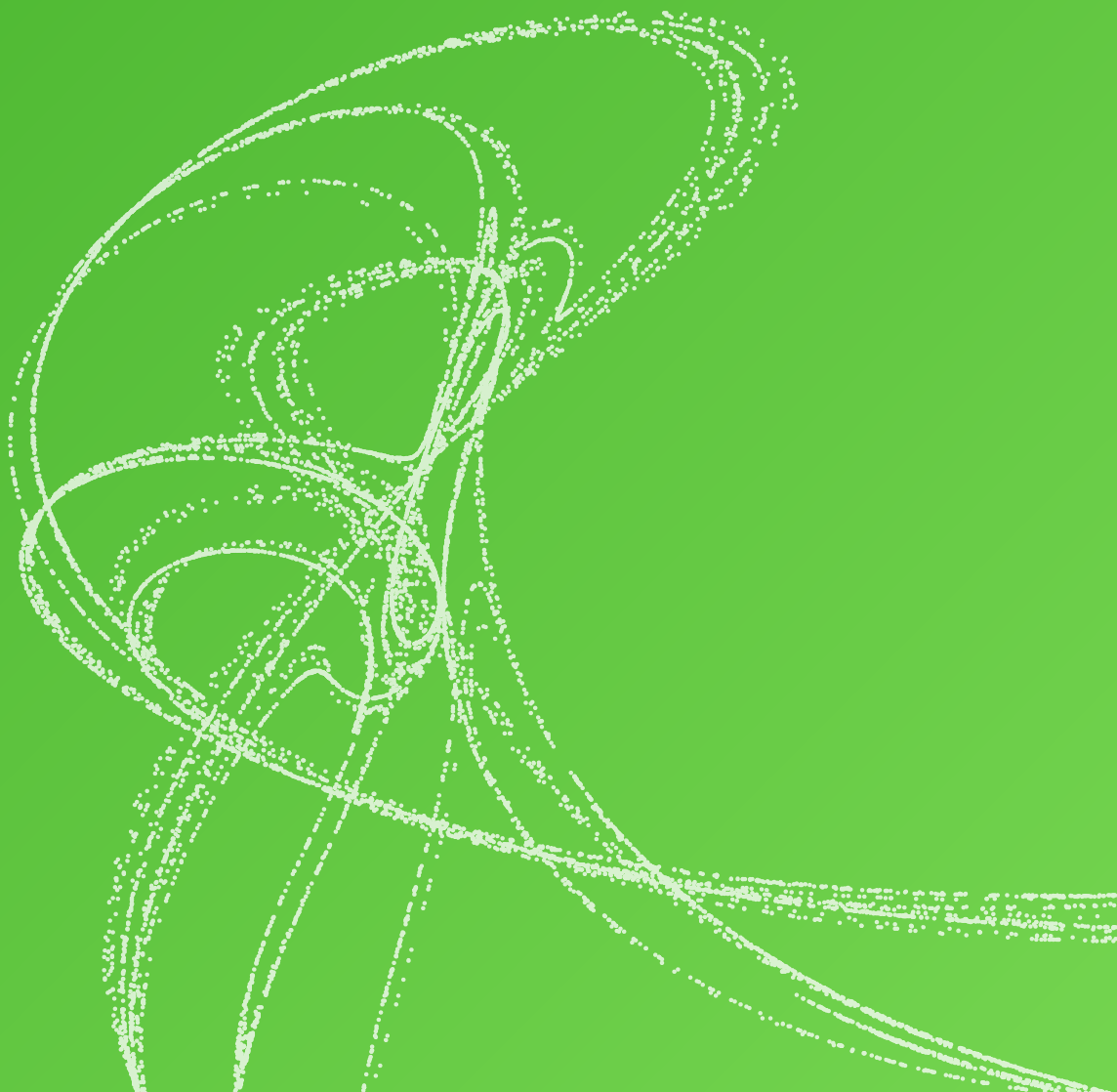
IQVIA INSTITUTE
FOR HUMAN DATA SCIENCE

The Global Use of Medicines Outlook through 2029

Increasing Access, Use, and Spending



JUNE
2025

Introduction

Increasing availability and usage of medicines, and the associated amount being spent, have become central issues in health policy and international trade discussions in recent years, including the potential reshaping of global markets and drug pricing that is being proposed by the new U.S. administration. Breakthrough therapies launched over the past decade for multiple diseases are reshaping patient care in many areas, while established patterns of spending and usage continue to highlight differences in access and pricing across countries.

The largest driver of medicine spending growth through the next five years is still expected to be the availability and use in developed markets of innovative therapeutics and offset by losses of exclusivity and the lower costs of generics and biosimilars. Traditionally, growth in the use of innovative medicine has occurred mostly in the years immediately following launch, whereas in recent years and in the forecast outlook, growth is driven by older products. This mix of spending growth between volume-driven growth and mix-driven changes in the cost of therapy are showing most geographies shifting to more expensive therapies, reflecting the broader availability and patient access to medicines with higher clinical value.

In this report, we quantify the impact of these dynamics and examine the spending and usage of medicines in 2024 and the outlook to 2029, globally and for specific therapy areas and countries or regions. We intend for this report to provide an evidence-based foundation for meaningful discussion by all stakeholders around the value, cost, and role of medicines over the next five years in the context of overall healthcare spending.

The study was produced independently by the IQVIA Institute for Human Data Science as a public service, without industry or government funding. The contributions to this report by Farhana Begum, Tanya Bhardwaj, Saksham Bhardwaj, Srinidhi BC, Sydney Clark, Bhagyashree Sitaram Nawar, Urvashi Porwal, Sarah Rickwood, Alan Thomas, and many others at IQVIA are gratefully acknowledged.

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Overview

Significant usage shifts and spending growth acceleration that is taking place in some geographies and slowing in others became apparent in 2024 and have contributed to an outlook for medicine spending through 2029 unchanged at 5–8% CAGR, bringing global spending on medicines at invoice prices to $2.4Tn. In aggregate, global health systems have demonstrated remarkable resilience in the face of the pandemic, global inflation, and regional conflicts, and have moved forward to adopt novel therapies and increase usage. Overall, global use and spending on medicines is exceeding pre- pandemic growth rates and is expected to continue significantly above those trends through 2029.

AVAILABILITY OF NOVEL MEDICINES

A total of 1,005 novel active substances (NAS) were launched globally over the past 20 years including 394 in the past five years, but the number launching varies considerably by region, with the U.S. having launched 81% of the global total compared to 65% in leading European countries, 60% in Japan, and 59% in China. Notably, many of the drugs launched in the U.S. are not available in Europe, and 40% of the China launches were for drugs launched only in China and no other markets. These variations in available medicines have an impact on the usage and spending trends in various geographies.

Biologic medicines have reached 42% of global novel drug launches in the past five years, which is similar across many developed countries except for China, where only 33% of launches took place in the same period. Additionally, low- and middle-income countries (LMICs) have approved fewer recently launched global drugs in the past decade, limiting patient access to recent advances. These LMICs have approved more of the established medicines — older medicines included on essential medicine lists — but still lag developed markets in terms of availability.

Beyond the initial approvals and launches of a medicine, many drugs are subsequently researched and approved for multiple indications. In the U.S., indication expansions accounted for 1,092 additional approved uses for the more than 500 NAS approved in the U.S. in the past decade. For U.S. patients, expanding the approved uses for medicines in the years following initial approval has had significant impact on treatment options and has influenced the applications and approvals in other countries where launches are typically later than in the U.S.

OUTLOOK FOR THE USE OF MEDICINES

The global use of medicines — measured using World Health Organization defined daily doses (DDDs) — has been relatively flat since 2021 and is expected to grow on average 0.8% annually through 2029, slower than the 2.6% in the prior five years and resulting in no growth when adjusted for population. Medicine use in Latin America and Asia has grown more rapidly than other regions, and this trend will continue through 2029. Per capita use of medicines is typically correlated with GDP, with Japan and Western Europe having more than double the use of most other regions. When adjusted for population, per capita use is forecasted to grow across all regions except Africa and the Middle East and India. Patient use of medicines grew by 14% over the past five years, driven by increased access to medicines in China, Asia-pacific and Latin America regions. Growth is expected to slow to 4% — or 154 billion defined daily doses — through 2029, driven by slowing growth in

In aggregate, global health systems have demonstrated remarkable resilience in the face of the pandemic, global inflation, and regional conflicts, and have moved forward to adopt novel therapies and increase usage.

the regions previously driving growth along with a worsening outlook in Africa and the Middle East and smaller changes in other geographies.

THERAPY AREA HISTORIC DRIVERS OF MEDICINE USE

Some key therapy areas have had higher growth in usage, led by endocrinology and immunology. Immunology medicine use is correlated with GDP, with higher overall use and a higher proportion of biologic medicine use in higher income countries. Per capita use of immunology medicines varies between developed countries, and nearly half of biologic volume is facing biosimilars. An incremental 5% of volume has been observed for those biologic medicines with biosimilar availability, demonstrating that lower costs are allowing expanded usage with less budget impact.

GIP/GLP-1 agonists have seen rapid uptake for the treatment of both diabetes and obesity, predominantly in the U.S. and other developed markets, with an unusually high proportion of patient self-payment across markets, demonstrating the popularity of the weight loss benefits these drugs have shown.

The global number of oncology days of therapy has increased by 3% annually since 2019, mostly from Pharmerging countries — those countries with per capita income less than $30,000 and with five-year growth in pharmaceutical spending exceeding $1Bn — and driven by use of more traditional chemotherapies. The use of PD-1/PD-L1 inhibitors has risen rapidly in high income countries with a nearly three-fold variation on a per capita basis, suggesting that while these drugs are rapidly becoming standards of care, access to them remains uneven.

Use of antibacterials was significantly disrupted by the COVID-19 pandemic but was up 6% in 2024 from pre-pandemic levels. Progress toward targets for responsible antibacterial usage has been mixed across regions, with many countries facing challenges to reach stewardship goals. Additionally, many countries are vaccinating at rates below their pre-pandemic trend, leaving millions less protected from preventable diseases.

Across a range of more complex biologic treatments, patient access in Pharmerging countries has increased, with use now 60% of that in developed countries, but on a per capita basis, developed countries have 10 times higher usage. Progress in accessing biologics has been helped in these Pharmerging markets by the availability of nonoriginal biologics, which account for 41% of volume compared to 14% in developed countries. This higher access is likely a result of weaker intellectual property (IP) protections and further likely means the usage is not related to the same medicines in all geographies.

Global growth over the next five years will continue to be driven by new and existing brands in the top 10 developed countries and will be offset by reductions of $220Bn in spending on brands that have lost exclusivity.

SPENDING AND GROWTH BY REGIONS AND KEY COUNTRIES

The global medicines market — using invoice price levels — is expected to grow at 5–8% CAGR through 2029 to about $2.4Tn. Global growth over the next five years will continue to be driven by new and existing brands in the top 10 developed countries and will be offset by reductions of $220Bn in spending on brands that have lost exclusivity. New brand spending in the 10 developed countries is projected to be higher than the last five years but a smaller share of spending.

Higher global spending growth occurred in key regions after the pandemic, particularly in 2023 in North America, followed by a slowdown. Spending and volume growth are following diverging trends by region, and mix — change in the average cost of medicines — highlights higher spending for more novel and costly drugs in many key regions.

The U.S. market, on a net price basis, is forecast to grow 3–6% CAGR over the next five years, down from 6.8% CAGR for the past five years. The impact of exclusivity losses will increase to $179Bn over five years, with over $140Bn from small molecules. New brand spending in the U.S. is projected to be higher than the last five years but a smaller share of spending.

Spending in Europe on an invoice price basis, is expected to increase by $85Bn through 2029, driven by new and existing brands, while the impact of exclusivity losses will reach $25Bn over five years, with most due to small molecules. New brand spending in EU4+UK is projected to be higher than the last five years but a smaller share of spending.

Japan medicine spending is forecast nearly unchanged over five years as innovation is offset by shift to annual price cuts. Spending growth in China is expected to slowly recover post-COVID-19, driven almost entirely by new original medicines, but slow to an average 1–4% growth through 2029. Latin America growth is expected to be led by recovery in Argentina and a strong Brazil market.

Medicine spending and growth by product type varies by region, and these influence the relative rankings of countries in terms of drugs spending (at invoice prices), with slowing growth in some developed countries and higher growth in Pharmerging countries. Notably, Japan dropped from the third largest global pharmaceutical market to fourth largest in 2024.

KEY THERAPY AREAS

Global biotech spending — for those drugs produced through recombinant technology — reached 31% of global spending in 2024, up from 23% in 2019, and is forecast to reach 34% of global spending and reaching $820Bn by 2029. Growth will continue to be driven by the adoption of novel therapies while more medicines will face biosimilar competition in the leading 10 developed countries contributing to slowing growth to 7–10% CAGR. Specialty medicines — those treatments for chronic, complex, and rare diseases with costly, complex distribution and patient engagement, as well as often high costs — will represent about 46% of global spending in 2029 and 54% of total spending in leading developed markets.

Oncology, diabetes, and obesity are expected to lead absolute growth through 2029, with oncology and obesity forecasted with double-digit compound average growth rates to 2029. Cancer medicine spending rose to $252Bn globally in 2024 with growth leading other therapy areas but is expected to slow, reaching $441Bn by 2029. Immunology spending growth is forecast to slow to 3.5–6.5 % through 2029 from biosimilar impact as volume growth continues at 6–9% annually.

Diabetes spending growth accelerated in many developed markets associated with GLP-1 adoption but is expected to slow through the forecast period. The U.S. where significant discounts and rebates make invoice-level analysis less relevant, slows to 1-4% on a net basis. Global obesity spending has accelerated in the past two years from novel drugs with upside if more widely reimbursed, though self-payment across geographies is expected to continue.

New therapies in Alzheimer's and anxiety/depression are expected to drive spending growth in neurology, while cell and gene therapies have differing spending outlook and large areas of uncertainty.

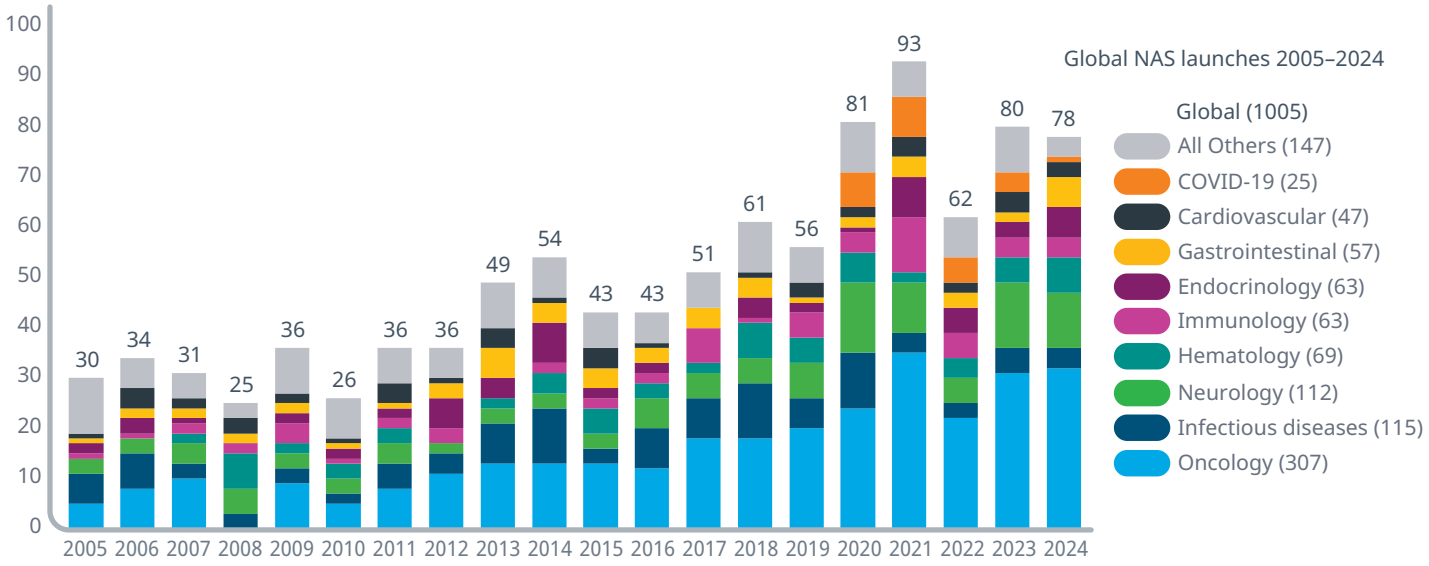
Availability of novel medicines

- A total of 1,005 novel active substances (NAS) were launched globally in the past 20 years, including 394 in the past five years with significant regional variations.
- Biologic medicines have reached 42% of global novel drug launches in the past five years, 33% of China launches.
- Low- and middle-income countries have approved fewer recently launched global drugs in the past decade, more of established essential medicines.
- Indication expansions account for 1,092 additional approved uses for the 509 NAS in the U.S. in the past decade, expanding the approved uses for medicines in the years following initial approval, and potentially influencing the applications and approvals in other countries where launches are later than the U.S.

Over a thousand novel drugs have launched for the first time globally in the last 20 years, but access to these drugs is highly uneven and significantly colors use and spending trends.

A total of 1,005 novel active substances (NAS) were launched globally in the past 20 years, including 394 in the past 5 years

Exhibit 1: Number of novel active substances (NAS) launched globally by therapy area, 2005–2024



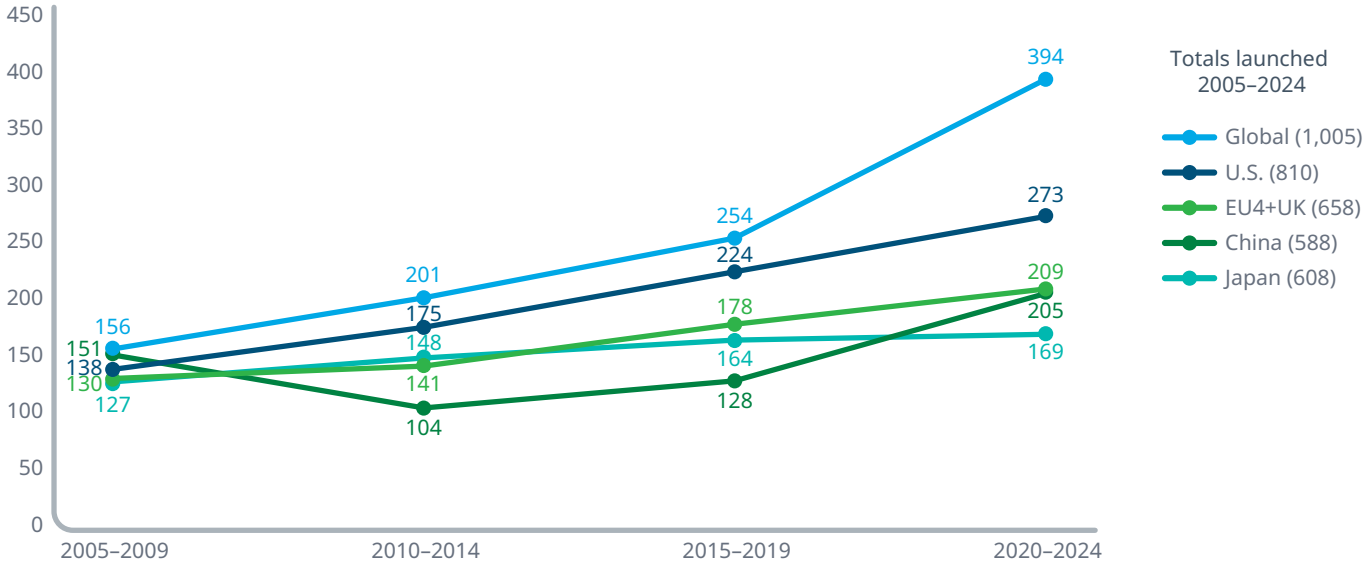
Source: IQVIA Institute, May 2025.

- The key therapy areas with the most novel medicine launches over the past 20 years have been oncology, neurology, and infectious diseases, with over 100 each.
- Of the 78 NAS launched globally in 2024, increases in the number of launches have been observed in the gastrointestinal (6), endocrinology (6), and hematology (7) therapy areas.
- In the past five years, an average of 29 oncology drugs have launched globally, up from an average of eight per year in 2005-2009, and nearly equal to the total NAS annual average of 30 in those same years.
- The global use of medicines includes adoption of NAS, although the timing when people in various countries have access to them varies considerably.
- The therapy area focus on novel medicines is heavily influenced by the drugs launching in the U.S., which include more specialty, niche and orphan drugs, and where most oncology drugs are launched, and launch first.
- Notably the last five years have included a rising number of launches with more limited geographic availability, especially China-only launches.[1]

Notes: A novel active substance (NAS) is a new molecular or biologic entity or combination where at least one element is new. Includes NAS launched anywhere in the world by year of first global launch. Launch is determined using IQVIA audits of sales activity as well as companies' public statements. Oncology includes supportive care and diagnostics. COVID-19 includes novel medicines only and does not include previously approved medicines with new approved uses for COVID-19.

A total of 394 novel active substances have launched globally in the past 5 years, with fewer launched in various regions

Exhibit 2: Number of novel active substances (NAS) launched globally and in selected countries, 2005–2024



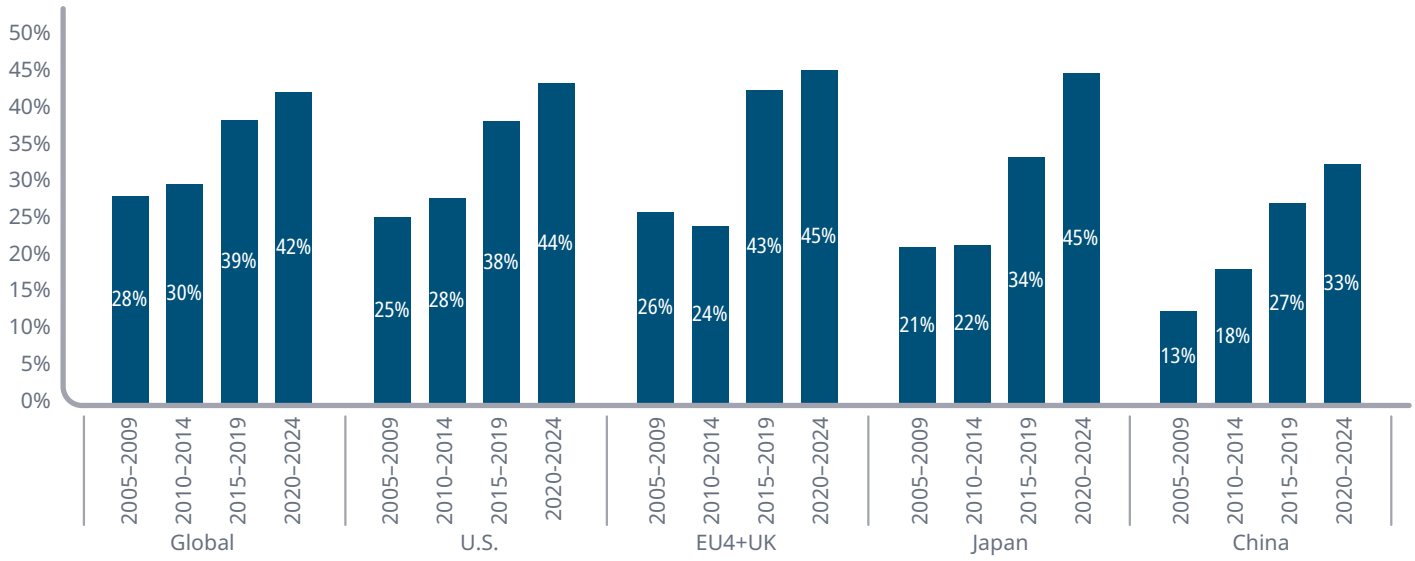
Source: IQVIA Institute, May 2025.

- A total of 78 novel active substances launched globally in 2024, bringing the five-year total to 394. Based on molecules in the late-stage pipeline and historic success rates, over the next five years an average of 65–75 NAS are expected to launch annually, expanding the number of NAS launched globally by 325–375.
- A total of 48 NAS launched in the U.S. in 2024, bringing the five-year total to 273. This represents a 22% increase in the number of launches between 2020 and 2024 compared to the period from 2015 to 2019.
- In 2024, the four largest EU member countries (France, Germany, Italy, Spain) and the UK had 43 launches, a 39% increase from the previous year. The five-year total was brought to 209, up 31 from the prior five-year total, but 64 fewer than the U.S.
- With 51 confirmed 2024 NAS launches and 205 in the past five years, China saw launches increase 60% compared to the 128 launches from 2015–2019. China ranks third in the number of launches, although 40% of the launches in the last five years were only available in China and not in other country markets.[1]
- Japan had 40 NAS launches in 2024, up from 22 in 2023, with the five-year total of 169, up slightly from the prior five-year total of 164.

Notes: A novel active substance (NAS) is a new molecular or biologic entity or combination where at least one element is new. NAS are noted in the year they launch for the first time in the relevant geography. Launch of NAS in each geography are counted independently, meaning the totals for each geography include different products, and the global is a representation of distinct first global launches.

Biologic medicines have reached 42% of global novel drug launches in the past 5 years, 33% of China launches

Exhibit 3: Biologic share of novel active substances (NAS) launches, 2005–2024



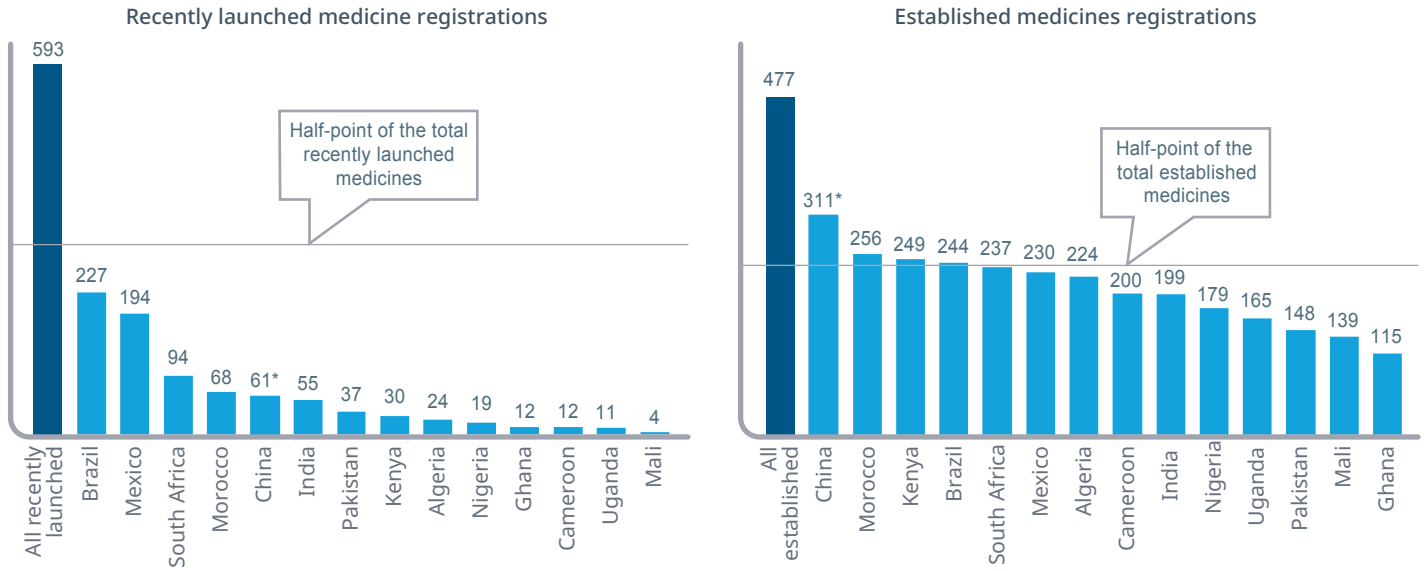
Source: IQVIA Institute, May 2025.

- Major developed countries all have the basic infrastructure to distribute and dispense biologic medicines, typically requiring cold-chain storage, and have had similar rates of biologic share of NAS launches.
- China has lagged major developed countries with a smaller percentage of biologic NAS launches, although the differences have been reduced in more recent periods.
- As most biologics are complex, specialty products, availability of these medicines will have an important impact on overall medicine spending in those countries with more access.
- While many biologic medicines are developed by multinational companies and only subject to loss of exclusivity and biosimilar competition in the past 10 to 15 years in developed markets, there is significant adoption of non-original biologics in lower-income countries (Exhibit 21).
- This pattern of non-original biologic marketing and adoption is expanding access to biologics beyond developed markets and may influence approval and launch of novel biologics in those countries.

Notes: Biologics are defined as medicines of biologic origin, or produced through recombinant DNA technology, and include cell and gene therapies.

Low- and middle-income countries have approved fewer recently launched global drugs in the past decade, more of established

Exhibit 4: Rate of local registration of recently launched and established medicines, comparison



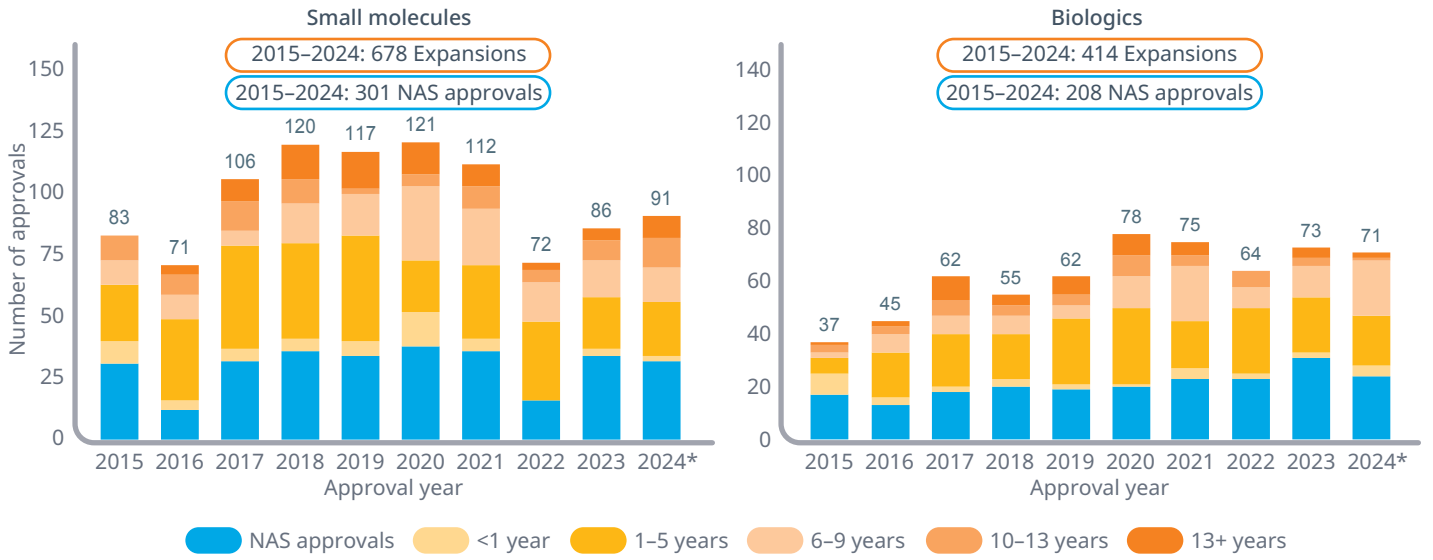
Source: Key Access Pathways and Bottlenecks for Medicines in LMICs: Comparison of Recently Launched and Established Drugs, June 2025. Report by the IQVIA Institute for Human Data Science.

- Novel drugs are not widely registered across the analyzed low- and middle-income countries (LMICs), with only two countries seeing more than 30% of the 593 recent global launches registered locally.
- Five of the 14 LMICs have less than 20 novel drug registrations, i.e., less than 3%.
- Brazil and Mexico – both upper middle-income countries as per the World Bank's classification — have the highest number of registered novel drugs with 227 (38%) and 194 (33%) of 593 novel launches, respectively.
- Established essential medicines, which are derived from the WHO essential medicines list (EML), are reaching the analyzed LMICs at a higher rate than novel medicines, with every country having registered over 100 of the 477 established drugs in the sample. The share of established drugs registered ranges from 24% to 65%.
- Four of the 14 LMICs have registered more than half of the established drug sample.
- Some countries show low rates of registrations, regardless of whether the medicine is a newer global launch or a more established medicine. The same four countries — Mali, Uganda, Ghana and Nigeria — are in the bottom five in terms of number of drugs registered for both types.

Notes: * There are data quality concerns for China within the registration analyses. See methodology in source report.
Novel drugs are defined as novel active substances launched in the period 2013–2022. The analysis is based on registration (approval) and not launch, and as such recently launched medicines, which are equivalent to NAS on exhibit 2, will not have the same totals. Non-novel essential drugs are defined as a sub-set of the WHO EML, excluding novel drugs and several other categories, e.g., disinfectants. Fourteen low- and middle-income countries were studied for this analysis. Low- and middle-income countries are those in The World Bank's upper-middle, lower-middle, and low income bands.

Indication expansions account for 1,092 additional approved uses for the 509 NAS in the U.S. in the past decade

Exhibit 5: U.S. approval trend by NAS approvals and expansions post initial approval



Source: Global Trends in R&D: Overview through 2024. Mar 2025. Report by the IQVIA Institute for Human Data Science.

- With the U.S. being the most common first-launch country, sometimes years before other markets, expanded indications in the U.S. likely influence the nature of approvals and drug usage in other markets.
- In this analysis, approvals have been granted by the U.S. FDA to 509 NAS, and 1,092 expansions have been received by the NAS approved between 2000–2023.
- Of the 1,092 expansions, 62% were granted to small molecules. On average, 14 expansions were received by small molecule NAS in the last decade, whereas eight expansions were received by biological NAS.
- Over the past 10 years, original approvals accounted for an average 30% of small molecule approvals and 34% of biologics, while approval expansions granted within five years of original approval added an average 37% of indications approved to date.
- These drugs have twice as many approved uses in the U.S. five years after approval than they did initially, adding ongoing clinical trial research and real-world usage to information considered by regulators making approval decisions later.

Notes: The chart showcases the total number of approvals received by NAS approved in U.S. from 2015-2024. Light blue color indicates the number of approvals of NAS in that year. Amber indicates the indication expansions in that year for NAS approved in any prior year.
* Approval year 2024 includes NAS approvals in that year and expansions received by NAS that received approval between 2000–2023. The analysis of the year 2024 does not yet include same-year expansions of NAS which were first approved in 2024.

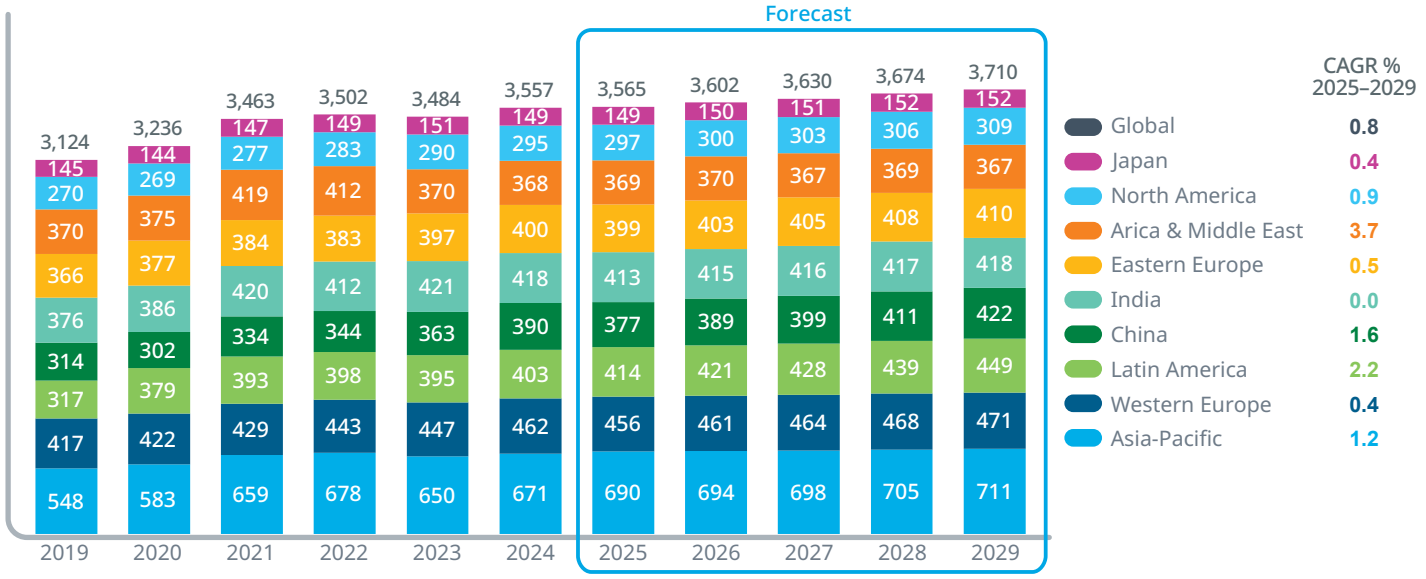
Outlook for the use of medicines

- The global use of medicines has been relatively flat since 2021 and is expected to grow on average 0.8% annually through 2029.
- Medicine use in Latin America and Asia has grown more rapidly than other regions, and this trend will continue through 2029.
- Per capita use of medicines varies by GDP, with use in higher income countries typically higher than lower-income.
- Per capita medicine use varies by region, with Japan and Western Europe having more than double the use of most other regions.
- When adjusted for population, per capita use will grow across all regions except Africa and Middle East and India.

Patient use of medicines grew by 14% over the past five years, driven by increased access to medicines in regions around the world and growth is expected to slow to 4% — or 154 billion defined daily doses — through 2029.

The global use of medicines has been relatively flat since 2021 and is expected to grow on average 0.8% annually through 2029

Exhibit 6: Historic and projected use of medicines by region, 2019–2029, defined daily doses (DDD) in billions



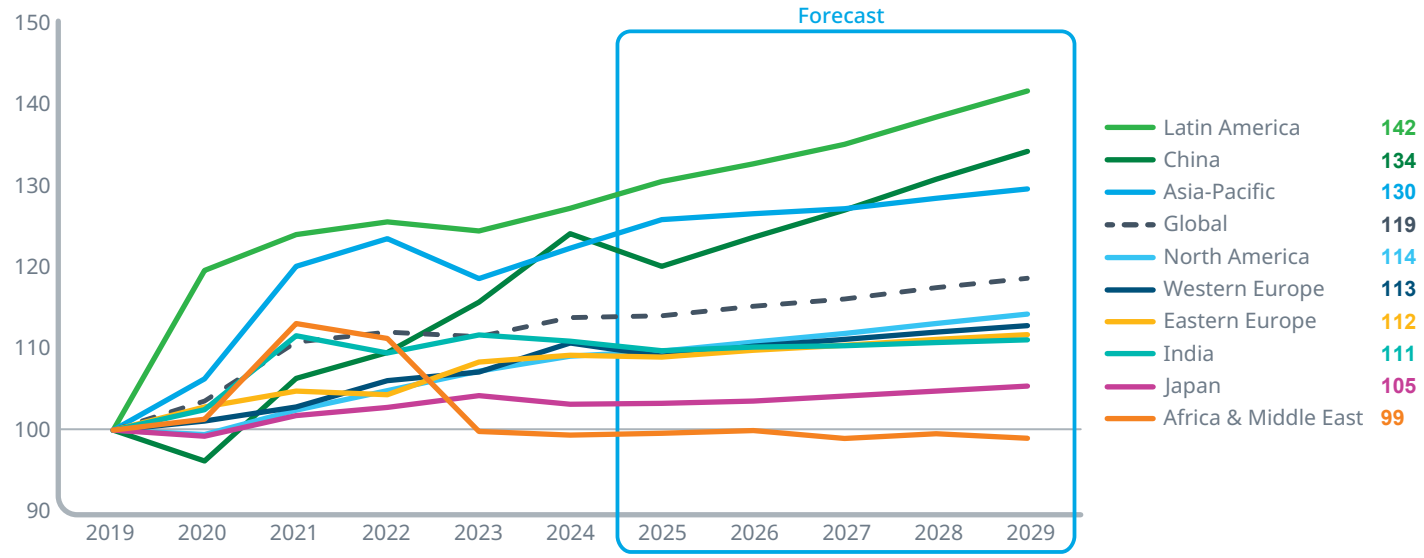
Source: IQVIA Institute, Jun 2025.

- The global use of medicines — based on modeling medicine volumes shipped according to defined daily dose assumptions — increased by 434 billion defined daily doses over the past five years and is expected to grow another 154 billion by 2029, with slower growth likely driven by widespread changes following the COVID-19 pandemic.
- The highest volume growth over the next five years is expected in Latin America, exceeding 2% compound annual growth. Latin America volume growth will slow considerably from a 5.0% five-year average through 2024 to a 2.2% average projected through 2029, largely through slower expected economic growth.
- Lower volume growth in higher income regions such as North America, Western Europe, and Japan are linked to more established health systems and existing access to medicine.
- Eastern European growth is essentially unchanged, with the outlook for 0.5% CAGR down from 1.8% from the past five years, which embedded some regional or localized impacts of the Ukraine conflict.
- It is important to interpret these trends with caution, as chronic diseases drive many days of therapy and treatments for them are often much less common in lower income countries.

Notes: Chart represents IQVIA Institute estimates of global defined daily doses (DDD). These estimates are based on IQVIA audited data and application of WHO-DDD factors in IQVIA MIDAS as well as additional DDD calculation assumptions developed by the IQVIA Institute (see Methodology). Asia-Pacific does not include China, India, and Japan which are reported separately.

Medicine use in Latin America and Asia has grown more rapidly than other regions, and this trend will continue through 2029

Exhibit 7: Trends in defined daily doses (DDD) across regions indexed to 2019 values (2019 value = 100)



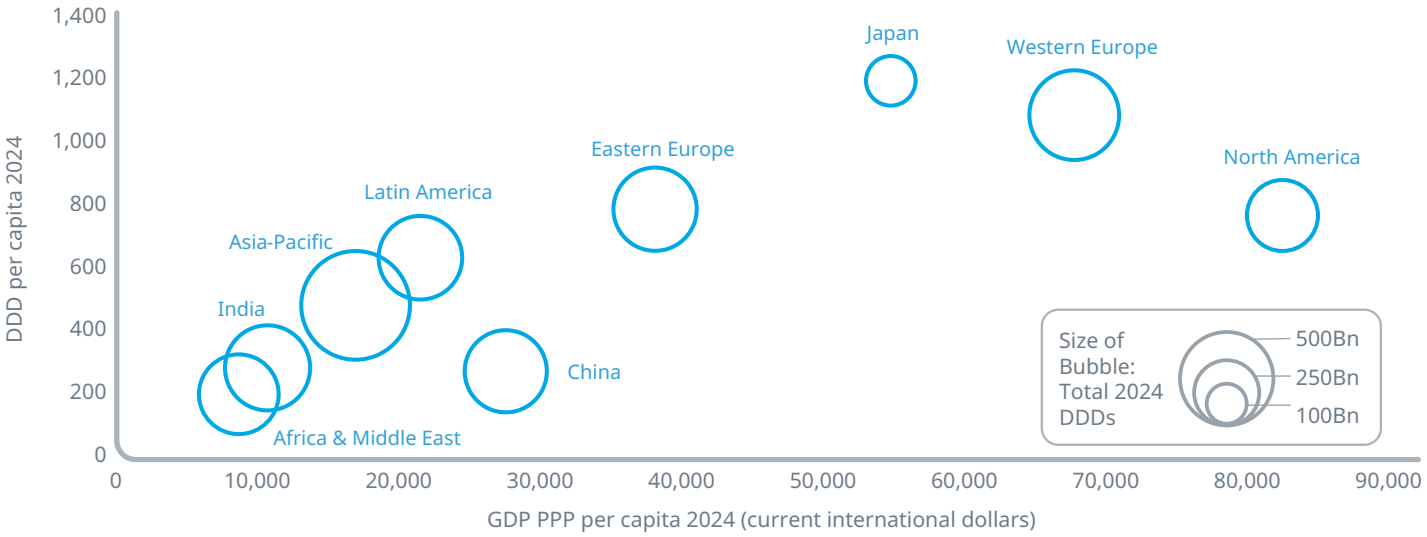
Source: IQVIA Institute, Jun 2025.

- The impact of the pandemic on medicine use has been highly varied, including surges in usage of chronic medicines, referred to as stockpiling, and then returning to a more normal trend, with most countries returning to baseline volumes by the end of 2020.
- Latin America had exceptionally high-volume growth in 2020, slowing over time but projected to achieve the highest growth index to 2029.
- China has had above average volume growth and is expected to continue through the forecast.
- Higher income countries in North America, Europe, and Japan are expected to see a slight improvement in their outlook for the use of medicines, although essentially continuing a steady trend typical of these more established health systems.
- African and Middle Eastern countries embed a mix of high-, middle-, and lower-income countries, and while higher-income countries continue to grow strongly, lower-income countries are expected to see declining volume through the forecast period.

Notes: Chart represents IQVIA Institute estimates of global defined daily doses (DDD). These estimates are based on IQVIA audited data and application of WHO-DDD factors in IQVIA MIDAS as well as additional DDD calculation assumptions developed by the IQVIA Institute (see Methodology). Asia-Pacific does not include China, India, and Japan which are reported separately.

Per capita use of medicines varies by GDP with use in higher income countries typically higher than lower-income

Exhibit 8: Defined daily doses (DDD) per capita by region compared to per capita gross domestic product PPP, current international dollars



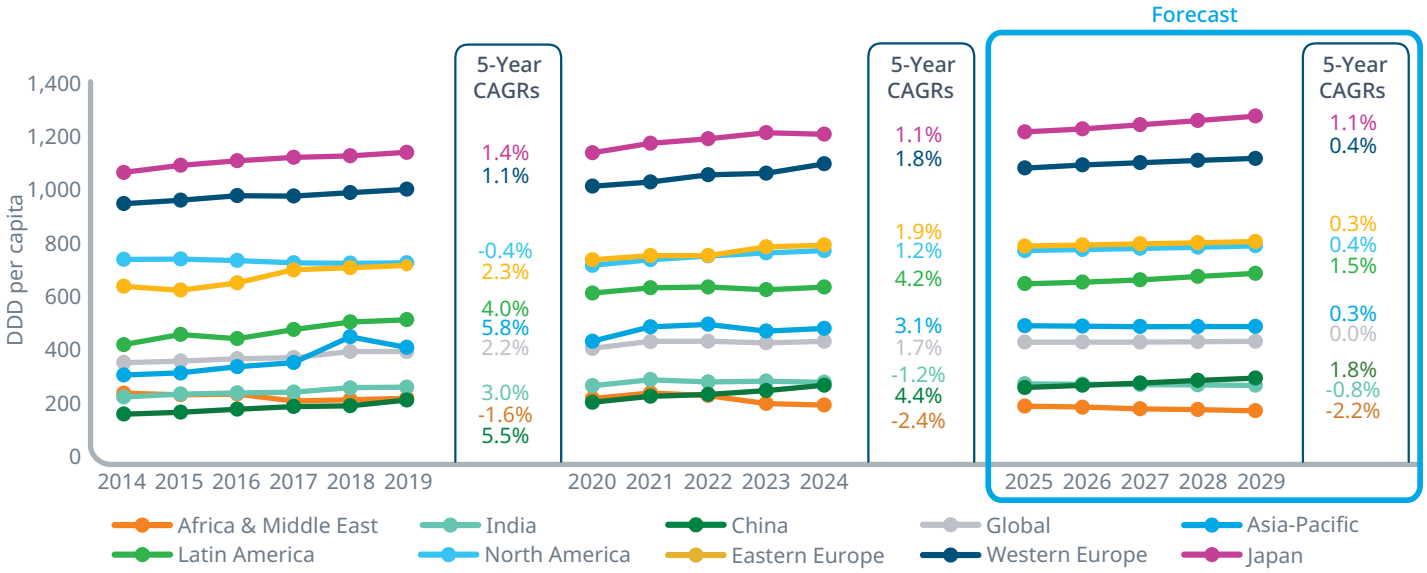
Source: The World Bank, Dec 2024; International Monetary Fund, Apr 2025; IQVIA Institute, Jun 2025.

- Broadly, there is a correlation of medicine use to per capita gross domestic product, with generally higher medicine use in higher income countries.
- As countries vary in the cost burden patients directly bear, there is some correlation in the way patients use medicine.
- North America, including the U.S. and Canada, has the lowest per capita DDD volumes of developed markets, which may be the result of high patient out-of-pocket cost exposure in the U.S.
- Other factors include the disease burden patients face and the aspects of the health system they can readily access to begin using medicines for a specific disease.
- Eastern Europe has nearly four times higher use of medicines per capita than China despite GDP per capita being roughly 50% higher.
- Africa and Middle East countries lag the furthest in terms of per capita use, even as some countries in the region are significant outliers with robust GDP and medicine use.

Notes: Chart represents IQVIA Institute estimates of global defined daily doses (DDD). These estimates are based on IQVIA audited data and application of WHO-DDD factors in IQVIA MIDAS as well as additional DDD calculation assumptions developed by the IQVIA Institute (see Methodology). Asia-Pacific does not include China, India, and Japan which are reported separately.

Per capita medicine use varies by region, with Japan and Western Europe having more than double the use of most other regions

Exhibit 9: Historical and projected per capita use of medicine by region, 2014–2029



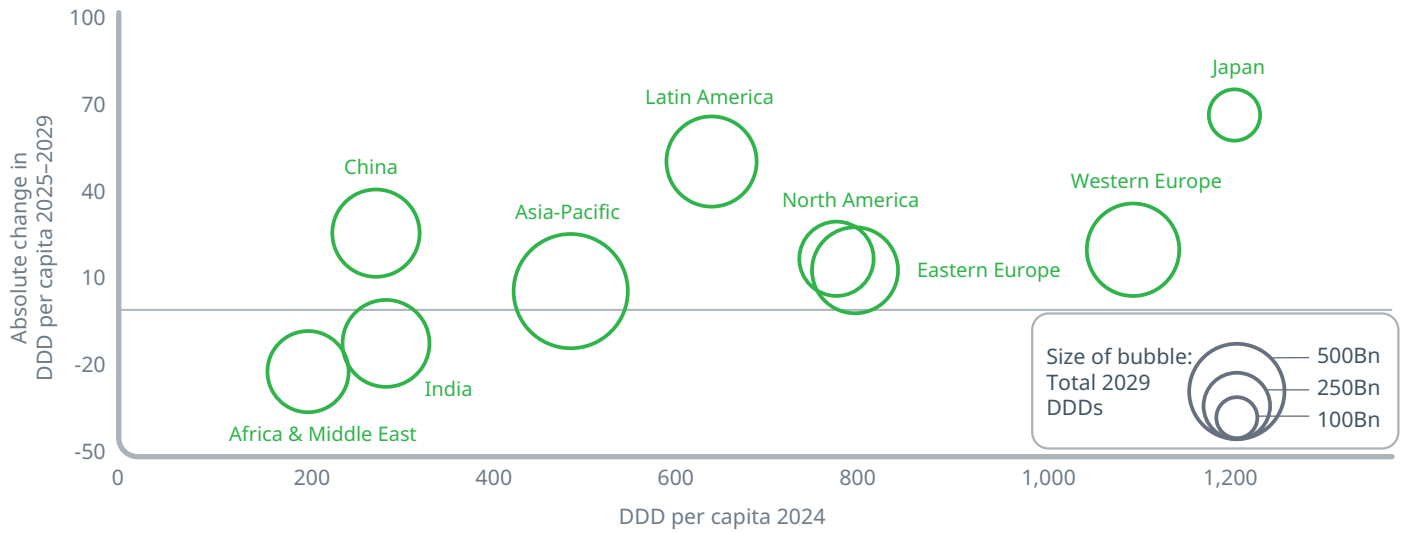
Source: The World Bank, Dec 2024; IQVIA Institute, Jun 2025.

- When medicine use is adjusted for population, global medicine use growth is projected to be flat (0.0% CAGR) over the next five years, compared to 0.8% CAGR unadjusted for population, showing that global growth in medicine use is population driven (Exhibit 6).
- In the past five years, North America per capita use grew only 1.2% annually, and is projected to grow 0.4% annually through 2029.
- China tops regions for expected per capita growth with 1.8% CAGR to 2029, although slowing from 4.4% CAGR in the prior five years.
- Despite the disruptions of the pandemic, regional conflicts, and effects of the global economy, most regions have steadily rising usage on a per capita basis, slower than in the past 10 years and notably slowing across developed regions such as North America and Western Europe.
- African and Middle Eastern countries per capita use declined 2.4% CAGR to 2024 and is expected to slow at 2.2% annually through 2029.

Notes: Chart represents IQVIA Institute estimates of global defined daily doses (DDD). These estimates are based on IQVIA audited data and application of WHO-DDD factors in IQVIA MIDAS as well as additional DDD calculation assumptions developed by the IQVIA Institute (see Methodology). Asia-Pacific does not include China, India, and Japan which are reported separately.

When adjusted for population, per capita use will grow across all regions except Africa and Middle East and India

Exhibit 10: Defined daily doses (DDD) per capita by region 2024 and growth to 2029



Source: The World Bank, Dec 2024; IQVIA Institute, Jun 2025.

- Per capita use of medicines is projected to grow in most regions except Africa and Middle East and India.
- The largest influences on trends in medicine use other than population growth are burden of disease and economic activity.
- Wealthier countries in Western Europe, Japan, and North America have higher levels of per capita use and are expected to grow more slowly through 2029.
- Regions with more middle- and lower-income countries are expected to resume historic volume growth trends as access to medicines contributes to volume growth above population growth trends.
- Eastern Europe has over three times higher use of medicines per capita than China, reflecting significant disparities in the use of medicines across regions.
- Africa and Middle East countries lag the furthest in terms of per capita use, even as some countries in the region are outliers with robust GDP and higher usage.

Notes: Chart represents IQVIA Institute estimates of global defined daily doses (DDD). These estimates are based on IQVIA audited data and application of WHO-DDD factors in IQVIA MIDAS as well as additional DDD calculation assumptions developed by the IQVIA Institute (see Methodology). Asia-Pacific does not include China, India, and Japan which are reported separately.

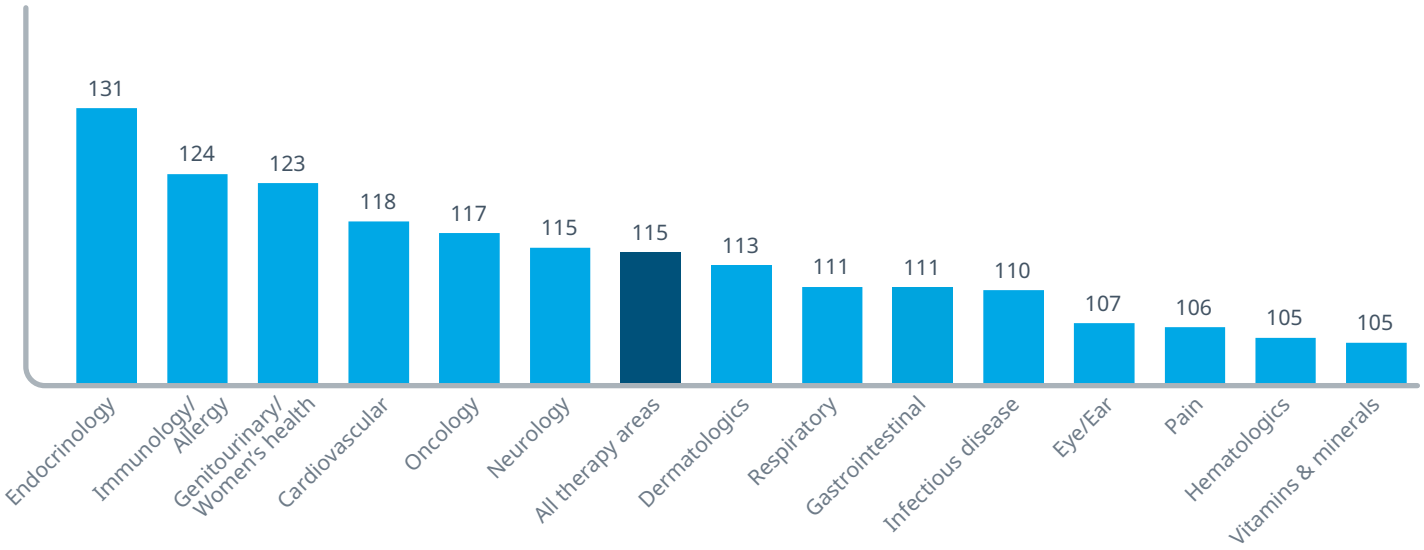
Therapy area historic drivers of medicine use

- Medicine use has been growing across therapy areas since 2019, with high growth in endocrinology and immunology.
- Immunology medicine use is highest in the largest developed countries and consists largely of biologic medicines.
- Per capita use of immunology medicines in developed countries varies, and nearly half of biologic volume is facing biosimilars.
- GLP-1 agonists have seen rapid uptake in both diabetes and obesity, predominantly in the U.S. and other developed markets.
- The global number of oncology days of therapy has increased by 3% annually since 2019, mostly from Pharmerging countries.
- The use of PD-1/PD-L1 inhibitors has risen rapidly in major markets with variations on a per capita basis and some lagging.
- Use of antibacterials was significantly disrupted by the COVID-19 pandemic but was up 6% in 2024 from pre-pandemic.
- Progress toward targets for responsible antibacterial usage has been mixed across regions but more work is needed globally.
- Many countries are vaccinating at rates below their pre-pandemic trend, leaving millions less protected from preventable disease.
- Patient access to biologic medicines in Pharmerging countries has increased, with use now 60% of that in developed countries.
- Non-original biologics play a larger role in providing access to biologic medicines in Pharmerging countries than in the largest developed countries.

Immunology, endocrinology, and oncology, have exceeded the global 15% average growth in medicine use in the past five years, driven primarily by substantial numbers of novel products and wider access across geographies.

Medicine use has been growing across therapy areas since 2019, with high growth in endocrinology and immunology

Exhibit 11: Defined daily doses (DDD) in 2024 across select therapy areas indexed to 2019 values (2019 value = 100)



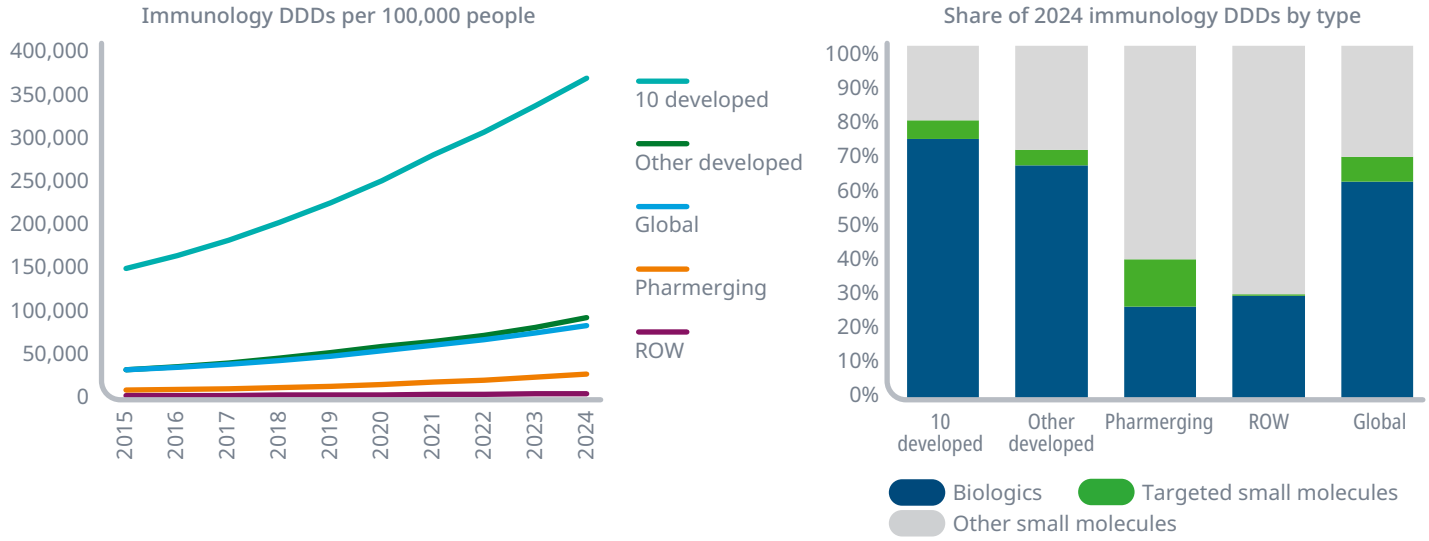
Source: IQVIA MIDAS, Dec 2024; IQVIA Institute, Jun 2025.

- The dramatic growth in patient access to novel medicines is driving higher use of medicines in endocrinology, immunology, oncology, and neurology, while volume growth more generally has been driving use in genitourinary and cardiovascular diseases.
- Immunology has seen expanded access to a variety of biologic and small molecule therapies, but as specialty therapies, access is often constrained in lower-income countries.
- Endocrinology as a group of hormone regulating therapies has also grown at double the global average rate of increase in days of therapy, primarily driven by 30% growth in diabetes medicine volume over the last five years.
- Oncology, the largest therapy area by spending (Exhibit 44), increased 17% over the past five years by volume, an average of 3.4% per year, outpacing population growth and indicative of growing rates and durations of cancer treatment.

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology). Oncology does not include supportive care. Hematologics are non-oncology. Plotted therapy areas account for 91% of estimated global defined daily doses (DDDs).

Immunology medicine use is highest in the largest developed countries and consists largely of biologic medicines

Exhibit 12: Immunology per capita DDDs and share of DDDs by type



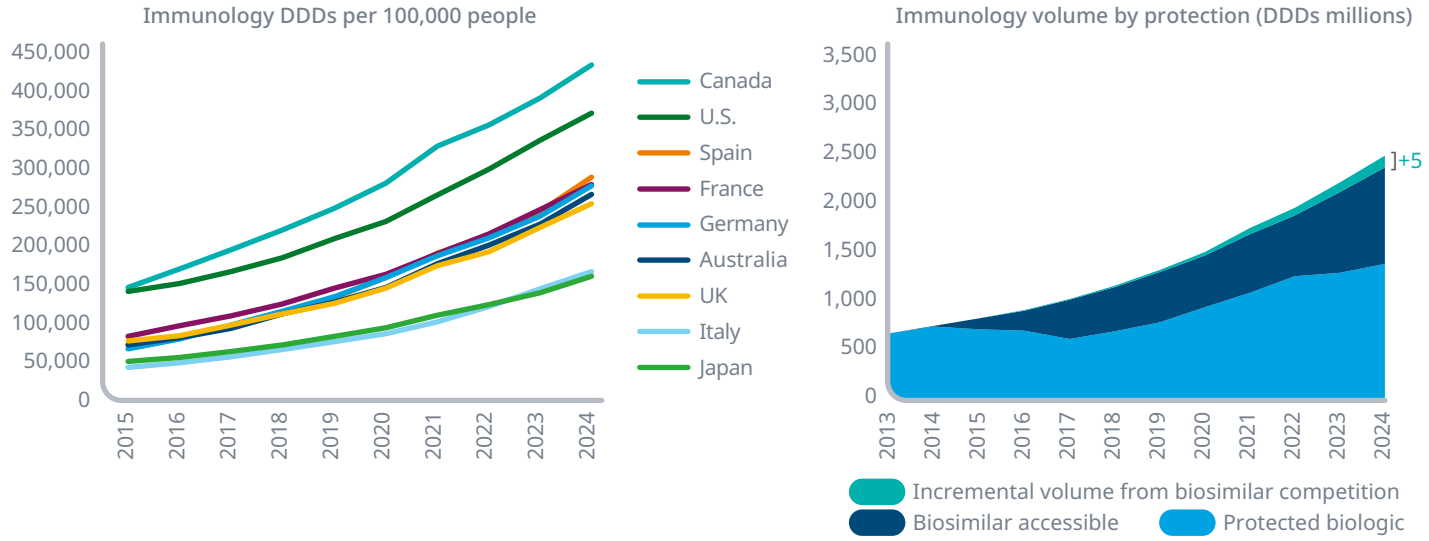
Source: IQVIA MIDAS, Dec 2024; IQVIA Institute, Jun 2025.

- Immunology products have seen significant volume increases in leading developed markets over the past decade, increasing the rate of treatment per 100,000 of population by 172%.
- Other developed countries increased by 227%, while Pharmerging markets immunology use increased 262% over a decade, an average of 13.7% per year.
- Smaller countries with lower incomes have much lower use and grew more slowly.
- Immunology treatment in developed countries has a higher proportion of biologic use, exceeding 66%, while Pharmerging and countries in the rest of the world averaged 26% and 29% biologic share of volume, respectively.
- Immunology treatment has been shifting to biologics over the last two decades, with developed countries leading the adoption, along with targeted small molecule therapies.
- Variations across countries in the use of biologics are likely related to differences in reimbursement, medical practice, and epidemiology, and may increase after products lose exclusivity and biosimilars become available.

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology). Includes medicines for treating autoimmune disorders only and does not include allergy medicines.

Per capita use of immunology biologics in developed countries varies and nearly half of biologic volume is facing biosimilars

Exhibit 13: Immunology biologics volume in 9 developed countries



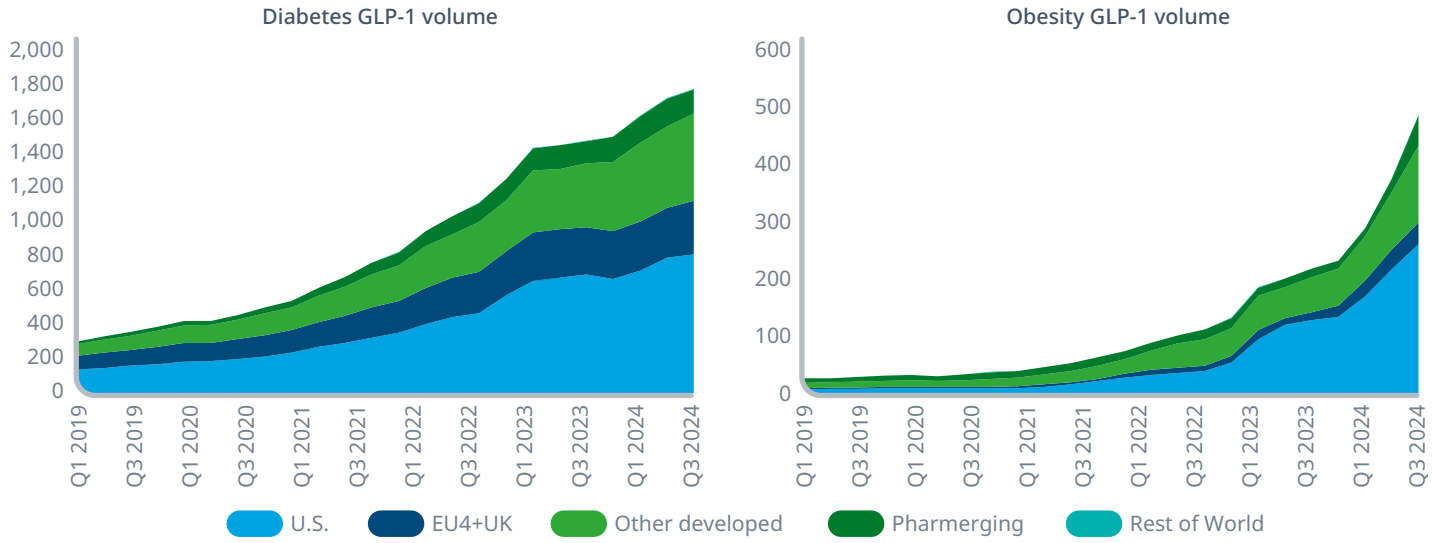
Source: IQVIA MIDAS, Dec 2024; IQVIA Institute, Jun 2025.

- Leading developed markets immunology biologics use has been increasing over the past decade, driving growth in immunology treatment rates per 100,000.
- While the rate of increases have varied across countries, all nine leading developed markets increased by more than 170% over the decade, with Germany up the most at 343%, reaching 268,616 defined daily doses (DDD) per 100,000 population in 2024.
- Overall immunology biologic volume growth averaged 13.5% from 2015-2024, with the slowest average growth in the U.S. at 10.8%.
- As an increasing number of immunology biologic medicines have lost patent exclusivity and begun to face biosimilar competition, other protected biologics have continued to see increased usage.
- Furthermore, biologics facing biosimilar competition have see an incremental 5% volume usage across these nine countries, reflecting the impact of lower costs on inclusion of drugs in treatment protocols, and/or the results of lower costs on patient price sensitivity.

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology). Includes medicines for treating autoimmune disorders only and does not include allergy medicines.

GLP-1 agonists have seen rapid uptake in both diabetes and obesity, predominantly in the U.S. and other developed markets

Exhibit 14: Quarterly GLP-1 agonist volume, defined daily doses (DDD) in millions, Q1 2019–Q4 2024



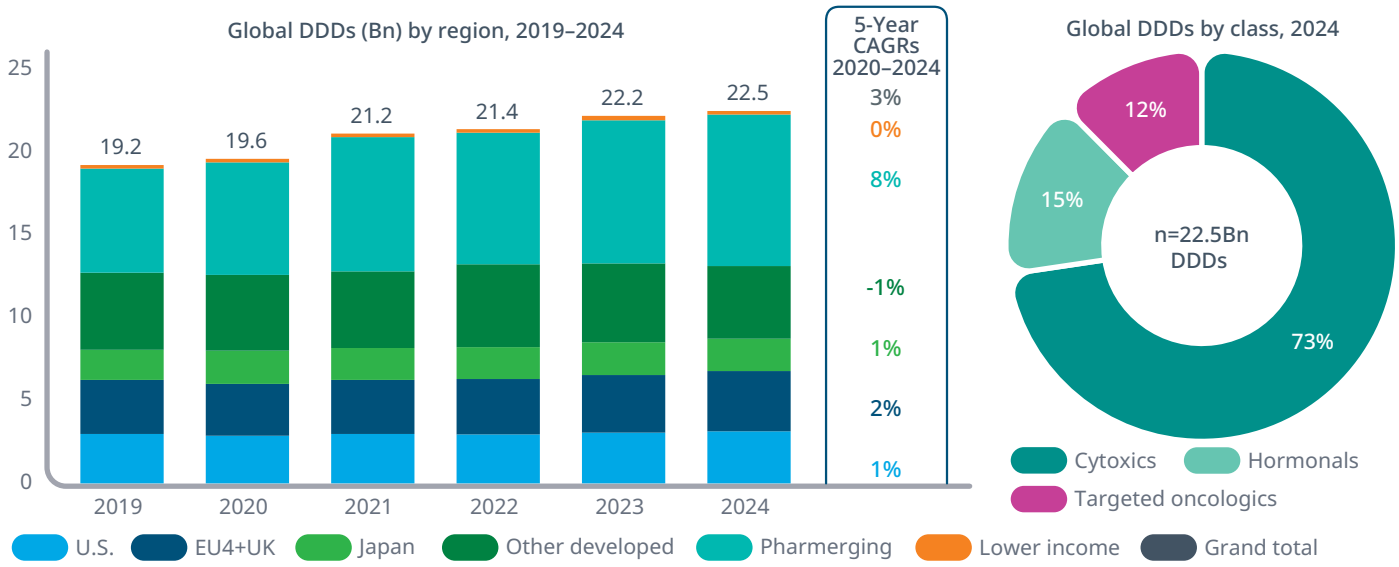
Source: IQVIA MIDAS, Dec 2024; IQVIA Institute, Jun 2025.

- The dramatic growth of therapies based on glucagon-like peptide-1 (GLP-1) has accelerated in the past 18 months, primarily through wider usage for treating obesity.
- The inflections in volume observed coincide with the obesity indication approval in the U.S. in 2021 for semaglutide (Wegovy) and 2023 for tirzepatide (Zepbound).
- While the U.S. has been the largest area of growth to date, manufacturing constraints experienced in 2023 and resolved in 2024 resulted in less volume available to countries outside the U.S. and especially for the obesity formulations.
- In both diabetes and obesity, other developed countries' usage has exceeded EU4+UK, partly driven by the 45 countries' total population being 3.5 times higher than the five leading European countries (EU4+UK). In obesity GLP-1s, Australia, Canada, Norway, Denmark, and Switzerland, all have usage greater than any individual EU4+UK country.
- Pharmerging obesity usage is also larger than EU4+UK in the latest period driven almost entirely by increasing use in Brazil.
- In all countries analyzed, reimbursement or traditional insurance coverage is much lower for these obesity drugs than other medicines, and patient self-payment, even in countries where this is not typical, is contributing significantly to the rapid volume growth.

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology).
For molecules with approvals in both diabetes and obesity, if the products have been marketed with distinct brand names for each indication they are assigned to the therapy area based on those brands. If a single brand name is marketed, it is included in the therapy area where it first became available, which in this analysis increases the volume attributed to diabetes. The use of medicines for the alternative indication is not estimated or modeled in this analysis.

The global number of oncology days of therapy has increased by 3% annually since 2019, mostly from Pharmerging countries

Exhibit 15: Global oncology defined daily doses (DDDs) (billions) by region and class



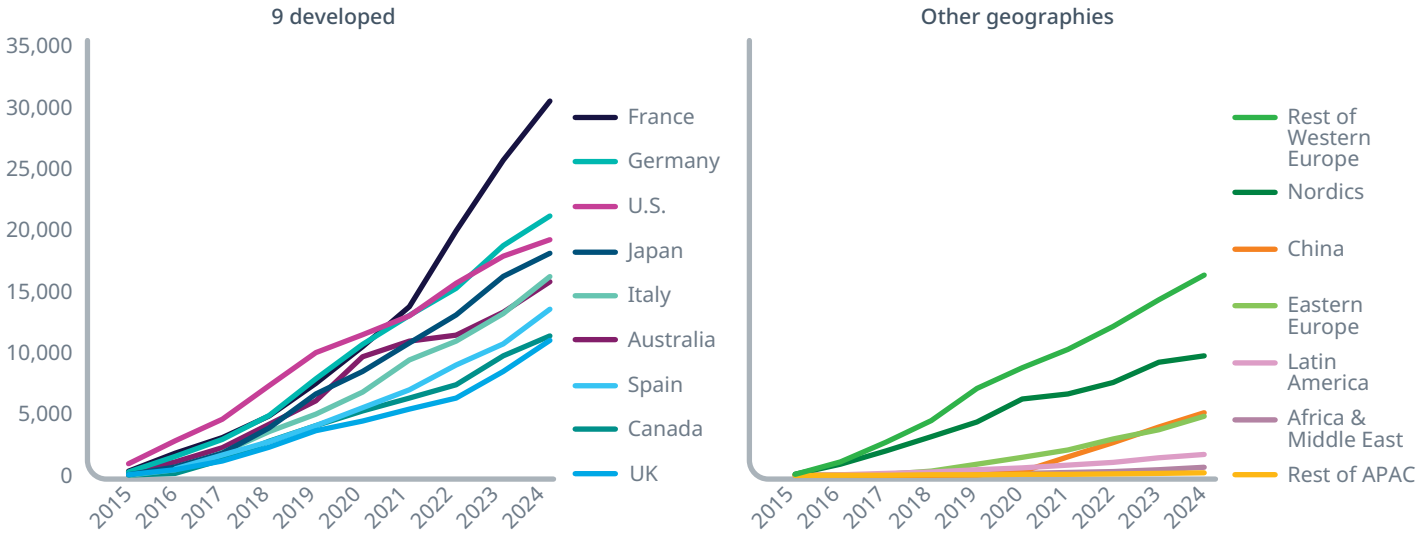
Source: Global Oncology Trends 2025: Adopting New Therapies as Modalities Shift and Expenditures Rise, May 2025. Report by the IQVIA Institute for Human Data Science.

- Increasing cancer incidence and robust access to care are driving steady levels of cancer treatment globally with global days of therapy growing 17% over the last five years, or 3% annually.
- Pharmerging countries have the highest growth among geographies, with widening access to care and increased access to innovation driving growth in days of therapy to an average 8% annually since 2019.
- While cancer treatment volumes have been relatively flat in the U.S., EU4+UK, Japan, and other developed markets, the types of treatments used has shifted from older cytotoxic medicines to innovative targeted treatments.
- Globally, 73% of cancer treatment days of therapy in 2024 were cytotoxic medicines, although this differs significantly across regions, with cytotoxics accounting for 67% of volume in developed countries, including the U.S., EU4+UK, and Japan, and 80% in Pharmerging countries.
- While targeted treatment options represented just 12% of volume in 2024, these types of treatment have seen the highest growth over the last five years, increasing 36% as more patients receive these therapies.

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology). Oncology does not include supportive care.

The use of PD-1/PD-L1 inhibitors has risen rapidly in major markets, with variations on a per capita basis and some lagging

Exhibit 16: PD-1/PD-L1 checkpoint inhibitor defined daily doses (DDDs) per 100k population, 2015–2024



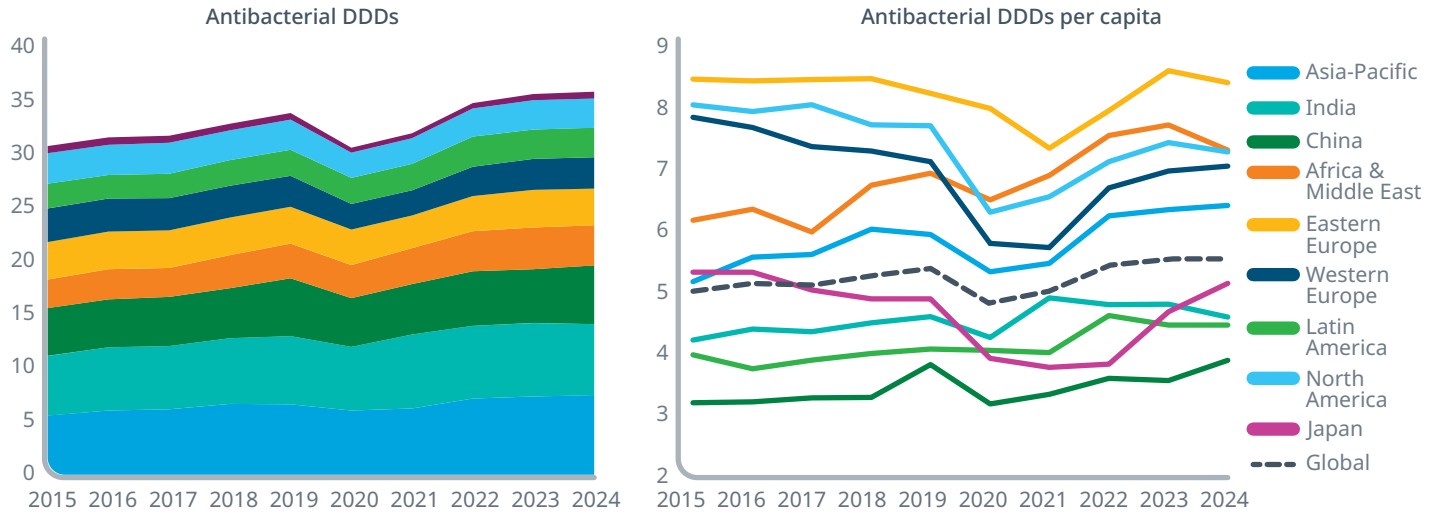
Source: Global Oncology Trends 2025: Adopting New Therapies as Modalities Shift and Expenditures Rise, May 2025. Report by the IQVIA Institute for Human Data Science.

- The wide adoption of PD-1/PD-L1 checkpoint inhibitors reflects their strong efficacy across a range of solid tumors, including several with tissue-agnostic approvals triggering their use with biomarker testing results.
- Usage has varied considerably across countries, with France, Germany, and the U.S. using nearly two to three times more of these drugs per capita than the UK and Canada.
- Many of the nine leading developed countries have similar rates of usage to other Western European countries, while Nordic countries lag.
- China, which had limited use of these medicines until 2021, has pulled away in per capita use from other Asian markets and is now only half the level of use seen in the UK and similar to use in Eastern European countries. China has had 10 PD-1/PD-L1 inhibitors launch domestically in the last five years that have not yet reached international markets, bringing the total commercially available to patients to 20 in 2024, compared to seven available on average in the leading developed countries.
- Access to PD-1/PD-L1 inhibitors in many low- and middle-income countries in the rest of Asia, Latin America, Africa, and the Middle East is limited and as a result, per capita use is low.
- Use of these medicines is influenced by the use of biomarker testing as well as the position in protocols, where the drugs are progressively moving to earlier lines of therapy with longer treatment durations.

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology).

Use of antibacterials was significantly disrupted by the COVID-19 pandemic but was up 6% in 2024 from pre-pandemic

Exhibit 17: Antibacterial volume in DDDs and DDD per capita by region



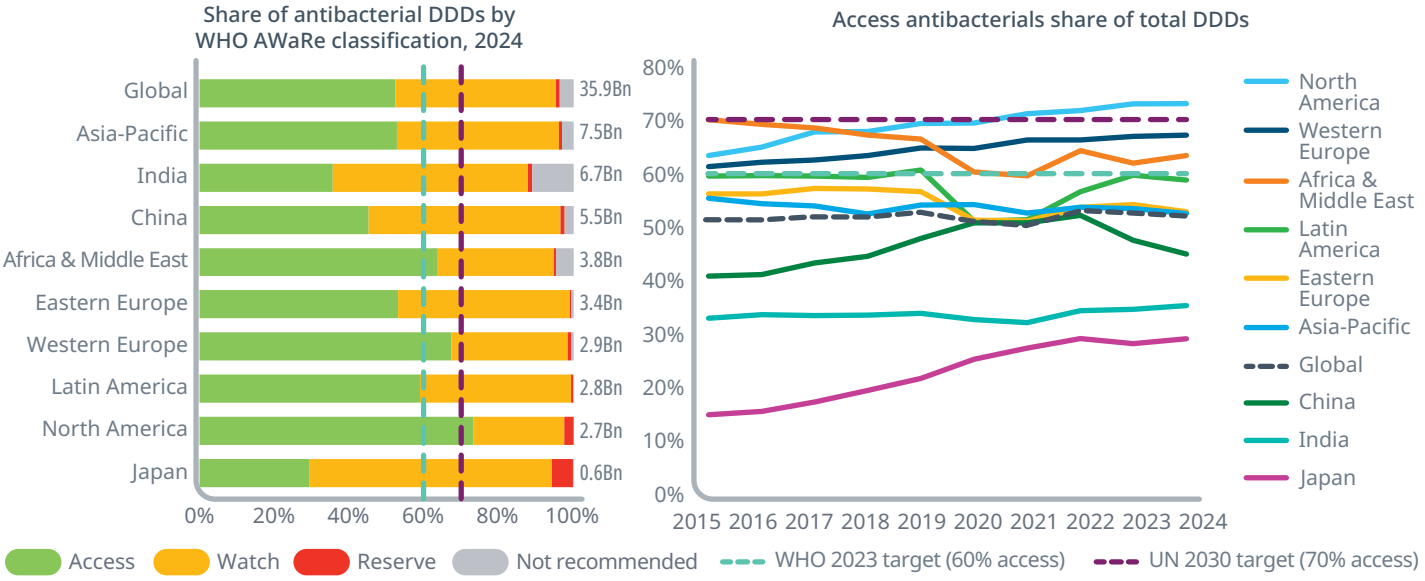
Source: IQVIA MIDAS, Dec 2024; IQVIA Institute, Jun 2025.

- Antibacterials are a critical healthcare resource whose usage represents a challenge for stakeholders. Greater access to these medicines are the mark of a well-managed health system, while excessive use suggests inappropriate stewardship and risks antimicrobial resistance.
- The impact on volume seen across regions in 2020 and 2021 shows the clear effects of social distancing and mask-wearing around the world, as these policies were widely adopted in the height of the pandemic, and antibacterial use was reduced dramatically at the same time.
- As the global pandemic has eased, the volume rebounded to above pre-pandemic levels, although many regions have had flat or declining growth in per capita use.
- Asia-Pacific, Latin America, and Japan have all had more than 5% growth in per capita use c ompared to pre-pandemic. Eastern Europe has the highest per capita use, more than 50% higher than the global average.
- One of the key drivers of antibacterial use has been a rising intensity of seasonal respiratory infections, potentially a result of weakened immune systems from COVID-19, flu, or respiratory syncytial virus (RSV).
- The rebounds in antibacterial use have coincided with reported shortages in antibacterials in many major markets.[2]

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology). Asia-Pacific does not include China, India, and Japan.

Progress toward targets for responsible antibacterial usage has been mixed across regions but more work is needed globally

Exhibit 18: Share of antibacterial DDDs by WHO AWaRe classification by region



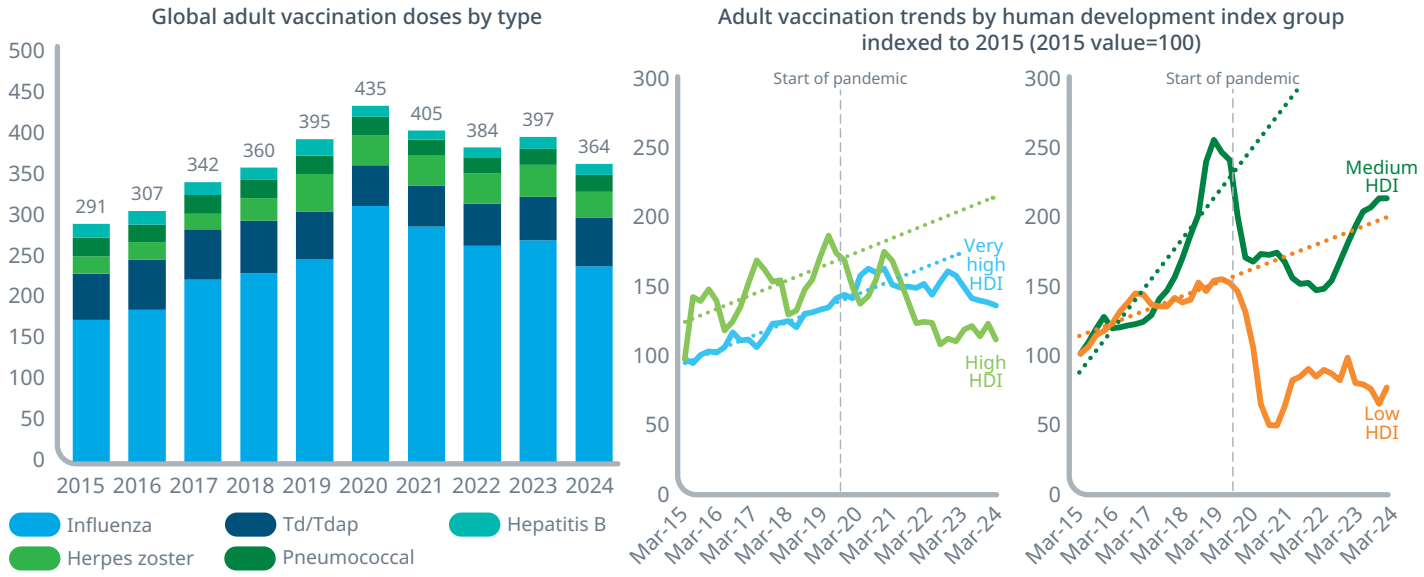
Source: IQVIA MIDAS, Dec 2024; WHO Access, Watch, Reserve (AWaRe) classification of antibiotics for evaluation and monitoring of use, Jul 2023; IQVIA Institute, Jun 2025.

- While increasing volume of antibacterials can indicate greater access, excessive use of broad-spectrum antibacterials suggests inappropriate stewardship and risks increasing occurrence of antimicrobial resistance.
- The WHO's Access, Watch, Reserve (AWaRe) classification is a tool to assist with antibacterial stewardship. Access antibacterials are narrow spectrum and those with lower resistance potential; Watch antibacterials are broader-spectrum and those with higher resistance potential; and Reserve are "last resort" options that should be reserved for multidrug-resistant infections. Some fixed-dose combinations of multiple broad-spectrum antibacterials are not recommended for use by WHO.
- The WHO set a target that 60% of antibacterial prescribing at a country level should be in the Access category by 2023,[3] while the UN recently set a 2030 target that 70% be in the Access category.[4]
- Africa & Middle East, Western Europe, and North America were the only regions meeting the WHO 2023 target, while North America is the only region currently above the UN 2030 target.
- Japan has the largest use of Watch and Reserve antibacterials, accounting for over 70% though there has been significant improvement over the last decade.
- India also has a low use of Access antibacterials and the highest share of antibacterials that are not recommended for use in clinical practice by WHO.

Notes: Defined daily doses (DDD) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology). Molecule forms assigned to WHO Access, Watch, Reserve (AWaRe) categories based on 2023 Web Annex C of The selection and use of essential medicines available from: https://www.who.int/publications/i/item/WHO-MHP-HPS-EML-2023.04.

Many countries are vaccinating at rates below their pre-pandemic trend, leaving millions less protected from preventable disease

Exhibit 19: Global adult vaccinations, 2015–2024



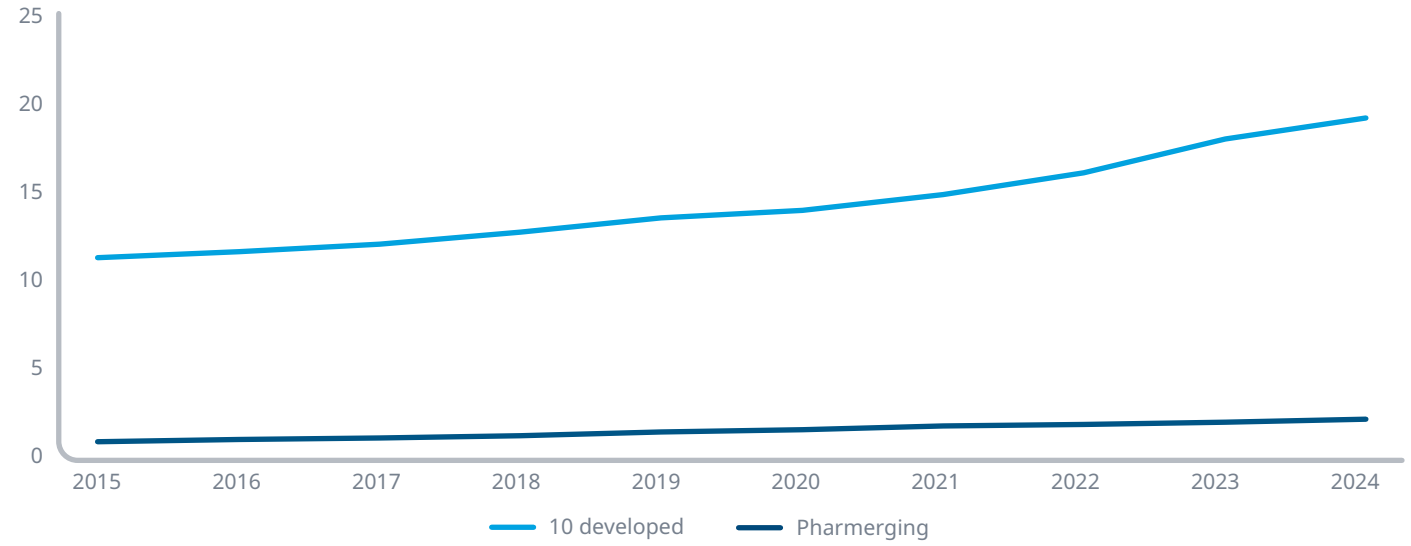
Source: IQVIA MIDAS, Dec 2024; UN Human Development Report, May 2025; IQVIA Institute, Jun 2025.

- Over the last decade, adult vaccines (in terms of volume of use) for influenza, diphtheria and tetanus (Td), diphtheria, tetanus and pertussis (TDaP), hepatitis B, herpes zoster, and pneumococcal peaked at 435 million doses in 2020.
- Based on the degree of decline across geographies it is estimated that 150 million fewer doses have been administered in 2024 than if the pre-pandemic trend had continued.
- While immunization rates for adult vaccines are low across countries globally, the pandemic had a disproportionately negative impact on adult vaccine doses in countries that are in the medium or low category on the United Nations Human Development Index.
- This measurement of adult vaccine doses is based on IQVIA MIDAS data, based primarily on collection of data from wholesalers and providers including hospitals and pharmacies. This serves as a proxy for adult vaccination coverage as real time adult vaccine coverage data is highly variable by country and oftentimes very limited. MIDAS provides a directional view on trends in vaccine coverage globally.

Notes: Adult vaccinations includes influenza; diphtheria and tetanus (Td); diphtheria, tetanus and pertussis (TDaP); hepatitis B; herpes zoster and pneumococcal. Diphtheria, tetanus and pertussis vaccinations in combination with polio or hepatitis B are not included. A 75:25% adult: pediatric split for influenza and 1/3:2/3 split for pneumococcal has been applied in accordance with available adult and pediatric coverage (UK and US). Only hepatitis B doses of 1mL or larger were assumed for adult use. Includes retail and non-retail from 79 countries covered by IQVIA MIDAS panels. These may not cover all vaccination delivery channels in each country. Quarterly trend charts are rolling 12 months to reduce volatility. Countries are assigned to Human Development Index categories and values are indexed to rolling 12 months to March 2015 to allow comparison.

Per capita use of biologic medicines is nearly ten-fold higher in the largest developed compared to Pharmerging countries

Exhibit 20: Per 100K biologic medicine volume in defined daily doses (DDDs) in 10 developed and Pharmerging countries



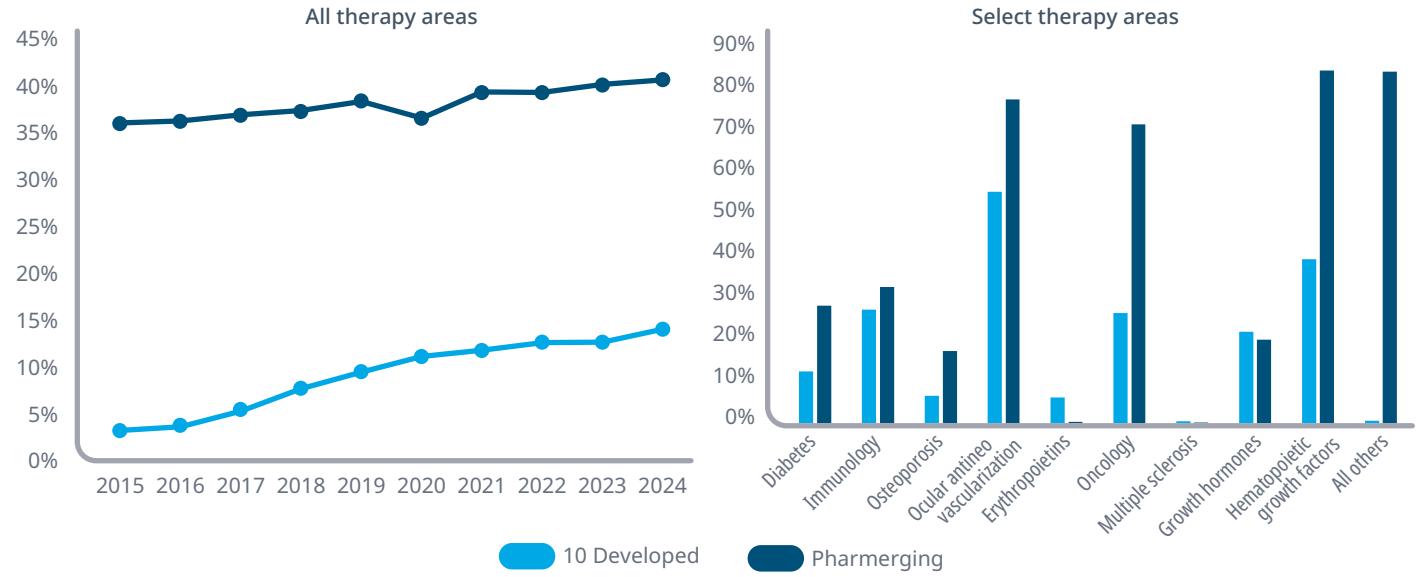
Source: IQVIA MIDAS, Dec 2024; IQVIA Institute, Jun 2025.

- Patient use of biologic medicines is an important indicator of access to novel therapies and use in pharmerging countries is growing rapidly, now 60% of the level in leading developed countries (data not shown).
- While this acceleration of usage is notable, in context, the population in Pharmerging countries (4.4 billion) is more than 4.5 times higher than the 10 developed countries and demonstrates that the access to biologics is lagging significantly.
- Usage of biologics reached 2.6 days of therapy per 100K population in Pharmerging countries in 2024 compared to 1.1 in 2014.
- In developed markets the usage was 20.6 days of therapy per 100K up from 11.7 a decade earlier.
- Developed countries' use of biologics is nearly eight times higher per capita than Pharmerging countries in 2024, a significant shift from 10 years ago when developed country per capita usage was nearly 11 times higher than Pharmerging country usage.
- Improvements in healthcare funding, access, and the availability of more biologic medicines has made significant progress in bringing these medicines to billions of people around the world, notably with more of the medicines from non-originator companies.

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology).

Non-original biologics play a larger role in providing access to biologic medicines in Pharmerging countries

Exhibit 21: Non-original biologics share of total biologics volume by region



Source: IQVIA MIDAS, Dec 2024; IQVIA Institute, Jun 2025.

- Biologic medicines, like small molecules, can be subject to competitors making an alternative version to the originator, whether this is a result of loss of patent protection and biosimilars entering the market, or as is the case in some countries, versions of drugs sold by non-originators.
- Countries around the world vary in their adherence to and enforcement of intellectual property protections and, especially in Pharmerging countries, non-originators are marketing versions of biologic medicines sometimes before the patents recognized in other markets have expired.
- The use of these medicines, enabled by lower cost non-original versions is a key feature of Pharmerging countries, where non-original biologics account for 41% of total biologic volume compared to 14% in developed countries.
- Differences in non-original share vary across therapy areas, with significantly higher non-original biologic usage in Pharmerging countries in diabetes and oncology, including supportive care (e.g., erythropoietins and hematopoietic growth factors).

Notes: Defined daily doses (DDDs) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see methodology). Non-original biologics include biosimilars and other biologics that are the same or highly similar to original or innovative branded products, which are often provided a period of patent protection or exclusivity.

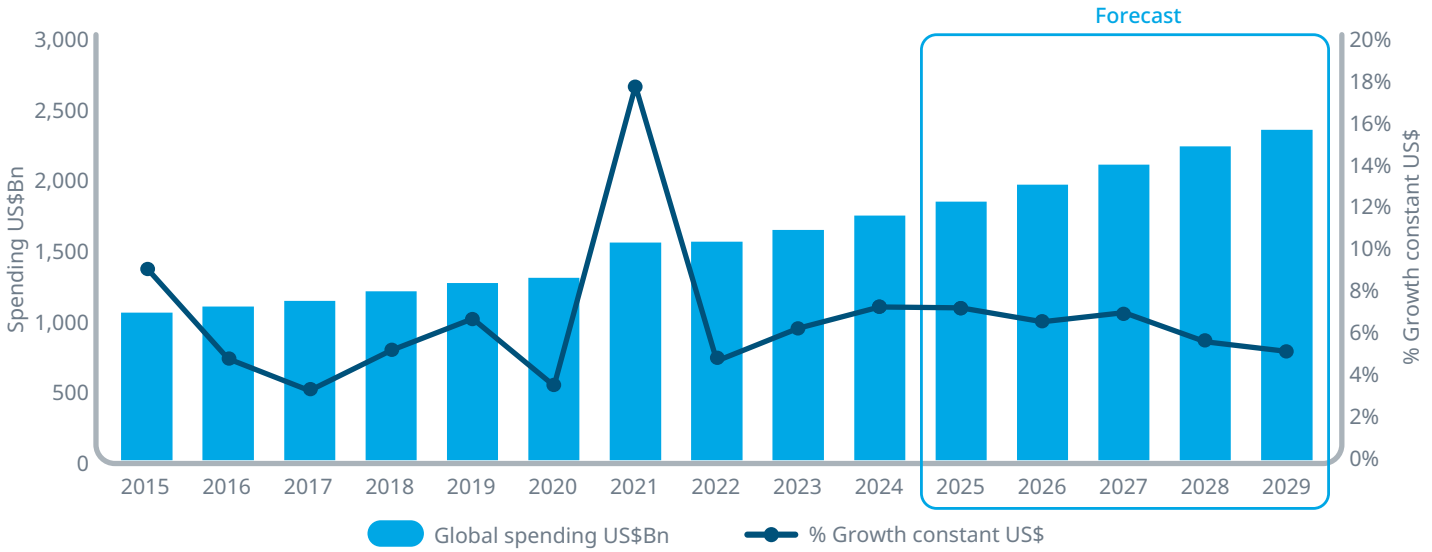
Spending and growth by regions and key countries

- The global medicine market — using invoice price levels — is expected to grow at 5–8% CAGR through 2029 to about $2.4Tn.
- Global growth will continue to be driven by new and existing brands in leading developed countries and be offset by $220Bn of brand losses of exclusivity over five years.
- New brand spending in the 10 developed countries is projected to be higher than the last five years but a smaller share of total brand spending.
- Higher global spending growth occurred in key regions after the pandemic, particularly in 2023 in North America, with slowing afterwards.
- Spending and volume growth are following diverging trends by region, and mix – change in the average cost of medicines – highlights higher spending for more novel and costly drugs in many key regions.
- The U.S. market, on a net price basis, is forecast to grow 3–6% CAGR over the next five years, down from 6.8% CAGR for the past five years.
- The impact of exclusivity losses will increase to $179Bn over five years, with over $140Bn from small molecules.
- New brand spending in the U.S. is projected to be higher than the last five years but a smaller share of total brand spending.
- Spending in Europe is expected to increase by $85Bn through 2029, driven by new and existing brands, while the impact of exclusivity losses will reach $25Bn over five years, with most due to small molecules.
- New brand spending in EU4+UK is projected to be higher than the last five years but a smaller share of total brand spending.
- Japan medicine spending is forecast nearly unchanged over five years as innovation is offset by shift to annual price cuts.
- Spending growth in China is expected to slowly recover post-COVID-19, driven almost entirely by new original medicines.
- Latin America growth is expected to be led by recovering Argentina sales and a strong Brazil market.

Growth in developed economies is accelerating driven by new products and wider use of existing branded medicines offset by patent expiries.

The global medicine market — using invoice price levels — isexpected to grow at 5–8% CAGR through 2029 to about $2.4Tn

Exhibit 22: Global medicine market size and growth 2015–2029 including estimated COVID vaccine and therapeutic spending



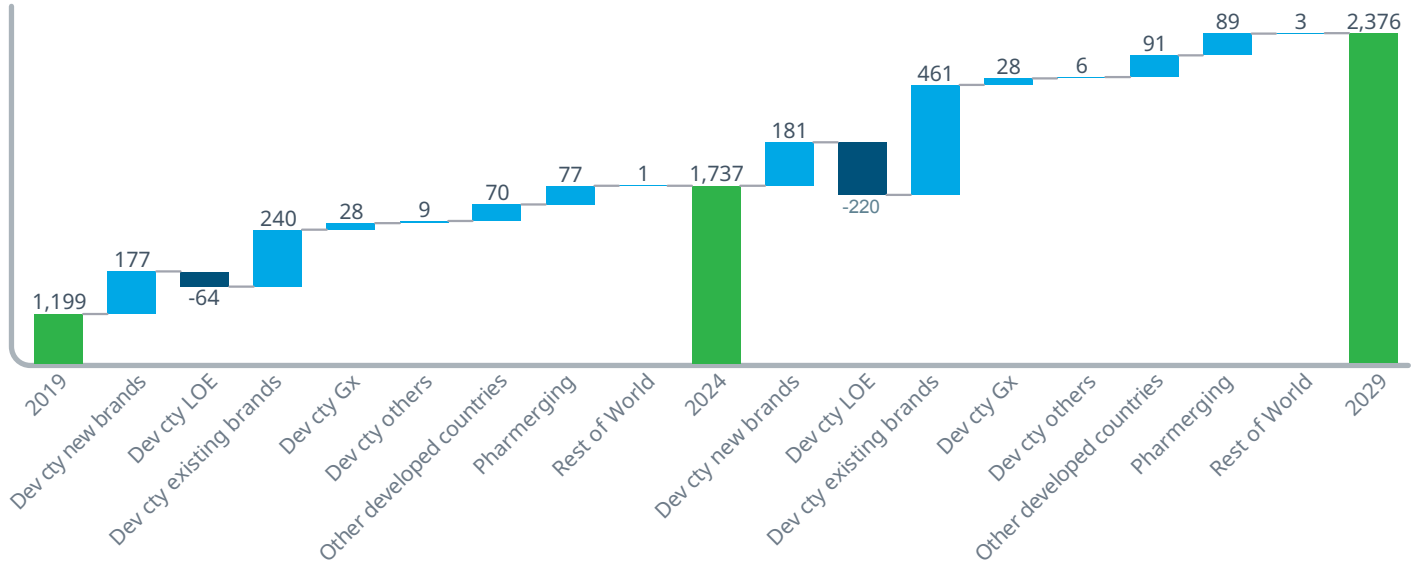
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Global medicine spending — the amount spent purchasing medicines from manufacturers before off-invoice discounts and rebates — is expected to reach $2.4Tn by 2029 and increasing at a rate of 5-8% per year.
- Overall growth trends are expected to moderate after the disruptions from the pandemic in 2020 through 2023.
- Key drivers of growth through the forecast period include the contribution of new products and the impact of patent expiries, including the growing impact of biosimilars.
- Payers in developed markets are expected to face budget pressures and act to curb drug spending growth, already visible with pricing legislation in key countries and with recently announced executive orders in the United States.

Notes: Global medicine spending is based on IQVIA Market Prognosis with the addition of estimates of COVID vaccine and therapeutic spending which are not otherwise included. Those COVID additions are informed by company financials and published prices and vaccination rates.

Global growth will continue to be driven by new and existing brands in leading developed countries

Exhibit 23: Global spending and growth, const $USBn, 2019–2029, excluding COVID-19 vaccines and therapeutics



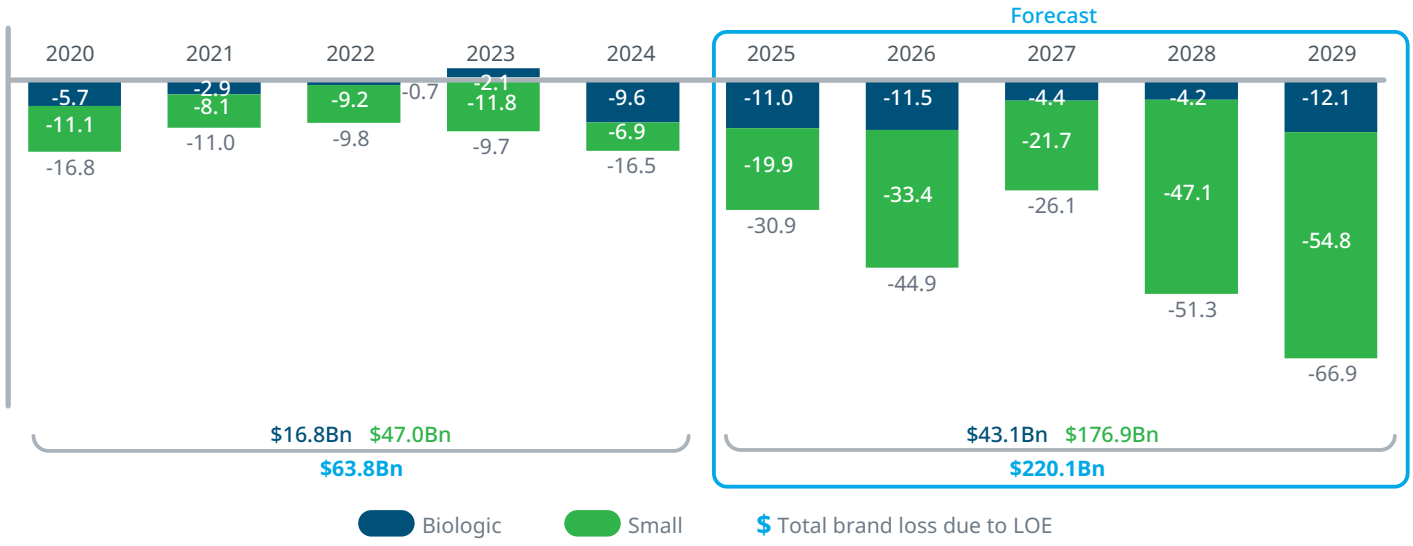
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Global medicine spending growth is expected to accelerate over the next five years in absolute terms, driven mostly by increased growth contribution from existing branded products even as most growth segments are expected to increase compared to the last five years.
- New brands in the 10 leading developed markets are expected to contribute $181Bn in growth, up $4Bn from the past five years.
- The impact from brands losing exclusivity (LOE) is expected to more than triple to $220Bn, although a large part of that increase is from biologics facing biosimilars where the impacts have had more uncertainty.
- The largest driver of growth, which is expected to nearly double, is that from existing protected brands. This is a group of products in the forecast period which were launched prior to 2022 and whose growth contribution has been the most significant driver of the higher growth outlook to 2029.
- Other higher income developed countries are expected to see their growth outlook increase, as well as Pharmerging countries, all contributing to the nearly $2.4Tn in global spending expected in 2029.

Notes: Developed countries refer to the top 10 developed markets (U.S., Japan, Germany, France, Italy, Spain, UK, Canada, South Korea, Australia. Other developed include countries from the World Bank's income segmentation, and include high and upper-middle income countries, with the exception of pharmerging markets. Pharmerging markets are those with per capita GDP by purchasing power parity (PPP) <$30,000/year and forecasted 5-year aggregate pharma sales growth >$1bn (absolute or rounded) in at least two forecasts. See definitions for details of these regional definitions. Spending and growth do not include COVID-19 vaccines and therapeutics.

The impact of exclusivity losses will reach $220Bn over 5 years, with a surge in small molecule expiries

Exhibit 24: 10 developed countries impact of brand losses of exclusivity 2020–2029, US$Bn



Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Across the leading 10 developed markets, the impact of brand losses of exclusivity in the next five years is expected to increase by $156Bn to $220Bn, with $177Bn from small molecules and $43Bn from biologics.
- The medicines expected to drive the greatest amount of impact are typically the U.S. expiries (Exhibit 31), including autoimmune drug adalimumab (Humira) in 2023 with impacts continuing into 2025, blood thinner rivaroxaban (Xarelto), diabetes treatment dapagliflozin (Farxiga), and immunology treatment ustekinumab in 2025 (Stelara), plus apixaban (Eliquis) and pembrolizumab (Keytruda) expiring in 2028.
- Some of these events are more uncertain, as the actions of originators, payers, and providers to switch patients from brands to equivalent generics or biosimilars has a high degree of variability historically.
- The next five years of expiry events will provide critical revenue opportunities for generic and biosimilar makers to sustain their businesses, especially considering the more modest period of expiry events in the past five years, which were at historically low levels.
- Payers' ability to generate savings from these expiry events will offset novel and inline brand spending and will be a key element as health systems and payers work to control the rate of growth in drug spending.

Notes: Totals may not sum due to rounding. Historic periods from IQVIA MIDAS, biologic vs small molecule based on medicines producted through recombinant DNA technology vs all others. Includes the 10 leading developed markets. Modeling of projected expiry impacts based on historic erosion rates.

New brand spending in the 10 developed countries is projected to be higher than the last 5 years but a smaller share of spending

Exhibit 25: 10 Developed new brand spending

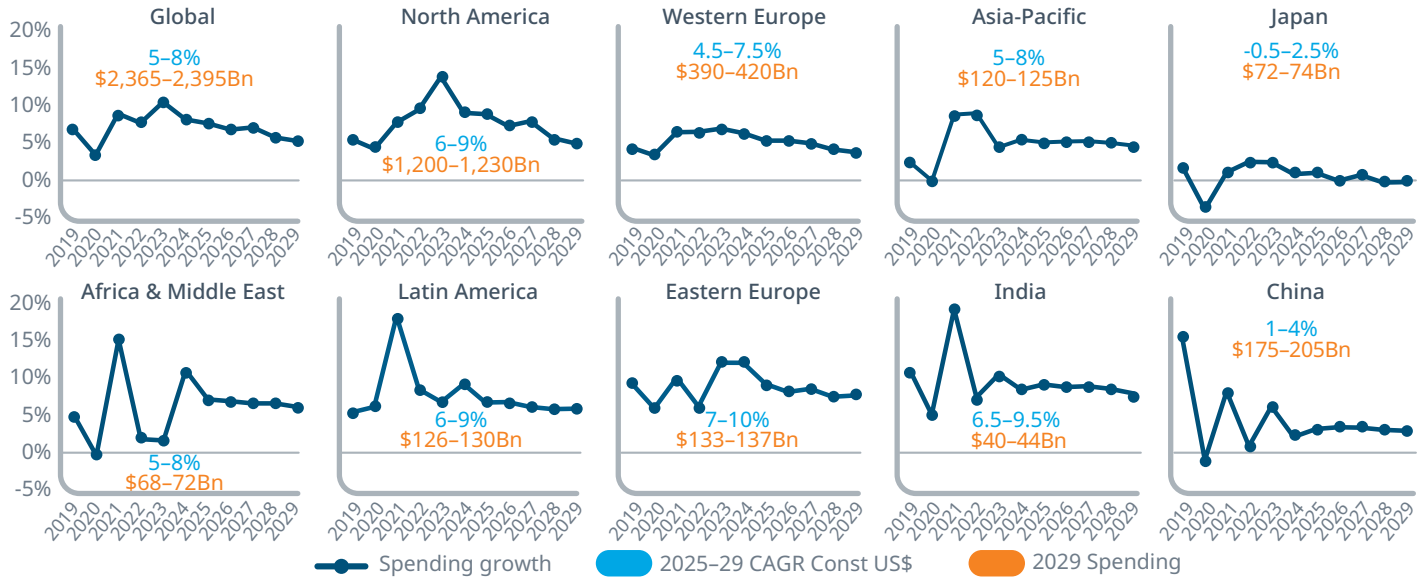
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- In the next five years, novel active substance (NAS) launches are expected to total 350 (325–375), compared to 394 in the past five years.
- The last five years of global NAS launches included 24 COVID-19 vaccines or therapeutics, and the total without them was 369.
- Trends in new brand spending include some significant outlier products such as the cluster of hepatitis C products in 2014 and 2015 and several oncology, immunology, and diabetes therapies in 2015 and 2016.
- Most recently, the approval of GLP-1 therapies for obesity in 2021 and 2023 have started a wave of new product uptake that will run through 2024 when the products will have been marketed for more than two years and cease to be categorized as new.
- Through the remainder of the forecast period, new therapies across oncology, obesity, neurology, mental health, and cell and gene therapies are expected to drive new brand spending.
- The country with the largest concentration of first global launches of NAS is the U.S. followed by Europe, although not all medicines launched in the U.S. are reaching European markets as sponsors may not operate across all the relevant countries.

Notes: New brand spending includes time periods within the first 2 years of launch in country in the analysis. Brand spending includes all brands and is not limited to novel active substances (NAS). NAS are defined as medicines available for the first time where at least one ingredient is new.

Higher global spending growth occurred in key regions after the pandemic, particularly in 2023 in North America

Exhibit 26: Spending growth globally and in 9 regions, total market excluding COVID-19 vaccines and therapeutics, const US$ 2019–2029



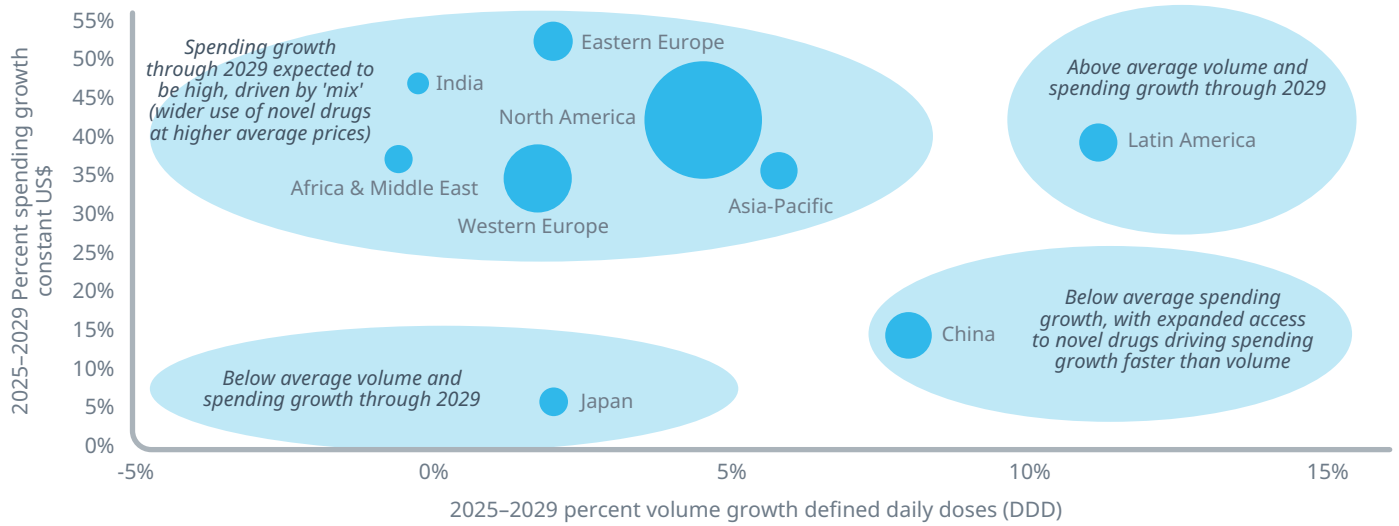
Source: IQVIA Market Prognosis, May 2025.

- Global medicine spending is expected to slow to 5–8% through 2029, reaching $2.4Tn excluding COVID-19 vaccines and therapeutics. The ongoing impacts of the pandemic continued to effect medicine spending and usage patterns through 2023 and are expected to return to pre-pandemic trends over the next five years.
- North America medicine spending is expected to grow at an elevated rate of 6–9% through 2029, driven by continued growth of new brands and older brands and offset by losses of exclusivity.
- Western Europe has had four straight years of 8% spending growth through 2024 and is expected to slow to 4.5–7.5% through 2029 as a combination of expiry events and payer pressure partly offset by the wider use of novel medicines.
- Eastern Europe has the highest growth outlook with a range from 7 to 10%, although slowing through the forecast period.
- Latin America spending growth was especially high in the first two years of the pandemic, including patients' use of established and generic medicines as symptom management for COVID-19. Growth will average 6–9% through 2029 led by Brazil, Mexico, Argentina, and Colombia.
- Japan's spending growth is expected to average -0.5 to 2.5% with relatively flat trends despite strong uptake of branded medicines resulting from a shift to annual price cuts in place of the historic biennial price cut policy.
- China's spending swung wildly during the pandemic partly influenced by zero tolerance pandemic policies but is expected to return to more moderate 1–4% growth through 2029.

Notes: Asia-Pacific does not include China, India, and Japan which are reported separately.

Spending and volume growth are following diverging trends by region

Exhibit 27: Spending and volume growth by region



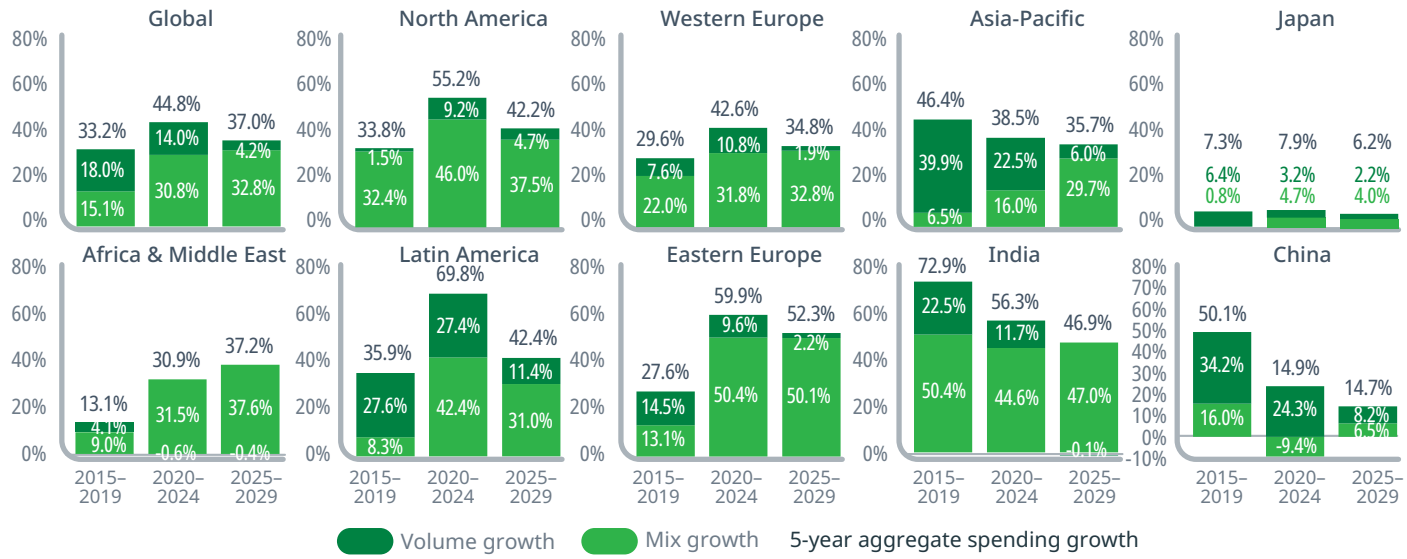
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Regions around the world are growing following diverging trends, some with more volume driven while others have a greater contribution from adoption of innovation.
- Countries in North America, Eastern and Western Europe, Asia-Pacific, India, Latin America, and Africa and Middle East are expected to increase spending growth by more than 30%, indicating both population-driven volume growth and a shift in the mix of products to more expensive products.
- China, the world's second largest country by pharmaceutical spending, will increase volume by 8% in aggregate over five years, while spending will increase 15%, a more modest rate than in the prior years and still embedding a focus on expanding access to novel drugs via the national reimbursement drug list (NRDL).
- Eastern Europe spending is expected to increase 52% over five years while volume will increase 2% as the peak of disruptions from the Ukraine conflict have passed, and at the same time reflect the expected adoption of novel drugs, albeit later than in Western Europe and other developed markets.
- Japan spending growth is expected to be flat over the forecast as price controls evolve to encourage innovation while offsetting with savings on older and off-patent medicines.

Notes: Spending growth in constant US$ and reflecting 5-year aggregate growth. Volume growth in defined daily doses (DDD) (see methodology). Bubble size reflects spending in 2029, see Exhibit 27 for relevant values.

Spending growth is driving mix — change in the average cost of medicines — in many key regions

Exhibit 28: Spending growth globally and in 9 regions, total market excluding COVID vaccines & therapeutics, const US$ 2015–2029



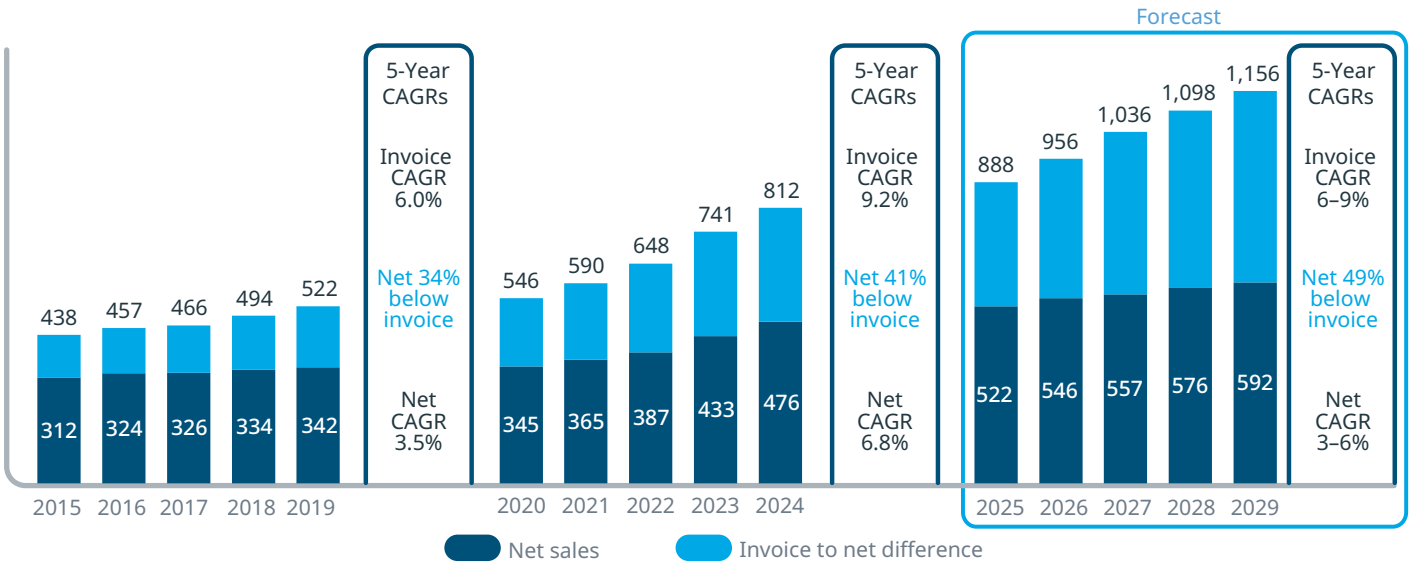
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Regions have had a different pattern of spending growth and varying projections through 2029, both in total impact as well as the proportions, which are driven by the mix of products compared to the volume of medicine usage.
- In this analysis of spending growth, volume growth refers to spending growth at base-period cost per defined daily dose, and mix growth refers to that spending growth driven by changes in the average cost per day.
- Generally, higher degrees of mix growth reflect countries and regions where adoption of novel medicines is higher, and new medicines at higher prices grow faster than the offsetting cost reductions from patent expiries.
- In North America and Western Europe, mix growth accounts for more than 80% of spending growth, while in Asian countries volume growth is a much higher share of the changes in spending.
- Regions typified by rising economies appear to have a greater degree of mix growth as more of the patients in those countries are able to access the newest medicines.
- Within regions countries vary; for example, wealthier countries in the Middle East have more mix growth and poorer countries have less of spending and mix growth, and growth mostly through volume with older generic products.

Notes: Asia Pacific excludes China, India and Japan. Growth in constant US$ in aggregate over the 5-year period. Argentina in Latin America is measured in US$ with variable exchange rates to adjust for inflationary impact. Mix growth is defined as the difference between actual spending growth and growth at base-period spend per DDD. Volume growth is defined as the residual of total growth excluding mix growth.

The U.S. market, on a net price basis, is forecast to grow 3–6% CAGR over the next 5 years, down from 6.8% CAGR for the past 5 years

Exhibit 29: U.S. medicine spending and growth at invoice-level and estimated net 2015–2029 excluding COVID-19 vaccines and therapeutics



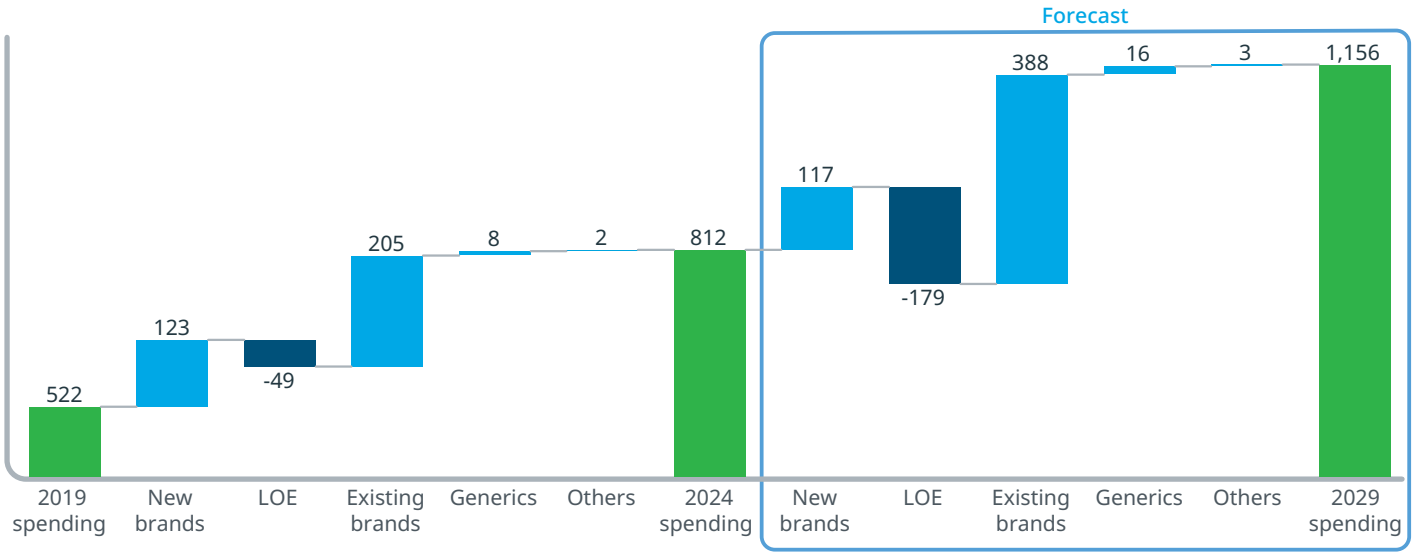
Source: IQVIA Institute, May 2025.

- Total net spending on medicines in 2029 is expected to increase by $116Bn compared to 2024, as volume growth drivers and adoption of innovation will be partly offset by drivers of lower prices, including patent expiries and the effects of legislation.
- Over the next five years, medicine spending will grow between 6–9% on an invoice price basis and 3–6% after discounts and rebates.
- Growth will be driven by adoption of newly launched innovative products, with an average of 50–55 new medicines launching per year over the next five years, including those in oncology or with specialty or orphan status, as well as some more traditional therapies in diabetes, obesity, and neurology.
- Spending growth will be offset by losses of exclusivity and continued emergence and uptake of biosimilars, the impacts of legislation and stakeholder responses, and no significant contribution from COVID-19 spending to reflect a shift to endemic status.
- Growth due to price changes will continue at historically low levels on a list-price basis, with protected brands expected to increase 1 to 4%, while net prices are expected to decline -1 to -4%, especially later in the forecast.[5]

Notes: Estimates of net manufacturer sales are based on analysis by the IQVIA institute from public sources combined with IQVIA's audited invoice-level data (see methodology). Projections of future net manufacturer revenues are based on expected off-invoice discounts and rebates in key therapy areas modeled for the impact of expiries and the impacts of pricing legislation and policies.

Spending in the U.S. is expected to increase by $344Bn through 2029, driven by new and existing brands

Exhibit 30: Spending and growth drivers in US 2019–2029 US$Bn



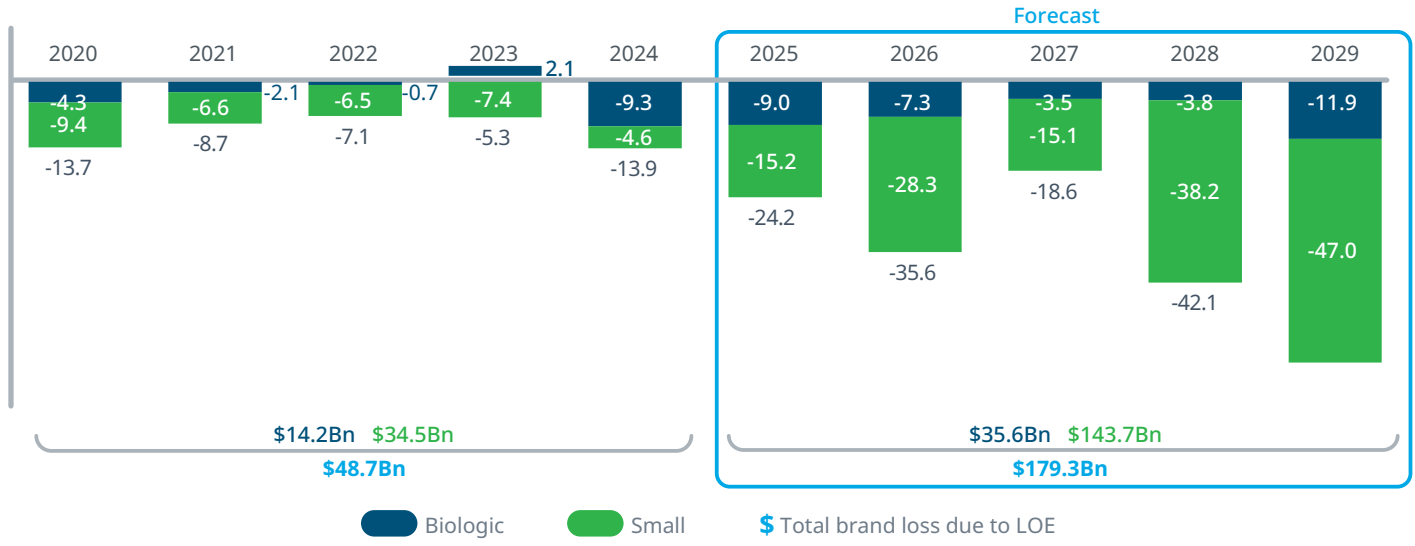
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Spending on medicines in the U.S. at invoice prices is expected to increase by $344Bn through 2029, $54Bn more than the $290Bn increase over the past five years.
- The largest driver of growth will be increased usage of existing protected branded products, which are expected to add $388Bn in spending over five years, much higher than the $205Bn increase from 2019 to 2024 for products more than two years after their launch until their loss of exclusivity (LOE).
- The contribution from new brands is expected to be $117Bn over five years as more than 250 new active substances (NAS) are expected to launch in the U.S. in the period.
- The impact of losses of exclusivity is expected to increase dramatically to $179Bn from $49Bn in the prior five years as both small molecule and biologic product exposure to LOE has increased substantially.
- Generics, including biosimilars, have had an only modest impact on growth as price deflation has largely offset growth from the related patent expiry events.
- Overall medicine spending at invoice prices is expected to reach $1,156Bn by 2029 even as off-invoice discounts and rebates are expected to reach 49% and net spending increases by $116Bn over five years (Exhibit 29).

Notes: New brands growth contribution defined as the growth during periods when products had been marketed for less than two years. Growth from products defined as new in each year of the five-year period are aggregated together. Existing brands are those which are no longer new and not yet off-patent. Off-patent brands have faced Loss of Exclusivity (LOE). Generics includes non-original branded products or 'branded generics' as well as biosimilars Other includes OTC/other products. Spending and growth do not include COVID-19 vaccines and therapeutics.

The impact of exclusivity losses will increase to $179Bn over 5 years, with over $140Bn from small molecules

Exhibit 31: U.S. impact of brand losses of exclusivity 2020–2029, US$Bn



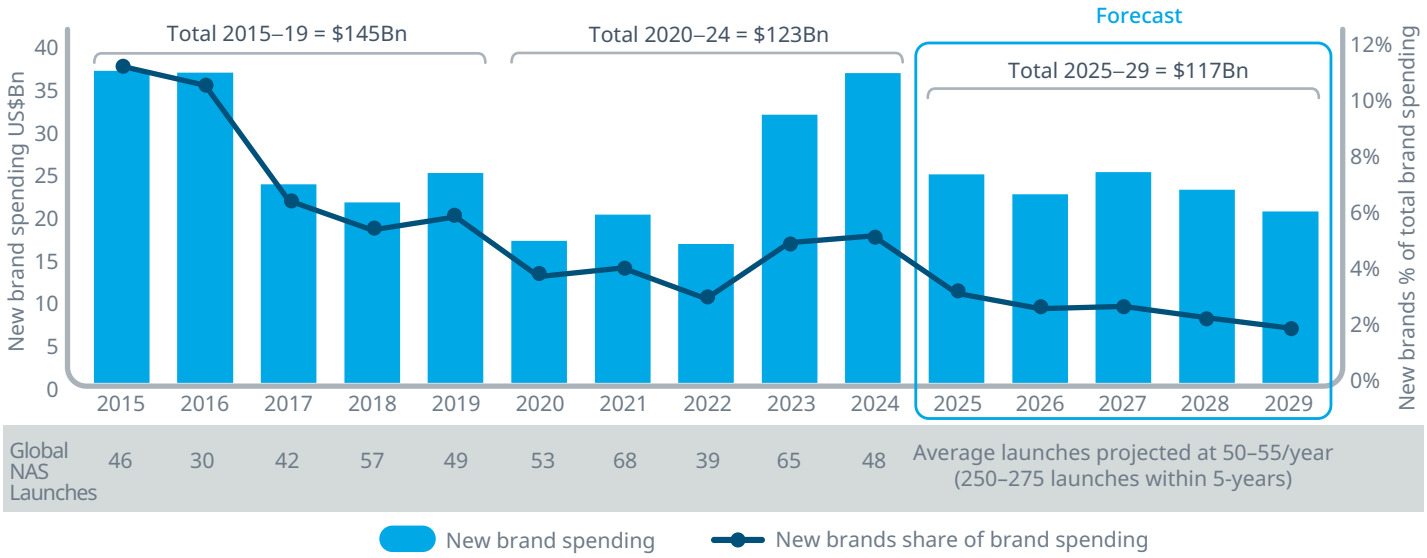
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Losses of exclusivity in the U.S. are expected to be $179.3Bn through 2029 with significant impact on spending for both small molecules and biologics.
- Small molecule expiries are expected to reduce brand spending by $143.7Bn through 2029, over four times the impact of the last five years, including the impact of high-profile products rivaroxaban (Xarelto), dapagliflozin (Farxiga), apixaban (Eliquis), and many others.
- Biologics are expected to result in $35.6Bn in lower brand spending over five years as biosimilar market dynamics mature and major products face competition, including the impact on ustekinumab (Stelara) in 2025, and pembrolizumab (Keytruda) and nivolumab (Opdivo) in 2028.
- Questions remain around the relationship of interchangeability, alternative originator formulations, and the commercial and negotiating strategies of stakeholders, which could dramatically increase or reduce the impact of these biosimilar events.
- The number of biosimilar and/or generic competitors to enter the market is the most correlated factor influencing the degree of brand losses, and the gap in the number of biosimilar approvals, or in molecules without biosimilars at all, may result in a lower degree of brand losses.[6]

Notes: Does not reflect offsetting spending increases from generic or biosimilar competitors. Losses in future periods are modeled based on expected pre-expiry growth for the brand and subsequent post-expiry loss of sales for the brands. The rates of loss are based on historic averages in each country and inclusive of adjustments for products with expiries in progress from historic periods where losses extend into the forecast periods. Historic period analyses are based on audited data. Expected loss of exclusivity dates are highly variable and can change due to outcomes of litigation, granting of new patents or changes in the expectation of launch of biosimilars. Information is current as of May 2025.

New brand spending in the U.S. is projected to be higher than the last 5 years but a smaller share of spending

Exhibit 32: U.S. new brand spending



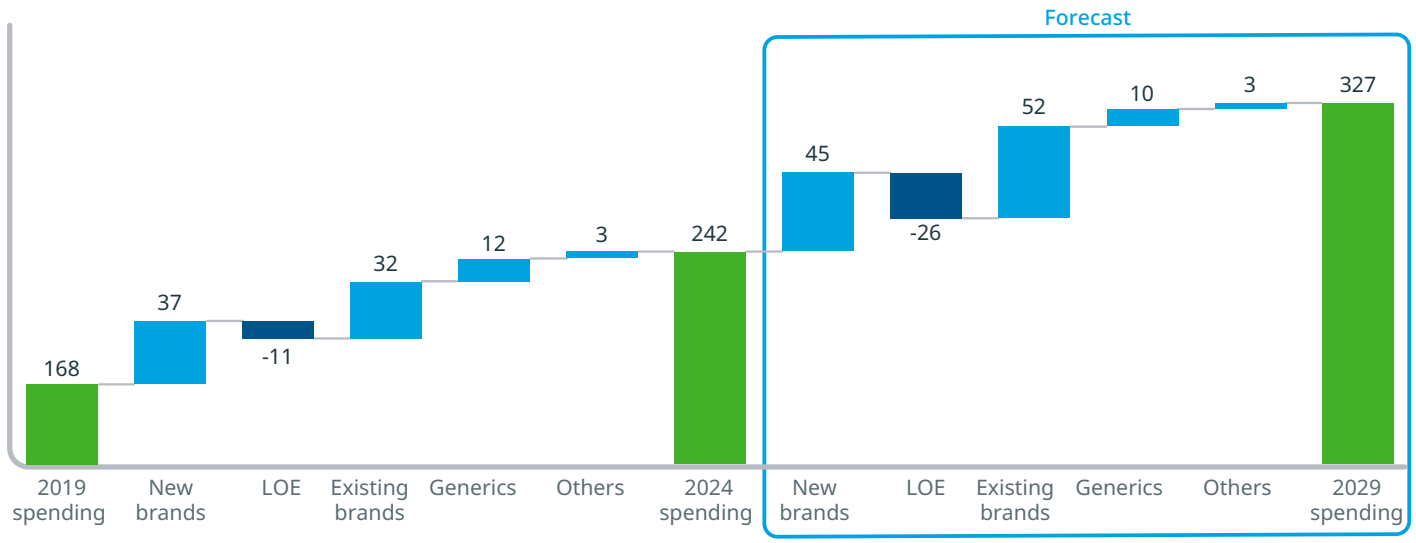
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- The number of NAS launches in the U.S. in 2024 dropped to 48, bringing the five-year average to 55, and three of the last five years have had more than 50 NAS launches.
- The next five years are expected to average 50–55 NAS launches per year, with an aggregate of $23.4Bn on average in new brand spending per year.
- Significant contribution to new brand spending is expected from drugs for obesity and diabetes, contributing most of the inflection in new brand spending.
- Over the next five years, more than 250 NAS are expected to launch in the U.S. and new products in aggregate are expected to contribute $117Bn in spending.
- New launches in the next five years are expected to include 100 new cancer drugs globally, with most of those available in the U.S. at launch.
- Other clusters of innovative drugs cover as many as 25 cell and gene therapies, which partly overlap with oncology treatments.

Notes: New brands spending defined as products marketed for less than two years in each year. Number of novel active substances (NAS) per year reflect launches rather than approvals as there can be a lag between approval and launch. NAS counts include COVID-19 vaccines and therapeutics if they were novel medicines, while spending totals do not.

Spending in Europe is expected to increase by $85Bn through 2029, driven by new and existing brands

Exhibit 33: Spending and growth drivers in France, Germany, Italy, Spain, and UK 2019–2029 const US$Bn



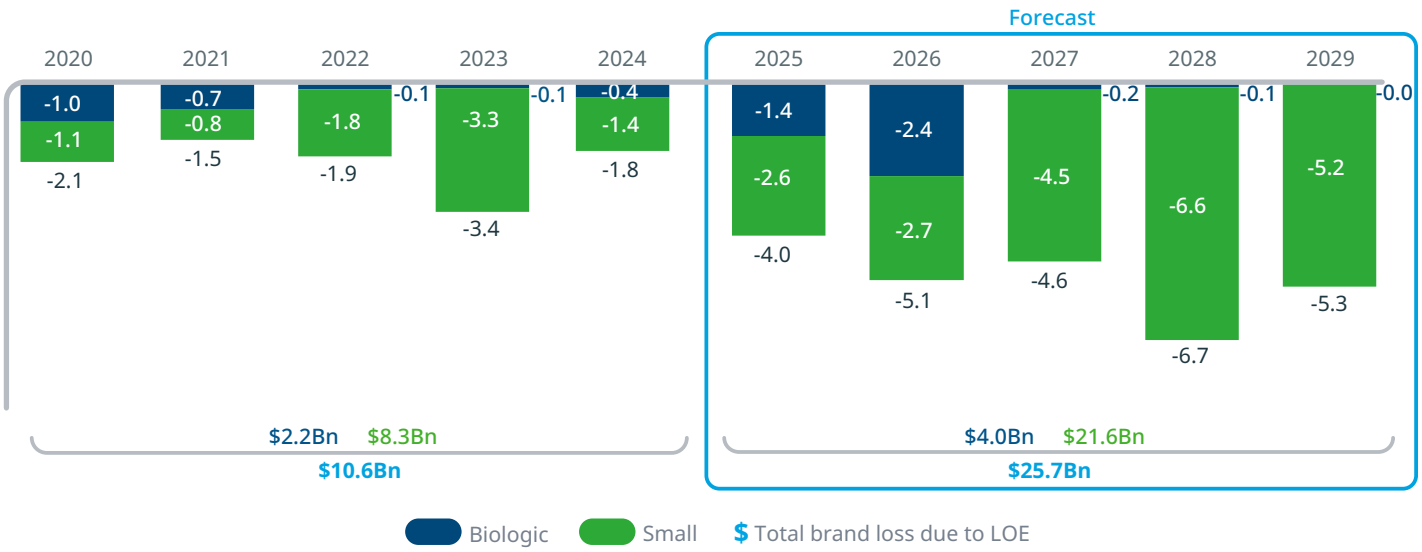
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Medicine spending in the top five European markets is expected to increase by $85Bn over the next five years, up from $74Bn in the past five years but with large shifts in the drivers of growth.
- New brands were the largest driver of growth from 2019 to 2024 and are expected to increase their growth contribution but drop behind existing brands in absolute contribution.
- Generics, including biosimilars, are expected to add $10Bn in growth over the next five years, down $2Bn from the past five years despite a larger impact of LOEs as volume gains will be offset by price deflation.
- Payer actions will be shaped by the pace of economic growth, and the impact of geopolitical and trade concerns, especially relating to the U.S.
- Innovation is expected to be significantly strong in the next five years despite expected greater scrutiny of the value of new medicines in the form of health technology assessments.
- It is possible that new brand growth will be lower while older established brands may grow more after they have demonstrated value in the market and negotiated market access; these dynamics represent an area of significant uncertainty.

Notes: New brands growth contribution defined as the growth during periods when products had been marketed for less than two years. Growth from products defined as new in each year of the five-year period are aggregated together. Existing brands are those which are no longer new and not yet off-patent. Off-patent brands have faced loss of exclusivity (LOE). Generics includes non-original branded products or 'branded generics' as well as biosimilars. Other includes OTC/other products. Spending and growth do not include COVID-19 vaccines and therapeutics.

The impact of exclusivity losses will reach $25Bn over 5 years, with most due to small molecules

Exhibit 34: EU4+UK impact of brand losses of exclusivity 2020–2029, US$Bn



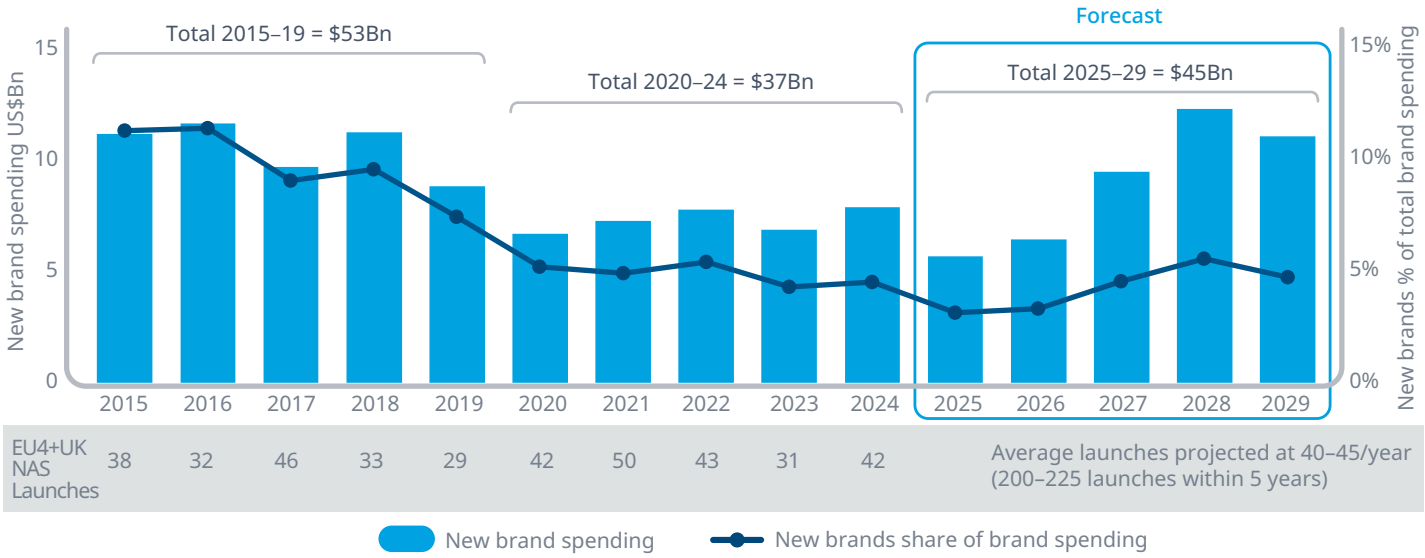
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- The impact of LOEs in the five largest European markets (Germany, France, Italy, Spain, and the UK), are expected to increase 2.5 times over the next five years.
- All five years of the forecast are projected to have greater brand losses from expiries than any of the last five years as a sequence of large selling brands face expiry through 2029.
- Europe's biosimilar market is the largest in the world, with the first biosimilar launched in 2006 following the approval of biosimilars based on a solid and robust legal pathway introduced in 2004; since then, the process has led to the highest number of biosimilar approvals in the world.
- The key biologic expiry is for aflibercept (Eylea in 2026) with limited impact afterwards.

Notes: Does not reflect offsetting spending increases from generic or biosimilar competitors. Losses in future periods are modeled based on expected pre-expiry growth for the brand and subsequent post-expiry loss of sales for the brands. The rates of loss are based on historic averages in each country and inclusive of adjustments for products with expiries in progress from historic periods where losses extend into the forecast periods. Historic period analyses are based on audited data. Expected loss of exclusivity dates are highly variable and can change due to outcomes of litigation, granting of new patents or changes in the expectation of launch of biosimilars. Information is current as of May 2025.

New brand spending in EU4+UK is projected to be higher than the last 5 years but a smaller share of spending

Exhibit 35: EU4+UK new brand spending, US$Bn



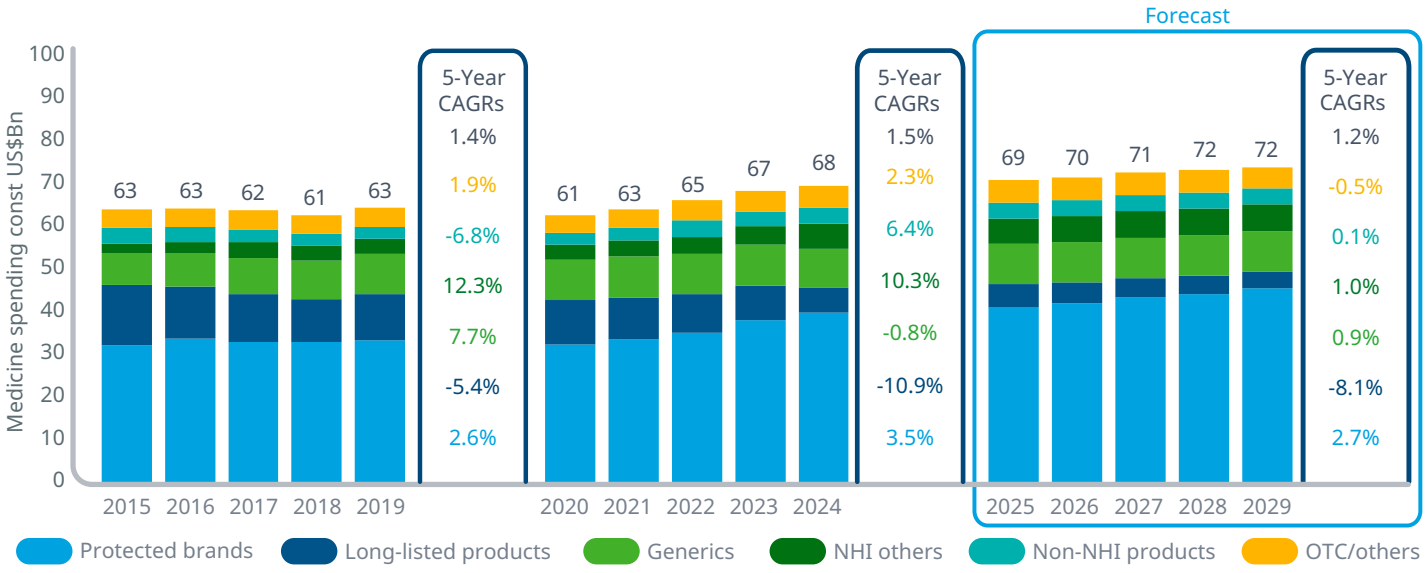
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Over the next five years, more than 200 NAS are expected to launch in the leading European countries and new products in aggregate are expected to contribute $45Bn in spending.
- Three of the last five years have had more than 40 NAS launches and the next five years are expected to average at least 40–45 per year, with an aggregate total of more than $9Bn on average in new brand spending per year.
- New launches in the next five years are expected to include one-third from cancer drugs and important clusters in neurology, including rare diseases.
- Other clusters of innovative drugs include next-generation biotherapeutics, which include cell and gene therapies and RNA therapeutics, and which partly overlap with oncology treatments, although reimbursement decisions may be complex due to the budget impact for relatively few benefitting patients.

Notes: New brands spending defined as products marketed for less than two years in each year. Number of novel active substances (NAS) per year reflect launches rather than approvals as there can be a lag between approval and launch. NAS counts include novel COVID-19 vaccines and therapeutics, while spending totals do not.

Japan medicine spending is forecast nearly unchanged over 5 years as innovation is offset by shift to annual price cuts

Exhibit 36: Japan medicine spending by product type 2015–2029, constant US$Bn



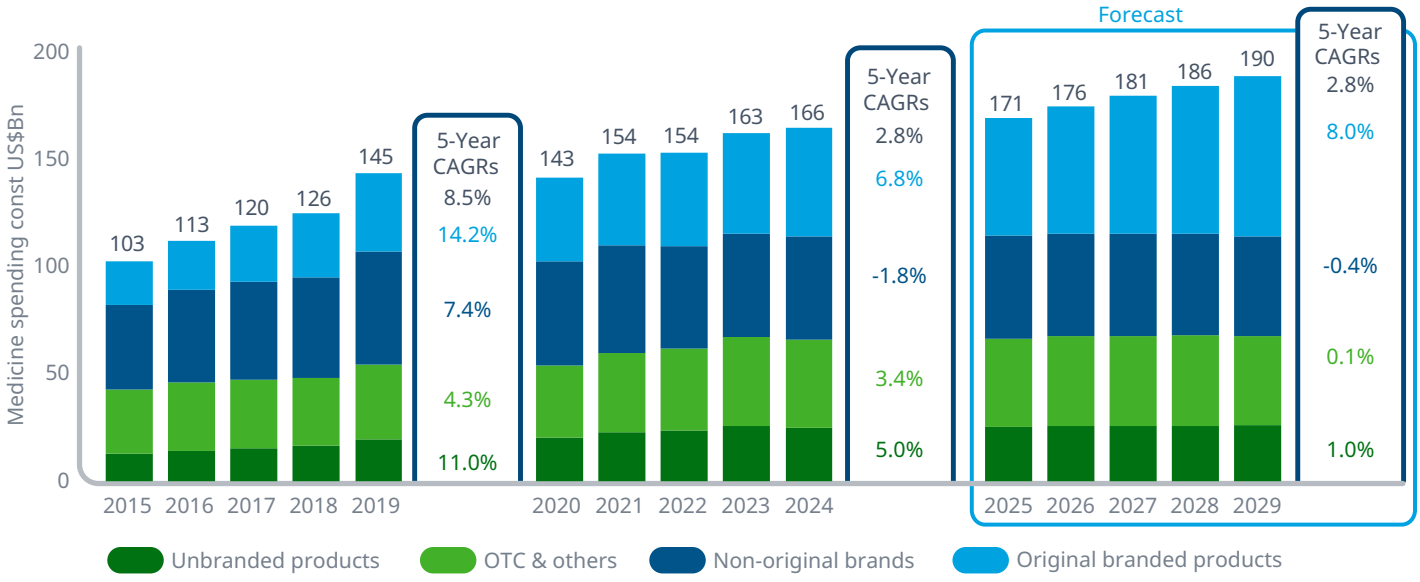
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Spending growth in Japan is expected to maintain a consistent -0.5 to 2.5% growth rate over the next five years as long-term trends affecting long-listed brands continue.
- The annual frequency of pricing revisions is expected through the full forecast period, although the annual off-year impacts may be lower than the established biennial price cut years.
- Over the past decade, protected brands' share of spending has risen from 50% to 57%, reversing a long historical trend where share would decline over time and reflecting a shift in investment by manufacturers launching earlier in Japan and government focus enabling earlier access to novel medicines.
- Long-listed products have declined from 22% of spending in 2015 to 9% in 2024 and are expected to drop to 5% by 2029.
- Generic share of spending is also expected to rise, supported by policies that have been largely effective over the entire period, encouraging doctors to substitute available generics with a combination of incentives and penalties.

Notes: Shares for protected brands, long-listed products, generics, NHI others, and Non-NHI products are based on segmentations of products available locally in Japan covering the MLHW regulated markets. OTC and other products were estimated and added to complete the view of the market. Analyses do not include COVID vaccines and therapeutics.

Spending growth in China is expected to slowly recover post-COVID-19, driven almost entirely by new original medicines

Exhibit 37: China medicine spending by product type 2015–2029, const US$Bn



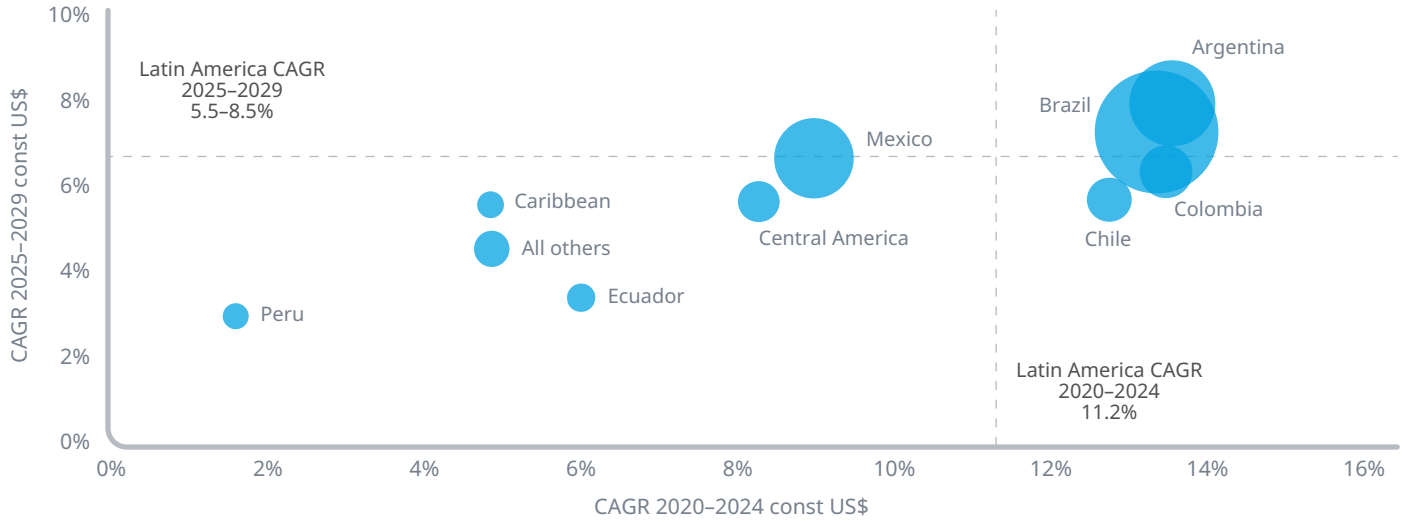
Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Medicine spending in China has risen from $103Bn in 2015 to $166Bn in 2024.
- Over the past five years, spending growth was driven by original branded products, most often from multinational companies, which grew at an average of 6.8% per year to reach 31% of spending in 2024, up from 20% in 2015.
- Over the next five years, the government policies to update the national reimbursement drug list (NRDL) annually is contributing to a greater share of new original medicines being reimbursed, resulting in higher levels of spending, although these are generally subject to lower negotiated net prices. Increasingly, original branded products are being launched by domestic originators rather than by multinationals, a pattern reshaping the market in China with implications for other countries in the region and around the world.
- Over the next five years, original brands will grow by 8.0% per year while other types of products will grow at 1% or less, contributing to the overall growth rate slowing to 1–4%.
- Non-original brands, including versions of medicines originated by multi-nationals, are the second largest segment of spending in China but are expected to decline by 0.4% per year, partly as a result of a government focus on curbing spending growth in hospitals.
- By 2029, China is projected to exceed $190Bn, an increase of $24Bn in the next five years.

Notes: Original brands are those marketed by their originator (or licensed partner) and includes vaccine products by all manufacturers. Analysis does not include COVID-19 vaccines or therapeutics.

Latin America growth expected to be led by recovering Argentina and strong Brazil market

Exhibit 38: Latin America spending and growth by country, constant US$, 2020–2029



Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- Latin America reflects a wide range of historic and forecast market dynamics with the largest countries expected to slow but remain above 7% growth through the forecast.
- Argentina has been hampered by economic issues including inflation, but recovery is thought to be a strong potential and would offer even more upside growth than modeled here.
- Colombia has a combination of economic and policy drivers which will likely shift along with major changes in the healthcare landscape, bringing uncertainty.
- Mexico growth is expected to continue as one of the slowest of the larger countries, with further downside risk from the relationship with the U.S. and tariffs, and cross-border economic issues.
- Brazil is still the largest and among the fastest growing country in the region, but that could prompt pressures and potential changes to rein in spending growth.

Notes: Spending measured in constant US$ with Q4 2024 exchange rates with the exception of Argentina which has been reported in US$ with variable exchange rates to adjust for the impact of inflation and reflect a more realistic growth outlook.

Medicine spending and growth by product type varies by region

Exhibit 39: Global medicine spending and growth by product type

		ORIGINAL BRANDS	NON-ORIGINAL BRANDS	UNBRANDED GENERICS	OTHER	TOTAL
Spending 2024 US$Bn	**Global**	**1,184.3**	**235.3**	**166.5**	**163.7**	**1,749.8**
	Developed	1,091.6	120.6	124.6	84.7	1,421.5
	10 Developed	964.6	70.3	107.0	52.6	1,194.5
	Other developed	127.0	50.3	17.6	32.1	227.0
	Pharmerging	88.4	106.3	41.1	76.5	312.2
	Lower-income countries	4.4	8.4	0.8	2.6	16.1
Constant dollar CAGR 2020–2024	**Global**	9.3%	4.3%	4.8%	5.4%	7.7%
	Developed	9.4%	5.0%	3.9%	5.0%	8.2%
	10 Developed	9.6%	3.7%	3.3%	3.6%	8.2%
	Other developed	8.1%	7.1%	8.3%	7.6%	7.8%
	Pharmerging	8.4%	3.7%	7.6%	6.0%	6.0%
	Lower-income countries	-0.8%	1.5%	3.3%	2.1%	1.0%
Spending 2029 US$Bn	**Global**	**$1685– $1715**	**$270– $300**	**$170– $200**	**$180– $210**	**$2,355– $2,385**
	Developed	$1,555– $1,585	$135– $165	$120– $150	$95– $115	$1,945– $1,975
	10 Developed	$1,370– $1,400	$75– $95	$105– $125	$58– $62	$1,635– $1665
	Other developed	$175– $195	$58– $62	$18– $22	$43– $47	$295– $325
	Pharmerging	$115– $135	$120– $140	$40– $60	$80– $100	$375– $405
	Lower-income countries	$3– $7	$8– $12	$0.7– $1.1	$2.5– $3.5	$18– $22
Constant dollar CAGR 2025–2029	**Global**	6–9%	3.5–6.5%	1–4%	2–5%	5–8%
	Developed	6–9%	4.5–7.5%	0.5–3.5%	2–5%	5.5–8.5%
	10 Developed	6–9%	4–7%	-0.5–2.5%	0.5–3.5%	5–8%
	Other developed	6–9%	4.5–7.5%	5.5–8.5%	4.5–7.5%	5.5–8.5%
	Pharmerging	7–10%	2.5–5.5%	2.5–5.5%	2.5–5.5%	3.5–6.5%
	Lower-income countries	4–7%	1–4%	0–3%	1.5–4.5%	2–5%

Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- The types of medicines driving spending and growth vary considerably across countries broadly correlated with a degree of economic development.
- Generally, wealthier countries have higher levels of spending on original branded products, especially earlier in the patented periods of these products.
- Lower income countries have a greater reliance on generic drugs and sometimes prefer non-original branded versions, sometimes called branded generics; when patent enforcement is less stringent, these are referred to as ‘copy products.’
- Developed countries typically have higher shares from original branded products but vary to the degree they shift usage to generics or non-original products after patent expiry, contributing to differences in spending share for originators including those that are off- patent.
- Pharmerging and lower income countries have much lower shares of spending from originator products, with a greater focus on either generics or non-original branded products, and all products typically have lower prices.

Notes: See definitions for details of regional definitions. Spending and growth do not include COVID-19 vaccines and therapeutics.

Japan drops from 3rd largest to 4th largest in 2024 — and China's growth slows

Exhibit 40: Global top 20 countries ranking and invoice spending relative to the United States (US$ variable ex-rates)

RANK	2019	% OF U.S. INVOICE SPENDING
1	United States	100
2	China	27.7
3	Japan	12.1
4	Germany	9.5
5	France	6.5
6	Italy	6.1
7	UK	5.6
8	Spain	4.5
9	Canada	4.3
10	Brazil	3.5
11	India	3.5
12	South Korea	2.6
13	Australia	2.2
14 ▲3	Russia	2.1
15 ▲3	Mexico	1.8
16 ▼2	Argentina	1.6
17 ▼1	Saudi Arabia	1.6
18 ▼3	Turkey	1.6
19 ▲1	Poland	1.5
20 ▼1	Switzerland	1.3

RANK	2024	% OF U.S. INVOICE SPENDING
1	United States	100
2	China	20.4
3 ▲1	Germany	8.5
4 ▼1	Japan	8.4
5	France	6.0
6 ▲1	UK	5.6
7 ▼1	Italy	5.4
8	Spain	4.3
9 ▲1	Brazil	4.2
10 ▼1	Canada	4.1
11	India	3.5
12 ▲2	Russia	2.4
13 ▼1	South Korea	2.2
14 ▼1	Australia	2.0
15 ▲1	Argentina	2.0
16 ▼1	Mexico	1.8
17 ▲2	Poland	1.7
18 ▼1	Saudi Arabia	1.6
19 ▼1	Turkey	1.4
20 ▲1	Belgium	1.1

RANK	2029	% OF U.S. INVOICE SPENDING
1	United States	100
2	China	16.5
3	Germany	7.6
4	Japan	6.2
5 ▲1	UK	5.6
6 ▼1	France	5.4
7	Italy	5.4
8	Spain	4.3
9	Brazil	4.2
10	Canada	4.1
11	India	3.6
12	Russia	2.7
13 ▲4	Poland	2.1
14 ▲1	Argentina	2.0
15 ▼2	South Korea	2.0
16	Mexico	1.8
17 ▼3	Australia	1.8
18	Saudi Arabia	1.7
19	Turkey	1.3
20	Belgium	1.1

▼▲ Change in ranking over prior 5 years

Source: IQVIA Market Prognosis, May 2025; IQVIA Institute, May 2025.

- The relative amount of medicine spending has been shifting over time, with some fast-growing countries becoming more important to the total level of global medicine spending.
- Volume growth, often of older generic medicines, has been the primary driver of growth in many Pharmerging markets, although the more recent rising rankings ahead of leading developed markets are also driven by shifts in the mix of spending.
- China has been the second largest global pharma market for more than a decade but has begun to grow more slowly than the U.S., reflected in the declining index of spending from 20.4% in 2024 to a projected 16.5% in 2029.
- Japan dropped to the 4th largest country in 2024, with slower growth relative to Germany resulting in the shift in rankings.
- The growth in medicine spending levels along with rising PPP-adjusted GDP per capita has resulted in some formerly Pharmerging countries now being classified as 'other developed' in other analyses in this report, including Poland, Russia, Saudi Arabia, and Turkey.

Notes: Rankings are based on US$ with variable exchange rates at list prices. Changes in rank are compared to 5 years previously, and the number of ranking positions indicated with a number. All country spending is compared to the U.S. which is set to 100. Spending does not include COVID-19 vaccines or therapeutics.

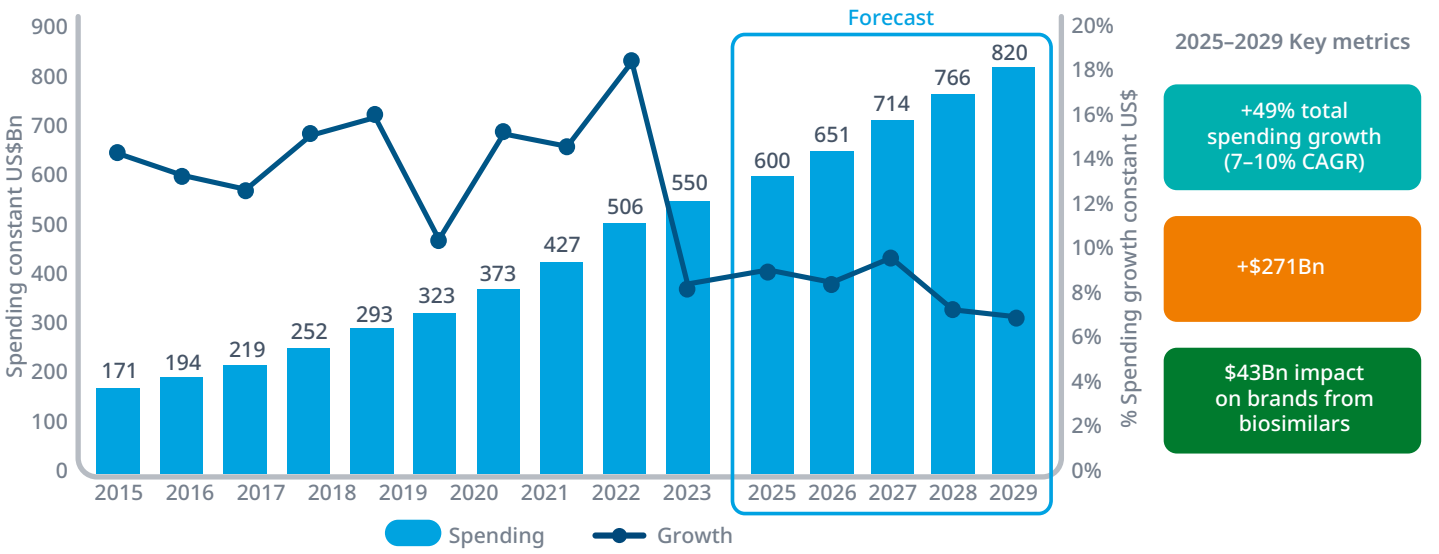
Key therapy areas

- Global biotech spending to exceed $820Bn by 2029, about 34% of global spending, with growth slowing to 7–10% from biosimilar savings.
- Specialty medicines will represent about 46% of global spending in 2029 and 54% of total spending in leading developed markets.
- Oncology, diabetes, and obesity to lead absolute growth through 2029, while immunology slows due to biosimilars.
- Oncology and obesity forecast double-digit growth rates to 2029 while immunology slows due to biosimilars.
- Oncology and obesity to lead growth through 2029 while immunology and diabetes growth to slow.
- Cancer medicine spending rose to $252Bn globally in 2024 and growth is expected to slow, reaching $441Bn by 2029.
- Immunology spending growth to slow to 3.5–6.5% through 2029 from biosimilar impact as volume growth continues at 6–9% annually.
- Diabetes spending growth accelerating in many developed markets associated with GLP-1 adoption, U.S. slowing to 1–4% net.
- Global obesity spending has accelerated in the past two years from novel drugs with upside if more widely reimbursed.
- New therapies in Alzheimer's and anxiety/depression are expected to drive spending growth in neurology.
- Cell and gene therapies have differing spending outlooks and large areas of uncertainty.

Biotech will represent 34% of spending globally and will include both breakthrough cell and gene therapies, more traditional therapies like insulins, oncology, and immunology treatments, as well as a maturing biosimilar segment. Major advances are expected to continue, especially in oncology, immunology, diabetes and obesity. Notable small molecule innovations are also expected in these diseases as well as neurology.

Global biotech spending to exceed $820Bn by 2029, with growth slowing to 7-10% from biosimilar savings

Exhibit 41: Global biotech spending and growth, const US$Bn



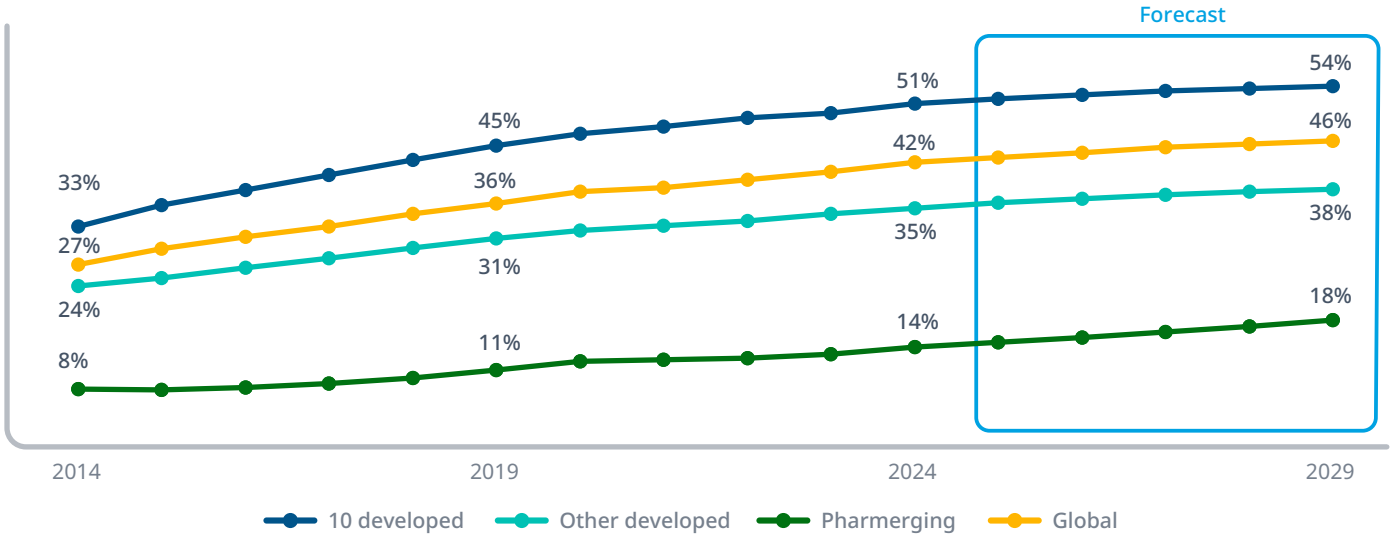
Source: IQVIA Institute, May 2025.

- Global spending on biotech drugs — those created through recombinant DNA technology — are expected to reach $820Bn by 2029, about 34% of global medicine spending.
- Biotech covers a range of therapies, including traditional therapies such as insulin analogues and more complex specialty medicines and cell and gene therapies.
- Spending for biotech drugs will include $14–$36Bn by 2029 from cell and gene therapies, which currently represent approximately $7.4Bn and are expected to grow predominately from wider use, especially in developed markets.
- Overall biotech growth will occur despite brand losses of $43Bn due to biosimilars in developed markets in the five years to 2029.
- Spending growth is expected to slow in the next five years from the impact of key biosimilars, especially in developed markets, but remain robust through the continued flow of new medicines.
- Biotech drugs will see a 49% aggregate increase over five years with a 7–10% CAGR through 2029, adding $271Bn over the period globally.

Notes: Biotech medicines defined as those produced through recombinant DNA technology. Does not include COVID-19 vaccines and therapeutics. Absolute growth may not correspond to data labels due to rounding.

Specialty medicines will represent about 46% of global spending in 2029 and 54% of total spending in leading developed markets

Exhibit 42: Specialty medicines share of spending



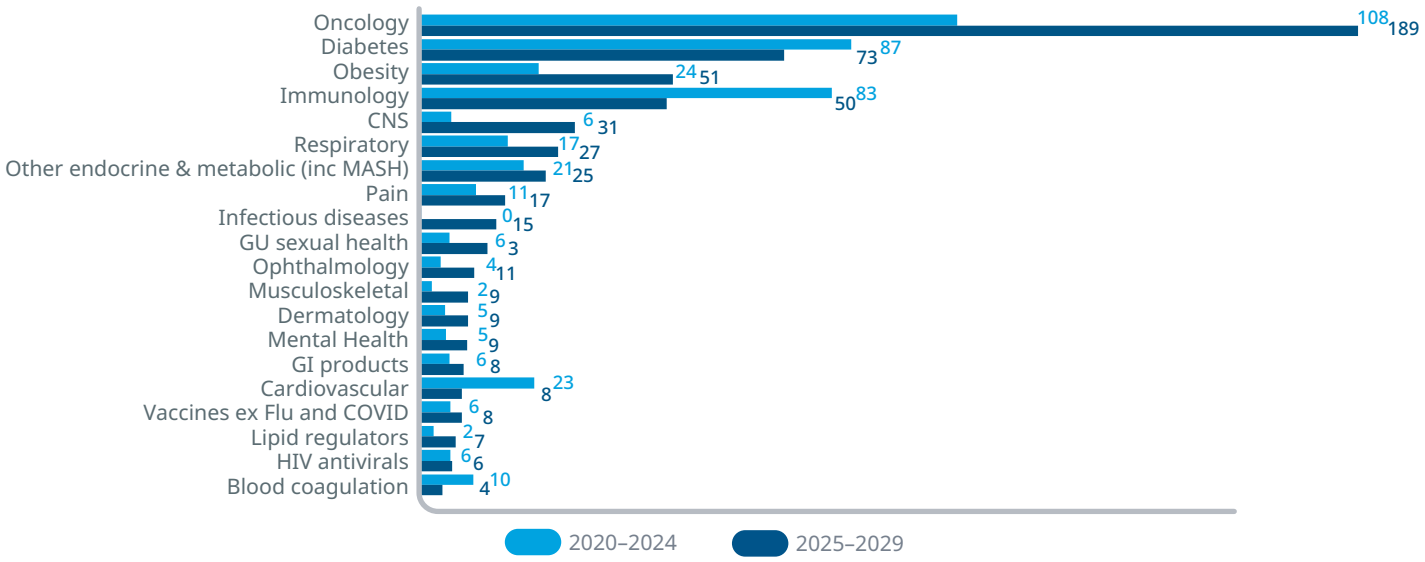
Source: IQVIA Institute, May 2025.

- Specialty medicines have been increasing as a share of spending in higher-income countries, such as the 10 largest developed countries and other high and upper-middle income countries, where they have reached 51% and 35%, respectively, in 2024, up from 33% and 24% 10 years earlier.
- Pharmerging countries have lagged largely due to cost and in 2024, had 14% of spending on specialty medicines, and are projected to rise to 18% in 2029.
- Globally specialty medicines will be 46% of global spending by 2029, with more than half of spending on these products in major developed markets.
- Specialty medicines are those which treat chronic, complex and rare diseases, and while they have a range of characteristics — including the complexity of disease management or distribution — the most commonly noted attribute is that they are more expensive than other more traditional medicines.
- As specialty medicine share of spending increases, it is notable that they represent only 2–3% of volume. While the unmet needs of these few patients are being addressed, by contrast other patients getting traditional therapies are seeing their costs decline.

Notes: For details on specialty medicine definition, see the methodology and definitions section. Does not include COVID-19 vaccines and therapeutics.

Oncology, diabetes and obesity to lead absolute growth through 2029, while immunology slows due to biosimilars

Exhibit 43: Top 20 therapy areas growth comparison in terms of global spending, const $US



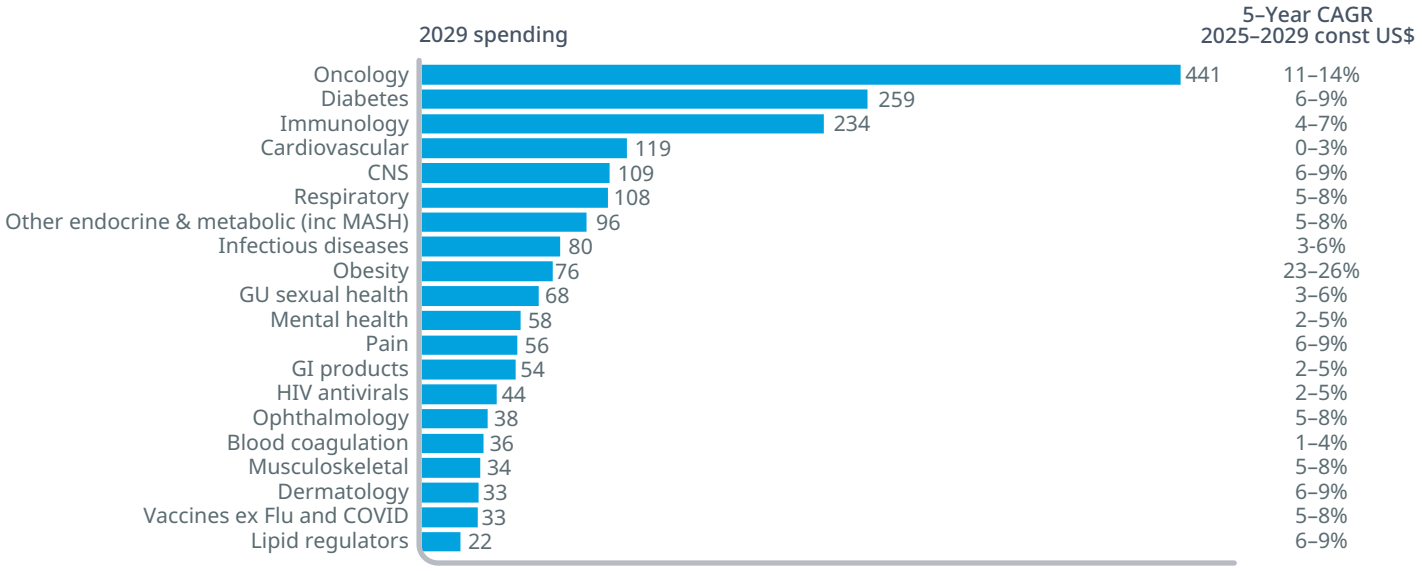
Source: IQVIA Forecast Link, IQVIA Institute, May 2025.

- In the next five years, oncology is forecast to add $189Bn in global sales, up from the $108Bn in growth in the past five years.
- Diabetes growth is expected to slow to $73Bn through 2029, from the $87Bn five-year growth to 2024. Obesity growth is set to more than double to $51Bn from the $24Bn previously.
- GIP/GLP-1 drugs overall across both diabetes and obesity have grown from $17Bn globally in 2019 to $110Bn in 2024, adding $93Bn in five years, with $70Bn of that growth relating to drugs which were initially approved for diabetes.
- Through the next five years GIP/GLP-1 drugs are expected to be more driven by obesity, as well as potentially other diseases including sleep apnea, cardiovascular risk prevention, and total GIP/GLP-1 spending in 2029 is projected to approach $200Bn (data not shown).
- Immunology growth is projected to slow considerably as the flow of novel products slows and leading products face biosimilars.
- Neurology (CNS) is forecast to grow $31Bn through 2029, up from $6Bn in the past five years as a range of novel treatments gain wider adoption especially in Alzheimer's and neuromuscular diseases.
- Most other therapy areas are expected to see higher growth in the next five years than in the past five, with the exception of cardiovascular and blood coagulation where expiry events are likely to contribute to slower growth.

Notes: Oncology includes therapeutic oncology only and not supportive care. Immunology includes small molecule and biologic treatments for a range of diseases as noted. Neurology includes central nervous system disorder treatments and mental health treatments but does not include pain management or anesthesia. Pain includes narcotic and non-narcotic analgesics, muscle relaxants and migraine treatments. Cardiovascular includes hypertension and other cardiovascular treatments with the exception of lipid regulators, which are shown separately.

Oncology and obesity forecast double-digit growth rates to 2029 while immunology slows due to biosimilars

Exhibit 44: Top 20 therapy areas in 2029 in terms of global spending with forecast 5-year CAGRs, const $US



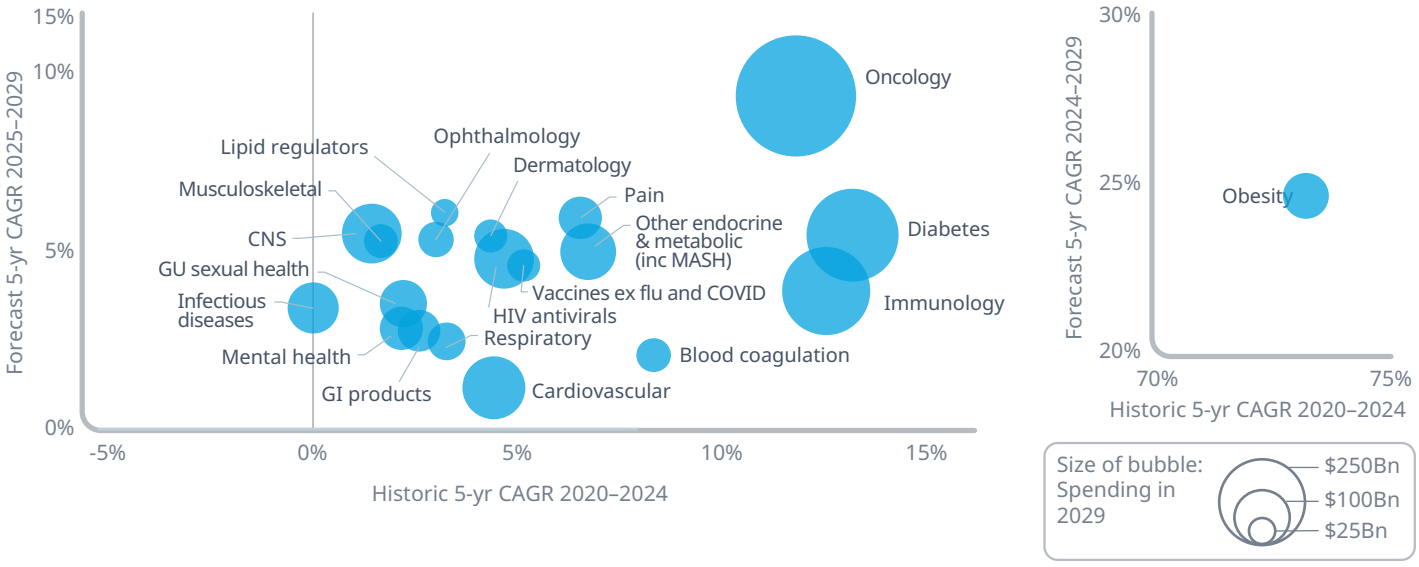
Source: IQVIA Forecast Link, IQVIA Institute, May 2025.

- The therapy areas with the highest forecast spending in 2029 are oncology, diabetes, immunology, cardiovascular, and neurology.
- Oncology is expected to grow 11–14% CAGR through 2029 as novel treatments continue to be launched for the treatment of cancer, and some key products face biosimilars or generics.
- With $259Bn by 2029, diabetes is expected to be the second largest therapy area globally, with growth estimated to be 6–9% over the next five years.
- GIP/GLP-1 drugs totaled $110Bn in sales in 2024 and are expected to grow to exceed $150Bn globally by 2029 (data not shown).
- GIP/GLP-1 medicines originally approved for diabetes accounted for 46% of diabetes spending globally in 2024, representing $86Bn in 2024, and it is understood that 12-15% of this spending was related to patients with obesity, but 30% of semaglutide and tirzepatide. Outside the U.S. tirzepatide has not consistently maintained a separate brand for diabetes and obesity as it has in the U.S.
- GIP/GLP-1 drugs initially approved for obesity totaled another $24Bn in 2024 and are projected to grow to $76Bn in the base case scenario, a CAGR of 23–26%.
- Immunology is expected to grow slowly in the range of 4–7% due to the launch of biosimilars. While several biosimilars are already launched in Europe and the U.S. with more to follow, leading to slower growth.

Notes: Oncology includes therapeutic oncology only and not supportive care. Immunology includes small molecule and biologic treatments for a range of diseases as noted. Neurology includes central nervous system disorder treatments and mental health treatments but does not include pain management or anesthesia. Pain includes narcotic and non-narcotic analgesics, muscle relaxants and migraine treatments. Cardiovascular includes hypertension and other cardiovascular treatments with the exception of lipid regulators, which are shown separately.

Oncology and obesity to lead growth through 2029 while immunology and diabetes growth to slow

Exhibit 45: Global historic and forecast growth for top 20 therapy areas



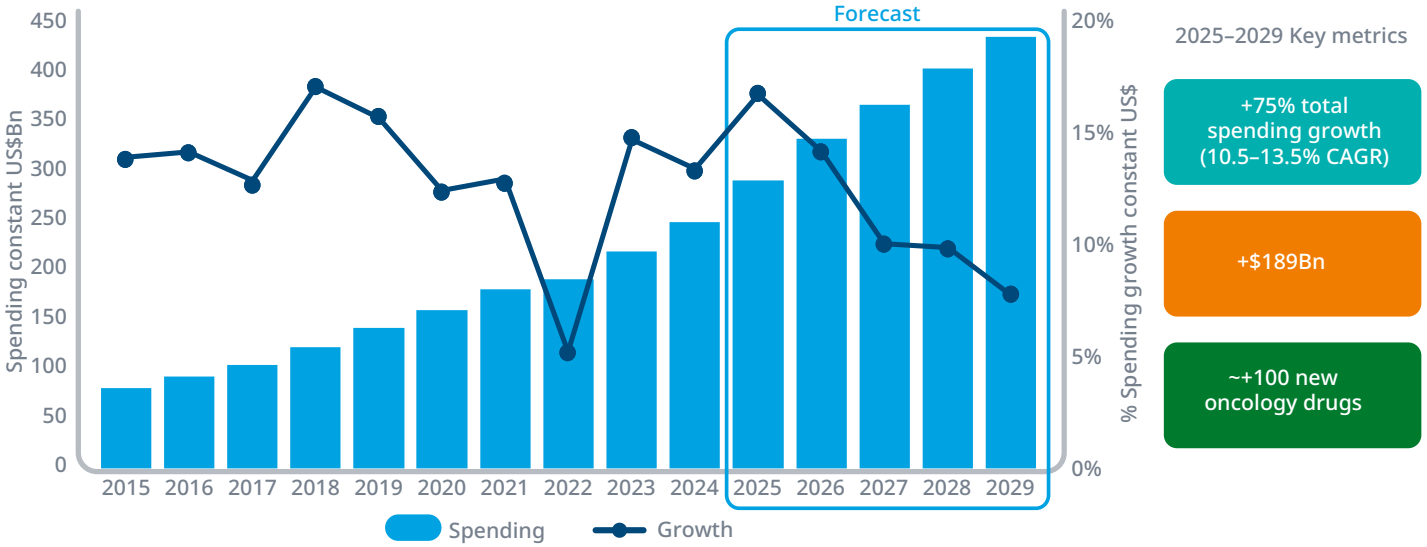
Source: IQVIA Forecast Link, May 2025; IQVIA Institute, May 2025.

- The biggest contributors to the growth in the next five years are oncology, immunology, diabetes, and obesity drugs. The growth is a result of a continuous influx of innovative products and offset by exclusivity losses.
- Many therapy areas are expected to grow more slowly in the next five years than in the past five.
- Lipid regulators, which have been declining steadily since leading product expiries a decade ago, are expected to return to growth, with new therapies for some patients.
- Spending growth for vaccines (excluding flu and COVID-19 vaccines) is expected to decline slightly over the next five years as some of the growth in the past five years was from adoption of newer vaccines that are now more established in usage.
- Nervous system (CNS), musculoskeletal (including pain) and mental health treatments collectively include a range of neurology treatments where patent expiries will offset growth from novel therapies to keep forecasted growth below 10%.

Notes: Bubble size represents forecast in 2029; COVID-19 vaccines and therapeutics are not included. Oncology includes cancer therapeutics only and not supportive care. Immunology includes small molecule and biologic treatments for a range of diseases as noted. Neurology includes central nervous system disorder treatments and mental health treatments but does not include pain management or anesthesia. Pain includes narcotic and non-narcotic analgesics, muscle relaxants, and migraine treatments. Cardiovascular includes hypertension and other cardiovascular treatments with the exception of lipid regulators, which are shown separately.

Cancer medicine spending rose to $252Bn globally in 2024 and growth is expected to slow, reaching $441Bn by 2029

Exhibit 46: Global oncology spending, US$Bn, 2015–2029



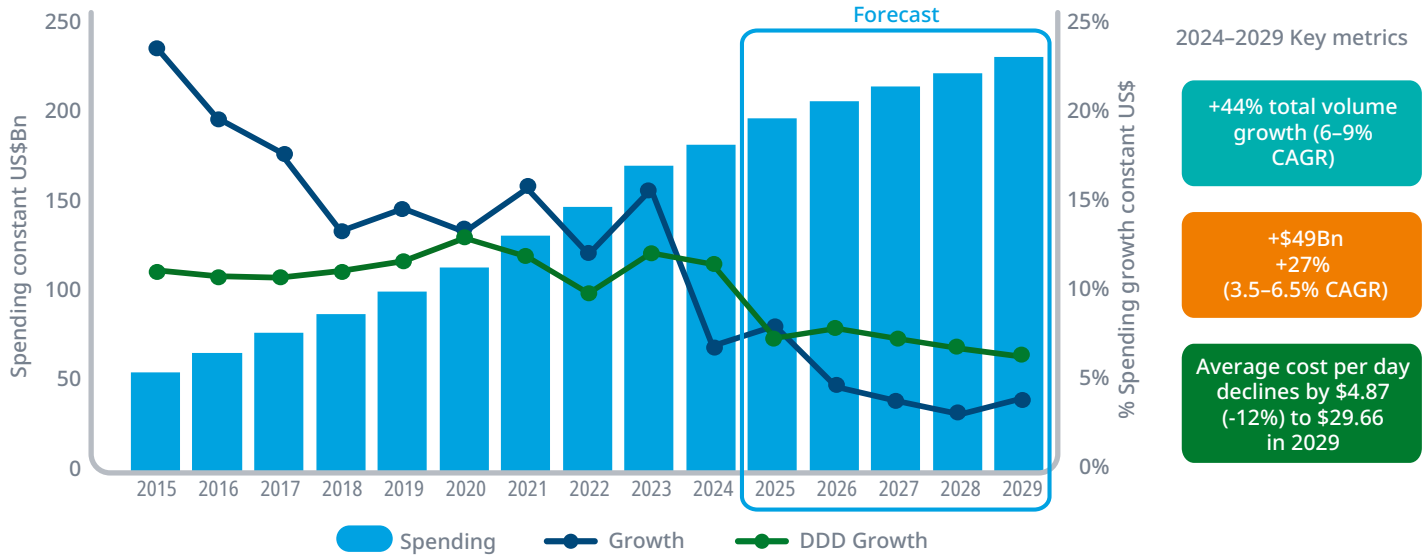
Source: Global Oncology Trends 2025: Adopting New Therapies as Modadlities Shift and Expenditures Rise: May 2025. Report by the IQVIA Institute for Human Data Science.

- Spending on cancer medicines, not including additional medical costs or supportive care medicines, grew 75% over the last five years, reaching $252Bn in 2024.
- Growth in spending averaged 11.9% annually 2020–2024, with a brief slow down in 2022 as countries continued to recover from the COVID-19 pandemic and volume growth was flat (Exhibit 15).
- Growth is expected to slow beginning in 2027 as a number of backbone therapies begin to face generic and biosimilar competition, providing savings for both patients and payers.
- Small molecules palbociclib (Ibrance) in breast cancer, enzalutamide (Xtandi) in prostate cancer, and Olaparib (Lynparza) in a range of solid tumors will all lose exclusivity in 2027.
- The PD-1 inhibitors pembrolizumab (Keytruda) and nivolumab (Opdivo), which combined accounted for 10% of global oncology spending in 2024, are expected to face biosimilar competition starting in 2028, with much of this impact on growth in 2029.
- This lower growth as the result of losses of exclusivity will be offset by continued uptake of novel modalities, including ADCs, bispecific antibodies, and cell and gene therapies, which are expected to account for nearly 20% of oncology spending in 2029, up from 9% in 2024 and 3% in 2019.

Notes: Oncology includes therapeutics only, excluding supportive care treatments.

Immunology spending growth to slow to 3.5–6.5 % through 2029 from biosimilar impact as volume growth continues at 6–9% annually

Exhibit 47: Global immunology spending and growth



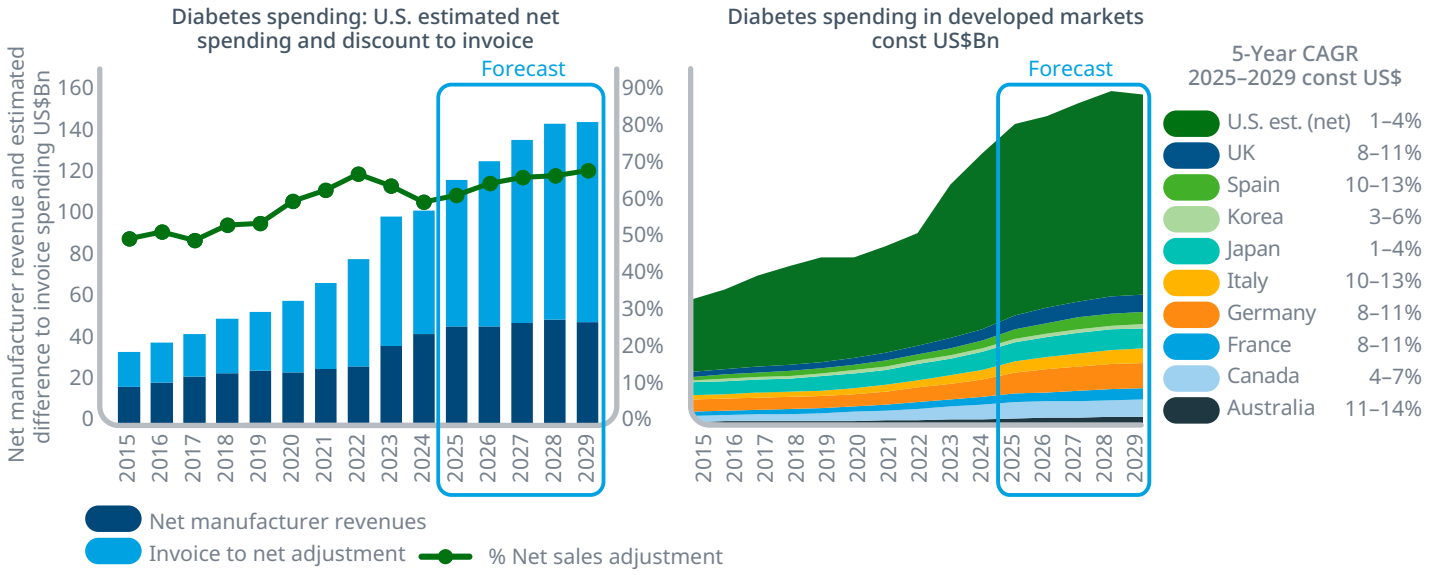
Source: IQVIA Forecast Link, May 2025; IQVIA Institute, Jun 2025.

- Immunology is expected to grow 27% by 2029, adding $49Bn in spending and with growth offset by the impact of biosimilars. Immunology spending is expected to grow at a rate of 6–9% CAGR through 2029 to reach $234Bn globally.
- New products in psoriasis, atopic dermatitis, and severe asthma have driven spending growth in recent years and are expected to continue, while biosimilar impact will slow growth in the forecast years.
- In many developed markets, more than half of current immunology spending is expected to face generic or biosimilar competition due to brand losses of exclusivity in the next five years.
- During this same period, the average cost of a day of therapy is expected to decline to $29.66, driven by the introduction of biosimilars adalimumab (Humira), ustekinumab (Stelara), and tocilizumab (Actemra) in all the leading developed markets through the forecast period.
- Immunology treatments have consistently been driven by increasing volume, averaging 6–9% volume growth in days of therapy and projected to continue through 2029.

Notes: Immunology includes small molecule and biologic treatments for a range of diseases including rheumatoid arthritis, Crohn's disease, ulcerative colitis, lupus erythematosus, psoriasis, and atopic dermatitis. Defined Daily Doses (DDD) are based on WHO definitions where each medicine is assigned a volume of medicine per day (see definitions & methodology). Cost per day is defined as total sales per total DDD; spending/estimated days of therapy does not reflect actual cost or patient out of pocket costs.

Diabetes spending growth accelerating in many developed markets associated with GLP-1 adoption, U.S. slows to 1-4% net

Exhibit 48: Diabetes spending and growth



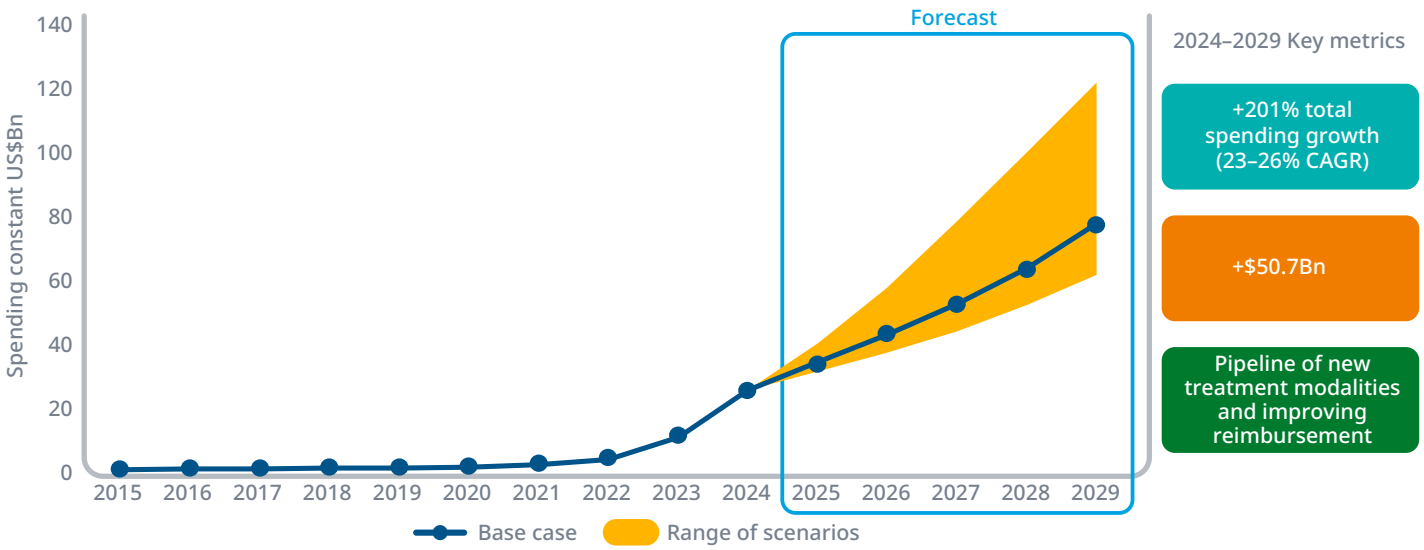
Source: IQVIA Institute, May 2025.

- Diabetes spending in developed markets reflects both the consistent use of older therapies as patients' Type 2 disease progresses and the adoption of novel therapies later in the treatment pathway.
- The key element in assessing trends in diabetes is that net revenue in the U.S. is currently 58% lower than invoice level, with that percentage projected to reach 66% lower than invoice by 2029.
- As the U.S. Inflation Reduction Act caps Medicare patient out of pocket costs for insulins at $35, and leading insulin companies have reduced their prices for other patients at the same price, the combined effect may result in more volume instead of patients abandoning higher cost prescriptions.
- The estimate of U.S. net spending provides a more comparable trend to the other developed markets and embeds the significant impacts in recent years and projected to 2029 from rising discounts and rebates.
- Other countries may have important off-invoice discounts and rebates, although these are thought to be lower than in the U.S.
- It is notable that in 2023 and 2024, diabetes invoice and net spending has increased, largely driven by adoption of novel GIP/GLP-1 medicines with both diabetes and obesity approved uses. Initial usage focused on diabetes where the drugs were approved first, and where comorbidities of diabetes and obesity have influenced usage. Off-label use with patient self-payment may have been occurring to a significant degree in some markets.

Notes: Estimates of U.S. net manufacturer revenues based on comparisons of IQVIA audits to company-reported net spending in the U.S. (see methodology). Ex-U.S. spending has not been adjusted to an estimate of net level as company net spending is not reported on a country-by-country basis and estimates can only be based on less reliable methods. For drugs with the same brand and multiple approved uses, they have been included in the therapy area where they were approved first, which includes obesity use of some diabetes drugs if marketed with the same brand name.

Global obesity spending has accelerated in the past 2 years from novel drugs with upside if more widely reimbursed

Exhibit 49: Global obesity spending and growth



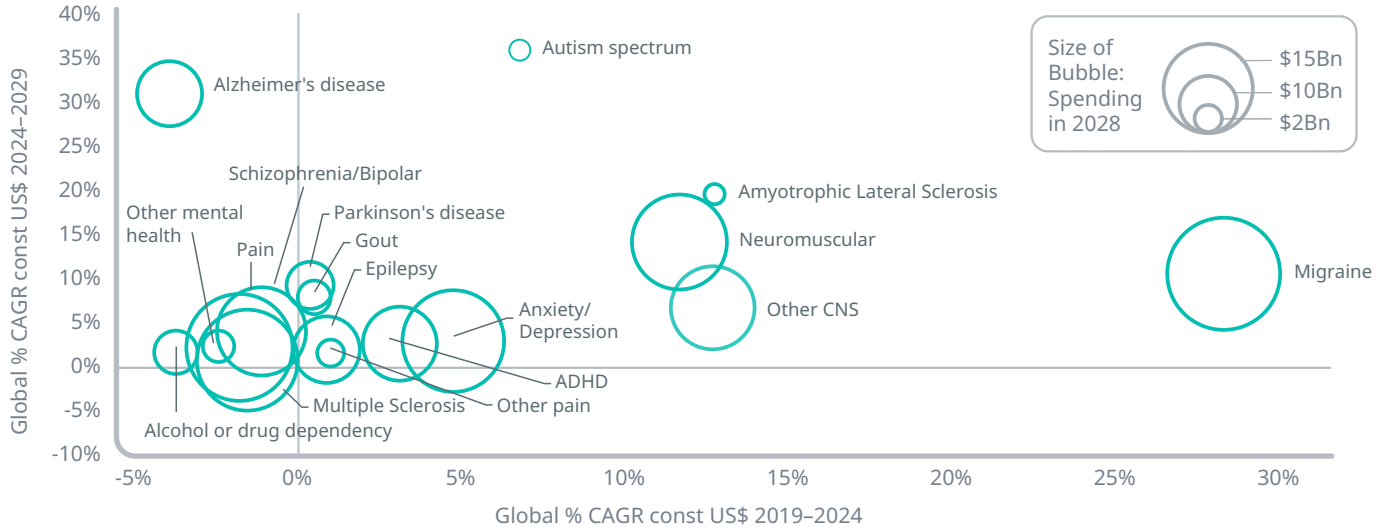
Source: IQVIA Forecast Link, IQVIA Institute, May 2025.

- Global obesity spending – limited to drugs initially approved for obesity – reached nearly $25Bn in 2024, up from just $1.6Bn in 2020 and largely driven by the uptake of novel treatments. Spending is projected to reach $76Bn with a range from $60-$119Bn by 2029.
- In addition to these drugs, obesity use of drugs first approved for diabetes represents an additional $11Bn in 2024, rising to $32Bn in 2029.
- Total obesity disease spending is projected to reach $108Bn in 2029, ranging from $86-$169Bn based on uncertain uptake and reimbursement dynamics (data not shown). The outlook includes continued strong uptake, spreading to more countries including lower income markets, usage remaining limited to patients with established comorbid risk factors, some reduction in prices, and patent expiry impact in some markets where the drugs were launched in diabetes earlier.
- Higher growth scenarios are likely driven by more pipeline drugs, new forms (especially orals), and wider payer reimbursement.
- Related treatment areas or diseases including cardiovascular risk management, sleep apnea, metabolic dysfunction-associated steatohepatitis (MASH), metabolic dysfunction-associated steatotic liver disease (MASLD), among others, are expected to see new treatments or use of obesity drugs.

Notes: Spending projections are based on medicines initially approved for obesity. Subsequent approval of a molecule for obesity are included if a specific brand name is used for separate marketing.

New therapies in Alzheimer's and anxiety/depression are expected to drive spending growth in neurology

Exhibit 50: Leading CNS disorders global market growth dynamics



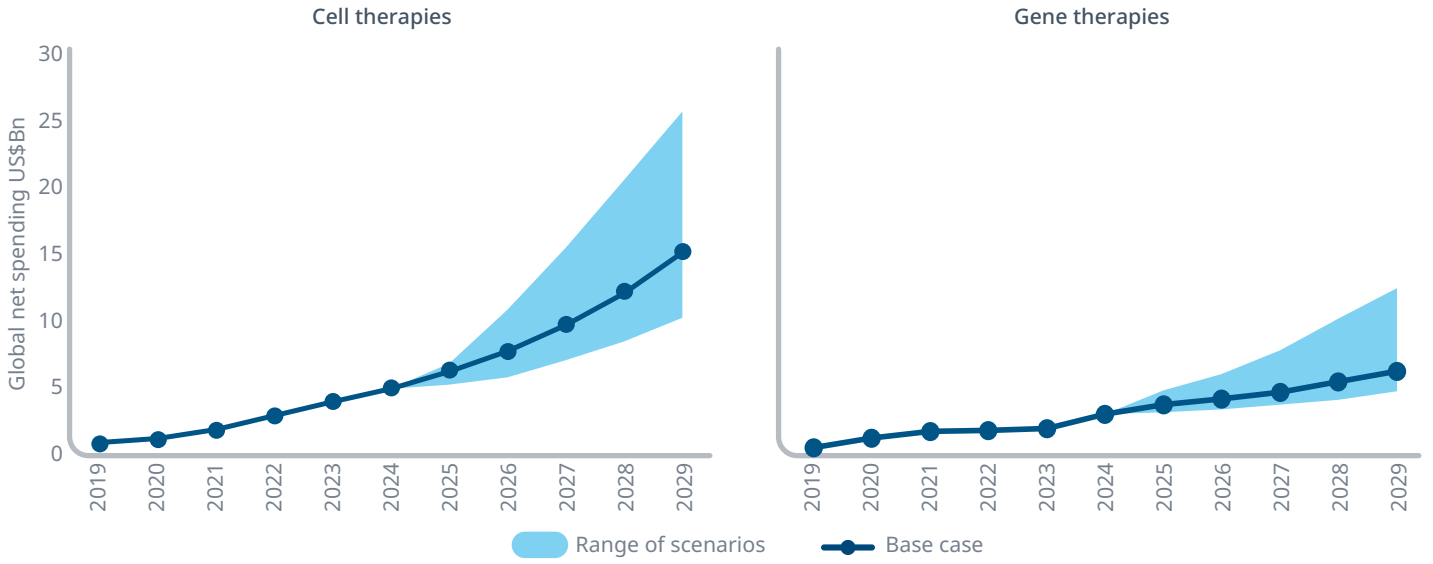
Source: IQVIA Forecast Link, IQVIA Institute, May 2025.

- In the last five years, a new wave of rare disease neurological treatments, including dozens with orphan designations, have been approved. Other diseases with larger populations such as migraine, depression and anxiety have also seen a range of new treatments approved and launched.
- Expected spending growth in mental health areas is generally lower than in neurology treatments but both reflect levels of innovation for unmet needs across these diseases.
- New mental health treatments are generally focused in specific subsets of patients, and older established therapies continue to be used for most patients.
- Migraine treatments have seen significant shifts with the introduction of CGRP inhibitors, and these are expected to continue to drive growth through the forecast period.
- The historic lack of disease-modifying treatments in Alzheimer's and Parkinson's may begin to be addressed with new approvals, including adacanumab (Aduhelm), launched in 2021 and lecanemab (Leqembi), launched in 2023, which are the main drivers behind the 27% CAGR over the past five years.
- Recent scientific advances in genomics, biomarkers, diagnostics, and imaging techniques and/or regenerative medicine, combined with the emergence of disruptive digital technologies, are changing the fundamentals of CNS innovation.

Notes: Disease areas based on diagnosis-based modeling. Migraine therapies are included in this analysis while otherwise indicated as pain management in this report.

Cell and gene therapies have differing spending outlook and large areas of uncertainty

Exhibit 51: Global Cell and Gene Therapy Net Spending, US$Bn



Source: Company Financials; IQVIA Institute, Jun 2025.

- In addition to the over 80 cell and gene therapies launched globally to date, an additional 20–25 are expected to be launched by 2029.
- While there is considerable R&D activity related to these mechanisms of action, there remains significant uncertainty about the emergence of safety risks and the pace of clinical trials and regulatory reviews.
- Total global spending to date has reached $7.4Bn and is expected to rise to $14-$36Bn by 2029, but with the potential for both higher or lower scenarios.
- Usage of these medicines and the associated spending to date has been relatively limited for most of the products, with a few driving larger amounts of spending, as they have been in very rare diseases.
- Many of these therapies have very high costs which, combined with uncertain numbers of patients, is generating significant attention and resistance from payers and dampens expected spending levels in the lower end of expectations.
- Health technology assessments (HTAs) are likely to limit access and/or prices, especially in Europe, while clinical complexity is likely to limit adoption of cell and gene therapies to highly specialized clinics or hospitals in developed markets.
- The outlook includes a base case that is closer to the low scenario than to the high, as a result of uncertainties and risks relating to reimbursement, logistics in delivery of care and competition with less complex and/or costly alternatives.

Notes: Spending estimates based on company financials.

Notes on sources

THIS REPORT IS BASED ON THE IQVIA SERVICES DETAILED BELOW

MIDAS™ is a unique platform for assessing worldwide healthcare markets. It integrates IQVIA's national audits into a globally consistent view of the pharmaceutical market, tracking virtually every product in hundreds of therapeutic classes and provides estimated product volumes, trends and market share through retail and non-retail channels. MIDAS data is updated monthly and retains 12 years of history.

IQVIA™ MARKET PROGNOSIS is a comprehensive, strategic market forecasting publication that provides decision makers with insights on the drivers and constraints of healthcare and pharmaceutical market growth. This includes political and economic developments, alongside dynamics in healthcare provision, cost containment, pricing and reimbursement, regulatory affairs and the operating environment for pharmaceutical companies. Market Prognosis contains economic forecasts from the Economist Intelligence Unit and delivers in-depth analysis at a global, regional and country level, and analyzes dynamics at distribution channel, market segment and therapy class level.

IQVIA™ FORECAST LINK is delivered via an online business intelligence platform. It includes 10-year MIDAS-based forecasts of sales, standard unit volumes, kilogram volumes, patient days and prices. New launch and Loss-of-protection events are applied by transparent share-shift methodology. Forecasts cover 10,000 products in 350 therapy areas covering 600 diseases. Forecasts are developed at the most granular level and are available in 75 countries.

Definitions & Methodology

ESTIMATES OF NET MANUFACTURER REVENUE AND PRICES IQVIA audits reflect invoice-based pricing derived from proprietary information gathered from wholesalers and company direct sales. While IQVIA invoice prices reflect supply-chain price concessions, they do not reflect the off-invoice discounts and rebates separately paid to insurers, or other price concessions paid to patients or other health system participants. Estimates of net manufacturer revenue and prices are based on a sample of companies and products where details are reported to the U.S. Securities and Exchange Commission (SEC) and where the volume of sales captured in IQVIA audits is consistent with information provided directly by manufacturers in support of IQVIA proprietary datasets. Net prices are calculated by dividing publicly-reported net sales values by volumes for the same products reported to IQVIA. Estimated brand net price growth for the total market is projected from the analysis sample to the total market. Net prices represent an estimate of the average manufacturer realized price, reflecting any reductions in net revenues due to off-invoice discounts, rebates, co-pay assistance, or other price concessions, and do not necessarily reflect the net costs paid by insurers, the federal government or patients, which all vary significantly and independently.

NOVEL ACTIVE SUBSTANCES (NAS): Medicines are considered a NAS if at least one active ingredient has not been previously marketed globally.

SPECIALTY PHARMACEUTICALS IQVIA defines specialty medicines as those that treat chronic, complex or rare diseases, and that have a minimum of four out of seven additional characteristics related to the distribution, care delivery and/or cost of the medicines.

Chronic diseases are long-lasting and often without direct cure, and treatments are intended to be used for more than six months.

Complex diseases have both environmental and genetic components, meaning they may be hereditary and/or exacerbated by environmental factors (e.g., obesity, diet, etc.). Complex diseases can affect multiple organ systems and may be caused or be the cause of secondary diseases (e.g., diabetes can cause renal failure such that both are considered complex diseases).

Rare diseases are defined as those with fewer than 200,000 new cases annually, equivalent to the U.S. definition of orphan diseases, but not exclusively linked to the granting of an FDA orphan drug designation.

Additional product characteristics, where a product must exhibit four of the seven to be considered specialty are: • Costly: list price is in excess of $6,000 per year

- Initiated/maintained by a specialist
- Requiring administration by another individual or healthcare professional (i.e., not self-administered)
- equiring special handling in the supply chain (e.g., refrigerated, frozen, chemo precautions, biohazard)
- Requiring patient payment assistance
- Distributed through non-traditional channels (e.g., specialty pharmacy)
- Medication has significant side-effects that require additional monitoring/counselling (including, but not limited to, REMS programs) and/or disease requires additional monitoring of therapy (e.g., monitoring of blood/cell counts to assess effectiveness/side effects of therapy).

Developed markets are defined by IQVIA based on the World Bank's income definitions and include high and upper-middle income countries, with the exception of Pharmerging markets. Within the developed markets are a subset focusing on the 10 largest countries with high incomes and pharmaceutical spending greater than $15 billion. These countries are Australia, Canada, France, Germany, Italy, Japan, South Korea, Spain, the UK, and the U.S.

Pharmerging markets are defined as countries with per capita GDP by purchasing power parity (PPP) <$30,000/ year and forecasted 5-year aggregate pharma sales growth >$1bn (absolute or rounded) in at least two forecasts. These countries are Argentina, Bangladesh, Brazil, China, Colombia, Egypt, India, Indonesia, Mexico, Pakistan, Philippines, Thailand, and Vietnam.

Lower income countries includes lower-middle and low income countries using the World Bank's bands, with the exception of Pharmerging markets.

World Bank Income Bands such as high, upper middle, lower middle, and low are based on World Bank methodologies. For current World Bank classifications, see: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519

Innovation Insights is IQVIA's proprietary product classification system, categorizing products as original brands, non-original brands, unbranded, OTC, or other on the basis of a selection of product attributes.

WHODDD - The World Health Organization (WHO) has developed a method of normalizing medicines of varying intended doses using a defined daily dose (WHO-DDD). The WHO-DDD measure is intended to represent a standard day of therapy for a maintenance dose of a chronic therapy. The WHO-DDD measure does not reflect actual treatment decisions and is not derived from distinct patients measured with anonymized data. The WHO-DDD guidance is provided online (see https://www.whocc.no/atc_ddd_index/) but does not include factors or guidance for all drug products. Distinct numeric factors are provided in relation to milligrams or international units (IU) depending on the medicine, or in terms of number of pills per day in the case of chronic medicines such as hypertension. WHO provides guiding principles for calculating DDDs for fixed-dose combination products. The IQVIA institute has developed additional factors using the same or highly similar concepts to represent more than 75% of audited standard unit volume globally. DDDs have been estimated for other products based on the standard unit to DDD ratios per product type and therapy area in each country, where specific DDD values have been determined. In unaudited countries, IQVIA Market Prognosis collates sales values from international trade data for the pharmaceutical sector. The IQVIA Institute has used audited data in geographically adjacent countries to infer various characteristics from this international trade data, including standard unit volumes. DDD in these countries has been estimated based on standard unit to DDD ratios in adjacent countries. DDDs in unaudited countries represent 5% of global estimated DDDs.

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As head of the IQVIA Institute for Human Data Science, Murray Aitken provides policy setters and decision-makers in the global health sector with evidence, analysis, and insights that contribute to the advancement of Human Data Science to improve human health outcomes. He is tasked with creating and managing a research agenda that leaders in global governments, payers, providers, academia, and the life sciences industry use to accelerate the understanding of global trends in disease patterns, data science, and technology. This research is used to foster innovation critical to evidence-based decision-making and the advancement of human health.

Murray has held various roles throughout his nearly 25-year tenure at IQVIA within healthcare insights, corporate strategy, consulting, and services. Prior to IQVIA, Aitken was a partner at McKinsey & Company in the U.S. and in South Korea, covering a broad range of industries, including life sciences and consumer goods. He holds an MBA, with distinction, from Harvard University and a Master of Commerce from the University of Auckland in New Zealand. In addition to his duties at the IQVIA Institute, Murray is Visiting Professor in Practice, The London School of Economics and Political Science.

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Michael Kleinrock serves as Research Director for the IQVIA Institute for Human Data Science, setting the research agenda for the Institute, leading the development of reports and projects focused on the current and future role of human data science in healthcare in the United States and globally. Michael leads the research development included in Institute reports published throughout the year. The research is focused on advancing the understanding of healthcare and the complex systems and markets around the world that deliver it. Throughout his tenure at IMS Health, which began in 1999, he has held roles in customer service, marketing, product management, and in 2006 joined the Market Insights team, which is now the IQVIA Institute for Human Data Science. He holds a B.A. degree in History and Political Science from the University of Essex, Colchester, UK, and an M.A. in Journalism and Radio Production from Goldsmiths College, University of London, UK.

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Jamie is a Thought Leadership Manager for the IQVIA Institute, managing aspects of IQVIA Institute research projects and conducting research and analysis within global healthcare. Prior to joining IQVIA in 2021, he held positions with the North Carolina Department of Health and Human Services and the Duke Human Vaccine Institute, where he developed skills in understanding and addressing the array of physical, environmental and social contributors to individual health. Jamie uses his experience in public health, health communication, and drug development and research to understand current trends in healthcare and the life sciences industry. He holds a Bachelor of Science in Animal Science and Zoology and a Master of Toxicology from North Carolina State University.

About the Institute

The IQVIA Institute for Human Data Science contributes to the advancement of human health globally through timely research, insightful analysis and scientific expertise applied to granular non-identified patient-level data.

Fulfilling an essential need within healthcare, the Institute delivers objective, relevant insights and research that accelerate understanding and innovation critical to sound decision making and improved human outcomes. With access to IQVIA's institutional knowledge, advanced analytics, technology and unparalleled data the Institute works in tandem with a broad set of healthcare stakeholders to drive a research agenda focused on Human Data Science including government agencies, academic institutions, the life sciences industry, and payers.

Research agenda

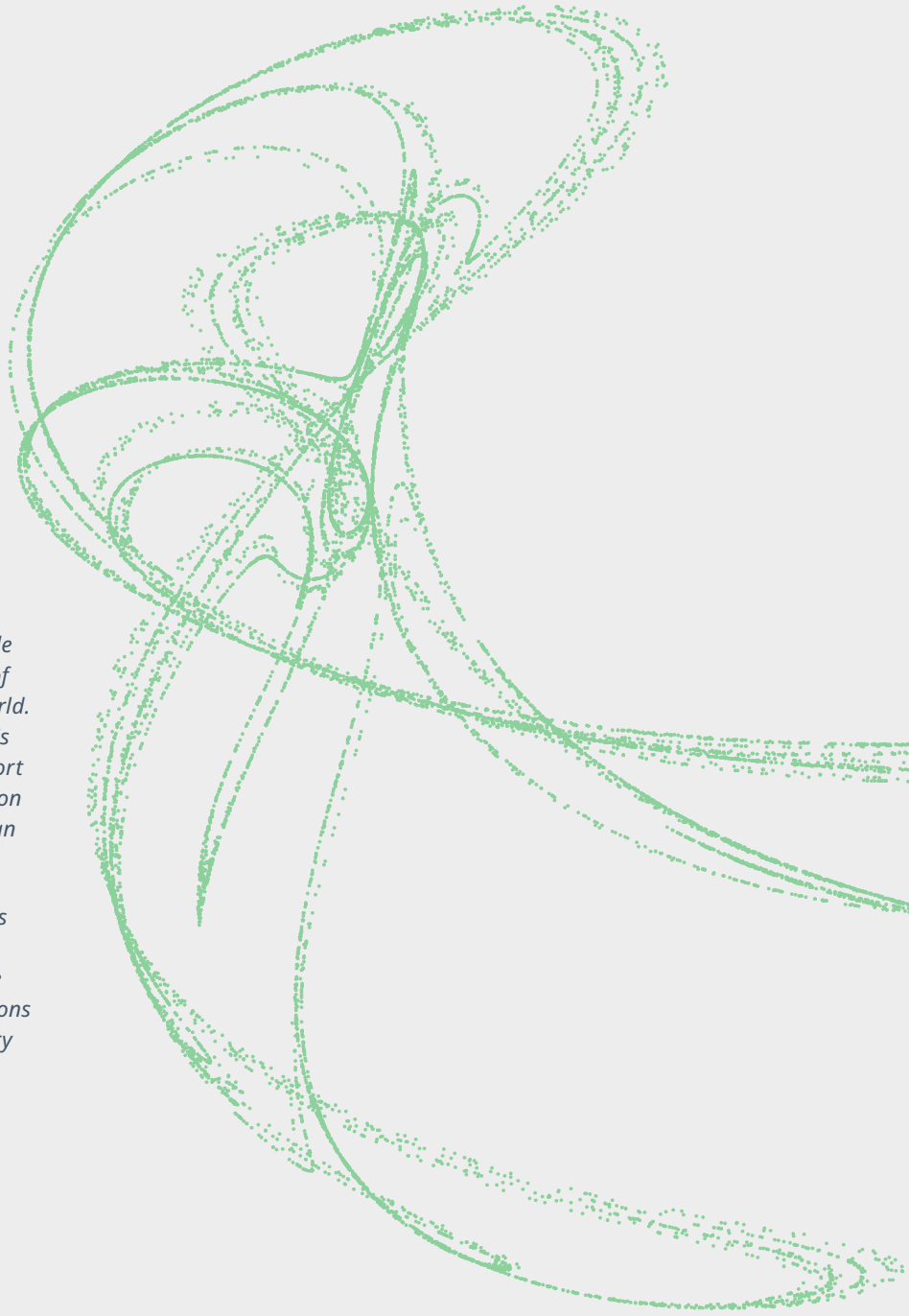
The research agenda for the Institute centers on five areas considered vital to contributing to the advancement of human health globally:

- Improving decision-making across health systems through the effective use of advanced analytics and methodologies applied to timely, relevant data.
- Addressing opportunities to improve clinical development productivity focused on innovative treatments that advance healthcare globally.
- Optimizing the performance of health systems by focusing on patient centricity, precision medicine and better understanding disease causes, treatment consequences and measures to improve quality and cost of healthcare delivered to patients.
- Understanding the future role for biopharmaceuticals in human health, market dynamics, and implications for manufacturers, public and private payers, providers, patients, pharmacists and distributors.
- Researching the role of technology in health system products, processes and delivery systems and the business and policy systems that drive innovation.

Guiding principles

The Institute operates from a set of guiding principles:

- Healthcare solutions of the future require fact based scientific evidence, expert analysis of information, technology, ingenuity and a focus on individuals.
- Rigorous analysis must be applied to vast amounts of timely, high quality and relevant data to provide value and move healthcare forward.
- Collaboration across all stakeholders in the public and private sectors is critical to advancing healthcare solutions.
- Insights gained from information and analysis should be made widely available to healthcare stakeholders.
- Protecting individual privacy is essential, so research will be based on the use of non-identified patient information and provider information will be aggregated.
- Information will be used responsibly to advance research, inform discourse, achieve better healthcare and improve the health of all people.



The IQVIA Institute for Human Data Science is committed to using human data science to provide timely, fact-based perspectives on the dynamics of health systems and human health around the world. The cover artwork is a visual representation of this mission. Using algorithms and data from the report itself, the final image presents a new perspective on the complexity, beauty and mathematics of human data science and the insights within the pages.

The algorithmic art on the cover of this report was generated using datasets from an IQVIA MIDAS and Market Prognosis report and shows medicine spending data for global regions and segmentations of branded and generic medicines covering history and a five-year forecast.

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