



Real-World Prevalence of Genetic Mutations in Female Breast Cancer Patients Aged <65 vs. ≥65 Years In The United States Between 2014 And 2022

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OBJECTIVES

- Breast cancer is the most common cancer in women in the United States, except for skin cancers. It is about 30% (or 1 in 3) of all new female cancers each year.
- Advanced breast cancer, also known as metastatic breast cancer, occurs when cancer cells spread beyond the breast tissue to other parts of the body, such as bones, liver, lungs, or brain.
- American Cancer Society's¹ estimates for breast cancer in the United States for 2023 are:
 - About 297,790 new cases of invasive breast cancer will be diagnosed in women.
 - About 55,720 new cases of ductal carcinoma in situ (DCIS) will be diagnosed.
 - About 43,700 women will die from breast cancer.
- Breast cancer mainly occurs in middle-aged and older women. This means half of the women who develop breast cancer are ~65 years of age or younger when they are diagnosed.
- The objective of this study was to evaluate and summarize genetic mutation testing in a real-world population of women with advanced breast cancer.

METHODS

- TriNetX Dataworks USA structured electronic health records (EHR) data from 55 centers in the US were extracted from a proprietary database of real-world data.
- TriNexX data search resulted in 39,970 unique longitudinal patient records between 2014 and 2022 that contained important information about women with advanced breast cancer who underwent testing for genetic mutations.
- Mean difference in genetic mutation testing by age categories were calculated and compared among three genetic tests – HER2, KRAS, and BRAC2 using analysis of variance (ANOVA)

RESULTS

Table 1. Age Continuous and Categorical Variables

AGE BY TOTAL NUMBER OF GENETIC TESTING	N	MEAN	STD	MEDIAN	MIN	MAX
All Patients	39761	66.17	12.21	67.00	15.12	90.06
Less than 65 Years of Age	17088	54.63	7.51	56.00	15.12	64.12
65 Years and Above	22673	74.87	6.54	74.00	65.00	90.06

*209 patients did not have age information at baseline.

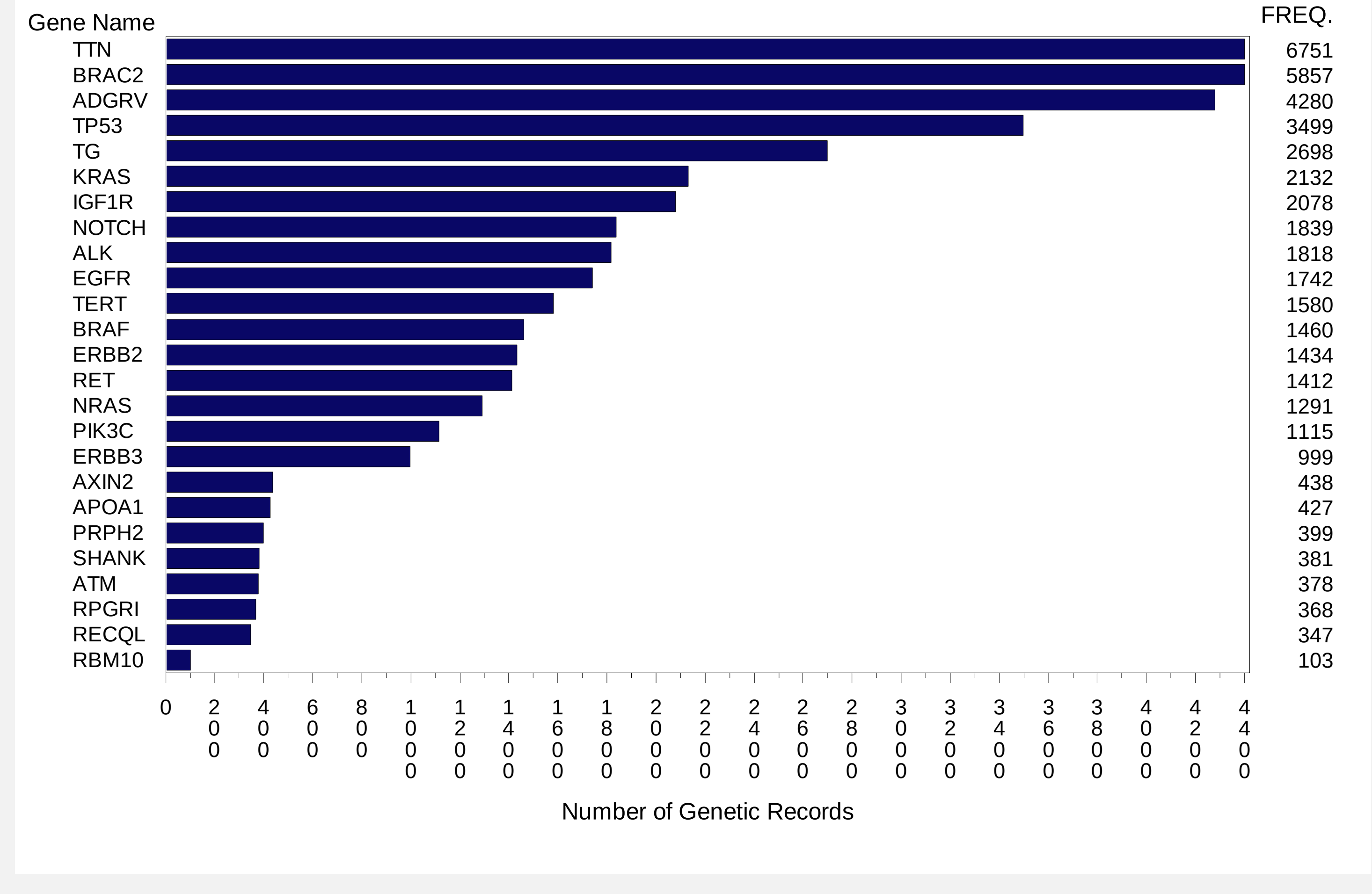
	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
65 Years and Above	22673	57.02	22673	57.02
Below 65 Years	17088	42.98	39761*	100.00

*209 patients did not have age information at baseline.

RESULTS

Table 2. Selected Demographic Information

N (%)	AMERICAN INDIAN OR ALASKA	ASIAN	BLACK OR AFRICAN AMERICAN	NATIVE HAWAIIAN OR OTHER	UNKNOWN	WHITE	TOTAL
Total Patients	89 (0.2)	707 (2)	6047 (15)	33 (.1)	2397 (6)	30488 (77)	39761 (100)
65 Years and Above	45 (0.2)	265 (1)	3027 (13)	13 (.1)	1139 (5)	18184 (80)	22673 (100)
Below 65 Years	44 (.3)	442 (3)	3020 (18)	20 (0.1)	1258 (7)	12304 (72)	17088 (100)



REFERENCES

1. American Cancer Society. (2021). Breast Cancer Facts & Figures 2021–2022. Retrieved from <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/breast-cancer-facts-and-figures-2021-2022.pdf>

CONCLUSION

- There is a statistically significant ($p < 0.0001$) difference in the amount of genetic testing in advanced breast cancer patients under 65 compared to those aged 65 and older.
- These findings demonstrate that real-world data analyzed from 55 centers in the US is effective in evaluating genetic testing differences in a cohort of advanced breast cancer patients.
- These data may provide highly valuable information to support advanced breast cancer clinical research (e.g., historical health data, genetic testing trends), regulatory interactions (e.g., external control arms), and payer decision making (e.g., real-world cost of new treatments).

