

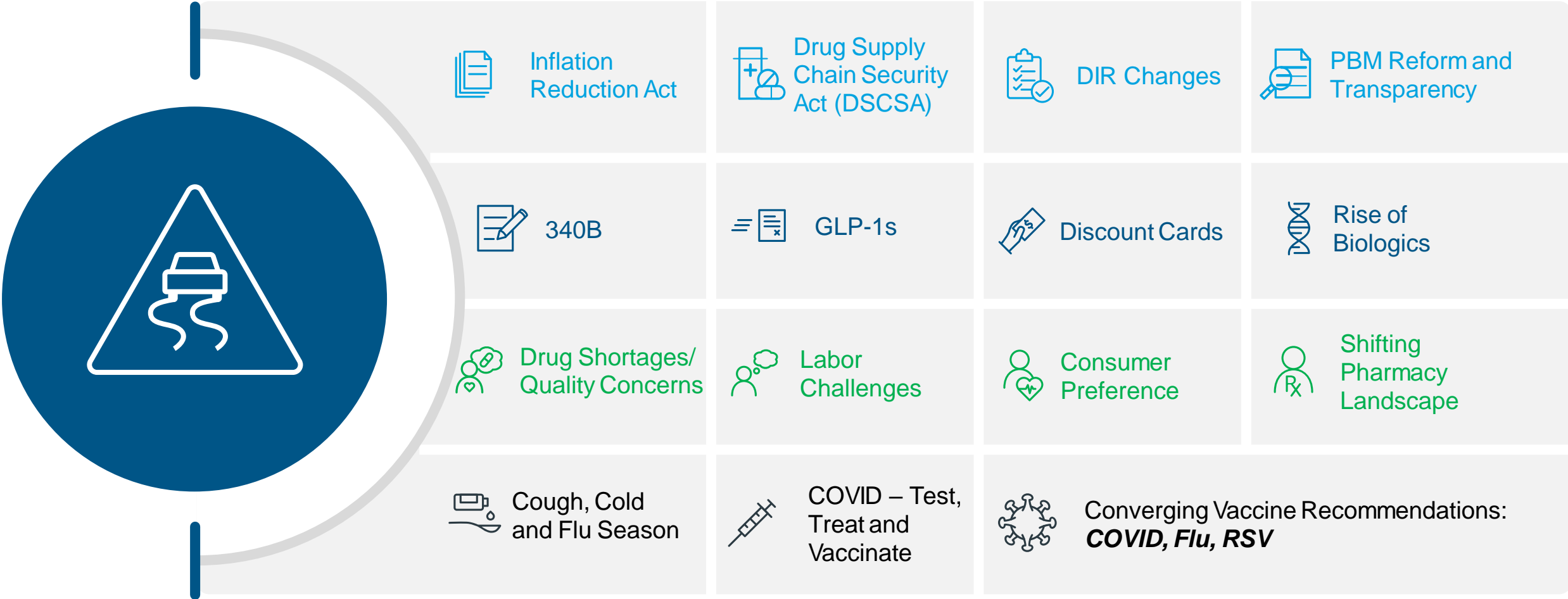


US Generics & Biosimilars Trends, Issues & Outlook for AAM

*Presented by:
Doug Long, VP, Industry Relations*

February 6, 2024

The challenges facing our industry today are numerous





Agenda

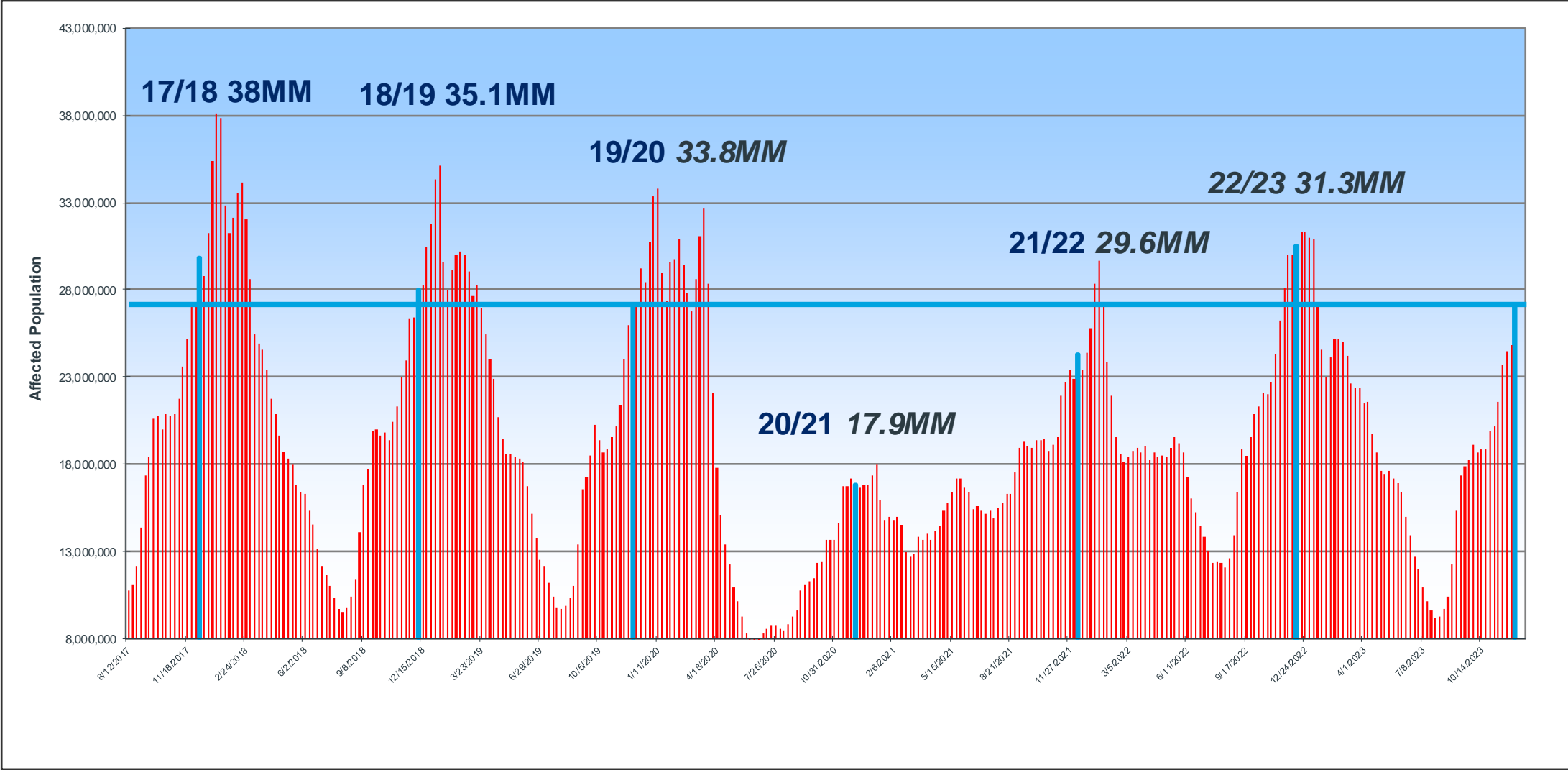
- + COVID, Flu, RSV, Colds, Etc.
- + Market Trends: Utilization
- + Where are we now?
- + Drug Shortage
- + Generics and Biosimilars
- + Opioids
- + Outlook

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**COVID, Flu, RSV, Colds,
Etc.**

FAN Total Affected Population 2017/18 through 2023/24

- *Current AP levels are at Q4 2018 and 2019 levels.*
- *Down Vs YAG -15.3%, mainly driven by flu coming in early last season by two months.*



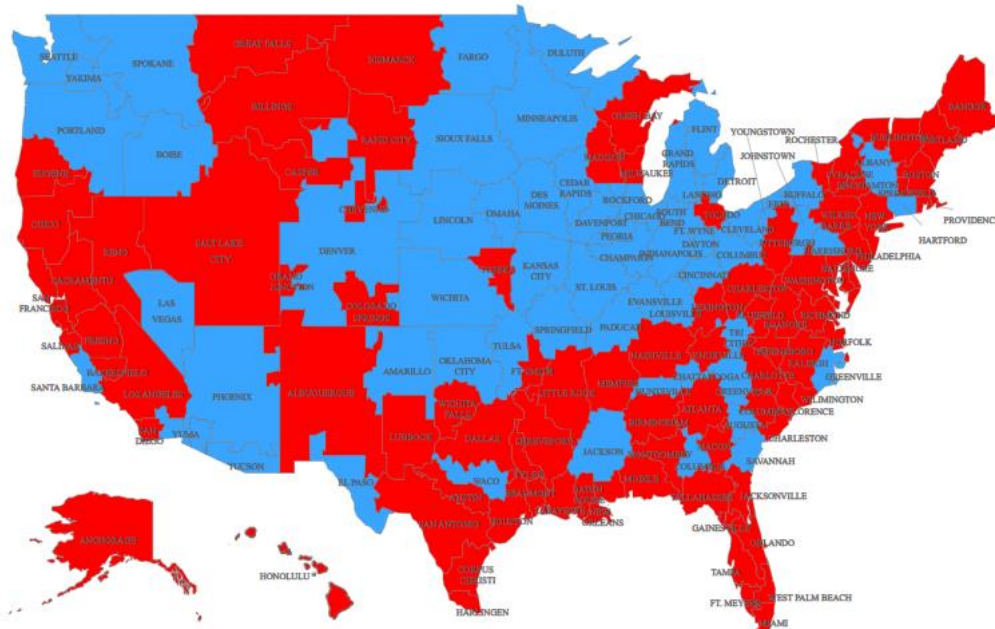
Source: IQVIA FAN Program

The current week in this season shows “Alert” status for the entire US while this week, previous season, show more a mixture with “Advisory Down”

Current Season
Week Ending 1/13/24

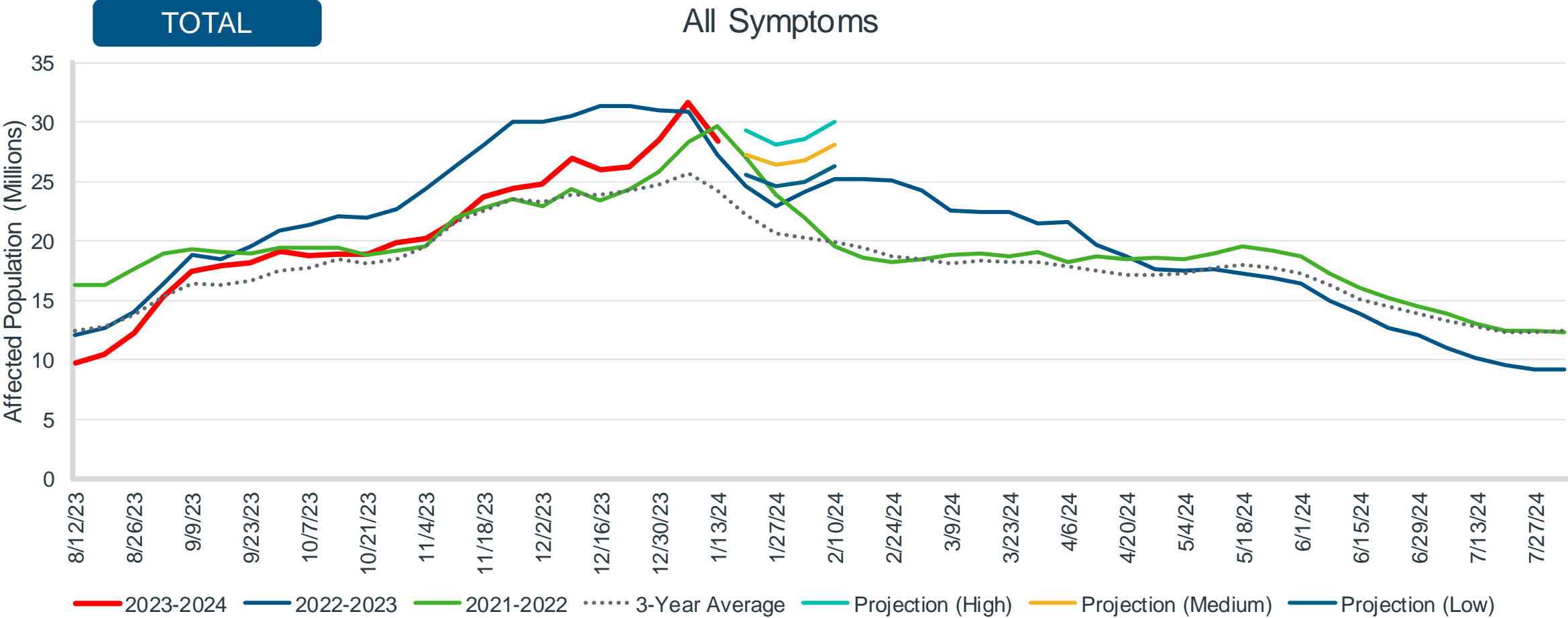


Current Week, Previous Season
Week Ending 1/14/23



Normal Advisory Up Pre-Alert Alert Advisory Down

All FAN[®] symptoms are projected to run above prior seasons in the next four weeks

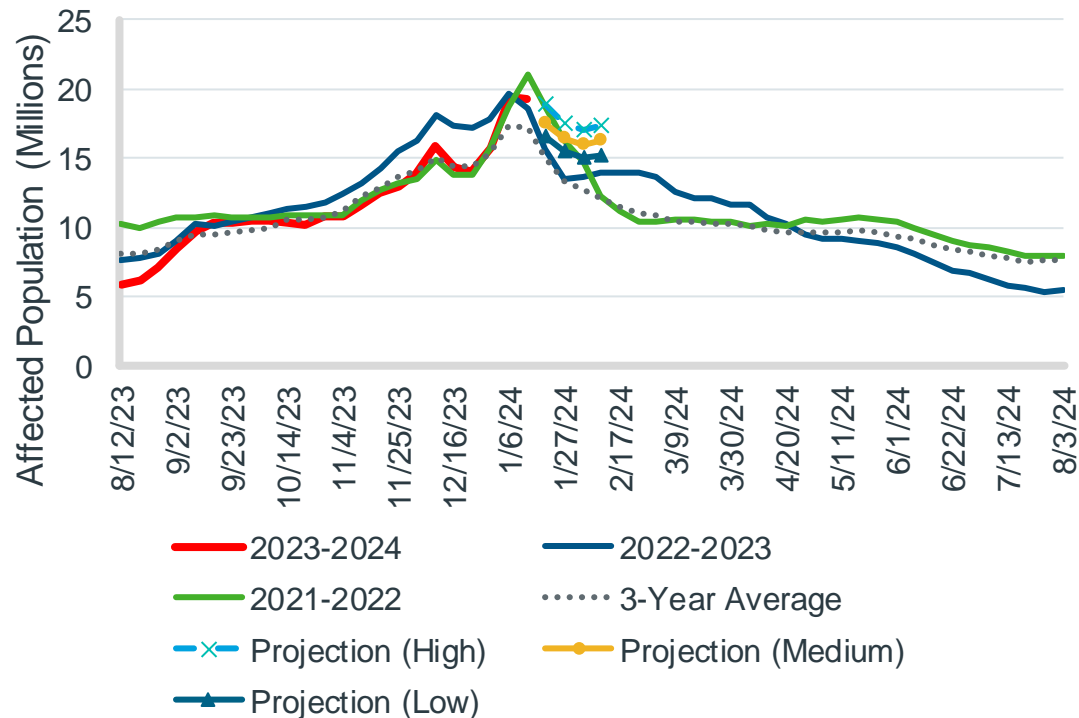


Updated through January 13, 2024

Adult and pediatric symptoms have run below the 2022-2023 for most of the season but are now increasing

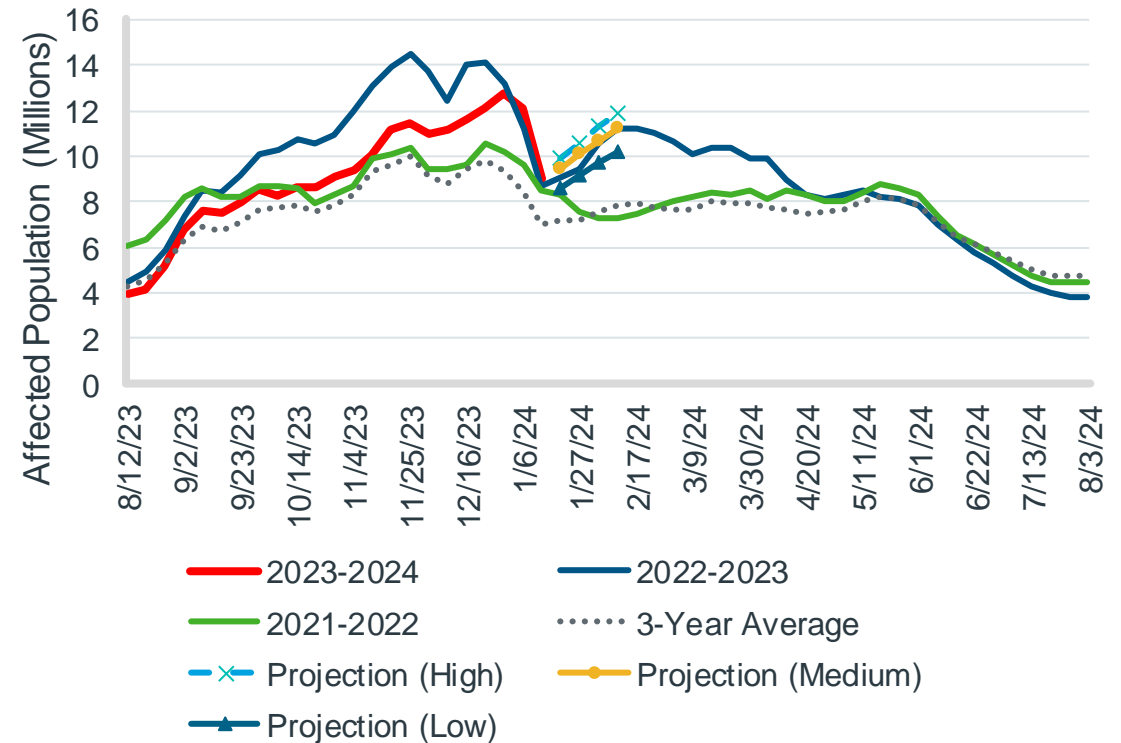
ADULT

All Symptoms with 4 Week Projections



PEDIATRIC

All Symptoms with 4 Week Projections

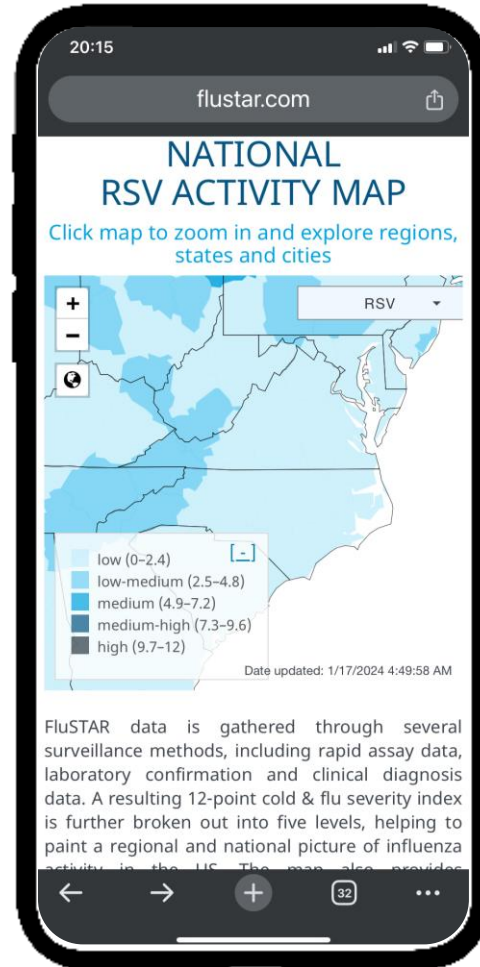


Updated through December 23, 2023

Flustar gathers data from surveillance methods and develops a severity index then displays it on a heat map across the U.S.

IQVIA's Flustar website is available for all at www.flustar.com

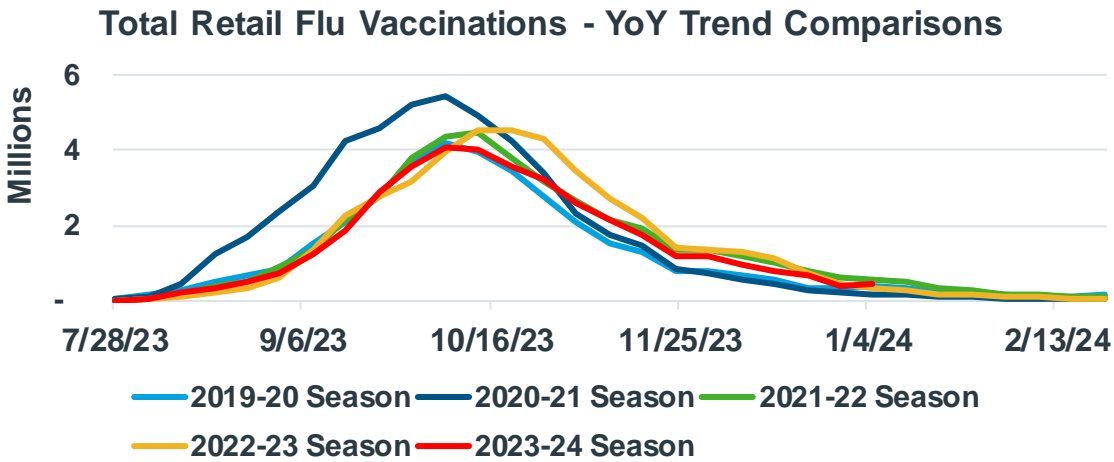
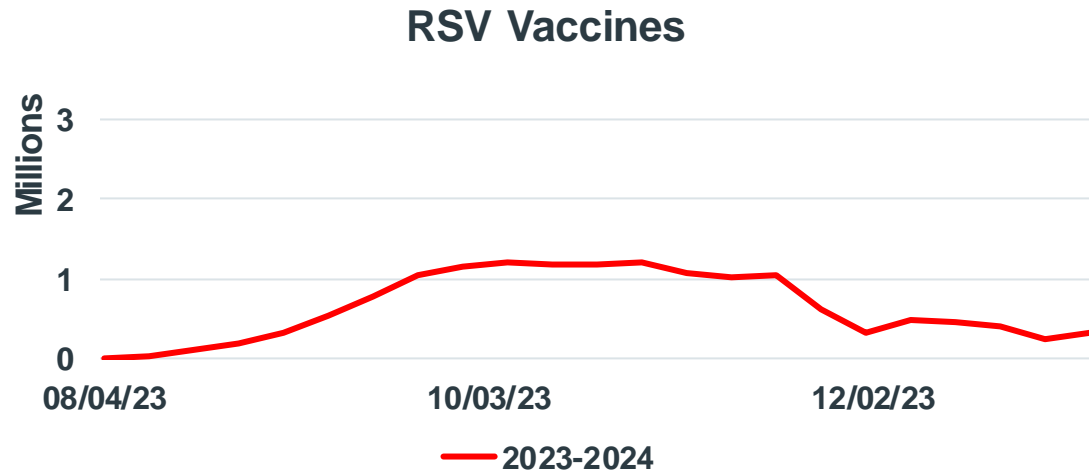
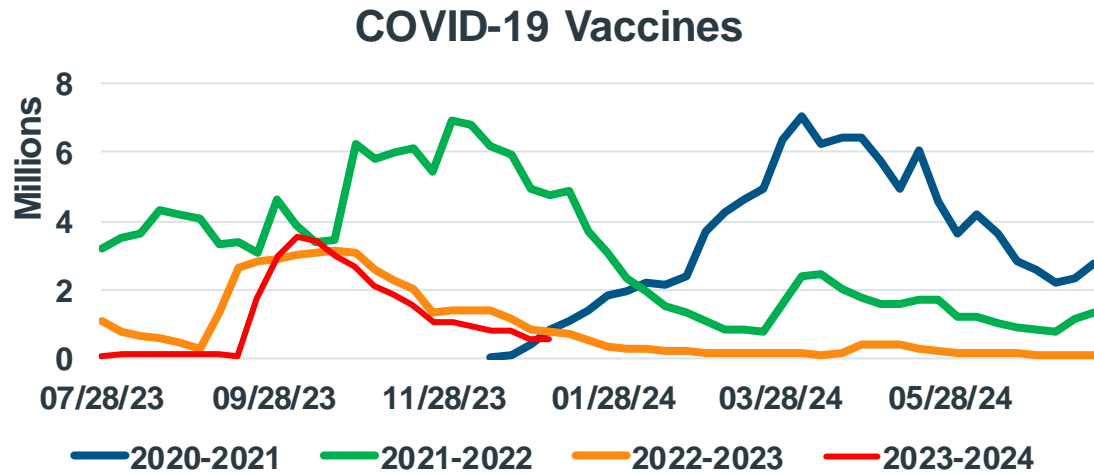
FluSTAR data is gathered through several surveillance methods, including rapid assay data, laboratory confirmation and clinical diagnosis data. A resulting 12-point cold & flu severity index is further broken out into five levels, helping to paint a regional and national picture of influenza activity in the US. The map also provides breakouts for each condition on the national and local level and is updated regularly with season progress.



Flustar looks at activity across the U.S. and provide heat maps for the following symptoms:

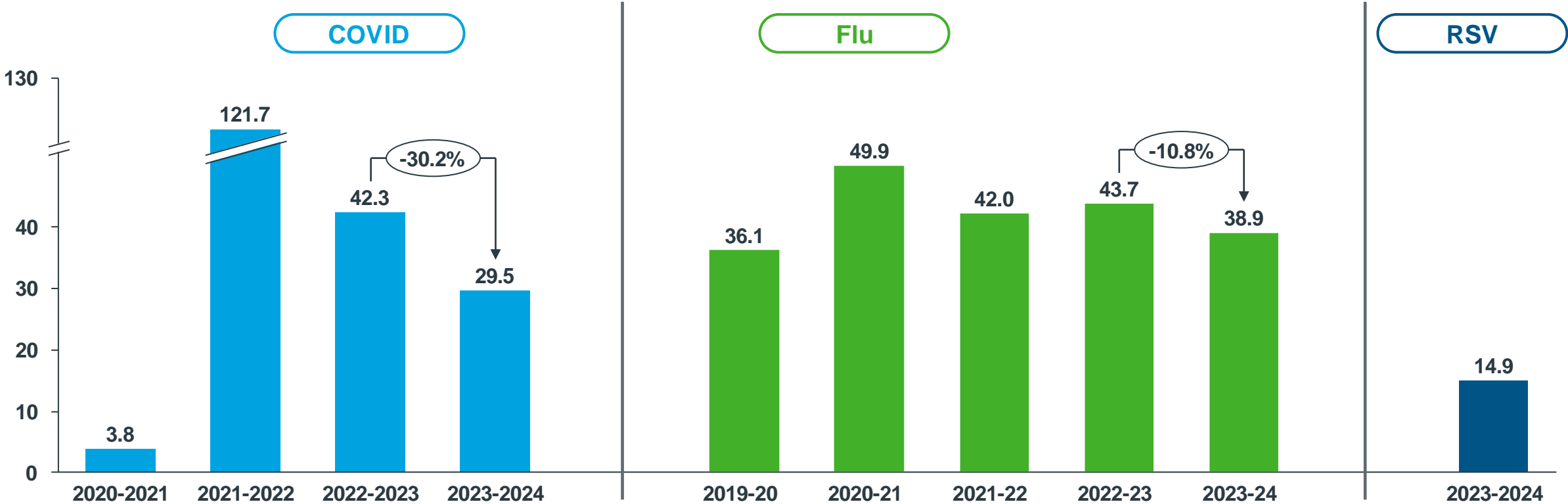
- Cold & Flu
- Cough
- Strep
- Fever
- Flu
- COVID
- RSV

COVID-19 and Flu Vaccines are lower this season than prior seasons; RSV Vaccines are new this season



COVID and Flu vaccines at Retail are down on a year over year basis

Season to Date Vaccine Volumes at Retail



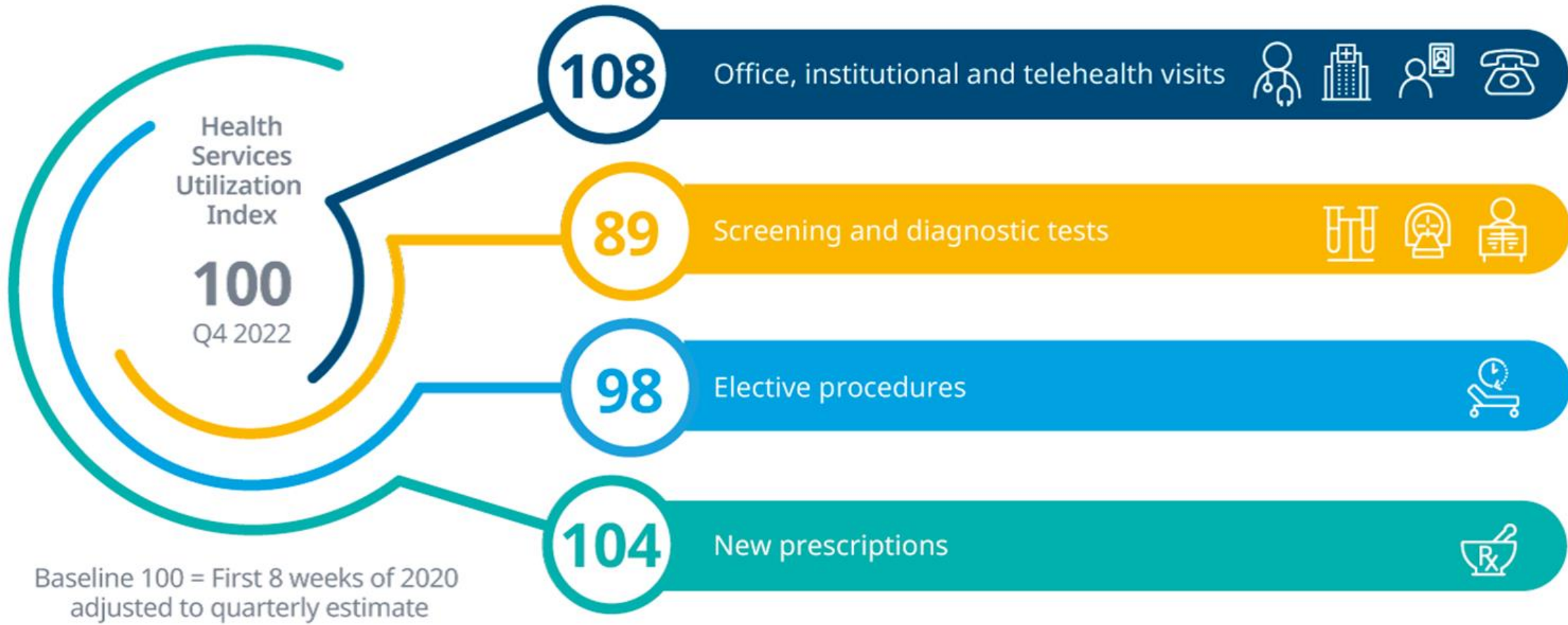
- Season to Date is defined as July 28, 2023, through January 19, 2024
- Data represents vaccinations done at retail and processed through the pharmacy's dispensing system

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Market Trends: Utilization

The Health Services Utilization Index indicates the U.S. is operating at pre-COVID-19 levels with shifts in utilization

Overview of Health Services Utilization Index



Source: IQVIA Institute; IQVIA Medical Claims Data; LAAD Prescription data, week ending 12/30/2022. The Use of Medicines in the U.S. 2023: Usage and Spending Trends and Outlook to 2027. Report by the IQVIA Institute for Human Data Science. ©2023 IQVIA and Affiliates. Do not reproduce without permission.



Antibiotic Use and Rising Antimicrobial Resistance

- **ADHD medicine** use **grew 11%** over the last 5 years to over 3Bn days of therapy in 2022
- **Women aged 20–64** now **account for 33%** of prescriptions, up from 27% in 2018



Mental Health in Young People

- **2.4Bn antibiotic days of therapy** in 2022 down 7% from pre-pandemic
- use in **children and older adults up 8%** in Q4 2022 from historic seasonal levels

Stimulant Use and Related Shortages



- **Mental health prescriptions** reached **567Mn** in 2022 up 9% since 2019
- Mental health prescriptions in **girls under 19 up 33%** since pre-pandemic to 17Mn in 2022

- **Over 500k GLP-1 agonist** new prescriptions across diabetes and obesity in February 2023, **up 152%** compared to prior year

Rising Use of Novel Obesity Drugs



- Per capita prescription **opioid use down 64%** since the peak in 2011
- Opioid overdose **deaths up 253%** since 2011

Concerning Gaps in Women's Health



- **Contraception use down 6%** in 2022 with **100Mn fewer** days of therapy
- **Lower use of long-acting** birth control, such as IUDs and injectables



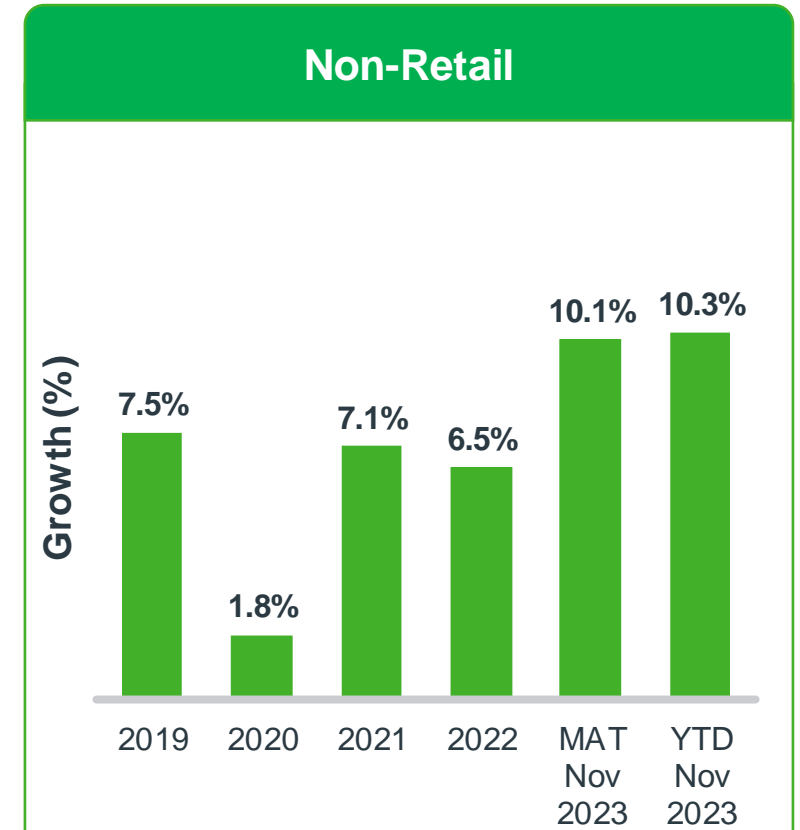
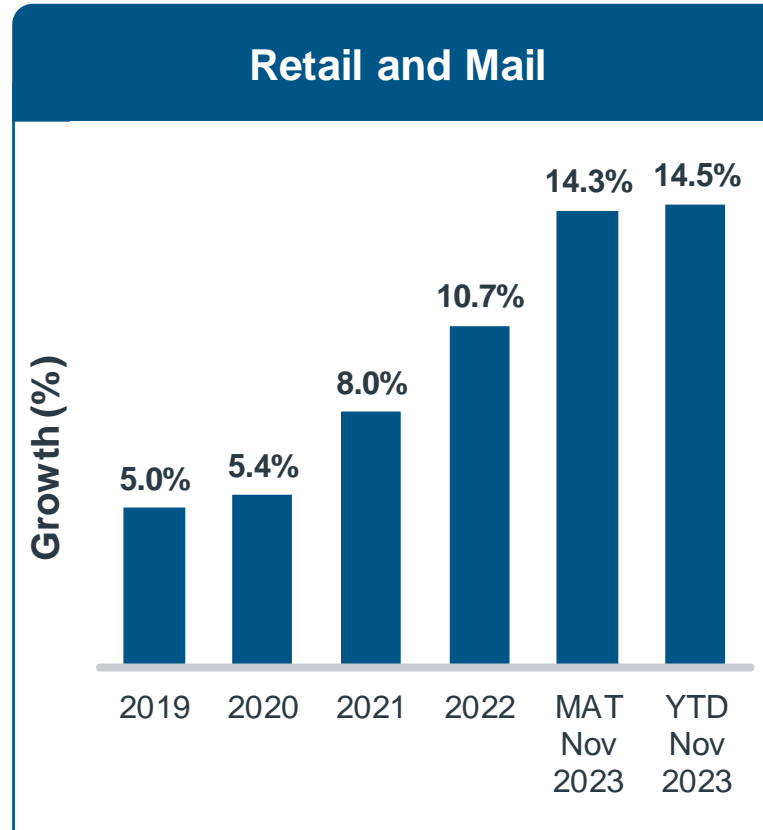
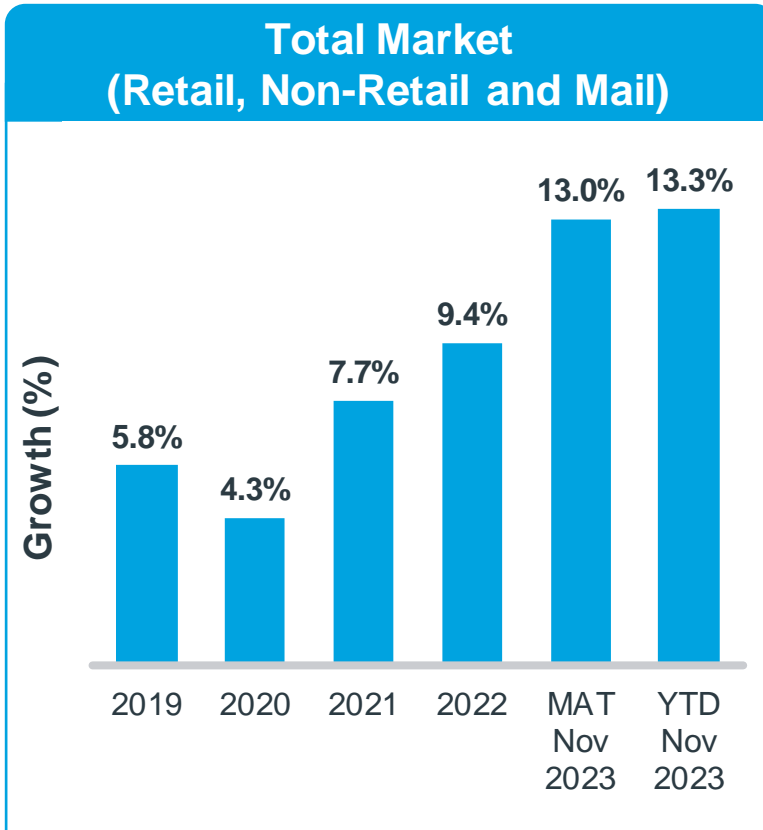
Combatting the Opioid Overdose Epidemic

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Where are we now?

Retail, Mail, and Non-Retail show double-digit growth

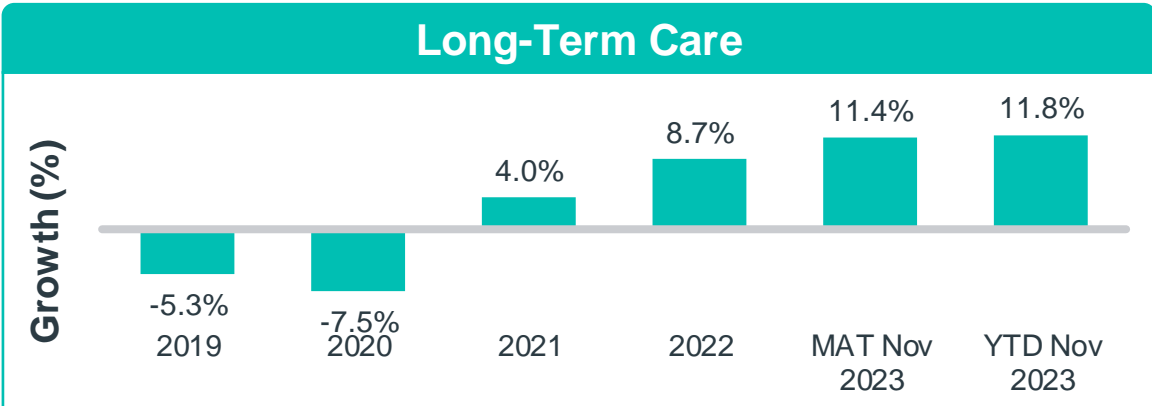
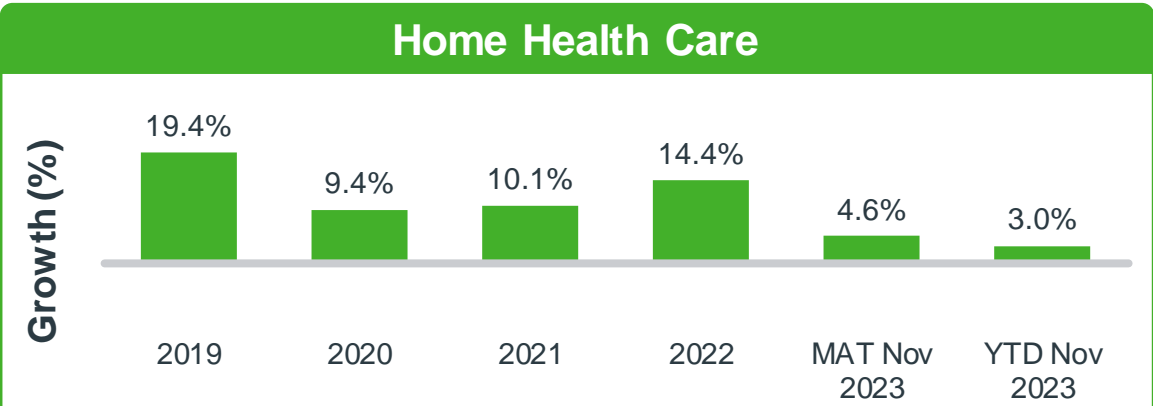
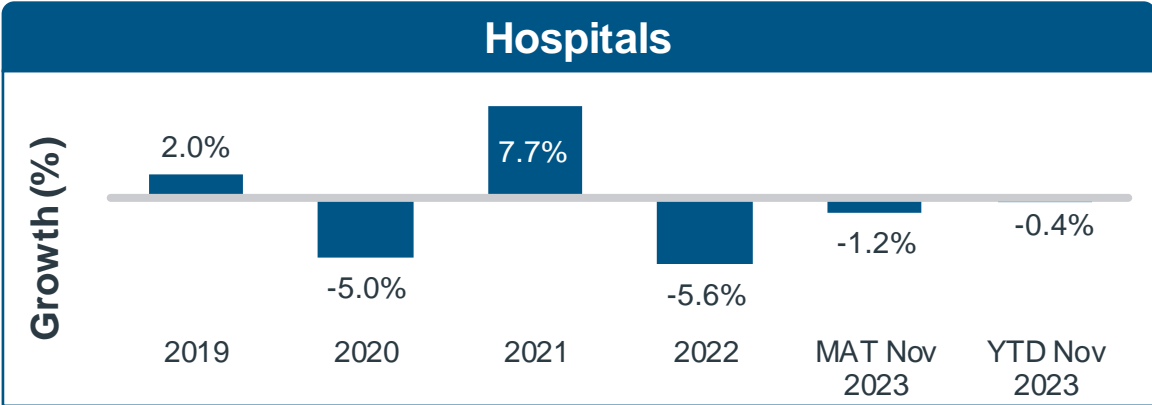
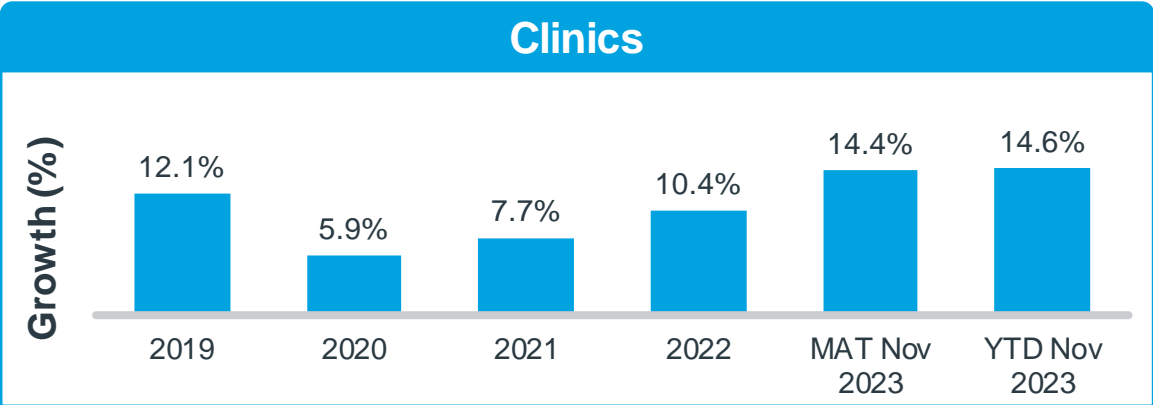
Growth (%) of Sales



Source: IQVIA, National Sales Perspectives, November 2023
Note: Limited to Rx and OTC Insulins; Includes Retail, Non-Retail and Mail

COVID-19 has affected Hospital sales more than other Non-Retail

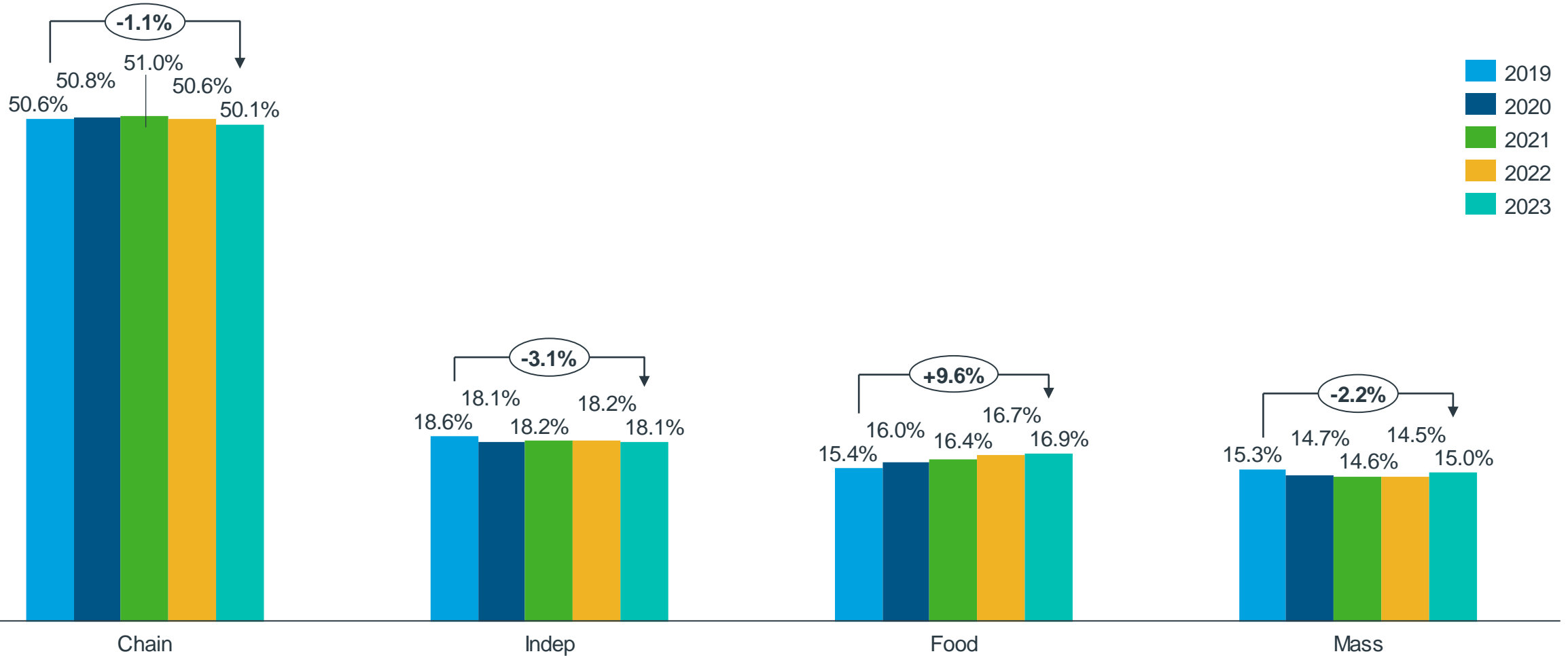
Growth (%) of Sales



Source: IQVIA, National Sales Perspectives, November 2023
 Note: Limited to Rx and OTC Insulins; Includes Retail, Non-Retail and Mail

Food gained share while other classes of trade remained relatively flat

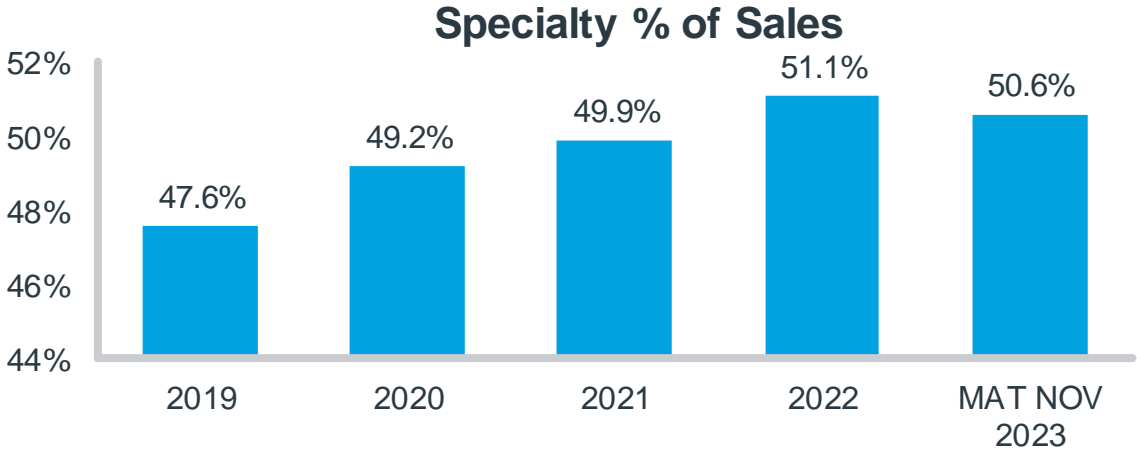
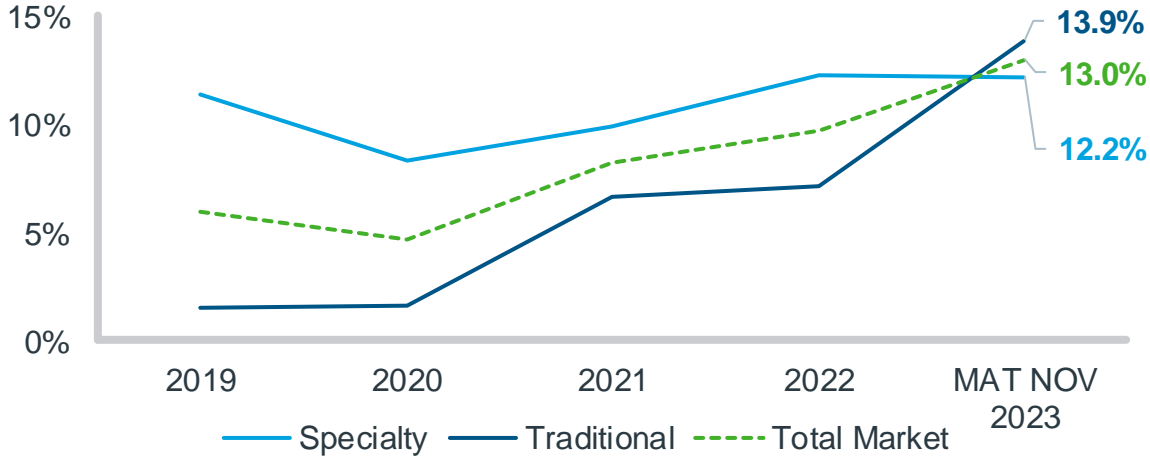
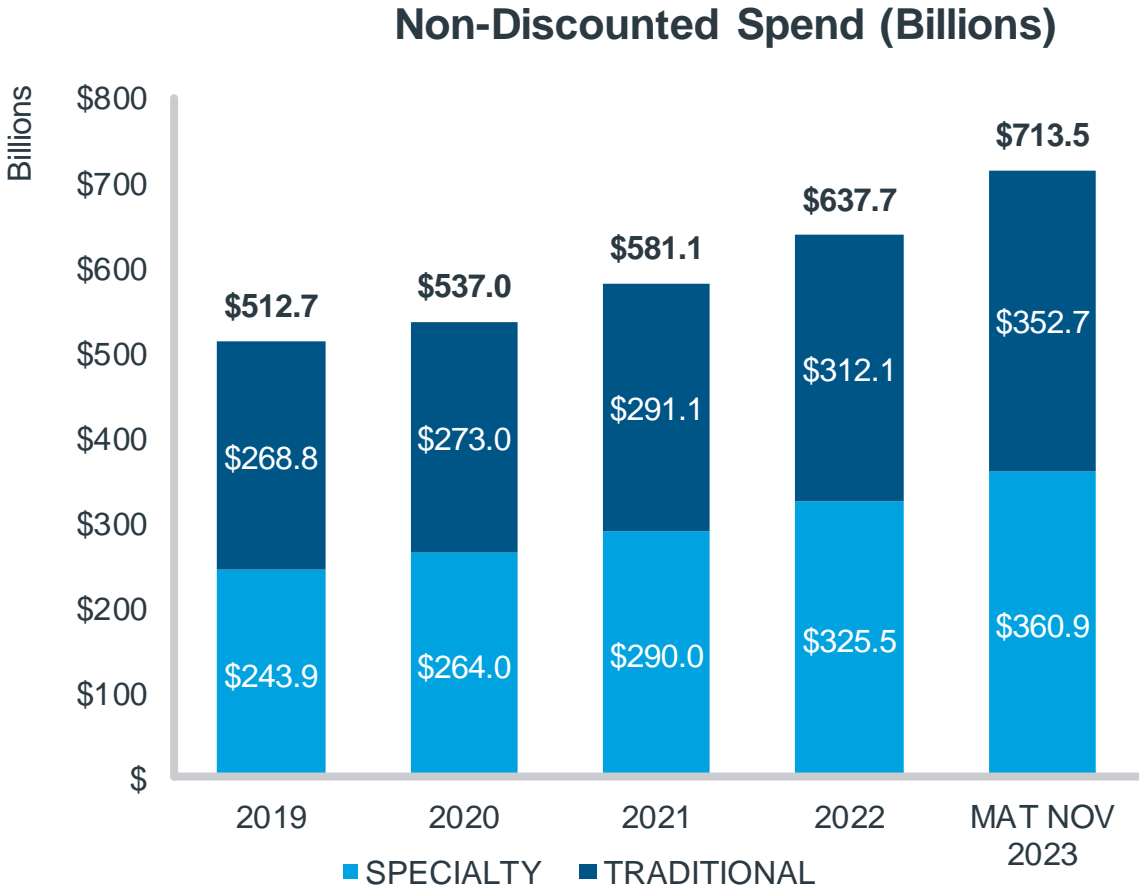
Market Share – Class of Trade - Total Retail



Data is based on calendar quarters, Q3 of each year
Adjusted Rx's
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For the total market, specialty growth at 12.2% is weaker than traditional growth at 19.9% for MAT Nov 2023

In MAT November 2023, specialty spend grew by 12.2% while traditional growth grew 13.9%



Source: IQVIA, National Sales Perspectives, November 2023

IQVIA Definition of a Specialty Drug

Specialty drugs at IQVIA are classified as products that meet the following criteria



Treats chronic, rare and/or complex diseases



Expensive (USD \$6K annual cost of therapy)



Initiated and maintained by a specialist



Unique distribution



Generally injectable and/or not self-administered



Requires extensive or in-depth monitoring/patient counseling



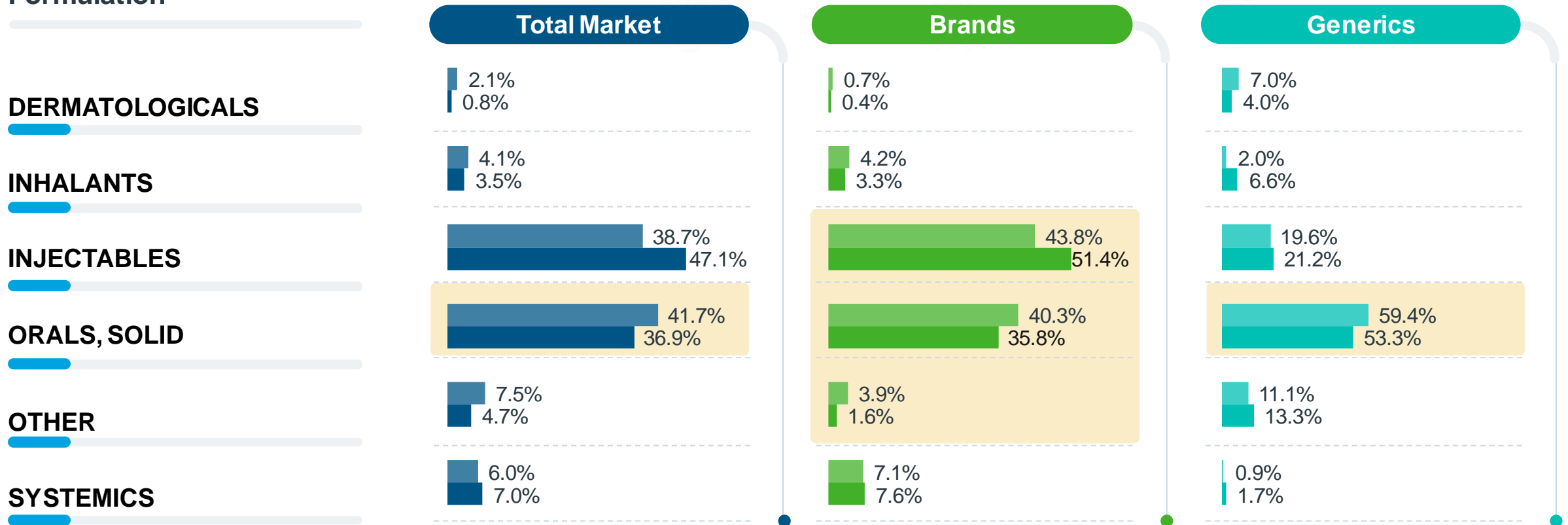
Products that require an additional level of care in their chain of custody



Requires reimbursement assistance

Brand Injectables account for 47.1% of total market sales in 2023

Formulation



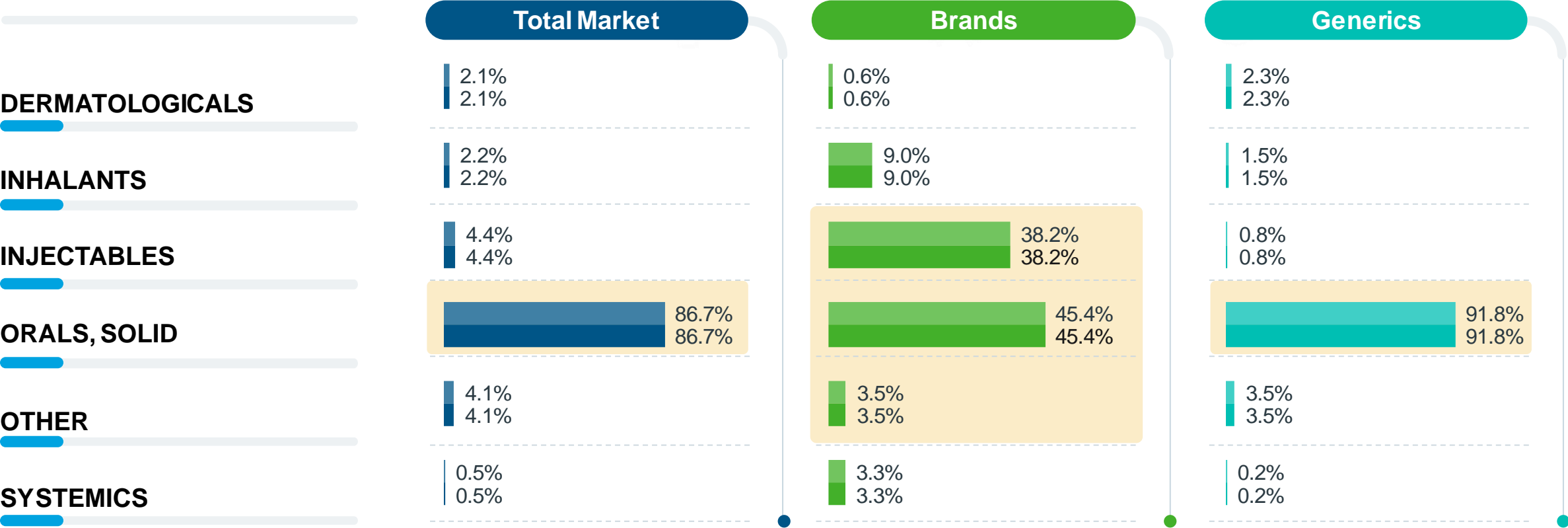
■ >1% difference

■ <-1% difference

Source: IQVIA, RxInsights, December 2023
*For Client's internal use only

Orals, Solid account for 86.7% of total market **adjusted scripts** and 91.9% of unbranded generic adjusted scripts for MAT DEC 2023

Formulation

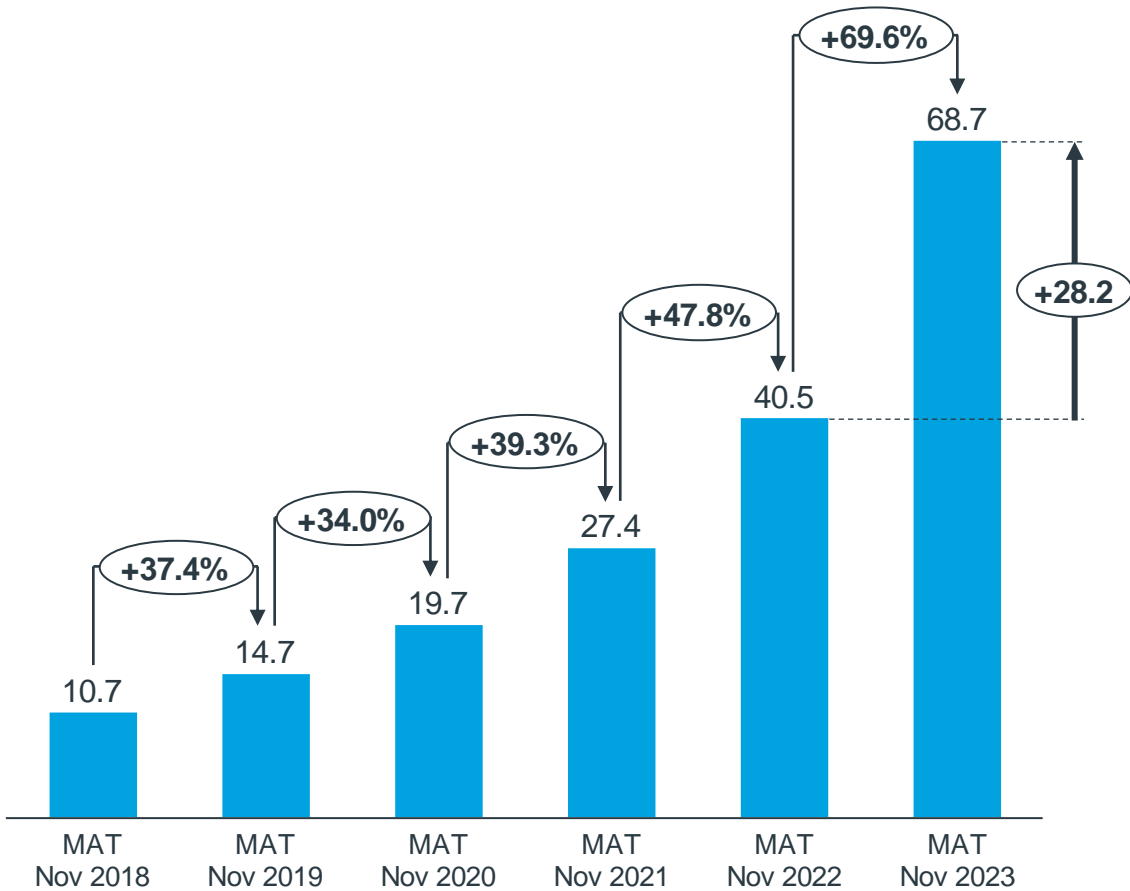


■ >1% difference ■ <-1% difference

Source: IQVIA, RxInsights, December 2023
*For Client's internal use only

GLP1s drugs have grown ~70% over the last 12 months and ~84% of the sales are in Retail

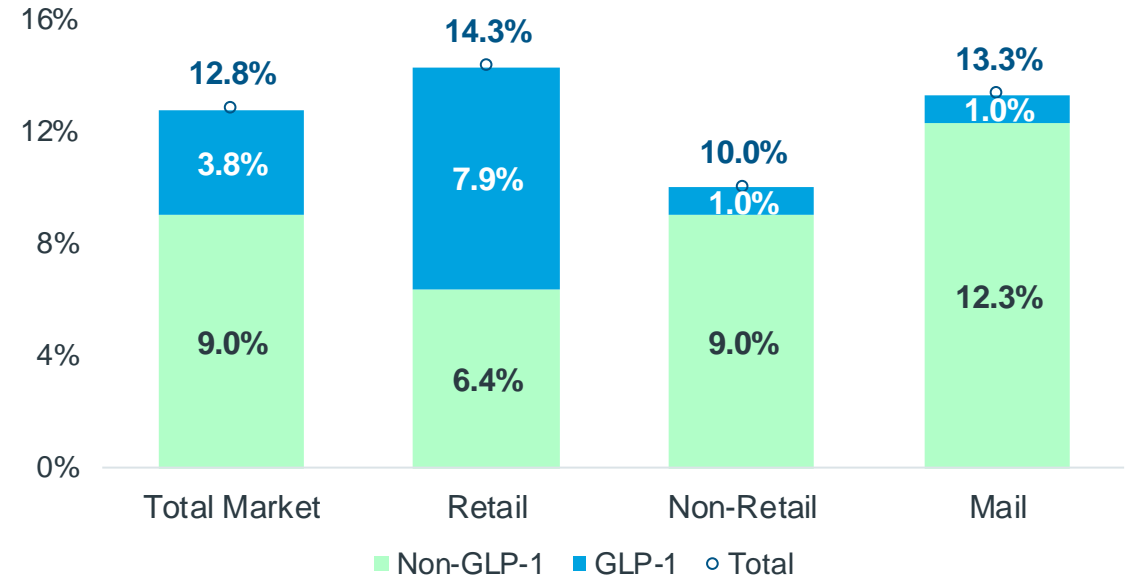
Moving Annual Total GLP-1 Sales Dollars (Billions)



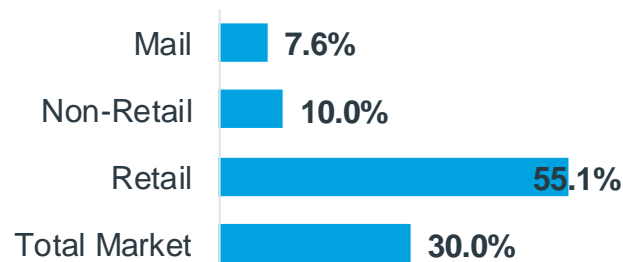
Note: In 2018 there was no Rybelsus, Wegovy or Mounjaro

Updated with November 2023 Data

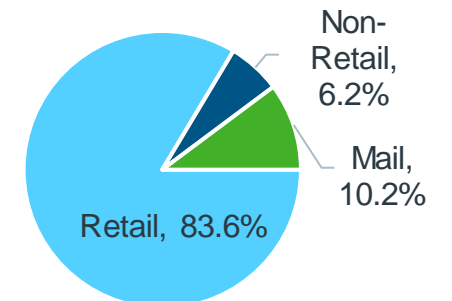
Moving Annual Total Sales Contribution to Growth



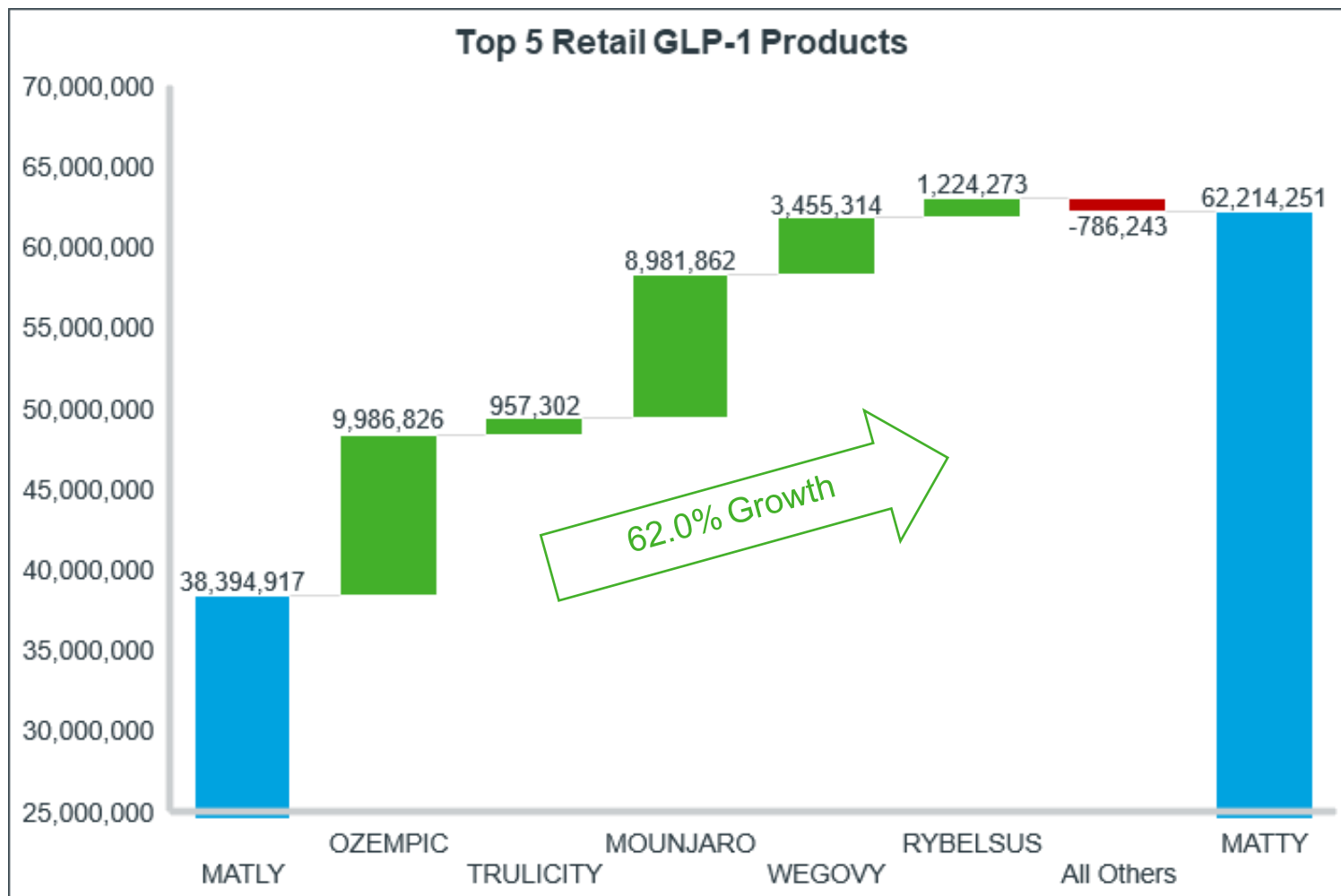
What % of sales growth are GLP-1s?



Where are the sales coming from?



Ozempic and Mounjaro* drove most of the volume growth among GLP-1s



- The Retail sector grew 62.0%, over 23.8M adjusted prescriptions year over year
- All Others combined saw decline

Product	MATTY Adj. Rx's
OZEMPIC	23,969,872
TRULICITY	15,700,257
MOUNJARO	10,692,340
WEGOVY	4,391,466
RYBELSUS	3,910,841
All Others	3,549,475

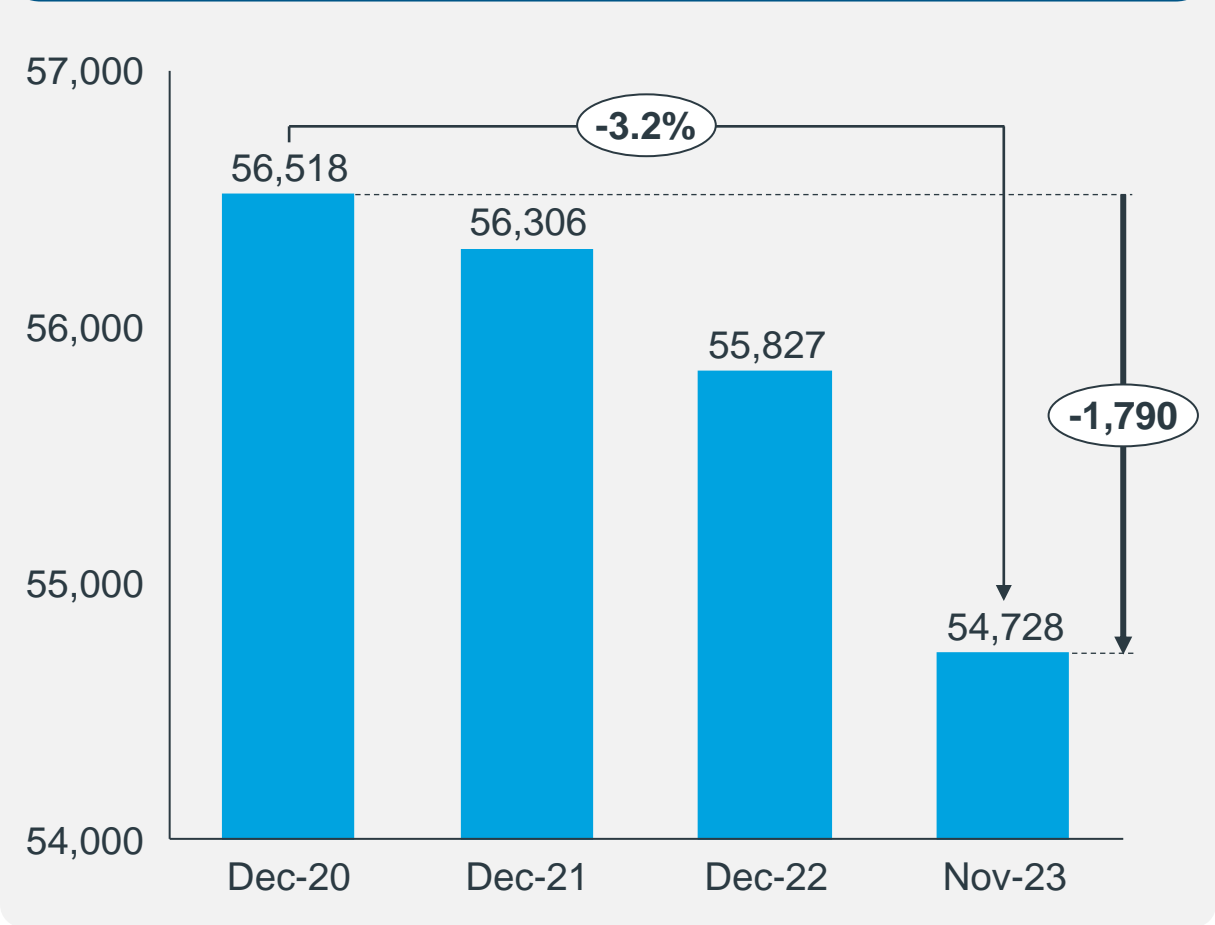
Limited to GLP-1s

*Mounjaro started showing volume in June 2022

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There are ~1,800 fewer pharmacies since December 2020

of Retail Pharmacies



The number of store fronts continues to decrease

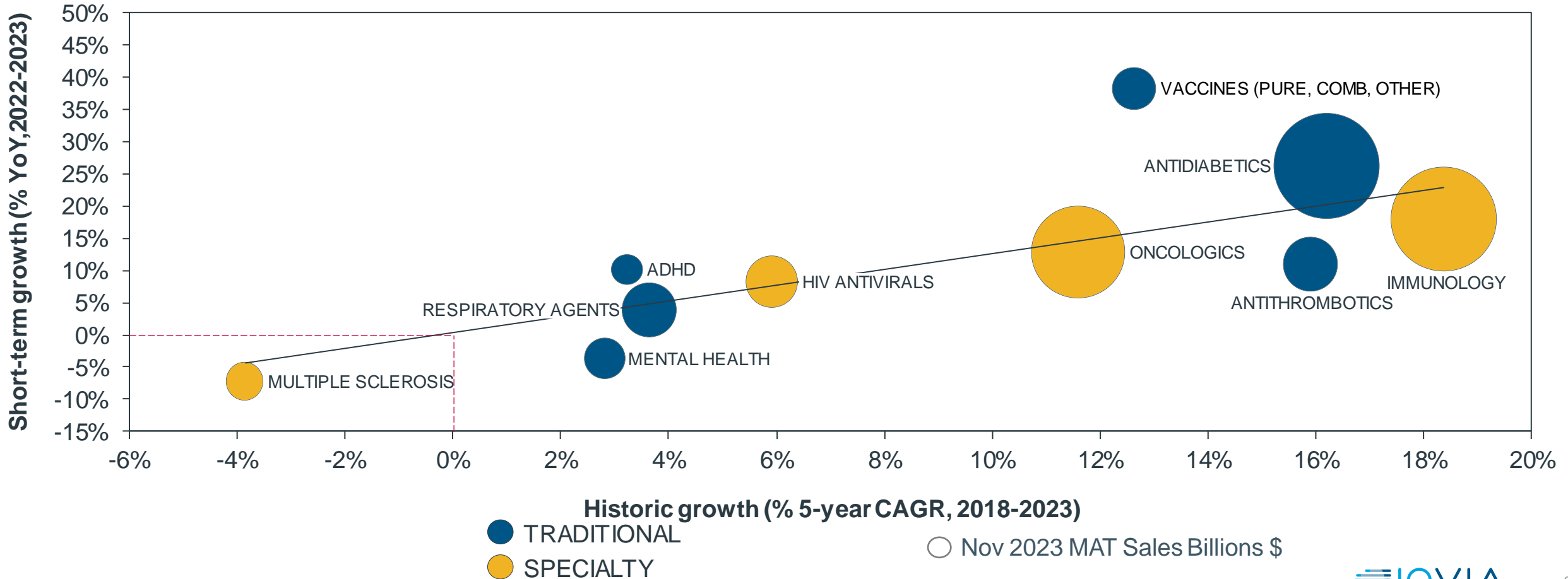
- CVS is entering the final year of their three-year plan to close 900 stores by 2024
 - The Rite Aid restructuring could create several hundred store closures
 - Kroger and Albertsons merger will likely impact the number of pharmacies
 - Aldi's acquisition of Southeastern Grocers means the closure of more pharmacies
- (The information above is publicly available).

Immunology and Antidiabetics lead long-term growth

Vaccines lead short-term growth

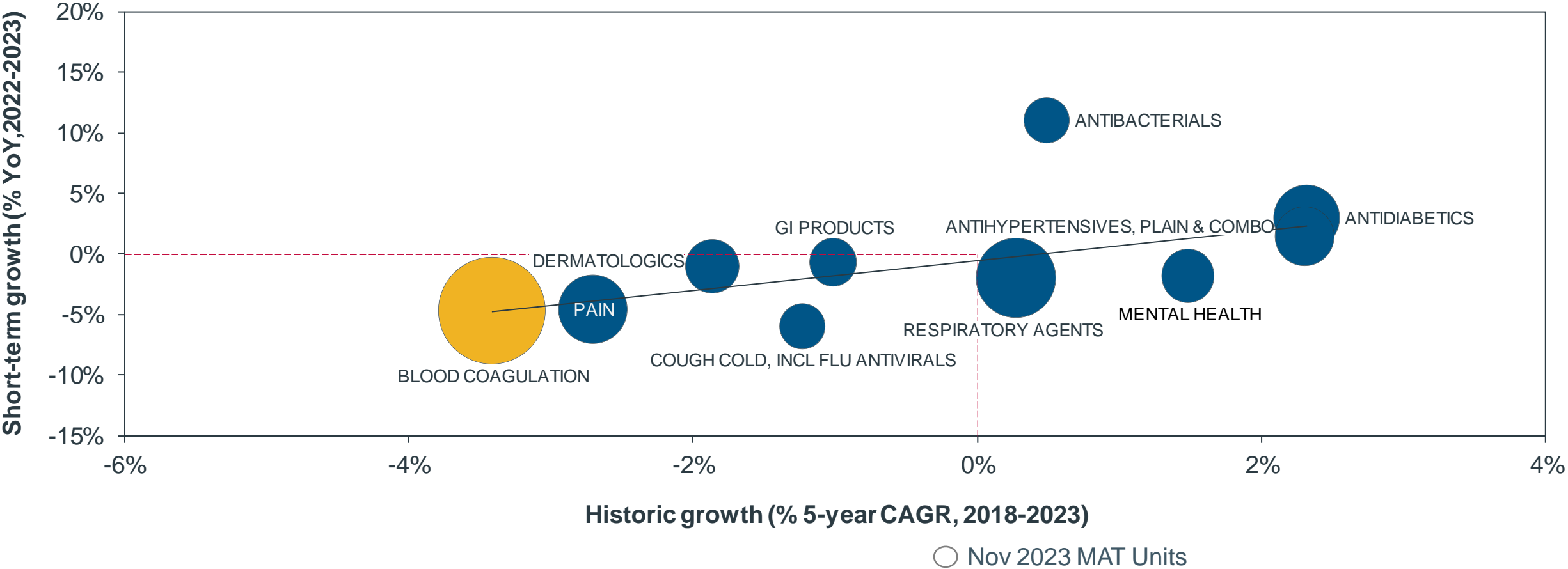
COVID-19 Vaccines are not included in Sales \$

Top-10 Therapies by Sales (\$)



On a Units basis, Antibacterials leads short-term growth and Antidiabetics leads long-term growth

Top-10 Therapies by Units



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Drug Shortages

Not all drug shortages are created equal

Drug shortages are large and increasing; fewer are being resolved

Some of the impact of **injectable shortages** is **driven by demand**, where some purchasers have **increased orders to buffer the expected disruptions**.

Not all purchasers are able to pursue these approaches and shortages have impacted some differently than others.

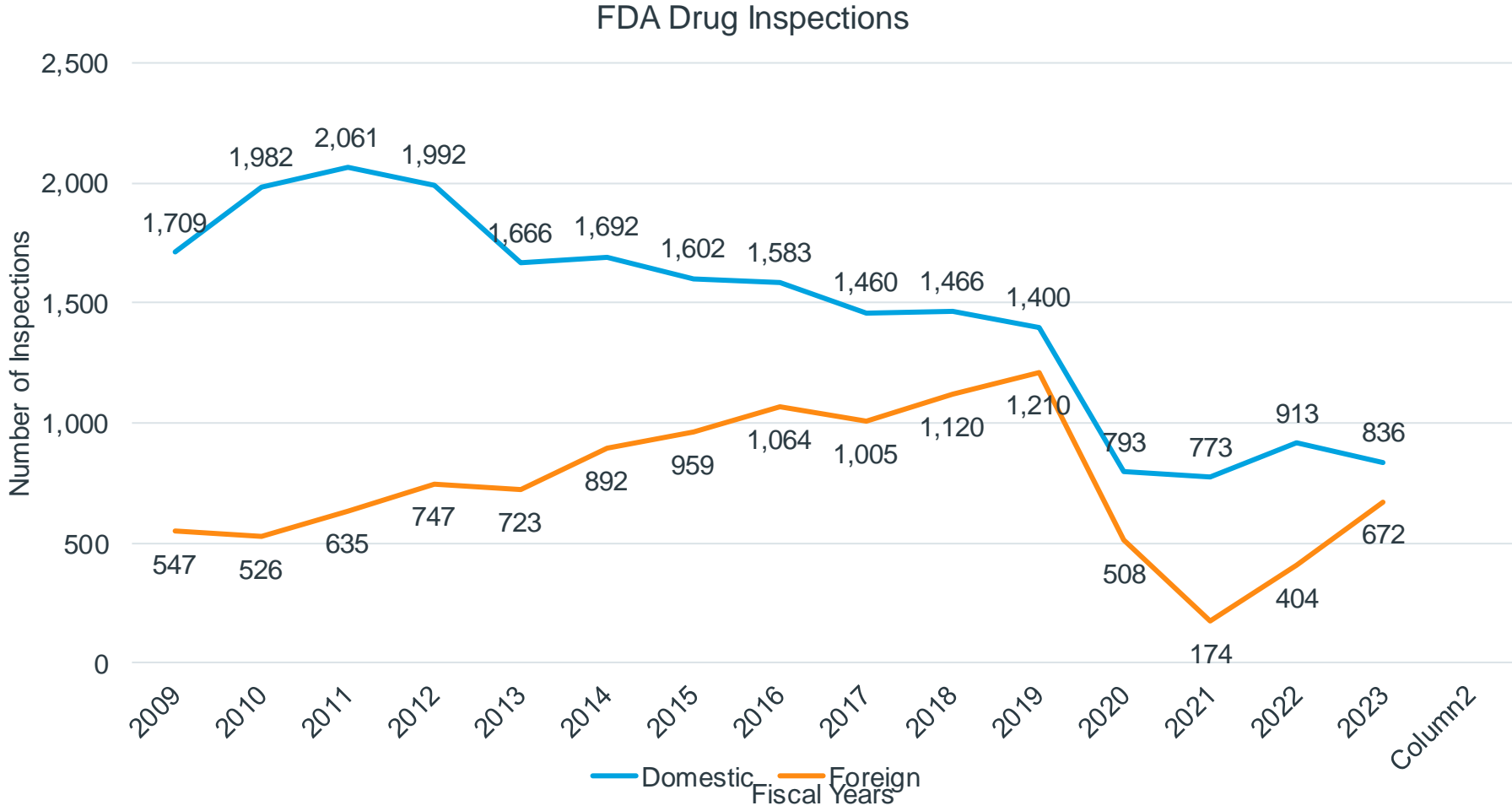
There are **more shortages in generics and injectables; Orals and brand** shortages are due to demand.

Key drugs in shortage include cancer medications **cisplatin** and **carboplatin**; a form of the antibiotic **amoxicillin**; **Ozempic**, **Mounjaro** and **Trulicity**; as well as **Adderall**.

Supply issues within the **sterile injectables** include the impacts of dynamic market shifts between manufacturers from **production disruption** (e.g., due to inspection, shortage of active ingredient, natural disasters) which have impacted oncology and antibacterials.

Sources: Michael Kleinrock, IQVIA Institute, [Drug shortages shine spotlight on FDA powers | The Hill](#)

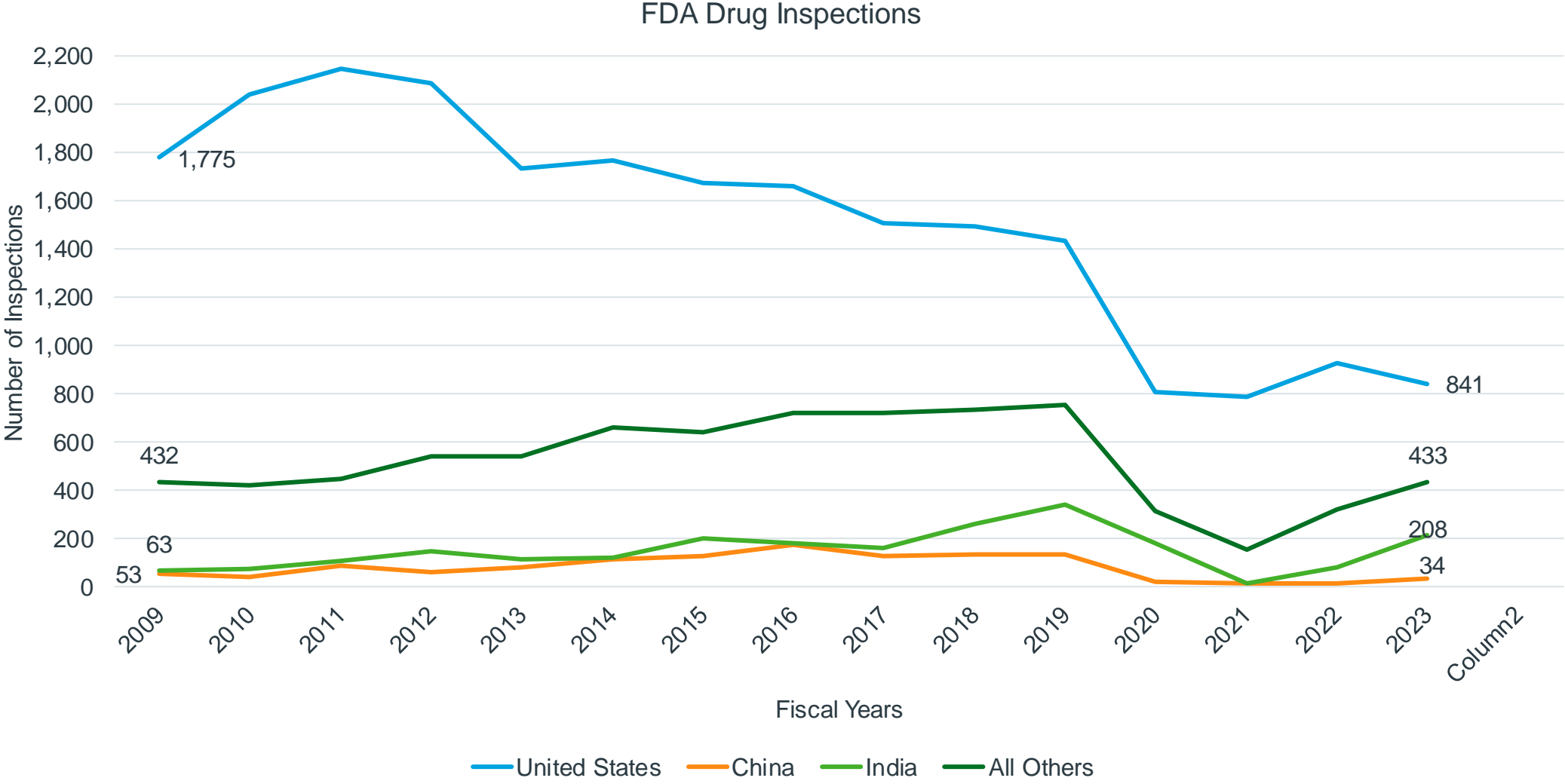
FDA's inspections of pharmaceutical manufacturing facilities have yet to return to pre-COVID levels



- Important Notes:
 - Not all inspections are included in the database. Inspections conducted by States, pre-approval inspections, mammography facility inspections, inspections waiting for a final enforcement action, and inspections of nonclinical labs are not included.
 - The results show final classifications of No Action Indicated (NAI), Voluntary Action Indicated (VAI), Official Action Indicated (OAI) for each project area within an inspection.

The U.S. Government's Fiscal Year runs October 1 through September 30
 Data Source: <https://datadashboard.fda.gov/ora/cd/inspections.htm> , data pulled 1/29/2024

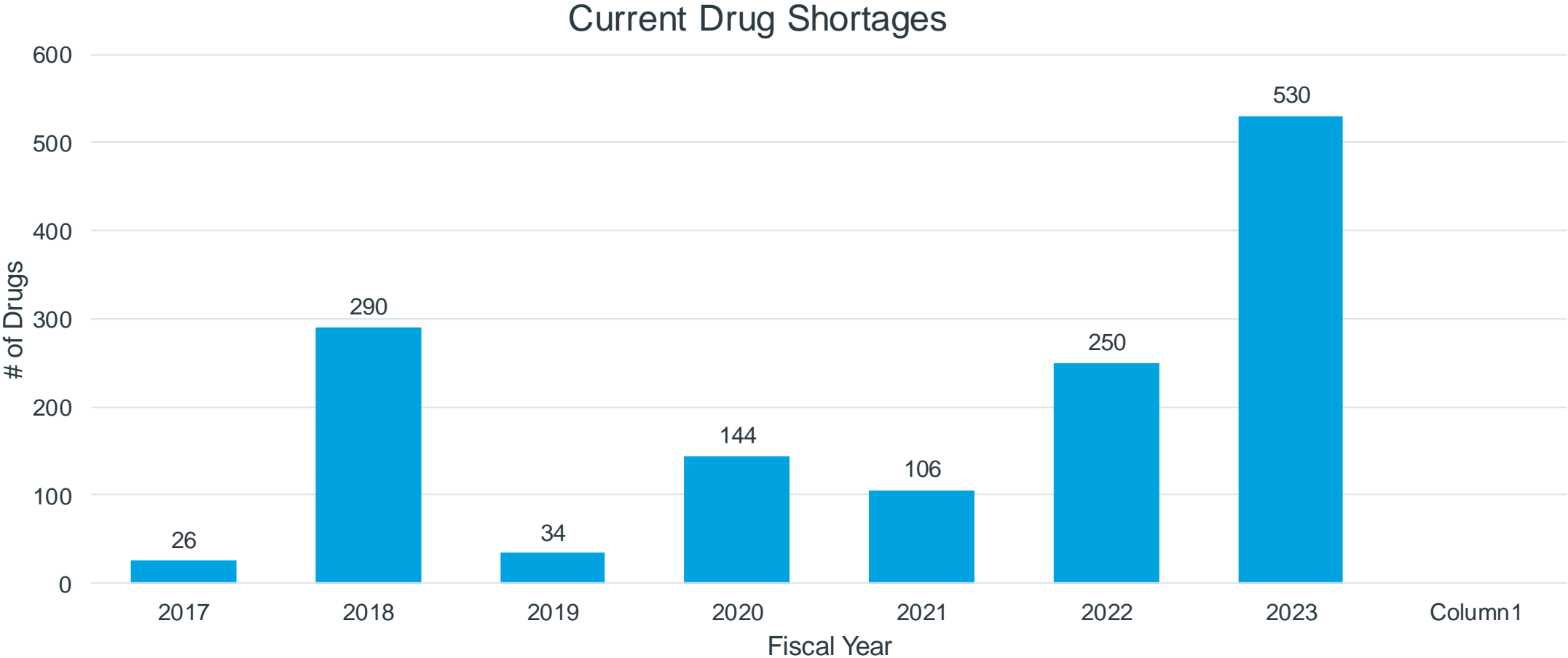
Inspections of pharmaceutical manufacturing facilities have increased in India and other foreign countries in the last 2 years



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 Data Source: <https://datadashboard.fda.gov/ora/cd/inspections.htm> , data pulled 1/29/2024

The number of drugs listed in the FDA Drug Shortages data set continues to remain high



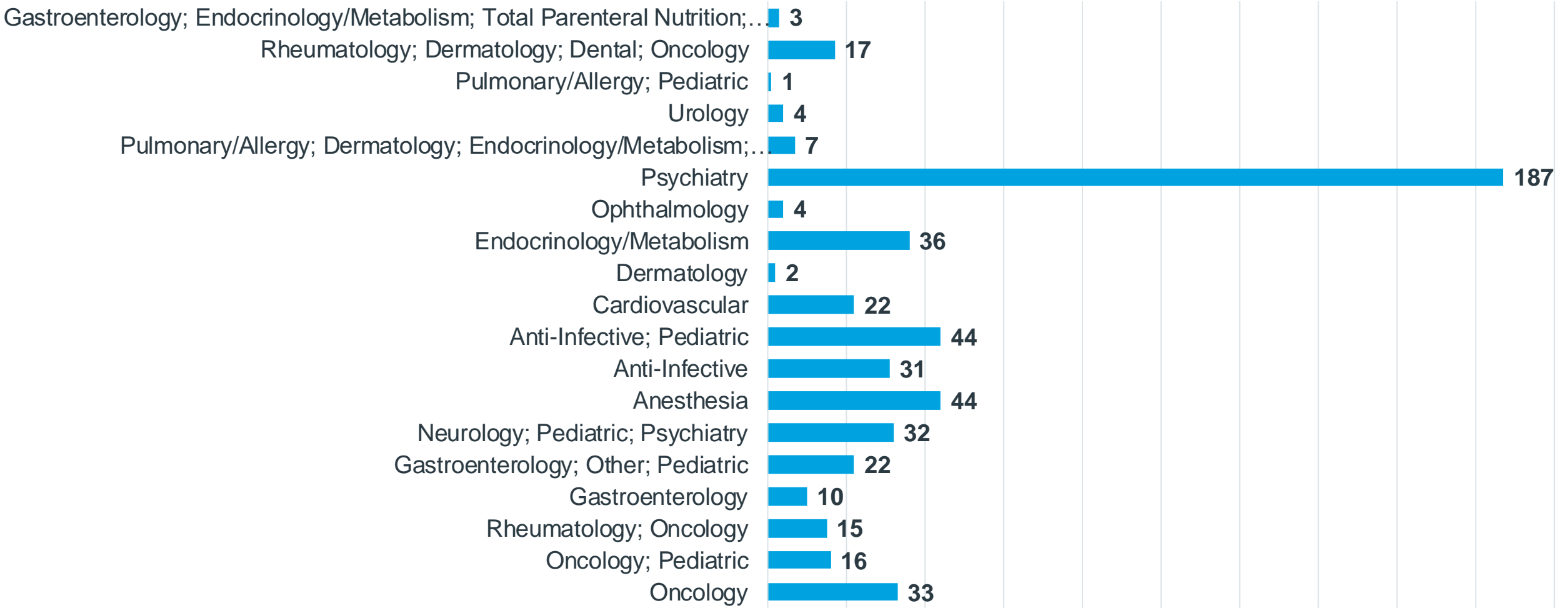
Note: The U.S. Government Fiscal Year runs from Oct 1 through Sep 30 (This slide depicts only three months of the fiscal year for 2024)

Data Source: <https://www.accessdata.fda.gov/scripts/drugshortages/default.cfm>, data pulled 1/29/2024

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Psychiatry drugs have the greatest number of shortages according to the FDA

Drug Shortages by Therapy Area Fiscal Year 2023

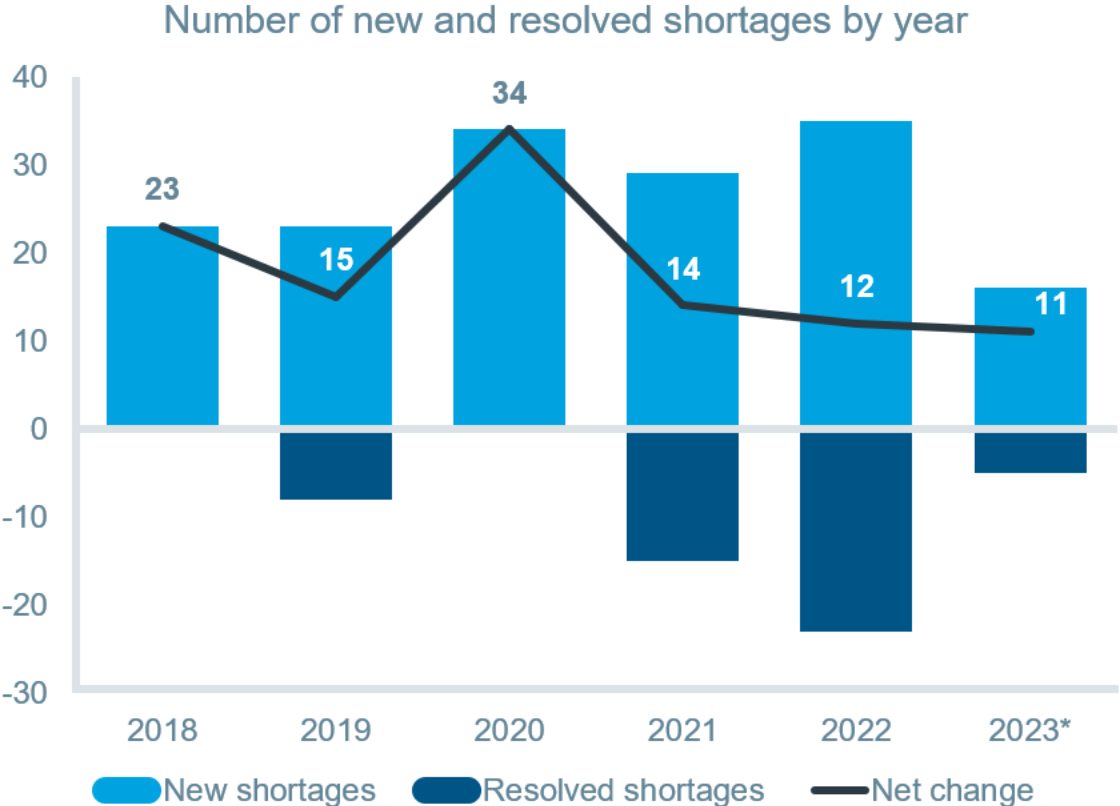


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Data Source: <https://www.accessdata.fda.gov/scripts/drugshortages/default.cfm>, data pulled 1/29/2024

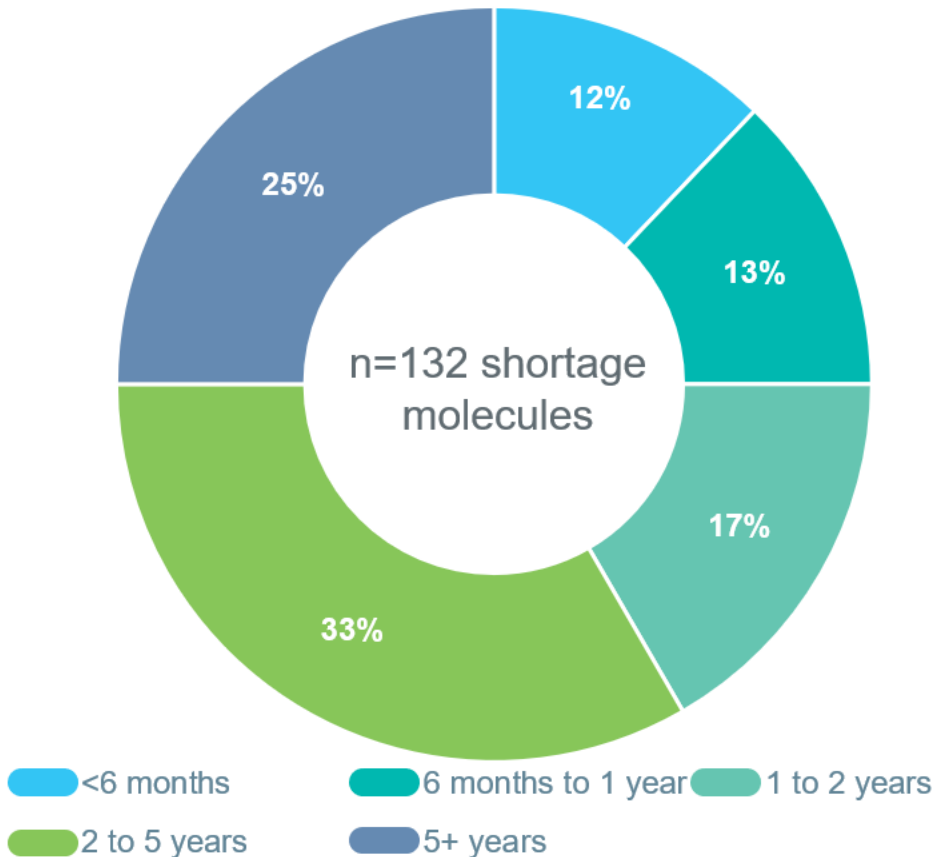
More shortages continue to be reported than resolved with 58% of current shortages ongoing for more than two years

Net shortage increase by year and time since first posting of current shortages



*2023 is through June

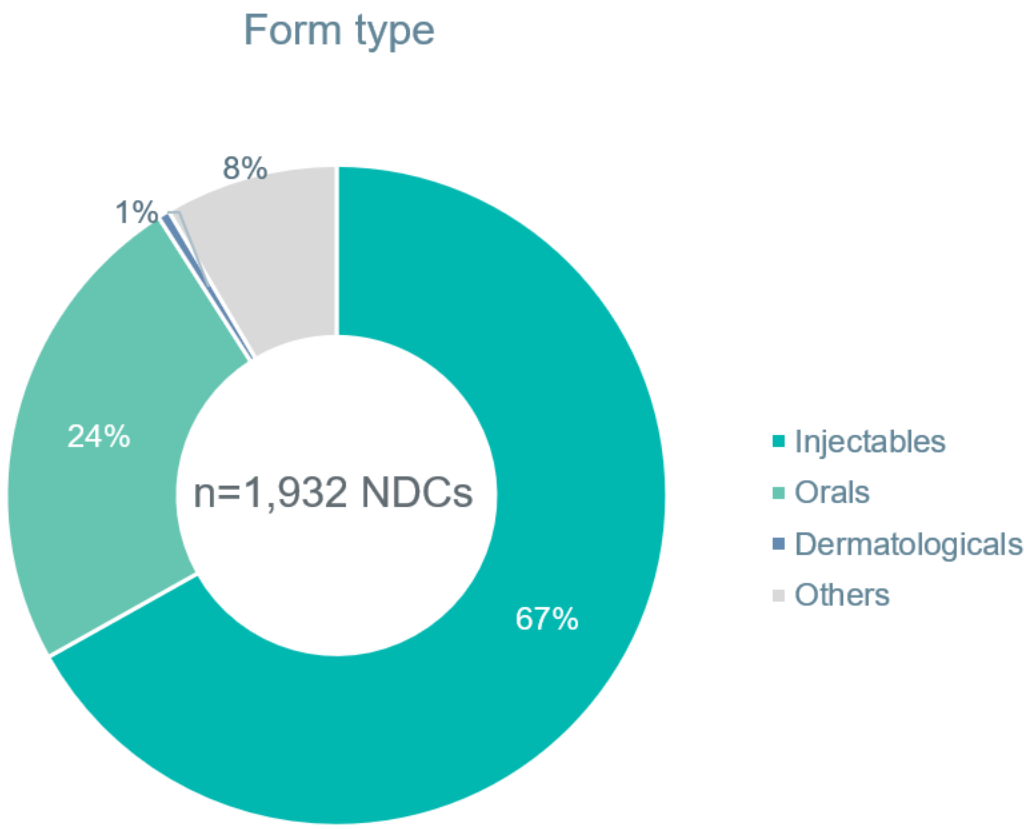
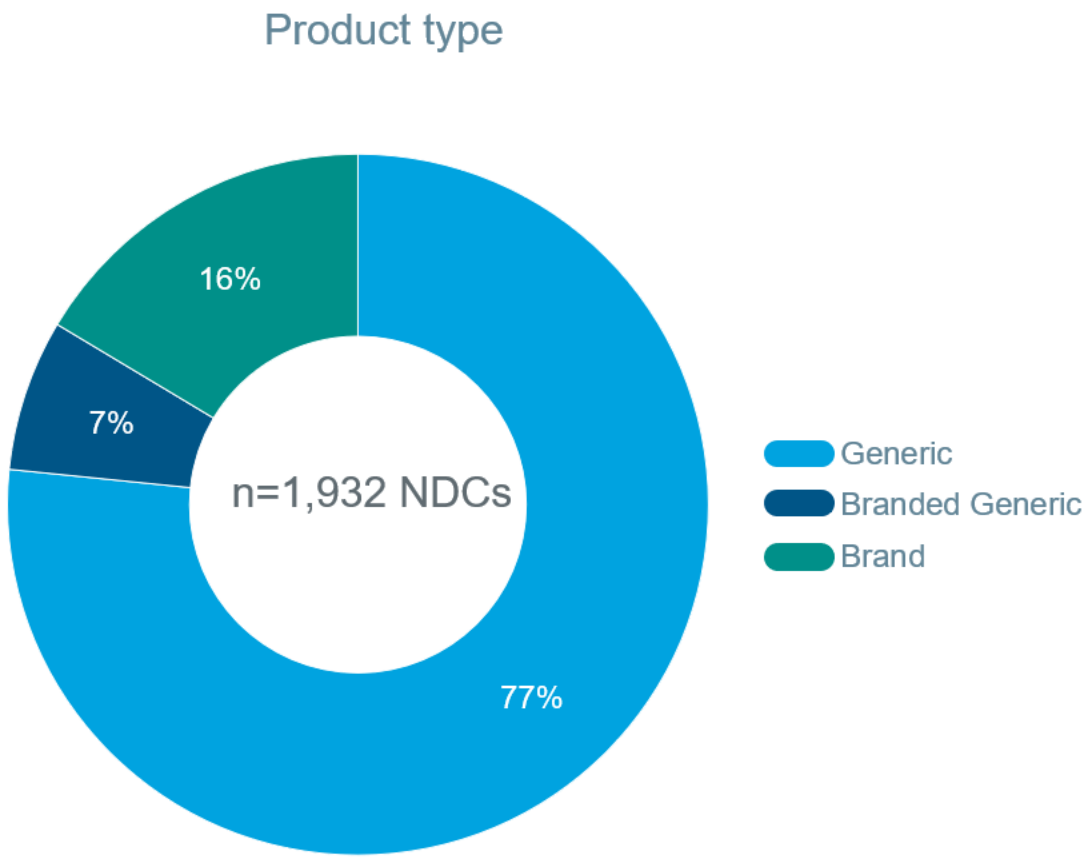
Current shortages as of Jun 2023 by time since first posting



Source: FDA Drug Shortages Database, IQVIA National Sales Perspective, Jun 2023; IQVIA Institute, Oct 2023.

84% of the drugs in shortage in the last six years are generics, 67% injectables, and 24% orals

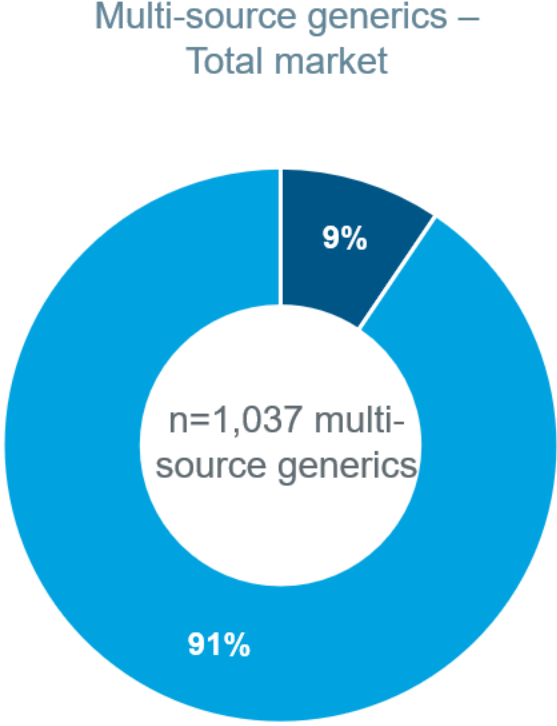
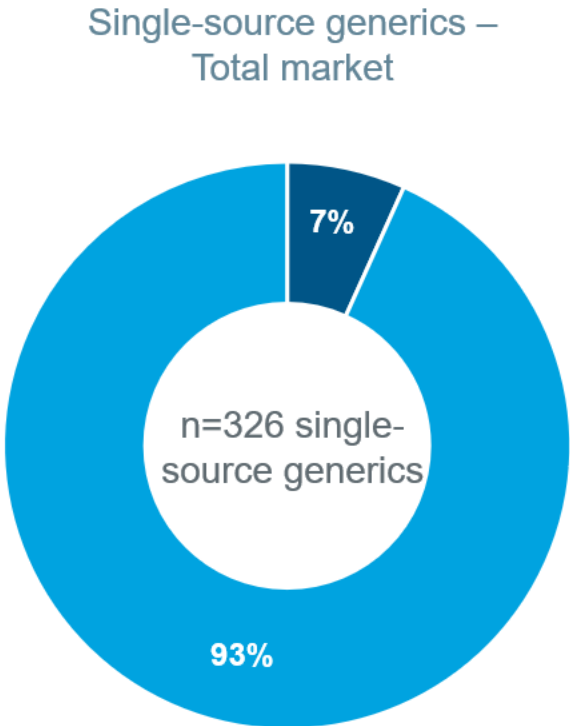
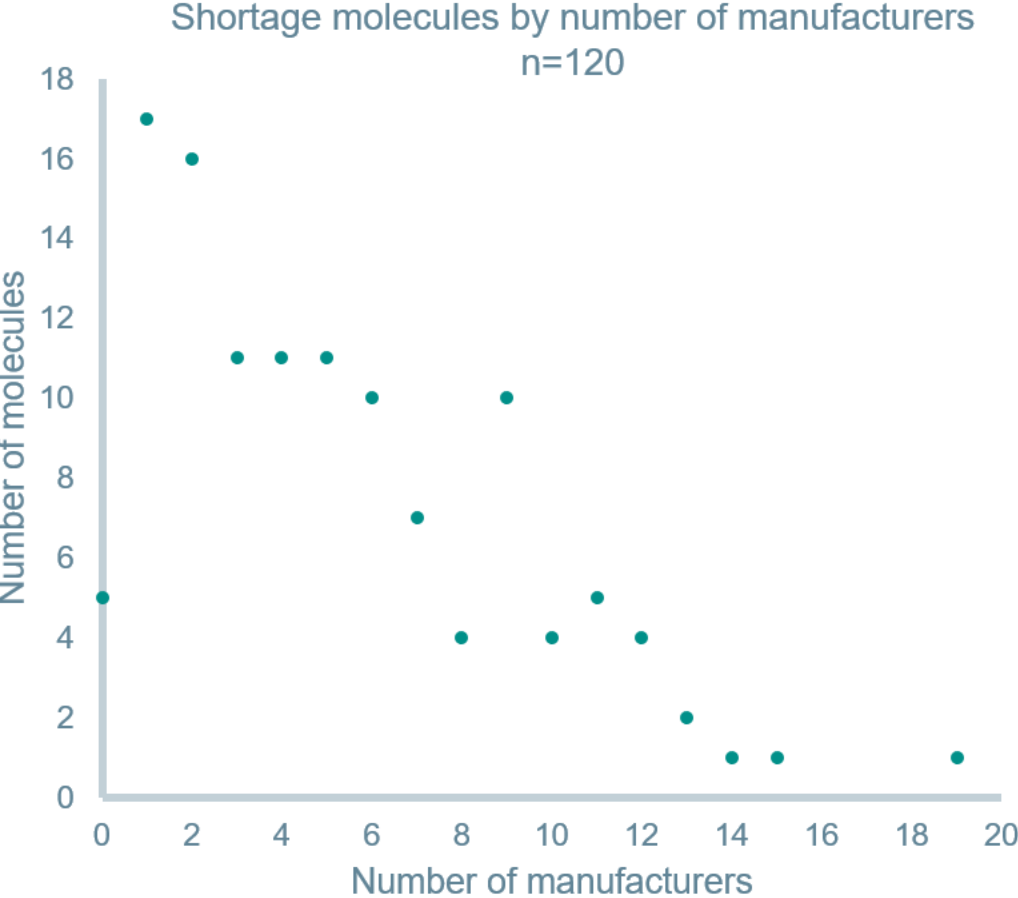
FDA shortages by product type and form, 2017–Jun 2023



Source: FDA Drug Shortages Database, IQVIA National Sales Perspective, Jun 2023; IQVIA Institute, Oct 2023.

Multi-source generic molecules are more likely to be in shortage than single-source molecules

Generic molecules by shortage status and number of manufacturers, Jan–Jun 2023

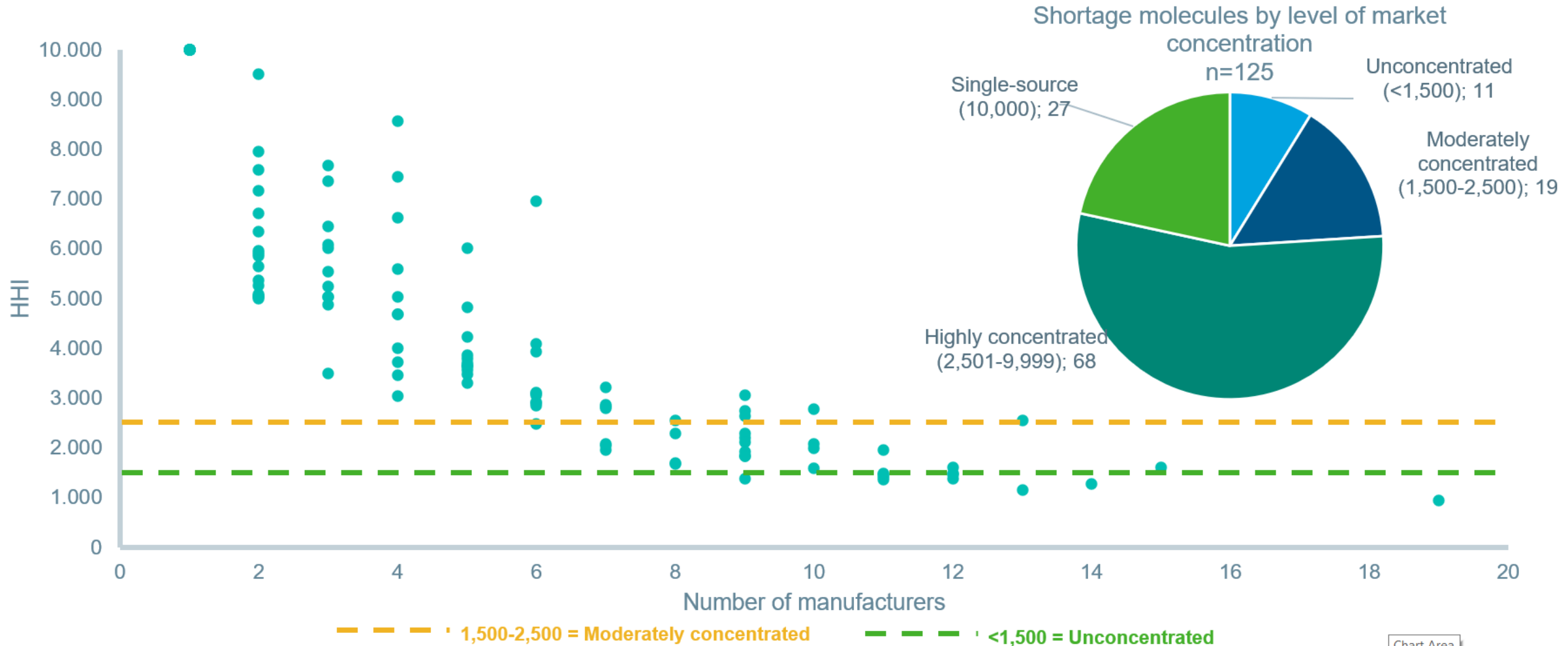


Legend: In shortage (dark blue), Not in shortage (light blue)

Source: FDA Drug Shortages Database, IQVIA National Sales Perspective, Jun 2023; IQVIA Institute, Oct 2023.

Most molecules with shortages are multi-source but remain highly concentrated, impacting resilience to shortages

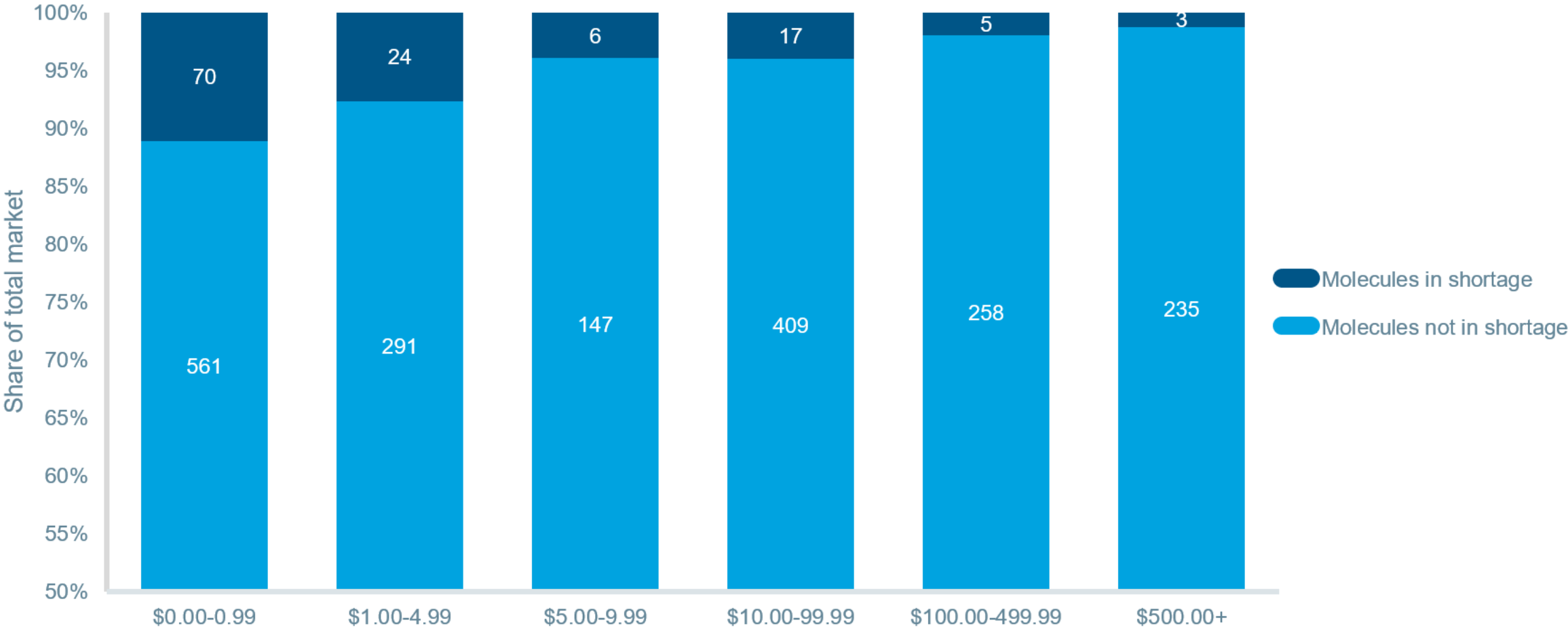
Shortage molecule Herfindahl-Hirschman Index (HHI) and number of companies, Jan–Jun 2023



Source: FDA Drug Shortages Database, Jun 2023; IQVIA National Sales Perspective, Jul 2023; IQVIA Institute, Jul 2023.

Shortages are more common at lower prices with 56% of molecules in shortage priced less than \$1.00 per unit

Average invoice price per extended unit of molecules, Jan–Jun 2023, n=2,026

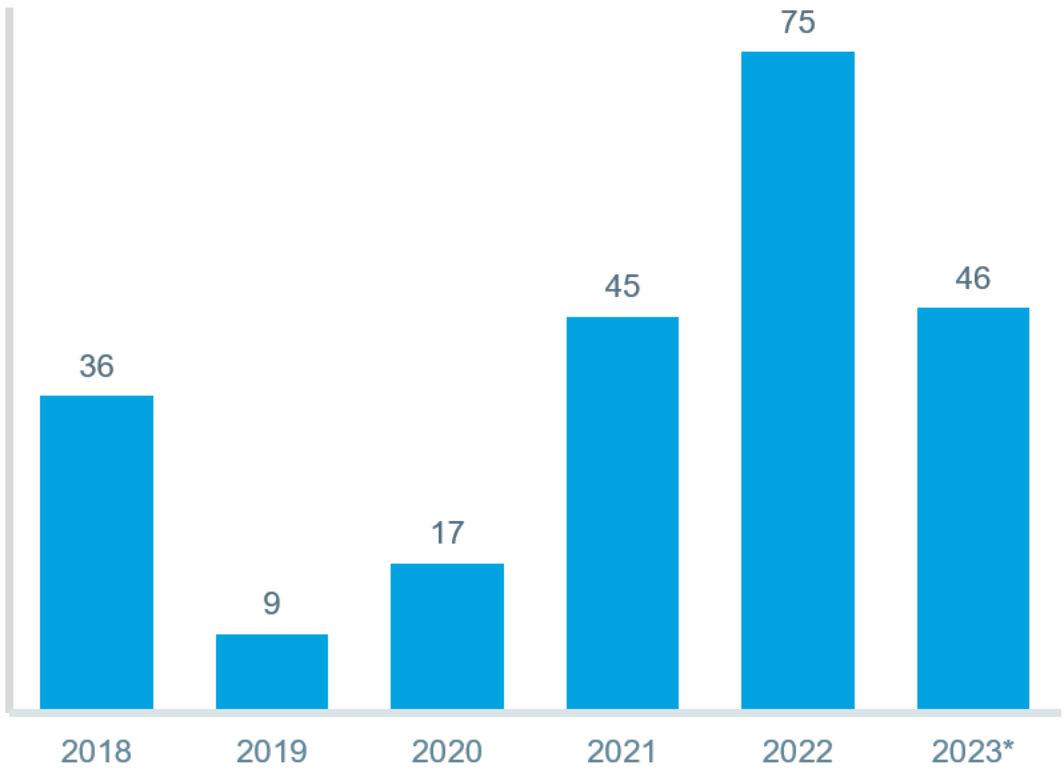


Source: FDA Drug Shortages Database, Jun 2023; IQVIA National Sales Perspective, Jul 2023; IQVIA Institute, Jul 2023.

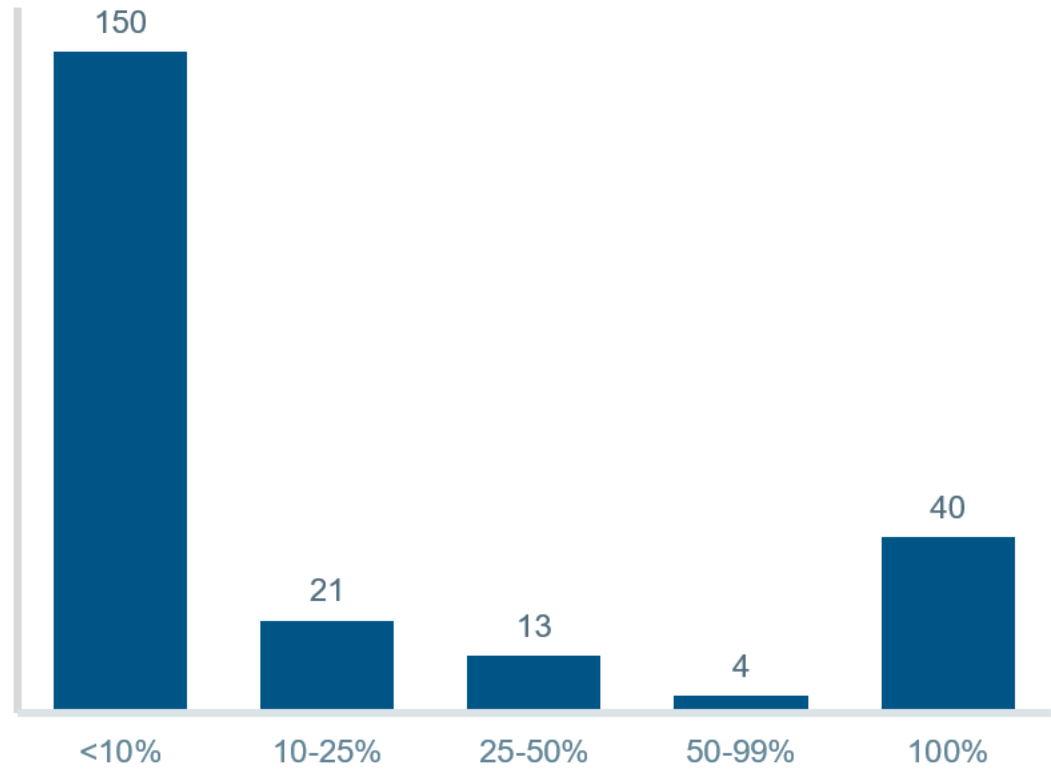
Planned pack discontinuations rarely lead to shortages, but market exit can disrupt other participants and affect resilience

Planned discontinuations by first posting date and volume share prior to posting

Molecules with discontinuations by first posting date



Planned discontinuations share of molecule volume one month prior to posting



*2023 is through June

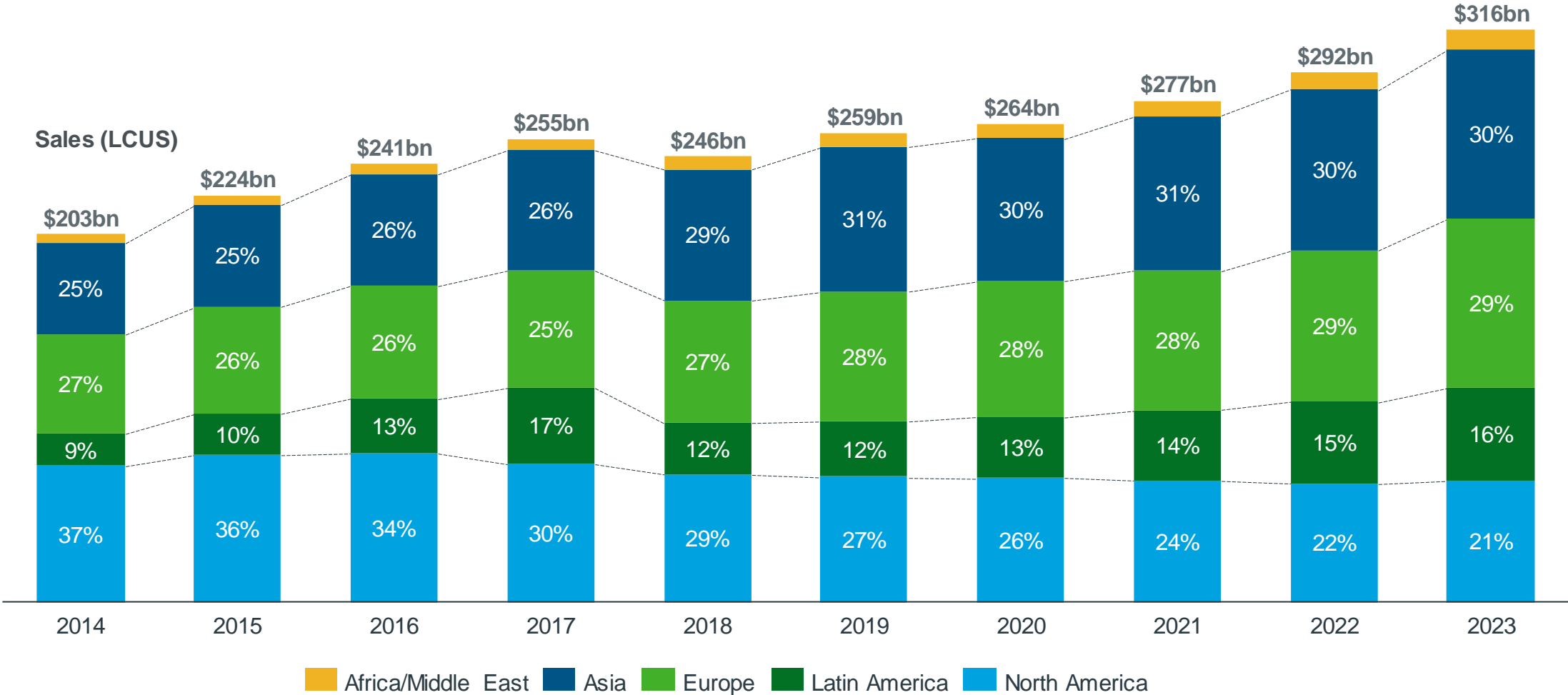
Source: FDA Drug Shortages Database, IQVIA National Sales Perspective, Jun 2023; IQVIA Institute, Oct 2023.

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Generics and Biosimilars

Global generic sales continued to grow in 2023

Latin America continues to record YoY growth, driving growth worldwide

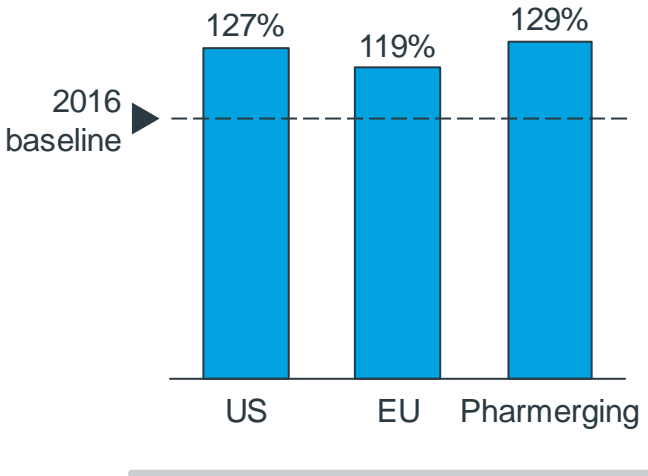


Source: IQVIA GS&AR; IQVIA, MIDAS MAT Q3 2014-2023; Retail and Hospital; Rx and no Rx. Generics Product Class: Generics + Early Entry Generics.

Increasing competition has pressured the generics market

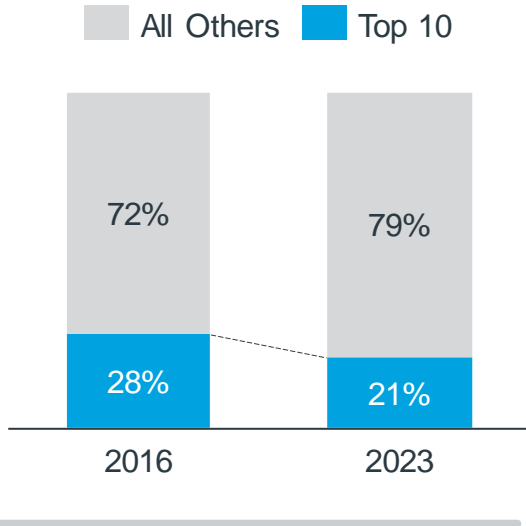
New players have reduced the top 10 companies market share (globally)

Number of Gx Players in 2021 vs 2016
(>\$10mn sales, Indexed to 2016)



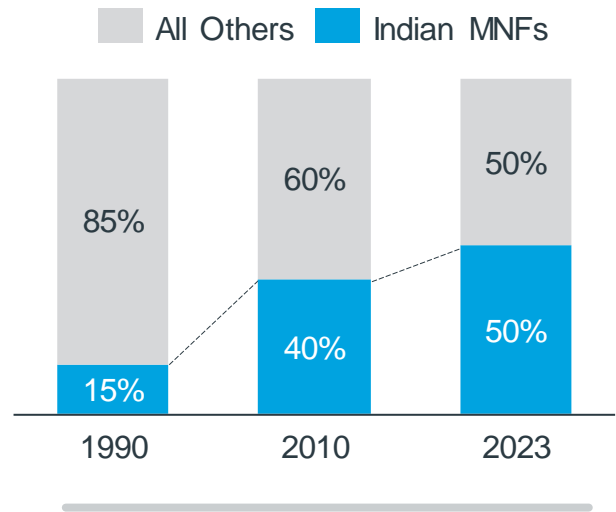
- Rapid increase in competition in the US and Europe is driving fragmentation
- Manufacturers seek growth in Pharmerging

Market share of top 10 Gx companies
(2016-23, USD)



- Rapid rise of competition has eroded share from top 10
- The Gx sector is increasingly fragmented

New Gx players in 1990 vs 2023
(US only, % ANDA applications)

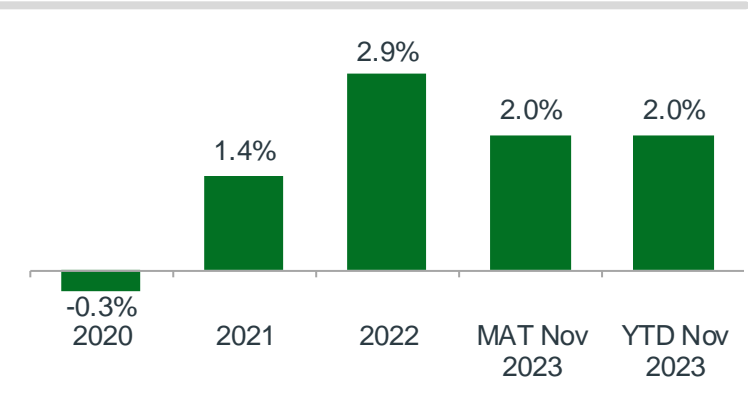
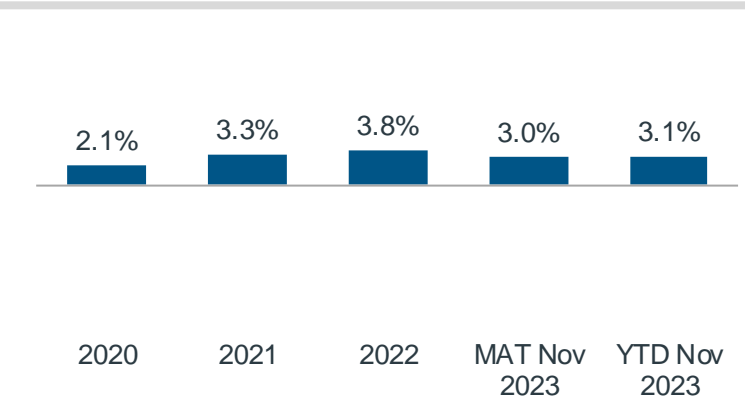
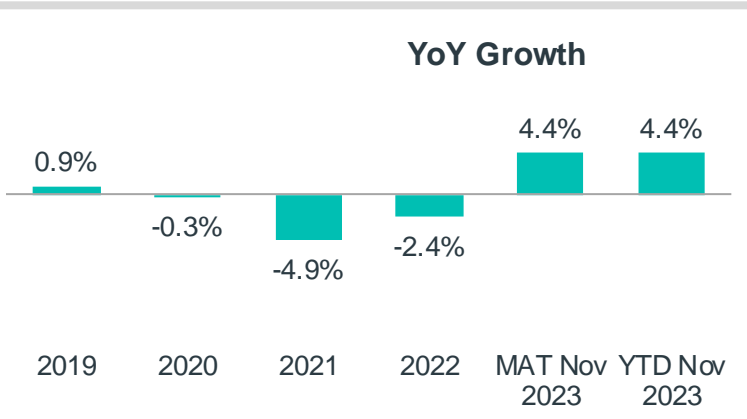
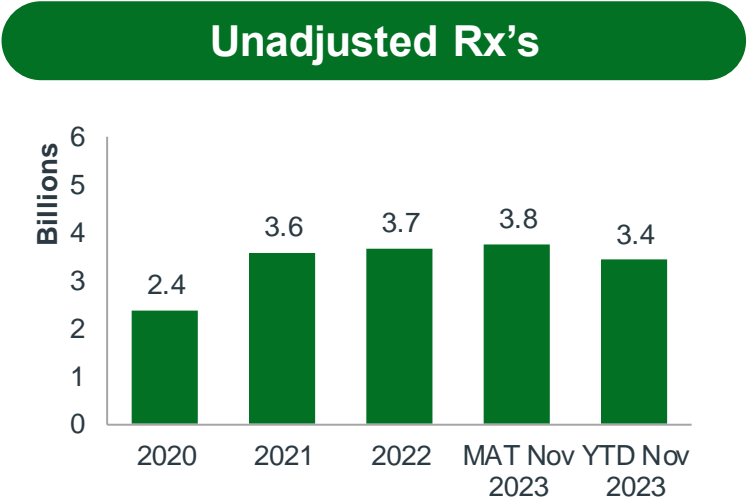
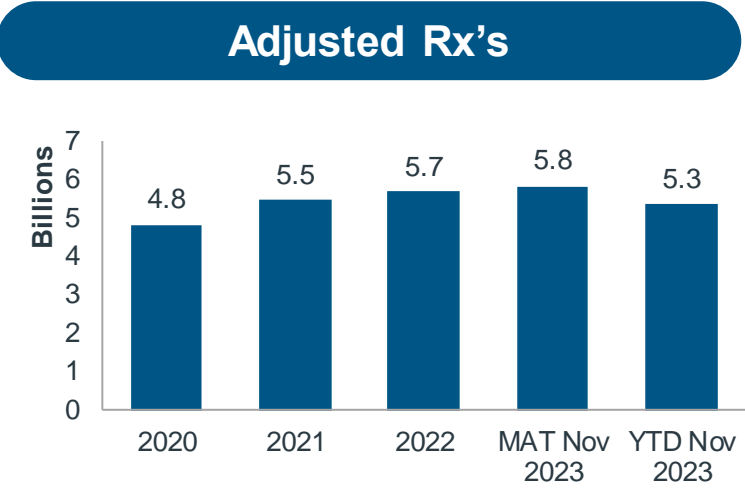
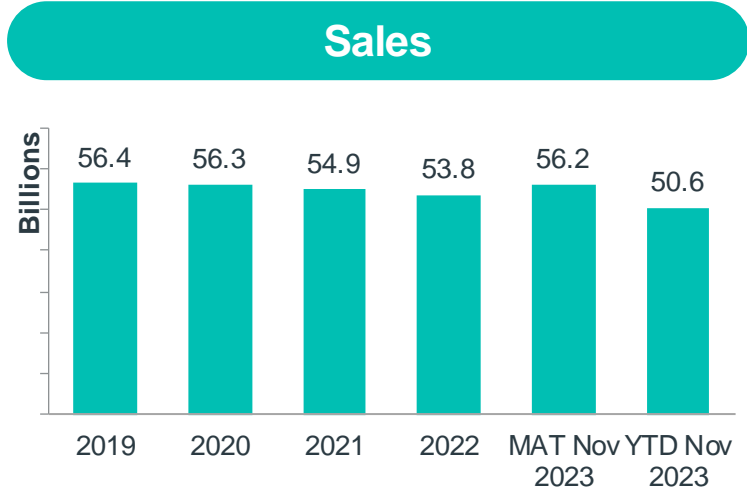


- In 1990, ~50% of ANDAs came from U.S. firms and 15%, from India
- Indian players continue to compete for market share

Notes: Excluded TAs = hospital solutions, Kanpo and Chinese, imaging agents, Diagnostics, vaccines, non-therapeutic agents. Source: IQVIA EMEA Thought Leadership; IQVIA MIDAS MAT Q3 2023; Rx only; Innovation insights; IQVIA Institute General US Medicines Spending Outlook 2018-2023

Unbranded Generics sales and Rx's are positive

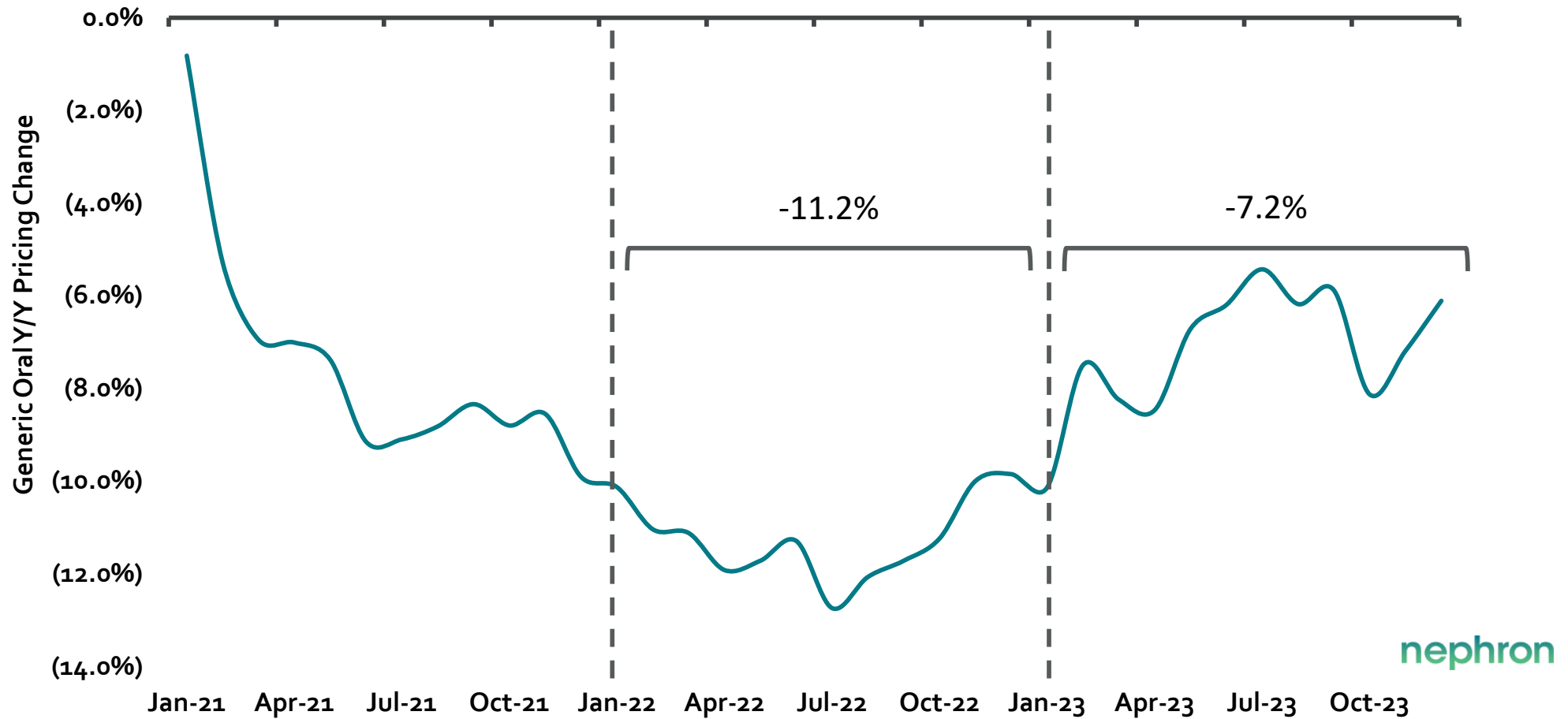
Unbranded Generics



Source: IQVIA, National Sales Perspectives and RxInsights, 2023
 Note: Limited to Rx and OTC Insulins; Includes Retail, Non-Retail and Mail

Generic price deflation is slowing

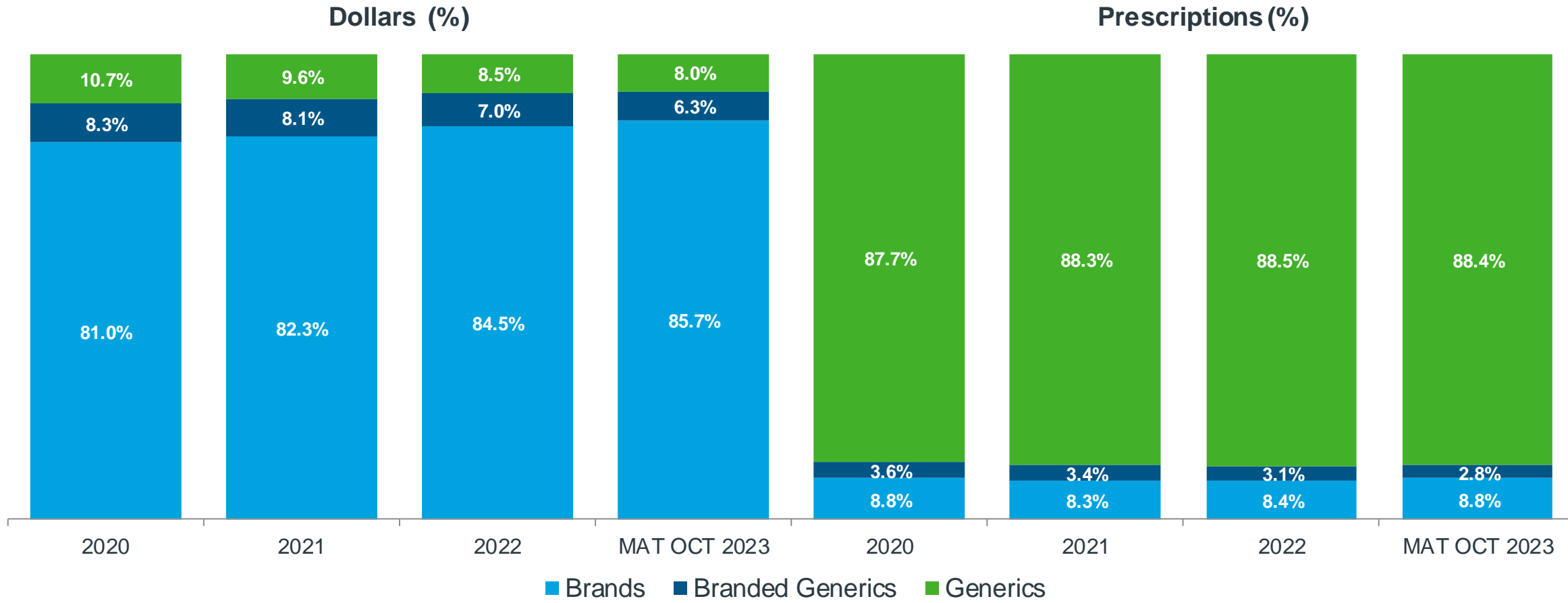
Y/Y Mature Oral Generic Price Trend



Source: Nephron Research, IQVIA, Glass Box Analytics

88.4% of prescriptions in the US are dispensed as generics (Adjusted)

Unbranded Generics account for 8% of spending

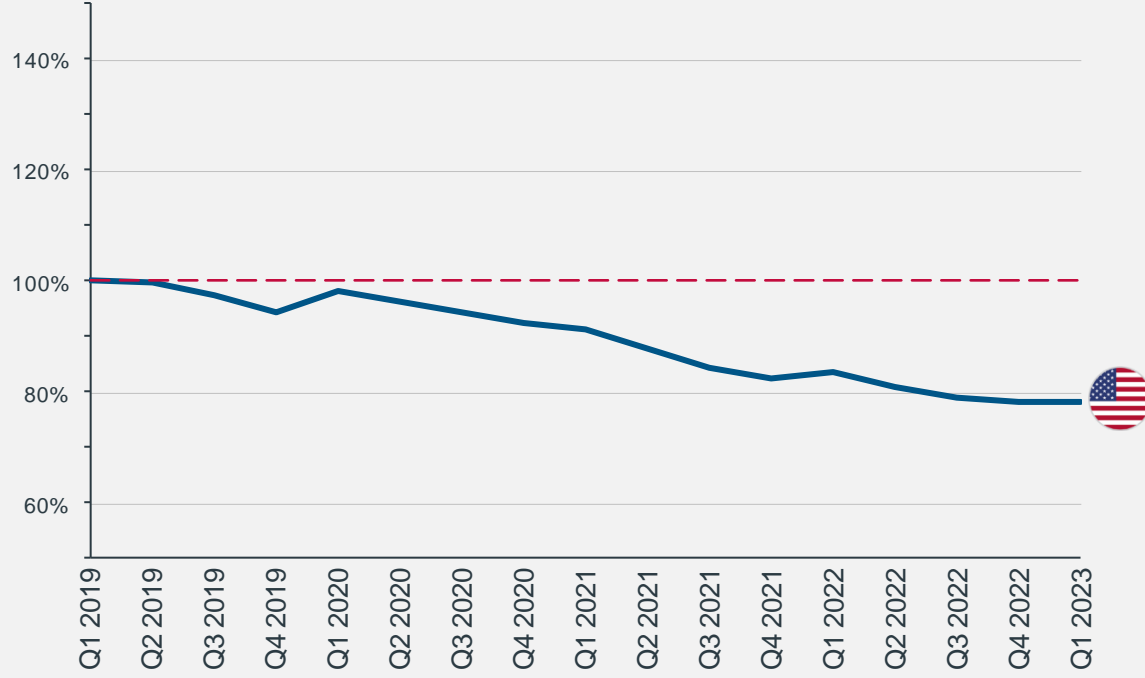


Source: IQVIA National Sales Perspectives; National Prescription Audit(Adjusted), Oct 2023.

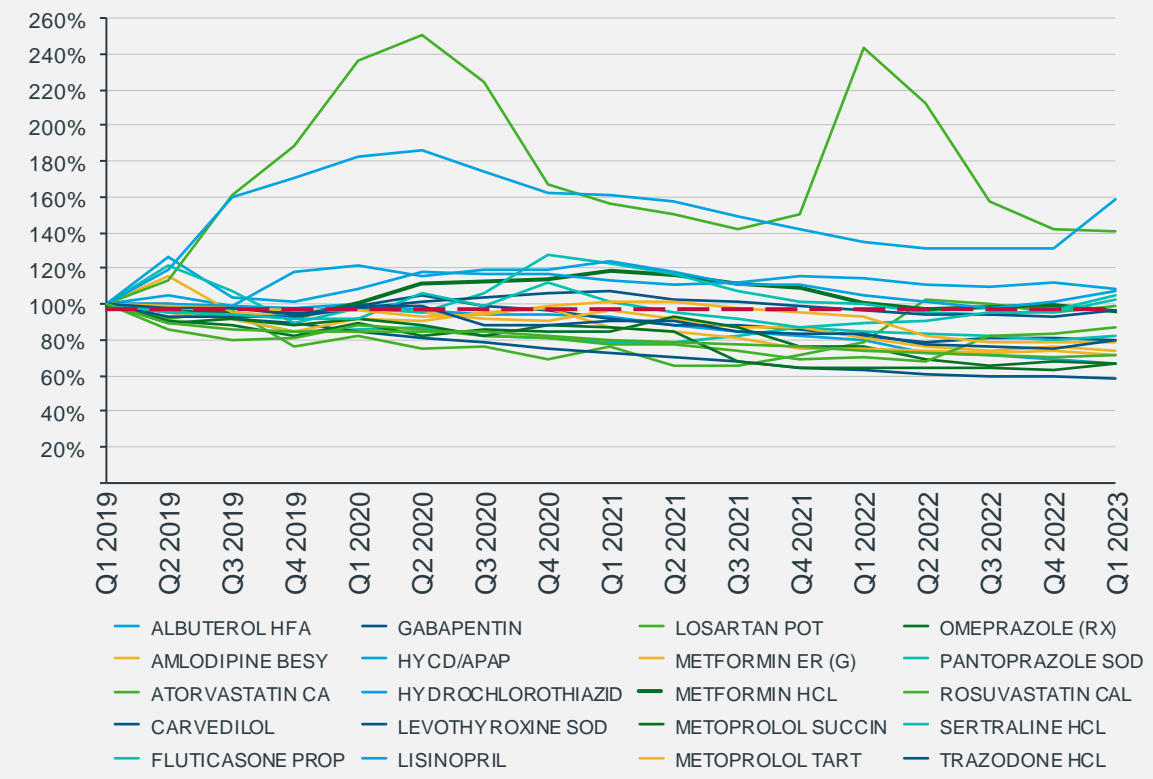
In the US, the price of generics has fallen by ~20% since 2019

Shortages were behind fluctuating prices for losartan and hydrochlorothiazide

Price evolution per standard unit (ASP, average of top 20 Gx)*



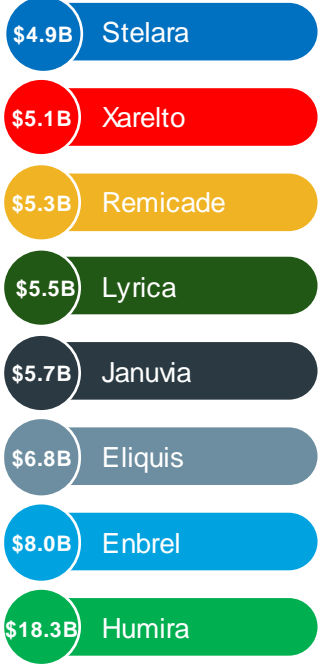
Price evolution per standard unit (ASP, top 20 Gx)



In 2018, it took eight Brand drugs to equal the total Generic business; in 2023 it only takes two

2018

The Top **8 Brand** Molecules = **\$59.5B** in Sales



Entire Generic Market = **1,048 Molecules** and **\$56.3B** in Sales



2021

The Top **4 Brand** Molecules = **\$64.6B** in Sales

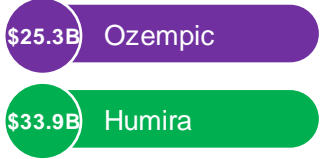


Entire Generic Market = **1,085 Molecules** and **\$55.4B** in Sales



2023

The Top **2 Brand** Molecules = **\$59.2B** in Sales



Entire Generic Market = **1,106 Molecules** and **\$56.2B** in Sales

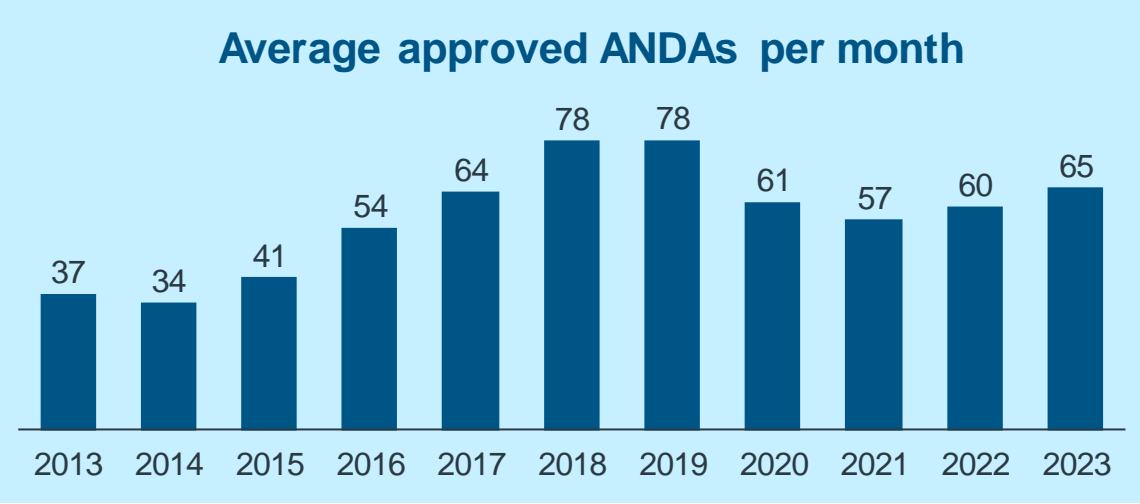
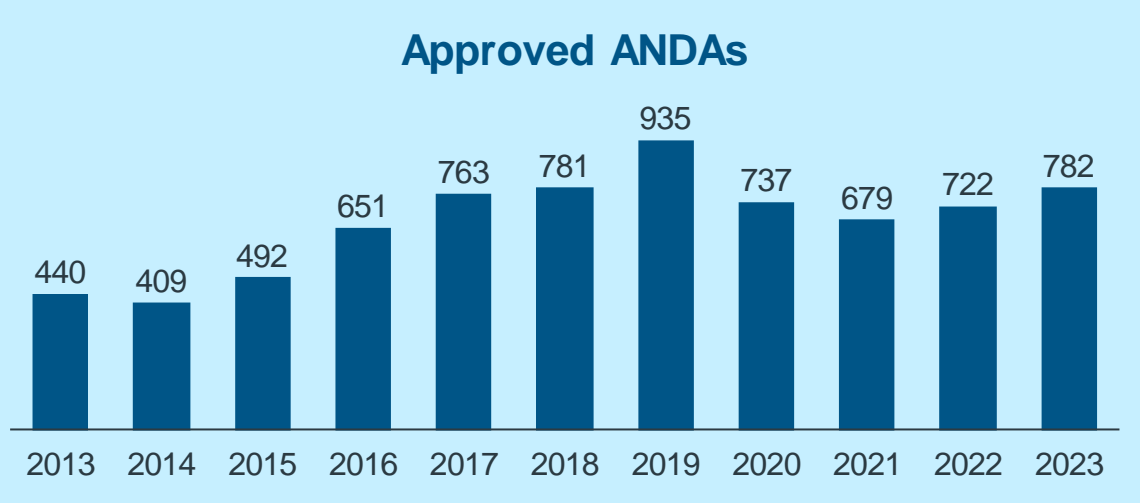
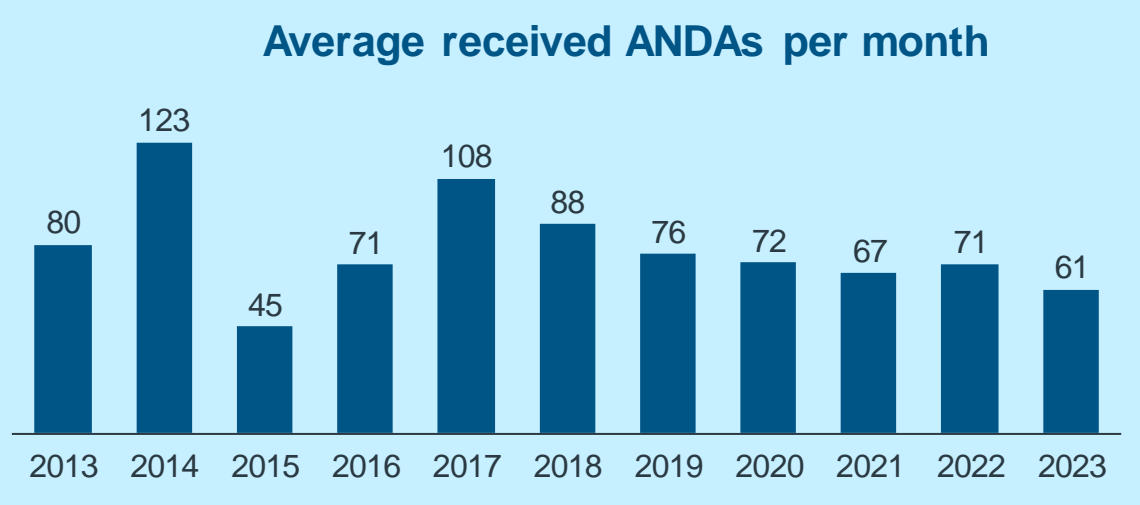
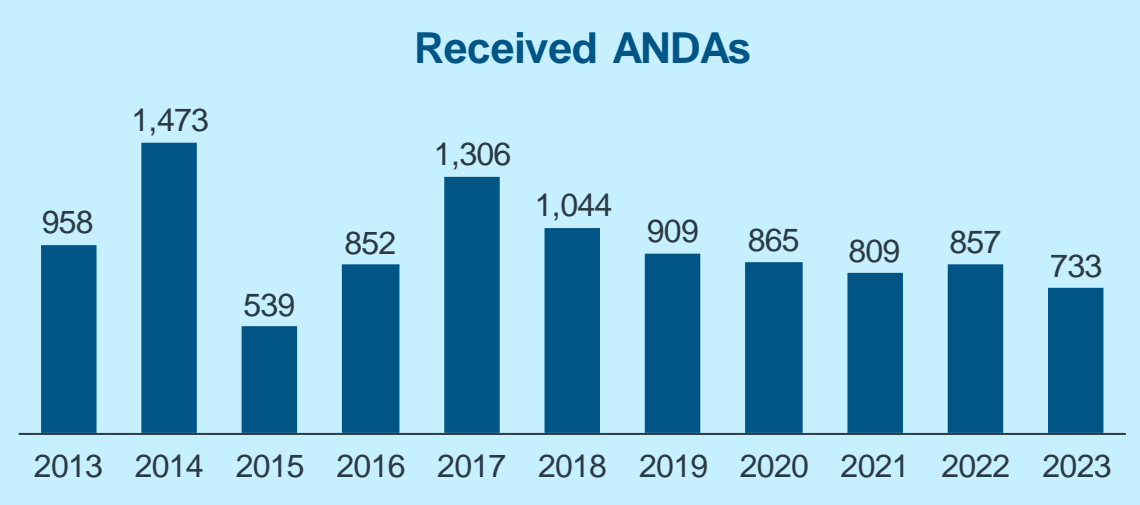


 = 50 Generic Molecules

Data based on the Moving Annual Total month of November

ANDA approvals are trending up since 2021

FDA Fiscal Year Basis

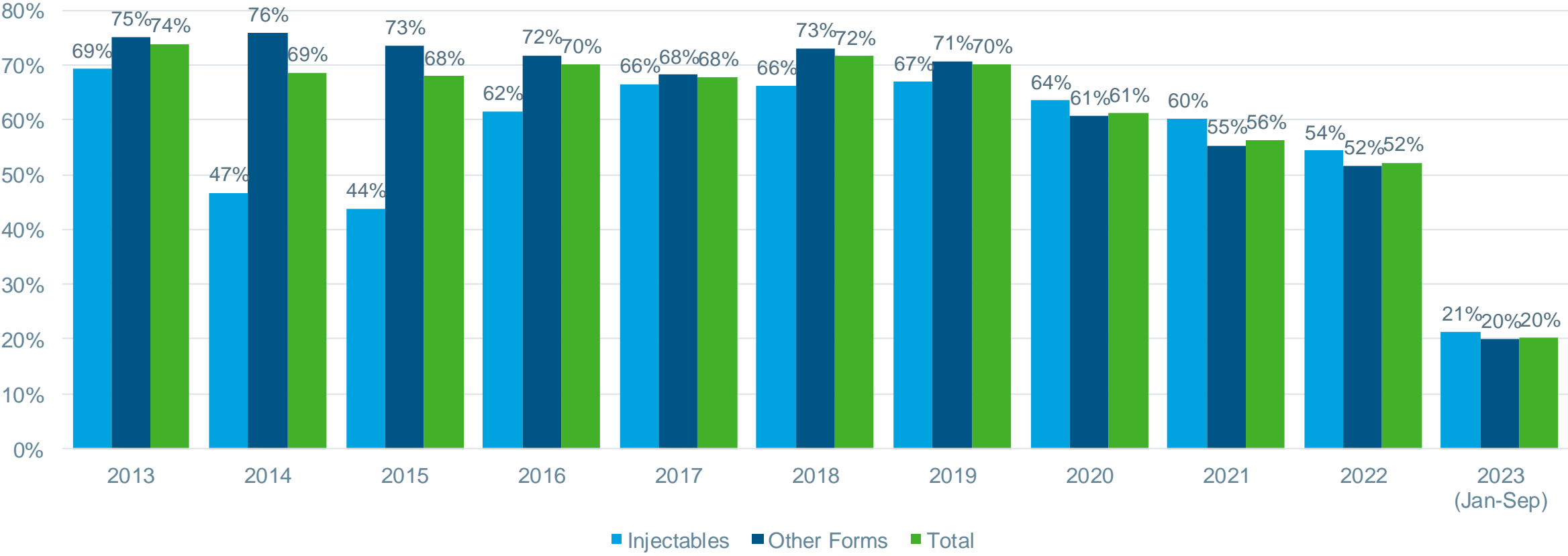


Source: GDUFA approvals, Jan 2023

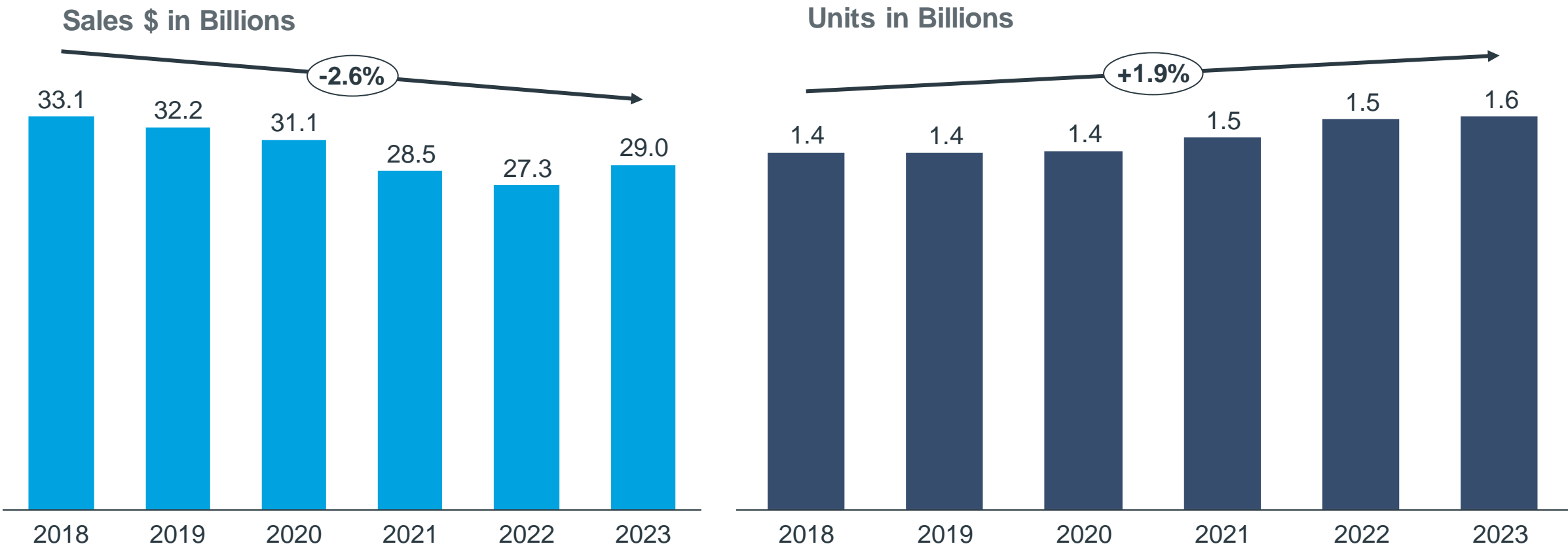
Unlaunched ANDAs account for 39% of approvals since 2013, 42% of injectables and 33% of other forms

A rise in trend of the percentage of approved injectable ANDAs launched since 2020

% of ANDAs launched to date by Type



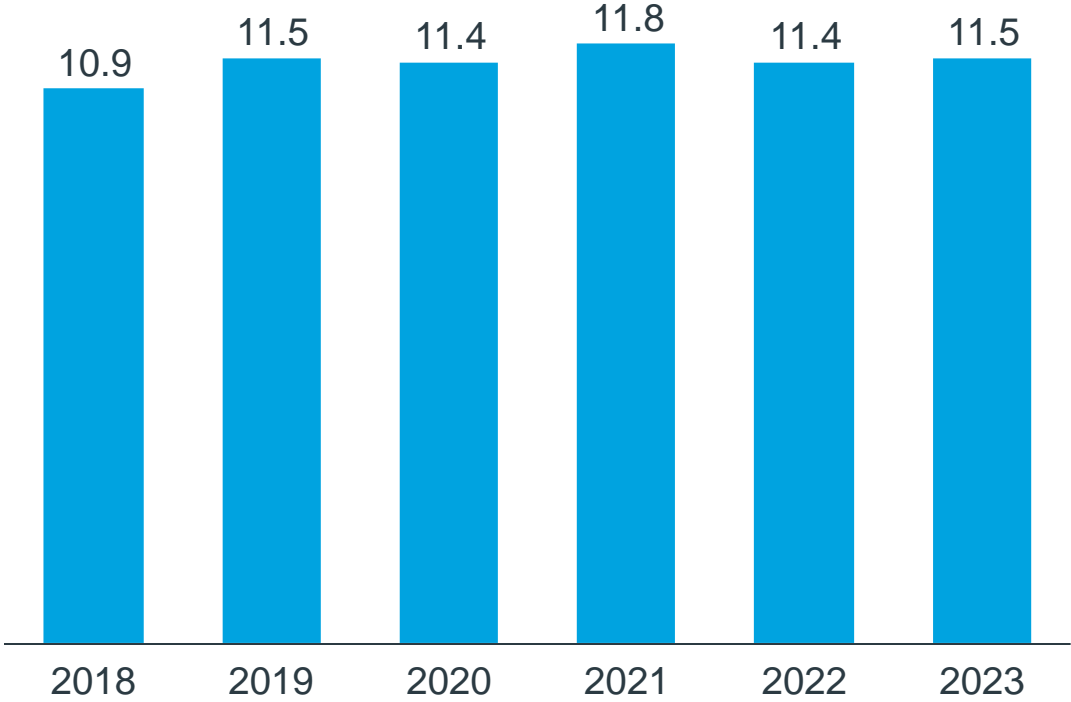
Unbranded Generic Oral Solids CAGR sales decrease while units increase



Unbranded Generic Injectables* CAGR sales and units increase

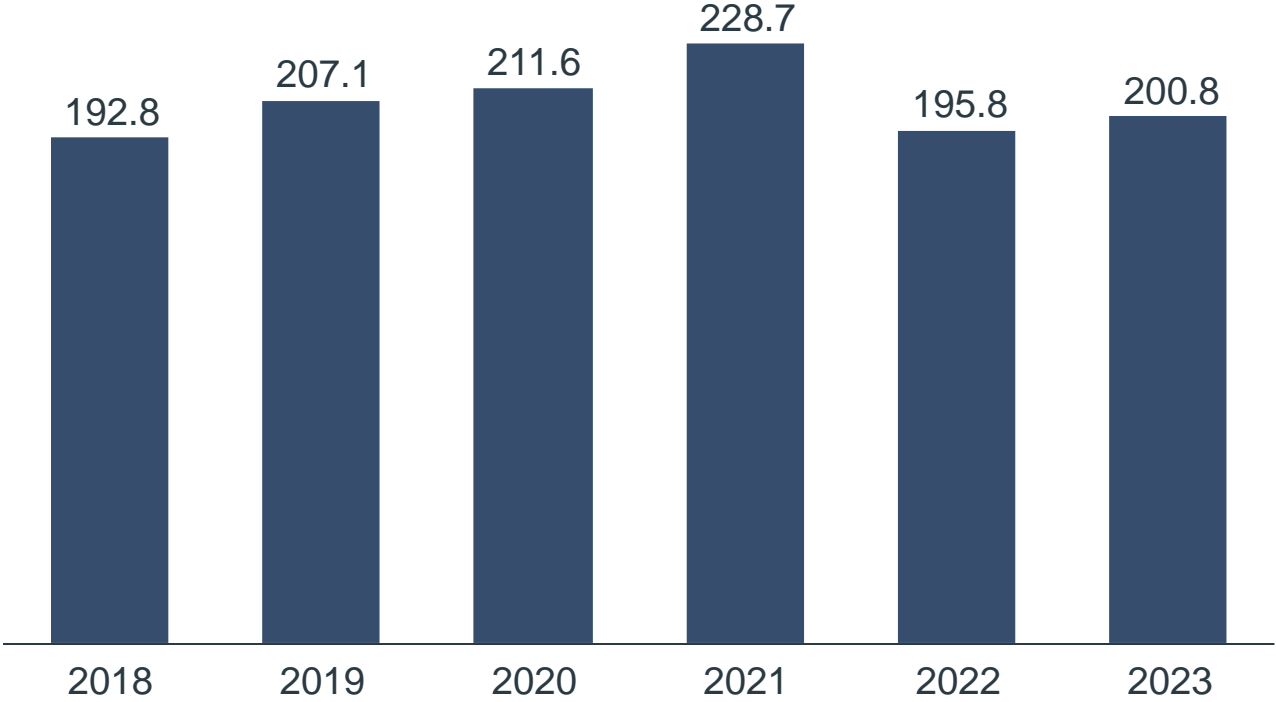
Sales \$ in Billions

+1.1%



Units in Millions

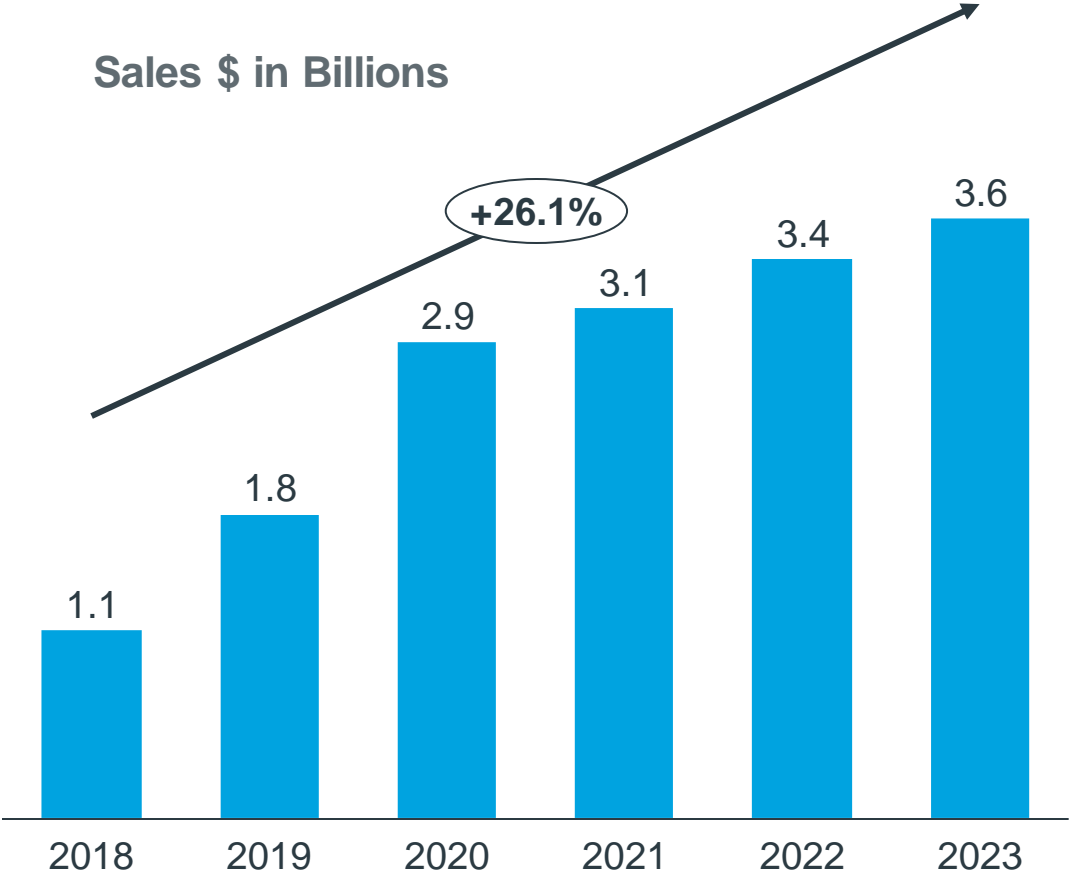
+0.8%



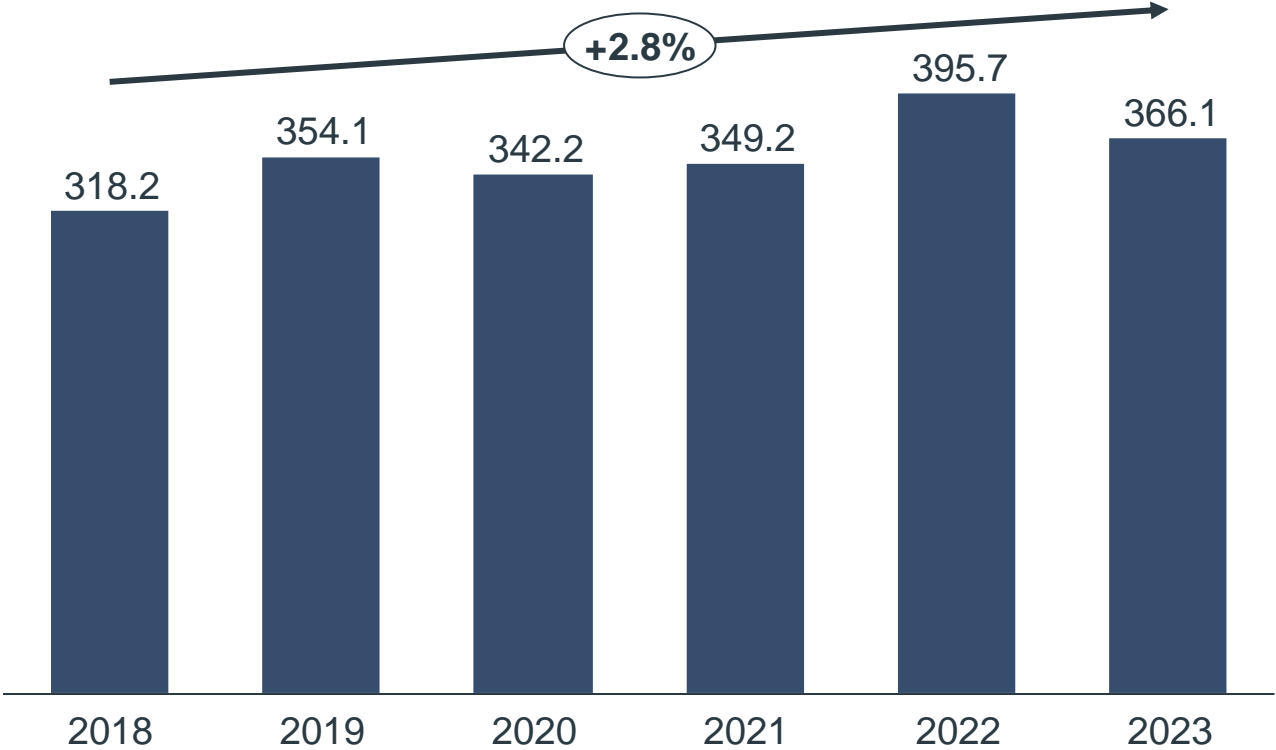
* Injectables include Product Form 2: Injectables, and IV Injectables, IV Pig Back

Unbranded Generic Inhalants CAGR sales and units increase

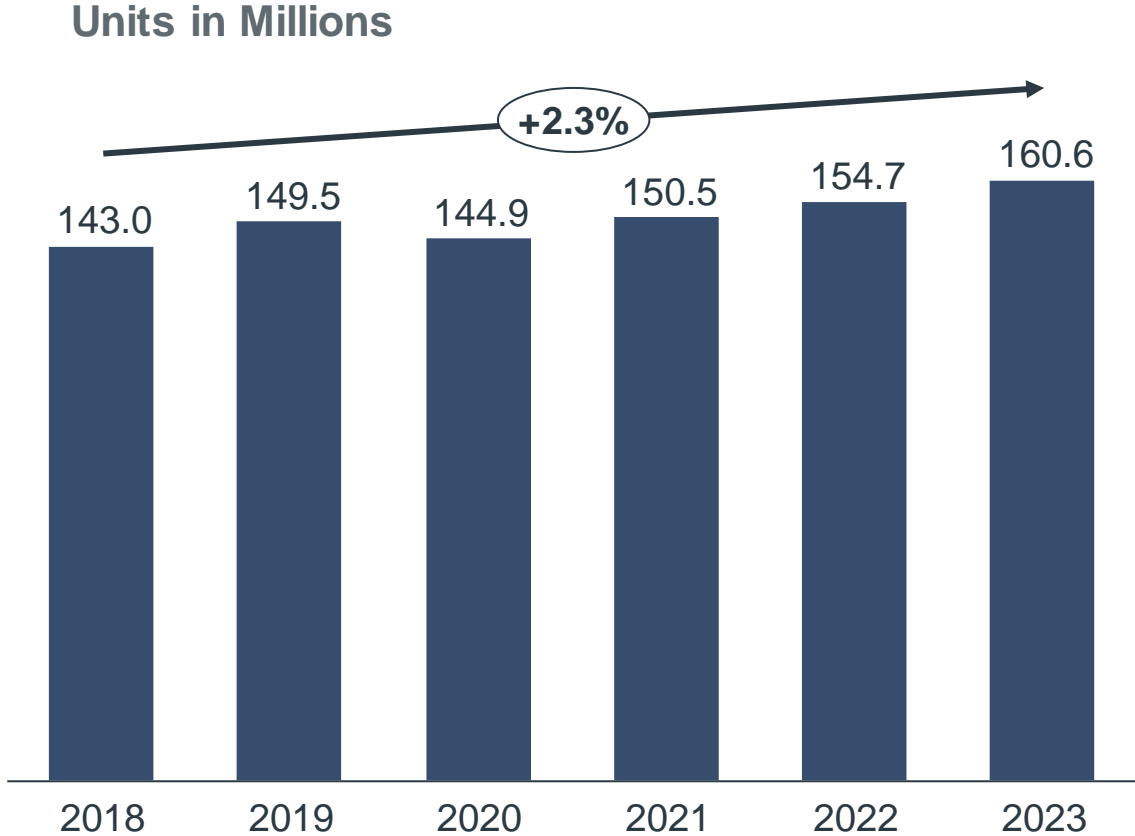
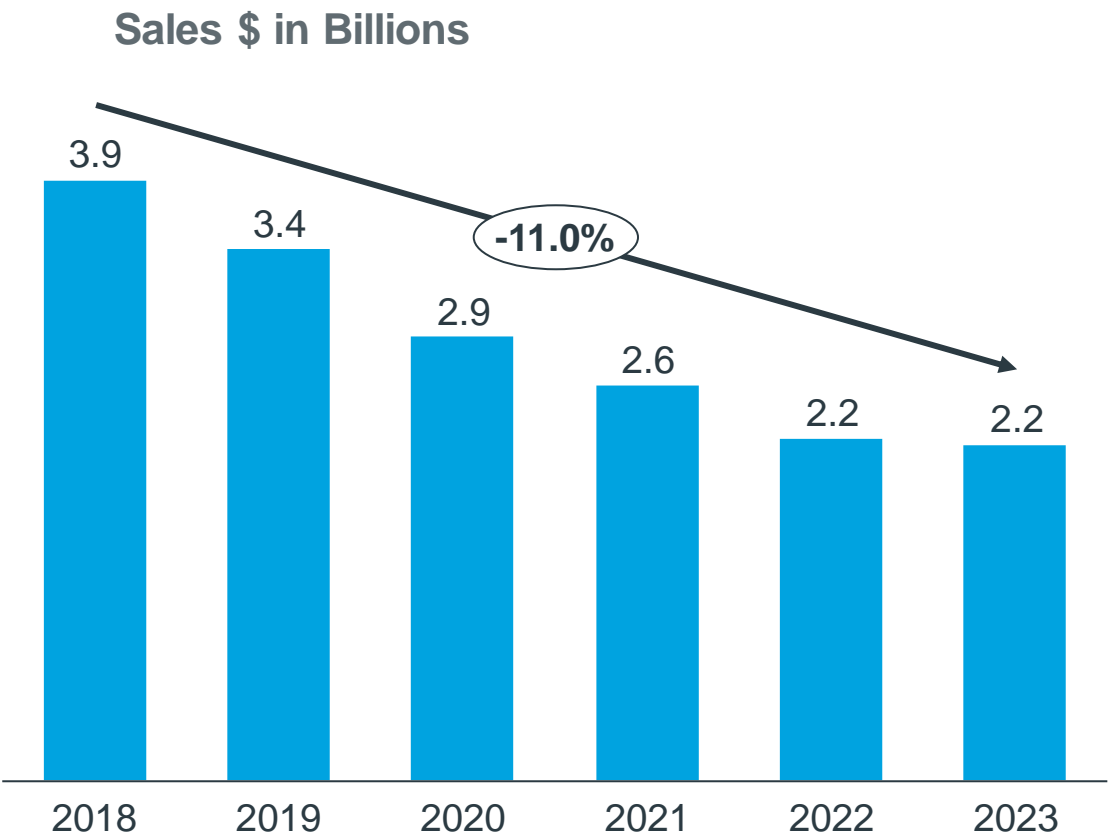
Sales \$ in Billions



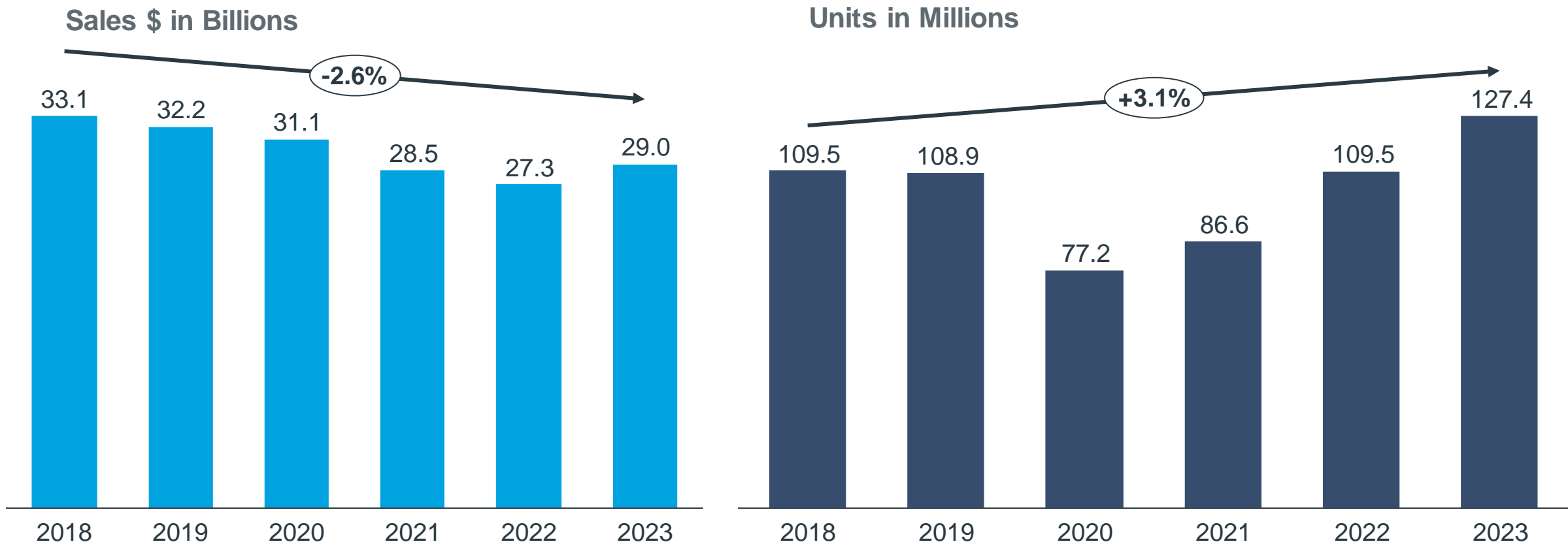
Units in Millions



Unbranded Generic Dermatological CAGR Sales decrease while units increase

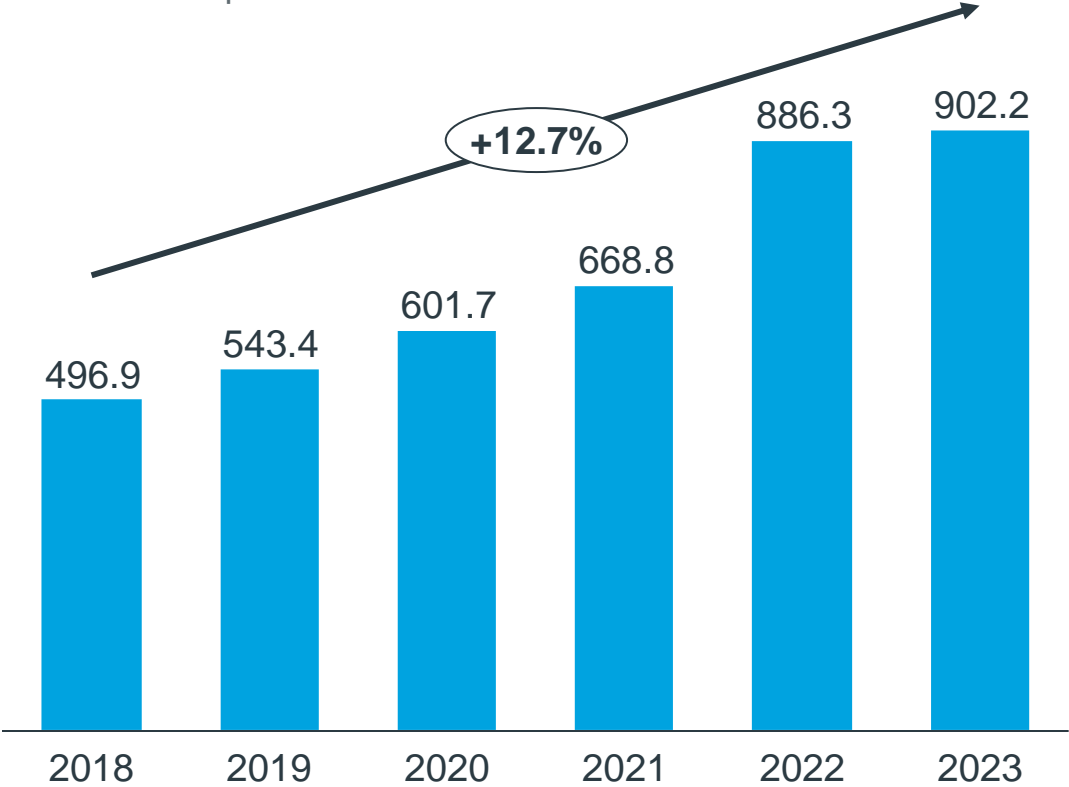


Unbranded Generic Oral Liquids CAGR sales decrease while units increase

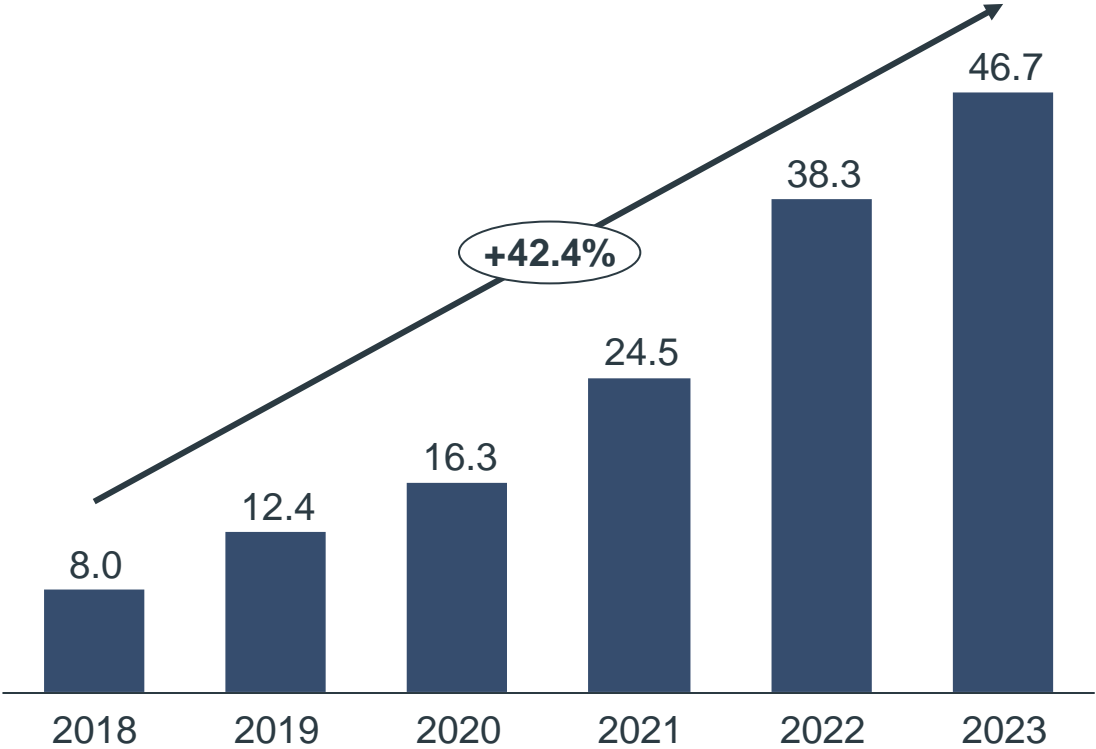


Systemics Generic CAGR sales and units increase

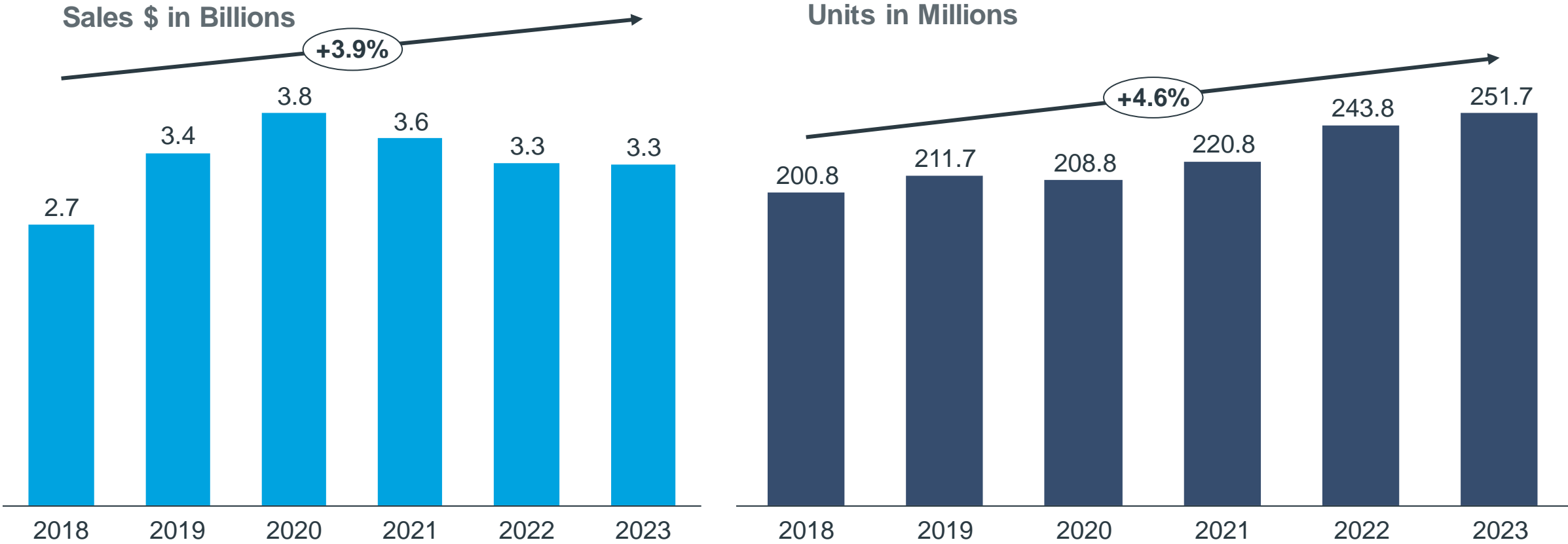
Sales \$ in Millions



Units in Millions



Generic Other* CAGR sales and units increase



Generic Other includes: Rectals, Topical, Otics, Insert Implant/Trans, Lung, Mouth and Throat, Nasal, Rectals Syst, Other Topicals, Vaginals, Ophthalmics, Urologicals, All Other

On a script basis, the top 10 therapy areas are growing at 2.9% adjusted and at 1.8% unadjusted

Rank	Therapy Area	Adjusted Scripts (MNs)				Unadjusted Scripts (MNs)			
		MAT DEC 2023	Market Share	ABS Growth	Growth	MAT DEC 2023	Market Share	ABS Growth	Growth
1	ANTIHYPERTENSIVES, PLAIN & COMBO	1,314.1	19.8%	24.5	1.9%	635.3	14.5%	0.5	0.1%
2	MENTAL HEALTH	654.6	9.8%	20.8	3.3%	426.3	9.8%	5.5	1.3%
3	LIPID REGULATORS	579.0	8.6%	22.4	4.0%	263.0	6.0%	5.3	2.1%
4	ANTIDIABETICS	434.9	6.3%	30.6	7.6%	251.8	5.8%	21.1	9.1%
5	PAIN	377.3	5.7%	-1.0	-0.3%	341.7	7.8%	-2.1	-0.6%
6	ANTI-ULCERANTS	284.0	4.3%	10.6	3.9%	158.1	3.6%	3.0	1.9%
7	NERVOUS SYSTEM DISORDERS	269.8	4.1%	3.7	1.4%	200.2	4.6%	0.8	0.4%
8	ANTIBACTERIALS	248.9	3.7%	15.4	6.6%	245.0	5.6%	15.2	6.6%
9	THYROID ANTI-THYROID AND IODINE PREPS	234.1	3.5%	2.2	0.9%	114.2	2.6%	-1.3	-1.1%
10	RESPIRATORY AGENTS	228.1	3.4%	2.1	0.9%	178.3	4.1%	1.0	0.6%
TOP 10		4624.6	69.5%	131.4	2.9%	2813.8	64.4%	49.0	1.8%

Source: IQVIA, RxInsight, December 2023
 Limited to Rx and OTC Insulins
 *For Client's internal use only

On a script basis, the top 20 therapy areas are growing at 1.8% adjusted and unadjusted at 0.3%

Rank	Therapy Area	Adjusted Scripts (MNs)				Unadjusted Scripts (MNs)			
		MAT DEC 2023	Market Share	ABS Growth	Growth	MAT DEC 2023	Market Share	ABS Growth	Growth
11	OTHER CNS	198.4	3.0%	3.9	2.0%	176.5	4.0%	2.2	1.3%
12	DERMATOLOGICS	135.6	2.0%	8.1	6.3%	129.3	3.0%	7.5	6.2%
13	ANTITHROMBOTICS	126.3	1.9%	2.7	2.1%	74.2	1.7%	1.1	1.5%
14	ADHD	123.7	1.9%	3.5	2.9%	112.0	2.6%	3.2	3.0%
15	HORMONAL CONTRACEPTION, SYSTEMIC&TOPICAL	109.3	1.6%	-8.0	-6.8%	55.1	1.3%	-6.3	-10.3%
16	VITAMINS & MINERALS	106.1	1.6%	0.1	0.1%	62.1	1.4%	-0.5	-0.8%
17	VACCINES (PURE, COMB, OTHER)	103.2	1.6%	-52.4	-33.7%	103.1	2.4%	-52.2	-33.5%
18	BPH (BENIGN PROSTATIC HYPERTROPHY)	96.6	1.5%	3.1	3.4%	47.0	1.1%	1.0	2.2%
19	CORTICOSTEROIDS, PLAIN & COMBO	85.0	1.3%	1.1	1.3%	79.4	1.8%	1.0	1.3%
20	SEX HORMONES (ANDROGENS, OESTROGENS, PROGESTOGENS,	72.4	1.1%	6.8	10.4%	44.4	1.0%	3.6	8.9%
TOP 20		5781.2	86.9%	100.3	1.8%	3696.8	84.6%	9.7	0.3%

Source: IQVIA, RxInsights, December 2023

Limited to Rx and OTC Insulins

*For Client's internal use only

On a script basis, the top 10 products are growing at 3.8% adjusted and growing at 1.6% unadjusted

Rank	Product	Adjusted Scripts (MNs)				Unadjusted Scripts (MNs)			
		MAT DEC 2023	Market Share	ABS Growth	Growth	MAT DEC 2023	Market Share	ABS Growth	Growth
1	ATORVASTATIN CA	284.4	4.3%	9.4	3.4%	130.5	3.0%	1.4	1.1%
2	AMLODIPINE BESY	194.9	2.9%	5.7	3.0%	92.0	2.1%	0.8	0.9%
3	LEVOTHYROXINE SOD	179.5	2.7%	12.6	7.6%	87.6	2.0%	4.3	5.2%
4	LISINOPRIL	174.2	2.6%	-2.7	-1.5%	81.5	1.9%	-3.1	-3.7%
5	LOSARTAN POT	142.4	2.1%	9.9	7.5%	65.5	1.5%	3.0	4.8%
6	ROSUVASTATIN CAL	122.9	1.8%	18.6	17.8%	54.3	1.2%	7.3	15.7%
7	METOPROLOL SUCCIN	115.4	1.7%	5.0	4.6%	53.9	1.2%	1.5	2.8%
8	METFORMIN HCL	111.4	1.7%	-3.0	-2.6%	54.0	1.2%	-2.6	-4.6%
9	GABAPENTIN	98.1	1.5%	0.8	0.9%	72.3	1.7%	-0.1	-0.1%
10	HYDROCHLOROTHIAZIDE	94.7	1.4%	-0.4	-0.5%	42.9	1.0%	-1.2	-2.8%
TOP 10		1,517.9	22.8%	55.9	3.8%	734.5	16.8%	11.4	1.6%












Source: IQVIA, RxInsights, December 2023
 Limited to Rx and OTC Insulins
 *For Client's internal use only

On a script basis, the top 20 products is at 3.3% adjusted and declining at 1.6% unadjusted

Rank	Product	Adjusted Scripts (MNs)				Unadjusted Scripts (MNs)			
		MAT DEC 2023	Market Share	ABS Growth	Growth	MAT DEC 2023	Market Share	ABS Growth	Growth
11	SERTRALINE HCL	90.3	1.4%	2.6	2.9%	55.2	1.3%	0.2	0.3%
12	PANTOPRAZOLE SOD	89.4	1.3%	5.4	6.5%	49.3	1.1%	2.0	4.3%
13	OMEPRAZOLE (RX)	83.4	1.3%	-2.4	-2.7%	45.4	1.0%	-1.6	-3.3%
14	ESCITALOPRAM OXAL	80.2	1.2%	3.6	4.8%	47.8	1.1%	0.9	1.9%
15	MONTELUKAST SOD	65.6	1.0%	0.3	0.4%	35.1	0.8%	-0.9	-2.6%
16	TRAZODONE HCL	64.0	1.0%	3.4	5.7%	42.1	1.0%	1.5	3.7%
17	TAMSULOSIN HCL	63.3	1.0%	2.6	4.2%	31.7	0.7%	0.9	2.8%
18	FUROSEMIDE	62.8	0.9%	0.1	0.1%	35.9	0.8%	-0.2	-0.6%
19	AMOXICILLIN	58.1	0.9%	7.5	14.7%	58.0	1.3%	7.5	14.8%
20	SIMVASTATIN	56.9	0.9%	-6.9	-10.9%	24.5	0.6%	-3.4	-12.3%
TOP 20		2,231.9	33.6%	72.1	3.3%	1,159.7	26.6%	18.1	1.6%

Source: IQVIA, RxInsights, December 2023
 Limited to Rx and OTC Insulins
 *For Client's internal use only

On an unadjusted script basis, the top 10 generic corporations* growth is at 1.7% and account for 39.9% market share

Rank	Corporation	Unadjusted Scripts (MNs)				
		MAT DEC 2023	Market Share	Generic Market Share	ABS Growth	Growth
1	AUROBINDO PHARM	338.2	 7.7%	8.7%		
2	TEVA PHARM USA	321.4	 7.4%	8.3%		
3	LUPIN	205.5	 4.7%	5.3%		
4	AMNEAL INC	162.5	 3.7%	4.2%		
5	ZYDUS PHARM	152.5	 3.5%	3.9%		
6	VIATRIS INC.	128.6	 2.9%	3.3%		
7	ASCEND LABS	113.6	 2.6%	2.9%		
8	CAMBER	107.8	 2.5%	2.8%		
9	RISING PHARM INC.	107.1	 2.5%	2.8%		
10	DR REDDY INC	106.6	 2.4%	2.7%		
TOP 10		1743.7	 39.9%	44.9%	29.0	












Source: IQVIA, National Prescription Audit, December 2023; *note: ranked on generic unadjusted script volume Limited to Rx and OTC Insulins
*For Client's internal use only

On an unadjusted script basis, the top 20 generic corporations* growth is at 2.5% and account for 60.0% market share

Rank	Corporation	Unadjusted Scripts (MNs)				
		MAT DEC 2023	Market Share	Generic Market Share	ABS Growth	Growth
11	SOLCO HEALTHCARE	105.3	2.4%	2.7%		
12	SANDOZ	94.6	2.2%	2.4%		
13	UNICHEM PHARM USA	93.1	2.1%	2.4%		
14	APOTEX CORP	91.7	2.1%	2.4%		
15	NORTHSTAR RX	91.0	2.1%	2.3%		
16	CIPLA USA, INC.	87.0	2.0%	2.2%		
17	GLENMARK PHARMA	86.8	2.0%	2.2%		
18	HIKMA PHARM	82.4	1.9%	2.1%		
19	SUN PHARMA	73.8	1.7%	1.9%		
20	MALLINCKRODT	72.1	1.7%	1.9%		
TOP 20		2621.7	60.0%	67.5%	63.4	

Source: IQVIA, National Prescription Audit, December 2023; *note: ranked on generic unadjusted script volume Limited to Rx and OTC Insulins
 *For Client's internal use only

The top 10 generic corporations* are growing at 2.1% and account for 40.1% generic market share

Rank	Corporation	Non-Discounted Spend (US\$ BNs)				
		MAT DEC 2023	Market Share	Generic Market Share	ABS Growth	Growth
1	TEVA PHARM USA	\$4.2	 0.6%	7.8%		
2	VIATRIS INC.	\$3.3	 0.5%	6.1%		
3	PRASCO LABS	\$2.3	 0.3%	4.2%		
4	AMNEAL INC	\$2.1	 0.3%	4.0%		
5	ZYDUS PHARM	\$1.8	 0.3%	3.3%		
6	HIKMA PHARM	\$1.8	 0.2%	3.3%		
7	SANDOZ	\$1.7	 0.2%	3.1%		
8	DR REDDY INC	\$1.6	 0.2%	2.9%		
9	APOTEX CORP	\$1.6	 0.2%	2.9%		
10	AUROBINDO PHARM	\$1.4	 0.2%	2.6%		
TOP 10		\$21.8	 3.0%	40.1%	\$0.5	

Source: IQVIA, National Sales Perspectives, December 2023; *note: ranked on generic non-discounted spend Limited to Rx and OTC Insulins
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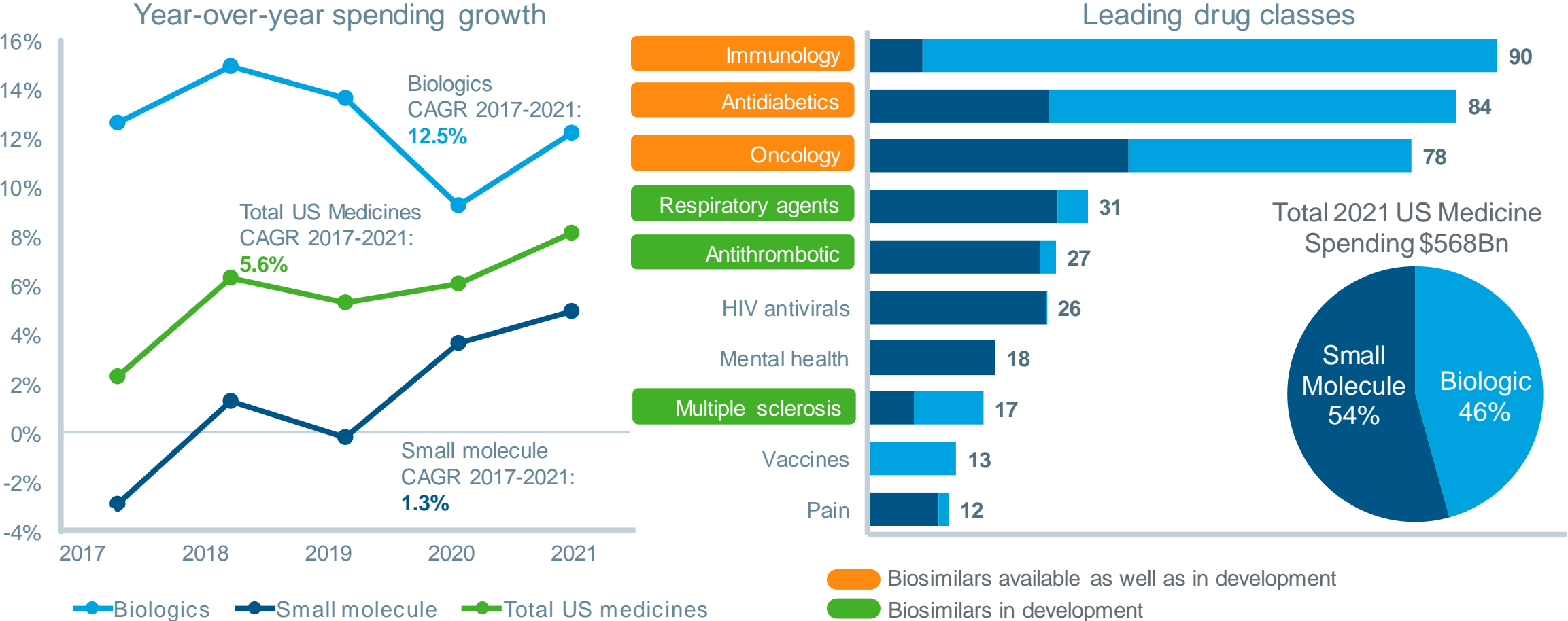
The top 20 generic corporations* are growing at 1.0% and account for 60.7% generic market share

Rank	Corporation	Non-Discounted Spend (US\$ BNs)				
		MAT DEC 2023	Market Share	Generic Market Share	ABS Growth	Growth
11	ENDO PHARM INC.	\$1.4	0.2%	2.5%		
12	FRESENIUS KABI	\$1.3	0.2%	2.4%		
13	LUPIN	\$1.3	0.2%	2.4%		
14	SUN PHARMA	\$1.3	0.2%	2.3%		
15	GRIFOLS	\$1.2	0.2%	2.1%		
16	CIPLA USA, INC.	\$1.0	0.1%	1.9%		
17	PFIZER	\$1.0	0.1%	1.9%		
18	PADAGIS LLC	\$1.0	0.1%	1.8%		
19	NORTHSTAR RX	\$0.9	0.1%	1.7%		
20	GILEAD SCIENCES,IN	\$0.9	0.1%	1.6%		
TOP 20		\$33.0	4.6%	60.7%	\$0.3	

Source: IQVIA, National Sales Perspectives, December 2023; *note: ranked on generic non-discounted spend Limited to Rx and OTC Insulins
*For Client's internal use only

The U.S. biologics market continues to grow faster than non-biologics on an invoice-basis, and now comprises 46% of spending

Total U.S. invoice spending growth by type and leading therapy areas by 2021 spending, US\$Bn

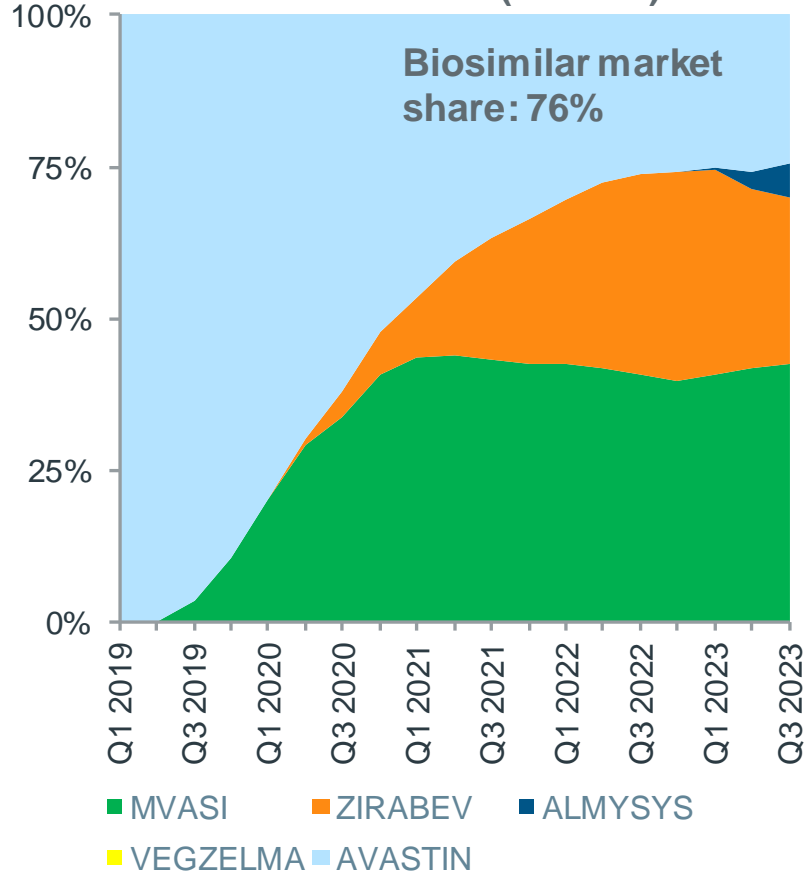


Source: IQVIA MIDAS, Dec 2021; IQVIA Institute, Nov 2022.
 Biosimilars in the United States 2023-2027 – Competition, Savings and Sustainability. Report by the IQVIA Institute for Human Data Science.
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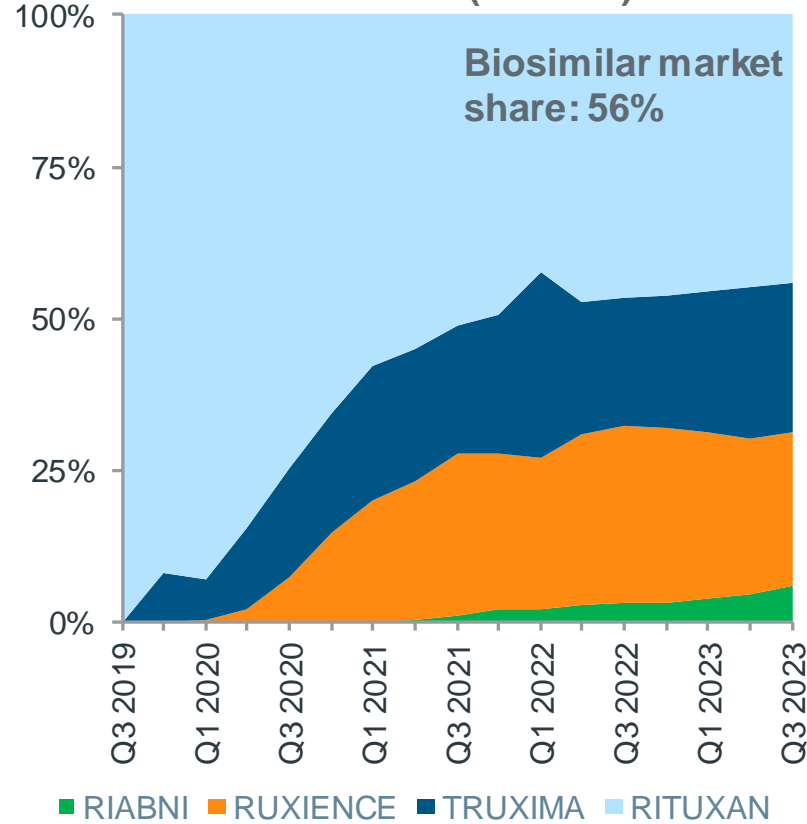
In Oncology biosimilars market share ranges from 56% - 76%

US Biosimilar Market Share, % of Sales, Q3 2023

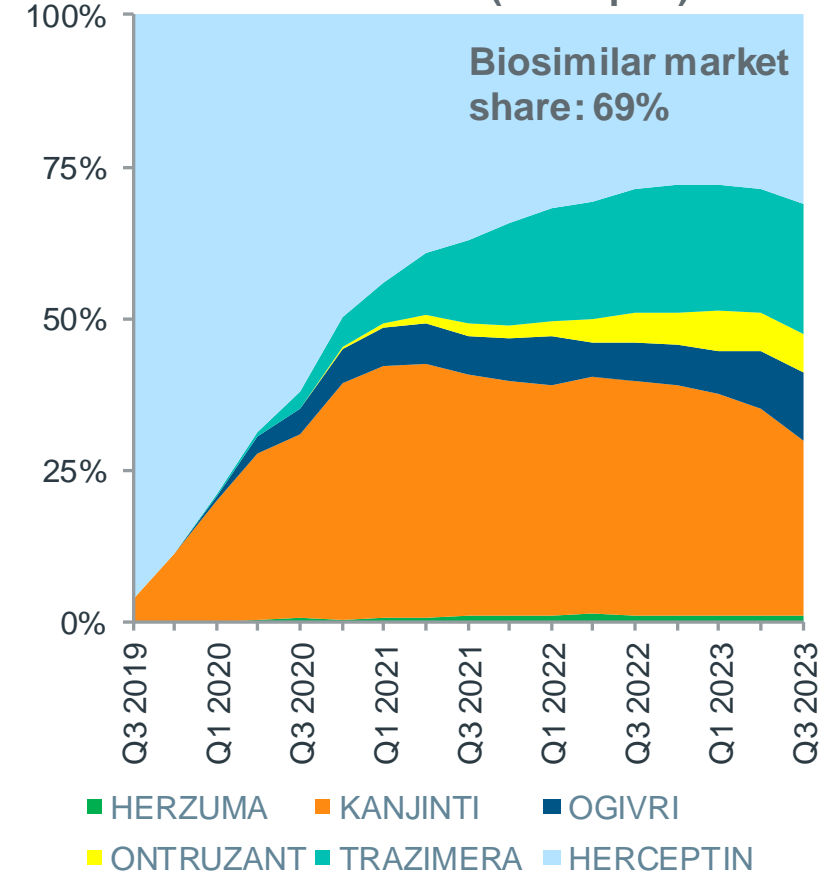
Bevacizumab (Avastin)



Rituximab (Rituxan)



Trastuzumab (Herceptin)

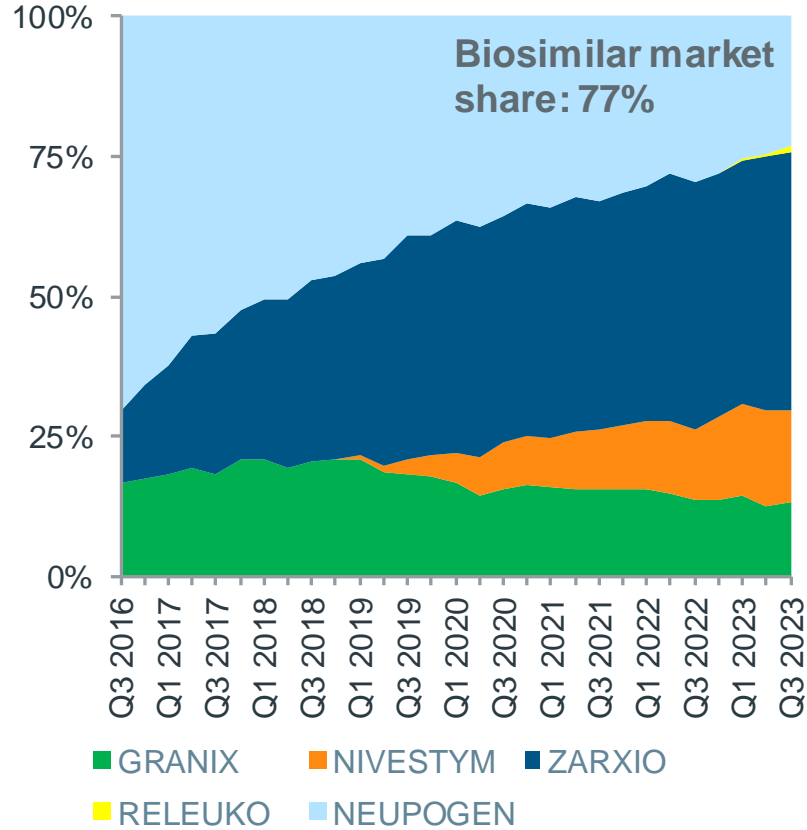


Originator

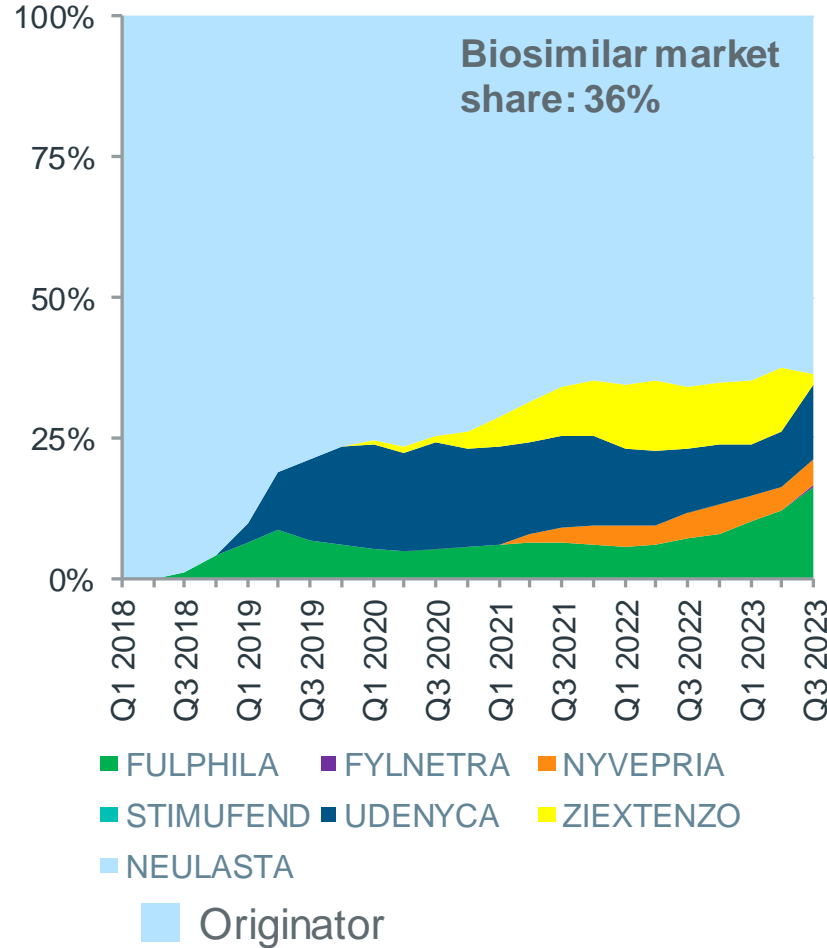
Filgrastim's biosimilar has 77% market share

US Biosimilar Market Share, % of Sales, Q3 2023

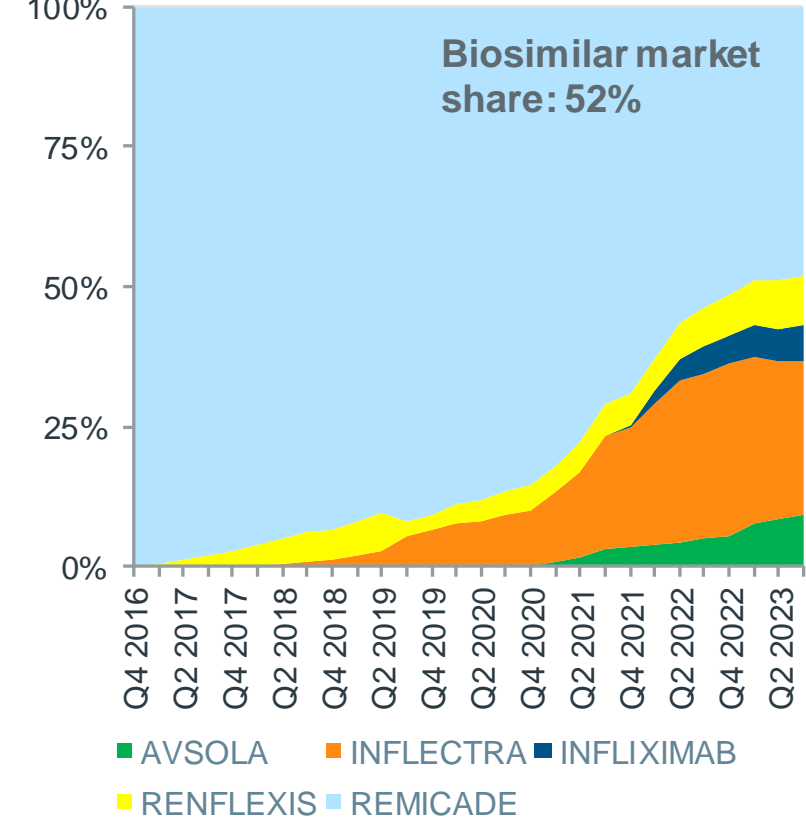
Filgrastim (Neupogen)



Pegfilgrastim (Neulasta)



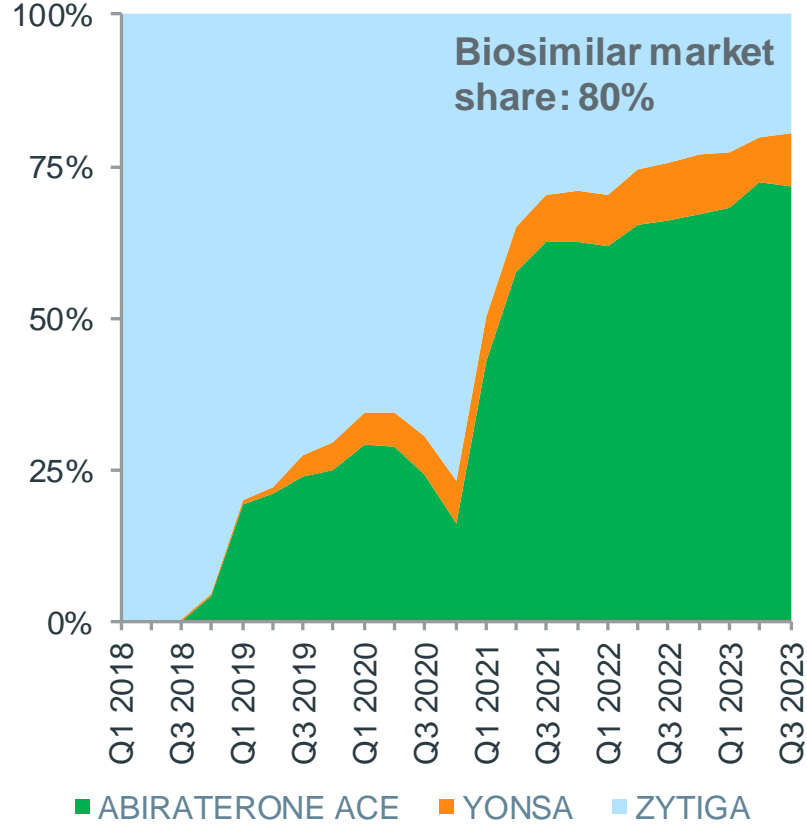
Infliximab (Remicade)



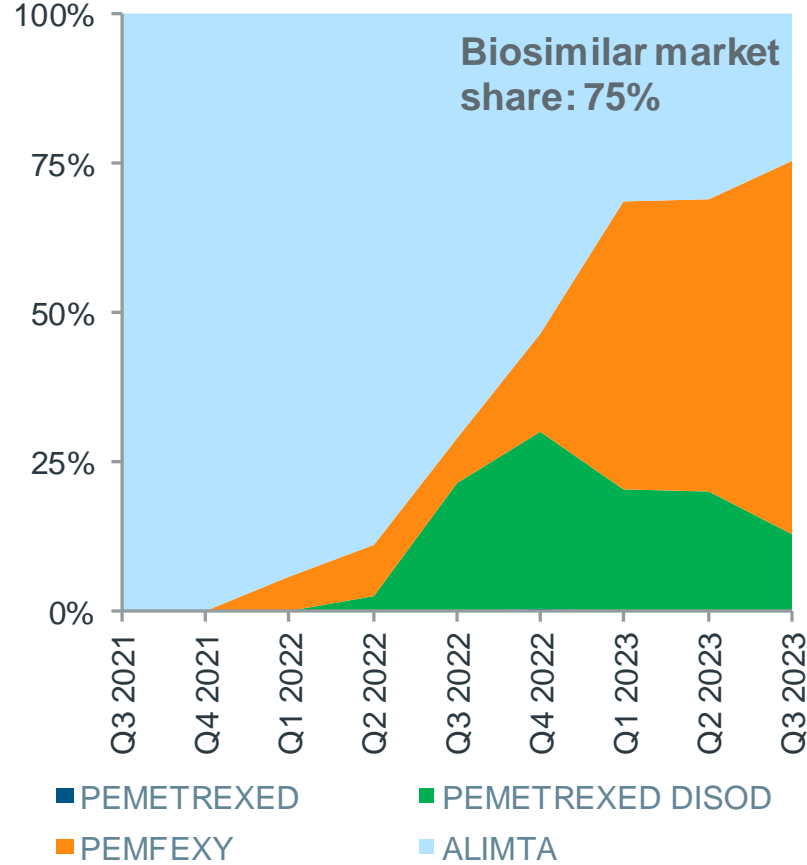
Zytiga's biosimilar has 80% market share

US Biosimilar Market Share, % of Sales, Q3 2023

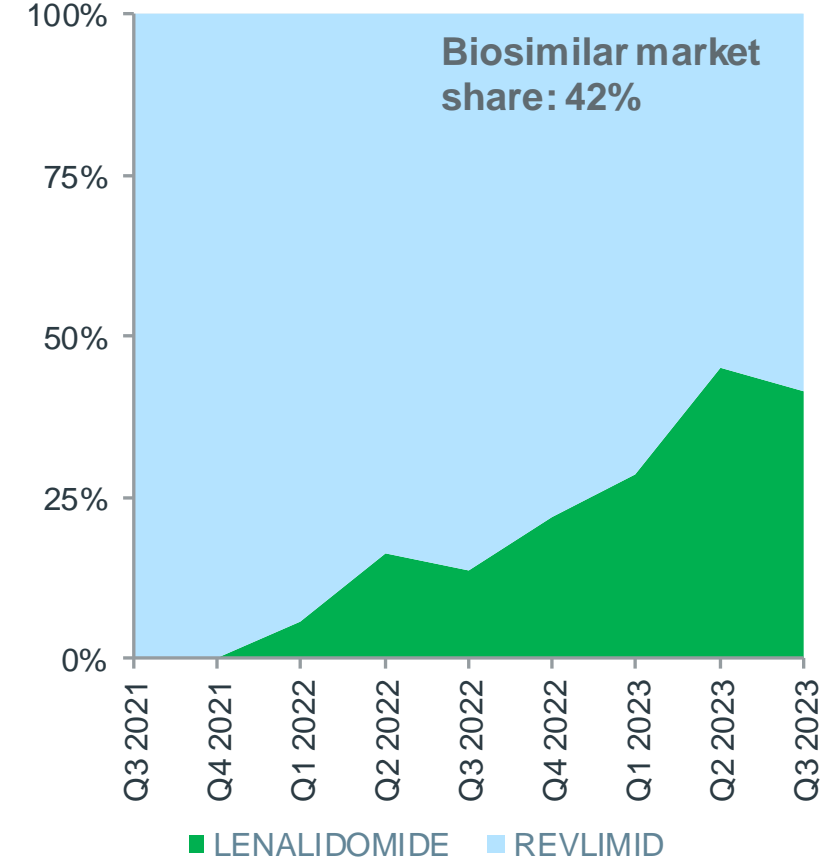
Abiraterone Acetate (Zytiga)



Pemetrexed (Alimta)



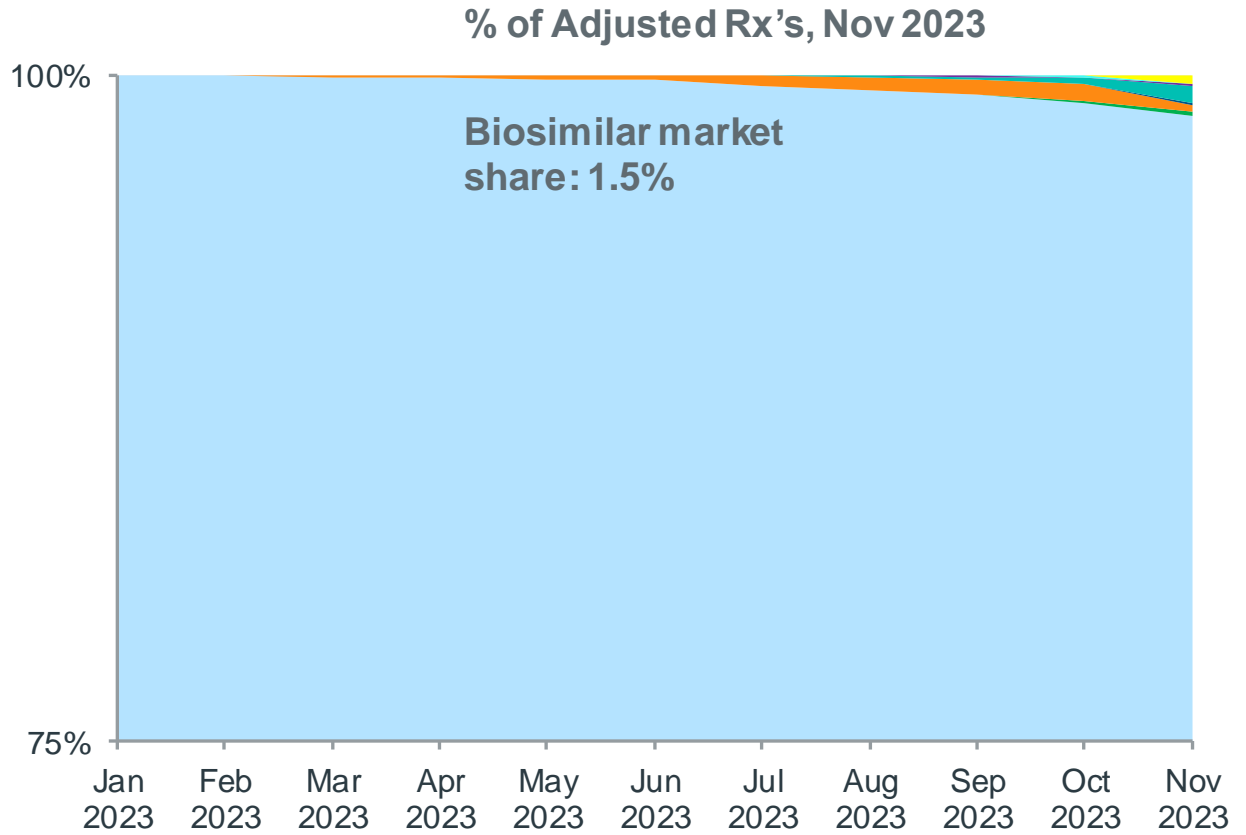
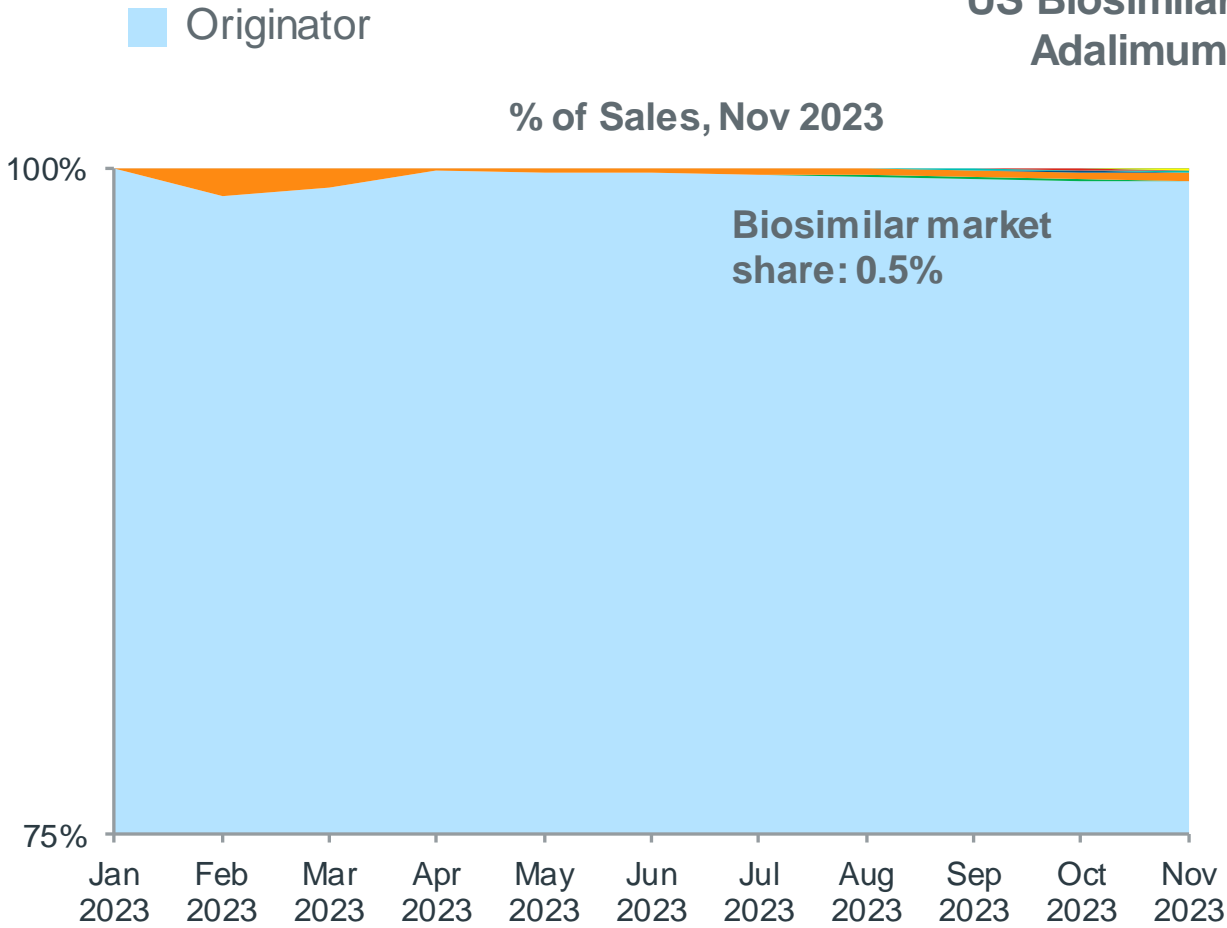
Lenalidomide (Revlimid)



Originator

Biosimilar sales are just beginning for Adalimumab (Humira)

US Biosimilar Market Share, Adalimumab (Humira)

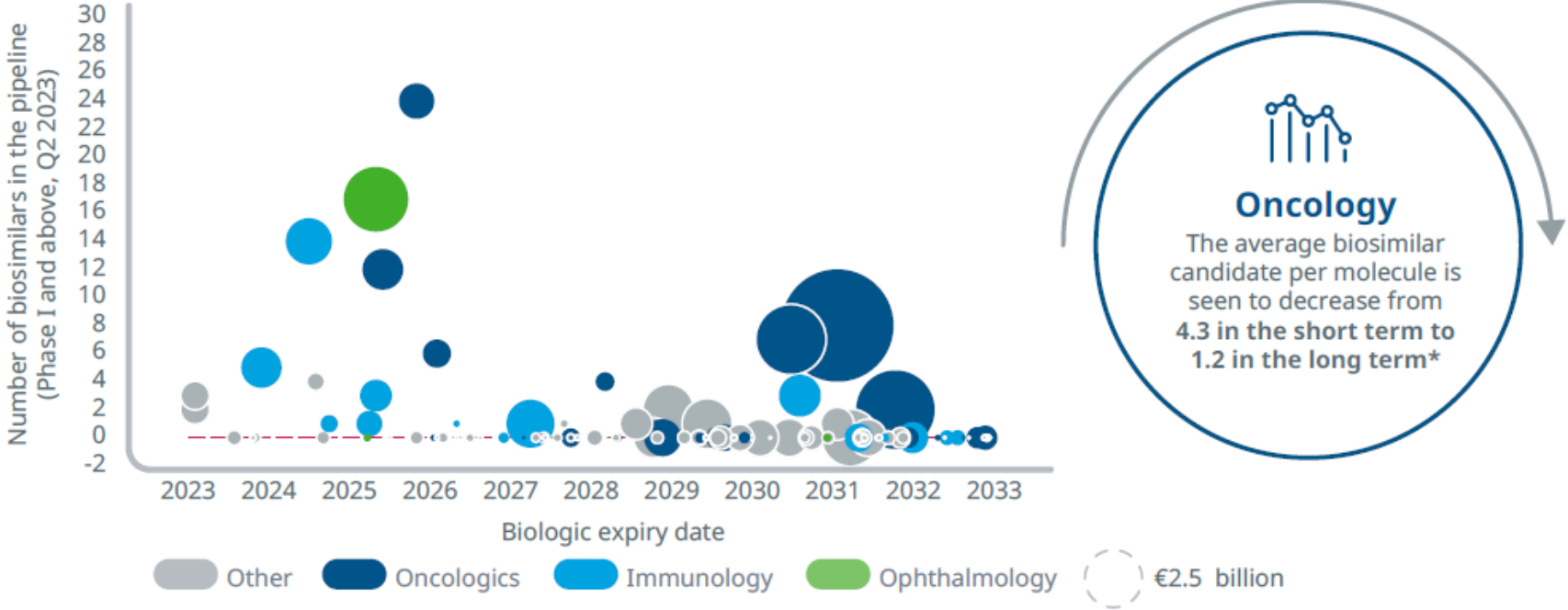


■ HUMIRA ■ ADALIMUMAB ■ AMJEVITA ■ CYLTEZO ■ HADLIMA ■ HULIO ■ HYRIMOZ ■ IDACIO ■ YUFLYMA ■ YUSIMRY

Three therapeutic areas have attracted 91% of pipeline

However, challenges are starting to emerge in oncology

Exhibit 4: Top 3 therapeutic areas by number of biosimilars in the pipeline

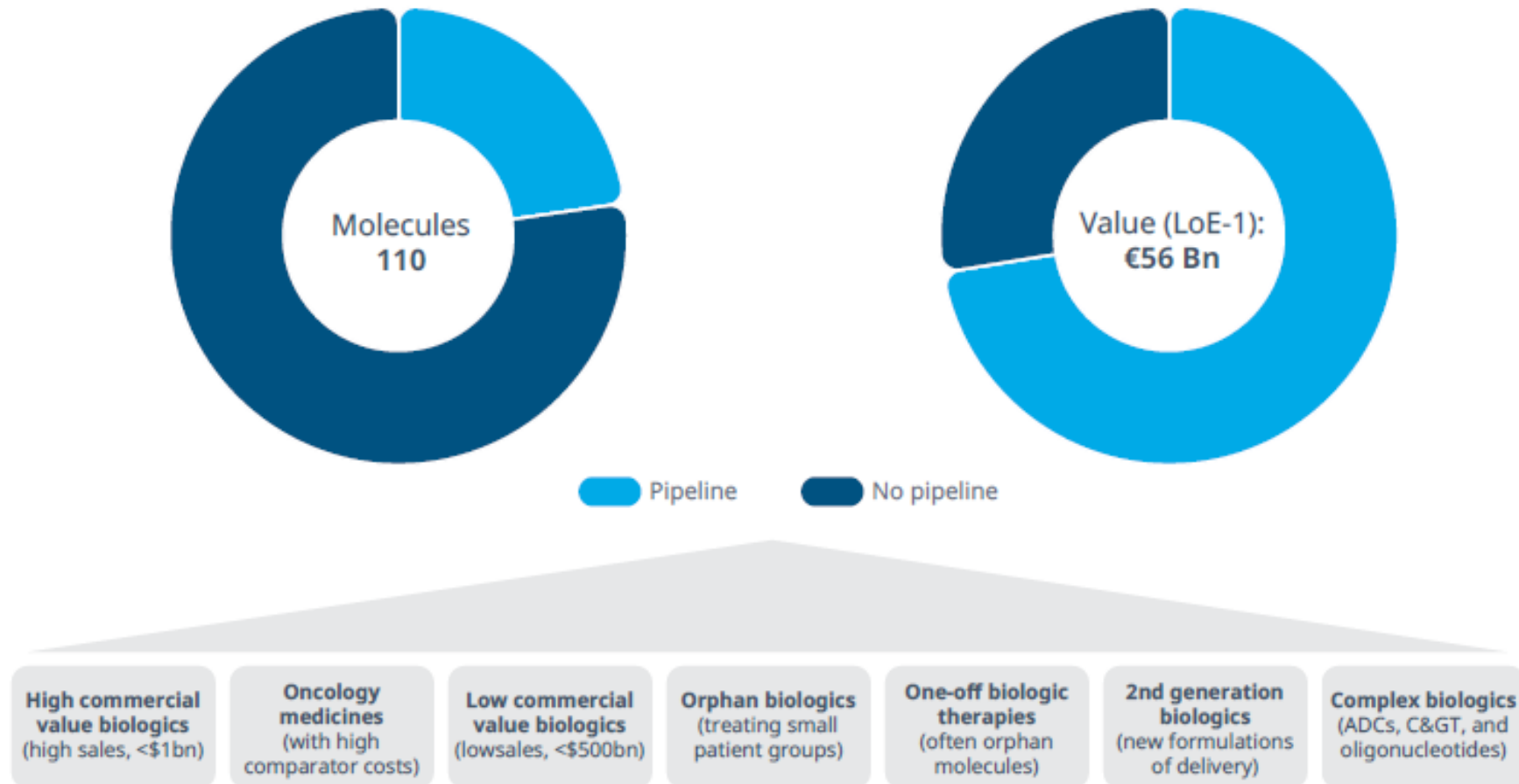


Source: IQVIA MIDAS; IQVIA Forecast Link; IQVIA Ark Intelligence; IQVIA Forecast Link.
Notes: Pipeline data only includes biosimilars in development (Phase I to Phase III, including pre-registration). No approved biosimilar is included in the analysis. Caveat: biosimilar pipeline data is based on publicly available information only. *Short term defined as 2023 to 2027 and long term defined as 2028 to 2032.

Significant numbers of biologics currently do not have a pipeline

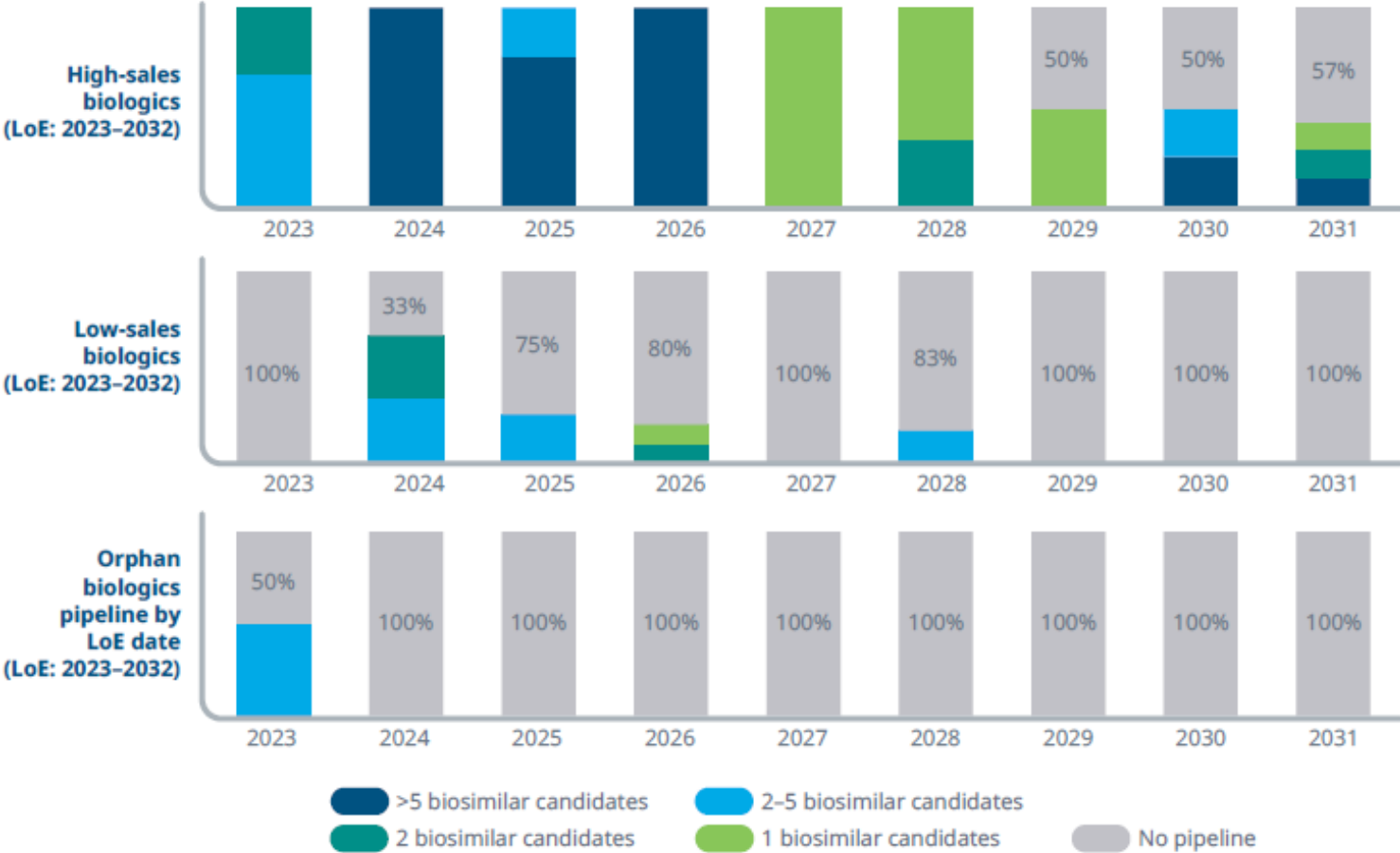
The number of biologics is high, but tend to be lower value molecules and should not be overlooked

Products with upcoming LoE by pipeline status (mols, value, 2023 – 2032)



Segments of the biologics market are subject to a ‘void’

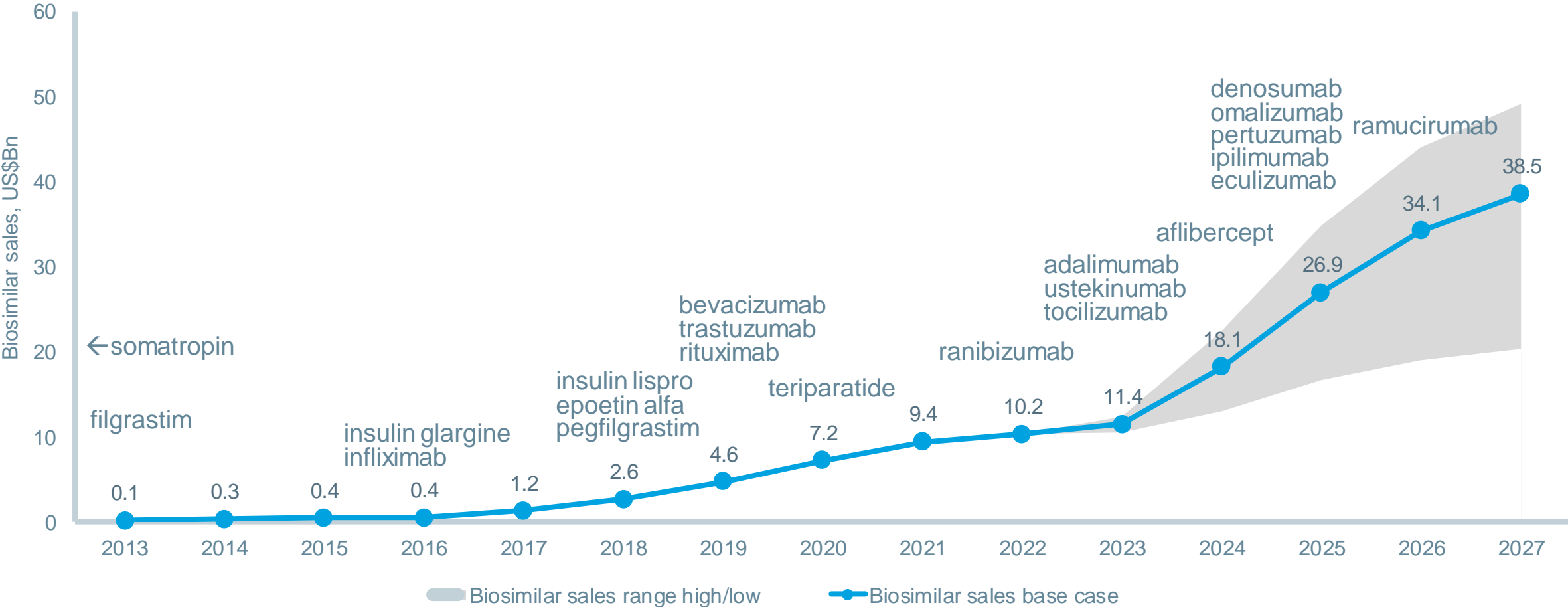
Biosimilar pipeline for high-sales biologics by LoE date



Source: IQVIA MIDAS; IQVIA Ark Intelligence; IQVIA Forecast Link; IQVIA Global Biosimilar Database. Notes: Pipeline data only includes biosimilars in development (phase I to phase III, including pre-registration). No approved biosimilar is included in the analysis. Caveat: biosimilar pipeline data is based on publicly available information only. High sales= biologics with over €500 in European sales before LoE (LoE-1). No high-sales biologic medicine is expected to lose exclusivity in 2032 (data not shown).

Expected launches and uptake are likely to increase overall spending on biosimilars significantly to \$20–49 billion in 2027

Biosimilar historical sales 2013–2022 and outlook scenarios 2023–2027, US\$Bn



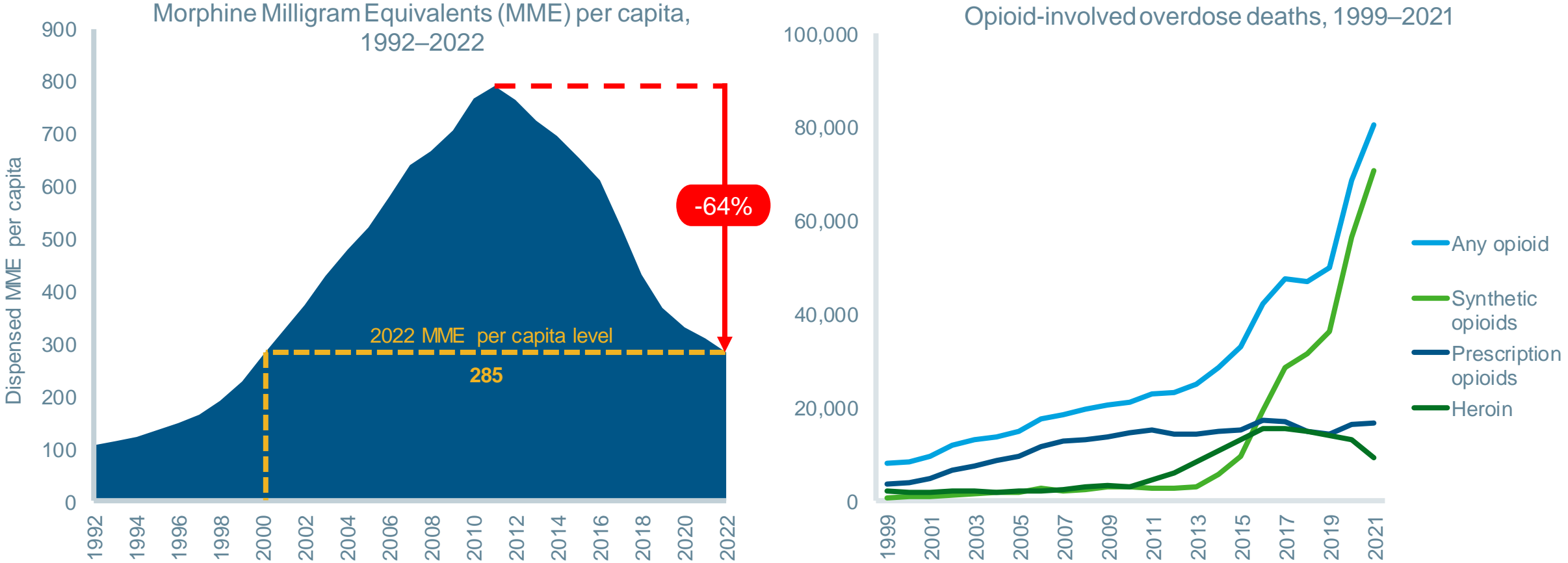
Source: IQVIA MIDAS, Jun 2022; IQVIA Institute, Nov 2022.
 Biosimilars in the United States 2023-2027 – Competition, Savings and Sustainability. Report by the IQVIA Institute for Human Data Science.
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A large, dark blue rounded rectangle is positioned on the left side of the slide. It is partially overlaid by a lighter blue rounded rectangle above it and a teal rounded rectangle below it. A thin blue line extends from the bottom right corner of the dark blue shape towards the right.

Opioids

Per capita prescription opioid use continues to decline to levels seen in 2000, however overdose deaths continue to rise

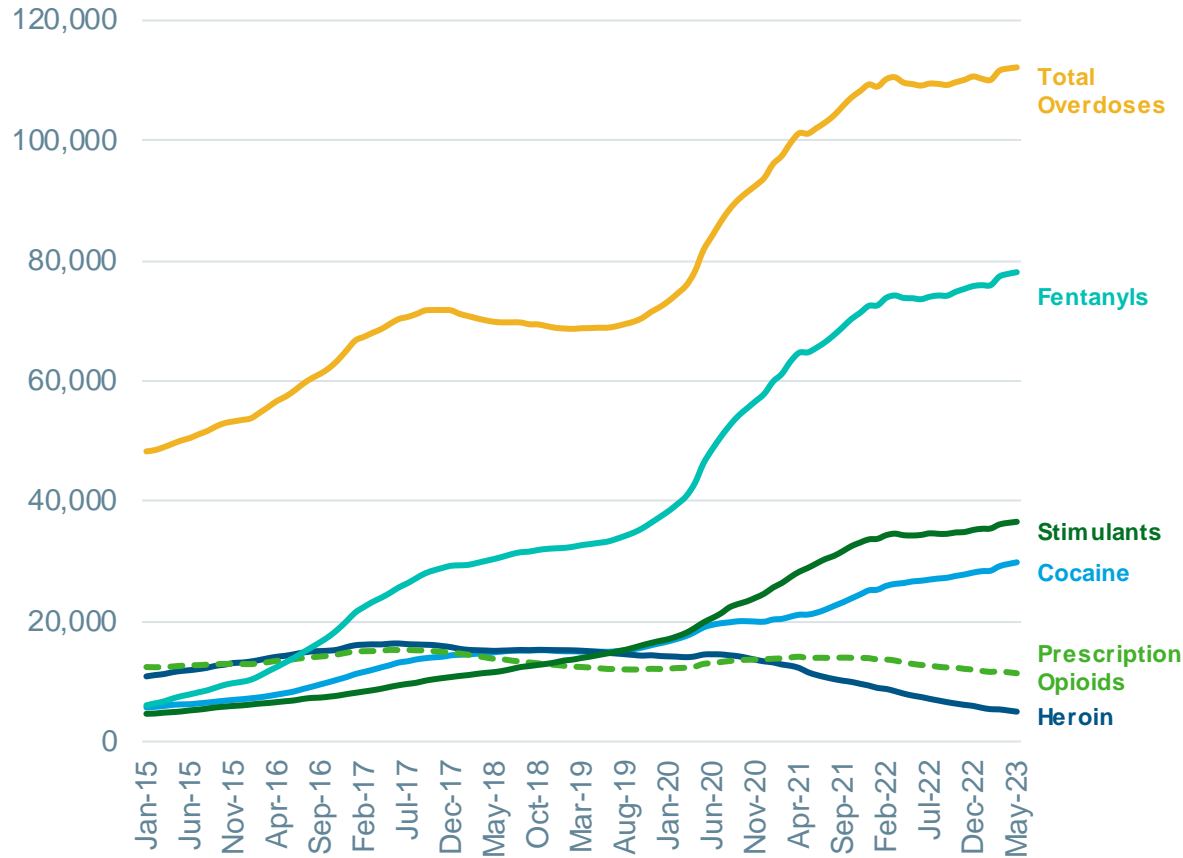
Prescription opioid use overall and opioid-involved overdose deaths



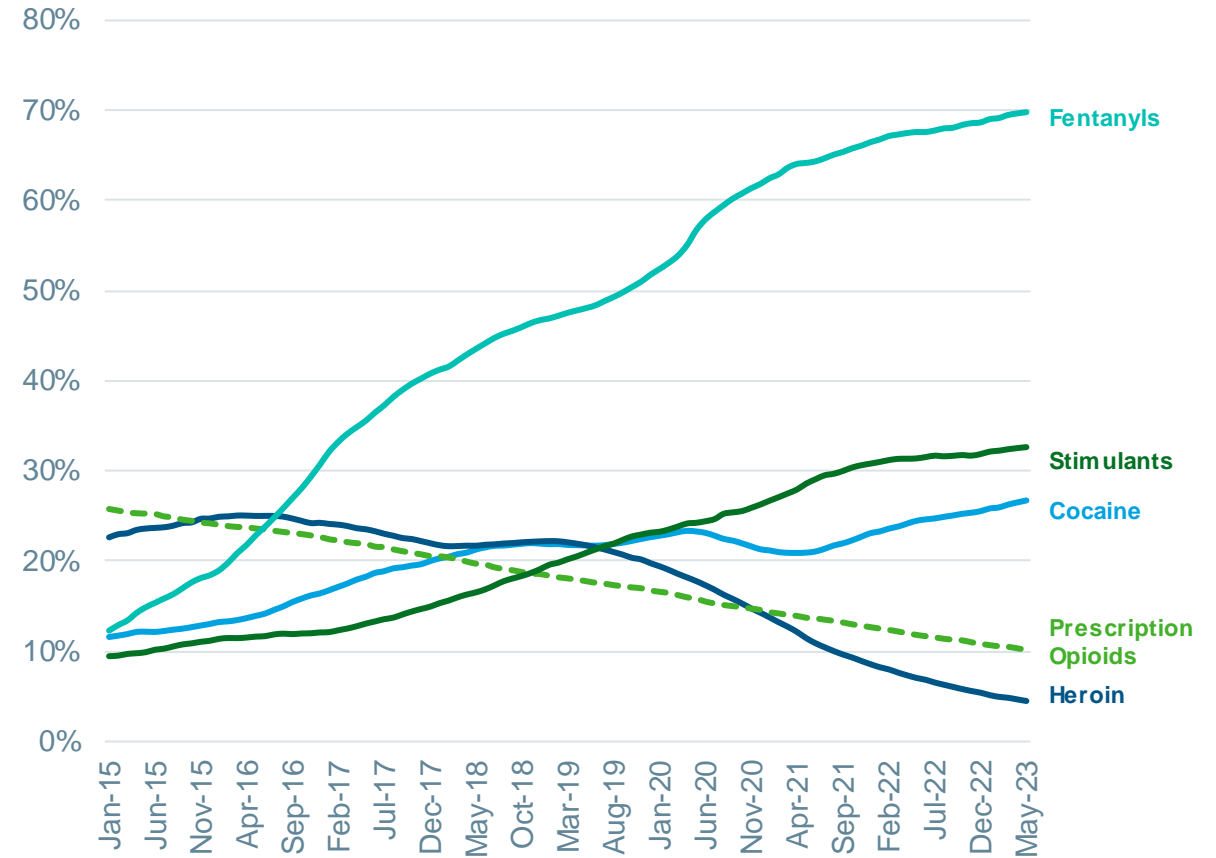
Source: IQVIA Xponent, IQVIA National Prescription Audit, Sep 2022; IQVIA Institute, Mar 2023; National Institute on Drug Abuse, Feb 2023. The Use of Medicines in the U.S. 2023: Usage and Spending Trends and Outlook to 2027. Report by the IQVIA Institute for Human Data Science.

Fentanyl continues to be the largest cause of drug overdose deaths

Predicted Deaths Attributed to Type of Drug Overdose



% Predicted Deaths Attributed to Type of Drug Overdose



Notes: Data is based on 12 months ending February 2023, Cocaine = Cocaine (T40.5), Heroin = Heroin (T40.1), Prescription Opioids = Natural & Semi-synthetic Opioids (T40.2), Stimulants = Psychostimulants with abuse potential (T43.6) and Fentanyl = Synthetic Opioids, Excl. Methadone (T40.4)

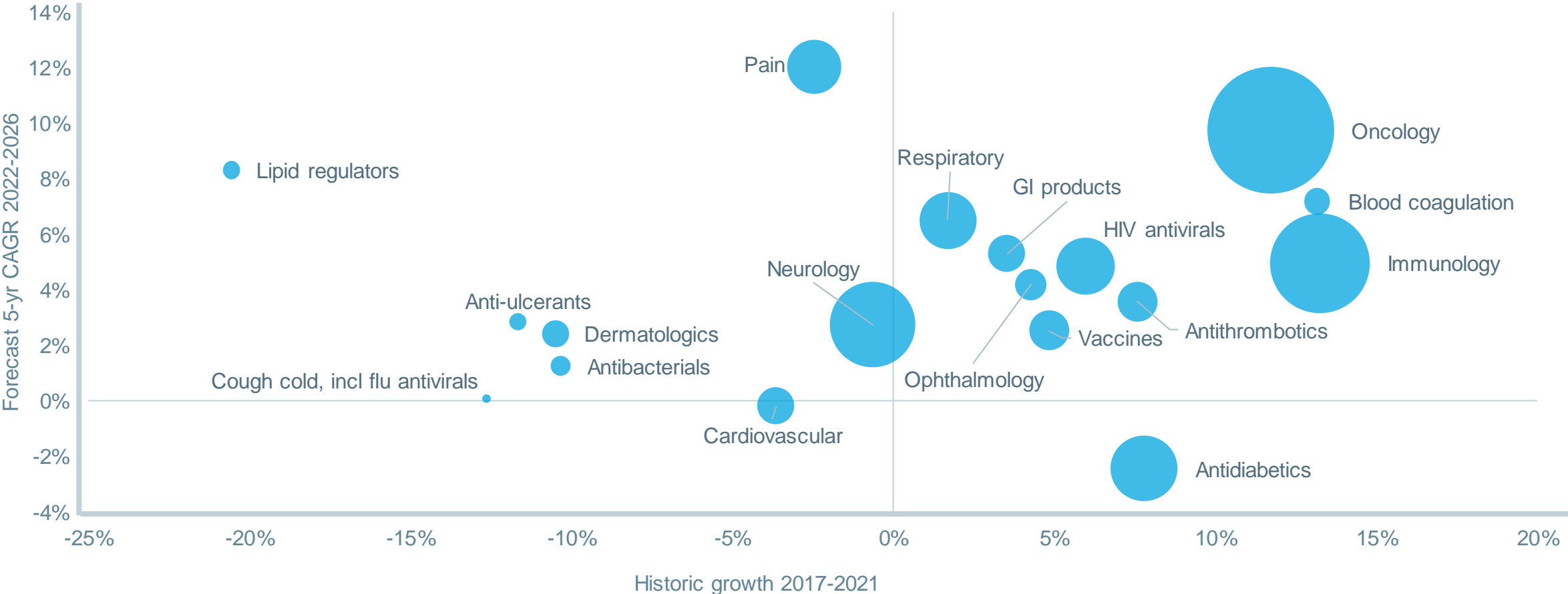
• - Drug overdose deaths may involve multiple drugs; therefore, a single death might be included in more than one category when describing the number of drug overdose deaths involving specific drugs

On the left side of the slide, there are several overlapping blue shapes. A large, dark blue rounded rectangle is the central element. Above it is a smaller, lighter blue rounded rectangle. Below it is a teal rounded rectangle. A thin blue line also extends from the bottom of the large dark blue shape towards the right.

Outlook

Immunology, oncology, neurology drive growth through 2026 along with COVID-19 vaccines

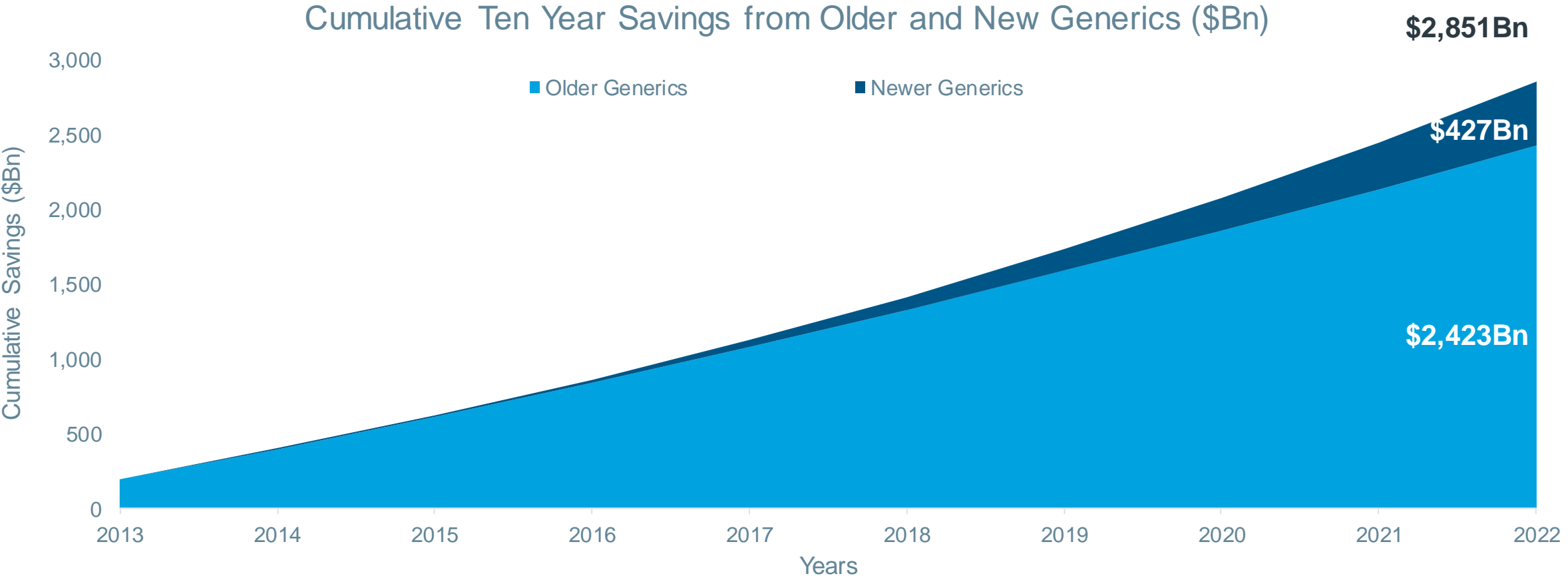
Historic and forecast net spending growth for leading therapy areas



Source: IQVIA Institute, Mar 2022.
 The Use of Medicines in the U.S.: Usage and Spending Trends and Outlook to 2026. Report by the IQVIA Institute for Human Data Science.
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The U.S. healthcare system has saved nearly \$2.9 trillion in the last ten years due to the availability of low-cost generics

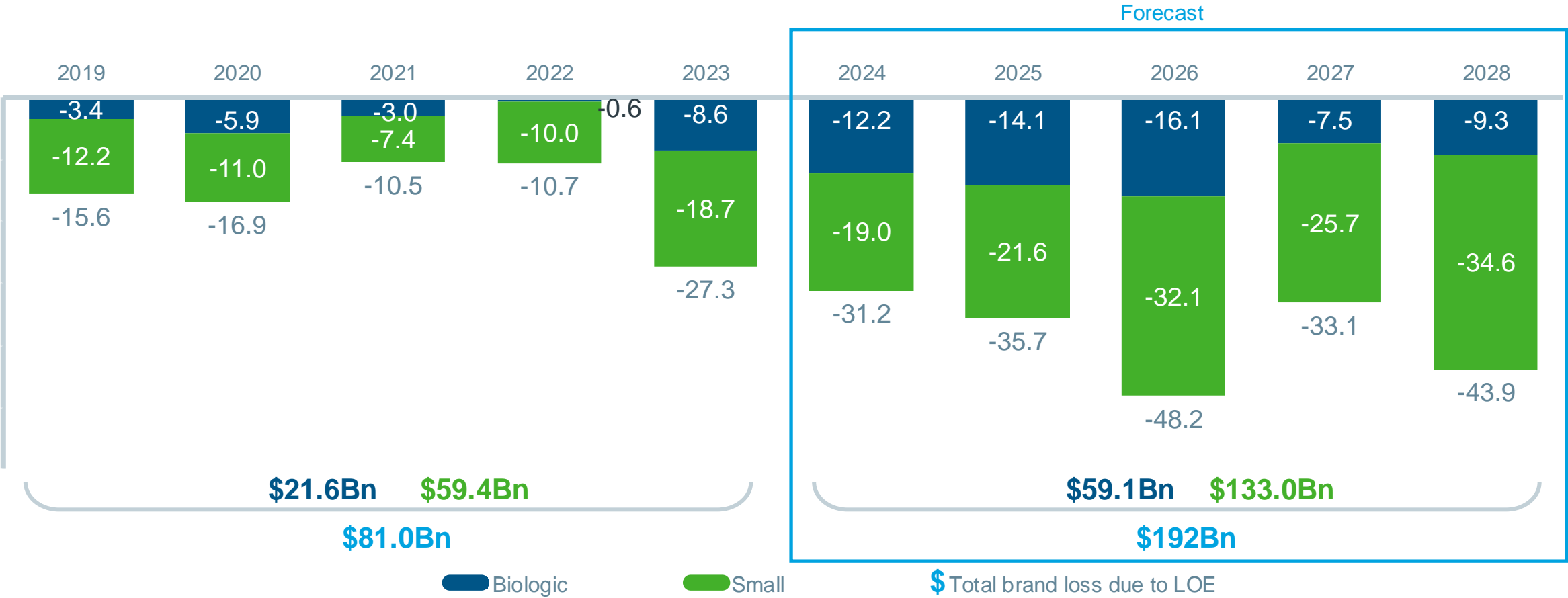
Older generics generated \$2,423 billion in cumulative savings in the last ten years



Source: IQVIA National Sales Perspectives, Dec 2022

The impact of exclusivity losses will reach \$192Bn over the next 5 years, with around 30% due to the availability of biosimilars

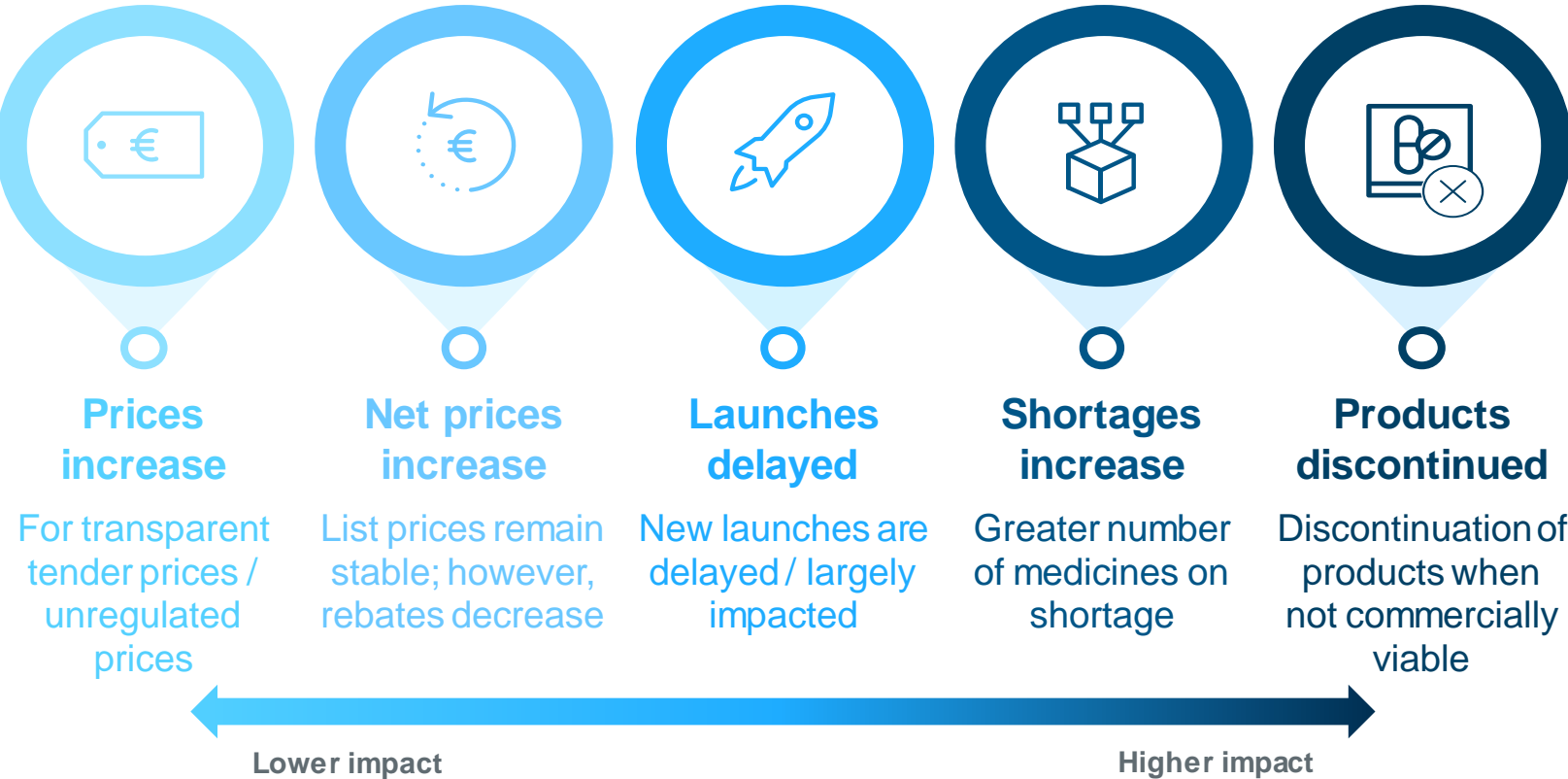
10 developed countries impact of brand losses of exclusivity 2019–2028, US\$Bn



Source: IQVIA Market Prognosis, Sep 2023; IQVIA Institute, Nov 2023. Global Use of Medicines 2024: Outlook to 2028. Report by the IQVIA Institute for Human Data Science.

Impact of the changing macroeconomic environment is significant on generic medicines, but focuses on risks

Outcomes are dependent on multiple factors, cumulative effect concerns are broad



Increased public scrutiny
Demand for pricing transparency may cause wholesalers to disclose pricing information, supply chain practices and other relevant data

For multi-source products:

- Less safety stock
- “Leaner production”, more off-shoring
- More discontinuations
- Less competition might drive up prices

For innovative medicines:

- Exchange rates
- Rebates might increase
- Low visibility to changes in net prices

A quick recap

- COVID deaths and RSV, Cough, Cold Flu are on the decline
- Elective procedures are still weak and screenings even weaker
- Non-retail and particularly hospitals and LTC bore the brunt of COVID
- Specialty is now 51% of the total market sales but GLP1s (non specialty) growth is spectacular
- Unbranded generics are growing on prescriptions but now have modest growth on Dollars
- Unbranded generic injectables have grown nicely until recently
- The Pharmaceutical benefit Biosimilar wave is upon us with Humira now facing many competitors
- There are plenty of LOE opportunities going forward both in Small molecules and Biologics
- There are many Biologics that have no competition
- Drug shortages continue to be a real issue
- Opioid usage is back to 2000 levels

U.S Progress Point

<https://www.iqvia.com/progresspoint>

A curation of IQVIA's best thinking on topics and trends driving change, disruption, and progress in the United States healthcare market.



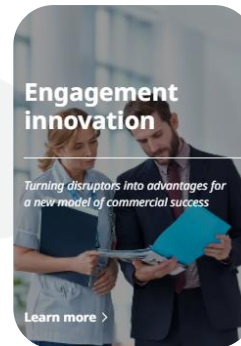
Market insights

- The IQVIA U.S. Launch Quarterly
- The IQVIA Monthly Launch Tracker
- Pharmaceutical Market and MedTech Trends
- Next Generation Payor Segmentation



Person-centric health

- Impact of Medicare Part D Cost Sharing
- Health Equity in the Time of COVID-19
- Advancing Outcomes with Home Healthcare



Engagement innovation

- HCP Consent at Scale
- Hidden Peer-to-Peer Learning Communities
- Importance of End-to-End Data in Physician Marketing

Thank you

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Doug Long

Vice President of Industry Relations, IQVIA

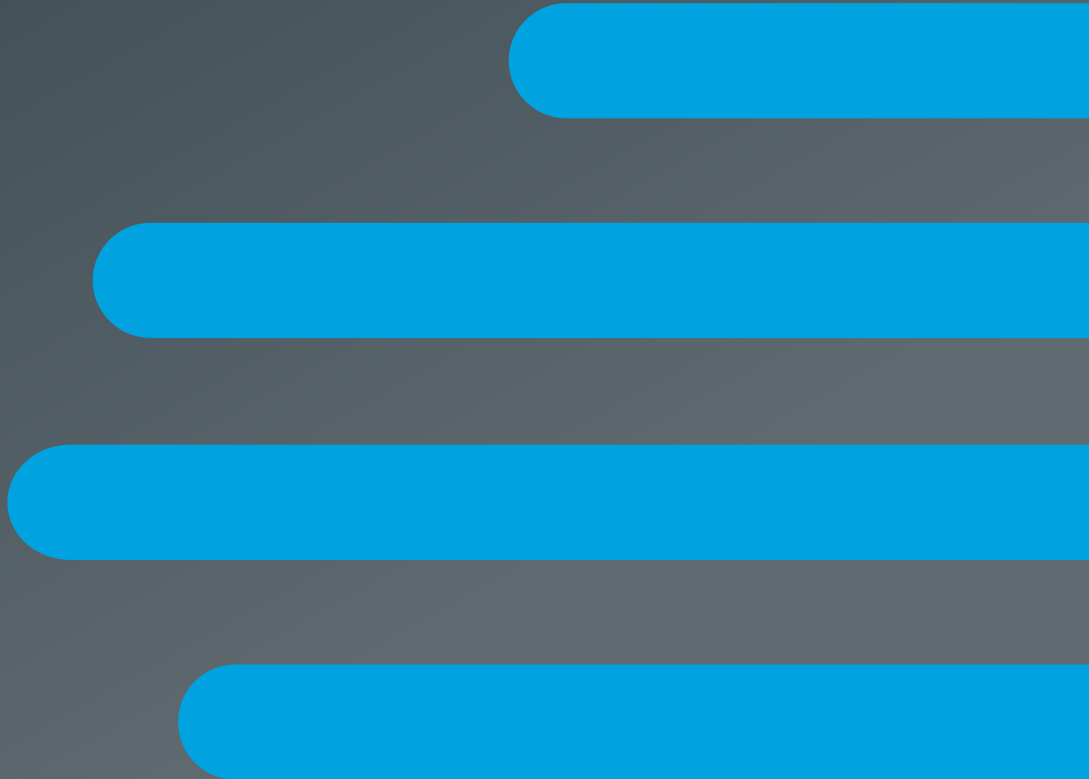
doug.long@iqvia.com

IQVIA is the world's largest pharmaceutical information company. IQVIA offers services to the pharmaceutical industry in over 100 countries around the globe. Doug has been with IQVIA since 1989.

His fundamental task is to help secure data for all existing and new databases supported by IQVIA, manage supplier, manufacturer & association relationships, and develop information for data partners. As direct consequence of his involvement in these areas, Doug has considerable experience with, and a unique perspective on, the changing U.S. and global healthcare marketplace and pharmaceutical distribution.

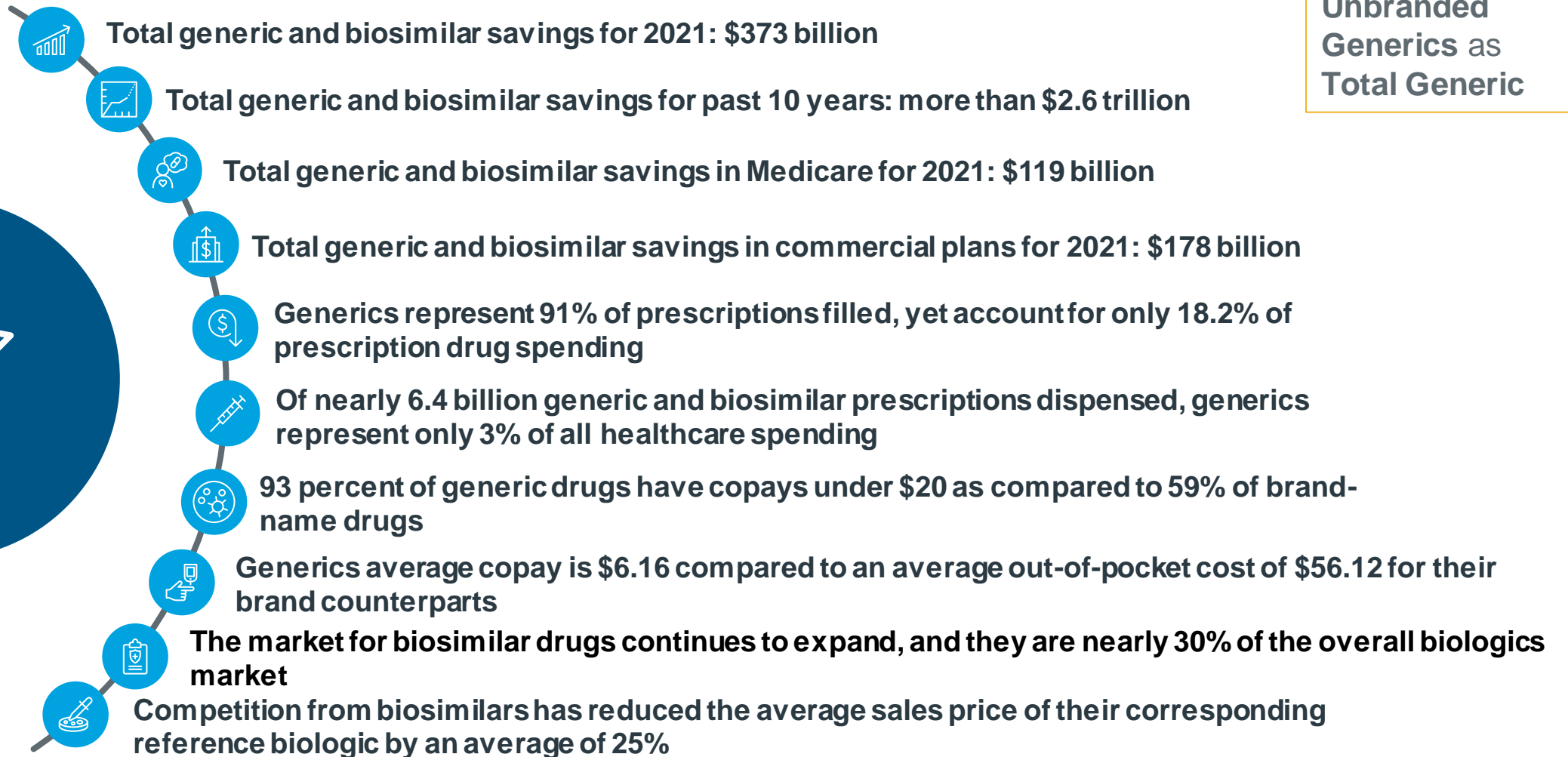
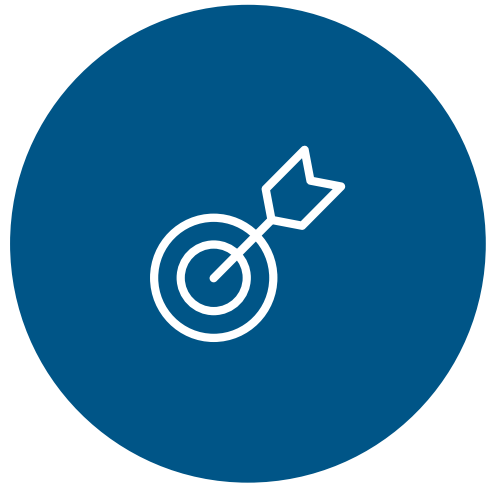
Doug is a frequent industry speaker and the recipient of many awards from trade groups. Before joining IQVIA Doug held positions at Nielsen Market Research for 16 years in various sales and marketing capacities. A native of Illinois, Doug received a BA from DePauw University and holds an MBA in management from Fairleigh Dickinson University.

APPENDIX



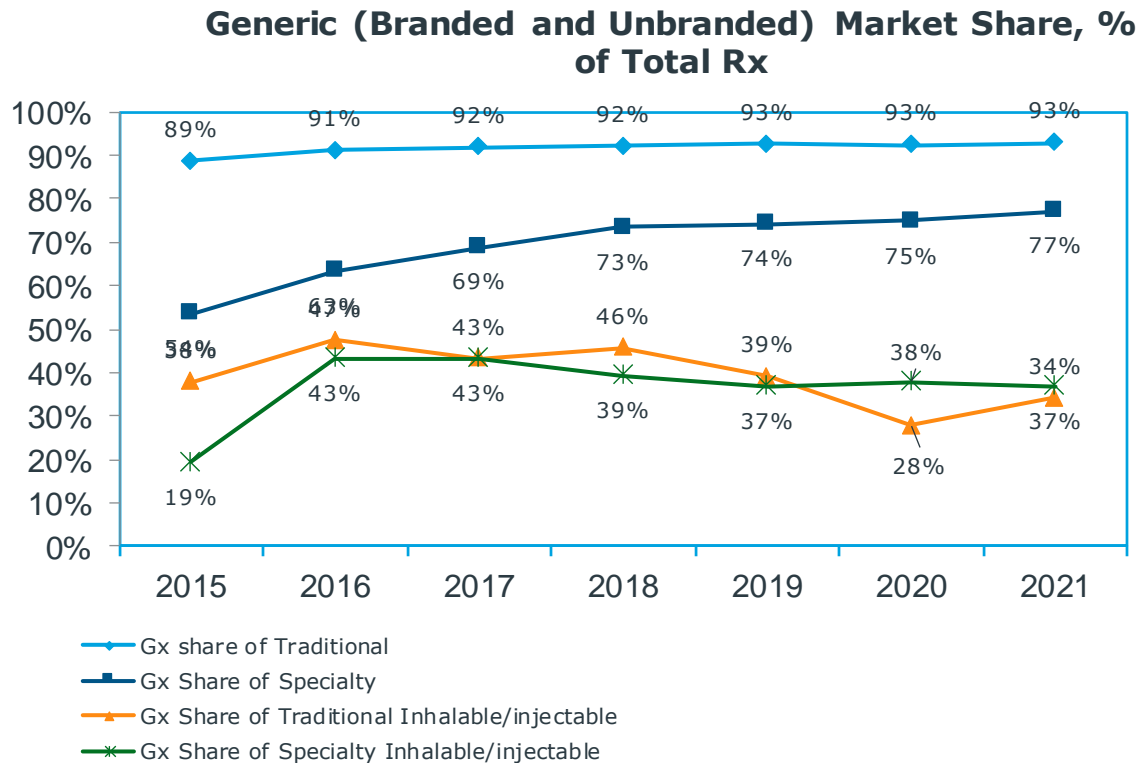
2022 AAM U.S. Generic & Biosimilar Medicines Savings Report

AAM Report describes **Branded and Unbranded Generics as Total Generic**

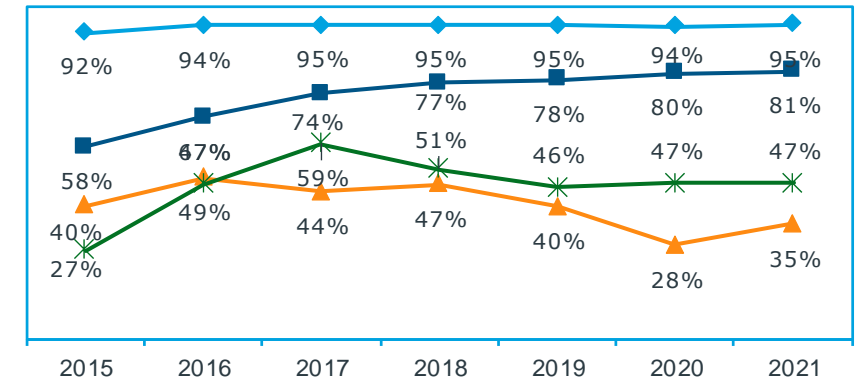


Generic efficiency rate broken down: traditional, specialty, inhalable/injectable, specialty injectable

Generic shares of dispensed prescriptions



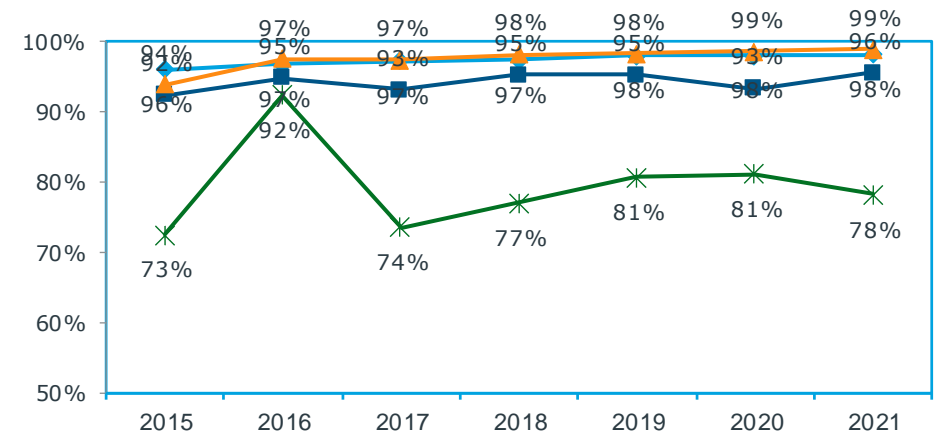
Percent of Market Accessible to Generics, % of Total Rx by Segment



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Percent Dispensed as Generic when Available (% Generic of Rx Accessible to Generics)

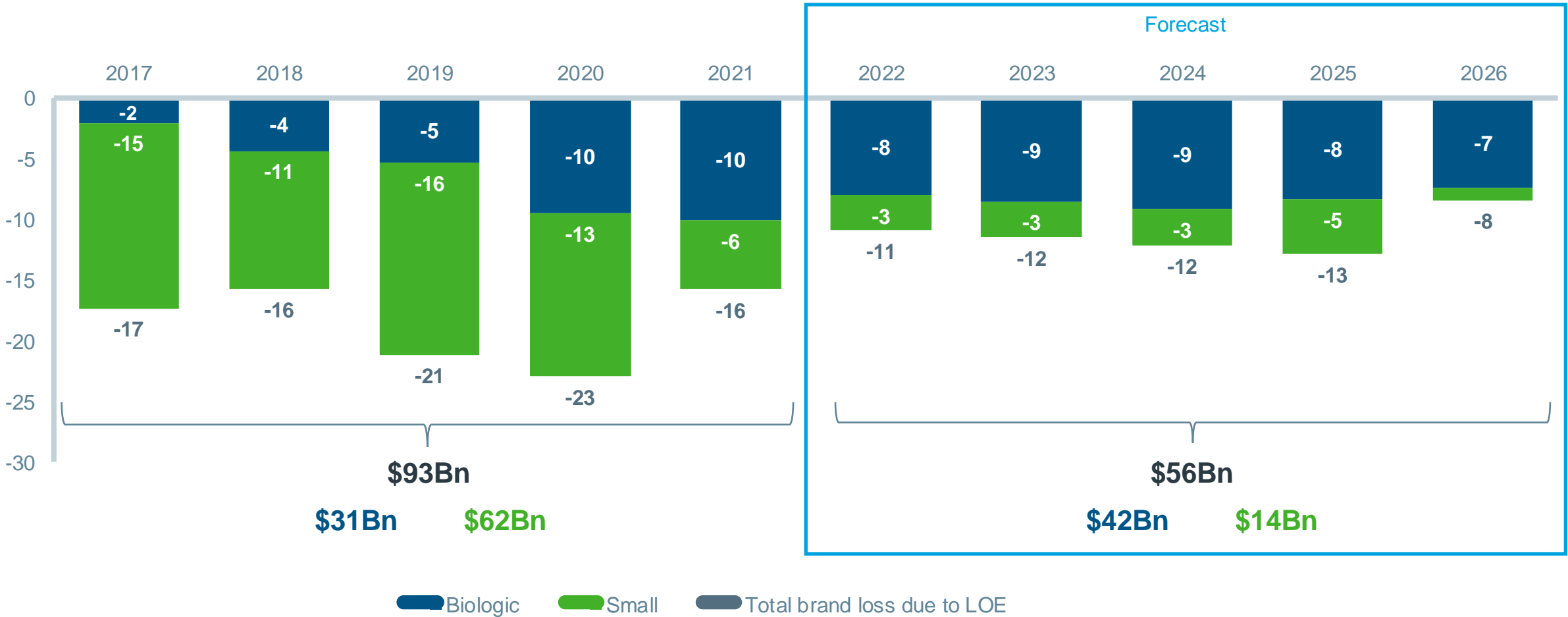


Source: IQVIA, National Sales Perspectives, Dec 2021

Generic Savings, 2015-2021

The impact of exclusivity losses will drop to \$56Bn over five years including significant biosimilars impact through the period

U.S. impact of brand losses of exclusivity 2017–2026, US\$Bn



Source: IQVIA Market Prognosis, Sep 2021; IQVIA Institute, Mar 2022. The Use of Medicines in the U.S.: Usage and Spending Trends and Outlook to 2026. Report by the IQVIA Institute for Human Data Science. ©2022 IQVIA and Affiliates. Do not reproduce without permission.