



## Life Science Remains Strong in the Garden State

by John Ehret, Labor Market Analyst

New Jersey's biopharmaceutical and life-science industry cluster continues to expand the state's long-established record of science- and knowledge-based advancements even as it continues to add enormous value to the state's economy. The latest available employment data (third quarter of 2011), showed that the 3,129 business establishments of the biopharmaceutical and life-science industry cluster reported an employment level totaling 122,442 jobs. This industry cluster relies on the highly skilled and educated workforce for which New Jersey is noted. The recent implementation by New Jersey of a statewide industry-cluster approach to economic development, and greater collaboration among industry groups connecting key partners, including state and local government agencies, educational institutions, and industry related associations, should help strengthen these key industry groups and generate increased business and job opportunities within the state.



While cluster jobholding accounted for only about 3.9 percent of the state's annual employment in 2010, the total annual wages of these well-paying jobs was \$14.1 billion, or about 8.1 percent of total payrolls in New Jersey<sup>1</sup>. Biopharma/life-sciences businesses also create significant positive ripple effects that help support jobs in other industries such as transportation and construction. In 2010, industries within the cluster accounted for \$4.8 billion of the state's exportation of manufactured goods<sup>2</sup>. Additionally, these businesses spent over \$1.5 billion on construction projects that created 5,365 construction jobs<sup>3</sup>. Other noteworthy

economic contributions include research and development (R&D) investments of nearly \$20 billion, and significant foreign direct investments.

The importance of this cluster's economic impact on the state's economy was highlighted in a Rutgers University study, which found that biopharmaceutical/life sciences accounted for \$23 billion (nearly 5.0%) of New Jersey's 2009-2010 Gross Domestic Product<sup>4</sup>.

This industry cluster, which includes pharmaceutical, biotechnology and medical device establishments, prospers in New Jersey primarily due to the strength of the state's intellectual capital. From Edison to Einstein to Sarnoff, New Jersey has been home to a long list of exceptional pioneers known for cutting-edge innovations and advancements in research and development. New

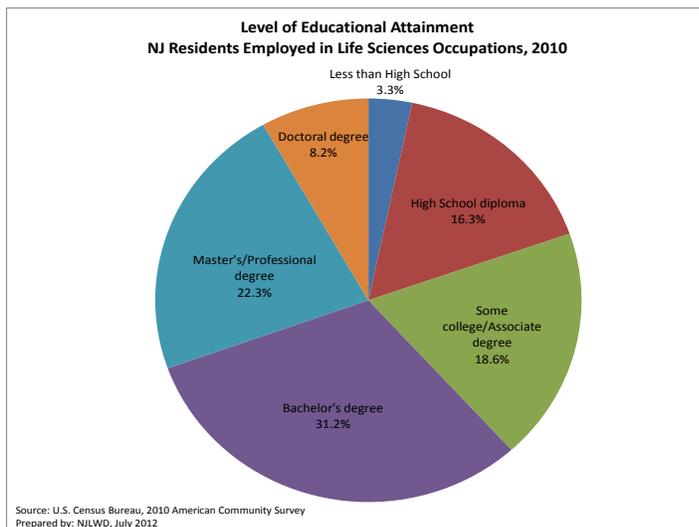
Jersey continues to excel in developing highly-educated and talented workers. This workforce makes the Garden State an attractive place for companies within the biopharma/life-sciences cluster to locate or expand because it provides a supply of available labor capable of performing highly complex and technically demanding jobs. The sector's requirement of a well-educated workforce is supported by the U.S. Census Bureau's 2010 American Community Survey (ACS) data for New Jersey. In 2010, over three-fifths of the New Jersey workers employed in the biopharmaceutical & life-science cluster held at

**As of the third quarter of 2011, the cluster's 3,129 business establishments reported an employment level totaling 122,442 jobs**

*This is the second in a series of NJ Labor Market Views articles on New Jersey's biopharma/life sciences industry cluster. The full series of NJ Labor Market Views is available by clicking [here](#). For more information on the industry cluster contact: John Ehret at (609)984-9683 or [john.ehret@dol.state.nj.us](mailto:john.ehret@dol.state.nj.us)*

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in technologies. Therefore, identifying, understanding and then adapting the workforce accordingly is the key to success for all stakeholders. The cluster's 'collaboration' and 'teamwork' approaches will help enable New Jersey to maximize the full potential of its highly educated and talented workforce while also making certain that these workers are as nimble in adapting

least a bachelor's degree. More than 22 percent held a master's or professional degree and 8.2 percent held a doctoral degree.

to change as the businesses in these industry groups.

The 2010 ACS data indicated that 1.3 million (35.4%) of New Jersey's population age 25 and over held a bachelor's degree or higher providing the labor pool of well-educated and talented workers, especially in scientific and engineering occupations so vital to the success of businesses in the cluster. In fact, in 2011 New Jersey led the nation with the highest occupational concentration of biochemists and biophysicists and ranked second both in employment (5,580) and concentration of chemists.

### Overview of New Jersey's Biopharmaceutical & Life-Science Cluster

New Jersey's biopharmaceutical & life-science cluster consists of three key industry components: pharmaceuticals; medical devices and equipment; and biotechnology. New Jersey has been dubbed the "Medicine Chest of the World" due to its high concentration of pharmaceutical companies. Pharmaceuticals is the largest component

With numbers such as these, it is no wonder that companies in this cluster gravitate to and expand operations in the Garden State.

In addition to requiring a high caliber workforce, employers in this industry cluster also need workers who can continue learning, expanding their skill sets and adapting to changing business models and advances

New Jersey Biopharmaceutical and Life Sciences Cluster Employment by Industry, 3rd Quarter 2011			
NAICS Code	Industry	Employment	Establishments
<b>Biopharmaceutical &amp; Life Sciences, Total</b>		<b>122,422</b>	<b>3,129</b>
<b>Drugs &amp; Pharmaceuticals</b>		52,268	942
3254	Pharmaceutical & Medicine Manufacturing	29,930	245
3256	Soap, Cleaning Compounds & Toilet Prep Manufacturing	9,166	206
4242	Druggists' Goods Merchant Wholesalers	13,172	517
<b>Medical Devices &amp; Equipment</b>		26,131	781
3345	Electronic Instrument Manufacturing	13,802	332
3391	Medical Equipment & Supplies Manufacturing	12,329	427
<b>Biotechnology (Research &amp; Development)</b>		44,043	1,385
5417	Scientific Research & Development Services	31,211	723
6215	Medical & Diagnostic Labs	12,832	679
<b>New Jersey Private Sector Employment, Total</b>		<b>3,135,081</b>	<b>261,455</b>

Source: NJLWD, Quarterly Census of Employment & Wages

and it includes drug manufacturers and wholesalers industry groups. The medical devices and equipment component, often referred to as being at "the epicenter of the global pharmaceutical and medical technology industry,"<sup>5</sup> has contributed enormously toward bridging gaps, especially with its high-tech manufacturing delivery systems. This component encompasses businesses identified in the medical equipment and supplies manufacturer's industry groups. Biotechnology, which has a history of scientific innovation in New Jersey, is consistently at the forefront of global research and development. It consists of scientific research & development services and medical and diagnostic laboratories industry groups. The combined strength of the different components generates even greater opportunities for New Jersey's businesses, workforce, and the state's overall economy.



Over the past few years, this cluster has seen some industry groups and sub-groups enjoy growth in employment and in the number of establishments, while others have held steady or pulled back. It is important to recognize that the dynamics of these components continuously are evolving due to a variety of factors, such as economic uncertainties, shifts in business strategies, rapid changes in technology, complex government regulations and social changes, to name a few. These factors affect strategies and policies related to investments, personnel requirements, delivery efficiencies, adapting to cultural changes to meet the needs of the future, etc.

***Although statewide employment in the cluster declined from 2005 to 2010, the number of business establishments was up by 13.2 percent over the period.***

Analysis of NJLWD's Quarterly Census of Employment & Wage data (QCEW) revealed that from 2005 through 2010, the employment picture for the cluster experienced mixed results. Although there was an overall employment loss of 5.3 percent (-6,904 jobs), the number of establishments grew by 13.2 percent over the five-year period. Nationally, employment in the cluster was up by 0.4 percent while the number of establishments grew by 9.6 percent over the period.

Of the three main industry components, employment in pharmaceuticals saw the biggest decline, both statewide (-14.9%), as well as nationally (-7.6%). Two industry sub-groups that account for 69.0 percent of pharmaceutical employment statewide, pharmaceutical preparation manufacturing (47.1%); and drug and drug wholesalers (21.9%), declined by 21.8 and 2.2 percent, respectively. Jobholding in the medical device component was down by 3.5 percent in both the state and U.S. Significant job growth was seen in biotech, both statewide (+8.9%), as well as nationally (+10.5%).

The increase in the number of establishments in this industry cluster was strong (+13.2%), outpacing the nation (+9.6%) by 3.6 percentage points. It is noteworthy to mention that the state's pharmaceutical component realized a net gain in the number of establishments (+19.2%) over the five-year period. This is quite impressive since many of the industry's major acquisitions and mergers, which took place during this period, involved companies with a significant presence in New Jersey. This suggests that even though these 'mega-merger'

deals such as Merck & Co. with Schering-Plough, may have negatively impacted employment, pharmaceutical-related establishments are expanding in this state. The increase in establishments from 2005 to 2010 (ranging between +1.9% to +4.9% annually) is an encouraging sign for future activities. While company reorganizations were (and still are) taking place, the industry as a whole continues to maintain its presence in the Garden State's "pharma country." By comparison, the nationwide gain of 4.9 percent in pharmaceutical establishments during the same period (ranging between +0.6% to +1.8% annually), was not nearly as robust. One example of a company wishing to maintain a New Jersey presence is Sanofi-Aventis, which acquired a company located in Massachusetts. For operational purposes, Sanofi is relocating some activities to the Massachusetts site; however, the company continues to maintain its U.S. headquarters in Bridgewater (Somerset County).

## Highlights of Component Industries

New Jersey's drugs and pharmaceutical component accounted for 52,268 (42.7%) of the cluster's jobs and 942 (30.1%) of the establishments as of the third quarter of 2011. Most of these jobs were in the pharmaceutical and medicine manufacturing industries (29,930 or 57.3%). From 2005 to 2010, a large portion of the employment losses were related to company reorganizations and businesses redirecting efforts to address industry specific challenges. Meanwhile, over this same five-year period, the establishments in the drug & pharmaceuticals component increased (+157 or by 19.2%). New Jersey's average annual wages over those five years also increased (+35.4%) reaching \$130,143 in 2010. This would suggest that while companies reorganized their internal operations, New Jersey and its talented workforce will remain an important part of future activities. One such example

### Recent attraction/expansion projects include:

**Leo Pharma Inc.** announced plans to increase its staff nationwide by about 300 next year; a portion of these new jobs will be headquarters personnel at the company's Parsippany-Troy Hills Township (Morris County) location.

**Oncobiologics** recently opened its Cranbury Township (Middlesex County), NJ headquarters; the one year-old company is adding new biotech jobs and plans to expand to 200 employees over the next two years.

**Watson Pharmaceuticals** is planning to invest \$4.5 million to establish a Global R&D Technology Center in the Technology Centre of New Jersey, located in North Brunswick Township (Middlesex County). The site will employ about 50 scientists, chemists and support staff.

is Nutley-based Roche's reorganization with California-based Genentech. While Roche's restructuring will result in the closing of its Nutley facility — and the loss of over 1,000 jobs at this site — the company has decided to maintain its diagnostics facility in Branchburg (Somerset County), where it employs about 400 workers.

New Jersey's medical devices and equipment industry group consists of 781 establishments and was responsible for 26,131 jobs as of the third quarter of 2011, or 21.3 percent of the cluster's jobholding. From 2005 to 2010, New Jersey and the nation saw employment decline by 3.5 percent. However, over the same time frame, the number of medical device establishments continued to grow in New Jersey (+4.0%) while nationally, these establishments declined (-0.3%).

Employment in the biotech component in the third quarter 2011 totaled 44,043 in New Jersey with 1,385 establishments. Over the 2005 to 2010 period, New Jersey's biotech payrolls were up by 8.9 percent (+3,468 jobs). During the period, the scientific research and development services industry saw employment grow by 7.1 percent while the medical and diagnostic labs rose by 13.4 percent. Likewise, biotech establishments overall grew by 14.8 percent: scientific research and development services industry was up by 6.7 percent

while the number of medical and diagnostic labs rose sharply by 25.1 percent.

### Outlook for New Jersey's Biopharmaceutical & Life-Science Cluster

The future for New Jersey's biopharmaceutical & life-science cluster is viewed with encouraging optimism. As companies are announcing plans to relocate and/or expand operation(s) in New Jersey, new opportunities are presenting themselves, especially in terms of employment. However, while this cluster's overall outlook is viewed as encouraging, the extent varies within each component.

The outlook is cautiously optimistic for employment in pharmaceuticals. Some uncertainty remains in regard to reorganization plans resulting from mergers within the industry. However, because many of these workers have the fundamental skill sets needed by employers in this industry group, and since many workers are utilizing highly focused programs to adapt to new emerging trends, these same employees are seen as an asset for the new wave of (specialty) pharmaceutical companies. With the many instances of recently announced attraction and expansion cases taking place throughout the state, improved employment opportunities are seen for this related workforce.

The biotech component appears to have an overall healthy outlook, both for employment, as well as new business opportunities. Trends are moving toward

increasing the efficiency of research and development. Also, New Jersey's innovative and scientifically talented workforce helps keep established companies in the state, while also continuing to attract new firms. The number of these establishments is still expanding and the need, both for a high quality workforce, and for being in close proximity to related industry groups, leads companies to seek Garden State locations.

The medical devices and equipment component industry group is being viewed with guarded optimism largely because New Jersey is able to provide what this industry group requires to succeed. This includes a skilled and talented workforce, highly advanced technological companies with which to partner, and a statewide support system that understands and works to address their manufacturing needs, concerns and issues. With the resources now in place, New Jersey should continue to attract and keep these types of companies. However, the economy still faces some financial uncertainties and this manufacturing-based group's employment and establishment expansion has been somewhat sluggish. As the economy continues to recover, more-advanced manufacturing technology will likely be needed by other industry groups within this cluster which in turn should provide the medical device group with expansion opportunities, resulting in new company hires.

One example of a company attracted by New Jersey's specialized workforce is the biopharmaceutical company, Ipsen, which established its new, North American headquarters in Basking Ridge (Somerset County). The company has hired 75 new employees in the areas of clinical research, marketing and sales, finance, legal compliance, market access, and regulatory affairs. Other companies, such as Novo Nordisk and Bayer Healthcare also have chosen to stay and expand in the Garden State. In the case of Danish drug maker Novo Nordisk, the company

#### Recent attraction/expansion projects include:

Headquartered in Summit (Union County), **Celgene**, one of the largest biotechnology company in the world, is increasing their presence in the State by leasing about 104,000-sq.ft. of space in Warren Township, NJ.

**ThromboGenics NV**, a biopharmaceutical company focused on developing innovative ophthalmic medicines, announced the opening of its new U.S headquarters in Iselin (Woodbridge Township, Middlesex County).

**Recent attraction/expansion projects include:**

**Siemens Hearing Instruments** manufactures hearing aids. The company has been growing its Central Jersey headquarters, plant, and R&D center. The company currently employs more than 400 people at the Piscataway Township (Middlesex County) location.

**Thorlabs** has expanded in Sussex County New Jersey; the company opened a new 120,000 sq.ft. facility in Newton. It also intends to eventually expand another facility, which is located in Andover Township. Thorlabs employs about 350 people in Sussex County.

is expanding its New Jersey presence by constructing a new \$215 million, 770,000-sq.ft. headquarters in Plainsboro Township (Middlesex County). The company will be growing its New Jersey workforce of approximately 1,200 by hiring about 100 new employees. Bayer HealthCare Pharmaceuticals, one of the largest pharmaceuticals companies in the world, plans to consolidate its East Coast operations in New Jersey at a site in Hanover Township (Morris County). The company will move about 2,000 employees there from other facilities in the New York/New Jersey region; the company also expects to create up to 500 new positions at the Hanover location.

In conclusion, New Jersey's intellectual capital accompanied with its history of innovation has served as the bedrock for the pharmaceutical, biotechnology, and medical device industry groups' success. The recent implementation of the statewide biopharmaceutical & life-science cluster economic development initiative will strengthen this already well served cultural fit. This concept is unifying the industry groups, along with key partners (such as government agencies, educational institutions, industry associations, etc.), to ensure the timely transformation and development of the skills necessary to address the industry and technological changes. As a result,

the cluster's businesses and workforce will benefit. The value will be seen as New Jersey continues to attract, expand and retain businesses, which in turn, will lead to new occupational developments and job listings. The overall outcome of the cluster economic development initiative should: help cultivate an expanding economy; enhance companies' prosperity through our highly educated and talented workforce; and develop and grow new employment opportunities in the Garden State.

Footnotes:

<sup>1</sup>*New Jersey Labor & Workforce Development Quarterly Census of Employment and Wages Annual Averages*

<sup>2</sup>*Foreign Trade Division USA Trade; U.S. Import & Export Merchandise trade statistics, 2011*

<sup>3</sup>*Study prepared by John J. Heldrich Center for Workforce Development and the Center for Urban Policy Research*

<sup>4</sup>*Study prepared by John J. Heldrich Center for Workforce Development and the Center for Urban Policy Research*

<sup>5</sup>*Forbes Custom.com (<http://www.forbescustom.com/EconomicDevelopmentPgs/NewJerseyP1.html>)*

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