

Medtech Crossroads: Insights and Research Findings among New York State Bioscience and Medical Technology Executives



By Allyssa Birth, MBA
Tom Richardson, PhD, MBA
Kenneth Tomaszewski, PhD, MS

Contents

| | |
|--|-----------|
| Abstract Page | 3 |
| Introduction and Background | 4 |
| Methods | 5 |
| Qualitative Component | 5 |
| Population and Sampling | 5 |
| Instrument Design | 5 |
| Data Analysis | 5 |
| Results | 6 |
| Sample Disposition | 6 |
| State of the Industry | 6 |
| Workforce and Talent Development | 7 |
| Economic Development | 9 |
| Conclusions and Discussion | 10 |

Abstract Page

Background. Rapid national and state policy and business environmental change has prompted increasing need to better understand the New York State bioscience and medical technology (Bio/Med) industry from the perspective of business leaders.

Objectives. The objective was to provide insight from executives in three key areas: the current state of the bioscience and medical technology industry, workforce and talent development issues, and the role of the Bio/Med industry in economic development.

Design and Methods. A cross-sectional quantitative online survey was conducted among 21 executives from MedTech's member organizations in April 2014. Additionally, 10 senior executives from MedTech member companies were interviewed in qualitative settings.

Respondents were asked about their current perceptions of and experiences in the Bio/Med industry in New York State.

Results. Across New York State, respondents are neither extremely positive nor extremely negative about the state of the industry. There are areas of significant challenges, but also exceptional opportunities that New York State provides. There are distinct advantages and disadvantages to having a business in this industry in New York State. Related to workforce, it is clear there are some specific skill sets needed in the future, and while New York State schools are providing adequate talent there are still areas for improvement. A majority feel the industry is an important driver of the economy in New York State, but there are still barriers to growth to overcome.

Conclusion. There is tempered optimism as to the state of business in the Bio/Med industry, here in New York State. Global as well as national industry trends have a direct impact on these outlooks. New York State and the Bio/Med firms residing here have challenges, but also reason to be optimistic.

Introduction and Background

Bioscience and medical technology (Bio/Med) companies are vital components of the larger healthcare industry. As manufacturers and innovators, the vast array of products and services they produce directly and indirectly impact the lives of patients every day.

With unprecedented change occurring through “healthcare reform” it is essential for Bio/Med companies to closely monitor this changing landscape and its impact on their business. The industry must continue to work closely with government, regulatory bodies, healthcare providers, health insurers, hospitals, academic institutions, researchers, and other essential service providers within the healthcare delivery system to collectively move toward the goal of delivering higher quality care at lower overall costs.

The ability of the Bio/Med industry to sustain its strong pattern of growth and vibrancy thus remains in question, as the way healthcare is paid for and delivered in the United States continues to evolve. Stimulated by the Patient Accountability and Affordable Care Act of 2010, healthcare reform initiatives aim to expand the number of individuals insured, improve health outcomes, and reduce healthcare costs. While many Bio/Med companies may view some of these government led reform efforts as a tremendous challenge and threat to the industry (for example, the Medical Device Excise Tax), others see reform efforts as stimuli for identifying opportunities to bring even greater value to their customers. More than ever, Bio/Med companies must band together as an industry to ensure they are part of the solution rather than viewed as part of the problem.

Understanding the perspective of those individuals charged with leading Bio/Med companies can serve an important role in helping shape the future of the industry. From large multinational medical device manufacturers to the highly specialized supply chain intermediaries to the entrepreneurial start-ups and spin-offs with novel intellectual property, the leaders of these companies can provide insight into the challenges and opportunities that exist. Such insights are needed to help guide the strategies of Bio/Med

companies and ultimately address the evolving needs of healthcare systems, medical providers, and patients.

The specific aims of this research were to: (1) identify the current state of the Bio/Med industry and the challenges and opportunities at both a national and state level, (2) examine workforce related issues such as availability of talent, demand for specific education and skills sets, and levels of academic-industry partnerships, and (3) examine the role of the industry in the economic development of New York State and efforts needed to stimulate future growth.

The research included an initial qualitative research phase consisting of in-person and telephone interviews followed by administration of an online survey.

Methods

Qualitative Component

In addition to the quantitative research, which is the focus of this paper, an additional series of interviews were completed with MedTech member executives between February and March 2014. These interviews were used to develop the quantitative instrument for the online survey. A total of 10 interviews were completed. Results and quotes from the qualitative interviews are used sparingly throughout this paper to provide deeper insights into the survey findings.

Population and Sampling

In April, 2014, 48 executive-level employees of MedTech's member organizations including both manufacturing and service companies were invited to participate in a self-administered online survey through email invitations. Reminders and follow up requests to the same respondents were also sent. A total of 21 respondents (44% response rate) completed the survey.

Instrument Design

The first module included basic demographic information, including position title and company type. The second module focused on the state of the Bio/Med industry. It gauged respondents' perceptions of the industry at both the state and national level, as well as identified both the challenges and opportunities that exist within the industry. This section queried advantages and disadvantages of having a business in New York State. The third module was related to workforce and talent development. The fourth and final module related to economic development, and the drivers and barriers to growth of the industry in relation to the New York State economy.

Data Analysis

Analyses were descriptive, primarily consisting of frequencies and cross-tabulation of the survey data. Data presented are unweighted.

Results

Sample Disposition

Table 1 summarizes the sample composition.

Table 1.

| Characteristic | Total (n=21) |
|---|--------------|
| Current Title | |
| C-level (CEO, COO, CSO) | 29% |
| President | 24% |
| Vice President | 14% |
| General Manager | 14% |
| Other | 19% |
| Company Type | |
| Medical Technology/Devices & Equipment | 86% |
| Biotech/Biosciences R&D | 5% |
| Contract/Clinical Research Organization | 5% |
| Medical and Related Testing Labs | 5% |

State of the Industry

National Level

Overall, the majority of respondents are “neutral” about the current state of the industry on a national level, with only 10% feeling “extremely positive”.

The “regulatory and compliance environment” and “changes in national tax laws” are both seen as “extremely significant” challenges to a majority of respondents, with a mean rank of 5.8 and 5.7 respectively, on a scale of 1 to 7. Table 2 shows the percentage of respondents who find each industry challenge to be “extremely significant” (top 2 box).

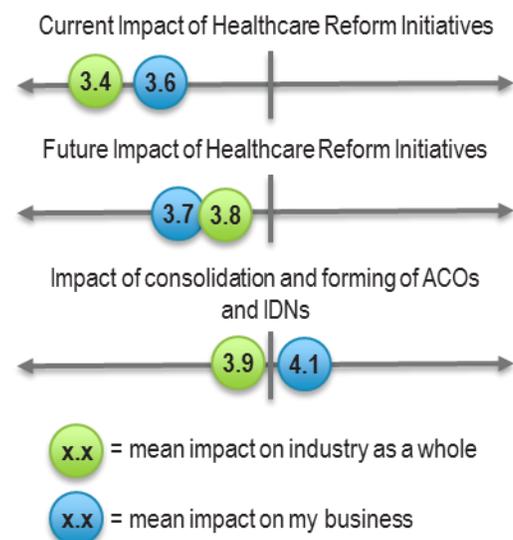
Table 2.

| National Level Industry Challenge | Top 2 Box (n=21) |
|---|------------------|
| Regulatory and Compliance environment | 67% |
| Changes in national tax laws | 67% |
| Decrease in reimbursement rates | 48% |
| The Affordable Care Act/“Obama Care” | 43% |
| US Healthcare reform initiatives in general | 38% |
| Consolidation of hospitals, payers, and providers | 14% |

Respondents are most split on the impact of the Affordable Care Act and whether it is a significant challenge or not. Despite significant hospital consolidation in the industry, most do not see this as a major challenge.

Looking at trends in the market and their impact on both the industry in general and on individual businesses, currently healthcare reform initiatives have generally not had either a positive or negative impact on the industry or individual businesses. Figure 1 shows the mean impact scores of each market trend on a scale of 1 (extremely negative) to 7 (extremely positive).

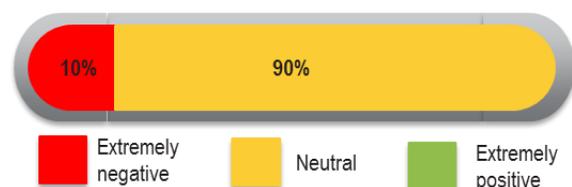
Figure 1 – Impact of Market Trends (n=21)



State Level

A vast majority of respondents are neutral about the current state of the industry on a state level, with no one feeling extremely positive, as seen in Figure 2.

Figure 2 – State of the Industry (New York State) (n=21)



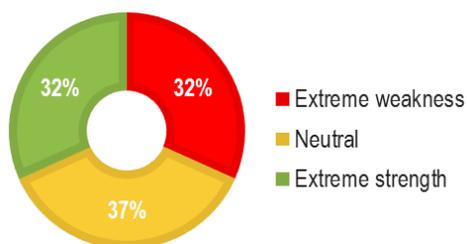
However, there are significant opportunities in New York State related to partnerships and collaboration with academic institutions and the “ability to improve healthcare quality and outcomes”, as seen in Table 3, which shows the percentage of respondents who find each industry opportunity to be extremely significant (top 2 box). Additionally, “academic institutions” are seen as a clear strength for stimulating growth.

Table 3.

| State Level Industry Opportunities | Top 2 Box (n=21) |
|--|------------------|
| Academic collaboration/partnerships | 57% |
| Ability to improve healthcare quality/outcomes | 52% |
| Ability to reduce healthcare costs | 43% |
| Improving the economy | 33% |
| Ability to improve healthcare access | 29% |
| Opportunity for foreign markets | 19% |

In discussing the strengths and weaknesses of New York State for stimulating growth, respondents are most divided on the perception of investment capital infrastructure, as seen in Figure 3.

Figure 3 – Ability of Investment Capital Infrastructure to Stimulate Growth in New York State (n=21)



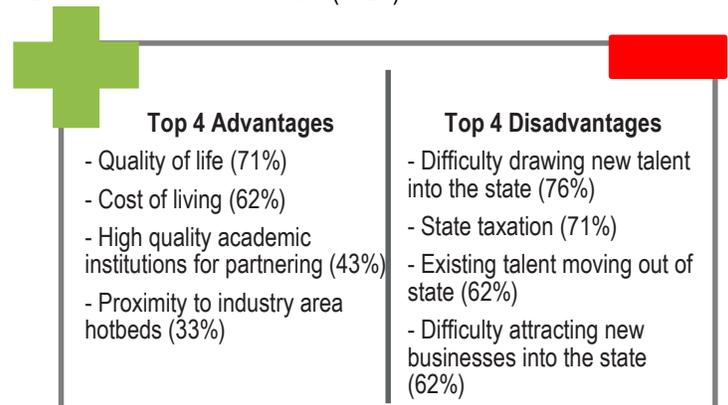
“Recruiting talented workers to the state,” “state taxation,” and “retaining talented workers” are all major challenges at the state level. Table 4 depicts the percentage of respondents who find each industry challenge to be extremely significant (top 2 box).

Table 4.

| State Level Industry Challenges | Top 2 Box (n=21) |
|--|------------------|
| Recruiting talented workers to NY State | 71% |
| State taxation | 62% |
| Retaining talented workforce in NY State | 52% |
| NY State specific regulatory/compliance issues | 24% |
| NY State healthcare laws | 10% |
| Distance from suppliers | 10% |
| NY State Medicaid reimbursement | 5% |
| Distance to customers | 5% |

Similarly, “difficulty in drawing new talent” and “state taxation” are disadvantages of having a business in New York State, while the “quality of life” and the “cost of living” are clear advantages, as seen in Figure 4.

Figure 4 – Top Advantages and Disadvantages of having a Business in New York State (n=21)

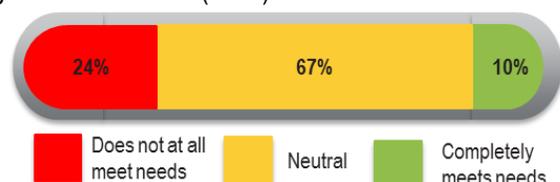


Workforce and Talent Development

Needed Skills & Recruitment Methods

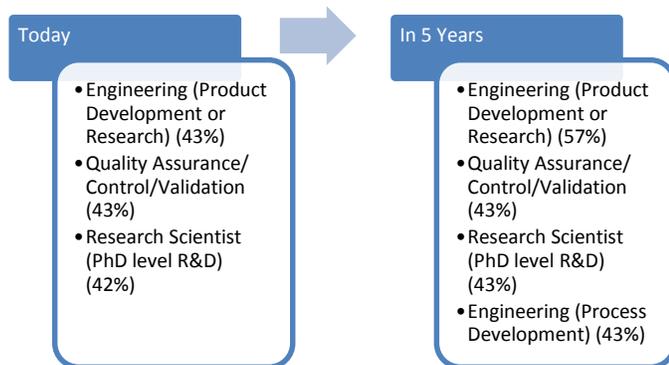
The majority of respondents are neutral about the ability of the currently available workforce’s ability to meet their organizations’ needs, as seen in Figure 5.

Figure 5 – Ability of Currently Available Workforce to Meet Organization’s Needs (n=21)



The most needed skill sets today are Engineering (Product Development or Research), Research Scientist, and Quality Assurance/Control/Validation. These same skills will be needed in five years, with Engineering (Product Development or Research) seeing an even greater need and Engineering (Process Development) becoming needed as well, as seen in Figure 6.

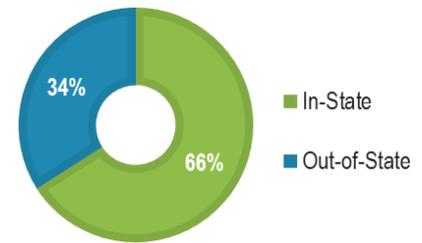
Figure 6 – Skill Sets Needed Today and in 5 Years (n=21)



Of the top three skill sets needed today, Quality Assurance/Control/Validation positions are the most challenging to recruit with a mean score of 5.8 out of 7. Engineering (Product Development or Research) and Research Scientist are slightly less challenging with mean scores of 5.7 and 5.4 of 7, respectively.

Today, on average, two-thirds of talent recruited from higher education institutions is done from schools within New York State, as seen in Figure 7. In an aided exercise, the top schools used in-state are the University of Rochester, Rochester Institute of Technology, Cornell University, and State University of New York at Buffalo. In an unaided exercise, the most frequently mentioned out-of-state institutions used are Penn State, Boston College, Rutgers, and Virginia Tech. Those who look out-of-state have difficulty finding talent in New York State and are finding more qualified individuals out-of-state.

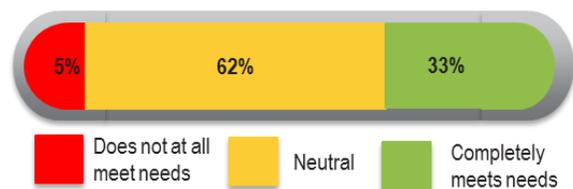
Figure 7 – Location of Higher Education Institutions Used to Recruit Talent



Workforce Development & Challenges

A majority feel that New York State schools are at least “somewhat” able to meet their workforce needs. However, only one-third of respondents feel New York State schools “completely” meet their needs, so there is an opportunity for improvement, as seen in Figure 8. In an unaided exercise, mentions of areas of improvement in higher education in New York State include advanced engineering programs, more specified engineering programs, providing industry experience, retaining talented students to work within New York State, and increasing computer programming programs/skills.

Figure 8 – Ability of New York State Schools to Meet Organization’s Needs



Many businesses use a variety of initiatives to develop their workforce, the most popular of which include internship/co-op programs (76%), mentoring or coaching (76%), and internal training (71%). Initiatives that work to develop new recruits as well as cultivating existing employees appear to be used equally. However, only 33% of respondents state they use employee retention plans. Nearly all organizations have some type of relationship with a higher education institution to assist in developing their organization’s workforce. Primarily, this consists of co-op or internship programs. Some also have collaborative research engagements and career development initiatives. More than

Conclusions and Discussion

The importance of understanding industry leaders' perspective on the topics explored here cannot be understated. Findings presented here provide a glimpse into both current state and the future among those leaders in New York State.

The national policy and regulatory environment is crucial to the current state views among respondents. Indeed, national regulatory issues including taxation, are seen as a challenge by the majority of respondents. Industry organizations, like MedTech here in New York State, and AdvaMed, BIO, and PhRMA at the national level, remain a key resource for promoting dialogue on these issues. While trends related to regulatory challenges can be identified, they are not, however, seen as especially impactful. This perhaps reflects that these are increasingly being "tackled" or are otherwise manageable and viewed as "table stakes" among respondents. Again, forums and industry organizations may have a continued role in helping facilitate these issues.

As related in the qualitative portion of this research, one President level respondent states, "Clearly, the regulatory challenges are ever increasing. We're looking optimistically toward harmonization of regulatory standards around the world. But that seems to be plodding along and moving very slowly. There's a lot of similarities, of course, but from country to country, every country has to put their own footprint on their regulations. And so, compliance is an ever increasing burden for anyone bringing medical technology to market. So, that's certainly a big challenge. And the other [trend], clearly, is the need to deliver better care at a lower cost, and, you know, that's a tremendous challenge for the industry."

Echoing this comment, another respondent mentions, "the greatest challenge that we face as a company right now is, without a doubt, understanding the changing landscape of investment and reimbursement in healthcare. In the United States which is a more mature market for us, the Affordable Care Act has really altered the landscape. And that's not a bad thing or a good thing. It's just changed the way we think about reimbursement." Overall, it may yet be too soon to

determine what the net impact of healthcare reform initiatives will be on the Bio/Med industry.

For New York State specifically, however, the news is neutral at best. The current state of the industry in New York State is viewed as neutral by almost all respondents with none relating strong optimism. With a "glass half-full" view, we might consider room for improvement, but should not take neutrality as a positive as the slope can be slippery and the reality of slippage can be real. One Vice President level respondent states, "I think to do business in New York State, whether it be bioscience company or any other, it's just plain difficult because of the costs associated with doing business in New York State, whether it be the taxes... not only from a corporate perspective, but again from an employee perspective, it's an expensive place to live and work. And so, it's hard to attract talent and it's hard to attract new businesses and growth to the state..." However, another President level respondent mentions "I think there are some positives here. Certainly the workforce that we've got in New York State is well educated. We've got some excellent academic institutions. And I think the opportunity to leverage relationships within those players... will grow as time goes by. I think some of those relationships are still kind of in the nascent side of the development. But I see a lot of people are much more aware of those relationships..."

Initiatives aimed at attracting new businesses to New York State (<http://startup.ny.gov/>) allow new businesses to "operate 100% tax-free for 10 years. No income tax, business, corporate, state or local taxes, sales and property taxes, or franchise fees." These kinds of programs may stimulate new growth, but may have consequences for existing New York State firms. More programs will be needed to build momentum and to continue positive outlooks.

One of the consequences of bringing new business to New York State may be the development of a stronger overall workforce, especially new leadership. In fact, recruiting talented workers remains one of the top challenges. In theory and practice, bringing new business to New York State will also help existing firms recruit as well. This allows candidates

options should current employment “not work out,” or for their spouses to gain employment.

Similarly, the kind of workforce skills most needed are related to engineering and quality control aspects. A real strength of the State thus rests with New York’s academic institutions, with two-thirds of talent reportedly recruited from higher education institutions within the state. Leveraging the strong academic institutions remains a clear opportunity for continued growth. As to the role of academic institutions in New York State, one President states “New York State has a great educational system. It has a lot of highly qualified young people who are energetic, enthusiastic and looking for opportunities. So, from a team standpoint, not necessarily leadership standpoint, but a team standpoint we are, I think, well positioned with quality talent. We just need to make sure we have a place for them to go.”

Academia alone will not be the answer however, as mid-level and senior level talent is truly the biggest challenge. Incentives and rationale for the more senior level talent to come to and remain in New York State are therefore needed. Quality of life and a lower cost of living are two very positive factors in accomplishing this. These factors are balanced by the perception of higher taxes, which is reported as a challenge of doing business in New York State.

So what can we determine the future holds for economic development in New York State? What will drive growth for New York State’s economy, and how the Bio/Med industry fits into these scenarios? The majority of respondents agree the Bio/Med industry is an extremely important component of New York State’s economic development, not only for potential jobs it could provide, but also for its ability to make true improvements to health outcomes as well as having an impact on state tax revenue. This optimistic point of view was well articulated by one of the respondents: “I think that I’d be remiss if I didn’t say that it’s a vibrant healthy industry that is a great source of high paying jobs in our state. There’s also opportunity to improve. We have plenty of room to grow into even more of a leader than we are currently as a state in the bioscience and medical technology industry. And we’re just

interested in any and all ways to do that and partner with MedTech and with our elected officials.”

As indicated from the open-ended responses in the survey, “healthcare” is top of mind when thinking about why this industry is so important to economic growth. An aging population, increased complexity, and limited resources have acquired both national as well as local policymakers to tackle these issues head-on. Whereas the “technology boom” of the 90s was such a substantial part of the growing economy, it could be expected that “healthcare,” both the innovation and delivery aspects, will be key to economic growth for the future. The ability for New York State policymakers to fully embrace this opportunity, and facilitate increased opportunities in this sector is critical, as indicated by this research.

New York State is clearly poised to take advantage of these opportunities: the supply of a workforce, companies that want to grow, an industry sector that is in great need for innovation, cost effective solutions, and public -- private partnership scenarios. All of which create a possible “perfect storm” to enable growth. Industry groups, like MedTech will be critical to facilitating information sharing across these constituents to both expedite and maximize the opportunities.

Clearly, more research can be leveraged to help ensure both strategy and tactics are aligned towards these goals. This study, conducted among a senior-level group of industry executives, is a critical and needed perspective, but additional work comparing New York State, other states, national and global perspectives are also needed.

In conclusion, it would seem there is tempered optimism as to the state of business in the Bio/Med industry, here in New York State. Global as well as national industry trends have a direct impact on these outlooks. New York State and the Bio/Med firms residing here have challenges, but also reason to be optimistic with regard to the role of academia and new initiatives aimed at bringing more businesses to the state.