



EvaluateMedTech 

World Preview 2018, Outlook to 2024

Welcome to the EvaluateMedTech® World Preview 2018, Outlook to 2024

Our seventh annual EvaluateMedTech® World Preview brings together many of our analyses to provide a top level insight into the expected performance of the medtech industry between now and 2024. Based on EvaluateMedTech®'s coverage of the world's leading medical device and diagnostic companies, the World Preview highlights trends in medtech including: consensus sales forecasts by device area to 2024; the top 20 companies in 2024; R&D spend current and future and FDA approvals. Complimentary copies of the full report can be downloaded at:
www.evaluate.com/MedtechWorldPreview2018

About EvaluateMedTech®

EvaluateMedTech® provides trusted global medtech market intelligence and consensus forecasts delivered through a single integrated and standardised platform, that easily integrates with your own analytical models. It allows medtech companies, financial institutions, consultancies, service providers and others to efficiently track, benchmark and forecast the sector so more time can be spent examining insights and making effective decisions to optimise performance.

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Foreword

In the 2018 edition of the EvaluateMedTech® World Preview we can reveal that the global medtech industry is expected to grow at 5.6% per year (CAGR) between 2017 and 2024, culminating in 2024 global sales of \$595bn (pages 8-9). The analysis is based on in-depth forecast models for the top 300 global medtech companies available within EvaluateMedTech®. This sales forecast represents the only current consensus view from equity analysts of the entire medtech market.

Still on top

Once again, Medtronic is forecast to be the largest company by medical device revenues in 2024, with sales of nearly \$39bn. Indeed, the roster of the top medtech players looks familiar – the four biggest companies in 2017 are set to maintain their positions in 2024, including Abbott, which has a number three spot thanks to its acquisition of St. Jude Medical.

Mergers have been responsible for many of the recent shifts in the medtech sector. The purchase of C. R. Bard is expected to make Becton Dickinson a top-five player by 2024, with a forecast annual growth rate of 8.3%. Lens maker Essilor will, like Becton Dickinson, jump three places in the table with forecast 2024 sales of \$11.6bn.

Taken together, the top 10 companies will occupy 37% of the medtech market in 2024, slightly down from the 39% they had in 2017.

Flashing the cash

Research and development is the lifeblood of the medtech sector, and as befits the industry leader, Medtronic spends the most. The Minnesota group's R&D expenditure is forecast to reach \$2.7bn in 2024, growing at 2.8% CAGR between 2017 and 2024.

Foreword

Heart valve specialist Edwards Lifesciences and French diagnostics company bioMérieux, however, are the top spenders when it comes to the percentage of their sales they invest in R&D. Both pump substantially more of their revenues back into research than the other top 20 companies, each showing an R&D investment rate of nearly 16% in 2024.

The FDA speeds up

Medtech companies must hope that the cash they spend on R&D results in approvals. The FDA has repeatedly stated its determination to speed medical devices to market, and this seems to have borne fruit: the number of innovative products granted first-time premarket approval grew to 51 in 2017, from 40 the year before. This equals the record set in 2015.

Encouragingly, the number of products that gained supplementary PMAs and 510(k) clearances reached new heights at 2,675 and 3,248, respectively.

Diagnostic shock

That in vitro diagnostics is forecast to remain the largest segment in medtech in 2024, with overall sales of \$79.6bn, is not a surprise. But one startling finding lurks in the table of the top 10 companies active here: a new entrant, Exact Sciences, which has rocketed 14 places. This group, much smaller than many of its peers, is expected to have sales of \$1.8bn in 2024, with a scorching forecast 31.2% annual growth rate from 2017.



Emily Muir
Project Manager, EvaluateMedTech®

Analysis Highlights

- Worldwide medtech sales forecast to reach \$595bn by 2024
 - Neurology set to be the fastest-growing device area with a CAGR of 9.1% between 2017 and 2024; diagnostic imaging and orthopedics will be the slowest, with annual growth of just 3.7% between these years
-
- Medtronic remains the leading medtech company in 2017 with sales of \$30bn and will remain at the top in 2024 with sales forecast to reach \$38.9bn
 - Becton Dickinson to enter the top five by 2024 following its purchase of C. R. Bard
 - In vitro diagnostics remains the number one device area in 2024 with sales of \$79.6bn; Roche forecast to hold 18% of the market
 - Medtronic will remain the top group in cardiology in 2024 with sales of \$14.2bn, a 20% market share
 - Diagnostic imaging sales forecast to reach \$51bn in 2024; Siemens Healthineers, General Electric and Philips continue to dominate the market
 - Essilor will continue to dominate the ophthalmics market in 2024, with forecast sales of \$11.6bn
 - Global medtech R&D spend set to grow by 4.5% (CAGR) to \$39bn by 2024
 - Medtronic tops the table of R&D spenders in 2024 with a forecast \$2.7bn

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Worldwide Medtech Sales by Device Area in 2024



Worldwide medtech sales forecast to grow by 5.6% to \$595bn by 2024; IVD remains number one.

Evaluate MedTech consensus forecasts find that the medtech market will achieve sales of \$594.5bn by 2024, growing at a rate of 5.6% per year (CAGR) between 2017 and 2024.

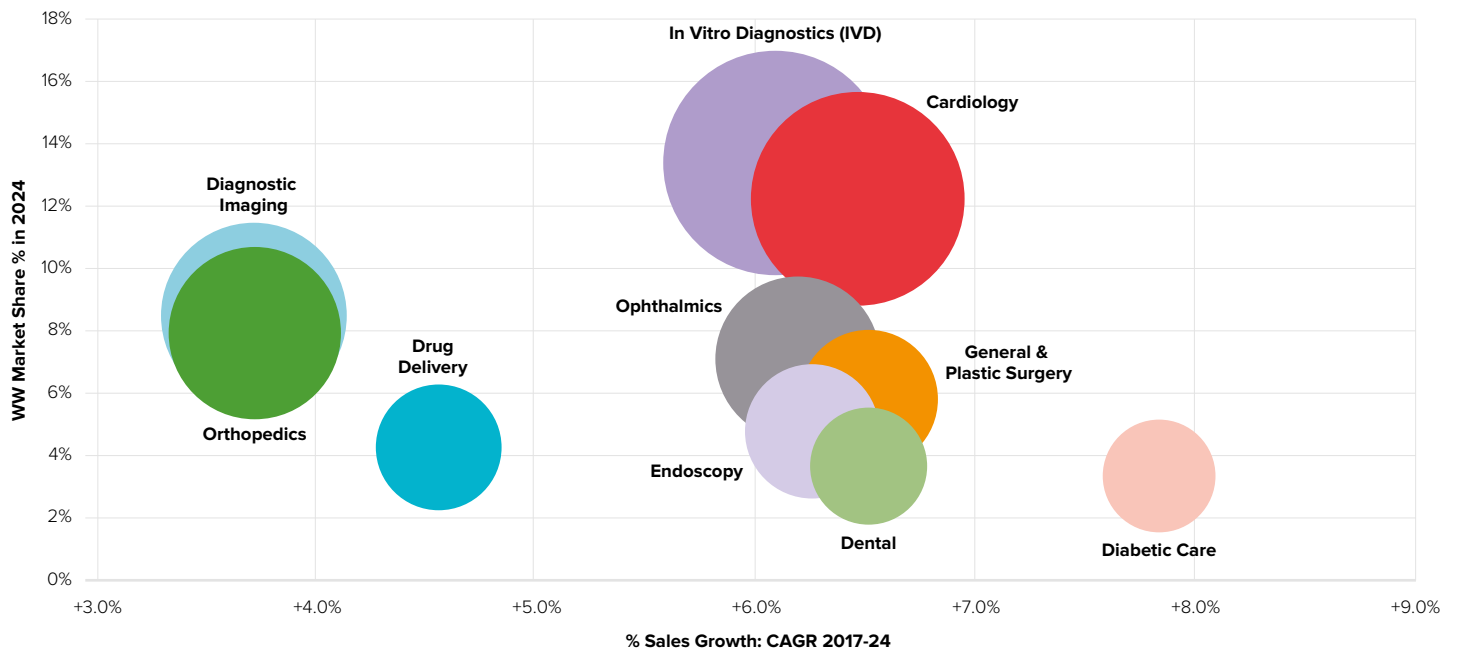
In vitro diagnostics will continue to be the number one device area in 2024 with annual sales of \$79.6bn and a 13.4% share of

the medical device industry.

Neurology is again forecast to be the fastest-growing device area, with sales expected to rise to \$15.8bn in 2024, representing 9.1% market growth per year between 2017 and 2024. The slowest-growing segments in the top 15 are diagnostic imaging and orthopedics, both set to experience growth of just 3.7% CAGR between 2017 and 2024.

Analysis on Top 10 Device Areas in 2024, Market Share & Sales Growth (2017-2024)

Source: Evaluate, September 2018



Note: Size of Bubble = WW Sales in 2024



Worldwide Medtech Sales by EvaluateMedTech® Device Area: Top 15 Categories & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Device Area	WW Sales (\$bn)		CAGR % Growth	WW Market Share			Rank Chg. (+/-)
		2017	2024		2017	2024	Chg. (+/-)	
1.	In Vitro Diagnostics (IVD)	52.6	79.6	+6.1%	13.0%	13.4%	+0.4pp	-
2.	Cardiology	46.9	72.6	+6.4%	11.6%	12.2%	+0.6pp	-
3.	Diagnostic Imaging	39.5	51.0	+3.7%	9.8%	8.6%	-1.2pp	-
4.	Orthopedics	36.5	47.1	+3.7%	9.0%	7.9%	-1.1pp	-
5.	Ophthalmics	27.7	42.2	+6.2%	6.8%	7.1%	+0.3pp	-
6.	General & Plastic Surgery	22.1	34.3	+6.5%	5.5%	5.8%	+0.3pp	-
7.	Endoscopy	18.5	28.3	+6.3%	4.6%	4.8%	+0.2pp	+1
8.	Drug Delivery	18.5	25.3	+4.6%	4.6%	4.3%	-0.3pp	-1
9.	Dental	13.9	21.6	+6.5%	3.4%	3.6%	+0.2pp	-
10.	Diabetic Care	11.7	19.8	+7.8%	2.9%	3.3%	+0.4pp	+3
11.	Wound Management	13.0	17.8	+4.6%	3.2%	3.0%	-0.2pp	-1
12.	Healthcare IT	11.8	17.6	+5.9%	2.9%	3.0%	+0.1pp	-1
13.	Neurology	8.6	15.8	+9.1%	2.1%	2.7%	+0.5pp	+3
14.	Nephrology	11.7	15.6	+4.2%	2.9%	2.6%	-0.3pp	-2
15.	Ear, Nose & Throat (ENT)	8.9	13.1	+5.7%	2.2%	2.2%	+0.0pp	-
	Top 15	342.0	501.7	+5.6%	84.4%	84.4%	-0.0pp	
	Other	63.1	92.9	+5.7%	15.6%	15.6%	+0.0pp	
	Total WW Medtech Sales	405.0	594.5	+5.6%	100.0%	100.0%		

Note: Analysis is based on the top 300 medtech companies. Sales in 2017 based on company reported data. Sales forecasts to 2024 based on a consensus of leading equity analysts' estimates for segmental sales.

Worldwide Medtech Sales in 2017: Top 20 Companies



Continuing its market dominance for the third year running, Medtronic remains the largest grossing medtech company with sales of \$30bn in 2017.

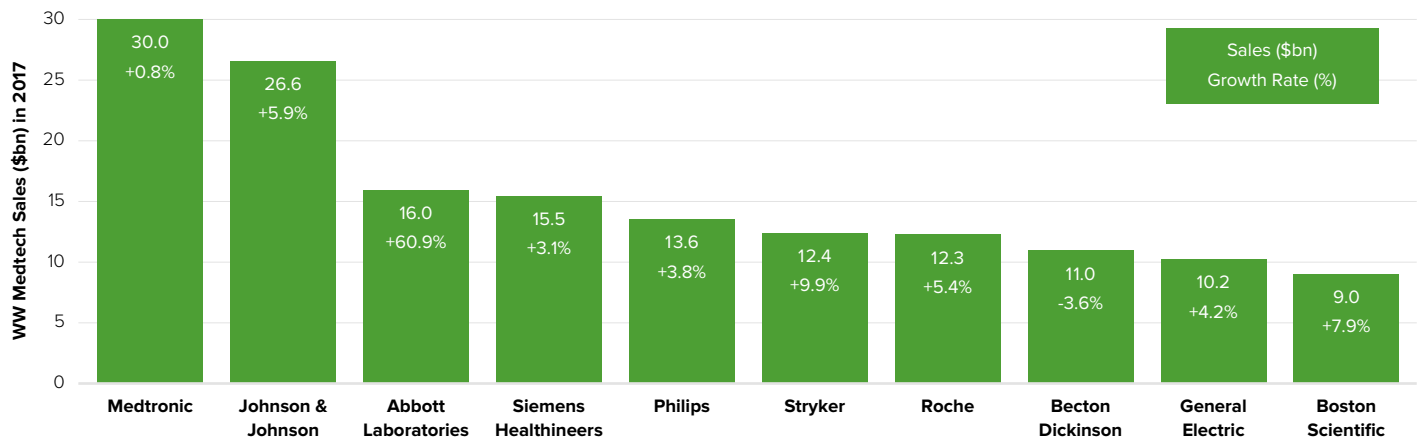
Evaluate finds that despite showing the smallest amount of growth within the top 20 companies, Medtronic remained the number one company in the medtech industry in 2017. Over the course of the year Medtronic achieved medical device sales of \$30bn, giving the company a 7.4% market share.

Abbott Laboratories saw substantial revenue growth of 60.9% in 2017 as a result of its acquisition of St. Jude Medical at the start of the year, which made it the third largest device manufacturer.

Becton Dickinson was the only top 20 company to show a decline in sales from 2016 to 2017, ending the year with revenue of \$11bn and a growth rate of -3.6%. This decrease was primarily attributed to the divestiture of its Respiratory Solutions business.

Worldwide Medtech Sales: Top 10 Companies (2017)

Source: Evaluate, September 2018



Worldwide Medtech Sales in 2017: Top 20 Companies & Total Market

Source: Evaluate, September 2018

Rank	Company	Country	WW Medtech Sales (\$bn)			WW Market Share			Rank Chg. (+/-)
			2016	2017	% Growth	2016	2017	Chg. (+/-)	
1.	Medtronic	USA	29.7	30.0	+0.8%	7.7%	7.4%	-0.3pp	-
2.	Johnson & Johnson	USA	25.1	26.6	+5.9%	6.5%	6.6%	+0.1pp	-
3.	Abbott Laboratories	USA	9.9	16.0	+60.9%	2.6%	4.0%	+1.4pp	+5
4.	Siemens Healthineers	Germany	15.0	15.5	+3.1%	3.9%	3.8%	-0.1pp	-1
5.	Philips	The Netherlands	13.1	13.6	+3.8%	3.4%	3.3%	-0.0pp	-1
6.	Stryker	USA	11.3	12.4	+9.9%	2.9%	3.1%	+0.2pp	+1
7.	Roche	Switzerland	11.6	12.3	+5.4%	3.0%	3.0%	+0.0pp	-2
8.	Becton Dickinson	USA	11.4	11.0	-3.6%	2.9%	2.7%	-0.2pp	-2
9.	General Electric	USA	9.8	10.2	+4.2%	2.5%	2.5%	-0.0pp	-
10.	Boston Scientific	USA	8.4	9.0	+7.9%	2.2%	2.2%	+0.1pp	-
11.	Danaher	USA	7.8	8.7	+10.6%	2.0%	2.1%	+0.1pp	-
12.	Zimmer Biomet	USA	7.7	7.8	+1.8%	2.0%	1.9%	-0.1pp	-
13.	B. Braun Melsungen	Germany	7.2	7.7	+7.2%	1.8%	1.9%	+0.0pp	-
14.	Essilor International	France	6.9	7.3	+6.7%	1.8%	1.8%	+0.0pp	+1
15.	Baxter International	USA	7.1	7.3	+2.9%	1.8%	1.8%	-0.0pp	-1

Top 16-20 continued over...

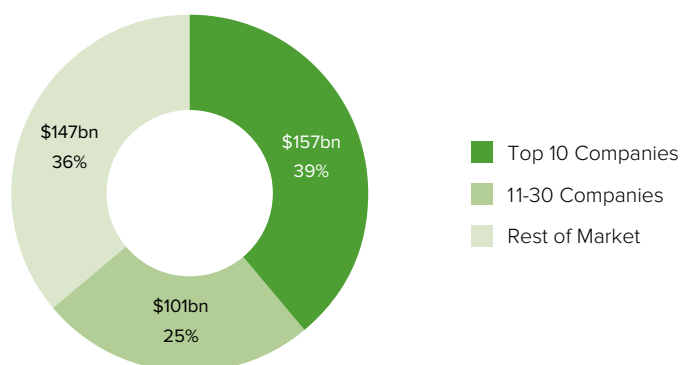


Source: Evaluate, September 2018

Rank	Company	Country	WW Medtech Sales (\$bn)			WW Market Share			Rank Chg. (+/-)
			2016	2017	% Growth	2016	2017	Chg. (+/-)	
16.	Novartis	Switzerland	5.8	6.0	+3.6%	1.5%	1.5%	-0.0pp	-
17.	Olympus	Japan	5.3	5.6	+5.4%	1.4%	1.4%	+0.0pp	-
18.	3M	USA	5.2	5.5	+4.4%	1.4%	1.4%	-0.0pp	-
19.	Terumo	Japan	4.4	4.9	+12.8%	1.1%	1.2%	+0.1pp	+1
20.	Smith & Nephew	United Kingdom	4.7	4.8	+2.1%	1.2%	1.2%	-0.0pp	-1
Total Top 20			207.4	222.1	+7.1%	53.5%	54.8%	+1.3pp	
Other			180.1	182.9	+1.6%	46.5%	45.2%	-1.3pp	
Total			387.5	405.0	+4.5%	100.0%	100.0%		

Percentage Composition of Worldwide Medtech Market in 2017

Source: Evaluate, September 2018



Note: Analysis is based on the top 300 medtech companies. Sales based on company reported data.

Revenues for St. Jude Medical are not included in Abbott's 2016 reported sales. Abbott completed the acquisition of St. Jude on 4 January 2017.

Revenues for Alere are not included in Abbott's 2016 reported sales. Abbott completed the acquisition of Alere on 3 October 2017.

Revenues for C. R. Bard are not included in Becton Dickinson's 2016 or 2017 reported sales. Becton Dickinson completed the acquisition of C. R. Bard on 29 December 2017.

Revenues for Spectranetics are not included in Philips's 2016 reported sales. Philips completed the acquisition of Spectranetics on 9 August 2017.

Revenues for Abbott Medical Optics are included in Abbott's 2016 revenues, not Johnson & Johnson's. Johnson & Johnson acquired Abbott Medical Optics from Abbott on 27 February 2017.

Worldwide Medtech Sales in 2024: Top 20 Companies



Medtronic will remain the top medtech company in 2024; Becton Dickinson to enter the top five.

EvaluateMedTech consensus forecasts find that Medtronic will continue to hold onto its big lead in the market in 2024. It is forecast to achieve annual sales of \$38.9bn, representing a 6.5% share of the medical device market.

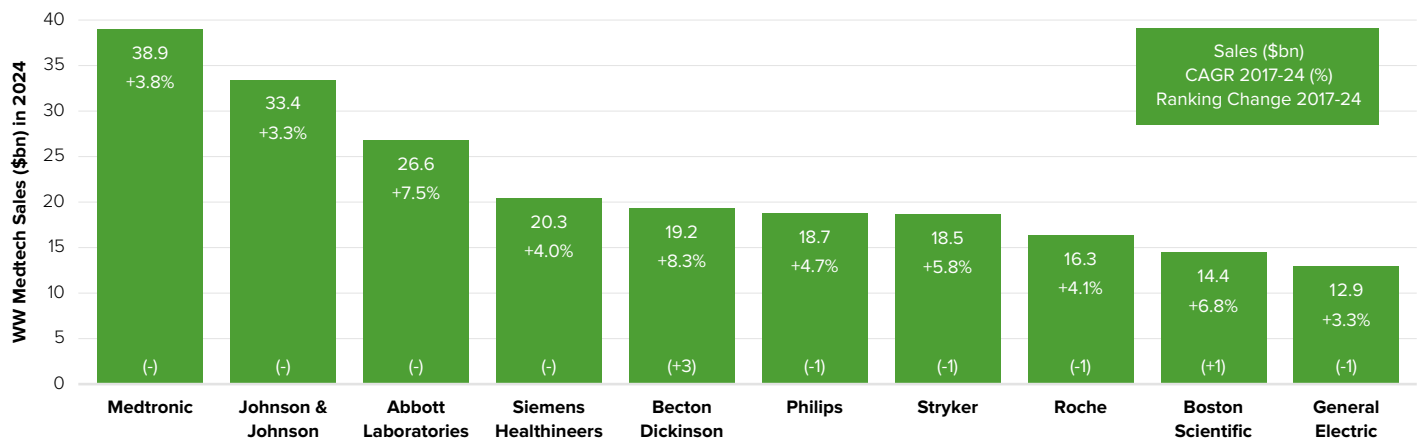
Following Abbott Laboratories' acquisition of St. Jude Medical and Alere, and the disposal of its eyecare business to Johnson & Johnson,

it is set to remain the third largest player in 2024 with potential sales of over \$26bn.

Becton Dickinson is currently the eighth biggest medtech company in the world, but it is expected to move into the top five by 2024 following its acquisition of C.R.Bard, which should boost sales that year to over \$19bn. However, this position may be shortlived as both Philips and Stryker are close behind with forecast sales just shy of \$19bn.

Worldwide Medtech Sales: Top 10 Companies (2024)

Source: Evaluate, September 2018



Worldwide Medtech Sales: Top 20 Companies & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Company	Country	WW Medtech Sales (\$bn)			WW Market Share			Rank Chg. (+/-)
			2017	2024	% CAGR 17-24	2017	2024	Chg. (+/-)	
1.	Medtronic	USA	30.0	38.9	+3.8%	7.4%	6.5%	-0.8pp	-
2.	Johnson & Johnson	USA	26.6	33.4	+3.3%	6.6%	5.6%	-1.0pp	-
3.	Abbott Laboratories	USA	16.0	26.6	+7.5%	4.0%	4.5%	+0.5pp	-
4.	Siemens Healthineers	Germany	15.5	20.3	+4.0%	3.8%	3.4%	-0.4pp	-
5.	Becton Dickinson	USA	11.0	19.2	+8.3%	2.7%	3.2%	+0.5pp	+3
6.	Philips	The Netherlands	13.6	18.7	+4.7%	3.3%	3.1%	-0.2pp	-1
7.	Stryker	USA	12.4	18.5	+5.8%	3.1%	3.1%	+0.0pp	-1
8.	Roche	Switzerland	12.3	16.3	+4.1%	3.0%	2.7%	-0.3pp	-1
9.	Boston Scientific	USA	9.0	14.4	+6.8%	2.2%	2.4%	+0.2pp	+1
10.	General Electric	USA	10.2	12.9	+3.3%	2.5%	2.2%	-0.4pp	-1
11.	Essilor International	France	7.3	11.6	+6.7%	1.8%	1.9%	+0.1pp	+3
12.	Danaher	USA	8.7	11.5	+4.1%	2.1%	1.9%	-0.2pp	-1
13.	B. Braun Melsungen	Germany	7.7	11.3	+5.7%	1.9%	1.9%	+0.0pp	-
14.	Baxter International	USA	7.3	10.3	+4.9%	1.8%	1.7%	-0.1pp	+1
15.	Zimmer Biomet	USA	7.8	9.3	+2.5%	1.9%	1.6%	-0.4pp	-3

Top 16-20 continued over...

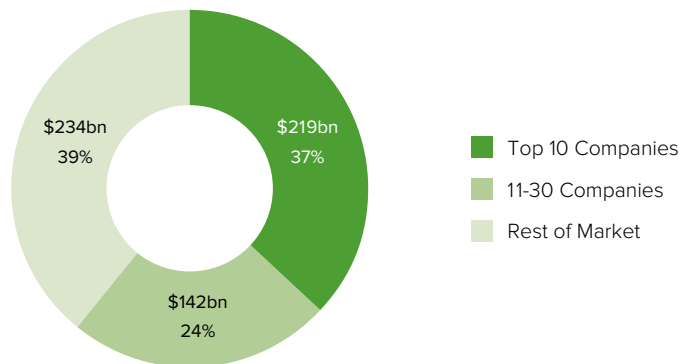


Source: Evaluate, September 2018

Rank	Company	Country	WW Medtech Sales (\$bn)			WW Market Share			Rank Chg. (+/-)
			2017	2024	% CAGR 17-24	2017	2024	Chg. (+/-)	
16.	Novartis	Switzerland	6.0	8.3	+4.7%	1.5%	1.4%	-0.1pp	-
17.	Olympus	Japan	5.6	8.0	+5.3%	1.4%	1.3%	-0.0pp	-
18.	3M	USA	5.5	7.3	+4.2%	1.4%	1.2%	-0.1pp	-
19.	Terumo	Japan	4.9	7.1	+5.4%	1.2%	1.2%	-0.0pp	-
20.	Edwards Lifesciences	USA	3.3	6.2	+9.1%	0.8%	1.0%	+0.2pp	+6
Total Top 20			220.7	309.8	+5.0%	54.5%	52.1%	-2.4pp	
Other			184.3	284.7	+6.4%	45.5%	47.9%	+2.4pp	
Total			405.0	594.5	+5.6%	100.0%	100.0%		

Percentage Composition of Worldwide Medtech Market in 2024

Source: Evaluate, September 2018



Note: Analysis is based on the top 300 medtech companies. Sales in 2017 based on company reported data. Sales forecasts to 2024 based on a consensus of leading equity analysts' estimates for segmental sales.

Worldwide Medtech R&D Spend (2011-2024)



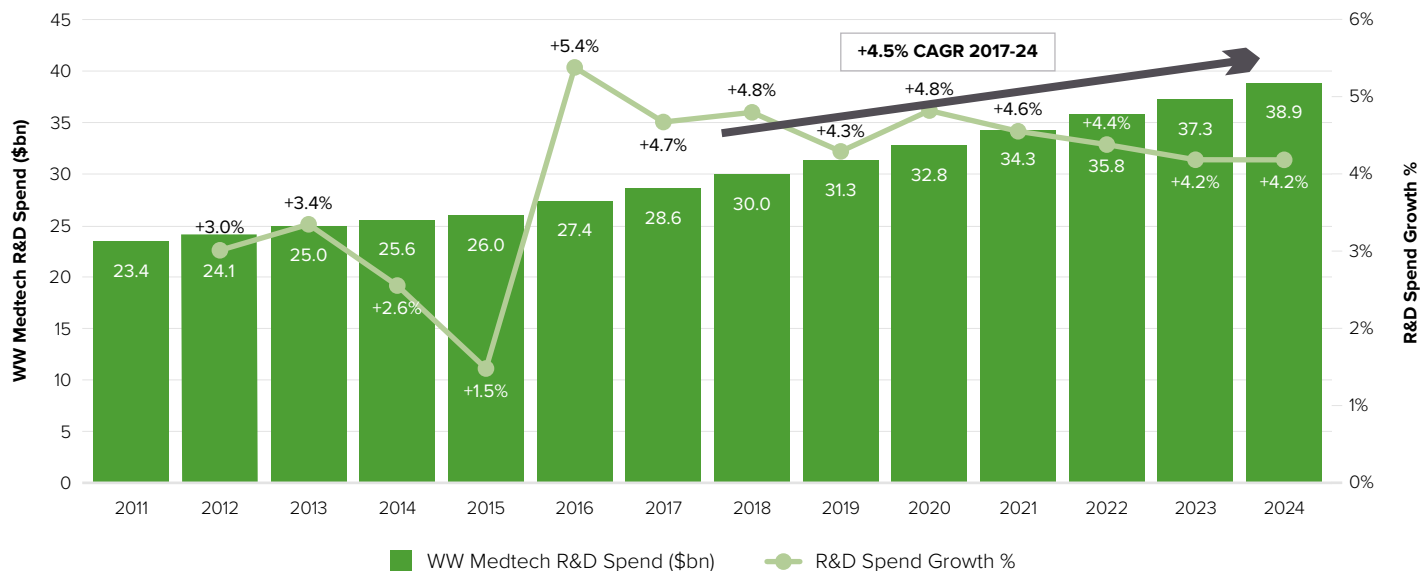
Global medtech R&D spend continues to increase at a growth rate of 4.5% (CAGR) with expenditure of \$39bn expected by 2024.

EvaluateMedTech® consensus forecasts predict that medtech

companies worldwide will spend \$39bn on R&D in 2024, with an expected CAGR of 4.5%. The R&D investment rate, as a percentage of sales, is expected to decline from 8.7% in 2017 to 8.1% in 2024.

Worldwide Medtech R&D Spend (2011-2024)

Source: Evaluate, September 2018



Worldwide Medtech R&D Spend (2011-2024)

Source: Evaluate, September 2018

Year	WW Medtech R&D & Medtech Sales (\$bn)													
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Medtech R&D Spend	23.4	24.1	25.0	25.6	26.0	27.4	28.6	30.0	31.3	32.8	34.3	35.8	37.3	38.9
R&D Spend Growth per Year %		+3.0%	+3.4%	+2.6%	+1.5%	+5.4%	+4.7%	+4.8%	+4.3%	+4.8%	+4.6%	+4.4%	+4.2%	+4.2%
WW Medtech Sales	352.9	362.1	369.8	379.7	371.2	387.5	405.0	433.7	457.4	483.8	510.9	538.4	566.3	594.5
R&D as % of Medtech Sales	+6.6%	+6.7%	+6.7%	+6.7%	+7.0%	+7.1%	+7.1%	+6.9%	+6.8%	+6.8%	+6.7%	+6.7%	+6.6%	+6.5%
R&D as % of Medtech Sales (Top 20 in 2024)								8.7%						8.1%

CAGR 2017-24 on Medtech R&D Spend +4.5%

Cumulative 5 year R&D Spend (2013-17) \$132.5bn

CAGR 2011-17 on Medtech R&D Spend +3.4%

Note: Analysis is based on the Top 300 medtech companies. R&D spend in 2017 based on company reported data.

Forecast medtech R&D spend based on a consensus of leading equity analysts' estimates for company level R&D spend, extrapolated to medtech R&D when a company has non-medtech R&D activity.

Medtech R&D is not disclosed by a number of companies and this analysis is limited to those companies with sufficient disclosure.

Medtech R&D Spend in 2024: Top 20 Companies



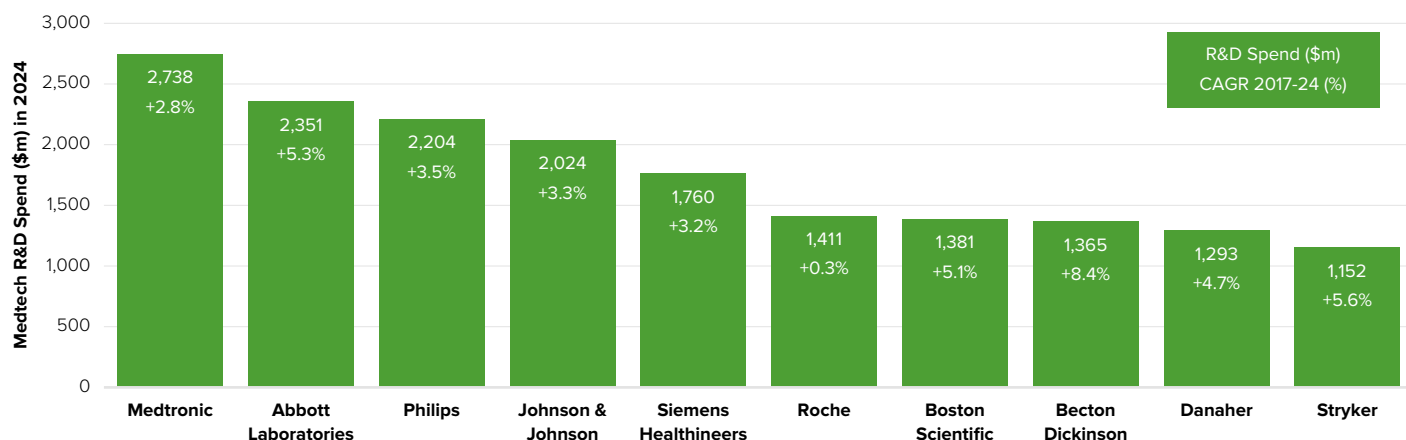
Medtronic tops table of R&D spenders in 2024 with \$2.7bn forecast.

Medtronic's R&D expenditure is forecast to reach \$2.7bn in 2024, growing at 2.8% CAGR between 2017 and 2024. Of the top 20 companies, Becton Dickinson and Edwards Lifesciences are forecast to increase their annual R&D spend the most, growing at a CAGR of 8.4% and 8.3% respectively.

Despite the fact that the majority of the top 20 companies are expected to spend a smaller percentage of their revenue on R&D in 2024 than they did in 2017, total medtech market R&D spend is set to increase by 4.5% each year. Edwards Lifesciences and bioMérieux are expected to invest substantially more in R&D as a percentage of their medtech sales than the other top 20 companies, with an R&D investment rate of nearly 16% in 2024.

Worldwide Medtech R&D Spend: Top 10 Companies (2024)

Source: Evaluate, September 2018



Worldwide Medtech R&D Spend: Top 20 Companies & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Company	Medtech R&D (\$m)			R&D as a % of Medtech Sales			Rank Chg. (+/-)
		2017	2024	CAGR 17-24	2017	2024	Chg. (+/-)	
1.	Medtronic	2,253	2,738	+2.8%	7.5%	7.0%	-0.5pp	-
2.	Abbott Laboratories	1,640	2,351	+5.3%	10.2%	8.8%	-1.4pp	+1
3.	Philips	1,728	2,204	+3.5%	12.7%	11.8%	-0.9pp	-1
4.	Johnson & Johnson	1,610	2,024	+3.3%	6.1%	6.1%	+0.0pp	-
5.	Siemens Healthineers	1,416	1,760	+3.2%	9.2%	8.7%	-0.5pp	-
6.	Roche	1,378	1,411	+0.3%	11.2%	8.7%	-2.6pp	-
7.	Boston Scientific	974	1,381	+5.1%	10.8%	9.6%	-1.2pp	+1
8.	Becton Dickinson	774	1,365	+8.4%	7.1%	6.5%	-0.6pp	+3
9.	Danaher	939	1,293	+4.7%	10.9%	11.3%	+0.4pp	-
10.	Stryker	787	1,152	+5.6%	6.3%	6.2%	-0.1pp	-
11.	General Electric	1,004	1,075	+1.0%	9.8%	8.4%	-1.4pp	-4
12.	Edwards Lifesciences	553	964	+8.3%	16.1%	15.5%	-0.6pp	+1
13.	Baxter International	617	764	+3.1%	8.4%	7.4%	-1.0pp	-1
14.	Novartis	490	634	+3.7%	8.1%	7.6%	-0.5pp	-
15.	3M	465	619	+4.2%	8.5%	8.5%	+0.0pp	-

Top 16-20 continued over...

Medtech R&D Spend in 2024: Top 20 Companies

part 2 of 2



Source: Evaluate, September 2018

Rank	Company	Medtech R&D (\$m)			R&D as a % of Medtech Sales			Rank
		2017	2024	CAGR 17-24	2017	2024	Chg. (+/-)	Chg. (+/-)
16.	Intuitive Surgical	329	555	+7.8%	10.5%	8.2%	-2.3pp	+5
17.	bioMérieux	344	533	+6.5%	16.4%	15.8%	-0.7pp	+2
18.	B. Braun Melsungen	357	527	+5.7%	4.7%	4.7%	+0.0pp	-
19.	Terumo	373	500	+4.3%	7.6%	7.1%	-0.5pp	-3
20.	Zimmer Biomet	367	453	+3.0%	4.7%	4.9%	+0.2pp	-3
	Total Top 20	18,397	24,303	+4.1%	8.7%	8.1%	-0.5pp	
	Other	10,244	14,567	+5.2%				
	Total	28,641	38,871	+4.5%	7.1%	6.5%		

Note: Analysis is based on the top 300 medtech companies. R&D spend in 2017 based on company reported data.

Forecast medtech R&D spend based on a consensus of leading equity analysts' estimates for company level R&D spend, extrapolated to medtech R&D when a company has non-medtech R&D activity.

Medtech R&D is not disclosed by a number of companies and this analysis is limited to those companies with sufficient disclosure.



Number of first-time PMAs and HDEs increased 28% in 2017 to 51; 510(k) clearances up 9% to 3,248.

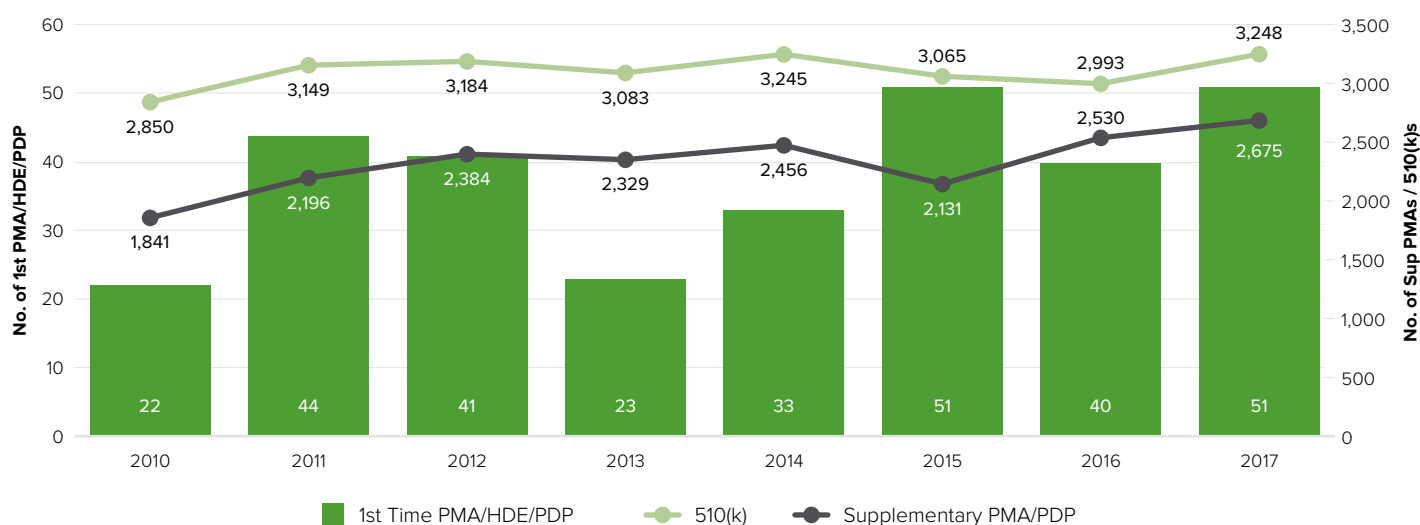
EvaluateMedTech® found that the FDA granted 51 new first-time device approvals – PMAs, HDEs and PDPs – in 2017, matching the previous 10-year high seen in 2015. The number of supplementary PMA/ PDP and 510(k) clearances also increased in 2017. The therapy area that saw the most approvals in 2017 was cardiology, where 20 devices were granted first-time PMAs.

Abbott Laboratories was awarded more first-time PMAs and HDEs than any other company with six of its tests receiving the green light. Medtronic received the largest number of overall approvals plus clearances in 2017, with 791.

The total number of regulatory approvals in 2017 increased 7% from the year before.

Count of first PMA/HDE/PDPs, 510(k)s & Supplementary PMA/PDPs Per Year (2010-2017)

Source: Evaluate, September 2018



Count of first PMA/HDE/PDPs, 510(k)s & Supplementary PMA/PDPs (2010-2017)

Source: Evaluate, September 2018

Year	2010	2011	2012	2013	2014	2015	2016	2017
1st Time PMA/ HDE/ PDP	22	44	41	23	33	51	40	51
% Chg.		+100%	-7%	-44%	+43%	+55%	-22%	+28%
Supplementary PMA/ PDP	1,841	2,196	2,384	2,329	2,456	2,131	2,530	2,675
% Chg.		+19%	+9%	-2%	+5%	-13%	+19%	+6%
510(k)	2,850	3,149	3,184	3,083	3,245	3,065	2,993	3,248
% Chg.		+10%	+1%	-3%	+5%	-6%	-2%	+9%
Total	4,713	5,389	5,609	5,435	5,734	5,247	5,563	5,974
% Chg.		+14%	+4%	-3%	+6%	-8%	+6%	+7%



Count of PMA/HDE/PDPs, 510(k)s & Medtech R&D Spend (2017)

Source: Evaluate, September 2018

Rank	Company	PMA/HDEs - First Approval	PMA/PDPs - Suppl.	510(k) Clearance	Total Approvals	2017 R&D Spend (\$m)
1.	Medtronic	3	722	66	791	2,253
2.	Boston Scientific	1	416	27	444	974
3.	Abbott Laboratories	6	303	23	332	1,640
4.	Johnson & Johnson	1	145	46	192	1,610
5.	Roche	4	123	16	143	1,378
6.	Edwards Lifesciences	1	87	4	92	553
7.	Cook Group	1	6	66	73	n/a
8.	Siemens Healthineers	1	17	52	70	1,416
9.	Danaher	0	19	47	66	939
10.	BIOTRONIK	2	60	3	65	116
	Total	51	2,675	3,248	5,974	

Note: Based on Devices@FDA data.

PMA (Premarket Approval): a class III device which is a 'life-sustaining or life-supporting implantable device'; usually require trials.

510(k): "substantially equivalent" to a legally marketed Class I, II, III device (where PMA not required).

HDE (Humanitarian Device Exemption): a device for treating or diagnosing a disease/condition that affects <4,000 individuals in the US per year.

In Vitro Diagnostics (IVD) Market to 2024



2024 IVD sales forecast to reach nearly \$80bn; Roche still on top.

EvaluateMedTech® consensus forecasts find that Roche will continue to hold on firmly to the top position in the IVD market, with the company estimated to have a substantial 17.8% market share in 2024.

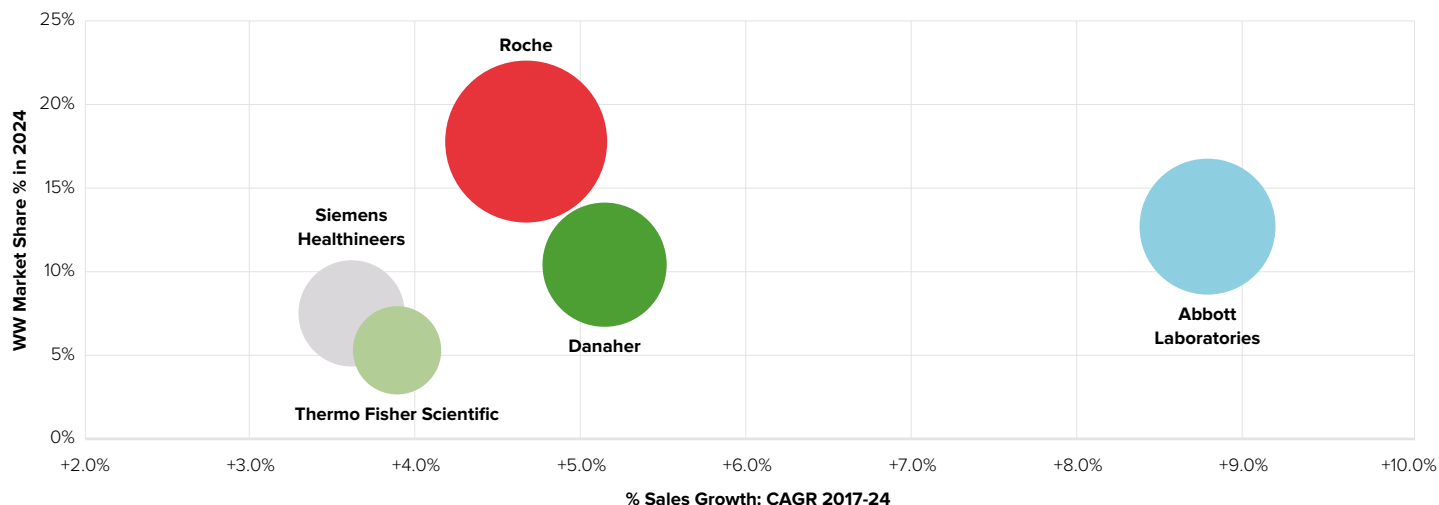
Following the acquisition of Alere, Abbott is set to become the second largest IVD company, with 2024 sales forecast to top \$10bn.

Third-placed Danaher also continues to invest in the space with the acquisition of Integrated DNA Technologies for \$2bn earlier this year.

The in vitro diagnostics market as a whole is estimated to grow at 6.1% (CAGR) between 2017 and 2024 to a worldwide total of nearly \$80bn. It will remain the number one medical device segment for the foreseeable future.

Worldwide In Vitro Diagnostics Sales, Market Share & Sales Growth (2017-2024)

Source: Evaluate, September 2018



Note: Bubble = WW Sales in 2024

Worldwide In Vitro Diagnostics Sales: Top 10 Companies & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Company	WW Sales (\$m)		CAGR 2017-24	WW Market Share		Rank Change 2017-24
		2017	2024		2017	2024	
1.	Roche	10,276	14,159	+4.7%	19.5%	17.8%	-
2.	Abbott Laboratories	5,616	10,120	+8.8%	10.7%	12.7%	+1
3.	Danaher	5,840	8,290	+5.1%	11.1%	10.4%	-1
4.	Siemens Healthineers	4,705	6,036	+3.6%	8.9%	7.6%	-
5.	Thermo Fisher Scientific	3,241	4,232	+3.9%	6.2%	5.3%	-
6.	Becton Dickinson	2,849	4,044	+5.1%	5.4%	5.1%	-
7.	Sysmex	2,301	3,579	+6.5%	4.4%	4.5%	-
8.	bioMérieux	2,091	3,377	+7.1%	4.0%	4.2%	-
9.	Ortho-Clinical Diagnostics	1,800	2,101	+2.2%	3.4%	2.6%	-
10.	EXACT Sciences	266	1,781	+31.2%	0.5%	2.2%	+14
	Top 10	38,984	57,719	+5.8%	74.1%	72.5%	
	Other	13,638	21,842	+7.0%	25.9%	27.5%	
	Total Industry	52,622	79,561	+6.1%	100.0%	100.0%	

Note: Excludes Glucose Test Systems which are included in diabetic care classification.

Cardiology Market to 2024



Medtronic continues to prevail as the largest cardiology company with 2024 sales expected to reach \$14.2bn.

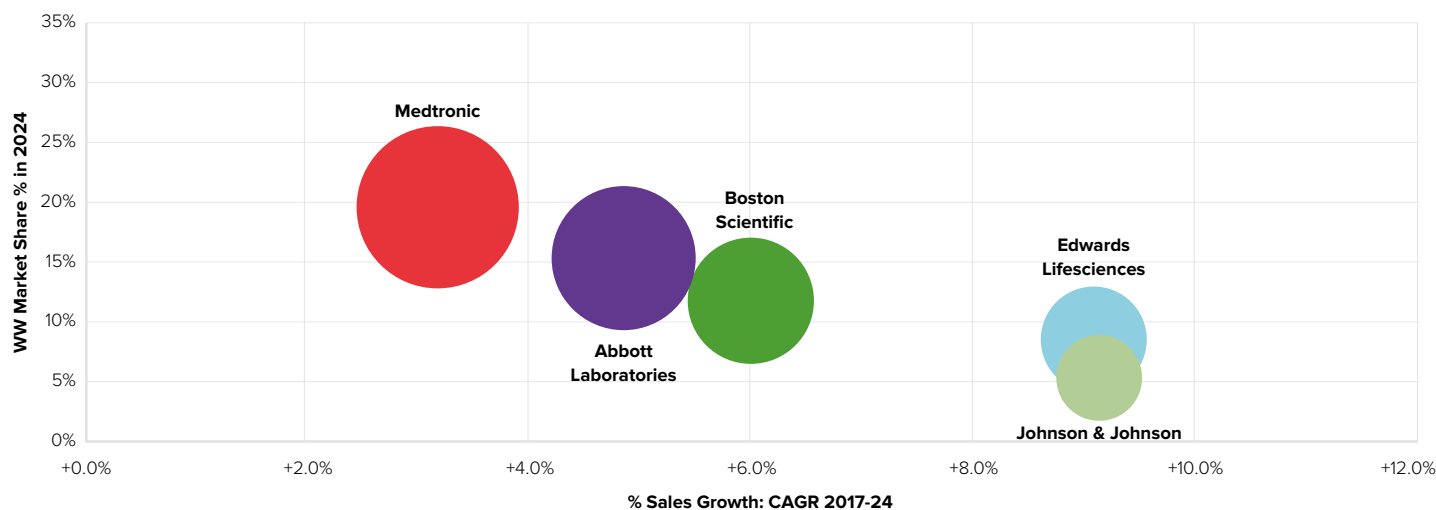
EvaluateMedTech® consensus forecasts that Medtronic will retain its position as the top cardiology company in 2017 and it is expected to remain the world's leading heart device maker in 2024, with a predicted market share of 19.5%.

Abbott Laboratories continues to make strides in the cardiology market following its acquisition of St. Jude Medical and is set to cement its top two position in 2024 with expected sales of over \$11bn and a market share of 15.4%.

The cardiology industry is expected to grow at 6.4% per year to \$72.6bn in 2024.

Worldwide Cardiology Sales, Market Share & Sales Growth (2017-2024)

Source: Evaluate, September 2018



Note: Bubble = WW Sales in 2024

Worldwide Cardiology Sales: Top 10 Companies & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Company	WW Sales (\$m)		CAGR 2017-24	WW Market Share		Rank Change 2017-24
		2017	2024		2017	2024	
1.	Medtronic	11,354	14,172	+3.2%	24.2%	19.5%	-
2.	Abbott Laboratories	7,986	11,141	+4.9%	17.0%	15.4%	-
3.	Boston Scientific	5,673	8,551	+6.0%	12.1%	11.8%	-
4.	Edwards Lifesciences	3,347	6,161	+9.1%	7.1%	8.5%	-
5.	Johnson & Johnson	2,096	3,870	+9.2%	4.5%	5.3%	+1
6.	Terumo	2,604	3,830	+5.7%	5.6%	5.3%	-1
7.	Lepu Medical Technology	667	3,062	+24.3%	1.4%	4.2%	+8
8.	Abiomed	571	2,383	+22.6%	1.2%	3.3%	+8
9.	W. L. Gore & Associates	1,681	2,323	+4.7%	3.6%	3.2%	-2
10.	Asahi Kasei	1,448	1,923	+4.1%	3.1%	2.7%	-2
	Top 10	37,428	57,417	+6.3%	79.9%	79.1%	
	Other	9,427	15,152	+7.0%	20.1%	20.9%	
	Total Industry	46,855	72,569	+6.4%	100.0%	100.0%	

Note: General Electric & Philips do not disclose cardiology sales.

Diagnostic Imaging Market to 2024



Siemens Healthineers and General Electric to lead the diagnostic imaging sector in 2024.

EvaluateMedTech® consensus forecasts that diagnostic imaging will be one of the slowest-growing device areas, with an expected CAGR of only 3.7% between 2017 and 2024.

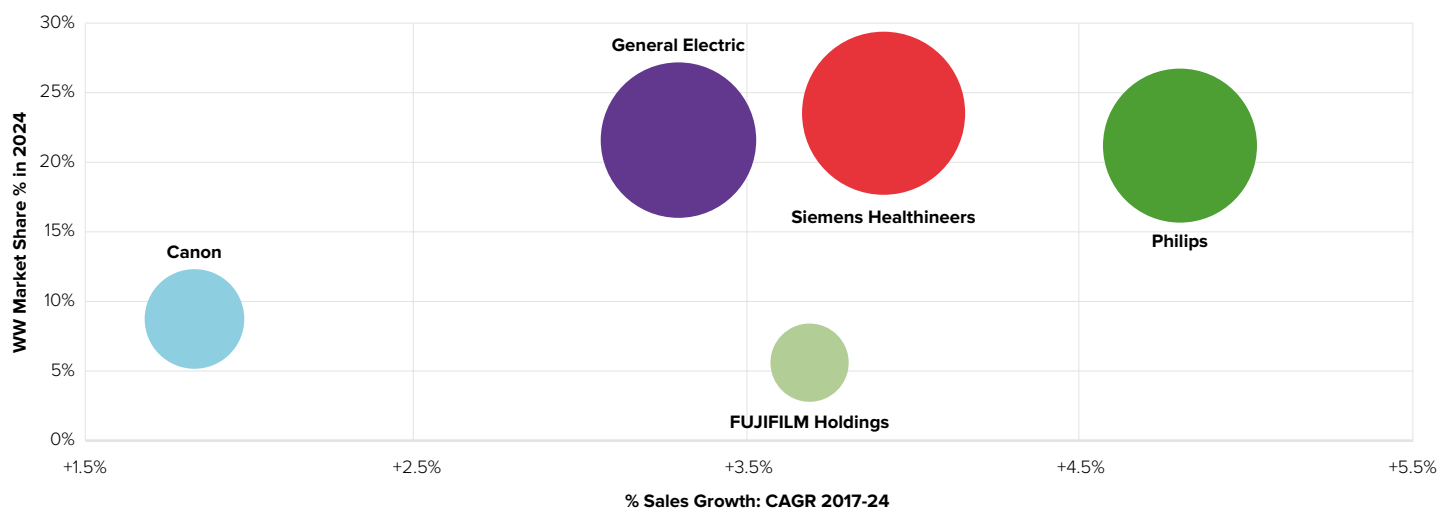
Siemens Healthineers will remain the top company in diagnostic imaging with forecast sales of nearly \$12bn, representing 23.5%

of the market in 2024. Following closely are Philips and General Electric, both of which are expected to have over 20% of the market in 2024.

The diagnostic imaging market is set to grow from a global total of \$39.5bn in 2017 to \$51.0bn in 2024.

Worldwide Diagnostic Imaging Sales, Market Share & Sales Growth (2017-2024)

Source: Evaluate, September 2018



Note: Bubble = WW Sales in 2024

Worldwide Diagnostic Imaging Sales: Top 10 Companies & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Company	WW Sales (\$m)		CAGR 2017-24	WW Market Share		Rank Change 2017-24
		2017	2024		2017	2024	
1.	Siemens Healthineers	9,168	11,990	+3.9%	23.2%	23.5%	-
2.	General Electric	8,769	11,006	+3.3%	22.2%	21.6%	-
3.	Philips	7,787	10,813	+4.8%	19.7%	21.2%	-
4.	Canon	3,890	4,415	+1.8%	9.8%	8.7%	-
5.	FUJIFILM Holdings	2,189	2,821	+3.7%	5.5%	5.5%	-
6.	Carestream Health	1,180	1,547	+3.9%	3.0%	3.0%	-
7.	Hitachi	1,169	1,362	+2.2%	3.0%	2.7%	-
8.	Konica Minolta	871	936	+1.0%	2.2%	1.8%	-
9.	Varex Imaging	557	784	+5.0%	1.4%	1.5%	+3
10.	Hologic	599	731	+2.9%	1.5%	1.4%	-
	Top 10	36,180	46,404	+3.6%	91.5%	91.0%	
	Other	3,365	4,611	+4.6%	8.5%	9.0%	
	Total Industry	39,545	51,015	+3.7%	100.0%	100.0%	

Note: Segment sales include servicing of equipment.

Orthopedics Market to 2024



Orthopedic sector sales forecast to reach \$47.1bn in 2024, with Johnson & Johnson leading the way.

Growth in the orthopedic sector is expected to remain sluggish, with a CAGR of just 3.7% between 2017 and 2024, EvaluateMedTech® consensus predicts.

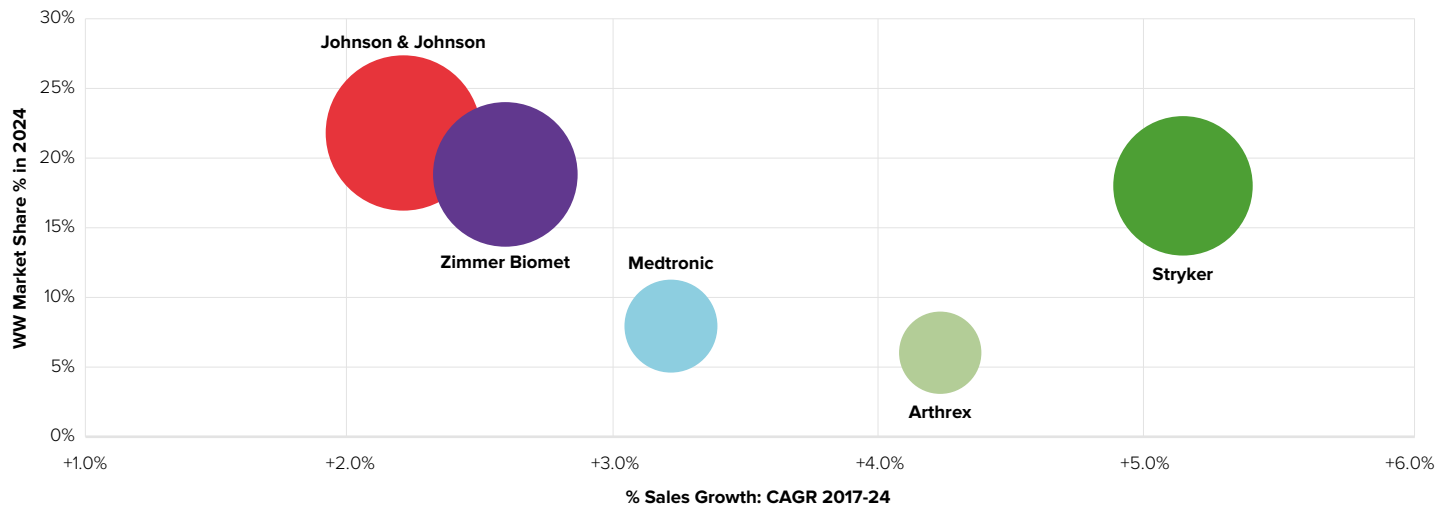
With sales of \$10.3bn and a market share of 21.8% in 2024, Johnson & Johnson is set to remain the top orthopedic company in 2024.

The company gained 43 orthopedic device approvals in 2017, with over half of these being for hip and knee replacement systems.

The top 10 companies in the orthopedic market are expected to generate \$41.2bn in sales, making up over 87% of the total market revenue.

Worldwide Orthopedics Sales, Market Share & Sales Growth (2017-2024)

Source: Evaluate, September 2018



Note: Bubble = WW Sales in 2024

Worldwide Orthopedics Sales: Top 10 Companies & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Company	WW Sales (\$m)		CAGR 2017-24	WW Market Share		Rank Change 2017-24
		2017	2024		2017	2024	
1.	Johnson & Johnson	8,823	10,289	+2.2%	24.2%	21.8%	-
2.	Zimmer Biomet	7,406	8,854	+2.6%	20.3%	18.8%	-
3.	Stryker	5,970	8,478	+5.1%	16.3%	18.0%	-
4.	Medtronic	3,016	3,763	+3.2%	8.3%	8.0%	-
5.	Arthrex	2,133	2,849	+4.2%	5.8%	6.0%	-
6.	Smith & Nephew	2,078	2,541	+2.9%	5.7%	5.4%	-
7.	Wright Medical Group	745	1,396	+9.4%	2.0%	3.0%	+1
8.	NuVasive	935	1,356	+5.5%	2.6%	2.9%	-1
9.	Globus Medical	636	1,097	+8.1%	1.7%	2.3%	-
10.	Orthofix Medical	434	608	+4.9%	1.2%	1.3%	+1
Top 10		32,175	41,232	+3.6%	88.1%	87.5%	
Other		4,341	5,892	+4.5%	11.9%	12.5%	
Total Industry		36,516	47,123	+3.7%	100.0%	100.0%	

Ophthalmics Market to 2024



Essilor will continue to dominate the ophthalmics market in 2024, while Glaukos is set to enter the top 10.

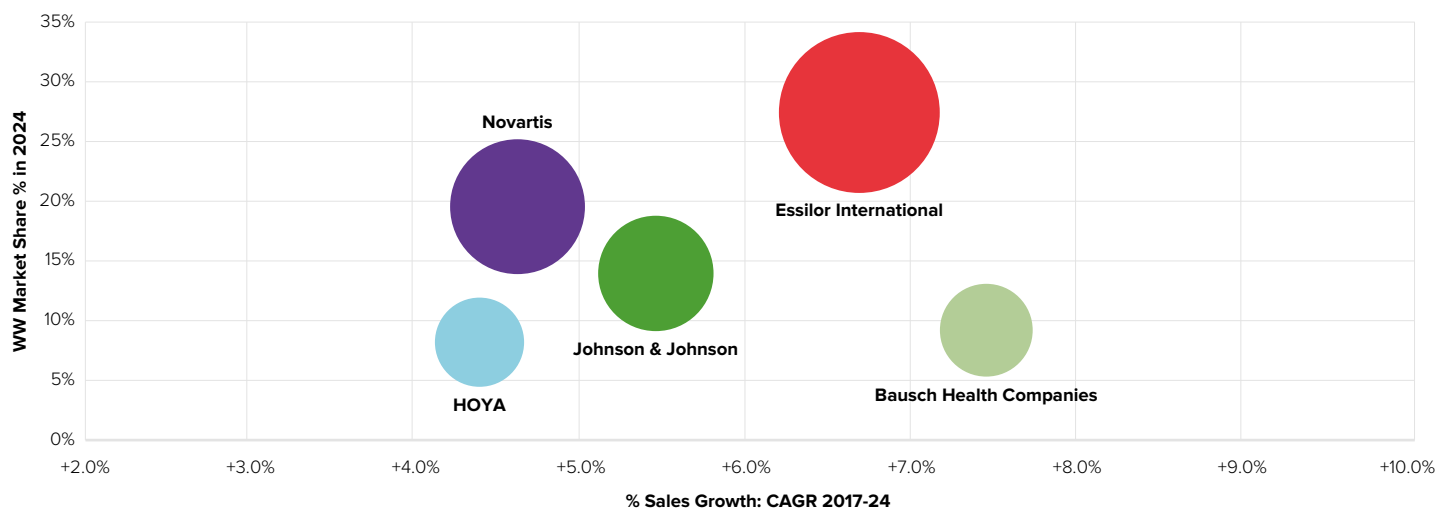
The lens maker Essilor International will continue to dominate the ophthalmics market in 2024 with sales of \$11.6bn, well ahead of \$8.3bn for second-placed Novartis, according to EvaluateMedTech® consensus.

The acquisition of Abbott Medical Optics last year by Johnson & Johnson will allow the latter to retain its third place in 2024, with its ophthalmic sales forecast to reach \$5.9bn.

Meanwhile, Bausch Health Companies (formerly known as Valeant Pharmaceuticals) is forecast to leapfrog HOYA to become the fourth biggest ophthalmic company in 2024.

Worldwide Ophthalmics Sales, Market Share & Sales Growth (2017-2024)

Source: Evaluate, September 2018



Note: Bubble = WW Sales in 2024

Worldwide Ophthalmics Sales: Top 10 Companies & Total Market (2017 & 2024)

Source: Evaluate, September 2018

Rank	Company	WW Sales (\$m)		CAGR 2017-24	WW Market Share		Rank Change 2017-24
		2017	2024		2017	2024	
1.	Essilor International	7,343	11,567	+6.7%	26.5%	27.4%	-
2.	Novartis	6,024	8,273	+4.6%	21.7%	19.6%	-
3.	Johnson & Johnson	4,063	5,898	+5.5%	14.7%	14.0%	-
4.	Bausch Health Companies	2,348	3,886	+7.5%	8.5%	9.2%	+1
5.	HOYA	2,561	3,463	+4.4%	9.2%	8.2%	-1
6.	Carl Zeiss	2,197	3,240	+5.7%	7.9%	7.7%	-
7.	The Cooper Companies	1,674	2,671	+6.9%	6.0%	6.3%	-
8.	TOPCON	417	691	+7.5%	1.5%	1.6%	-
9.	NIDEK	341	513	+6.0%	1.2%	1.2%	-
10.	Glaukos	159	366	+12.6%	0.6%	0.9%	+2
	Top 10	27,128	40,568	+5.9%	97.9%	96.1%	
	Other	592	1,632	+15.6%	2.1%	3.9%	
	Total Industry	27,719	42,200	+6.2%	100.0%	100.0%	



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