



EvaluateMedTech®

World Preview 2015, Outlook to 2020

4th Edition – October 2015

 Evaluate®

Welcome to the EvaluateMedTech® World Preview 2015, Outlook to 2020

Our fourth 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 2020. 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 of leading industry analysts by device area to 2020; the top 20 companies in 2020; R&D spend current and future; FDA approvals; M&A; venture financing; IPOs; and enterprise value. Complimentary copies of the full report can be downloaded at:
www.evaluategroup.com/MedtechWP2015

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

The fourth edition of the EvaluateMedTech® World Preview shows that the total value of the global medtech market is expected to reach \$477.5bn by 2020, growing at an annual rate of 4.1% over the coming five years (pages 8-9). The analysis is based on in-depth forecast models for the top 300 global medtech companies available within EvaluateMedTech®.

Our sales forecast represents the only current consensus view from equity analysts of the medtech market.

Top of the tree

The largest device maker in 2014 was Johnson & Johnson with medtech sales of \$27.5bn, but the industry leader in 2020 will be Medtronic with revenues of \$34.9bn (pages 12-13). The swap of positions is due to the companies' divergent strategies; J&J has been divesting its medtech units whereas Medtronic is one of the most acquisitive companies in the entire sector. Since the announcement of its \$49.9bn purchase of Covidien, the largest deal in the industry's history (pages 29-30), Medtronic has announced a further 11 acquisitions with a total value of around \$1.6bn.

Mergermania

Other companies that have moved up the rankings thanks to megamergers include Becton Dickinson, up seven places to number five in 2020 following its acquisition of CareFusion, and Zimmer Biomet, also up seven places to 13th place in 2020, following the merger of the two companies that make up its name. Indeed, M&A activity has distinguished the first six months of 2015, with the total value of closed medtech mergers topping \$84bn, a 166% rise on the total in H1 2014 (pages 29-30). However, EvaluateMedTech® found that the total number of deals fell by 18% to 93 in H1 2015.

R&D

As well as buying technologies in via takeouts, Medtronic is spending big on in-house research. It is forecast to be the top spender on R&D in 2020, with expenditure of \$2.5bn in 2020 (pages 17-18) – not insignificant considering that the total spent worldwide on medtech R&D is forecast to hit \$29.5bn in 2020 (page 16).

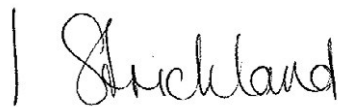
However, in terms of percentage of revenues, diagnostics specialist bioMérieux is expected to invest the most into R&D out of the top 20 companies, with an R&D investment rate of 13.9% in 2020.

Foreword

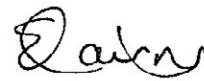
Approvals

Fortunately, the FDA is looking kindly on innovations, whether produced in-house or bought in. The number of first-time PMAs and HDEs awarded by the US FDA increased 43% from 2013 to reach 33 in 2014 – and this rate has continued into 2015 (pages 19-20). During the first eight months of 2015 33 new PMAs and HDEs have been granted, compared with 23 in the same period in 2014 – also an uptick of 43% (pages 21-23).

A huge wave of consolidation crashed over the medtech industry in 2014 and early 2015. While megamergers are still occurring, with luck the immediate future will bring a steady stream of smaller tuck-in M&A deals too. In combination with an increase in FDA approvals for innovative devices, these trends should reward the companies developing the best and most useful technologies.



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Product Manager, EvaluateMedTech®



Elizabeth Cairns
Medtech Reporter, EP Vantage

Analysis Highlights

- Worldwide medtech sales forecast to reach \$477.5bn by 2020
 - Worldwide medtech market forecast to grow more slowly than prescription drug market, with a CAGR of 4.1% between 2014 and 2020 versus 4.9% for pharma
-
- Total medtech M&A deal values rose 166% to \$84bn in H1 2015; 2015 characterised by megamergers
 - Medtronic's acquisition of Covidien for \$49.9bn in January 2015 was the biggest deal in medtech history
 - Johnson & Johnson held on to number one position in 2014 with medtech sales of \$27.5bn....
 -but Medtronic steals the top spot from 2015 onwards following the acquisition of Covidien; the company is forecast to lead the world in 2020 with sales of \$34.9bn
 - Johnson & Johnson retains leading position in the orthopedics market in 2020 with sales forecast to reach \$10.5bn; Zimmer Biomet closes gap following megamerger in June 2015
 - In vitro diagnostics remains number one device area in 2020 with sales of \$67.3bn; Roche continues to lead the sector with 2020 sales forecast to reach \$11.9bn
 - Worldwide medtech R&D expenditure forecast to grow by 3.5% per annum to reach \$29.5bn in 2020
 - Medtronic takes number one spot in list of top medtech R&D spenders in 2020, with expenditure forecast to reach \$2.5bn
 - Of the top 20 companies by R&D spend, bioMérieux spends most in proportion to its sales
 - Number of first-time PMAs and HDEs increased 43% in 2014 to 33; 510(k) clearances up 5% to 3,244
 - FDA approves 30 new PMAs in 2015 to end of August, a 50% increase over the same period in 2014; cardiology dominates
 - Value of venture financing falls 14% in H1 2015; deal count decreases by 13%
 - Medtech IPO activity declines in H1 2015 compared with H1 2014 but still on an upward trend from 2013

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Worldwide Medtech Sales by Device Area in 2020



Worldwide Medtech Sales Forecast to Reach \$477.5bn by 2020; IVD Remains Number One in 2020.

EvaluateMedTech® consensus forecasts find that the combined value of the worldwide medtech industry will reach \$477.5bn by 2020.

With sales in 2014 at \$375.2bn, this represents a 4.1% annual growth rate.

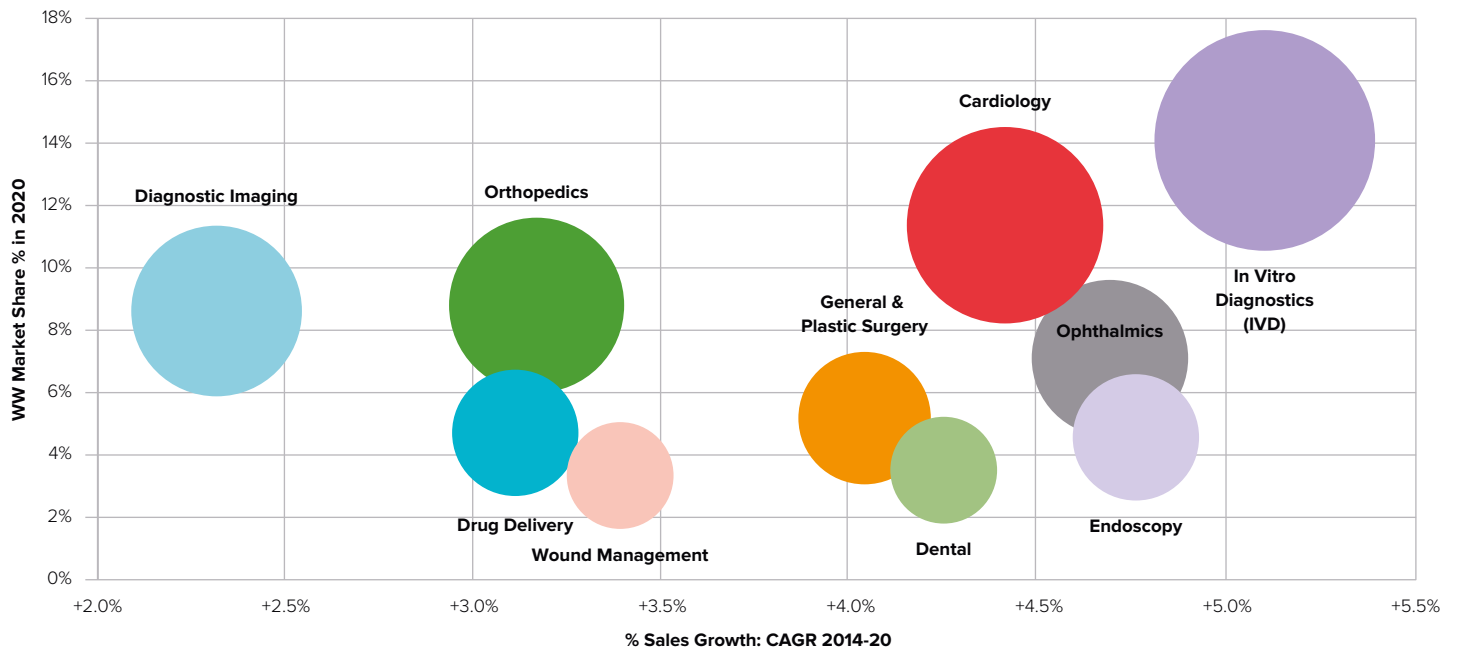
In vitro diagnostics will be the number one device area in 2020, achieving sales of \$67.3bn or a 14.1% share of the medical device

industry. Interestingly, in addition to being the top area it is also the second fastest-growing area in the top 15, with a 5.1% CAGR between 2014 and 2020.

Neurology takes the top spot as the fastest-growing device area, with sales set to expand at an annual rate of 6.9% between 2014 and 2020, reaching \$9.5bn in 2020.

Analysis on Top 10 Device Areas in 2020, Market Share & Sales Growth (2014-20)

Source: EvaluateMedTech® September 2015



Note: Size of Bubble = WW Sales in 2020



WW Medtech Sales by EvaluateMedTech® Device Area: Top 15 Categories & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	WW Sales (\$bn)			WW Market Share			Rank Chg. (+/-)
		2014	2020	CAGR % Growth	2014	2020	Chg. (+/-)	
1.	In Vitro Diagnostics (IVD)	49.9	67.3	+5.1%	13.3%	14.1%	+0.8pp	-
2.	Cardiology	41.9	54.2	+4.4%	11.2%	11.4%	+0.2pp	-
3.	Orthopedics	34.8	42.0	+3.2%	9.3%	8.8%	-0.5pp	+1
4.	Diagnostic Imaging	35.6	40.9	+2.3%	9.5%	8.6%	-0.9pp	-1
5.	Ophthalmics	25.6	33.7	+4.7%	6.8%	7.1%	+0.2pp	-
6.	General & Plastic Surgery	19.4	24.6	+4.0%	5.2%	5.1%	-0.0pp	-
7.	Drug Delivery	18.6	22.3	+3.1%	4.9%	4.7%	-0.3pp	-
8.	Endoscopy	16.3	21.5	+4.8%	4.3%	4.5%	+0.2pp	-
9.	Dental	12.9	16.5	+4.2%	3.4%	3.5%	+0.0pp	+1
10.	Wound Management	12.9	15.8	+3.4%	3.4%	3.3%	-0.1pp	-1
11.	Diabetic Care	11.5	14.4	+3.8%	3.1%	3.0%	-0.1pp	-
12.	Nephrology	11.3	13.5	+3.1%	3.0%	2.8%	-0.2pp	-
13.	Ear, Nose & Throat (ENT)	8.5	11.0	+4.3%	2.3%	2.3%	+0.0pp	+1
14.	General Hospital & Healthcare	8.9	10.9	+3.4%	2.4%	2.3%	-0.1pp	-1
15.	Neurology	6.4	9.5	+6.9%	1.7%	2.0%	+0.3pp	+1
	Top 15	314.4	398.0	+4.0%	83.8%	83.3%	-0.5pp	
	Other	60.8	79.5	+4.6%	16.2%	16.7%	+0.5pp	
	Total WW Medtech Sales	375.2	477.5	+4.1%	100.0%	100.0%		

Note: Analysis is based on the top 300 medtech companies. Sales in 2014 based on company reported data. Sales forecasts to 2020 based on a consensus of leading equity analysts' estimates for segmental sales.

Worldwide Medtech Sales in 2014: Top 20 Companies



Johnson & Johnson Held on to Top Spot in 2014 with Medtech Sales of \$27.5bn.

EvaluateMedTech® finds that Johnson & Johnson remained the number one company in the medtech industry in 2014, achieving medical device sales of \$27.5bn in 2014, a 7.3% market share.

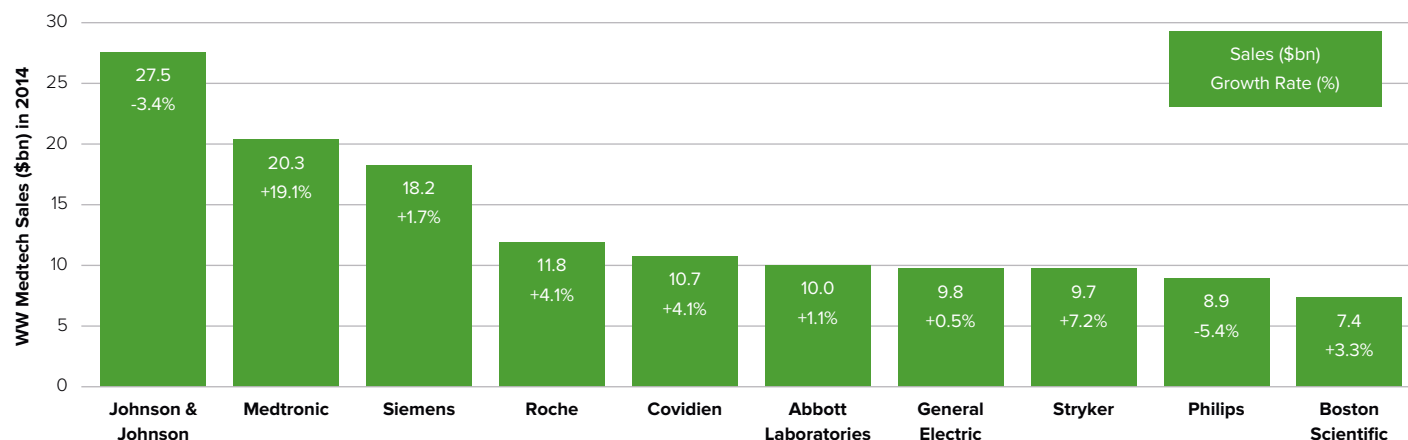
The company's sales actually decreased, dropping 3.4% over the year, largely due to the disposal of its in vitro diagnostics business Ortho Clinical Diagnostics to private equity.

Medtronic took second place with sales of \$20.3bn, representing a 5.4% market share. Medtronic's sales in its fiscal year ending April 2015 grew an impressive 19.1% over the previous year due to the consolidation of three months of sales from Covidien, which it acquired in January 2015.

Baxter also displayed strong growth – 18.5% – between 2013 and 2014 as it consolidated a full year of Gambro's sales for the first time.

WW Medtech Sales: Top 10 Companies (2014)

Source: EvaluateMedTech® September 2015



WW Medtech Sales in 2014: Top 20 Companies & Total Market

Source: EvaluateMedTech® September 2015

Rank	Company	Country	WW Medtech Sales (\$bn)			WW Market Share			Rank
			2013	2014	% Growth	2013	2014	Chg. (+/-)	Chg. (+/-)
1.	Johnson & Johnson	USA	28.5	27.5	-3.4%	7.8%	7.3%	-0.4pp	-
2.	Medtronic	USA	17.0	20.3	+19.1%	4.6%	5.4%	+0.8pp	+1
3.	Siemens	Germany	17.9	18.2	+1.7%	4.9%	4.8%	-0.0pp	-1
4.	Roche	Switzerland	11.3	11.8	+4.1%	3.1%	3.1%	+0.1pp	-
5.	Covidien	USA	10.2	10.7	+4.1%	2.8%	2.8%	+0.0pp	-
6.	Abbott Laboratories	USA	9.9	10.0	+1.1%	2.7%	2.7%	-0.0pp	-
7.	General Electric	USA	9.8	9.8	+0.5%	2.7%	2.6%	-0.0pp	-
8.	Stryker	USA	9.0	9.7	+7.2%	2.5%	2.6%	+0.1pp	+1
9.	Philips	The Netherlands	9.4	8.9	-5.4%	2.6%	2.4%	-0.2pp	-1
10.	Boston Scientific	USA	7.1	7.4	+3.3%	1.9%	2.0%	+0.0pp	-
11.	Danaher	USA	7.0	7.3	+5.0%	1.9%	2.0%	+0.0pp	-
12.	Becton Dickinson	USA	7.0	7.3	+4.8%	1.9%	1.9%	+0.0pp	+1
13.	B. Braun Melsungen	Germany	6.9	7.2	+5.0%	1.9%	1.9%	+0.0pp	+1
14.	Baxter International	USA	5.9	7.0	+18.5%	1.6%	1.9%	+0.3pp	+2
15.	Novartis	Switzerland	7.0	6.6	-4.9%	1.9%	1.8%	-0.1pp	-3

Top 16-20 continued over...

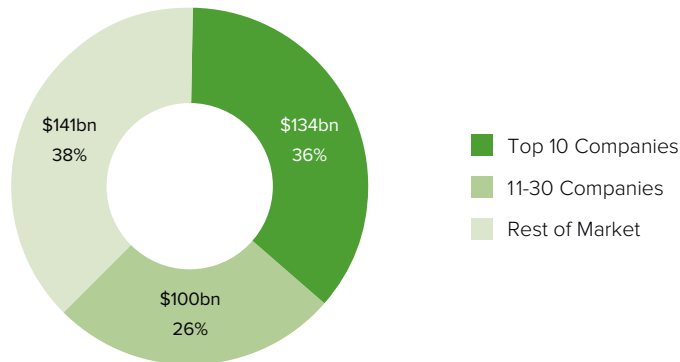


Source: EvaluateMedTech® September 2015

Rank	Company	Country	WW Medtech Sales (\$bn)			WW Market Share			Rank
			2013	2014	% Growth	2013	2014	Chg. (+/-)	Chg. (+/-)
16.	Essilor International	France	6.0	6.6	+10.3%	1.6%	1.8%	+0.1pp	-1
17.	St. Jude Medical	USA	5.5	5.6	+2.2%	1.5%	1.5%	-0.0pp	-
18.	3M	USA	5.1	5.3	+4.5%	1.4%	1.4%	+0.0pp	-
19.	Olympus	Japan	4.9	5.1	+3.8%	1.3%	1.4%	+0.0pp	-
20.	Zimmer Biomet	USA	4.6	4.7	+1.1%	1.3%	1.2%	-0.0pp	-
Total Top 20			190.0	197.0	+3.7%	51.9%	52.5%	+0.6pp	
Other			176.4	178.2	+1.1%	48.1%	47.5%	-0.6pp	
Total			366.3	375.2	+2.4%	100.0%	100.0%		

Percentage Composition of WW Medtech Market in 2014

Source: EvaluateMedTech® September 2015



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

Worldwide Medtech Sales in 2020: Top 20 Companies



Medtronic to Steal Top Spot from Johnson & Johnson; Becton Dickinson Leaps into Top Five.

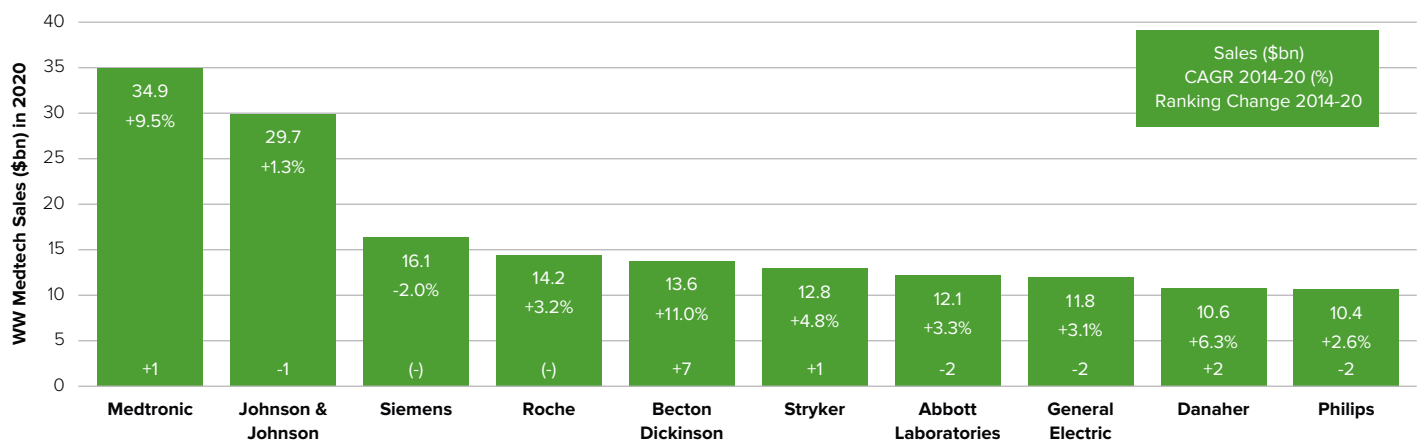
EvaluateMedTech® consensus forecasts find that Medtronic will be the number one medtech company in 2020, with revenues of \$34.9bn, a 7.3% share of the entire medical device market. Following the acquisition of Covidien in January 2015 for \$49.9bn, Medtronic has knocked Johnson & Johnson from the top spot, a position it had held every year in recent memory.

The megamergers of 2015 shake up the company rankings in 2020 further with Becton Dickinson jumping seven places to number five following its acquisition of CareFusion in March 2015. Zimmer Biomet ranks 13th in 2020, following the merger of the two companies in June 2015. This is a rise of seven places from Zimmer's position in 2014.

Excluding those companies involved in significant M&A activity, most companies' forecasts in 2020 have fallen in dollar terms compared with the values in last year's World Preview. This can largely be explained by the depreciation of the euro against the dollar in 2015.

WW Medtech Sales: Top 10 Companies (2020)

Source: EvaluateMedTech® September 2015



WW Medtech Sales: Top 20 Companies & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	Country	WW Medtech Sales (\$bn)			2020 Change vs. Sep 14 (\$bn)	WW Market Share			Rank Chg. (+/-)
			2014	2020	% CAGR 14-20		2014	2020	Chg. (+/-)	
1.	Medtronic	USA	20.3	34.9	+9.5%	+12.9	5.4%	7.3%	+1.9pp	+1
2.	Johnson & Johnson	USA	27.5	29.7	+1.3%	-3.1	7.3%	6.2%	-1.1pp	-1
3.	Siemens	Germany	18.2	16.1	-2.0%	-7.9	4.8%	3.4%	-1.5pp	-
4.	Roche	Switzerland	11.8	14.2	+3.2%	-1.0	3.1%	3.0%	-0.2pp	-
5.	Becton Dickinson	USA	7.3	13.6	+11.0%	+4.2	1.9%	2.8%	+0.9pp	+7
6.	Stryker	USA	9.7	12.8	+4.8%	-0.3	2.6%	2.7%	+0.1pp	+1
7.	Abbott Laboratories	USA	10.0	12.1	+3.3%	-1.6	2.7%	2.5%	-0.1pp	-2
8.	General Electric	USA	9.8	11.8	+3.1%	-0.2	2.6%	2.5%	-0.1pp	-2
9.	Danaher	USA	7.3	10.6	+6.3%	+1.0	2.0%	2.2%	+0.3pp	+2
10.	Philips	The Netherlands	8.9	10.4	+2.6%	-1.1	2.4%	2.2%	-0.2pp	-2
11.	Boston Scientific	USA	7.4	9.5	+4.4%	+0.3	2.0%	2.0%	+0.0pp	-1
12.	Essilor International	France	6.6	9.5	+6.3%	-0.9	1.8%	2.0%	+0.2pp	+4
13.	Zimmer Biomet	USA	4.7	8.6	+10.7%	+2.7	1.2%	1.8%	+0.6pp	+7
14.	Baxter International	USA	7.0	8.2	+2.5%	-1.1	1.9%	1.7%	-0.2pp	-
15.	Novartis	Switzerland	6.6	8.1	+3.4%	-0.9	1.8%	1.7%	-0.1pp	-

Top 16-20 continued over...

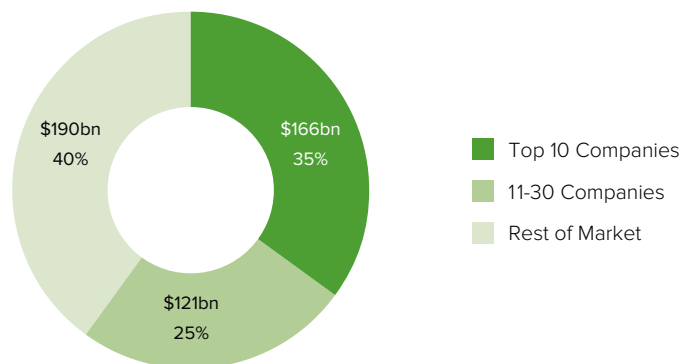


Source: EvaluateMedTech® September 2015

Rank	Company	Country	WW Medtech Sales (\$bn)			2020 Change vs. Sep 14 (\$bn)	WW Market Share			Rank Chg. (+/-)
			2014	2020	% CAGR 14-20		2014	2020	Chg. (+/-)	
16.	B. Braun Melsungen	Germany	7.2	8.0	+1.7%	-1.2	1.9%	1.7%	-0.2pp	-3
17.	St. Jude Medical	USA	5.6	7.0	+3.7%	-0.6	1.5%	1.5%	-0.0pp	-
18.	Olympus	Japan	5.1	6.7	+4.7%	-1.2	1.4%	1.4%	+0.0pp	+1
19.	3M	USA	5.3	6.7	+3.8%	-0.4	1.4%	1.4%	-0.0pp	-1
20.	Smith & Nephew	United Kingdom	4.6	5.9	+4.2%	-0.5	1.2%	1.2%	+0.0pp	+2
Total Top 20			191.0	244.4	+4.2%	-1.1	50.9%	51.2%	+0.3pp	
Other			184.3	233.1	+4.0%		49.1%	48.8%	-0.3pp	
Total			375.2	477.5	+4.1%		100.0%	100.0%		

Percentage Composition of WW Medtech Market in 2020

Source: EvaluateMedTech® September 2015



Note: Analysis is based on the top 300 medtech companies. Sales in 2014 based on company reported data. Sales forecasts to 2020 based on a consensus of leading equity analysts' estimates for segmental sales.

Worldwide Medtech vs. Prescription Drug Sales (2007-20)



Worldwide Prescription Drug Market Growth to Outstrip Medtech Market to 2020.

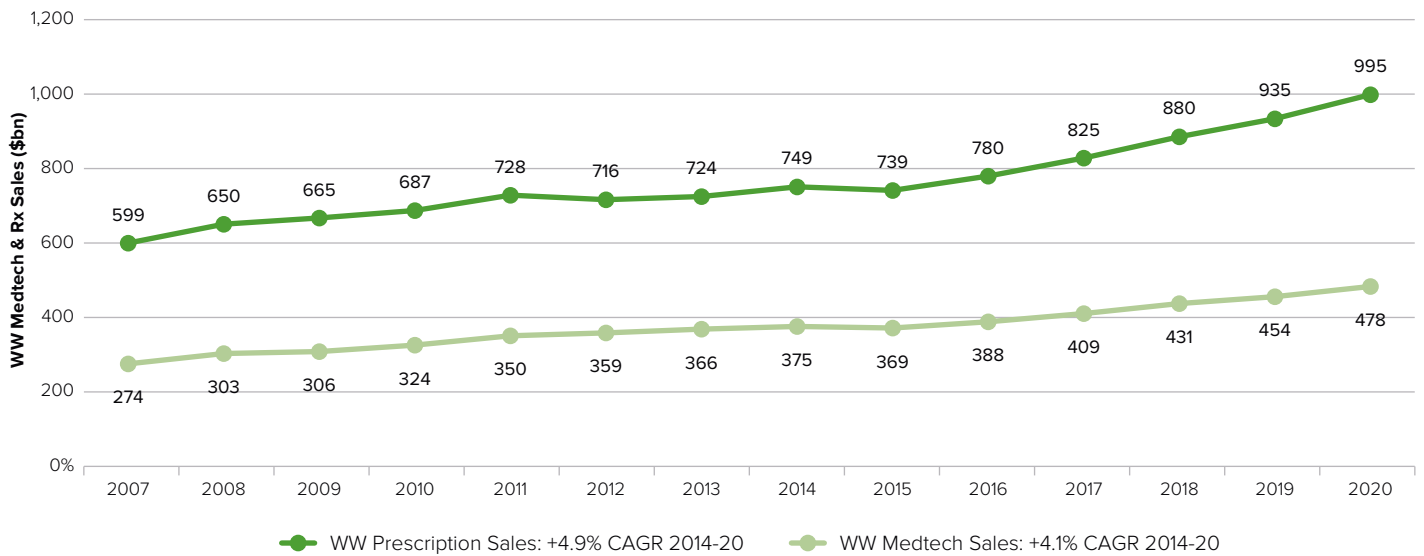
EvaluateMedTech® and EvaluatePharma® consensus forecasts find that the worldwide prescription drug market is forecast to grow at a faster rate than the medtech market between 2014 and 2020. The market for prescription pharmaceuticals is forecast to grow by 4.9%

per annum across those six years, compared with the 4.1% growth rate the medtech market is expected to achieve.

Both industries are forecast to contract in dollar terms in 2015 as a result of the weakness in the euro as US companies recognise fewer dollars for their sales in the eurozone.

WW Medtech vs Prescription Drug Sales (2007-20)

Source: EvaluateMedTech® September 2015



WW Growth Rate: Medtech vs. Prescription Drug Sales (2008-20)

Source: EvaluateMedTech® September 2015





WW Medtech vs. Prescription Drug Sales (2007-20)

Source: EvaluateMedTech® September 2015

Year	WW Sales (\$bn)													
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
WW Medtech Sales	274	303	306	324	350	359	366	375	369	388	409	431	454	478
Growth per Year		+10.4%	+1.2%	+5.7%	+8.1%	+2.6%	+2.0%	+2.4%	-1.8%	+5.2%	+5.5%	+5.5%	+5.2%	+5.2%
Medtech as % of Rx	45.7%	46.5%	46.0%	47.1%	48.1%	50.1%	50.6%	50.1%	49.9%	49.7%	49.6%	49.0%	48.6%	48.0%
WW Prescription (Rx)	599	650	665	687	728	716	724	749	739	780	825	880	935	995
Growth per Year		+8.5%	+2.3%	+3.3%	+6.0%	-1.7%	+1.0%	+3.5%	-1.2%	+5.5%	+5.8%	+6.7%	+6.1%	+6.5%

+4.1% (CAGR) WW Medtech Sales 2014-20

+4.9% (CAGR) WW Prescription Drug Sales 2014-20

Note: Prescription drug sales based on top 500 pharmaceutical and biotech companies from EvaluatePharma®. Sales to 2014 based on company reported sales data. Sales forecasts to 2020 based on a consensus of leading equity analysts' estimates for segmental sales.

Worldwide Medtech R&D Spend (2007-20)



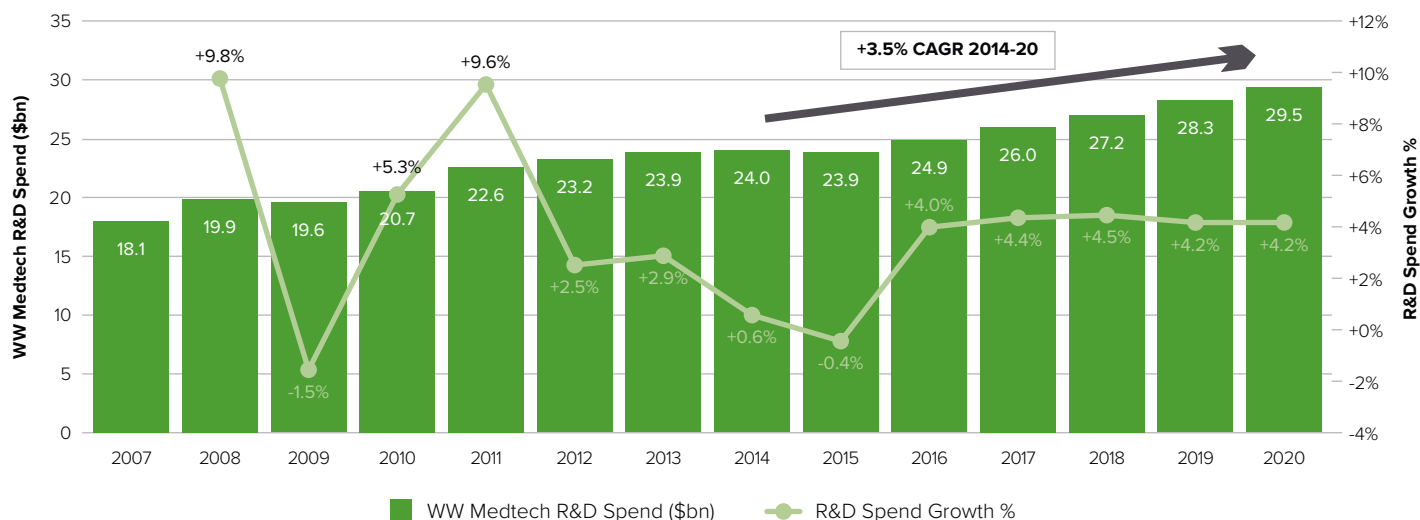
Worldwide Medtech R&D Expenditure Forecast to Grow by 3.5% Per Annum to \$29.5bn in 2020.

EvaluateMedTech® consensus forecasts find that medtech companies worldwide will spend a combined \$29.5bn on R&D in 2020.

The annual growth rate from 2014 to 2020 will be 3.5%; as noted in last year's World Preview, this is a lower growth rate than that forecast for medtech sales. This means that the R&D investment rate will fall, from 6.4% in 2014 to 6.2% in 2020.

WW Medtech R&D Spend (2007-20)

Source: EvaluateMedTech® September 2015



WW Medtech R&D Spend (2007-20)

Source: EvaluateMedTech® September 2015

Year	WW Sales (\$bn)													
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Medtech R&D Spend	18.1	19.9	19.6	20.7	22.6	23.2	23.9	24.0	23.9	24.9	26.0	27.2	28.3	29.5
R&D Spend Growth %		+9.8%	-1.5%	+5.3%	+9.6%	+2.5%	+2.9%	+0.6%	-0.4%	+4.0%	+4.4%	+4.5%	+4.2%	+4.2%
WW Medtech Sales	274.2	302.6	306.3	323.8	349.9	359.0	366.3	375.2	368.7	387.8	409.1	431.5	454.0	477.5
R&D as % of Medtech Sales	+6.6%	+6.6%	+6.4%	+6.4%	+6.5%	+6.5%	+6.5%	+6.4%	+6.5%	+6.4%	+6.4%	+6.3%	+6.2%	+6.2%
R&D as % of Medtech Sales (Top 20 in 2020)								7.9%						7.7%

+3.5% (CAGR) Medtech R&D Spend 2014-20

+4.1% (CAGR) Medtech R&D Spend 2007-14

\$114bn Cumulative 5 year R&D Spend (2010-14)

Note: Analysis is based on the Top 300 medtech companies. R&D spend in 2014 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. Notable omission: 3M.

Medtech R&D Spend in 2020: Top 20 Companies



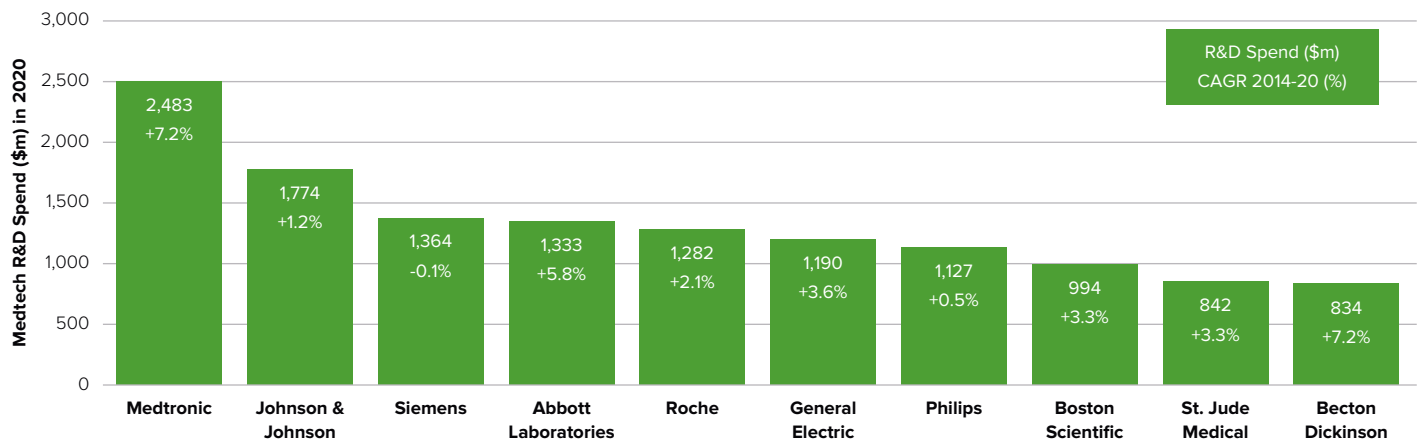
Medtronic Takes Number One Spot in List of Top Medtech R&D Spenders in 2020.

EvaluateMedTech® consensus forecasts find that, following its acquisition of Covidien in January 2015, Medtronic is expected to take the number one spot from Johnson & Johnson in terms of R&D spend in 2020. Medtronic's R&D expenditure is forecast to reach \$2.5bn in 2020, growing at 7.2% CAGR between 2014 and 2020.

Of the top 20 R&D spenders, bioMérieux is expected to invest the most into R&D as a percentage of sales, with an R&D investment rate of 13.9% in 2020. Essilor, the eye glass lens specialist, is forecast to invest the least into R&D as a percentage of sales in 2020, with an R&D investment rate of just 3.8%.

WW Medtech R&D Spend: Top 10 Companies (2020)

Source: EvaluateMedTech® September 2015



WW Medtech R&D Spend: Top 20 Companies & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	Medtech R&D (\$m)			2020 Change vs. Sep 14 (\$m)	R&D As a % of Medtech Sales			Rank Chg. (+/-)
		2014	2020	CAGR 14-20		2014	2020	Chg. (+/-)	
1.	Medtronic	1,640	2,483	+7.2%	+640	8.1%	7.1%	-1.0pp	+1
2.	Johnson & Johnson	1,652	1,774	+1.2%	-296	6.0%	6.0%	-0.0pp	-1
3.	Siemens	1,370	1,364	-0.1%	-704	7.5%	8.5%	+1.0pp	-
4.	Abbott Laboratories	953	1,333	+5.8%	+66	9.4%	10.9%	+1.5pp	+3
5.	Roche	1,134	1,282	+2.1%	-4	9.6%	9.0%	-0.6pp	-1
6.	General Electric	961	1,190	+3.6%	+49	9.8%	10.1%	+0.3pp	-
7.	Philips	1,092	1,127	+0.5%	-128	8.9%	7.9%	-1.1pp	-2
8.	Boston Scientific	817	994	+3.3%	-12	11.1%	10.4%	-0.7pp	-
9.	St. Jude Medical	692	842	+3.3%	-73	12.3%	12.1%	-0.2pp	-
10.	Becton Dickinson	550	834	+7.2%	+173	7.5%	6.1%	-1.4pp	+1
11.	Stryker	614	779	+4.0%	-22	6.3%	6.1%	-0.3pp	-1
12.	Baxter International	346	670	+11.6%	n/a	4.9%	8.2%	+3.3pp	+3
13.	Danaher	494	660	+5.0%	-101	6.7%	6.2%	-0.5pp	-1
14.	Edwards Lifesciences	347	484	+5.7%	+61	14.9%	13.6%	-1.3pp	-
15.	Zimmer Biomet	188	370	+11.9%	+126	4.0%	4.3%	+0.3pp	+15

Top 16-20 continued over...



Source: EvaluateMedTech® September 2015

Rank	Company	Medtech R&D (\$m)			2020 Change vs. Sep 14 (\$bn)	R&D As a % of Medtech Sales			Rank Chg. (+/-)
		2014	2020	CAGR 14-20		2014	2020	Chg. (+/-)	
16.	Essilor International	250	357	+6.1%	-24	3.8%	3.8%	-0.0pp	+6
17.	Terumo	269	349	+4.4%	-107	6.8%	7.1%	+0.3pp	+3
18.	B. Braun Melsungen	304	337	+1.7%	-53	4.2%	4.2%	+0.0pp	-2
19.	bioMérieux	273	316	+2.5%	-14	15.1%	13.9%	-1.2pp	-1
20.	C. R. Bard	266	312	+2.7%	-11	8.0%	7.5%	-0.5pp	+1
	Total Top 20	14,212	17,855	+3.9%	-433	7.9%	7.7%	-0.2pp	
	Other	9,810	11,646	+2.9%					
	Total	24,022	29,501	+3.5%		6.4%	6.2%		

Note: Analysis is based on the top 300 medtech companies. R&D spend in 2014 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. Notable omission: 3M. Baxter's 2020 forecast not available from last year's report as medical device R&D not previously disclosed.



Number of First-Time PMAs and HDEs Increased 43% in 2014 to 33; 510(k) Clearances up 5% to 3,244.

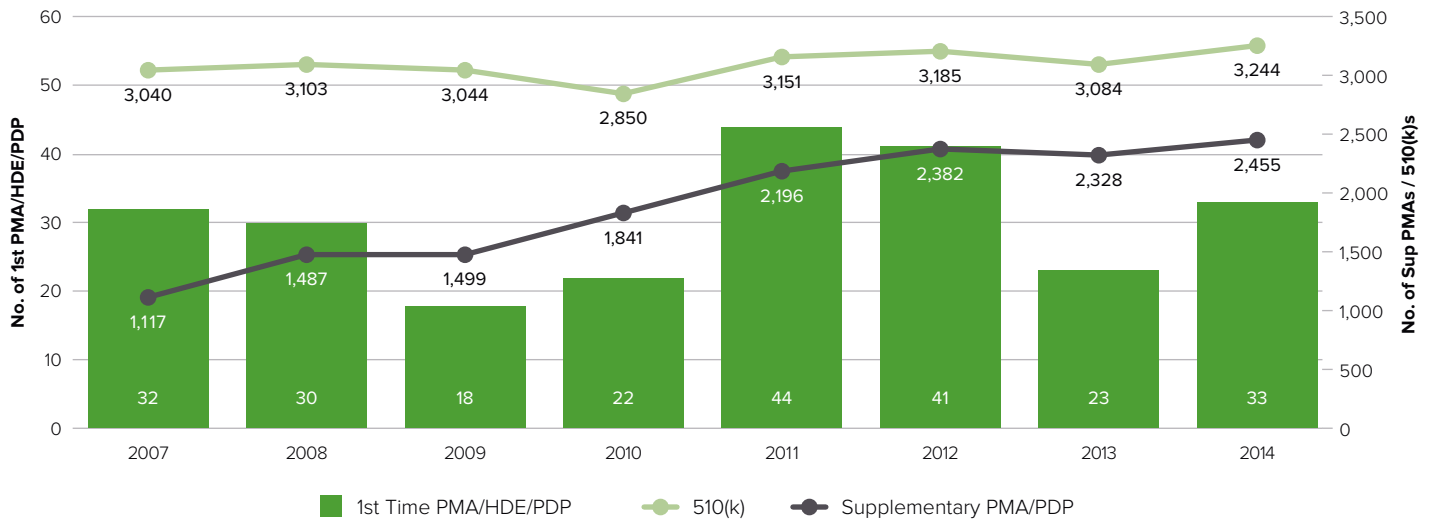
EvaluateMedTech® found that the FDA granted 33 new first-time device approvals – PMAs, HDEs and PDPs – in 2014, an increase of 43% from the 2013 figure of 23. Although this demonstrates a welcome increase in the number of approvals, the 2014 figure has

not matched the 40-plus approvals that were granted in 2011 and 2012. 510(k) clearances increased by 5% to 3,244 in 2014.

Medtronic once again had the highest number of approvals and clearances in 2014, with 831. This was more than double the number obtained by Boston Scientific, in second place with 396.

Count of 1st PMA/HDE/PDPs, 510(k)s & Supplementary PMA/PDPs Per Year (2007-14)

Source: EvaluateMedTech® September 2015



Count of 1st PMA/HDE/PDPs, 510(k)s & Supplementary PMA/PDPs (2007-14)

Source: EvaluateMedTech® September 2015

Year	2007	2008	2009	2010	2011	2012	2013	2014
1st Time PMA/ HDE/ PDP	32	30	18	22	44	41	23	33
% Chg.		-6%	-40%	+22%	+100%	-7%	-44%	+43%
Supplementary PMA/ PDP	1,117	1,487	1,499	1,841	2,196	2,382	2,328	2,455
% Chg.		+33%	+1%	+23%	+19%	+8%	-2%	+5%
510(k)	3,040	3,103	3,044	2,850	3,151	3,185	3,084	3,244
% Chg.		+2%	-2%	-6%	+11%	+1%	-3%	+5%
Total	4,189	4,620	4,561	4,713	5,391	5,608	5,435	5,732
% Chg.		+10%	-1%	+3%	+14%	+4%	-3%	+5%



Count of PMA/HDE/PDPs, 510(k)s & Medtech R&D Spend (2014)

Source: EvaluateMedTech® September 2015

Rank	Company	PMA/HDEs - First Approval	PMA/PDPs - Suppl.	510(k) Clearance	Total Approvals	2014 R&D Spend (\$m)
1.	Medtronic	3	743	85	831	1,640
2.	Boston Scientific	1	355	40	396	817
3.	Johnson & Johnson	1	116	56	173	1,652
4.	St. Jude Medical	2	139	13	154	692
5.	Abbott Laboratories	1	132	10	143	953
6.	Zimmer Biomet	0	18	71	89	188
7.	Edwards Lifesciences	1	73	10	84	347
8.	Roche	1	61	22	84	1,134
9.	W. L. Gore & Associates	0	71	1	72	n/a
10.	Siemens	1	5	64	70	1,370
Total		33	2,455	3,244	5,732	

Note: Based on Devices@FDA data, which is integrated within EvaluateMedTech®.

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.

Note: W. L. Gore & Associates R&D spend is not disclosed

2015 FDA First-Time PMAs, HDEs and 510(k) De Novo Clearances



FDA Approves 30 New PMAs in 2015 to End of August, Representing a 50% Increase Over 2014; Cardiology Dominates.

EvaluateMedTech® found that the FDA had approved 30 first-time PMAs and three HDEs in 2015 to 31st August, representing a 50% increase over the 20 first-time PMAs approved in the same period last year.

Interestingly amongst these there is only one approval for a molecular diagnostic, an area which has seen many approvals in recent years. Cardiology, perhaps unsurprisingly, accounts for more than one third of the PMA approvals.

Over the same time period there were ten 510(k) de novo approvals, as companies increasingly adopt this newer route to market.

2015 FDA First-Time PMAs (to 31 August 2015)

Source: EvaluateMedTech® September 2015

EvaluateMedTech® Device Classification							
Level 1	Level 2	Level 3	Decision Date	FDA Review Time (mths)	Company	Product Code Name	Device Name (Approval Code)
Cardiology	Cardiac Assist Devices	Cardiovascular Therapeutic Devices	06 Mar 15	44.7	Advanced Circulatory Systems	Combination Compression/Decompression Manual Chest Pump With Impedance Respiratory Valve	RESQCPR SYSTEM (P110024)
Cardiology	Cardiac Prosthetic Devices	Transcatheter Heart Valves	17 Jun 15	5.8	Edwards Lifesciences	Aortic Valve, Prosthesis, Percutaneously Delivered	SAPIEN 3 TRANSCATHETER HEART VALVE AND ACCESSORIES (P140031)
Cardiology	Cardiac Prosthetic Devices	Transcatheter Heart Valves	27 Jan 15	5.2	Medtronic	Pulmonary Valve Prosthesis Percutaneously Delivered	MELODY TRANSCATHETER PULMONARY VALVE (TPV), ENSEMBLE TRANSCATHETER VALVE DELIVERY SYSTEM (DS) (P140017)
Cardiology	Cardiac Rhythm Management (CRM)	Pacemakers	30 Apr 15	23.5	Greatbatch	Permanent Pacemaker Electrode	MYOPORE SUTURELESS MYOCARDIAL PACING LEAD (P130012)
Cardiology	Cardiac Rhythm Management (CRM)	Pacemakers	27 Apr 15	23.4	Medtronic	Permanent Pacemaker Electrode	MODEL 5071 LEAD (P120017)
Cardiology	Cardiovascular Surgical Devices	Cardiopulmonary Bypass Devices	23 Mar 15	12.1	Abiomed	Temporary Non-Roller Type Cardiac Support Blood Pump	IMPELLA (P140003)
Cardiology	Cardiovascular Surgical Devices	Vascular Closure Devices	20 Feb 15	5.9	Medtronic	Agent, Occluding, Vascular, Permanent	VENASEAL CLOSURE SYSTEM (P140018)
Cardiology	Interventional Cardiology	Left Atrial Appendage (LAA) Closure Devices	13 Mar 15	22.0	Boston Scientific	System, Appendage Closure, Left Atrial	WATCHMAN LEFT ATRIAL APPENDAGE (LAA) CLOSURE TECHNOLOGY (P130013)
Cardiology	Interventional Cardiology	Peripheral Vascular Devices	21 Jul 15	7.3	Boston Scientific	Stent, Superficial Femoral Artery	INNOVA VASCULAR SELF-EXPANDING STENT WITH DELIVERY SYSTEM (P140028)
Cardiology	Interventional Cardiology	Peripheral Vascular Devices	22 May 15	14.4	Terumo	Stent, Superficial Femoral Artery	MISAGO PERIPHERAL SELF-EXPANDING STENT SYSTEM (P140002)
Cardiology	Interventional Cardiology	Peripheral Vascular Devices	18 May 15	5.9	Silk Road Medical	Stent, Carotid	ENROUTE TRANSCAROTID STENT SYSTEM (P140026)
Diagnostic Imaging	Computed Tomography (CT)	Other Computed Tomography (CT)	21 Apr 15	9.8	Siemens	Digital Breast Tomosynthesis	MAMMOMAT INSPIRATION WITH TOMOSYNTHESIS OPTION (P140011)
Diagnostic Imaging	X-ray Systems	Mammography Equipment	14 Jan 15	13.1	Koning	Cross-Sectional Mammographic Xray System	KONING BREAST CT (MODEL CBCT1000) (P130025)
Gastroenterology	Gastrointestinal Therapeutic Devices	Bariatric Surgery Devices	05 Aug 15	15.1	Apollo Endosurgery	Implant, Intra-gastric For Morbid Obesity	ORBERA INTRAGASTRIC BALLOON (P140008)

continued over...



2015 FDA First-Time PMAs (to 31 August 2015) contd.

Source: EvaluateMedTech* September 2015

EvaluateMedTech* Device Classification							
Level 1	Level 2	Level 3	Decision Date	FDA Review Time (mths)	Company	Product Code Name	Device Name (Approval Code)
Gastroenterology	Gastrointestinal Therapeutic Devices	Bariatric Surgery Devices	28 Jul 15	12.9	ReShape Medical	Implant, Intra gastric For Morbid Obesity	RESHAPE INTEGRATED DUAL BALLOON SYSTEM (P140012)
In Vitro Diagnostics (IVD)	Clinical Chemistry	Other Test Systems	06 Apr 15	47.8	Advanced Breath Diagnostics	Gastric Emptying Breath Test	GASTRIC EMPTYING BREATH TEST (GEBT) (P110015)
In Vitro Diagnostics (IVD)	Histology & Cytology	Immunohistochemistry	12 Jun 15	6.9	Roche	Immunohistochemistry Assay, Antibody, Anaplastic Lymphoma Kinase	VENTANA ALK (D5F3) CDX ASSAY (P140025)
In Vitro Diagnostics (IVD)	Immunoassays	Viral Immunoassays	11 Jun 15	7.8	Roche	Assay, Enzyme Linked Immunosorbent, Hepatitis C Virus	ELECSYS ANTI-HCV II IMMUNOASSAY, ELECSYS PRECICONTROL ANTI-HCV (P140021)
In Vitro Diagnostics (IVD)	Immunoassays	Viral Immunoassays	08 Jun 15	15.1	Siemens	Test, HIV Detection	ADVIA CENTAUR HIV AG/ AB COMBO (CHIV) ASSAY (BP140103)
In Vitro Diagnostics (IVD)	Molecular Diagnostics	Oncology Molecular Diagnostics	07 May 15	6.4	Roche	Somatic Gene Mutation Detection System	COBAS KRAS MUTATION TEST (P140023)
Neurology	Neurology Surgical Devices	Neurosurgical Assist Devices	30 Mar 15	22.5	HyperBranch Medical Technology	Sealant, Dural	ADHERUS AUTOSPRAY DURAL SEALANT (P130014)
Neurology	Neuromodulation Devices	Deep Brain Stimulation Devices	12 Jun 15	13.2	St. Jude Medical	Stimulator, Electrical, Implanted, For Parkinsonian Tremor	BRIO NEUROSTIMULATION SYSTEM (P140009)
Neurology	Neuromodulation Devices	Neuromuscular Stimulation Devices	14 Jan 15	18.7	EnteroMedics	Neuromodulator For Obesity	MAESTRO RECHARGEABLE SYSTEM (P130019)
Neurology	Neuromodulation Devices	Spinal Cord Stimulation Devices	08 May 15	19.1	Nevro	Stimulator, Spinal-Cord, Totally Implanted For Pain Relief	NEVRO SENZA SPINAL CORD STIMULATION (SCS) SYSTEM (P130022)
Obstetrics & Gynecology (OB/GYN)	Obstetrics & Gynecology (OB/GYN) Therapeutic Devices	Endometrial Ablation Devices	27 Jul 15	12.5	Minerva Surgical	Device, Thermal Ablation, Endometrial	MINERVA ENDOMETRIAL ABLATION SYSTEM (P140013)
Ophthalmics	Ophthalmic Prosthetic Devices	Other Ophthalmic Prosthetic Devices	17 Apr 15	28.1	AcuFocus	Implant, Corneal, Refractive	KAMRA INLAY (P120023)
Orthopedics	Orthobiologics	Viscosupplementation	28 Aug 15	5.9	Fidia Farmaceutici	Acid, Hyaluronic, Intraarticular	HYMOVIS (P150010)
Orthopedics	Spinal Devices	Artificial Discs	11 Jun 15	29.8	B. Braun Melsungen	Prosthesis, Intervertebral Disc	ACTIVL ARTIFICIAL DISC (P120024)
Orthopedics	Spinal Devices	Other Spinal Devices	20 May 15	13.6	Vertiflex	Prosthesis, Spinous Process Spacer/Plate	SUPERION INTERSPINOUS SPACER (P140004)
Wound Management	Wound Closure Devices	Adhesive Wound Closure Devices	03 Feb 15	14.7	Cohera Medical	Tissue Adhesive For Internal Use	COHERA MEDICAL TISSUGLU (P130023)
Average PMA FDA Review Time (mths)				16.1			



2015 FDA Humanitarian Device Exemptions (HDEs) (to 31 August 2015)

Source: EvaluateMedTech* September 2015

EvaluateMedTech* Device Classification							
Level 1	Level 2	Level 3	Decision Date	FDA Review Time (mths)	Company	Product Code Name	Device Name (Approval Code)
Cardiology	Cardiac Assist Devices	Ventricular Assist Devices	23 Jan 15	4.4	Abiomed	Right Ventricular Bypass (Assist) Device	IMPELLA RP SYSTEM (H140001)
Nephrology	Dialysis	Hemodialysis	05 Mar 15	25.1	Kaneka	Beta 2-Microglobulin Apheresis Column	KANEKA LIXELLE® B2-MICROGLOBULIN APHERESIS COLUMN (H130001)
Physical Medicine	Mobility Aid Devices	Lower Limb Prosthesis	16 Jul 15	80.9	Integrum	Transfemoral Percutaneous Prosthetic	OSSEOANCHORED PROSTHESES FOR THE REHABILITATION OF AMPUTEES (OPRA) DEVICE (H080004)
Average HDE FDA Review Time (mths)				36.8			

2015 FDA 510(k) De Novo Clearances (to 31 August 2015)

Source: EvaluateMedTech* September 2015

EvaluateMedTech* Device Classification							
Level 1	Level 2	Level 3	Decision Date	FDA Review Time (mths)	Company	Product Code Name	Device Name (Approval Code)
Cardiology	Cardiac Assist Devices	Thermal Regulating Devices	23 Jun 15	13.5	Advanced Cooling Therapy	Esophageal Thermal Regulation And Gastric Suctioning Device	ESOPHAGEAL COOLING DEVICE (DEN140018)
Diabetic Care	Glucose Monitoring Devices	Glucose Test Systems	23 Jan 15	1.3	DexCom	Continuous Glucose Monitor Secondary Display	DEXCOM SHARE DIRECT SECONDARY DISPLAYS (DEN140038)
Gastroenterology	Gastrointestinal Therapeutic Devices	Rectal Devices	12 Feb 15	7.7	Pelvalon	Dynamic Rectal Control System	ECLIPSE SYSTEM (DEN140020)
Gastroenterology	Gastrointestinal Therapeutic Devices	Other Gastrointestinal Therapeutic Devices	06 Mar 15	15.7	Somna Therapeutics	External Upper Esophageal Sphincter (Ues) Compression Device	REZA BAND(TM) UPPER ESOPHAGEAL (UES) SPHINCTER ASSIST DEVICE (DEN130046)
In Vitro Diagnostics (IVD)	Clinical Chemistry	Clinical Laboratory Instruments	09 Apr 15	3.8	Werfen Group	Automated Indirect Immunofluorescence Microscope And Software-Assisted System For Clinical Use	NOVA VIEW AUTOMATED FLUORESCENCE MICROSCOPE (DEN140039)
In Vitro Diagnostics (IVD)	Molecular Diagnostics	Other Molecular Diagnostics	19 Feb 15	8.7	23andMe	Autosomal Recessive Carrier Screening Gene Mutation Detection System	23ANDME PERSONAL GENOME SERVICE (HEREINAFTER KNOWN AS PGS) (DEN140044)
Neurology	Neurology Diagnostic Devices	Other Neurology Diagnostic Devices	05 Jun 15	23.8	Cerebral Assessment Systems	Computerized Cognitive Assessment Aid	COGNIVUE (DEN130033)
Ophthalmics	Ophthalmic Prosthetic Devices	Other Ophthalmic Prosthetic Devices	18 Jun 15	22.4	Wicab	Oral Electronic Vision Aid	BRAINPORT V100 DEVICE (DEN130039)
Radiology	Radiation Therapy Systems	Other Radiology Devices	01 Apr 15	6.0	Augmenix	Hydrogel Spacer	SPACEOR SYSTEM (DEN140030)
Urology	Male Urology Devices	Other Male Urology Devices	20 Mar 15	16.0	Ergon Medical	Vibrator For Climax Control Of Premature Ejaculation	PROLONG (DEN130047)
Average 510(k) De Novo FDA Review Time (mths)				11.9			

Note: Based on Devices@FDA data, which is integrated within EvaluateMedTech*.

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

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

510(k) De Novo Clearance: a device which poses a low risk and could ordinarily be cleared via the 510(k) route, but which is sufficiently innovative that no existing device may be used as a predicate.

In Vitro Diagnostics (IVD) Market to 2020



Roche Continues Domination of IVD Field; 2020 Sales Forecast to Reach \$11.9bn.

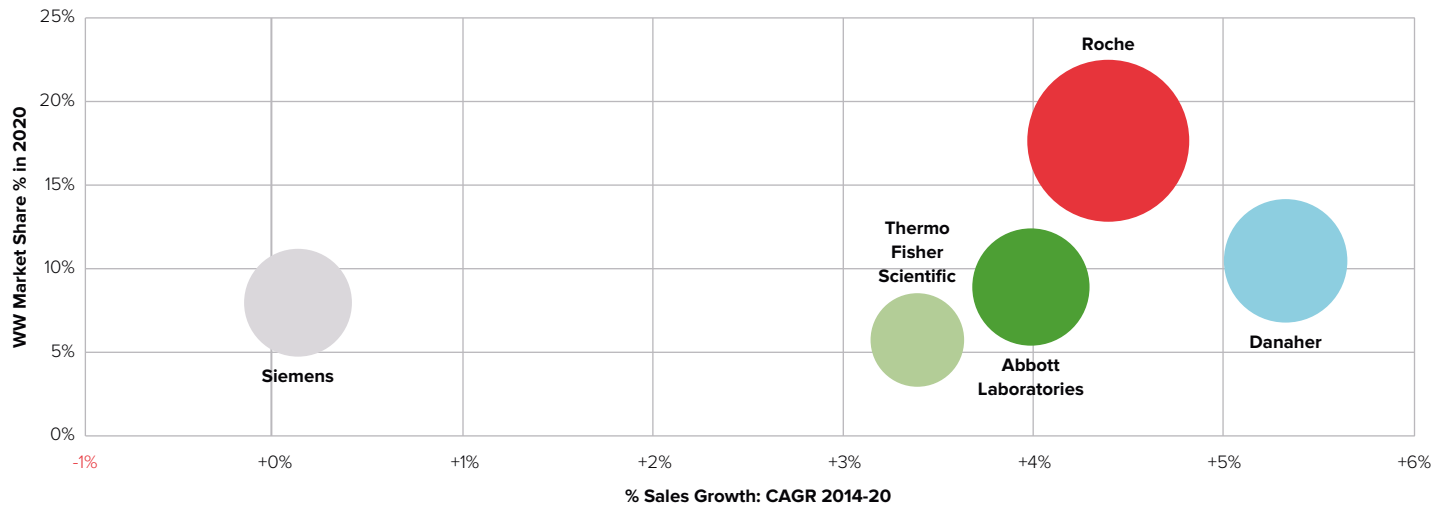
EvaluateMedTech® consensus forecasts find that Roche is expected to generate global sales of \$11.9bn in 2020, representing a market share of 17.6%.

The fastest growing company in the top ten companies is Sysmex with a CAGR of 10.5% between 2014 and 2020*. Consequently, the company is expected to jump two places in the rankings to sixth in 2020.

The in vitro diagnostics market is set to grow at 5.1% per year, reaching \$67.3bn in 2020.

WW In Vitro Diagnostics Sales, Market Share & Sales Growth (2014-20)

Source: EvaluateMedTech® September 2015



Note: Bubble = WW Sales in 2020

WW In Vitro Diagnostics Sales: Top 10 Companies & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	WW Sales (\$m)		CAGR 2014-20	2020 Change vs. Sep 14 (\$m)	WW Market Share		Rank Change 2014-20
		2014	2020			2014	2020	
1.	Roche	9,159	11,853	+4.4%	-353	18.3%	17.6%	-
2.	Danaher	5,133	7,011	+5.3%	+190	10.3%	10.4%	+1
3.	Abbott Laboratories	4,721	5,974	+4.0%	-825	9.5%	8.9%	+1
4.	Siemens	5,202	5,249	+0.1%	-1640	10.4%	7.8%	-2
5.	Thermo Fisher Scientific	3,110	3,805	+3.4%	-241	6.2%	5.7%	-
6.	Sysmex	1,837	3,337	+10.5%	-445	3.7%	5.0%	+2
7.	Becton Dickinson	2,713	3,155	+2.5%	-244	5.4%	4.7%	-1
8.	Alere	2,231	2,741	+3.5%	-92	4.5%	4.1%	-1
9.	bioMérieux	1,796	2,274	+4.0%	-245	3.6%	3.4%	-
10.	Ortho Clinical Diagnostics	914	2,066	+14.6%	-14	1.8%	3.1%	+4
	Top 10	36,815	47,464	+4.3%	-3908	73.7%	70.6%	
	Other	13,106	19,813	+7.1%		26.3%	29.4%	
	Total Industry	49,922	67,277	+5.1%		100.0%	100.0%	

Note: Excludes Glucose Test Systems which are included in Diabetic Care classification.

*2014 revenues for Ortho Clinical Diagnostics represent six months' sales following acquisition of the business by private equity from Johnson & Johnson on 30th June 2014 resulting in the 14.6% CAGR.

Cardiology Market to 2020



Medtronic the Undisputed Leader in Cardiology After the Acquisition of Covidien.

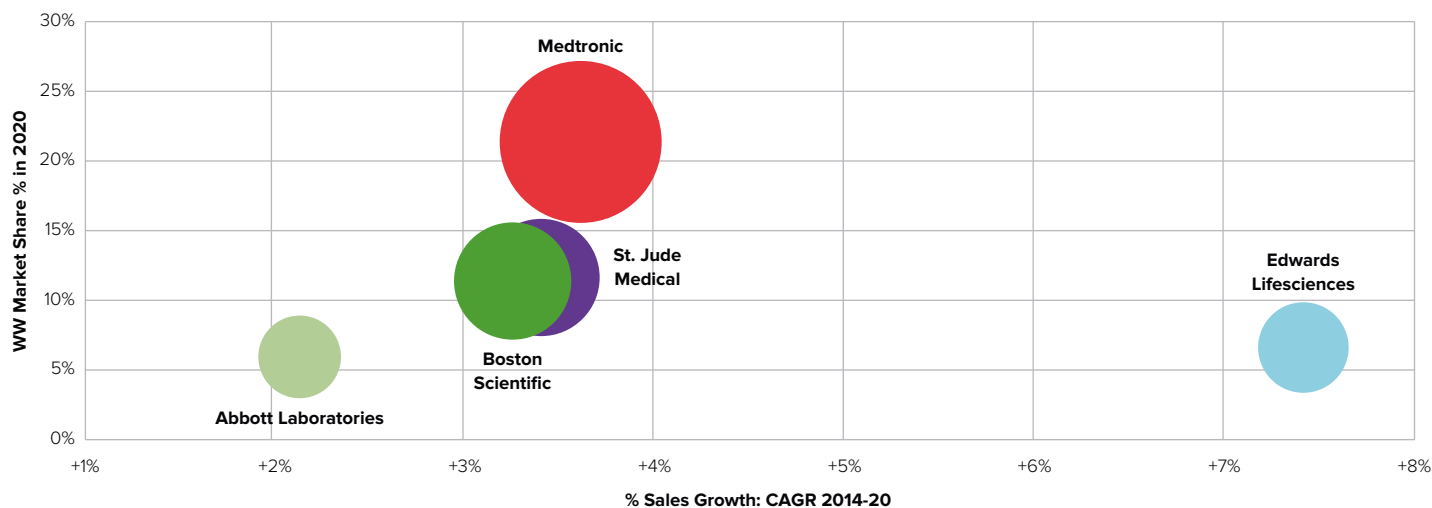
EvaluateMedTech® consensus forecasts find that Medtronic will remain the world's number one cardiology company, with global sales estimated to reach \$11.6bn in 2020. This represents a 21.4% market share, almost double that of St. Jude Medical in second place

with 11.7%. The acquisition of Covidien strengthened Medtronic's position, as pre-merger Covidien recorded \$1.2bn in cardiology sales in 2013.

The cardiology industry is expected to grow at 4.4% (CAGR) to \$54.2bn in 2020.

WW Cardiology Sales, Market Share & Sales Growth (2014-20)

Source: EvaluateMedTech® September 2015



Note: Bubble = WW Sales in 2020

WW Cardiology Sales: Top 10 Companies & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	WW Sales (\$m)		CAGR 2014-20	2020 Change vs. Sep 14 (\$m)	WW Market Share		Rank Change 2014-20
		2014	2020			2014	2020	
1.	Medtronic	9,361	11,588	+3.6%	+468	22.4%	21.4%	-
2.	St. Jude Medical	5,185	6,336	+3.4%	-553	12.4%	11.7%	-
3.	Boston Scientific	5,046	6,116	+3.3%	+175	12.1%	11.3%	-
4.	Edwards Lifesciences	2,289	3,518	+7.4%	+468	5.5%	6.5%	+1
5.	Abbott Laboratories	2,844	3,229	+2.1%	-432	6.8%	6.0%	-1
6.	Johnson & Johnson	2,208	2,620	+2.9%	-339	5.3%	4.8%	-
7.	Getinge	2,061	2,514	+3.4%	-58	4.9%	4.6%	-
8.	Terumo	1,778	2,332	+4.6%	-495	4.2%	4.3%	-
9.	W. L. Gore & Associates	1,559	1,936	+3.7%	-216	3.7%	3.6%	-
10.	Lepu Medical Technology	270	1,252	+29.2%	n/a	0.6%	2.3%	+12
	Top 10	32,601	41,440	+4.1%	-983	77.9%	76.4%	
	Other	9,251	12,777	+5.5%		22.1%	23.6%	
	Total Industry	41,852	54,217	+4.4%		100.0%	100.0%	

Note: General Electric & Philips do not disclose cardiology sales. Forecast for Lepu Medical Technology not available from September 2014.

Orthopedics Market to 2020



Johnson & Johnson Retains Leading Position in the Orthopedics Market; Zimmer Biomet Closes Gap Following Megamerger.

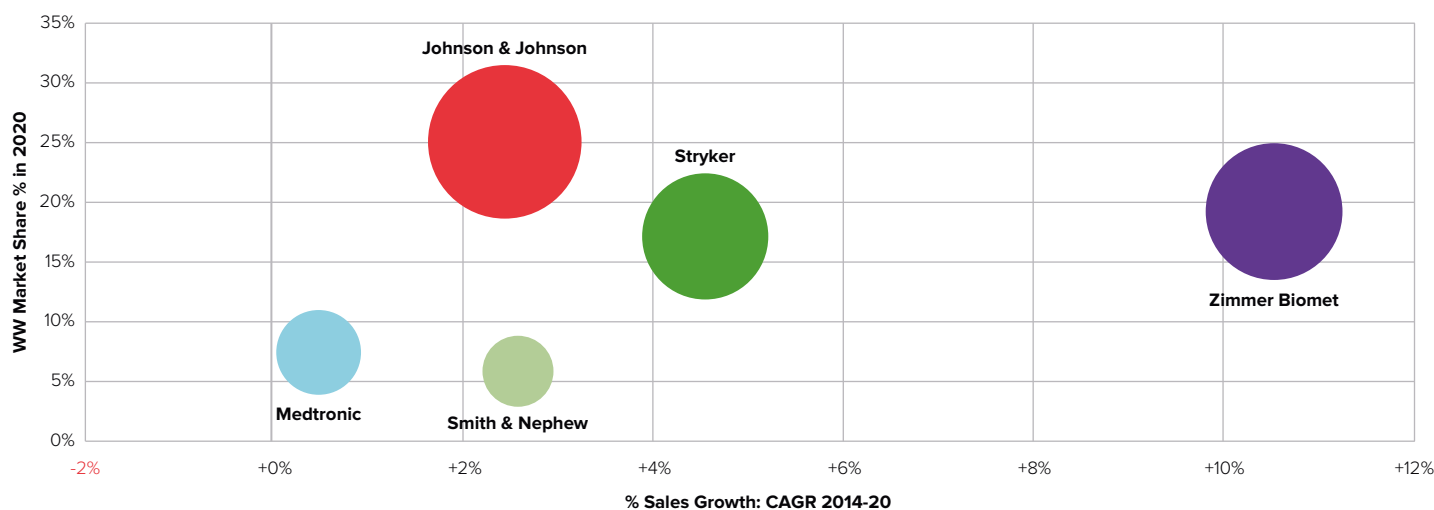
EvaluateMedTech® consensus forecasts find that Johnson & Johnson is expected to remain the world's leading orthopedic company, with sales expected to reach \$10.5bn in 2020. However, with a compound annual growth rate of 2.4% between 2014 and 2020, lower than the expected market growth rate, J&J will see its market share fall from 26.1% in 2014 to 25.0% in 2020.

Following the completion of its merger with Biomet in June 2015, Zimmer Biomet is forecast to achieve \$8.1bn in sales in 2020, leapfrogging Stryker to attain second position. Stryker itself is expected to achieve sales of \$7.2bn in 2020.

The orthopedics market is set to grow at 3.2% per year (CAGR) to \$42.0bn in 2020.

WW Orthopedics Sales, Market Share & Sales Growth (2014-20)

Source: EvaluateMedTech® September 2015



Note: Bubble = WW Sales in 2020

WW Orthopedics Sales: Top 10 Companies & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	WW Sales (\$m)		CAGR 2014-20	2020 Change vs. Sep 14 (\$m)	WW Market Share		Rank Change 2014-20
		2014	2020			2014	2020	
1.	Johnson & Johnson	9,103	10,514	+2.4%	-831	26.1%	25.0%	-
2.	Zimmer Biomet	4,431	8,072	+10.5%	+2473	12.7%	19.2%	+1
3.	Stryker	5,490	7,161	+4.5%	-275	15.8%	17.1%	-1
4.	Medtronic	2,971	3,044	+0.4%	-180	8.5%	7.3%	+1
5.	Smith & Nephew	2,033	2,366	+2.6%	-215	5.8%	5.6%	+1
6.	Arthrex	1,600	1,932	+3.2%	-979	4.6%	4.6%	+1
7.	NuVasive	720	1,060	+6.7%	+41	2.1%	2.5%	+1
8.	Globus Medical	474	778	+8.6%	+1	1.4%	1.9%	+2
9.	Wright Medical Group	298	604	+12.5%	+4	0.9%	1.4%	+5
10.	Tornier	345	528	+7.3%	+55	1.0%	1.3%	+3
	Top 10	27,465	36,060	+4.6%	+94	78.9%	85.9%	
	Other	7,356	5,918	-3.6%		21.1%	14.1%	
	Total Industry	34,821	41,978	+3.2%		100.0%	100.0%	

Diagnostic Imaging Market to 2020



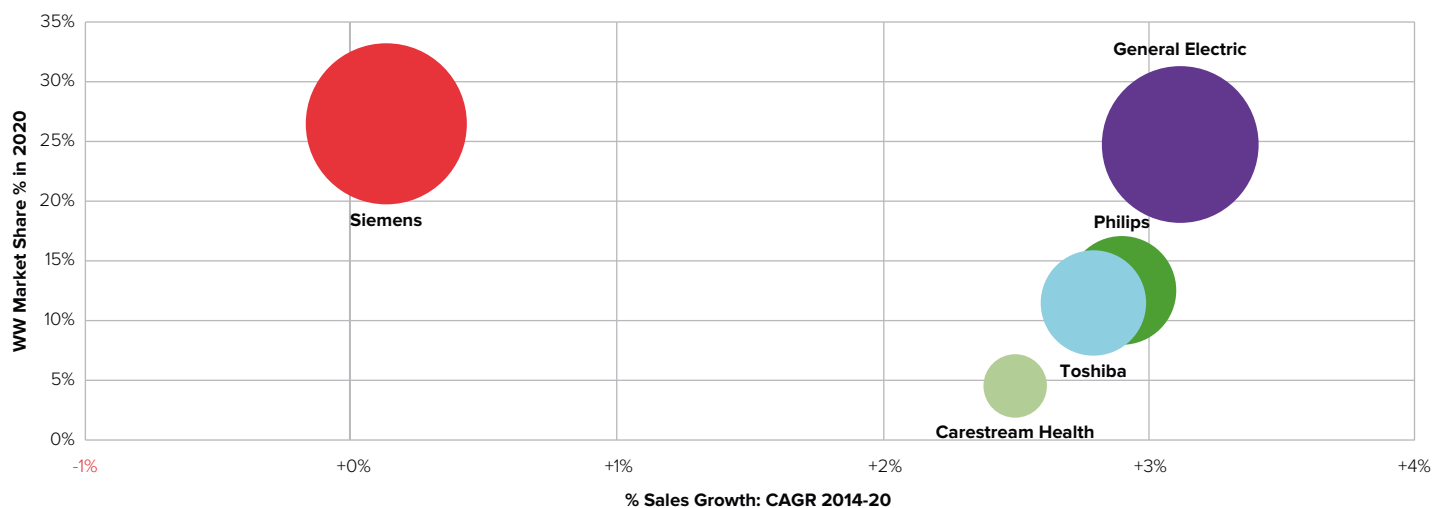
Siemens and General Electric Leading Companies in Diagnostic Imaging in 2020.

EvaluateMedTech® consensus forecasts find Siemens remaining the number one company in diagnostic imaging in 2020 with sales of \$10.8bn, flat across the six years from 2014. General Electric, which is forecast to grow by 3.1% per annum, is expected to catch up with

Siemens, becoming a close second with sales of \$10.1bn. Siemens's forecast sales in 2020 have declined by over \$3bn over the last 12 months in dollar terms but this can largely be attributed to the depreciation of the euro against the dollar in 2015. When viewed in euros, Siemens's diagnostic imaging sales are forecast to grow by 3% per annum compared with General Electric's 6%.

WW Diagnostic Imaging Sales, Market Share & Sales Growth (2014-20)

Source: EvaluateMedTech® September 2015



Note: Bubble = WW Sales in 2020

WW Diagnostic Imaging Sales: Top 10 Companies & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	WW Sales (\$m)		CAGR 2014-20	2020 Change vs. Sep 14 (\$m)	WW Market Share		Rank Change 2014-20
		2014	2020			2014	2020	
1.	Siemens	10,726	10,818	+0.1%	-3346	30.1%	26.5%	-
2.	General Electric	8,415	10,119	+3.1%	-176	23.6%	24.8%	-
3.	Philips	4,271	5,066	+2.9%	-714	12.0%	12.4%	-
4.	Toshiba	3,941	4,649	+2.8%	-1068	11.1%	11.4%	-
5.	Carestream Health	1,525	1,767	+2.5%	-287	4.3%	4.3%	-
6.	Hitachi Medical	1,106	1,118	+0.2%	-241	3.1%	2.7%	-
7.	Konica Minolta	718	877	+3.4%	-165	2.0%	2.1%	+1
8.	Agfa-Gevaert	852	857	+0.1%	-176	2.4%	2.1%	-1
9.	Varian Medical Systems	660	850	+4.3%	-134	1.9%	2.1%	-
10.	Hologic	457	825	+10.3%	+41	1.3%	2.0%	+2
	Top 10	32,672	36,945	+2.1%	-6265	91.7%	90.4%	
	Other	2,944	3,907	+4.8%		8.3%	9.6%	
	Total Industry	35,616	40,852	+2.3%		100.0%	100.0%	

Note: Segment sales include servicing of equipment. FUJIFILM's Diagnostic Imaging sales are not available.

Ophthalmics Market to 2020



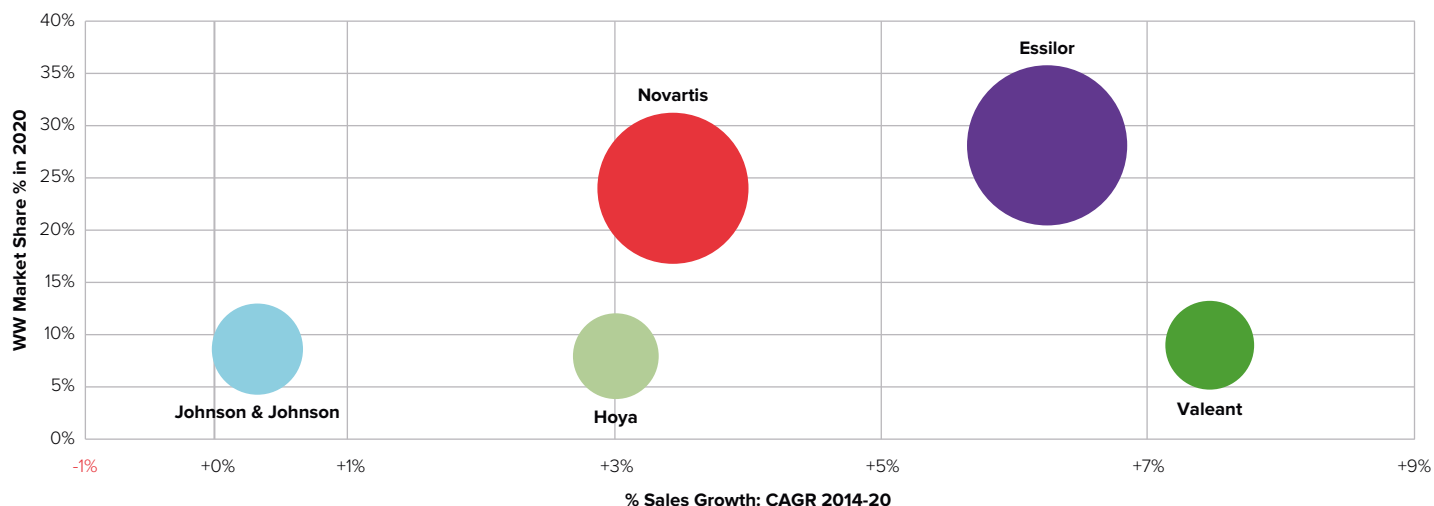
Essilor Leads Ophthalmics Market in 2020.

EvaluateMedTech® consensus forecasts find that lens maker Essilor International will be the leading ophthalmics company in 2020, with sales of \$9.5bn compared with \$8.1bn for Novartis. The two companies were very closely matched in 2014, each occupying a 25.8% share of the market, though Novartis just edged it, meaning a reversal of this order.

The fastest growing ophthalmics group is The Cooper Companies, forecast to expand at an annual rate of 8.7% to have eyecare sales of \$2.3bn in 2020. This can be attributed in part to its \$1.2bn acquisition of the contact lens specialist Sauflon Pharmaceuticals in August 2014.

WW Ophthalmics Sales, Market Share & Sales Growth (2014-20)

Source: EvaluateMedTech® September 2015



Note: Bubble = WW Sales in 2020

WW Ophthalmics Sales: Top 10 Companies & Total Market (2014/20)

Source: EvaluateMedTech® September 2015

Rank	Company	WW Sales (\$m)		CAGR 2014-20	2020 Change vs. Sep 14 (\$m)	WW Market Share		Rank Change 2014-20
		2014	2020			2014	2020	
1.	Essilor International	6,603	9,501	+6.3%	-867	25.8%	28.2%	+1
2.	Novartis	6,616	8,092	+3.4%	-922	25.8%	24.0%	-1
3.	Valeant Pharmaceuticals International	1,935	2,979	+7.5%	-8	7.6%	8.8%	+2
4.	Johnson & Johnson	2,818	2,869	+0.3%	-757	11.0%	8.5%	-1
5.	HOYA	2,194	2,618	+3.0%	-490	8.6%	7.8%	-1
6.	The Cooper Companies	1,393	2,292	+8.7%	-446	5.4%	6.8%	+1
7.	Carl Zeiss	1,737	1,824	+0.8%	-467	6.8%	5.4%	-1
8.	Abbott Laboratories	1,216	1,541	+4.0%	-270	4.7%	4.6%	-
9.	TOPCON	377	531	+5.9%	-115	1.5%	1.6%	-
10.	NIDEK	333	398	+3.0%	-83	1.3%	1.2%	-
	Top 10	25,222	32,646	+4.4%	-4424	98.5%	96.8%	
	Other	395	1,080	+18.2%		1.5%	3.2%	
	Total Industry	25,617	33,725	+4.7%		100.0%	100.0%	



Total Medtech M&A Deal Values Rose 166% to \$84bn in H1 2015; 2015 a Massive Year for Megamergers.

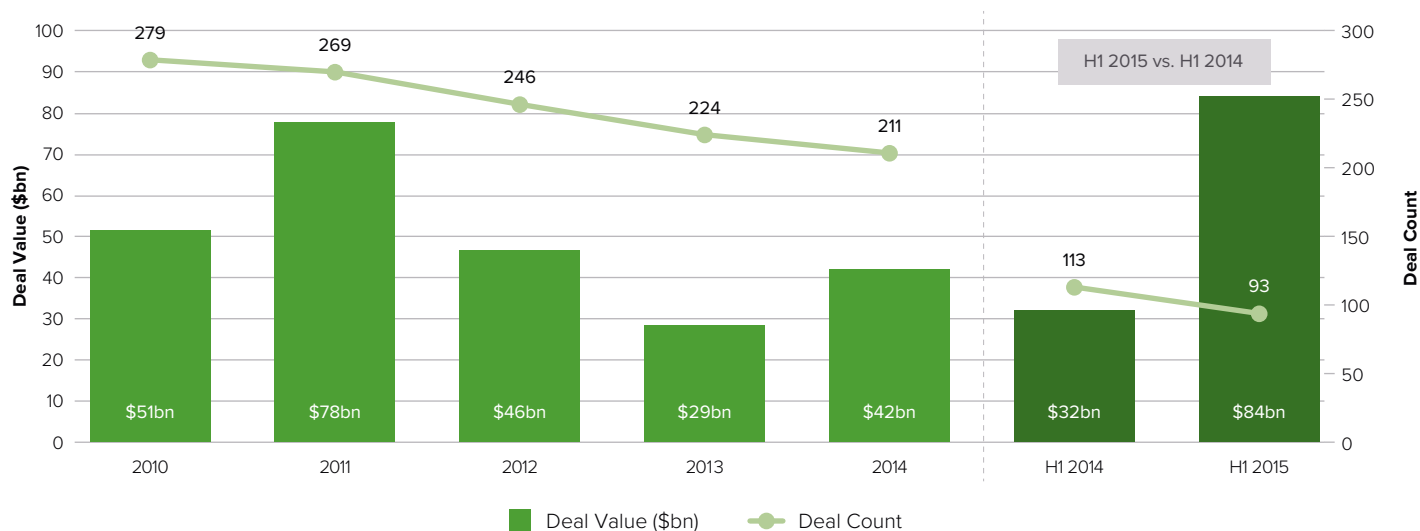
EvaluateMedTech® found that the total value of all the medtech M&A deals closed in the first half of 2015 came to an enormous \$84bn, a rise of 166% from the \$32bn seen in H1 2014. This immense leap was mainly the result of the closure of the biggest ever deal seen in the medical device industry, namely the acquisition of Covidien by

Medtronic for \$49.9bn in January 2015. Other megamergers which closed in the first half of 2015 included the acquisition of Biomet by Zimmer for \$14bn and the acquisition of CareFusion by Becton Dickinson for \$12.2bn.

Despite the increase in total deal value, EvaluateMedTech® found that the total number of deals fell by 18% to 93 in H1 2015.

Count of Medtech M&A Deals vs. Total Medtech M&A Value (2010 - H1 2015)

Source: EvaluateMedTech® September 2015



Key M&A Deals

H1 2015: Medtronic – Covidien (\$49.9bn); Zimmer – Biomet (\$14.0bn); Becton Dickinson – CareFusion (\$12.2bn)

2014: Thermo-Fisher – Life Technologies (\$13.6bn); Carlyle Group (PE) – J&J’s Ortho Clinical Diagnostics unit (\$4.2bn)

2013: Valeant Pharmaceuticals – Bausch + Lomb (\$8.7bn); Baxter – Gambro (\$3.9bn)

2012: Johnson & Johnson – Synthes (\$19.7bn); Hologic – Gen-Probe (\$3.7bn)

2011: Sanofi – Genzyme* (\$20.1bn); Novartis – Alcon (\$9.6bn); Danaher – Beckman Coulter (\$6.8bn); Apax Group (PE) – Kinetic Concepts (\$6.1bn); Thermo-Fisher – Phadia (\$3.4bn)

2010: Novartis – Alcon* (\$28bn)

Count of Medtech Closed M&A Deals vs. Total Medtech M&A Value (2010 - H1 2015)

Source: EvaluateMedTech® September 2015

Period	2010	2011	2012	2013	2014	H1 2014	H1 2015
Deal Count	279	269	246	224	211	113	93
% Chg.		-4%	-9%	-9%	-6%		-18%
Deal Value (\$bn)	51	78	46	29	42	32	84
% Chg.		53%	-41%	-38%	47%		166%



Top 10 Medtech M&A Deals Closed: Ranked on Deal Value (H1 2015)

Source: EvaluateMedTech® September 2015

Rank	Target	Country (Status)	Acquiror	Completion Date	Deal Value (\$m)
1.	Covidien	Ireland (Listed)	Medtronic	26 Jan 15	49,900
2.	Biomet	USA (Private)	Zimmer Biomet	24 Jun 15	14,000
3.	CareFusion	USA (Listed)	Becton Dickinson	17 Mar 15	12,200
4.	Audiology Solutions business of Siemens	Germany (Business Unit)	EQT VI (Private Equity)	15 Jan 15	2,669
5.	Siemens Health Services	Germany (Business Unit)	Cerner	02 Feb 15	1,300
6.	Volcano	USA (Listed)	Philips	17 Feb 15	1,200
7.	PneumRx	USA (Private)	BTG	07 Jan 15	475
8.	Optos	United Kingdom (Listed)	Nikon	22 May 15	397
9.	Advanced Scientifics	USA (Private)	Thermo Fisher Scientific	05 Feb 15	300
10.	Aerocrine	Sweden (Listed)	Circassia	18 Jun 15	217
	Other				1,418
	Total				84,076

Note: Analysis based on closing date of deal.

*Alcon & Genzyme included in analysis as >25% of company sales are derived from medtech.



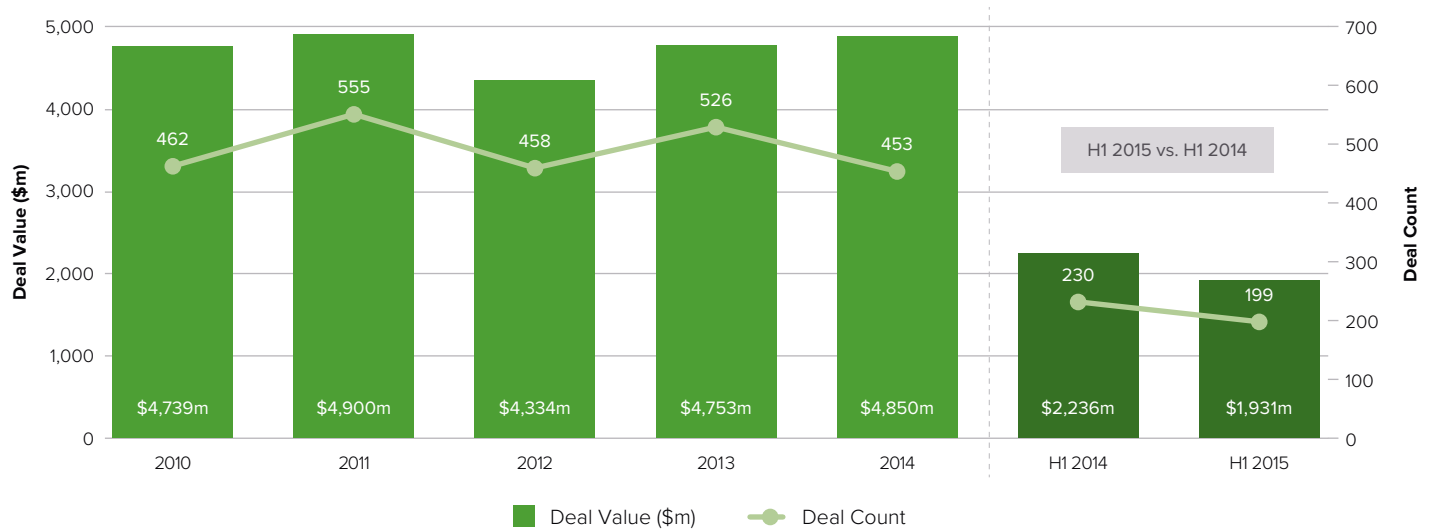
Value of Venture Financing Falls 14% in H1 2015; Deal Count Decreases by 13%.

EvaluateMedTech® found a significant decrease in both the value and number of venture financing deals in H1 2015 as compared with H1 2014. The total amount of venture cash raised by device makers fell by 14% to \$1.9bn, whilst the number of venture financing deals declined 13% to 199.

There were no standout rounds in the first half of 2015 with the top five rounds only separated by \$7m. The largest was conducted by EndoChoice, a gastroenterology company, which raised \$57m in a series E financing in March. All of the top ten financing rounds were done by US-based companies.

Count of Financing Deals vs. Total Financing Value (2010 - H1 2015)

Source: EvaluateMedTech® September 2015



Count of Medtech Financing Deals vs. Total Financing Value (2010 - H1 2015)

Source: EvaluateMedTech® September 2015

Period	2010	2011	2012	2013	2014	H1 2014	H1 2015
Deal Count	462	555	458	526	453	230	199
% Chg.		20%	-17%	15%	-14%		-13%
Deal Value (\$m)	4,739	4,900	4,334	4,753	4,850	2,236	1,931
% Chg.		3%	-12%	10%	2%		-14%



Top 10 Medtech Venture Financing Deals: Ranked on Deal Value (H1 2015)

Source: EvaluateMedTech® September 2015

Rank	Company	Primary Focus	Country	Financing Round	Date	Deal Value (\$m)
1.	EndoChoice	Gastroenterology	USA	Series E	05 Mar 15	57
2.	Natera	In Vitro Diagnostics	USA	Series F	06 Apr 15	56
3.	Calhoun Vision	Ophthalmology	USA	Undisclosed	04 Jun 15	52
4.	Outset Medical	Nephrology	USA	Undisclosed	09 Jun 15	51
5.	Guardant Health	In Vitro Diagnostics	USA	Series C	03 Feb 15	50
6.	Illumina	In Vitro Diagnostics	USA	PIPE	26 Feb 15	40
7.	Veracyte	In Vitro Diagnostics	USA	PIPE	23 Apr 15	40
8.	Shockwave Medical	Cardiology	USA	Series B	19 May 15	40
9.	Intact Vascular	Cardiology	USA	Series B	14 May 15	39
10.	Autonomic Technologies	Neurology	USA	Series D	12 May 15	38
	Other					1,424
	Total					1,886

Note: Includes investments in medtech companies only. Does not include pharmaceutical or biotech companies. Includes Private Investment in Public Equity (PIPE).



Medtech IPO Activity Cools in H1 2015 but Still on an Upward Trend from 2013.

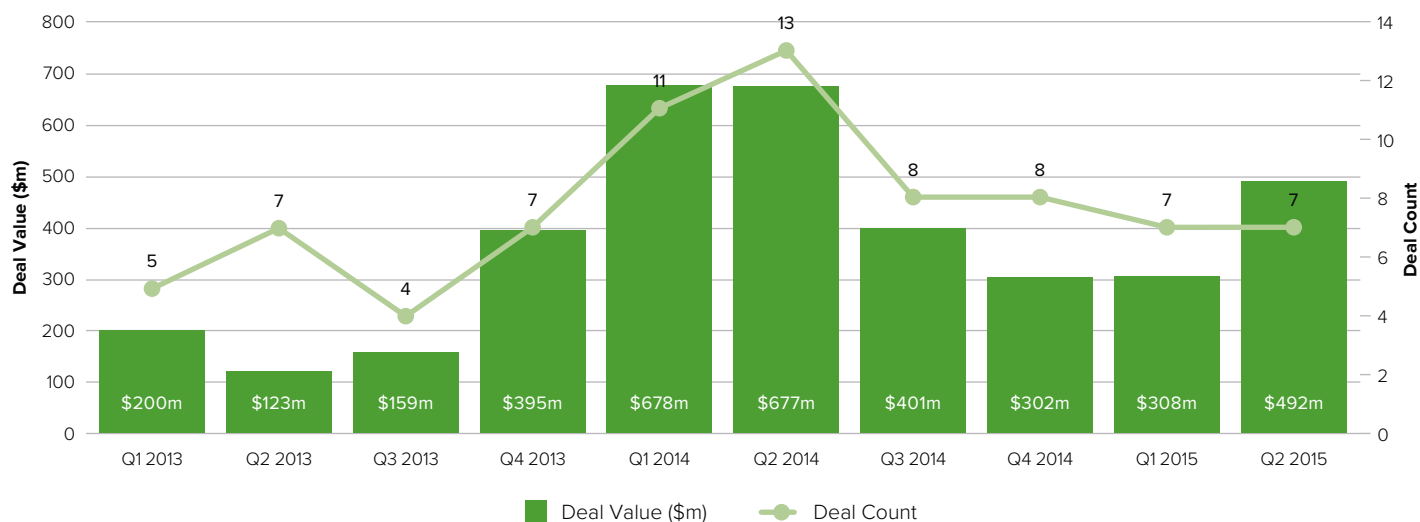
EvaluateMedTech® found a significant drop in IPO activity in the medtech space in H1 2015 compared with the apparent outlier of H1 2014. By the end of the first half of this year \$800m had been raised in total, a 41% decline from the \$1.4bn in H1 2014. However, this still

signals an overall upward trend from 2013 where only \$877m was raised across the entire year.

Switzerland-based Biocartis, a company developing molecular diagnostics, had the largest IPO in H1 2015, raising \$109m in April. Just behind was Glaukos, an ophthalmics company developing treatments for glaucoma, which raised \$108m in June.

Quarterly Count of IPO Deals vs. Total IPO Value (Q1 2013 - Q2 2015)

Source: EvaluateMedTech® September 2015



Count of Medtech IPO Deals vs. Total IPO Value (Q1 2013 - Q2 2015)

Source: EvaluateMedTech® September 2015

Quarter	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015
Deal Count	5	7	4	7	11	13	8	8	7	7
% Chg. from previous quarter		40%	-43%	75%	57%	18%	-38%	0%	-13%	0%
Deal Value (\$m)	200	123	159	395	678	677	401	302	308	492
% Chg. from previous quarter		-39%	29%	149%	71%	0%	-41%	-25%	2%	60%



Top 10 Medtech IPO Deals: Ranked on Deal Value (H1 2015)

Source: EvaluateMedTech® September 2015

Rank	Company	Primary Focus	Country	Stock Exchange	Date	Deal Value (\$m)
1.	Biocartis	In Vitro Diagnostics	Switzerland	Euronext Brussels	27 Apr 15	109
2.	Glaukos	Ophthalmology	USA	NYSE	25 Jun 15	108
3.	EndoChoice	Gastroenterology	USA	NYSE	05 Jun 15	95
4.	Entellus Medical	ENT	USA	Nasdaq	29 Jan 15	78
5.	Carbylan Therapeutics	Orthopedics	USA	Nasdaq	09 Apr 15	65
6.	Avinger	Cardiology	USA	Nasdaq	30 Jan 15	65
7.	Bellerophon Therapeutics	Cardiology	USA	Nasdaq	13 Feb 15	60
8.	HTG Molecular Diagnostics	In Vitro Diagnostics	USA	Nasdaq	06 May 15	50
9.	Invuity	Surgery	USA	Nasdaq	15 Jun 15	48
10.	Presbia	Ophthalmology	USA	Nasdaq	29 Jan 15	42
	Other					80
	Total					800

Note: Does not include pharmaceutical or biotech companies.

Enterprise Value & Focus Analysis: 2015 Latest vs. 2014



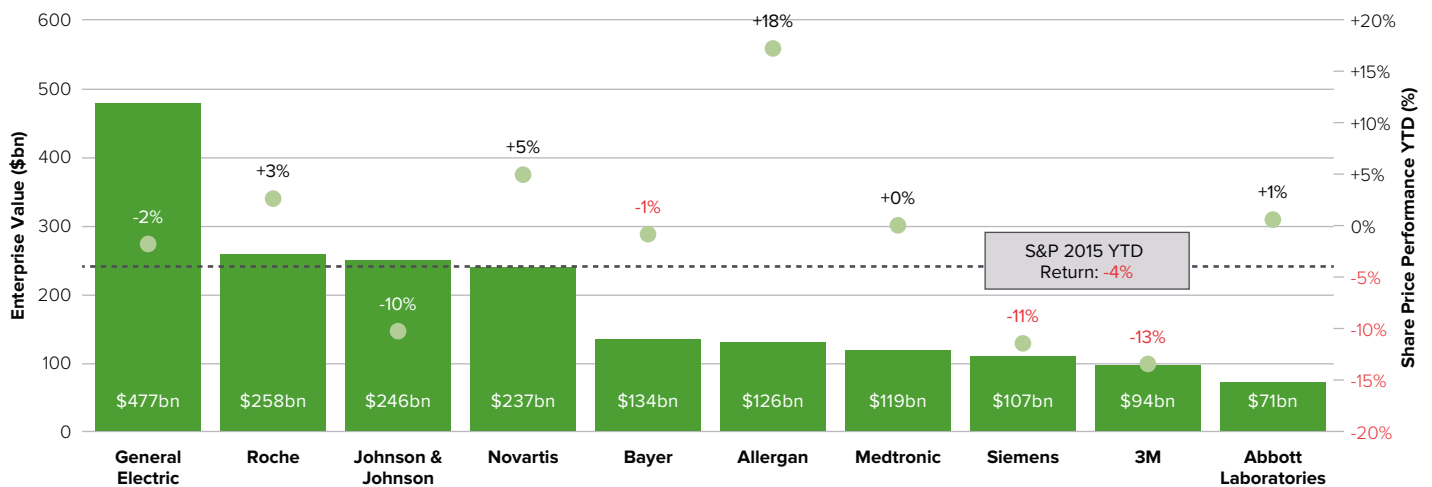
General Electric Tops the Field in Latest Enterprise Value Rankings.

EvaluateMedTech® found US conglomerate General Electric to be the largest company operating in the medtech space. With an enterprise value of \$477bn as of 31st August 2015, GE is in a league of its own; the second ranked company, Roche, comes in at \$258bn.

The majority of the top companies have additional non-medtech operations. The highest ranking pure-play medtech company is Medtronic, benefiting greatly from its merger with Covidien to climb all the way to number seven in the rankings, with an enterprise value of \$119bn.

WW Ranking on Enterprise Value in 2015 (Latest)

Source: EvaluateMedTech® 31 August 2015



Enterprise Value: Top 20 Medtech Companies in 2015 (2020 Sales: >\$1bn)

Source: EvaluateMedTech® 31 August 2015

Rank	Company	Country	% '15 Sales Medtech	Enterprise Value (\$bn)			WW Market Share		
				2014	Latest	% Growth	2014	Latest	% Growth
1.	General Electric	USA	8%	481	477	-1%	25.27	24.82	-2%
2.	Roche	Switzerland	22%	251	258	+3%	276.10	283.19	+3%
3.	Johnson & Johnson	USA	36%	277	246	-11%	104.57	93.98	-10%
4.	Novartis	Switzerland	12%	229	237	+4%	92.66	97.22	+5%
5.	Bayer	Germany	3%	139	134	-3%	136.84	135.60	-1%
6.	Allergan	USA	5%	84	126	+51%	257.41	303.74	+18%
7.	Medtronic	USA	100%	88	119	+36%	72.20	72.29	+0%
8.	Siemens	Germany	17%	110	107	-3%	112.00	99.14	-11%
9.	3M	USA	17%	109	94	-14%	164.32	142.14	-13%
10.	Abbott Laboratories	USA	48%	71	71	-1%	45.02	45.29	+1%
11.	Thermo Fisher Scientific	USA	19%	59	63	+8%	125.29	125.37	+0%
12.	Danaher	USA	51%	61	59	-3%	85.71	87.02	+2%
13.	Fresenius	Germany	20%	46	55	+18%	12.97	17.79	+37%
14.	Becton Dickinson	USA	100%	28	41	+46%	141.26	141.02	-0%
15.	Stryker	USA	100%	35	36	+5%	94.33	98.65	+5%

Top 16-20 continued over...



Source: EvaluateMedTech® September 2015

Rank	Company	Country	% '15 Sales Medtech	Enterprise Value (\$bn)			WW Market Share		
				2014	Latest	% Growth	2014	Latest	% Growth
16.	Zimmer Biomet	USA	100%	19	31	+65%	113.42	103.56	-9%
17.	Philips	The Netherlands	44%	35	29	-17%	29.00	25.64	-12%
18.	Essilor International	France	90%	26	28	+7%	55.64	59.56	+7%
19.	Cardinal Health	USA	11%	27	28	+2%	80.73	82.27	+2%
20.	Baxter International	USA	68%	46	28	-40%	73.29	38.45	-48%
Total Top 20				2,253	2,269	+1%	avg.		-1%

Note: Includes companies with >\$1bn medtech sales in 2020.

Valuation based on share price close and valuation on 31 August 2015.

Decline in Baxter due to spin out of Baxalta.

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