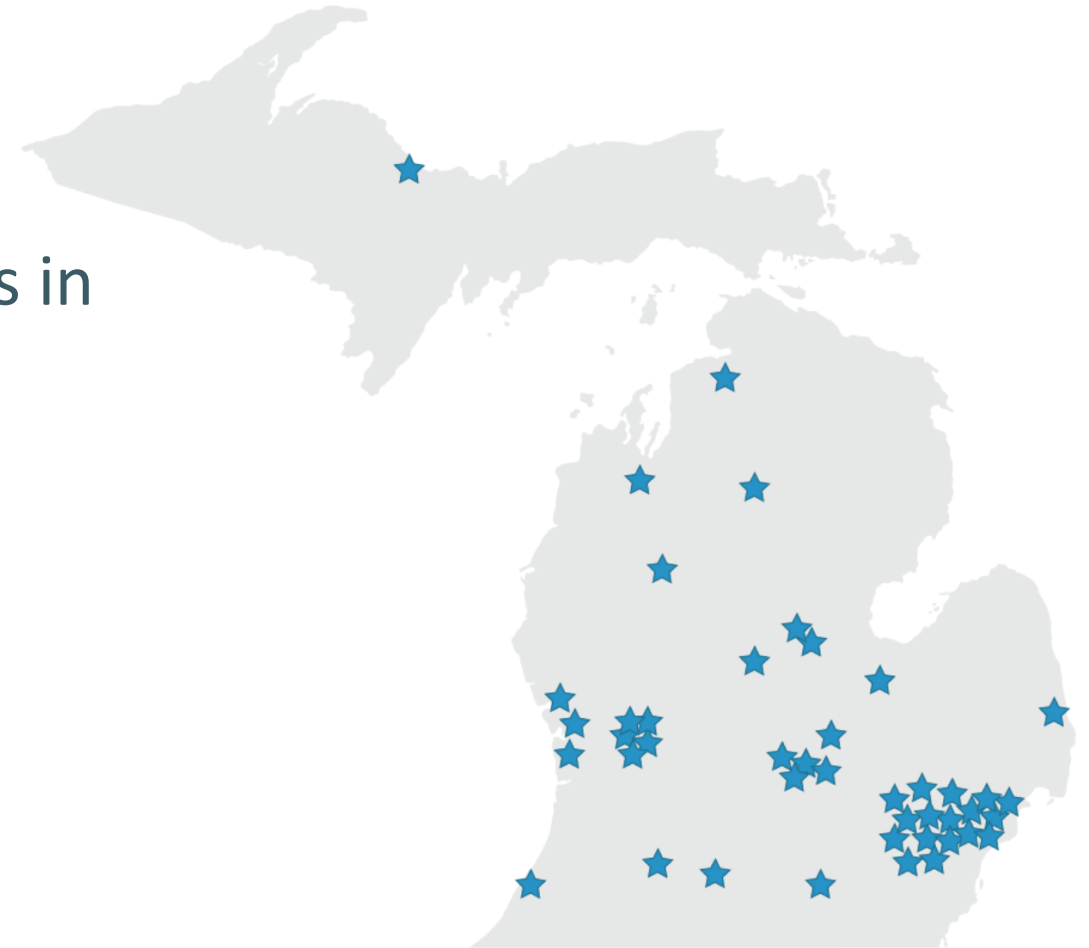
MUSIC: Vital Statistics – January 2020

MUSIC participants

- 46 practices
- 260+ urologists (~90% of urologists in the state)
- 11 patient advocates

Data collection

- >70,000 Prostate Cases
- > 20,000 Kidney Stone Cases
- > 2,000 Kidney Mass Cases



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Methods

- MUSIC database queried
- Inclusion: all biopsy naïve patients undergoing targeted and systematic biopsy in the same setting from August 2017 – May 2019
- Multiple institutions, urologists, radiologists, pathologists
- Software based MR/US fusion used in all cases

- Primary outcome: percentage of patients upgraded to clinically significant prostate cancer (csPCa) by targeted biopsy and percentage upgraded to csPCA by systematic biopsy
 - csPCA defined as ISUP GG \geq 2



Results

- 2375 fusion biopsies in registry
- 437 patients met inclusion criteria
- 22 practices
- 55 urologists

Demographics and PIRADs Information

	N	%	Median (IQR)
Age			66.7 (61.3-71.3)
PSA			6.3 (4.8-9.1)
Race			
White	361	82.6	
AA	29	6.6	
Other	47	10.8	
Family History			
Yes	116	26.5	
No	300	68.7	
Unknown	21	4.8	
DRE			
Positive	61	14	
Negative	328	75	
Unknown	48	11	
Max PIRADS			
2	4	0.9	
3	84	19.2	
4	214	49	
5	122	27.9	
Unknown	13	3	



Results

- Overall cancer detection rate: 76.4%
- csPCA detection rate: 51.9%


- 39/437 (8.9%) upgraded to csPCA by targeted biopsy
- 36/437 (8.2%) upgraded to csPCA by standard biopsy

- No factors predictive of upgrading to csPCa by either biopsy technique

- In biopsy-naïve patients, targeted biopsy upgrades approximately 1 in 10 patients to \geq GG2 prostate cancer. A similar proportion of patients with negative targeted biopsies were upgraded by systematic biopsy alone.
- There were no clinical variables predictive of upgrading to \geq GG2 PCa by either biopsy method
- There is value to adding mpMRI with targeted biopsy to the initial evaluation of biopsy-naïve patients in the community setting. This does not preclude the need for a systematic biopsy



Thank you

- BCBSM Value Partnerships team
 - MUSIC Coordinating Center
 - MUSIC physicians, practice administrators, and data abstractors
 - MUSIC patient advocates
- For questions, please contact:
 -  @MUSICurology
 - or
 - www.MUSICurology.com