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OUTFRONT SERIES

THE HEALTHCARE REVOLUTION: A PRESCRIPTION FOR GROWTH



Spring 2024

For professional investors only.
All investments involve risk,
including possible loss of capital.

INTRODUCTION

358,000

MEDTECH, BIOTECH & PHARMACEUTICAL PATENT APPLICATIONS FILED GLOBALLY IN A SINGLE YEAR

Source: World Intellectual Property Indicators, 2023

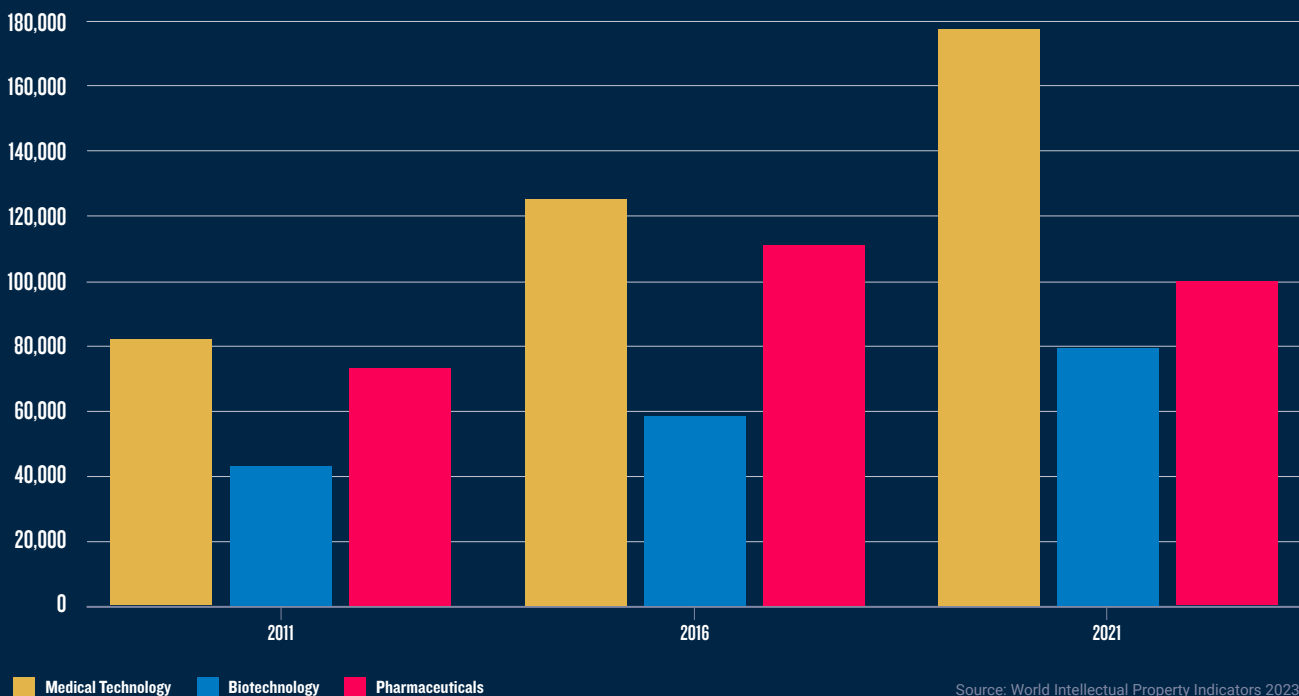
It's a defining moment for healthcare. From drug discovery to digital delivery, a once-in-a-generation revolution is promising to introduce new cures for some of the most intractable illnesses, as well as personalized treatment at a lower cost.

Innovation is flourishing (see chart). Total pharmaceutical, MedTech and biotech patent applications increased from more than 197,800 globally

in 2011 to almost 357,640 in 2021. For every drug or new medical device that's approved, many patents are filed to protect intellectual property.

New drugs have the potential to transform treatment of serious diseases, including diabetes, obesity, cardiovascular disease and cancer. Yet not all healthcare companies will be winners. While the true innovators will prosper, others look likely to be left behind.

Healthcare Patents on the Rise



Source: World Intellectual Property Indicators 2023



CHAPTER 1

**DAWN OF A NEW ERA IN DRUG
DISCOVERY AND TREATMENT**



GLP-1 BLOCKBUSTER DRUGS SET TO BE “WORLD’S LARGEST PHARMACEUTICAL”

“

Our belief is that over the next three to five years, GLP as a class will become the largest pharmaceutical the world has ever seen. Demand is being driven and will continue to be driven by Type 2 diabetics as well as by people looking to lose weight overall... In addition to weight loss, we do believe that there are other benefits from GLPs: be it on heart health, on things like sleep apnea and so on and so forth. So, our view is that it’s a multi-factorial set of drugs and the applications are fairly wide open.”



DANIEL MATVIYENKO

Portfolio Manager, Jennison's Healthcare Strategies

Source: PGIM, 2024

As a leader in developing GLP-1 drugs, Novo Nordisk has swiftly become Europe's most valuable quoted company.

As of March 26, its market capitalization was approximately \$576.5 billion, propelled by the prospects for the Wegovy and Ozempic anti-obesity drugs. On August 8, 2023, Novo Nordisk announced that its medication also reduced the risk of heart attacks or strokes, spurring the latest leap in its share price.

Source: Drug Discovery & Development, 2024



Eli Lilly, the U.S. pharmaceutical giant with the Mounjaro anti-obesity drug, has seen a still greater stock surge.

Its share price was up almost 130% over the past 12 months, as of March 26, giving Eli Lilly a market capitalization of \$734.6 billion.

Source: Drug Discovery & Development, 2024

With obesity at the root of many health problems, demand from the huge U.S. market alone is outstripping supply.

Indeed, brokers estimate the weight-loss drugs market could grow from \$6 billion to as much as \$100 billion by the end of the decade.

The popularity of the weight loss drugs could also create new consumers of lifestyle purchases as a healthier population looks to stay in shape.

Source: Reuters, 2023





“

As the weight comes off, lifestyles will start to change. So we could see more gym memberships or gym equipment sales. And as people become more active, people will start investing in new hobbies such as golf, gardening, hiking, whatever, all which could drive increased purchases of consumer products. . . . People with obesity spend just under \$2,000 more a year on medical costs, and people with severe obesity spend about \$3,000 more. So these savings could be added back to a household budget, benefiting other areas in the consumer sector.”



SCOTT SWANSON

Principal at PGIM Fixed Income

Source: PGIM, 2024

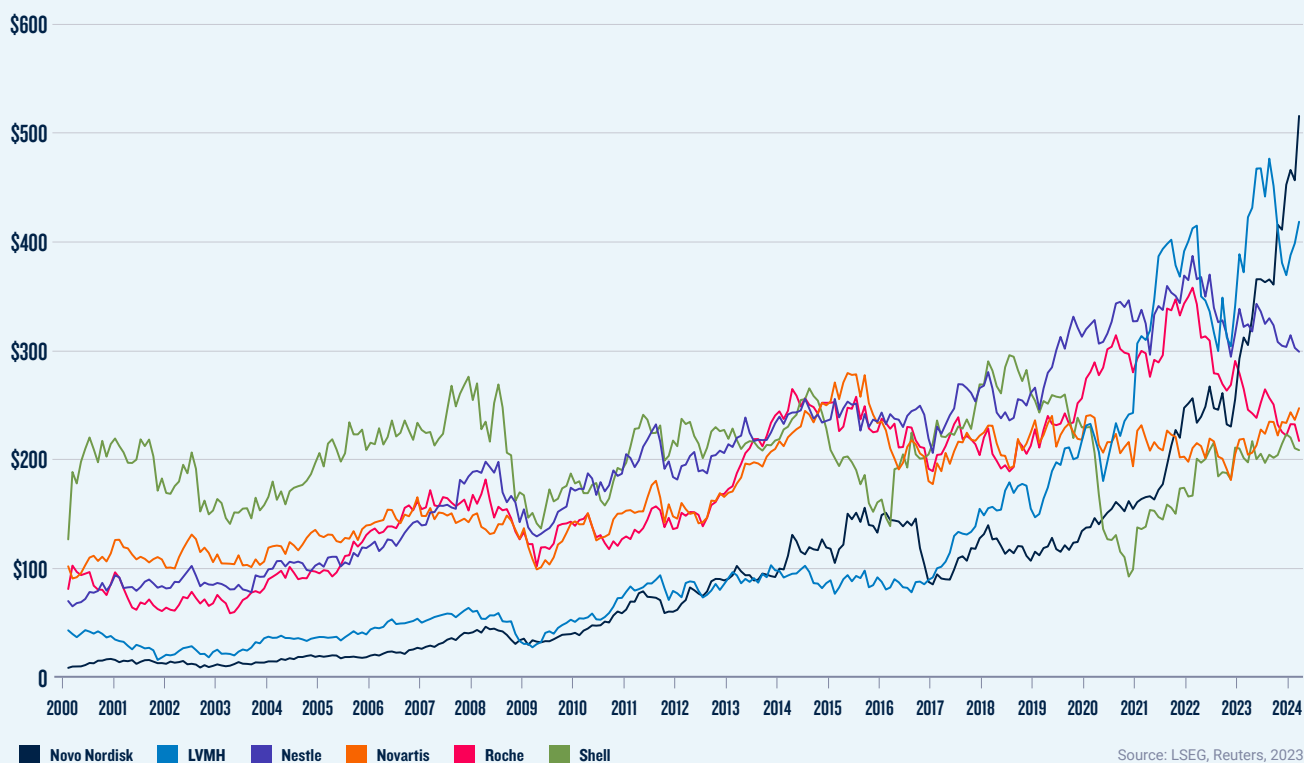


But Novo Nordisk and Eli Lilly will soon see competition.

While their specific drugs are protected by patents, the GLP-1 class of medications originally developed for Type 2 diabetes is not. More than 70 anti-obesity treatments are in development, according to STAT, a medical news site.

Source: MIT Technology Review, 2024

Europe's Most Valuable Companies Over 20 Years (USD Billions)



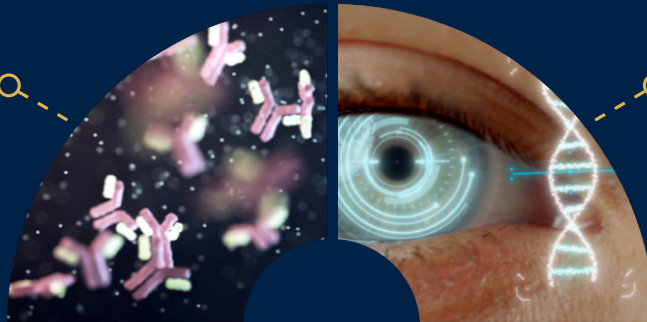
GENE EDITING TO HELP MILLIONS

Gene therapy is a game changer that's arisen from decades of scientific research and could help millions of people.

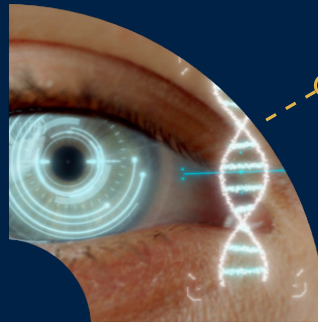
In development since the 1990s, it promises to transform treatment of serious diseases such as cancer, as well as neurological, blood, immunological and cardiovascular illnesses. It's one of the fastest-growing areas of healthcare, with over 2,000 therapies in development globally.

Four Promising Gene Therapy Success Stories

Precision editing for blood disorders.



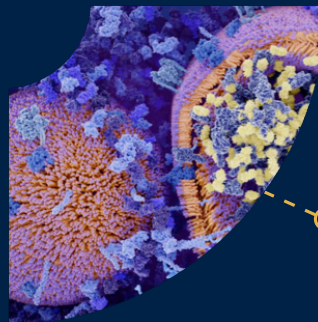
Gene swaps to prevent vision loss.



Derailing a potentially lethal illness such as spinal muscular atrophy.



Training the immune system to fight cancer.



Source: Scientific American, 2021

Healthcare can also be tailored to a person's genetics.

For instance, clinical trials are currently testing mRNA vaccines against a range of cancer types including melanoma, ovarian, head and neck, colorectal, lung and pancreatic. These are the first cancer therapies entirely tailored to one patient's DNA.

Source: BBC, 2023



\$25.84 BN

The global gene therapy market is expected to increase from \$6.93 billion in 2023 to \$25.84 billion by 2028.

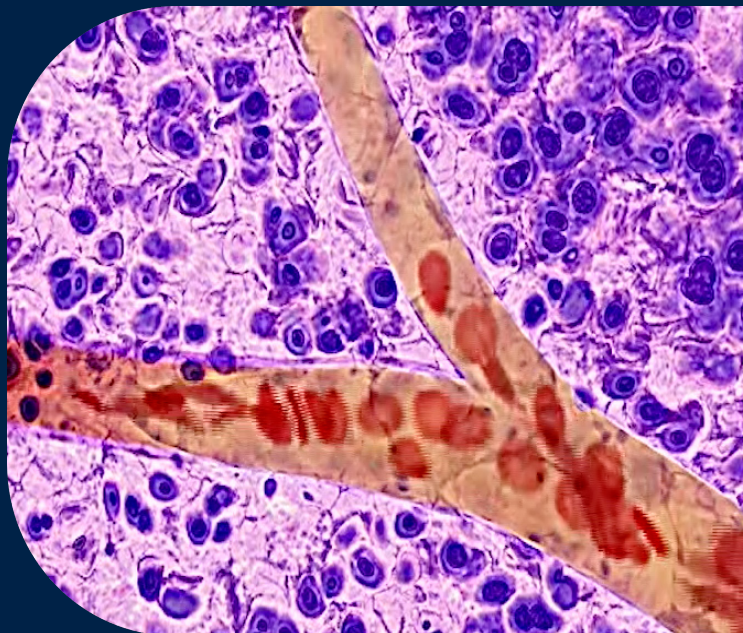
That's a remarkable compound annual growth rate exceeding 30%.

Source: Market Data Forecast. Gene Therapy Market. March 2023

And yet these therapies come with a high price tag, which are an obstacle to their use.

For instance, treatments for beta-thalassemia and hemophilia, two blood disorders, cost \$2.8 million and \$3.5 million respectively.

Source: Scientific American, 2022 | Reuters, 2022



AI ACCELERATES DRUG DISCOVERY

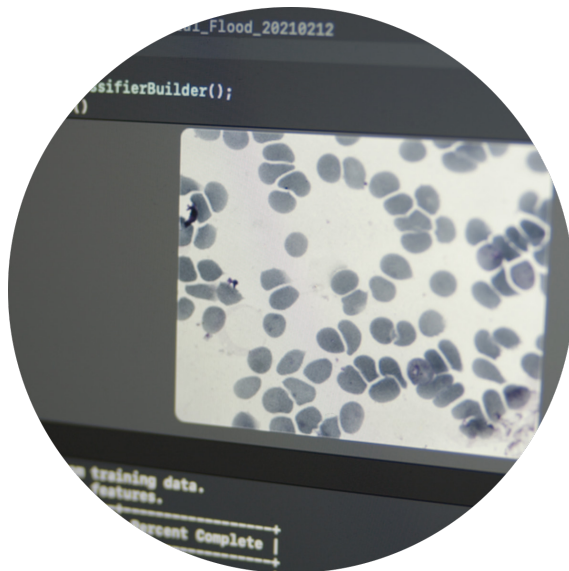
As well as transforming areas of healthcare such as diagnostics, AI promises to shave years off the time taken to develop a drug.

This will speed time to market as well as cutting the substantial costs and risks of drug development.

For instance, **AMGEN**, the pharmaceutical giant, is leveraging a data-driven machine learning model, **ATOMIC**, to speed up clinical trials.

By 2030, it says, it expects AI to help shave two years off the decade or more it typically takes to develop a drug.

Source: Reuters, 2023



The U.S. Food & Drug Administration received about 300 applications incorporating AI or machine learning in drug development from 2016 through 2022.

Over 90% of those applications came in the last two years and most were for use of AI at some point in the clinical development stage.

Source: Reuters, 2023



CHAPTER 2

**NEW FRONTIERS IN THE DELIVERY
OF HEALTHCARE**

TAILORING TREATMENT TO GENES

Gene sequencing has opened the door to medicine that's tailored to an individual's genetic make-up.

In 2003, the Human Genome Project finished mapping the 20,000 genes in humans, paving the way for understanding of which genes are linked to hereditary diseases. This has led to the development of new diagnostic methods and treatments.

Individuals can take a more proactive approach to their health.

For as little as \$100 to \$2,000 it's possible to buy a genetic test showing people what illnesses such as diabetes or cancer they're at high risk from. Such a personalized health profile paves the way for preventative medicine, alerting people to take treatments or change their lifestyles.



WEARABLES AND REAL-TIME BIOMETRICS

Wearable devices can operate in tandem with genetic testing, going way beyond the original fitness trackers.

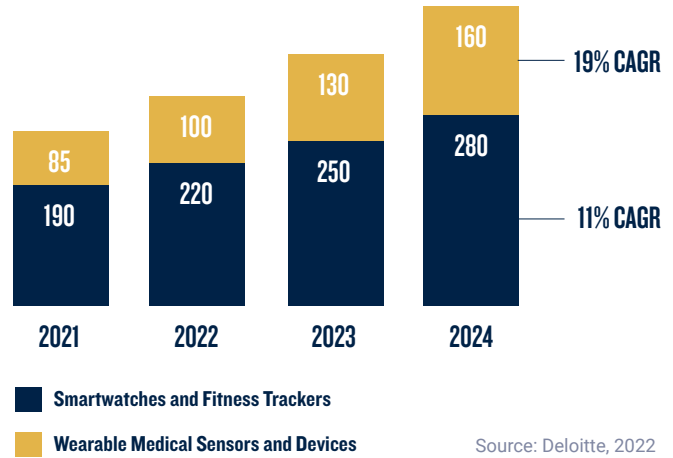
Smartwatches, bracelets and rings track heart rates, blood sugar, exercise levels and sleep patterns – but they have also evolved to diagnose diseases such as cancer and heart disease, as well as to track real-time biometrics including blood pressure.



The market for wearable devices and related apps is growing swiftly.

It is forecast to rise to a total of 440 million in 2024, according to Deloitte.

Number of units shipped globally (millions)



ROBOTICS

Robot surgeons are no longer a thing of the future.

More than 11 million robotic surgeries have been performed worldwide using “da Vinci” robots. The surgeon guides the robot through a console, making it possible to operate through small incisions.

Source: Medicina, “New Robotic Platforms in General Surgery: What’s the Current Clinical Scenario?” 2023

According to research from Bain & Company, the market is already worth more than \$3 billion worldwide and will continue to grow, with applications across a range of areas.

Source: Bain & Company, 2023



10-Year Growth Projection by Specialty Type



Cardiology



General Surgery



Vascular Surgery



Orthopedics



Neurosurgery



Source: Bain & Company, 2023



Increasingly, robots are also being used to replace care workers in countries such as Japan and China, where people are aging fast.

They assist the elderly with walking, standing, rehabilitation and bathing

Source: Medi-Tech Insights, 2022



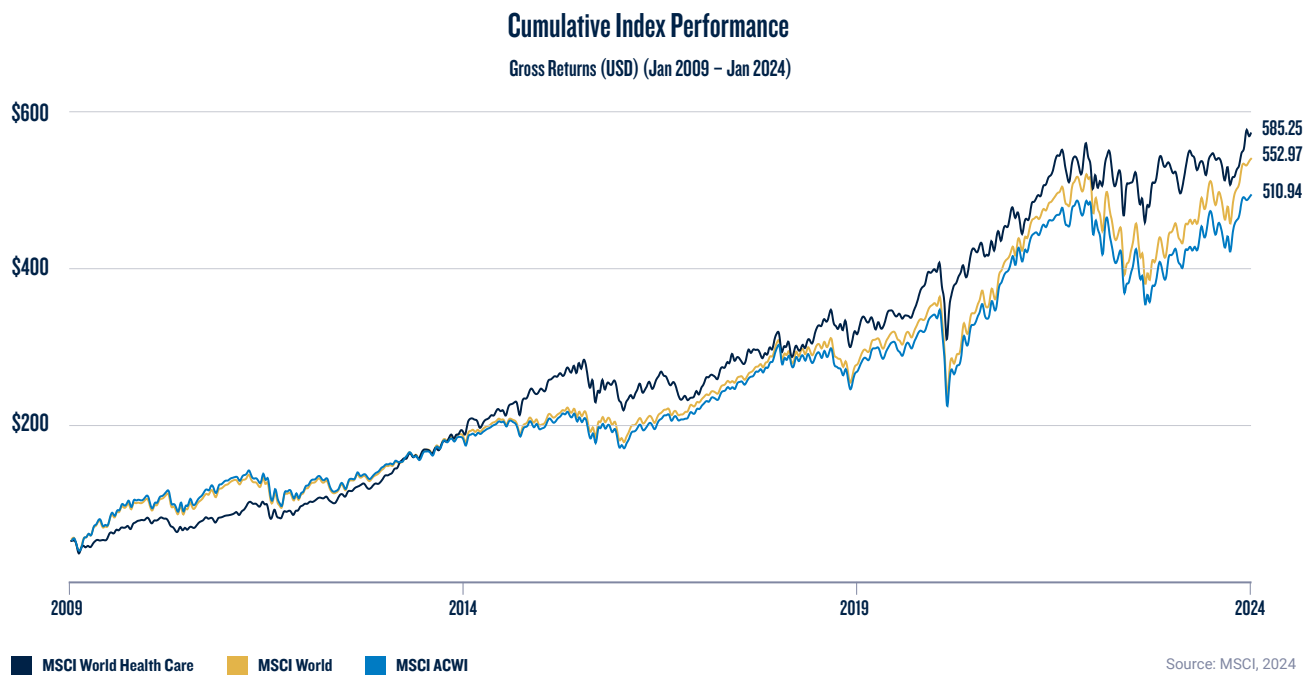
CHAPTER 3

**THE CONUNDRUM: HOW TO PICK
WINNERS AND AVOID LOSERS**

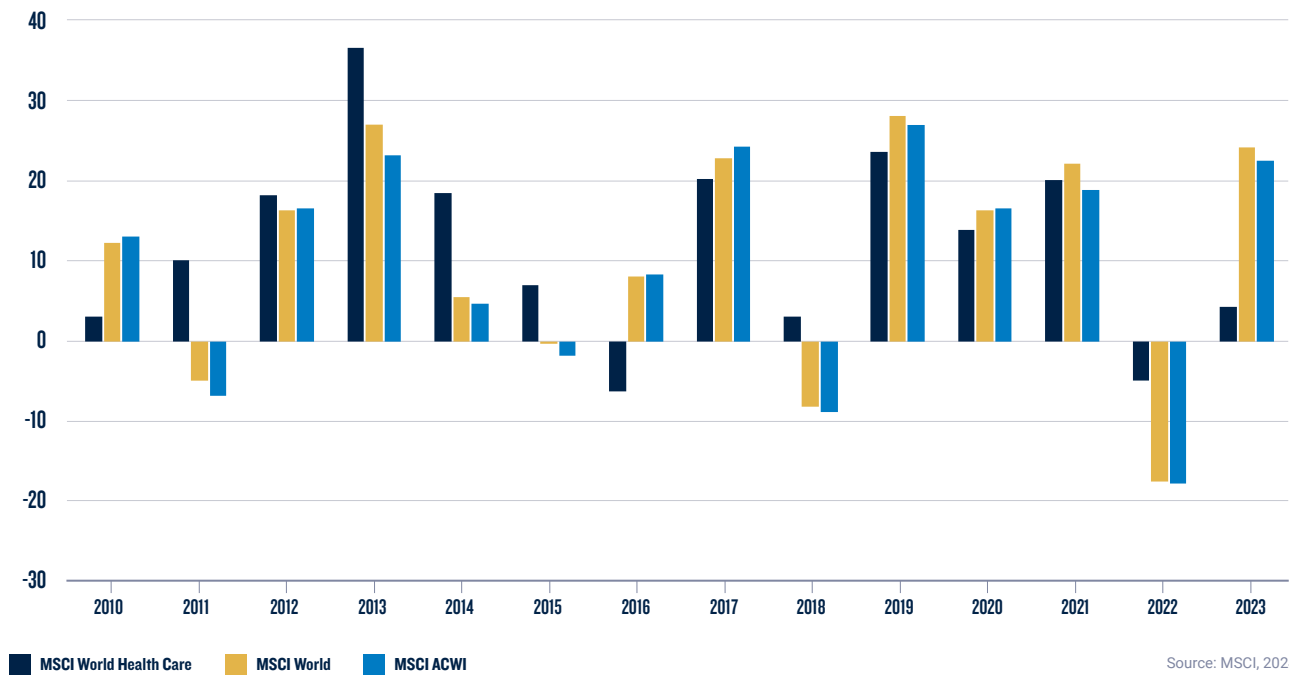


High M&A in face of patent cliff shows potential for both winners and losers.

While Novo Nordisk and Eli Lilly have risen to become two of the most valuable companies globally in recent years, other healthcare companies have struggled. Broadly speaking, the sector has trailed global equity markets. During 2023, for instance, the MSCI World Health Care Index rose by just 4.27% compared with the MSCI World's 24.42% rise.



Annual MSCI Index Performance %



The broad index performance masks a wide range of returns.

The share prices of pharmaceutical firms that do not have drug pipelines benefiting from next-generation drugs are languishing. There's a patent cliff looming: the percentage of prescription drug sales at patent risk in 2027-2028 will reach the highest level since 2015, Evaluate Pharma says.

Source: Evaluate Pharma, 2023





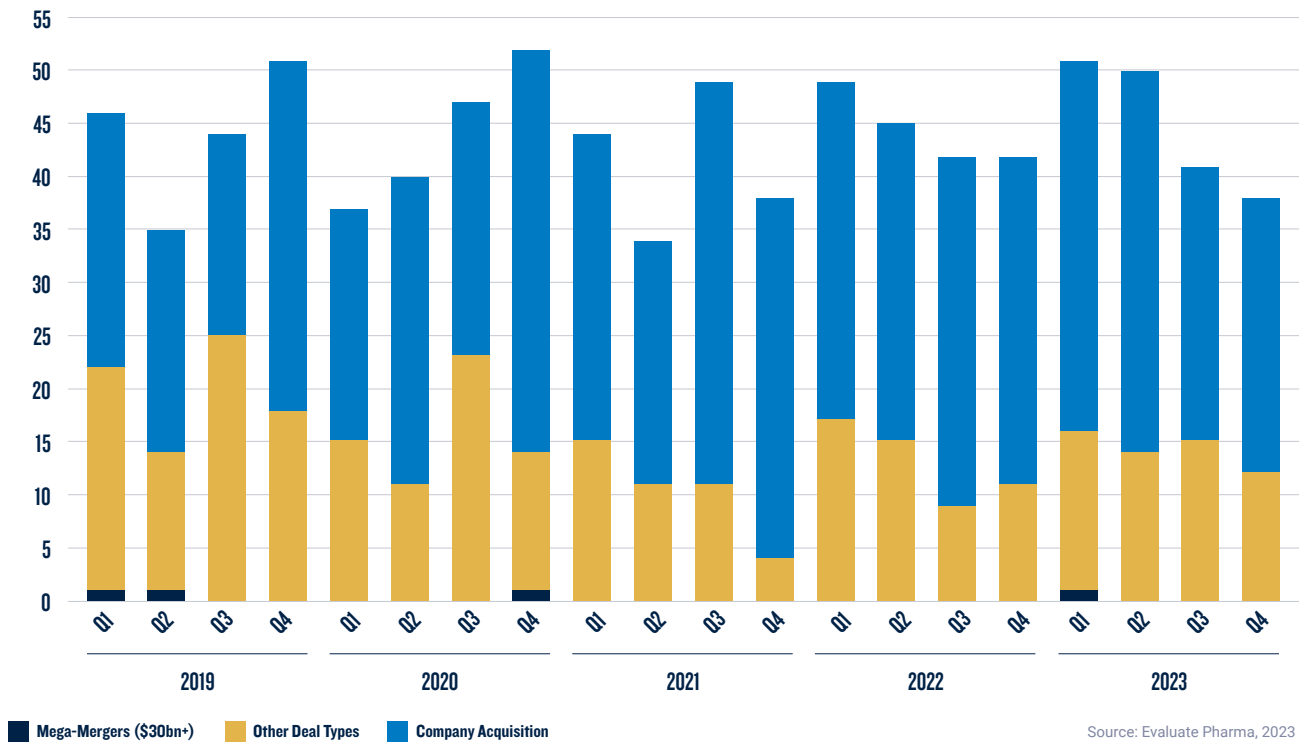
To replenish drug pipelines, pharmaceutical companies have been acquiring smaller companies with promising drugs in development.

The number of acquisitions rose to 135 in 2023, up from 126 in 2022, according to Evaluate. The value of these acquisitions reached \$153 billion for 2023, the highest since 2019's \$239 billion.

Source: Evaluate Pharma, 2023

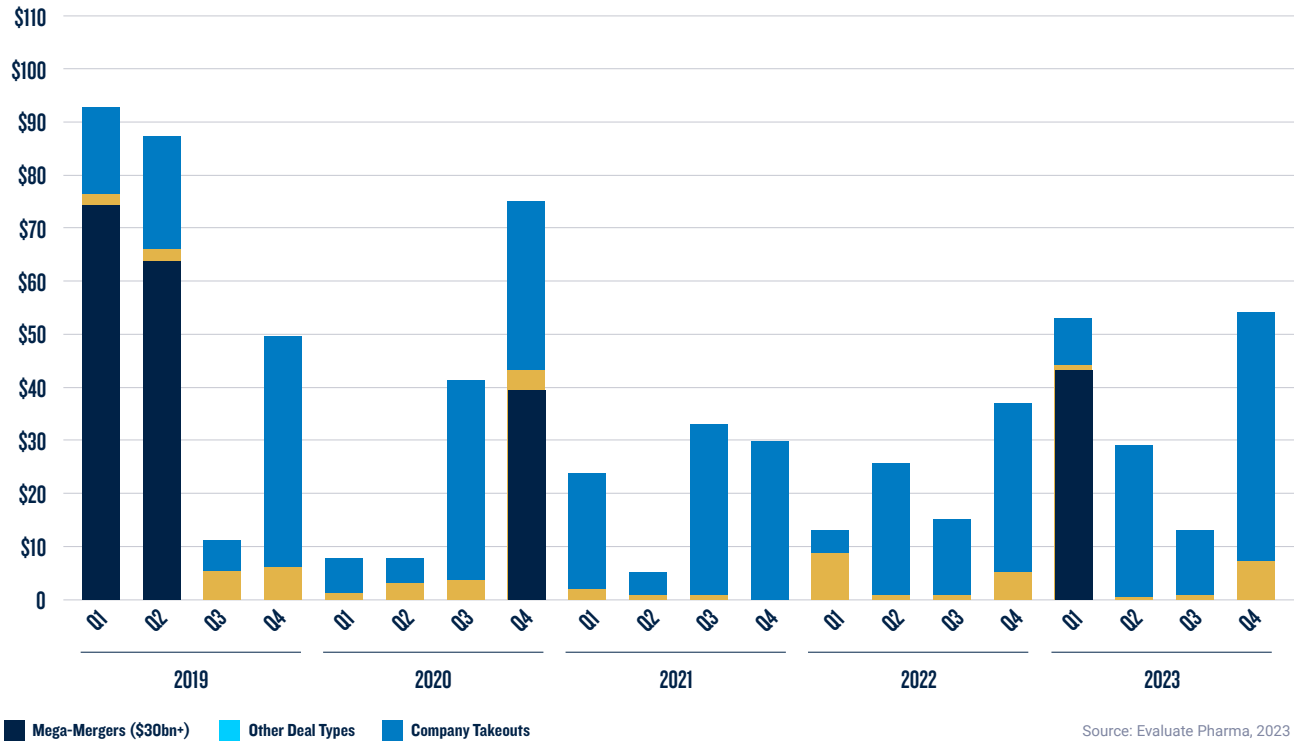
HEALTHCARE M&A

Quarterly Deal Counts



HEALTHCARE M&A

Combined Deal Values (USD Billions)



Five Largest Acquisitions in 2023 Q4

TELAVANT

Value: \$17.25bn Date: Oct. 23
Purchaser: Roche

KARUNA THERAPEUTICS

Value: \$14.0bn Date: Dec. 22
Purchaser: Bristol Myers Squibb

IMMUNOGEN

Value: \$10.1bn Date: Nov. 30
Purchaser: AbbVie

CEREVEL

Value: \$8.7bn Date: Dec. 6
Purchaser: AbbVie

MIRATI THERAPEUTICS

Value: \$4.8bn Date: Oct. 8
Purchaser: Bristol Myers Squibb

Source: Fierce Pharma, 2024

THE LONG AND THE SHORT OF IT

All in all, healthcare's wave of innovation and growth bodes well for investment opportunities. But investors will need to be highly selective.



An experienced manager can really look and take advantage of the volatility on both the long and the short side, creating a hedged portfolio that is defensive, by using knowledge and expertise seeking to find the winners and losers in volatile sectors.”



DEBRA NETSCHERT

Portfolio Manager at Jennison Associates

Source: PGIM, 2023

CONCLUSION

The healthcare industry is pushing at new frontiers that should lead to profits growth.

In pharmaceuticals alone, revenues are estimated to climb from \$1.1 trillion in 2023 to \$1.6 trillion in 2028, according to Evaluate's forecasts. The growth rate may be still greater in biotech and MedTech.

Source: Evaluate Pharma, 2023

To give a sense of the scale of innovation, 2021's 357,640 MedTech, biotech and pharmaceutical patent applications globally compare with 379,000 for computer technology. Clearly, today's healthcare industry is a hotbed of innovation.

Yet there will be a big gap in the fortunes of winners and losers.

“

We want to own the stocks of those companies where it's true innovation. Where as we look out three years, this company has created a market or changed an existing market by improving the outcomes for the patients while at the same time improving the cost profile of that therapy.”



DANIEL MATVIYENKO

Portfolio Manager, Jennison's Healthcare Strategies

Source: PGIM, 2024

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