

To estimate the **Potential Peak Sales** for **enfortumab vedotin-ejfv (Padcev)** in combination with **pembrolizumab (Keytruda)** for the indication of locally advanced or metastatic urothelial cancer (la/mUC) in the US, EU5 (Germany, France, Italy, Spain, UK), China, and Japan, as well as the **\$ value of a 1% share of treated patients** in these geographies, we need to follow a structured approach based on available data, assumptions, and market analysis. Since exact patient numbers, pricing, and penetration rates are not publicly available in full detail, I will outline the methodology and provide reasonable estimates based on industry standards, epidemiology data, and reported figures for similar drugs.

## **Step 1: Key Assumptions**

1. **Indication and Approval:** The combination therapy is approved for la/mUC, including patients ineligible for cisplatin-containing chemotherapy (and potentially broader use based on the full approval context).
2. **Market Share:** The problem assumes a 20% to 30% share of treated patients for this combination therapy.
3. **Patient Population:** Estimate the eligible patient population for la/mUC in each geography.
4. **Pricing:** Estimate the annual cost of therapy per patient, which varies by region due to differences in healthcare systems and pricing negotiations.
5. **Peak Sales:** Peak sales are typically achieved 5-7 years after launch when market penetration stabilizes.
6. **Geographies:** US, EU5 (aggregate), China, and Japan.

## **Step 2: Epidemiology of la/mUC**

Urothelial cancer (mostly bladder cancer) is the primary indication. The incidence and prevalence of la/mUC can be approximated as follows (based on published literature and cancer statistics):

- **US:** ~81,000 new bladder cancer cases annually (American Cancer Society). Approximately 30-40% are advanced or metastatic at diagnosis or progress to la/mUC, leading to ~24,000-32,000 eligible patients. Of these, ~50% may be ineligible for cisplatin (due to comorbidities), so ~12,000-16,000 initially, with broader approval potentially increasing the pool to ~20,000-25,000.
- **EU5:** Incidence is ~120,000 new cases annually (GlobalData/European Cancer Information System). With similar progression rates, ~36,000-48,000 la/mUC patients, of which ~18,000-24,000 may be cisplatin-ineligible initially, expanding to ~30,000-40,000 with broader approval.
- **China:** Incidence is ~80,000 new cases (Global Burden of Disease). Progression rates may be slightly lower due to underdiagnosis, so ~20,000-25,000 la/mUC patients, with ~10,000-12,500 cisplatin-ineligible, expanding to ~15,000-20,000.
- **Japan:** Incidence is ~22,000 new cases (Japanese Cancer Registry). Progression rates yield ~6,000-8,000 la/mUC patients, with ~3,000-4,000 cisplatin-ineligible, expanding to ~5,000-6,000.

### **Total Eligible Patients (Broader Approval):**

- US: ~25,000
- EU5: ~40,000
- China: ~20,000

- Japan: ~6,000
- **Total:** ~91,000 patients

### **Step 3: Pricing per Patient**

The annual cost of therapy varies by region due to drug pricing and healthcare systems:

- **Enfortumab vedotin (Padcev):** In the US, the annual cost is estimated at ~\$120,000-\$150,000 per patient (based on reported figures and analyst estimates).
- **Pembrolizumab (Keytruda):** In the US, the annual cost is ~\$100,000-\$120,000 per patient.
- **Combined Cost in US:** ~\$220,000-\$270,000 per patient annually.
- **EU5:** Pricing is typically 40-60% of US prices due to negotiations. Combined cost ~\$100,000-\$150,000 per patient.
- **China:** Pricing is significantly lower due to national reimbursement and generics competition. Combined cost ~\$50,000-\$70,000 per patient.
- **Japan:** Pricing is ~60-80% of US prices. Combined cost ~\$150,000-\$200,000 per patient.

#### **Average Annual Cost per Patient (Midpoint):**

- US: \$245,000
- EU5: \$125,000
- China: \$60,000
- Japan: \$175,000

### **Step 4: Market Share and Treated Patients**

Assuming a 20% to 30% share of treated patients:

- **US:** 25,000 patients × 20-30% = 5,000-7,500 treated patients.
- **EU5:** 40,000 patients × 20-30% = 8,000-12,000 treated patients.
- **China:** 20,000 patients × 20-30% = 4,000-6,000 treated patients.
- **Japan:** 6,000 patients × 20-30% = 1,200-1,800 treated patients.
- **Total Treated Patients:** 18,200-27,300.

### **Step 5: Potential Peak Sales Calculation**

Peak sales = Number of treated patients × Annual cost per patient.

#### **At 20% Market Share:**

- US: 5,000 × \$245,000 = \$1.23 billion
- EU5: 8,000 × \$125,000 = \$1.00 billion

- China:  $4,000 \times \$60,000 = \$0.24$  billion
- Japan:  $1,200 \times \$175,000 = \$0.21$  billion
- **Total Peak Sales (20%):** \$2.68 billion

**At 30% Market Share:**

- US:  $7,500 \times \$245,000 = \$1.84$  billion
- EU5:  $12,000 \times \$125,000 = \$1.50$  billion
- China:  $6,000 \times \$60,000 = \$0.36$  billion
- Japan:  $1,800 \times \$175,000 = \$0.32$  billion
- **Total Peak Sales (30%):** \$4.02 billion

**Potential Peak Sales Range: \$2.68 billion to \$4.02 billion annually** across the specified geographies.

## **Step 6: \$ Value of 1% Share of Treated Patients**

1% share of treated patients corresponds to 1% of the total eligible patient pool being treated with this combination.

**Eligible Patients per 1% Share:**

- US:  $25,000 \times 1\% = 250$  patients
- EU5:  $40,000 \times 1\% = 400$  patients
- China:  $20,000 \times 1\% = 200$  patients
- Japan:  $6,000 \times 1\% = 60$  patients

**Revenue per 1% Share:**

- US:  $250 \times \$245,000 = \$61.25$  million
- EU5:  $400 \times \$125,000 = \$50.00$  million
- China:  $200 \times \$60,000 = \$12.00$  million
- Japan:  $60 \times \$175,000 = \$10.50$  million
- **Total \$ Value of 1% Share:** \$133.75 million

## **Final Answer**

1. **Potential Peak Sales** for enfortumab vedotin-ejfv in combination with pembrolizumab in la/mUC (at 20-30% market share):

- **US, EU5, China, Japan Combined: \$2.68 billion to \$4.02 billion annually**
- Breakdown:
- US: \$1.23B - \$1.84B

- EU5: \$1.00B - \$1.50B
- China: \$0.24B - \$0.36B
- Japan: \$0.21B - \$0.32B

**2. \$ Value of 1% Share of Treated Patients:**

- **US, EU5, China, Japan Combined: \$133.75 million**
- Breakdown:
- US: \$61.25M
- EU5: \$50.00M
- China: \$12.00M
- Japan: \$10.50M

**Note:** These estimates are based on assumptions and publicly available data. Actual figures may vary due to real-world pricing, market access, competition (e.g., other immunotherapies or ADCs), and patient uptake. For precise figures, primary market research or proprietary data from companies like Astellas or Merck would be required.