Medicare Part B Drug Cost Burden of Pembrolizumab Based Triple Negative and Dual HER2 Triple Positive Regimens for Early Breast Cancer at 2025 Q3 Payment Rates

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Background

Modern systemic therapy for early breast cancer is biologic-rich and extremely expensive for U.S. patients on **Medicare Part B**.

Two dominant standards in early disease:

- **Triple-negative (TNBC):** immunotherapy-containing regimen (pembrolizumab-based).
- **Triple-positive (HR+/HER2+):** dual HER2 blockade (trastuzumab + pertuzumab) with chemotherapy.

Up-to-date, regimen-specific estimates of **absolute Medicare spending** and **patient coinsurance** are limited, especially by body size and 340B pricing.

Introduction

- Drug acquisition cost and coinsurance under Medicare Part B can be major barriers to optimal early breast cancer care.
- Fixed-dose vs weight-based dosing strategies may create **different financial burdens** across regimens and body sizes.
- Understanding how 1-year treatment costs behave across typical body weights and under 340B pricing is essential for patients, clinicians, payers, and policymakers.

Methods

- Pricing & dosing: Drug unit prices from Medicare Part B ASP files, 2025 Q3. Regimen doses from NCCN Breast Cancer Guidelines v4.2025 (TNBC pembrolizumab regimen; dual HER2 trastuzumab + pertuzumab regimen).
- Reference patient: Woman 70 kg, BSA 1.82 m^2.
- Cost calculations: Converted guideline doses to mg per administration, multiplied by 1-year cycle count. Divided by HCPCS billing unit size, rounded up to the next whole unit. Multiplied by ASP + 6% to estimate Medicare payment.
- Patient liability: Assumed 20% coinsurance on the Part B allowed charge.
- Sensitivity analyses: Repeated all calculations for 60 kg and 90 kg. Repeated with a 40% 340B discount, applied proportionally to total costs.

Regimen	Body weight	Medicare 1-year drug spending (USD)	Beneficiary 1-year coinsurance (USD, 20%)	Key cost drivers / notes
TNBC immunotherapy (pembrolizumab-based)	70 kg	212,008	42,402	Pembrolizumab accounts for >90% of total regimen cost; fixed dose
Triple-positive dual HER2 (trastuzumab + pertuzumab)	60 kg	196,539	39,308	Trastuzumab + pertuzumab together >80% of cost; weight-based
Triple-positive dual HER2 (trastuzumab + pertuzumab)	70 kg	205,484	41,097	Representative "average" patient
Triple-positive dual HER2 (trastuzumab + pertuzumab)	90 kg	223,302	44,660	+13.6% higher Medicare spending vs 60 kg due to higher doses

Table 1 : Medicare Part B 1-year drug spending and coinsurance for pembrolizumab-based triple-negative and dual HER2 triple-positive early breast cancer regimens at 2025 Q3 payment rates

Results

- **Base case (70 kg, no 340B):**
  1-year Medicare spending: **212,008 USD** (TNBC immunotherapy) vs **205,484 USD** (dual HER2).

  Patient coinsurance: **42,402 USD** vs **41,097 USD**, respectively.

  Pembrolizumab contributed **>90%** of TNBC regimen cost; **trastuzumab + pertuzumab** contributed **>80%** of dual HER2 cost.
- **Effect of body size:**
  TNBC immunotherapy (fixed-dose pembrolizumab): changing weight **60 → 90 kg** altered annual cost by **<0.2%** (nearly weight-independent).

  Dual HER2 (weight-based antibodies): Medicare spending rose from **196,539 USD (60 kg)** to **223,302 USD (90 kg)** (**+13.6%**); coinsurance increased from **39,308 USD** to **44,660 USD**.
- **Effect of 340B pricing:** A **40% 340B discount** reduced Medicare spending and coinsurance **proportionally** for both regimens, **without changing** rank order or body-size patterns.

Discussion

- At **2025 Q3** prices, pembrolizumab-based TNBC and dual HER2 regimens both generate **very high 1-year Medicare Part B drug spending (~200,000 USD per patient)**.
- **Fixed-dose pembrolizumab** makes TNBC regimen costs largely **independent of body size**, concentrating expense in a single, non–weight-based agent.
- **Weight-based trastuzumab and pertuzumab** make triple-positive regimen costs **strongly size dependent**; even with a **40% 340B discount**, overall costs remain high and the body-size cost gradient persists.

Conclusion

- At **2025 Q3** prices, Medicare spends **≈200,000 USD** per patient for 1 year of either regimen, and patients owe **≈42,000 USD** in coinsurance.
- **Fixed-dose pembrolizumab** makes TNBC costs **largely weight-independent**, whereas **weight-based trastuzumab and pertuzumab** make dual HER2 costs **strongly weight-dependent**, highlighting a substantial and size-sensitive financial burden.

References

1.Schmid P, COrtes J, Dent R, et al. Pembrolizumab for early triple-negative breaast cancer. NEJM. 2020;382(9):810-821. doi:10.1056/NEJMoa1910549
2.Von Minckwitz G, Procter M, de Azzambuja E, et al
3.Tao L, Chu L, Wang LI, et al. Occurrence and outcome of de novo metastatic breast cancer by subtype in a large, diverse population. *Cancer Causes Control*. 2016;27(9):1127-1138. doi:10.1007/s10552-016-0791-9.
4.National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®): Breast Cancer. Version 4.2025. National Comprehensive Cancer Network; 2025.
5.Centers for Medicare & Medicaid Services. Medicare Part B Drug Average Sales Price. Centers for Medicare & Medicaid Services website.

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