John J. Heldrich Center for Workforce Development
Edward J. Bloustein School of Planning and Public Policy
Rutgers, The State University of New Jersey

FINDINGS

LOOKING AHEAD:
A Workforce Supply and Demand Analysis for New Jersey's Pharmaceutical and Medical Technology Industries

HealthCare Institute of New Jersey

Fall 2002

Key Findings from *Looking Ahead:*

- **Pharmaceutical and medical technology sector workforce projected to reach 80,000 plus jobs by 2010—up from 66,000 today.**

- **Over the next five years, sector firms expect high job growth in basic research, operations, and administration—nearly half of these jobs will require bachelor's degrees, and 48% of job growth will fall in R&D-related fields.**

- **Of all jobs requiring advanced degrees by 2007, 70% of these will be in science and technical fields.**

- **New Jersey higher education institutions will not produce enough individuals with advanced science and technical degrees to meet this growing industry demand.**

- **Nearly half (46%) of all New Jersey high school juniors and seniors have taken no math or science honors/AP courses, and more than half (56%) of these students say they are not very or not at all familiar with the types of jobs available in the pharmaceutical and medical devices industries.**

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Meeting the Workforce Needs of New Jersey's Pharmaceutical and Medical Technology Industries

This analysis presents the results of a workforce supply and demand analysis performed by the John J. Heldrich Center for Workforce Development, undertaken at the request of the HealthCare Institute of New Jersey (HINJ) and a number of its member companies. Since 1998, the Heldrich Center and HINJ have partnered to address the emerging and long-term workforce needs of New Jersey's pharmaceutical and medical technology industry. This industry currently employs more than 66,000 individuals in the state and represents one of the pillars of New Jersey's economy. The partners believe the private sector, government, and educational institutions in New Jersey can work together on a common, sector-wide approach to develop and enact a far-reaching workforce development strategy. To accomplish this goal, business and policy leaders must have a detailed understanding of the needs of the industry (demand), and the qualifications and availability of existing and potential workers (supply) over the next several years. This data is being presented to government and primary, secondary, and higher education leaders to strengthen existing partnerships and build future dialogue.

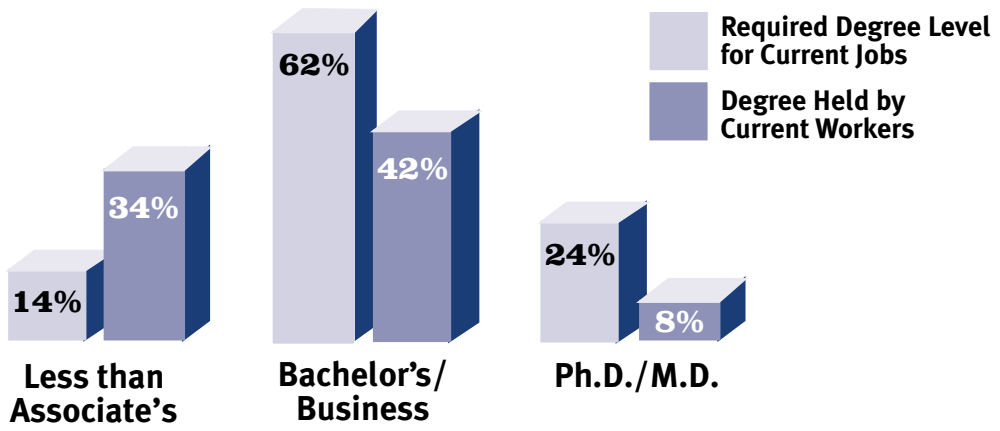
A Demand Analysis of the State of the Pharmaceutical and Medical Technology Workforce and its Future Needs

HealthCare Institute of New Jersey (HINJ) companies employ approximately 66,000 individuals and expect to continue expanding their workforce this decade, according to 2000 figures. [1] The total workforce of the companies studied in this analysis is 48,496.[2] According to the U.S. Census Bureau, by 2008, New Jersey businesses will need to fill nearly half a million new jobs. Approximately 200,000 of these will require an associate's degree or more, another 64,000 will require at least some post-secondary education, and 200,000 will only require basic skills and on the job training.[3]

Science and math degrees are projected to be in the greatest demand, commanding 46% (or 1,205) of projected total job growth in 2002 and 44% (or 2,510) in 2007.

Many of these higher-skilled jobs are in New Jersey's growing pharmaceutical and medical device sector. Nearly three-fourths (73%, or 35,318) of pharmaceutical/MT jobs are business related, and a majority of the industry's current jobs (62%, or 30,048) require at least a bachelor's degree.[4] Nearly one-fourth (24%, or 11,839) of current jobs are extremely highly skilled, requiring a master's, Ph.D., or M.D. Over the next year, companies anticipate that more than two-thirds (67%, or 3,794) of the jobs they create will require at least a bachelor's degree, while more than one-fourth (27%, or 1,142) will require an advanced degree beyond a bachelor's (see Fig.1).

Figure 1
Mismatch Between Degree Requirements and Skills of Current Workforce



In examining the educational background of the sector's current workforce, this analysis finds that nearly one-fifth (19%, or 9,214) of current employees have a bachelor's degree in science or math, 8% (or 4,031) have a Ph.D./MD in science or math, 18% (or 8,753) have a degree in business, and 5% (or 2,391) have a degree in technology. Approximately one-third (34%, or 16,259) of the sector's workforce has less than an associate's degree.

In examining hiring needs and trends among companies participating in our study over the next five years, our analysis arrived at a number of clear conclusions. Companies expect high job growth in basic

[1] *HealthCare Institute of New Jersey 2000 Annual Survey of Institute Members.* Prepared by PricewaterhouseCoopers LLP, March 2000.

[2] Based on data submitted by participating companies between January 2001 and June 2002.

[3] *Workforce Partnership: Draft Report October 26, 2001.* State of New Jersey, Prosperity New Jersey. October 2001.

[4] All industry statistics in this report are specific to New Jersey, and do not include company divisions located outside the state.

research, operations, and corporate administration—many of which will require bachelor's degrees. Science and math degrees are projected to be in the greatest demand, commanding 46% (or 1,205) of projected total job growth in 2002 and 44% (or 2,510) in 2007. The demand for business degrees will also increase over the next several years, projected to comprise 18% (or 472) of total job growth in 2002, and 36% (or 2,053) in 2007. The demand for technology degrees is projected to remain steady, with a projected increase of only 7% in 2002 and 7% in 2007, respectively (or 183 and 399, respectively). The demand for engineering degrees to meet net job growth, after an upward spike in 2002, is expected to decrease significantly in 2007 (29% and 12%, respectively, or 760 and 685, respectively). As with current vacancies, the positions requiring advanced degrees in math, science, technology, and business are deemed "difficult to fill" by participating companies. Jobs requiring advanced science and technical degrees are going to be the vast majority (70%) of all jobs requiring advanced degrees (see Fig.2 and Fig.3).

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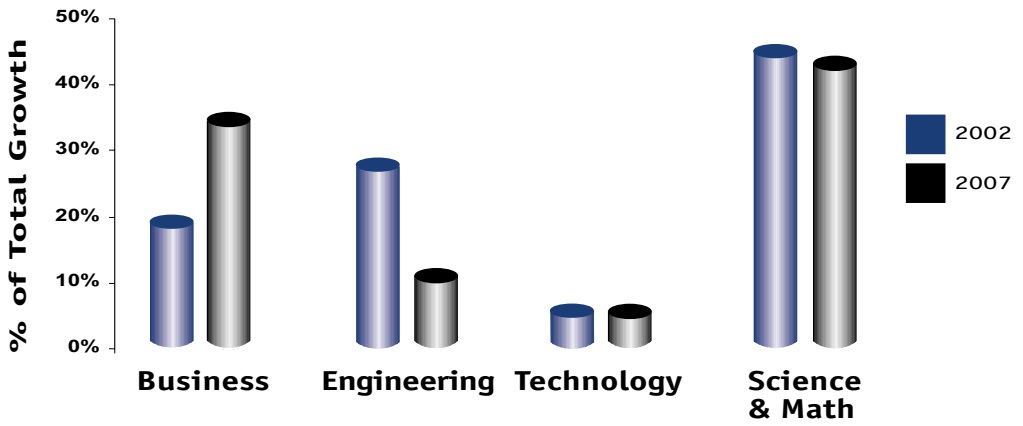
Figure 2
Projected New Hires by Degree Show That Two-Thirds of Workforce Will Require At Least a Bachelor's Degree by 2007

Degree Requirement	Projected Hires 2002	% of 2002 Hires	Projected Hires 2007	% of 2007 Hires
High School Diploma	820	31%	1837	32%
Associate's Degree	55	2%	74	1%
Bachelor's Degree	1039	40%	2652	46%
JD	30	1%	131	2%
MBA	65	2%	253	4%
Master's (other than business)	287	11%	417	7%
Ph.D.	282	11%	268	5%
MD/DVM	42	2%	73	1%

Figure 3
Net Job Growth by Educational Background



In short, a major workforce challenge facing the pharmaceutical and medical technology industries is filling jobs that require high levels of education, particularly those requiring master's (excluding MBAs), and Ph.D. degrees in science and related fields. The absolute number of these difficult to fill positions-such as the 48% of technical jobs-is projected to grow from 499 today to 758 by 2007. Senior Human Resource officials in the pharmaceutical and medical technology industries express concern that the scarcity of these workers will continue and even intensify unless something is done now to address the problem.

A Supply Analysis of New Jersey's Emerging Workforce

According to the New Jersey Department of Labor, from 1990 to 1998, the New Jersey civilian workforce grew by less than 2%, despite being a time of strong job growth and economic expansion. If this trend continues, there will be an insufficient supply of graduates in fields demanded by the pharmaceutical and medical technology industry or to other high technology and health related fields.

On the whole, the New Jersey population is becoming better educated and more individuals are graduating from New Jersey higher education institutions with degrees

Figure 4
Projected Net Growth by Category Shows Nearly Half of New Jobs By 2007 Will Be R&D Related

Major Job Category	% Current Workforce	% of Net Growth 2002	% of Net Growth 2007
Corporate Admin	31%	18%	26%
Sales	8%	2%	9%
Marketing	7%	4%	11%
Basic Research	**12%**	**28%**	**15%**
Clinical Development	**15%**	**16%**	**14%**
Technical operations	**21%**	**25%**	**19%**
Quality Management	5%	6%	6%
Total	**100%**	**100%**	**100%**

Figure 5
Workforce Supply and Demand Analysis by Degree

High Supply - Low Demand

1. Biomedical Engineering MS
2. Chemical Engineering MS

High Supply - High Demand

1. Biological Science PhD
2. Genetics/molecular biology/cell biology MS

Low Supply - Low Demand

1. Genetics/molecular biology/cell biology PHD
2. Genomics PhD
3. Medicine PhD
4. Microbiology PhD
5. Toxicology PhD
6. Biochemistry MS
7. Genomics MS
8. Medicine MS
9. Integrative Neuroscience MS

Low Supply - High Demand

1. Chemistry PhD
2. Biochemistry PhD
3. Chemical Engineering PhD
4. Pharmaceutical Science PhD
5. Chemical Engineering PhD
6. Chemistry MS
7. Physical Science MS
8. Biological Science MS

However, in comparing the projected degrees demanded by the industry with the graduation trends of those degrees, *it is clear that there are not sufficient numbers of individuals with advanced math and science degrees graduating from New Jersey higher education institutions.*

appropriate to work in the pharmaceutical and medical technology sector. However, in comparing the projected degrees demanded by the industry with the graduation trends of those degrees, it is clear that *there are not sufficient numbers of individuals with advanced math and science degrees graduating from New Jersey higher education institutions. If current trends continue, New Jersey higher education institutions will not produce enough individuals with Ph.D.s and MS science degrees to meet industry demand.*

The "Pipeline:" New Jersey High School Juniors and Seniors

Over the next several years, the pharmaceutical and medical technology industries will continue to experience a shortage of available workers with advanced degrees in science. To meet this demand, there must be an increase in the supply of qualified graduates. The choices students make in their pre-college education can preclude them from being competitive in math/science

Figure 6
What Tomorrow's Workers Had to Say: Nearly One-Half of High School Students Have Not Taken or Plan to Take Math and Science Advanced Placement Courses

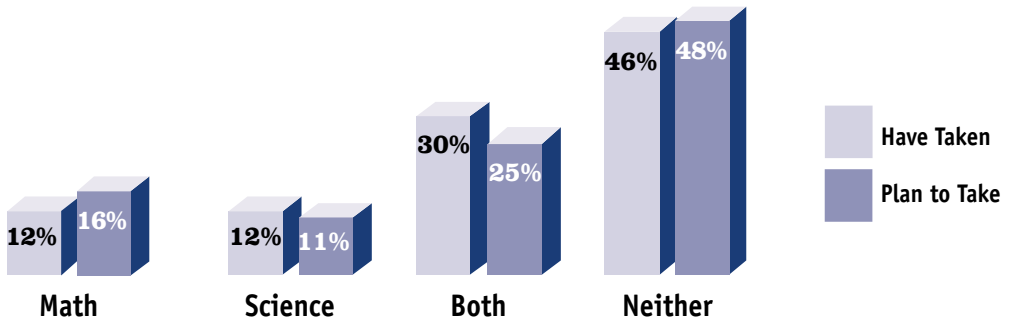
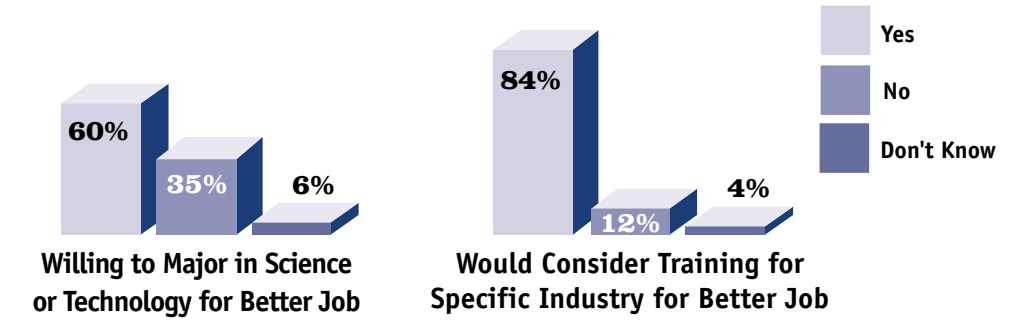


Figure 7
Most Students Say They Are Willing to Train or Study in Specific Areas for Better Jobs



college level programs, often resulting in under-enrollment in industry-related course offerings. Therefore, the eventual supply of qualified workers available to the industry is contingent upon the decisions and actions of high school students.

A survey of 500 New Jersey high school juniors and seniors reveals some disturbing trends for the pharmaceutical/MT industries-and some distinct possibilities for positive change. Nearly half (46%) of all high school juniors and seniors have taken no math or science honors/AP courses, and 48% do not anticipate taking either before completing high school (see Fig.6). More than half (56%) of New Jersey high school students say they are not very or not at all familiar with the types of jobs available in the pharmaceutical and medical technology industries (36% and 20%, respectively).

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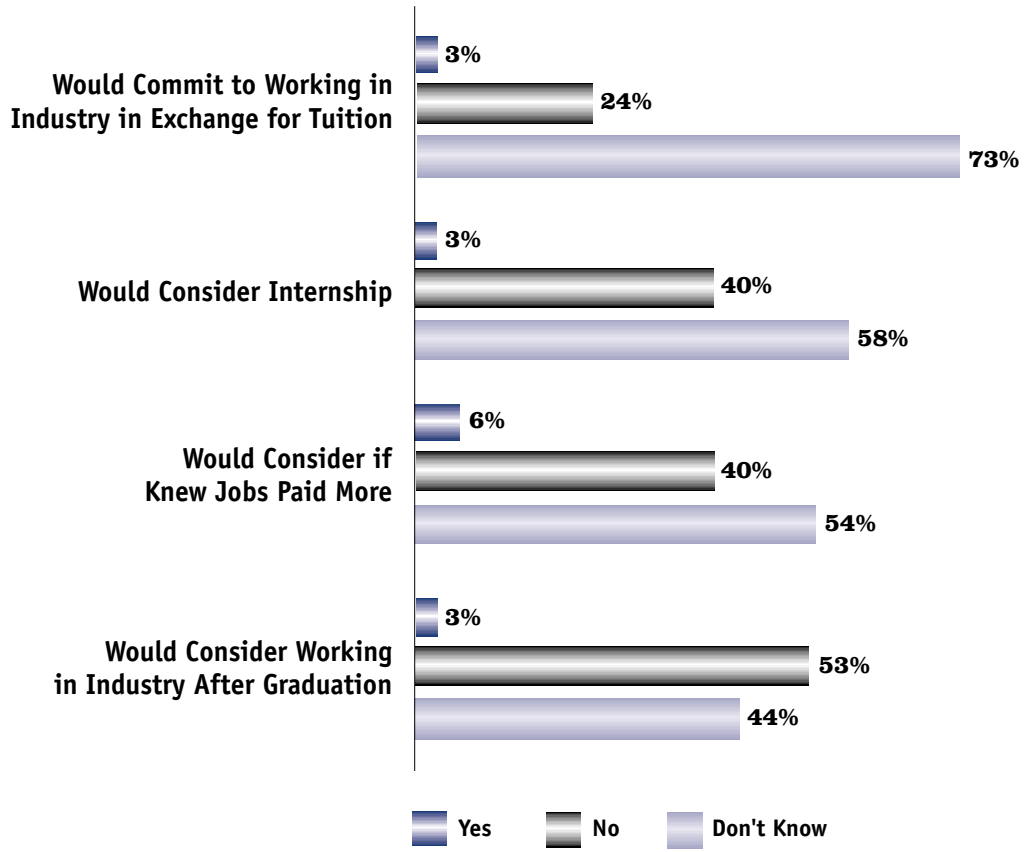
More than half (60%) of those surveyed who currently do not plan on majoring in either business, science or technology say they would be willing to major in one of these subject areas if they believed it would result in better job opportunities after graduation. The vast majority (84%) say that they would consider enrolling in a college program that is designed to train them for a specific job in a specific industry if they believed it would result in better job opportunities after graduation (see Fig.7).

More than half (58%) of students say they would be interested in a summer internship at a pharmaceutical or medical technology company during their education, and nearly three-fourths (73%) say they would commit to working at a pharmaceutical or medical technology company for a few

Figure 8
Students Support Incentives to Join Industry After Graduation



years after completing college or technical school if the company helped pay for their tuition (see Fig.8).

Methodology

Research methods included a quantitative workforce demand analysis using data and projections from seven companies representing 80% of the HINJ members' total pharmaceutical and medical technology workforce; structured interviews with senior human resource executives in the pharmaceutical and medical technology sector; a quantitative workforce supply analysis using college and university graduation data by degree and area of specialization structured interviews with senior academic officers of New Jersey higher education institutions; a telephone survey of 500 New Jersey high school juniors and seniors assessing their awareness of and interest in the pharmaceutical and medical technology industries; and an analysis of promising strategies currently underway in several states and communities around the country. This initiative was funded by the following participating companies: Wyeth, Aventis Pharmaceuticals, Bristol-Myers Squibb, Hoffmann-La Roche Inc., Johnson & Johnson, Merck & Co., Inc., Novartis, Organon Inc., Schering-Plough Corporation, and Stryker Howmedica Osteonics. ■

WORKFORCE PARTNERSHIPS OF NEW JERSEY'S PHARMACEUTICAL AND MEDICAL TECHNOLOGY INDUSTRY

The following section is a compilation of the workforce and training partnerships currently undertaken by the member companies of the HealthCare Institute of New Jersey (HINJ). It is not part of the John J. Heldrich Center for Workforce Development's research for HINJ, but is provided by each company to the public and the press for informational purposes.

AMERSHAM HEALTH
Princeton

Amersham Health, a business of Amersham plc, is the leading global pharmaceutical provider of diagnostic and predictive imaging products and services. Amersham Health is dedicated to providing healthcare professionals with products that expand and improve their diagnostic capabilities and contribute to the treatment of disease. Amersham Health is committed to finding innovative diagnostic and therapeutic solutions with a focus on cardiology, neurology and cancer.

Amersham plc is a world leader in medical diagnostics and in life sciences. Headquartered in the UK, the company's strategy is to build its position as a leading provider of products and technologies enabling disease to be better understood, diagnosed earlier and treated more effectively.

Amersham Health is involved with several educational initiatives in New Jersey, including:

- Amersham Health works closely with Inroads of New Jersey, a group that works with minority college students. Private sector companies sponsor these students throughout their college education. The goal of the program is to place students with their sponsor company after graduation.
- Amersham Health is working to form a partnership with the Rutgers University Pharmacy Program, focusing on building awareness among students of future careers in nuclear pharmacy. Amersham plans to be a part of Rutgers' next career fair in October/November 2002.
- Amersham Health also works closely with the New Jersey Institute of Technology. The company's Information Management Group sponsors students to work with the department with the hope of hiring these students upon graduation.
- Amersham Health hosts an annual "Take Your Child To Work Day," during which the company provides children with information about the medical side of Amersham Health, as well as all aspects of the workforce.

AVENTIS PHARMACEUTICALS
Bridgewater

Aventis Pharmaceuticals was created by the December 1999 merger of Hoechst Marion Roussel and Rhône-Poulenc Rorer. Aventis Pharmaceuticals has one of the industry's largest R&D budgets, largest sales forces and a robust pipeline. The company has significant presence and important prescription products in all major pharmaceutical markets, from Europe to North America, Asia to Latin America. In addition, Aventis Pharmaceuticals possesses a broad scope of enabling technologies, such as functional genomics, combinatorial chemistry, high-throughput screening and immunology.

In Somerset County, the existing Bridgewater campus is headquarters for the company's Global Drug Development Center and U.S. Drug Innovation and Approval organizations. In 1998, a $45 million facility was completed that doubled this site's research capacity; during the next several years, the site is expected to double in overall capacity.

Aventis Pharmaceuticals has been recognized for its contributions to the community and the state, including philanthropic activities in education, health and human services as well as its employee volunteers. The company has been recognized with a "Good Neighbor" Award from the State and an "Economic Vitality" Award from the Somerset County Chamber of Commerce.

- Aventis offers a $1 to $1 match through its Matching Gift Program to 501(c)(3) educational organizations. These organizations must be accredited colleges and universities or primary/secondary public and private schools that meet qualifying criteria and are open to all students.

In 2001, we matched over $175,000 to educational organizations on a national basis.

- In 2001, Aventis employed 56 college interns. In 2002, 96 students participated in the summer internship program. Over half of these students are from New Jersey colleges and universities, with the majority attending Rutgers. In addition, there were eight students from Inroads of New Jersey, a group that works with minority college students.

Aventis Science Outreach Program

Through the Science Outreach Committee, Aventis promotes science to students at local schools. A group of Aventis scientists provide outreach to students in grades K-12 to show them that science can be fun and applicable to the real world, and that there are many diverse and rewarding careers in the sciences. By developing potential scientists, Aventis helps future generations set and achieve high performance standards.

Activities of the Science Outreach Committee include:

- Scholarships to graduating high school students.
- In-classroom demonstrations and lectures
- Guided tours of Aventis laboratories.
- WebCT funding.
- Science fair judging.

For the past 10 years, Aventis awards graduating seniors from local high schools with special achievement awards. This year, 14 $1,000 Aventis Achievement Awards in Chemistry and three $1,000 Aventis Achievement Awards in Biology will be presented at each school.

Aventis also participates in the "Bridge to Employment" program at Bridgewater-Raritan Regional High School, which helps students develop a clear understanding of a successful career in the pharmaceutical industry. Students, working with scientists from Aventis, participate in selected activities that provide knowledge of the range of career opportunities available and the required training and skills needed to succeed in a science-related career.

To further the students' interest, Aventis scientists conduct science demonstrations in the school. They also serve as mentors and discuss various careers in the pharmaceutical industry, but specifically about their own expertise. The scientists also conduct tours of the labs at the Aventis research facilities in Bridgewater. During these tours, students can see the typical work done at Aventis and get a sense of what it is like to work in research at a pharmaceutical company.

Aventis also has funded the licensing of an Internet course-authoring program "WebCT." This program allows teachers to easily create on-line course material and also allows for extended communication through focused chat rooms and secures e-mail. Students have used this program to refer back to assignments, prepare for exams and ask questions outside of class. In order to provide easy access to the Internet, Aventis has also provided multimedia and computer equipment.

- Aventis will be participating in the 2002/2003 Bridgewater-Raritan Regional High School International Business Practice Forum, an elective course where students in grades 9–12 are corporate employees of their own business. Aventis will provide funding and 20 computers, in addition to volunteers who will act as mentors, to the students for the school year.
- Beginning with the 2001/2002 school year, Aventis committed to $6,000 per year for eight years to support St. Michael's School in Newark with their Adopt-A-Kid program. Aventis' sponsorship will provide scholarships for six kids per year.
- Aventis has committed to $100,000 over three years, beginning in 2001, for Raritan Valley Community College to support the Galileo Project for scholarships and program development in the science, math and nursing fields.

BD
Franklin Lakes

BD manufactures and sells a wide range of medical supplies, devices and diagnostic systems used by health care professionals, medical research institutions, and patients around the world. Our company is dedicated to a single proposition: to become the organization most known for eliminating unnecessary suffering and death from disease and, in so doing, become one of the best managed companies in the world.

BD is currently engaged in a number of workforce partnerships in New Jersey and assis-

tance programs with elementary and high school districts in the state.

- Through the BD Matching Gift Program, the 501(c)3 company supports employee donations to local educational foundations that are 501(c)3 organizations and private schools (K-12) in the state. For 2001-2002, BD matched $17,400 to K-12 organizations, and in 2000 the company matched up to $31,000.
- Sponsors a program with Fairleigh Dickinson University and the Henry P. Becton School of Nursing in which students have a clinical rotation at BD. Students come in for a one-day observation experience day. The rotation serves 25 students throughout the semester.
- As part of the Ramapo College Nursing program, BD staff lecture on occupational health nursing and industrial hygiene. In addition, students are invited to tour BD, and Ramapo students doing senior projects come to work at BD for a semester.
- BD hired 47 summer interns in 2002, almost half of which come from New Jersey schools (Rutgers University and Stevens Institute of Technology).

In addition, BD has made numerous financial contributions, including:

- UMDNJ–School of Health Related Professions.
- Established the BD Multimedia Health Care Teaching Center at the Newark Campus of the University of Medicine and Dentistry of New Jersey to support a training site for health care professionals. It serves central and remote locations through distance learning technologies and laboratories and a resource for product development through consultation with clinical faculty, simulation of clinical experiences and collaborative problem solving. This is a five-year pledge (FY98 to FY02) for $1 million.
- Independent College Fund of New Jersey/ Fairleigh Dickinson University, to establish the Henry P. Becton School of Nursing and Allied Health at FDU. Funds provided to support renovation of Dickinson Hall, which houses the nursing school and its laboratories. The school has a four-year baccalaureate degree program, a master's program and a one-year accelerate bachelor's degree program in nursing. This was a seven-year pledge (FY95 to FY01) for $1 million.
- Hosts yearly Take your Children to Work events.

BERLEX LABORATORIES
Montville

Berlex, a biopharmaceutical company and the U.S affiliate of Schering AG, Germany, is the maker of diagnostics and specialty medicines for women's health, multiple sclerosis, cancer, heart disease and dermatology. Headquartered in New Jersey, Berlex also maintains operations in northern California, Puget Sound and New Hapmshire.

Its active cadre of employee volunteers was among the reasons Berlex was named New Jersey Corporate Philanthropist of the Year in 2002. Many of its community relations programs center on enriching education and helping young people in need in the region.

- Berlex Science Scholarships—A graduating senior demonstrating promise in the sciences from each of the New Jersey high schools districts where Berlex operates is awarded a $2,500. The program began in 1995.
- Sponsorship of *Science Screen Report,* an award-winning video teaching tool, for Wayne Township elementary and secondary schools.
- Sponsorship of the *Daily Record* Partners in Education program, providing newspapers in the classroom at a middle school in Montville
- Sponsorship of school-based sports programs and "project graduations"
- Extensive support to Daytop, the New Jersey residential and outpatient adolescent substance abuse program that gives hope to the community and restores peace in families.

BRISTOL-MYERS SQUIBB COMPANY
Princeton

Bristol-Myers Squibb is one of the leading diversified health and personal care companies in the world. The company's mission is to develop and market innovative products that extend and enhance human life. Bristol-Myers Squibb has four business segments: pharmaceuticals, consumer medicines, nutritionals, and medical devices.

New Jersey is home to two divisions of Bristol-Myers Squibb: Worldwide Pharmaceuticals in Princeton and ConvaTec in Skillman.

The Bristol-Myers Squibb Science Education Program aims to improve teaching and learning of science for all children K-8. The program operates with the following strategic objectives:

- Improvement in science education practices will be accomplished through systemic science education reform (SSER), addressing local, regional and national needs.
- All programmatic efforts must aim to improve teaching and learning in the science classroom.
- Competent expert organizations will contribute to SSER through coordinated operation under alliances and partnerships with B-MS.
- Alliances and partnerships will be built based on complementary expertise among members, and effective leveraging of resources.
- B-MS resource contribution will include and be influenced by company employees at all locations.

The B-MS Science Education Program architecture is based on the following five types of strategic alliances:

- *Elementary and Middle School Science Education Reform (EMSSER)* Strategic Partnerships–Initiate and drive implementation in local public school districts and district consortia.
- *Regional NGO-Corporate-Educator Alliances*–Drive SSER dissemination at the regional level - Leadership and Assistance for Science Education Reform (LASER).
- *Expert Organization Alliances*–Sustain SSER through services to participating school districts, based on subsidized fee-for-service.
- *National NGO-Corporate Alliances*–Develop and implement strategy and programs for nation-wide SSER, including legislative lobbying.
- *International NGO-Academy-Corporate Alliances*–Initiate and drive SSER in their respective countries.

Bristol-Myers Squibb has a long history of supporting science education through funding and direct involvement by its scientists in the pre-college classroom. Under its Science Education Program, the company is taking a strong leadership initiative to actively strengthen science education in elementary and middle school classrooms regionally and nationally as well as internationally. The goal of this coordinated reform effort is to replace the traditional textbook instruction with inquiry-centered, hands-on teaching and learning of science, in which students practice problem solving, analysis and critical thinking by systematic exploration of scientific concepts.

The Elementary and Middle School Science Education Reform concept, developed by the National Science Resources Center (NSRC) is anchored in the National Science Education Standards, developed by the National Research Council under the National Academy of Sciences. This systemic science education reform rests on five critical elements: 1. Curriculum; 2. Teacher professional development; 3. Materials support; 4. Assessment; and 5. Community partnership.

Bristol-Myers Squibb supports regional elementary and middle school science education reform through active partnerships between the company and individual school districts or district consortia in all locations of the company's operation. Reform progress is clearly related to shared accountability between the company and the school district in each of the five critical elements.

As part of the partnership commitment, Bristol-Myers Squibb ensures financial security during the five-year implementation process, and enables the districts to acquire systems of research-based, extensively field-tested curriculum materials designed to foster strong inquiry behavior through guided exploration, in both teachers and students. Five-year grants range from $100,000- $500,000. Bristol-Myers Squibb also helps develop and support materials resource centers for kit replenishment and distribution to all partnership schools throughout the implementation phase. The company provides venue and hosting for educator professional development, local and regional conferences to build awareness of, and strategic planning for systemic science education reform. Bristol-Myers Squibb also lends expertise in organizational change management throughout the process.

Most importantly, B-MS assigns at least one scientist or engineer to each partnership

school district as part of the B-MS commitment to the reform initiative. The roles of these individuals are two-fold.

First, the Community Scientist's professional training as a scientist or engineer offers the educators-partners direct access to an "Inquiry Role Model," skilled in the practice of experimentation, data analysis, and problem solving. These skills are first and foremost going to be made available to the members of the District Strategic Planning Team. Over time, and using the expanded network of Community Scientists in the B-MS Science Education program, these skills will also be available to other educators in the district.

Second, the Community Scientist will function as the liaison between the district educators and the private sector and academic communities in the region. He/she will be the contact person between the school district and the B-MS Foundation, as well as between the school district and other B-MS Partnership districts, through the network of B-MS Community Scientists.

The partnership school districts ensure that conceptual and technical teacher in-service training is offered to all teachers, and that special efforts are dedicated to develop strong lead teachers. The educators are responsible for choice of curriculum materials, assessment of materials, and evaluation of teaching effectiveness. Finally, the educators are responsible for propagating reform within the district through exemplary teaching techniques. Under this reform, the emphasis is placed on teacher empowerment, visibility and support.

Together the partners share the responsibility for mentoring of new reform school districts and new reform partners in the corporate sector, regionally, and throughout the nation. Regional reform leaders from the ranks of school district teachers and administrators, as well as scientists and executives from Bristol-Myers Squibb serve a faculty at national Strategic Planning Institutes under the NSRC LASER (Leadership and Assistance for Science Educational Reform) initiative.

Bristol-Myers Squibb has initiated active reform partnerships with twenty-three US public school districts and education consortia in four states, fourteen of which reside in New Jersey.

Future emphasis will be placed on the acceleration of Elementary and Middle School Science Education Reform in New Jersey, eastern Pennsylvania and Connecticut. As of 1998, Bristol-Myers Squibb has assumed fiscal responsibility for regional leadership team training within a Tri-State Partnership (including the local Building Bridges to the Future Consortium, the Connecticut Statewide Systemic Initiative, E. I. DuPont, Inc., the Franklin Institute, the New Jersey Statewide Systemic Initiative and the Merck Institute for Science Education) in close collaboration with the NSRC. It is estimated that, as a direct result of this initiative, annually, no less than fifteen new regional school districts, or district consortia will initiate Science Educational Reform.

In 2001, the company launched a science education program element to encourage all of its employees to take active part in their children's science education, at home and in the classroom. Through BLAST (Building Leadership and Assistance for Science Teaching) all employees can access books, videotapes, CD's and hands-on science kits at science education resource centers, operating as lending libraries. Short courses and expert seminars are offered through video broadcast to all sites.

PARTNERSHIPS: Elementary and Middle School Science Education Reform

Teacher Professional Development
Rider University RIDER SELECT Program for Integrated Science Teaching, Lawrenceville, NJ

Materials Resource Center
Invention Factory Science Center, Science-to-Go, Trenton, NJ

New Jersey School Districts	*NSRC Strategic Planning Institute*
Cranbury Public Schools	1998
Ewing Township Public Schools	1995
Hillside Public Schools	2001
Hopewell Valley Regional Schools	1998
Independent Schools Leadership Alliance*	2001
Lawrence Township Public Schools	1995
Montgomery Township Public Schools	1996
Newark Public Schools	1998
New Brunswick Public Schools	1999
North Brunswick Public Schools	2000
Princeton Public Schools	1998
Trenton Public Schools	1996
Washington Township Public Schools	1998
West Windsor Plainsboro Regional Schools	1994

C.R. BARD, INC.
Murray Hill

C. R. Bard, Inc. is a worldwide leader in developing, manufacturing, and supplying healthcare products that focus on vascular, urology, and oncology disease states. In addition, Bard offers a complete line of advanced surgical specialty products and services that address needs in hernia repair, performance irrigation, hemostasis, and other areas.

Bard pioneered the development of single-patient-use medical products for hospital procedures; today Bard is dedicated to pursuing technological innovations that offer superior clinical benefits while helping to reduce overall costs.

Bard's outreach programs in New Jersey include:

- The company currently is paying off a $100,000 pledge for capital support for Centenary College ($20,000 per year) and $50,000 pledge for scholarship support ($10,000 per year).
- The company currently is paying off a $60,000 pledge to the "Give a Boy a Year" Financial Aid Program ($15,000 per year) at the Delbarton School.
- Annual contribution of $5,000 to Fairleigh Dickinson University Charter Day Scholarship Fund.
- Annual contribution of $12,500 to the Independent College Fund of New Jersey in support of the C. R. Bard Foundation Nursing Scholarship Program.
- $750 annual contribution to Junior Achievement of New Jersey
- The company currently is paying off a $50,000 pledge to the New Jersey SEEDS capital campaign ($10,000 per year).
- Annual contribution of $15,000 to the Summit Speech School early intervention and preschool program.
- United Negro College Fund—$5,000 to support their programs.

EISAI, INC.
Teaneck

Eisai Inc. is a wholly owned subsidiary of Eisai Co., Ltd. of Japan. Eisai is a human health care corporation striving for innovative solutions.

Headquartered in Teaneck, Eisai Inc.'s major product is Aricept®, which improves cognitive function and provides symptomatic relief for patients suffering from mild to moderate Alzheimer's disease. Eisai Co., Ltd. also produces consumer health care products (non-prescription pharmaceuticals); veterinary and livestock feed products; chemicals and food additives, and pharmaceuticals production systems and equipment.

Eisai is currently engaged in a number of initiatives to introduce high school and college students to the pharmaceutical industry and other health care issues. These include:

- Eisai worked with the United Way of Bergen County, BD and a team of public and private Bergen County organizations to build awareness for NJ FamilyCare, a publicly funded statewide health insurance program. The company invited high school students in Bergen County to produce three-minute videos and public service announcements to build awareness for the program. The students were provided with grants for equipment and production costs.
- In 2001, Eisai became a corporate sponsor of the Rutgers MBA Program in Pharmaceutical Management. Activities as part of this program include:
  1) Hosted an on-site visit in March 2002 for first year MBA students to meet Eisai's business leaders and learn more about Eisai, as well as the pharmaceutical industry. Presentation topics included "Human Health Care and the Economics of Healthcare Delivery—How the Payor Dynamics Impacts RX Utilization."
  2) MBA Career Fair at Rutgers.
  3) Participating in various committees (i.e. Scholarship Selection, Planning Advisory Board).
  4) Executive Presentations at Rutgers MBA Courses (Including a presentation regarding product management/marketing of branded ethical prescription drugs to a Rutgers MBA Marketing Class).
- Eisai's Medical Services group participates in the Doctor of Pharmacy program final year pharmacy rotations for students at Rutgers College of Pharmacy and for the University of the Sciences in Philadelphia College of Pharmacy. The pharmacy clerkship is a hands-on learning experience for students required for graduation.

It allows them to gain an understanding of the different practice environments and responsibilities of pharmacists and may include sites such as hospitals, clinics, community pharmacies, managed care organizations, and the pharmaceutical industry.

JOHNSON & JOHNSON
New Brunswick

J&J is the world's most comprehensive and broadly-based manufacturer of health care products, as well as a provider of related services, for the consumer, pharmaceutical and professional markets.

J&J scientists currently are engaged in research to bring new hope to Alzheimer's patients, to develop treatments for ulcerative colitis, and to find better ways to detect and treat cancer and diabetes. Johnson & Johnson's prescription pharmaceuticals include products for family planning, psychiatry, mental illness and diseases of the nervous system, gastroenterology, oncology, immunotherapy and cardiovascular disease, as well as biotechnology-derived products. The Company has introduced prescription antifungals, anthelmintics, antihistamines, antiparasitics and antiallergy products.

Headquartered in New Brunswick, New Jersey, since its founding in 1886, Johnson & Johnson is recognized for its support of the communities in which the company has operations. Its extensive social responsibility program is an outgrowth of the Company's renowned Credo, which outlines its responsibilities to consumers, employees, the community and shareowners.

Johnson & Johnson is engaged in a number of workforce development and education initiatives, including:

- Bridge to Employment is a national school-to-career grant program active in eight communities around the U.S. and Puerto Rico. In NJ, the company has current sites in Bound Brook and Trenton. For 2002-03, J&J is developing a project in New Brunswick with the Health Science Technology High School. Total grant dollars for 2002-2003 New Jersey sites total $100,000.
- Liberty Science Center (LSC) funding is directed to the LSC's "Cardiac Classroom," as well as a new effort to offer professional development for science teachers. Cardiac Classroom exposed K-12 students to a live, interactive, surgical procedure with special emphasis on health care careers. The professional development initiative will be an innovative experience for teachers using the museum as a learning and teaching laboratory. Total grant dollars for 2002-2003 for these initiatives total $300,000.
- J&J works with Rutgers University to fund two major initiatives targeted to K-12 students: the Saturday Science Academy and the Douglass Science Institute. These projects total approximately $40,000.
- Independent College Fund of New Jersey—2003 Pre-collegiate Education Initiatives Grants as follows: Centenary College, $10,000 for a program to encourage secondary students to consider science as a career; Fairleigh Dickinson University, $10,000 for a Pre-collegiate Nursing Academy; Felician College, $10,000 for an initiative to strengthen science education for elementary and middle school students through in-service training for their leaders; Princeton University, $10,000 to support the mathematics component of the Princeton University Preparatory Program (PUPP); Rider University, $10,000 for the Rider Science Education and Literacy Center (SELECT) Summer Research Fellows ($50,000 total).
- FIRST Robotics—J&J's support of this program is primarily directed to the Mid-Atlantic robotics competition held annually at Rutgers. FIRST was founded to encourage interest in engineering and technology among teenage students. In 2002-2003, the grant totaled $375,000.
- Business Coalition for Education Excellence. The BCEE was founded to advocate for high standards and assessments in New Jersey public education. J&J supports the efforts to create rigorous core content standards and workplace readiness skills. Support for this program is $25,000.

In addition, J&J supports the following education organizations on an annual basis:

InroadsNJ:	$10,000
Junior Achievement NJ:	$ 5,000
NJ BISEC:	$ 5,000
Public Education Institute:	$10,000
Teach for America NJ:	$15,000

MERCK AND COMPANY, INC. Whitehouse Station

Merck is a global, research-driven pharmaceutical company that discovers, develops, manufactures and markets a broad range of human and animal health products, directly and through its joint ventures.

The Merck Institute for Science Education (MISE) is a non-profit organization established by Merck's Board of Directors in 1993. The Merck Board of Directors established the Institute with a $20 million, 10-year commitment of funding from The Merck Company Foundation. MISE is designed to deepen current and future teachers' knowledge of science and education, provide access to exemplary curriculum materials, and support policies at the local, state, and national levels that promote science education—with the ultimate goal of raising the levels of participation and performance in science for all students in kindergarten through 8th grade.

MISE has developed partnerships with four public school districts located in close proximity to Merck's major facilities. These districts include Linden, Rahway, and Readington Township in New Jersey, and North Penn in Pennsylvania. In the future, MISE plans to expand into other school districts.

In addition to creating strong school-business partnerships with four public school districts, MISE also has developed and implemented professional development programs and assessment tools, organized and coordinated school-based volunteer activities of 300 Merck employees, provided school staff and volunteers with access to learning materials through two resource centers, and played a lead role in developing New Jersey's core curriculum content standards and frameworks for science. Since its inception, MISE's capacity has been significantly strengthened through the receipt of a five-year, $2.4 million grant from the National Science Foundation (NSF) and the creation of an Advisory Board comprised of national experts in the sciences and education.

MISE and its district partners have established model professional development programs (the Leader Teacher Institute and the Peer Teacher Workshops) for elementary and middle school teachers and administrators. Through these programs, approximately 1,500 participants have attended intensive, hands-on workshops and received ongoing technical assistance in science, mathematics, and technology. As a result of participating in such training, these educators have the potential to impact nearly 20,000 students within Merck's neighboring communities.

- The Leader Teacher Institute (1995-98) was a three-year professional development program for K-8 teachers in the partner districts. This program was designed to increase participants' content knowledge in science, mathematics, and technology, to model inquiry-centered instruction, and to build the capacity of teachers to lead education reform in their districts.
- The Peer Teacher Workshops, which have been offered since 1996 in the partner districts, provide intense, focused opportunities for all teachers in the partnership districts to study and apply standards-based science and mathematics concepts and the supporting technology, inquiry-centered instructional strategies, equitable classroom practices, and assessment.

MISE has organized and coordinated the activities of approximately 300 employees from two Merck sites who volunteer their time in the partner district schools. Among the activities the volunteers engage in are Family Science Day, science fairs, classroom partnerships, and a new "telementoring" program.

Assessment Tools: With the support of an NSF grant, MISE embarked on a Partnership Assessment Project to develop accurate measures for testing student understanding in science. This project resulted in the publication of "An Assessment Sampler"—a classroom resource for teachers, administrators, and staff developers. MISE and its partners have also developed a four-component Partnership Assessment Plan, which has begun to address the districts' assessment needs in science.

Resource Centers: Two resource centers—one in Rahway, New Jersey, and one in West Point, Pennsylvania—have been developed and staffed by MISE. Through these centers, local teachers, administrators, school board members, and Merck employee volunteers may

access a variety of instructional materials, books, periodicals, and videotapes focused on effective science and mathematics teaching.

Core Curriculum Content Standards: MISE executive director, Dr. Carlo Parravano, was appointed co-chair of New Jersey's first Professional Teaching Standards Board and helped develop statewide science standards and frameworks, forming the basis for science education in New Jersey.

NOVARTIS PHARMACEUTICALS East Hanover

Novartis Pharmaceuticals, a division of Novartis, is a leading pharmaceutical company formed in December 1996 by the merger of Ciba-Geigy Ltd. and Sandoz Ltd. The company researches, develops, manufactures and markets leading innovative prescription drugs.

The company's U.S. headquarters are in East Hanover, New Jersey, with a research facility in Summit. Novartis Pharmaceuticals employs approximately 3,500 people in New Jersey. The pharmaceutical company focuses on seven therapeutic areas: transplantation/immunology; arthritis/inflammation/bone; cardiovascular and metabolic; nervous system; dermatology; oncology; and respiratory.

Novartis provides support to a number of organizations in New Jersey, including:

Workforce Partnerships:

- Black United Fund
- The Business and Education Together Foundation (BET)
- CCB International
- Employment Horizons (Occupational Training Center of Morris County)
- Summit YMCA - Black Achievers Corporate Mentor Program
- Technical Training Project, Inc.

Elementary and High School Program Support:

- LINK Community Schools
- Chatham High School
- Florham Park PTA
- Hanover Park High School
- Holy Family School
- John F. Kennedy School
- Mount Olive High School
- Mountainside PTA
- North Hunterdon High School
- Our Lady of Peace School
- Parsippany Hills High School
- Randolph High School
- The School for Children with Hidden Intelligence
- Whippany Park High School
- Summit High School
- The Wilson School Parent's Association
- In addition, Novartis has a weekly mentoring program that pairs employees with third and fourth graders from New Jersey's inner cities. Novartis is in its second year of this on-site mentor program.

NOVO NORDISK PHARMACEUTICALS, INC. Princeton

Novo Nordisk Pharmaceuticals, Inc., is a United States affiliate of Novo Nordisk A/S, Denmark, a multinational company that is a world leader in diabetes care. Novo Nordisk has a broad diabetes product portfolio, including the most advanced products within the area of insulin delivery systems and the richest product pipeline in the industry. In addition, Novo Nordisk has a leading position within such areas such as hemostasis management, growth disorders and hormone replacement therapy.

Outreach programs with New Jersey educational institutions include:

- College of New Jersey: employed student interns and offered positions upon graduation.
- Fairleigh Dickinson University: Presented Global Leadership Program, and worked with the university to design training programs.
- Mercer Community College: Partnered on computer training and received assistance in preparing the state training grant.
- Rutgers University: participate in job fairs for upcoming graduates, as well as post jobs with the college when the company has openings in the pharmaceutical area.
- Rider University: post jobs with the college.

For all of the above, the company provides tuition reimbursement to employees based on eligibility and policy requirements.

ORGANON, INC.
Roseland

Organon Inc. of Roseland and West Orange, is the U.S. affiliate of N.V. Organon, a renowned international ethical pharmaceutical company (its world pharmaceutical headquarters relocated to Roseland in 2002). Organon has complied a long and impressive list of firsts in pharmaceutical discovery and development, innovative, new generation products.

Strong reliance on its expertise in research and development and unprecedented commitment to women's health care allowed Organon to contribute significantly to three areas of vital importance—contraception, fertility and osteoporosis prevention—and placed the company in range of world leaders in this field. Organon's scientists and research assistants worldwide have also added strongly to groundbreaking research programs and treatment of central nervous system disorders, especially depression and psychosis as well as diversified and highly specialized anesthesia products.

Organon has developed a number of partnership opportunities with New Jersey colleges and universities, including:

- Ongoing partnership with Montclair State University that includes "lunch & learn" programs (e.g. become debt free, retirement planning) and supportive/development skills courses (e.g. cultural diversity, business writing). Organon is also looking into the possibility of offering an on-site evening GMAT prep course.
- Caldwell College has participated in on-site "lunch & learn" program on distance learning. Organon recently again hosted Caldwell College for a lunch & learn program on opportunities available at the college, as well as an introduction to its Principles of Management undergraduate course. An evaluation is being conducted as to whether there is enough interest at Organon to pursue offering this course on-site to our employees after work.
- Currently, Organon is in discussion with UMDNJ to develop opportunities for a partnership- particularly for conducting clinical trials. Representatives from several of Organon's departments—including Marketing, Sales, and Clinical and Medical Services—were present during the kick-off meeting in January and several of these groups have also met separately with UMDNJ.
- Plans are underway to offer Organon employees an on-site MBA course with Fairleigh Dickinson University for the Fall 2002 semester. A number of employees are currently pursuing a Master's degree in Pharmaceutical/Chemical studies at FDU.
- Preliminary discussions are underway with County of Morris College to establish partnerships.

PFIZER, INC.
Morris Plains

Pfizer is a research-based, global pharmaceutical company. Pfizer has three business segments: health care, consumer health care, and animal health. Pfizer's pharmaceutical product portfolio is one of the broadest and deepest in the industry, covering cardiovascular disease, infectious disease, diseases of the central nervous system, metabolic disorders, cancer, inflammatory disease, women's health and ophthalmology.

In 1999, Pfizer made over $6.8 million in charitable contributions and product donations in the state of New Jersey. In addition, Pfizer conducts a number of educational initiatives, including:

- Pfizer provides two scholarships totalling $20,000 annually to support two students' tuition in the Rutgers University MBA in Pharmaceutical Management.
- Morristown High School Career Academy, 2002.
- Independent College Fund of New Jersey, Unrestricted.
- Pfizer Science Grants Contribution, 2002, Chester Board of Education.
- 2002 Chester Science Fair, and North Hunterdon High School Science Fair.
- Science Expo 2002, 2/21/2002, County College of Morris County Foundation Scholarship.
- 2002, Liberty Science Center.
- Traveling Science Program, 2002, New Jersey Seeds.

- Science Curriculum, 2002, North Jersey Regional Science Fair
- Regional Science Fair, 2002, College of St. Elizabeth
- Scholarship, 2002, Centenary College
- Scholarship, 2002, Fairleigh Dickinson University
- Scholarship, 2002, Fairleigh Dickinson University
- Scholarship, 2002, Tri-County Scholarship Fund
- Scholarship, 2002, Children on the Green Child Care
- Tuition Slots for Homeless Children, 2002
- New Jersey City University Foundation, Joseph DeLuca Pfizer Memorial Scholarship Fund, 2002
- Ada Budrick Child Care & Learning Center, Reading Enrichment for Kindergartners, 2002
- Link Community School Scholarship, November 2002

PHARMACIA CORPORATION
Peapack

Pharmacia Corporation has a significantly strengthened position in the critical U.S. pharmaceutical market and complementary current and near-term products in key therapeutic areas. The company has strong positions in the areas of arthritis and inflammation, antibiotics, oncology, cardiovascular, central nervous system, ophthalmology, urology, and women's health. Pharmacia also has a strong consumer healthcare business led by global brands such as NICORETTE.

Pharmacia has a number of workforce and education partnerships, including those with the following New Jersey institutions:

- Caldwell College
- Fairleigh Dickinson University
- Gill St. Bernard's School
- Independent College Fund of New Jersey
- New Jersey SEEDS
- New Jersey Business/Industry/Science Education Consortium
- Newark Academy
- Raritan Valley Community College
- Rutgers University
- Science Screen Report (Bedminster and Somerset Hill district schools)
- Somerset/Hunterdon Business and Education Partnership
- Teach for America

ROCHE
Nutley

Roche, based in Nutley, N.J., is the U.S. prescription drug unit of the Roche Group, a leading research-based health care enterprise that ranks among the world's leaders in pharmaceuticals, diagnostics and vitamins. Roche discovers, develops, manufactures and markets numerous important prescription drugs that enhance people's health, well-being and quality of life. Among the company's areas of therapeutic interest are: dermatology; genitourinary disease; infectious diseases, including influenza; inflammation, including arthritis and osteoporosis; metabolic diseases, including obesity and diabetes; neurology; oncology; transplantation; vascular diseases; and virology, including HIV/AIDS and hepatitis C.

Roche has a long history and commitment to philanthropy and social responsibility and as one of the first companies in the United States to start a corporate giving program, its actions today continue to demonstrate the company's belief in the importance of good corporate citizenship. Among the many initiatives Roche has supported:

- Roche conducts an annual career day at which local elementary through high school students are invited to attend and learn about careers in the pharmaceutical industry through information and hands-on activities.
- Working with the Clifton public schools, Roche has implemented a Full Option Science System (FOSS), a modular science program for K-6 students that inte-

grates hands-on real world science with interactive multimedia materials.

- Roche supports the annual Dr. Virginius D. Mattia Scholarship program for college-bound high school students from Nutley.
- Independent College Fund of New Jersey/September 11th Victim Assistance Postsecondary Education Fund: Support through the Hoffmann-La Roche Foundation for a special post-secondary student assistance fund to help NJ victims with postsecondary needs as a compliment to assistance from the state.
- INROADS: Roche provides support to this minority intern program. Most participants attend New Jersey colleges and universities.
- Montclair State University (MSU): Roche funded MSU's College of Science and Mathematics' development and implementation of a Focus School in Science in the Passaic school district. It provides new science teaching models for elementary educators through training, materials, and hands-on activities, as well as a bilingual component.
- New Jersey Science Education Leadership Association (NJSELA) and New Choices, New Responsibilities: Ethical Issues in the Life Sciences (NCNR): Roche funded and collaborated on development of NCNR, a curriculum supplement in bioethics for middle and high school science teachers in New Jersey. Using a case-study method, teachers are trained and are provided with materials for classroom discussion on the topics of AIDS, animals in science, genetics, transplantation and the environment.
- Paterson Education Fund (PEF). The Roche Tutoring Program offers support for partnership with Edward Kilpatrick School in Paterson and PEF to conduct a weekly tutoring program from September through May for third graders at Roche in Nutley. Library Power offers support for programs to rebuild the public high schools' library media programs. Returning to Local Control: Access to Tools offers support for initiatives to educate community about the role of school governance in school reform. Comprehensive School Health Initiative Assessment offers support for programs designed to determine the health needs and available resources for children in Paterson.
- The Rutgers University Fellow's Program, of which Roche is a founding member, offers two-year industry fellowships. The MBA in Pharmaceutical Management provides scholarships, and Roche sits on the advisory board, as well as interviewing and academic committees. Robert B. Clark Scholars are awarded to minority undergraduate students pursuing careers in science.
- Technical Training Project, Inc. (TTP): Roche was a founding member and supports TTP, which offers training and career opportunities for minorities in preparation for careers in science and technology.
- University of Medicine and Dentistry of New Jersey (UMDNJ): The Environmental and Occupational Health Sciences Institute (EOHSI) and the Nutley School District: Roche has been a corporate sponsor of partnerships between EOHSI and the Nutley school district to train educators on priority environmental health issues to improve environmental health sciences education for elementary through high school students.
- Teach for America. Consistent with Roche's commitment to educational programs which enhance math and science literacy, especially for traditionally underserved populations, Roche has provided support to Teach for America for the sponsorship of corps members who teach in Paterson's public schools.
- Robert B. Clarke Roche Scholarship at Rutgers University. Roche established a scholarship program at Rutgers University for undergraduate students in under-represented groups whom plan to pursue careers in mathematics, science, pharmacy or nursing. The program awards merit scholarships based on the promise of academic excellence and financial need.
- Nursing Scholarship Program. Roche supported the New Jersey Institute of Nursing's scholarship program for returning nursing students affiliated with New Jersey's hospitals, colleges, and universities.

Roche has also provided support to the following New Jersey institutions of higher education:

- Bloomfield College
- Caldwell College

- Drew University
- Fairleigh Dickinson University
- Montclair State University
- New Jersey Institute of Technology
- Ramapo College
- Rutgers University
- Seton Hall University
- University of Medicine and Dentistry
- Warren County Community College
- William Paterson University

SANKYO PHARMA INC.
Parsippany

Sankyo Pharma Inc. is the U.S. subsidiary of Tokyo-based Sankyo Co., Ltd., the second-largest pharmaceutical company in Japan. Sankyo is a bold innovator with a strong track record of discovering new classes of medicine. Sankyo researchers are focused on developing breakthrough therapies for the treatment of cardiovascular conditions, metabolic disorders/diabetes infection, and cancer. Sankyo established its U.S. headquarters in New Jersey in 2001.

Sankyo has a fellowship arrangement with Rutgers University. It is a one-year post-doctoral Industrial Fellowship in Medical and Scientific Affairs. Sankyo's first fellow recently completed her year-long fellowship (and was hired into the company), and Sankyo began two new fellowships on July 1, 2002.

SCHERING-PLOUGH CORPORATION
Kenilworth

Schering-Plough Corporation is a leading research-based company involved in the discovery, development, manufacturing and marketing of pharmaceutical products worldwide. Schering-Plough is a publicly traded company with shared listed on the New York Stock Exchange (ticker symbol SGP). Some 30,000 company employees serve the health and personal care needs of people in more than 125 world markets.

In targeted geographic and therapeutic markets, Schering-Plough is achieving important gains with new products derived from a productive research pipeline and external licensing/co-development agreements. The Company seeks to address medical and customer needs, as well as the latest trends in world health care systems. Pharmaceutical research and development efforts, carried out by Schering-Plough Research Institute, are concentrated in: allergic and inflammatory disorders; infectious diseases; oncology; cardiovascular disease; and central nervous system disorders.

Schering-Plough is actively engaged in a variety of workforce development and education projects in New Jersey, including:

- An internship program for high school students, with twelve to eighteen participants selected per year. In this program, high school students are offered a stipend for their work as interns.
- An internship program for college students that enrolls approximately 100 interns from NJ schools annually, with a stipend.
- Scholarships earmarked for training in the pharmaceutical industry are also provided.
- An annual summer program for middle school science teachers, the
- Schering-Plough Summer Institute for Teachers Program. Participants receive a $2500 stipend.
- Provided financial support to the NJ Business and Industry Association's Science Education Consortium (NJBISEC). This typically involves middle school teachers in Sussex County. They work during the summer months in S-P's Lafayette, NJ facility.
- Annual program whereby biology/science middle school faculty work in the Schering-Plough Research Institute labs for four weeks during the summer period, to hone research skills and stay current. In addition, a College Alliance Program supported by Development Operations (part of the Research Institute) provides two professors from local colleges with operations research work as part of their annual college/university sabbatical.
- Schering-Plough has made a number of equipment donations to local educational institutions, including 2000 laptops to NJ K-12 school nurses; renovated facilities and donated equipment at Union High School (an approximate value of $250,000). In addition, the company donated used lab equipment to local colleges (Stevens, Seton Hall, and Rutgers).
- Schering-Plough has assisted local secondary institutions with curriculum

development (Union and Kenilworth High Schools), as well as renovated laboratories and provided guidance on a science programs, at an investment of $350,000. The company has several high school students from advanced placement programs visit Schering-Plough for two to three days each during the school year, augmenting their high school science program.

- During 2001, Schering-Plough provided technical guidance to NJIT regarding the development of curriculum addressing operations research.
- Communities in Schools (CIS) of New Jersey, Inc., Newark-Supported CIS of Elizabeth High School/Sunset Program for potential high school dropouts.
- Schering-Plough has provided staff to serve as classroom instructors to local schools, providing scientists within Union County as classroom assistants (middle school and high school) and 2-3 assistants at summer camps for elementary students. In addition, the company annually provides upwards of 60 scientists and professionals guest lecturers to present at elementary, middle schools, high school and college institutions.
- Schering-Plough has sponsored Career Awareness Days, including the Women in Science and Technology Day, at Kean University Career Day; In addition, there is a special program for 9th grade girls to visit Schering-Plough annually.

Schering-Plough also sponsors several annual tours of the Research Institute involving approximately 300 NJ students.

- Provided annual financial support ($10,000-$30,000) to the Northern New Jersey INROADS Program for exemplary African-American and Hispanic New Jersey college students (from Rutgers University, Seton Hall, New Jersey Institute of Technology, Stevens Institute, Kean University, and Fairleigh Dickinson). Upwards of ten college students receive paid summer internships and consideration for full time employment following graduation.
- Provided annual financial grant of $20,000 to Technical Training Project, Inc., (TT), promoting the preparation and training of recent inner city minority New Jersey high school graduates for careers in science. TTP is a private non-profit organization associated with Essex County College. Since 1968, Schering-Plough has had approximately 300 African-American and Hispanic students training and approximately 50 have been hired as lab technicians in Schering-Plough Research Institute and Technical Operations.
- Created the Summer Challenge Program involving upwards of 25 minority college students for summer assignments principally from New Jersey-based colleges and universities.
- Schering-Plough has a program in which upwards of $1,000 total in savings bonds is given to as many as 30 K-12 local students who excel within their school's science programs.
- Finally, Schering-Plough has made significant monetary contributions to New Jersey education institutions and initiatives, including $646,000 in 2001 to NJ colleges and universities. As part of the amount above, the Schering-Plough Foundation Scholars Program awards scholarships to high school and college students with special financial needs who display exceptional academic abilities, leadership, and a commitment to community service. Institutions include: Bloomfield College; Delbarton School; Drew University; Fairleigh Dickinson University; Kean University; Kent Place School; Montclair State University; Newark Academy; Pingry School; Rutgers, New Brunswick; Seton Hall Preparatory; and, St. Benedict's Preparatory School.

In addition to the above, funded the following initiatives:

- Drew University- Awarded grant for the renovation of the "Schering-Plough Hall of Sciences Lecture Hall."
- Kean University-Funded the newly created graduate program in biotechnology.
- Link Community School, Newark- Funded a new science program.
- Union County College- Funded construction of the "Schering-Plough Training Institute" at the Elizabeth campus.

STRYKER HOWMEDICA OSTEONICS
Allendale

Stryker Howmedica Osteonics is headquartered in Allendale, New Jersey. Howmedica Osteonics Corp. is a leading worldwide manufacturer and developer of orthopaedic products that include hip and knee reconstructive devices, upper extremity implants, bone cement, and trauma products. Howmedica Osteonics also represents the spinal implants manufactured by Stryker Spine.

Howmedica Osteonics is dedicated to establishing itself as the undisputed leader in orthopaedics through building intense customer loyalty, which makes it the company of choice for worldwide customers, business partners, and employees alike.

Stryker has an impressive inventory of NJ Workforce Partnerships & Assistance Programs for Elementary and high school districts in the state, including:

- Partnership with Bergen Community College, regarding the creation of a Manufacturing Technology Education Center. Create and support manufacturing technology simulation laboratory, CAD classrooms, provide assistance with curriculum creation, part-time adjunct instructors, co-operative students and/or work/study arrangements. Stryker has committed to donate $100,000 toward this center. Passaic County Community College also is a part of this program.
- Co-operative education opportunities for college students from NJIT, Ramapo College, Rutgers, Stevens Institute of Technology, and Montclair University in engineering disciplines, IT, Finance and Marketing. There are graduate recruiting programs on these campus.
- Supporting numerous career fairs at local schools.
- "Bring Your Daughters to Work" Day, "Bring Your Sons to Work" Day involve school aged children 9-15 exposure to medical device manufacturing & technology.
- Support of Northern Highlands Regional High School and Mahwah High School DECA program.
- Partnership with Ramapo College regarding guest lecturing on intellectual property, human resources and information technology areas. Faculty tours on-site.
- Over past seven years, counseled the Workforce Investment Board of Bergen County on "School to Work" programs and policy.

WYETH
Madison

Wyeth (formerly American Home Products) is one of the world's largest research-based pharmaceutical and health care products companies. It is a leader in the discovery, development, manufacturing and marketing of prescription drugs and over-the-counter medications. It is also a global leader in vaccines, biotechnology, and animal health care. Wyeth is among the leaders in sales of non-prescription medications worldwide and the leader in vitamin sales in the United States.

Wyeth is currently engaged in a number of education and workforce programs in New Jersey, including:

- Executive Scholars Program at Fairleigh Dickinson University (FDU), which includes Human Resources Executives serving as mentors for students, and hosting "interviewing skills" workshop for FDU students and mentors in program
- Partnership with Rutgers University that includes intern recruitment efforts and programs with the Rutgers School of Pharmacy
- The In Roads Program, in which Wyeth works with InRoads to seek out interns at local universities to expand diversity within the company.
- Wyeth also contributes financially to a number of educational programs in NJ, including Drew University, Seton Hall University, and the Liberty Science Center.

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THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS