

**Surgical Assist, Campus, Personal Services, and
Pharmaceutical Robot Market Shares, Market Strategies, and
Market Forecasts, 2008-2014**

Healthcare Robots



Picture by Susie Eustis

MOUNTAINS OF OPPORTUNITY

**WinterGreen Research, Inc.
Lexington, Massachusetts**

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During a robot assisted surgical procedure, the patient-side cart is positioned next to the operating table with the electromechanical arms arranged to provide access to the initial ports selected by the surgeon. Metal tubes attached to the arms are inserted through the ports, and the cutting and visualization instruments are introduced through the tubes into the patient's body.

Next generation intuitive surgery is implemented with robotic devices. The robotic surgical systems are designed to provide the surgeon with the intuitive control, range of motion, fine tissue manipulation capability, and 3-D vision characteristic of open surgery. Systems work by simultaneously allowing the surgeon to work through the small ports of MIS. All this is accomplished in an intuitive manner, in the same way that the movements of a surgeon's hands in open surgery are entirely intuitive.

The surgeon performs the procedure while sitting at a console, manipulating the instrument controls and viewing the operation through a vision system. When a surgeon needs to change an instrument the instrument is withdrawn from the surgical field using the controls at the console. This is done many times during an operation.

People are making existing MIS procedures easier, safer and more cost-effective than the alternative methods. The strategy is to broaden the number of procedures performed using a robotic surgical system and to educate surgeons, hospitals and patients as to the benefits of robotic surgery. Key elements of strategy include a focus on key procedures. Procedure marketing efforts are primarily focused within four surgical specialties: urologic surgery, gynecologic surgery, cardiothoracic surgery, and general surgery.

Systems pose a challenge to be relevant and individualized to the special needs of each user. Social behavior plays a fundamental role in assisting all people, including people with special needs. The robot's physical embodiment, its physical presence and appearance, and its shared context with the user, are fundamental for creating a time-extended engaging relationship with the user.

An adaptive, reliable and user-friendly hands-off robot needs to provide an engaging and motivating customized therapy protocol to participants in school, clinic, and ultimately, home environments.

It needs to establish a very complex and complete human-robot relationship. Robots must be endowed with human-oriented interaction skills and capabilities, exhibit context and user-appropriate social behavior, and focus attention and communication on the user in order to help the user achieve specific goals. Different systems developed in lab research that integrates social elements and systems to form therapeutic programs that monitor, encourage, and assist users.

Stroke rehabilitation has traditionally relied on simple training equipment dedicated for a particular purpose. The advance of computing and robotics techniques provides a chance to improve on several aspects of stroke rehabilitation. Computer control can allow therapies to be customized to the individual need. Systems can be designed to be available when ever needed by the patient.

It may be possible to provide home based systems that can continue to give regular therapy sessions once the patient is discharged from hospitals. Providing intelligent therapy assistance means that there may be a chance to make objective recordings of the therapy session for subsequent analysis. In this process the traditional task of the neuro-rehabilitation specialists changes to mimic the advances brought by video analysis of games typical of professional sporting teams (particularly the teams that win).

The iRobot ConnectR is a way to stay connected to family and friends even when apart. ConnectR is used in pilot programs initially. ConnectR robots are available directly from iRobot as part of a pilot program. ConnectR Pilot Program costs are \$199, afterward the product sells for \$500. These markets will grow slowly, security applications are most likely to represent early adopter users.

Worldwide robotically-assisted surgery systems equipment shipment markets are set to have rapid growth. Markets at \$626.5 million in 2007 are anticipated to reach \$1 billion in 2008 and are forecast to go to \$14 billion by 2014. Growth comes because the technology is mature and the technology works. It took a long, long time for the markets to evolve, but now the MIS surgeries are accurate and less invasive than alternative surgical methods, creating market opportunity.

A plethora of healthcare robotics markets are emerging including remote presence, security, visiting robots, services robots, and pharmaceutical robots. Robots are different from stationary devices because they have a microprocessor which can be programmed and they can move around. They have sensors.



Companies Profiled

Market Leaders

Surgical Assist Robots

Intuitive Surgical

Market Participants

iRobot

AIST / National Institute of Advanced Industrial Science and
Technology and Japan Science and Technology

Cypress Computer Systems

Fraunhofer Institute for Manufacturing Engineering and Automation

IPA

Care-O-bot

Fujitsu

Hitachi Ltd.

Honda

LG Electronics

Microsoft

MicroDexterity Systems

MobileRobots

Mopec

ProSurgics

Richard Wolf Medical Instruments

Ross-Hime Designs

Sinters SA

Terumo Medical

Toshiba

Zeiss

Surgical Assist, Campus, Personal Services, and Pharmaceutical Robot Market Strategy, Market Shares, and Market Forecasts, 2008-2014

REPORT METHODOLOGY

THIS IS THE 330TH REPORT IN A SERIES OF MARKET RESEARCH REPORTS THAT PROVIDE FORECASTS IN COMMUNICATIONS, TELECOMMUNICATIONS, THE INTERNET, COMPUTER, SOFTWARE, TELEPHONE EQUIPMENT, HEALTH EQUIPMENT, AND ENERGY. THE PROJECT LEADERS TAKE DIRECT RESPONSIBILITY FOR WRITING AND PREPARING EACH REPORT. THEY HAVE SIGNIFICANT EXPERIENCE PREPARING INDUSTRY STUDIES. FORECASTS ARE BASED ON PRIMARY RESEARCH AND PROPRIETARY DATA BASES. FORECASTS REFLECT ANALYSIS OF THE MARKET TRENDS IN THE SEGMENT AND RELATED SEGMENTS. UNIT AND DOLLAR SHIPMENTS ARE ANALYZED THROUGH CONSIDERATION OF DOLLAR VOLUME OF EACH MARKET PARTICIPATION IN THE SEGMENT. INSTALLED BASE ANALYSIS AND UNIT ANALYSIS IS BASED ON INTERVIEWS AND AN INFORMATION SEARCH. MARKET SHARE ANALYSIS INCLUDES CONVERSATIONS WITH KEY CUSTOMERS OF PRODUCTS, INDUSTRY SEGMENT LEADERS, MARKETING DIRECTORS, DISTRIBUTORS, LEADING MARKET PARTICIPANTS, OPINION LEADERS, AND COMPANIES SEEKING TO DEVELOP MEASURABLE MARKET SHARE. OVER 200 IN DEPTH INTERVIEWS ARE CONDUCTED FOR EACH REPORT WITH A BROAD RANGE OF KEY PARTICIPANTS AND INDUSTRY LEADERS IN THE MARKET SEGMENT. WE ESTABLISH ACCURATE MARKET FORECASTS BASED ON ECONOMIC AND MARKET CONDITIONS AS A BASE. USE INPUT/OUTPUT RATIOS, FLOW CHARTS, AND OTHER ECONOMIC METHODS TO QUANTIFY DATA. USE IN-HOUSE ANALYSTS WHO MEET STRINGENT QUALITY STANDARDS. INTERVIEWING KEY INDUSTRY PARTICIPANTS, EXPERTS AND END-USERS. OUR RESEARCH INCLUDES ACCESS TO LARGE PROPRIETARY DATABASES. LITERATURE SEARCH INCLUDES ANALYSIS OF TRADE PUBLICATIONS, GOVERNMENT REPORTS, AND CORPORATE LITERATURE.

YOU MUST HAVE THIS STUDY

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**Surgical Assist, Campus, Personal Services, and
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