

A time series analysis of immune checkpoint inhibitors use in Italian population: 2017-2022



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BACKGROUND

- The advent of **immunotherapy** significantly changed the therapeutic scenario of cancer patients.
- The adoption of **immune checkpoint inhibitors (ICIs)** represented the new weapon for cancer treatment in different settings.
- The aim of this study was to describe trends in immune checkpoint inhibitors utilization and corresponding healthcare expenditures within the Italian population.

METHODS



- ✓ We analyzed IMS-Health National data to describe **trends in total number of claims, total annual expenditures, and expenditures per claim** for ICIs from January 2017 to December 2022 among Italian population (~60 million inhabitants).
- ✓ **Seven market approved ICIs in Italy** were analysed (Ipilimumab, Nivolumab, Pembrolizumab, Durvalumab, Avelumab, Atezolizumab, Cemiplimab).
- ✓ A **time-series modeling** was used for analysis.

RESULTS

- From 2017 to 2022, **utilization rates** for each of the seven market approved ICIs in Italy **increased to 15.1%**, from **215,441 to 614,510 unit-per-year**.
- Overall spending rates on ICIs also **increased to 16.3%**, from **€236,322,360 to €778,745,480**.
- In the first **three-year period** analyzed, **Nivolumab** recorded **higher rates of consumption** and **spending** than the other ICIs with a sharp decrease in the following years (-57.1% consumption and -46.6% spending).
- Opposite trend** was recorded for **Pembrolizumab** with a slow increase in consumption (+38.9%) and spending (+29.0%) over the whole time period.

Table 1. Seven ICIs approved in the Italian market

Active substance	First Marketing Authorization	Price	Immune Checkpoint
IPILIMUMAB	2011	7,014€	CTLA-4
NIVOLUMAB	2015	2,950€	PD-1
PEMBROLIZUMAB	2015	6,269€	PD-1
ATEZOLIZUMAB	2017	8,417€	PDL-1
AVELUMAB	2017	1,802€	PDL-1
DURVALUMAB	2018	4,572€	PDL-1
CEMPLIMAB	2019	11,511€	PD-1

Figure 2a. Consumption trends of ICIs in the Italian market

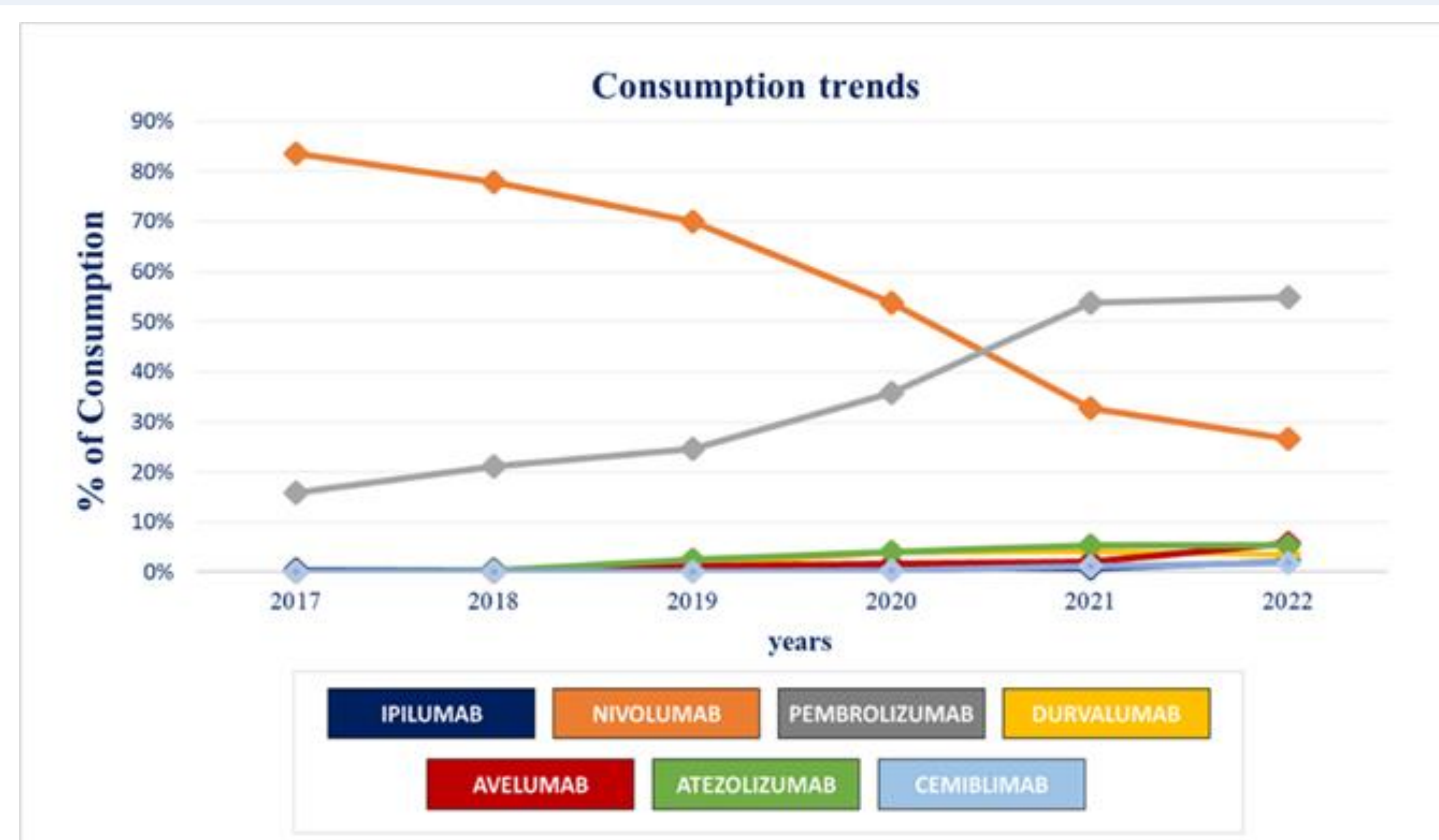
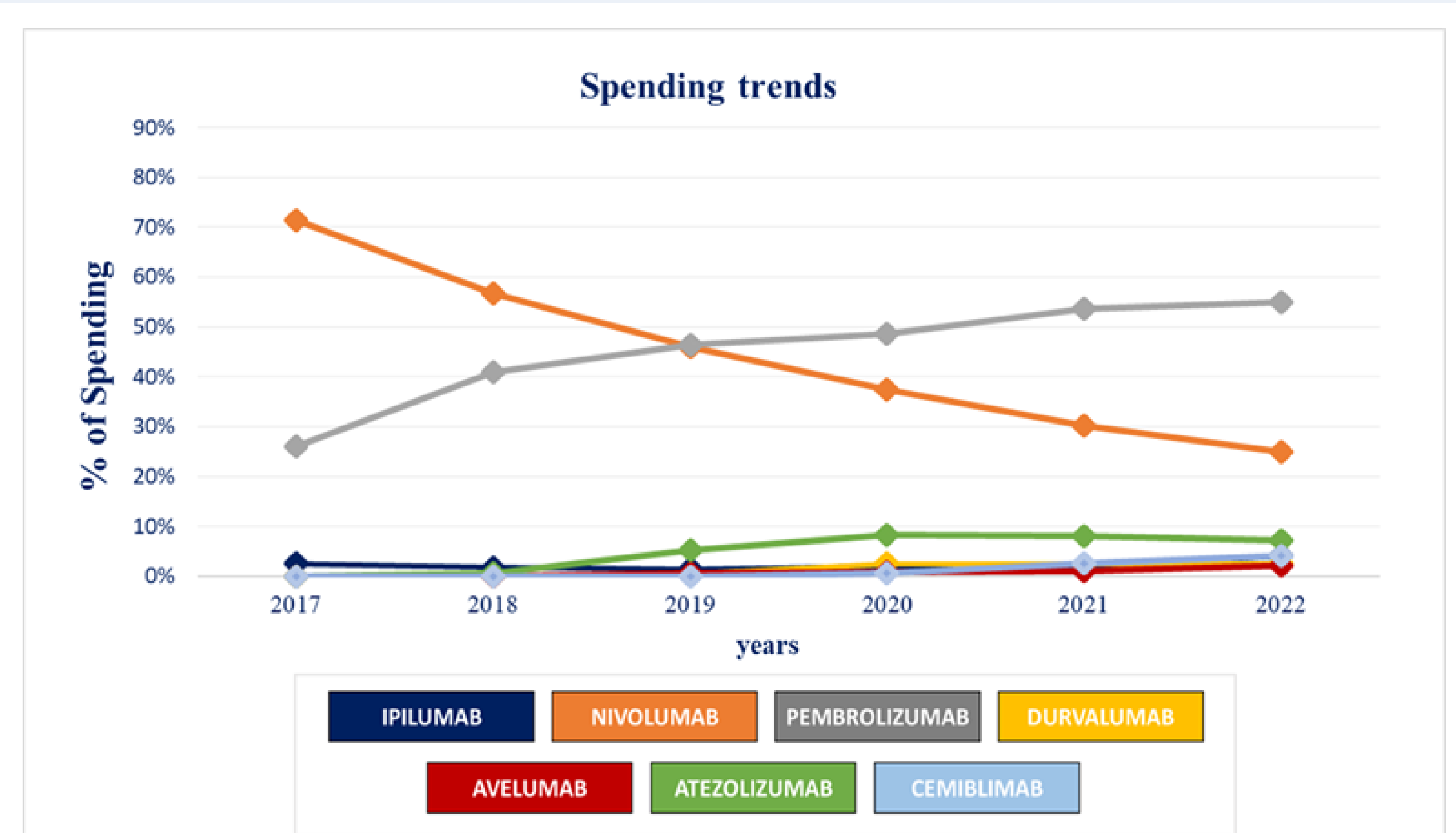


Figure 2b. Spending trends of ICIs in the Italian market



CONCLUSION



The rapid increase in the use of ICIs has accounted for a disproportionate share of the growth in public pharmaceutical consumption and spending in Italy. Future research should relate patient outcomes to overall spending to justify the long-term investment in the use of these therapies for the Italian health service.