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**Article:**

Dai, Wei Fang, Beca, Jaclyn M, Nagamuthu, Chenthila et al. (5 more authors) (2022) Cost-effectiveness Analysis of Pertuzumab With Trastuzumab in Patients With Metastatic Breast Cancer. *JAMA Oncology*. pp. 597-606. ISSN 2374-2445

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## Supplemental Online Content

Dai WF, Beca JM, Nagamuthu C, et al. Cost-effectiveness Analysis of Pertuzumab With Trastuzumab in Patients With Metastatic Breast Cancer. *JAMA Oncol*. Published online February 24, 2022. doi:10.1001/jamaoncol.2021.8049

**eFigure 1.** Cohort Creation and Study Design

**eMethods.** Detailed Methods

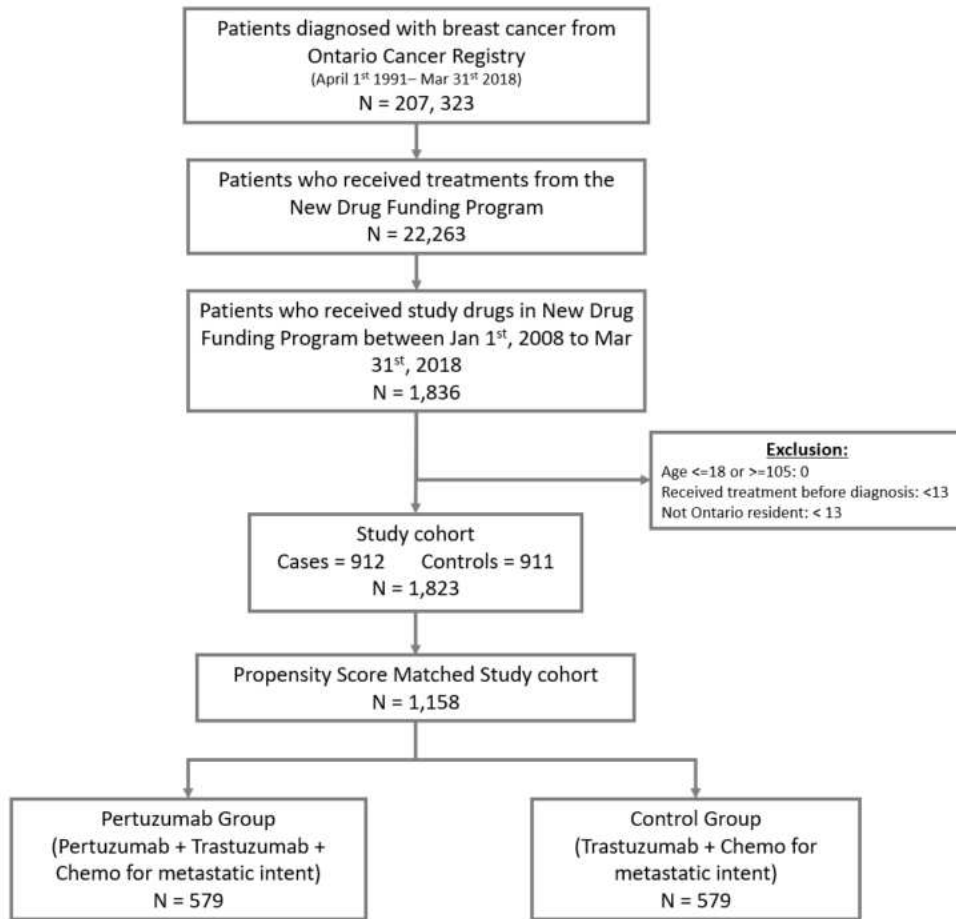
**eReferences**

**eFigure 2.** Incremental Net Benefit

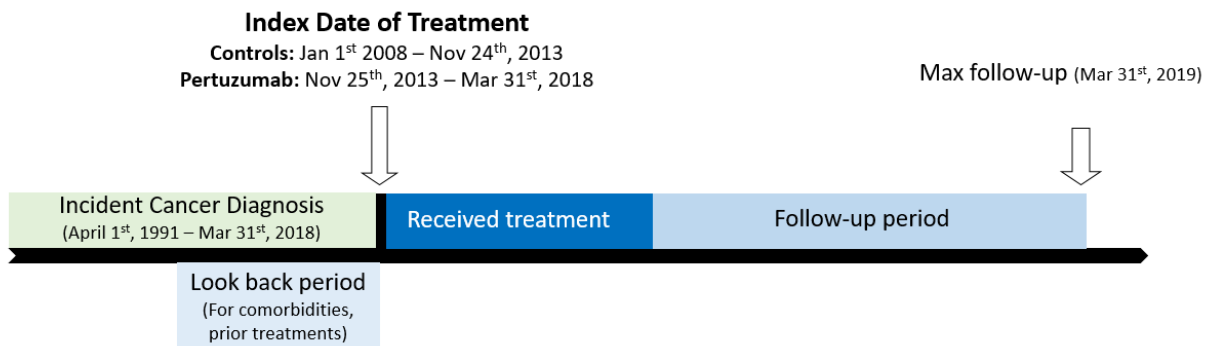
This supplemental material has been provided by the authors to give readers additional information about their work.

**eFigure1: Cohort Creation and Study Design**

**A: Cohort Creation**



**B: Study Design**



## eMethods: Detailed Methods

Age at diagnosis and sex were obtained from RPDB (Registered Persons Database), a population-based registry in Ontario. Neighborhood income quintiles, health region (Local Health Integrated Network, LHIN), and rurality status were determined based on postal codes from the Postal Code Conversion File and 2016 Census Statistics Canada data<sup>1,2</sup>. Baseline comorbidities were characterized by Charlson-Deyo comorbidity index, which was estimated using hospitalization records from Canadian Institute of Health Information Discharge Abstract Database (CIHI-DAD) and Canadian Institute of Health Information National Ambulatory Care Reporting System (CIHI-NACRS)<sup>3</sup>. The calculated Charlson-Deyo comorbidity index excluded cancer diagnoses and the look back window was 2 years from the index treatment. The Ontario Cancer Registry was used to identify stage at initial breast cancer diagnosis, any cancer diagnoses prior to primary breast cancer diagnosis, estrogen receptor (ER) status, and progesterone (PR) receptor status. Treatments received prior to index date were identified from the Ontario Drug Benefit (ODB) claims database and the New Drug Funding Program (NDFP) database. The prior treatments identified includes prior hormonal therapies, prior bisphosphonates, prior adjuvant trastuzumab, prior adjuvant treatments (other than trastuzumab), and prior neoadjuvant chemotherapies. Prior adjuvant radiation records were identified from Ontario Health Insurance Plan (OHIP) claims database and the Activity Level Reporting (ALR) database. Surgical resection for breast cancer prior to index treatment was identified from DAD.

Costs associated with outpatient visits included outpatient physician visits and laboratory tests and were estimated using the OHIP. Costs associated with ambulatory hospital care visits were estimated from NACRS and included emergency department visits, same-day surgery, hospital outpatient clinics, dialysis clinics and cancer clinics visits. Acute inpatient hospitalizations were estimated from DAD. Costs for ambulatory hospital care visits and acute inpatient hospitalizations were estimated using the resource intensity weight methodology developed by CIHI<sup>4</sup>. Costs for chronic and rehabilitation care included home care, continuing care, and long-term care; these costs were estimated from the Ontario Home Care Database and the Continuing Care Reporting System. Drug costs were obtained from ODB database and the NDFP database.

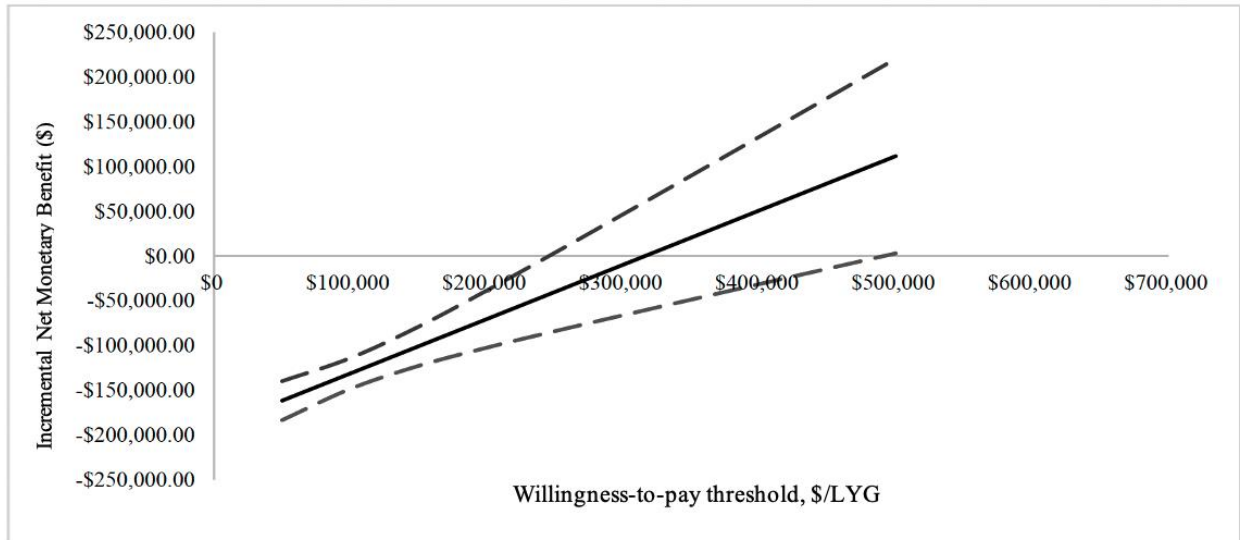
The variables included in the propensity score calculation included: age at index date (continuous), sex, LHIN (categorical), neighborhood income quintile (categorical), rurality (binary), Charlson's score (categorical), years between cancer diagnosis and index date of treatment (continuous), cancer stage (categorical), prior hormonal therapy, prior bisphosphonate treatment, prior adjuvant trastuzumab, prior adjuvant treatment other than trastuzumab, prior neoadjuvant treatment, prior radiation, prior breast cancer, prior non-breast cancer, ER status (categorical), and PR status (categorical).

## eReferences:

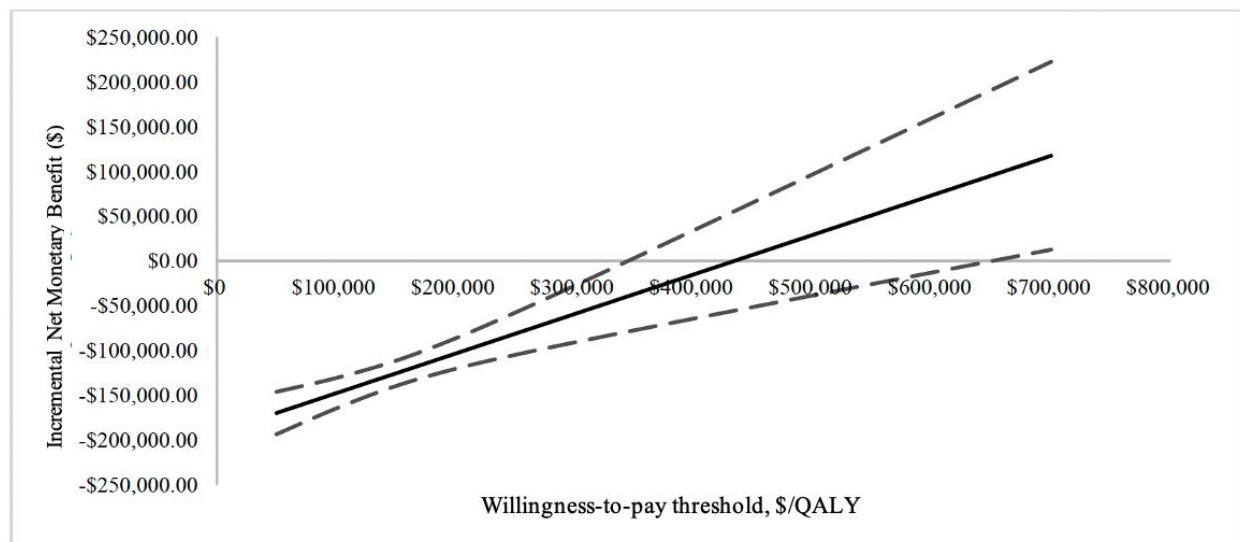
1. Statistics Canada. *Postal Code Conversion File (PCCF), Reference Guide, 2016.*; 2017.
2. Statistics Canada. *2016 Census of Population.*; 2018.
3. Quan H, Sundararajan V, Halfon P, et al. Coding algorithms for defining comorbidities in ICD-9-CM and ICD-10 administrative data. *Med Care*. 2005. doi:10.1097/01.mlr.0000182534.19832.83
4. Canadian Institute for Health Information. Resource Intensity Weights. Summary of Methodology. *Ottawa: The Institute.*; 1995;1995: 1-.

**eFigure 2: Incremental net benefit**

**Incremental net benefit for LYG**



**Incremental net benefit for QALY**



**Legend:** LYG = Life-years gained; QALY = quality-adjusted life-years;