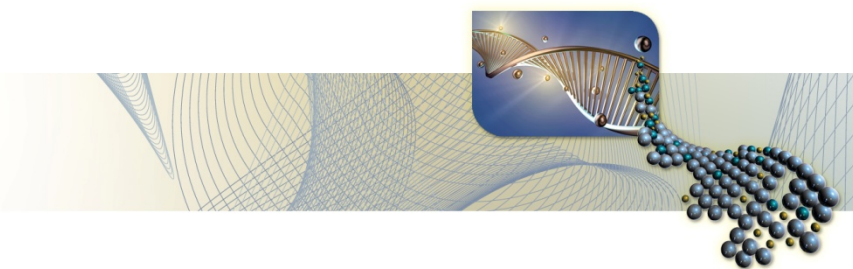


PENNSYLVANIA



Pennsylvania has a leading and specialized bioscience industry. Among the four major subsectors, the State has a specialized employment concentration in two—drugs and pharmaceuticals (location quotient of 1.65), and research, testing and medical laboratories (1.53). Academic bioscience research and development expenditures totaled \$1.61 billion in 2008, heavily concentrated in medical sciences (\$1.1 billion). Academic R&D in the biosciences and funding from the National Institutes of Health are highly concentrated in Pennsylvania with per capita figures in the State well above the national averages. Baseline NIH funding in Pennsylvania has been steady and when funds from the American Recovery and Reinvestment Act (ARRA) are taken into account, the State has seen a large increase in 2009. Pennsylvania biomedical institutions play a key role in clinical trials, participating in 843 active trials in 2009. Venture capital investments in bioscience companies during the last six years totaled \$2.95 billion, invested mostly in pharmaceuticals, human biotechnology, and medical therapeutics. The 5,041 bioscience patents over the same six-year period were mainly in drugs and pharmaceuticals, biochemistry, and surgical and medical instruments.

●●● Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metrics	Pennsylvania	United States	Rank*
Bioscience Industry, 2008			
Total Bioscience Industry Employment, 2008	80,929	1,420,324	I
Bioscience Industry Location Quotient, 2008	1.31	n/a	I
Biosciences Industry Establishments, 2008	1,895	47,593	I
Academic R&D Expenditures, FY 2008			
Bioscience R&D (\$ thousands)	\$1,614,981	\$31,818,810	4
Bioscience Share of Total R&D	62.0%	61.3%	24
Bioscience R&D Per Capita	\$128.52	\$104.54	11
Change in Bioscience R&D, FY 2004–08	21.7%	22.3%	24
NIH Funding, FY 2009			
Total, Including ARRA Funds (\$ thousands)	\$1,658,949	\$25,837,590	4
Per Capita Funding	\$131.61	\$84.16	7
Change in Baseline Funding, FY 2004–09**	1.9%	-4.7%	20
Change in Total Funding, FY 2004–09	22.4%	14.6%	22
Clinical Trials, Initiated 2009	843	5,299	5
Higher Education Degrees in Bioscience Fields, AY 2008	8,390	161,811	5
Employment in Bioscience-related Occupations, 2008	40,070	717,510	3
Bioscience Venture Capital Investments, 2004–09 (\$ millions)	\$2,952.8	\$60,099	4
Bioscience and Related Patents, 2004–09	5,041	75,593	4

*State ranking figures for bioscience industry employment metrics are calculated as quintiles (I=Top Quintile; V=Bottom Quintile). All other metrics are ranked 1-52.

**Baseline Funding does not include American Recovery and Reinvestment Act (ARRA) funds for 2009.

For source notes, see end of State Profile.

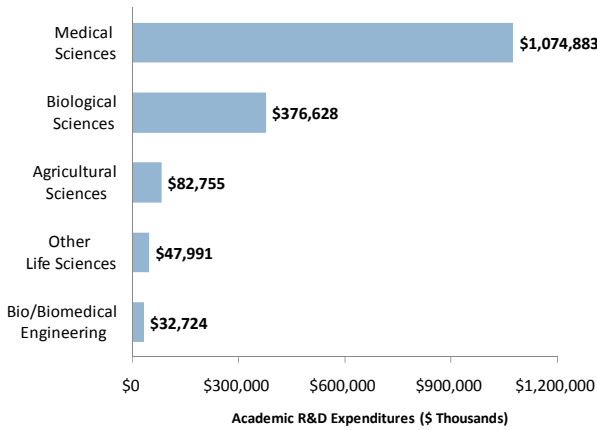
●●● Bioscience Industry Base, 2008

INDUSTRY SUBSECTOR	Pennsylvania		United States	
	2008	2001-08 Change	2008	2001-08 Change
AGRICULTURAL FEEDSTOCK & CHEMICALS				
Establishments	71	-7.7%	2,440	16.0%
Employment	2,017	-30.7%	114,793	1.9%
Location Quotient	0.41		n/a	
Direct-Effect Employment Multiplier	5.89		11.33	
Total Employment Impact	11,887		1,284,650	
Average Annual Wage	\$60,271		\$72,279	
DRUGS & PHARMACEUTICALS				
Establishments	118	-4.8%	2,771	6.4%
Employment	22,288	-13.5%	311,882	2.3%
Location Quotient	1.65		n/a	
Direct-Effect Employment Multiplier	7.71		9.92	
Total Employment Impact	171,901		2,873,278	
Average Annual Wage	\$97,762		\$93,378	
MEDICAL DEVICES & EQUIPMENT				
Establishments	576	-11.4%	15,227	0.4%
Employment	19,617	-7.5%	435,509	2.0%
Location Quotient	1.04		n/a	
Direct-Effect Employment Multiplier	3.68		4.87	
Total Employment Impact	72,144		2,029,581	
Average Annual Wage	\$54,493		\$63,606	
RESEARCH, TESTING, & MEDICAL LABORATORIES				
Establishments	1,130	31.4%	27,154	57.7%
Employment	37,007	60.2%	558,140	46.1%
Location Quotient	1.53		n/a	
Direct-Effect Employment Multiplier	2.66		3.30	
Total Employment Impact	98,383		1,853,127	
Average Annual Wage	\$88,845		\$80,785	
TOTAL BIOSCIENCES INDUSTRY				
Establishments	1,895	10.7%	47,593	28.3%
Employment	80,929	10.9%	1,420,324	15.8%
Location Quotient	1.31		n/a	
Direct-Effect Employment Multiplier	4.38		5.82	
Total Employment Impact	354,314		8,040,636	
Average Annual Wage	\$82,262		\$77,595	
TOTAL PRIVATE SECTOR				
Establishments	328,302	2.1%	8,860,956	13.8%
Employment	4,936,263	1.8%	113,917,377	3.5%
Average Annual Wage	\$44,107		\$45,229	

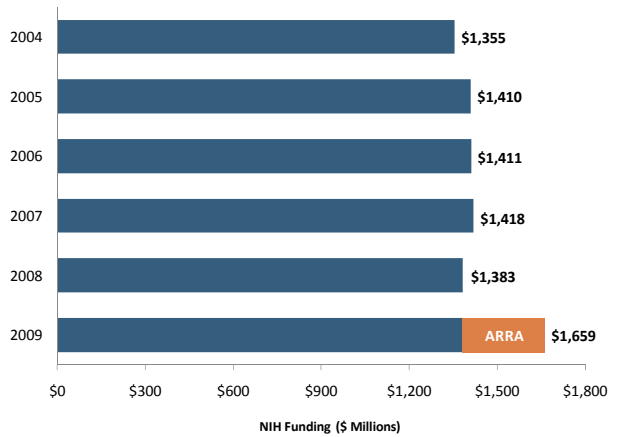
Note: U.S. employment metrics include Puerto Rico. Estimates of total employment impacts do not include Puerto Rico.

Bioscience Performance Metrics

Bioscience Academic R&D Expenditures in Pennsylvania, FY 2008

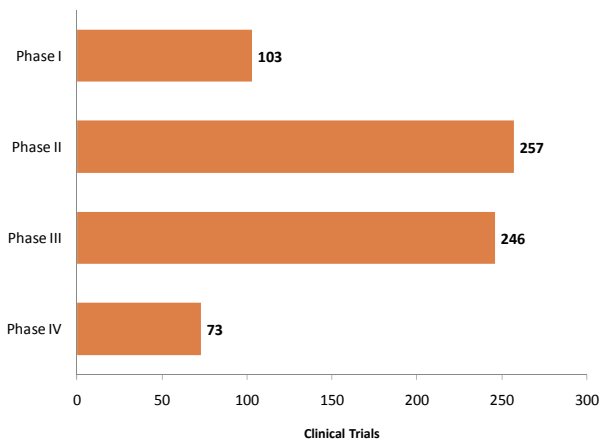


NIH Awards in Pennsylvania, 2004–2009

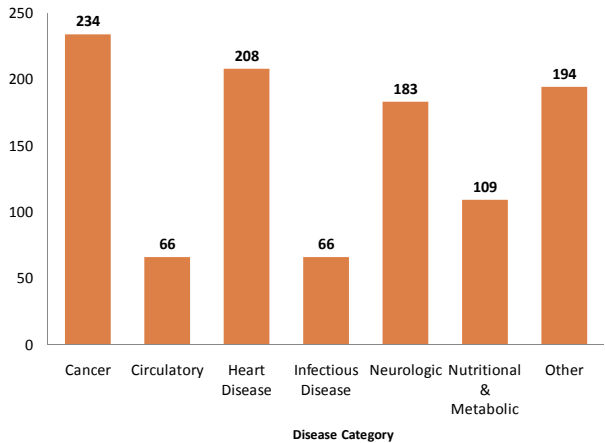


Recent Clinical Trial Activities

Clinical Trials by Phase in Pennsylvania, 2009

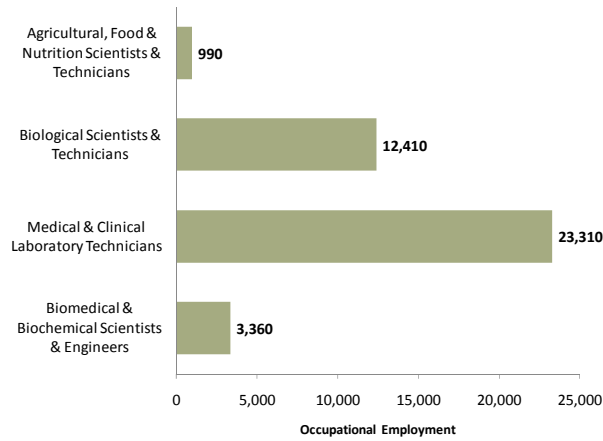


Clinical Trials by Major Disease Category in Pennsylvania, 2009

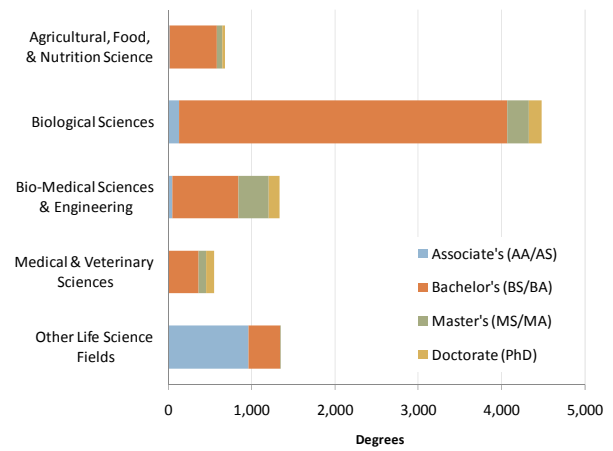


Bioscience Talent Base

Bioscience-related Occupational Employment in Pennsylvania, 2008

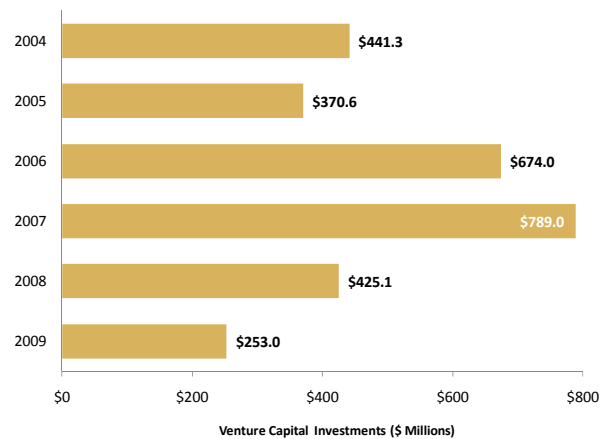


Bioscience-related Degrees in Pennsylvania, AY 2008

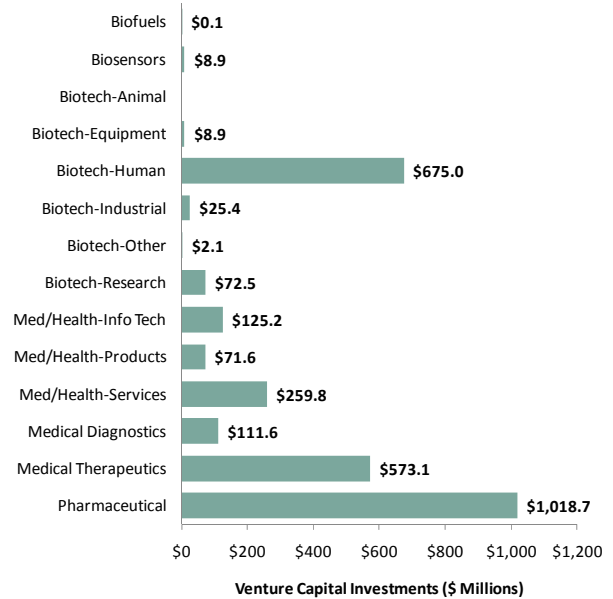


Bioscience Venture Capital

Bioscience-related Venture Capital Investments in Pennsylvania, 2004–2009

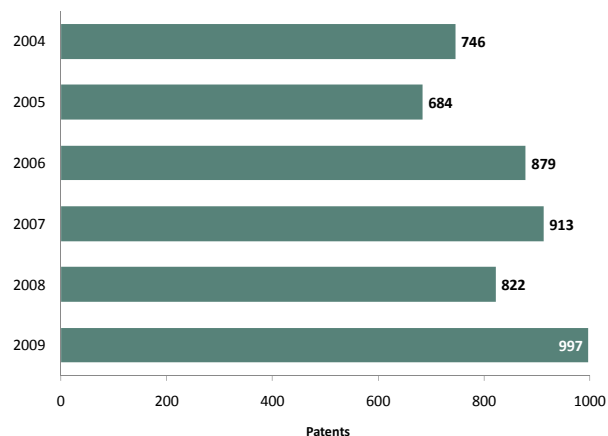


Bioscience-related Venture Capital Investments in Pennsylvania by Segment, 2004–2009

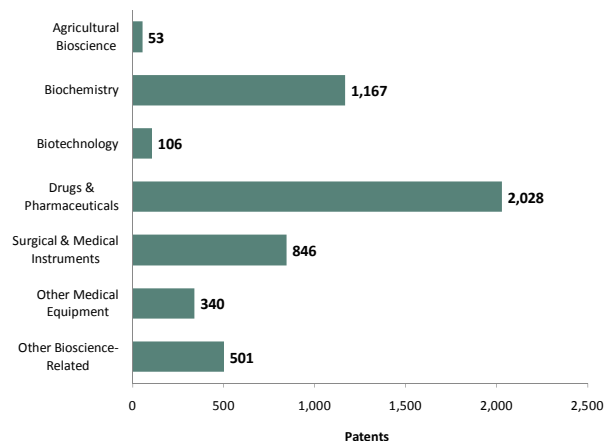


●●● Bioscience Patents

Bioscience-related Patents in Pennsylvania, 2004–2009



Bioscience-related Patents by Classification Group in Pennsylvania, 2004–2009



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Source Notes:

Employment, Establishment, and Wage Data: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) industry data provided by the Minnesota IMPLAN Group, 2001 and 2008.

Employment Multipliers: U.S. Bureau of Economic Analysis RIMS II Employment Multipliers, 2006 (most currently available).

Academic R&D Expenditures: National Science Foundation (NSF) Survey of Research and Development Expenditures at Universities and Colleges, 2004 and 2008.

NIH Funding: National Institutes of Health, Office of Extramural Research, Award Trends, Dollars Awarded by State, 2004 and 2009.

Clinical Trials: National Institutes of Health, Clinicaltrials.gov, trials that were initiated in 2009.

Higher Education Degrees: National Center for Educational Statistics, Integrated Postsecondary Education Data System (IPEDS), 2008.

Occupational Employment: U.S. Bureau of Labor Statistics, Occupational Employment Statistics (OES) survey data, 2008.

Venture Capital: Thomson Reuters' VentureXpert Database, 2004–2009, as of January 15, 2010.

Patents: U.S. Patent & Trademark Office data as available from the Thomson Reuters' Delphion Patent Analysis Database, 2004–2009, as of January 15, 2010.

For a more detailed discussion of the data and methodology used, please see the Appendix to the full national report. ©2010