Drug Expenditure Dynamics 1995-2020

Understanding Medicine Spending in Context

Country Detail Appendix:

Canada

Introduction

- This document is intended as an accompanying appendix to the report Understanding the Dynamics of Drug Expenditure 1995-2020.
- The report includes analyses of 11 major countries and provides cross-country and aggregate analyses of these markets.
- This document includes specific country analyses mirroring the main report and intended to illustrate the same dynamics in each country that are shown across countries.
- In some cases, there are important differences from cross-country trends and those are illustrated and highlighted.
- The key findings in relation to each country are summarized and each page represents a specific analysis of interest.
- This document is not an exhaustive analysis or summary of the country, and the primary purpose is to provide the long-history analyses which are unique to this report.
- The exhibits in this report are sometimes complex or include multiple graphics per page. This document ends with several annotated examples of the layout of important exhibits to enable the reader to better understand how to read and understand them.

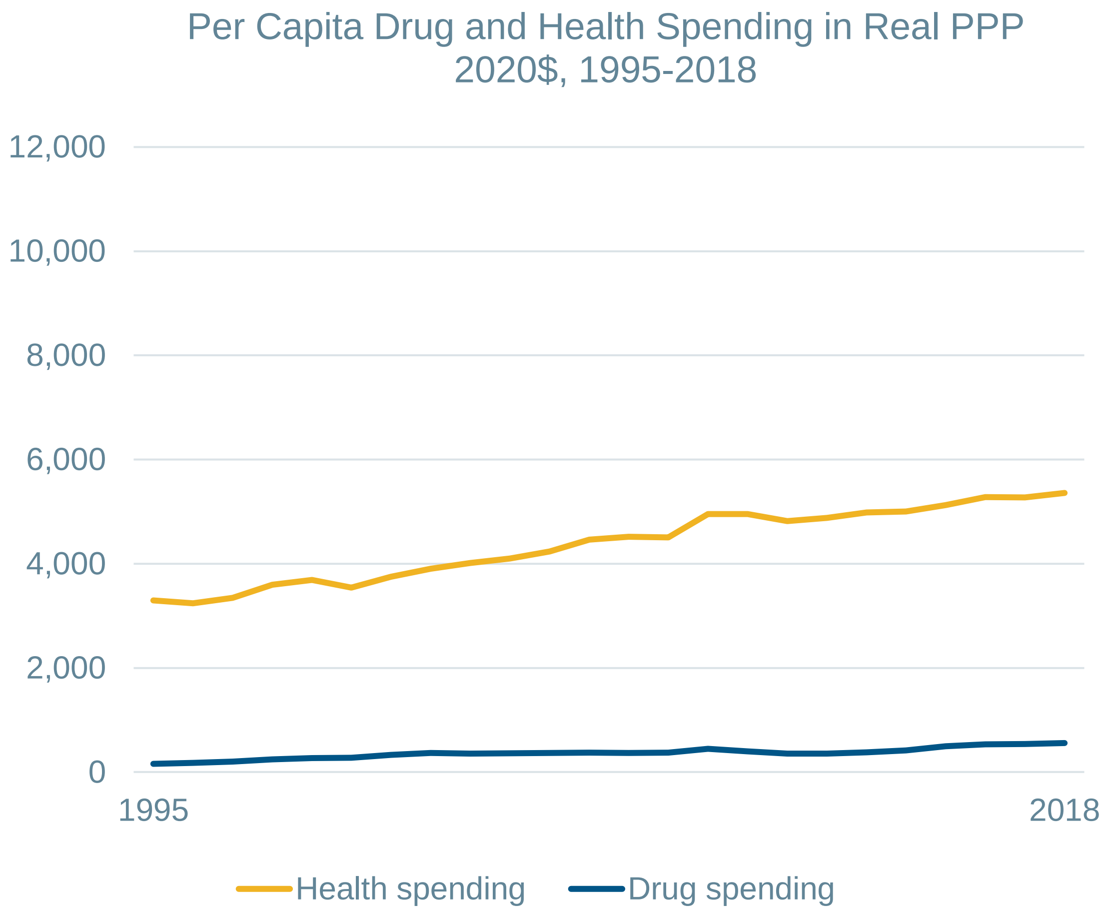
Canada

Key findings

- Canada drug spending represents 10% of overall healthcare spending, remaining relatively stable since 2002.
- Despite protected and new brands being the major drivers of spending growth, they have a smaller share of overall spending over the last 10 years as generic volume continues to increase.
- Primary therapy classes, including cholesterol, cardiovascular, pain, and anti-ulcerants, which were major contributors in spending during early periods, declined from 38% to 13% of total spending over the past 25 years due to limited introduction of new treatment options and genericization.
- While examining only protected brands, therapy classes such as oncology, immunology, viral hepatitis, and HIV anti-virals together contributed to more half of the spending in 2020, up from 2% in 1995 due to introduction of new treatment options.
- In immunology, the introduction of biosimilars in 2015 and 2016 has impacted the original brands for those medicines but these dynamics are far less impactful than small molecule generics to date. In the next five years, losses of exclusivity affecting more than 50% of current overall spending will further impact the market with lower costs from biosimilars.

Canada drug spending represents 10% of overall healthcare spending, remaining relatively stable since 2002

Drug and Healthcare Spending 1995-2018



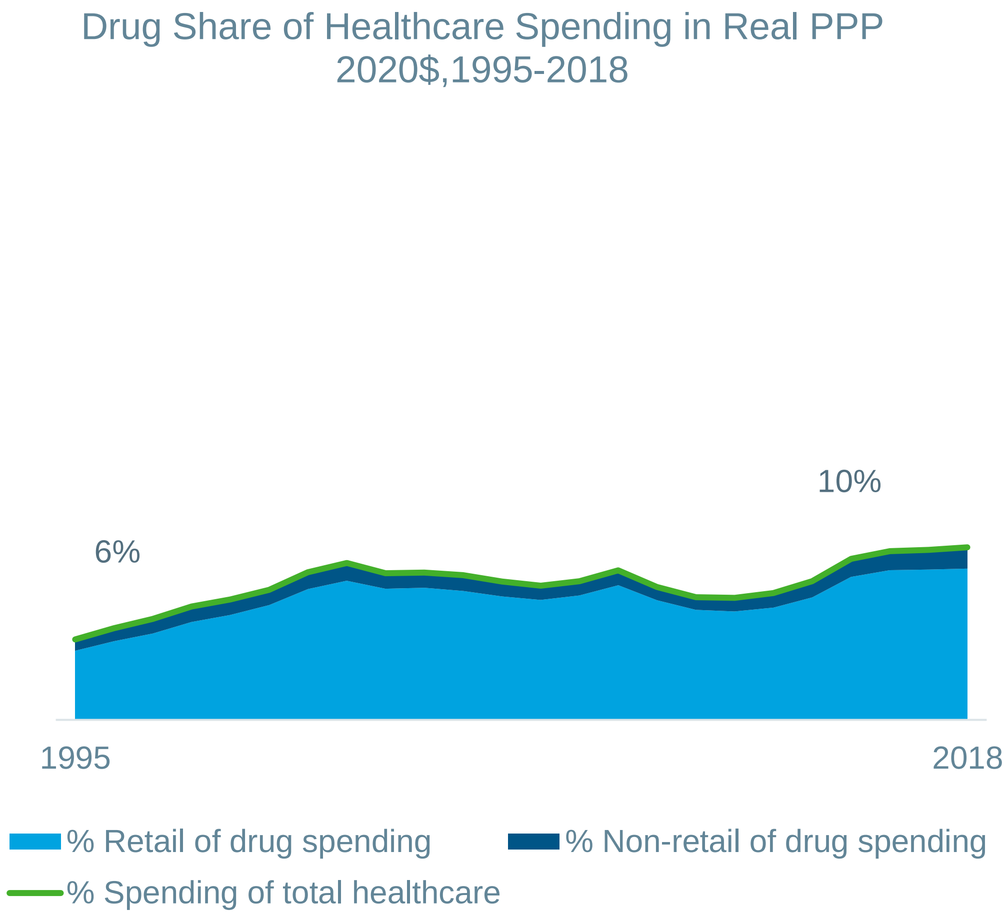
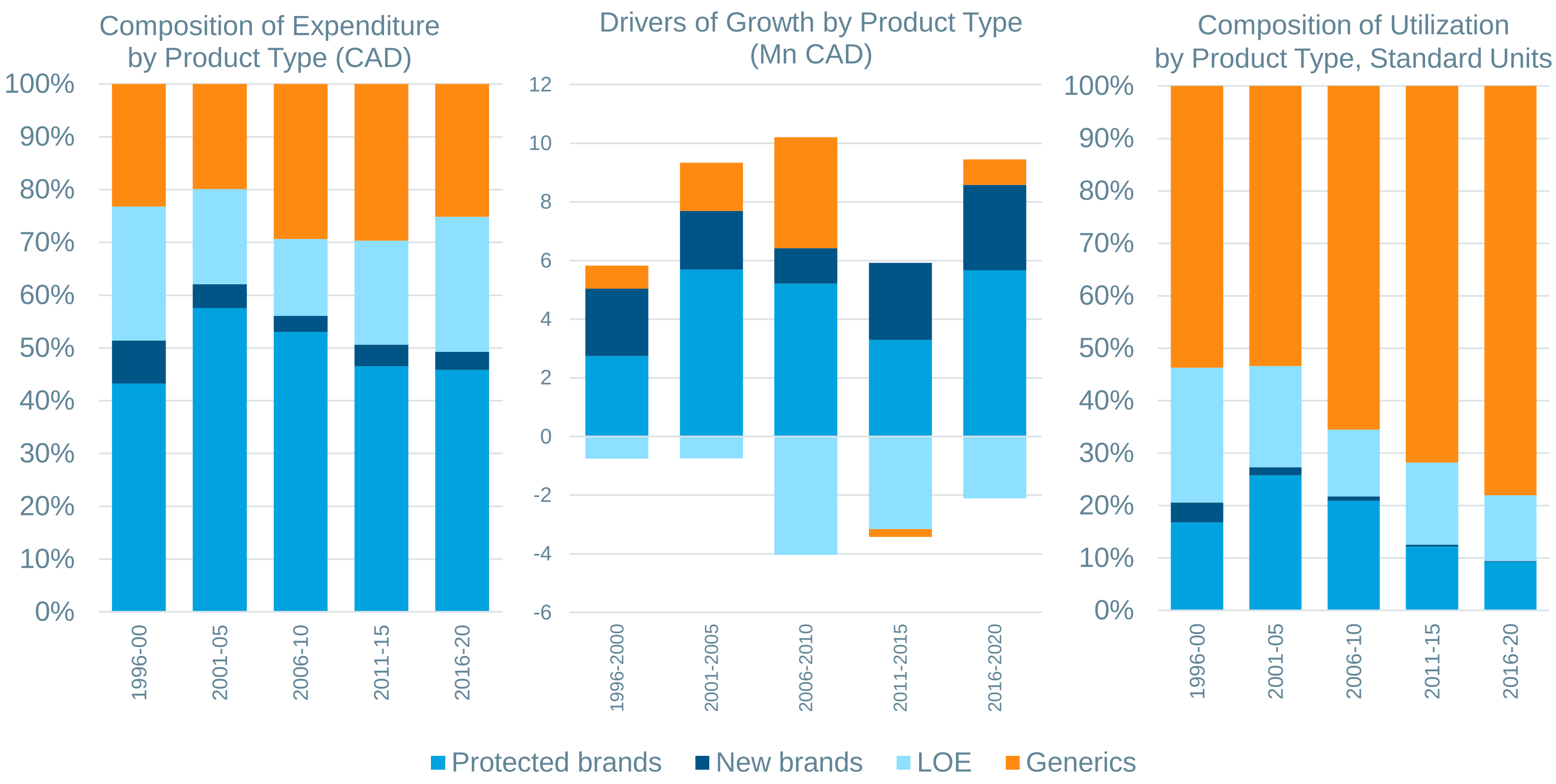


Chart Note: Methodology described in main report *Drug Expenditure Dynamics 1995-2020: Understanding Medicine Spending in Context*
Source: IQVIA Institute for Human Data Science, Sep 2021

With availability of generics at low cost in recent period, the growth from new brands did not impact the total drug spend

Canada Drug Spending and Utilization 1995-2020

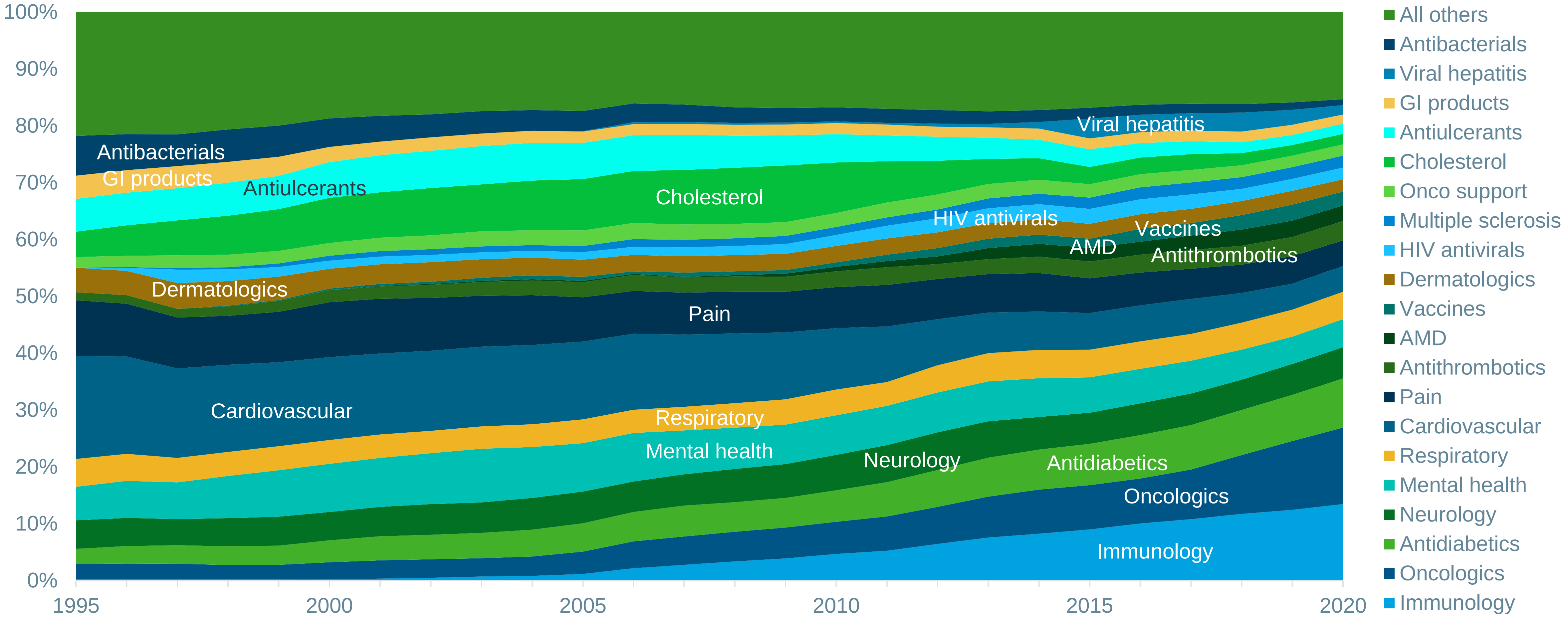


- In the recent period, most growth is driven by new and protected brands and offset by losses of exclusivity
- Generic and LOE segment had almost similar trend in total drug expenditure across the period
- Uptake of generic drugs increased to ~70% in the most recent period, up from 50% during 1996-2000

Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Top 20 therapies accounts for more than 80% of overall spending in 2020

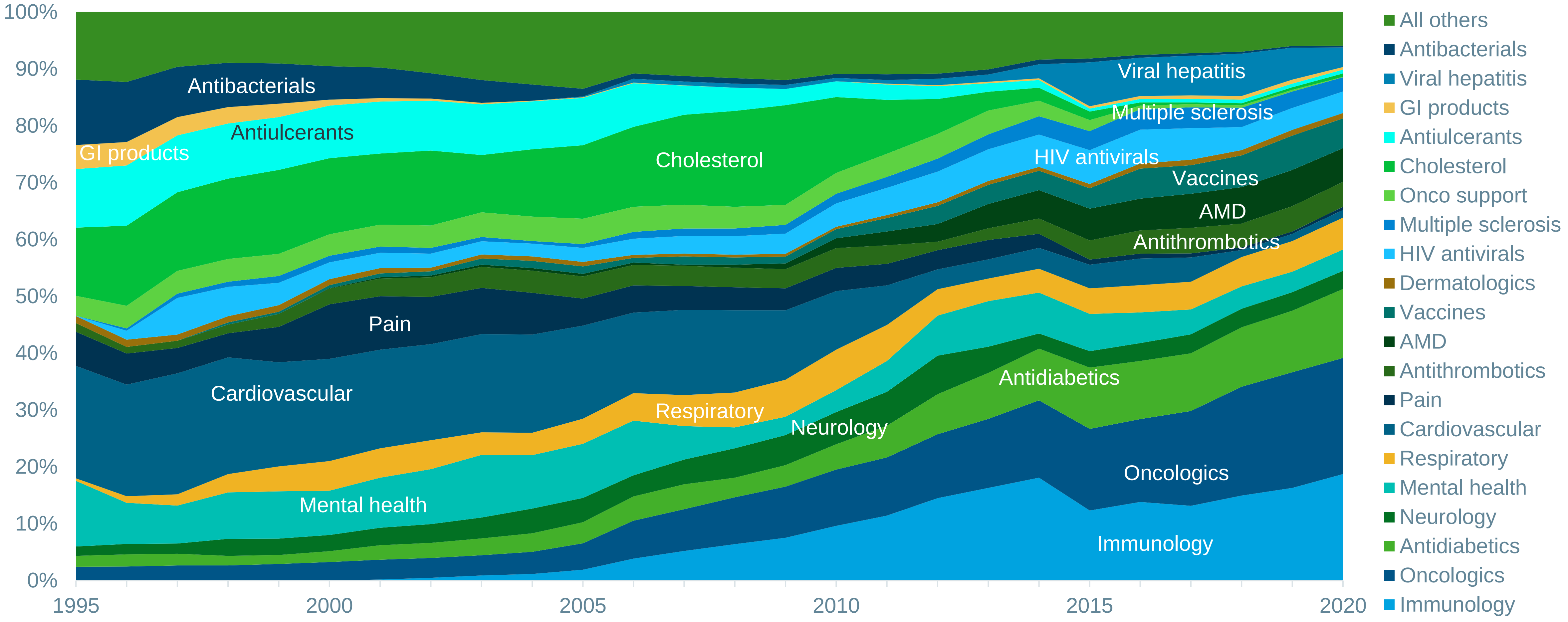
Canada Composition of Drug Real Local Currency Spending by Drug Class, 1995-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Top 3 current therapy areas represented more than 50% of protected brand spending in 2020, up from 4% in 1995

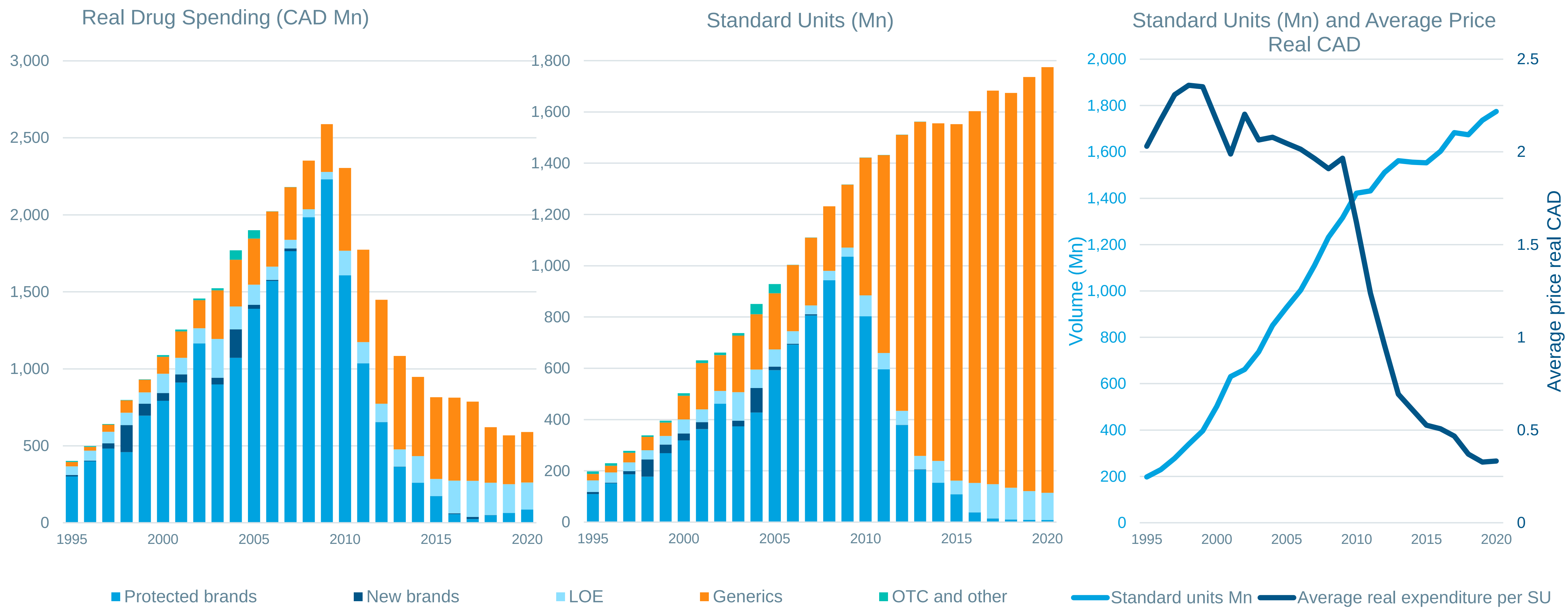
Canada Composition of Protected Brands Real Local Currency Spending by Drug Class, 1995-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Cholesterol spending declined by 47% as generics completely masked the presence of protected brands

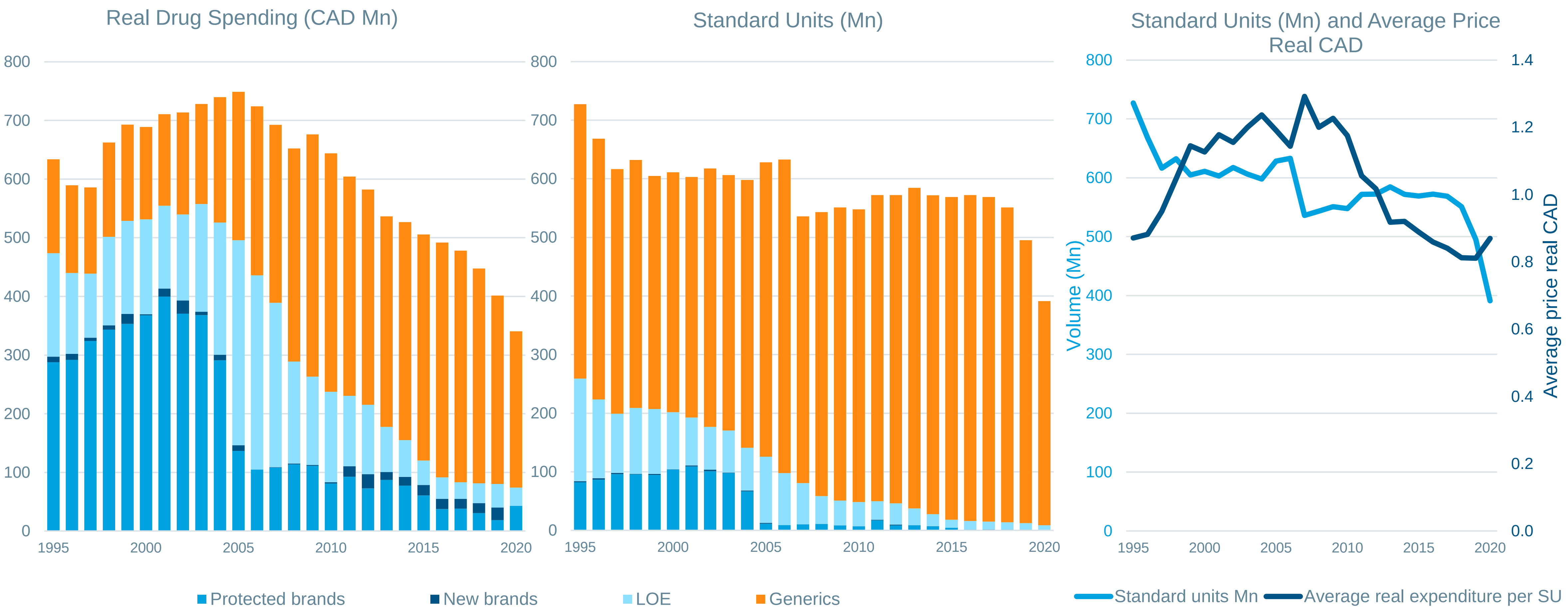
Canada Cholesterol Volumes, Average Prices and Spending by Product Type, 1995-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Anti-bacterial drug spending declined 45% over the last 15 years due to drugs losing patent protection and a shift toward generics

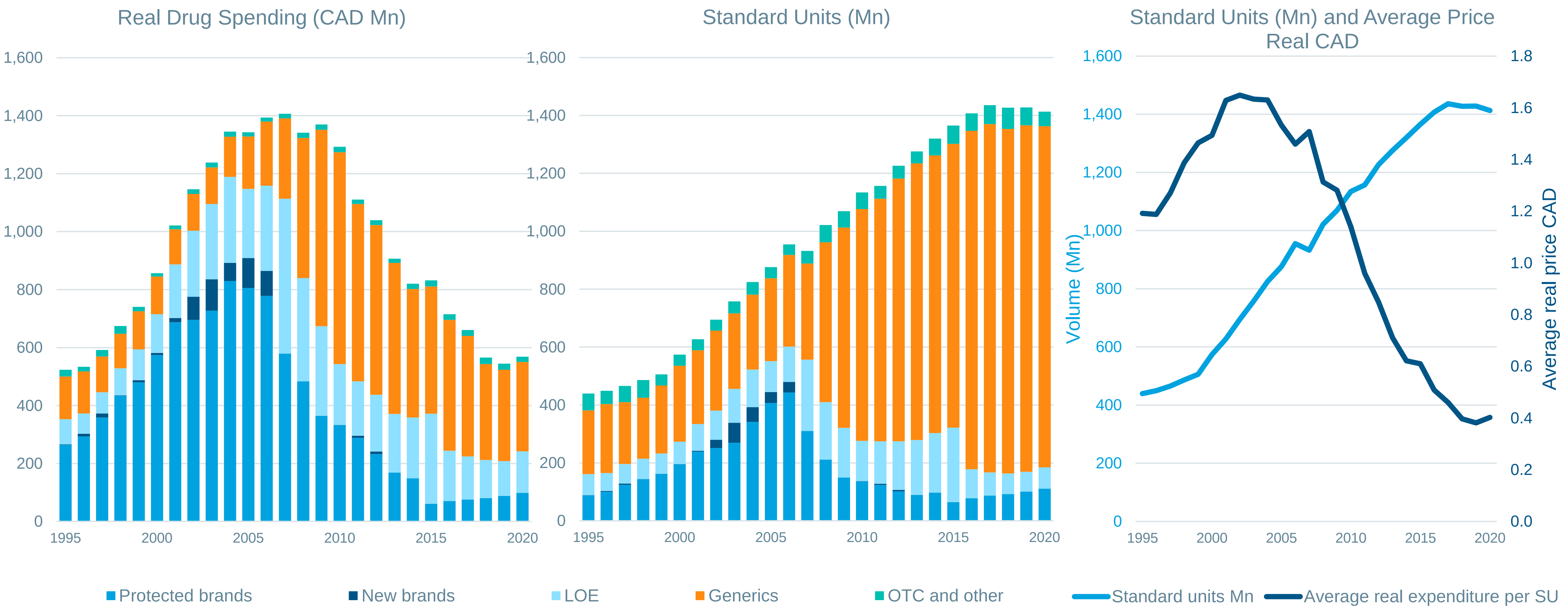
Canada Anti-bacterial Volumes, Average Prices and Spending by Product Type, 1995-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Anti-ulcerant protected brands had ~34% share of volume but dropped to 7% by 2015 from expiries and few new drugs

Canada Anti-Ulcerants Volumes, Average Prices and Spending by Product Type, 1995-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Antithrombotic spending growth in recent years driven by Factor Xa inhibitors

Canada Antithrombotics Spending and Volumes by Drug Type, 1995-2020

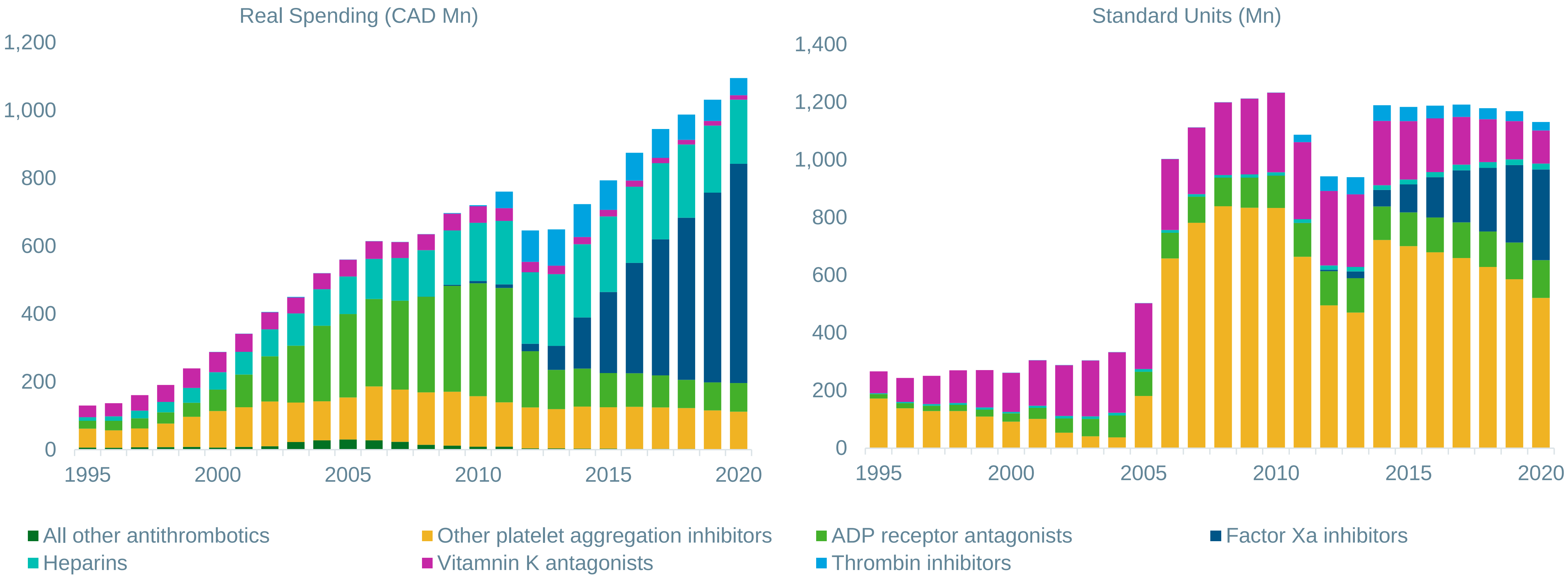
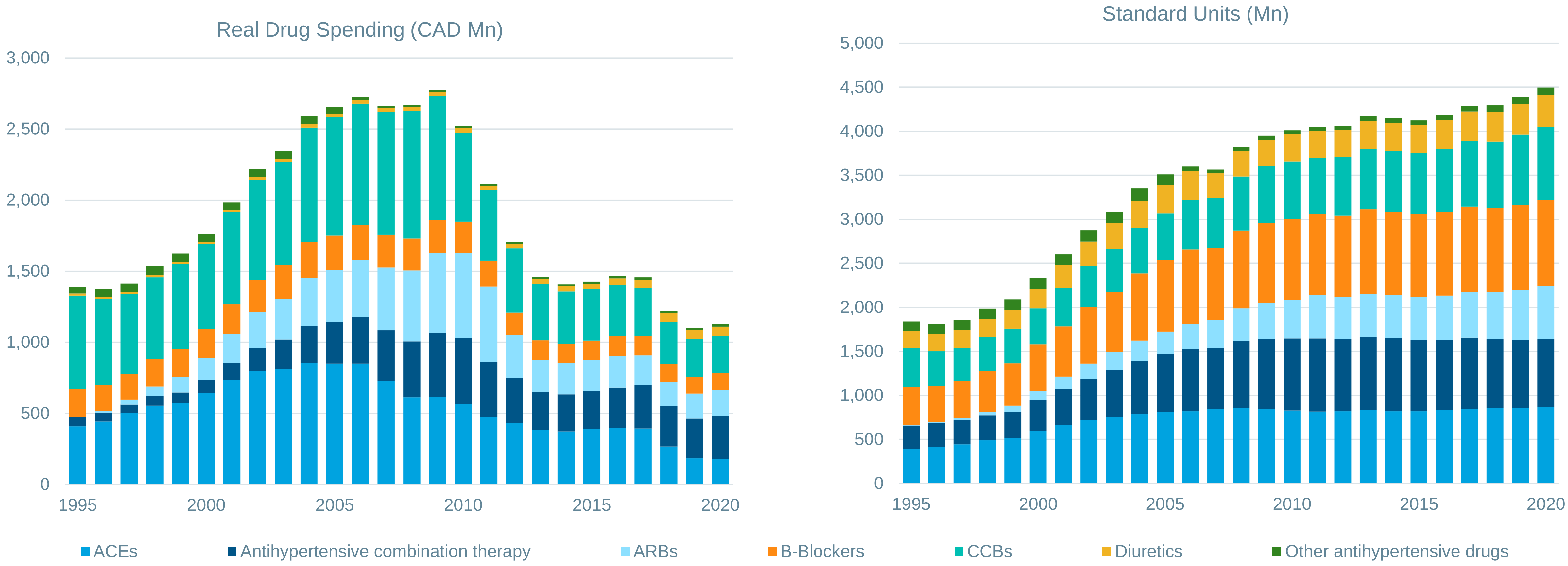


Chart notes: Standard Unit trends are impacted by dissimilar forms which are not recommended for these reasons.
Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Hypertension spending is down by more than half since 2005 while usage has continued to reflect a decrease in price

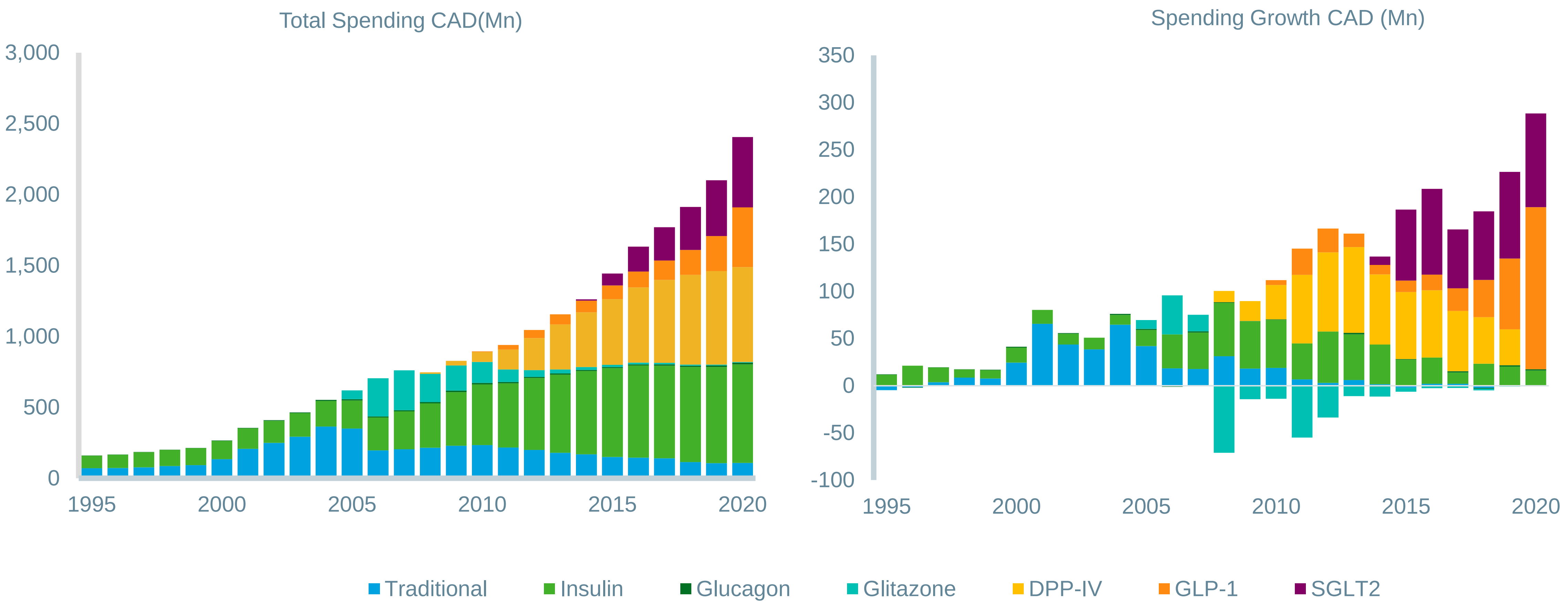
Canada Hypertension Spending and Volume by Mechanism, 1995-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

More than 90% of diabetes spending growth was driven by DPP-IV, GLP-1 and SGLT2 classes in the last 10 years

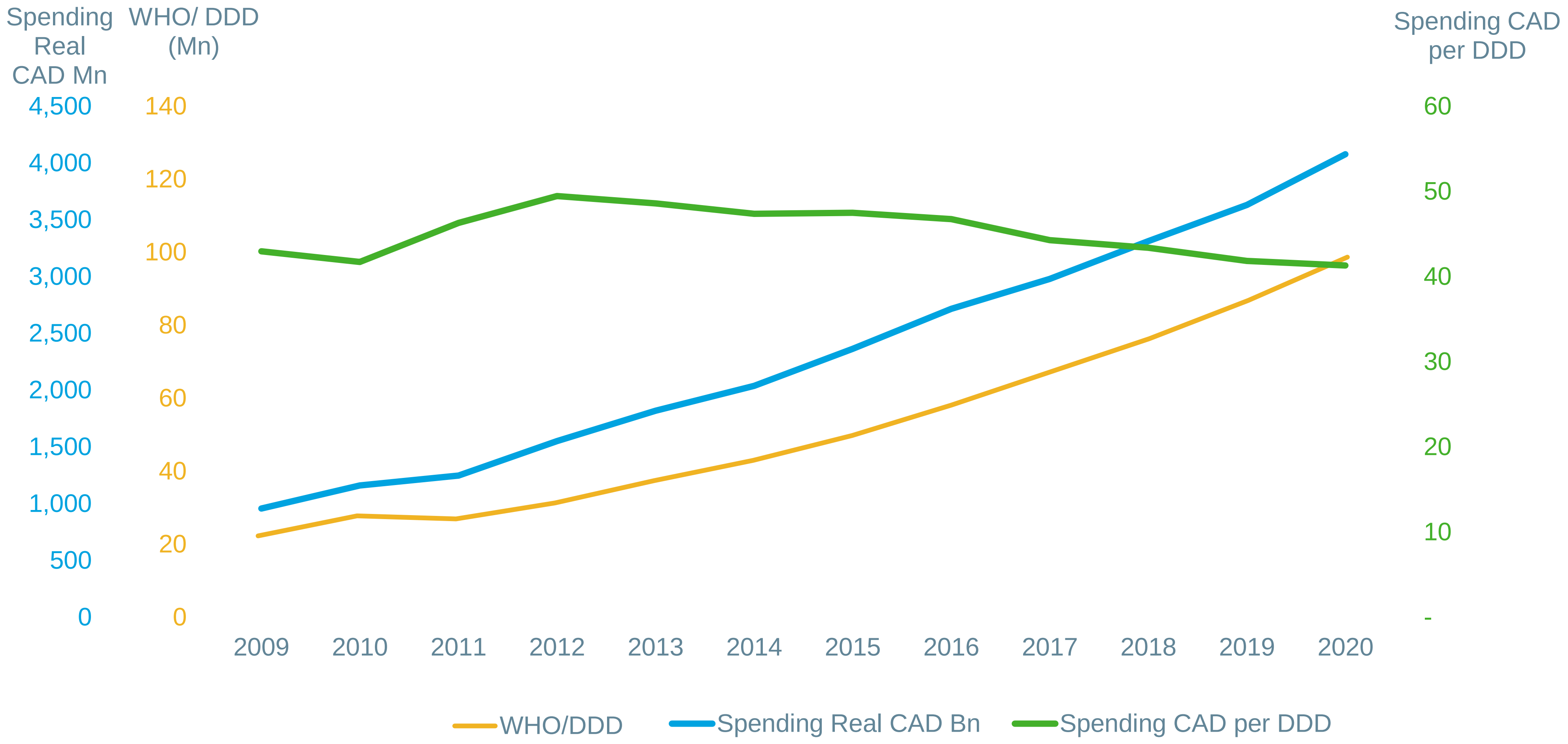
Canada Diabetes Real Spending and Growth CAD (Mn) by Drug Type, 1995-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Auto-immune use quadrupled from ~22 Mn DDD in 2009 to ~98 Mn in 2020, while the cost per day of therapy has remained constant

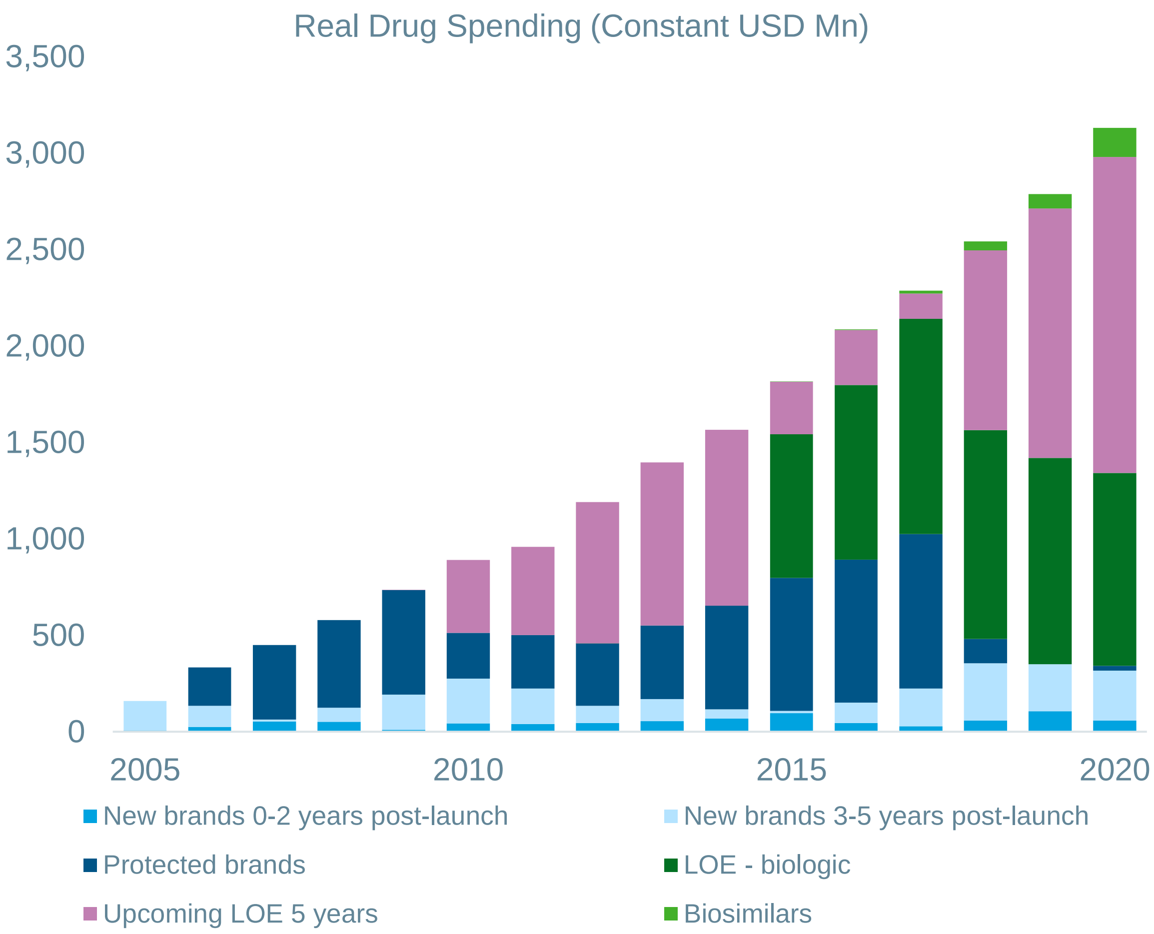
Canada Auto-immune Biologic Spending, DDD and Cost, 2009-2020

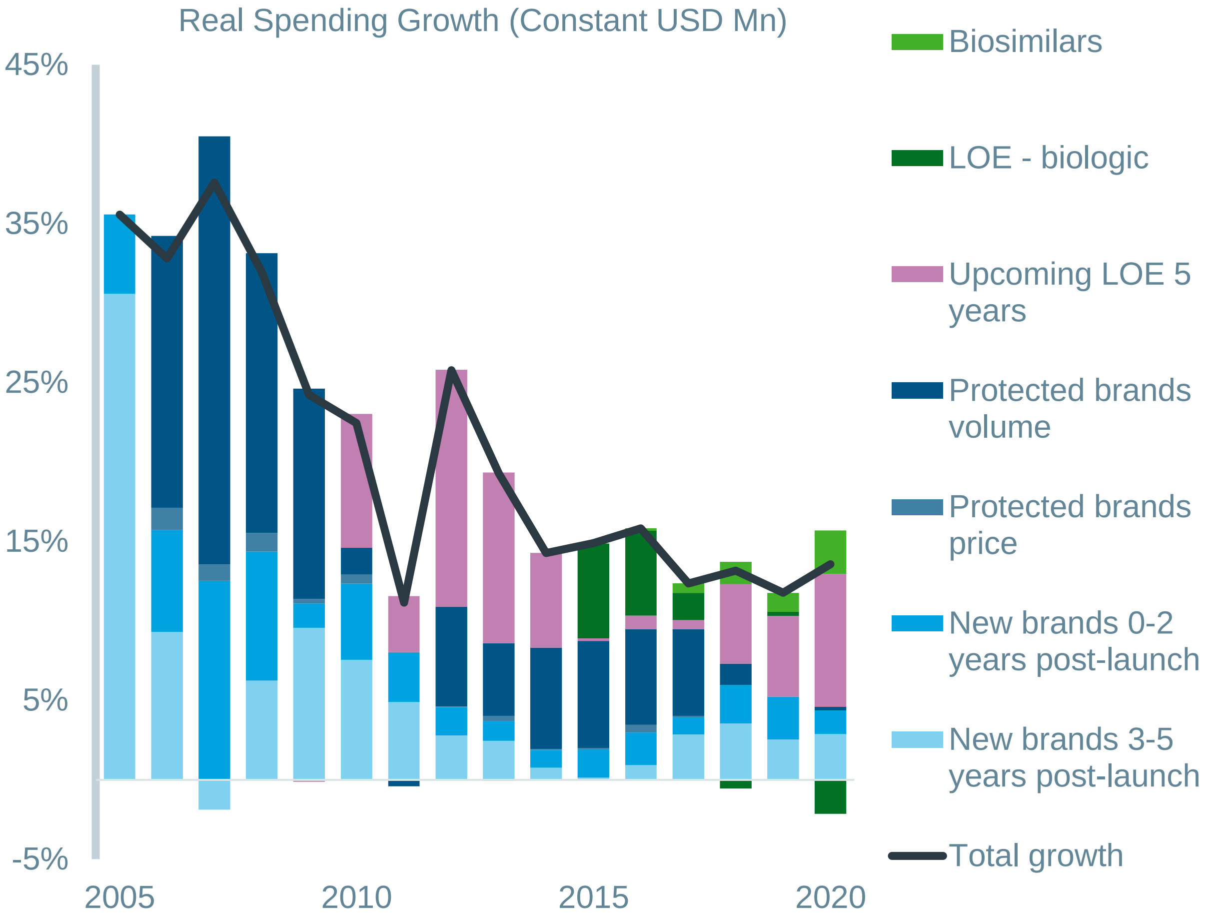


Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Auto-immune spending growth has slowed due to biosimilars; more than half of spending due to loss of exclusivity by 2025

Canada Autoimmune Biologic Invoice Spending and Growth Drivers, 2005-2020





Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Vaccine spending peaked in 2018 with HPV, meningitis, hepatitis and shingles contributing to 46% of overall spending in 2020

Canada Vaccine Spending and Volumes by Drug Type, 2000-2020

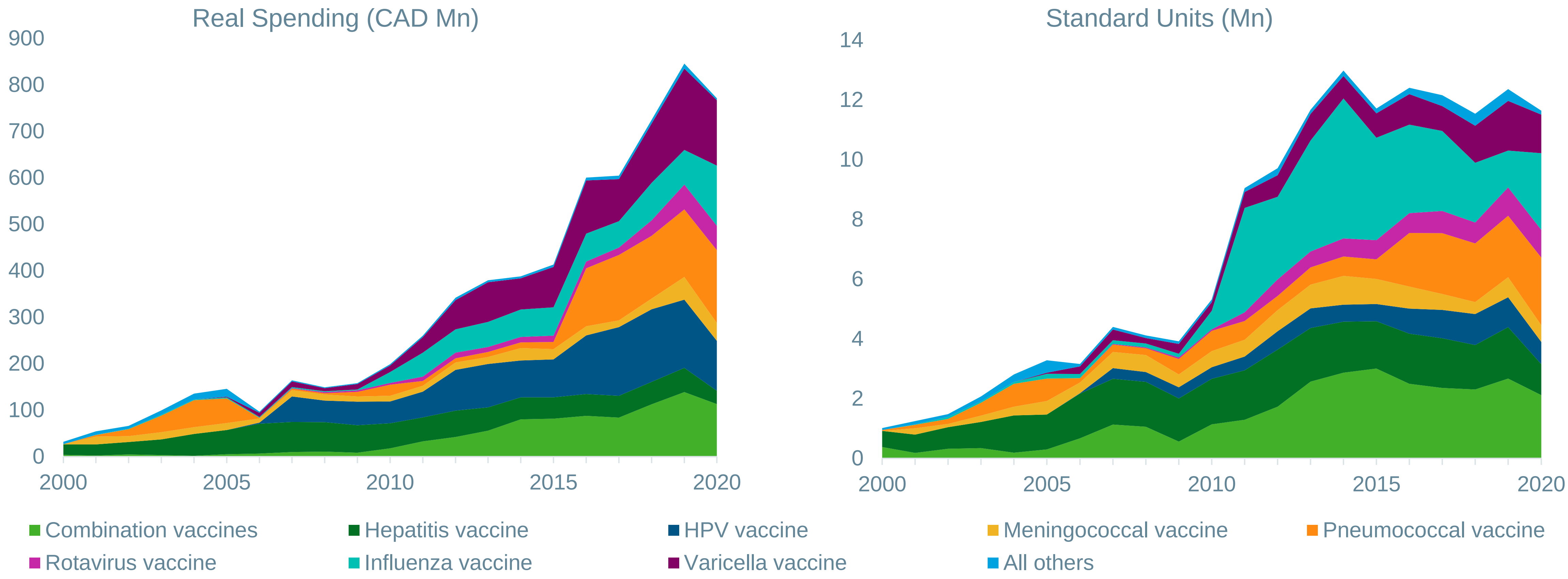
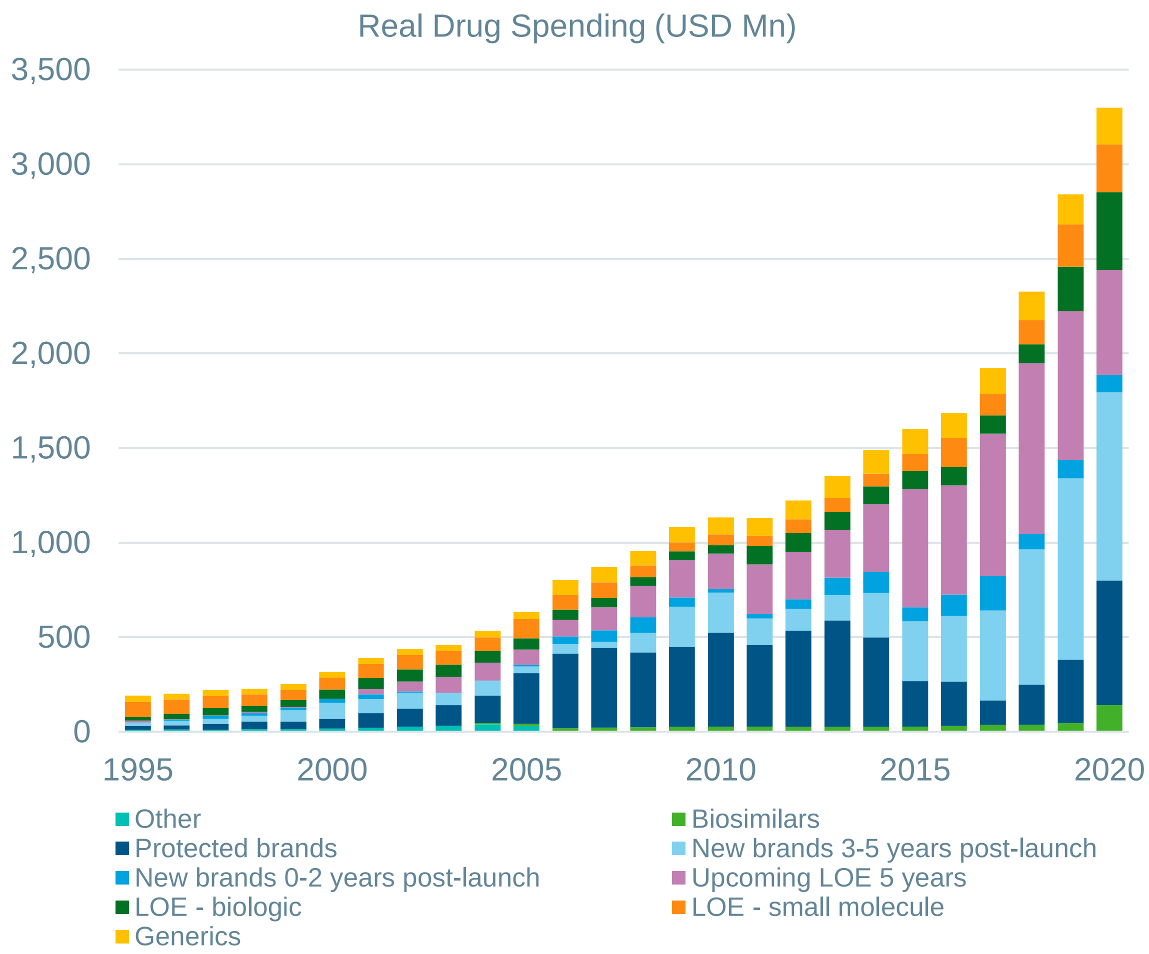


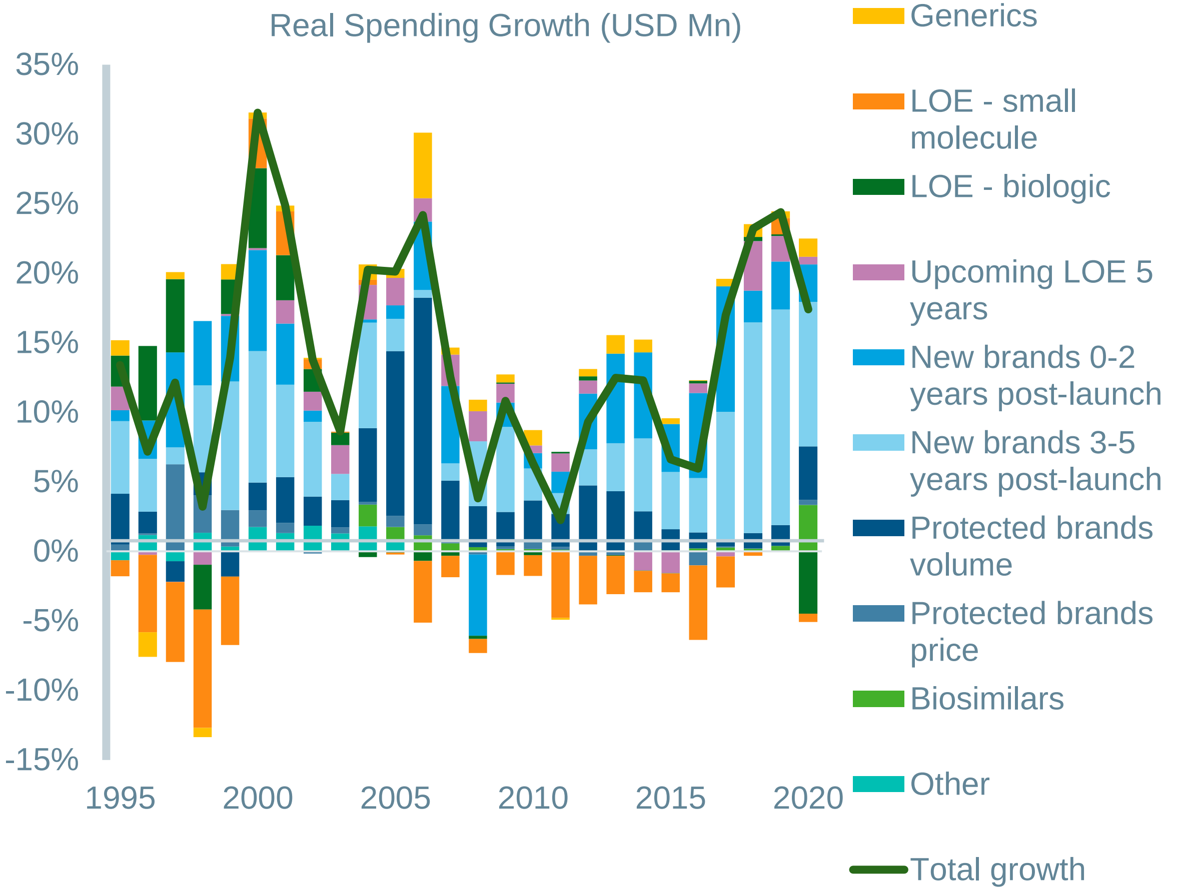
Chart notes: Combination vaccines represent combined vaccines (with measles, mumps, tetanus or other); HPV vaccine for human papillomavirus; Meningococcal vaccine for meningitis; Pneumococcal vaccine for pneumonia; Rotavirus vaccine for rotavirus; Influenza vaccine for the flu; Varicella vaccine for shingles; and All others for cholera, tetanus, typhoid and other viral/bacterial vaccines.

Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Oncology spending growth has been driven by new products, especially those 3-5 years post-launch, and offset by LOE

Canada Oncology Invoice Spending and Spending Growth Drivers, 1995-2020

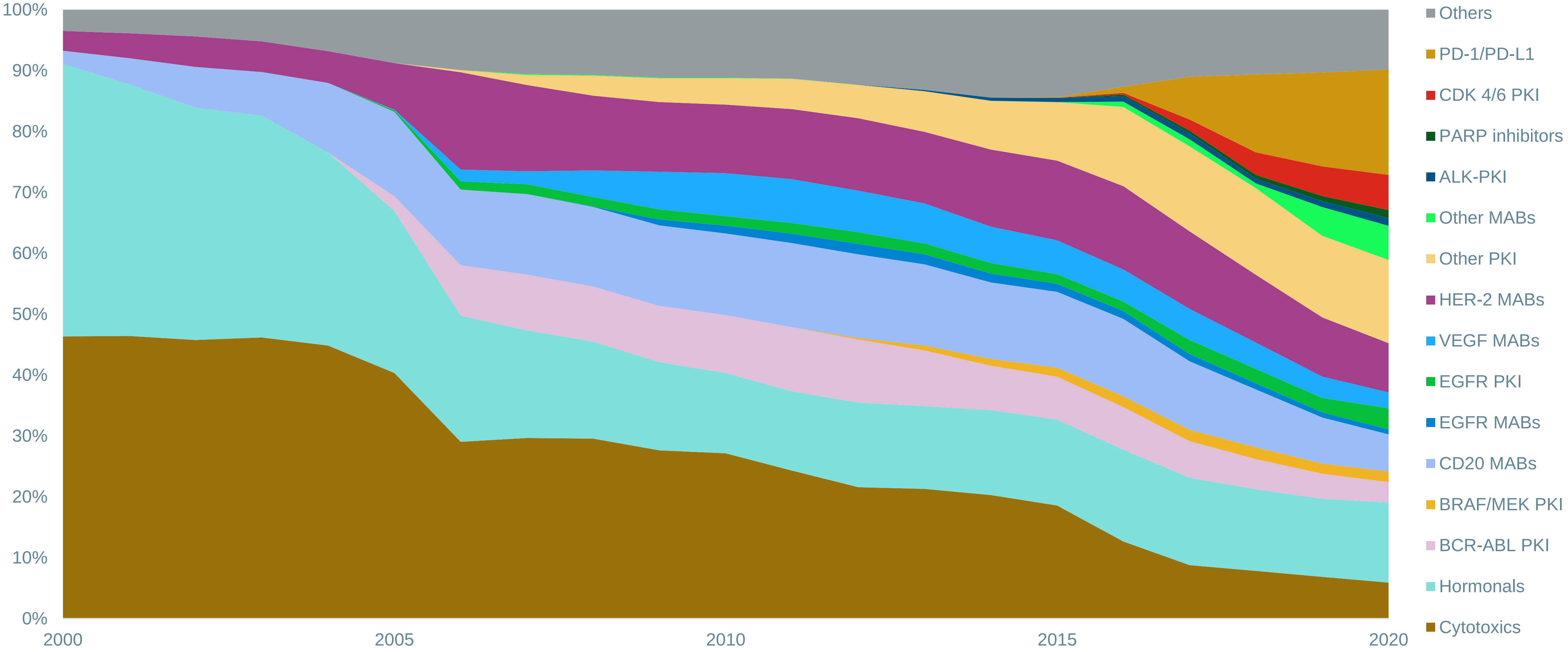




Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

New oncology therapies have been increasingly adopted over the past 5-10 years, especially PD-1/PD-L1 and other new modalities

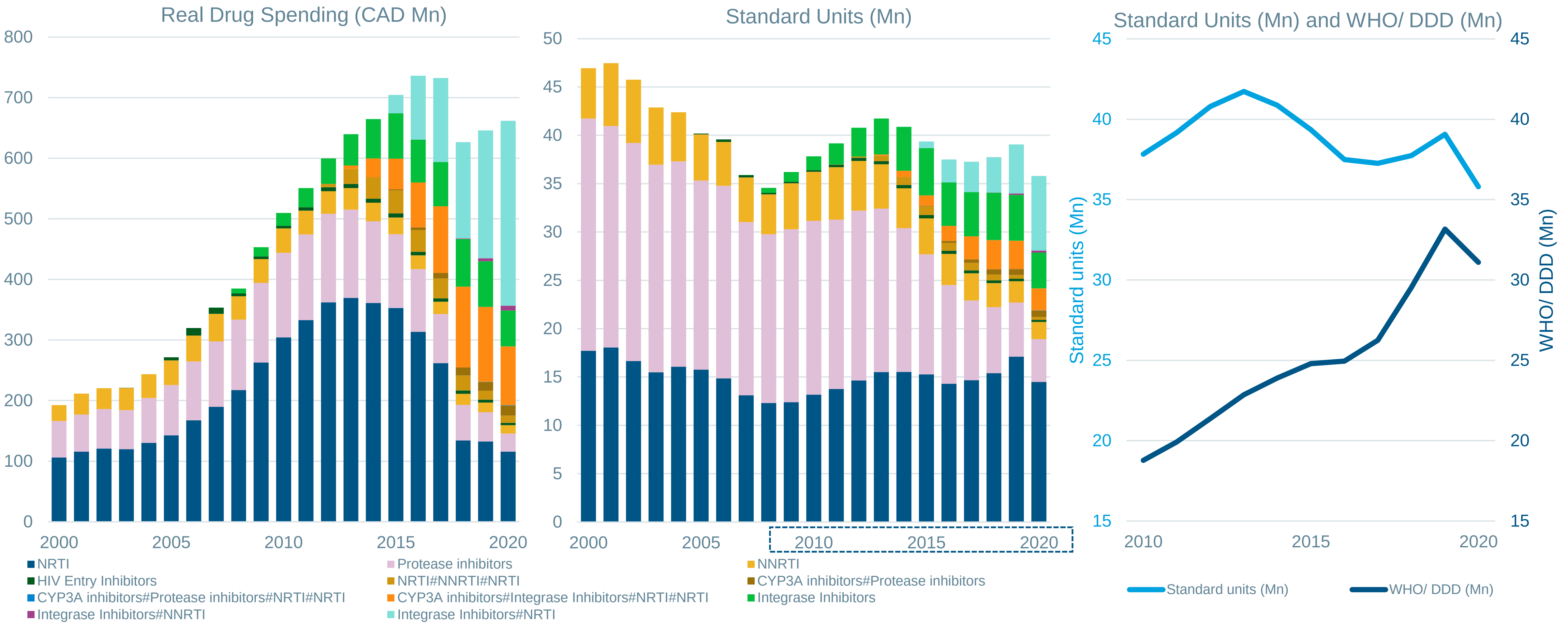
Canada Oncology Real Local Currency Spending by Mechanism, 2000-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

In the last 5 years, HIV integrase inhibitors & their combinations accounted for 54% of total spending

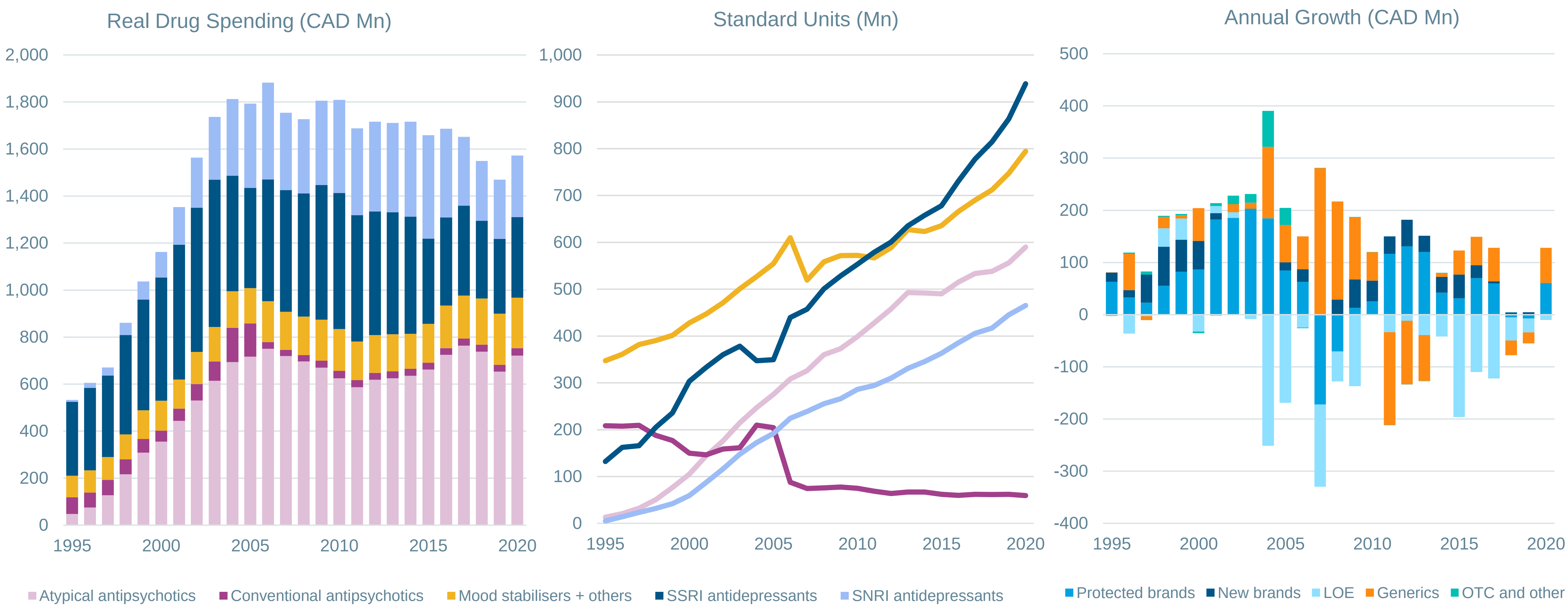
Canada HIV Spending and Volume by Mechanism, 1997-2020



Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Mental health atypical anti-psychotics contribute to 46% of the total spending as few are left still protected

Canada Mental Health Spending, Volume by Mechanism and Annual Growth by Product Type, 1995-2020

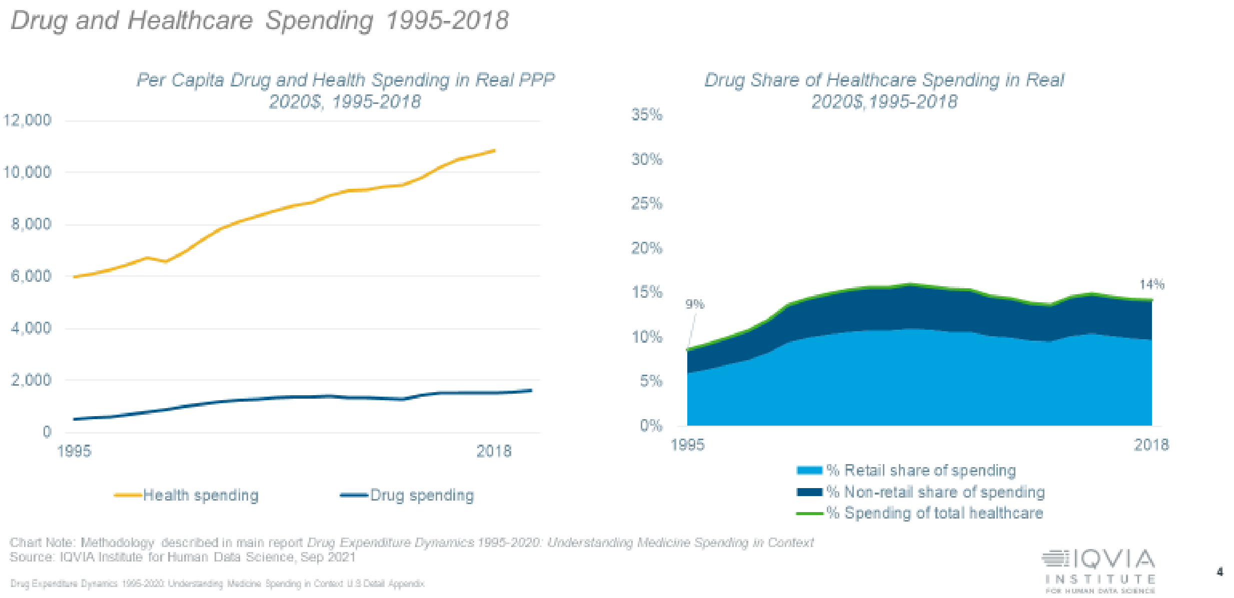


Source: IQVIA MIDAS; IQVIA Institute, Dec 2020

Illustration and explanation of data and chart layouts

Drug and Healthcare Spending Analyses

Key elements to note for interpreting charts



- **Drug and healthcare spend have been adjusted for economic growth (‘real’ GDP growth has been removed), population growth, and for cost of living differences (Purchasing Power Parity – PPP).**
- **Drug spending as a percentage of healthcare spending uses estimates of total drug spending in all channels (retail and hospital) and after discounts and rebates.**
- **The hospital drug spend adds 1-11 percentage points, depending on the country, to the retail drug share of healthcare that is most often reported by governments (OECD).**
- **The right-most chart illustrates how much of overall drug spending is attributable to non-retail spending, which is significant and varies over time.**

Drug spending is segmented by type of product, changing over time for some products to enable more complex analyses

Illustrating the Drug Type Segmentation Used in the Report

Drug Expenditure Segmented by Type of Drug

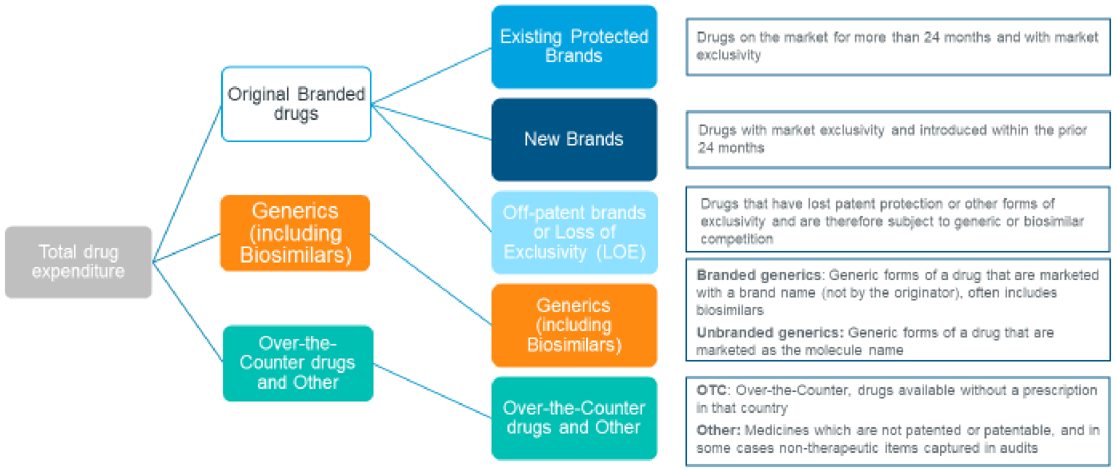


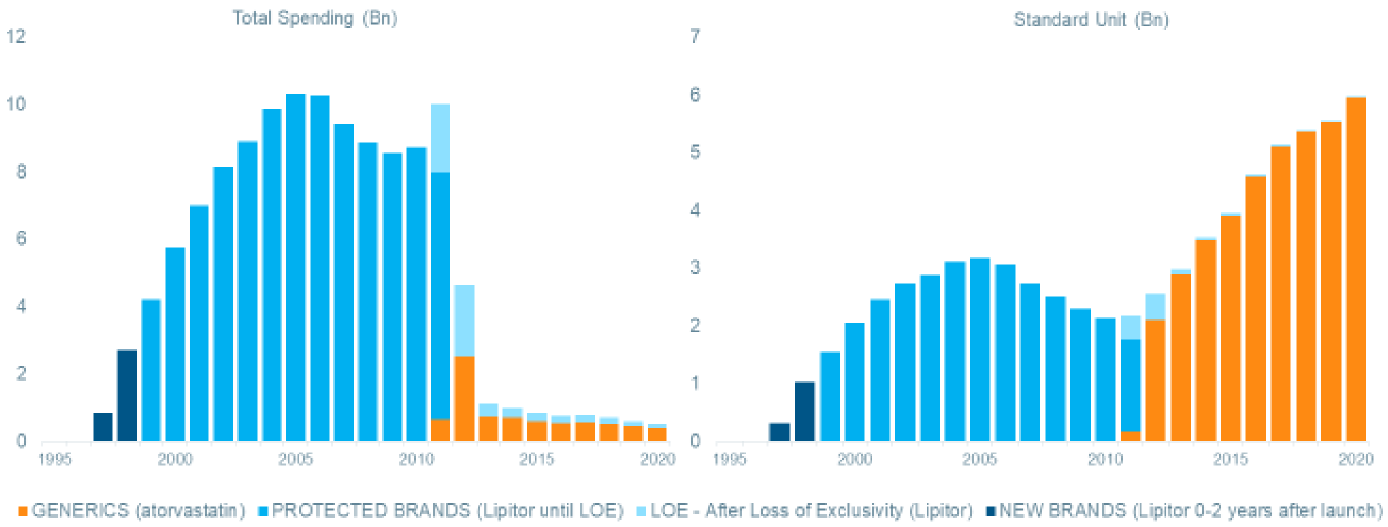
Chart notes: Protected brands include original protected brands, upcoming LOE and vaccines, New brands include original new brands; LOE include drugs that lost patent protection; Generics include non-original branded products as well as drugs that are marketed using the molecule name; OTC and other include non-prescription bound products and not patentable products. Due to the methods of combining multiple archived databases, products which are no longer marketed but had spending or volume in 2005 or earlier are included in the 'other' segment as specific segmentation was not possible.

- **Analyses in this report that use product segmentations as shown here are based on IQVIA audited data. They do not reflect payer net spending due to the confidential nature of some of the discounts and rebates. Unless a page indicates a non-IQVIA source, the analysis would not be adjusted for off-invoice discounts and rebates.**
- **Products have been segmented both by the way they are marketed (brands, generics, biosimilars, Over-the-counter) as well as by the status of their patent or other types of protection.**
- **Existing Protected brands are those which are no longer 'new' and are not yet off-patent.**
- **Nnew brands are defined as those products within their first 2 years in the market; however, some analytics in this report specifically identify older new brands from 3-5 years after launch.**
- **Loss of exclusivity is the status for branded products that are off-patent or no longer protected (but still had sales in the market) and these terms are used interchangeably in the report.**
- **Generics and biosimilars are treated in the same segment unless noted specifically on the chart.**
- **Over-the-counter status is a country-specific regulatory status and some drugs have both prescription-bound and OTC packs in the market.**
- **Other is a status where products either do not have typical brand or generic or protection statuses or where the product is no longer marketed and it was not possible to apply segmentation.**

Illustration: product segmentation drug lifecycle dynamics

Example of Drug Type Segmentation using a single medicine

Exhibit x: Illustration of U.S. branded and generic segmentation, Lipitor and Atorvastatin generics

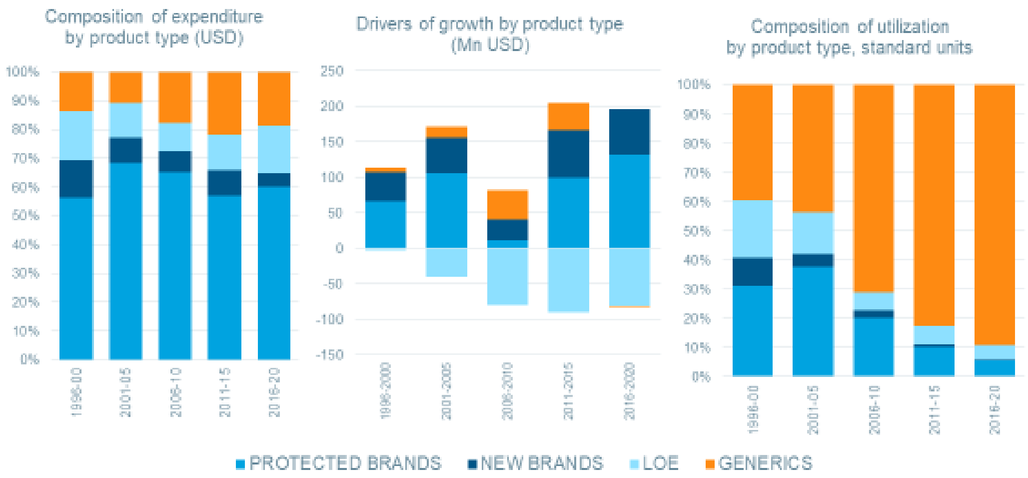


- **In this example, the drug ‘atorvastatin’ begins life as a New Brand when Lipitor launched.**
- **The segmentation changes after 24 months to ‘Protected Brand’. Analyses are based on quarterly time periods and a product may be considered new in 3 calendar years depending on the timing of launch in a country.**
- **At the point of patent expiry, the brand Lipitor becomes LOE, and new competing Generics enter the market.**
- **The left chart shows ‘spending,’ which is reflected in the currency noted on each chart. In the report the currencies. are most often normalized to real 2020$ with constant US$ exchange rates, but in the country appendix local currencies are used.**
- **The right chart shows values in standard units. Standard units vary by form and are generally not recommended to report in this aggregated way. However most drugs in the therapy areas were similar enough to enable this analysis.**

Illustration of data and charts in this report

Country level overview of product types

Drug Spending and Utilization 1995-2020

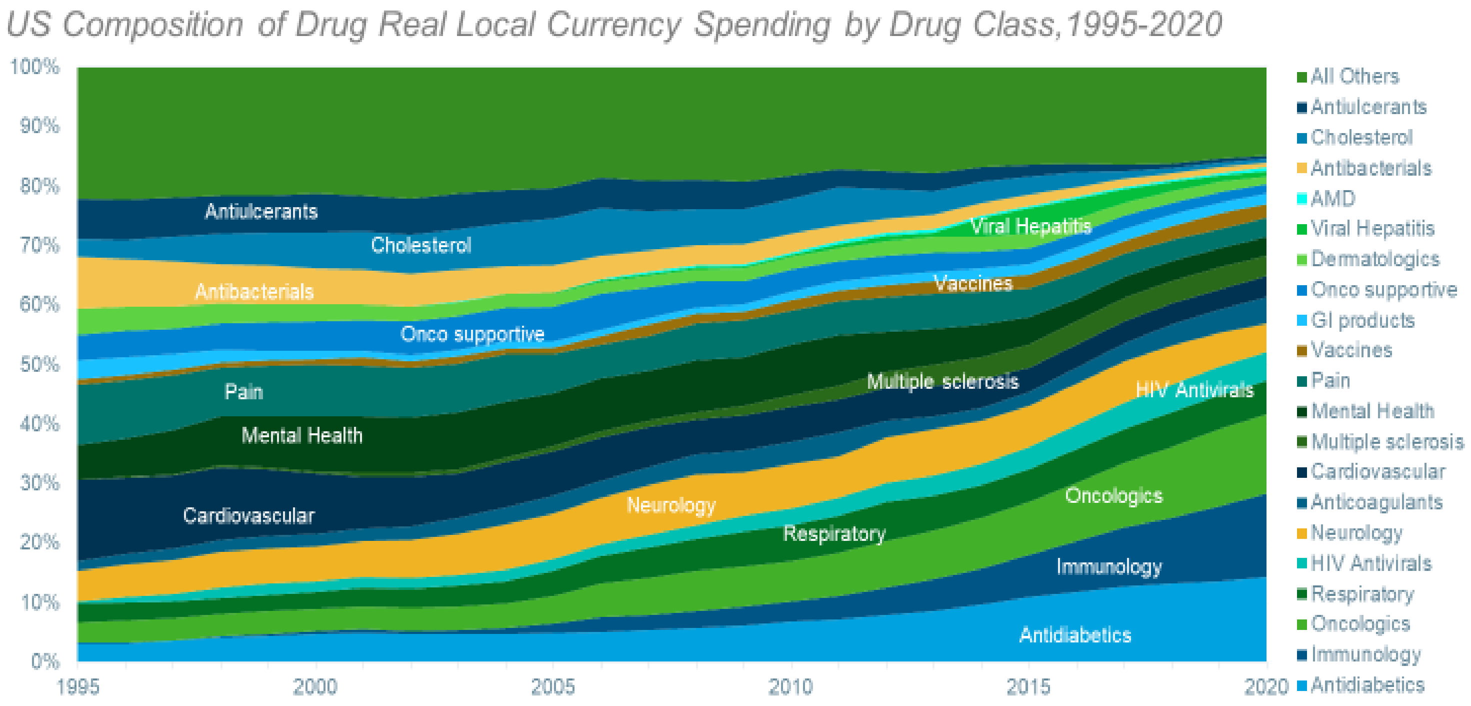


- Protected brands including new products average less than 70% of spending consistently
- Generic share of combined generic and LOE segments increasing steadily over time
- Generic share of volume increasing as generations of products shift to off-patent
- Most growth is driven by protected brands including new products, and offset by losses of exclusivity

- **This analysis includes three views of drug spending, growth and volume in standard units, each present in the cross-country comparison section of the report and repeated in the beginning of each country section of the appendix.**
- **Spending is IQVIA audited sales and does not reflect off-invoice discounts and rebates.**
- **The drivers of growth chart is represented in absolute values of the currency noted.**
- **Products each have a segment status in each time period, and growth is a representation of the current group of products and their growth compared to prior periods. The product status in the prior period is not considered.**
- **Growth on an annual basis has been added together into 5-year groupings.**
- **Standard units are highly dissimilar by formulation and not recommended.**

Illustration of data and charts in this report

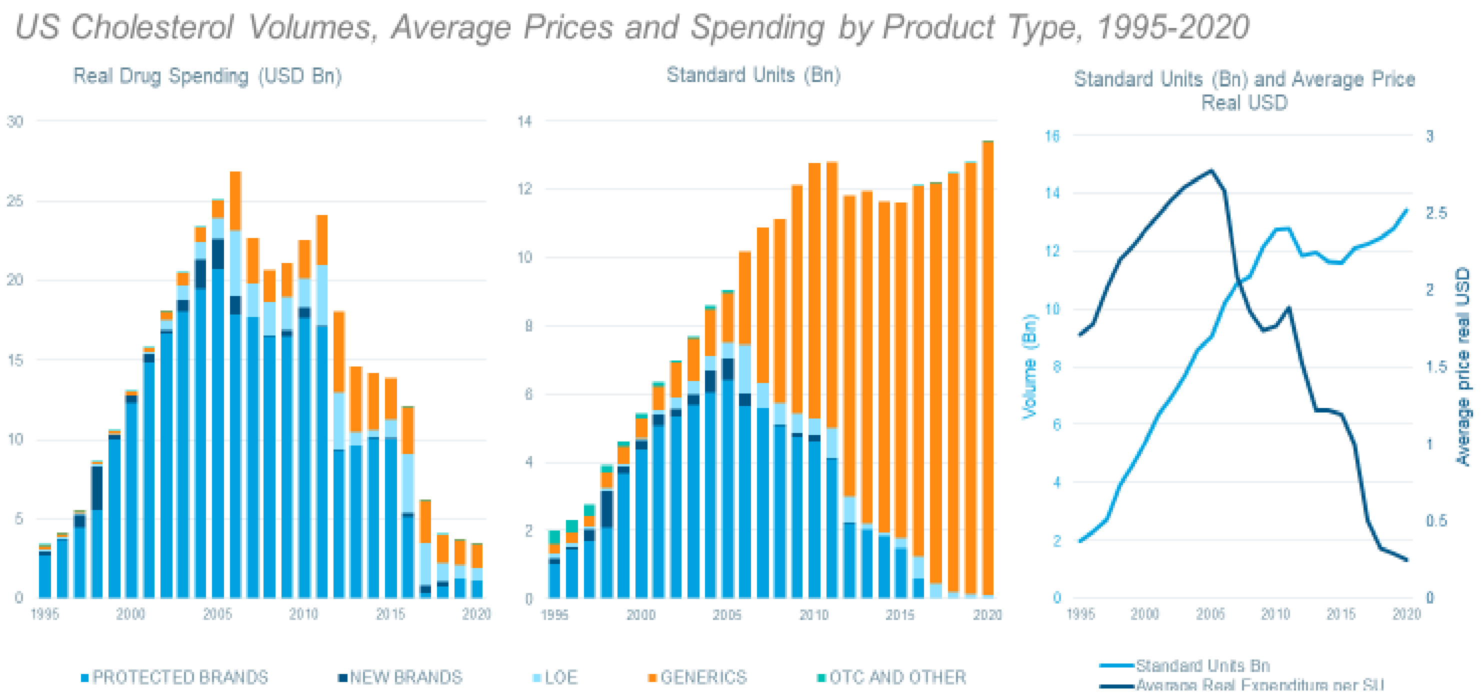
Total drug spending over time on 100% scale by top 20 Therapy areas



- **Total IQVIA audited spending over 25 years has been collated and grouped by therapy areas.**
- **The therapy areas are defined by IQVIA with details of the definitions in the main report methodology section.**
- **The therapy areas called out by name are the classes that were ranked in the top 20 the most often across the eleven countries studied across the 25 years. This can mean that some classes which have declined in sales outside the top 20 in the most recent period are still shown.**

Therapy area charts with sales, volume and cost by type of drug

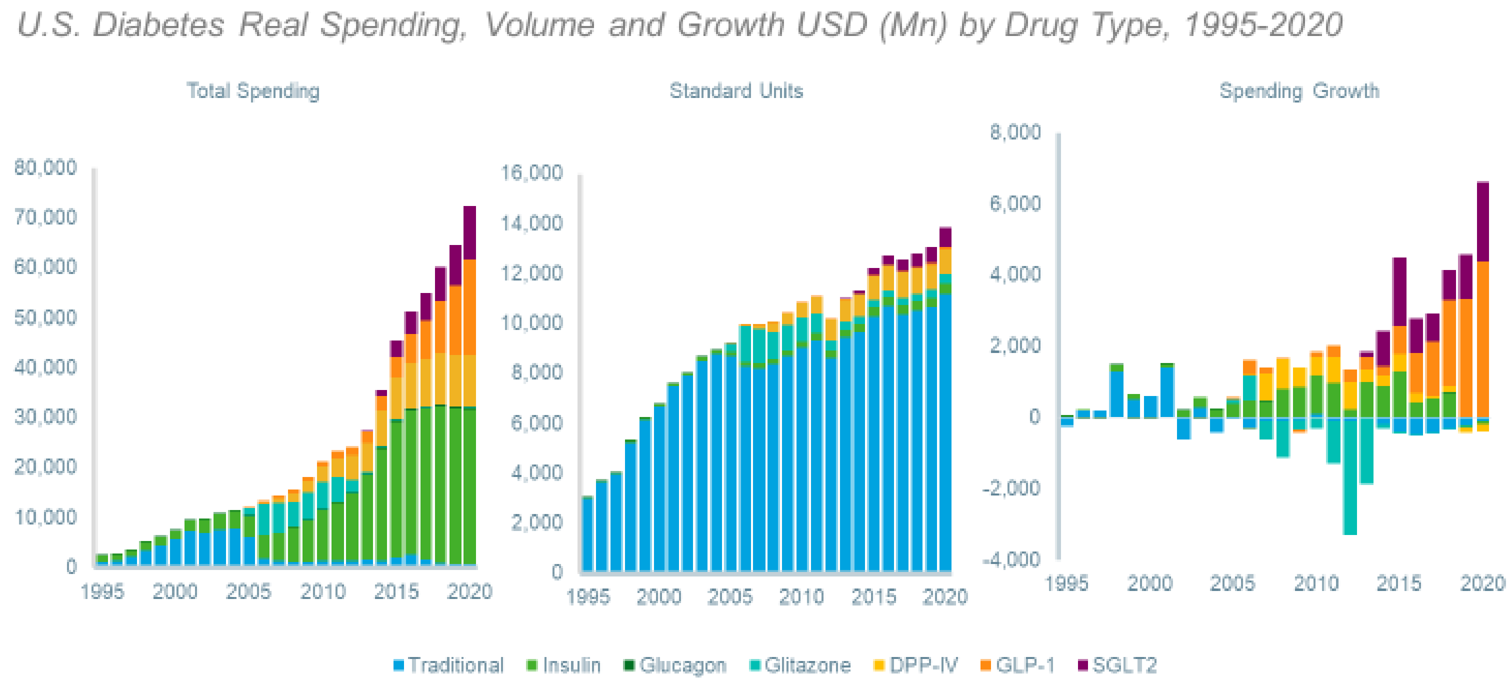
Example of single therapy area with multiple metrics analyzed



- Some analyses show three charts in this orientation, with spending, standard unit volume and finally a chart of volume and average cost per standard unit.
- Spending and cost are based on IQVIA audited data and do not reflect discounts and rebates.
- The segmentations shown in the charts are the same as described earlier.
- The average cost calculation is at the therapy area level.

Therapy areas showing subclasses by mechanism of action

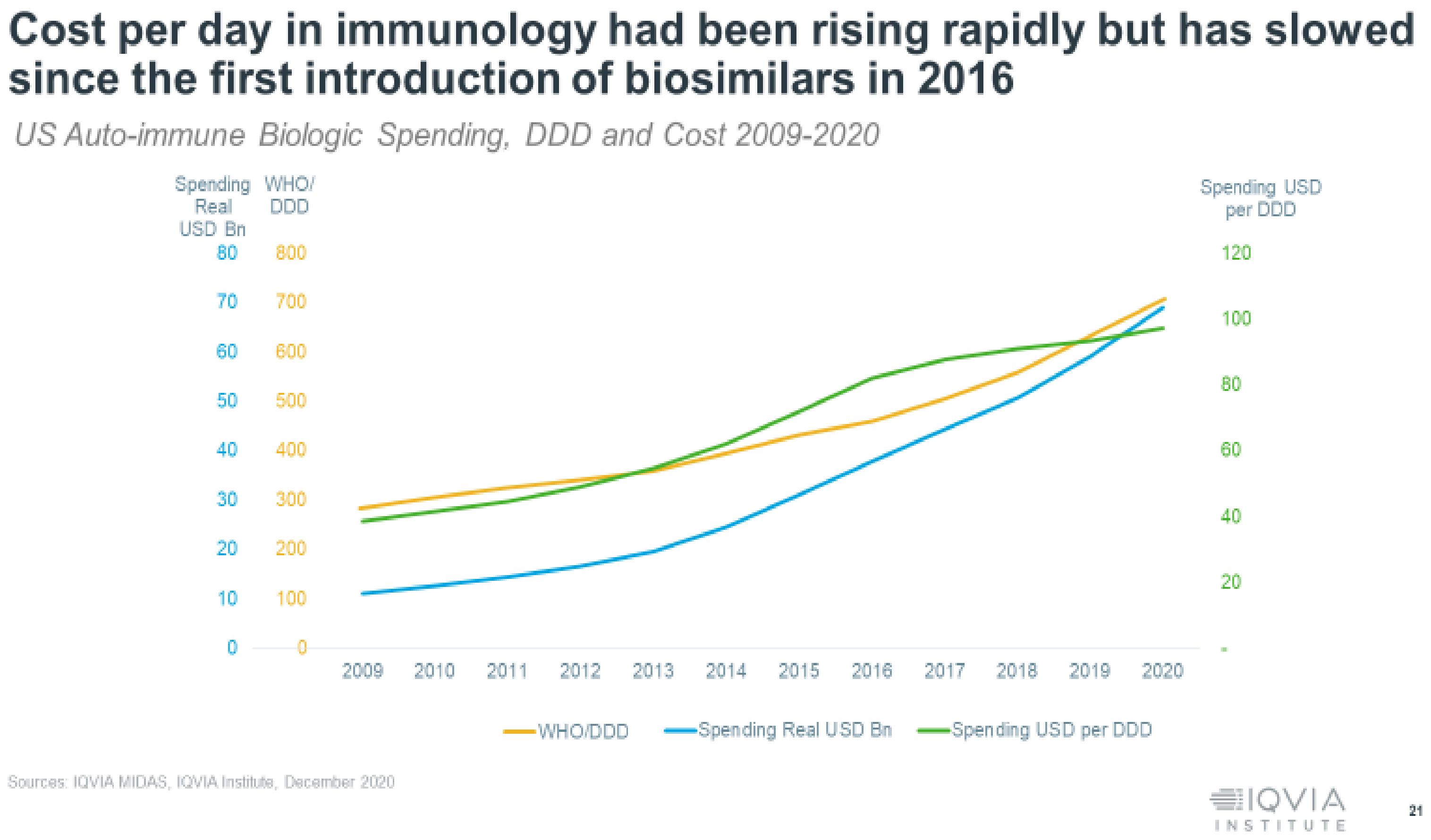
Illustration of a therapy area using multiple analysis metrics



- **Some therapy area charts include spending, standard units and spending growth.**
- **All are shown in the currency value noted.**
- **The colors of the chart indicate therapy sub segments, typically indicating shifts in the types of medicines used over time.**

Autoimmune biologic charts

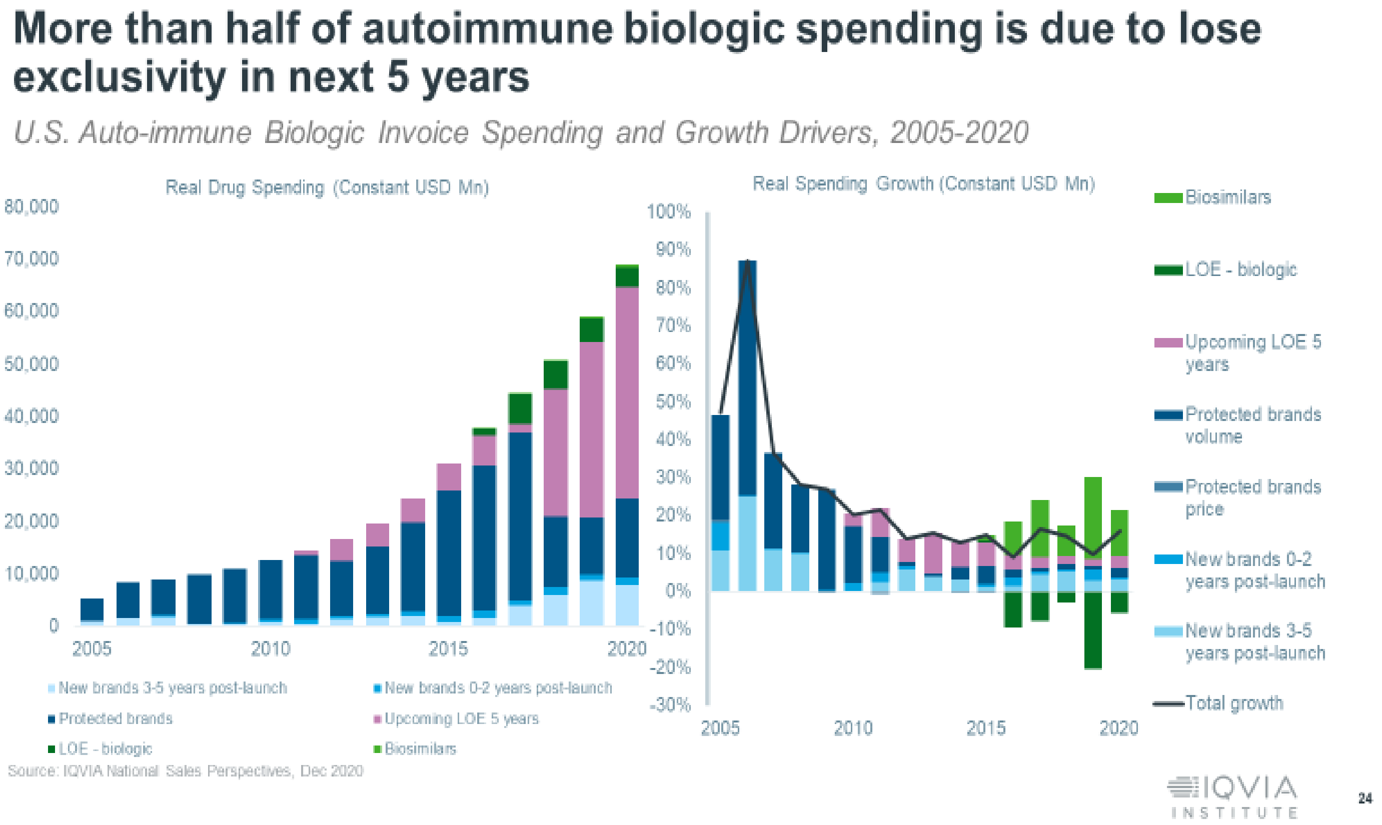
Illustration of three metrics on three axes on the same chart



- This chart layout is used for the autoimmune biologic market.
- It has 3 axes which are color-matched to the lines
- Two axes are on the left (sales and volume in WHO Defined Daily Doses – WHODDD). The color of the lines matches the color used on the axis to show increments.
- WHODDD represent a standardized dose used for all patients and normalized for packaging and formulation differences which are common with some products in this therapy area.
- WHODDD is particularly helpful for comparisons when original and biosimilar products are packaged differently from each other.

Charts using a more granular product type view

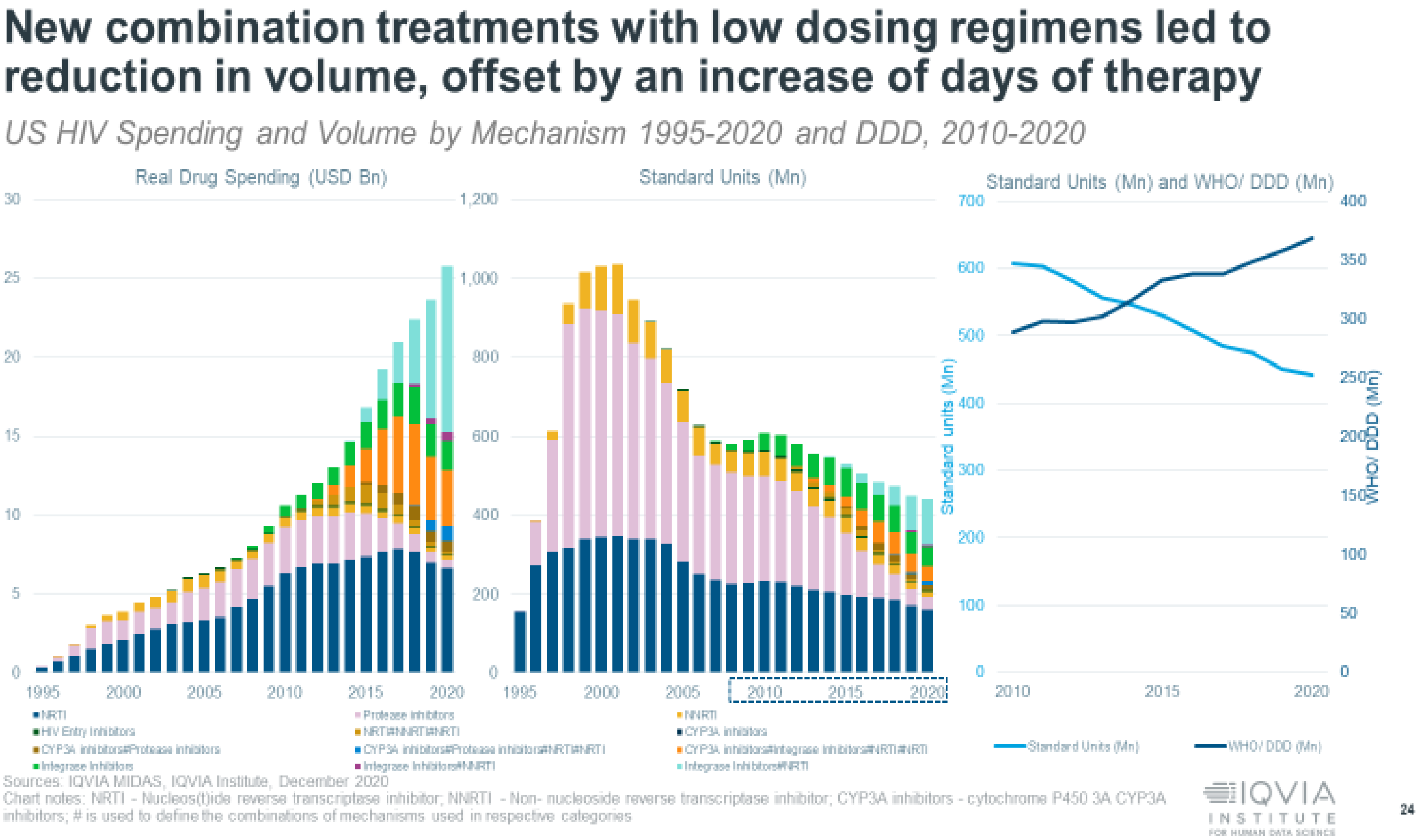
Illustration of product type segmentation with forward-looking segment



- **Oncology and Autoimmune charts employ a more granular time-dependent segmentation of product type than other analyses in the report.**
- **Original biologics and small molecules when off-patent are identified separately as well as generics (small molecule) and biosimilars.**
- **The autoimmune charts are limited to biologic products and therefore exclude some small molecule products that could be relevant in some analyses such as JAK inhibitors.**
- **The upcoming LOE 5 years segment is composed of different products each year as their status changes, and refers to the expected entry of biosimilars in key products in future years.**
- **New products are shown with both 0-2 years and 3-5 year segments.**
- **Brands that are not ‘new’ and not LOE are shown as ‘protected’ and growth charts are split by price and volume.**

HIV market charts

Illustration of products with varying mechanisms of action



- Products in this market have been grouped by mechanism of action.
- Fixed-dose combination products are grouped by the type of mechanism of each ingredient, with each mechanism separated by a ‘#’ symbol.
- Volume is measured in standard units in the middle chart.
- In the right chart, volume is in both standard units and WHO DDD, and the shift in the trajectory of these two measures suggests a changing number of doses per day as combination products become more common.

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Access the full report at www.iqviainstitute.org