TRINITY SMF

STUDENT MANAGED FUND

Healthcare Sector Report
2023-2024

Sector Manager
Patrick Griffin

Senior Analyst
Rory Lally

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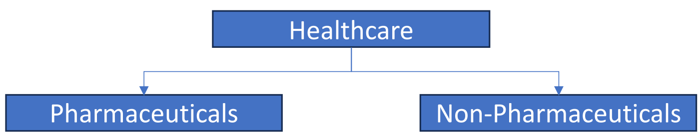
***Sector Overview** – Sector Description*

The healthcare sector is a multifaceted industry, the overarching purpose of which is to enhance patient outcomes and improve overall quality of life. The sector consists of businesses that provide medical services, manufacture medical equipment or drugs, provide medical insurance, or otherwise facilitate the provision of healthcare to patients. The sector includes two major segments: the pharmaceutical and non-pharmaceutical sub-sectors.

The pharmaceutical sector comprises companies that design, manufacture, and distribute a wide spectrum of drugs and medications. These pharmaceuticals cater to diverse patient needs, ranging from over-the-counter painkillers for immediate relief to advanced cancer treatments for complex conditions sub-sectors.

The non-pharmaceutical sector consists of companies that design, manufacture, and distribute an extensive array of products and services. These include companies that design and manufacture medical technologies, such as medical devices, medical supplies, and equipment, companies that provide health insurance and related services, and organisations and individuals providing preventive, curative, promotional, rehabilitative, or palliative healthcare services. sub-sectors.



The healthcare sector is a monumental sector, with expenditure as a percentage of global GDP accounting to 9.6% of GDP in OECD countries in 2021. The OECD is an intergovernmental organisation with 38 member countries, the majority of which are leading, high-income, world economies. Healthcare companies comprise 13.1% of the S&P 500, the second largest weight of any sector, trailing only Information Technology (28.1%). The healthcare sector is renowned for its non-cyclical nature and resilience during recessions - according to BlackRock, the healthcare sector exhibited the most positive relative change in earnings during recessionary periods of any sector between 1980-2020. This stability stems from the sustained, inelastic demand for essential healthcare services and pharmaceuticals. Regardless of positive or negative macroeconomic environments, people will continue to spend on essential healthcare services and products. As a result of the indispensability of healthcare products and services, healthcare companies have significant pricing power. This inelasticity is demonstrated by healthcare companies typically having a beta below 1, meaning that when the market goes up or down, the healthcare sector generally does not by the same degree.

Moreover, demographic trends underscore the sustained and growing demand in the sector. Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%. This demographic shift is not only driving further demand in the sector, but additionally prompting a transition from treatments to preventative care. Consequently, the healthcare sector is not just stable but also continually expanding, indicating its significant role in both the economic landscape and public welfare.

Sector Overview – Sub-Sectors

Both segments of the healthcare sector are vast industries encompassing a broad range of services, technologies, and organisations dedicated to maintaining health and treating patients. Each of these segments are complex landscapes with various subsectors that cater to different aspects of healthcare, ranging from drug discovery and development to healthcare delivery and management. Below is a description of each sub-sector of both arms of the healthcare industry, as classified by the Global Industry Classification Standard (GICS).

The pharmaceutical segment comprises three sub-sectors:

<u>1. Pharmaceuticals:</u>

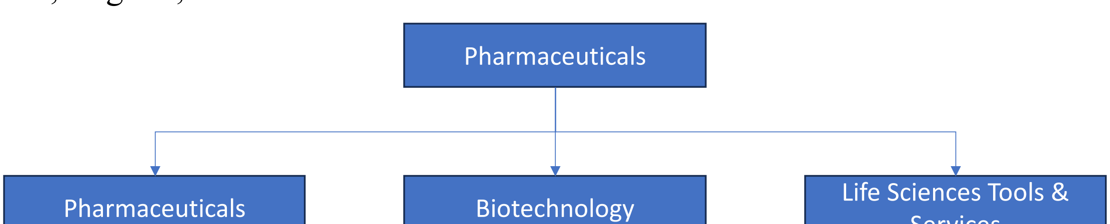
Companies in this sub-sector primarily concentrate on the research, development, production, and marketing of small molecule drugs, which are generally composed of low molecular weight compounds that can be administered orally in the form of pills or capsules (e.g., Paracetamol, Esomeprazole, and Penicillin). Major companies in this sector include Pfizer, Merck, and Eli Lilly. These companies often have high capital expenditures, particularly in research and development, as they strive to create innovative medicines and maintain their competitive edge.

<u>2. Biotechnology:</u>

Firms in this sub-sector exploit living organisms or their biological derivatives to produce therapeutic products. They work on more advanced therapies that are typically large, complex molecules, such as biologics, cell and gene therapies, and recombinant proteins (e.g., Comirnaty, Humira, or Gardasil). Notable companies in this space are Novo Nordisk, Moderna, and Vertex Pharmaceuticals. While there is some intersection with the pharmaceutical sector, biotechnology companies often focus on more specialised biological solutions.

<u>3. Life Sciences Tools & Services:</u>

This sub-sector specialises in providing the essential technologies, services, and supplies that enable research and development activities in pharmaceutical and biotechnology industries. Contract Research Organizations (CROs) like Charles River Laboratories and ICON play a pivotal role in conducting clinical trials, data collection, and statistical analysis. Contract Development & Manufacturing Organizations (CDMOs) such as Catalent and Lonza focus on the formulation, development, and manufacturing phases of drug production, serving as critical partners for pharmaceutical companies that may not have these capabilities in-house. Additionally, this sector encompasses firms like Illumina and Thermo Fisher Scientific, which manufacture analytical instruments, reagents, and other research consumables.



***Sector Overview** – Sub-Sectors*

The non-pharmaceutical healthcare landscape can be divided into three main sub-sectors:

1. Healthcare Equipment and Supplies:

This sub-sector includes companies that design and manufacture medical devices, supplies, and equipment. Companies like Medtronic, known for its pacemakers and insulin pumps; Abbott Laboratories, specialising in diabetes and cardiovascular products; and Roche Diagnostics, a leader in diagnostic solutions, dominate this field.

2. Healthcare Providers and Services:

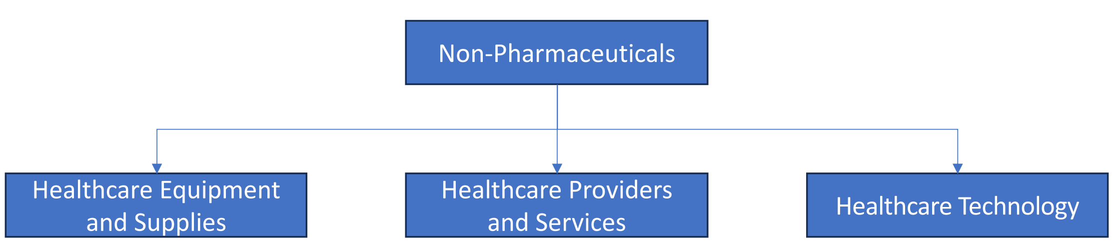
This group covers a wide range of sectors within the healthcare industry, including healthcare distributors, services, facilities, and managed healthcare.

Healthcare distributors are entities responsible for the procurement, storage, and distribution of medical supplies and pharmaceuticals, exemplified by companies like McKesson Corporation. Healthcare service providers range from organisations offering a spectrum of healthcare services—be it preventive, curative, promotional, rehabilitative, or palliative—to individual health practitioners like doctors, nurses, and dentists.

Healthcare facility companies include a diverse set of establishments, from large hospital networks such as HCA Healthcare and Tenet Healthcare to specialised care settings like nursing homes, outpatient care centres, and home healthcare services.

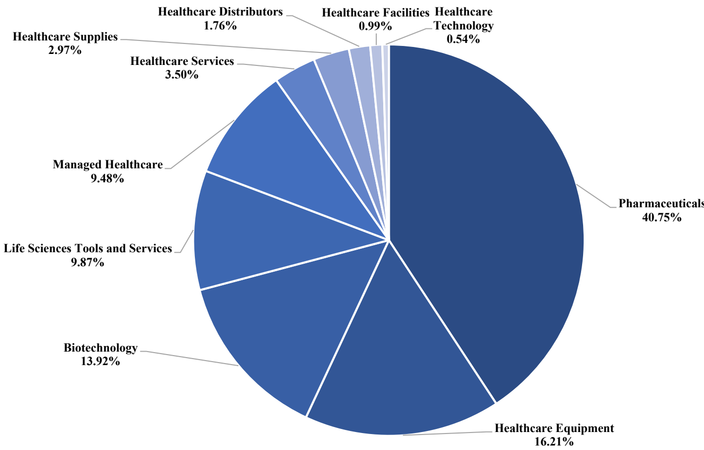
Managed healthcare companies, typically insurance firms, employ a contracted network of healthcare providers to offer coordinated care, deliver healthcare services to their members, and encourage preventive health practices. In the United States, this sector is largely dominated by the "Big Five": UnitedHealth Group, Anthem Inc., Aetna Inc., Centene, and Molina.

3. Healthcare Technology:
This sector encompasses companies that focus on the integration of technology into healthcare delivery. This includes the development of healthcare IT solutions like electronic health records (EHRs), telehealth platforms, and wearable health devices. Companies such as Epic Systems, specialising in EHRs, and Teladoc Health, a leader in telehealth services, are key players in this field

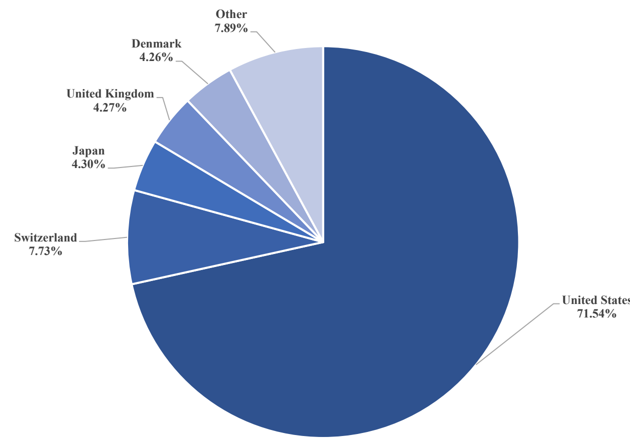


Sector Overview – Current Climate

Sub-Sector Weights



Geographical Weights



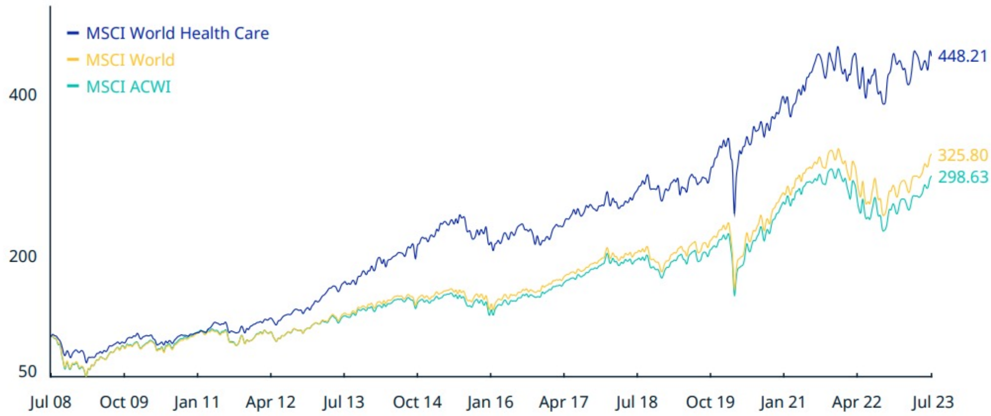
In terms of sub-sectors, Pharma-centric categories collectively exert a commanding influence on the healthcare landscape, accounting for 64.54% of the sector. Among them, Pharmaceuticals take the lion's share with 40.75%, reflecting their extensive coverage of numerous medical conditions and the high levels of R&D investment. Biotechnology follows with a 13.92% share, often distinguished by its focus on specialized and advanced therapies like biologics. Life Sciences Tools & Services contribute 9.87%, offering essential tools and technologies that are critical for both pharmaceutical and biotech research.

On the other hand, the Non-Pharma sector occupies a smaller piece of the pie, constituting 35.46% of the healthcare sector. Leading this subset is Healthcare Equipment with 16.21%, whose constant demand is fuelled by hospitals, clinics, and home care settings. Managed Healthcare trails at 9.48%, increasingly significant due to an aging population and the complexities of healthcare coordination.

Geographically speaking, the U.S. overwhelmingly dominates the healthcare sector, holding a 71.54% share. This is likely influenced by its predominantly private healthcare system, which encourages competition and high levels of investment. Switzerland comes in a distant second with 7.73%, followed by Japan, the U.K., and Denmark, each contributing around 4%. Like the U.S., both Switzerland and Japan also have largely private healthcare systems, which could explain their significant market shares. The remaining countries collectively account for 7.89%, indicating a U.S.-centric sector but with noteworthy global contributions in innovation and investment.

MSCI World Healthcare Index

CUMULATIVE INDEX PERFORMANCE — GROSS RETURNS (USD) (JUL 2008 – JUL 2023)



ANNUAL PERFORMANCE (%)

Year	MSCI World Health Care	MSCI World	MSCI ACWI
2022	-4.97	-17.73	-17.96
2021	20.34	22.35	19.04
2020	14.10	16.50	16.82
2019	23.90	28.40	27.30
2018	3.04	-8.20	-8.93
2017	20.42	23.07	24.62
2016	-6.32	8.15	8.48
2015	7.09	-0.32	-1.84
2014	18.70	5.50	4.71
2013	37.06	27.37	23.44
2012	18.36	16.54	16.80
2011	10.17	-5.02	-6.86
2010	3.03	12.34	13.21
2009	19.67	30.79	35.41

The MSCI World Healthcare Index illustrates that the Healthcare sector has provided mostly consistent growth since the Global Financial Crisis of 2008. It comprises 141 large and mid-cap companies across 23 developed markets, with the largest three constituents being UnitedHealth Group, Johnson & Johnson, and Eli Lilly & Company.

Year-to-date (YTD), the sector has gained 2.43%, a massive underperformance relative to the 19.34% and 18.48% growth of the MSCI World and ACWI Indices respectively. In finance, a 'bull market' is characterised by rising asset prices and investor optimism, whereas a 'bear market' is marked by falling prices and widespread pessimism. The healthcare sector is a defensive sector, meaning that during bear markets, funds flood to it as a safe haven, yet during bull markets, investors largely gravitate to higher-growth sectors like information technology and communications. As of 29/08/23, the S&P 500 is up 15.93% YTD, with the seven-largest companies in the S&P 500, all tech companies, up 86% on average YTD. Buoyed by hype in Big-Tech stocks due to Artificial Intelligence, and confidence that the Federal Reserve has reined in inflation enough to end its rate hikes, the stock market has rallied this year, resulting in an overall bull market.

Yet, despite the current bullish conditions, several economic and geopolitical variables suggest that caution may be warranted. Federal Reserve Chair Jerome Powell's recent comments on lingering high inflation, coupled with the ongoing war in Ukraine and escalating tensions between Taiwan and China, indicate potential market vulnerabilities. These uncertainties could make healthcare stocks a more attractive option for investors seeking a defensive asset in uncertain times.

***Theme** – Advanced Therapeutics*

Advanced Therapeutics are a diverse and rapidly evolving category of biological medicines, encompassing cell therapies, gene therapies, mRNA and DNA-based therapies and vaccines, monoclonal antibodies, and other novel medical solutions. These therapies represent the forefront of medical science, offering innovative ways to treat a wide array of conditions, from cancer and autoimmune diseases to rare genetic disorders.

Cell Therapies: Chimeric Antigen Receptor T-cells (CAR-T) therapies like Kymriah (Novartis) and Yescarta (Gilead) have gained market traction for their efficacy in treating haematological malignancies (blood cancers). These therapies involve modifying a patient's own T-cells to express a receptor specific to cancer cells, providing a personalised and targeted treatment strategy. While the upfront capital expenditure is significant due to the personalized nature of the therapy and complex logistics, the efficacy of cell therapy treatment allows for premium pricing models, resulting in a high-risk, high-reward therapeutic arena.

Gene Therapies: Commercially available gene therapies like Roche's Luxturna and Amgen's Imlygic indicate the sector's growing maturity. These therapies use vectors like adenoviruses to introduce specific genes for treating inherited retinal disease and melanoma, respectively. If approved, Exa-Cel (Vertex/Crispr Technologies) will pioneer the gene-editing sub sector, being the first drug of its type, positioning the sector as a disruptive force in the pharmaceutical landscape. The unique value of gene therapies lies in their potential to offer curative outcomes with a single treatment. This shifts the revenue model from ongoing, long-term treatments to a one-time, high-value transaction, thereby providing pharmaceutical companies with substantial lump-sum payments and a novel customer dynamic to the norm.

Monoclonal Antibodies: Established blockbusters like Herceptin (Genentech) for breast cancer and Keytruda (Merck) for autoimmune diseases highlight the sector's maturity. These are lab-engineered molecules that can mimic the immune system's ability to fight off harmful antigens such as viruses and cancer cells. Of the 10 best-selling drugs in 2022, 4 were monoclonal antibodies.

Nucleic Acid-Based Therapies: The approval of BioNTech-Pfizer's COVID-19 vaccine marked a watershed moment, validating mRNA technology and opening an avenue of immense therapeutic potential. Currently, there are 94 mRNA-based therapies in Phase I, II, and III trials, showcasing the expansion of this novel therapeutic technology. The platform's appeal lies in its ability to customize treatments for cancer and rare metabolic diseases, offering targeted and specific solutions, allowing pharmaceutical companies to charge a price premium in return for unparalleled patient outcomes.

***Theme** – Digitisation*

Digitisation is increasingly becoming a cornerstone in the Healthcare industry, powered by the integration of big data, artificial intelligence, and advanced computing technologies. This digital transformation is fundamentally altering various aspects of pharmaceutical operations, from research and development to patient care. By leveraging digital tools, the industry is not only advancing drug development but also transitioning its focus from disease treatment to early detection and prevention.

Big Data and Multi-Omic Technologies: Multi-omic technologies allow for the analysis of multiple types of biological data sets, such as genomics, proteomics, and metabolomics. When integrated with big data analytics, these technologies have the potential to identify novel drug targets and create more effective, personalized treatments. Pharmaceutical companies are placing digitisation at the core of their business models to maximize efficiency and focus on long-term investment.

Artificial Intelligence: AI is permeating every sector simultaneously, with healthcare no exception. In drug development, machine learning models expedite the R&D process by analysing large data sets to predict drug interactions. In hospitals, AI algorithms can be used for everything from diagnostic imaging to managing patient flow in emergency departments. In managed healthcare, AI assists in the identification of fraudulent claims, as well as expediting risk assessment procedures. Today, 59% of U.S. healthcare executives believe that artificial intelligence (AI) is either "very effective" or "often effective" at improving clinical outcomes.

Digital Health Solutions: The emergence of digital health solutions such as wearables, telehealth, and remote monitoring devices is altering the landscape of patient care. These tools are invaluable for continuous health monitoring and can signal early warnings for conditions like heart failure, diabetes, and hypertension. They have potential to serve both the pharma industry during clinical trials and healthcare providers for ongoing patient care.

Improving Access to Health Data for Personalised Care: The integration and secure sharing of health data are fundamental in achieving personalised patient care. For instance, Electronic Health Records (EHR) are enabling seamless communication between different healthcare providers, ensuring more coordinated and individualised care. This universal approach to data management enhances the effectiveness of treatments, helps to discover problems in healthcare delivery, and aids in the decision-making process of healthcare companies.

***Theme** – Obesity*

Obesity constitutes a pressing global health crisis that extends its impact on healthcare systems, economies, and individual well-being. According to the WHO, nearly 13% of global adults were obese in 2016, a rate that rises dramatically in wealthier countries. For example, in the United States, 41.9% of adults are obese.

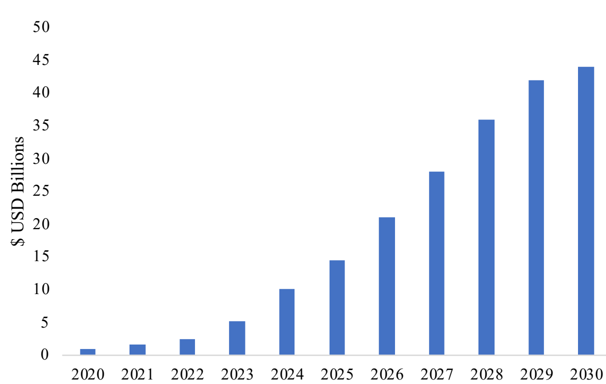
This escalating prevalence of obesity poses both public health challenges and a substantial economic toll. The CDC estimates obesity costs the U.S. healthcare system $170 billion annually due to associated health issues like heart disease and diabetes. The World Obesity Federation forecasts these rates will continue to rise, potentially shrinking global GDP by $4 trillion by 2035.

However, new weight-loss medications offer a glimmer of hope. Traditional treatments have been limited largely to lifestyle interventions and bariatric surgery. Yet, novel GLP-1 agonists such as Semaglutide—commercially known as Wegovy or Ozempic by Novo Nordisk—and Tirzepatide, marketed as Mounjaro by Eli Lilly, are delivering remarkable results in clinical trials. Wegovy produced an average weight loss of 15% to 17% over 68 weeks in non-diabetic patients, while Mounjaro achieved weight loss ranging from 16% to 22.5% after 72 weeks. Such breakthroughs have propelled Lilly and Novo to increase their market value by nearly 50% within the past year, directly resulting in them becoming the #1 and #2 most valuable pharma companies in the world by market cap.

According to Bloomberg Intelligence, the market for obesity drugs is on the cusp of an exponential boom. Revenues are expected to skyrocket, increasing fifty-fold by 2030 to reach an estimated $44 billion. These medications could well become the next class of blockbuster drugs, fundamentally altering healthcare strategies for managing obesity and generating novel revenue opportunities.

This tectonic shift in obesity management not only heralds a sea change in therapeutic interventions but also represents a potentially high-yield investment avenue. The sector is poised for rapid growth, fuelled by mounting public health urgency and ground-breaking pharmaceutical innovations

Obesity Drug Forecast



Source: Bloomberg Intelligence

Sector Drivers

Ageing Population

The ageing demographic is a key factor shaping the healthcare industry. According to the WHO and additional estimates, the global population of individuals 65 and older is expected to make up 21.6% of the U.S. population by 2040. Worldwide, the number is expected to double to 1.5 billion. This increase correlates with a rise in chronic diseases such as heart disease, hypertension, diabetes, and neurodegenerative conditions like Parkinson's Disease and Dementia. In the United States, the world's largest healthcare market, more than 131 million people - 66 percent of all adults - use prescription drugs, a figure set to grow.

Consequently, healthcare spending is slated to grow at an annual rate of 5.4%, reaching $6.2 trillion by 2028, or 19.7% of the country's GDP. The surge in age-related illnesses necessitates a shift in healthcare strategy, moving from treatment-focused to more preventive approaches, including early diagnosis and lifestyle changes.

Additionally, this demographic shift encourages R&D efforts towards targeted therapies, especially as the incidence of conditions like cardiovascular diseases is expected to result in a 40% increase in related deaths by 2030. 'Pharmerging markets' in developing economies also offer a new revenue stream, as better access to healthcare globally increases average life expectancy, widening the market further.

Technological Innovation

Technological advances are reshaping healthcare, impacting both pharmaceutical and non-pharmaceutical sectors. Increased R&D spending is crucial for fuelling innovations in AI, genomics, and biotechnology, which enable targeted and personalised therapies, improving patient outcomes and increasing life expectancy.

In the pharmaceutical sector, M&A is an essential lever for fostering a robust drug pipeline and maintaining innovation. Despite a significant contraction in global M&A activity to its lowest level in over a decade during Q1 2023, the pharmaceutical industry displayed remarkable resilience. Within the first five months of the year alone, pharma companies allocated an astounding $85 billion toward acquisitions, propelled by ample cash reserves and heightened investor anxieties regarding future growth prospects.

In the non-pharmaceutical domain, wearable health monitors and telehealth platforms are making healthcare more accessible and focused on preventative care, potentially reducing overall costs. Overall, strategic acquisitions are not merely an opportunity but a necessity in this rapidly evolving landscape, especially as global M&A activity has recently declined.

Sector Drivers

Post-Covid Resurgence

The post-COVID-19 era is set to be a significant growth phase for the non-pharmaceutical healthcare sector, particularly in the context of elective surgeries and diagnostics. One of the most striking impacts of the pandemic was the postponement of elective surgeries, leading to a decline in demand for related medical devices and diagnostics. Stocks of companies specializing in these areas witnessed a marked decline during the height of the pandemic. For example, our medical device holding, Boston Scientific, dropped 36% between 21/02/20 and 20/03/20.

However, as healthcare systems around the world stabilise, a surge in these deferred procedures is underway, resulting in a resurgence for companies in this space. Along with this surge in elective procedures, healthcare systems around the world are beginning to expand again, even surpassing pre-pandemic levels, as evidenced by Deloitte's forecast that healthcare spending is set to grow at a CAGR of 4% from 2020 to 2024, compared to the 2.8% CAGR observed between 2015 and 2019.

Additionally, many pharma companies who benefitted from the pandemic, such as Pfizer, who generated $74.6B in sales from their covid vaccine, are cash rich, and beginning to expand rapidly, leading to the record M&A levels already outlined.

Patent Cliff

The pharmaceutical industry faces an upcoming challenge known as the "patent cliff," a term referring to the mass expiration of patents on blockbuster drugs. Earlier this year, Humira, the best-selling drug of all time, fell off this cliff, with AbbVie losing exclusivity. In early 2023, the first U.S. Humira biosimilar hit the market, and by the end of Q1, global sales for Humira had already fallen by 25%. Humira now faces more copycats coming onto the market this year, resulting in significant "patent erosion" for AbbVie. For big pharma, this is just the beginning.

By 2030, 190 drugs are set to lose patent exclusivity, with 69 blockbusters among them. According to Evaluate Pharma, $59 billion in industry sales will be at risk in 2029, resulting in a 46% estimated revenue decline for the world's 10 biggest pharma companies by 2030. This is happening in the face of many financial headwinds for the sector – Biotech IPOs decreased a staggering 93% between 2021 and 2022, high interest rates have increased capital cost, and the Biden Administration's Inflation Reduction Act has placed pharma under intense scrutiny in USA.

This environment is driving companies to make rapid and often costly investments in their future. For example, Merck agreed to pay $200 a share for Prometheus in April 2023, 75% over the company's share price. Pfizer's $43B acquisition of Seagen commanded a 33% premium.

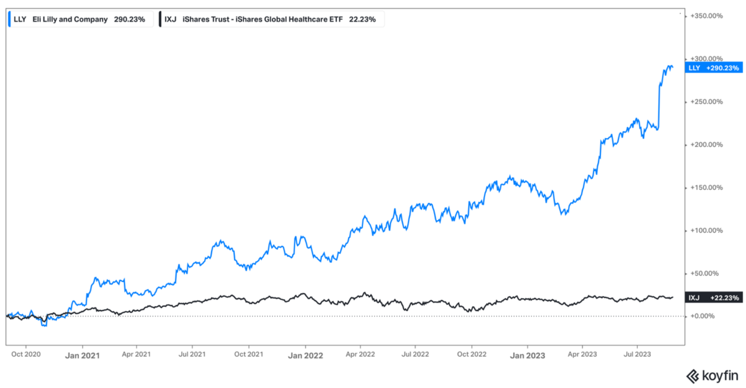
As the industry stands on the precipice of this patent cliff, we look keenly to see who will navigate these uncertain times with agility and foresight. The stakes are high, and the winners will be those who best leverage innovation, strategic acquisitions, and market responsiveness to turn challenges into opportunities.

Current Holdings – *Eli Lilly & Company*

NYSE:LLY

Entry Price: $331.07 Performance to date: +84%*

Eli Lilly and Company is an American pharmaceutical company headquartered in Indianapolis, Indiana. The company discovers, develops, manufactures, and markets products in the human pharmaceutical products segment. The company has a vast portfolio of treatments, with products across segments such as diabetes, oncology, immunology, and neuroscience.



Sentiment: **Hold**

2022 was a monumental year for Eli Lilly, with the company reporting a record revenue of $28.5B. This increased revenue was propelled by the continued success of Lilly's breast cancer medicine Abemaciclib (Verzenio) alongside Lilly's entrance into the weight loss and diabetes market with its breakthrough drug Tirzepatide (Mounjaro). Lilly currently has 21 drugs in its phase 3 pipeline, with four more awaiting FDA approval. A robust drug pipeline can significantly boost a company's stock value, serving as a barometer of future revenue potential. This vast pipeline, along with Lilly's $7B investment in research and development, will allow them to continue to innovate in 2023, anticipating revenue to reach between $30.1B and $30.8B.

Diverse Product Offerings

Eli Lilly's diverse revenue streams, with blockbusters like Trulicity, Verzenio, Jardiance, and Taltz generating $7.943B in Q2 23 revenue, provide substantial growth potential and business resilience.

Expansion into Obesity

Approved by the EMA and FDA in 2022, Tirzepatide (Mounjaro), is Eli Lilly's latest blockbuster, generating $1.548B in Q2 23 revenue. Initially a T2 Diabetes treatment, the GLP-1 receptor agonist is projected to receive FDA approval for weight loss use in Q3 23. Mounjaro provides Lilly with huge potential for future revenue in growing markets, especially considering the T2 Diabetes market CAGR of 8.4%, and the obesity market CAGR of 10.6%.

Blockbuster Potential in the Alzheimer's Market

After overwhelmingly positive phase 3 trial results, Lilly's Early Alzheimer's Disease candidate Donanemab now awaits an FDA approval decision scheduled for EOY 2023. If approved, Donanemab would be the second traditionally approved treatment that addresses the underlying biology of Alzheimer's Disease, after the approval of Eisai/Biogen's Leqembi earlier this year.

*Since taking over the sector on 23/03/23; performance to date as of 13/10/23

Current Holdings – Vertex Pharmaceuticals

NASDAQ:VRTX

Entry Price: $321.66 Performance to date: +15.34%*

Vertex Pharmaceuticals Incorporated is an American biotechnology company based in Boston, Massachusetts. The company is the market leader in treatments for Cystic Fibrosis (CF), with marketed medicines Trikafta, Symdeko, Orkambi and Kalydeco. Vertex has a pipeline of therapies in other serious diseases, including sickle cell disease, type 1 diabetes, and beta thalassemia.

<u>Sentiment:</u> **Hold**

Vertex saw an 18% increase in product revenue in FY 22 in comparison to the previous year. This growth was mainly due to the uptake of Trikafta internationally as the company continues to expand into new regions. This expansion has led to a 41% increase in net product revenue outside of the U.S. Vertex reported product revenue of $2.49 billion in Q2 23, a 14% increase compared to Q2 22.

A Leader in CF

Vertex Pharmaceuticals holds a dominating 97% market share in the Cystic Fibrosis (CF) market, projected to reach $32 billion by 2027 with a CAGR of 24.4%. CF patient longevity is increasing, resulting in extended treatment lifetimes, and the company has pipeline drugs targeting additional, currently untreated mutations.

Varied and Robust Pipeline

Vertex demonstrates a diverse pipeline, with 10 potential additional treatments for specialty diseases, mitigating risk by diversifying beyond CF. Vertex's strategic focus is on orphan drugs, which offer a lucrative 80% gross profit margin, significantly higher than the industry average of 16% These drugs are drugs that treat certain rare medical conditions and rely on government assistance to make them profitable. The growing orphan drug market is set to constitute 20% of all prescription drug sales by 2026, offering longer exclusivity, faster approval times, and large-scale government subsidies.

Trailblazer in Gene-Editing

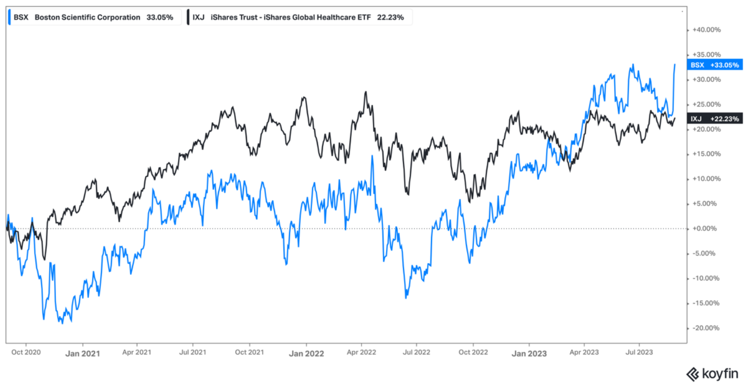
Vertex has submitted novel gene editing drug Exa-cel for regulatory approval in the US, UK, and Europe, with an FDA approval decision date of December 8th 2023. This collaboration with CRISPR Therapeutics shows promising one-time curative potential for sickle cell anemia and beta-thalassemia. If approved, Exa-cel would be the first gene editing drug approved in history, potentially dramatically improving patient outcomes and providing massive blockbuster potential.

*Entered position on 06/04/23; performance to date as of 13/10/23

NYSE:BSX

Entry Price: $47.94 Performance to date: +3.3%*

Boston Scientific Corporation is an American medical device company headquartered in Marlborough, Massachusetts. The company designs, manufactures, and markets a broad range of medical devices used in various medical fields such as cardiology, urology, and endoscopy. Their portfolio includes stents, catheters, and pacemakers, which are used in medical procedures worldwide.



<u>Sentiment:</u> **Hold**

Boston Scientific is one of the world's largest producers of medical devices and operates globally. In In FY 22, in comparison to FY 21, Boston Scientific grew operational net sales by 10.6% in the United States, 12.4% in Europe Middle East and Africa (EMEA), 12.4% in Asia Pacific (APAC) and 23.8% in Latin America and Canada (LACA). The company also saw a 29.3% net sales growth in emerging markets. This success can be attributed to recent innovation and rigorous R&D, with 33% of their FY 22 net sales generated from products released within the past 3 years.

Return to Surgery

With COVID-19 becoming endemic and elective surgeries resuming, Boston Scientific is well-positioned to benefit from the anticipated resurgence in the medical device market. This is reflected in the diversified growth across their business segments and regions, with the company's MedSurg and Cardiovascular segments growing 9% and 12.2% respectively in Q2 22 in comparison to Q2 21.

Commitment to R&D

Boston Scientific invested $1.3B in R&D in 2022, comprising 10.4% of their total sales. Recent approvals and launches such as the LithoVue™ Elite Single-Use Digital Flexible Ureteroscope System and the POLARx™ FIT Cryoablation Balloon Catheter signify a commitment to advancing patient care and capturing a larger market share as healthcare provision normalises.

Multiple Strategic Acquisitions

Boston Scientific is actively pursuing growth through strategic acquisitions. Recent acquisitions, such as those of Apollo Endosurgery and Acotec Scientific, indicate a strategic intent to expand, leveraging the growing demand in the post-pandemic healthcare environment.

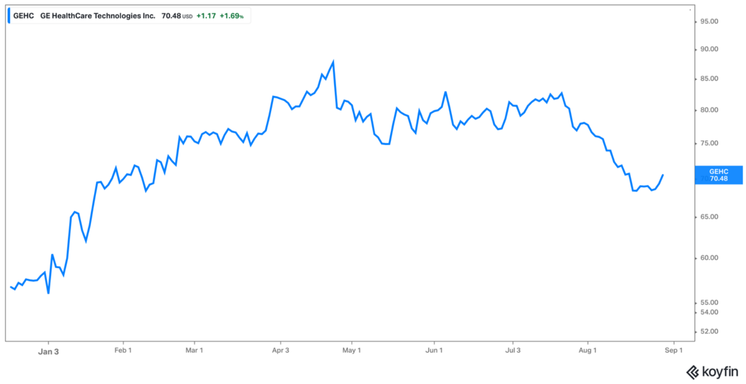
*Since taking over the sector on 23/03/23; performance to date as of 13/10/23

Current Holdings – GE HealthCare

NASDAQ:GEHC

Entry Price: $66.82 Performance to date: N/A*

GE HealthCare Technologies, Inc is an American multinational medical technology company headquartered in Chicago, Illinois, spun-off from General Electric in January 2023. The company develops, manufactures, and markets a portfolio of products, services, and digital solutions. Their portfolio includes imaging, ultrasound, patient care and diagnostic solutions.



Sentiment: **Neutral**

GE Healthcare operates in four sectors: Imaging, Ultrasound, Patient Care Solutions, and Pharmaceutical Diagnostics. Imaging focuses on scanning devices and digital solutions, while Ultrasound specializes in disease diagnosis and monitoring. Patient Care Solutions offers medical devices and services, and Pharmaceutical Diagnostics supplies diagnostic agents to the radiology and nuclear medicine industries. GE HealthCare is primarily an imaging company, with 55% of its Q2 23 revenue coming from the sector.

Robust Growth

Since its spin off in January, GE HealthCare has grown revenues impressively in all sectors. When compared to Q2 22, the company has grown revenues in all four of its sectors – imaging (7%), ultrasound (1%), patient care solutions (8%) and diagnostics (19%) - resulting in a Q2 23 revenue growth of 7% YoY.

Push into Artificial Intelligence

The company is strategically pushing on AI through its new software platform, "Edison." This platform aims to handle vast amounts of hospital patient data and utilise AI to improve both operations and patient care. Taha Kass-Hout, formerly Amazon's VP of machine learning and chief medical officer, has been hired as CTO to spearhead this initiative

Recession-Proof?

Imaging is by far the biggest driver of GE Healthcare's top-line. Regardless of macroeconomic conditions, patients will continue to require medical imaging when facing a serious diagnosis, something that is expected to grow along with the ageing population, making GE Healthcare a consistently resilient and defensive stock.

*Entered position on 25/09/23

Current Holdings – Novartis

SWX:NOVN

Entry Price: CHF 92.29 Performance to date: N/A*

Novartis AG is a Switzerland-based pharmaceutical company headquartered in Basel, Switzerland. The Company markets branded and generic prescription drugs, APIs, biosimilars and ophthalmic products. Novartis has a significant market presence disease areas such as immunology, dermatology, cancer, ophthalmology, neuroscience, respiratory, cardiovascular, renal and metabolism.

<u>Sentiment:</u> **Neutral**

As of September 2023, Novartis is divided into two segments: Innovative Medicines, which markets patent-protected prescription medicines and Sandoz, which markets generics and biosimilars. The vast majority of Novartis' revenue is driven by Innovative Medicines, with 82% ($21.8 billion of $26.6 billion) of its H1 2023 revenue being driven by the sector.

A Streamlined Future

Novartis plans to spin off Sandoz on October 4th, 2023, after a successful 2019 spinoff of its eye care business Alcon. Novartis has stated that the stay-behind company will be more focused, with a more disciplined pipeline and an expertise in cutting-edge areas like gene and cell therapy. Through streamlining operations, Novartis aims to grow revenue by 4% CAGR through 2027.

Ein Sicherer Hafen

Novartis is a Swiss company, being headquartered in Basel. Over the last 20 years, Swiss equities have consistently outperformed the MSCI global index, and have also shown less volatility. With the SMF portfolio being quite dollar heavy, and as we enter into an era of de-dollarisation in the face of rising interest rates and geopolitical turbulence, the Swiss Franc provides an excellent strategic hedge against the greenback for a defensive fund such as our portfolio.

Poised for Future Growth

Novartis had 14 blockbusters in FY 2022. It is also arguably the key player in gene therapy, marketing sector-leading medicines such as Zolgensma, formerly the most expensive drug in the world, and Luxturna. Other key growth factors include multiple sclerosis drug Kesimpta, cholesterol drug Leqvio, and breast cancer treatment Kisqali, of which the company is seeking additional approval for as an adjuvant therapy to prevent recurrences of the disease.

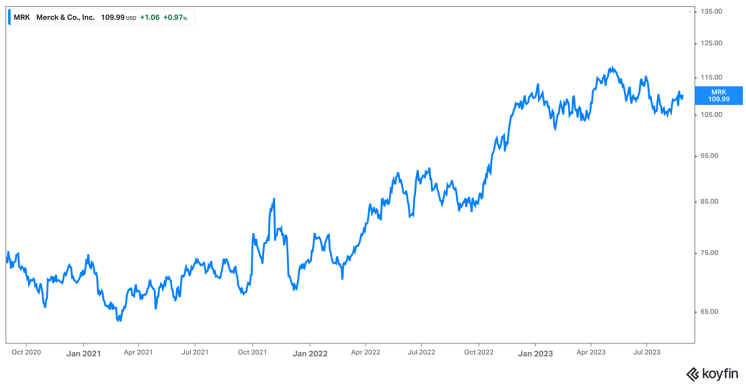
*Entered position on 25/09/23

Case Study – Merck

NYSE:MRK

Current Price: $104.01 Performance YTD: -6.42%*

Merck & Co., Inc. is a leading American multinational in the pharmaceutical sector, headquartered in Rahway, New Jersey. The company has a diversified product portfolio that includes pharmaceutical, biotechnological, and animal health solutions. Internationally, the company operates under the names Merck Sharp & Dohme or MSD.



<u>Sentiment</u>: **Potential Buy**

Merck & Co., Inc. ranks as the fourth-largest pharmaceutical company both in terms of market capitalization and revenue generation for the year 2022. While many industry leaders grapple with stagnating top-line growth in the post-pandemic landscape due to over-reliance on covid products, Merck stands out for its diversified and strategically positioned portfolio. It offers 50 prescription drugs across key areas like oncology, immunology, and vaccines. Notably, Merck has seven blockbuster drugs, in fields such as diabetes, cancer, HPV vaccination, and neuroscience.

Unrivalled Market Dominance

Pembrolizumab (Keytruda) is poised to become the top-selling drug in 2023. Keytruda was the third highest-grossing drug globally in 2022, and with projected declines in Pfizer/BioNTech’s Comirnaty and AbbVie's loss of exclusivity of Humira, Keytruda is widely projected to take the top spot. The drug generated $20.9 billion in sales in 2022 and has continued its upward trajectory. Sales hit $12.1 billion in H1 2023, up 20% from the same period last year.

Key Growth Products

Outside of Keytruda, Merck’s other marketed products are performing admirably, sales of HPV Vaccine Gardasil grew to $2.5 Billion in Q2 23, a 47% increase from Q2 22, and treatments such as neuromuscular relaxant Bridion and ovarian cancer drug Lynparza growing 18% and 13% respectively.

Investment in Tomorrow

Merck's pipeline is one of the largest and strongest in the industry, with over 120 Phase II-plus products and 10 under review. Recent key acquisitions, like the $10.8 billion purchase of Prometheus Biosciences in 2023, align with CEO Rob Davis's open declaration that the company's strategic intent is to propel growth through M&A.

*As of 16/10/23

Risks

Government Policy

The relationship between healthcare companies and government policy is intricate and often fraught with challenges. One of the most significant risks that healthcare companies, particularly pharmaceutical companies, face is the ever-changing landscape of government policy. In the United States, this risk has become particularly pronounced with the introduction of the Inflation Reduction Act, passed by the Biden Administration last year. Strikingly, amid a deeply polarised national climate, the call for drug price reforms emerges as a rare bipartisan rallying point. With a staggering $378 billion spent on prescription drugs in 2021 alone, the urgency for regulatory intervention has united both Republican and Democrat voters in an otherwise divided America.

On August 29, 2023, the U.S. government named 10 best-selling drugs that would be the first to face stringent price regulations in a bid to slash healthcare costs, marking the biggest shake-up for the pharmaceutical industry in decades. This move represents a significant sea change in the pharmaceutical industry and could have long-lasting effects on companies like Pfizer, Merck, and others. According to the new rules, the federal government has been given the power to negotiate lower prices for some of the most expensive prescription drugs purchased by Medicare, posing a significant threat to the revenues of the world's largest pharmaceutical players.

Although the pharma industry has opposed the reforms, stating that it would hamper innovation and stifle the development of life-saving medications, the Biden administration appears resolute. Legal challenges against these policy changes have been filed, but the administration is "not backing down," suggesting that companies who don't comply could face an excise tax starting at 65% of a product's sales in the U.S.

In addition to targeting pharmaceutical pricing, the Biden Administration has also introduced other strong healthcare reforms. They have cut reimbursement rates for health insurers, enacted policy in an attempt to close loopholes in what it calls "junk insurance" and laid out a roadmap to prevent "surprise medical bills". Additionally, for the first time, federal agencies are investigating whether health care providers and third parties are sidestepping consumer protections in the offering of medical credit cards and loans.

Although several drugs affected by the new legislation are nearing the end of their patent exclusivity, and some of these policy and pricing reforms won't be implemented until 2026, these reforms are part of a larger trend. Increasingly, there is bipartisan agreement on the need to address escalating healthcare costs. Given this cross-party support, the healthcare industry is likely to remain a focal point of governmental policy adjustments, adding an additional layer of risk that companies in this sector must cautiously navigate.

Risks

Loss of Exclusivity

Loss of exclusivity poses a significant risk to pharmaceutical companies. When a drug's patent expires, it opens the door for generic competitors to enter the market, which can drastically reduce the original drug's revenue. Companies invest billions in research and development for a patented drug, and the loss of exclusivity can undermine the return on that investment almost overnight. For example, Humira, the best-selling drug of all time, lost patent exclusivity this year, resulting in multiple biosimilars coming on the market as exact competitors for cheaper prices. This is especially noteworthy given the approaching patent cliff already outlined in this report.

Drug Pipeline Difficulties

The development of new drugs is a complex process, often taking over 10 years and costing around $2.8 billion per drug developed. With only a 10% success rate for drugs entering clinical trials, the stakes are high. Failures at any stage, be it in clinical trials or during regulatory approval, can severely disrupt a company's drug pipeline, resulting in significant financial losses. In the trillion-dollar pharmaceutical industry, maintaining a strong and diverse drug pipeline is essential for long-term sustainability and market competitiveness.

Cyber Security

As healthcare companies adopt digital technologies for tasks ranging from storing patient records to developing drug formulas, the risk of cyber-attacks escalates. This has the potential to have a massive financial impact on victims. Moreover, breaches not only put sensitive patient data and intellectual property at risk but also disrupt critical medical services, as illustrated by the Irish Health Service Executive cyber-attack in 2021. The rise in telehealth due to the pandemic has further broadened the network that needs securing, making cybersecurity a frontline issue. Additionally, such attacks seriously impair a company's reputation, emphasising the critical need for robust cybersecurity measures.

Litigation

Legal challenges are another potential pitfall for healthcare companies. Lawsuits can arise from various quarters—whether it's patients alleging harmful side effects, whistle-blowers exposing unethical practices, or authorities investigating compliance with healthcare laws. The annual cost of US medical litigation is extortionate, pegged at approximately $56B.

Incumbent Displacement

The swift advancement of technology in healthcare creates opportunities for newcomers to unsettle established industry players. Whether its public benefit corporations like Mark Cuban's Cost-Plus Drug Company aiming to produce low-cost generic medications, or tech giants like Amazon and Google venturing into healthcare services and data analytics, the risks for incumbent companies are mounting. Failing to adapt to these new technologies or business models could lead to a loss of market share and, in more extreme cases, could even render an incumbent company obsolete.

Bibliography

https://www.msci.com/our-solutions/indexes/gics#:~:text=GICS%C2%AE%20in%20a%20nutshell,and%20applied%20to%20companies%20globally.

https://www.msci.com/documents/10199/c41a73d1-9037-4dbd-a175-703d3bb77ae6

https://www.oecd.org/health/health-expenditure.htm

https://www.oecd.org/health/health-data.htm

https://www.spglobal.com/spdji/en/documents/education/education-sector-primer-series-health-care.pdf

https://www.blackrock.com/institutions/en-axj/insights/global-healthcare-outlook

https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

https://www.mckinsey.com/industries/life-sciences/our-insights/driving-the-next-wave-of-innovation-in-car-t-cell-therapies

https://www2.deloitte.com/be/en/pages/life-sciences-and-healthcare/articles/cell-and-gene-therapy.html

https://www.mckinsey.com/industries/life-sciences/our-insights/viral-vector-therapies-at-scale-todays-challenges-and-future-opportunities

https://www.thermofisher.com/blog/behindthebench/mrna-therapies-current-landscape-and-future-possibilities/

https://www.forbes.com/sites/carrierubinstein/2023/07/12/apparently-getting-smarter-makes-us-healthier-ai-and-data-analysis-revolutionize-healthcare/?sh=33fad4e2166c

https://www.goldmansachs.com/intelligence/pages/the-impact-of-anti-obesity-drugs.html

https://www.fiercepharma.com/marketing/obesity-drugs-have-blockbuster-potential-novo-lilly-and-pfizer-risks-reputation-and

https://www.lilly.com/

https://www.vrtx.com/

https://www.bostonscientific.com/

Bibliography

https://www.merck.com/

https://www.gehealthcare.com/

https://app.koyfin.com/

https://www.jpmorgan.com/insights/global-research/currencies/de-dollarization

https://am.lombardodier.com/ie/en/professional/asset-classes/equities/regional/swiss-equities

https://www.washingtonpost.com/wellness/2023/02/14/aging-boomers-more-older-americans/

https://www.aljazeera.com/features/2023/6/6/old-but-gold-can-ageing-propel-a-surprise-economic-boom#:~:text=Globally%2C%20in%20the%20next%2030,latest%20United%20Nations%20population%20projections.

https://hpi.georgetown.edu/rxdrugs/

https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/us-healthcare-spending-to-hit-6-2-trillion-by-2028-growth-set-to-outpace-gdp-57739003

https://world-heart-federation.org/wp-content/uploads/World-Heart-Vision-2030.pdf

https://www.pharmavoice.com/news/pharma-patent-cliff-Merck-Keytruda-Pfizer-Seagen-Humira/652914/

https://www.ft.com/content/fa9b0422-6f93-4703-9358-6396660f63b6

https://www.ft.com/content/5b14dc0d-9595-4b17-aa86-51f6b4192938

https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/07/fact-sheetpresident-biden-announces-new-actions-to-lower-health-care-costs-and-protect-consumers-from-scam-insurance-plans-and-junk-fees-as-part-of-bidenomics-push/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7054832/

https://lifesciences.n-side.com/blog/what-is-the-average-time-to-bring-a-drug-to-market-in-2022

https://www.sciencedirect.com/science/article/pii/S2211383522000521#:~:text=Despite%20significant%20efforts%20to%20improve,%255%2C%206%2C%207.

https://www.hsph.harvard.edu/news/press-releases/medical-liability-costs-us/