

A GLOBAL citizen



in a changing world

BD, a 100-plus-year-old medical-technology company, **is blazing a global path** with a purpose of helping all people live healthy lives

thanks in large part to the **progressive and determined efforts**

of its Chairman, President, and CEO, **Edward J. Ludwig.**

EDWARD J. LUDWIG, who has spent 25 years at BD (Becton, Dickinson and Co.), is helping turn the company and its products into household names in the field of medical technology through innovation and a commitment to humanitarian efforts around the world.

Much has changed at BD since Mr. Ludwig, now chairman, president, and CEO of BD, joined the company. Today, BD is a glob-

al company with \$4.53 billion in revenue, as reported for the fiscal year ended Sept. 30, 2003. Almost 50% of the revenue was generated outside the United States.

"The company has become truly global in its scope," Mr. Ludwig says. "BD has embraced advanced technologies; the products that we're making and thinking about today are a far cry from what they were 20 years ago, and our people are more engaged in the company as a whole. When I witness the level of

passion exhibited by our people it's very exciting. I believe this is the hallmark of a great place to work and of a great company."

Mr. Ludwig's career has been distinguished by a constant drive to improve performance. The opportunities to innovate, the company's mission and accomplishments, combined with long-held values, appealed to Mr. Ludwig when he first joined the company and keep him excited and enthusiastic today.

He is proud to lead a company that has a

keen sense of social responsibility with strong community relationships. During 2003, BD contributed more than \$4 million in cash and products to disaster and humanitarian relief agencies in the United States and overseas.

The company also has several ongoing initiatives to reinforce its business objectives of being a pioneer in the development of safety-engineered products. These products are designed to protect healthcare workers against sharps injuries, which expose them to the risk of hepatitis B, hepatitis C, HIV, and other blood-borne pathogens. BD has dedicated more money, human resources, and technical know-how to the task of reducing sharps injuries than any other company. Additionally, BD supports a Safety Compliance Initiative, a national education program, to raise awareness of the risk of needle-stick injuries and help achieve regulatory compliance and injury reduction.

BD also supports EPINet (The Exposure Prevention Information Network), which was developed by the International Healthcare Worker Safety Center at the University of Virginia. The intent of EPINet is to provide healthcare facilities with a standardized method for recording percutaneous injuries and contacts with blood and other body fluids.

In another initiative, the company donated about 55 million syringes to the UNICEF-led campaign to eliminate maternal and neonatal tetanus (MNT). The syringes will support the campaign to eliminate MNT as a worldwide problem. So far BD has donated a total of \$8 million in cash and products to the MNT program.

In the diabetes area, the company cosponsors a diabetes education program in China. To date, 1,577 nurses and doctors from 31 Chinese provinces have participated in a unique educational program focusing on diabetes. Developed by Project HOPE, a global nonprofit organization, in consultation with international medical advisors and Chinese Health Professionals, this initiative was launched to combat this major chronic disease in China.

Additionally, BD is a supporter of the International AIDS Vaccine Initiative, a global nonprofit organization searching for safe, effective, and accessible preventive AIDS vaccines.

"Although the company has been around a long time, it has stayed fresh by reinventing itself," Mr. Ludwig says. "We focus on preserving and staying true to our core values, our purpose, and our mission; those things don't change. But to remain fresh and competitive,

we adapt what we make, how we make our products, and how we distribute them because the world keeps changing. We are constantly inventing new products and updating processes in response to market dynamics."

EDWARD LUDWIG

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HEADING IN THE SAME DIRECTION**
with enthusiasm and with the knowledge of
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BD is a medical technology company that serves healthcare institutions, researchers, clinical laboratories, industry, and the general public. The company is organized around three segments: BD Medical, BD Diagnostics, and BD Biosciences. BD manufactures and sells a broad range of medical supplies, devices, laboratory equipment, and diagnostic products, including syringes and needles, insulin-delivery devices, surgical blades, blood-collection products, diagnostic instruments, and molecular and cell biology products.

Even as BD continues to adapt its products and services to meet the demands of evolving market conditions, the company has the weight of history behind it. Maxwell W. Becton and Fairleigh S. Dickinson Sr. founded the company in 1897 as a medical-device import company. Over the years, the company has made significant breakthroughs in medical technology, including the first insulin syringe in 1924; the development of a sterile disposable blood-collection set in 1950; and the introduction of prefilled syringes for injecting heparin, a blood thinner, in 1975. Mr. Ludwig is only BD's fourth nonfamily CEO, with the founders and their sons running the business for the first 70 years.

"In the past, the company was thought of as being reliable and a bit conservative, but not a high-powered player in the space," Mr. Ludwig says. "Today, BD is purposefully moving up the value chain. We manufacture and market devices that have a real therapeutic impact and that people buy because of the BD name. Over the past couple of years, we've consciously built a more consistent identity

for the company. While our legal name is still Becton, Dickinson and Company, we refer to ourselves as BD; we have a new logo, and we have a central purpose of helping all people live healthy lives."

A COMBINATION OF TALENTS

From early on, Mr. Ludwig was a pioneer. The eldest of five children, he was the first member of his family to go to college. His father was a construction worker and during his years at The College of the Holy Cross, Mr. Ludwig spent the summers working in construction in New York. Not knowing what to study, Mr. Ludwig entered college as a political science major. After his roommate advised him that far more jobs were open to graduates with economic and accounting degrees, Mr. Ludwig made the switch.

"I found I really enjoyed the discipline, the concept of combining history, social science, and how people allocate resources," he says.

After graduating with a B.A. in economics and accounting, Mr. Ludwig went onto Columbia University to get his MBA before taking a job as a public accountant at Coopers and Lybrand (now PricewaterhouseCoopers).

"During that time, I was exposed to companies such as Johnson & Johnson," Mr. Ludwig says. "I was very impressed by the caliber of people I met there, and I became interested and excited about the notion of going to work every day for a company that makes a difference in people's lives."

After leaving Coopers, Mr. Ludwig spent one year at Kidde, which he describes as one of the last true conglomerates, made up of a series of unconnected companies. Before taking the job at Kidde, Mr. Ludwig had sent out resumes to a number of companies, including BD. A year into his job at Kidde, Mr. Ludwig received a phone call from BD, which was looking to expand its financial staff.

Mr. Ludwig immediately was drawn to BD because of the atmosphere, the people he met, and the business itself, which was in a high-tech field where there was huge growth potential.

"I believed if we did our jobs right, the company would be around forever because there is no obsolescence in healthcare," he says. "What I enjoyed about BD right from the start was that financial people could go beyond the numbers to delve more deeply into the business. I tell people at BD that I got here by accident, but I stayed on purpose."

In return, BD got an employee who,

thanks to his academic background and his experience as an auditor, was able to take a wider perspective of the entire healthcare field.

“As the industry debates the ways in which healthcare dollars are allocated, either through a free-market mechanism or nationalistic systems, my economics background comes in handy in understanding trends in business,” he says.

As the head of this large, global company, Mr. Ludwig converses easily with Wall Street and BD’s investor public. He also focuses on good corporate governance.

“While it takes more than one person to steer a company in the right direction, as CEO I set the tone in terms of our ethics,” he explains. “My analytical background helps me to understand the information I’m being given and to sift out the good answers from the not-so-good answers.”

Early in his career while working as an auditor, Mr. Ludwig had a supervisor who gave him advice that he has used throughout his career.

“He said to me, ‘if you see something you don’t understand, ask about it, and if you still don’t understand, ask again, and if you still don’t understand, it’s probably wrong,’” Mr. Ludwig says. “The BD board of directors and the Aetna board, where I am a director, are outstanding examples of individuals who will not stop asking a question until they get an answer they understand. If all boards of directors — the Enron board, the WorldCom

board, for example — asked the tough questions and didn’t stop asking until they got an answer they understood and could explain to someone else, this would go a long way to addressing many of the problems companies are facing.”

THE INS AND OUTS OF A CAREER

Mr. Ludwig describes his 25-year career path at BD as a series of ins and outs. He began in the corporate office in Franklin Lakes, N.J., then moved to a division 10 miles away, then to another finance position, then back to the home office again, then to Maryland to run the diagnostics business, followed by a stint as chief financial officer in the corporate office.

In May 1999, Mr. Ludwig was named president, in January 2000 he became CEO, and in February 2002 he assumed the role of chairman.

“Having been involved in many different aspects of the company has been very helpful, particularly now in my role as CEO,” he says.

Mr. Ludwig’s breakthrough career role came with his promotion to president of the Diagnostic Instrument Systems division located in Maryland, which he ran for about six years.

At the time, BD’s core business was in medical devices, such as needles and catheters, and less so in diagnostic instruments. As such,

few managers in the head office really understood the workings of the diagnostics business, which allowed Mr. Ludwig to delve deeply into the field and be a real business innovator.

“Having direct P&L responsibility and having to meet a payroll gave me a great deal of satisfaction,” he says. “For all intents and purposes, I was the CEO of BD Maryland, although that wasn’t my title. During this time, I became active in community activities, such as the governor’s office, the chamber of commerce, the schools, and the symphony. This was a very exciting period for me.”

One of Mr. Ludwig’s most significant contributions to the division was the role he played in bringing to the market BD BACTEC 9000 systems, a family of continuous monitoring blood culturing instruments. Mr. Ludwig says the instruments revolutionized the way in which blood culturing was performed, particularly at BD, which is now

EDWARD LUDWIG



A Purposeful Mission

IN AN EXCLUSIVE INTERVIEW WITH PHARMAVOICE, EDWARD J. LUDWIG, CHAIRMAN, PRESIDENT, AND CEO OF BD, TALKS ABOUT THE IMPORTANCE OF GIVING BACK TO THE COMMUNITY AND THE INDUSTRY, WHAT INSPIRES HIM, AND THE SIGNIFICANCE OF GREAT MENTORS.

HOW IMPORTANT HAS IT BEEN FOR YOU TO TAKE ON PHILANTHROPIC ROLES AND BOARD MEMBERSHIPS?

It is important to give back to the community and it’s also important to try to walk a mile in your customers’ shoes. Hospitals are our largest single customer, and they need a lot of help to ensure they improve efficiency and quality. I think some of the management techniques I use at BD in terms of efficiency can be brought into the hospital setting.

I believe it’s important to work with organizations such as UNICEF and the Red

Cross partly because it is both their goal and ours to help people live healthy lives and partly because there are extraordinary people at these organizations who have great ideas and are a great source of inspiration. By sitting on the board at Aetna, I’ve met wonderful people who have provided insights from a business perspective, from an academic perspective, and from a healthcare perspective.

WHAT ROLE DO YOU BELIEVE INDUSTRY ORGANIZATIONS SUCH AS THE HEALTH-CARE INSTITUTE OF NEW JERSEY (HINJ) PLAY, AND HOW CAN LEADERS SUCH AS

YOURSELF HELP THOSE ORGANIZATIONS ACHIEVE THEIR GOALS?

New Jersey has one of the greatest concentrations of research-based pharmaceutical and medical technology companies in the world, let alone the United States. The state accounts for more than 60,000 jobs, \$23 billion in direct and indirect healthcare, hundreds of millions of dollars in charitable contributions, and billions of research dollars. HINJ was established eight years ago to make sure that people in Trenton and our representatives in Washington, D.C., understood

EDWARD LUDWIG

There's plenty of demand for healthcare,
and technology is helping us develop
capabilities that were beyond everyone's
WILDEST DREAMS 10 YEARS AGO.

the world's largest installed base of blood-culture systems.

"We started this business through the acquisition of Johnston Laboratories in 1979," he says. "Our scientists then developed the technology into a tangible product, and that's something I can point to with pride. Between what I started and what Vince Forlenza (past president of BD Diagnostic Systems and now president of BD Biosciences) finished, we helped create an organization that's capable of producing innovative diagnostics systems and products."

The BACTEC series of products has continued to evolve with the latest incarnation being the BD BACTEC 9050, a compact product that features fully automated noninvasive continuous fluorescent blood monitoring.

"When the BACTEC 9050 came out, the development team sent me a signed photograph of the instrument and thanked me for my contribution to starting the program," Mr. Ludwig says.

Today, that division continues to develop highly innovative products. Among the more recent developments are the BD Phoenix Automated Microbiology System, which is designed to enhance patient analysis and management by applying the BD BACTEC system efficiency to automated identification and susceptibility testing. Another more recent design is the BD ProbeTec ET system, which offers simultaneous amplification and real-

time detection. Fast results can reduce disease transmission, improve patient management, and enable hospitals to use resources more cost effectively.

A key lesson Mr. Ludwig learned while at the diagnostics division was how to manage through people.

"My background is in the liberal arts, so I wasn't going to go to Maryland and explain microbiology to the division," he says. "I learned that the role of a leader is to engage and to enable the organization. Today, as CEO, my job is to get 25,000 people heading in the same direction with enthusiasm and with the knowledge of what their role is in that journey. To achieve these goals, I try to surround myself with people who have different backgrounds because no one has all the answers."

GREAT EXPECTATIONS

Mr. Ludwig has set BD on an ever-evolving and highly progressive path. As chief financial officer, Mr. Ludwig helped BD take its first

steps toward companywide systems to improve efficiencies. BD began implementing SAP in 1998 and finished last year. It was a long process that cost the company hundreds of millions of dollars, but Mr. Ludwig says it is an initiative that will serve the company well as it goes forward.

From systems updates, such as SAP, to technological innovations, such as the BD BACTEC 9000 systems, Mr. Ludwig's goal has been to make BD a great company. The company mission statement is to "become the organization most known for eliminating unnecessary suffering and death from disease, and in so doing, become one of the best performing companies in the world."

Mr. Ludwig and his senior team have established a three-part strategy for BD to achieve this goal: making a great contribution to society, having great performance, and creating a great place to work. Mr. Ludwig says the strategy was developed in part by working with Jim Collins, author of "Good to Great" and "Built to Last."

The next part of the strategy is great performance. Mr. Ludwig says the company's revenue growth is now sustainable at about 6% to 7%, neutral of foreign exchange rates.

"I don't talk about an ultimate revenue goal, though our next target will be growth in the higher single digits and into double digits," he says. "It takes time to get there; we're not going to achieve this growth rate

that we're part of the solution, not part of the problem. Many times in the heat of a political battle people attack the life-sciences industry. We're trying to tell the other side of the story, which is that life-sciences companies invent and develop products that help people live healthy lives and that our companies have programs that make these products more accessible and more affordable for people in need.

I'm also involved with AdvaMed, which is a national trade association of medical technology companies. AdvaMed lobbies, in the positive sense of the word, on behalf of FDA reform and Medicare reform, to make sure there is an efficient, properly working regulatory system, and an efficient, properly functioning reimbursement system. Many voices make more noise than one voice, so we put our voices together

through HINJ at the state level and AdvaMed at the national level.

WHAT IS IT ABOUT THE HEALTHCARE INDUSTRY THAT INSPIRES YOU?

It's the idea that I can see and talk to people every day whose lives have been made better. I receive letters from doctors who have used our BACTEC systems to help their patients. One doctor said by using one of our BACTEC systems he was able to isolate a bug in a pediatric patient, which saved the child's life because he was able to prescribe an antibiotic faster. It doesn't get any better than that.

HOW IMPORTANT HAVE MENTORS BEEN TO YOUR CAREER?

Both Ray Gilmartin and E. Ralph Biggadike

were very important factors in my life. Mr. Gilmartin, who is now CEO of Merck, joined BD in 1976 and became chairman, president, and CEO in 1992. Mr. Biggadike, who is now a professor at Columbia Business School, was group president of BD's worldwide drug-delivery business.

They encouraged me to take risks and supported me as I took them. Inevitably, when I made mistakes, they guided me and helped me learn from those mistakes. They are two of the more spectacular examples I can think of.

I also have been blessed at BD to have many bosses who had the same type of philosophy. I want to make sure that my legacy is to leave more of those types of people behind.

EDWARD LUDWIG

overnight and we're not going to buy our way there. We'll get there through an innovation-based strategy."

In the past five or six years, to help achieve growth through innovation, BD has embarked on Six Sigma, a data-driven discipline for total quality management made famous by companies such as Ford, GE, and Motorola.

In addition, BD has adopted a process called "lean manufacturing" to ensure a seamless manufacturing flow.

"By combining Six Sigma with lean manufacturing, the goal is to do things fast and also get the processes right the first time," he says.

Lastly, ensuring that the company is a great place to work is of paramount importance to Mr. Ludwig.

"A company that does the first two things well — contributing to society through its products and services and performing for its shareholders and other stakeholders — is going to be a good place to work," he says. "BD also has a culture built on progressive human-resources policies. We align our compensation system to performance; we want to

It's not the products that distinguish a company; it's the ability of an organization to continuously change and innovate IN RESPONSE TO CHANGING DYNAMICS.

give people a stake in the company's success. We like to promote an inclusive and diverse organization where people from all backgrounds can feel welcome."

Additionally, Mr. Ludwig has been instrumental in establishing BD University, an internally owned and operated, management-driven learning system.

"We have about five or six full-time teachers, and every senior leader in the organization is expected to teach at least one module at BD University in a given year," he says. "Ed Betof, BD's chief learning officer, spearheads BDU and our leadership development efforts."

While BD had a strong tradition of working with experts from academia, such as Harvard and Columbia, to share innovative ideas, there wasn't a formal structure.

"My idea was to ingrain learning in the culture of the company through BD University," he says. "I believe it's important to have constant learning, continuous improvement, continuous self fulfillment, and self development."

To a large degree, BD University is a continuation of a theme that has been at the heart of Mr. Ludwig's career and his successes, and that is the connection between leaders and teachers.

In July 2004, the company issued a global corporate citizenship report, *Living Our Values Every Day*, which demonstrates the many important contributions BD is making to advance its corporate purpose of "helping all people live healthy lives."

BD's corporate citizenship report for the first time provides detailed information about the company's policies, practices, and performance relative to the social, environmental, and economic impacts of its activities.

Being a good corporate citizen also entails having a company leader who is visible in the community.

In July 2004, Mr. Ludwig was elected chairman of the HealthCare Institute of New

A Broad Base of Technology Solutions

WITHIN BD, THERE ARE THREE BUSINESS SEGMENTS: BD MEDICAL, BD DIAGNOSTICS, AND BD BIOSCIENCES.

"The major themes for our company are healthcare worker safety, patient safety, reducing complications, and lessening pain," says Edward J. Ludwig, chairman, president, and CEO of BD. "We're designing drug-delivery devices so they can't inadvertently hurt healthcare workers. In some parts of the world, devices that shouldn't be reused get reused, so we're designing products to prevent that from happening and thereby lowering the risk of hospital-acquired infections. We're also designing devices that are so tiny that they significantly minimize pain for patients."

BD MEDICAL

BD Medical is a leading supplier of hypodermic needles and syringes, infusion therapy devices, insulin-injection and blood-glucose monitoring systems, and prefilled drug-delivery systems for pharmaceutical companies. Its product offerings are among

the industry's broadest, deepest line of safety-engineered sharps products, as well as surgical and regional anesthesia, ophthalmology, critical care, medication management, and sharps disposal products.

BD DIAGNOSTICS

BD Diagnostics is organized into two principal units — Preanalytical Systems and Diagnostic Systems. BD Diagnostics offers system solutions for collecting, identifying, and transporting specimens; advanced instrumentation that can quickly and accurately analyze specimens; and services that are focused on customers' process flow, supply chain management, and training and education.

"The major theme in diagnostics is speed, to get the answer accurately and quickly," Mr. Ludwig says. "Where BD Medical and BD Diagnostics come together exquisitely is in our diabetes healthcare franchise. In 1924, the first insulin injection was given with a BD syringe, and today

we're the largest producer of syringes and pen needles. About two years ago we launched a blood glucose meter, which we believe is the fastest and most pain-free one available."

BD BIOSCIENCES

BD Biosciences is one of the world's largest businesses supporting the life sciences. The business provides tools and reagents to study life — from normal processes to disease states — and to accelerate the pace of biomedical discovery. Throughout the world, clinicians and researchers use BD Biosciences' tools to study genes, proteins, and cells to better understand disease; improve diagnosis and disease management; and facilitate the discovery and development of novel therapeutics.

"Our goal is to make researchers more efficient and productive and to help them discover the cause of disease and the therapies to address unmet needs," Mr. Ludwig says.

Jersey (HINJ), whose members are pharmaceutical and medical technology companies in the state. Mr. Ludwig will serve a two-year term and is the first executive from a medical technology company to lead the organization.

Mr. Ludwig also serves on the board of the Advanced Medical Technology Association (AdvaMed), the world's largest medical technology association, and chairs its Board Committee on Technology and Regulation. He is active in philanthropic efforts and serves as a Johns Hopkins University Trustee and chairs the advisory board for the Johns Hopkins Bloomberg School of Public Health. Additionally, he serves on the board of the U.S. Fund for UNICEF, is a trustee of the Hackensack University Medical Center, and sits on Aetna's board of directors.

MAINTAINING THE VISION

After so many significant contributions to the company, Mr. Ludwig says his goals going forward are to keep the company on the right track.

"I want to make sure, along with my leadership team, that we have a clear, engaging strategy, purpose, and direction," he says. "A key part of my job is making sure everyone understands his or her role and to make sure the right people are in the right jobs.

"Jack Welsh used to say you have to keep reminding people of things until they're sick of hearing you," Mr. Ludwig adds. "At BD, we have 25,000 employees in 212 locations in 50 countries, and I tell them the same message again and again. They need to know what their roles are, and they need to know about the company's goals — the three greats. If I can excite our associates about the strategy,

then they will be inspired by the goals."

That aside, he believes a good leader at a great company encourages people to celebrate successes and contemplate failures.

"My job is to learn from our mistakes, understand why a process broke down, and learn from the experience so we don't repeat the same error," Mr. Ludwig says. "When we have successes, and hopefully there are more of those than mistakes, we celebrate and move on." ♦

PharmaVoice welcomes comments about this article. E-mail us at feedback@pharmavoice.com.

A Pathway of Success

EDWARD J. LUDWIG – RESUME

PRESENT — 2002. Chairman, BD (Becton, Dickinson and Co.), Franklin Lakes, N.J.

PRESENT — 2000. CEO, BD, Franklin Lakes, N.J.

PRESENT — 1999. President, BD, Franklin Lakes, N.J.

1999 — 1998. Executive VP, BD, Franklin Lakes, N.J.

1998 — 1995. Senior VP and Chief Financial Officer, BD, Franklin Lakes, N.J.

1994 — 1988. President, Becton Dickinson Diagnostic Instrument Systems Division, Sparks, Md.

1988 — 1987. VP, Corporate Planning, Performance and Development, Becton Dickinson Diagnostic Instrument Systems Division, Sparks, Md.

1986 — 1984. Director, Corporate Planning, BD, Franklin Lakes, N.J.

1984 — 1979. Assistant Controller, U.S. Operations, BD, Franklin Lakes, N.J.

1979 — 1978. Senior Financial Analyst, Kidde Inc., Clifton, N.J.

1978 — 1975. Senior Auditor, Coopers and Lybrand, Newark, N.J.

EDUCATION

1975. MBA in Finance, Columbia University, New York

1973. B.A. in Economics and Accounting, The College of the Holy Cross, Worcester, Mass.

ASSOCIATIONS AND APPOINTMENTS

2004. Elected to two-year term as Chairman of the HealthCare Institute of New Jersey (HINJ), Hillside, N.J.

PRESENT — 2004. Trustee, Hackensack (NJ) University Medical Center, Hackensack, N.J.; joined Board of Governors in 2003

PRESENT — 2003. Board of Directors, Aetna, Hartford, Conn.

PRESENT — 2001. Board member, U.S. Fund for UNICEF, New York.

PRESENT — 1999. Board member, the Advanced Medical Technology Association (AdvaMed), Washington, D.C.; Chair of the Board Committee on Technology and Regulation, AdvaMed

PRESENT — 1993. Trustee, Johns Hopkins University, Baltimore; Chair of the Advisory Board, Johns Hopkins Bloomberg School of Public Health

1999 — 1996. Board of Trustees, Valley Hospital, Ridgewood, N.J.

1994 — 1992. Board of Directors, Saint Joseph Hospital, Towson, Md.