

# Mammographic and Ultrasonic Analysis of Breast masses

Tom Stavros, MD, FACR

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- **only by combining mammographic and ultrasound info can we achieve desired PPV**

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US used to asses suspicious  
(BIRADS 4) calcifications

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4. may be positive LN's that indicate invasion, even when mammo and US do not show signs suggesting invasion

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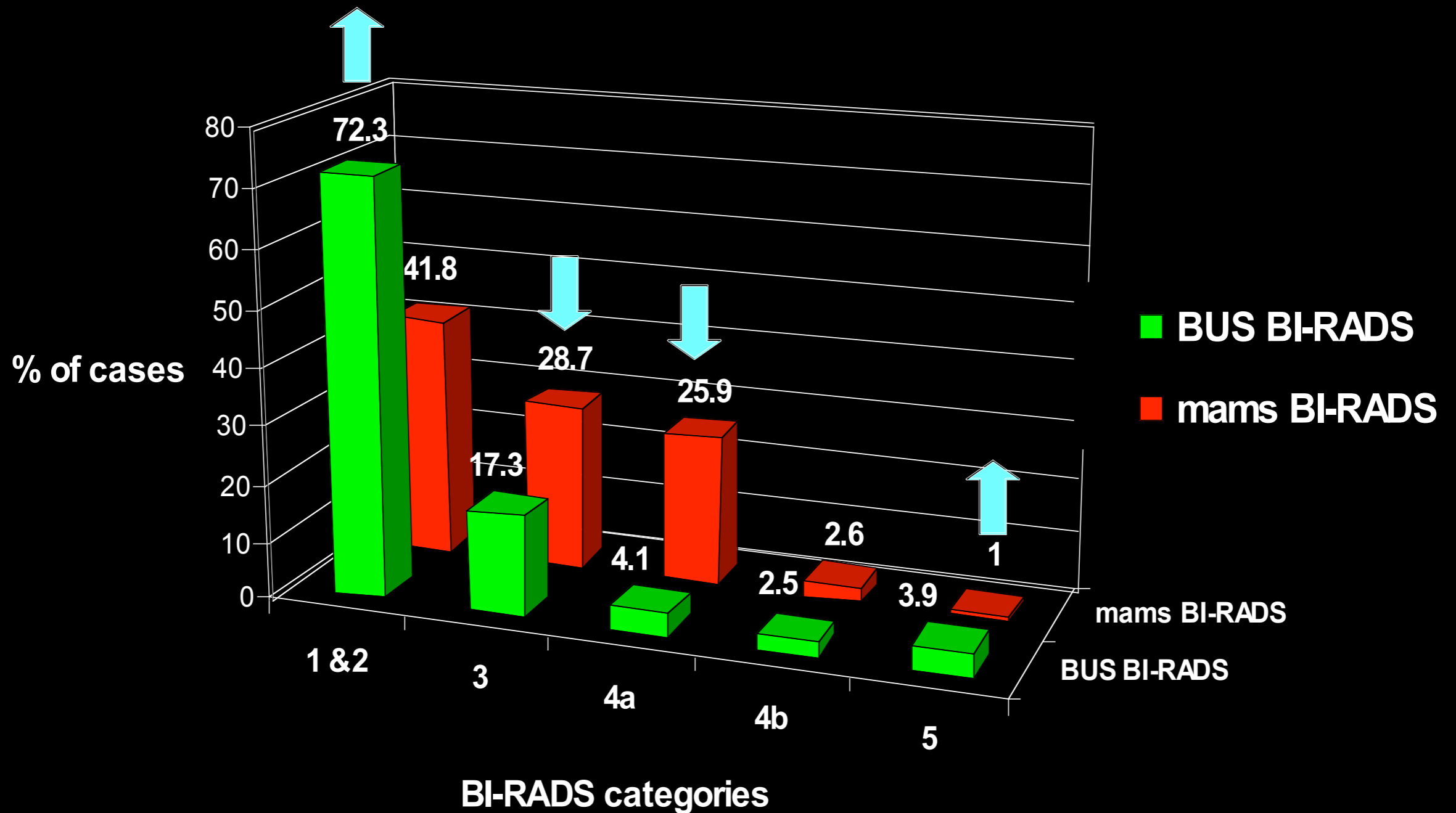
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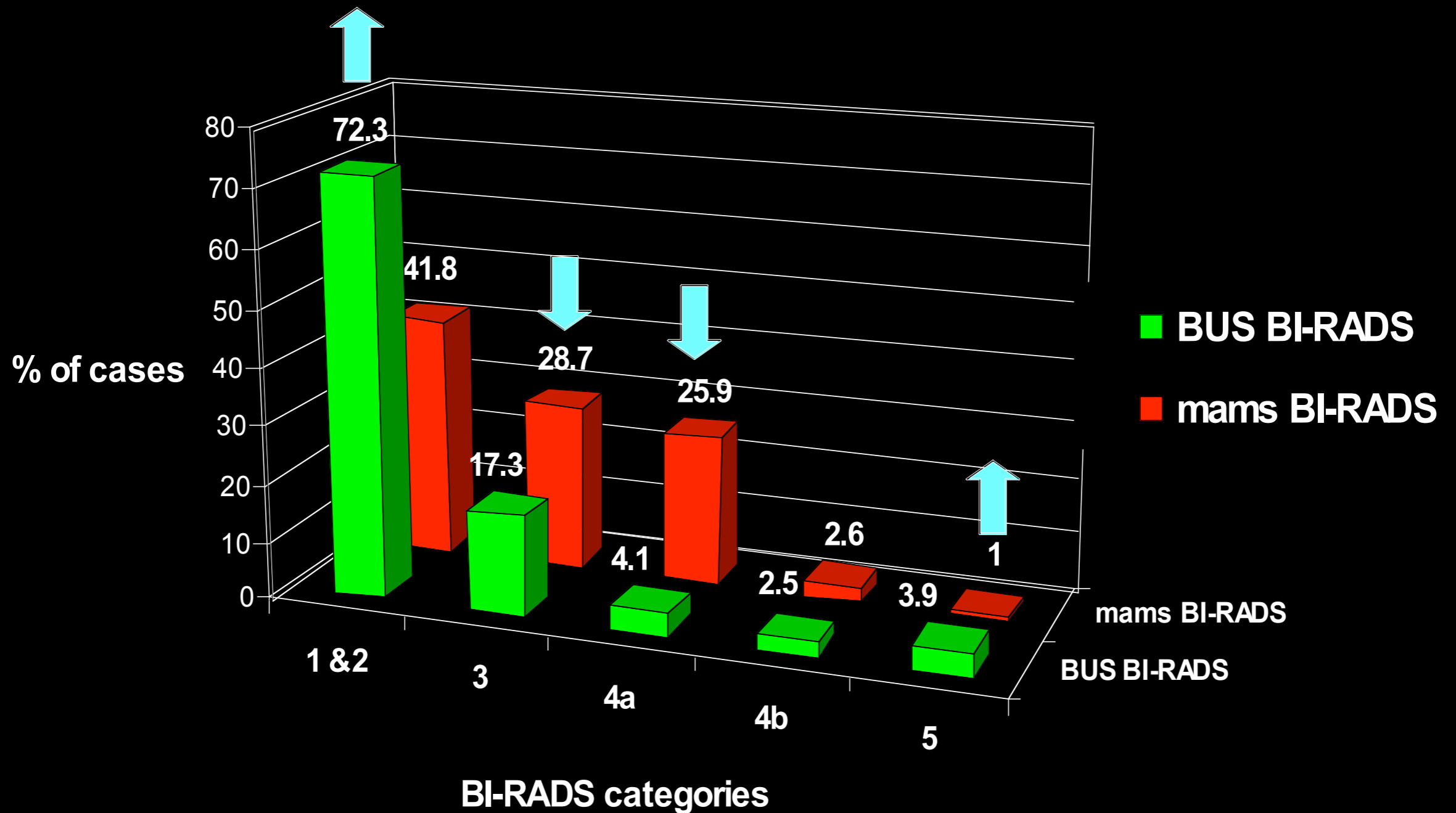
- must characterize the calcifications by mammography (BIRADS 4b)
- must perform stereotactic biopsy

# Problem with Mammographic BIRADS 0 category

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Since BIRADS 0 we can no longer easily glean this data

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- ✦ but we need it in a single database field

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- BIRADS 5 - more than 5 findings - all 3 hard finding

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  - percent risk for each BIRADS 4 subcategory

# BIRADS 4 subcategories are important

- necessary if we are to “tweak” our rules for defining the border between BIRADS 3 and 4
- will show where ancillary testing may or may not be helpful
- ancillary testing to mammography and US will be used for niches
- one of those niches will be at the borderland between BIRADS 3 and 4a and within the BIRADS 4a category

**RESULTS** of prospective sonographic characterization of solid breast nodules

	negative biopsy	positive biopsy	
negative US BIRADS 2,3	287 (TN)	1 (FN)	288
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# prospective sonographic characterization of solid breast nodules into BIRADS categories

BIRADS category	# nodules biopsied	# nodules malignant	expected CA risk	actual risk of CA
2	17	0	0%	0%
3	271	1	≤2%	0.4%
4a	558	64	3 - 49%	12%
4b	217	133	50 - 89%	61%
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about as good as we can do in medicine

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these need biopsy, biopsy, biopsy....

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category where ancillary testing may help

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# BIRADS - general comments

- a net positive
- has made radiology reports and management better and easier for clinicians to understand
- is not based enough upon anatomy and histopathology
- is based too much upon “dumb” pattern recognition (must memorize meaningless terms)
- learn the anatomy and how breast cancer grows and spreads within the anatomy and distorts the anatomy and you will never have to memorize anything every again

# defining the border between US BIRADS 3 and 4 needs “tweaking”

- our definition is currently too strict
- BIRADS 4a has too few true positives and too many false positives
- BIRADS 4a had to be set up that way because US characterization of solid breast nodules was not the standard of care and had to err to the side of caution
- now is more established and due for refinement

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- mamms BIRADS - linear or branching calcs - pretty good, but could be better - intraductal is the key - DCIS grows and spreads inside the ductal system - correlates with grade 3 DCIS

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either being taught to some MRS data entry personnel by  
certain MRS application persons or misconstrued by personnel

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- will never know your false negative rate for your BIRADS 3 classifications because you will never biopsy a BIRADS 3 lesion
- will have an unacceptably low positive biopsy rate PPV for you BIRADS 4a classifications because many will really be BIRADS 3 lesions with a risk of less than 2%

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... but still like it...  
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