

# DECODING HER2 LOW BREAST CANCERS



Impact on Diagnosis, Treatment, and Survivorship for Women in Aotearoa New Zealand

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### NEW THERAPIES FOR NEW SUBTYPE/S OF BREAST CANCER

#### INTRODUCTION

Pathological analysis of HER2 receptor levels in breast tumours guides systemic treatment options. Women with an amplified HER2 (*ERBB2*) gene in their tumour, as determined by +2/+3 immunohistochemical (IHC) staining and confirmed by FISH, can receive targeted therapies such as Trastuzumab. Tumours with +1/+2 IHC HER2 staining, initially considered HER2 negative, have led to the development of new drugs that capitalize on the presence of this receptor on breast cancer cells. These advancements have expanded treatment options for women with HER2 Low breast cancers, most importantly those with Advanced and Triple Negative Breast Cancers. Our analysis, the first of its kind in Aotearoa, examines data from Te Rēhita Mate Ūtaetae to identify how many and which women would benefit from treatments targeted at HER2 low breast cancers.

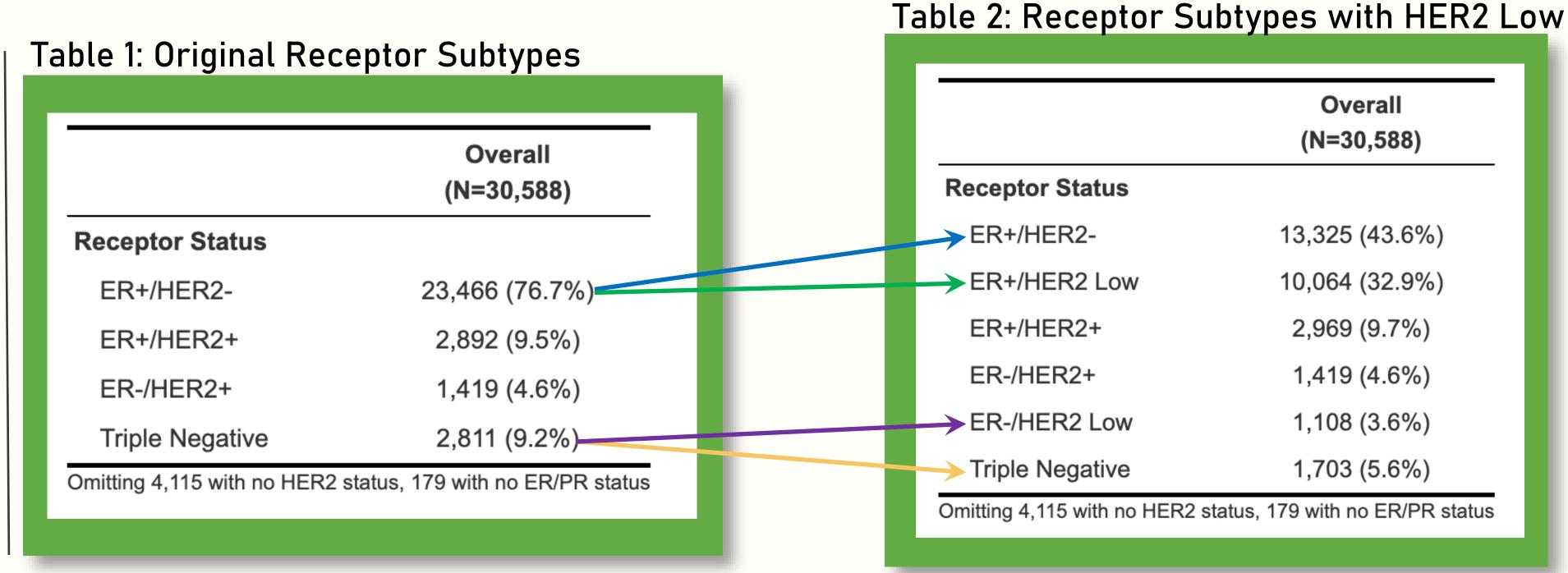


Table 1 displays the original classification of breast cancer receptor subtypes. Table 2 presents the updated classification, incorporating the distinction between HER2-negative and HER2 Low breast cancers.

31.5 - 39%

of tumours were HER2 Low in Pacific and Asian women respectively 36% & 39%

of tumours were HER2 Low in women diagnosed < 45 and > 45 years respectively 2.5% & 14%

of tumours were NOT HER2 tested in women diagnosed < 70 and > 69 years respectively

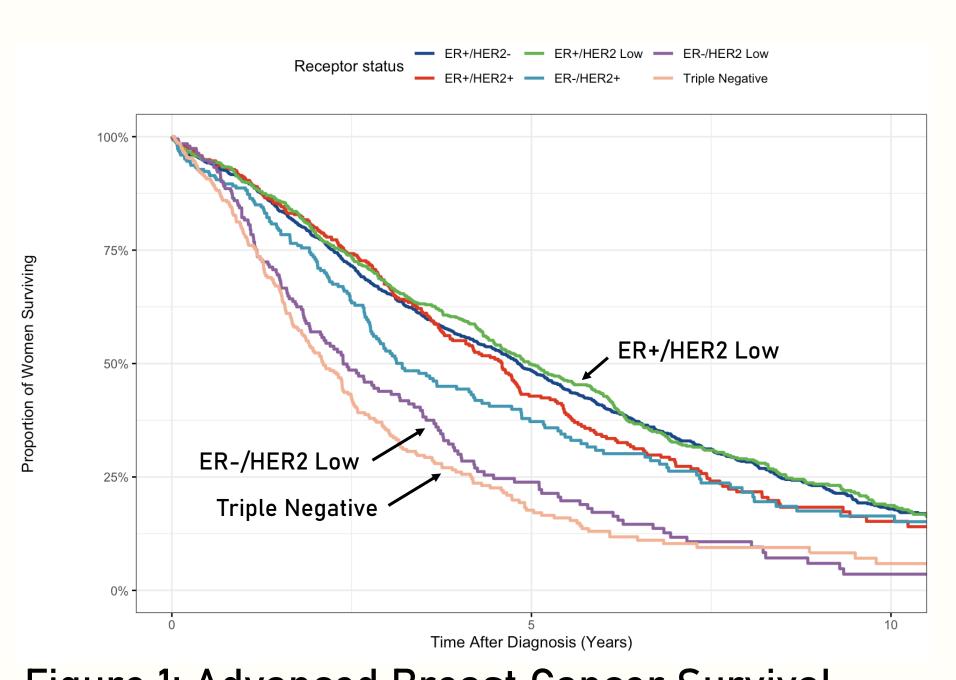


Figure 1: Advanced Breast Cancer Survival

## Breast Cancer Outcomes for Women diagnosed after 2009

as Trastuzumab publicly funded from Dec 2008

Figure 1 shows the breast cancer-specific survival from time of diagnosis for women with advanced disease, by their primary tumour receptor subtype

Figure 2 shows the breast cancer-specific survival from time of diagnosis for women with early disease, by their tumour receptor subtype

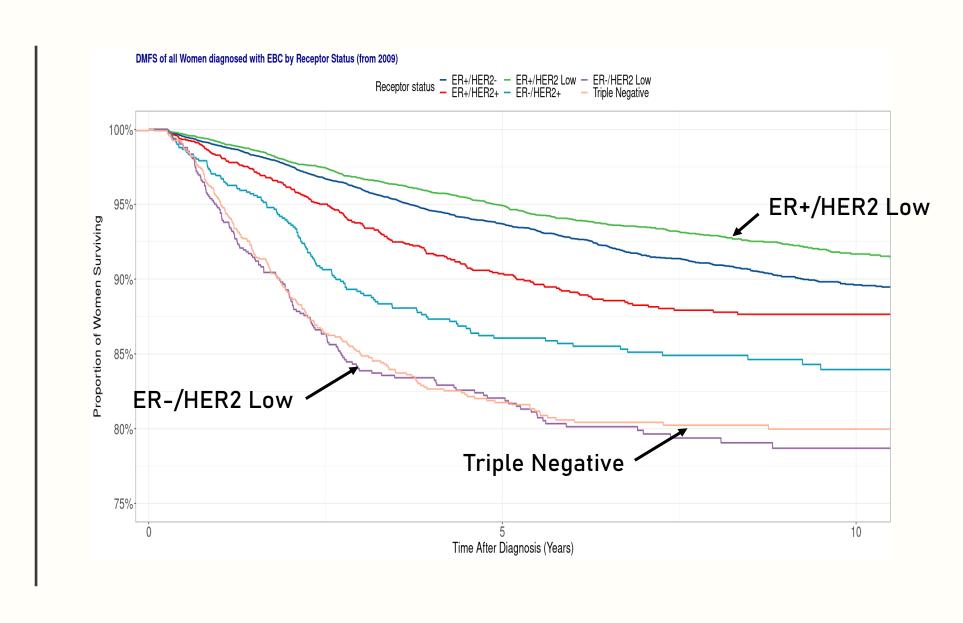


Figure 2: Early Breast Cancer Survival

35% of advanced breast cancers were HER2 Low

40% of triple negative breast tumours were HER2 Low

153 of 428

women diagnosed with triple negative breast cancer in 2018–2020 would now have a targeted therapy

	Positive (N=667)	HER2 Low (N=1124)	Negative (N=1418)
Ethnicity			
Asian	45 (6.7%)	71 (6.3%)	88 (6.2%)
European	419 (62.8%)	792 (70.5%)	1026 (72.4%)
Māori	99 (14.8%)	138 (12.3%)	174 (12.3%)
Other Ethnicity	30 (4.5%)	28 (2.5%)	37 (2.6%)
Pacific	74 (11.1%)	95 (8.5%)	93 (6.6%)
Age at Diagnosis			
≤ 44	206 (30.9%)	258 (23.0%)	291 (20.5%)
45-69	353 (52.9%)	622 (55.3%)	790 (55.7%)
≥ 70	108 (16.2%)	244 (21.7%)	337 (23.8%)
Stage			
1	124 (18.6%)	265 (23.6%)	369 (26.0%)
2	284 (42.6%)	500 (44.5%)	651 (45.9%)
3	88 (13.2%)	172 (15.3%)	183 (12.9%)
4	171 (25.6%)	187 (16.6%)	215 (15.2%)
Tumour Grade			
1	7 (1.0%)	82 (7.3%)	99 (7.0%)
2	178 (26.7%)	498 (44.3%)	642 (45.3%)
3	482 (72.3%)	544 (48.4%)	677 (47.7%)
Tumour Size (mm)			
≤ 20	150 (22.5%)	250 (22.2%)	312 (22.0%)
21 - 50	393 (58.9%)	656 (58.4%)	853 (60.2%)
> 50	124 (18.6%)	218 (19.4%)	253 (17.8%)

#### CONCLUSION

HER2 low, an under-recognized subtype of breast cancer, demonstrates substantial therapeutic promise. Our data indicate that 35-40% of patients with advanced or triplenegative breast cancers in Aotearoa could be eligible for new targeted therapies. Although no such treatments are yet approved in New Zealand, they are available internationally. Future research is needed to evaluate the impact of these novel therapies on patient outcomes.

Acknowledgements
We would like to acknowledge the women who have permitted their data to be part of Te Rēhita Mate Ūtaetae

	Positive (N=3299)	HER2 Low (N=9960)	Negative (N=11889)
Ethnicity			
Asian	295 (8.9%)	842 (8.5%)	1051 (8.8%)
European	2407 (73.0%)	7318 (73.5%)	8506 (71.5%)
Māori	381 (11.5%)	1075 (10.8%)	1416 (11.9%)
Other Ethnicity	47 (1.4%)	132 (1.3%)	183 (1.5%)
Pacific	169 (5.1%)	593 (6.0%)	733 (6.2%)
Age at Diagnosis			
≤ 44	413 (12.5%)	1223 (12.3%)	1364 (11.5%)
45-69	2290 (69.4%)	6944 (69.7%)	8268 (69.5%)
≥ 70	596 (18.1%)	1793 (18.0%)	2257 (19.0%)
Stage			
1	2061 (62.5%)	6240 (62.7%)	7460 (62.7%)
2	1066 (32.3%)	3242 (32.6%)	3855 (32.4%)
3	172 (5.2%)	478 (4.8%)	574 (4.8%)
Tumour Grade			
1	749 (22.7%)	2365 (23.7%)	2876 (24.2%)
2	1659 (50.3%)	4798 (48.2%)	5870 (49.4%)
3	891 (27.0%)	2797 (28.1%)	3143 (26.4%)
Tumour Size (mm)			
≤ 20	1889 (57.3%)	5796 (58.2%)	6946 (58.4%)
21 - 50	1255 (38.0%)	3714 (37.3%)	4413 (37.1%)
> 50	155 (4.7%)	450 (4.5%)	530 (4.5%)

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