

To estimate the **Potential Peak Sales** for acalabrutinib (Calquence) in the indication of previously untreated mantle cell lymphoma (MCL) 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 such as exact patient numbers, pricing, and penetration rates may not be fully available, I will outline the methodology and use reasonable assumptions based on publicly available information and industry standards. You can adjust these assumptions with more precise data if available.

## **Step 1: Key Assumptions and Methodology**

1. **Indication and Patient Population:** Acalabrutinib is approved for previously untreated MCL patients ineligible for autologous HSCT. MCL is a rare type of non-Hodgkin lymphoma, and the patient population is a subset of the broader MCL population.
2. **Market Share:** We are assuming a 20% to 30% share of treated patients for acalabrutinib in this indication.
3. **Geographies:** US, EU5 (Germany, France, Italy, Spain, UK), China, and Japan.
4. **Pricing:** Drug pricing varies by region due to differences in healthcare systems and reimbursement policies. We will estimate pricing based on known costs for acalabrutinib or similar targeted therapies (e.g., BTK inhibitors like ibrutinib).
5. **Treatment Duration:** MCL patients often require long-term treatment. We assume an average treatment duration of 1-2 years for peak sales calculation.
6. **Peak Sales:** Peak sales are typically achieved 5-7 years after launch in a given indication, reflecting maximum market penetration.
7. **Epidemiology:** Estimate the number of eligible patients using incidence rates for MCL and the proportion ineligible for HSCT.

## **Step 2: Estimate Eligible Patient Population**

MCL accounts for approximately 6% of non-Hodgkin lymphomas. Below are rough estimates of incident cases of MCL and the subset ineligible for HSCT (often older patients or those with comorbidities, estimated at 50-60% of MCL patients).

- **US:** MCL incidence is ~0.8-1.0 per 100,000, with a population of ~330 million, leading to ~3,000 new cases annually. Assuming 60% are ineligible for HSCT, ~1,800 patients are eligible.
- **EU5:** Combined population of ~260 million, with a similar incidence rate, leading to ~2,500 new cases annually. Assuming 60% ineligible for HSCT, ~1,500 patients are eligible.
- **China:** Population of ~1.4 billion, but lower diagnosis rates and access to advanced therapies. Incidence may be ~0.5 per 100,000, leading to ~7,000 new cases annually. Assuming 60% ineligible for HSCT, ~4,200 patients are eligible, though access to expensive therapies is limited.
- **Japan:** Population of ~125 million, incidence of ~0.8 per 100,000, leading to ~1,000 new cases annually. Assuming 60% ineligible for HSCT, ~600 patients are eligible.

Total eligible patients annually:

- US: 1,800

- EU5: 1,500
- China: 4,200
- Japan: 600
- **Total: ~8,100 patients annually**

### **Step 3: Estimate Drug Pricing per Patient per Year**

Acalabrutinib's pricing varies by region:

- **US:** Annual cost of acalabrutinib is approximately \$180,000–\$200,000 per patient (based on list prices for BTK inhibitors like ibrutinib and acalabrutinib).
- **EU5:** Pricing is typically 40-60% of US prices due to negotiated discounts, so ~\$100,000 per patient annually.
- **China:** Pricing is lower due to market access challenges and generics competition, estimated at ~\$50,000 per patient annually.
- **Japan:** Pricing is similar to EU5, ~\$100,000 per patient annually.

### **Step 4: Calculate Potential Peak Sales with 20-30% Market Share**

Assuming acalabrutinib captures 20-30% of treated patients in this indication, and all eligible patients receive treatment (a simplifying assumption), we calculate peak sales as follows:

#### At 20% Market Share:

- **US:** 1,800 patients \* 20% = 360 patients \* \$180,000 = **\$64.8 million**
- **EU5:** 1,500 patients \* 20% = 300 patients \* \$100,000 = **\$30 million**
- **China:** 4,200 patients \* 20% = 840 patients \* \$50,000 = **\$42 million**
- **Japan:** 600 patients \* 20% = 120 patients \* \$100,000 = **\$12 million**
- **Total Peak Sales at 20%: \$148.8 million**

#### At 30% Market Share:

- **US:** 1,800 patients \* 30% = 540 patients \* \$180,000 = **\$97.2 million**
- **EU5:** 1,500 patients \* 30% = 450 patients \* \$100,000 = **\$45 million**
- **China:** 4,200 patients \* 30% = 1,260 patients \* \$50,000 = **\$63 million**
- **Japan:** 600 patients \* 30% = 180 patients \* \$100,000 = **\$18 million**
- **Total Peak Sales at 30%: \$223.2 million**

Thus, **Potential Peak Sales for acalabrutinib in this indication** across the specified geographies range from **\$148.8 million to \$223.2 million annually**, assuming 20-30% market share.

### **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 acalabrutinib.

- **US:** 1,800 patients \* 1% = 18 patients \* \$180,000 = **\$3.24 million**
- **EU5:** 1,500 patients \* 1% = 15 patients \* \$100,000 = **\$1.5 million**
- **China:** 4,200 patients \* 1% = 42 patients \* \$50,000 = **\$2.1 million**
- **Japan:** 600 patients \* 1% = 6 patients \* \$100,000 = **\$0.6 million**
- **Total \$ Value of 1% Share:** **\$7.44 million**

Thus, the **\$ value of a 1% share of treated patients** across the specified geographies is approximately **\$7.44 million annually**.

## **Step 6: Caveats and Adjustments**

- **Market Access:** In China, access to high-cost therapies like acalabrutinib may be limited, and government reimbursement or generics could reduce effective pricing or penetration.
- **Competition:** Acalabrutinib competes with other BTK inhibitors (e.g., ibrutinib, zanubrutinib) and emerging therapies, which could impact market share.
- **Treatment Duration:** If treatment duration is shorter or longer than assumed, sales estimates will change.
- **Diagnosis Rates:** Under-diagnosis in certain regions (e.g., China) may reduce the addressable patient pool.
- **Combination Therapy:** Since acalabrutinib is approved with bendamustine and rituximab, total treatment costs and patient eligibility may differ.

## **Final Answer:**

- **Potential Peak Sales for acalabrutinib** in previously untreated MCL (ineligible for HSCT) across the US, EU5, China, and Japan, assuming a 20-30% share of treated patients, range from **\$148.8 million to \$223.2 million annually**.

- **\$ Value of 1% share of treated patients** across these geographies is approximately **\$7.44 million annually**.

These estimates are based on assumptions and should be refined with more precise epidemiological data, pricing information, and market access dynamics specific to each region. If you have additional data or specific inputs, I can adjust the calculations accordingly.