

[CLICK TO VIEW](#)

[Table of Contents 2](#)

[List of Tables & Charts 3](#)

[Study Overview 4](#)

[Sample Text, Table & Chart 5](#)

[Sample Profile, Table & Forecast 6](#)

[Order Form 7](#)

[About Freedonia, Custom Research, Related Studies, Corporate Use License 8](#)

Cardiac Implants

US Industry Study with Forecasts for **2012 & 2017**

Study #2398 | September 2008 | \$4500 | 226 pages

www.freedoniagroup.com



The Freedonia Group

767 Beta Drive

Cleveland, OH • 44143-2326 • USA

Toll Free US Tel: 800.927.5900 or +1 440.684.9600

Fax: +1 440.646.0484

E-mail: info@freedoniagroup.com

Table of Contents

EXECUTIVE SUMMARY

MARKET ENVIRONMENT

General	4
Macroeconomic Trends	5
Demographic Patterns	10
Health Insurance Trends	11
Medical Conditions	15
Acute Conditions	15
Chronic Conditions	17
National Health Expenditures	19
Medical Providers	23
Acute Care Hospitals	24
Outpatient Clinics	25
Skilled Nursing Homes	26
Physicians	26
Home Health Care Organizations	27
Patient Activity	28
Acute Care Hospital Admissions	30
Surgical Procedures	30
Outpatient Episodes	30
Home Health Care Visits	32
Medical Product Markets	32

CARDIAC IMPLANT OVERVIEW

General	35
Cardiovascular Conditions	36
Coronary Heart Disease	39
Heart Rhythm Disorders	40
Peripheral Arterial Disease (PAD)	41
Valvular Heart Disease	42
Stroke	42
Congestive Heart Failure (CHF)	43
Congenital Heart Defects	43
Cardiac Implant Procedures	44
Cardiac Implant Market Trends	47
Regulatory Factors	49
Demand Patterns	52
Product Groups	52
Indications	55
US Trade 57	
International Markets	59

PACING DEVICES

General	63
Demand Patterns & Projections	64
Producers & Market Share	67
Implantable Cardioverter Defibrillators (ICDs)	69
Technology	70
Components & Design	71
Functions	72
Clinical Data	73
Producers & Products	73
Medtronic	74
Boston Scientific	75
St. Jude Medical	76
Cardiac Resynchronization Therapy (CRT) Devices	77
Technology	78
Producers & Products	80
Implantable Cardiac Pacemakers (ICPs)	82
Technology	83
Producers & Products	86
Medtronic	86
St. Jude Medical	87
Boston Scientific	88
Pacing Leads	89
Technology	90
Producers & Products	91
Pacemaker Leads	91
ICD Leads	93
CRT Leads	95
Pacing Device Batteries	97

CARDIAC STENTS & RELATED IMPLANTS

General	99
Demand Patterns & Projections	100
Producers & Market Share	103
Coronary Stents	105
Drug-Eluting Stents	107
Bare-Metal Stents	110
Peripheral Stents	112
Endovascular Stent-Grafts	115
Medtronic	117

ANCURE	118
Other Endovascular Stent-Grafts	118
Renal & Related Stents	120
Femoral & Related Stents	122
Carotid Stents	124
Stent-Related Implants	127
Synthetic Grafts	128
Vascular Grafts	128
Peripheral Grafts	129
Vena Cava Filters	132

STRUCTURAL CARDIAC IMPLANTS

General	136
Demand Patterns & Projections	137
Producers & Market Share	138
Heart Valves & Accessories	140
Product Overview	141
Tissue Heart Valves	143
Types of Tissue Heart Valves	143
Producers & Products	145
Mechanical Heart Valves	146
Design	146
Producers & Products	147
Heart Valve Repair Products	149
Ventricular-Assist Devices	151
Technology	152
Producers & Products	153
Implantable Heart Monitors	154
Insertable Loop Recorders (ILRs)	155
Implantable Hemodynamic Monitors ..	158

INDUSTRY STRUCTURE

General	160
Market Share	163
Competitive Strategies	164
Mergers & Acquisitions	168
Licensing & Related Agreements	171
Research & Development	173
Marketing & Distribution	175
Manufacturing Activities	176

(continued on next page)

[Click here to purchase online](#)

(continued from previous page)

COMPANY PROFILES

Abbott Laboratories	179
Abiomed Incorporated	181
Angiotech Pharmaceuticals.....	183
Arbor Surgical Technologies	185
Bard (CR) Incorporated	186
Biophan Technologies.....	188
Boston Scientific	189
Braun (B.) Melsungen	195
Cook Group	196
Core Valve Incorporated	198
Edwards Lifesciences	199
Endologix Incorporated.....	201
Gore (WL) & Associates.....	202
Johnson & Johnson.....	203
Medtronic Incorporated.....	206
Sorin SpA	214
St. Jude Medical Incorporated.....	219
Terumo Corporation	222
Thoratec Corporation	224
Ventracor Limited	225

List of Tables/Charts

EXECUTIVE SUMMARY

1 Summary Table	3
-----------------------	---

MARKET ENVIRONMENT

1 Macroeconomic Indicators.....	9
2 Population by Age Group.....	11
3 Health Insurance Coverage of the US Population	14
4 Acute Conditions by Type	17
5 Chronic Conditions by Type.....	19
6 National Health Expenditures by Type & Source	22

7 Medical Providers by Type.....	24
8 Patient Activity by Type	29
9 Medical Product Demand	34

CARDIAC IMPLANT OVERVIEW

1 Cardiac Implant Market Indicators	36
2 Cardiovascular Conditions by Type	38
Cht Cardiovascular Conditions by Type, 2007	39
3 Cardiac Implant Procedures by Type ..	46
Cht Cardiac Implant Procedures by Type, 2007	46
4 Cardiac Implant Market, 1997-2007 ..	48
5 Cardiac Implant Demand by Product Group	54
Cht Cardiac Implant Demand by Product Group, 2007	54
6 Cardiac Implant Demand by Indication	56
Cht Cardiac Implant Demand by Indication, 2007	57
7 US Trade in Cardiac Implants	59
8 World Cardiac Implant Demand by Region	62

PACING DEVICES

1 Pacing Device Demand by Product Group	64
Cht Pacing Device Demand by Product Group, 2007	66
Cht Pacing Devices Market Share by Company, 2007.....	68
2 Implantable Cardioverter Defibrillator (ICD) Demand by Type	70
3 Cardiac Resynchronization Therapy (CRT) Device Demand.....	78
4 Implantable Cardiac Pacemaker Demand by Type	83
5 Pacing Lead Demand by Type	90

CARDIAC STENTS & RELATED IMPLANTS

1 Cardiac Stent & Related Implant Demand by Product Group	100
Cht Stent & Stent-Related Implant Demand by Product Group, 2007..	102
Cht Stents & Stent-Related Implant Market Share by Company, 2007 ..	104
2 Coronary Stent Demand by Type	106
3 Coronary Drug-Eluting Stent Demand	110
4 Coronary Bare-Metal Stent Demand .	112
5 Peripheral Stent Demand by Product Group	115
6 Endovascular Stent-Graft Demand ...	116
7 Renal & Related Stent Demand.....	122
8 Femoral & Related Stent Demand....	124
9 Carotid Stent Demand	127
10 Stent-Related Implant Demand by Product Group	128

STRUCTURAL CARDIAC IMPLANTS

1 Structural Cardiac Implant Demand by Product Group	136
Cht Structural Cardiac Implant Demand by Product Group, 2007	138
Cht Structural Cardiac Implant Market Share by Company, 2007 ..	139
2 Heart Valve Implant Demand by Product Group	141
3 Ventricular Assist Device Demand ...	152
4 Implantable Heart Monitor Demand	155

INDUSTRY STRUCTURE

1 Cardiac Implant Sales by Company, 2007.....	162
Cht US Cardiac Implants, Market Share by Company, 2007.....	164
2 Selected Acquisitions & Divestitures	170
3 Selected Cooperative Agreements ...	172

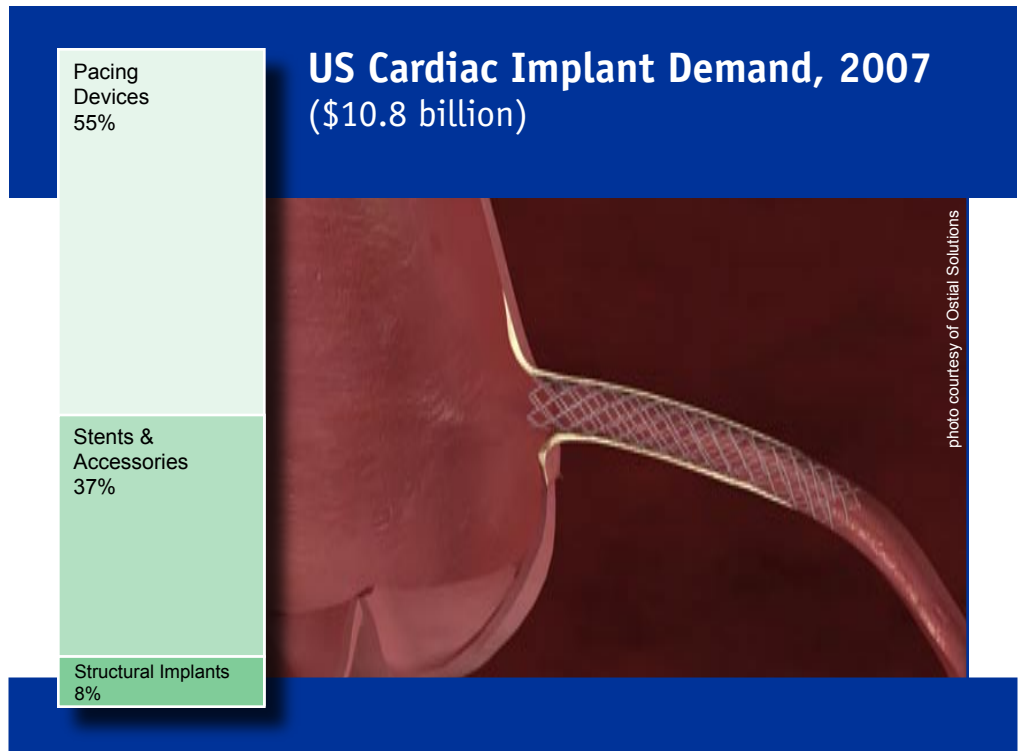
Next generation cardiac implants based on new technologies and improved materials will spur a rebound in demand after the slowing effects of recent product recalls and safety issues.

US demand to grow 8.8% annually through 2012

Demand for cardiac implants in the US is projected to increase 8.8 percent annually to \$16.4 billion in 2012. Growth will rebound from a slowdown that intensified in 2007 when product recalls and safety controversies weakened the market for a number of devices. The development of next generation models based on new technologies and improved materials will rectify recent performance problems experienced by implantable cardiac rhythm devices and lessen the thrombosis risk of drug-eluting coronary stents. Shortcomings in existing drug therapies will promote the increasing use of cardiac implants in the treatment and management of coronary and peripheral heart diseases, cardiac arrhythmia, congestive heart failure and valvular heart defects.

Pacing devices to remain top-selling implant group

Based on breadth of indications served, pacing devices will remain the top-selling group of cardiac implants, with demand expanding 7.8 percent annually through 2012. Cardiac resynchronization therapy (CRT) devices will post the fastest growth among pacing devices as they greatly improve therapeutic outcomes in patients afflicted with congestive heart failure. Advantages over anti-arrhythmia drugs will keep implantable cardioverter defibrillators (ICDs) the preferred treatment for tachycardia. Improvements in safety and performance properties will



enable ICDs to recapture growth opportunities lost over the past year to product recalls. The lack of effective pharmaceuticals for bradycardia will continue to create a sizeable market for implantable cardiac pacemakers. However, these devices have already penetrated a large share of the potential base and will see below average growth in demand.

Stents and accessories to be fastest growing segment

The introduction of new drug-eluting stents with improved designs and a reduced risk of complications will boost the market for cardiac stents and stent-related implants over ten percent annually through 2012. The new intro-

ductions will encourage the expansion of angioplasty as a treatment for coronary heart disease. Other stents and stent-related implants projected to fare well in the marketplace include endovascular stent-grafts, femoral and related stents, and carotid stents. Reflecting performance advantages over alternative implants, endovascular stent-grafts will emerge as the leading therapy for abdominal aortic and thoracic aortic aneurysms. The rising prevalence of peripheral arterial disease will create above average growth opportunities for femoral and related stents. Demand for carotid stents is projected to expand rapidly over the long-term based on stroke prevention benefits.

Copyright 2008 The Freedonia Group, Inc.

[Click here to purchase online](#)

Sample Text, Table & Chart

CARDIAC STENTS & RELATED IMPLANTS

Coronary Stents

The total US market for coronary stents is forecast to increase from nearly \$1 billion in 2007 to \$2 billion in 2012. The availability of new coronary stents with improved safety and performance profiles will lead to significant opportunities for drug-eluting stents. Sales of drug-eluting stents are forecast to increase from \$1 billion in 2007 as unfavorable clinical trial results related to bare-metal stents lead to an elevated risk of coronary thrombosis. Rebound sales of bare-metal stents will result in a pullback in the market for bare-metal stents, which are less effective in treating restenosis. Most future sales of bare-metal stents will be derived from continuing use in the clearing of blockages in small and tortuous arteries not adaptable to drug-eluting treatments.

Stents are typically implanted during angioplasty and related procedures to inhibit the occurrence of restenosis in arteries cleared of blockage. Restenosis is a re-narrowing of arterial walls caused either by a build up of scar tissue or an internally triggered collapse (or shrinkage). Prior to the introduction of stents, this condition afflicted more than half of post-angioplasty patients within six months, necessitating the performance of secondary procedures.

Bare-metal coronary stents, which debuted on the US market in 1994, significantly reduced, but did not completely eliminate, the occurrence of post-angioplasty restenosis. Follow-up studies have shown that approximately one-third of patients fitted with these implants experienced a re-narrowing of arteries within six months of undergoing angioplasty. Efforts to improve the effectiveness of stents led to the development of drug-eluting types, the first of which, Cordis' CYPHER, received FDA approval in May 2003. A second drug-eluting stent, Boston Scientific's TAXUS EXPRESS2, gained FDA marketing clearance in March 2004.

SAMPLE
TEXT

TABLE IV-5

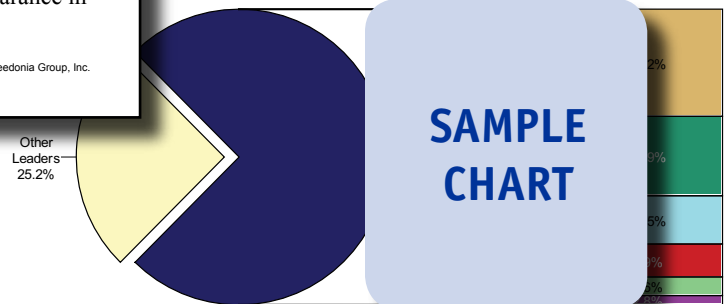
PACING LEAD DEMAND BY TYPE

Item	1997	2002	2007	2012	2017
Pacing Implant Procedures (000) leads/000 procedures					
Pacing Lead Demand (000 units) 000\$/unit					
Pacing Lead Demand (mil \$)					
Pacemaker Leads					
ICD Leads					
CRT-D Leads					
% pacing leads					
Pacing Device Demand (mil \$)					

SAMPLE
TABLE

CHART VII-1

CARDIAC IMPLANTS, MARKET SHARE BY COMPANY, 2007 (\$10.8 billion)

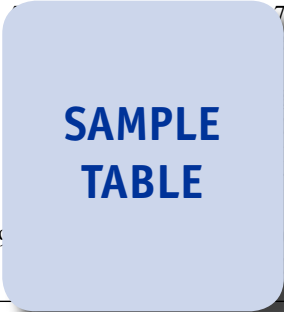


SAMPLE
CHART

Sample Profile, Table & Forecast

TABLE VI-2
HEART VALVE IMPLANT DEMAND BY PRODUCT GROUP
 (million dollars)

Item	1997	2002	2007	2012	2017
Mitral Valve Prolapse Cond (million)					7.2
\$ heart valve implants/condition					64
Heart Valve Implants					80
Tissue Valves					70
Mechanical Valves					10
Annuloplasty Rings & Accessories					70
% heart valve implants					10
Structural Cardiac Implants					90



COMPANY PROFILES

Endologix Incorporated
 Eleven Studebaker
 Irvine, CA 92618
 949-595-7200
 http://www.e

Revenues: \$
 US Products
 Employment

Key Products

SAMPLE PROFILE

Endologix develops, produces, sells and markets minimally invasive therapies for the treatment of vascular disease. The Company has a 30,200-square-foot headquarters and manufacturing facility in Irvine, California.

Endologix participates in the US cardiac implant market via its range of catheter-based alternative treatments for abdominal aortic aneurysm. According to the Company, it competes in the endovascular grafting industry with such US firms as Medtronic Incorporated, WL Gore & Associates Incorporated and Cook Group Incorporated.

The range of catheter-based alternative treatments from Endologix includes the POWERLINK catheter and endoluminal stent-graft system, which consists of a self-expanding cobalt chromium alloy stent cage covered with expanded polytetrafluoroethylene (ePTFE) surgical graft material. The ePTFE surgical graft material used in Endologix's POWERLINK system had been supplied by the Bard Peripheral Vascular Incorporated subsidiary (Tempe, Arizona) of CR Bard Incorporated (Murray Hill, New Jersey) through a supply agreement that was terminated in December 2007. Endologix received FDA approval in April

201

Copyright 2008 The Freedonia Group, Inc.

"Heart Valves & Accessories -- The expanding prevalence of valvular heart disorders will boost demand for heart valve replacement and repair implants 5.3 percent annually to \$925 million in 2012. Although the diminishing threat of rheumatic fever is leading to a decreasing number of mitral and pulmonary valve stenosis and tricuspid valve disorders, the overall prevalence of serious heart valve problems is expected to rise due to demographic and epidemiological factors."
 --Section VI, pg. 140

ONLINE: www.freedoniagroup.com

MAIL: Print out and complete the order form and send to The Freedonia Group (see address at the bottom of this form)

PHONE: Call toll free, 800.927.5900 (US) or + 1 440.684.9600

FAX: + 1 440.646.0484 (US)

EMAIL: info@freedoniagroup.com

Free Handling & Shipping

There is NO charge for handling or UPS shipping in the US. Expect delivery in 3 to 5 business days. Outside the US, Freedonia provides free airmail service. Express delivery is available at cost.

Orders Outside of the US

Checks must be made payable in US funds, drawn against a US bank and mailed directly to The Freedonia Group. For wire transfers please contact our customer service department at info@freedoniagroup.com. Credit cards accepted.

Credit Card Orders

For convenience, Freedonia accepts American Express, MasterCard or Visa. Credit card purchases must include account number, expiration date and authorized signature.

Save 15%

If you order three (3) different titles at the same time, you can receive a 15% discount. If your order is accompanied by a check or wire transfer, you may take a 5% cash discount (discounts do not apply to Corporate Use Licenses).

Corporate Use License

Now every decision maker in your organization can act on the key intelligence found in all Freedonia studies. For an additional \$2300, companies receive unlimited use of an electronic version (PDF) of the study. Place it on your intranet, e-mail it to coworkers around the world, or print it as many times as you like,

[Click here to learn more about the Corporate Use License](#)

ORDER FORM

F-WEB.2398

Cardiac Implants \$4500

Corporate Use License (add to study price) * + \$2300

___ Additional Print Copies @ \$500 each *
Total (including selected option) \$_____

Enclosed is my check (5% discount) drawn on a US bank and payable to The Freedonia Group, Inc., in US funds (Ohio residents add 7.75% sales tax)

Bill my company American Express MasterCard Visa

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Credit Card #

MM		YY	

Expiration

Signature _____

Name _____

Title _____

Company _____

Division _____

Street _____
(No PO Box please)

City/State/Zip _____

Country _____

Phone _____ Fax _____

Email _____

* Please check appropriate option and sign below to order an electronic version of the study.

Corporate Use License Agreement

The above captioned study may be stored on the company's intranet or shared directory, available to company employees. Copies of the study may be made, but the undersigned represents that distribution of the study will be limited to employees of the company.

Signature _____

Individual Use License Agreement

The undersigned hereby represents that the above captioned study will be used by only ___ individual(s) who are employees of the company and that the study will not be loaded on a network for multiple users. In the event that usage of the study changes, the Company will promptly notify Freedonia of such change and will pay to Freedonia the appropriate fee based on Freedonia's standard fee schedule then in effect. Note: Entire company corporate use license, add \$2300; one additional user, add \$500; two additional users, add \$1000; three additional users, add \$1500.

Signature _____

OTHER STUDIES

Cosmetic Surgery Products

US cosmetic surgery product demand will grow 8.4% yearly through 2012, driven by an ongoing desire for a youthful appearance and an aging population. Less invasive procedures (e.g., injections, laser dermal resurfacing) will grow the fastest. Implants and other surgical products will do well where there are no alternatives. This study analyzes the \$1.9 billion US cosmetic surgery product industry, with forecasts for 2012 and 2017 by procedure, product and raw material. It also evaluates market share and profiles industry players.

#2389 09/2008..... \$4600

Orthopedic Implants

US orthopedic implant demand will grow 8.9% annually through 2012. Knees and hips will continue to claim most reconstructive joint replacements. New technologies and surgical techniques will boost demand for spinal implants. Orthobiologics will benefit from breakthroughs in biotechnology and nanotechnology. This study analyzes the \$14.3 billion US orthopedic implant industry, with forecasts for 2012 and 2017 by product and market. It also evaluates company market share and profiles industry players.

#2372 07/2008..... \$4500

Dental Products & Materials

US demand for dental products will rise 4.5% per year through 2012, aided by favorable population trends and continued interest in cosmetic dentistry. More concern about overall good health will provide added opportunities for mouthwash/dental rinses, sealants, fluoride treatments and other products. This study analyzes the US dental product and material industry, with forecasts for 2012 and 2017 by product and raw material. It also evaluates company market share and profiles leading industry competitors.

#2313 03/2008..... \$4500

Drug Delivery Systems

US demand for drug delivery systems will grow 10% annually through 2012. Oral types will remain the largest drug delivery category while parenteral, inhalation and implantable systems grow the fastest. Parenteral formulations will eventually surpass oral dosages as the largest product group. This study analyzes the \$80.2 billion US drug delivery system industry, with forecasts for 2012 and 2017 by material, type and application. It also evaluates company market share and profiles leading industry players.

#2294 03/2008..... \$4500

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.

#2255 10/2007..... \$4500

About The Freedonia Group

The Freedonia Group, Inc., is a leading international industry market research company that provides its clients with information and analysis needed to make informed strategic decisions for their businesses. Studies help clients identify business opportunities, develop strategies, make investment decisions and evaluate opportunities and threats. Freedonia research is designed to deliver unbiased views and reliable outlooks to assist clients in making the right decisions. Freedonia capitalizes on the resources of its proprietary in-house research team of experienced economists, professional analysts, industry researchers and editorial groups. Freedonia covers a diverse group of industries throughout the United States, the emerging China market, and other world markets. Industries analyzed by Freedonia include:

- Chemicals • Plastics • Life Sciences • Packaging • Building Materials • Security & Electronics • Industrial Components & Equipment • Automotive & Transportation Equipment • Household Goods • Energy/Power Equipment

[Click here to learn more about Freedonia](#)

Freedonia Custom Research

Freedonia Custom Research delivers the same high quality, thorough and unbiased assessment of an industry or market as an industry study. Since the research initiative is based upon a company's specific needs, companies harness Freedonia's research capabilities and resources to answer unique questions. When you leverage the results of a Freedonia Custom Research engagement, you are able to obtain important answers to specific questions and issues associated with: mergers and acquisitions, new product launches/development, geographic expansion, entry into new markets, strategic business planning, and investment and funding decisions.

Freedonia Custom Research is ideal for companies seeking to make a strategic difference in the status quo and focus on future business growth. Working side by side with clients, Freedonia's team is able to define a research project that is custom-tailored to answer specific questions and provide the basis from which a company can make informed business decisions.

[Click here to learn more about Custom Research](#)



[Click here for complete title list](#)

[Click here to visit freedoniagroup.com](http://www.freedoniagroup.com)