

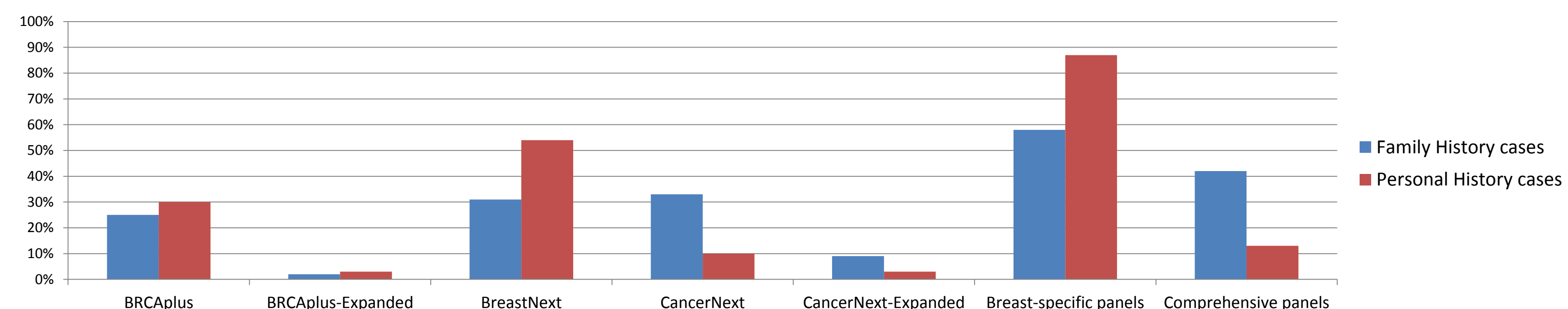
Multigene Panel Ordering Preferences for Breast Cancer Patients: A Comparison Across Clinician Specialties

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BACKGROUND

- Since multigene panel testing (MGPT) for hereditary cancer syndromes became available in 2012, its utilization has increased while single-syndrome testing has decreased across many physician specialties.¹
- Initially, the National Comprehensive Cancer Network (NCCN) management guidelines only existed for a small number of genes, however today, many genes on MGPT have guidelines.^{2,3}
- This study aims to explore the utilization of breast cancer-specific and comprehensive cancer MGPT among clinicians of various specialties in breast cancer patients.

PANELS ORDERED FOR FAMILY HISTORY vs. PERSONAL HISTORY CASES



METHODS

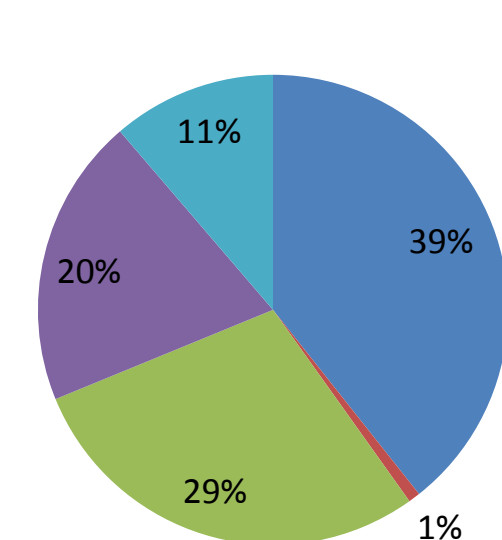
- Clinical data, provider specialty and test ordered were retrospectively reviewed for cases with personal and/or family history of breast cancer and no other cancers submitted to our laboratory between June 2013 and June 2016.
- Data was compared for 5 different panels for cases with only a family history of breast cancer but no personal history of breast cancer (Family History cases) and for those with a personal history of breast cancer (and no other primary cancers) with or without family history of breast cancer (Personal History cases). Family History cases included cases with a history of other cancers as well.

Panel name	Number of genes	Type of panel	Management guidelines available for
BRCaPlus	6	Breast cancer	All genes
BRCaPlus-Expanded	8	Breast cancer	All genes
BreastNext	17	Breast cancer	Some genes
CancerNext	32	Pan-cancer	Some genes
CancerNext-Expanded	49	Pan-cancer	Some genes

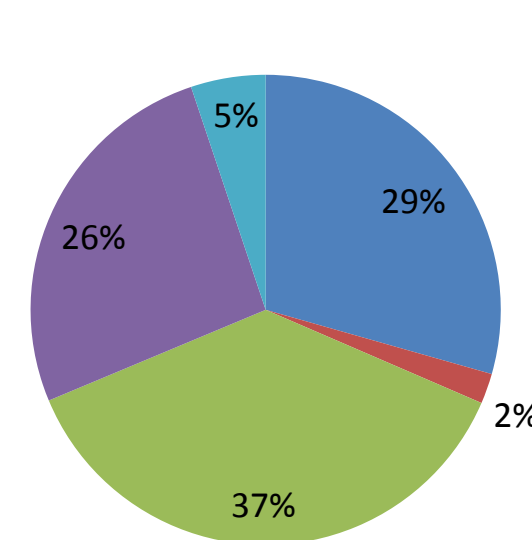
- Data was compared across various clinician specialties as well as for MD's, non-MD's and genetic counselors and geneticists.

PANELS ORDERED BY VARIOUS CLINICIAN SPECIALTIES

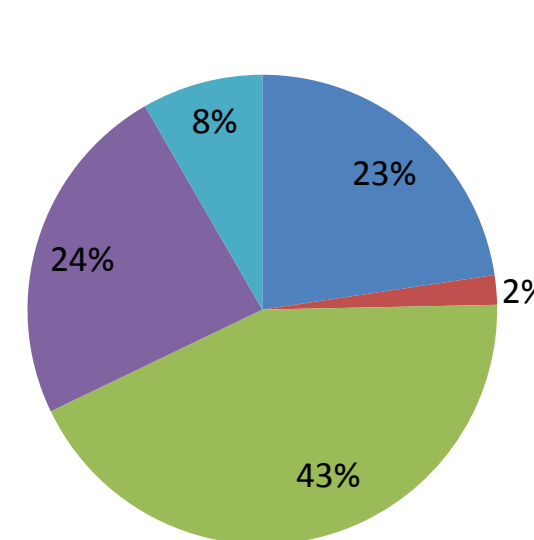
Breast Surgeons (N=984)



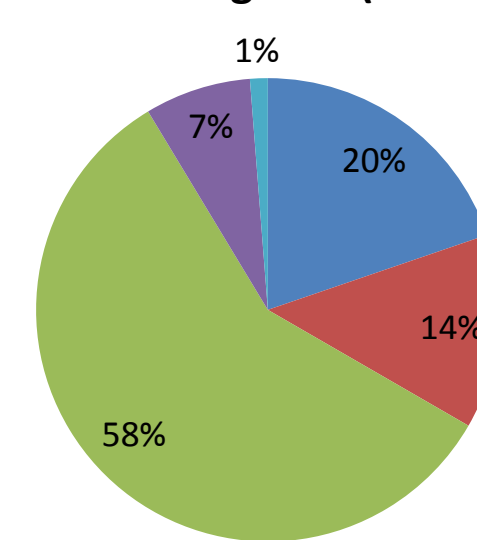
Family/Internal medicine/OB-GYN (N=3268)



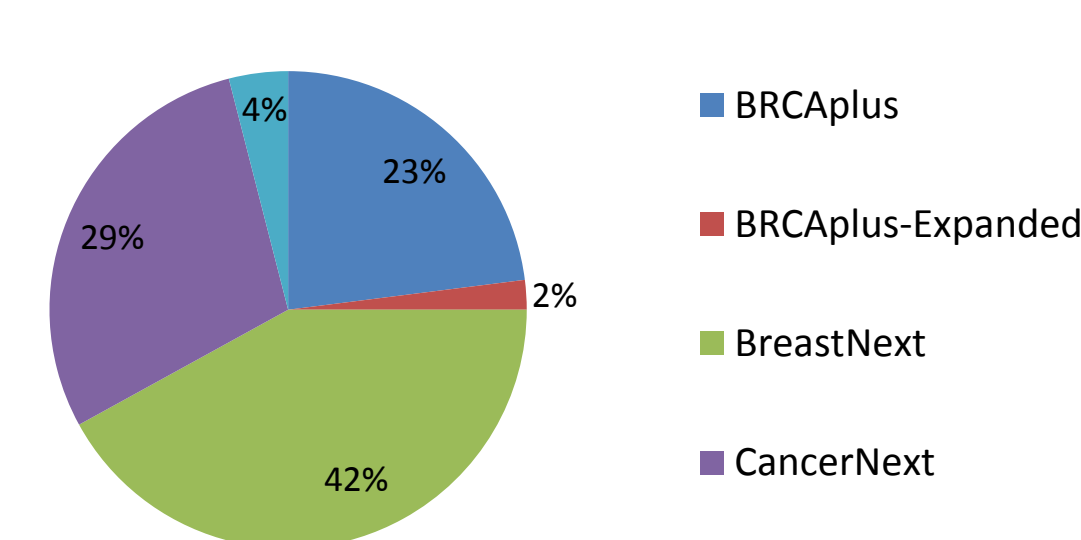
Hematologists/Oncologists (N=6398)



Other surgeons (N=81)



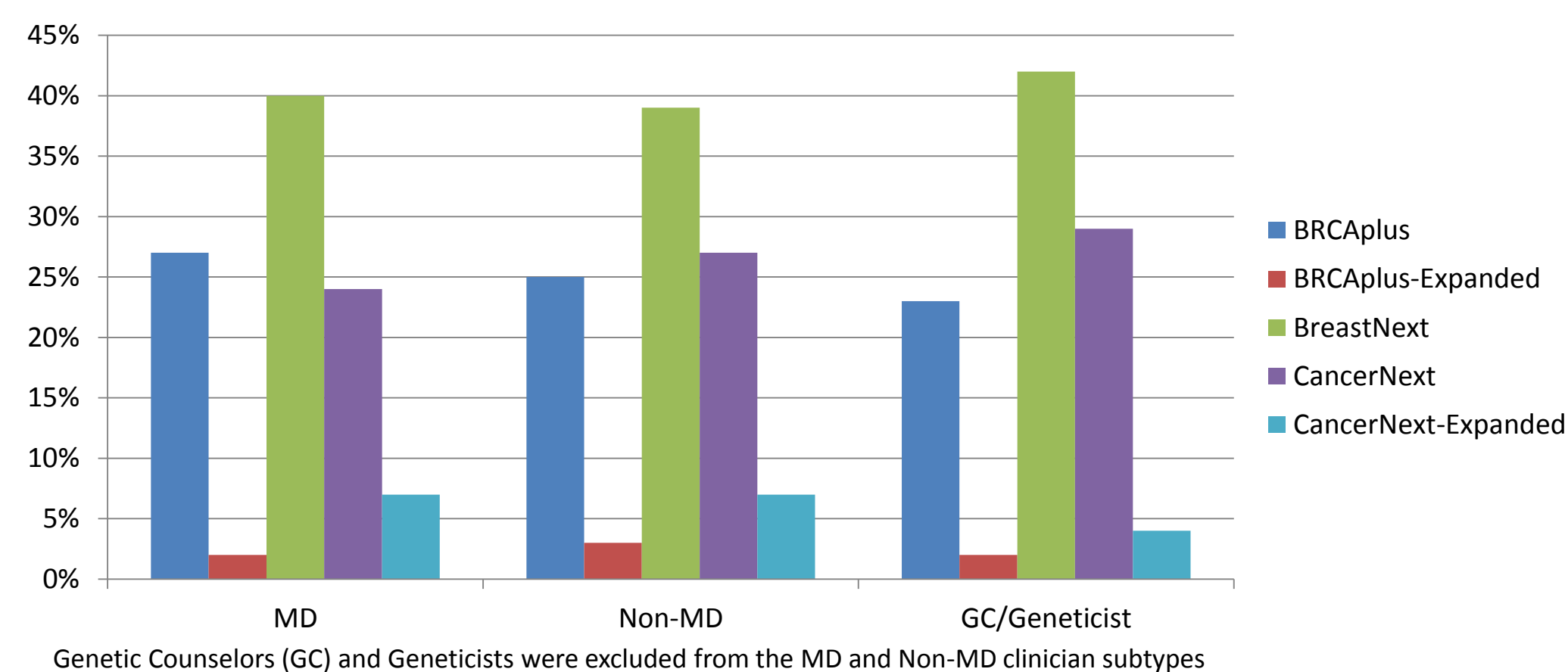
Genetic Counselors/Geneticists (N=1442)



RESULTS

- 27,195 cases were analyzed
 - 17,001 (63%) were Family History cases
 - 10,194 (37%) were Personal History cases
- Most frequently ordered test overall: BreastNext (40%), followed by BRCaPlus (27%), and CancerNext (24%)
- Most frequently ordered panel by clinical history:
 - Personal History cases: BreastNext (54%)
 - Family History cases: CancerNext (33%)
- Most frequently ordered panels by clinician type:
 - Breast surgeons: BRCaPlus (39%)
 - All other clinicians: BreastNext (40%)

PANELS ORDERED BY MD (N=21241) vs. NON-MD CLINICIANS (N=4512)



TAKE-HOME POINTS

- In general, clinicians seem to prefer a broader pan-cancer approach for the Family History cases, and a more targeted approach for the Personal History cases.
- While larger panels were more frequently ordered overall, breast surgeons seem to prefer smaller panels containing genes with clear surgical implications.
- Additional studies are needed to better understand clinician preferences and behaviors related to MGPT as factors such as prior testing, limited knowledge of family history, turnaround time etc. could confound results.

REFERENCES

- Fulk et. al. Increasing uptake of hereditary cancer multi-gene panel testing: overcoming initial barriers. American College of Medical Genetics and Genomics. March 2016.
- Daly M, Pilarski R, et al: Genetic/Familial High-Risk Assessment: Breast and Ovarian Version 2.2017, NCCN Clinical Practice Guidelines in Oncology
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Title: Multigene panel ordering preferences for breast cancer patients: A comparison across physician specialties

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Background: Since multigene panel testing (MGPT) for hereditary cancer syndromes became available in 2012, multiple laboratories have offered various MGPT options ranging in size and scope. Smaller panels consisting of “high-risk” genes are favored by some clinicians due to the availability of management guidelines, lower chance of an incidental finding, and lower variant of uncertain significance (VUS) rates; whereas larger panels are favored by others due to their comprehensive nature. Since 2012, utilization of MGPT has increased while single-syndrome testing has decreased across many physician specialties. This study aims to explore the utilization of breast cancer (BC)-specific and comprehensive cancer panels among clinicians of various specialties in breast cancer patients.

Materials and Methods: Clinical data, provider specialty and tests ordered were retrospectively reviewed for cases with personal and/or family history of BC and no other cancers submitted to our laboratory between June 2013 and June 2016. We compared 5 different panels: 6- and 8-gene BC panels, for which all genes have medical management guidelines, a 17-gene BC panel and 32- and 49-gene pan-cancer panels which include genes with and without medical management guidelines. Data was compared for cases with only a family history of BC but no personal history (FH) and for those with a personal history of BC with or without family history (PH).

Results: 27,195 cases were analyzed, 17,001 (62.5%) of which were FH and 10,194 (37.5%) were PH. Overall, the most commonly ordered test was the 17-gene BC panel (54%), followed by the 6-gene BC panel (30%), and the 32-gene pan-cancer panel (10%). This was also true for PH cases, while for FH cases, the 32-gene panel was ordered most frequently (33%), followed by the 17-gene BC panel (31%), and the 6-gene BC panel (25%). Overall, both MD (n=21,241) and non-MD level clinicians (n=4,512) ordered the 17-gene panel most often (40% and 39% of MGPT, respectively); however, the most frequently ordered test by breast surgeons (n=984) was the 6-gene BC panel (39%).

Conclusions: In general, clinicians seem to prefer a broader pan-cancer approach for FH cases, and a more targeted approach for PH cases. While larger panels were more frequently ordered overall, breast surgeons seem to prefer smaller panels containing genes with clear surgical implications. Additional studies are needed to better understand clinician preferences and behaviors related to MGPT.