To estimate the **Potential Peak Sales** for abemaciclib (Verzenio) in the adjuvant treatment of HR-positive, HER2-negative, node-positive, early breast cancer at high risk of recurrence 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 exact data on patient numbers, pricing, and penetration rates may not be publicly available, I will outline the methodology and make reasonable assumptions based on available market data and trends. This will provide an illustrative estimate.

Step 1: Define the Target Patient Population

- **Indication**: Adjuvant treatment of HR-positive, HER2-negative, node-positive, early breast cancer at high risk of recurrence.

- **Epidemiology**:

- Breast cancer is the most common cancer globally, with HR-positive, HER2-negative subtype representing ~60-70% of cases.

- Early breast cancer (stages I-III) accounts for ~90% of diagnosed cases, and node-positive patients with high risk of recurrence are a subset of this group (estimated at ~20-30% of early breast cancer cases).

- Using breast cancer incidence data and refining it for this specific indication, we can estimate the eligible patient population.

Estimated Annual Incidence of Breast Cancer (2023, approximate figures):

- US: ~290,000 new cases

- EU5: ~260,000 new cases (combined)

- China: ~420,000 new cases

- Japan: ~95,000 new cases

Refining for Target Population (assumptions):

- HR-positive, HER2-negative: 65% of total cases.

- Early breast cancer: 90% of total cases.

- Node-positive, high risk of recurrence: 25% of early breast cancer cases.

- Therefore, target population = Total incidence × 0.65 × 0.9 × 0.25.

Calculated Target Population (Annual New Cases):

- US: 290,000 × 0.65 × 0.9 × 0.25 = ~42,400 patients

- EU5: 260,000 × 0.65 × 0.9 × 0.25 = ~38,000 patients

- China: 420,000 × 0.65 × 0.9 × 0.25 = ~61,400 patients

- Japan: 95,000 × 0.65 × 0.9 × 0.25 = ~13,900 patients

- **Total Target Population**: ~155,700 patients annually across these geographies.

Step 2: Estimate Treated Patient Share

- The problem assumes a **20% to 30% share of treated patients** for abemaciclib in this indication.

- This share accounts for market penetration, competition (e.g., other CDK4/6 inhibitors like palbociclib and ribociclib), physician adoption, and patient access.

- For peak sales calculation, we will use the midpoint of **25% share**.

Treated Patients with Abemaciclib (25% share):

- US: 42,400 × 0.25 = ~10,600 patients

- EU5: 38,000 × 0.25 = ~9,500 patients

- China: 61,400 × 0.25 = ~15,350 patients

- Japan: 13,900 × 0.25 = ~3,475 patients

- **Total Treated Patients**: ~38,925 patients annually.

Step 3: Estimate Annual Treatment Cost per Patient

- Abemaciclib is a premium-priced drug as a CDK4/6 inhibitor.

- **US Pricing**: ~$12,000–$15,000 per month (based on metastatic breast cancer pricing). For adjuvant therapy (typically 2 years), annual cost ~$144,000–$180,000. Assume $160,000 per year.

- **EU5 Pricing**: Typically 40-60% lower than US due to price controls. Assume ~$80,000 per year.

- **Japan Pricing**: Similar to EU5, assume ~$80,000 per year.

- **China Pricing**: Significantly lower due to market access negotiations and generics pressure. Assume ~$30,000 per year.

Note: Adjuvant therapy duration is often shorter (e.g., 2 years for abemaciclib per clinical trials like monarchE). For simplicity, we calculate annual cost and assume peak sales reflect annualized revenue at steady state (patients on therapy in a given year).

Step 4: Calculate Potential Peak Sales

Peak Sales = Treated Patients × Annual Cost per Patient

- **US**: 10,600 patients × $160,000 = ~$1.70 billion

- **EU5**: 9,500 patients × $80,000 = ~$0.76 billion

- **China**: 15,350 patients × $30,000 = ~$0.46 billion

- **Japan**: 3,475 patients × $80,000 = ~$0.28 billion

- **Total Peak Sales**: $1.70B + $0.76B + $0.46B + $0.28B = **~$3.20 billion annually**

Range for Peak Sales (based on 20-30% share):

- At 20% share: ~$2.56 billion

- At 30% share: ~$3.84 billion

Thus, **Potential Peak Sales** for abemaciclib in this indication across the specified geographies is approximately **$2.56B to $3.84B**, with a midpoint of **$3.20B**.

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

1% of Treated Patients = 1% of Total Target Population × Annual Cost per Patient

- **US**: 42,400 × 0.01 = 424 patients × $160,000 = ~$67.8 million

- **EU5**: 38,000 × 0.01 = 380 patients × $80,000 = ~$30.4 million

- **China**: 61,400 × 0.01 = 614 patients × $30,000 = ~$18.4 million

- **Japan**: 13,900 × 0.01 = 139 patients × $80,000 = ~$11.1 million

- **Total Value of 1% Share**: $67.8M + $30.4M + $18.4M + $11.1M = **~$127.7 million**

Thus, the **$ value of a 1% share of treated patients** across these geographies is approximately **$127.7 million**.

Summary of Results

1. **Potential Peak Sales for Abemaciclib** (20-30% share):

- US: $1.36B to $2.04B (midpoint $1.70B)

- EU5: $0.61B to $0.91B (midpoint $0.76B)

- China: $0.37B to $0.55B (midpoint $0.46B)

- Japan: $0.22B to $0.33B (midpoint $0.28B)

- **Total**: **$2.56B to $3.84B** (midpoint $3.20B)

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

- US: $67.8M

- EU5: $30.4M

- China: $18.4M

- Japan: $11.1M

- **Total**: **$127.7M**

Caveats and Assumptions

- **Epidemiology**: Patient population estimates are based on approximate incidence rates and subtype distributions. Real-world data may vary.

- **Pricing**: Costs are assumed based on public data for metastatic indications and adjusted for adjuvant use and regional pricing differences. Actual negotiated prices may differ.

- **Market Share**: The 20-30% range is as per the query, but competition and access barriers (e.g., reimbursement in China) may impact penetration.

- **Treatment Duration**: Peak sales assume annualized revenue; actual sales may depend on the number of patients completing the 2-year adjuvant therapy.

These estimates are illustrative and should be validated with primary market research or company-provided guidance for more precision. If you have additional data (e.g., exact pricing or patient numbers), I can refine the calculations further.