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BIOTECHNOLOGY IN  
NORTHEAST OHIO:  
A GROWTH INDUSTRY  
TAKES IT SLOW

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Nearly two years ago, Cleveland business leaders, politicians and others won \$8.5 million from the state's capital fund to help build a biotechnology business park. Now, with the new name BioEnterprise Corp., the overseers of that effort are about to outline their plan for the future. And Mayor Jane Campbell has just taken office, seeking to expand growth industries in the area. It's an appropriate moment to examine where the Cleveland area stands in its bid to become a home for biomedical businesses.

The answer, in short: Taking baby steps.

This research brief uses the most recent available data to assess local concentration in biomedical industries, local growth in the biomedical field, and trends in key segments of the local biomedical industry. It also reviews employment and wages in the industry in relation to others in the area.

### **A Numbers Note**

It's difficult to follow the biomedical industry in comprehensive detail because it doesn't fit into neat groupings tracked by government statistics. For example, diagnostic equipment maker Philips Medical Systems of Highland Heights, one of the largest biomedical industry employers in the region, isn't included as a medical-device manufacturer; were it to be, overall employment would be well over 7,000. If certain other types of equipment and laboratories were included, employment would be higher still.<sup>1</sup> Thus, the following analysis enumerates trends and features of the industry, rather than providing a complete portrait of it.

### **A Growing but Tiny Industry**

The latest data show that commercial biomedical industry here is growing, but remains small in relation to the metropolitan area economy. The two core components of the biomedical industry are the drug and medical device businesses. More of the industry is concentrated in medical devices and supplies, than in higher-wage drugs and biotechnology.<sup>2</sup>

The small drug segment recently has seen a substantial increase in payroll. In the eight-county Cleveland-Akron area, the payroll of companies that make drugs more than doubled in inflation-adjusted dollars between the second quarter of 1999 and the same period in 2001. Even after that growth spurt, it accounted for not much more than one-tenth of one percent of the pay Greater Clevelanders took in during that quarter.

There were 97 establishments doing business in the drug and medical device industries in last year's second quarter, up from 86 during the same period in both 1995 and 1999. Together, they

employed 5,886 persons as of the second quarter of last year in the Cleveland-Akron area, according to data from the Ohio Department of Job & Family Services. That was a 20 percent increase from six years earlier, more than four times the overall rate of increase in jobs in all industries. However, such employment still constitutes only four-tenths of one percent of overall employment in this area, and a little over 2 percent of manufacturing employment.

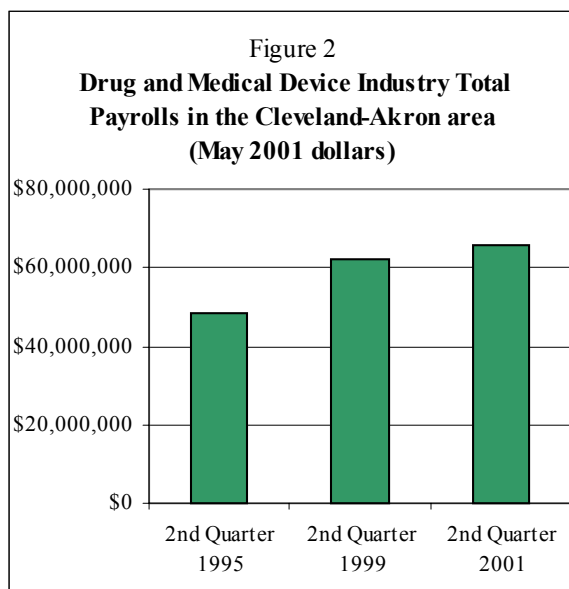
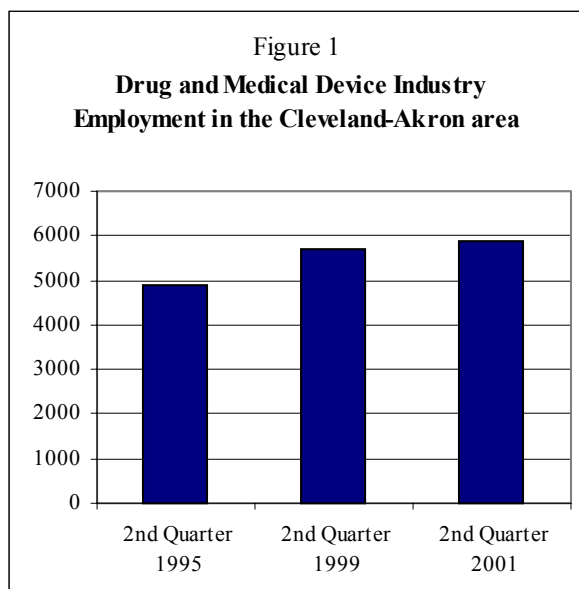
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<sup>1</sup> "The Northeast Ohio Biomedical Economy: Building World-Class Distinction." Edison BioTechnology Center Inc., Final Report to the Generation Foundation, Oct. 19, 1999

<sup>2</sup> Data on jobs and payroll come from the Ohio Department of Job & Family Services Covered Employment and Payrolls by Industry (ES202). This study updates some of the data outlined by Cleveland State University researchers in "The Biomedical Cluster in the Northeast Ohio Region – A Briefing Paper." Regional Economic Development Strategy Initiative, June 19, 1998.

Most of the biomedical employment growth took place between 1995 and 1999, as shown in Figure 1. In the last two years, such jobs have grown only 2 percent. During that time, overall employment in the area fell by 1 percent.

Overall biomedical payroll growth reflected the same trend, increasing sharply between the second quarters of 1995 and 1999, but showing a much smaller gain during the last two years. Figure 2 illustrates that in real terms, payroll grew by 29 percent between 1995 and 1999. It grew by 6 percent between 1999 and 2001, compared to a 2 percent real decline for all industries.



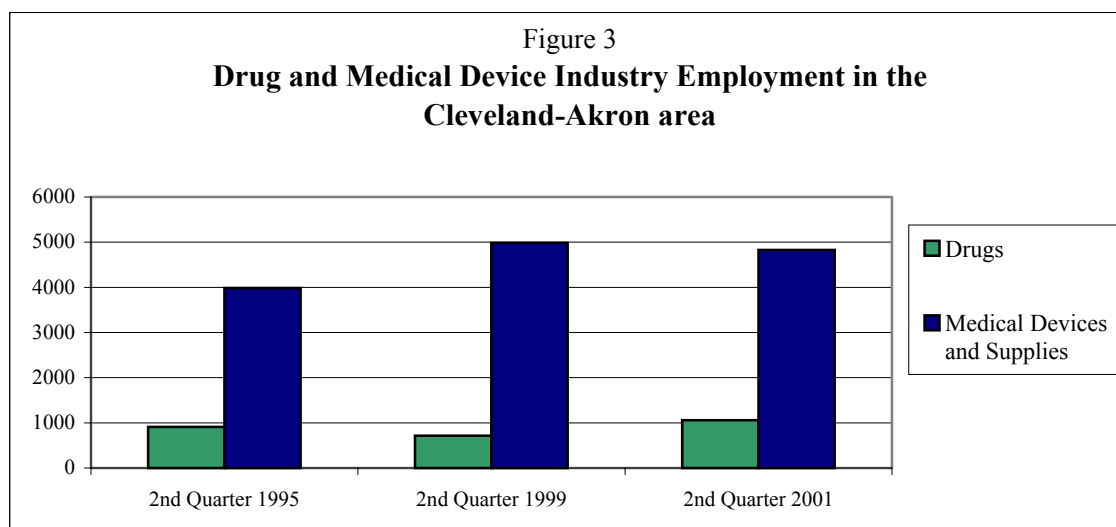
Source: Ohio Department of Job & Family Services, Covered Employment and Payrolls by Industry (ES202 report)

The overall growth of drug and medical-device employment masks conflicting trends, as shown below in Figure 3. The drug business, which lost jobs between 1995 and 1999, grew substantially between 1999 and 2001, with payroll in the second quarter of 2001 doubling to \$16.5 million. But in the much larger medical devices industry, just the opposite happened: Robust growth between 1995 and 1999 recently reversed, as the number of jobs and real payroll fell by 3 percent and 10 percent, respectively, in the last two years.

There are good reasons for this decline in the medical-device business, which could well continue. One of the largest and previously fastest-growing companies, sterilization-equipment maker Steris Corp. in Mentor, started cutting staff and closing operations as it restructured its business.

The recession also is beginning to affect Northeast Ohio biomedical manufacturers, even though health-related businesses generally are seen as a safe harbor during economic downturns. Invacare Corp. of Elyria, a home-medical equipment company that is one of the industry's largest local employers, announced in mid-December that its sales had declined in the previous two months. It said that it expected a 4 to 6 percent decline in December, and "mid single-digit sale growth" in 2002.<sup>3</sup>

<sup>3</sup> Invacare news release, Dec. 12, 2001. Though it's excluded from the industry numbers shown here, the Philips business, formerly known as Picker International and then Marconi Medical Systems, is likely to see some decline in employment after its recent purchase by the Dutch electronics firm.



Source: Ohio Department of Job & Family Services, Covered Employment and Payrolls by Industry (ES202 report)

Meanwhile, the growth of smaller local firms hasn't taken up the slack. To cite one example, NeuroControl Corp., a Valley View company specializing in products that help restore function to people with paralysis, wasn't able to make a business out of its two U.S. commercial products and cut its staff in half last year.

By contrast, the drug industry has seen its largest player, Ben Venue Laboratories Inc. of Bedford, enlarge its generics business substantially, with still more expansion planned. The start-up of biotech drug-developer Athersys Inc. in December 1995 also contributed to overall industry gains; the Cleveland company doubled its employment in 2001, and now has more than 120 employees. In addition, some other new companies have started up or moved to the area.

#### **No Substitute for Manufacturing**

Over the last six years, the biomedical industry as a whole has grown much faster than the regional economy. As industry proponents have pointed out, such gains spill over into the rest of the economy, multiplying the effect.

However, the eight-county area would need huge progress in the fast-growing drug segment for it to replace a big piece of the flagging manufacturing sector. The overall growth of the drug and medical-device manufacturing industries – 991 jobs over six years – hasn't begun to offset the continuing loss of overall manufacturing jobs, which shrank by 24,579 or 8.4 percent over that period.

#### **Little Local Concentration**

Despite growth in the Greater Cleveland biomedical sector, it remains a small factor in the industry nationally. According to figures for the year 2000, the drug and medical-device industries together remain a somewhat smaller sector of the Greater Cleveland economy than they are nationally.<sup>4</sup>

<sup>4</sup> ODJFS; U.S. Department of Labor, Bureau of Labor Statistics, Covered Employment and Wages, <http://data.bls.gov/labjava/outside.jsp?survey=ew>. This analysis uses the most recent available national data that can be compared to regional figures.

The region’s share of the industry in relation to the area’s proportion of the national economy can be calculated in what is called a “location quotient.” If that number is 1.0, it means the industry is the same size in relation to the local economy that it is nationally; figures above or below 1.0 show it is larger or smaller, respectively. Overall, our location quotient for the two industries taken together was 0.86 in 2000.

That represents a small gain since 1995, when the location quotient was 0.80, meaning that Greater Cleveland is somewhat nearer to the national average in biomedical jobs. However, we still have less than “our share” of the overall sector.

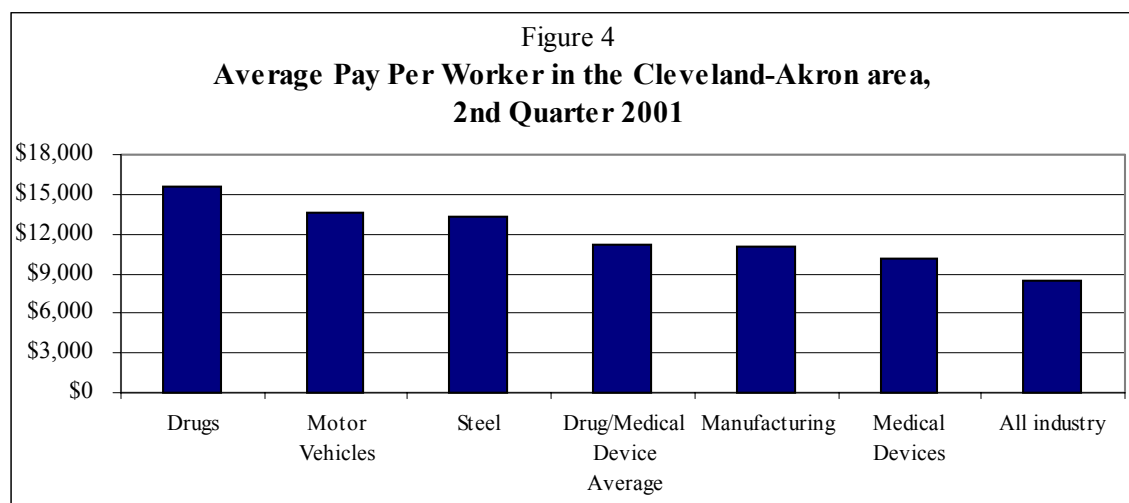
That’s because Greater Cleveland’s drug industry is still tiny compared with that industry nationally, which employed an average of 311,852 in 2000. The location quotient is just 0.26, meaning we only have a quarter as many drug-industry jobs as the average nationally, given the size of our regional economy. The area has a larger-than-average piece of the national pie in devices, with a location quotient of 1.53.

### Higher Pay in Drugs than Devices

Average pay in the local medical-device business lags somewhat behind that in other manufacturing industries. In the second quarter of last year, average pay for medical-device industry employees in the Cleveland-Akron area was 20 percent higher than average pay for all workers, but 8 percent below that of those in manufacturing.

By contrast, average pay in the local drug industry not only is far above average, but well above that of auto and steel jobs in the region. As cited earlier, payrolls in the Northeast Ohio drug industry have soared lately. Partly, that mirrors a rapid rise in such pay nationally, and it also brings the local industry closer to U.S. pay rates in the industry, which it has trailed. That doesn’t completely explain the leap in compensation in the local drug industry, where real average payroll per employee grew by more than 44 percent in the last two years. But it appears that the gains in drug-industry pay aren’t just a one-quarter phenomenon; first-quarter 2001 payrolls were nearly as high.

Overall, as Figure 4 shows, local pay in the drug and medical-device industries taken together is 31 percent above the average for all industries, and just a smidgeon above pay in the overall manufacturing industry.



Source: Ohio Department of Job & Family Services, Covered Employment and Payrolls by Industry (ES202 report); Policy Matters Ohio. Figures reflect pay only in 2<sup>nd</sup> quarter of 2001.

National data raise some additional questions about how broadly the benefits of a larger biomedical industry would be shared among its workforce, compared to existing big manufacturing industries in Northeast Ohio like the auto industry. According to the Bureau of Labor Statistics's Occupational Employment Survey, average pay for all workers in both the drug and motor-vehicle industries was more than \$20 an hour in 2000.<sup>5</sup>

However, median pay – the amount received by the worker in the middle of spectrum, who receives more than half of his or her coworkers and less than the other half – is quite different. The median hourly pay for an auto worker was \$21.13, while for a drug-industry worker it was \$16.84 (in medical devices, where average pay is lower, it was \$13.95). That difference is borne out among those in production jobs: The median auto worker employed in a production occupation received \$16.50 an hour, compared to \$12.48 for a counterpart in the drug industry and \$11.52 in medical devices. For most workers nationally, pay is a good deal higher in the auto industry than drugs or medical devices.

National data also show that blacks are underrepresented in the medical-device industry, though they make up a slightly higher proportion of drug-industry employment than their number in the workforce.<sup>6</sup>

### **Long-Standing Development Efforts**

The Cleveland area's efforts to develop the biomedical industry aren't new. For example, the Edison BioTechnology Center Inc., a nonprofit organization that aims to advance the industry in the state, was founded in Cleveland in 1987. Locally, the long-standing idea has been to develop fast-growing new companies financed with venture capital that would go public, reaping a windfall for their founders and investors, creating a buzz for the area and attracting with it new talent and wealth over time. Steris Corp. succeeded in that, before stumbling.

However, the region largely missed the unprecedented wave of investment that in 2000 produced \$33 billion in new funds for the biotechnology industry and a crop of 56 new public companies nationally.<sup>7</sup>

Athersys did raise \$47.5 million in venture capital in 2000. But it and software-writer NetGenics Inc., the other Cleveland company that filed to sell stock to the public, didn't manage to do so before the market for such offerings fizzled. Not much more than a year ago, their initial public offerings were seen as a test of whether Northeast Ohio could produce successful new companies and become a player in the industry. Instead, the region again finds itself waiting for the next time the market for such offerings takes off.

Today, a quarter century after the biotech industry was founded, it has 1,379 companies nationally and total annual product sales of \$18 billion from 120 products approved by the Food & Drug Administration, including five with sales of more than \$1 billion a year.<sup>8</sup> A wave of acquisitions has washed over the industry lately, as companies seek to broaden their franchises and assure future growth.<sup>9</sup> Biotech, in other words, is a substantial business now.

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<sup>5</sup> U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Survey, 2000 National Industry-Specific Occupational Employment and Wage Estimates, <http://www.bls.gov/oes/2000/oesrci.htm>

<sup>6</sup> Bureau of Labor Statistics, Employed Persons by Detailed Industry, Sex, Race and Hispanic Origin, <http://www.bls.gov/cps/cpsaat18.pdf>

<sup>7</sup> Focus on Fundamentals: The Biotechnology Report," 15<sup>th</sup> Annual Review, Ernst & Young, October, 2001, p.9

<sup>8</sup> Ernst & Young report

<sup>9</sup> "Deal-Hungry, just like big pharma," Business Week, Dec. 24, 2001, p.40, and "Amgen to acquire Immunex for \$16 billion in stock and net cash," press announcement by the companies, Dec. 17, 2001, <http://amgen.acquisitioninformation.com/mediacenter/121701.html>.

Yet Ohio is nowhere to be found among the top dozen biotech states listed in the authoritative Ernst & Young report. E&Y found that Ohio and three other Midwestern states taken together accounted for just 15 of 339 publicly traded companies in the industry – and in the neighborhood of 1 percent of the employees, assets, market capitalization and revenue.

### **Not a Short-Term Prospect**

The overall biomedical sector in the Cleveland-Akron area is still quite small in relation to the regional economy, despite long-running efforts to build it up. It is concentrated in medical devices, from wheelchairs to sterilization- and diagnostic-imaging equipment, rather than biotechnology. While certainly desirable, it isn't likely to replace a large proportion of the high-paying manufacturing jobs that are disappearing. National data also raise questions about how much the development of biomedical industry will benefit working-class Clevelanders and African-Americans.

More than three and a half years ago, a study backed by the area's business community cited "the small window of opportunity (five years) to build the biomedical cluster before it is lost to other competing regions."<sup>10</sup> That report relied on data from 1995. Though the Cleveland area's commercial biomedical industry has grown since then, it remains a long-term vision more than a short-term prospect.

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<sup>10</sup> "The Biomedical Cluster In the Northeast Ohio Region – A Briefing Paper." Regional Economic Development Strategy Initiative, Collaborative Economics, June 19, 1998.