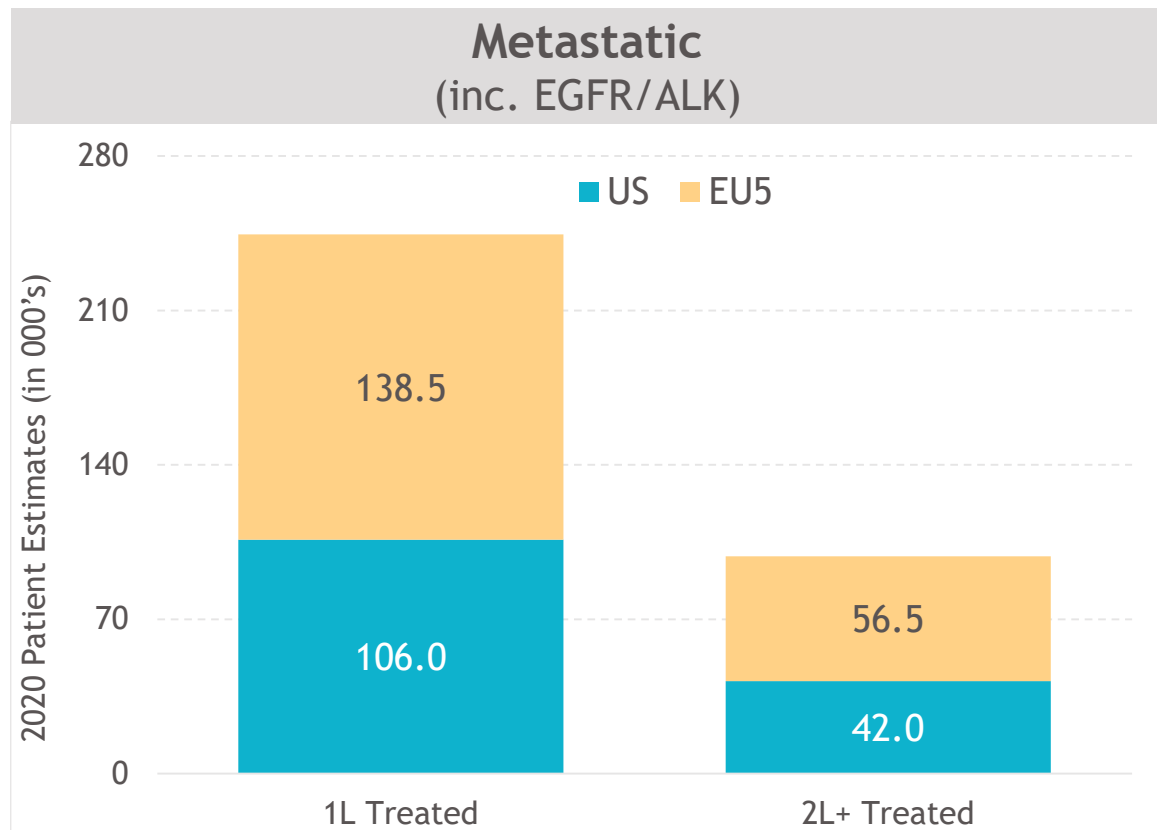


Epi slides

June 22, 2020

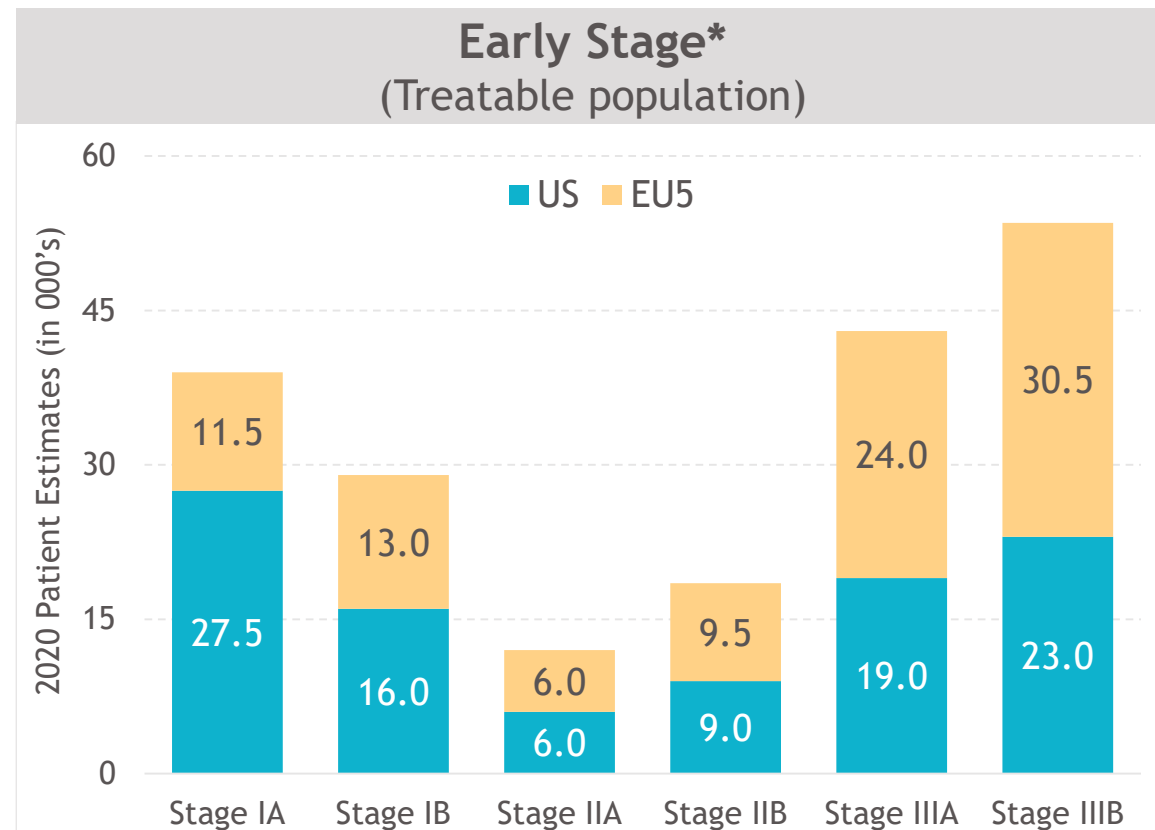
Solid Tumor Oncology

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 7th Edition Staging



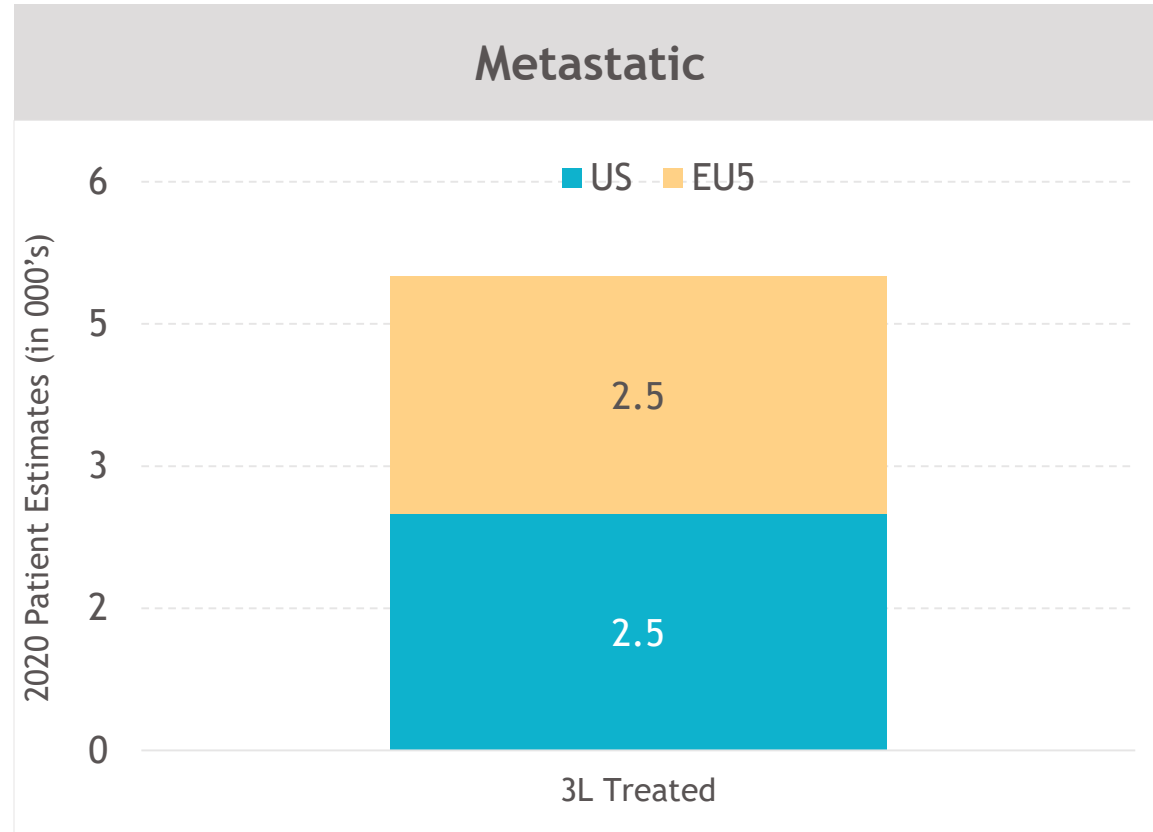
Treatment rates:

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

Resection rates

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

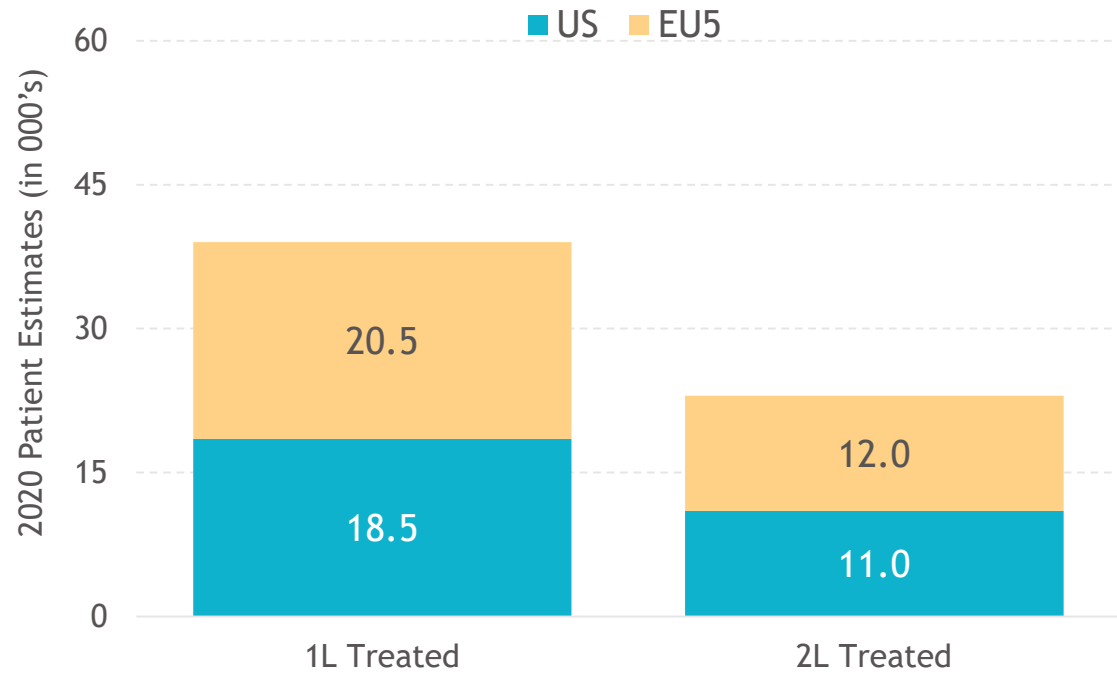
SCLC



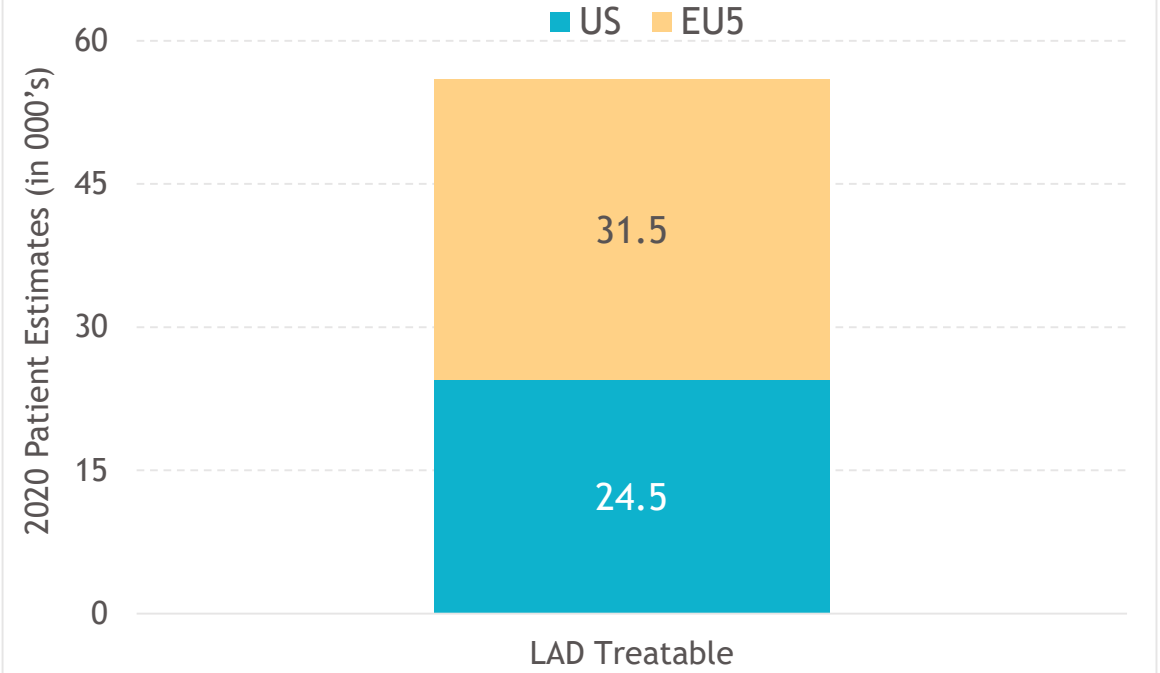
Source: Decision Resources Group; BMS Internal Analysis

SCCHN

Metastatic



Early Stage

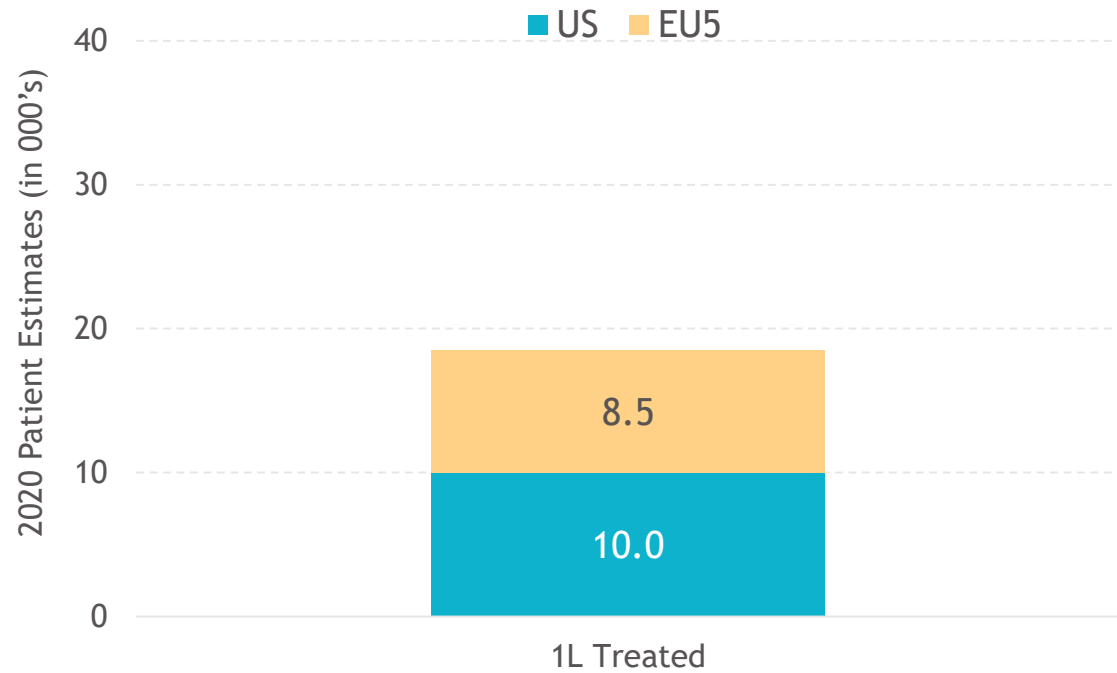


- LAD txt rate: 60% - 85%

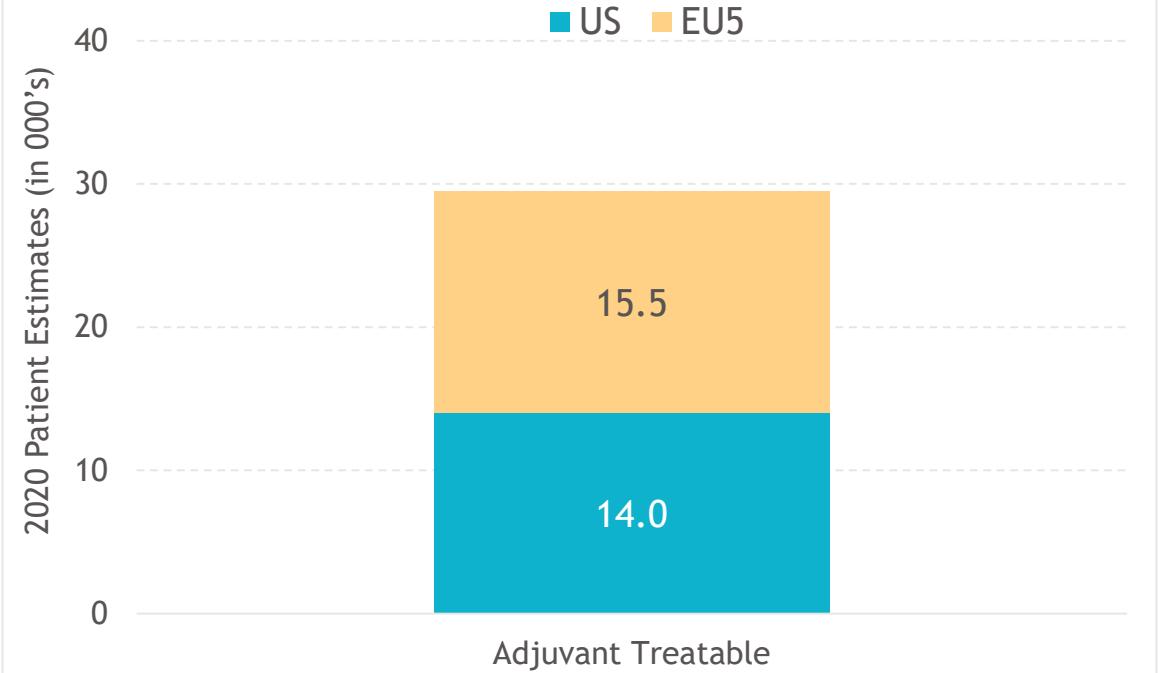
Source: Decision Resources Group; BMS Internal Analysis

Melanoma

Metastatic



Early Stage

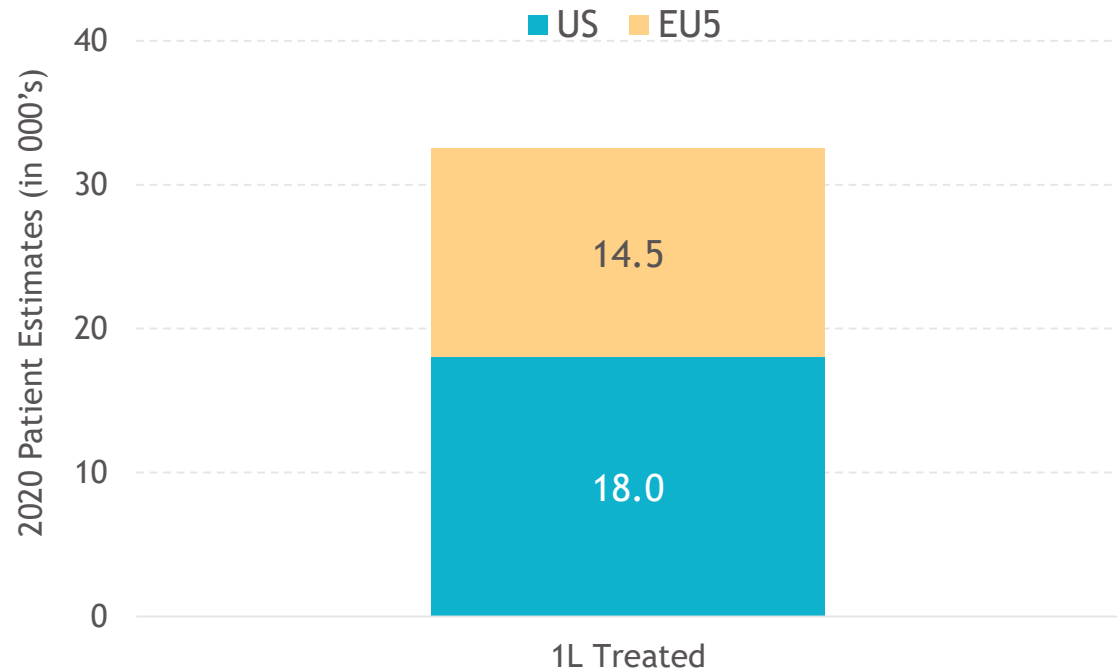


- Early stage txt rate: 70-80%

Source: Decision Resources Group; BMS Internal Analysis

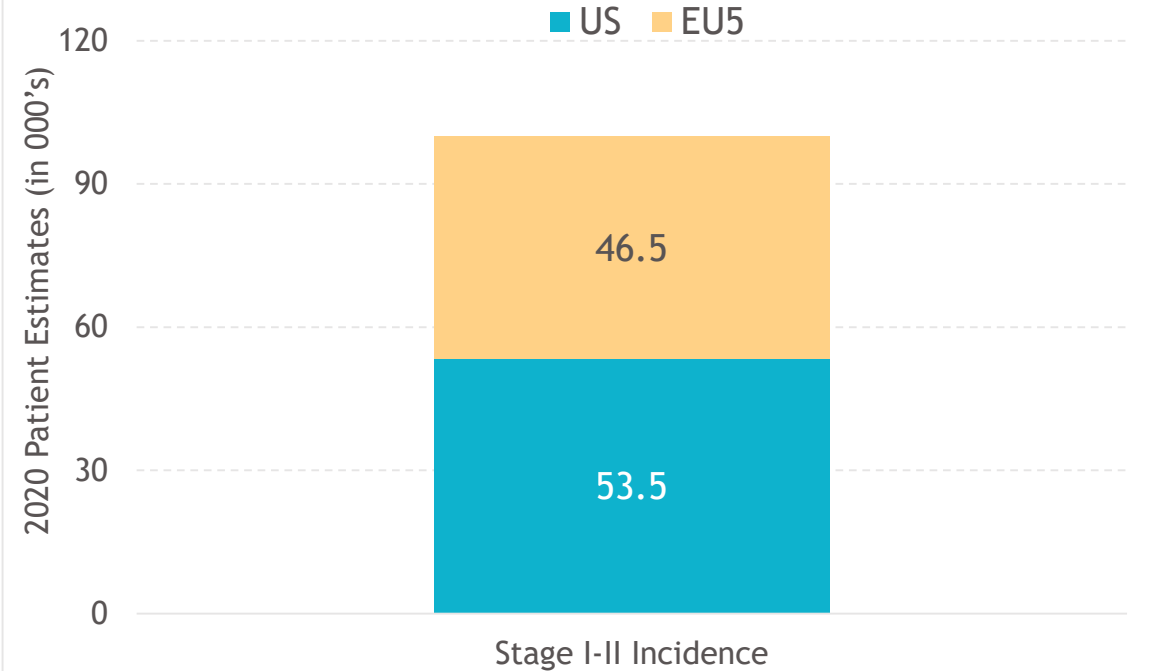
RCC

Metastatic



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

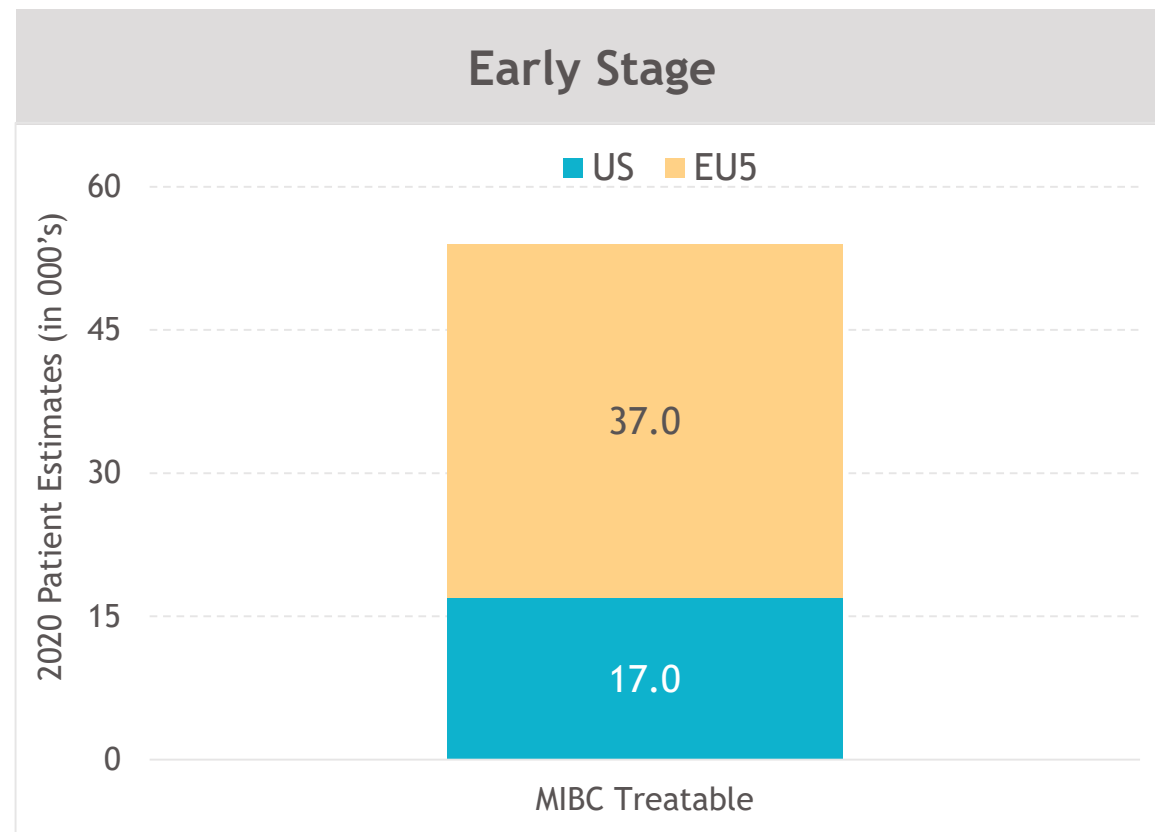
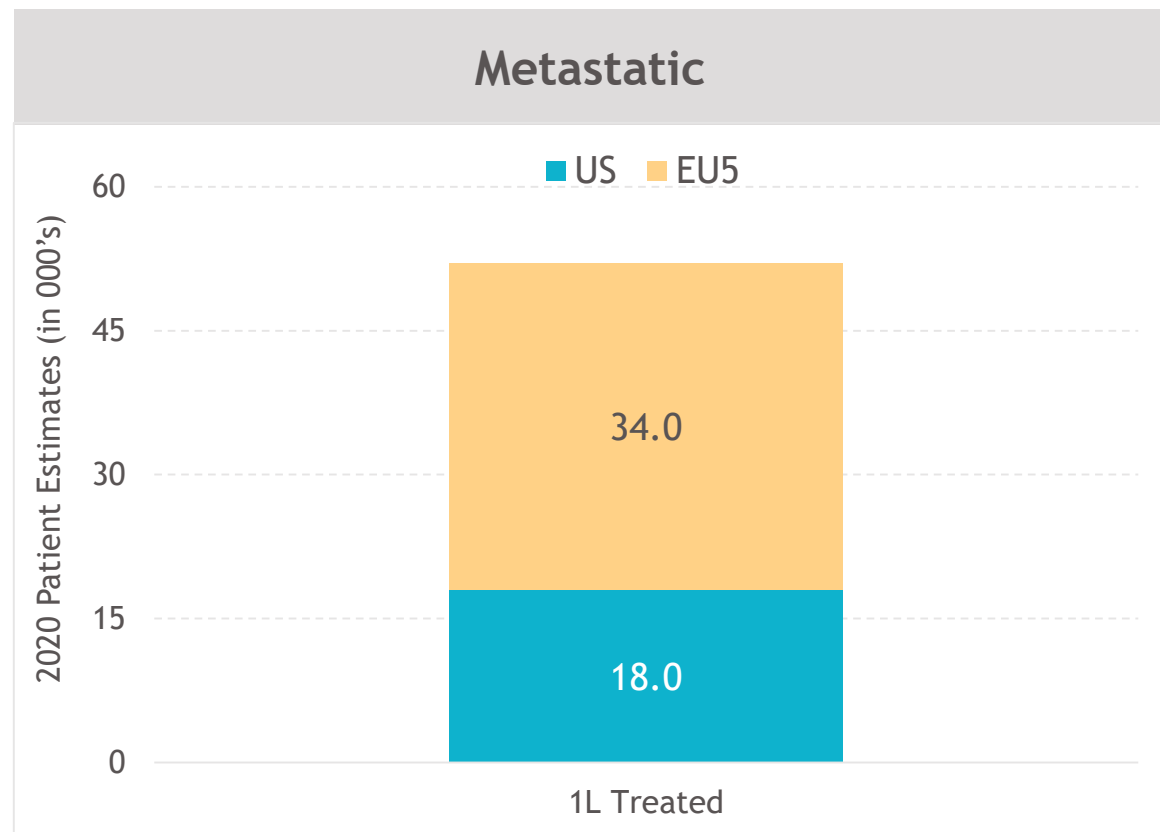
Early Stage



- 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

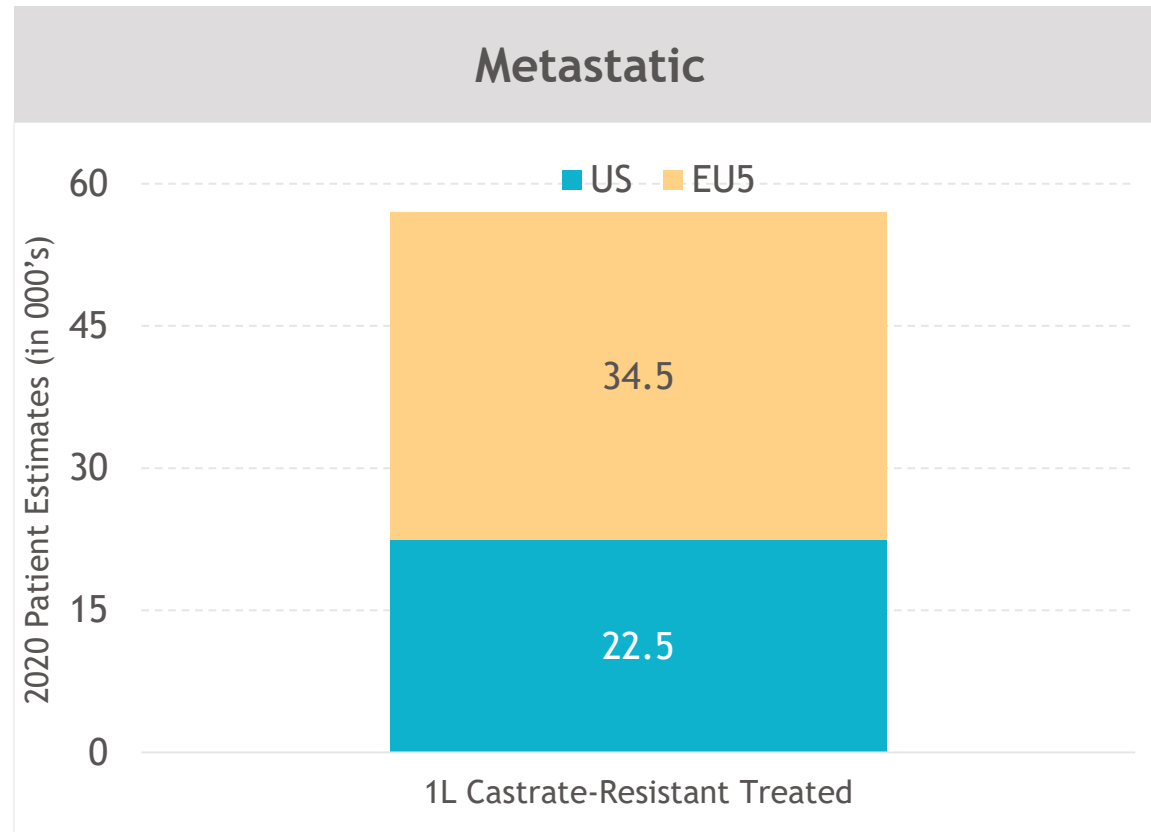
Bladder



- Cystectomy rates in MIBC are ~50%
- Early stage treatment rate
 - MIBC txt rate: 70% - 80%

Source: Decision Resources Group; BMS Internal Analysis

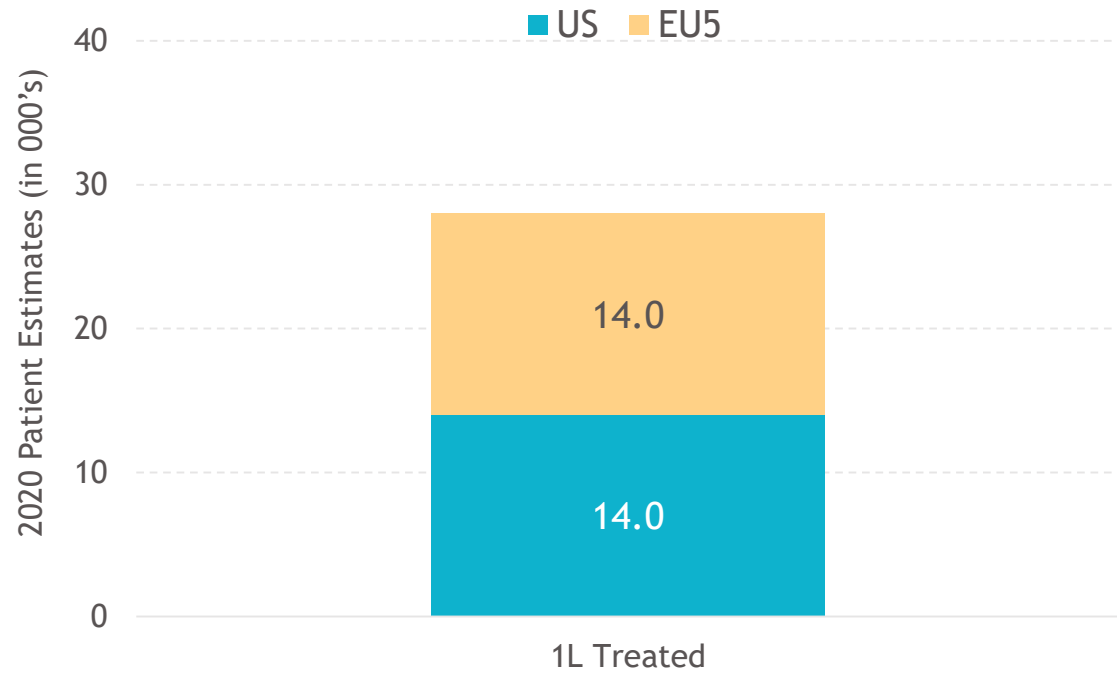
Prostate



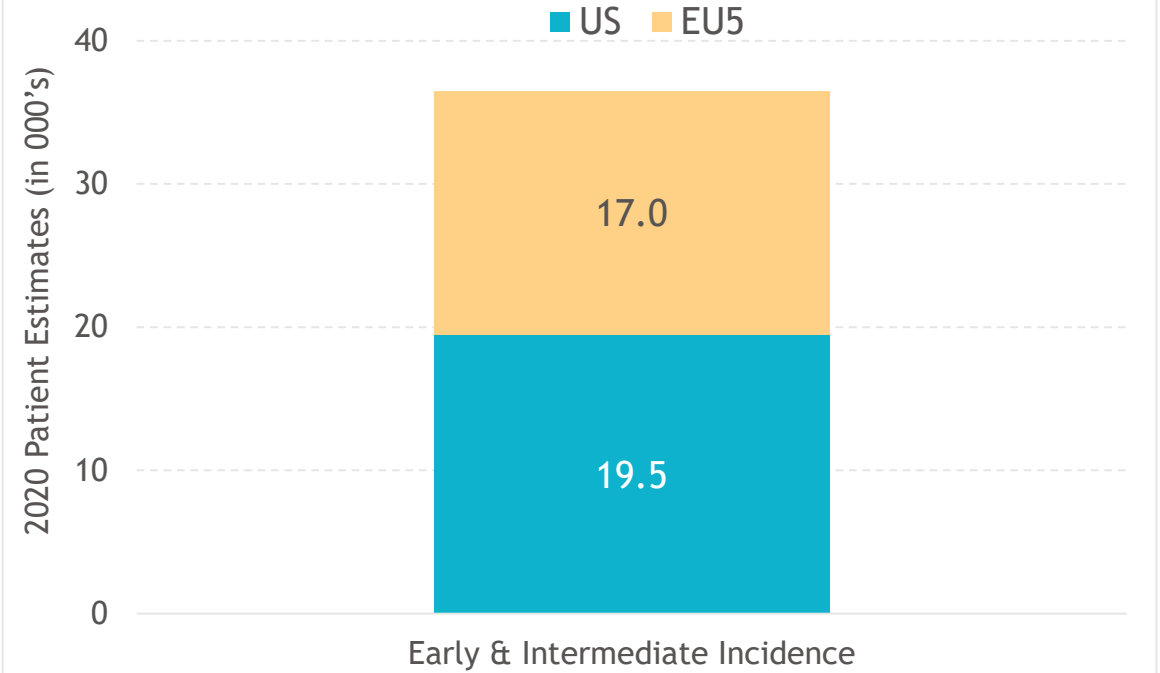
Source: Decision Resources Group; BMS Internal Analysis

HCC

Metastatic



Early Stage

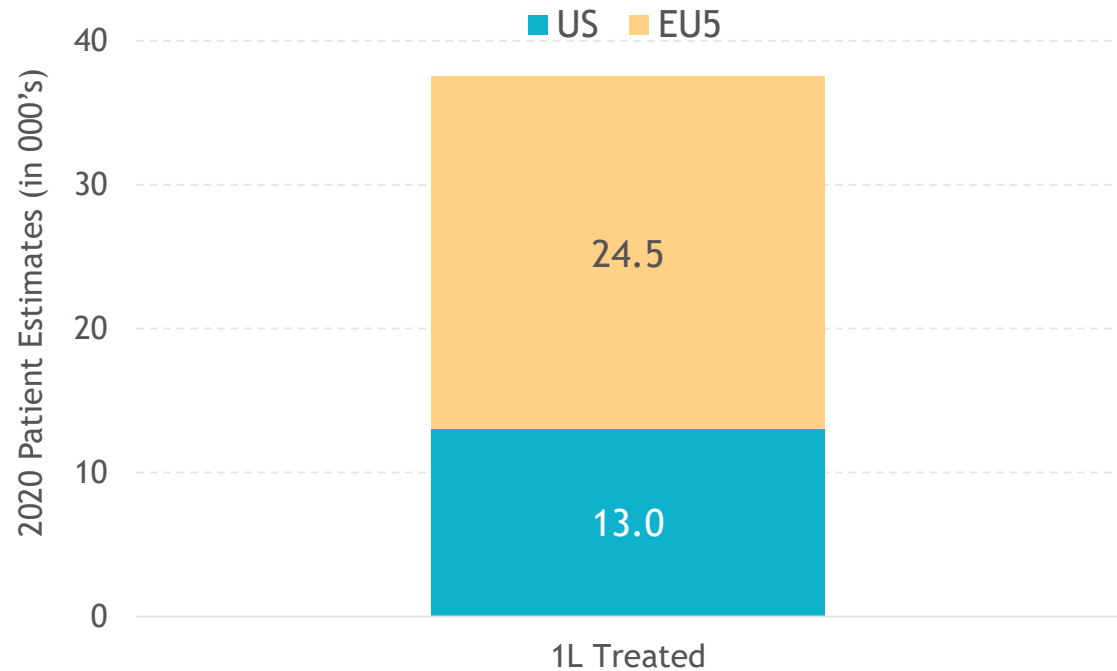


- High risk ablated or resected: 12% of Early Stage
- Early stage txt rate: 30-60%

Source: Decision Resources Group; BMS Internal Analysis

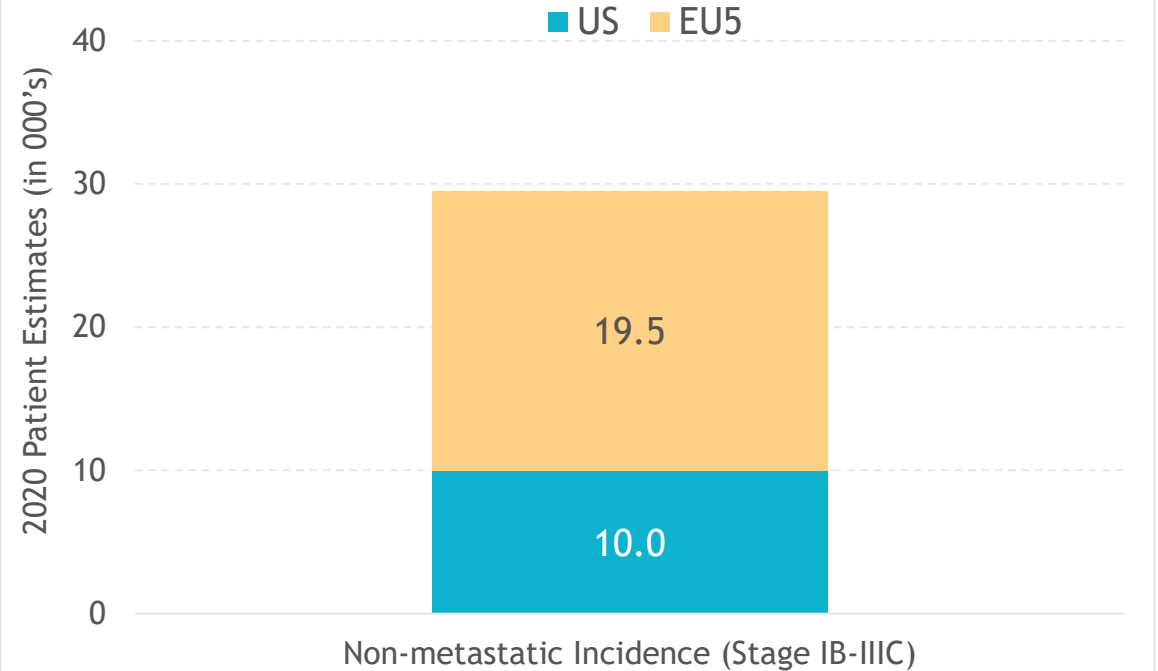
Gastric*

Metastatic



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

Early Stage

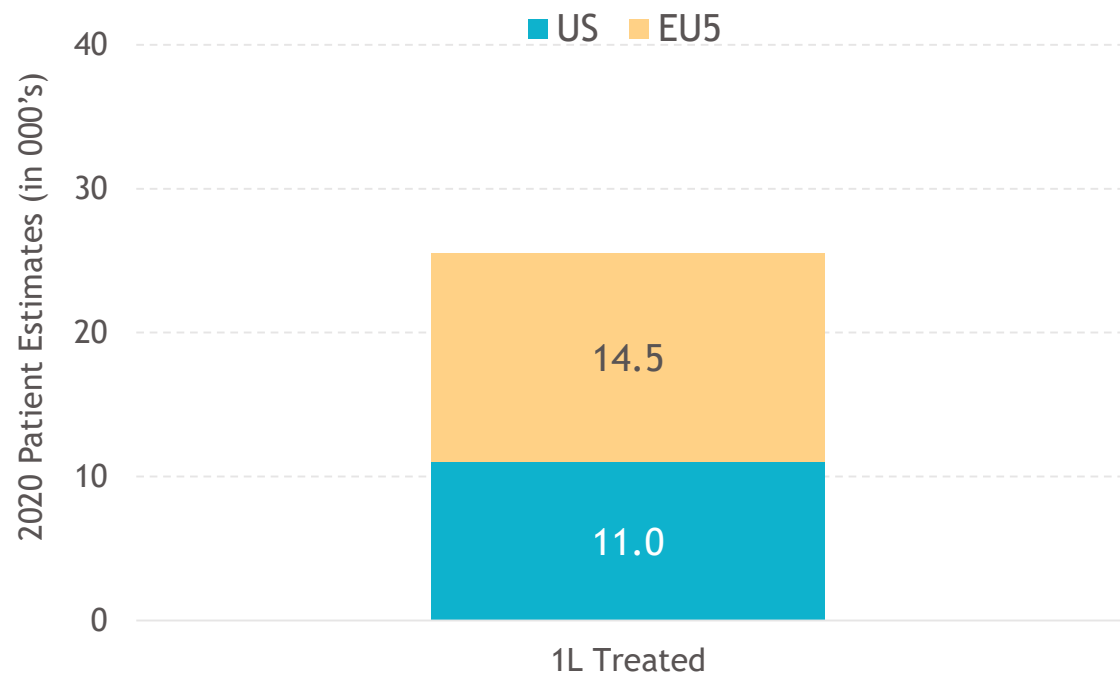


- Stage II and III GEJC: ~20-24%
- Treatment rates:
 - Localized & resectable locally advanced: 60% - 70%
 - Unresectable locally advanced: 70% - 80%

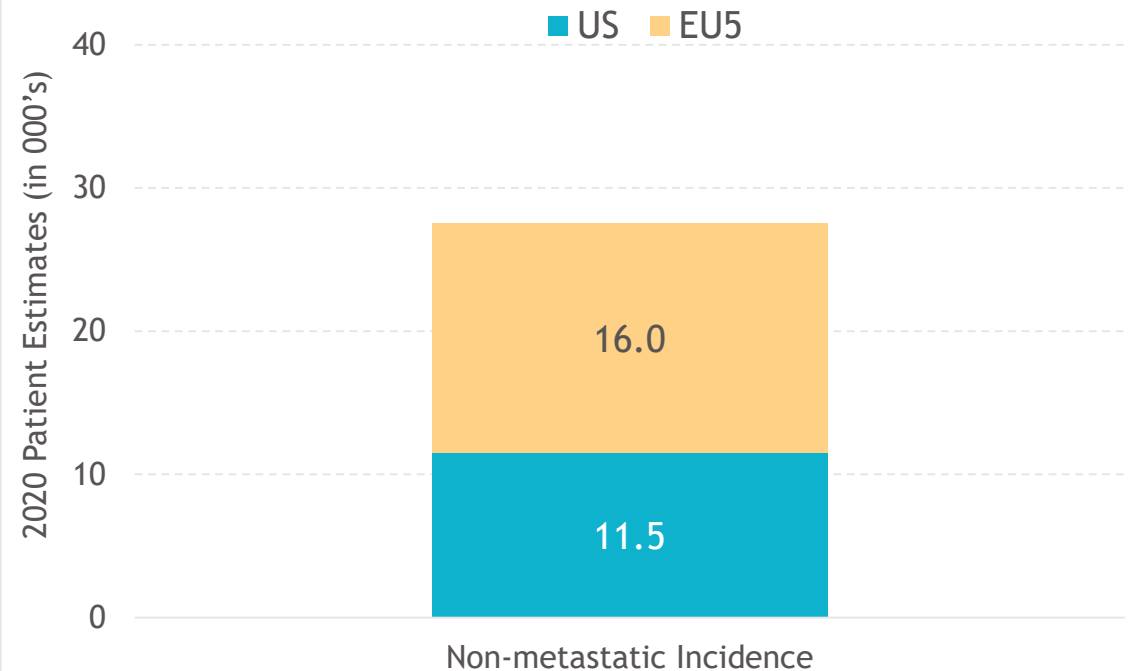
Source: Decision Resources Group; BMS Internal Analysis *Data represents adenocarcinoma only and includes GEJC

Esophageal*

Metastatic

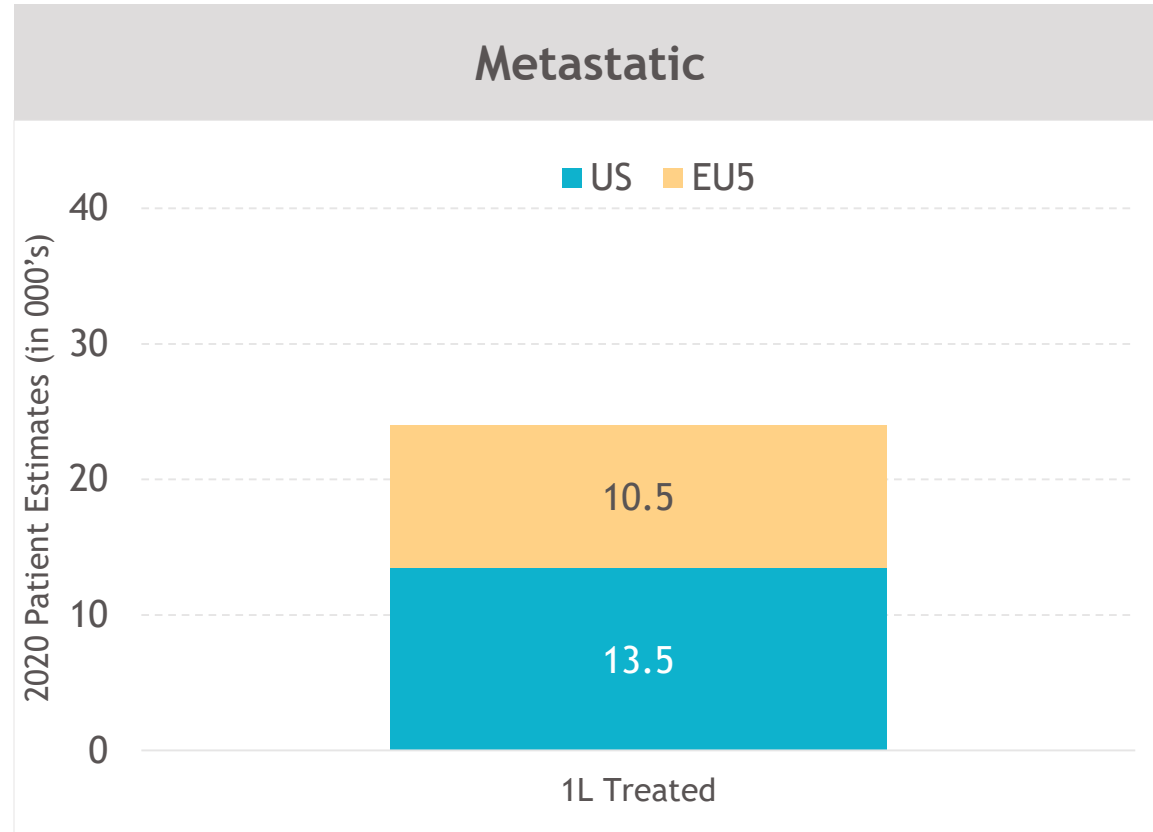


Early Stage



- **Eso stage II, stage III and stage IVA Resectable pts: ~67%**
- **Treatment rates:**
 - Localized & resectable locally advanced: 60% - 75%
 - Unresectable locally advanced: 65% - 75%

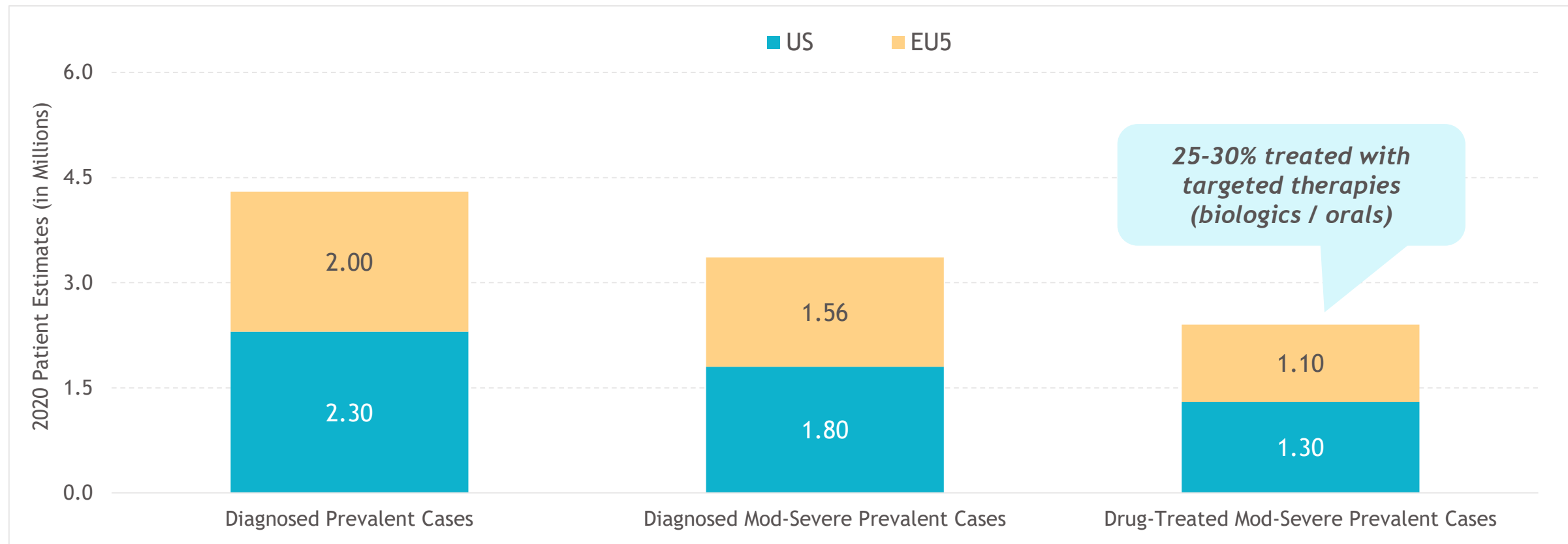
Source: Decision Resources Group; BMS Internal Analysis *Data represents adenocarcinoma and squamous only



Source: Decision Resources Group; BMS Internal Analysis

Autoimmune Disease

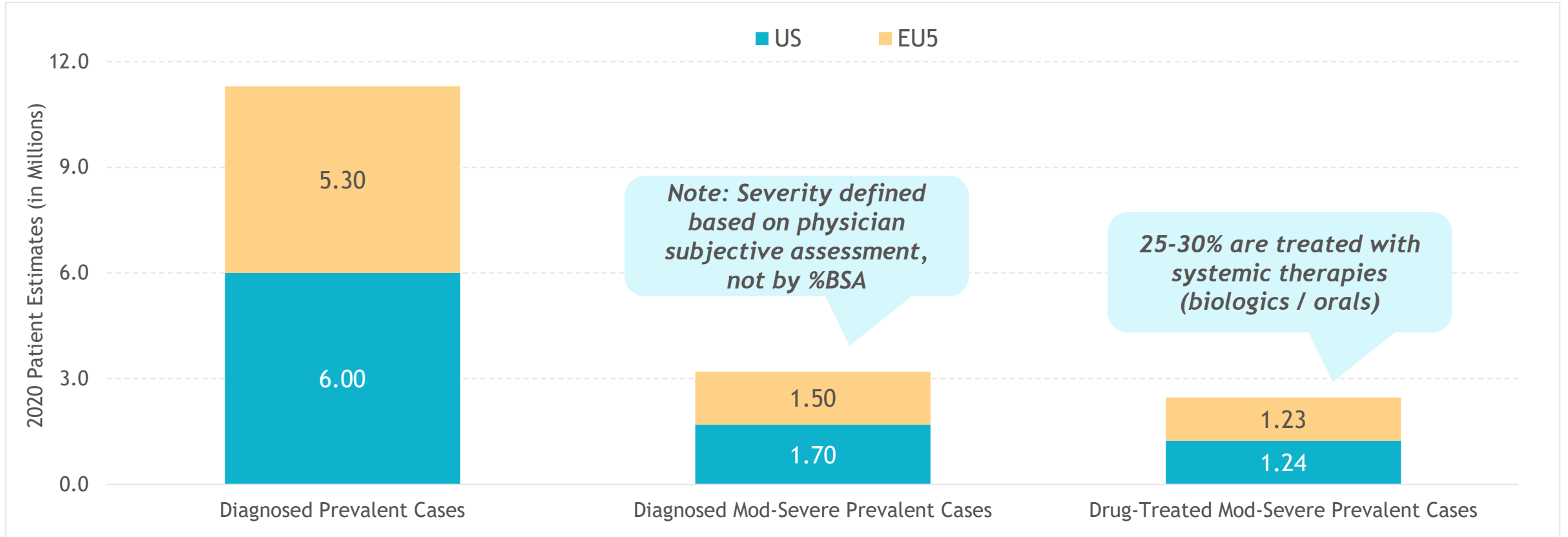
Rheumatoid Arthritis (RA)



- 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

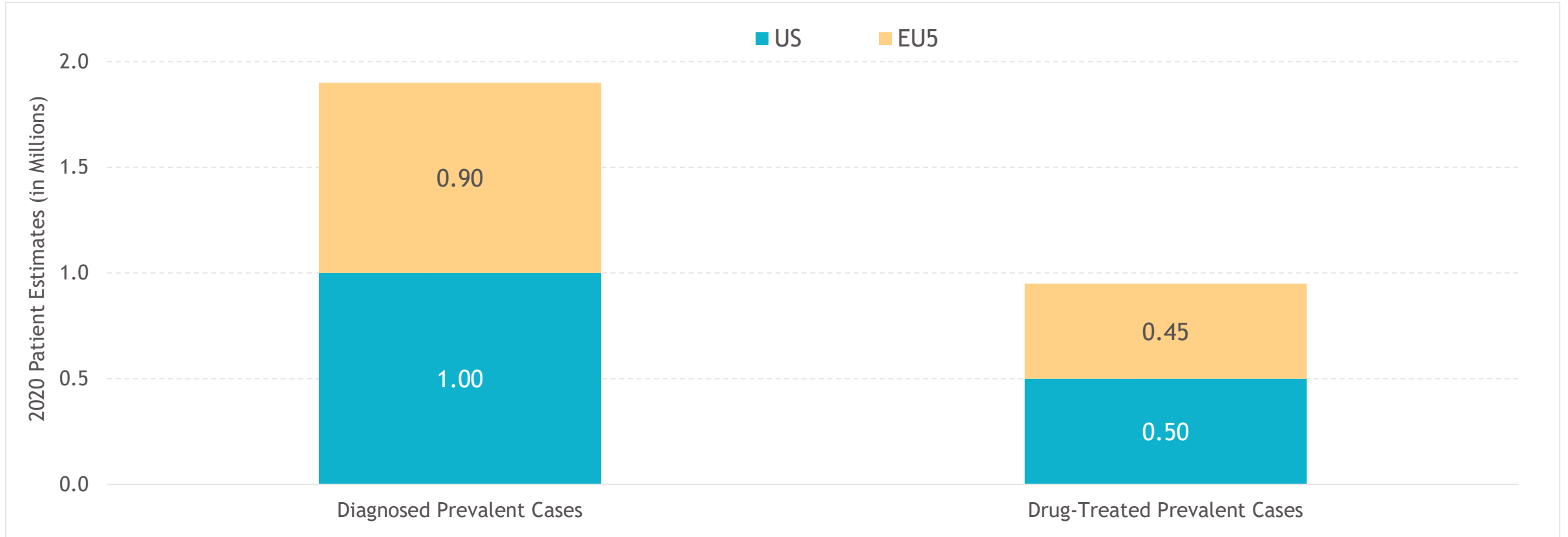
Psoriasis



- 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

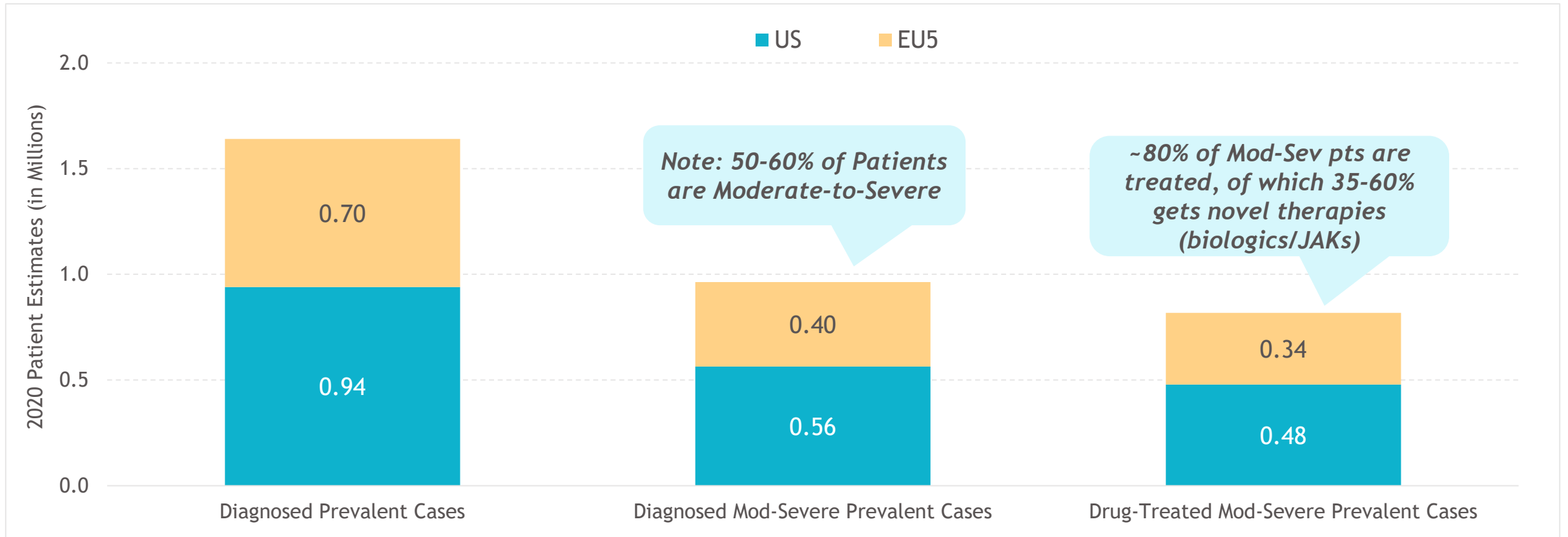
Psoriatic Arthritis



- 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

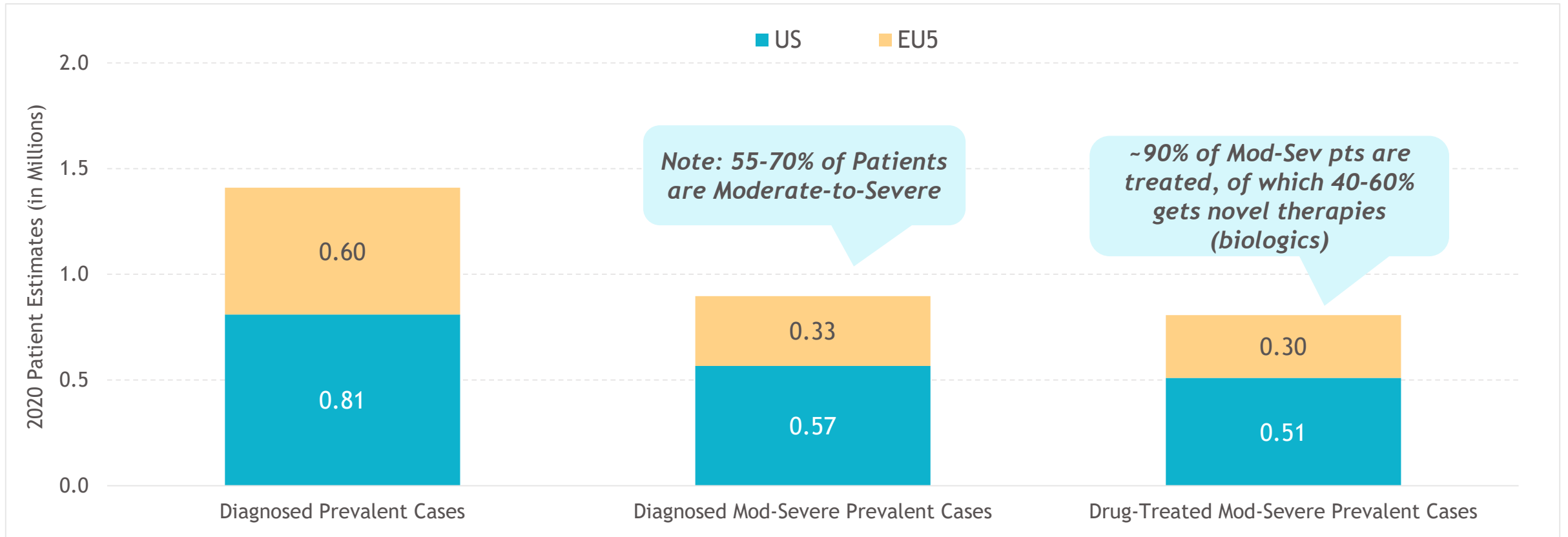
Ulcerative Colitis Patient Dynamics



- 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

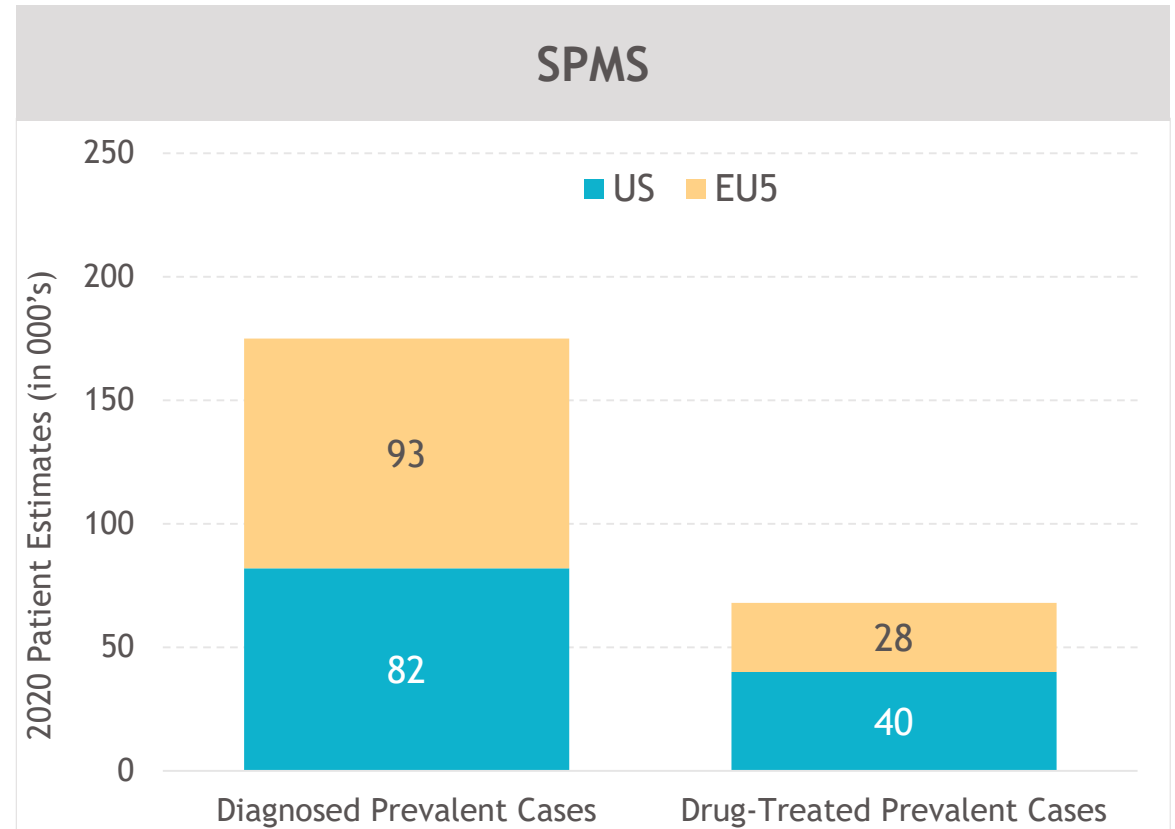
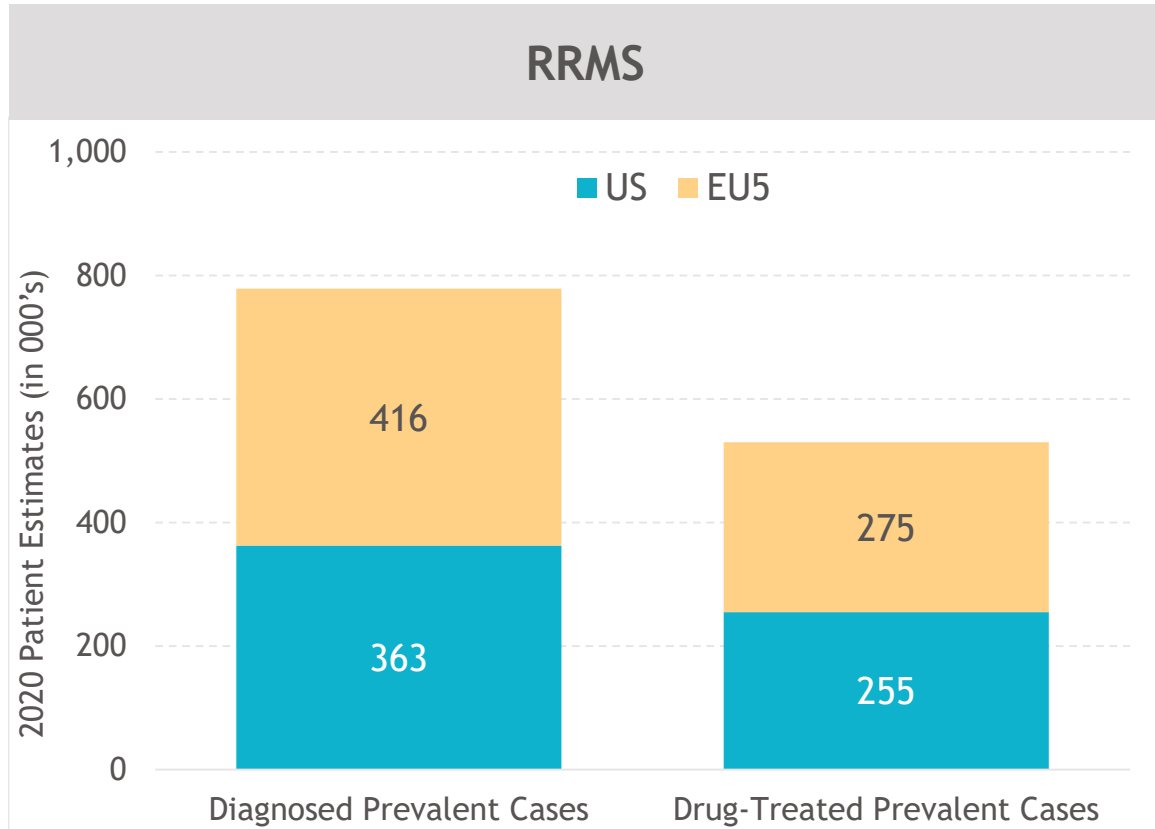
Crohn's Disease Patient Dynamics



- 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

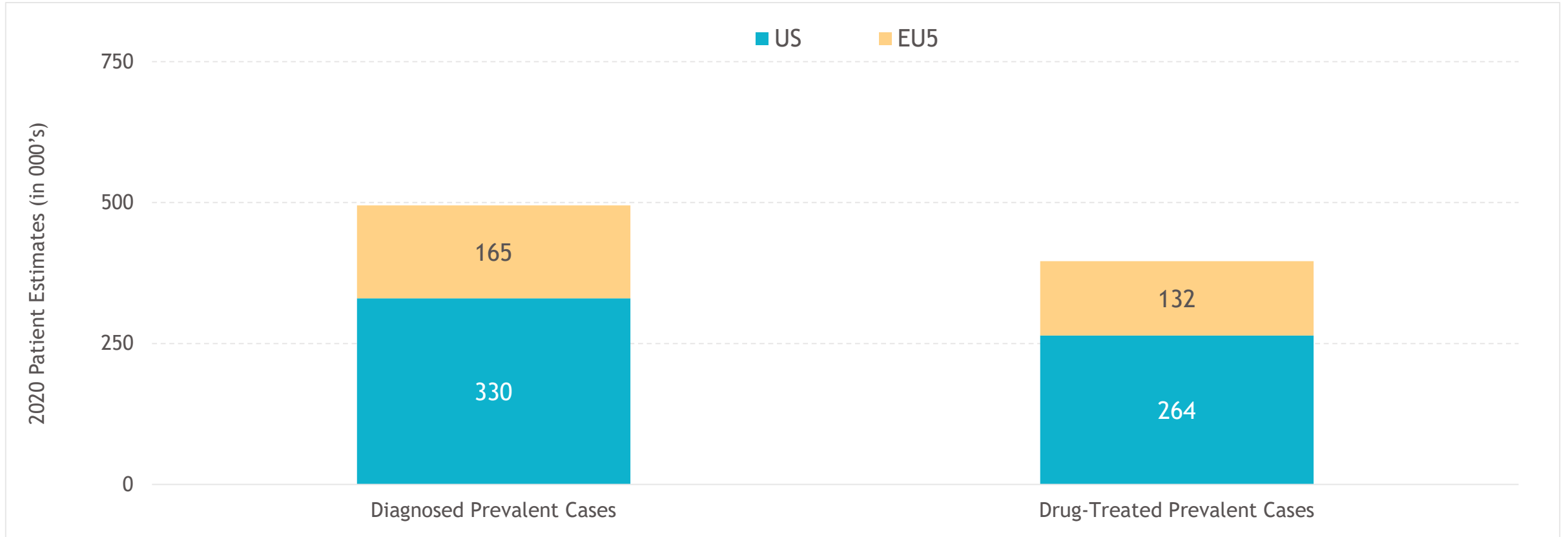
Multiple Sclerosis



• 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

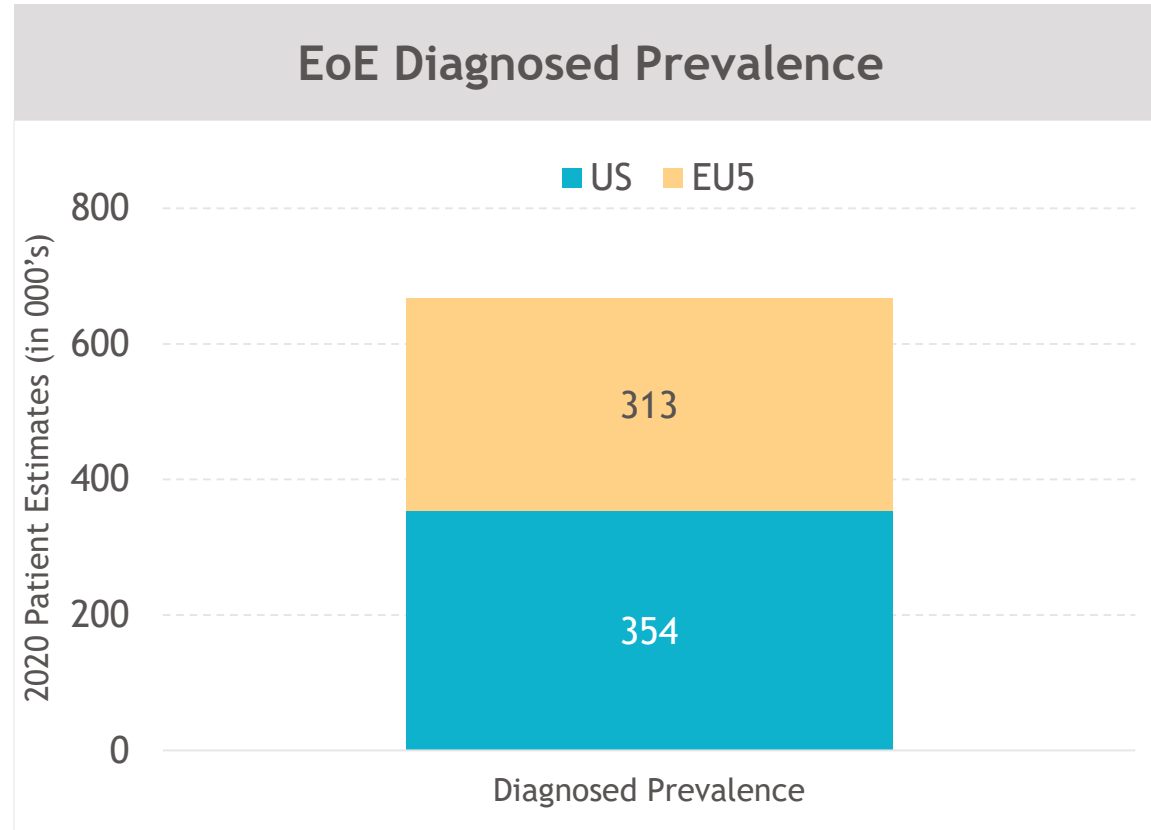
Systemic Lupus Erythematosus *(Includes Lupus Nephritis)*



- 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

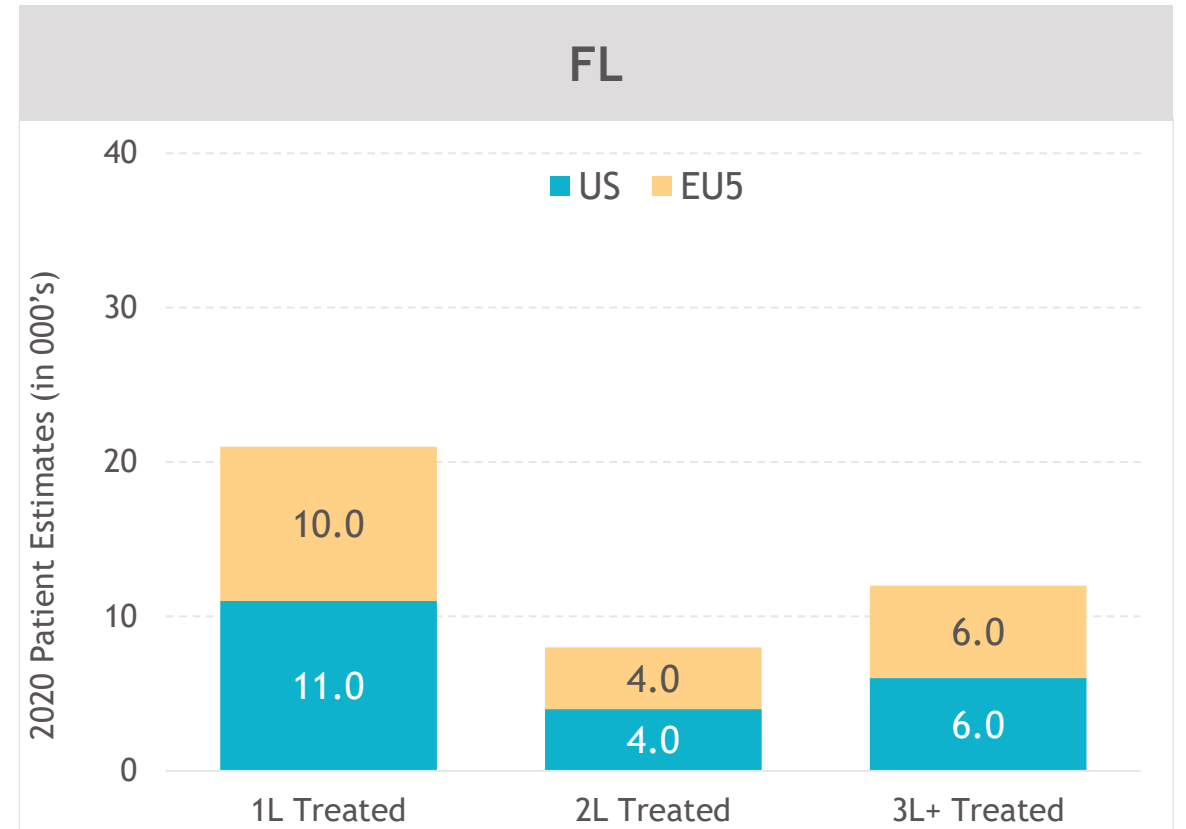
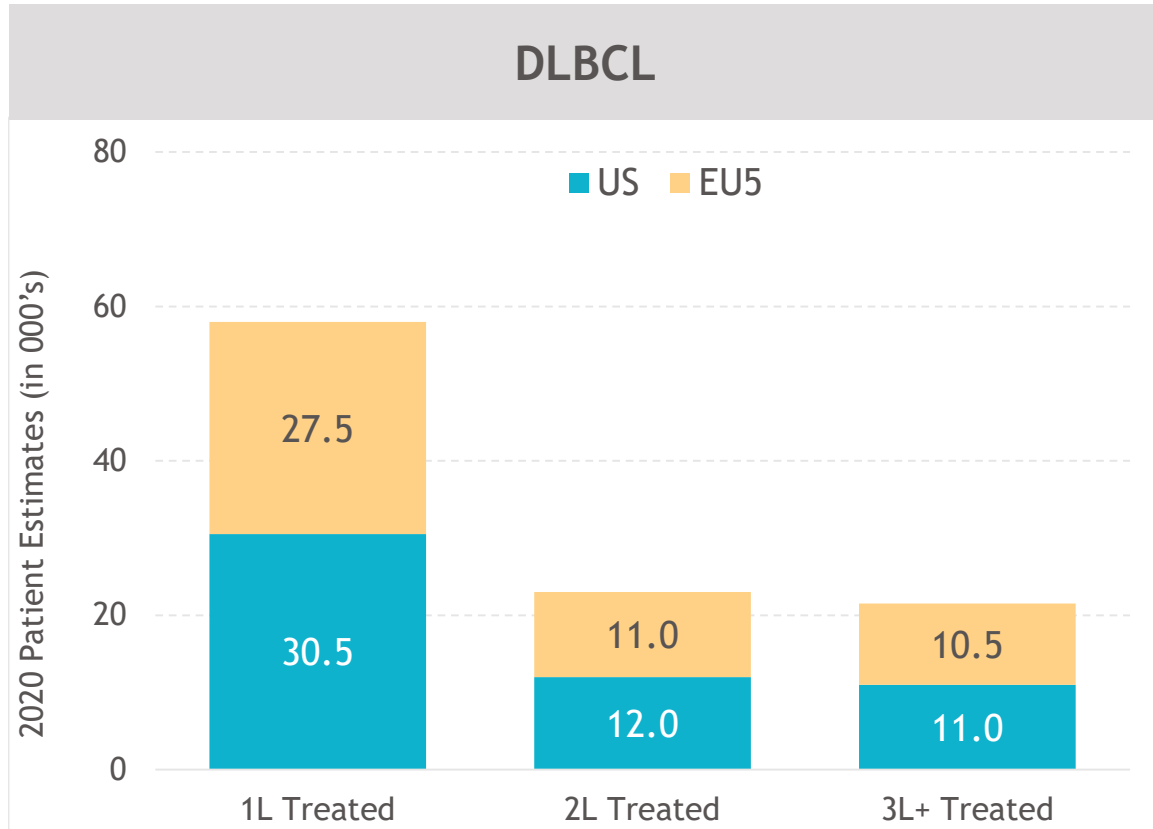
Eosinophilic Esophagitis (EoE)



Source: Decision Resources Group; BMS Internal Analysis

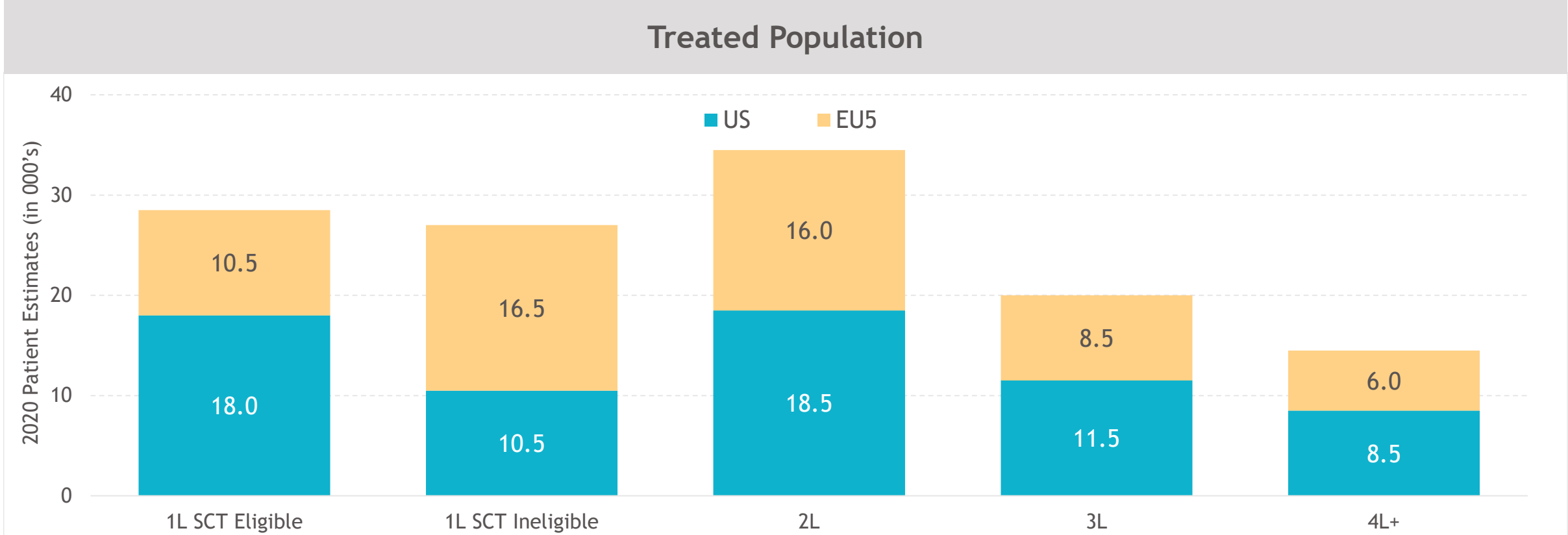
Hematology

Lymphoma



Source: Decision Resources Group; BMS Internal Analysis

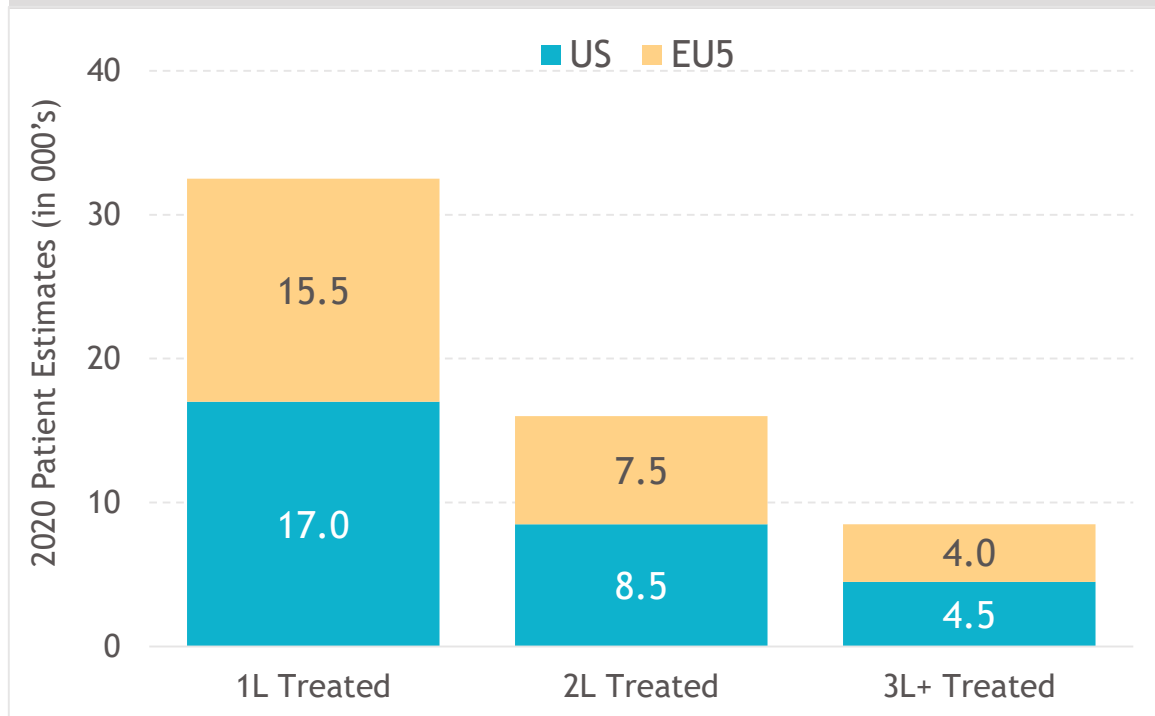
Multiple Myeloma



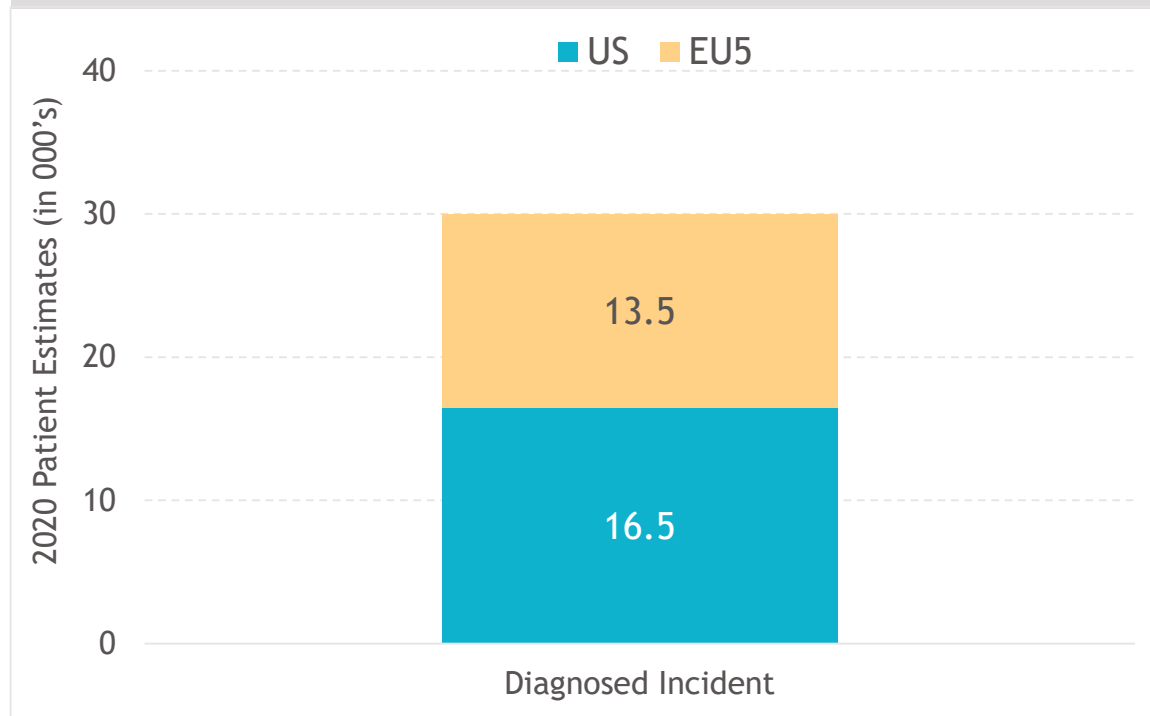
Source: Decision Resources Group; BMS Internal Analysis

Leukemia

CLL+SLL

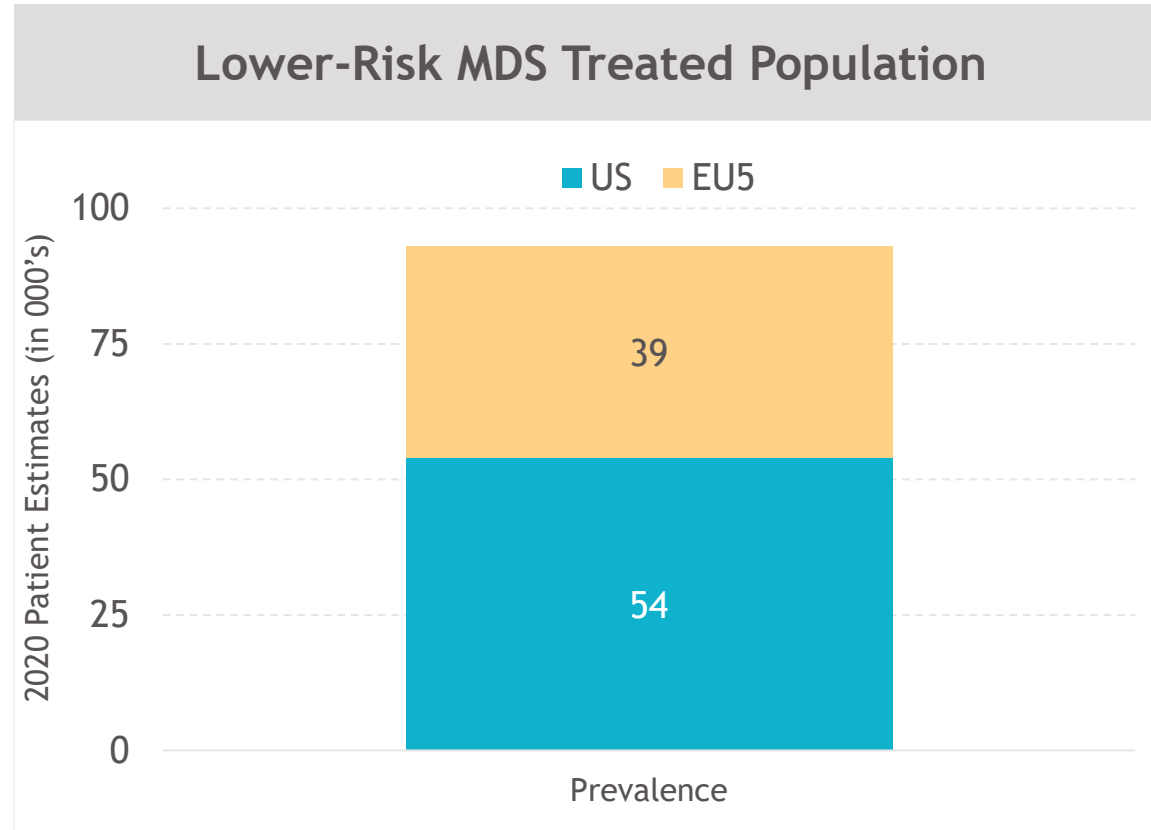


AML (excluding APL*)



Source: Decision Resources Group; BMS Internal Analysis

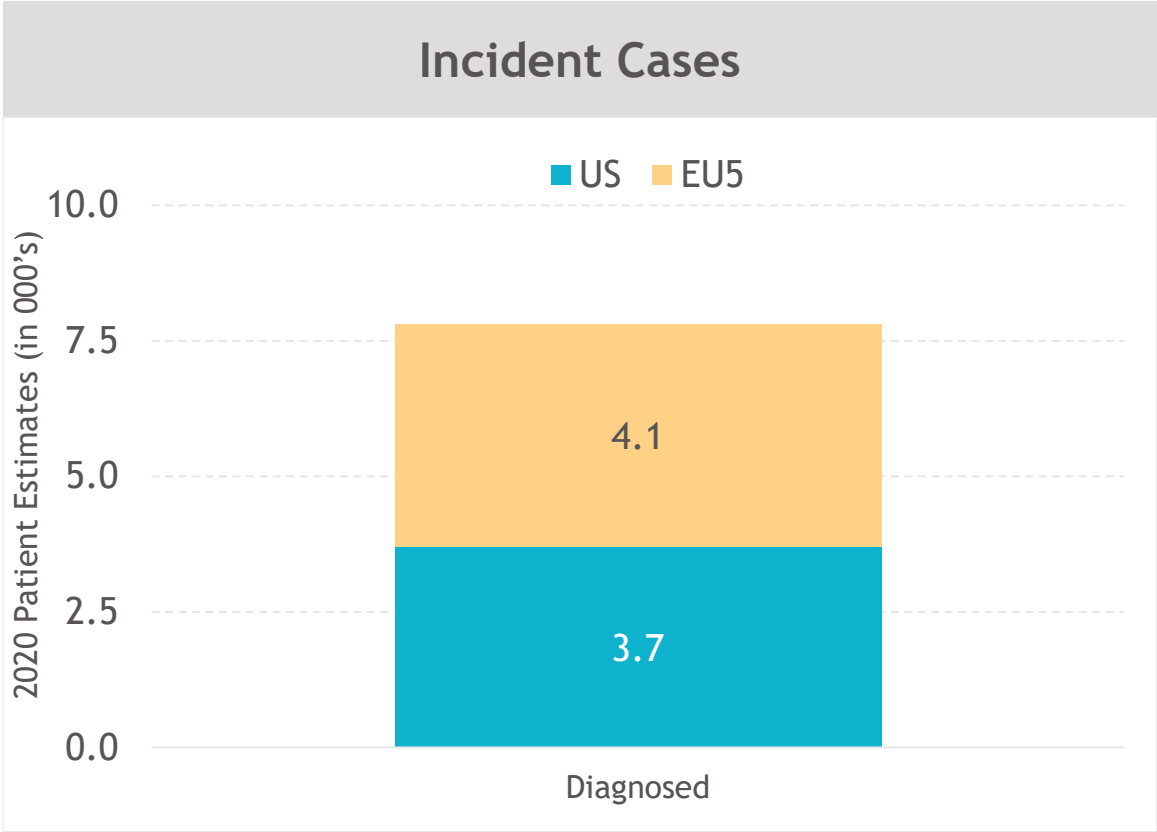
*APL = acute promyelocytic leukemia



- 40% of lower-risk patients are RS Positive
- ~40% ESA Refractory patients
- 60% of patients have suboptimal response with ESA treatment

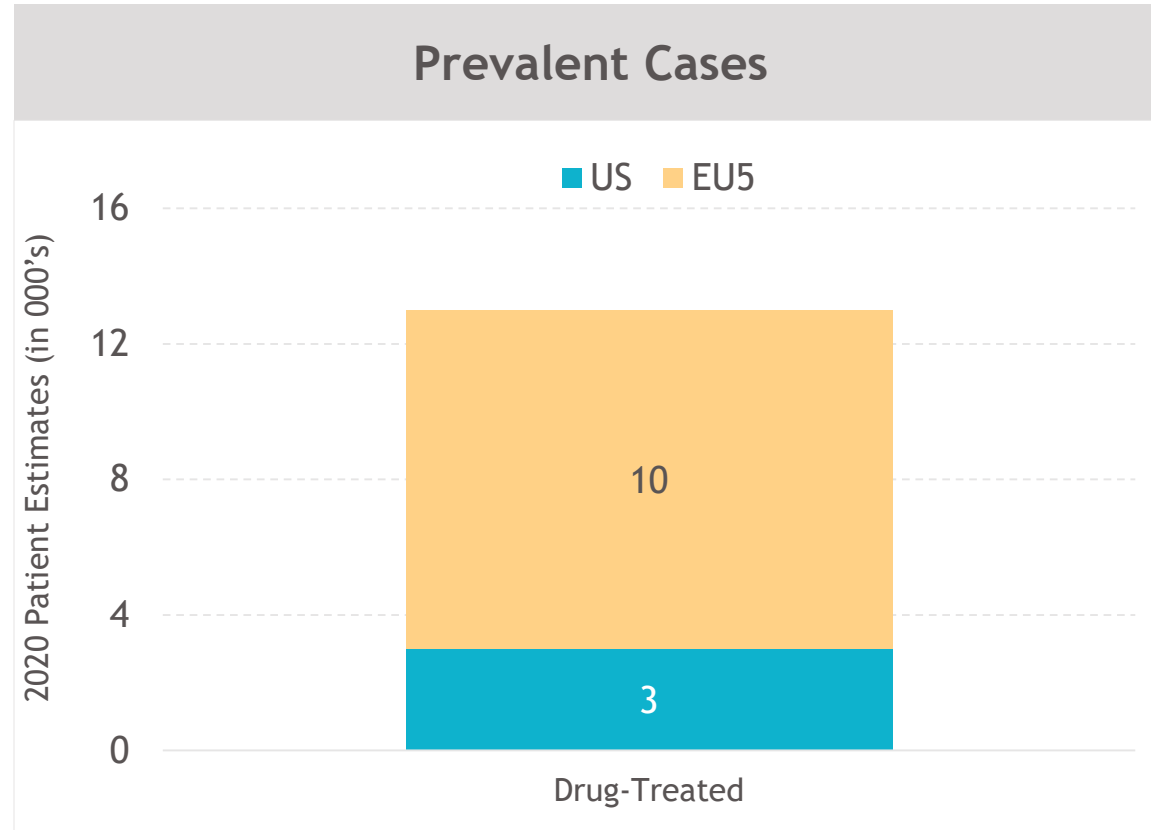
Source: Decision Resources Group; BMS Internal Analysis

Myelofibrosis



Source: Decision Resources Group; BMS Internal Analysis

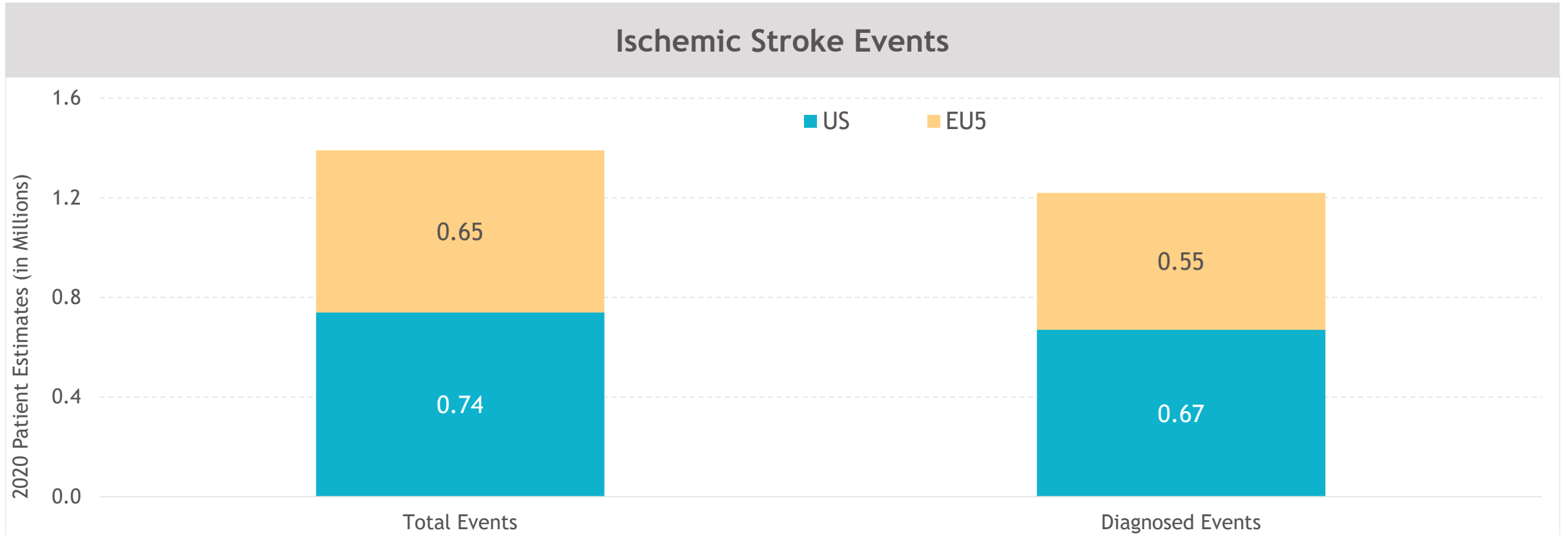
Beta Thalassemia



Source: Decision Resources Group; BMS Internal Analysis

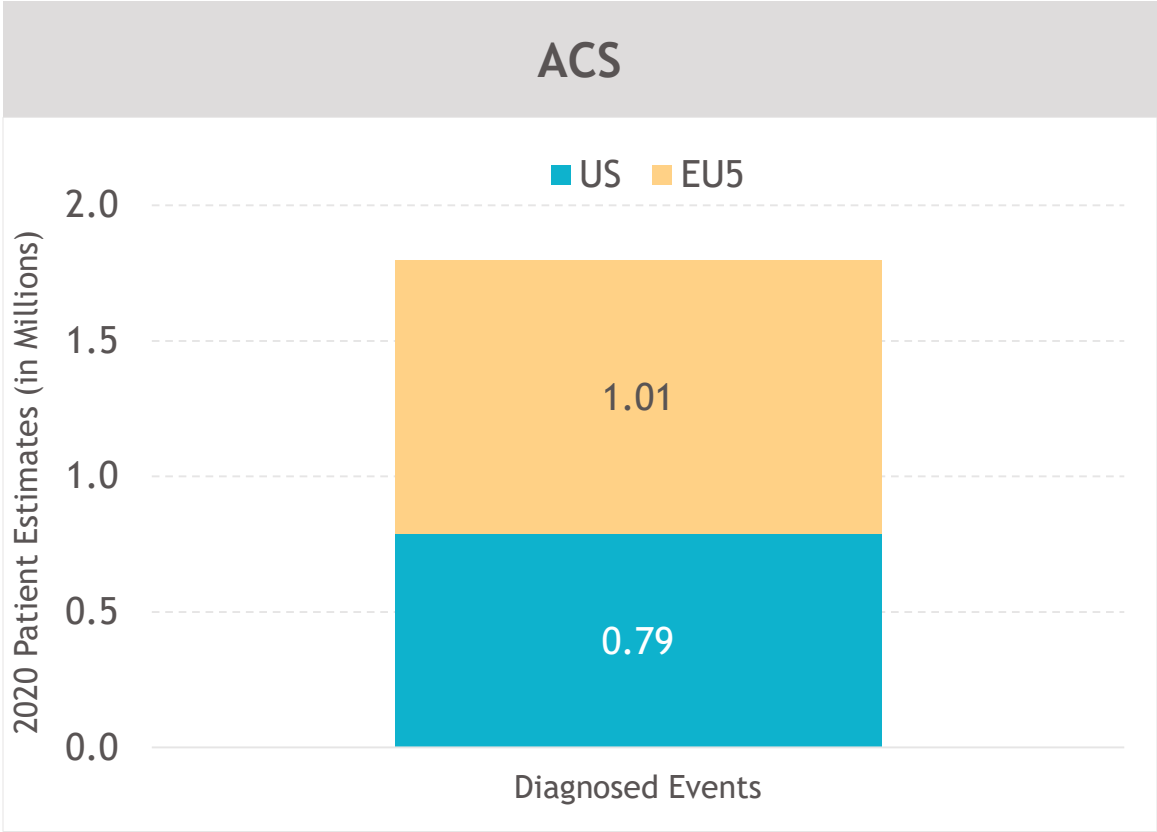
Cardiovascular

Secondary Stroke Prevention



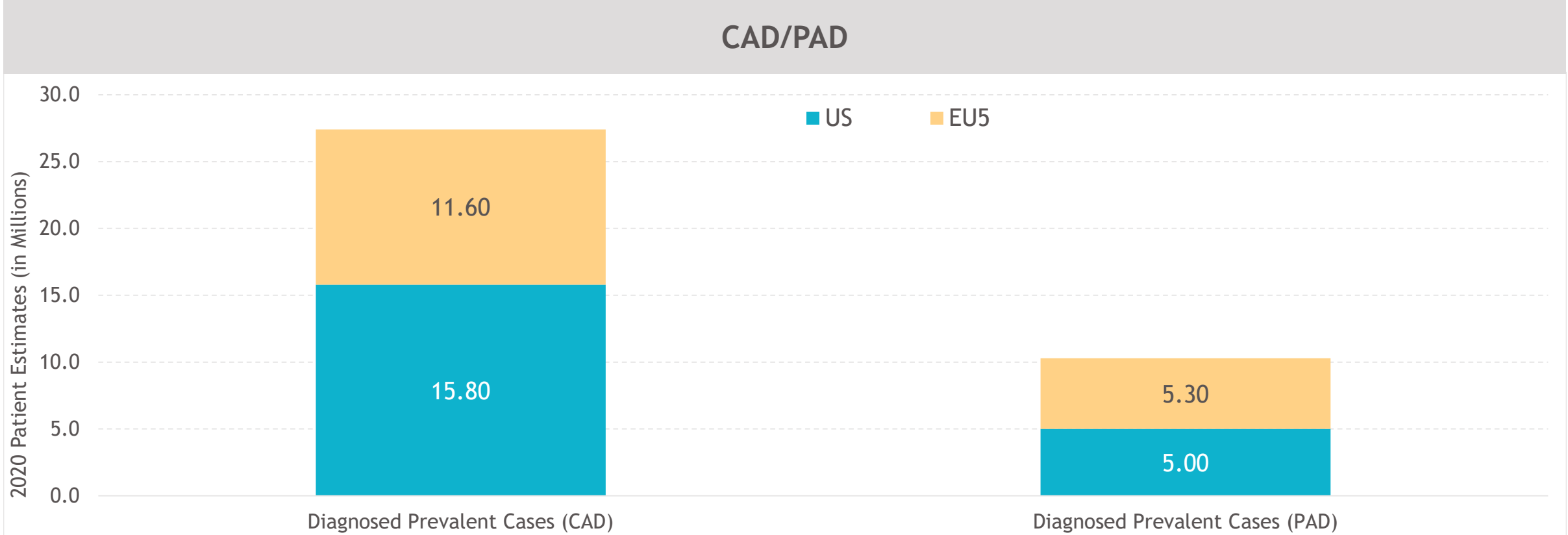
Source: Decision Resources Group; BMS Internal Analysis

Acute Coronary Syndrome



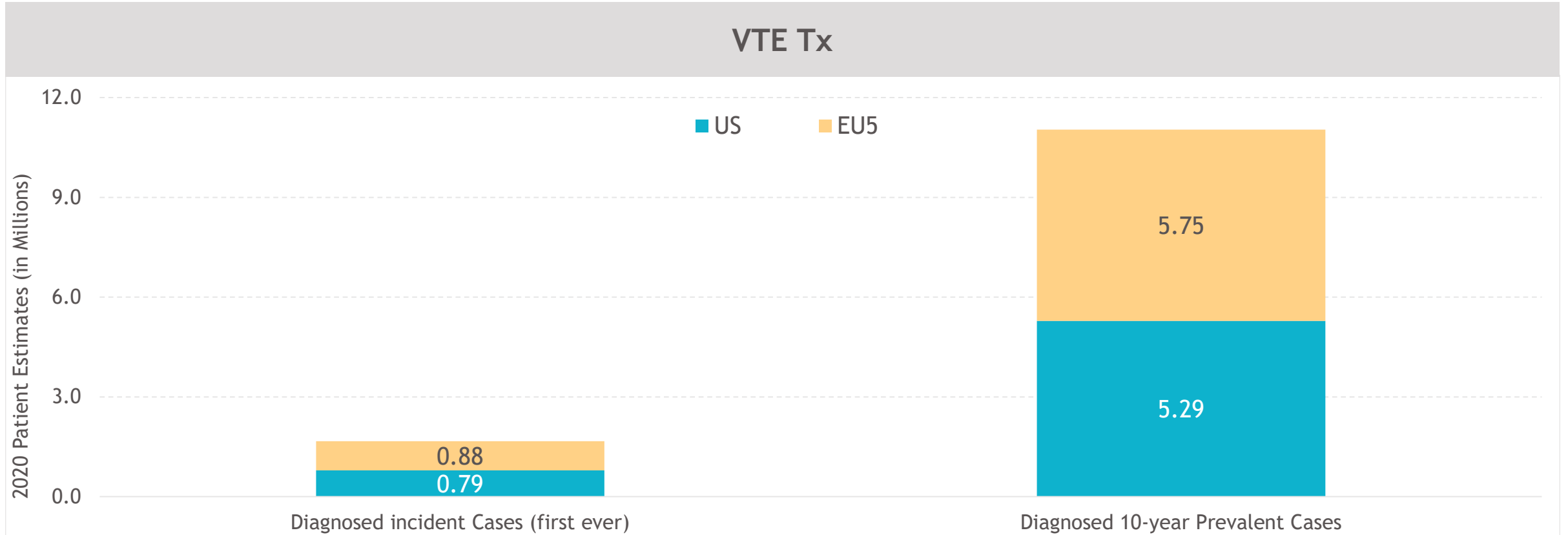
Source: Decision Resources Group; BMS Internal Analysis

Atherosclerotic Cardiovascular Disease



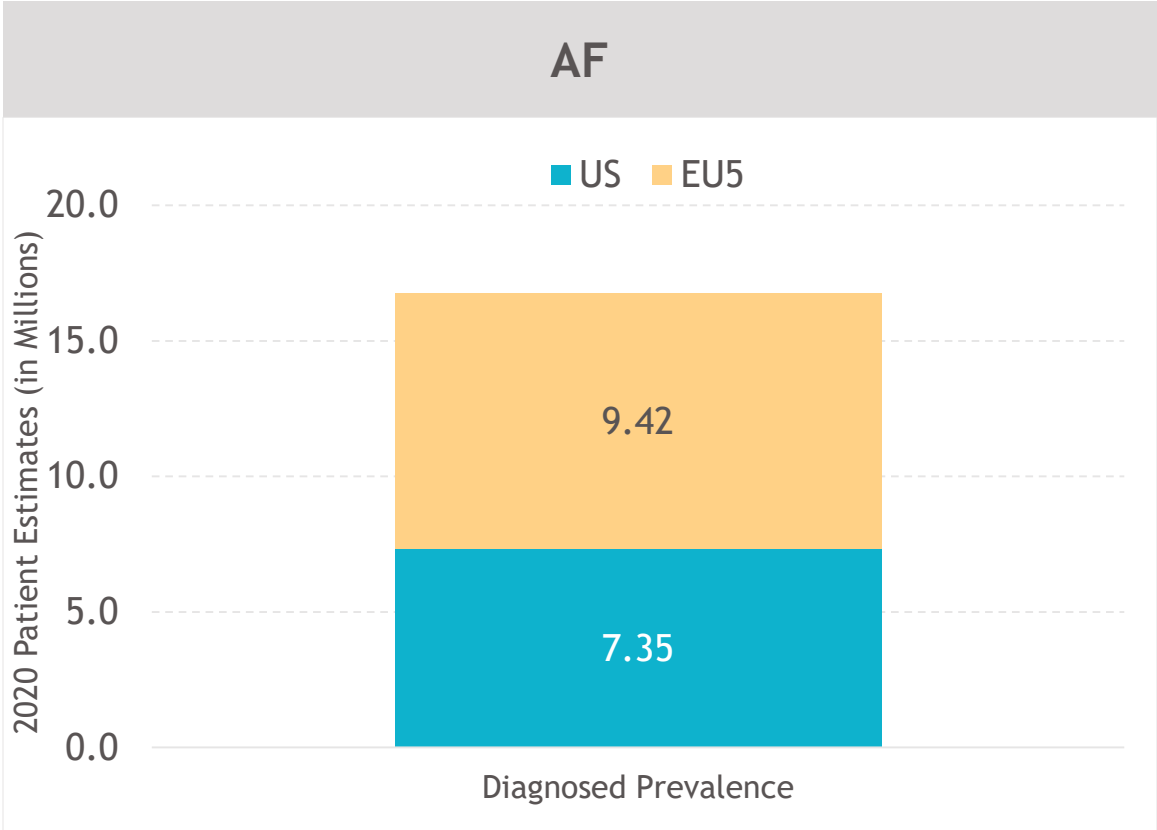
Source: Decision Resources Group; BMS Internal Analysis

Venous Thromboembolism



Source: Decision Resources Group; BMS Internal Analysis

Atrial Fibrillation



Source: Decision Resources Group; BMS Internal Analysis