



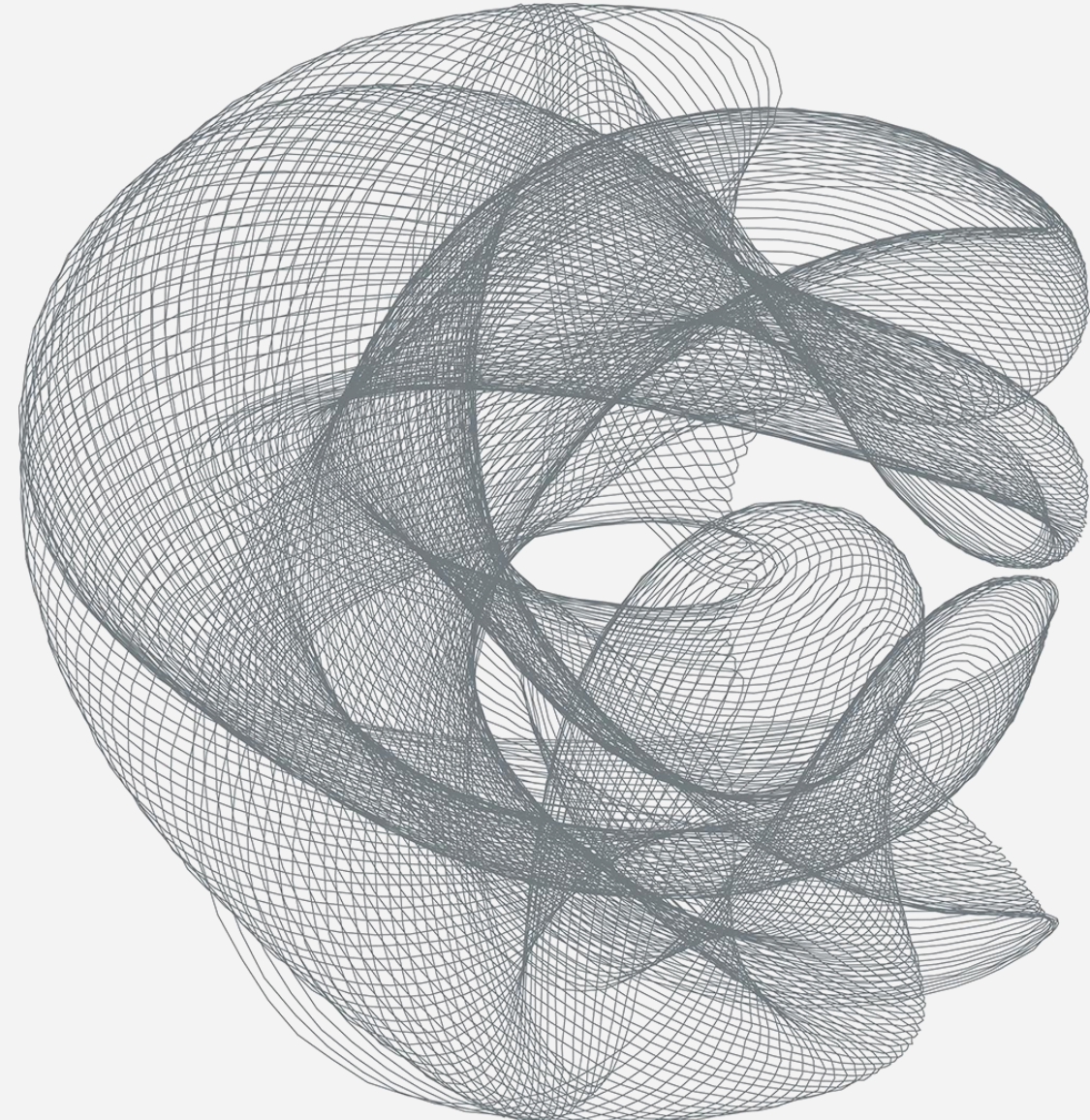
Global Pharma Market Dynamics and Trends: Disruption, Inflections and Sustainability

WORLD REVIEW ARGENTINA

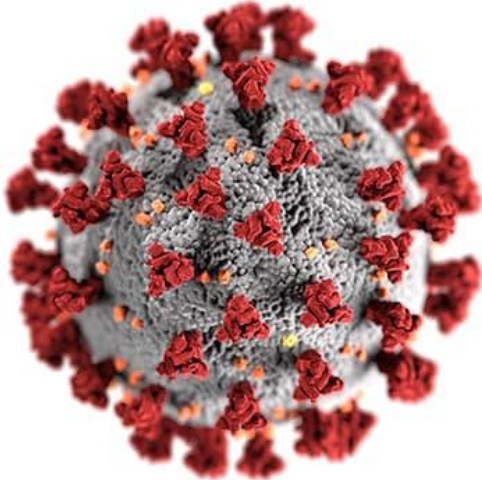
MAY 24, 2022

Murray Aitken, Executive Director

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Today's Themes



Disruption



Inflections



Sustainability

Impact of COVID-19 on the use of medicines



Medicine use continues to be **disrupted** and results in about **\$175Bn reduction** in global cumulative market by 2026



COVID vaccines market is modeled to be about **\$250Bn cumulative through 2026**, though price and volume estimates vary



COVID-related therapeutics market is estimated to be **\$58Bn cumulative through 2026**

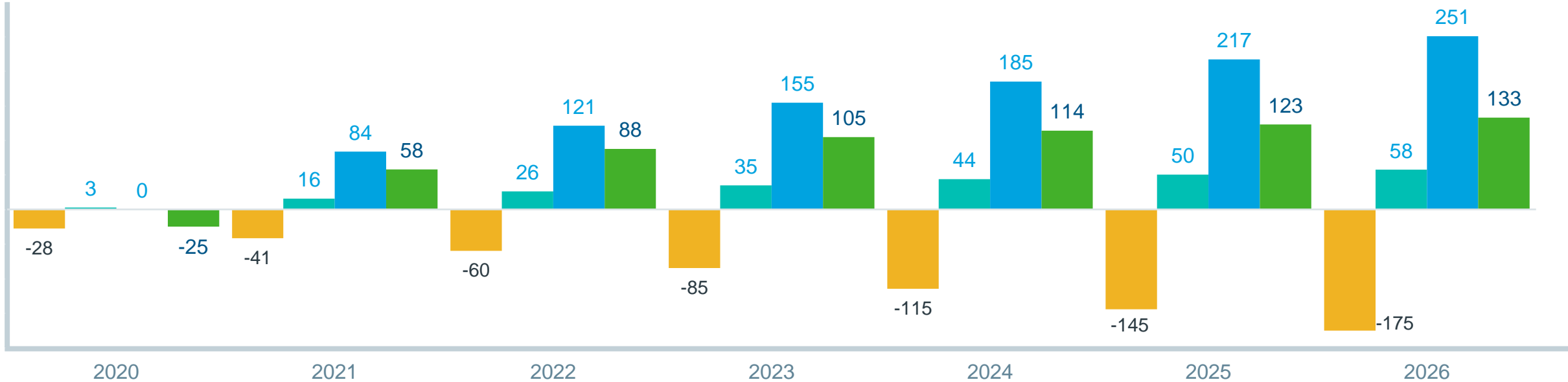


More **uncertainty** than usual exists about impact on medicines markets of **delayed diagnoses, mental health disorders, new variants**, and treatment of **post-COVID conditions**

Global spending, including COVID-19 vaccines and therapeutics, to exceed pre-pandemic outlook by \$133Bn to 2026

Changes in the historical and projected global medicine pending model due to COVID-19, 2020–2026, US\$Bn

Cumulative difference, US\$ Billion

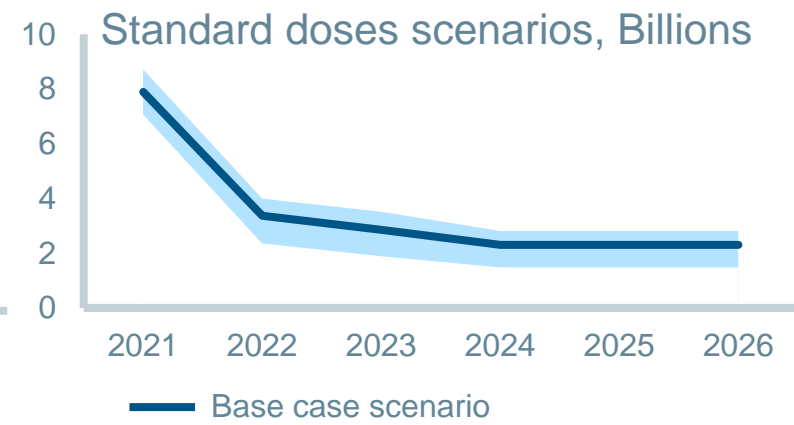
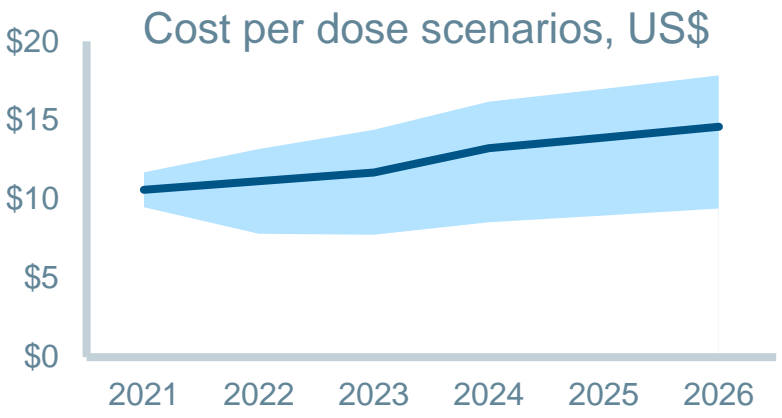
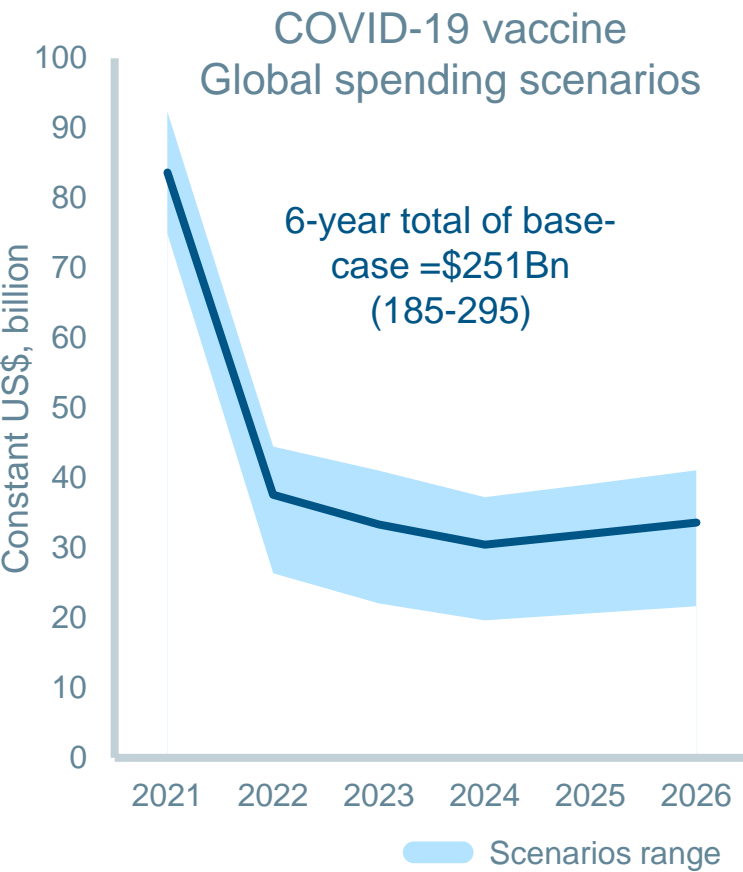


- Cumulative difference in non-COVID spending from pre-COVID-19 levels
- Cumulative COVID-19 therapeutics
- Cumulative Covid-19 vaccine spending
- Total cumulative difference from pre-COVID-19 levels

Source: IQVIA Market Prognosis, Sep 2021; IQVIA Institute, Nov 2021
 The Global Use of Medicines 2022: Outlook to 2026. Report by the IQVIA Institute for Human Data Science.

Global spending on COVID-19 vaccines is modeled to be \$251Bn through 2026, though cost and volume estimates vary

COVID-19 vaccination evolution as percentage of population



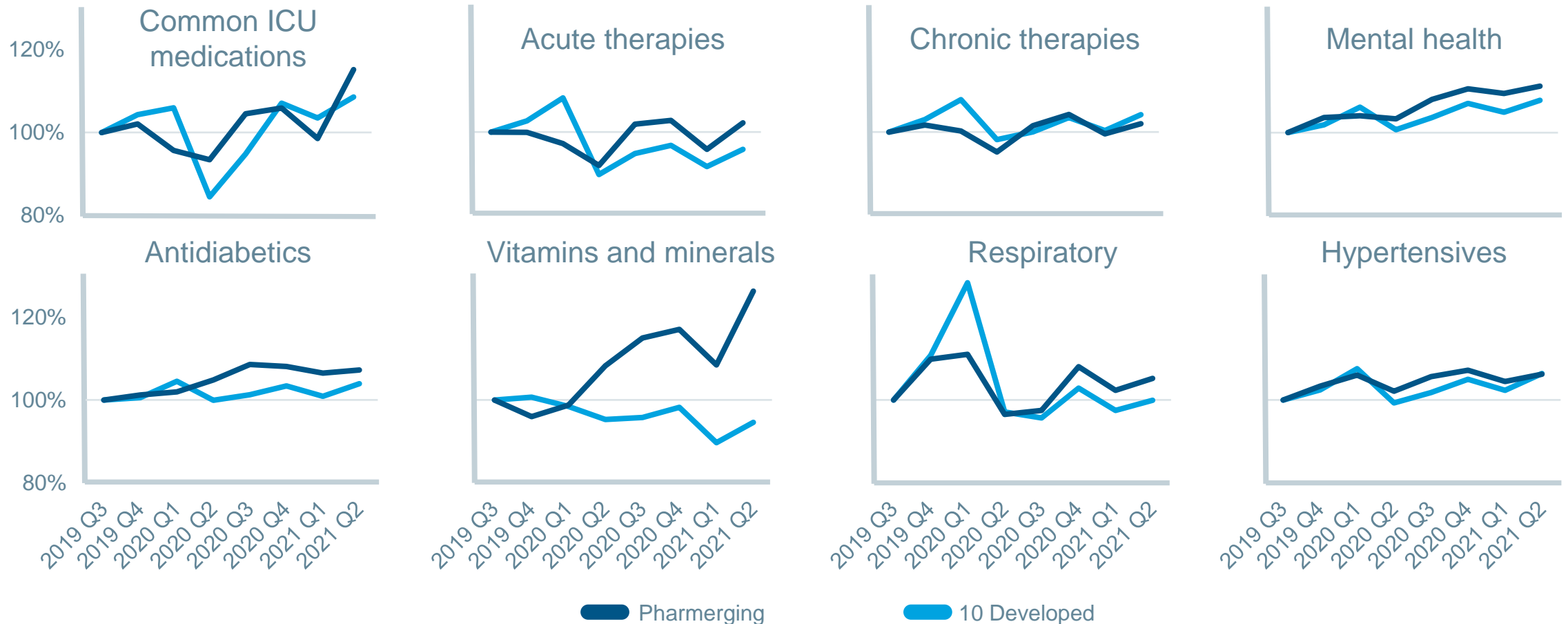
Base case key assumptions

- The two-track vaccination rates in 2021 have left much of the developing world unvaccinated but this will be addressed through 2023.
- Endemic COVID will require booster shots which are half the size of an initial dose and may be given annually or more often with variations expected based on patient risk and to a degree the wealth of countries, as well as the spread of new variants of the virus.
- Although increased competition will drive down cost per standardized dose, this will be more than offset by more future usage in wealthy countries for boosters while low-income countries will be delayed and fewer people receiving boosters.

Source: IQVIA Institute, Mar 2021; Pricing information from public disclosures as of Mar 25, 2021; Vaccination trends to date from Ourworldindata.org The Global Use of Medicines 2022: Outlook to 2026. Report by the IQVIA Institute for Human Data Science.

Medicine use was disrupted, with varied timing and impact across countries

Trends in medicine use in 10 developed and pharmerging markets, Standard Units indexed to Q3 2019 values



Source: IQVIA MIDAS, Sep 2021; IQVIA Institute, Nov 2021
 The Global Use of Medicines 2022: Outlook to 2026. Report by the IQVIA Institute for Human Data Science.

The pandemic has Increased uncertainty about demand and use of medicines

Summary of expected impacts of the COVID-19 pandemic on patients and therapeutics

Population level mental health

- Depression/anxiety, stress disorders
- Substance abuse / dependency

Disrupted or delayed diagnoses of conditions

- Interruption of typical healthcare seeking behaviors due to quarantines / shutdowns could have lasting effects or result in more severe disease when diagnosed, especially cancer

Greater rates of chronic disease

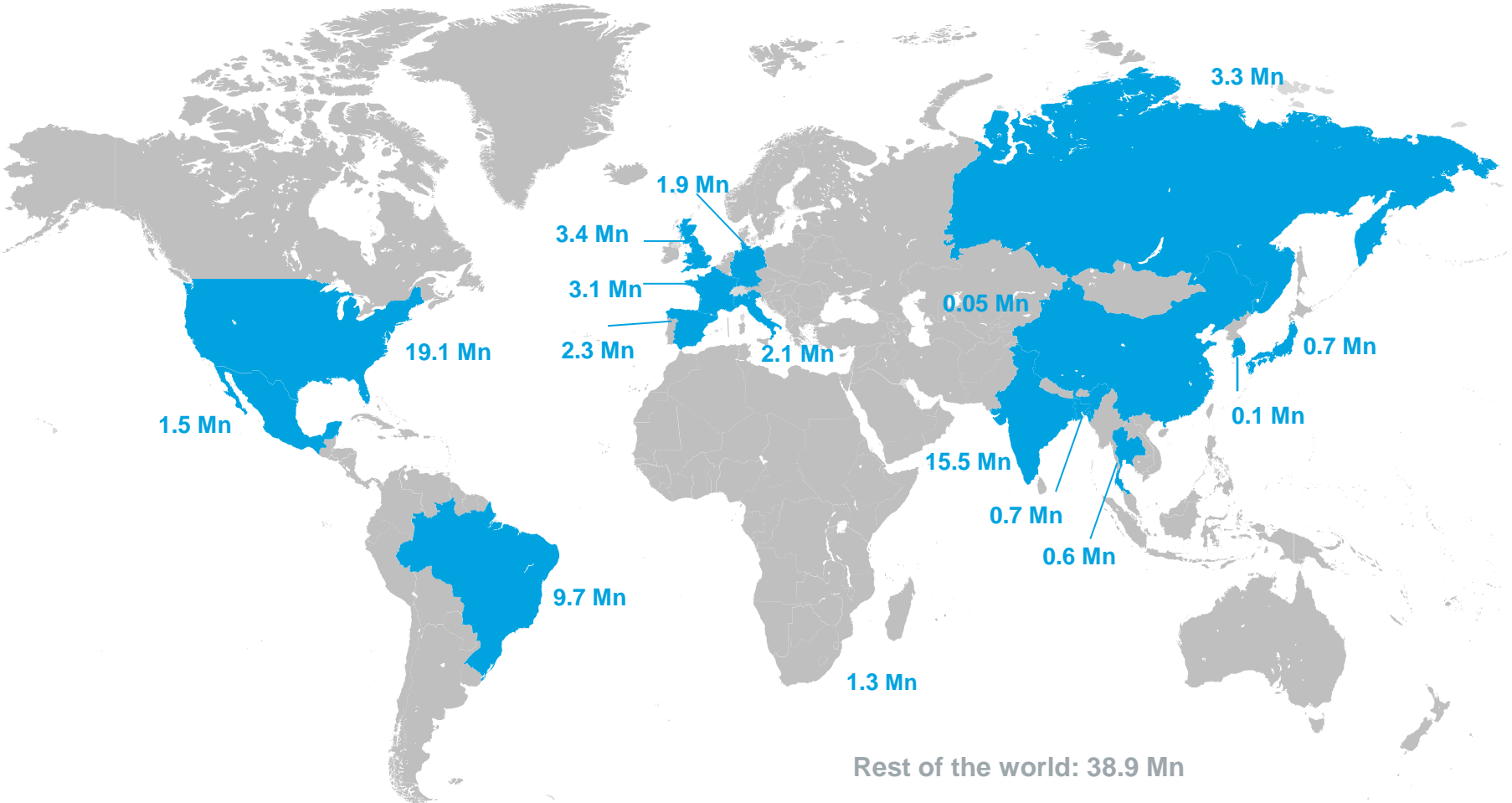
- Obesity, type-2 diabetes, heart disease rates increase due to sustained reductions in activity

Impact on infectious diseases

- Seasonal flu season largely absent in 2020, could result in more virulent strains in future seasons, especially if vaccination rates drop
- Excessive hand sanitizer use could result in antimicrobial resistance or alcohol resistant microbes
- Increased interest in better treating/preventing other pathogens with pandemic potential such as: Influenza A (H7N9), RNA viruses (paramyxoviruses, pneumoviruses, and picornaviruses, pathogens that utilize Anopheles and Aedes mosquitoes
- Vaccine hesitancy spreads to others and results in outbreaks of previously controlled viruses such as measles, mumps, rubella

Millions of people will have long-term complications of COVID-19 infection, with uncertain prognosis and treatment

Post-COVID conditions worldwide



Source: IQVIA Institute: Assessing the Global Burden of Post-COVID-19 Conditions, Dec 2021
The Global Use of Medicines 2022: Outlook to 2026. Report by the IQVIA Institute for Human Data Science.

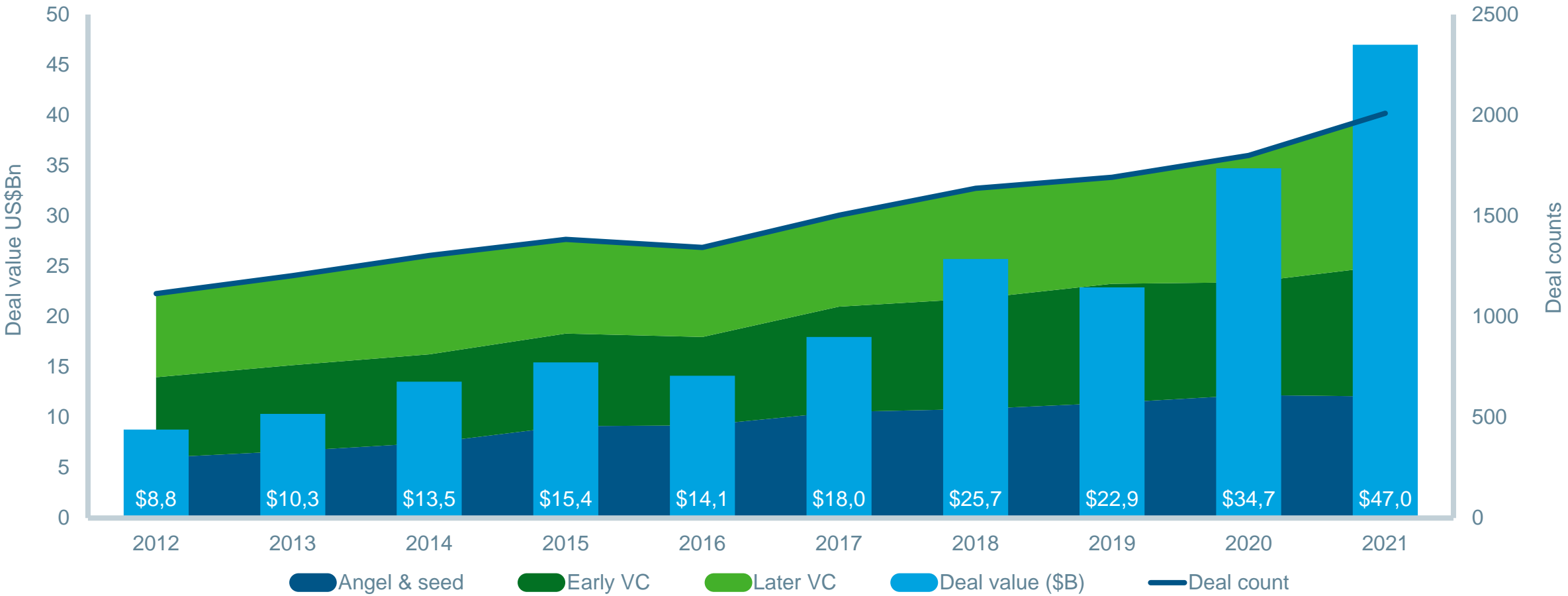
Selected inflections 2019-21

U.S. Venture Funding in Life Sciences



Venture capital deal activity and investment flows accelerated in the past two years as interest in life sciences intensified

U.S. life sciences venture capital deal value in US\$Bn and number of deals closed by type



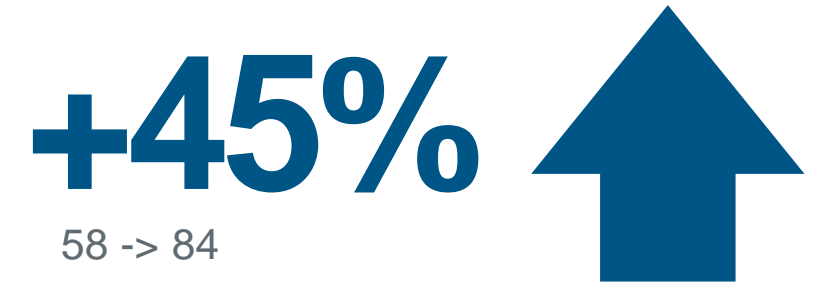
Source: PitchBook-NVCA Venture Monitor Q4 2021, accessed January 2022. Available from: <https://pitchbook.com/news/reports/q4-2021-pitchbook-nvca-venture-monitor>.
 Global Trends in R&D: Overview through 2021. Report by the IQVIA Institute for Human Data Science.

Selected inflections 2019-21

U.S. Venture Funding in Life Sciences

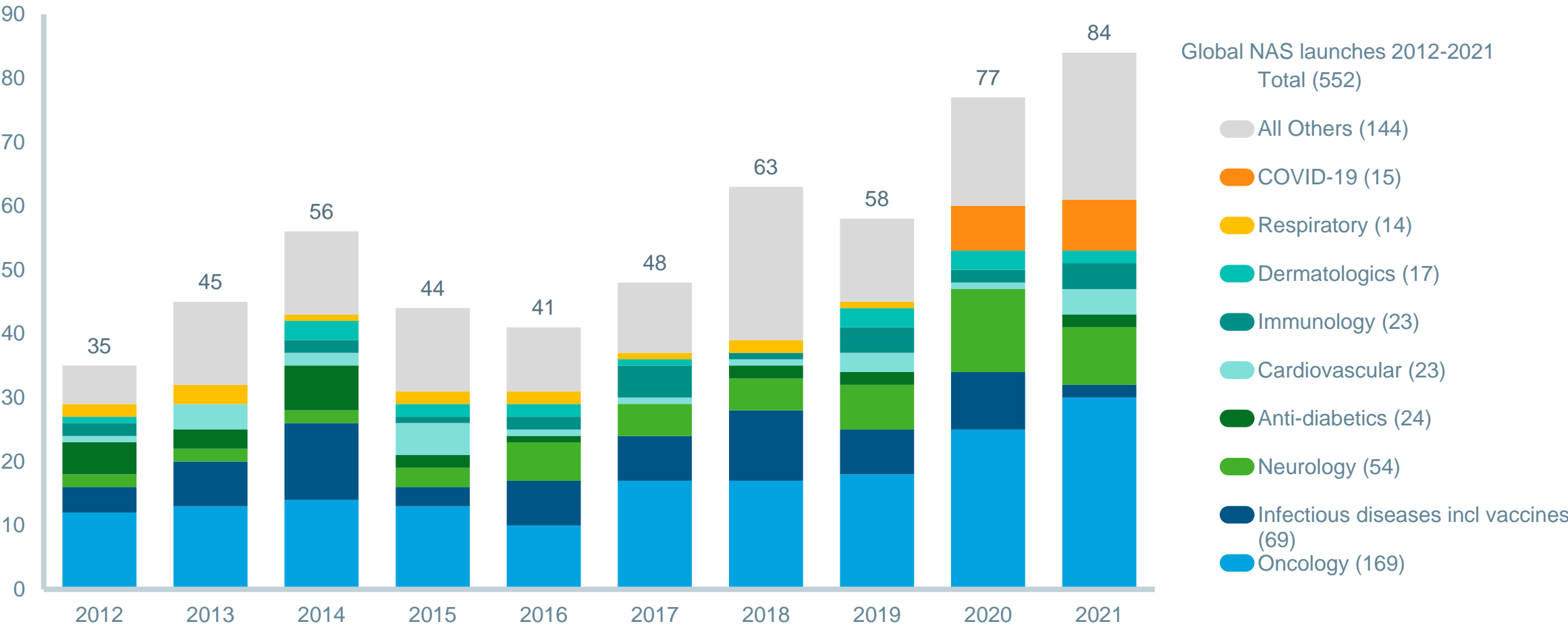


Novel Active Substance Launches



A record 84 novel active substances (NASs) were initially launched globally in 2021, double the number five years ago

Global launches of novel active substances (NAS) by therapy area, 2011–2021



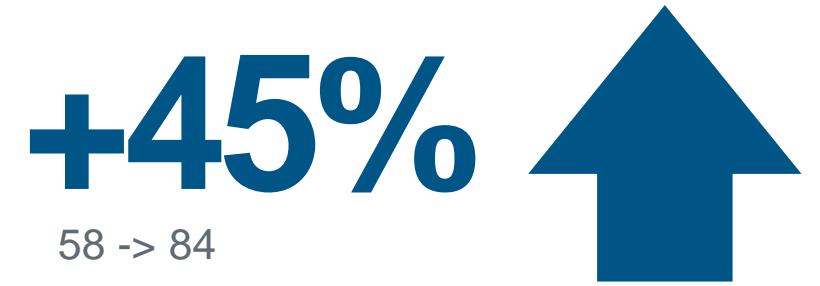
Source: IQVIA Institute, Jan 2022.
Global Trends in R&D: Overview through 2021. Report by the IQVIA Institute for Human Data Science.

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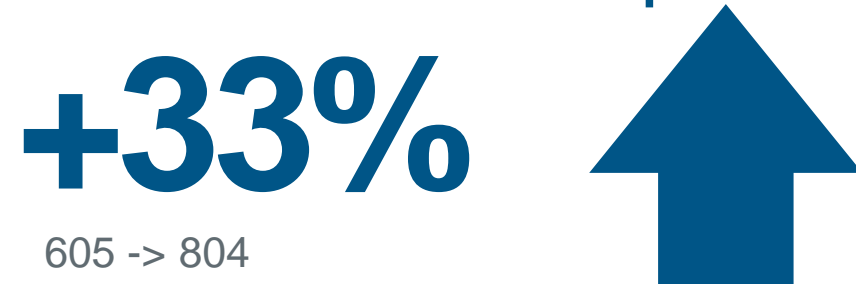
U.S. Venture Funding in Life Sciences



Novel Active Substance Launches

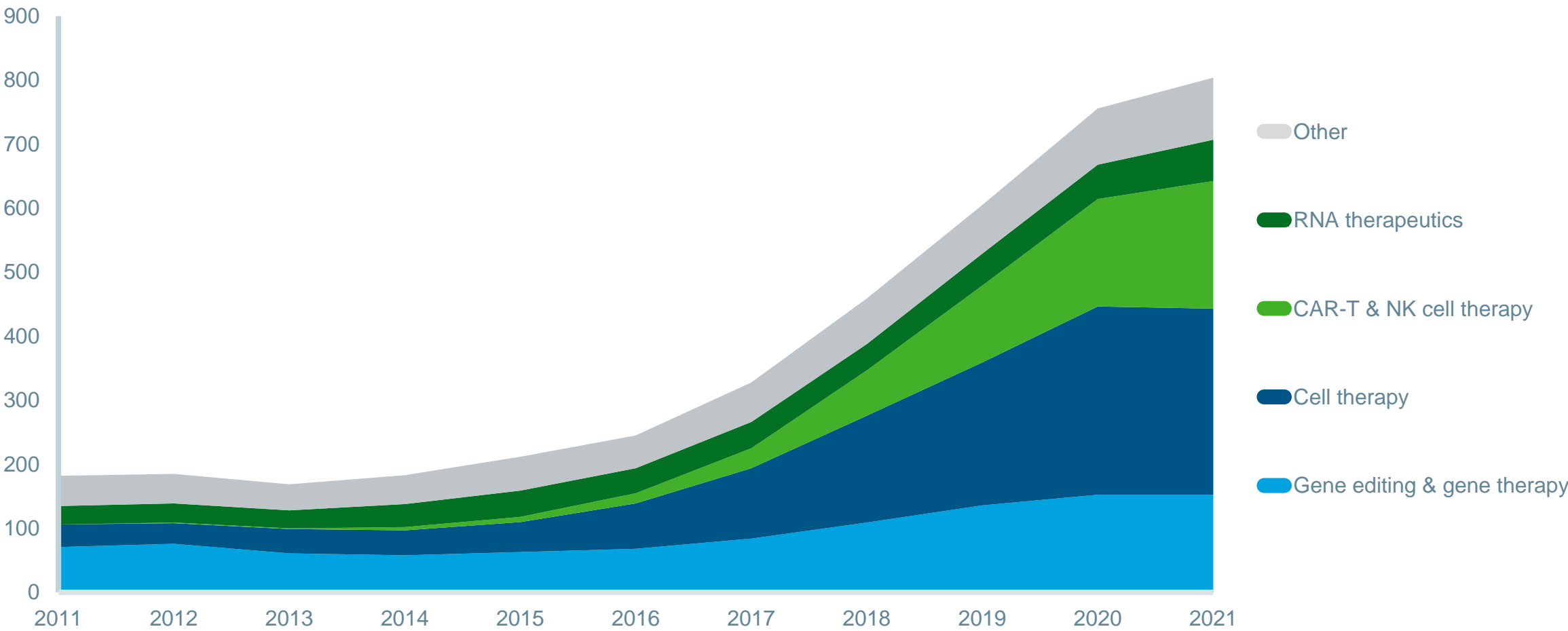


Next Generation Biotherapies in Pipeline



The next-generation biotherapeutic pipeline is focused on gene editing, CAR-T and other cell therapies

Next-generation biotherapeutics Phase I to regulatory submission pipeline by mechanism, 2011-2021



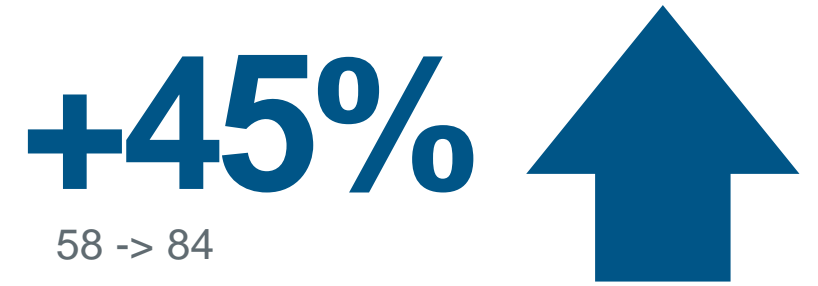
Source: IQVIA Pipeline Intelligence, Dec 2021; IQVIA Institute, Jan 2022. Global Trends in R&D: Overview through 2021. Report by the IQVIA Institute for Human Data Science.

Selected inflections 2019-21

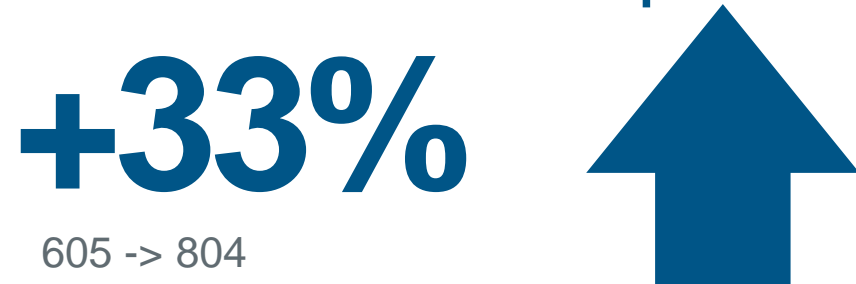
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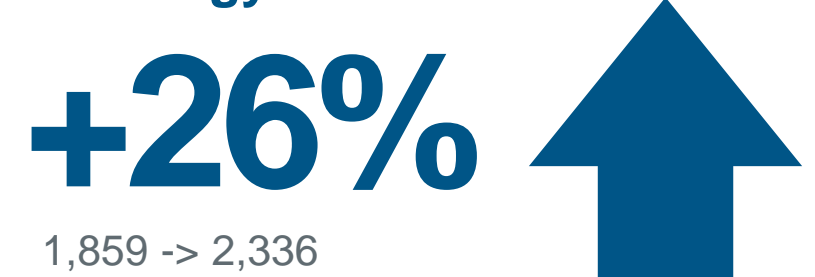
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Next Generation Biotherapies in Pipeline

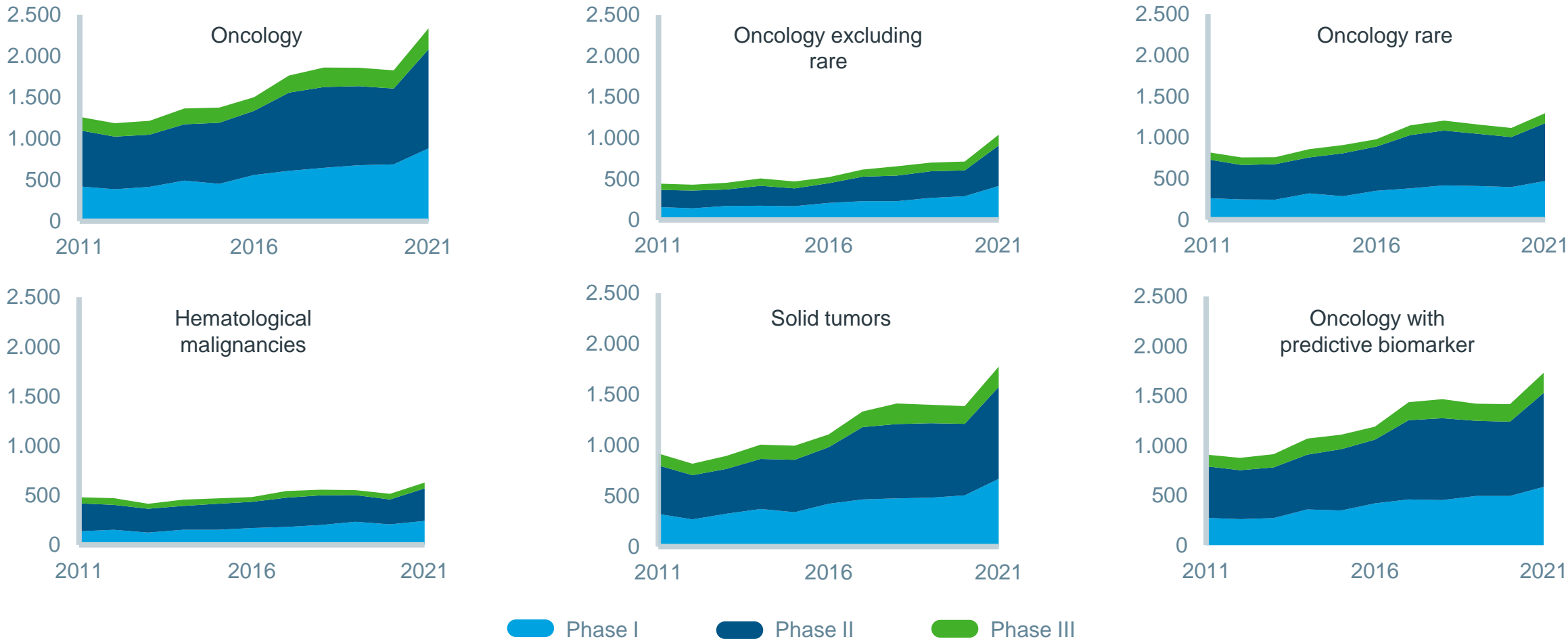


Oncology Trial Starts



Oncology trial starts reached historically high levels in 2021, up 70% from 2015 and mostly focused on rare cancer indications

Clinical trial starts by year, 2011–2021



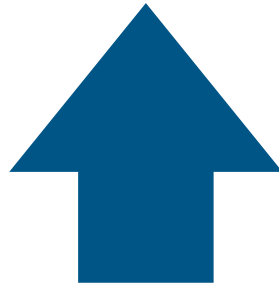
Source: Citeline Trialrove, IQVIA Institute, Jan 2022. Global Trends in R&D: Overview through 2021. Report by the IQVIA Institute for Human Data Science.

Selected inflections 2019-21

U.S. Venture Funding in Life Sciences

+105%

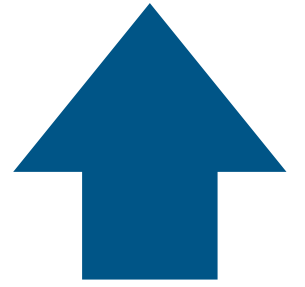
\$22.9 -> \$47.0 Bn



Novel Active Substance Launches

+45%

58 -> 84



Next Generation Biotherapies in Pipeline

+33%

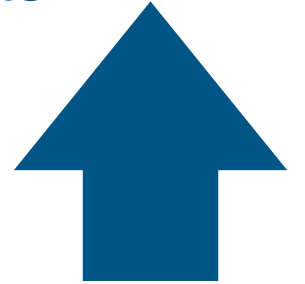
605 -> 804



Oncology Trial Starts

+26%

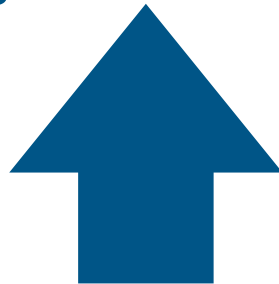
1,859 -> 2,336



Global Biosimilar Sales

+76%

\$13.1 Bn -> \$23.1 Bn



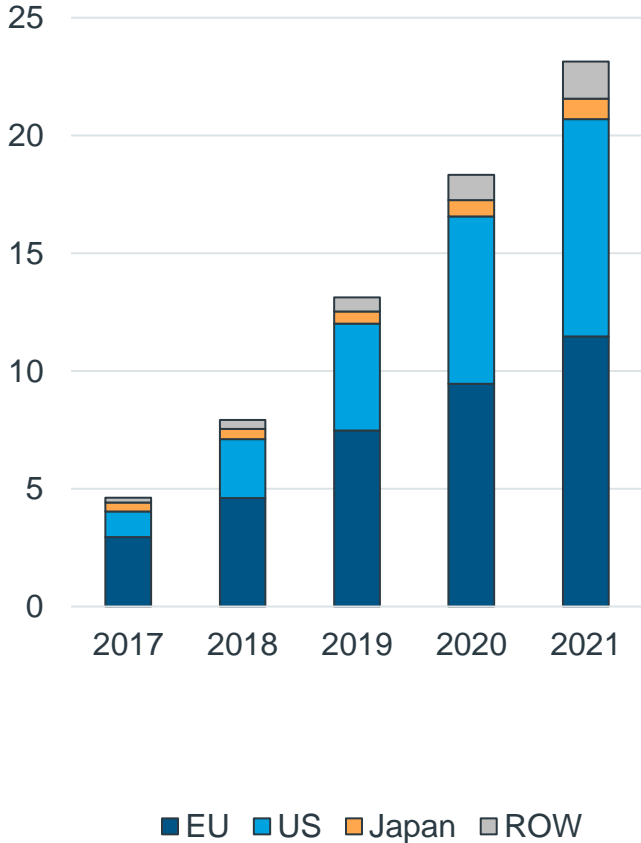
Strong launches of biosimilars are rapidly reshaping the biologics market and driven 76% growth since 2019

Global Biologics Top 10 (2021)

2017	bn USD	2019	bn USD	2021	bn USD
Humira	22.9	Humira	26.9	Humira	32.3
Lantus	11.2	Keytruda	11.4	Keytruda	19.6
Enbrel	10.4	Lantus	10.0	Stelara	14.4
Remicade	8.3	Enbrel	9.7	Trulicity	13.7
MabThera	7.0	Stelara	8.8	Ozempic	12.5
Novorapid	6.8	Opdivo	8.4	Lantus	10.8
Herceptin	6.6	Novorapid	7.3	Enbrel	9.3
Avastin	6.4	Trulicity	7.3	Opdivo	9.3
Humalog	5.9	Remicade	7.0	Dupixent	7.2
Opdivo	5.7	Avastin	6.8	Novorapid	7.1

Key: Biosimilar competition

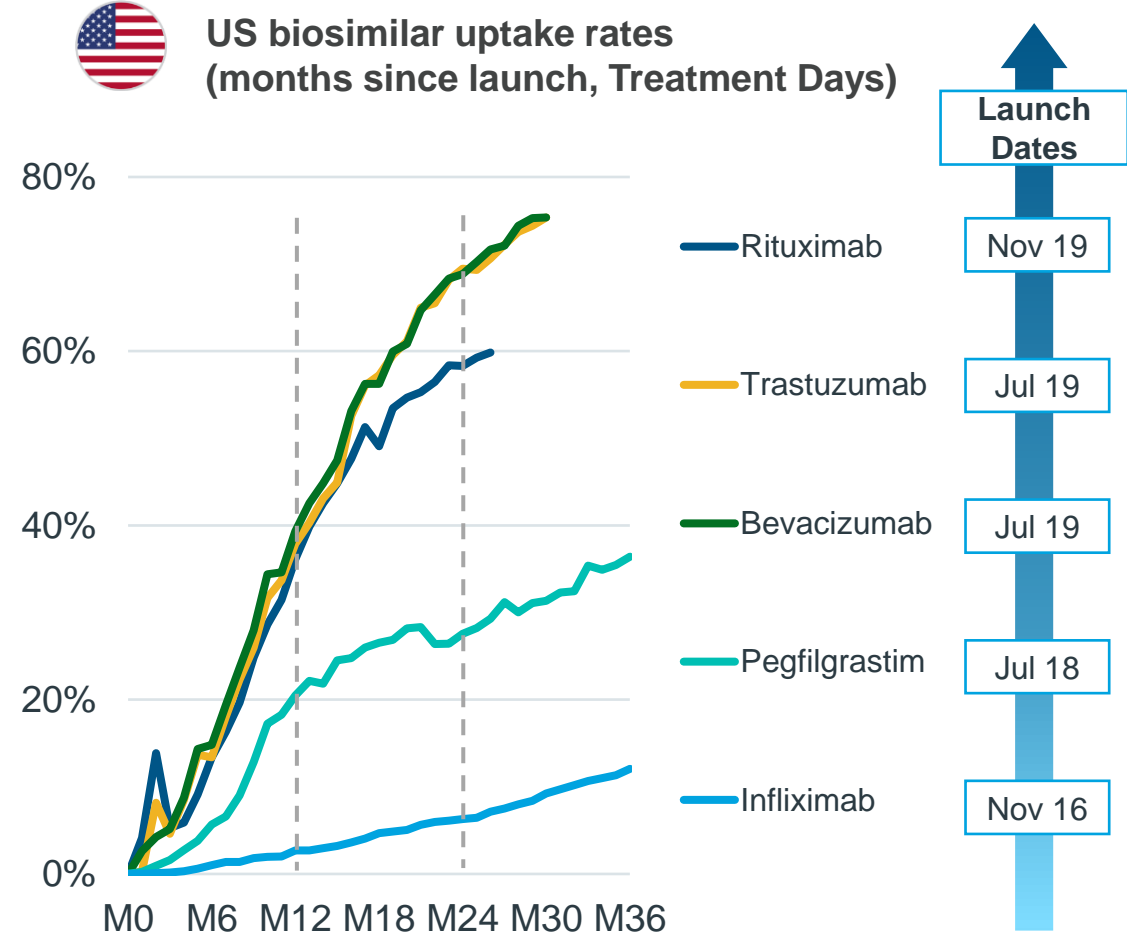
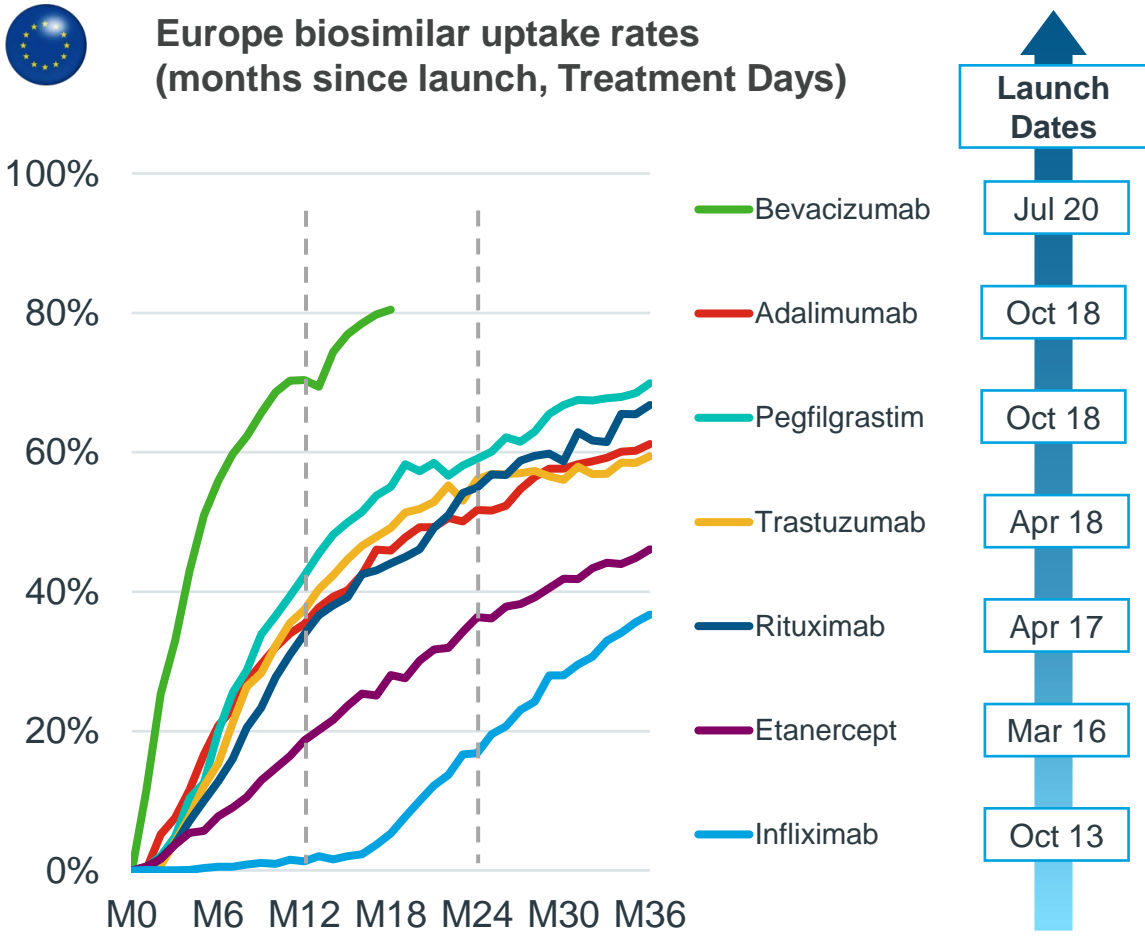
Global Biosimilar Sales bn USD



Notes: Biosimilars include biocomparables; biosimilars data in constant exchange rates
 Source: IQVIA MIDAS MAT Q4 2021

Rate of uptake of subsequent biosimilars has accelerated as stakeholders become increasingly comfortable with biosimilars

Uptake rates 40% in 12mo, 60-70% in 24mo



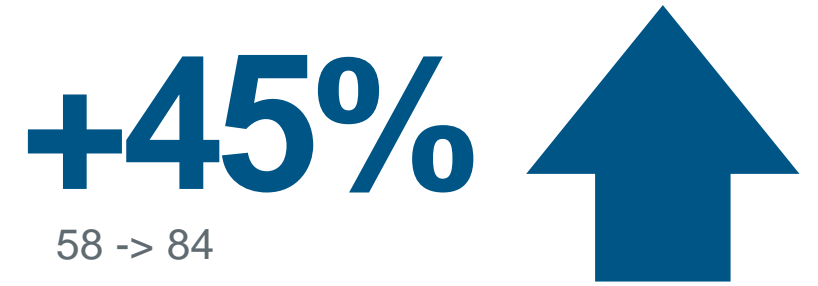
Notes: Includes subcutaneous formulations for rituximab, trastuzumab and infliximab
 Source: IQVIA European Thought Leadership; IQVIA MIDAS MTH Dec 2021; Rx-only

Selected inflections 2019-21

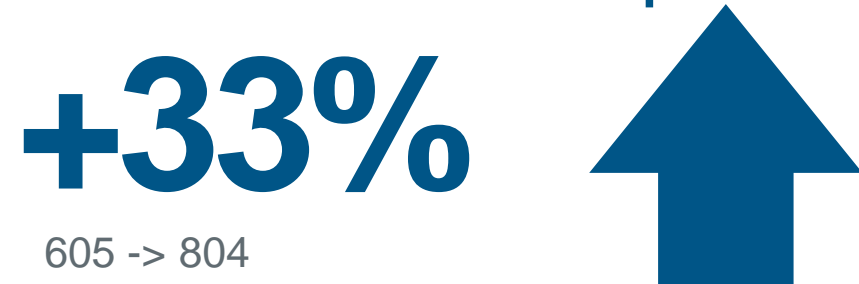
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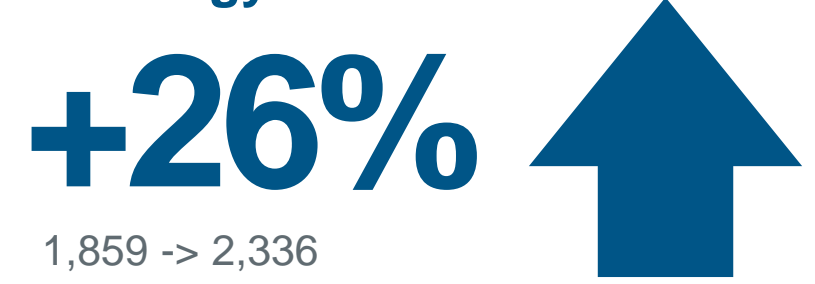
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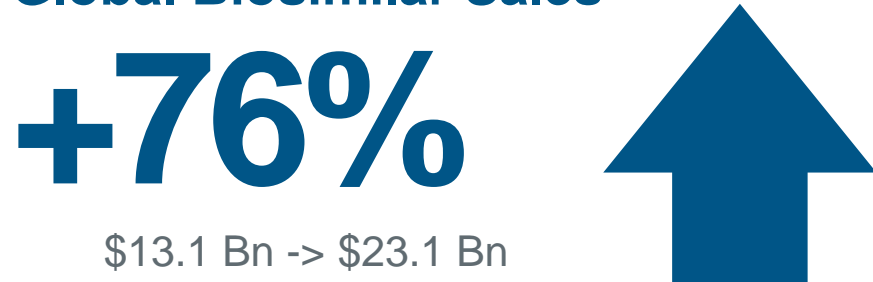
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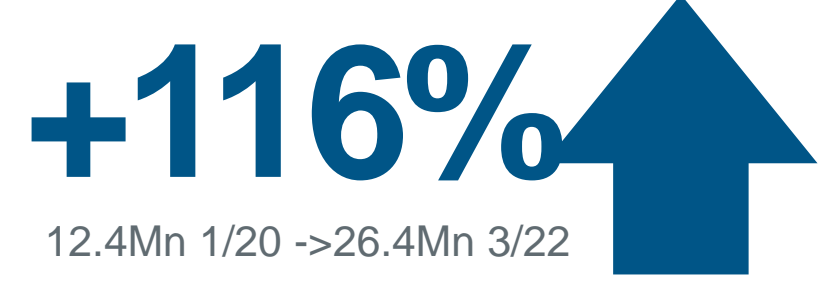
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Global Biosimilar Sales

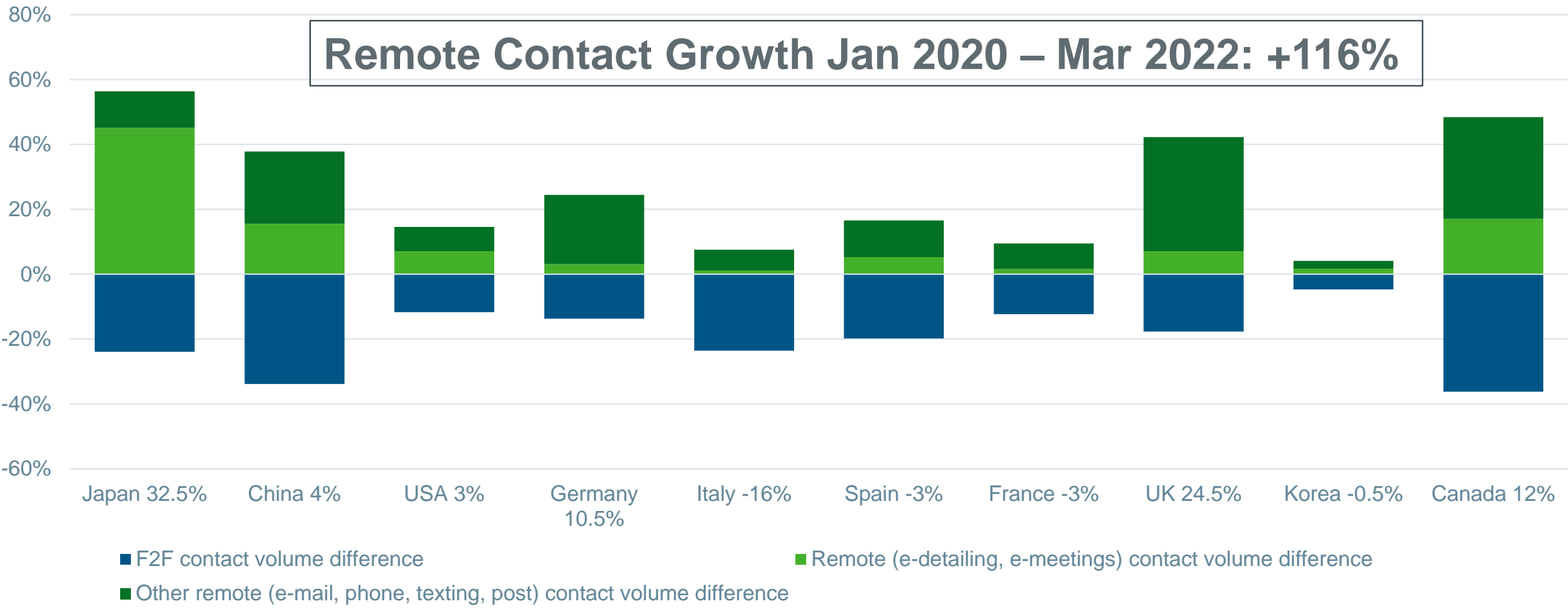


Remote Contact Volume



Remote contact with healthcare professionals has reshaped the mix of promotion activities

Promotion Volume Contribution to Change Mar 2022 compared to January 2020



Source: IQVIA Channel Dynamics, Mar 2022

Sustainability

Total market grows from \$1.4Tn to almost **\$1.8Tn in 2026**, as growth rate **slows to 3-6% CAGR**, compared to 5.1% over past 5 years and 6.5% over prior 5 years



Specialty drugs account for most of the growth, reaching **45% of total market** by 2026, up from 31% in 2016, and almost **60% of total market** in the 10 major **developed countries**



Oncology, immunology and diabetes remain largest therapy areas over the next 5 years while innovation lifts **neurology**



Payer/value assessment issues remain challenging

Large pharma companies maintain **operating margins** as they adapt their business models

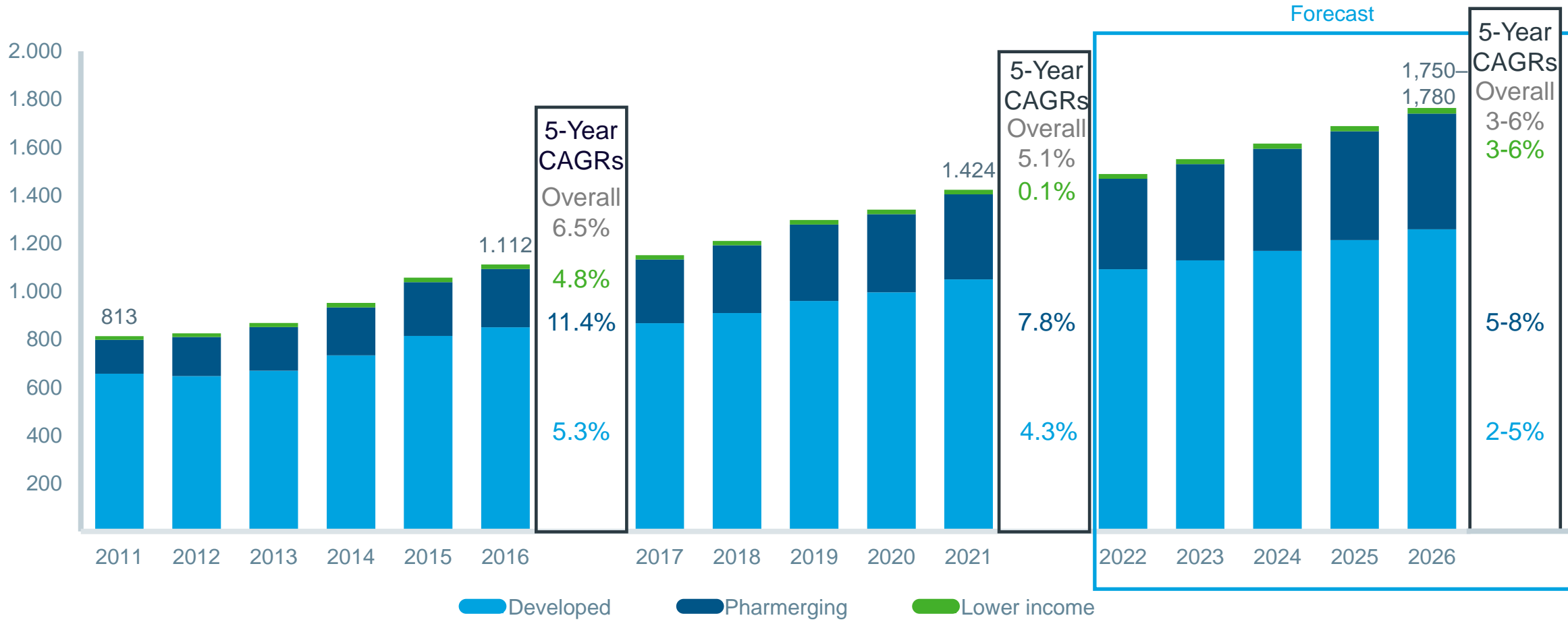


Geographic focus on the **U.S. market**, as **EU** markets reflect **more restrictive access and reimbursement** for innovative drugs, **Japan** market **declines**, and **China** registers heightened interest as a **market and source of innovation**



The global medicine market — using invoice price levels — is expected to grow at 3–6% CAGR through 2026 to about \$1.8Tn

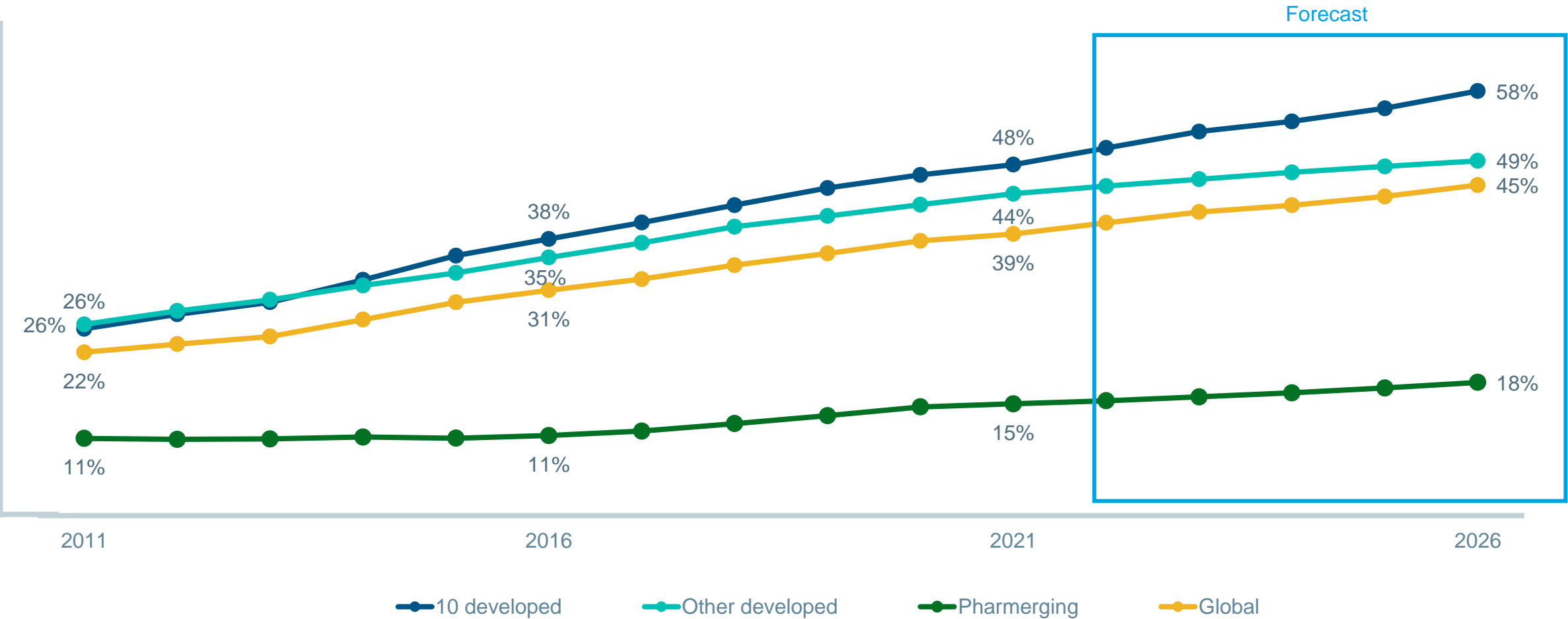
Global medicine market size and growth 2011–2026, const US\$Bn



Source: IQVIA Market Prognosis, Sep 2021; IQVIA Institute, Nov 2021
 The Global Use of Medicines 2022: Outlook to 2026. Report by the IQVIA Institute for Human Data Science.

Specialty medicines will represent about 45% of global spending in 2026 and almost 60% of total spending in developed markets

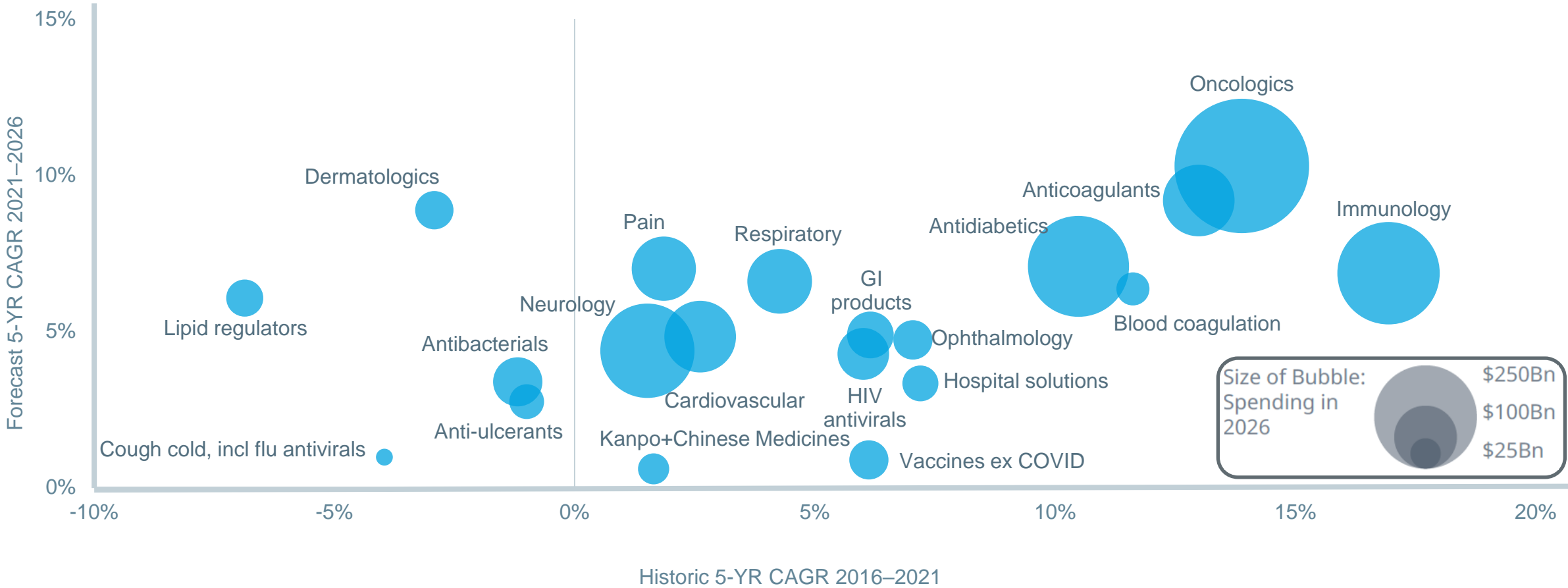
Specialty medicines share of spending



Source: IQVIA Institute, Nov 2021
 The Global Use of Medicines 2022: Outlook to 2026. Report by the IQVIA Institute for Human Data Science

Oncology, immunology and diabetes remain largest therapy areas over the next 5 years while innovation lifts neurology

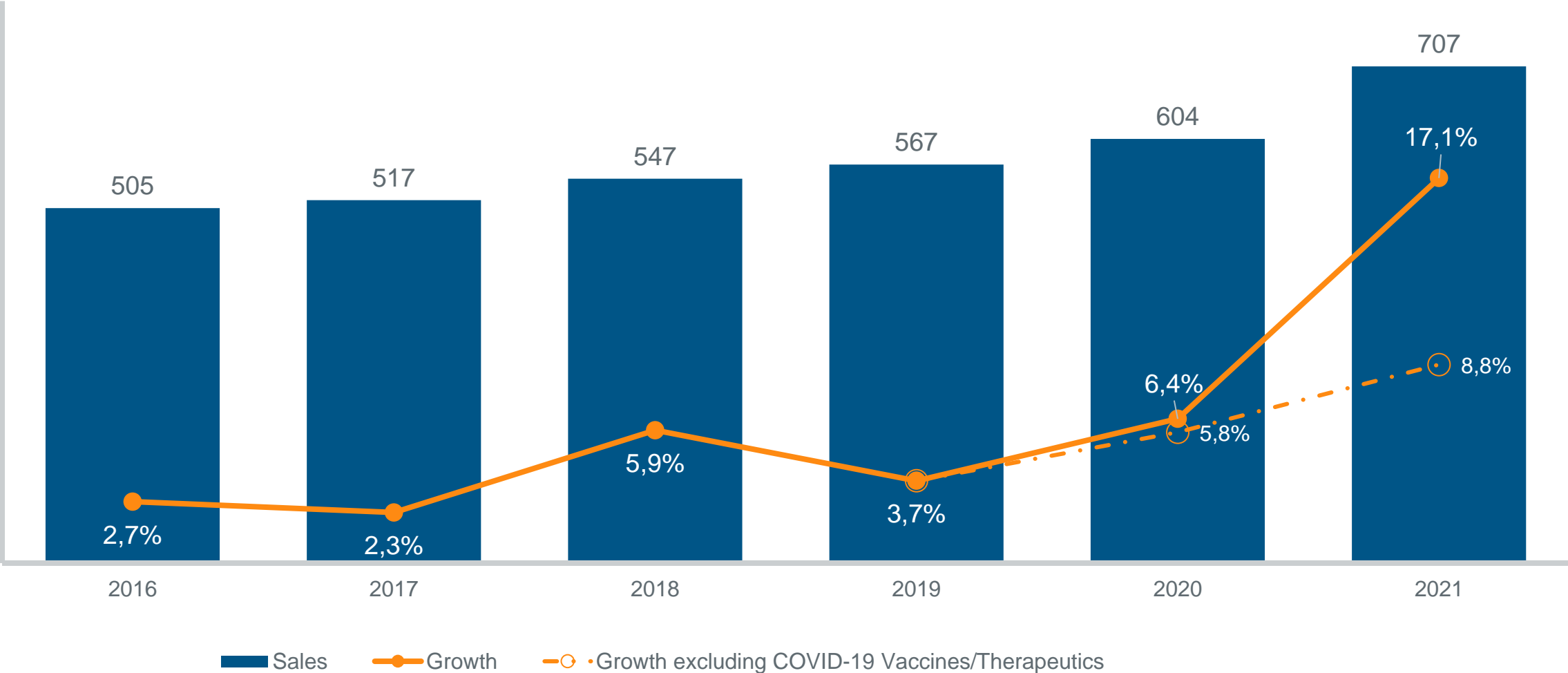
Global historic and forecast growth for top 20 therapy areas



Source: IQVIA Institute, Nov 2021
 The Global Use of Medicines 2022: Outlook to 2026. Report by the IQVIA Institute for Human Data Science

Aggregate sales of large pharma corporations rose over 17% or \$100 billion in 2021, and over \$200 billion since 2016

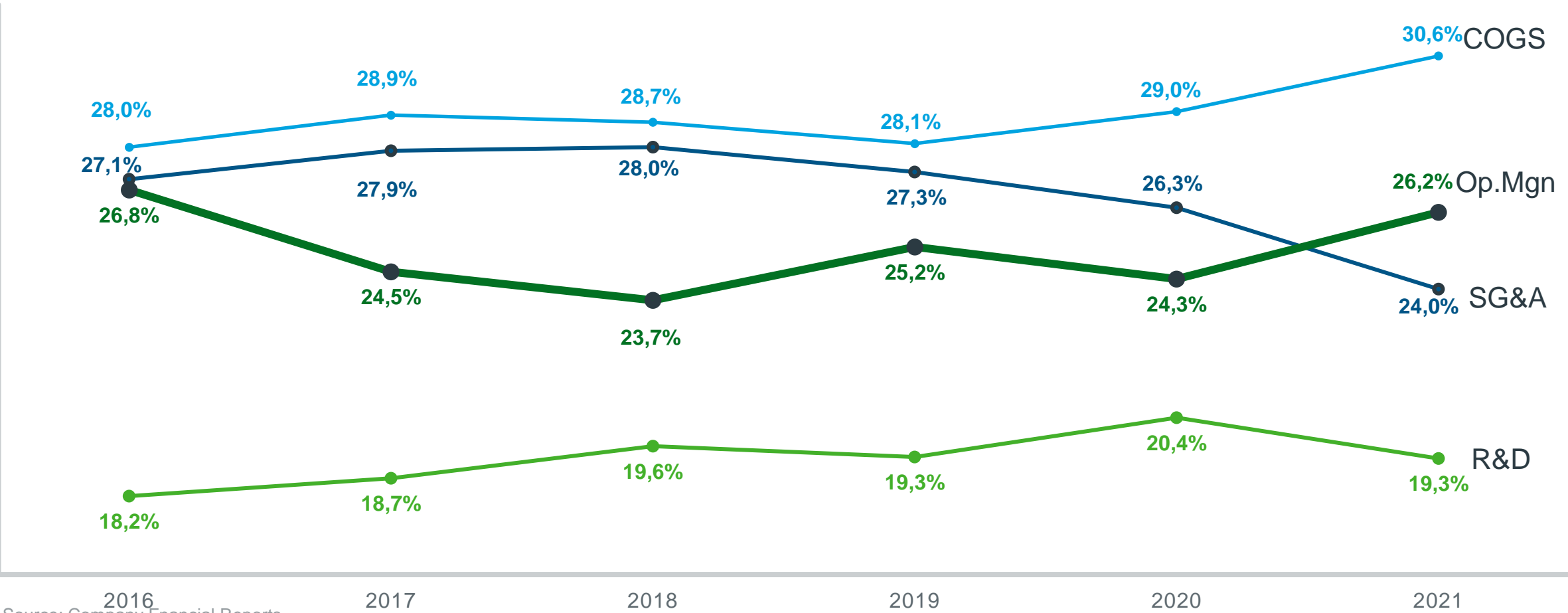
Large Pharma Sales and Growth 2016–2021, US\$Bn



Source: Company financial statements; IQVIA Institute, Feb 2022

Operating margins for the Top 15 pharmacos rose in 2021 as rising COGS were offset by reductions in SG&A and R&D

Operating Margin Components as Percent of Sales 2016-21

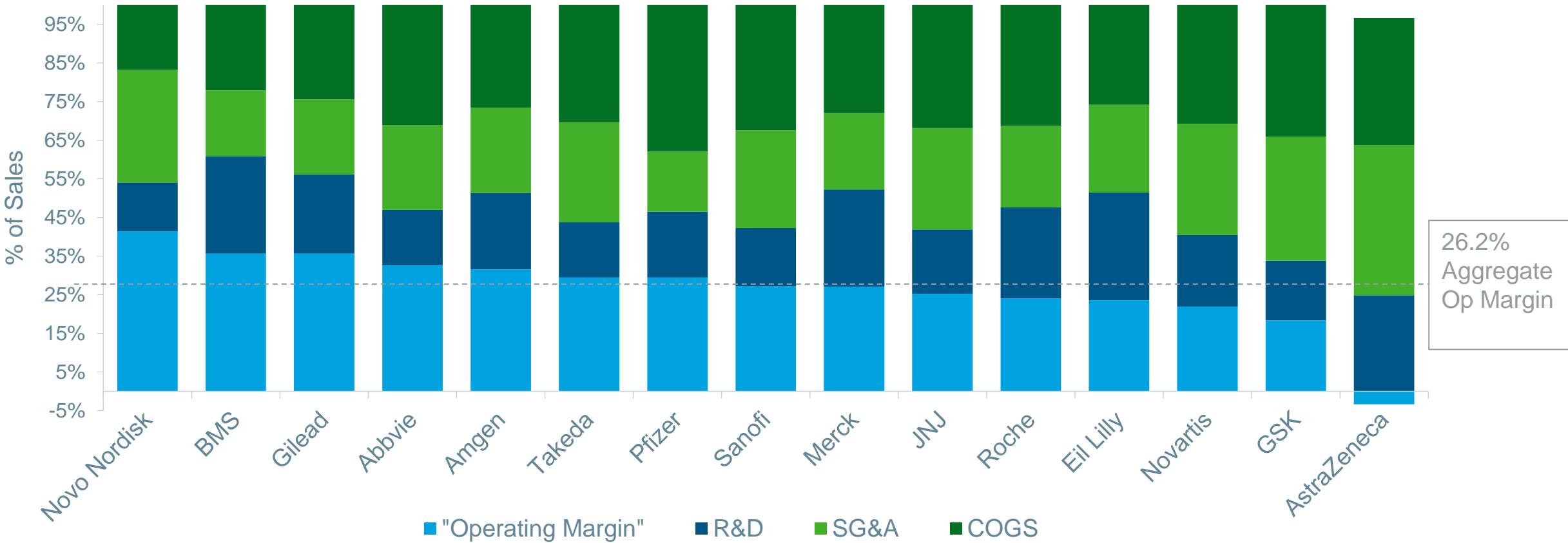


Source: Company Financial Reports

Notes: Based on total corporate performance (not limited to pharmaceutical division) for 15 largest companies based on MIDAS-reported pharma sales; Operating Margin defined as Net product sales less Cost of Goods Sold, Selling General & Administration costs, and Research & Development

“Operating margin” of large pharma was 26.2% in 2021 for the aggregate 15 largest companies

Percent of product sales 2021

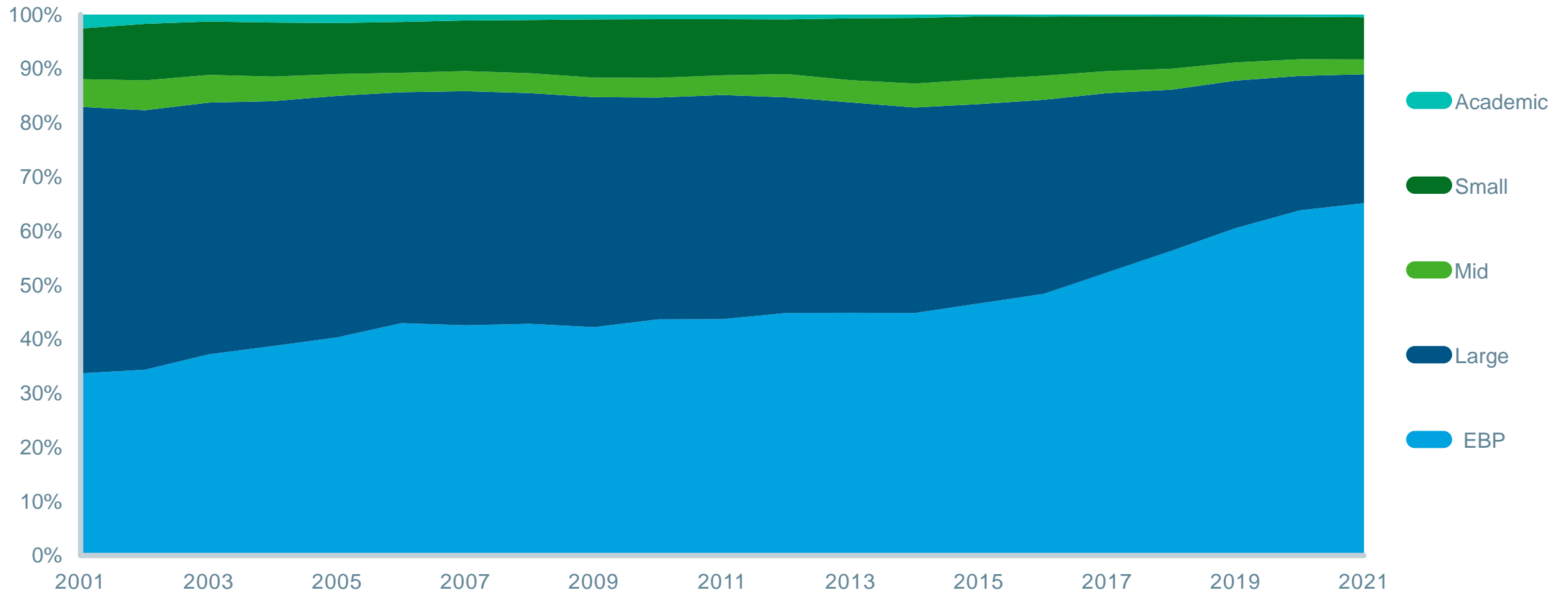


Methodology note: Based on company financial statements, not limited to pharma divisions. “Operating Margin” calculated based on revenue less COGS, SG&A, and R&D. May not be same as Operating Margin in financial statements which may also include other line items.

Source: Company financial statements

Emerging biopharma companies are responsible for most of the R&D pipeline, with their share continuing to grow

Share of Phase I to regulatory submission pipeline by company segment, 2001-2021



Source: IQVIA Pipeline Intelligence, Dec 2021; IQVIA Institute, Jan 2022.
Global Trends in R&D: Overview through 2021. Report by the IQVIA Institute for Human Data Science.

Payer/value assessment issues remain as major challenges for pharmaceutical companies



Payer Budgets

- Drug budgets absorb \$250bn incremental spending through 2026
- Looming large-ticket therapeutics for Alzheimer's, obesity, cancer early detection, NAS



HTA Approaches

- Sharing and harmonization of approaches
- Adapting to ensure fit-for-purpose



RWE Use

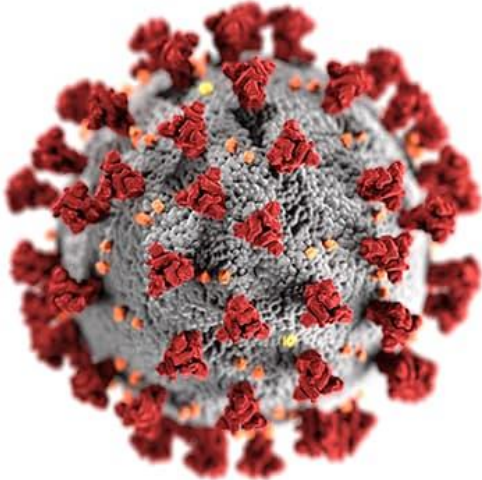
- Expanded sources and use of RWD to assess efficacy and safety
- Patient input and defined endpoints incorporated



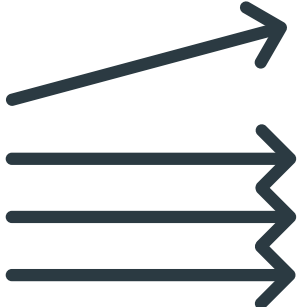
Access and Equity

- New medicine access measures
- Equity across diverse sub-populations

Today's Themes



Disruption



Inflections



Sustainability



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Murray Aitken, Executive Director

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