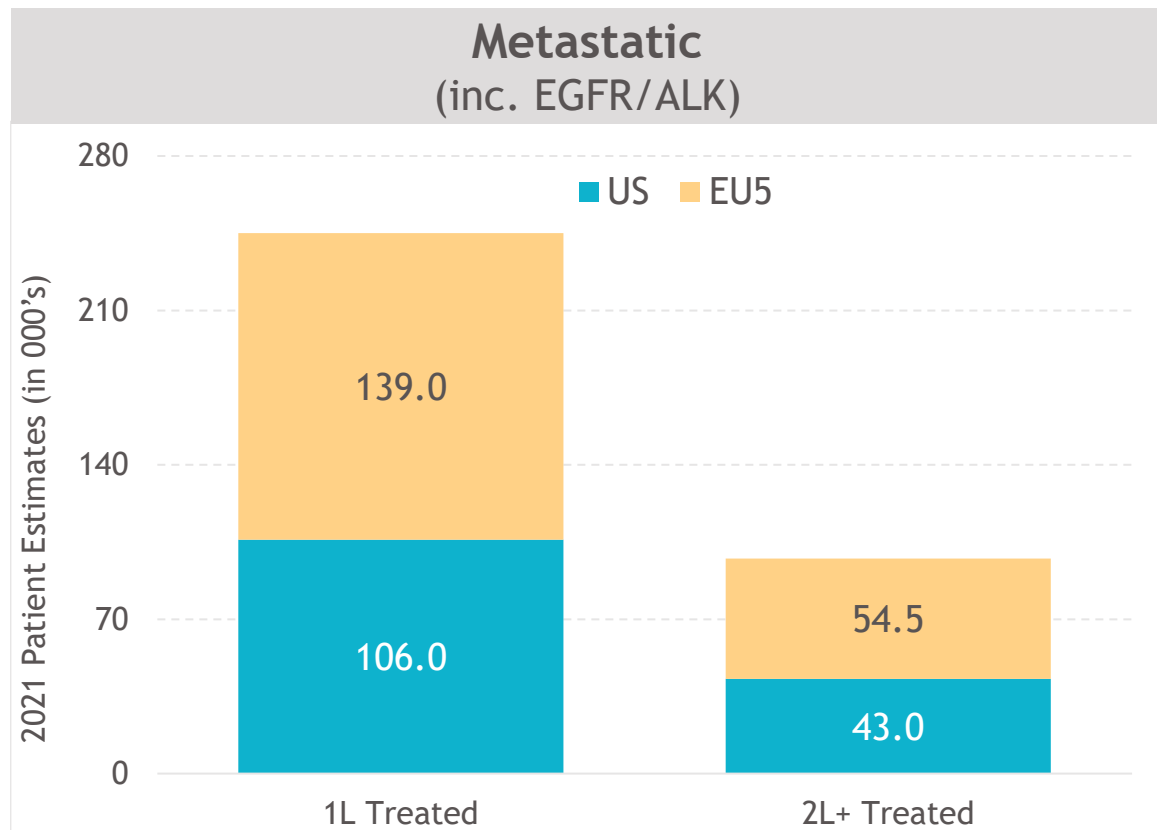


# Epi slides

November 16, 2021

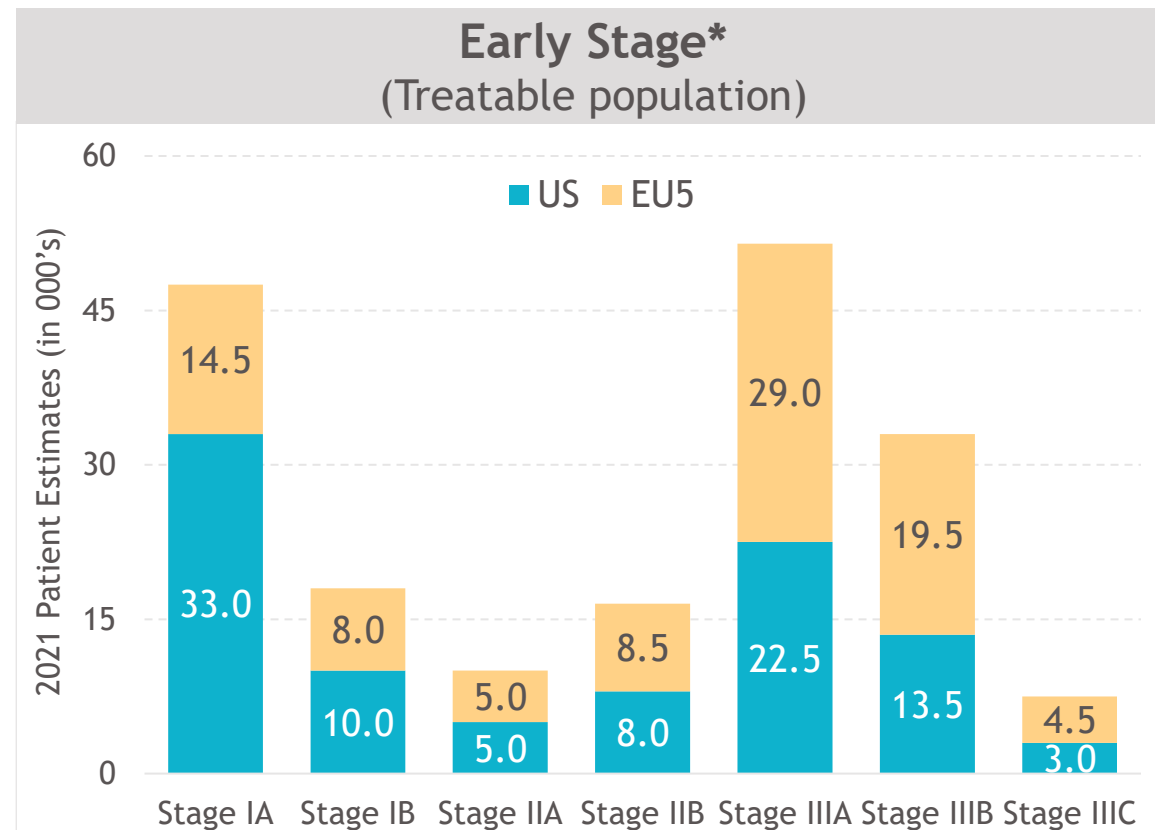
# Solid Tumor Oncology

# NSCLC



- **EGFR/ALK: 15-20%**

\*Figures only contain incident patients and do not include patients who recur  
Source: Decision Resources Group; BMS Internal Analysis; AJCC 8<sup>th</sup> Edition Staging



#### Treatment rates:

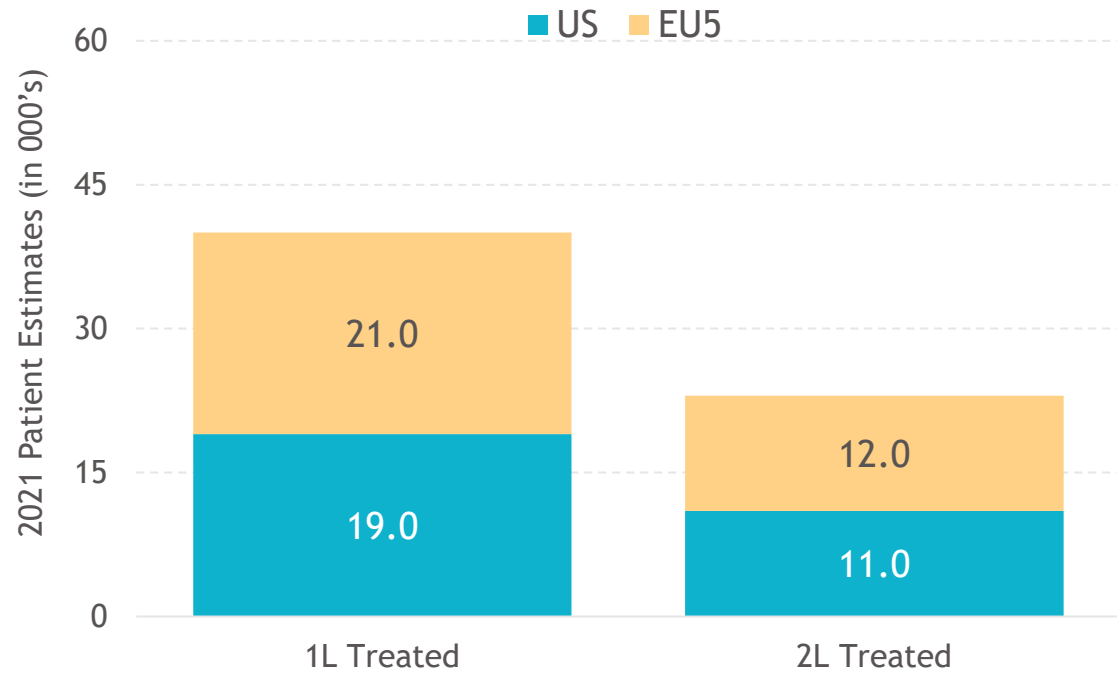
- Stage IB-II : 35% - 45%
- Stage III : 55% - 60%

#### Resection rates

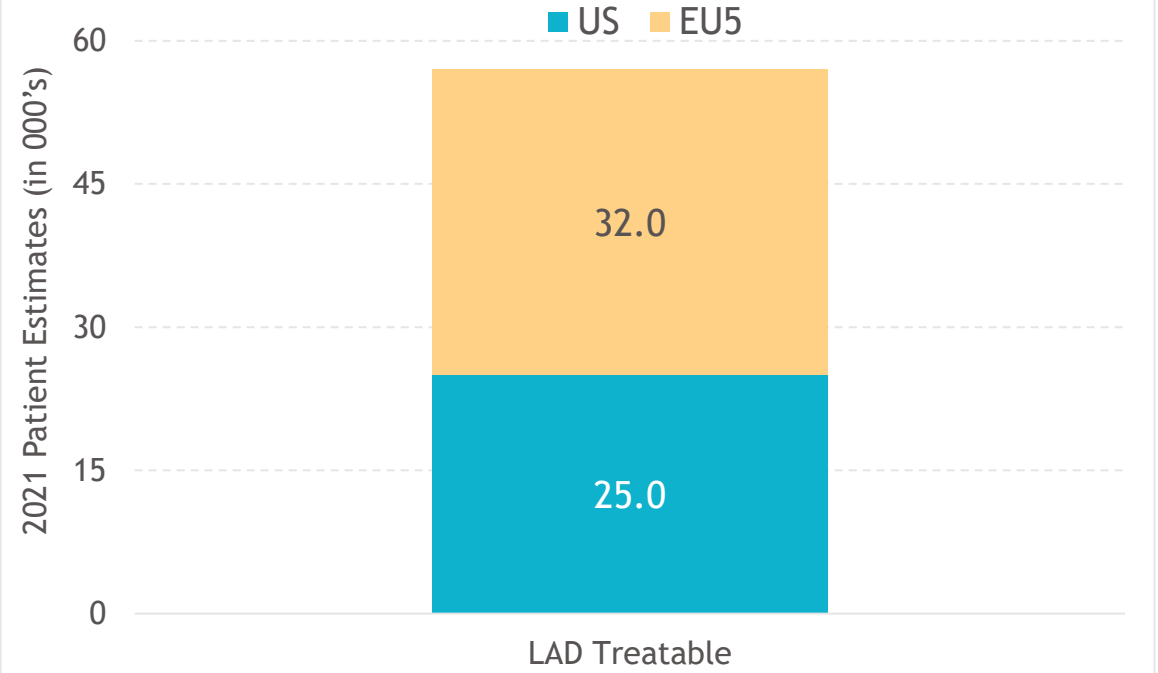
- Stage I-II resected: ~60%
- Stage IIIA resected: ~40%
- Stage IIIB resected: ~15%
- Stage IIIC resected: ~ 2%

# SCCHN

## Metastatic



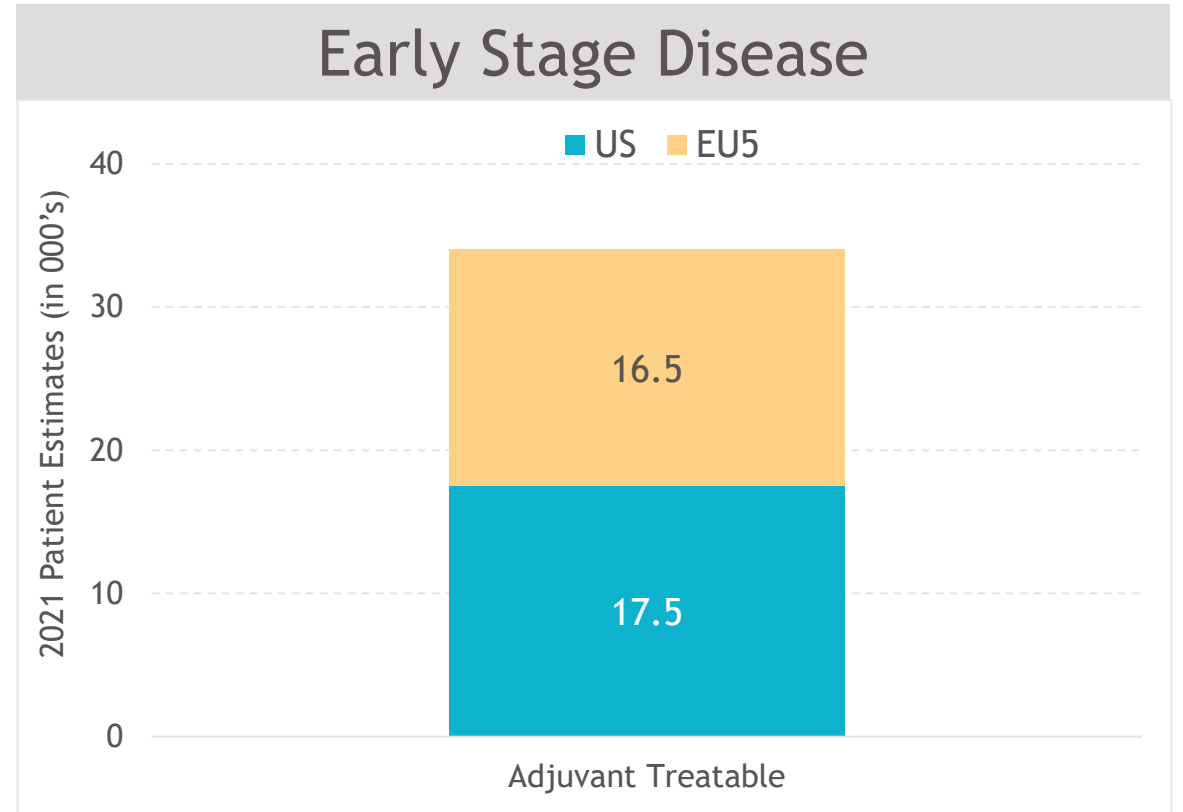
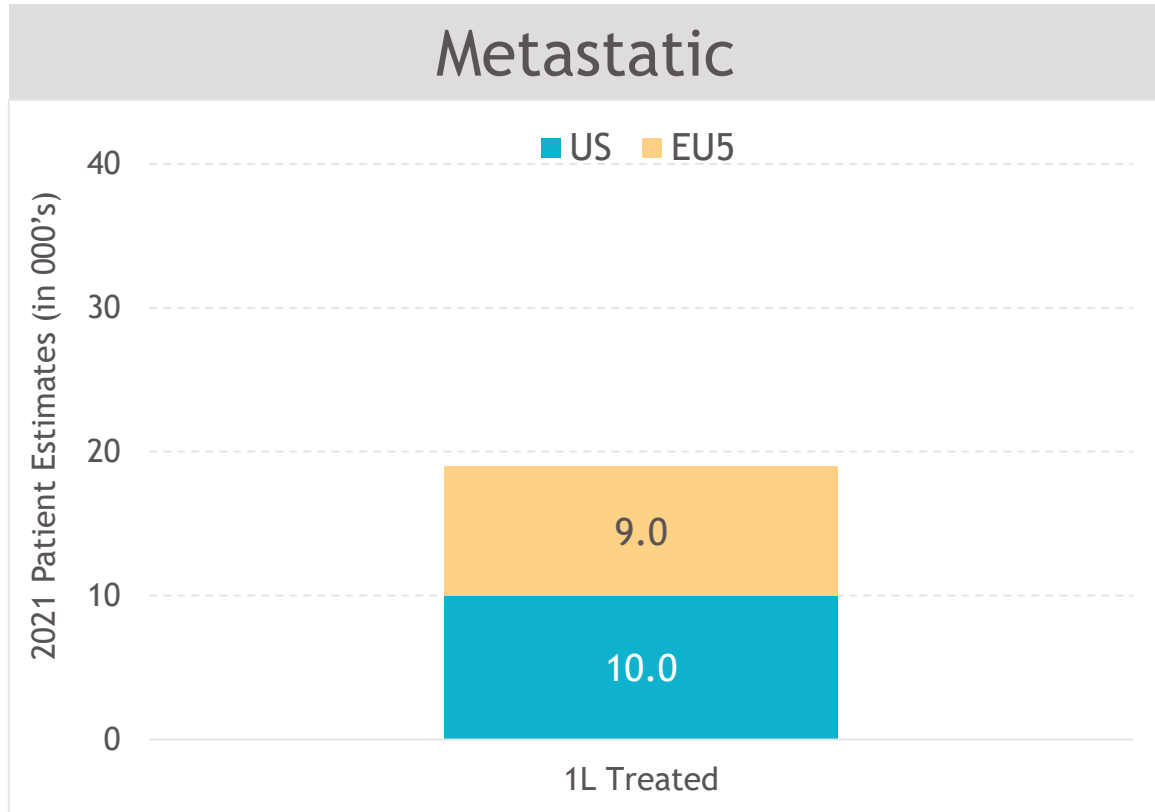
## Early Stage



- LAD txt rate: 60% - 85%

Source: Decision Resources Group

# Melanoma

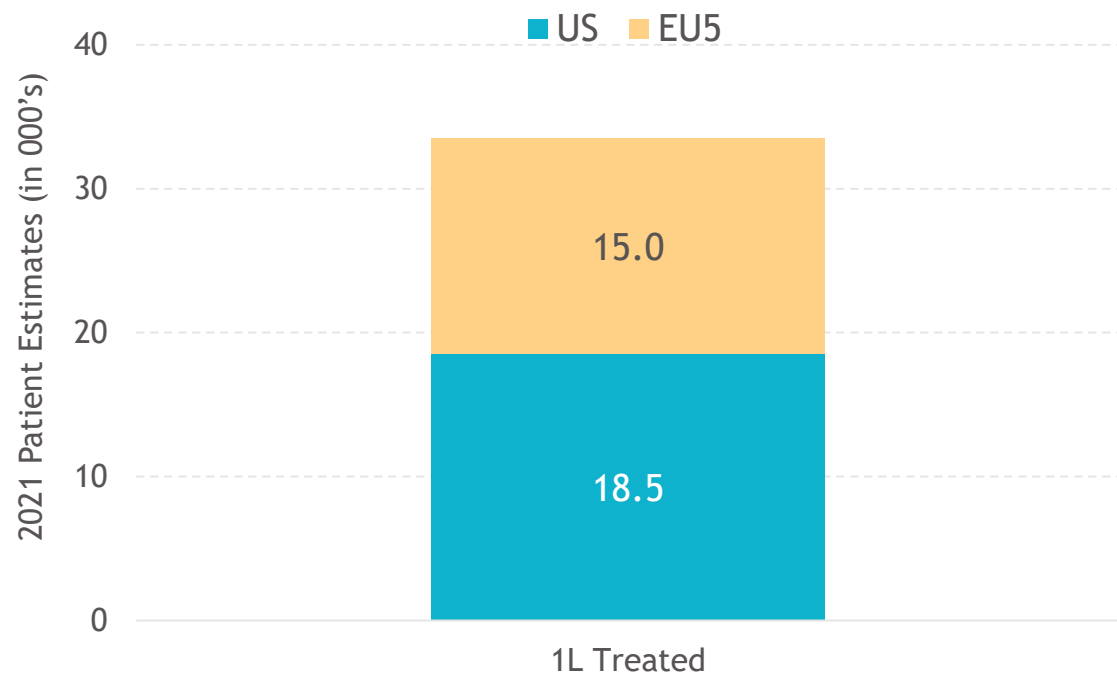


Early stage txt rate: 60 - 80%

Source: Decision Resources Group, BMS Internal Analysis

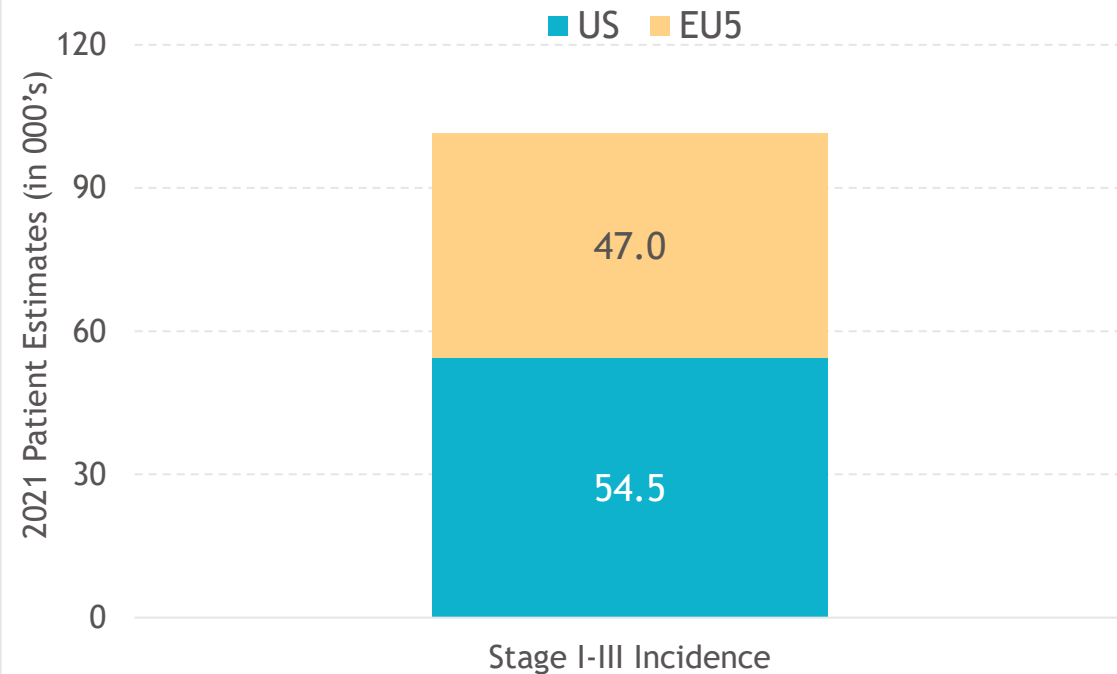
# RCC

## Metastatic



- Break out by IMDC risk category (metastatic):
  - Intermediate/Poor Risk: 75%
  - Favorable: 25%

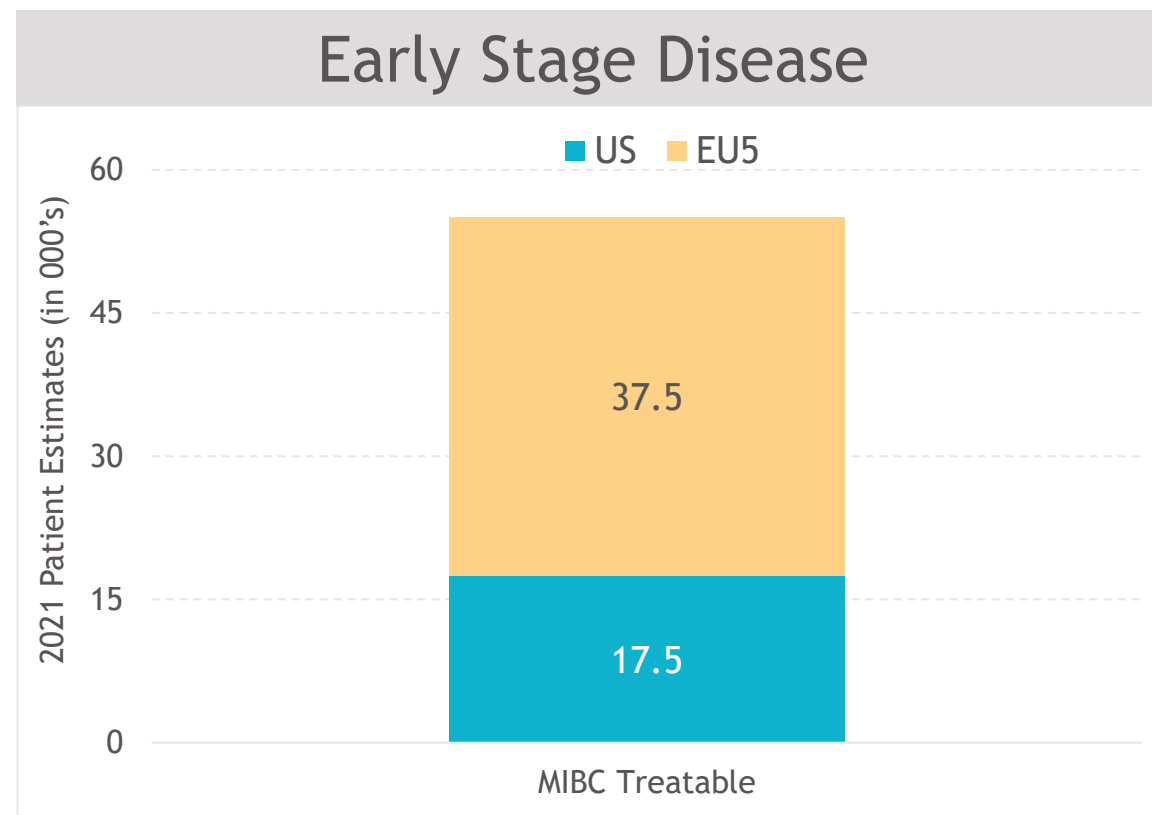
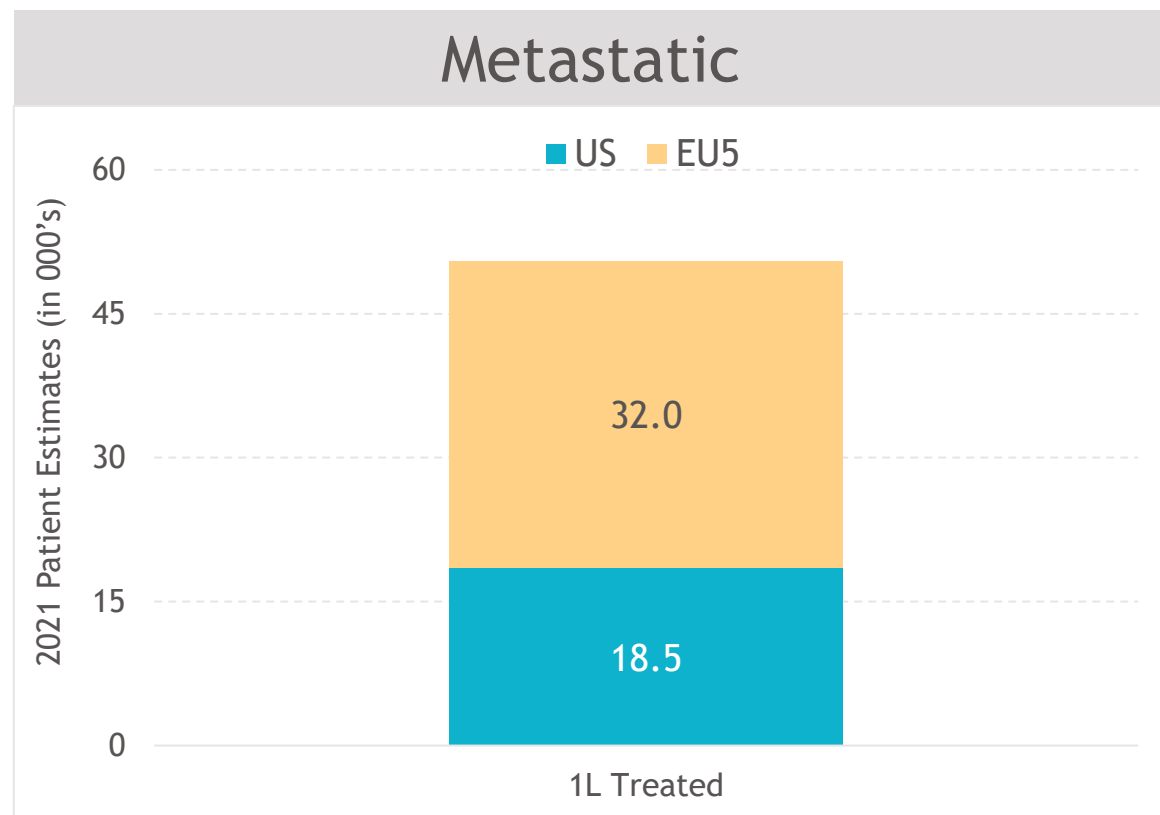
## Early Stage



- Early stage txt rate: 10-15%
- Break out by IMDC risk category (early stage):
  - Intermediate Risk: 25%
  - High Risk: 20%

Source: Decision Resources Group; BMS Internal Analysis

# Bladder



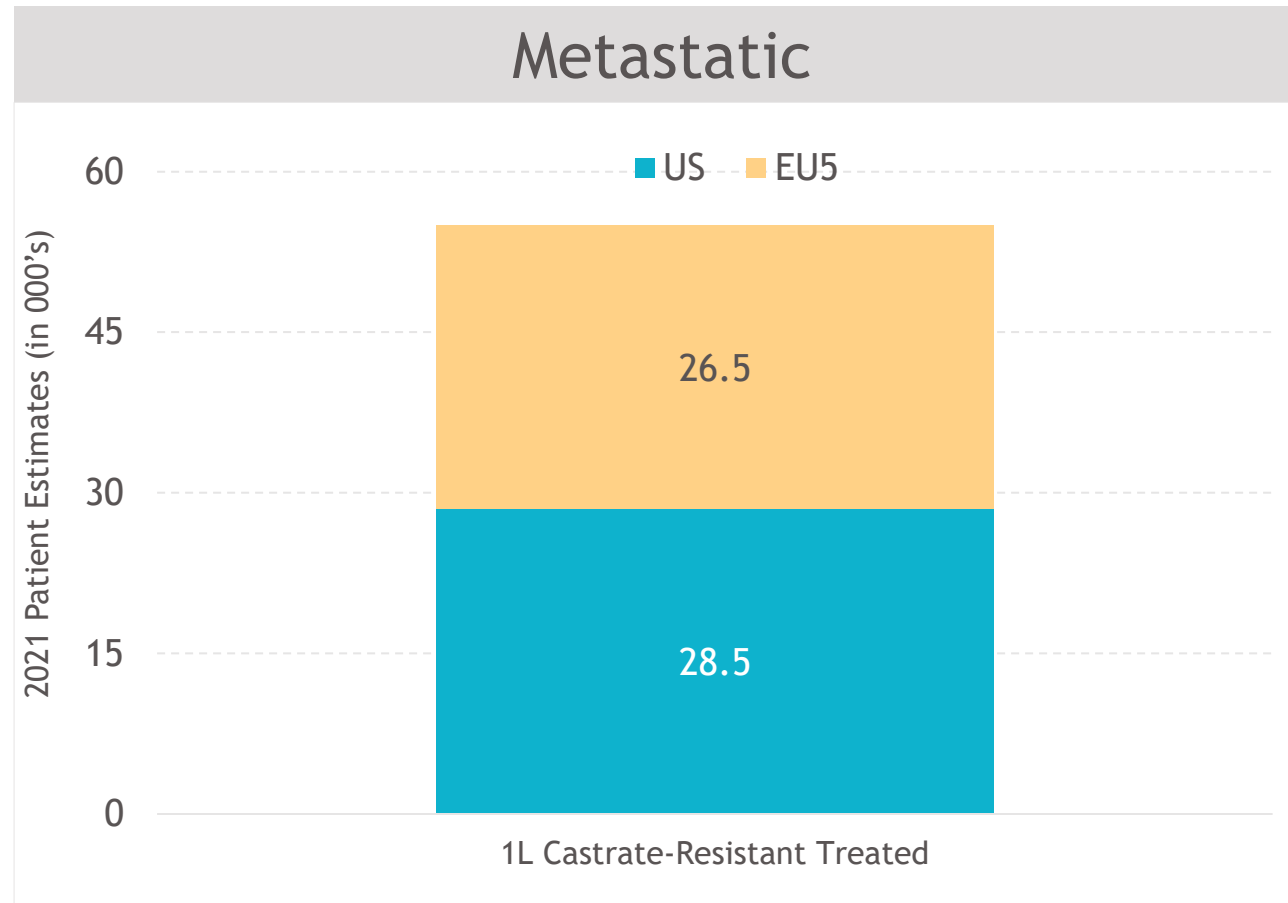
Cystectomy rates in MIBC are ~50%

**Early stage treatment rates**

MIBC txt rate: 70% - 85%

Source: Decision Resources Group; BMS Internal Analysis

# Prostate

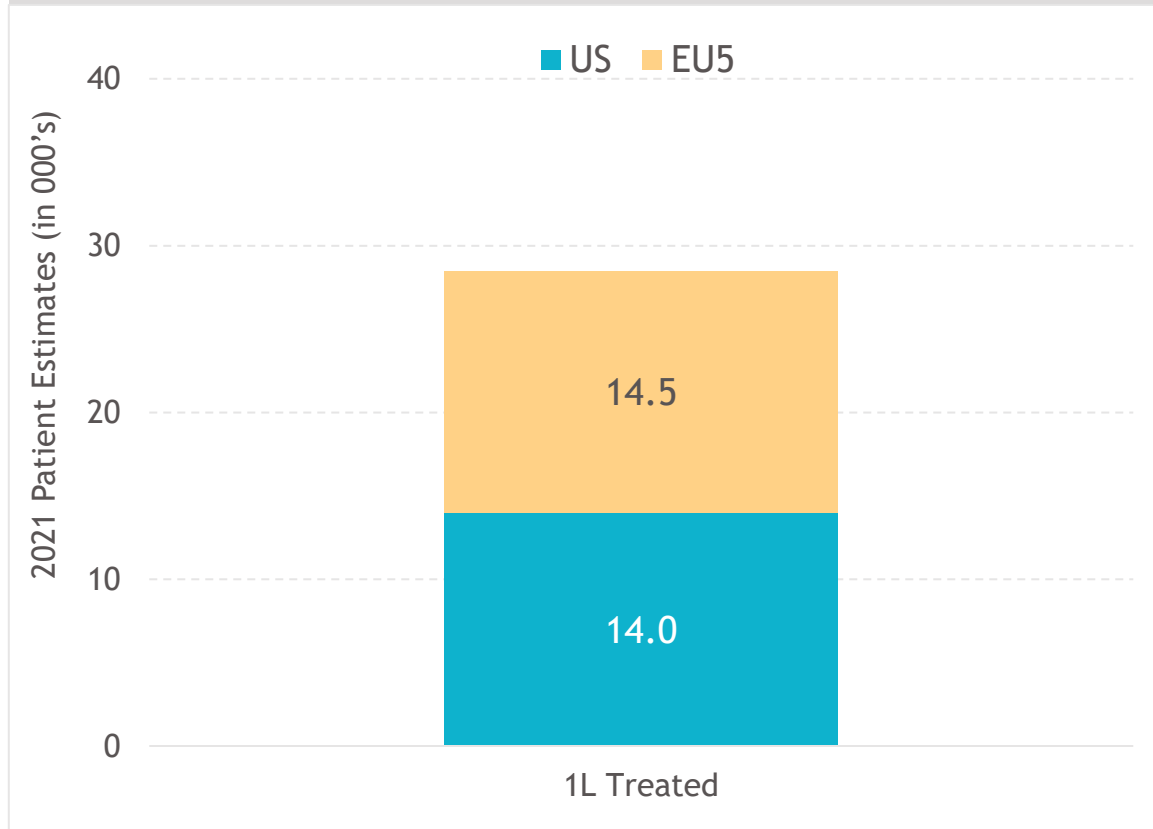


Source: Decision Resources Group

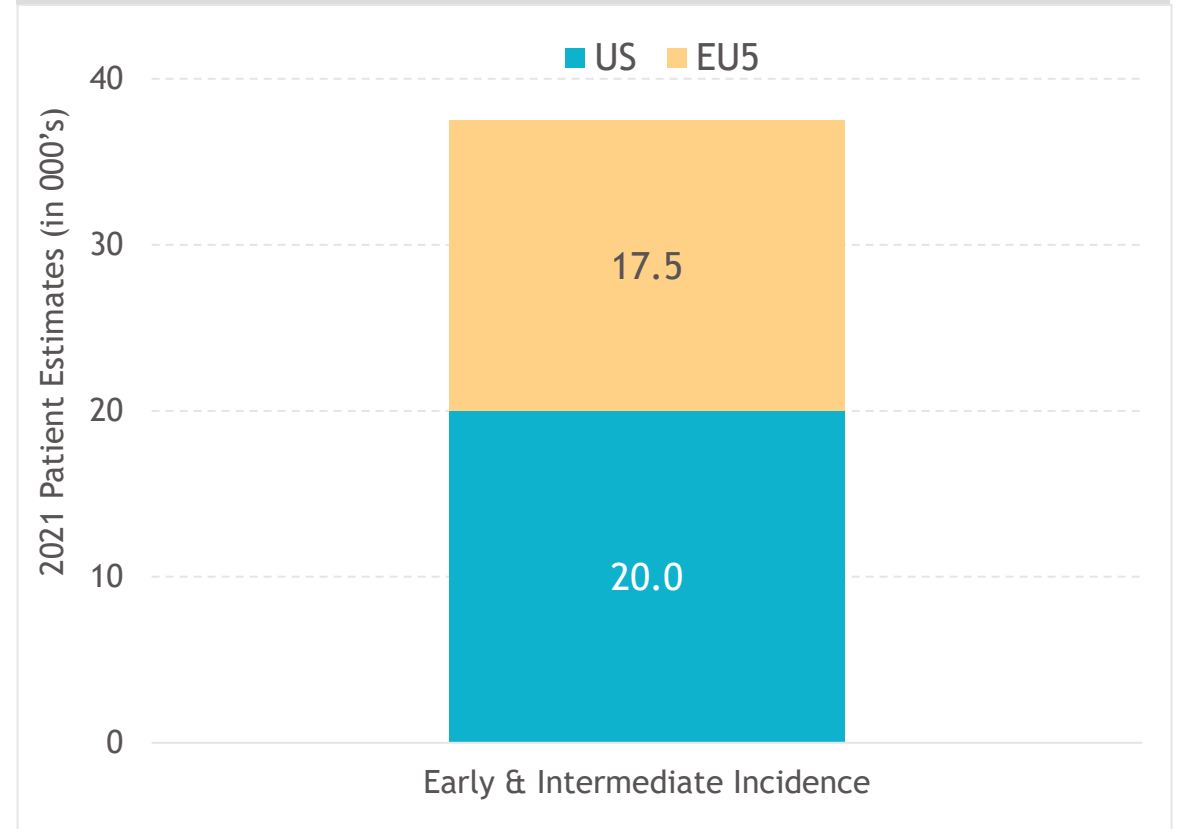


# HCC

## Metastatic



## Early Stage Disease

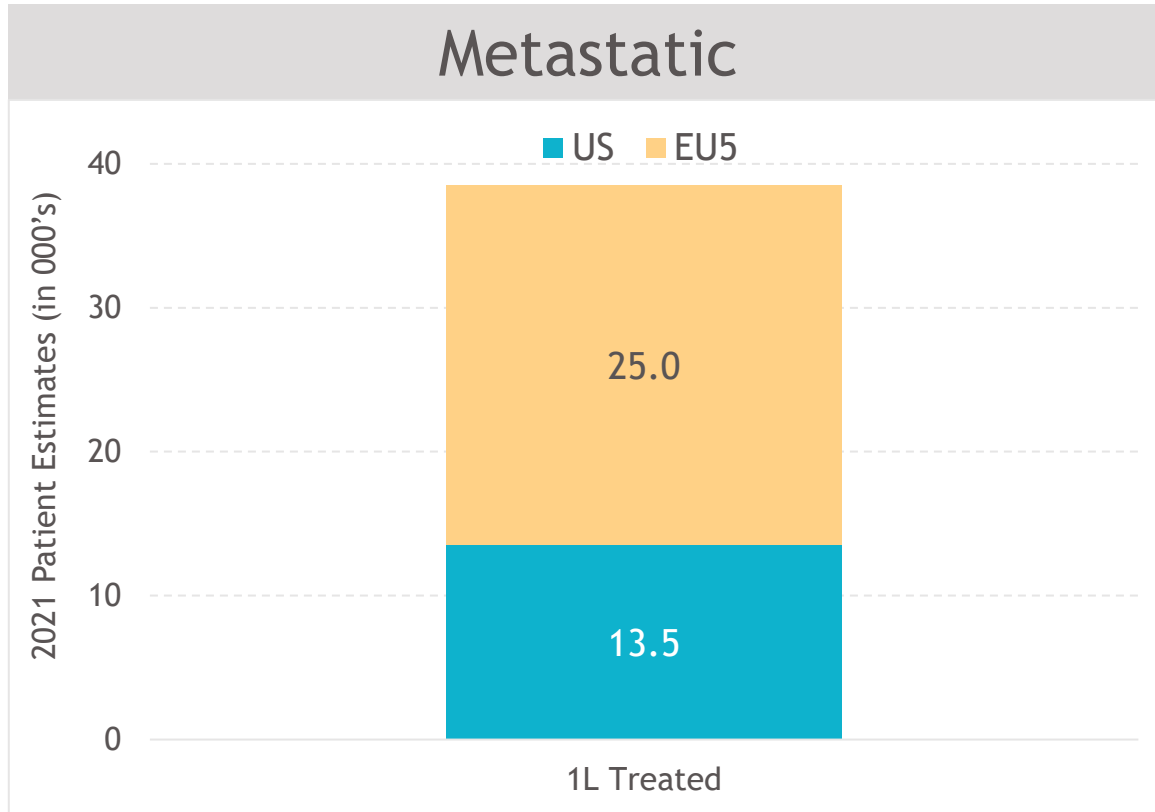


High risk ablated or resected: 10 - 20% of Early Stage

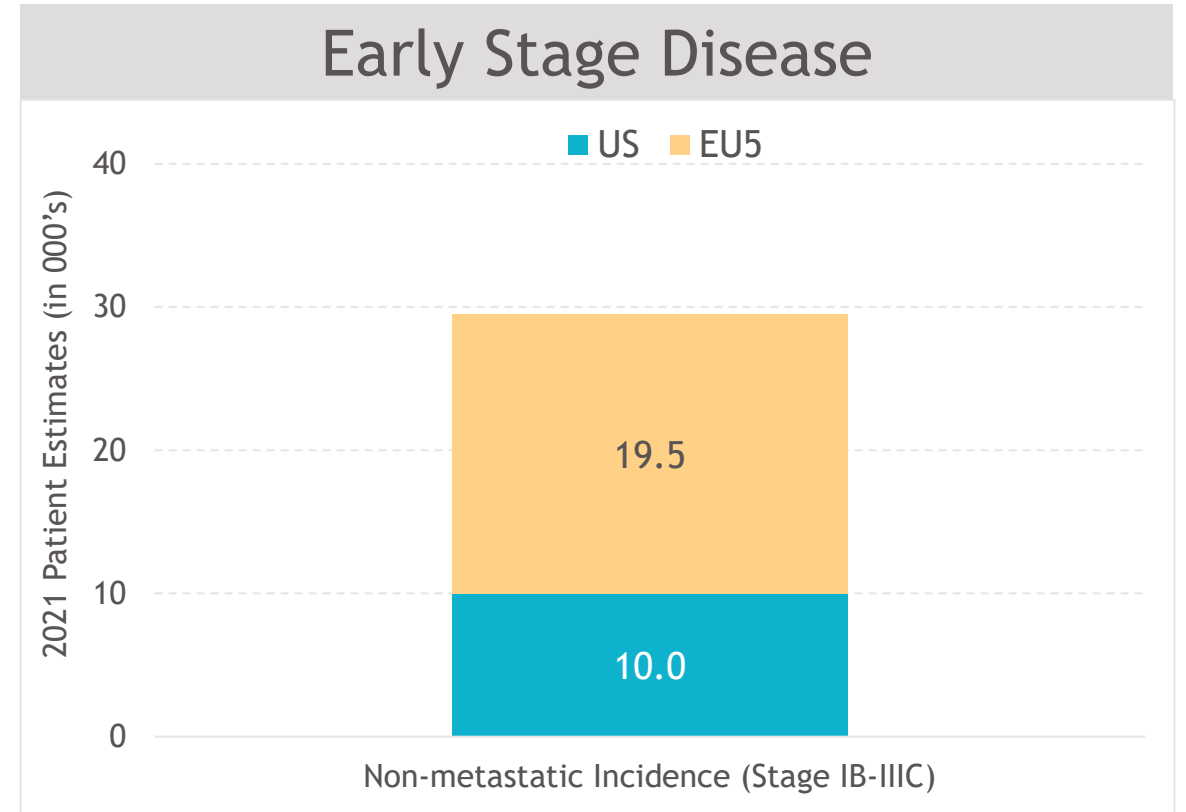
Early stage txt rate: 30-60%

Source: Decision Resources Group; BMS Internal Analysis

# Gastric\*



Cardia incident: 12% - 32% (avg. 25%)



Stage II and III GEJC: ~20-24%

### Treatment rates

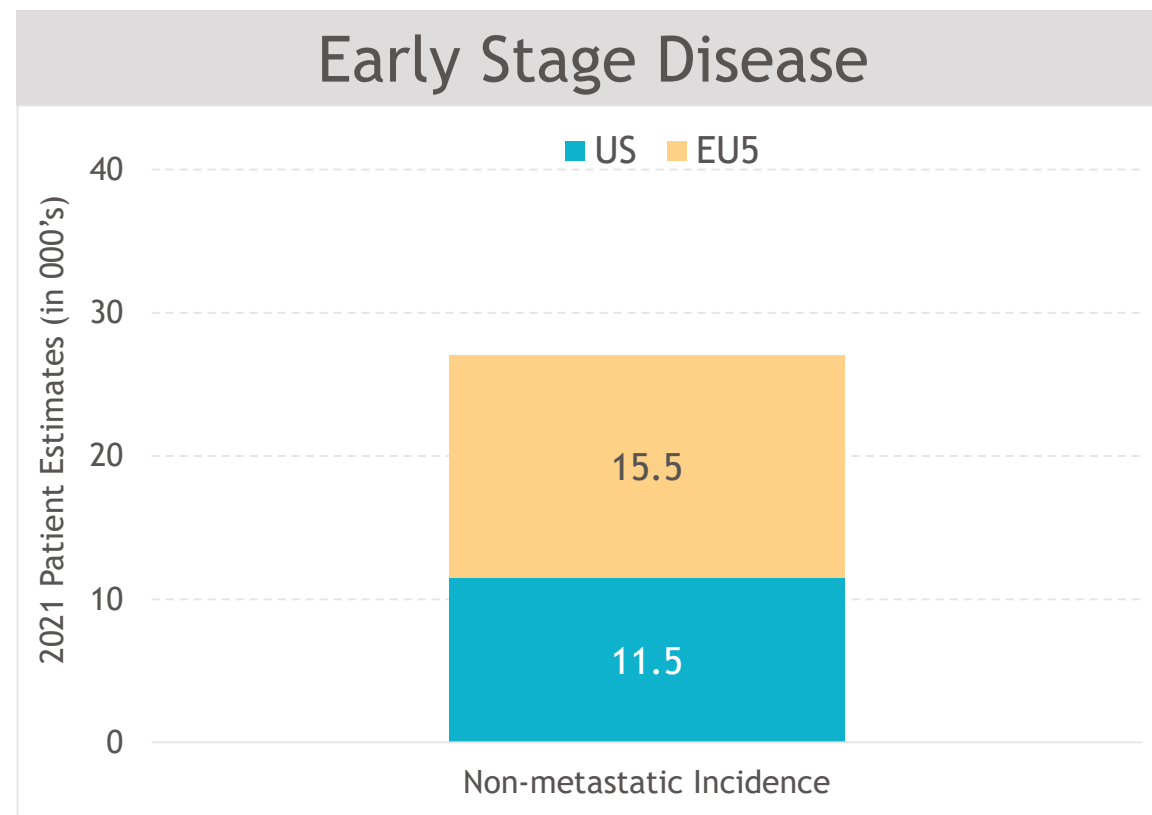
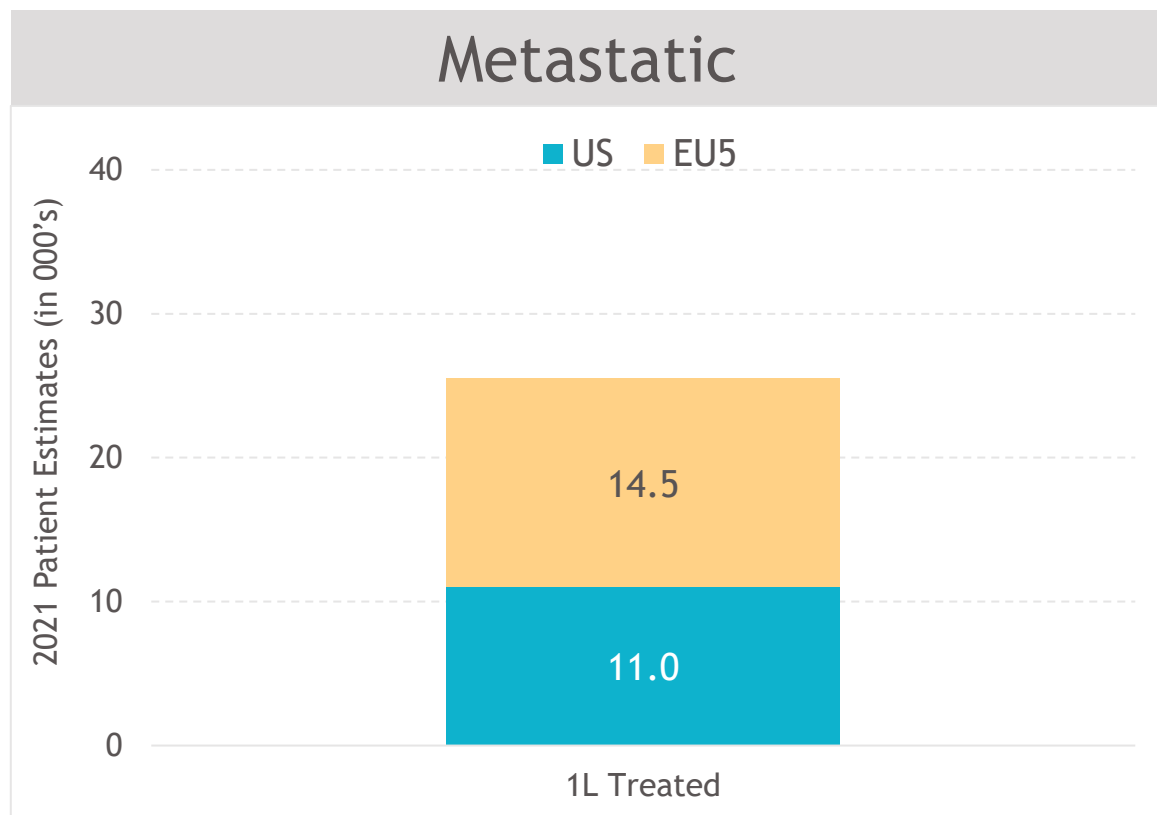
Localized & resectable locally advanced txt rate: 60% - 70%

Unresectable locally advanced txt rate: 70% - 80%

\*Data represents adenocarcinoma only and includes GEJC

Source: Decision Resources Group

# Esophageal\*



Eso stage II, stage III and stage IVA Resectable patients: ~70%

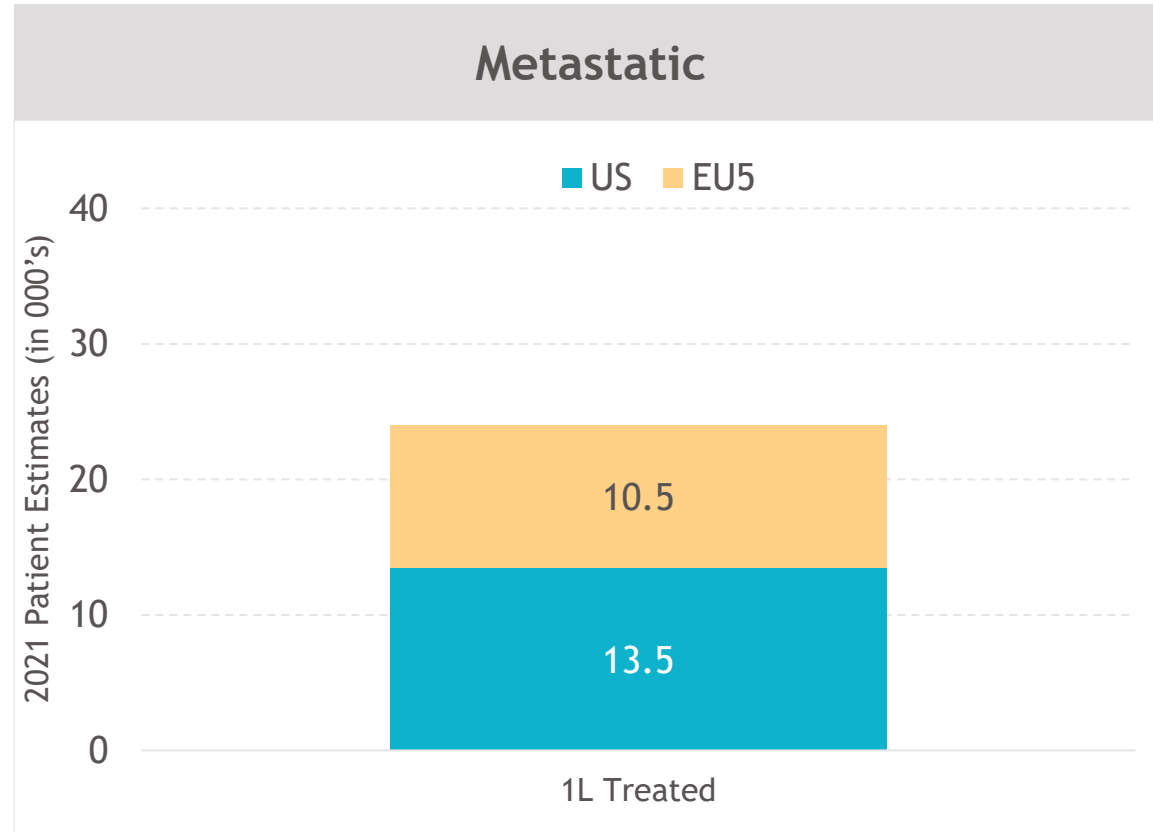
### Treatment Rates:

Localized & resectable locally advanced txt rate: 60% - 75%

Unresectable locally advanced txt rate: 65% - 75%

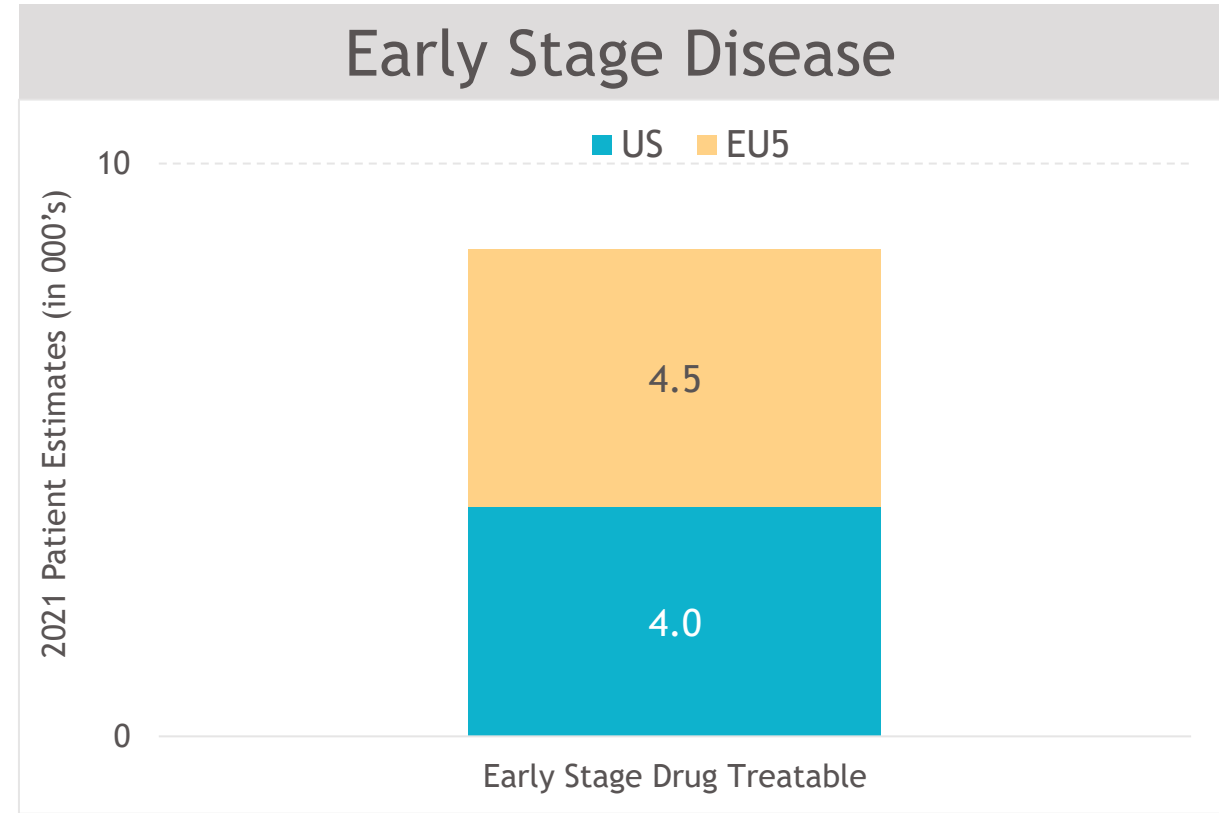
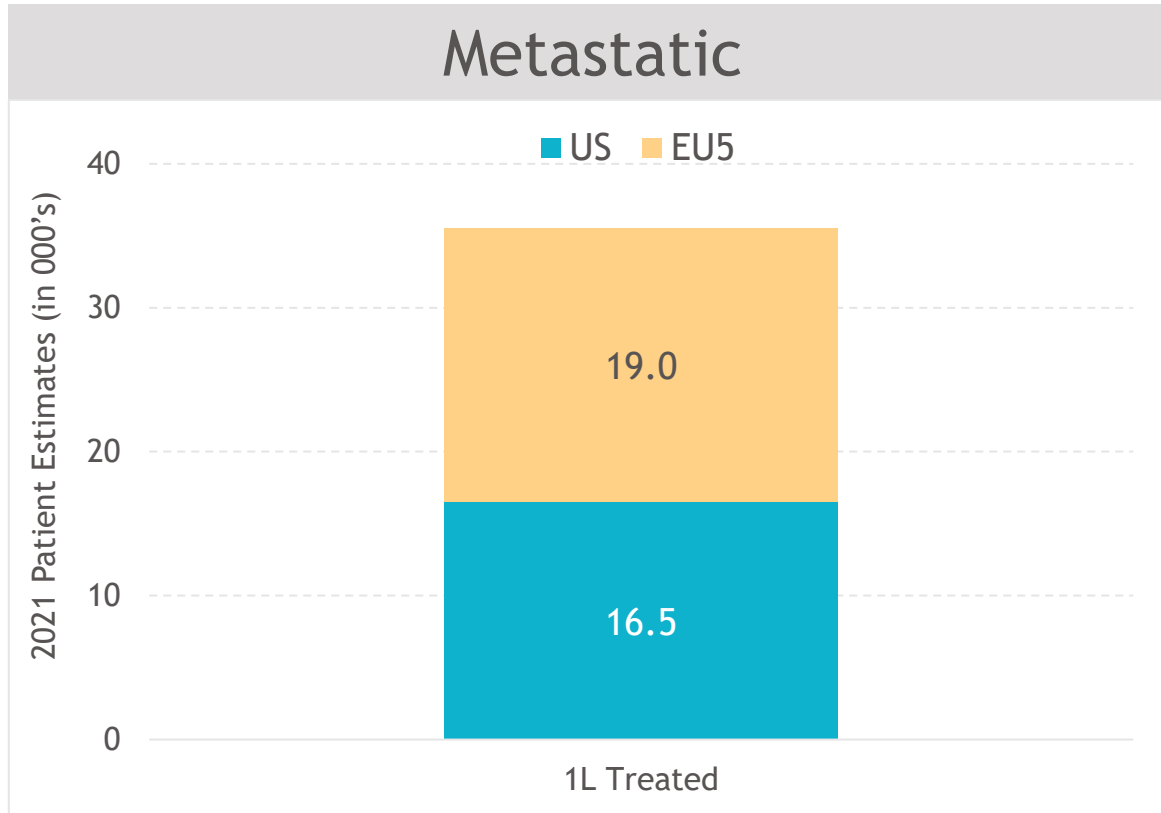
\*Data represents adenocarcinoma and squamous only

Source: Decision Resources Group; BMS Internal Analysis



Source: Decision Resources Group

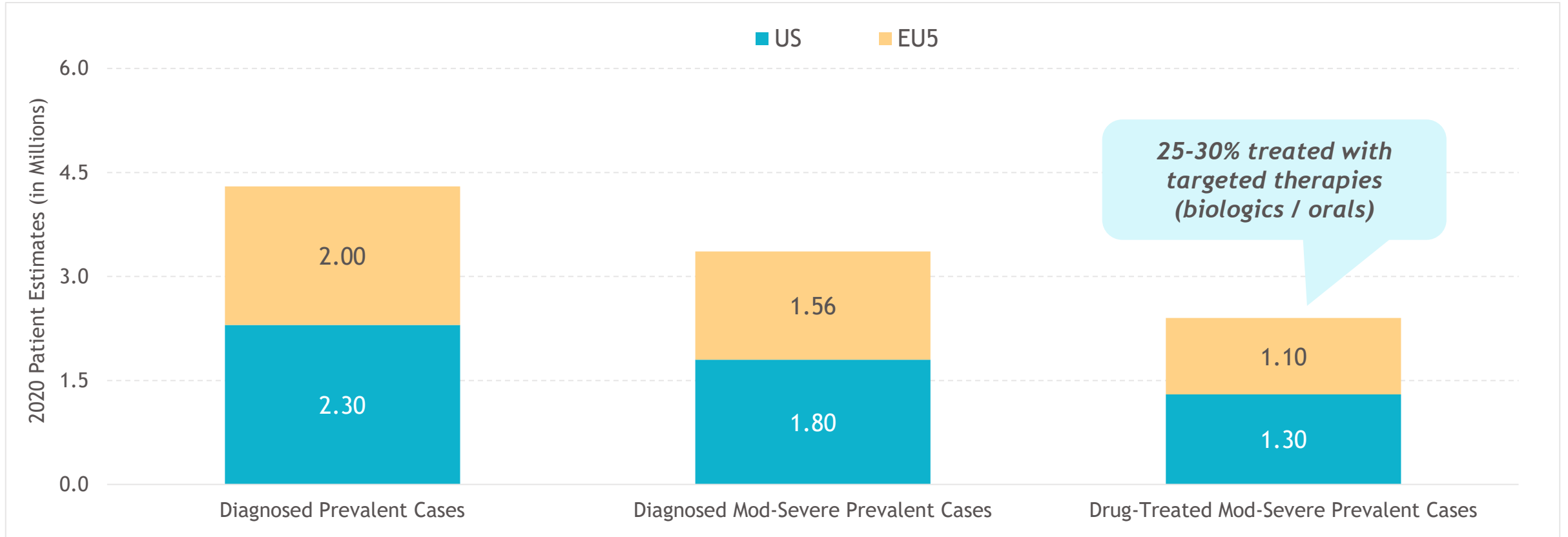
# Ovarian Cancer



Source: Decision Resources Group

# Autoimmune Disease

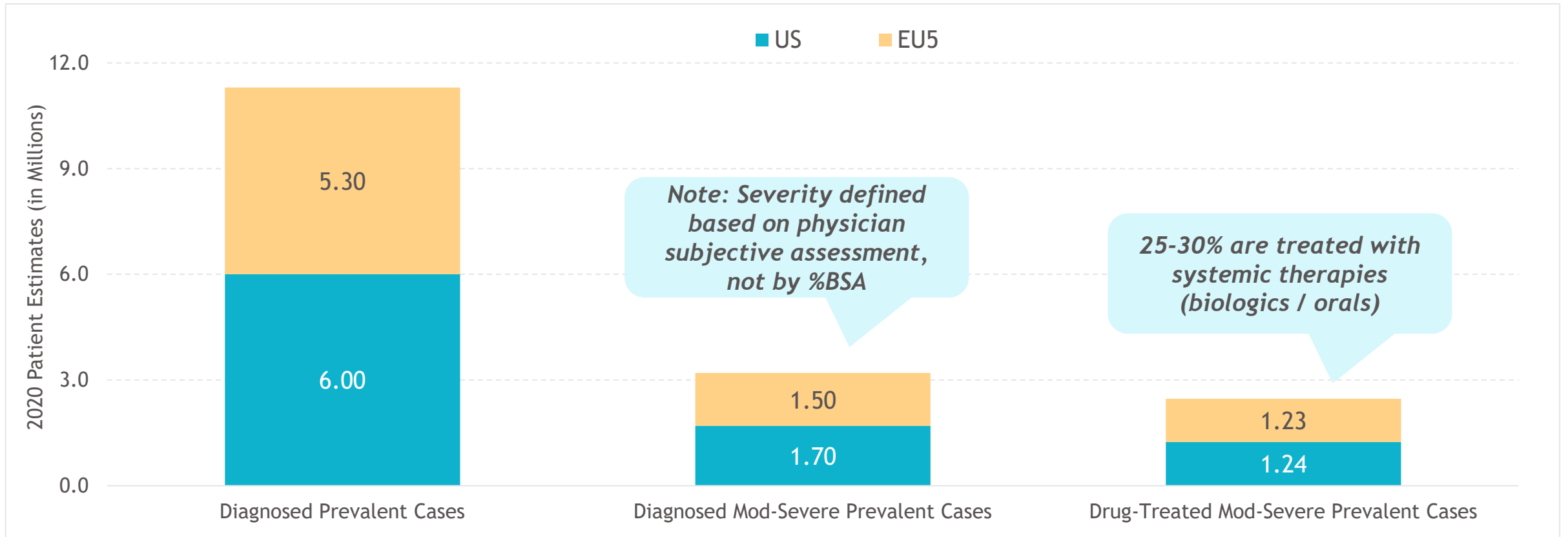
# Rheumatoid Arthritis (RA)



- We define total prevalent cases of RA according to the 1987 ACR criteria, which requires fulfillment of at least four of seven criteria:
  - 1. Morning stiffness. 2. Arthritis of three or more joint areas. 3. Arthritis of hand joints. 4. Symmetric arthritis. 5. Rheumatoid nodules. 6. Serum rheumatoid factor. 7. Radiographic changes
- Alternatively, a patient's symptoms are considered to be satisfying the ACR definition if they include at least criteria 2 and 3, 2 and 6, 2 and 7, 4 and 6, or 3 and 6
- We limit our analysis to persons aged 15 or older because RA that occurs prior to this age is designated as JIA, JCA, or JRA and is diagnosed according to different criteria than are used in the ACR 1987 classification system

Source: Decision Resources Group, BMS Internal Analysis

# Psoriasis

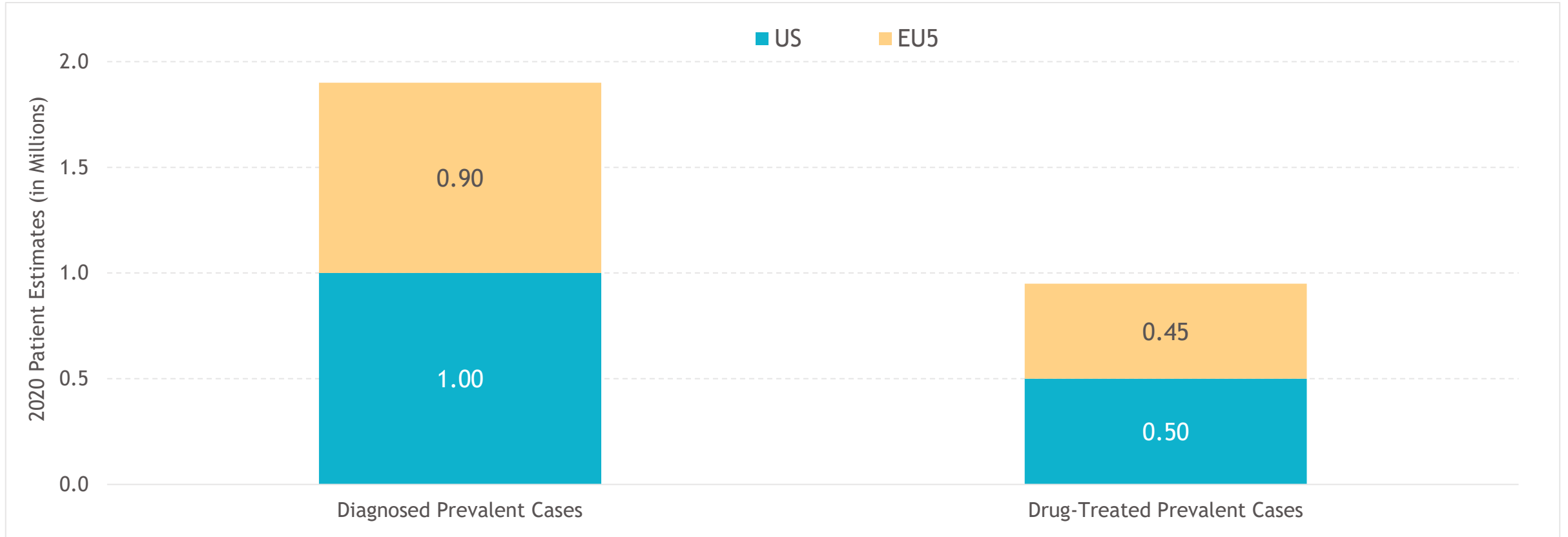


- We define diagnosed prevalent cases of psoriasis based on physical examination performed by physicians. Although psoriatic lesions often exhibit a typical appearance, there are no standardized criteria in the clinical setting. Thus, we estimate only those cases of psoriasis that are physician-diagnosed, even those that may not be exhibiting symptoms at the time data were collected and are therefore in remission
- Excludes asymptomatic patients. Includes comorbid psoriatic arthritic patients. Severity is based on physician's subjective assessment

Source: Decision Resources Group, DataMonitor, Global Data, Adelphi patient chart audits, SHS Claims data, BMS Internal Analysis



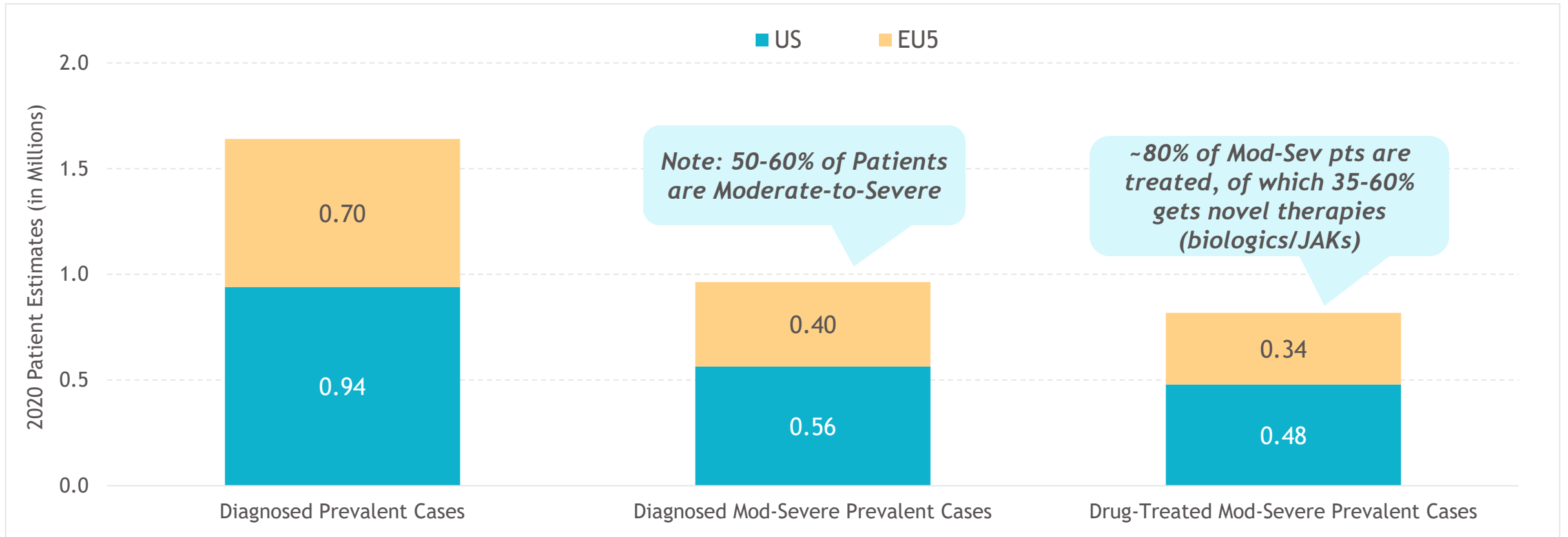
# Psoriatic Arthritis



- We used published studies and opinions of thought leaders throughout the major markets to derive the proportion of patients diagnosed and treated
- Patients included have confirmed psoriasis diagnosis. Unlike psoriasis, labels of branded therapies for psoriatic arthritis are not restricted to patients based on disease severity

Source: Decision Resources Group; BMS Internal Analysis

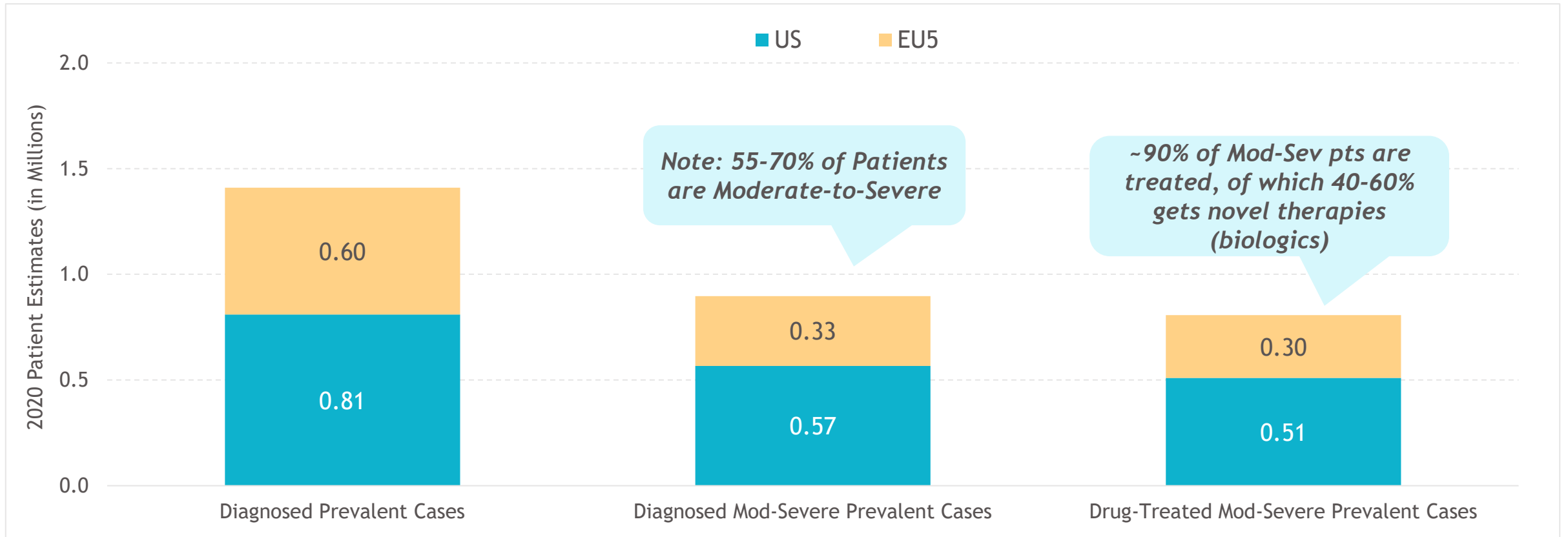
# Ulcerative Colitis Patient Dynamics



- We base our estimates of diagnosed prevalence of UC on studies that confirmed diagnosis of the condition at initial examination or within two to six months of initial examination based on clinical history and either (1) endoscopic examination of the colonic mucosa indicating continuous diffuse granular or friable mucosa or (2) radiological barium studies indicating continuous mucosal involvement. (Prevalence rates are based on Shivashankar et al., 2017 and Kappleman et al., 2013)
- Other companies appear to be using Kappleman et al., 2013 only, resulting in lower prevalence rates)
- Treatment rate includes all conventional, targeted oral, and biologic treatments

Source: Decision Resources Group; BMS Internal Analysis

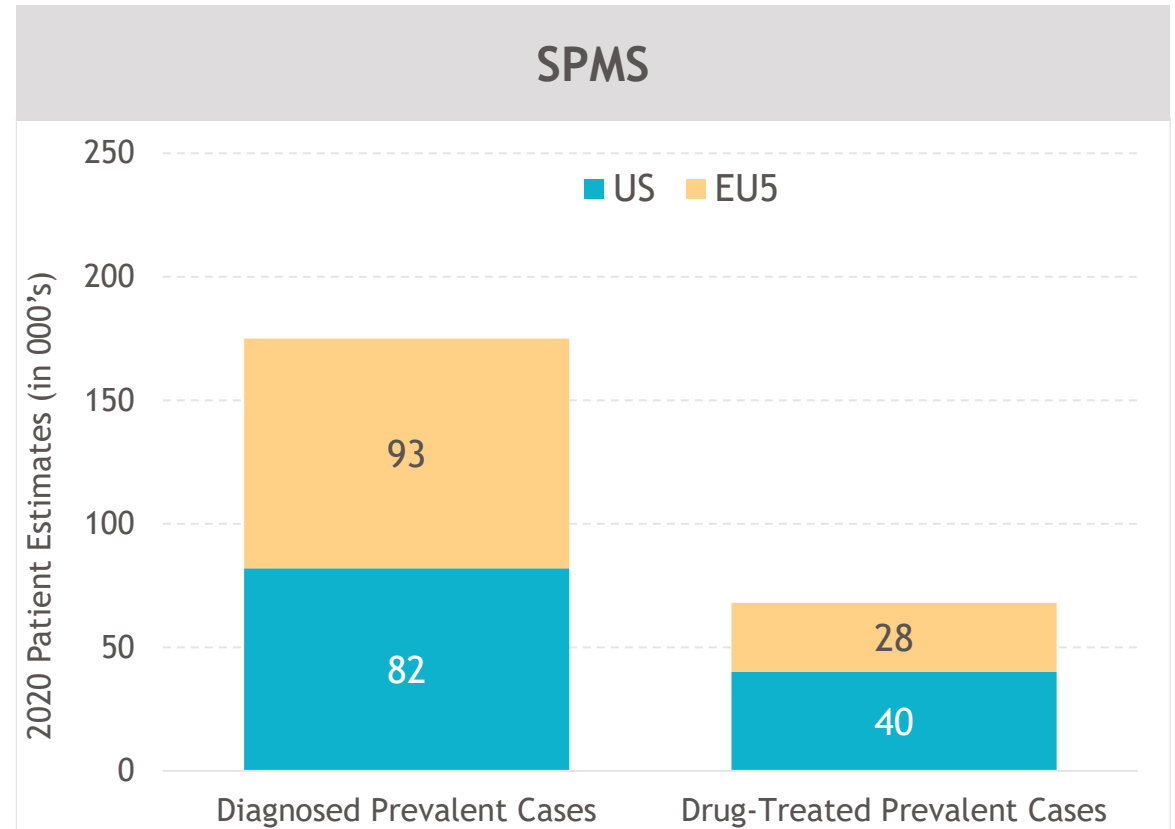
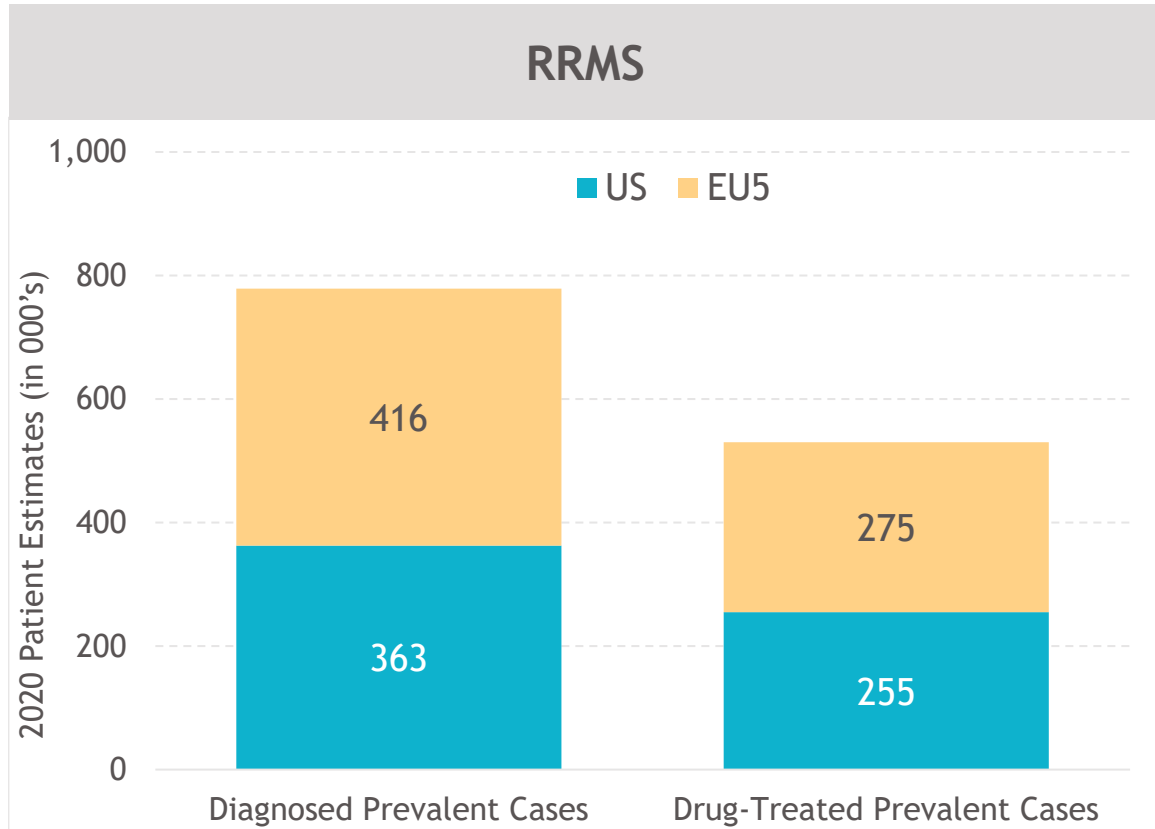
# Crohn's Disease Patient Dynamics



- We define a diagnosed prevalent case of CD based on a physician diagnosis of clinical symptoms (abdominal pain, weight loss, malaise, diarrhea, and/or rectal bleeding) and histological, endoscopic, radiological, and/or surgical findings. (Prevalence rates are based on Shivashankar et al., 2017 and Kappleman et al., 2013)
- Other companies appear to be using Kappleman et al., 2013 only, resulting in lower prevalence rates)
- Treatment rate includes all conventional, targeted oral, and biologic treatments

Source: Decision Resources Group; BMS Internal Analysis

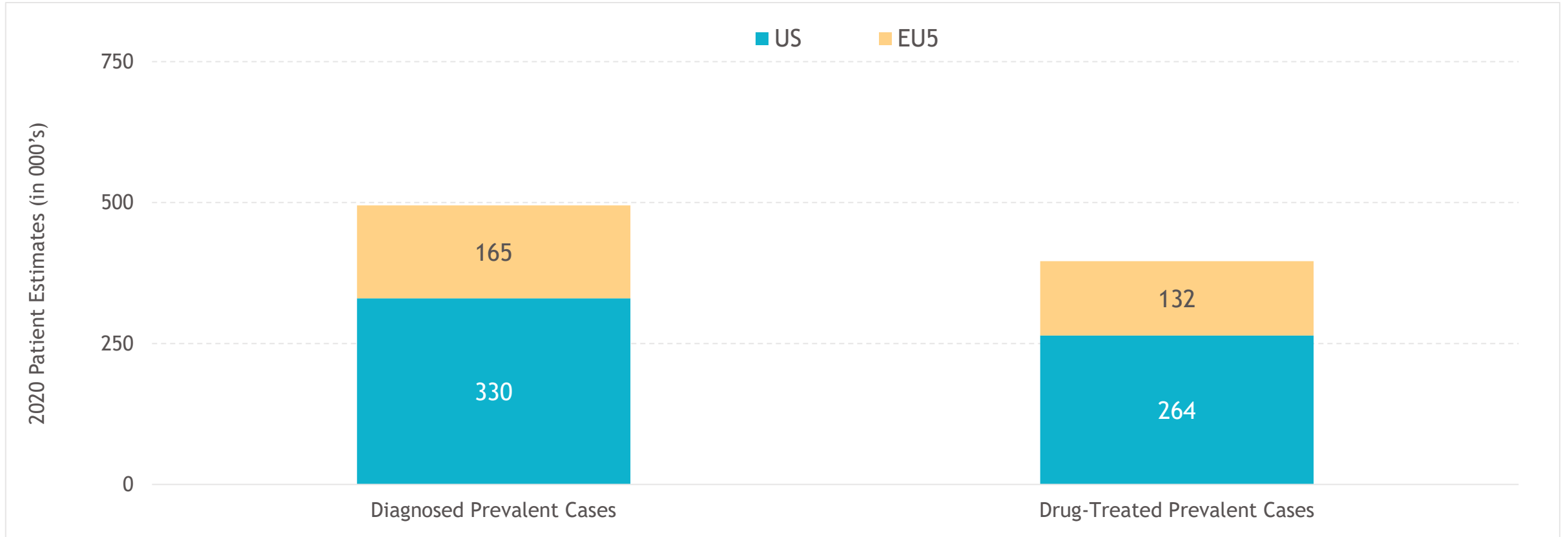
# Multiple Sclerosis



• We define MS based on the McDonald criteria (McDonald WI, 2001; Milo R, 2014) and MS diagnostic codes recorded in nationally representative health insurance, research, and long-term disability databases. In our definition, we also include cases of CIS. When using data that include diagnoses made prior to 2001, we additionally use the Poser criteria to define MS, and include clinically definite, probable, and possible MS cases in our definition. The possible cases include cases of CIS and/or suspected MS cases. We restrict our analyses to individuals aged ten or older, because MS is rarely diagnosed in children. We define subtypes of prevalent MS cases based on physician diagnosis: RR-MS, CP-MS, which is further categorized into PP-MS and SP-MS, and CIS, i.e. cases that have not yet progressed to MS at the time of diagnosis. The drug-treated estimates include patients in 2020 who were treated with DMTs—excluding corticosteroids for acute relapses. Drug-treatment rates in our model continue to be lowest in the United Kingdom owing to long-standing barriers in access to specialty MS care in that country.

Source: Decision Resources Group; BMS Internal Analysis

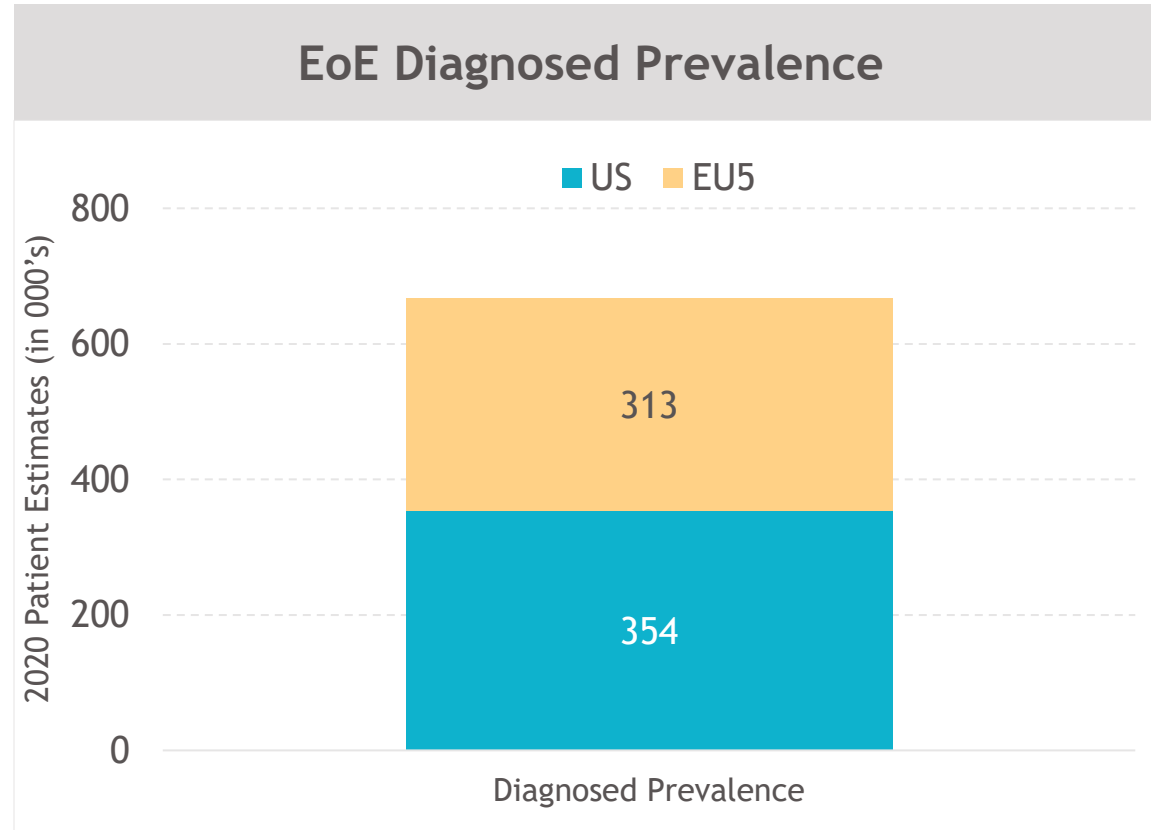
# Systemic Lupus Erythematosus *(Includes Lupus Nephritis)*



- Definition of SLE is important. These numbers are based on criteria used by clinicians to diagnose SLE: the presence of four or more ACR criteria or three ACR criteria along with an SLE diagnosis by a rheumatologist, a biopsy-confirmed diagnosis of LN, or a diagnosis of SLE-related ESRD. In addition, we categorize SLE cases identified from national administrative databases under clinically defined SLE. These prevalence numbers represent patients with any organ affected. LN patients represent ~30% of all SLE cases

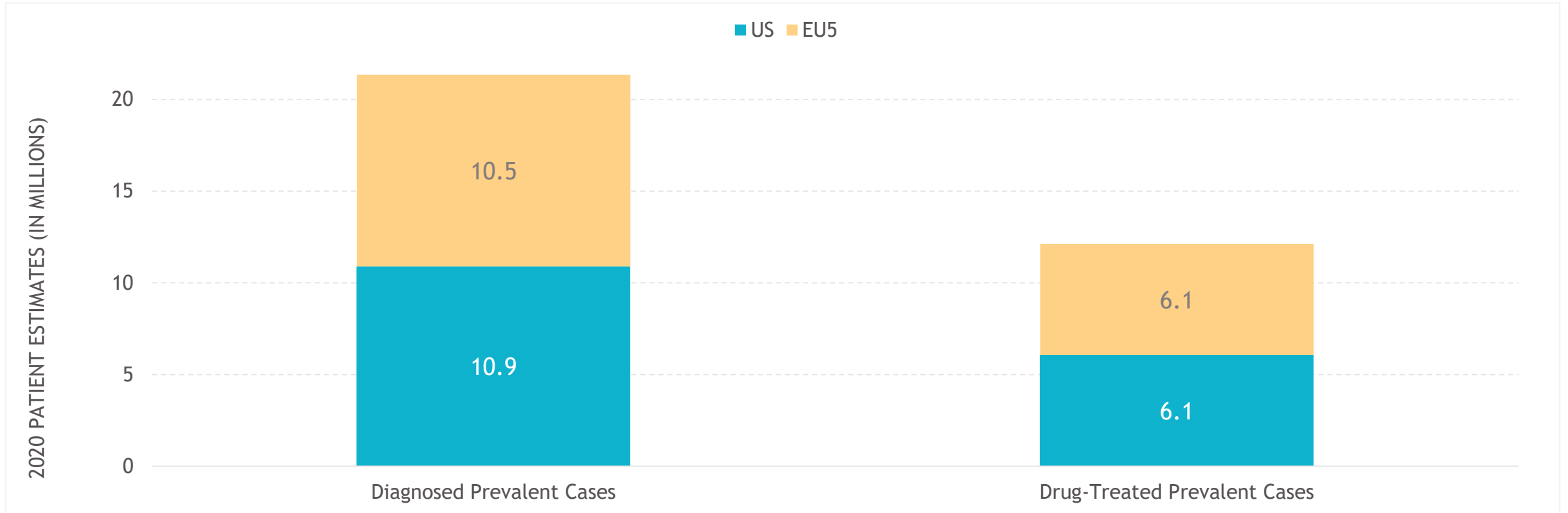
Source: Decision Resources Group; BMS Internal Analysis

# Eosinophilic Esophagitis (EoE)



Source: Decision Resources Group; BMS Internal Analysis

# Atopic Dermatitis



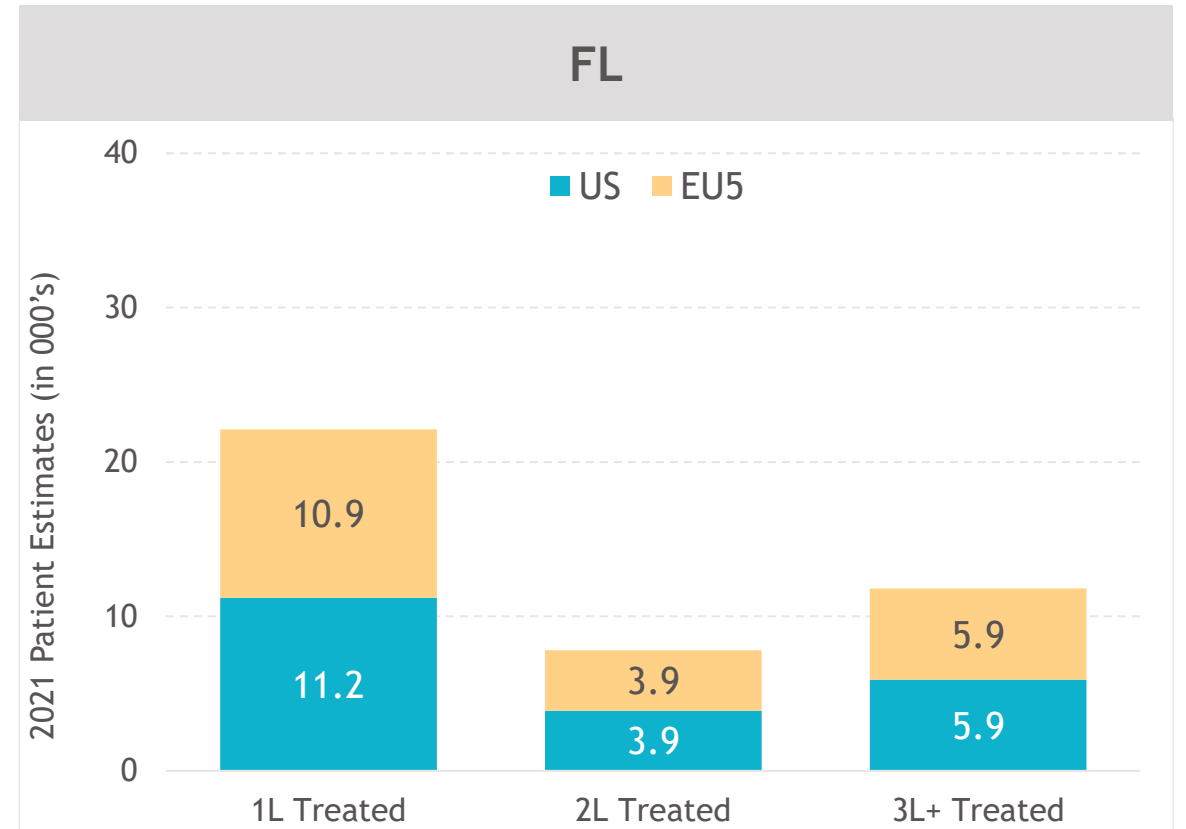
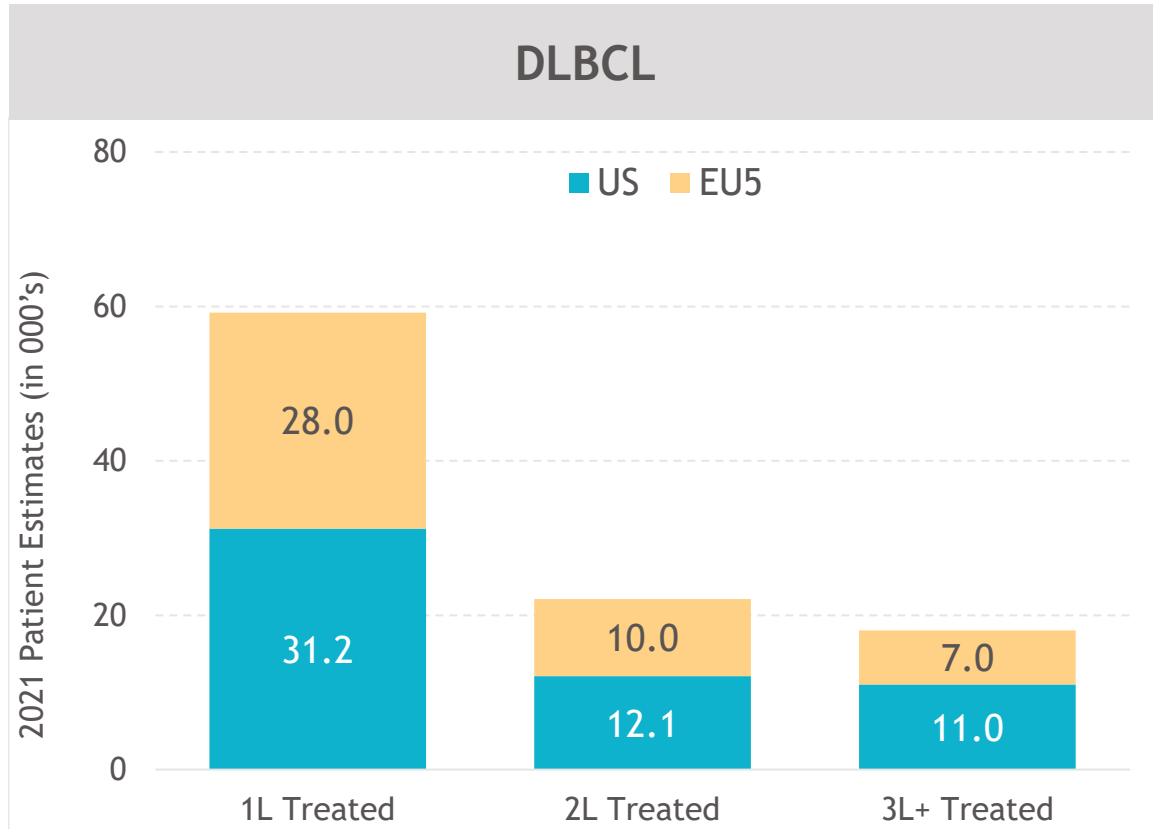
- Diagnosed Prevalent Cases includes all ages population with mild, moderate & severe AD. We categorized AD by severity in people aged 15 or older in all countries under study using the severity distribution from a population-based study conducted in the United States (Silverberg JI, 2018). To categorize pediatric patients by severity, we applied the ratio between the severity distributions in 12-month total prevalent cases (Silverberg JI, 2018) and diagnosed prevalent cases (Barbarot S, 2018) in adults to the severity distribution of diagnosed prevalence cases in children younger than nine in each of the countries under study (Barbarot S, 2018; Ben-Gashir M, 2004; Silverberg JI, 2018; Willemsen M, 2009).
- Treated population includes the percentages of all ages diagnosed population with mild, moderate & severe AD in 2018 who received drug treatment with key drug classes used to manage the disease (e.g., TCSs, TCIs, conventional oral immunosuppressants, oral corticosteroids) in each of the seven markets under study.

Source: Decision Resources Group; BMS Internal Analysis

# Hematology

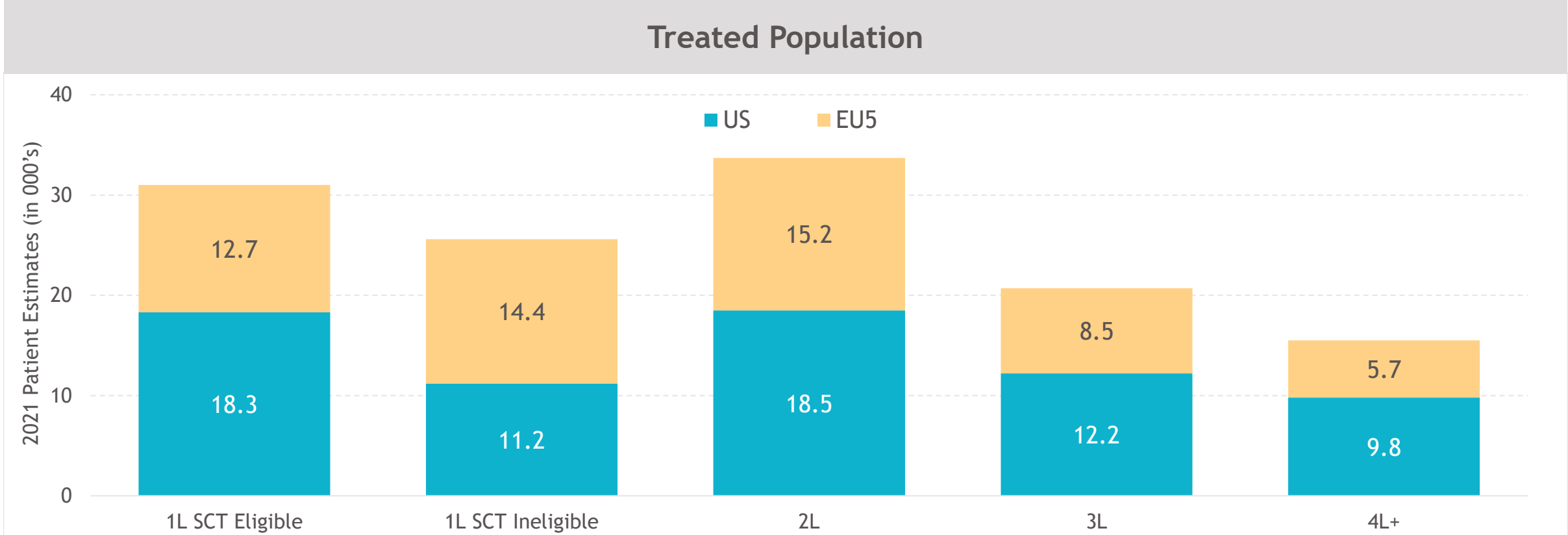


# Lymphoma



Source: Decision Resources Group; BMS Internal Analysis

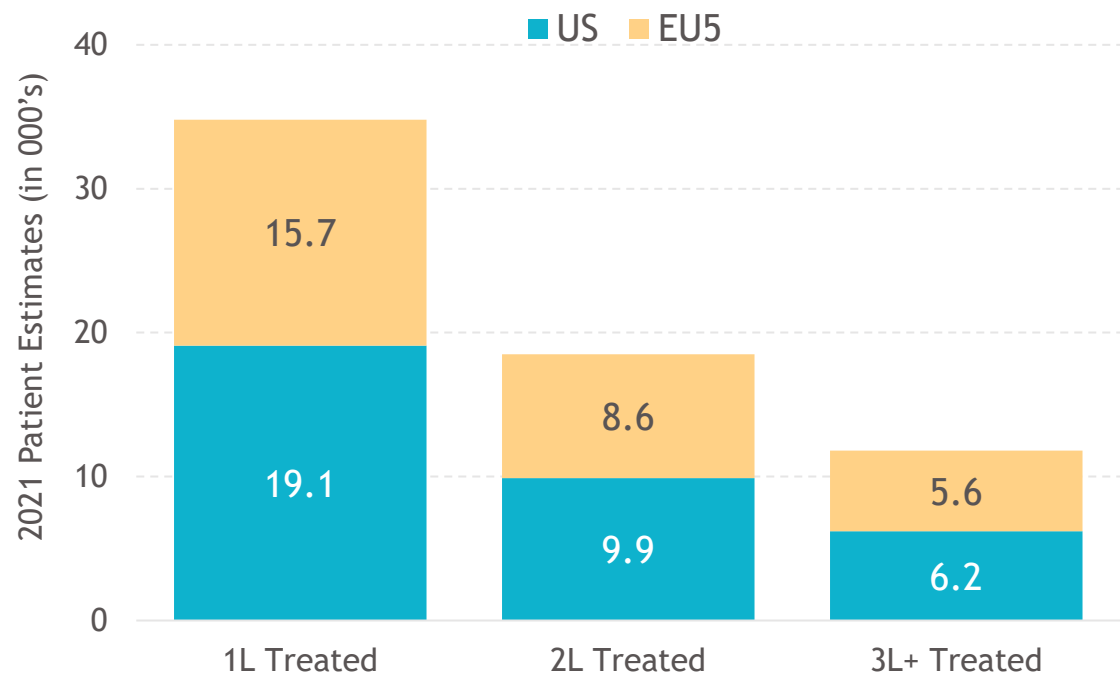
# Multiple Myeloma



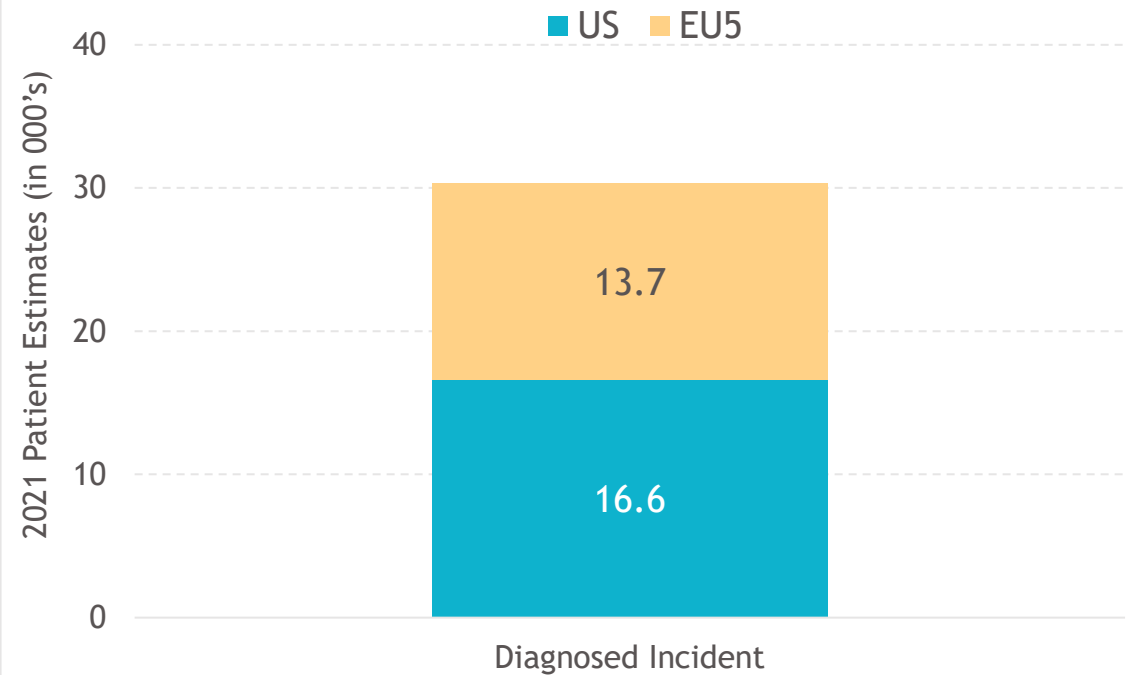
Source: Decision Resources Group; BMS Internal Analysis

# Leukemia

## CLL+SLL

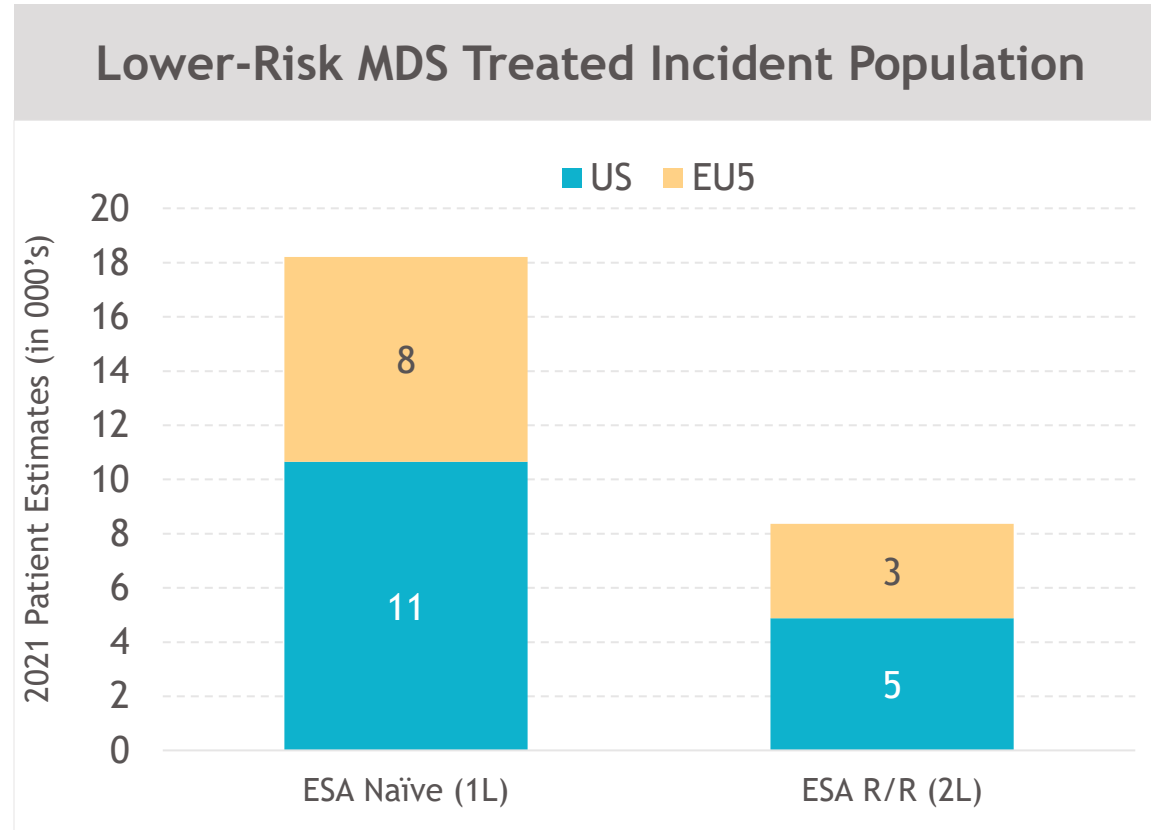


## AML (excluding APL\*)



Source: Decision Resources Group; BMS Internal Analysis

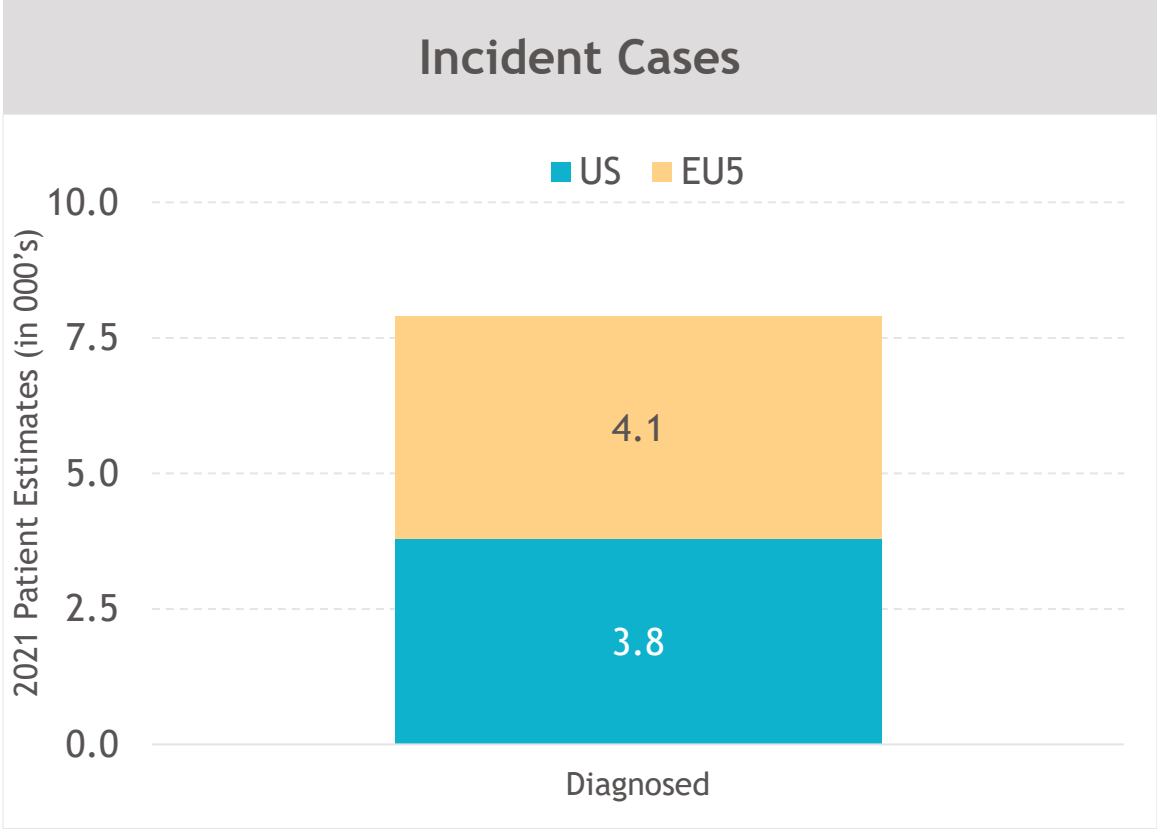
\*APL = acute promyelocytic leukemia



- ~40% of lower-risk patients are RS Positive

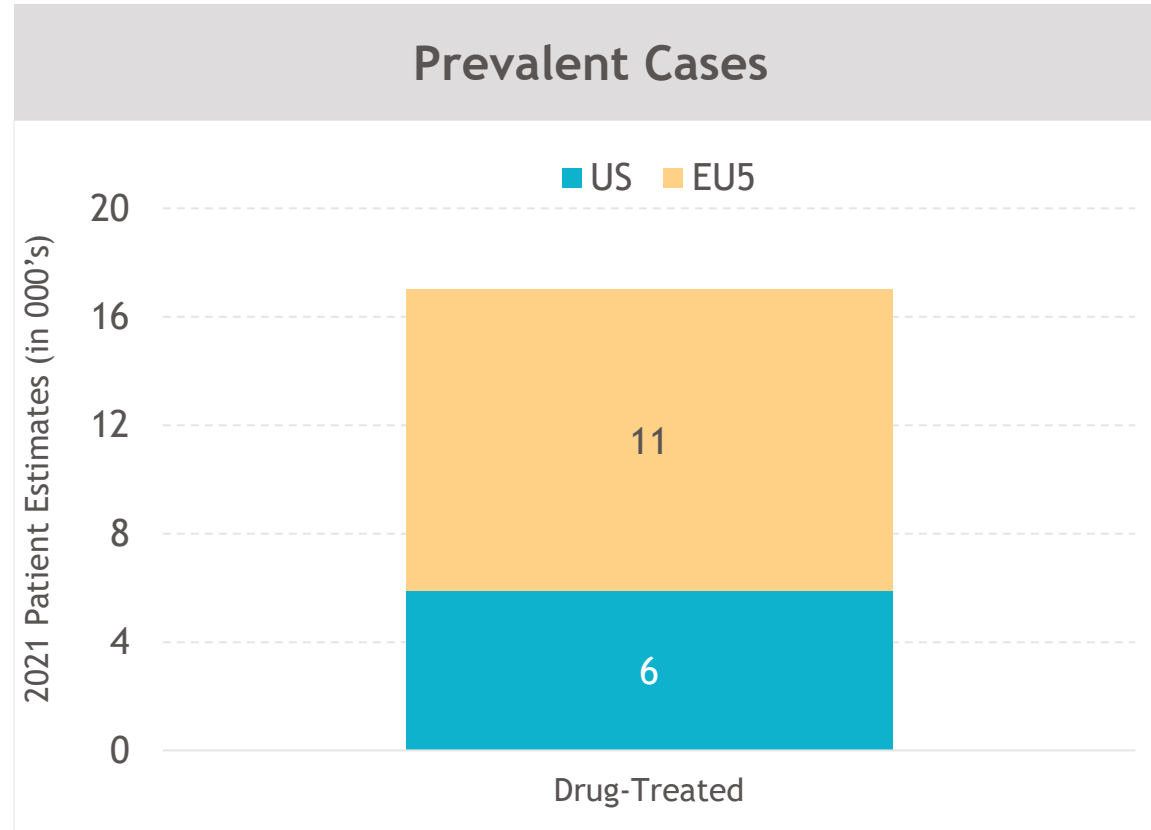
Source: Decision Resources Group; BMS Internal Analysis

# Myelofibrosis



Source: Decision Resources Group; BMS Internal Analysis

# Beta Thalassemia

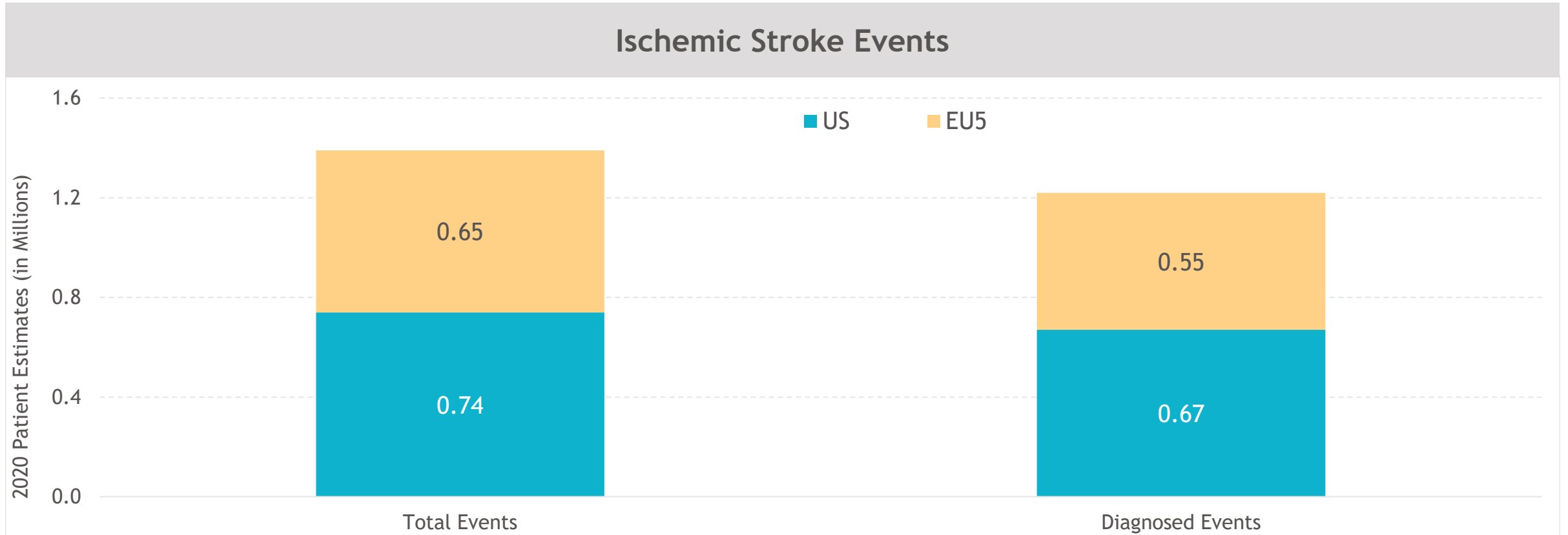


- NTD: 35%
- TD: 65%

Source: Decision Resources Group; BMS Internal Analysis

# Cardiovascular

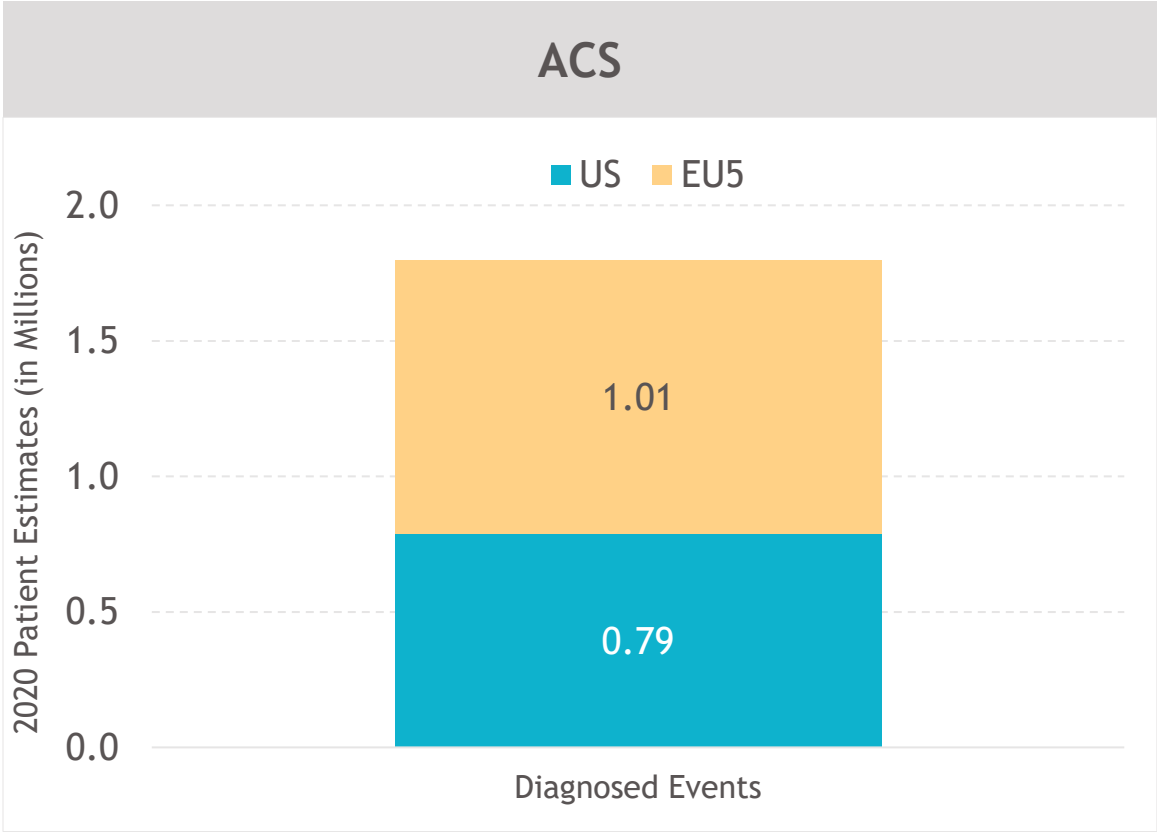
# Secondary Stroke Prevention



Source: Decision Resources Group; BMS Internal Analysis

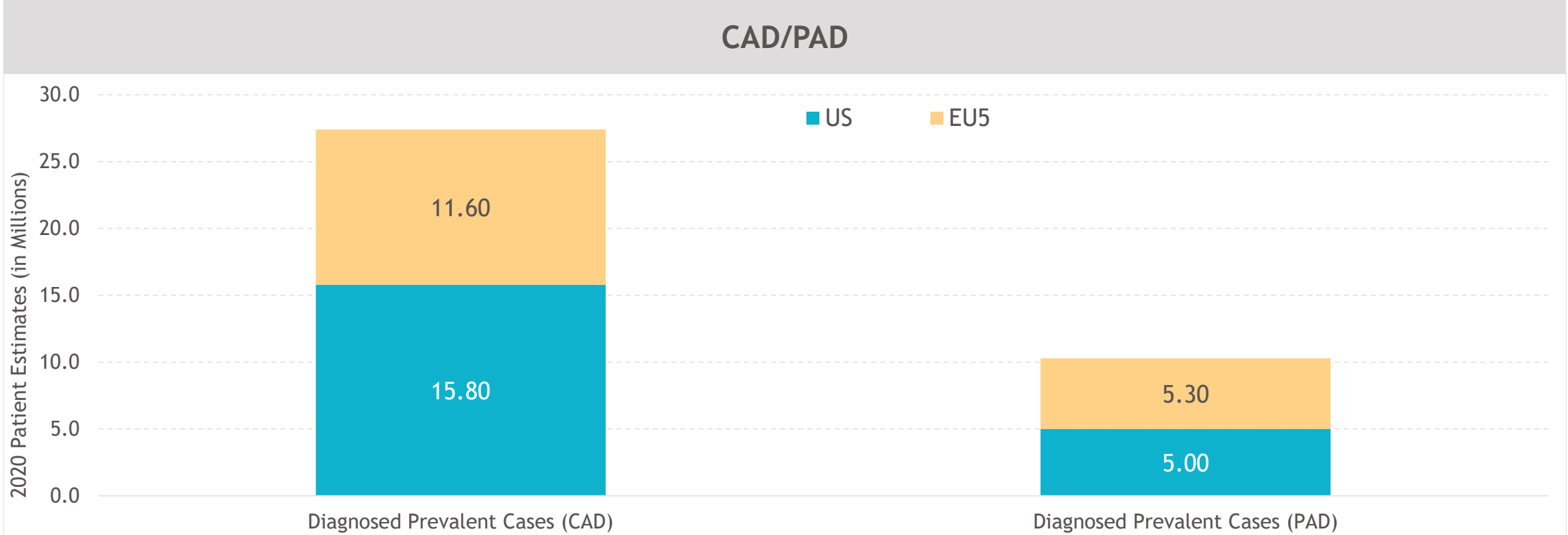


# Acute Coronary Syndrome



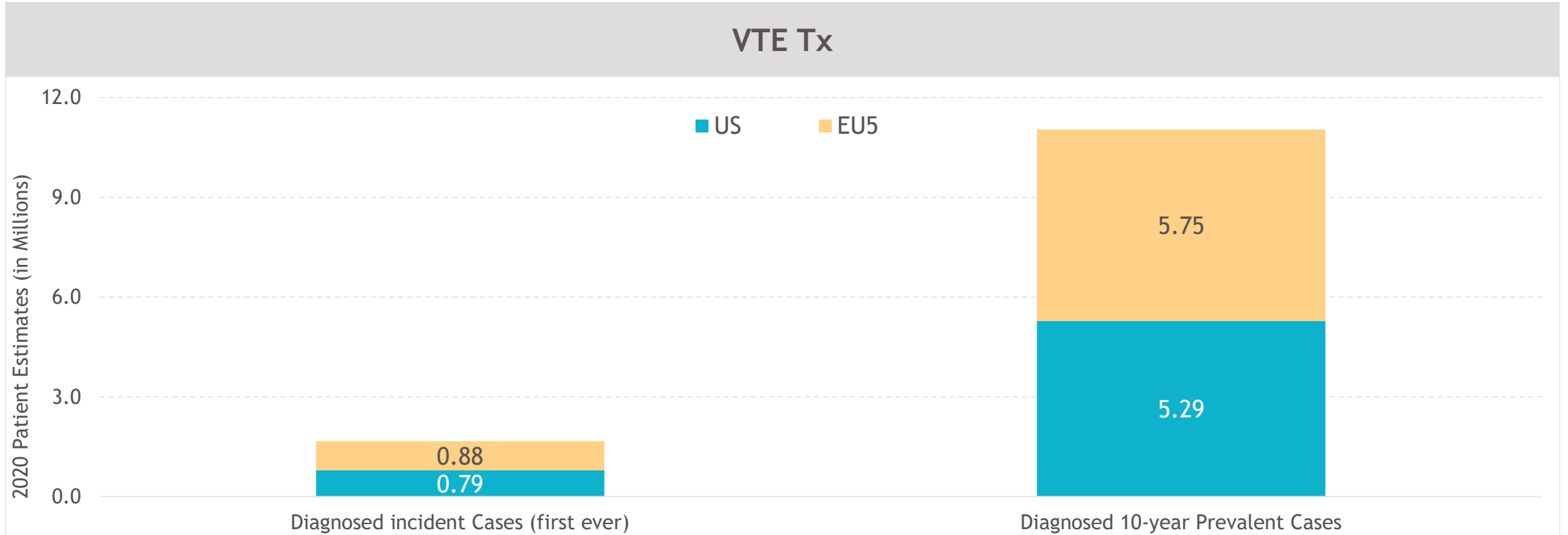
Source: Decision Resources Group; BMS Internal Analysis

# Atherosclerotic Cardiovascular Disease



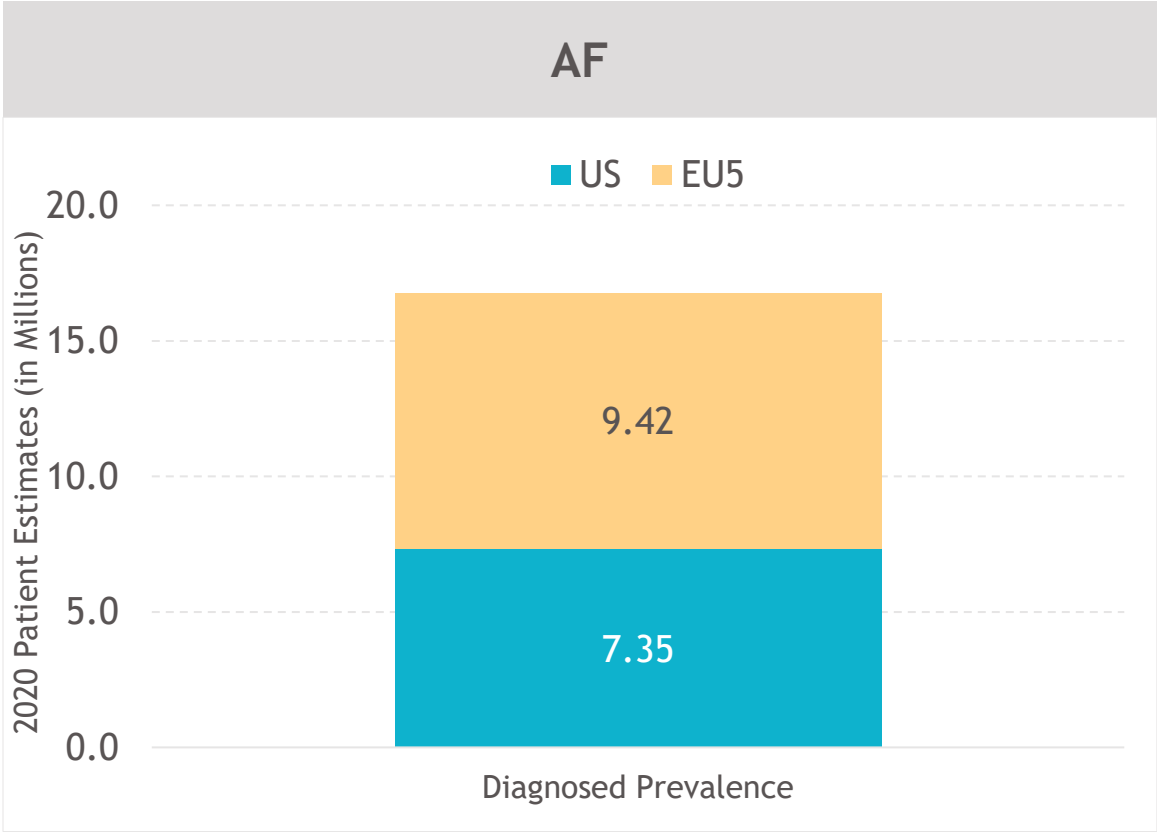
Source: Decision Resources Group; BMS Internal Analysis

# Venous Thromboembolism



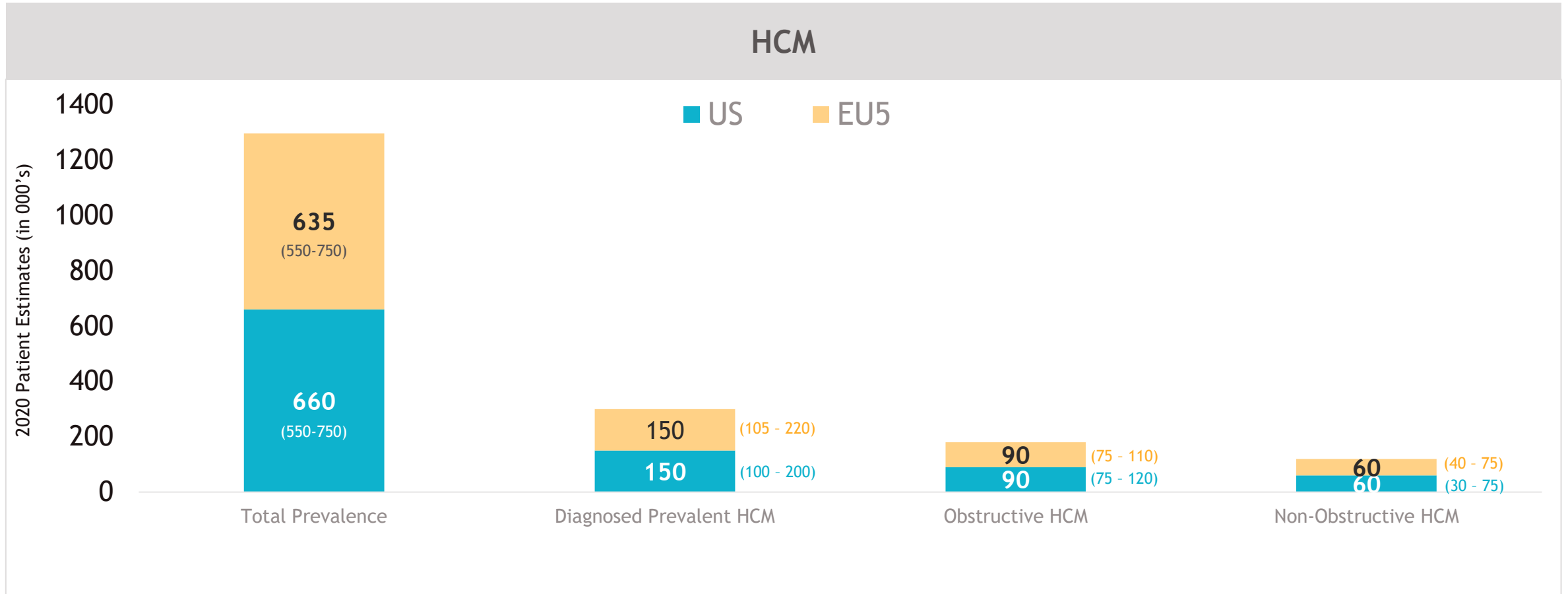
Source: Decision Resources Group; BMS Internal Analysis

# Atrial Fibrillation



Source: Decision Resources Group; BMS Internal Analysis

# Hypertrophic Cardiomyopathy (HCM)



- Numbers reflect base case estimates; Total HCM prevalence assumes a (~1/500) rate based on literature sources (below); Diagnosed prevalence estimates are variable due to HCM being a highly undiagnosed and misdiagnosed disease; Due to limited literature, it is recommended to utilize ranges vs. absolute point estimates

Source: Decision Resources Group; Maron BJ, 1995, Maron BJ, 1999, Maron BJ, 2004 BMS Internal Analysis