



Pennsylvania defines industry clusters to serve as the basis for data-driven workforce development policies. An industry cluster includes industries closely linked by common products, labor pools, technologies, supplier chains and training needs. They take on strategic importance for long-term economic planning as changes that benefit one group member will generally impact other members of the cluster.

Industry clusters are comprised of specific six-digit North American Industry Classification System, or NAICS, codes. They are mutually exclusive, so that no two clusters contain the same NAICS code. Currently, there are 12 clusters identified, along with several critical sub-clusters. Combined, these 12 industry clusters account for nearly 83 percent of all employment in the commonwealth.

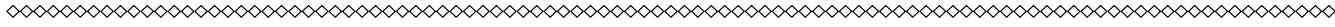
## Cluster Summary

The Bio-Medical (BM) cluster includes industries that develop and use technology to enhance life from a health perspective. Industries in this cluster include research laboratories, pharmaceutical manufacturing, surgical and medical equipment manufacturing, and imaging centers. This cluster largely represents industries that employ advanced technology and serve as a foundation for enhanced medical services.

	2015	2019	2020
Employer Units	2,440	2,708	2,850
Number of Jobs	74,831	88,072	89,569
Percent of Total Pennsylvania Jobs	1.3%	1.5%	1.6%
Average Annual Wages	\$103,014	\$120,103	\$124,892
Location Quotient (LQ)	1.14	1.26	1.27

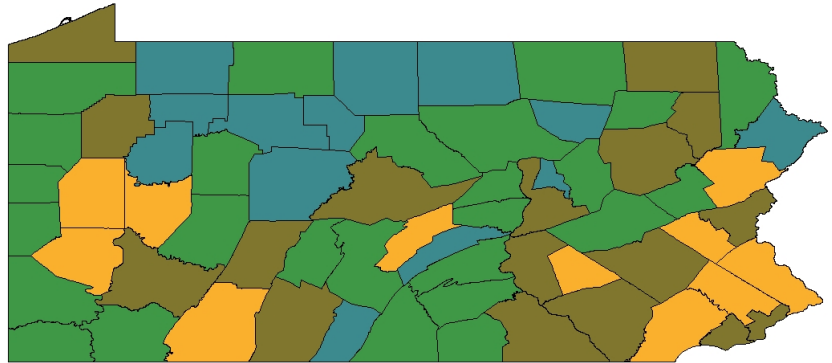
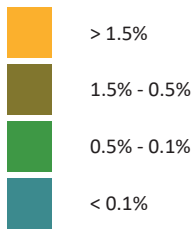
LQs greater than one suggest a competitive advantage.

Statewide employment within the Bio-Medical cluster has greatly increased over the 2015-2020 time period (19.7%) and it has become the top cluster in the state for its Location Quotient (LQ). This is mostly due to the Montgomery County Workforce Development Area (WDA) LQ of 4.63 (seen on page 3). Much of the employment gain in the cluster appears to have been in higher-paying jobs as the average wage increased considerably (approximately 21 percent) over the same time period.



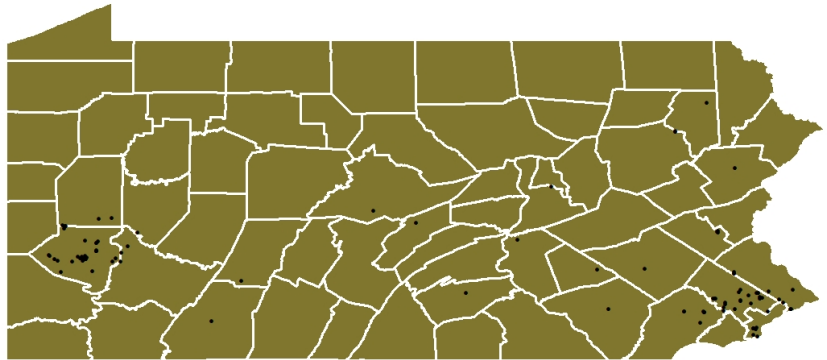
Note: The 2020 employment and wages data, as presented in this publication, reflect the effects of business and school closures implemented to mitigate the spread of Coronavirus (COVID-19).

## Percent Employment by County



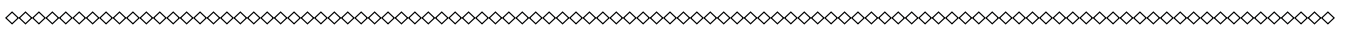
## Major Employers

- Merck Sharp & Dohme Corporation
- Smithkline Beecham Corporation
- Janssen Research & Development LLC
- Fluor Marine Propulsion LLC
- Aventis Pasteur Inc
- Wyeth Holdings LLC



## Top Industries Based on Employment

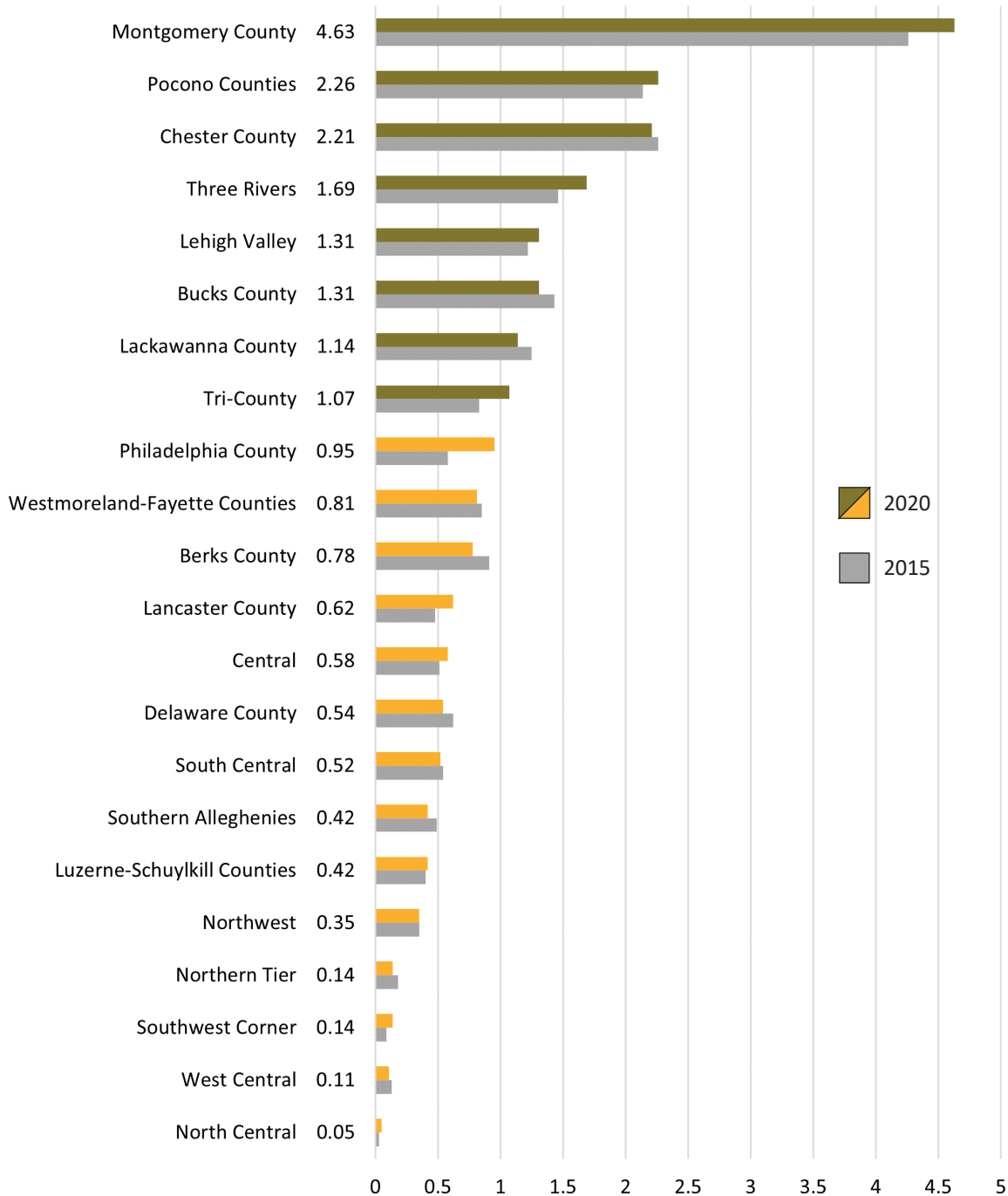
- Physical, Engineering & Biological Research
- Pharmaceutical Preparation Manufacturing
- Surgical & Medical Instrument Manufacturing
- Medical Laboratories
- Electromedical Apparatus Manufacturing
- Other Biological Product Manufacturing
- Surgical Appliance & Supplies Manufacturing
- Diagnostic Imaging Centers
- Social Science & Humanities Research
- Dental Laboratories
- Medicinal & Botanical Manufacturing
- Dental Equipment & Supplies Manufacturing
- Ophthalmic Goods Manufacturing
- In-Vitro Diagnostic Substance Manufacturing
- Optical Instrument & Lens Manufacturing



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## Employment Concentration

A location quotient, or LQ, compares a cluster's share of local employment to its share of national employment. This value can be used when evaluating the strength of an industry cluster within an area. An LQ greater than one indicates that the cluster has, on average, more employees locally than typically expected implying a possible competitive advantage. The Montgomery County WDA has the highest LQ of any area and it has increased since 2015. The only other WDAs that have LQs greater than one and have increased their competitiveness since 2015 are Pocono Counties, Three Rivers, Lehigh Valley and Tri-County WDAs.

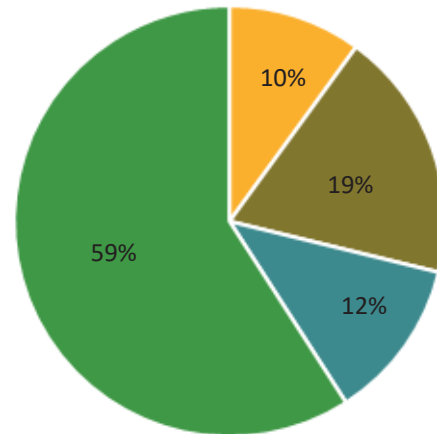


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## Educational Requirements

This graph illustrates the minimum educational attainment levels for jobs found in this cluster's various industries. Postsecondary education is very important to this cluster as nearly 71 percent of BM jobs require some formal postsecondary education to enter employment. This cluster offers the fewest opportunities for employment for lower-skilled workers.

Short-Term OJT
Moderate-Term OJT
Long-Term Training
Work Experience/Some PS Training
Associate Degree
Bachelor's Degree
Advanced Degree



## Occupations with Significant Employment

The following table lists occupations that employ at least 1,050 people in the BM cluster.

SOC Code	Occupation	Average Wage	Annual Demand	
			All Industries	Industry Cluster
19-1042	Medical Scientists	\$102,510	835	640
41-4011	Sales Representatives, Technical & Scientific Products	\$81,710	1,512	546
19-4021	Biological Technicians	\$49,940	476	301
51-9111	Packaging & Filling Machine Oprs/Tenders	\$36,780	2,529	247
31-9097	Phlebotomists	\$37,800	599	193
43-4051	Customer Service Representatives	\$38,760	16,186	181
29-2010	Clinical Laboratory Techs	\$54,560	1,101	179
43-9061	Office Clerks, General	\$38,360	19,111	166
19-2031	Chemists	\$77,060	567	156
17-2141	Mechanical Engineers	\$88,310	1,276	146
13-1041	Compliance Officers	\$75,870	1,333	144
51-1011	Supervisors- Production & Operating Workers	\$64,400	2,995	120
11-1021	General & Operations Managers	\$131,060	7,980	116
51-9061	Inspectors, Testers, Sorters, Samplers & Weighers	\$43,450	2,239	108
17-2112	Industrial Engineers	\$85,280	762	100

\*The 2020 average annual wage reflects wages across all industries and is not specific to the cluster.

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