Medical Imaging
(Equipment, Agents & Consumables)

US Industry Study with Forecasts to 2010 & 2015

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New medical imaging scanners and consumables with expanded testing capabilities will be adopted widely by hospitals and outpatient facilities as they seek to improve overall health care quality and efficiency.

US demand to grow 6% annually through 2010

US demand for medical imaging products is projected to increase 6.0 percent annually to $21.4 billion in 2010. Gains will be driven by new scanners and consumables with expanded testing capabilities that will enable hospitals and outpatient facilities to improve overall health care quality and efficiency. The aging of the population will lead to a rise in the prevalence of diseases and disorders, which will increase the need for medical imaging services. Ongoing health care cost containment pressures will benefit the market for scanners and related consumables that detect diseases and disorders early when they can be treated more economically.

CT scanners, MRI/PET equipment to lead again

Medical imaging equipment will post demand of over $16 billion in 2010, up 6.8 percent annually from 2005. CT scanners will lead growth as hospitals and outpatient facilities replace earlier generation machines with new high value-added multi-slice models. MRI and PET equipment will also provide strong growth opportunities, spurred by rising demand for new technologically advanced systems. Due to shorter testing times and enhanced image resolution, high field machines will account for the largest share of new MRI installations through 2010 and beyond. PET installations will grow at a strong pace based on the availability of new hybrid PET/CT models with dual anatomical and metabolic scanning capabilities.

The continuing replacement of conventional analog machines with new computed and digital radiography models will provide modest growth for X-ray and radiographic fluoroscopy systems in spite of maturing markets. Nuclear medicine and ultrasound equipment will fare better than X-ray and fluoroscopy systems in the health care sector. New four-dimensional (4D) imaging systems for existing markets and new laptop and hand-held devices for point of care testing (POC) will boost overall growth prospects for diagnostic ultrasound equipment.

Radiopharmaceuticals to offer best opportunities among consumables

Demand for medical imaging consumables is projected to expand 3.6 percent annually to $5.3 billion in 2010. Radiopharmaceuticals will provide the best growth opportunities based on rising numbers of nuclear medicine and PET procedures as well as increasing professional preferences for high value-added biotechnology-derived substances that enhance image resolution and detail.

The market for contrast agents will expand moderately with upward trends in the number of X-ray, CT and MRI scans on body regions where the targeted organ or tissue needs visual enhancement due to its masking by nearby in vivo matter. In this product group, nanosized compounds hold the best growth prospects as they are expected to greatly improve MRI-generated images. Lastly, demand for X-ray film will decline rapidly through 2010 and beyond as digital and computed tomography procedures continue to replace conventional X-ray tests.
MEDICAL IMAGING EQUIPMENT

Installations
In spite of the increasing penetration of CT, MRI and other testing modalities into patient care, X-ray systems have remained the leading tool for conducting basic diagnostic screens that search for evidence of diseases and disorders throughout the entire body. As these systems continue to account for the largest number of installations among all medical imaging equipment. Excluding dental models, an estimated 33,900 X-ray machines were operating in the US health care community in 2005, up 2.6 percent annually from 2000.

Evolving trends in X-ray installations are leading to the increasing replacement of conventional film-based equipment with PACS-linked computed and digital radiography equipment. More than half of acute care hospitals have converted their X-ray departments to computed radiography, with many institutions operating digital systems. Conversion to filmless equipment is also growing rapidly in the outpatient sector. Accordingly, virtually all new and replacement X-ray installations through 2010 and beyond will consist of computed or digital radiography systems.

The total number of medical X-ray installations is projected to increase 2.5 percent annually to 38,300 in 2010. Outpatient placements will post the fastest gains as ambulatory clinics and centers assume greater responsibility for pre- and post-hospital care and expand participation in urgent care markets. With the number of institutions projected to decline slightly, the number of hospital X-ray installations will increase at a slow pace of well under one percent per year. Most expansion in this sector will occur in multi-hospital systems that operate large ambulatory departments and serve the diagnostic needs of nearby physicians' offices. General purpose equipment will continue to account for more than 70 percent of medical X-ray installations in 2010. The expanding capabilities of general purpose systems will moderate overall...
Sample Profile, Table & Forecast

Cytogen Corporation
650 College Road East, Suite 3100
Princeton, NJ 08540
609-750-8200
http://www.cytogen.com

Sales: $16 million (2005)
Employment: 80 (March 2006)
Key Products: molecular imaging agents

Cytogen is a biopharmaceutical company that acquires, develops and commercializes innovative molecules targeting cancer progression. These products are used by medical and radiation oncologists, nuclear medicine physicians, radiologists, and urologists for diagnosing and treating patients with various types of cancer. The Company markets its products through in-house technical and marketing representatives.

Cytogen is active in the US medical imaging equipment industry through the development and marketing of molecular imaging agents. In particular, Cytogen markets PROSTASCINT (capromab pendetide) kits for the preparation of indium IN-111 capromab pendetide in the US. PROSTASCINT molecular imaging agents are monoclonal antibody-based compounds that are formulated to target prostate-specific membrane antigens in order to image the extent and spread of prostate cancer. PROSTASCINT, which was developed internally by Cytogen, is produced for the Company in commercial quantities by Laureate Pharma Incorporated (Princeton, New Jersey), a subsidiary of Safeguard Scientifics Incorporated (Wayne, Pennsylvania), under a non-exclusive manufacturing agreement. In 2005, PROSTASCINT molecular imaging agents generated revenues of $7 million.

### TABLE V-1

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### CHART VII-1

Medical Imaging Equipment Market Share by Company, 2005 ($11.5 billion)

Market Leader 60.5%
Company 2 15.4%
Company 3 11.5%
Company 4 9.2%
Company 5 8.1%

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Implantable Medical Devices
US medical implant demand will rise 9.3% yearly through 2011. Cardiac implants will remain the top-selling group, led by stents and defibrillators. Bone cement, tissue and spinal implants will pace gains in the orthopedic segment. Other fast-growing types include neurological stimulators, cochlear devices and gastric bands. This study analyzes the $27.9 billion US medical implant industry, with forecasts for 2011 and 2016 by material and product. It also evaluates market share and profiles major players.
#2155 .................. 04/2007 ............... $4500

Dental Equipment
US demand for dental equipment will grow 3.8% annually through 2011, aided by favorable population trends and strong interest in technology updates. In general, advanced equipment such as lasers, intra-oral cameras, digital radiography and CAD/CAM systems will lead gains. Dental offices will remain the largest market and grow the fastest. This study analyzes the $2.4 billion US dental equipment industry to 2011 and 2016 by product and market. It also evaluates market share and profiles major players.
#2179 .................. 07/2007 ............... $4400

Biocompatible Materials
US demand for biocompatible materials will grow 6.6% yearly through 2010. Synthetic polymers will remain dominant based on quality, performance and cost advantages in most applications. Ceramics will grow the fastest, driven by improved properties and processing ease. Hyaluronic acid and collagen will pace the natural polymer segment. This study analyzes the $23.6 billion US nanotech medical product industry to 2011, 2016 and 2021 by material, product and application. The study also reviews product development activities and profiles major players.
#2168 .................. 02/2007 ............... $4500

Patient Monitoring Systems
US demand for patient monitoring systems will grow 5.4% annually through 2010, bolstered by technological advances. Electrochemical blood glucose test strips, diabetic electrodes and sensors, and diabetic catheters will lead growth among accessories. Wireless multi-parameter monitors and stations will pace gains in equipment sales. This study analyzes the $7 billion US patient monitoring system industry to 2010 and 2015 by product and market. It also evaluates market share and profiles leading competitors.
#2052 .................. 05/2006 ............... $4300

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- Industrial Components & Equipment
- Automotive & Transportation Equipment
- Household Goods
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