REAL-WORLD EVIDENCE OF METASTATIC BREAST CANCER TREATMENT: A COMPARISON OF ADVERSE EFFECTS BETWEEN PALBOCICLIB TREATMENT AND ENDOCRINE THERAPY

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OBJECTIVES

Palbociclib is a CDK4/6 inhibitor for ER(+)/HER2(-), metastatic breast cancer (MBC). Studies show progression-free survival is better among Palbociclib patients than among patients receiving endocrine therapy. Whether the frequency of adverse effects (AEs) in real world settings differs between patients receiving Palbociclib and patients on other endocrine therapies is lacking. The aims of this study are to investigate whether: (1) the occurrence of AEs in patients receiving Palbociclib and Letrozole differ from patients receiving an aromatase inhibitor (AI) as first line therapy; and (2) the occurrence of AEs in patients receiving Palbociclib and Fulvestrant differ from patients receiving second-line endocrine therapy (ET).

METHODS

A health research network representing over 19M female patient-lives was used to define patients 45+ years old, with a MBC diagnosis between 2013-2017, who are ER(+)/HER2(-). The following AEs were defined by an ICD and/or LOINC code: acute respiratory infections, osteoporosis, fractures, weakness, bleeding events, mood disorders, and elevated ALT. Baseline characteristics (Tables 1-3), Kaplan-Meier survival analyses (Figure 1), risk ratios and 95% CIs (Figure 2) were calculated for each AE.

Table 1. Demographics characteristics

	Palbociclib and Letrozole vs. AI					Palbociclib and Fulvestrant vs. ET				
	Mean ± SD	Min	Max	Patient Count	% of Cohort	Mean ± SD	Min	Max	Patient Count	% of Cohort
Age at Index	64.03 ± 9.49	46	90	910	100%	65.41 ± 9.58	47	90	570	100%
	64.83 ± 10.08	46	90	8,605	100%	64.74 ± 9.81	46	90	2,123	100%
Hispanic or Latino				56	6%				21	4%
				461	5%				90	4%
White				730	80%				453	79%
				6,695	78%				1,731	82%
Black or African American				81	9%				51	9%
				1,022	12%				201	9%
Asian				11	1%				10	2%
				122	1%				30	1%

Table 2. Baseline characteristics

	Palbociclib and Letrozole vs. AI		Palbociclib and Fulvestrant vs. ET	
	Patient Count	% of Cohort	Patient Count	% of Cohort
Hypertensive Diseases	391	43%	391	43%
	4,371	51%	4,371	51%
Other Osteopathies	355	39%	355	39%
	2,913	34%	2,913	34%
Osteoarthritis	215	24%	215	24%
	2,205	26%	2,205	26%
Diseases of Liver	195	21%	195	21%
	1,391	16%	1,391	16%
Mood [Affective] Disorders	191	21%	191	21%
	2,162	25%	2,162	25%
Acute Kidney Failure and Chronic Kidney Disease	89	10%	89	10%
	932	11%	932	11%
Antilipemic Agents	262	29%	262	29%
	2,729	32%	2,729	32%
Antihypertensives, Other	98	11%	98	11%
	1,264	15%	1,264	15%

Table 3. Baseline lab values

|	Palbociclib and Letrozole vs. AI			Palbociclib and Fulvestrant vs. ET		
	Mean ± SD	Min	Max	Mean ± SD	Min	Max
Creatinine [Mass/Volume] in Serum, Plasma or Blood	1.40 ± 9.85	0	198.9	1.40 ± 9.85	0	198.9
	1.23 ± 6.72	0	194.6	1.23 ± 6.72	0	194.6
Neutrophils [#/Volume] in Blood	308.39 ± 1,254.16	0.2	14,353	308.39 ± 1,254.16	0.2	14,353
	551.71 ± 1,966.83	0	46,490	551.71 ± 1,966.83	0	46,490
Alanine Aminotransferase [Enzymatic Activity/Volume] in Serum, Plasma or Blood	29.05 ± 27.74	4	324	29.05 ± 27.74	4	324
	27.36 ± 29.07	0	1,020	27.36 ± 29.07	0	1,020
Aspartate Aminotransferase [Enzymatic Activity/Volume] in Serum or Plasma	32.88 ± 31.86	0	531	32.88 ± 31.86	0	531
	28.83 ± 40.09	0	2,397	28.33 ± 40.09	0	2,397
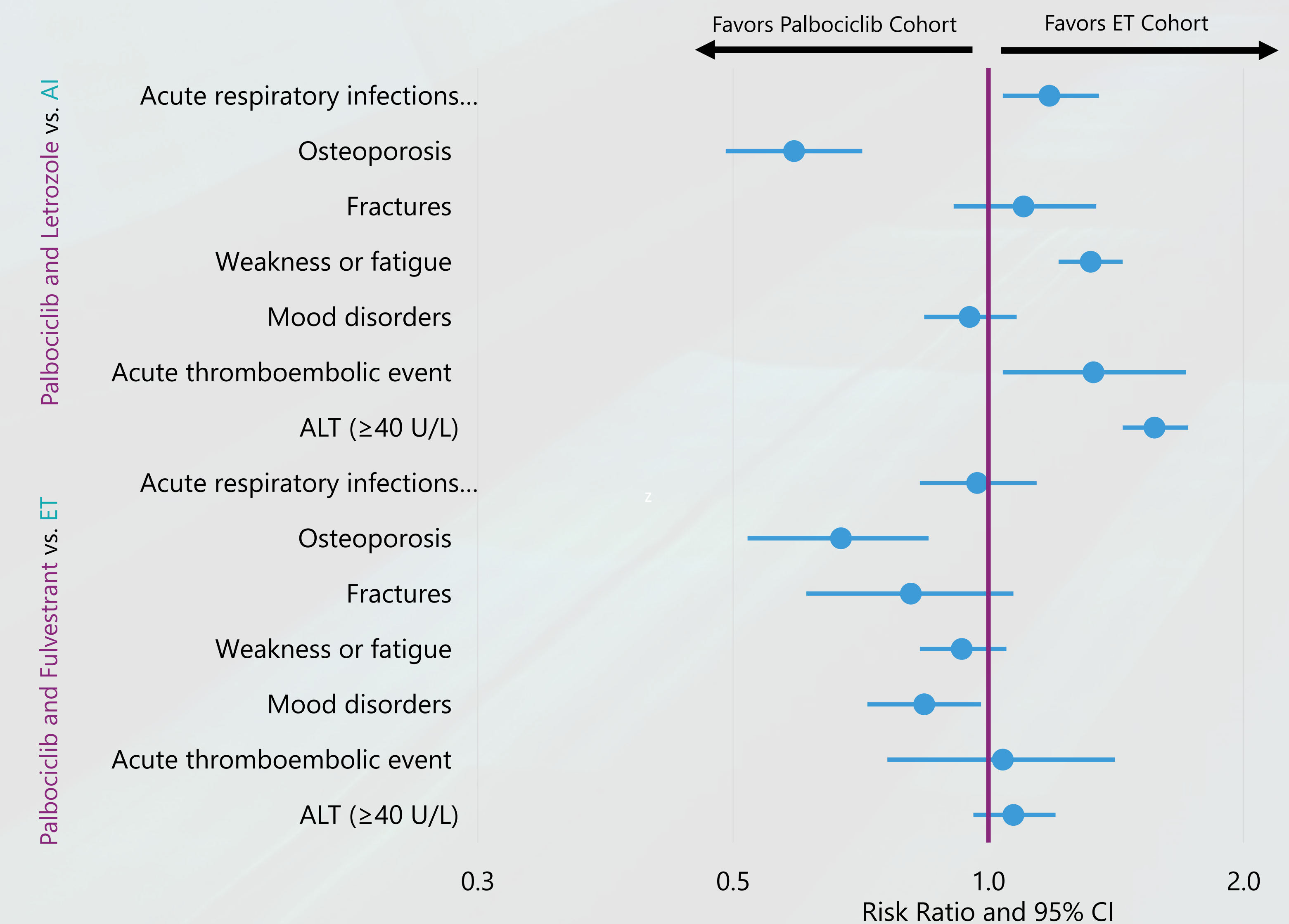
Figure 2. Effect estimates
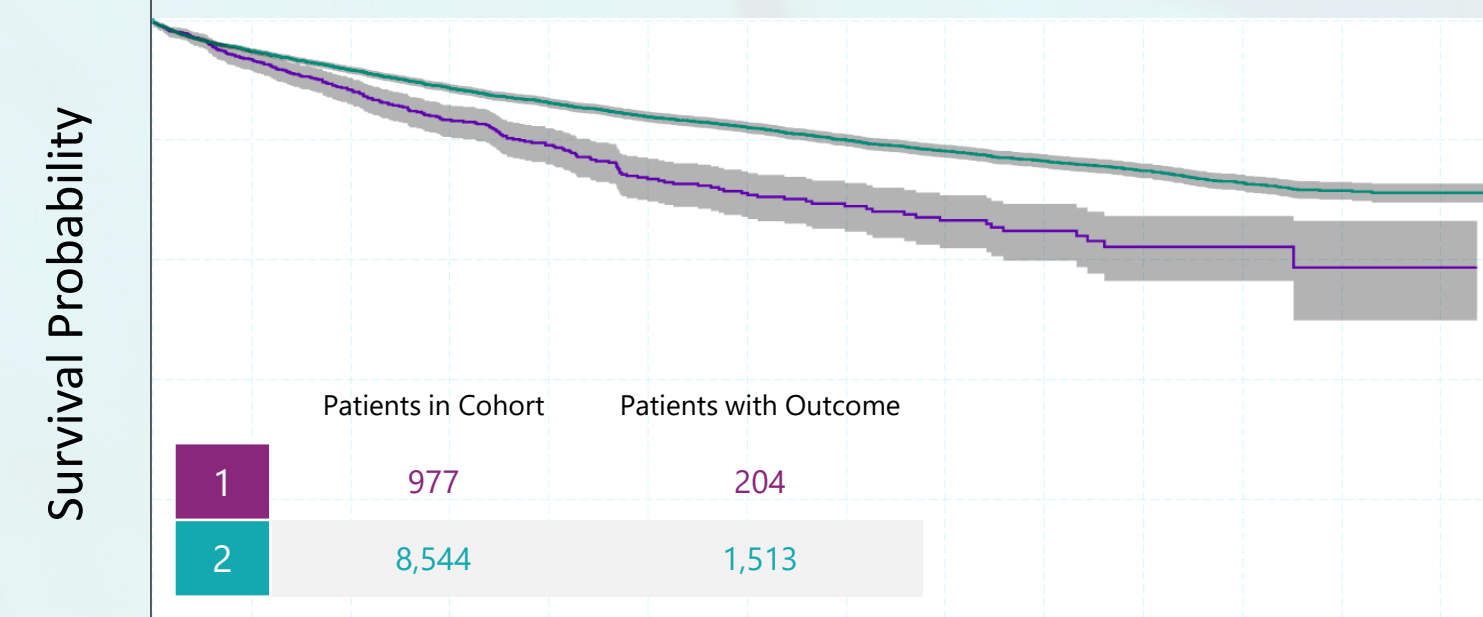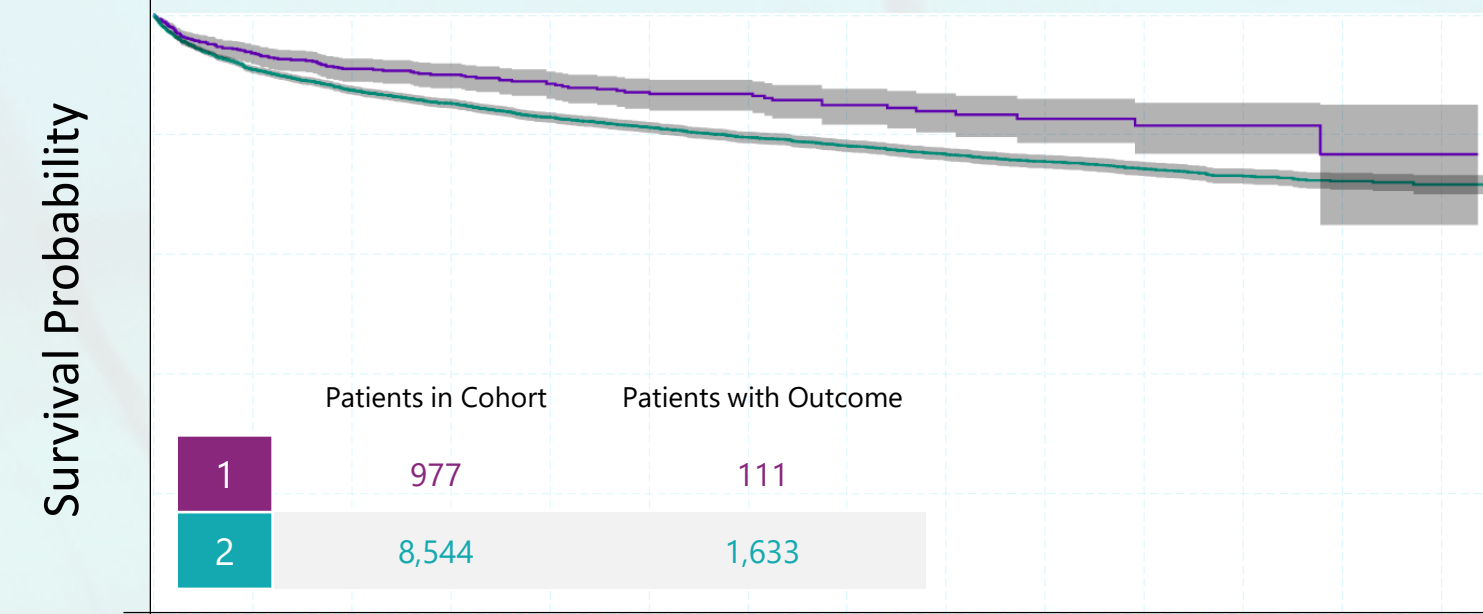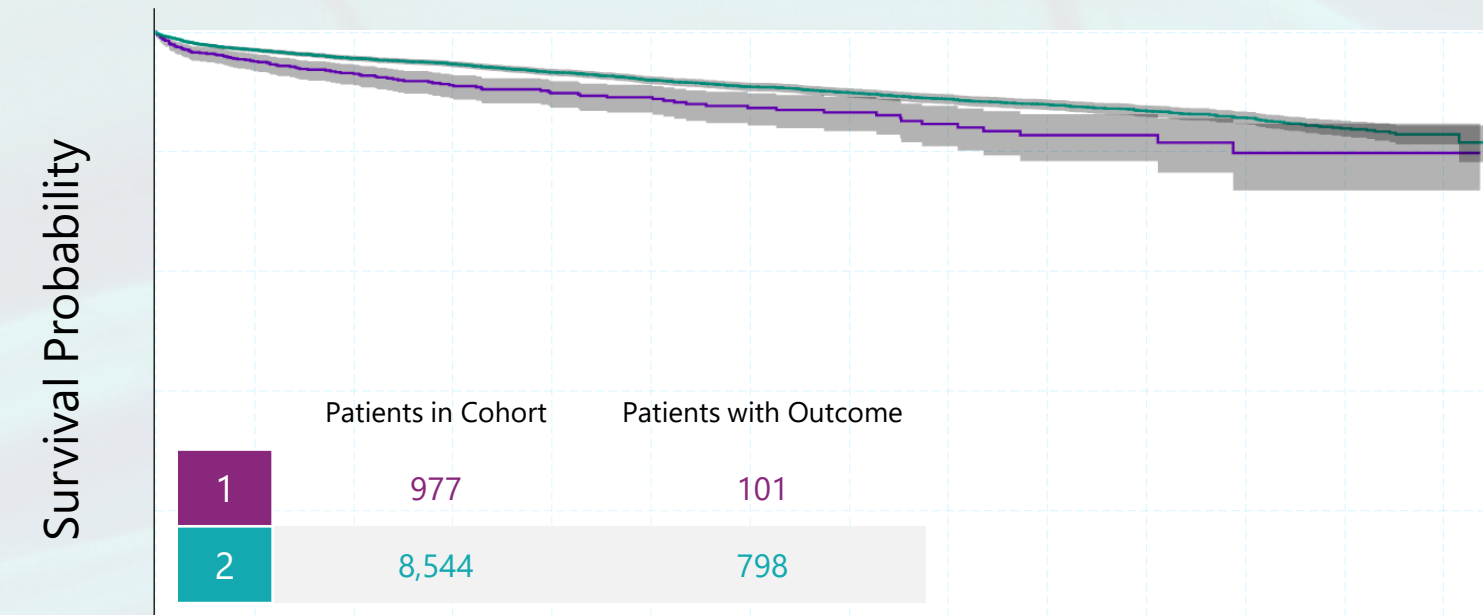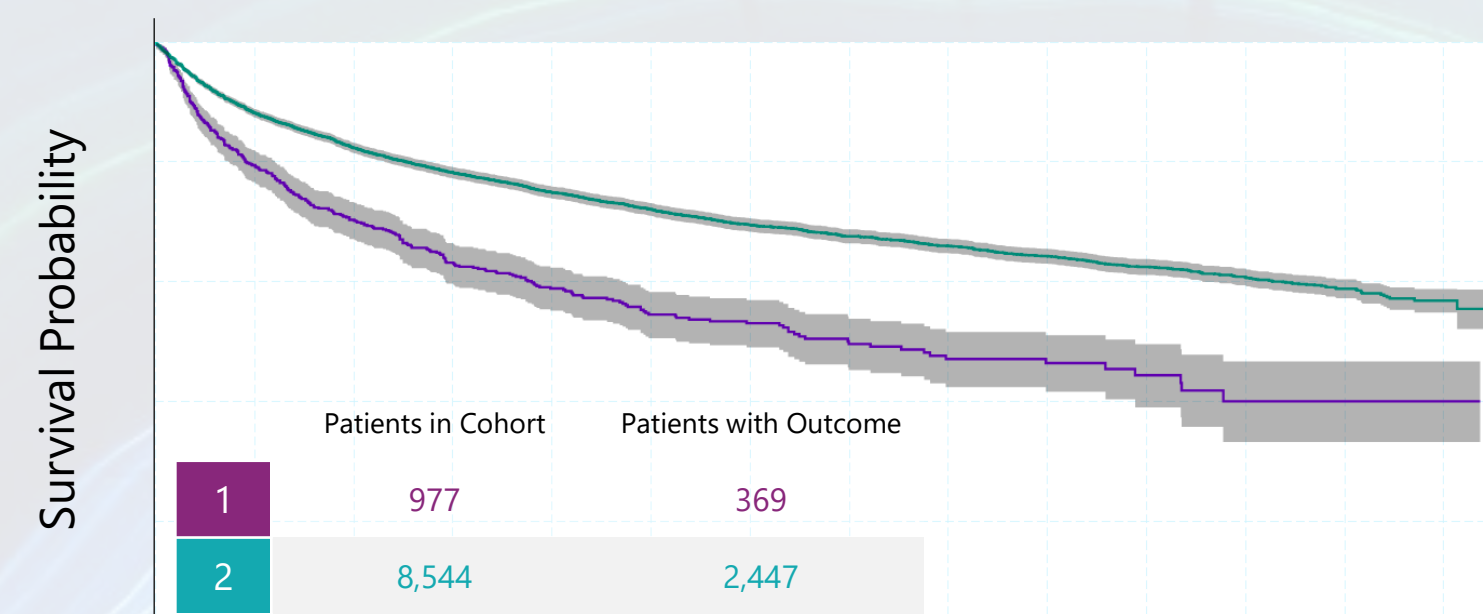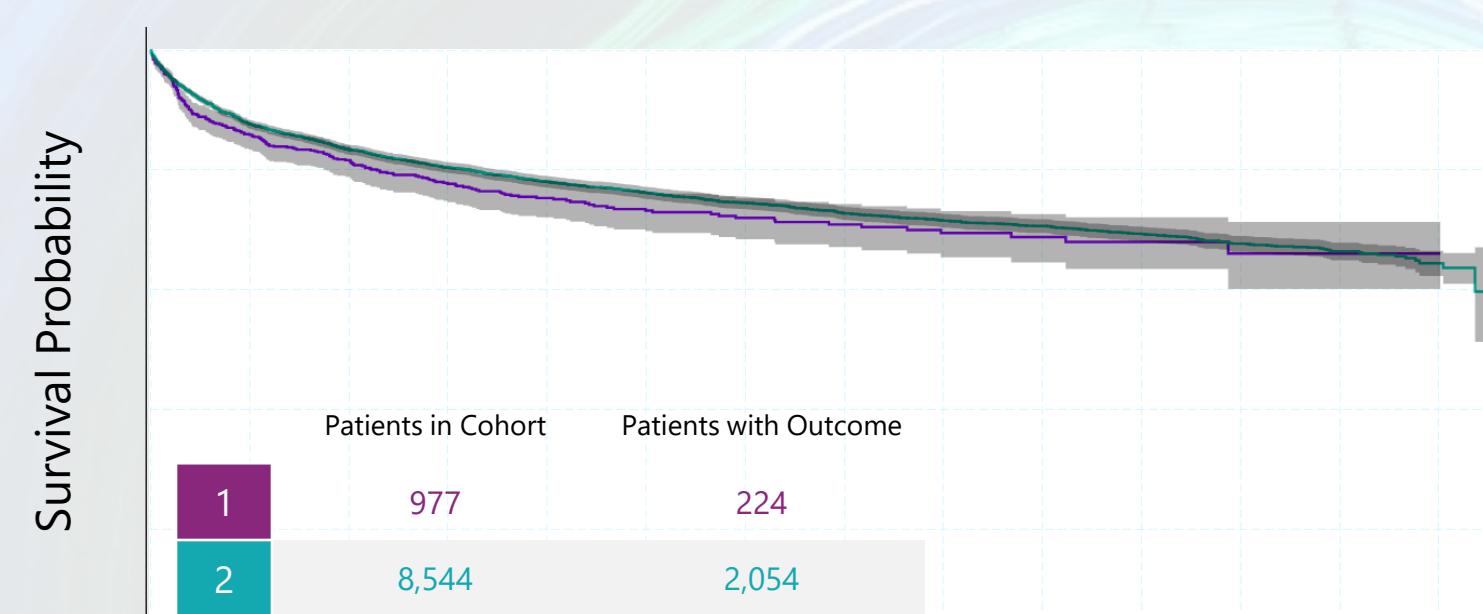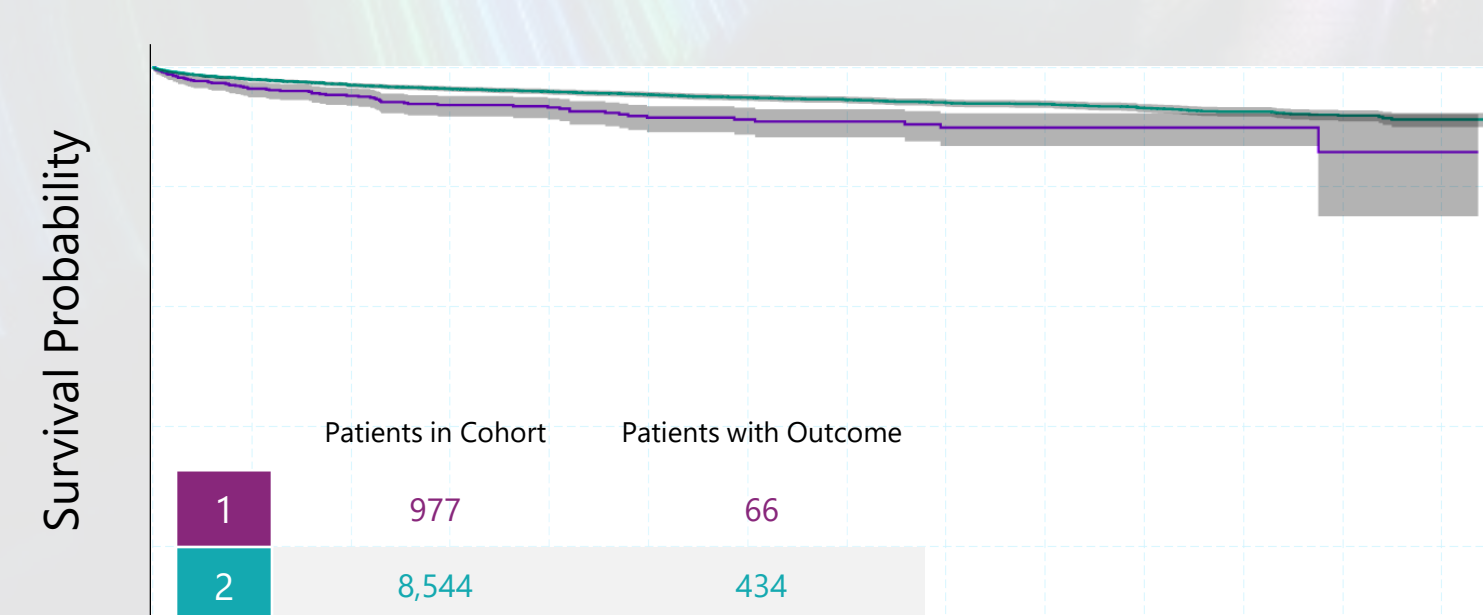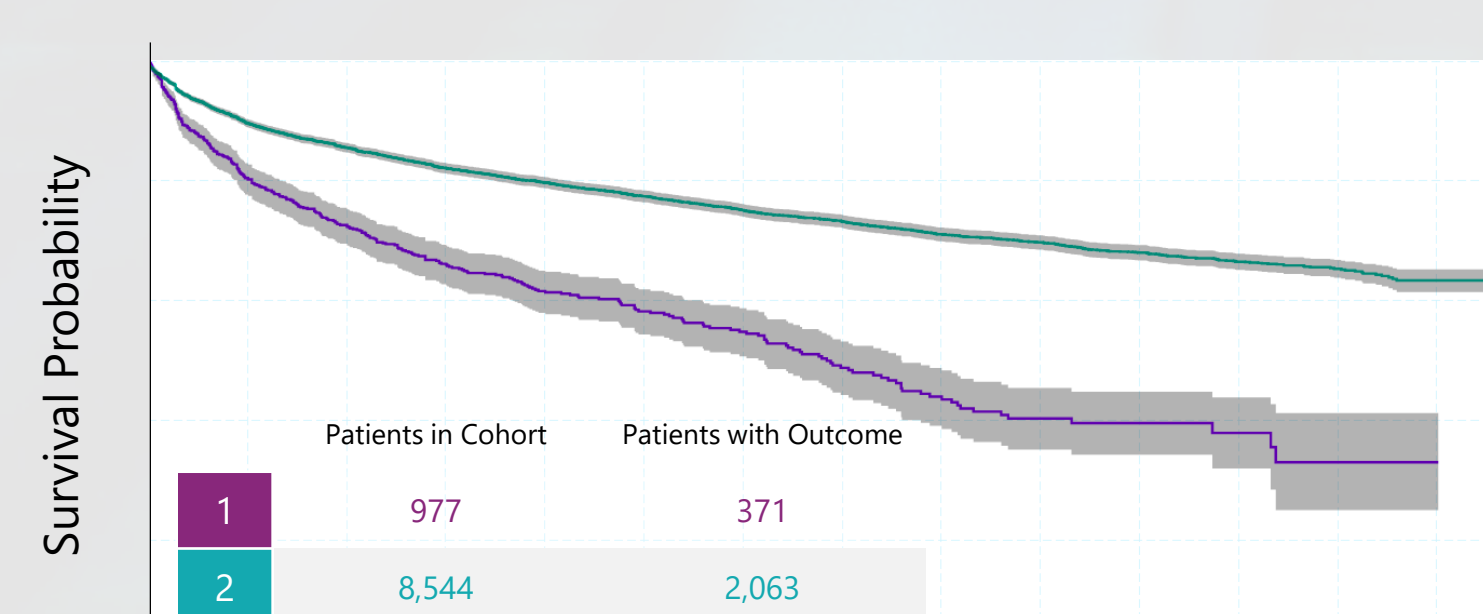
Figure 1.

Note: Survival probability on y-axis ranges from 0-100%; Number of days of follow-up on x-axis ranges from 0 to 1,300 days.

RESULTS

- Patients in the Palbociclib and endocrine therapy (ET) cohorts are comparable on age at diagnosis, race and ethnicity.
- At baseline, patients receiving Palbociclib had a high prevalence of liver related diseases, but a lower prevalence of mood disorders, hypertension, neutropenia, and hypertensive medication.
- Compared to first-line AI patients, Palbociclib patients had a lower risk of osteoporosis.
- Compared to first-line AI patients, Palbociclib patients had a higher risk of bleeding events, acute respiratory infections, weakness or fatigue, and elevated ALT.
- Compared to ET patients, Palbociclib patients had a significantly lower risk of osteoporosis and mood disorders.

CONCLUSIONS

Although studies have demonstrated benefits of Palbociclib treatment over endocrine therapies, patients receiving Palbociclib may have an increased risk of infection and bleeding. As Palbociclib and other newly approved therapies in the same class become more common, further analyses should assess whether these differences raise concern for patient safety.