

Trends in Systemic Glucocorticoid Utilization in the United Kingdom from 1990 to 2019: A Population-Based, Serial Cross-Sectional Analysis

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Introduction

- Systemic corticosteroid (SCS) use is associated with adverse event risk¹⁻²
 - Risk increases with SCS dose and cumulative exposure¹⁻²
- Patient management guidelines across disease states have embraced SCS-sparing treatment strategies³⁻⁵
- Steroid-sparing alternatives should decrease SCS use
- This population-based analysis describes time trends in SCS utilisation relative to United Kingdom (UK) National Health Service availability of SCS-sparing therapies

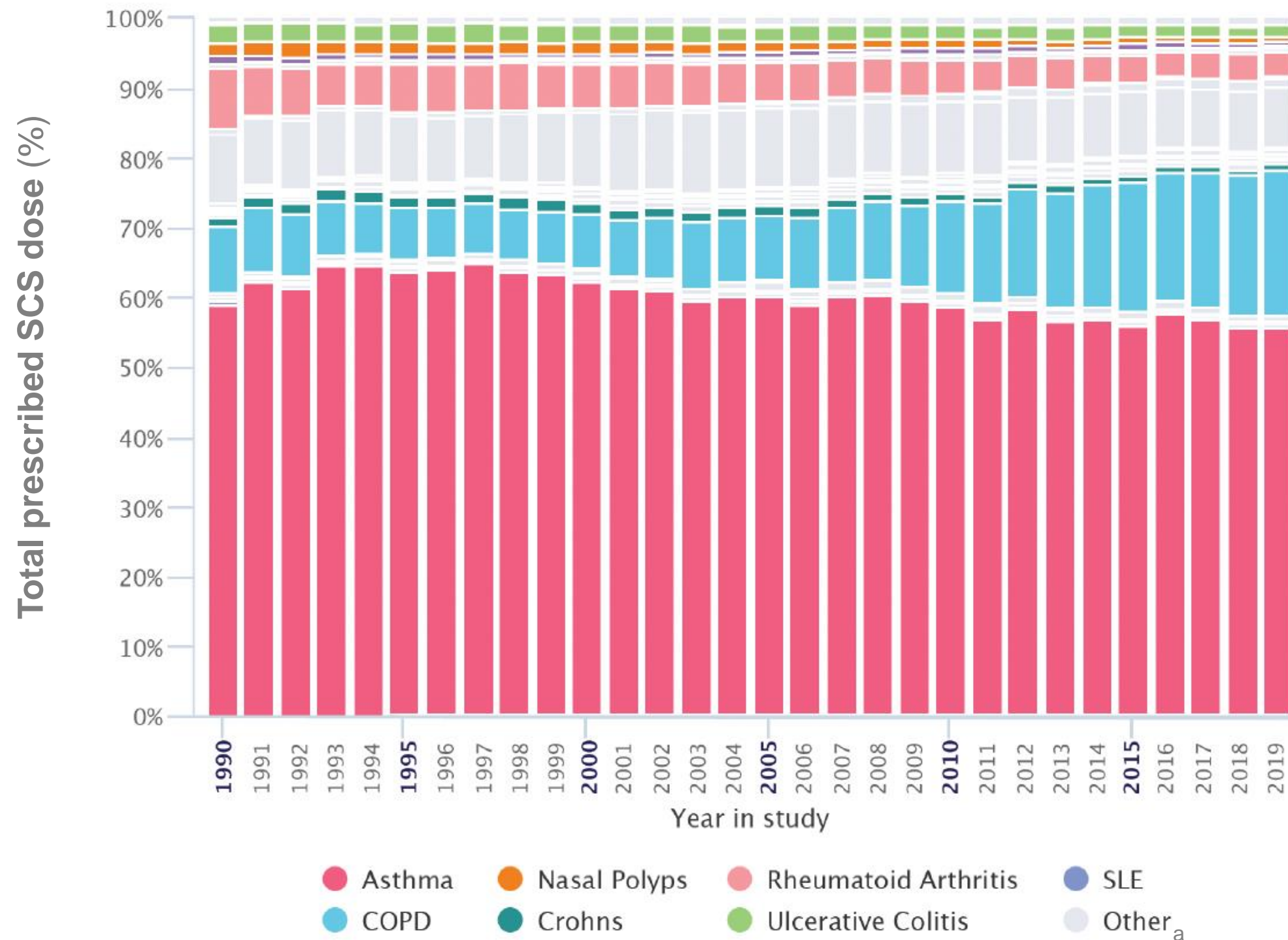
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Methods

- Study design
 - Data from the Optimum Patient Care Research Database (opcrd.co.uk)
 - Includes electronic medical records from >20 million patients in >1000 UK primary care practices
- Inclusion criteria
 - Patients aged ≥ 5 years and registered for ≥ 1 year during the study period (1990-2019)
- Outcomes
 - Relative contribution to the total prescribed systemic corticosteroid (SCS) dose for 7 key conditions^a
 - Frequency and dose of SCS prescriptions for each condition
 - Average daily dose = total SCS dose prescribed in the target year \div number of days in the year
- Analyses
 - Description of annual time trends from 1990-2019 for patients who had only 1 condition for which SCS may have been prescribed (ie, *mono*-condition patients)
 - For asthma, patients with comorbid nasal polyps and/or eczema are included in the mono-condition analysis, owing to frequent overlap between these conditions

^a Asthma, chronic obstructive pulmonary disease, Crohn's disease, rheumatoid arthritis, systemic lupus erythematosus, ulcerative colitis, and nasal polyps.

Relative Contribution to the Total Prescribed SCS Dose



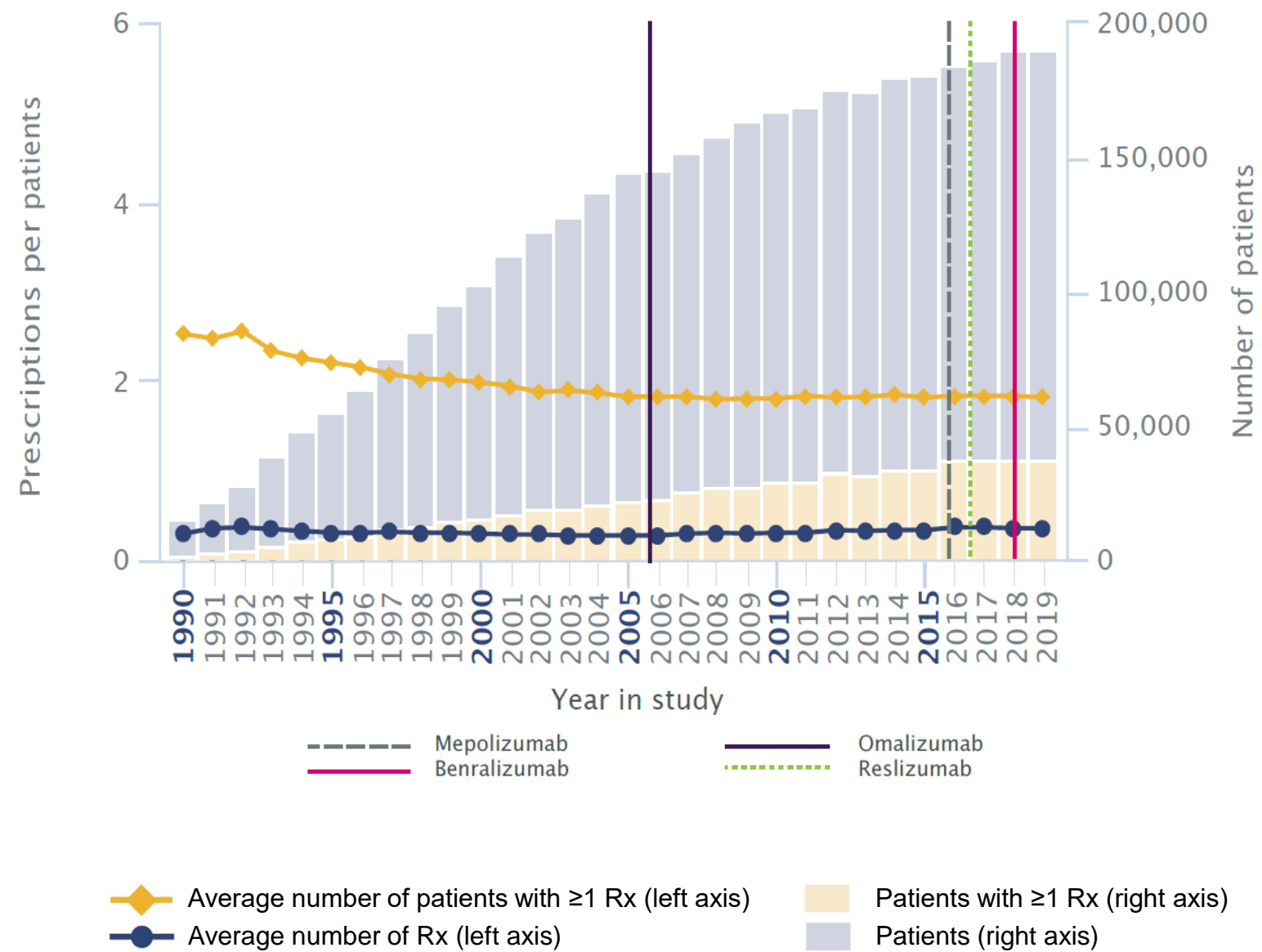
SCS, systemic corticosteroid; SLE, systemic lupus erythematosus; COPD, chronic obstructive pulmonary disease.

^aAnkylosing spondylitis, myasthenia gravis, sarcoidosis, uveitis, autoimmune bullous, eczema, nephrotic syndrome, scleritis, vasculitis, autoimmune hepatitis, gout, polymyalgia, Sjogren’s syndrome, Bell’s palsy, iritis, psoriasis, carditis, multiple sclerosis, psoriatic arthropathy, and temporal arteritis.

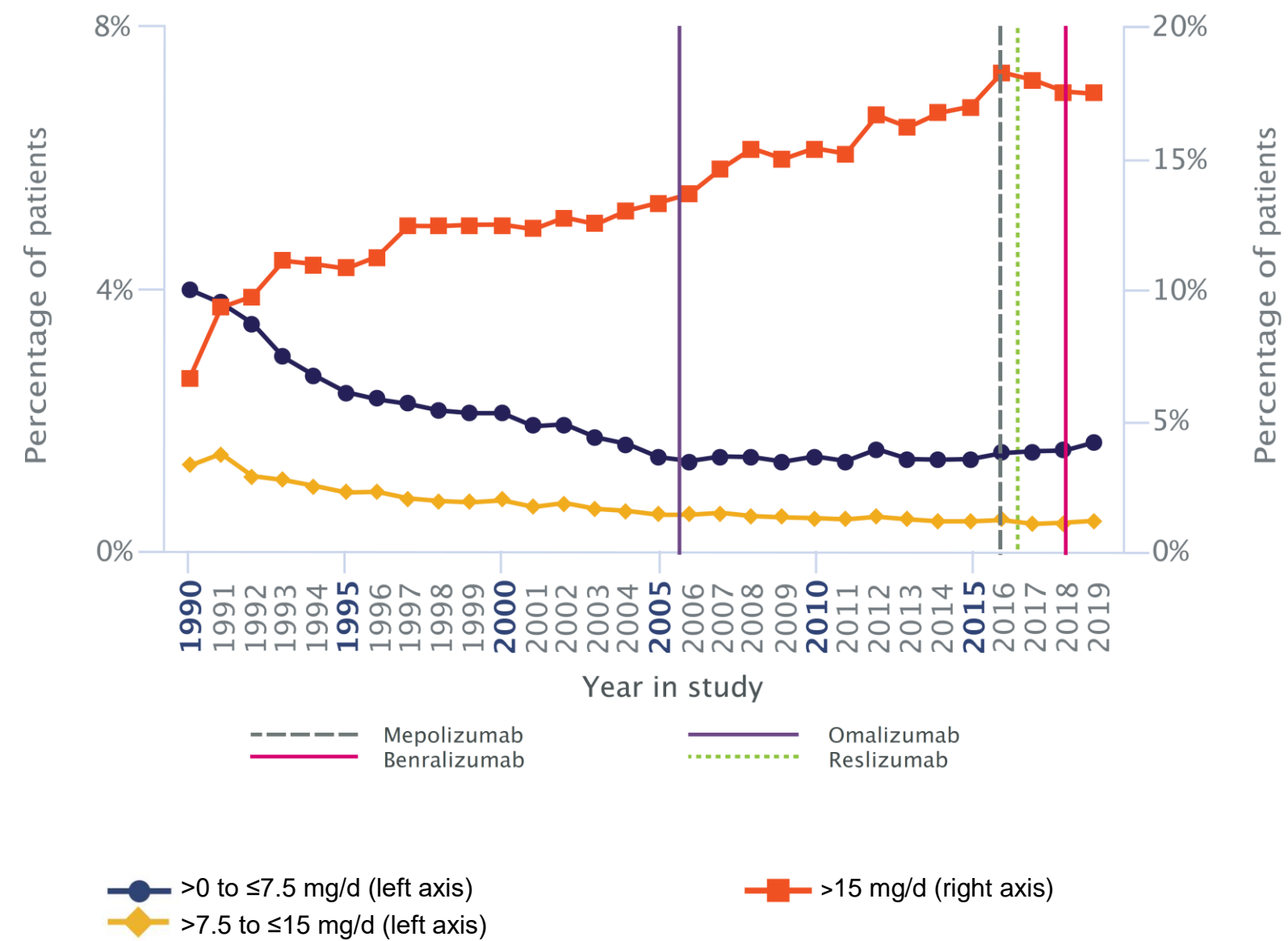
Data are shown for mono-condition patients.

SCS Utilisation in Asthma

SCS Prescriptions per Patient



Average Daily Dose^a

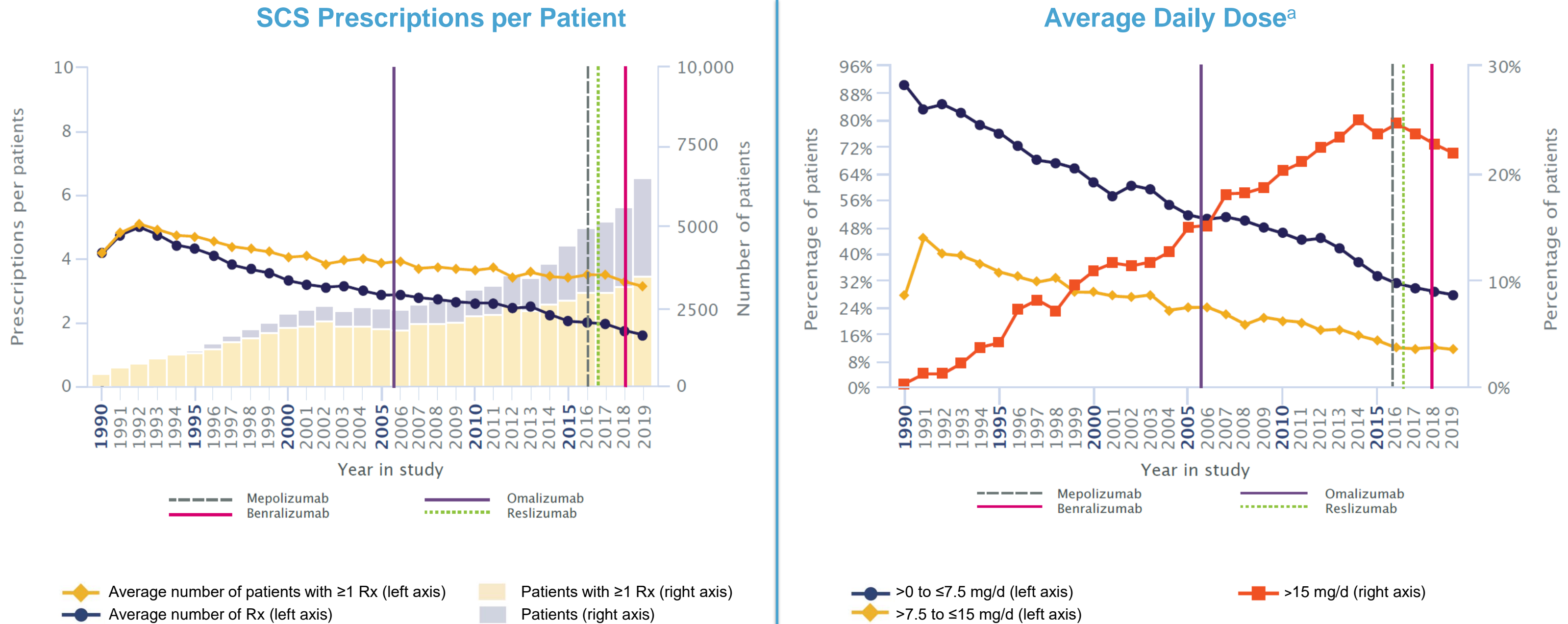


SCS, systemic corticosteroid; Rx, SCS prescription.

Data are shown for mono-condition patients with or without comorbid nasal polyps or eczema.

^a Average SCS dose was categorized by the defined daily dose as low (>0 to ≤7.5 mg/d), medium (>7.5 to ≤15 mg/d), or high (>15 mg/d).

SCS Utilisation in Patients with Severe Asthma (i.e. receiving GINA Step 4/5 Treatment)^a



SCS, systemic corticosteroid; GINA, Global Initiative for Asthma; Rx, SCS prescription..

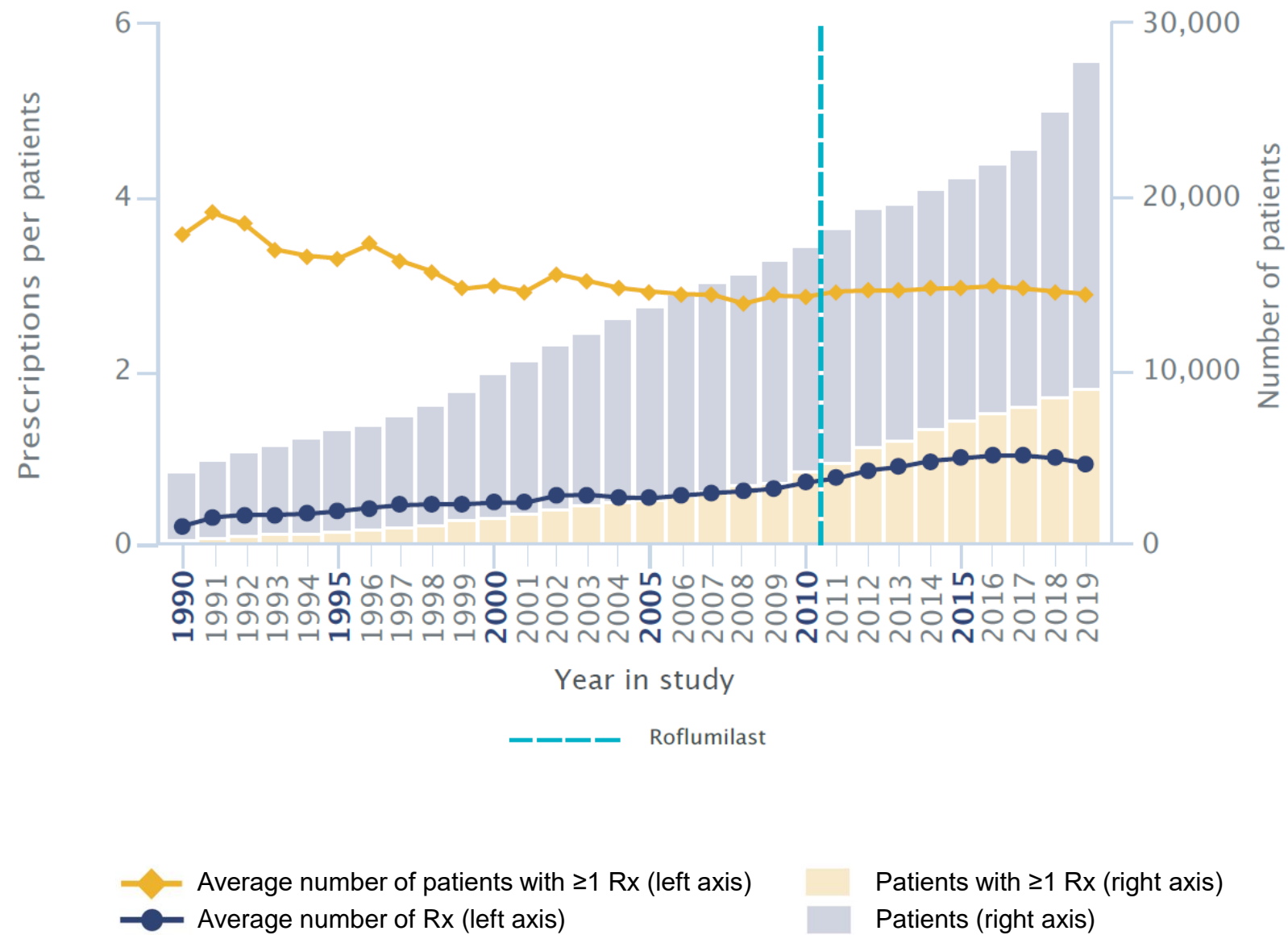
Data are shown for mono-condition patients with or without comorbid nasal polyps or eczema.

^a Prescription in the target year for: a medium-dose inhaled corticosteroid (ICS) with a long-acting β -agonist and/or leukotriene receptor antagonist, a high-dose ICS, biologic therapy, and/or maintenance SCS.

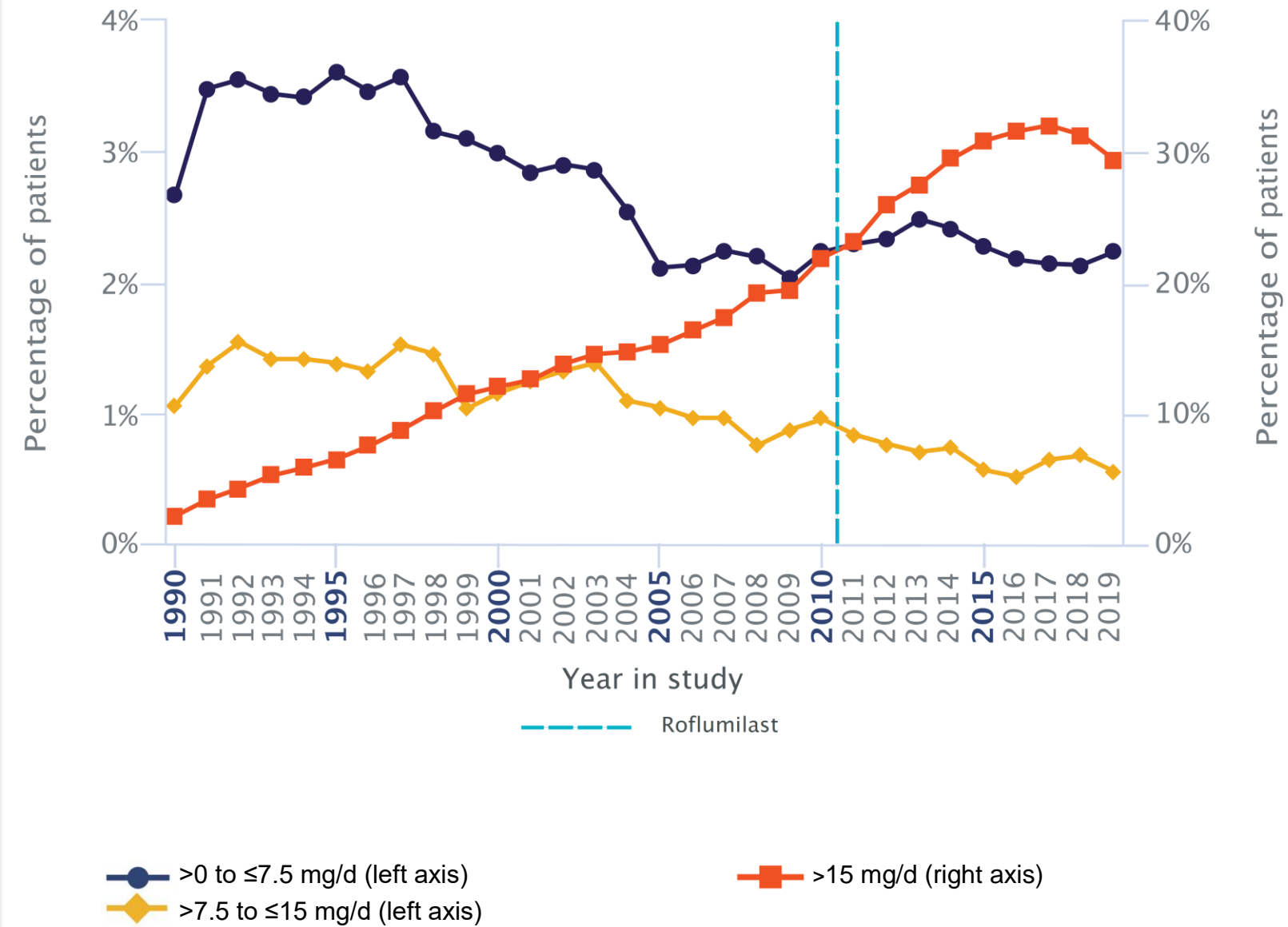
^b Average SCS dose was categorised by the defined daily dose as low (>0 to ≤ 7.5 mg/d), medium (>7.5 to ≤ 15 mg/d), or high (>15 mg/d)

SCS Utilisation in COPD

SCS Prescriptions per Patient



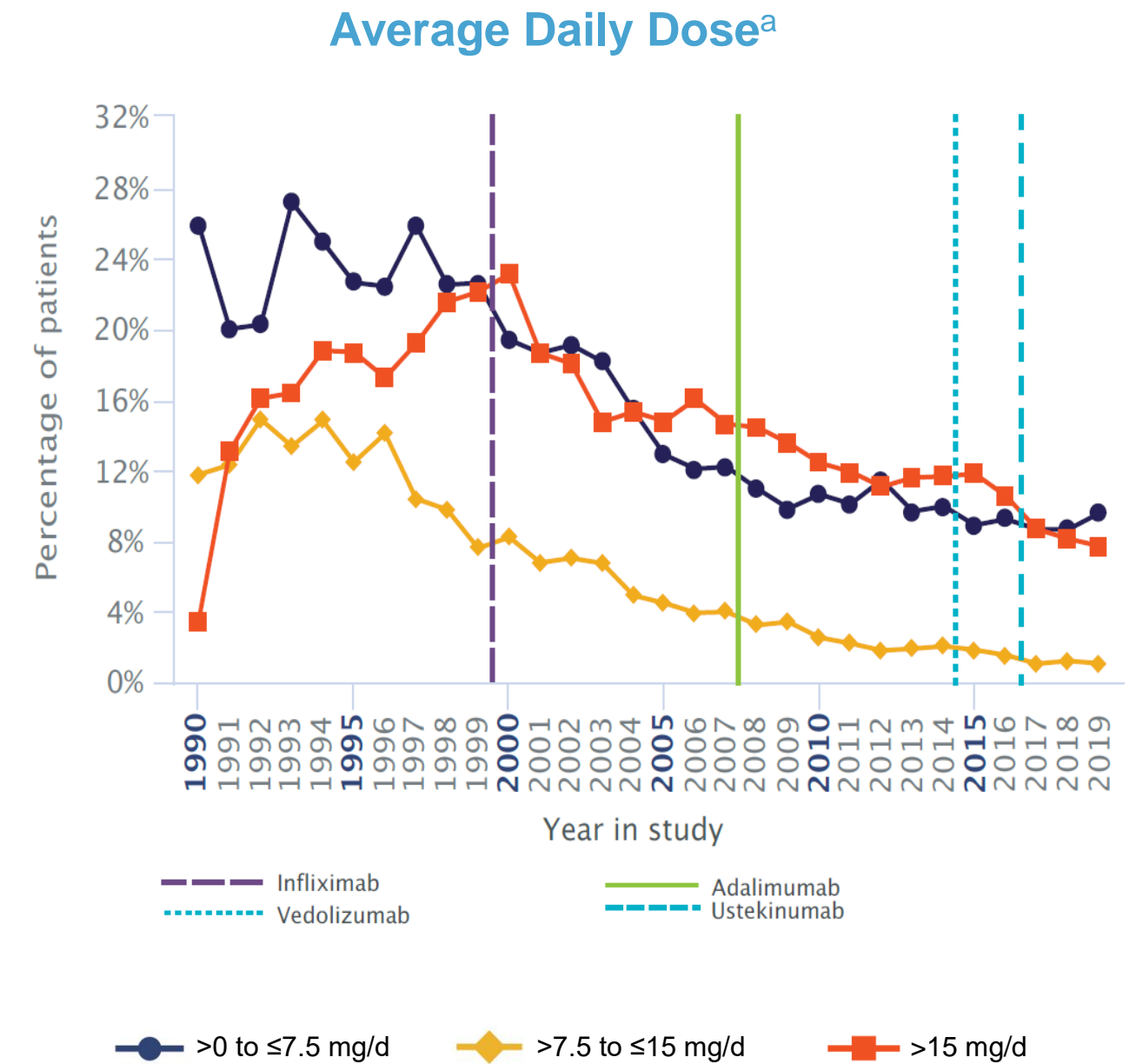
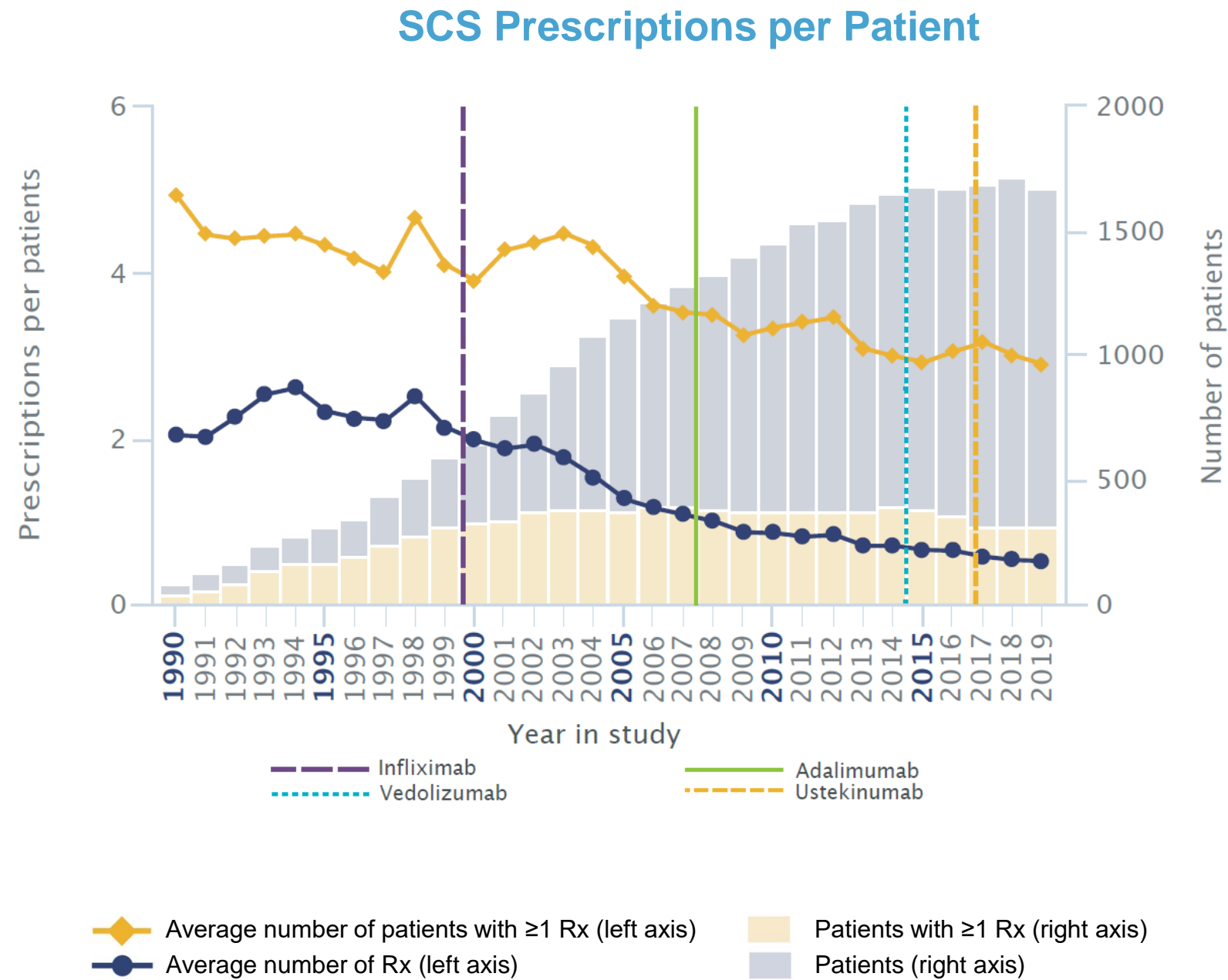
Average Daily Dose^a



SCS, systemic corticosteroid; COPD, chronic obstructive pulmonary disease; Rx, SCS prescription. Data are shown for mono-condition patients.

^a Average SCS dose was categorized by the defined daily dose as low (>0 to ≤ 7.5 mg/d), medium (>7.5 to ≤ 15 mg/d), or high (>15 mg/d).

SCS Utilisation in Crohn's Disease

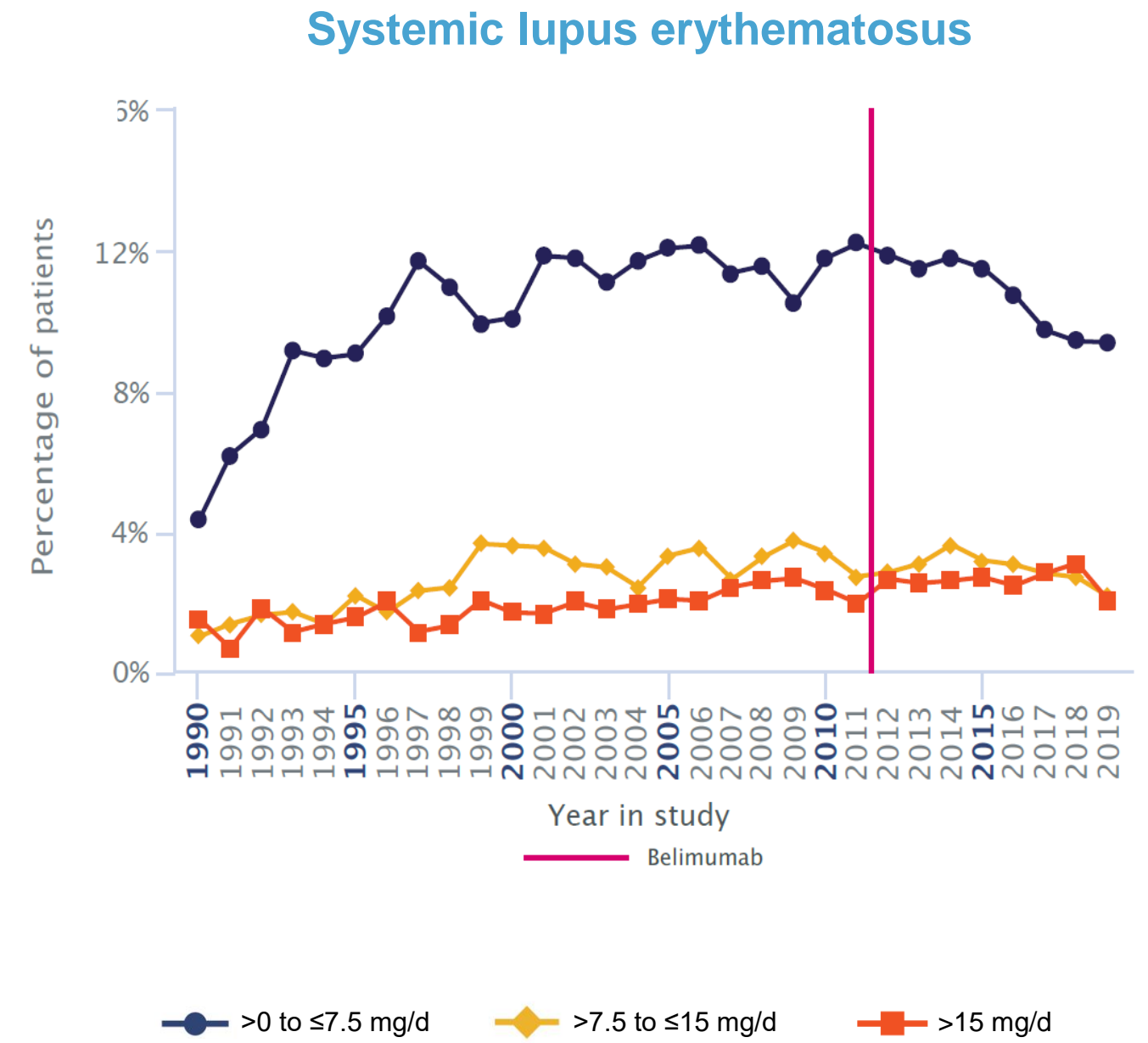
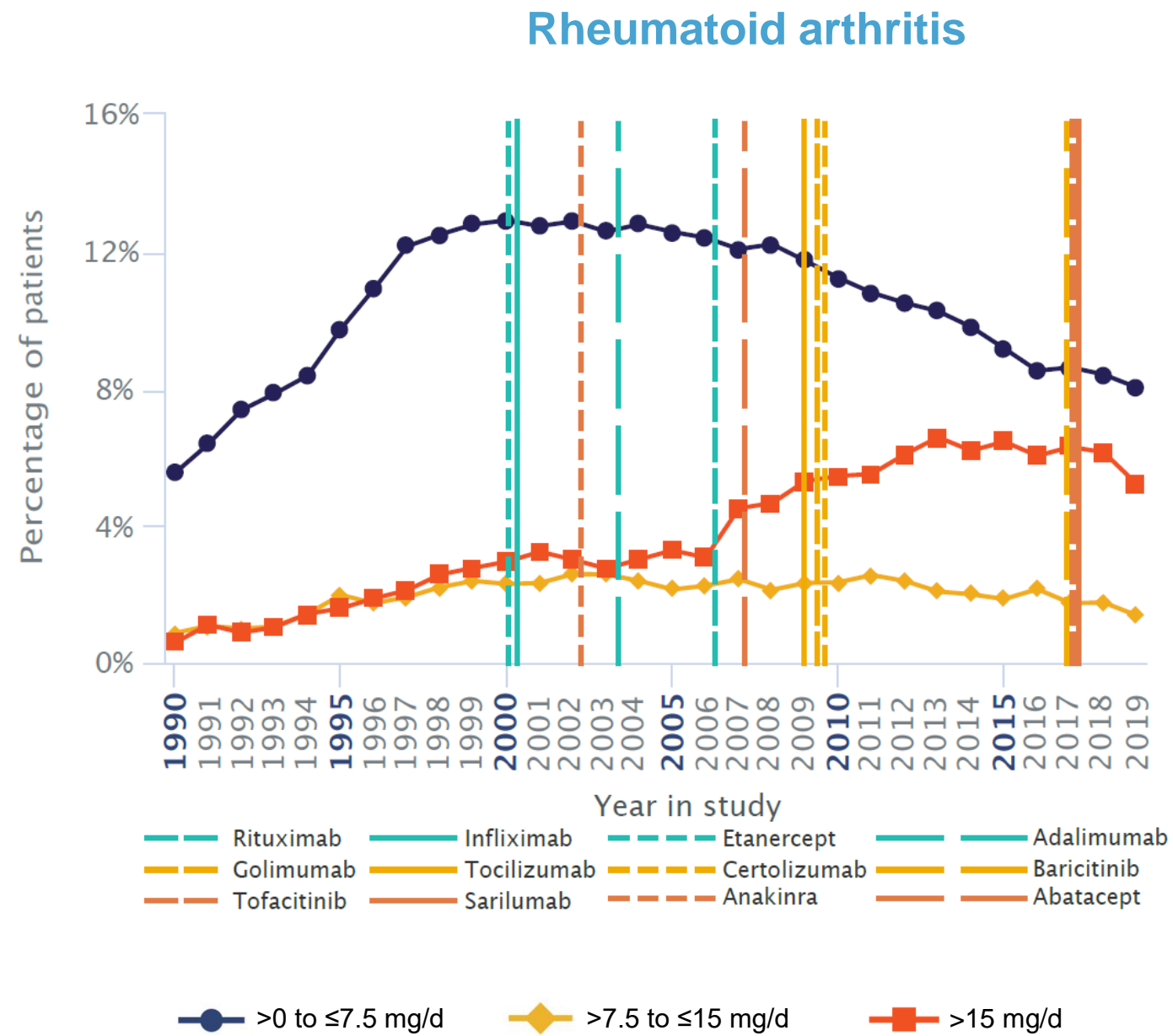


SCS, systemic corticosteroid; Rx, SCS prescription.

Data are shown for mono-condition patients.

^a Average SCS dose was categorised by the defined daily dose as low (>0 to ≤ 7.5 mg/d), medium (>7.5 to ≤ 15 mg/d), or high (>15 mg/d).

SCS Utilisation in Rheumatoid Arthritis and SLE

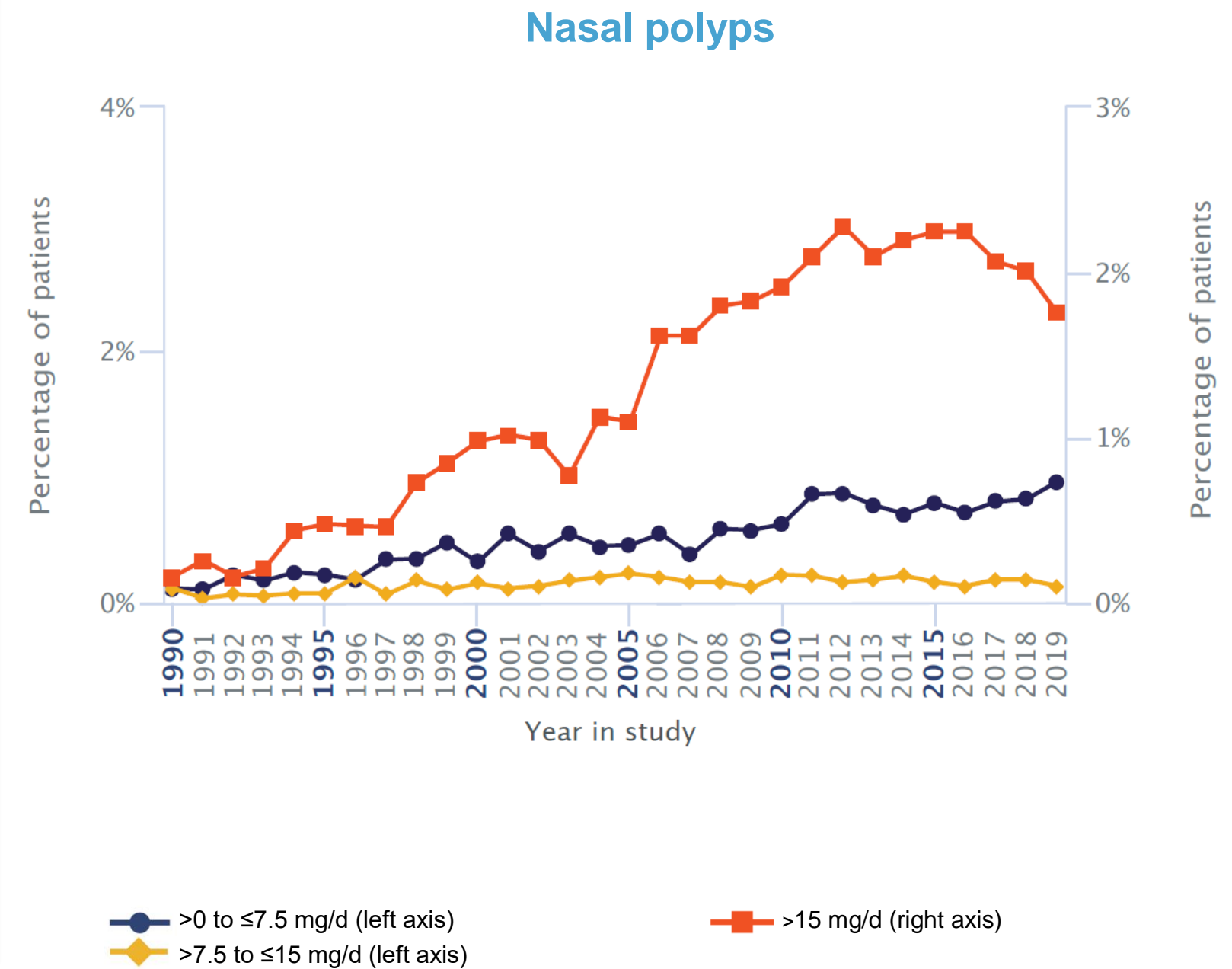
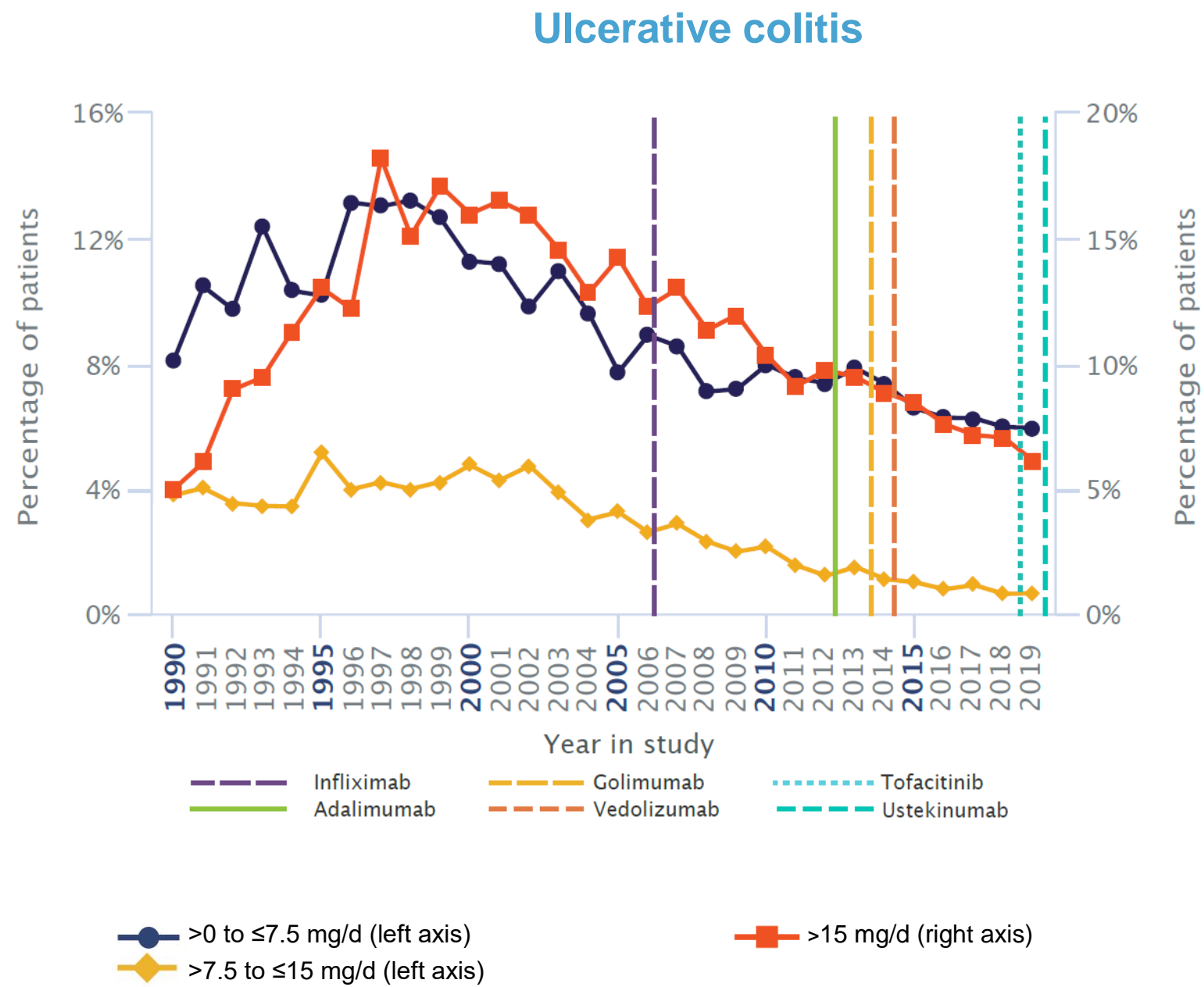


SCS, systemic corticosteroid; SLE, Systemic lupus erythematosus..

Data are shown for mono-condition patients.

Data are average SCS dose categorised by the defined daily dose as low (>0 to ≤7.5 mg/d), medium (>7.5 to ≤15 mg/d), or high (>15 mg/d).

SCS Utilisation in Ulcerative Colitis and Nasal Polyps



SCS, systemic corticosteroid.

Data are shown for mono-condition patients.

Data are average SCS dose categorised by the defined daily dose as low (>0 to ≤7.5 mg/d), medium (>7.5 to ≤15 mg/d), or high (>15 mg/d).

Conclusions

- High levels of SCS utilisation persist for asthma and COPD in the UK
 - Availability of the first biologic therapy for asthma in 2007 had little effect on overall SCS prescription trends
 - In patients with severe asthma, SCS use with an average dose of >15mg/d continued an upward downward trend post-2007 before declining after 2014
 - The relative contribution of COPD to the OCS burden approximately doubled over the observation period, during which no biologic therapies for COPD were approved
- Reductions in SCS utilisation were observed after the introduction of biologic therapy for Crohn's disease
- In ulcerative colitis, SCS utilisation decreased over the past 10–20 years
- In rheumatoid arthritis and SLE, average daily usage >15 mg increased gradually from 1990–2019, while usage ≤7.5 mg/d declined after 2005
- Greater awareness of SCS overuse and SCS-sparing options is needed

SCS, systemic corticosteroid; COPD, chronic obstructive pulmonary disease; SLE, systemic lupus erythematosus.