

To estimate the **Potential Peak Sales** for atezolizumab (Tecentriq) in the adjuvant treatment of stage II to IIIA non-small cell lung cancer (NSCLC) with PD-L1 expression $\geq 1\%$ 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. Since specific data on patient numbers, pricing, and market penetration may not be fully available, I will use reasonable assumptions based on publicly available data, epidemiology, and market trends. Below is a detailed step-by-step estimation:

Step 1: Define the Target Patient Population

- **Indication:** Adjuvant treatment for stage II to IIIA NSCLC patients with PD-L1 expression $\geq 1\%$ after resection and platinum-based chemotherapy.

- **Epidemiology of NSCLC:**

- NSCLC accounts for ~85% of all lung cancer cases.
- Stage II to IIIA NSCLC represents ~30-40% of NSCLC cases (resectable early-stage disease).
- PD-L1 expression $\geq 1\%$ is observed in ~50-60% of NSCLC patients (based on clinical trial data and real-world evidence).

- **Annual Incidence of NSCLC** (approximate numbers for 2023):

- US: ~200,000 new cases.
- EU5: ~250,000 new cases (combined across the 5 countries).
- China: ~800,000 new cases (largest lung cancer burden globally).
- Japan: ~120,000 new cases.

- **Eligible Population** (Stage II-IIIa, PD-L1 $\geq 1\%$, post-resection, and chemotherapy):

- Assuming 35% of NSCLC cases are Stage II-IIIa and 55% have PD-L1 $\geq 1\%$, and ~80% undergo resection and chemotherapy, the eligible population is roughly **10-15% of total NSCLC incidence**.

Estimated Eligible Patients per Year:

Region	NSCLC Incidence	Eligible %	Eligible Patients
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US	200,000	12%	24,000
EU5	250,000	12%	30,000
China	800,000	12%	96,000
Japan	120,000	12%	14,400
Total	1,370,000	-	164,400

Step 2: Market Share Assumption

- The problem states a **20-30% share of treated patients** for atezolizumab in this indication.
- Given competition from other immunotherapies (e.g., pembrolizumab, durvalumab) and standard of care, we will assume a **midpoint of 25% market share** for peak sales calculation.

Treated Patients with Atezolizumab:

Region	Eligible Patients	Market Share (25%)	Treated Patients
US	24,000	25%	6,000
EU5	30,000	25%	7,500
China	96,000	25%	24,000
Japan	14,400	25%	3,600
Total	164,400	-	41,100

Step 3: Treatment Cost and Duration

- Annual Cost of Atezolizumab:

- Atezolizumab is typically administered every 3 weeks for up to 1 year in the adjuvant setting (based on clinical trial protocols like IMpower010).

- US list price for atezolizumab is ~\$12,000 per dose (based on historical data for Tecentriq). For 17 cycles (1 year), this equates to ~\$204,000 per patient per year.

- Pricing in other regions is typically lower due to healthcare systems and negotiations:

- EU5: ~60-70% of US price (~\$130,000 per patient/year).

- Japan: ~70% of US price (~\$140,000 per patient/year).

- China: ~30-40% of US price (~\$70,000 per patient/year due to significant price reductions under national reimbursement schemes).

Annual Cost per Patient:

Region	Cost per Patient/Year
US	\$204,000
EU5	\$130,000
China	\$70,000
Japan	\$140,000

Step 4: Calculate Potential Peak Sales (at 25% Market Share)

Peak sales are calculated as: **Treated Patients × Annual Cost per Patient.**

Region	Treated Patients	Cost per Patient/Year	Peak Sales (USD Million)
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US	6,000	\$204,000	\$1,224
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EU5	7,500	\$130,000	\$975
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China	24,000	\$70,000	\$1,680
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Japan	3,600	\$140,000	\$504
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Total	41,100	-	\$4,383 Million
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Thus, the **Potential Peak Sales** for atezolizumab in this indication across the specified geographies is approximately **\$4.4 billion** at a 25% market share (midpoint of 20-30%).

- At 20% market share: ~\$3.5 billion.

- At 30% market share: ~\$5.3 billion.

Step 5: Calculate \$ Value of 1% Share of Treated Patients

A 1% share of treated patients corresponds to 1% of the eligible patient population being treated with atezolizumab.

1% Share of Treated Patients:

Region	Eligible Patients	1% of Eligible Patients	Cost per Patient/Year	Value of 1% Share (USD Million)
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US	24,000	240	\$204,000	\$49.0
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EU5	30,000	300	\$130,000	\$39.0
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China	96,000	960	\$70,000	\$67.2
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Japan	14,400	144	\$140,000	\$20.2
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Total	164,400	1,644	-	\$175.4 Million
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Thus, the **\$ value of a 1% share of treated patients** across these geographies is approximately **\$175 million**.

Final Answer:

1. **Potential Peak Sales for Atezolizumab** (at 20-30% market share):

- At 25% market share: **\$4.4 billion** (range: \$3.5 billion to \$5.3 billion).
- Breakdown by region:
- US: \$1,224 million
- EU5: \$975 million
- China: \$1,680 million
- Japan: \$504 million

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

- Total: **\$175 million**
- Breakdown by region:
- US: \$49.0 million
- EU5: \$39.0 million
- China: \$67.2 million
- Japan: \$20.2 million

Notes and Assumptions:

- These calculations are based on approximate epidemiology data, pricing, and treatment duration. Real-world data may vary due to differences in healthcare access, reimbursement, and competition.
- Peak sales assume steady-state market penetration, which may take several years post-launch to achieve.
- Pricing in China is assumed to be significantly lower due to volume-based procurement and national drug price negotiations.
- The adjuvant setting typically involves a finite treatment duration (1 year), so sales are tied to annual incident cases rather than prevalent cases.