

Healthcare 2021

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OLLI Investment Forum

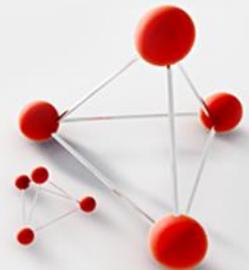
February 24, 2021

What is Healthcare Sector?

All businesses in provision of medical related goods and services.

Sectors:

- **Pharmaceuticals & Biotech**
 - Biotechnology
 - Celgene Corp
 - Classic pharmaceuticals
 - Merck
 - Generic drug manufacturers
 - Teva



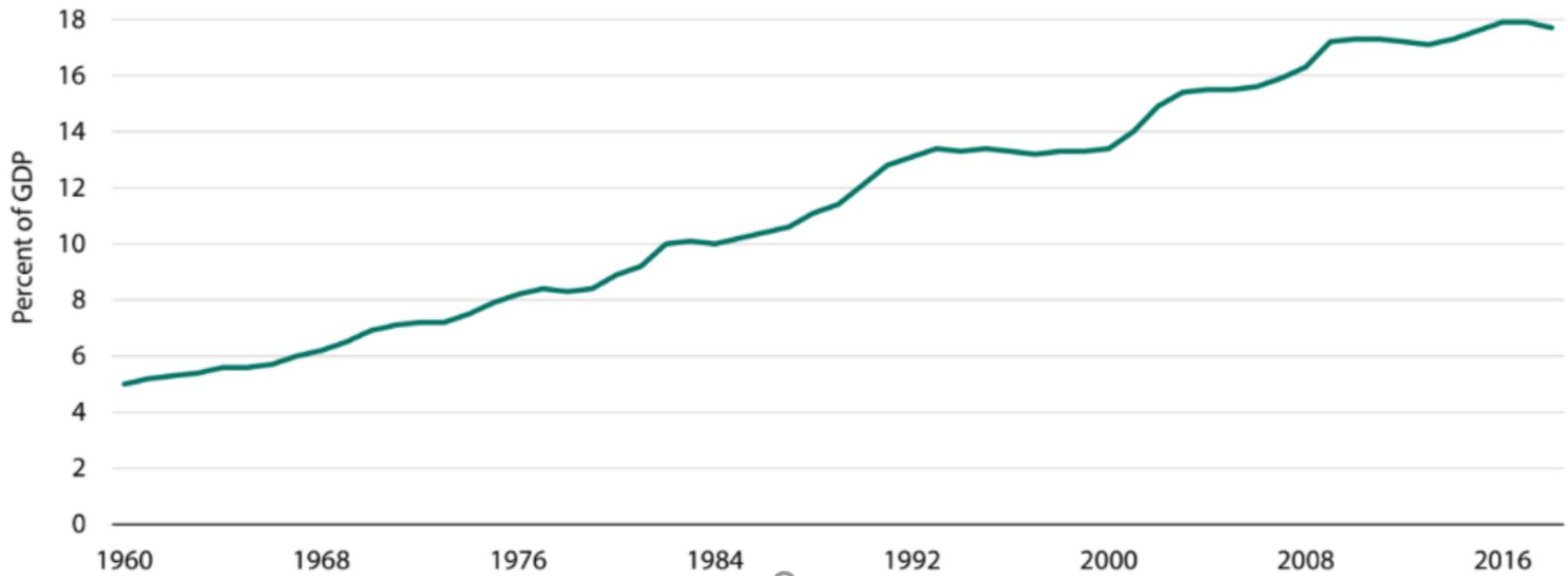
- **Medical equipment**
 - Medtronic
- **Health Insurance**
 - UnitedHealth Group Inc.,
 - Anthem Inc.,
 - Aetna Inc.,
 - Humana Inc., and
 - Cigna Corp.



- **Healthcare Facilities**
 - Hospitals
 - Clinics
 - Labs
 - Psychiatric facilities
 - Nursing homes
- **Healthcare Services**
 - Physician and nursing services
 - Outsourcing services – e.g. dialysis
 - Home medical services -



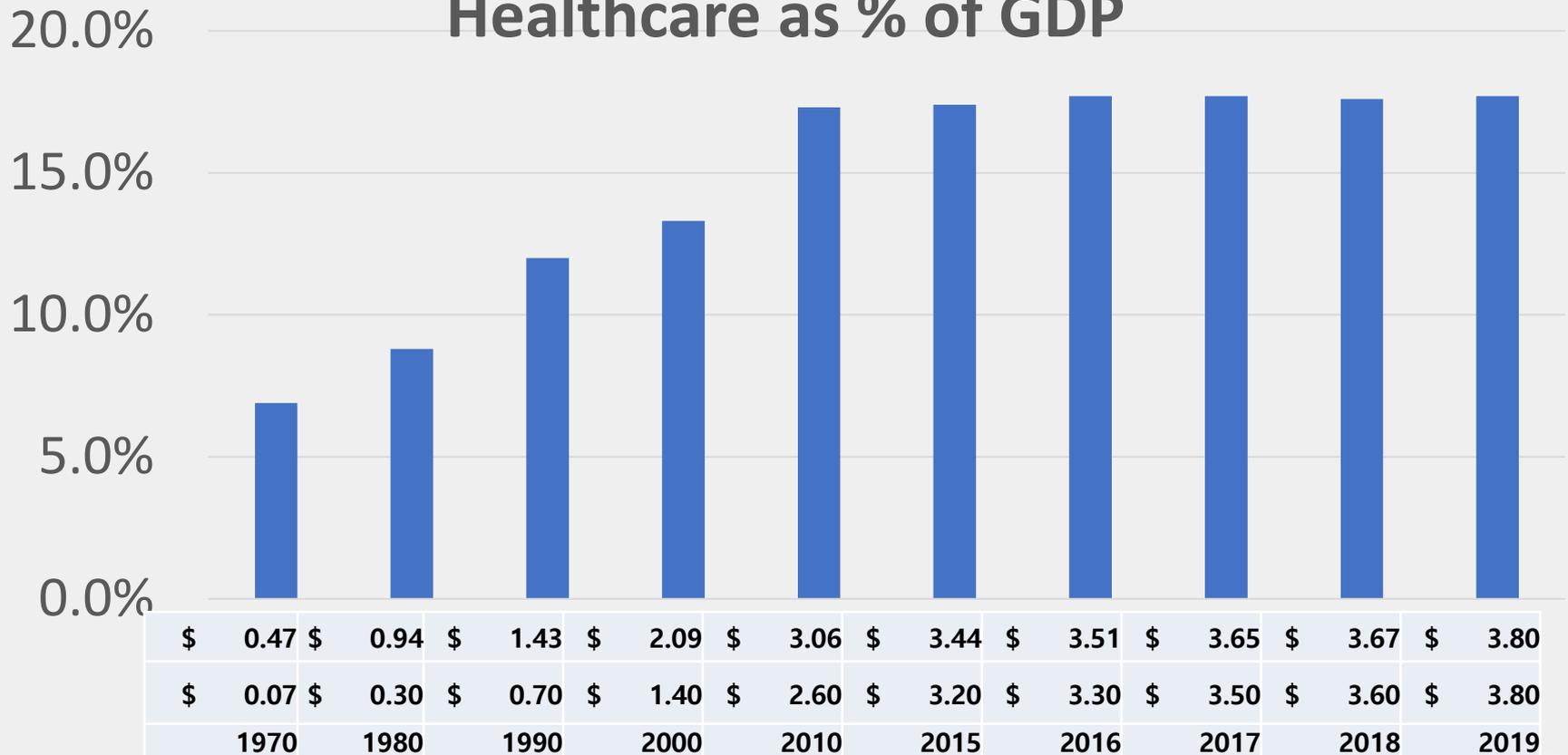
U.S. Health-Care Expenditures as a Share of GDP, 1960–2018



Centers for Medicare and Medicaid Services (CMS)



Healthcare as % of GDP

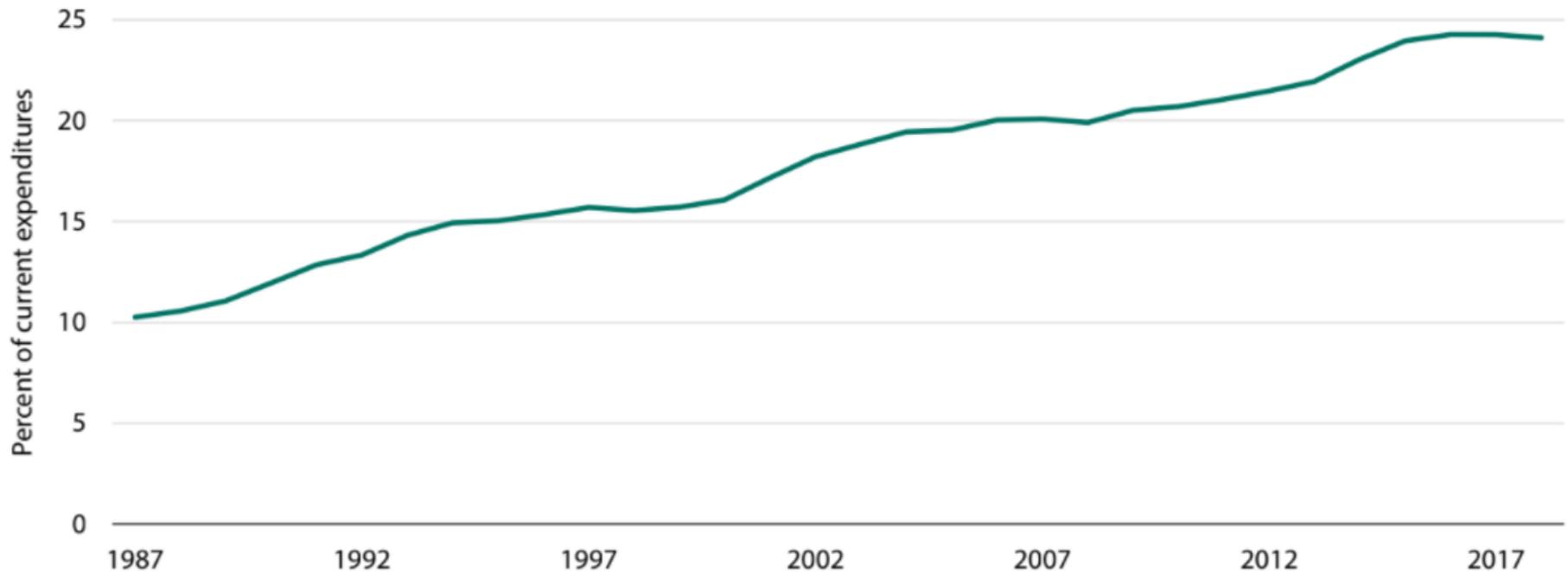


Top = 2019 \$

Bottom = Actual \$



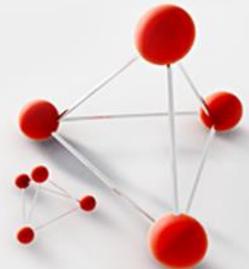
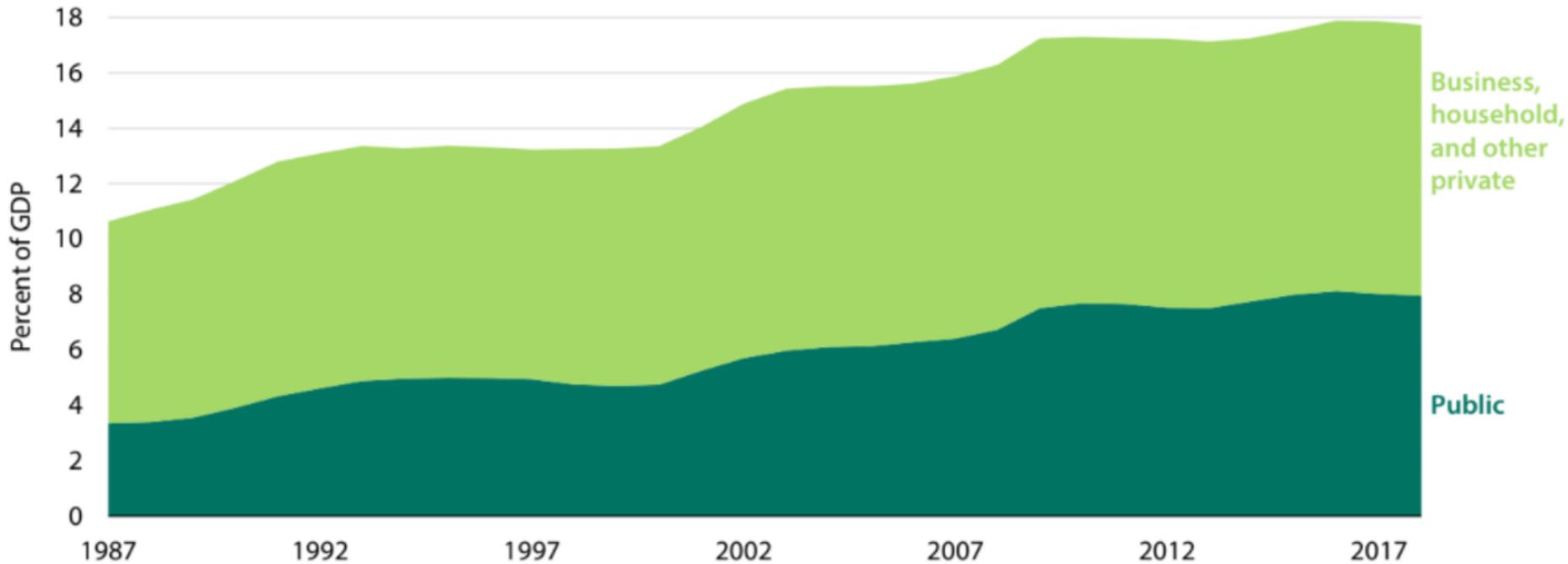
Public Health-Care Expenditures as a Share of Government Spending, 1987–2018



Centers for Medicare and Medicaid Services (CMS)



Health-Care Expenditures as a Share of GDP by Source of Funds, 1987–2018



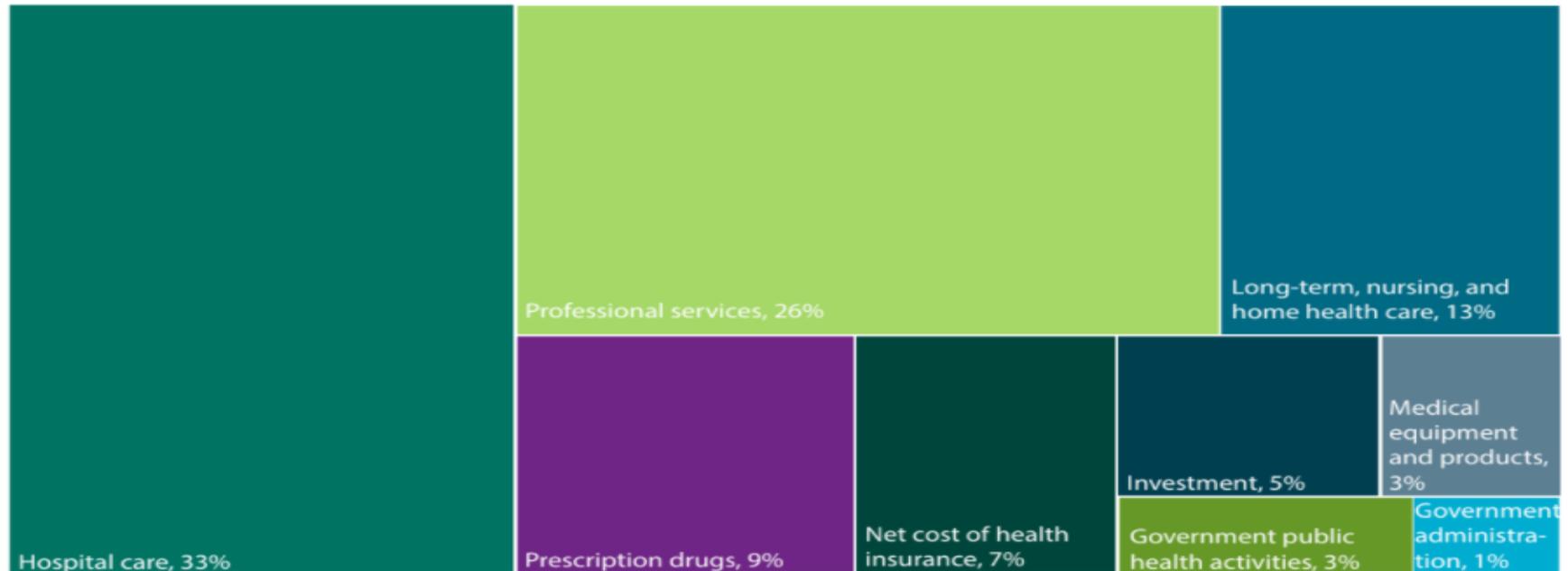
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Expenditure Amount (Millions)	2016	2017	2018	2019
Total National Health Expenditures	3,324,528	3,465,878	3,629,690	3,795,384
Out of pocket	367,277	374,480	388,789	406,507
Health Insurance	2,405,571	2,506,130	2,633,777	2,752,837
Private Health Insurance	1,039,609	1,091,138	1,152,174	1,195,146
Medicare	675,768	704,716	749,140	799,356
Medicaid (Title XIX)	564,776	578,186	595,951	613,487
Federal	357,778	360,004	372,113	387,467
State and Local	206,998	218,182	223,838	226,020
CHIP (Title XIX and Title XXI)	16,778	18,079	18,644	19,927
Federal	15,251	16,502	17,220	17,967
State and Local	1,527	1,577	1,423	1,961
Department of Defense	41,190	41,877	41,696	42,640
Department of Veterans Affairs	67,449	72,134	76,172	82,281
Other Third Party Payers & Programs	296,184	311,699	322,491	336,573



National Health-Care Expenditures, by Type of Expenditure



Source: CMS 2018; authors' calculations.

Hospital	33%	Insurance Admin	7%
Professional Services	26%	Investment	5%
Nursing Care	13%	Med Equipment	3%
Prescriptions/Bio	9%	Government	4%



Hospital Recoveries based upon Hospital **COST**

Private Insurance	140%
Medicare	88%
Medicaid	75%
CHIPs	25%
Uninsured	5%

Doctors RVU price reduced 3.3% for 2021



Growth of Spending 2019-2028 (CMS)

- National health spending to **grow** at an average annual rate of **5.4 percent** for 2019-28 and to reach **\$6.2 trillion by 2028**.
- Health expenditures are projected to grow 1.1 percentage points faster than GDP on average over 2019–28, the health share of the GDP is projected to rise from 17.7 percent to **19.7 percent in 2028**.
- Cost (as measured by the personal health care deflator) is projected to accelerate, averaging 2.4 percent per year for 2019–28, partly reflecting faster expected growth in health sector wages.
- **Medicare** spending is expected to experience the fastest spending growth (**7.6 percent per year over 2019-28**), largely as a result of having the highest projected enrollment growth.



Projection Disrupters:

- Government pressure on prescription drug prices, thru a collaborative effort, price controls or drug importation
- Smart Hospitals with AI
- Hospitals had massive losses in 2020



SPDR - Health Care Sector SPDR ETF (Top 10)

Johnson & Johnson	<u>JNJ</u>	9.94%	Pharma/Consumer
UnitedHealth Group Inc	<u>UNH</u>	7.32%	Insurance
Abbott Laboratories	<u>ABT</u>	5.07%	Devices
Thermo Fisher Scientific Inc	<u>TMO</u>	4.67%	Devices
Pfizer Inc	<u>PFE</u>	4.62%	Pharma
Merck & Co Inc	<u>MRK</u>	4.51%	Pharma
AbbVie Inc	<u>ABBV</u>	4.19%	Pharma
Eli Lilly and Co	<u>LLY</u>	3.82%	Pharma
Danaher Corp	<u>DHR</u>	3.48%	Mixed
Medtronic PLC	<u>MDT</u>	3.47%	Devices



iShares Nasdaq Biotechnology ETF (Top 10)

Amgen Inc.	AMGN	7.41%	Bio/Pharma
Gilead Sciences, Inc.	GILD	6.23%	Bio/Pharma
Illumina, Inc	ILMN	5.36%	Biotech/Sequence
Moderna, Inc.	MRNA	5.34%	Bio/Pharma
Vertex Pharmaceuticals Incorporated	VRTX	4.26%	Bio/Pharma
Regeneron Pharmaceuticals, Inc.	REGN	3.85%	Bio/Pharma
Biogen Inc.	BIIB	3.26%	Bio/Neurologic
Alexion Pharmaceuticals, Inc	ALXN	2.63%	Bio/Rare Disease
Seagen Inc.	SGEN	2.24%	Bio/Cancer
Astrazeneca	AZN	1.95%	Bio/Pharma



Biotech / Pharmaceuticals

- Depend upon patent protection
 - US protection 20 years from application for patent
 - Often foreign countries hard to enforce patent or MFN price
 - **BUT**, The world's top-selling brand drug, Humira, treats arthritis and other chronic conditions. On the market since 2002, 132 patents block competition for up to 39 years
- Cost of drug development is high
 - Johns Hopkins estimate \$2B-\$3B total cost
 - JAMA has said trial cost adds little to overall cost, **BUT**
 - Phase 1 -- safety \$4M-\$10M
 - Phase 2 -- safety and efficacy \$7M-\$20M
 - Phase 3 -- large scale safety and efficacy up to \$1B+
- Many pharmas buy small biotech firms that have one or more potential drugs under development or testing



Catherine Woods ARK Innovation Idea Companies 2021

- Multi Cancer screening -Largest Genomic Market? – Illumina



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Catherine Woods ARK Innovation Idea Companies 2021

- Long Read Sequencing 82% annual growth to 2025-PACB

Market Summary > Pacific Biosciences of California Inc

37.12 USD

-0.32 (0.85%) ↓

Closed: Feb 24, 8:08 AM EST · Disclaimer

Pre-market 41.00 +3.88 (10.45%)

NASDAQ: PACB

+ Follow

1 day | 5 days | 1 month | 6 months | ytd | 1 year | 5 years | max



Open	34.59	Mkt cap	7.17B	Prev close	37.44
High	37.23	P/E ratio	220.89	52-wk high	53.69
Low	30.22	Div yield	-	52-wk low	2.20



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