

The Top 10 Medtech States



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A substantial proportion of the medical device industry is clustered in a handful of states, although the number of U.S. medtech hubs is growing.

We ranked the states based on medical device employment, patents, NIH funding, VC medical device funding, and business friendliness.

We've all heard the stereotypes: California is a medtech innovation hotbed. Massachusetts has cutting-edge research and Yankee ingenuity. And Minnesotans wake up earlier and work longer hours than everyone.

While the rankings for the top five medical device companies are fairly straightforward, there is no single state that can confidently claim to be the best spot for all medical device firms. Orthopedic firms, for instance, will find many advantages in Indiana while digital health companies would likely fare better in a state like California or Massachusetts.

In the following rankings, we take a look at the most recent data available, weighing everything from business friendliness to overall medical device employment in each state. Interestingly, the top three states score poorly in terms of business environment but score better than all of the other states on the list in nearly every other category.

Read on to discover major data for 10 top medical device states in the United States.



1. California

Important Statistics:

Medical Device Manufacturing
Employment, 2013:

63,307

Medical Device Patents, 2009–2013:

10,061

Medtech VC Investing, 2014:

\$1.2B

NIH Funding, 2014:

\$3.4B

Medical Device Establishments:

1039

Best States for Business Ranking:

32

Chief Executive State Ranking:

50

Major OEM headquarters:

Varian Medical Systems

Medtronic (Cardiovascular Div.)

Edwards Lifesciences

Intuitive Surgical

Sure, California has its problems. But the state is still unparalleled when it comes to sheer size, boasting more medical device companies and workers—by far—than any other. The state's device industry is considerably bigger than that of Minnesota and Massachusetts.

In fact, California has multiple big device hubs—Orange County, Los Angeles, San Diego County, Silicon Valley. Looking at it differently, all of Southern California from the coast to the Arizona state line is a life sciences hub, as is the entire Bay Area coupled with Sacramento.

Throughout the state, an average employee in the broader life sciences industry in California earns in excess of \$97,000, according to the PwC 2014 California Biomedical Industry Report.

While the state may be well known for its motion picture and high tech industries, the combined life science industry in California employed more people—267,000 in 2012—than all other industries in the state apart from computer and

peripheral equipment manufacturing, which employed 340,000, according to PwC.

Orange County has long been one of the biggest medical device clusters in the country. The hub there may be the biggest in the state and is definitely the largest in Southern California, according to a report published by Biocom in 2013. Employers in Orange County are also handsomely rewarded, according to the report. An average medical device worker in Orange County makes an average of \$120,687, according to Biocom's report.

The medical device industry in Orange County was responsible for more economic activity than Riverside, San Diego, and Imperial counties combined. In all, the OC's medical device industry was responsible for \$5.3 billion of annual economic activity out of \$9.5 billion generated by the greater four-county region.

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To the south, San Diego is emerging as a leader when it comes to wireless medical technologies and biotech.

[Silicon Valley has its own advantages](#), too, leading the nation when it comes to venture capital funding. In recent months, Apple and Google, both of which are based in Silicon Valley, have shown increased interest in medical innovations. In December 2015, Google debuted a new name for its life science business—Verily.

Among the top 10 medical device states, California pulls in substantially more venture capital investment for medtech than any other state on the list—in 2014, there was \$1.2 billion invested in medical device technology—more than the other nine states in list combined. In 2013, California pulled in roughly 45% of all of the venture capital funding in the United States within the life sciences sector—nearly \$3 billion total.

The state saw the number of employees in the life sciences industry rise by 2% during the recession from 2008–2012, while other states like Massachusetts, Minnesota, Pennsylvania, Indiana, and New Jersey saw their life science employment numbers decline. According to PwC, only the state of North Carolina grew at a quicker rate (8.3%) in this time span. While a number of medtech companies are leaving the state, looking for greener pastures, the talented workforce present and strong life sciences infrastructure in the state will likely secure it as the U.S. leader for some time.

California Is Still on Top

California has more life science VC funding than the other nine states in this list combined.



2. Minnesota

Important Statistics:

Medical Device Manufacturing Employment, 2013:

28,141

Medical Device Patents, 2009–2013:

4269

Medtech VC Investing, 2014:

\$234M

NIH Funding, 2014:

\$497M

Medical Device Establishments:

308

Best States for Business Ranking:

13

Chief Executive State Ranking:

31

Major OEM headquarters:

Medtronic (Operational HQ)

St. Jude Medical

3M

Coloplast

Minnesota's history in medtech stretches back to the middle of the last century. The roots of the state's Medical Alley are even highlighted in a Smithsonian exhibit.

The state is presently home to the likes of Medtronic (which still has its operational headquarters there), St. Jude Medical, 3M, and Mayo Clinic. Boston Scientific has a large Twin Cities presence, and medical device OEMs ranging from Olympus to Coloplast also have operations there. According to *Newsweek* in 2010, 22% of employees in the greater Twin Cities area work in the medical technology sector. That figure represents a larger percentage than tech workers in the Bay Area (21%).

Although Medtronic is now officially headquartered in Dublin, Ireland, after its \$50 billion acquisition of Covidien, the company is still a powerhouse in the Twin Cities, employing some 8000 employees there.

Upon first disclosing to Governor Mark Dayton its plans to move its headquarters to Ireland, company

officials reportedly told the governor that the company planned to keep their Minnesota operations intact and that, rather than laying off employees in the state, it had plans to hire more in the future.

Twin Cities Business magazine named Medtronic's CEO Omar Ishrak as its 2015 Person of the Year. And the *Minneapolis/St. Paul Business Journal* has named Ishrak its 2016 Executive of the Year in the Twin Cities, noting that Medtronic has already added 350 jobs to the North Star State.

The manufacturing conglomerate 3M is an even bigger employer in the Twin Cities than Medtronic. The company, which is at once a medical device maker and a supplier to the industry, was ranked 205 in *Forbes'* listing of the world's biggest companies. By contrast, Medtronic was listed at 249.

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Under Ishrak's tenure, Medtronic has become one of the top two medical device companies in the world.

The state has a history of clinicians who have been involved in medical device development. The state also has a strong network of suppliers, including Digi-Key, one of the largest distributors of electronic parts. Other major Twin Cities-based contract manufacturers include Proto Labs (Maple Plain), Heraeus Medical Components (St. Paul), Minnetronix (St. Paul), and Sil-Pro (Delano).

The state also boasts a strong infrastructure of suppliers to the medical device industry and strong support from state politicians.

On a more critical note, the state lacks the funding climate that has historically benefited medtech startups in places like California and Massachusetts. Still, there is plenty of focus in the region through trade group LifeScience Alley and others when it comes to preserving and even enhancing this important medical device industry hub. The state of Minnesota is also in the process of spending \$455 million to support infrastructure around the Mayo Clinic—more than 80 miles to the southeast of Minneapolis, in Rochester, MN.

Minnesota Wins the Most PMAs

California may be the largest medtech state, but it is not at the top of the list when it comes to U.S. FDA approvals for the toughest type of medical device applications.

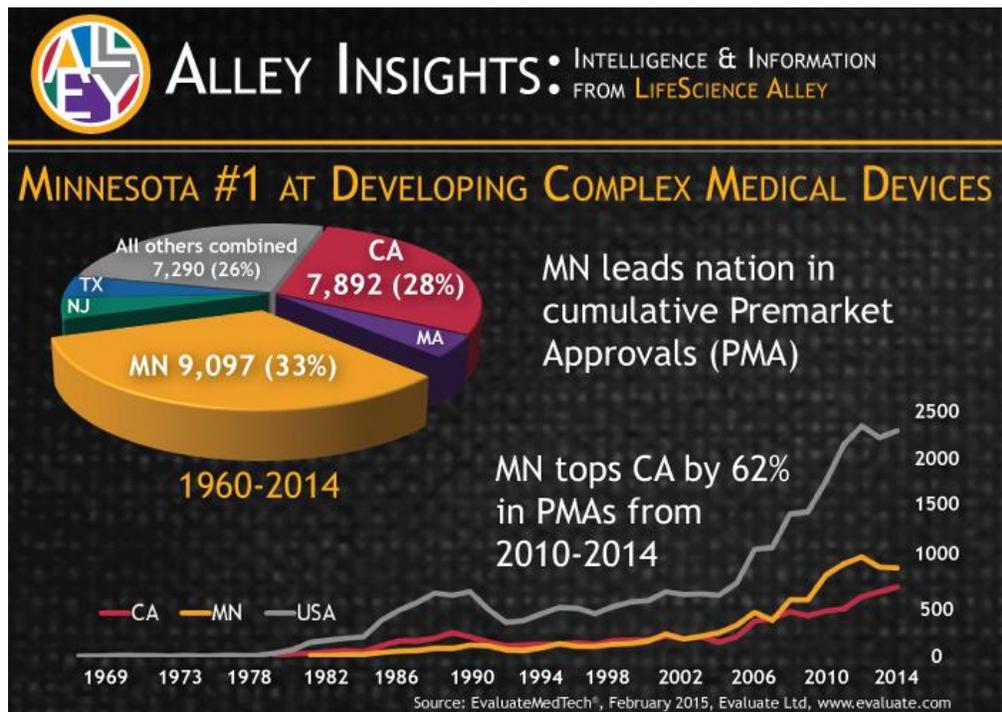
Chris Newmarker

It turns out that when it comes to getting premarket approvals from FDA, Minnesota remains the leader and has even grown its lead over California during the Great Recession, according to EvaluateMedTech data relayed by LifeScience Alley. Over more than 50 years of PMAs, a third of them—more than 9000—involved devices created by Minnesota applicants. California only had 28%, or nearly 8000. And LifeScience Alley reports the difference has been even more stark in recent years.

The next states in the running—Massachusetts, Texas, and New Jersey—only had a fraction of the pie.

Minnesota's accomplishment is even more remarkable considering that California easily wins out when it comes to number of medtech workers (about 63,207 to Minnesota's 28,141, as of 2013) and venture capital funding (\$1.01 billion to Minnesota's \$165 million, as of 2013).

California is home to more medical device companies than any other U.S. state, with a dense network of high-tech firms and a talented workforce. But some of the most life-saving (as well as most highly regulated) devices have been created in Minnesota.



Trade organization Life Science Alley released this infographic showing the state's leadership in obtaining PMAs.



Much of Massachusetts' medical device industry is based in around Boston.

3. Massachusetts

Important Statistics:

Medical Device Manufacturing Employment, 2013:

14,719

Medical Device Patents, 2009–2013:

2481

Medtech VC Investing, 2014:

\$339M

NIH Funding, 2014:

\$2.4B

Medical Device Establishments:

289

Best States for Business Ranking:

18

Chief Executive State Ranking:

46

Major OEM headquarters:

Boston Scientific (Marlborough)

Hologic (Marlborough)

Massachusetts boasts one of the densest medical device clusters in the country, and the industry has strong government support. Former Gov. Deval Patrick in 2008 signed into law a \$1 billion package to support the life sciences industry over a ten-year period. The state is also home to the country's largest biotechnology cluster. The state has a highly educated populace and has world-renowned research institutions including MIT and Harvard that help attract substantial R&D funding to the city. Massachusetts received \$2.4 billion in NIH funding in 2014, less than California but about five times what Minnesota received.

Medical devices are the biggest export for the state, making up 13% of its international trade. Two major OEMs—Boston Scientific and Hologic—are headquartered in Marlborough. Nevertheless, the state does have a high cost of living and scores relatively poorly in terms of business friendliness.

On the other hand, the state's medtech labs and incubators are

drawing investors to help spread their health care solutions around the world. Case in point is Robert Langer, ScD. The MIT professor in recent decades has made chemical engineering relevant to the life sciences, helping develop treatments for cancer, diabetes, heart disease, and schizophrenia. The field of drug-delivery has especially benefitted from his contributions. Langer has worked with others at MIT, its teaching affiliate Brigham and Women's Hospital, and other institutions to launch 29 companies. He has 1080 patents issued or pending.

Among the launches is SQZ BioTech (Boston), which Langer described as "a company that can get anything into a cell by squeezing it appropriately." The firm's tech uses a "CellSqueeze" chip, mounted onto an interface with reservoirs, to hold cells before and after squeezing.

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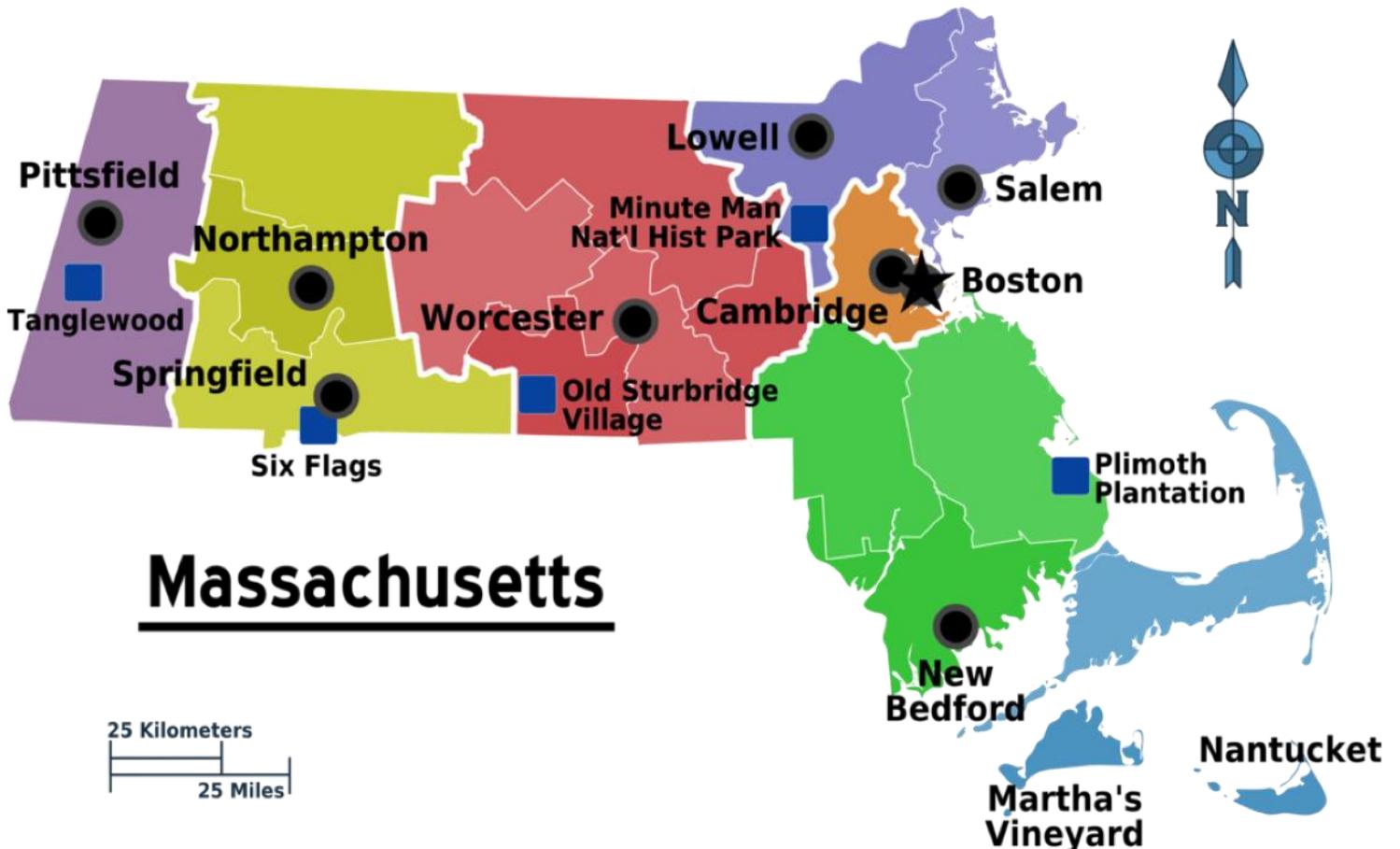
MIT professor Robert Langer and MDEA Lifetime Achievement Award Winner Robert Langer is one of the most influential researchers active in medtech.
Image: MIT

Along with Silicon Valley, the Boston area is one of the most innovative areas in the country. Materials scientist John A. Rogers may have pioneered flexible electronic circuits at the University of Illinois at Urbana-Champaign, employing them for purposes including harvesting energy off beating hearts. But the company commercializing much of the MIT alumnus' work, MC10, is based in Lexington, MA.

The 2015 Minnesota Medtech Week Innovation Prize winner was Formlabs (Somerville), which has a professional grade 3-D printer called the Form 2 that costs \$3499.

The company boasts that the Form 2's stereolithography 3-D printing technology allows for unprecedented accuracy and precision at a price point that almost everyone can afford. Such technology has run in the tens of thousands of dollars in the past. Only four years old, Formlabs' technology was exciting enough that it raised nearly \$3 million in a Kickstarter campaign.

The Massachusetts Medical Device Industry Council (MassMEDIC) is an important booster of the medtech industry in the state.





Miami from the water

4. Florida

Important Statistics:

Medical Device Manufacturing
Employment, 2013:

21,855

Medical Device Patents, 2009–2013:

1439

Medtech VC Investing, 2014:

\$23M

NIH Funding, 2014:

\$473M

Medical Device Establishments:

620

Best States for Business Ranking:

20

Chief Executive State Ranking:

2

Major OEM headquarters:

Arthrex (Naples)

Vistakon/Acuvue (Jacksonville)

**MAKO Surgical Corp. / Stryker
subsidiary (Davie)**

Florida is home to more than 1000 companies active in the life sciences, according to Enterprise Florida. The state is home to a range of life science companies ranging from Arthrex and Bristol-Myers Squibb to Noven.

According to Enterprise Florida, the state ranks second in the nation in terms of FDA-registered medical device manufacturing facilities.

Enterprise Florida says that 620 medical device manufacturers had operations in the state as of 2014. Among them are Johnson & Johnson and Medtronic Surgical Technologies, which have facilities in Jacksonville, and Johnson & Johnson Vision Care, which is also based there.

Recently, Zimmer Biomet expanded its facilities in Palm Beach Gardens.

In terms of employment of medical device professionals, Florida ranks third overall in the country—trailing California and Minnesota.

In all, the state's healthcare ecosystem employs some 700,000 workers.

The state also ranks well in terms of medical device patents granted. From 2009 to 2013, the state had 1439 such patents—behind only California, Minnesota, and Massachusetts.

There is a statewide association of medtech companies, the Florida Medical Manufacturers Consortium (FMMC) based in Tallahassee.

In terms of medical device investment, the state is not as competitive, coming in near the bottom of this list.

Florida certainly has a business friendly environment, however. *Forbes* ranked Florida in slot 20 in its Best States for Business Ranking while the readers of *Chief Executive* magazine voted Florida as the second best state in the country to do business.

The state has no income tax for individuals. The state is aggressive in recruiting new businesses to relocate there, and offers them handsome economic incentives to do so. In addition, Scripps Research Institute has its Scripps Florida nonprofit biomedical research facility located in Jupiter.

Each year, more than \$1 billion is invested in life-science related projects by the state's universities.

The state also attracts considerable NIH funding—\$473 million in 2014, which was nearly as much as the \$497 brought in by Minnesota, which is home to the prestigious Mayo Clinic, which, incidentally, also has a facility in Florida—in Jacksonville.

5. Indiana



Important Statistics:

Medical Device Manufacturing
Employment, 2013:

17,956

Medical Device Patents, 2009–2013:

1219

Medtech VC Investing, 2014:

(not available)

NIH Funding, 2014:

\$208M

Medical Device Establishments:

155

Best States for Business Ranking:

8

Chief Executive State Ranking:

6

Major OEM headquarters:

Zimmer Biomet (Warsaw)

Cook Medical (Bloomington)

Hill-Rom (Batesville)

A town in Indiana, Warsaw, has the distinction of being the orthopedic capital of the world. Ortho giant Zimmer Biomet has its headquarters there and DePuy Synthes operates its joint reconstruction business out of the town. In addition, heavy-hitters like Medtronic, Paragon Medical, Symmetry Medical, and others also have a presence in the area.

The state's medtech industry is not all about orthopedics, however, and medical device companies are spread throughout most of the state. Other common product types made in Indiana include cardiovascular, diagnostic, and urological devices. Big-name firms based in Indiana include Cook Medical and Roche Diagnostics. Boston Scientific, DePuy, and Medtronic also have operations in the state.

The state's combined life sciences industry is responsible for \$59 billion of "economic impact," according to BioCrossroads.

The state scores well in most indices of business friendliness. *Chief Executive* magazine readers ranked the state as the sixth best in

terms of its business environment. The state offers companies relatively low taxes and operating costs. In terms of top medtech manufacturing states, only Texas and Florida score higher.

The state doesn't score as well in terms of venture capital investment, however. In fact, the state was the only in the top ten for which we could find no data on VC investment. A report from BioIntellex finds: "Indiana, like many other Midwest states, faces a considerable challenge in securing private venture capital which is vital to small, young life sciences firms through their first months and years."

The funding climate, however, is gradually improving. From 2003 to 2013, angel investor funding was \$18.8 million and early stage funding totalled \$59 million, according to BioCrossroads. Between 2003 and 2013, life science VC investment in the state leapt 336% over the prior decade.

6. Pennsylvania



Important Statistics:

Medical Device Manufacturing
Employment, 2013:

16,525

Medical Device Patents, 2009–2013:

1210

Medtech VC Investing, 2014:

\$63M

NIH Funding, 2014:

\$1.5B

Best States for Business Ranking:

36

Chief Executive State Ranking:

35

Major OEM headquarters:

Dentsply International Inc. (York)

Teleflex Inc. (Wayne)

As Pennsylvania's traditional coal mines, oil fields, steel mills, and apparel factories have faded away, they have been replaced by modern manufacturing facilities. Boasting a strong medtech industry, the state is benefiting from a quickly growing population eager for technical work.

Pennsylvania's east has been becoming one of the country's leading medical device manufacturing centers, although the industry throughout the state is growing, too.

In 2013, Pennsylvania was ranked sixth among U.S. states for medical device employment.

Besides having a major medtech OEM, Dentsply International Inc., based in York, the state also maintains a strong backbone of medtech contract manufacturers. The B. Braun OEM Division of B. Braun Medical Inc., for example, is based in Bethlehem.

Johnson & Johnson, headquarters over the Delaware River in New Jersey, has a large medtech presence in the region, too. For

example, the company's diabetes management Animas Corp. and Synthes, part of DePuy Synthes, both have headquarters in West Chester.

The group Select Greater Philadelphia boasts that there are more than 2000 medtech companies located in Pennsylvania, New Jersey, and Delaware, with the City of Brotherly Love right in the center of the region.

The state may not rank as highly for business friendliness. But there are deals to be had. Lab space goes for an average \$13.80 per square foot in Philadelphia, while it is \$47.40 per square foot in Boston, according to a life science industry trends report from JLL.

Entities including Ben Franklin Technology Partners, Pennsylvania State University's Small Business Development Center, and Pennsylvania Bio are all seeking to further grow Pennsylvania as a medical device state.

7. New York



Important Statistics:

Medical Device Manufacturing
Employment, 2013:

16,544

Medical Device Patents, 2009–2013:

1160

Medtech VC Investing, 2014:

\$16.7M

NIH Funding, 2014:

\$2.1B

Best States for Business Ranking:

29

Chief Executive State Ranking:

49

Major OEM headquarters:

**Sirona Dental Systems Inc.
(Long Island)**

New York doesn't get as much attention in medtech as its New Jersey neighbor, but the state is vigorously working to boost its presence in life sciences. New York City is even vying to become a tech hub similar to San Francisco.

It's telling that digital health incubator Rock Health, headquartered in San Francisco, now has an office in New York City. And IBM Watson global headquarters opened in 2014 at 51 Astor Place in New York City's Silicon Alley.

Boston may be the biggest hub on the East Coast for medical technology innovation. But New York City is hoping to give it a run for its money. At present, the two cities appear to be neck-and-neck. A late 2015 funding report from Rock Health found that New York City attracted nearly as much VC cash for digital health funding as Boston. New York attracted more than \$500M in deals in 2015.

In early 2014, Governor Andrew Cuomo pledged more than \$100 million for the New York Genomic Medicine Network, a partnership

between the New York Genome Center and the University of Buffalo's Center for Computational Research. If the plan works as anticipated, it will help drive progress in biomedical research and drive growth in the state's burgeoning genomic medicine industry. The plan will also tie the New York City university medical community to the emerging Buffalo medical technology corridor.

With nine major academic medical centers, New York City also boasts the world's largest concentration of academic institutions, including Columbia University, Weill Cornell Medical College, NYU, Albert Einstein College of Medicine, and the Rockefeller University. The \$2.1 billion in NIH funding that New York researchers received in 2014 is nearly as much as the \$2.4 billion received by their counterparts in Massachusetts.



8. Texas

Important Statistics:

Medical Device Manufacturing Employment, 2013:

13,967

Medical Device Patents, 2009–2013:

1137

Medtech VC Investing, 2014:

\$63.2M

NIH Funding, 2014:

\$972M

Best States for Business Ranking:

6

Chief Executive State Ranking:

1

Major OEM headquarters:

Greatbatch Inc. (Frisco)

Cyberonics Inc. (Houston)

When Canadian wound clamp company Innovative Trauma Care was searching for a U.S. headquarters in 2012, it did not turn to the usual suspects such as Minneapolis, Boston, or California.

Instead, the company's co-founder and president Dennis Filips settled on San Antonio—for good reason, too. The home of the Alamo also has the San Antonio Military Medical Center, the U.S. Department of Defense's only stateside Level I–trauma center, and a niche cluster of wound care device companies including Vidacare Corp. and Kinetic Concepts Inc.

“There was already a pool of talent down there. ... If we had gone to San Diego or Boston, it probably would have taken longer to make the right connections,” Filips says. It also helped that the city of San Antonio made a \$300,000 equity investment in Innovative Trauma Care, and there were eager angel investors and a few venture capital outfits such as medtech innovator Mir Imran's InCube Labs with a presence in the Lone Star State. The story of San Antonio's medtech growth involves a cluster focused on a specific niche, in this case trauma care; the willingness of public and private sources to pony up some money; and a lower cost of doing business. It is a situation that is repeating itself across Texas in other cities including Austin and Houston, and a reason why the medtech landscape is shifting ever so slightly in the Southwest.

The medical device industry in Texas has been gaining strength in large part because of the state's famed business friendliness. *Chief Executive* magazine pegged the state's business climate as the best in the

nation. And there is specific support for life sciences.

It also helps that the largest medical center in the world, the Texas Medical Center, is based in Houston. The Texas Medical Center even announced last year that Johnson & Johnson Innovation was opening a JLABS@TMC incubator for new companies.

Many of the biggest medtech players, including more than a dozen Fortune 500 medtech companies, have manufacturing facilities or significant operations in the state. These include Abbott Laboratories, Johnson & Johnson, Medtronic, GE, Stryker, Cardinal Health, St. Jude Medical, and Becton Dickinson.

Texas' rise is far from complete though. InCube's Imran thinks the three major U.S. medical device industry hubs—California, Minnesota, and Massachusetts—have three major things going for them: a plethora of groundbreaking ideas produced inside and outside of universities, a large community of entrepreneurs who can identify fruitful ideas and cultivate them into promising companies, and a large pool of risk capital to pay for medical device development.

While Texas can't quite compete with the upper-tier medtech hubs now, it's certainly gaining ground.



9. New Jersey

Important Statistics:

Medical Device Manufacturing Employment, 2013:

13,575

Medical Device Patents, 2009–2013:

1145

Medtech VC Investing, 2014:

\$82M

NIH Funding, 2014:

\$228M

Best States for Business Ranking:

41

Chief Executive State Ranking:

47

Major OEM headquarters:

Johnson & Johnson
(New Brunswick)

Becton, Dickinson and Co.
(Franklin Lakes)

C.R. Bard (Murray Hill)

Perhaps New Jersey should do a better job marketing itself as a medtech hub. Home to one of the densest concentrations of medical device companies in the country—not to mention New Brunswick, NJ-based Johnson & Johnson—the state gets relatively little credit for its contributions.

Twelve of world's top 20 medtech companies maintain a significant presence in New Jersey, according to the HealthCare Institute of New Jersey (HINJ), which provides a voice for the life sciences industry in the state. Besides its headquarters in New Brunswick, J&J's medical presence in the Garden State includes Ethicon in Somerville and Janssen in Titusville. Becton, Dickinson and Co. is headquartered in Franklin Lakes, and C.R. Bard is based in Murray Hill.

While the state's medtech industry is strong, its biotech and pharma industries are stronger. According to a report from the New Jersey Department of Labor and Workforce Development, nearly 75% of the state's workers in life sciences are in either pharma or biotech while the remainder works for the medtech industry.

New Jersey's Economic Development Authority has established three Innovation Zones, areas within the cities of Camden, Newark, and the Greater New Brunswick area that encompass state universities, research institutions, and related businesses. These zones are designed to encourage the rapid transfer of discoveries from the laboratory to the marketplace. Enhanced financial incentives, including loans

up to \$5 million, are available to eligible technology and life science businesses locating in these zones.

Camden's Innovation Zone includes the Waterfront Technology Center, a 100,000-sq-ft facility designed to help established businesses and startups in the biosciences and other high-tech and life sciences fields.

Located in the Bioscience Cluster between Rutgers and Princeton Universities is the Technology Centre of New Jersey (North Brunswick). With approximately 325,000 sq-ft of laboratory, production, and office space and more than \$100 million invested in facilities and improvements, the Tech Centre was designed to meet the needs of research and development companies in the bioscience and other high-tech industries and to accommodate modern cleanrooms and wet labs.

Twelve of world's top 20 medtech firms maintain a significant presence here, according to the HealthCare Institute of New Jersey.

When it comes to business environment, however, the state does not excel. Case in point: *Forbes'* "Best States" business ranking was slightly more upbeat, pegging the state in slot 41 in the nation.

10. Utah



Utah has one of the fastest-growing medtech industries in the U.S. Shown here: its capitol building.

Important Statistics:

Medical Device Manufacturing Employment, 2013:

9504

Medical Device Patents, 2009–2013:

648

Medtech VC Investing, 2014:

\$16.9M

NIH Funding, 2014:

\$165M

Best States for Business Ranking:

1

Chief Executive State Ranking:

15

Major OEM headquarters:

Merit Medical Systems Inc.
(South Jordan)

Even with names such as Edwards Lifesciences, Merit Medical Systems, and Nelson Laboratories among the state's employers, it may be a surprise to learn that, on a per-capita basis, Utah is actually first in the nation in medical device manufacturing, according to 2012 numbers published in *Economic Review* by the Economic Development Corporation of Utah. Much of the industry is centered around Salt Lake City, where the University of Utah hospital and medical school are known for medical device innovation, particularly in orthopedics and cardiovascular devices.

Major OEMs with a presence in the state include Edwards, Becton Dickinson, Boston Scientific, Fresenius Medical Care and C.R. Bard.

Still, when looking at the most recently available employment numbers, Utah trails the other states on this list by a significant margin. The same is also true when comparing the volume of medical device patents filed in Utah from between 2009 to 2013 to the other states in this roundup.

The Beehive State is also noted for its business friendliness. Utah has been No. 1 in *Forbes'* Best States for Business rankings for five of the past six years, with *Forbes* recently praising the state for its robust labor force, low energy costs, and

employment outlook. The Utah Technology Council (UTC)—the state's professional association for more than 6000 high tech, clean tech and life science companies—touts other proofs of the state being good for business, including Gallup Daily Tracking listing Salt Lake City as the top job-creating U.S. metro area and CBS News ranking Provo and Orem first in a new index of the nation's 150 most dynamic labor markets.

The state-funded Utah Science and Technology and Research Initiative (USTAR) has recruited scientists from MIT, Harvard University, UCLA, Case Western, University of Arizona, and Oak Ridge National Laboratory to move to Utah research universities such as the University of Utah and Utah State University, according to the 2014 State Tech and Science Index report by the Milken Institute's California Center.

USTAR partners with the research universities to continually spin out new medical device companies, as many as a dozen each year.

Top 10 Medical Device States	Medical Device Mfg. Employment, 2013	Medical Device Patents, 2009–2013	Medtech VC Investing, 2014	NIH Funding, 2014	Chief Executive Magazine Ranking	Major Hubs
1. CA	63,307	10,061	\$1,200,000,000	\$3,400,000,000	50	Orange County, Silicon Valley, and San Diego
2. MN	28,141	4269	\$234,000,000	\$497,000,000	31	Twin Cities
3. MA	14,719	2481	\$339,000,000	\$2,400,000,000	46	Boston/Cambridge
4. FL	21,855	1439	\$23,000,000	\$473,000,000	2	Jacksonville and Tampa
5. IN	17,956	1219	Not available	\$208,000,000	6	Warsaw and Indianapolis
6. PA	16,525	1210	\$63,000,000	\$1,500,000,000	35	Philadelphia and Lehigh Valley
7. NY	16,544	1160	\$16,700,000	\$2,100,000,000	49	New York City and Westchester County
8. TX	13,967	1137	\$63,200,000	\$972,000,000	1	Houston, Austin, and Dallas
9. NJ	13,575	1145	\$82,000,000	\$228,000,000	47	Middlesex County
10. UT	9504	648	\$16,900,000	\$165,000,000	15	Salt Lake City

Methodology:

In ranking the states in this roundup, we looked closely at overall medical device employment numbers and patents filed, making special considerations for states with exceptionally high venture capital or NIH funding amounts (such as Massachusetts). We also weighed the business climate of each state, using it, for instance, to position Pennsylvania ahead of New York state. While business friendliness is certainly an important consideration, we didn't think twice about our choice to position California, Minnesota, and Massachusetts as the top three states because those three generally led by wide margins in other categories.

Medical device industry employment and patents filed data came from the Minnesota Department of Employment and Economic Development's Compare Minnesota tool, venture capital funding numbers were from the PricewaterhouseCoopers/National Venture Capital Association MoneyTree Report, and NIH funding was from NIH's website. Business friendliness rankings came from *Forbes'* Best States for Business (2015) and *Chief Executive* magazine's Best & Worst States for Business (2015).



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