





A Systematic Literature Review (SLR) of Economic Burden of Patients With Hormone Receptor-Positive/Human Epidermal Growth Factor Receptor 2-Negative (HR+/HER2–) Metastatic Breast Cancer (mBC) With at Least One Prior Therapy

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CONCLUSIONS

-  In addition to their clinical and humanistic burden, CTs had a substantial economic burden in terms of medical and indirect costs, which highlights the need for newer more efficacious treatments for these patients
-  The main drivers of CT costs and resource utilization were IP care, AE management, and lower productivity
-  There is a need for more research to inform cost-effective approaches to treatment, particularly in Europe and in later-line studies
-  Few studies examined indirect costs in HR+/HER2– mBC, and there is a lack of data on the impact of new treatments



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BACKGROUND

- Breast cancer (BC) accounted for 12% (2.3 million) of new cancer cases worldwide in 2020.¹ Approximately 68% of BC cases are classified as HR+/HER2–²
- The outlook remains poor in HR+/HER2– mBC, with a 5-year survival of ~30% for distant disease²
- Endocrine therapy (ET) is the primary treatment for HR+/HER2– mBC,³ but many patients develop resistance, and may require chemotherapy (CT)
- While the clinical and health-related quality of life outcomes in patients with pretreated HR+/HER2– mBC has been characterized,⁴⁻¹¹ the economic burden has not been reviewed systematically

OBJECTIVE

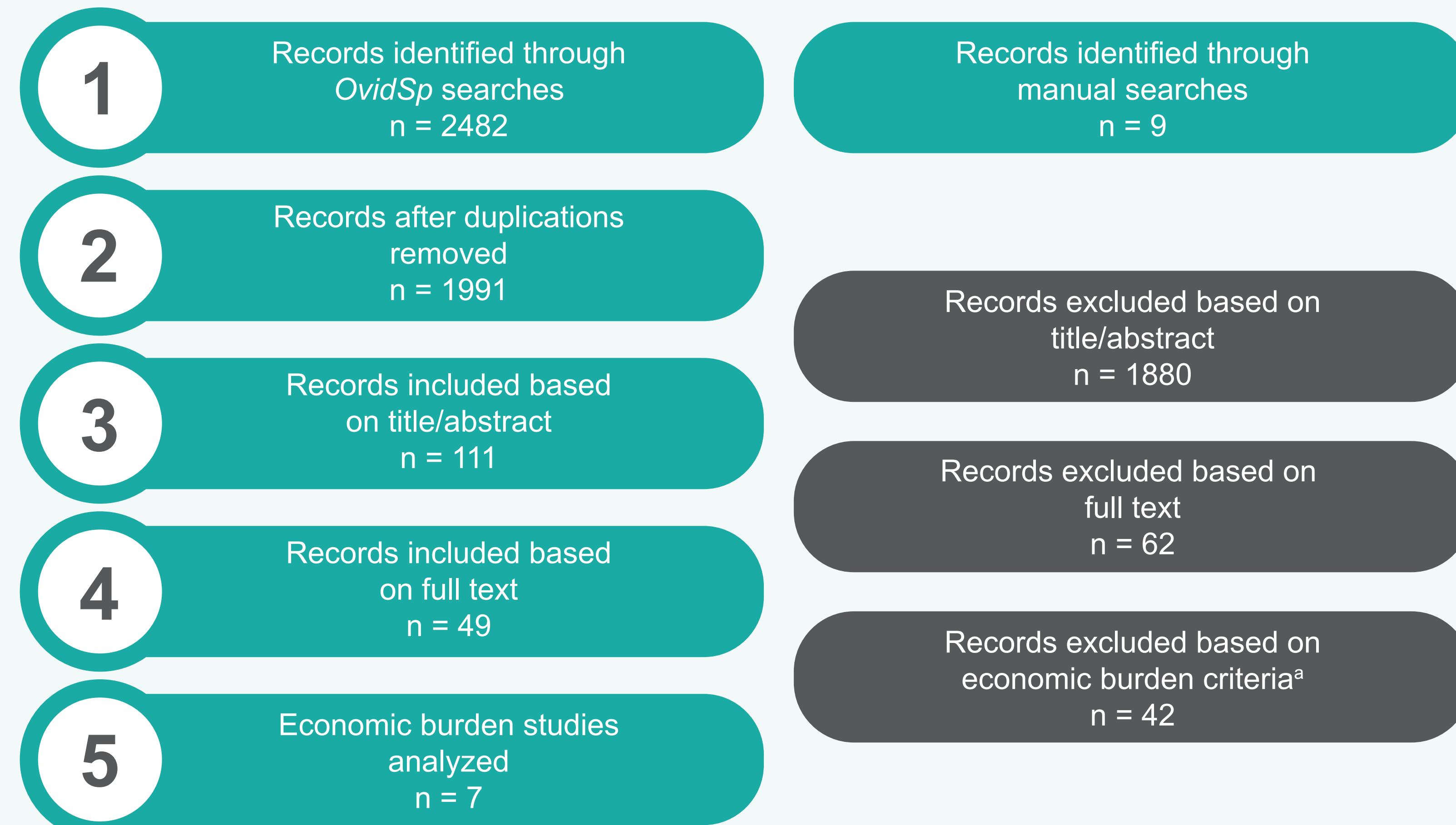
- To summarize the economic burden among patients with HR+/HER2– mBC who received ≥ 1 line of therapy in the metastatic setting

RESULTS

Study Selection

- Twelve economic burden studies were identified; of those, 7 with data on intervention and resource utilization were analyzed (**Figure 1**)
- Few studies described health care resource utilization of patients with HR+/HER2– mBC who received ET and additional systemic therapies in the metastatic setting

Figure 1. PRISMA Flow Chart



*Not economic burden studies (n = 37), economic burden studies excluded with no intervention or resource utilization (n = 5).

Direct Costs

- Greater direct medical costs (eg, hospitalization, and outpatient [OP] services) were incurred by patients receiving CT versus other therapies (eg, ET or targeted treatments) across all lines of therapy in HR+/HER2– mBC (**Table 2** and **Table 3**)
- Medical costs and inpatient (IP) costs were high across all studies, with a trend toward increasing IP costs across later lines of therapy

Health Care Resource Utilization

- The main drivers of resource use were OP care and adverse event (AE) management, which were higher with CT than other therapies (**Table 2** and **Table 3**)
- CT was also associated with lower productivity, but there were few studies that examined indirect costs

Limitations

- The SLR was subject to selection biases and study heterogeneity. Study periods differed so costs may not be comparable. There was limited literature outside the US

REFERENCES

- International Agency for Research on Cancer. World Health Organization. 20-Breast-fact-sheet.pdf. (iarc.fr). April 2023.
- National Cancer Institute. Surveillance, Epidemiology, and End Results Program. Female Breast Cancer Subtypes — Cancer Stat Facts. April 2023.
- Cardoso F, et al. *Ann Oncol*. 2020;31(12):1623-1649.
- Matutino A, et al. *Curr Oncol*. 2018;25(suppl 1):S131-S141.
- Yuan P, et al. *Eur J Cancer*. 2019;112:57-65.
- Twelves C, et al. *Breast Cancer (Auckl)*. 2016;10:77-84.
- Cortes J, et al. *Lancet*. 2011;377(9769):914-923.

- De Laurentis M, et al. *Ann Oncol*. 2018;29(suppl 8):viii109.
- Wood R, et al. *J Clin Oncol*. 2016;34(suppl 15):554.
- Wood R, et al. *Clin Ther*. 2017;39(8):1719-1728.
- Mertz S, et al. *Breast*. 2022;65:84-90.
- Higgins JPT, et al. *Cochrane Handbook for Systematic Reviews of Interventions* | Cochrane Training. April 2023.
- Liberati A, et al. *BMJ*. 2009;339:b2700.
- National Institute for Health and Care Excellence. <https://www.nice.org.uk/process/pmg10/chapter/appendix-f-methodology-checklist-economic-evaluations>. April 2023.

- Gauthier G, et al. *Adv Ther*. 2018;35(4):503-514.
- Hao Y, et al. *Adv Ther*. 2016;33(6):983-997.
- Li N, et al. *J Med Econ*. 2016;19(4):414-423.
- Lambry-Obry V, et al. *Curr Oncol*. 2018;25(4):e282-e290.
- Princic N, et al. *J Clin Oncol*. 2018;36(suppl 15):1067.
- Jerusalem G, et al. *BMC Cancer*. 2015;15(787):1-12.
- Giuliani J, et al. *J Oncol Pharm Pract*. 2020;26(6):1486-1491.

METHODS

- An SLR was performed in accordance with PRISMA and Cochrane guidance^{12,13}
- Embase®, MEDLINE®, the Cochrane library, and health technology assessment databases were searched for records using *OvidSp*; relevant congresses were manually searched
- The inclusion criteria are summarized in **Table 1**
- Records were screened and data extracted by 2 independent reviewers
- Quality assessment was conducted using the National Institute for Health and Care Excellence (NICE) checklist for economic evaluations¹⁴

Table 1. Inclusion Criteria

Population	Adults (≥ 18 years) with HR+/HER2– mBC who received ≥ 1 prior line of therapy in the metastatic setting
Interventions	Any
Comparators	Any
Outcomes	Direct or indirect treatment costs or resource use
Studies	Real-world or observational studies
Other	English, any geography Search dates: January 01, 2012 to February 25, 2022 and April 01, 2022 (congresses only)

Table 2. Key Total Direct Costs and HRU Associated With HR+/HER2– mBC Treatment in North America Studies¹⁵⁻¹⁹

North America studies	LoT	Treatment groups (number of patients)	Total direct costs, mean PPPM (US\$)	Medical costs, mean PPPM (US\$)	IP costs, mean PPPM (US\$)	OP costs, mean PPPM (US\$)	OP HRU, mean days/visits PPPM	Mean AE-related HRU (eg, services, visits, admissions) PPPM or sick leave (%)
Gauthier, 2018	1L	ET (1101) vs CT (2036)	6521 vs 16,842	6304 vs 16,003 ^b	1101 vs 1199	4590 vs 3477	3.8 vs 6.0 ^c	---
Hao, 2016	1L	EVT (19) vs CT (195)	---	4483 vs 7259 ^b	2380 vs 2719	1622 vs 4168	3.875 vs 5.659	1.239 vs 1.683 (AEs)
Li, 2016	1L	EVT (66) vs CT (553)	---	5191 vs 8889 ^b	1814 vs 3700	3058 vs 4757	3.442 vs 5.500	0.760 vs 1.635 (AEs)
Lambert-Obry, 2018	1L	PF (67) vs PD (17)	983 vs 802 ^a	---	550 vs 431 ^a	---	---	31% vs 33% (sick leave)
Gauthier, 2018	2L	ET (660) vs CT (1467)	4440 vs 12,868	4261 vs 12,316 ^b	668 vs 1321	2870 vs 4205	3.3 vs 6.1 ^c	---
Hao, 2016	2L	EVT (59) vs CT (234)	---	4209 vs 6035 ^b	2038 vs 2824	2032 vs 2949	3.094 vs 4.733	0.826 vs 1.476 (AEs)
Li, 2016	2L	EVT (261) vs CT (823)	---	5023 vs 8885 ^b	1746 vs 4335	3066 vs 4200	3.389 vs 4.764	0.871 vs 1.487 (AEs)
Princic, 2018	2L	EVT (70) vs ET (186) vs CT (193)	---	5043 vs 6767 vs 11,505	---	---	---	---
Lambert-Obry, 2018	2L+	PF (89) vs PD (29)	352 vs 531 ^a	---	64 vs 243 ^a	---	---	10% vs 40% (sick leave)
Gauthier, 2018	3L	ET (914) vs CT (260)	4555 vs 16,129	4400 vs 15,189 ^b	795 vs 3219	3238 vs 5453	3.4 vs 5.5 ^c	---
Hao, 2016	3L	EVT (82) vs CT (269)	---	3077 vs 10,268 ^b	1187 vs 7041	1764 vs 2844	3.295 vs 4.691	0.880 vs 1.728 (AEs)
Li, 2016	3L	EVT (331) vs CT (1004)	---	6158 vs 8493 ^b	2833 vs 4156	3010 vs 3977	3.298 vs 4.497	0.782 vs 1.449 (AEs)
Hao, 2016	4L	EVT (80) vs CT (241)	---	2954 vs 6731 ^b	1214 vs 3261	1558 vs 3085	3.199 vs 4.388	0.985 vs 1.658 (AEs)
Li, 2016	4L	EVT (282) vs CT (1030)	---	4790 vs 8770 ^b	1580 vs 3907	2828 vs 4375	3.207 vs 4.715	0.890 vs 1.556 (AEs)

Table 3. Key Total Direct Costs and HRU Associated With HR+/HER2– mBC Treatment in EU Studies^{20,21}

EU studies	LoT	Treatment groups (number of patients)	Total direct costs, mean PPPM (€)	Treatment costs, mean PPPM (€)	Other key HRU
Jerusalem, 2015 ^d	1L	ET±TT (218) vs CT±ET±TT (111)	447 vs 2983	231 vs 2424	19% vs 41% (sick leave) ^a
Jerusalem, 2015 ^d	2L	CT±ET±TT (218)	2338	1894	41% (sick leave) ^a
Giuliani, 2020	2L	F/P (347) vs F/R (484) vs F/A (446)	---	4570 vs 2070 vs 3346 ^f	4570 vs 2069 vs 3346 (cost [€] difference between P/R/A per month for PFS gained)

Footnotes for tables:

- ^aReported as Can\$ over a 3-month period for totals: 2949, 2405 (1L), 1057, 1592 (2L+), and hospitalizations: 1650, 1292 (1L), 192, 729 (2L+).
^bCosts for IP, OP, emergency room, and other medical service costs.
^cReported over a 6-month period: 22.9, 35.9 (1L), 19.5, 36.3 (2L), 20.1, 32.9 (3L).
^dBelgium, France, Germany, the Netherlands, Sweden.
^eBased on 1L ET (n = 109) or CT (n = 70) or 2L CT (n = 109).
^fBased on annual costs for P/R/A of €54,840, €24,840, €40,152.

1L, first-line; 2L, second-line; 2L+, second-line or later; 3L, third-line; 4L, fourth-line; AE, adverse event; CT, chemotherapy; ET, endocrine therapy; EVT, everolimus therapy; F/A, F/P, F/R, fulvestrant plus abemaciclib, palbociclib or ribociclib; HRU, health care resource utilization; IP, inpatient; LoT, line of therapy; OP, outpatient; PD, progressive disease; PF, progression-free; PFS, progression-free survival; PPPM, per patient per month; TT, targeted therapy.

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DISCLOSURES

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