

MEDICAL ULTRASOUND DEVICES: TECHNOLOGIES AND GLOBAL MARKETS



IAS040A
January 2013

Carlet Auguste
Project Analyst

ISBN: 0-89336-242-5

bcc | Research
Market Forecasting

BCC Research
49 Walnut Park, Building 2
Wellesley, MA 02481
866-285-7215, 781-489-7301
www.bccresearch.com
Custom Reports: carol.laverty@bccresearch.com

TABLE OF CONTENTS

TOPIC	PAGE NO.
CHAPTER 1 INTRODUCTION	1
STUDY GOALS AND OBJECTIVES	1
REASONS FOR DOING THIS STUDY	1
CONTRIBUTIONS OF THE STUDY AND INTENDED AUDIENCE	1
SCOPE AND FORMAT	1
METHODOLOGY	2
INFORMATION SOURCES	2
AUTHOR'S CREDENTIALS	2
RELATED BCC REPORTS	2
BCC ONLINE SERVICES	2
DISCLAIMER	3
CHAPTER 2 SUMMARY	5
<i>SUMMARY TABLE GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	6
<i>SUMMARY FIGURE GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES BY REGION, 2010-2016 (\$ MILLIONS)</i>	6
CHAPTER 3 OVERVIEW	8
INTRODUCTION	8
MEDICAL ULTRASOUND TECHNOLOGY	8
<i>TABLE 1 KEY ULTRASOUND TECHNOLOGY MEDICAL APPLICATIONS</i>	9
ULTRASONIC TRANSDUCER MATERIALS	9
<i>TABLE 2 PROPERTIES OF PIEZOELECTRIC MATERIALS SUITABLE FOR MEDICAL ULTRASOUND APPLICATIONS</i>	10
<i>TABLE 3 KEY ADVANTAGES OF ZIRCONATE TITANATE IN MEDICAL ULTRASOUND SENSOR DESIGN</i>	10
NEWER ULTRASOUND MATERIALS	10
<i>TABLE 4 KEY ADVANTAGES OF PVDF AS AN ULTRASOUND SENSOR MATERIAL</i>	11
MEDICAL ULTRASOUND AND THE HUMAN BODY	11
<i>TABLE 5 ULTRASONIC PROPERTIES OF BIOLOGICAL MATERIALS</i>	11
<i>TABLE 6 KEY ADVANTAGES OF MEDICAL ULTRASOUND IMAGING</i>	12
<i>TABLE 7 KEY ULTRASOUND SENSOR APPLICATIONS IN OBSTETRICS AND GYNECOLOGY</i>	12
<i>TABLE 8 KEY ULTRASOUND SENSOR APPLICATIONS USED IN CARDIOLOGY</i>	13
<i>TABLE 9 ULTRASOUND DEVICES USED IN UROLOGY</i>	13
ULTRASONIC TRANSDUCERS	13
BIOPHYSICAL LIMITATIONS OF MEDICAL ULTRASOUND TECHNOLOGY	13
SOCIETAL AND INDUSTRY TRENDS IMPACTING THE DEMAND FOR MEDICAL ULTRASOUND TECHNOLOGY	13
<i>TABLE 10 KEY DRIVERS OF THE MEDICAL ULTRASOUND DEVICES INDUSTRY</i>	13
AGING POPULATION	14
<i>TABLE 11 ESTIMATED PERCENTAGE OF THE POPULATION AGE 65 OR OLDER BY SELECTED COUNTRY, 2012-2017 (%)</i>	14
<i>TABLE 12 ESTIMATED U.S. HEALTH-CARE COSTS BY AGE GROUP, 2004-2011 (%)</i>	15
POTENTIAL IMPACT OF GOVERNMENT SPENDING	15
<i>TABLE 13 ALLOCATION OF MEDICARE SPENDING IN MASSACHUSETTS ON DIAGNOSTIC IMAGING SERVICES BY TYPE OF SERVICE, 2007-2009 (%)</i>	15

TOPIC	PAGE NO.
<i>TABLE 14 ESTIMATED AVERAGE ANNUAL CHANGE IN MEDICARE SPENDING IN MASSACHUSETTS ON DIAGNOSTIC IMAGING SERVICES, 2007-2008 (%)</i>	16
<i>TABLE 15 MEDICARE SPENDING IN MASSACHUSETTS ON MEDICAL DIAGNOSTIC IMAGING SERVICES PER MEMBER, 2007-2008 (\$ MILLIONS/%)</i>	16
POTENTIAL IMPACT OF PRIVATE INSURER SPENDING	16
<i>TABLE 16 ESTIMATED AVERAGE ANNUAL CHANGE IN PRIVATE INSURER SPENDING IN MASSACHUSETTS ON DIAGNOSTIC IMAGING VS. ULTRASOUND, 2006-2009 (%)</i>	17
<i>TABLE 17 PRIVATE INSURER SPENDING IN MASSACHUSETTS ON ULTRASOUND AS A PERCENTAGE OF ALL DIAGNOSTIC IMAGING SERVICES, 2007-2009 (\$ MILLIONS/%)</i>	17
<i>TABLE 18 PRIVATE INSURER SPENDING PER MEMBER IN MASSACHUSETTS ON ULTRASOUND AS A PERCENTAGE OF ALL DIAGNOSTIC IMAGING SERVICES, 2007-2009 (\$ MILLIONS)</i>	18
<i>TABLE 19 MASSACHUSETTS MEDICAL IMAGING MARKET SHARE BY TECHNOLOGY TYPE SERVICE, 2007-2009 (%)</i>	18
CHAPTER 4 THE GLOBAL MARKET	20
WORLDWIDE DEMAND FOR MEDICAL ULTRASOUND DEVICES	20
GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION	20
<i>TABLE 20 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	21
<i>TABLE 21 PRIMARY PURCHASERS OF MEDICAL DIAGNOSTIC TECHNOLOGY (%)</i>	22
Medical Ultrasound Devices Used in Cardiology	22
<i>TABLE 22 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN CARDIOLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	22
Medical Ultrasound devices Used in Obstetrics and Gynecology	23
<i>TABLE 23 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN OBSTETRICS AND GYNECOLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	23
Medical Ultrasound Devices Used in Thyroid Diagnosis	23
<i>TABLE 24 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN THYROID DIAGNOSIS BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	24
Medical Ultrasound Devices Used in Urology	24
<i>TABLE 25 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN UROLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	25
Medical Ultrasound Devices Used in Breast Diagnosis	25
<i>TABLE 26 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN BREAST DIAGNOSIS BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	26
Medical Ultrasound Devices Used in Radiology	26
<i>TABLE 27 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN RADIOLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	27
Medical Ultrasound Devices Used in Other Applications	27
<i>TABLE 28 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN OTHER APPLICATIONS BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	28
CHAPTER 5 THE ASIAN MARKET	30
INTRODUCTION	30
<i>TABLE 29 POPULATION AND GDP IN KEY ASIAN MARKETS, 2011</i>	30
ASIAN MARKET FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY	30
<i>TABLE 30 ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)</i>	31
ASIAN MARKET FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION	31

TOPIC	PAGE NO.
<i>TABLE 31 ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	31
ASIAN MARKET BY COUNTRY AND APPLICATION	32
AUSTRALIAN MARKET	32
<i>TABLE 32 AUSTRALIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	33
CHINESE MARKET	33
<i>TABLE 33 CHINESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	34
INDIA'S MARKET	34
<i>TABLE 34 INDIA'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	35
JAPANESE MARKET	35
<i>TABLE 35 JAPANESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	36
SOUTH KOREAN MARKET	36
<i>TABLE 36 SOUTH KOREAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	37
TAIWANESE MARKET	37
<i>TABLE 37 TAIWANESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	38
SOUTHEAST ASIAN MARKET	38
SOUTHEAST ASIAN MARKET BY COUNTRY	38
<i>TABLE 38 SOUTHEAST ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)</i>	39
SOUTHEAST ASIAN MARKET BY APPLICATION	39
<i>TABLE 39 SOUTHEAST ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	40
SOUTHEAST ASIAN MARKET BY APPLICATION TYPE AND COUNTRY	40
<i>TABLE 40 INDONESIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	41
<i>TABLE 41 MALAYSIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	42
<i>TABLE 42 PHILIPPINE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	43
<i>TABLE 43 THAILAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	44
<i>TABLE 44 VIETNAMESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	45
CHAPTER 6 THE AMERICAS	47
INTRODUCTION	47
MARKET DEMAND WITHIN THE AMERICAS	47
AMERICAS MARKET BY COUNTRY	47
<i>TABLE 45 DEMAND FOR MEDICAL ULTRASOUND DEVICES IN THE AMERICAS BY COUNTRY, THROUGH 2016 (\$ MILLIONS)</i>	47
AMERICAS MARKET BY APPLICATION	48
<i>TABLE 46 DEMAND FOR MEDICAL ULTRASOUND DEVICES IN THE AMERICA'S BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	48
AMERICAS MARKET BY COUNTRY AND APPLICATION	49

TOPIC	PAGE NO.
U.S. Market	49
<i>TABLE 47 U.S. AGING POPULATION TRENDS: POPULATION OVER 65, 2000-2050 (MILLIONS)</i>	49
<i>TABLE 48 ESTIMATED U.S. TRENDS IN THE SHIPMENT OF SURGICAL APPLIANCES AND SUPPLIES, 2002-2005 (\$ MILLIONS)</i>	50
<i>TABLE 49 U.S. DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	50
Argentinean Market	51
<i>TABLE 50 ARGENTINIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	51
Brazilian Market	52
<i>TABLE 51 BRAZILIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	52
Canadian Market	53
<i>TABLE 52 CANADIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	53
Chilean Market	54
<i>TABLE 53 CHILEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	54
Colombian Market	55
<i>TABLE 54 COLOMBIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	55
Mexico's Market	56
<i>TABLE 55 MEXICO'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	56
Venezuelan Market	57
<i>TABLE 56 VENEZUELAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	57
CHAPTER 7 EUROPE	60
INTRODUCTION	60
<i>TABLE 57 ESTIMATED HEALTHCARE EXPENDITURES ON THE ACQUISITION OF DIAGNOSTIC TECHNOLOGY IN EUROPE VS. THE U.S., 2008-2012 (%)</i>	60
<i>TABLE 58 ESTIMATED EUROPEAN MEDICAL EQUIPMENT MARKET, 2005-2008 (\$ MILLIONS)</i>	61
WESTERN EUROPE	61
WESTERN EUROPEAN MARKET BY COUNTRY	61
<i>TABLE 59 WESTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)</i>	62
WESTERN EUROPEAN MARKET BY APPLICATION	63
<i>TABLE 60 WESTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	64
WESTERN EUROPEAN MARKET BY APPLICATION AND COUNTRY	64
Austrian Market	64
<i>TABLE 61 AUSTRIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	64
Belgium Market	65
<i>TABLE 62 BELGIUM DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	65
Denmark's Market	66
<i>TABLE 63 DENMARK'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	66

TOPIC	PAGE NO.
Finland's Market	67
<i>TABLE 64 FINLAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	67
France's Market	68
<i>TABLE 65 FRANCE'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	68
Germany's Market	69
<i>TABLE 66 GERMANY'S ESTIMATED MEDICAL EQUIPMENT MARKET, 2007-2012 (\$ MILLIONS)</i>	69
<i>TABLE 67 GERMANY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	69
Greece's Market	70
<i>TABLE 68 GREECE'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	70
Italy's Market	71
<i>TABLE 69 ITALY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	71
Norway's Market	72
<i>TABLE 70 NORWAY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	72
Portugal's Market	73
<i>TABLE 71 PORTUGAL'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	73
Spain's Market	74
<i>TABLE 72 SPAIN'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	74
Sweden's Market	75
<i>TABLE 73 SWEDEN'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION THROUGH 2016 (\$ MILLIONS)</i>	75
Switzerland's Market	76
<i>TABLE 74 SWITZERLAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	76
The Netherlands' Market	77
<i>TABLE 75 THE NETHERLANDS DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	77
U.K. Market	78
<i>TABLE 76 U.K. DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	78
EASTERN EUROPE	79
EASTERN EUROPEAN MARKET BY COUNTRY	79
<i>TABLE 77 EASTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)</i>	79
EASTERN EUROPEAN MARKET BY APPLICATION	80
<i>TABLE 78 EASTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	80
EASTERN EUROPEAN MARKET BY APPLICATION AND COUNTRY	81
Czech Republic Market	81
<i>TABLE 79 THE CZECH REPUBLIC'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	81
Hungarian Market	82

TOPIC	PAGE NO.
<i>TABLE 80 HUNGARY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	82
Poland's Market	82
<i>TABLE 81 POLAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	83
Romanian Market	83
<i>TABLE 82 ROMANIA'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	84
Russian Market	84
<i>TABLE 83 RUSSIA'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	85
Ukrainian Market	85
<i>TABLE 84 UKRAINE'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)</i>	86
CHAPTER 8 GOVERNMENT REGULATIONS	88
GLOBAL HARMONIZATION TASK FORCE	88
<i>TABLE 85 KEY GLOBAL HARMONIZATION TASK FORCE OBJECTIVES</i>	88
U.S. REGULATIONS	88
TITLE 21-FOOD AND DRUGS CHAPTER I-FOOD AND DRUG ADMINISTRATION DEPARTMENT OF HEALTH AND HUMAN SERVICES SUBCHAPTER J-RADIOLOGICAL HEALTH	88
<i>FIGURE 1</i>	89
CHAPTER 9 RESEARCH AND DEVELOPMENT	103
SIGNIFICANT STUDIES	103

LIST OF TABLES

TABLE HEADING	PAGE NO.
SUMMARY TABLE GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES BY REGION, THROUGH 2016 (\$ MILLIONS)	6
TABLE 1 KEY ULTRASOUND TECHNOLOGY MEDICAL APPLICATIONS	9
TABLE 2 PROPERTIES OF PIEZOELECTRIC MATERIALS SUITABLE FOR MEDICAL ULTRASOUND APPLICATIONS	10
TABLE 3 KEY ADVANTAGES OF ZIRCONATE TITANATE IN MEDICAL ULTRASOUND SENSOR DESIGN	10
TABLE 4 KEY ADVANTAGES OF PVDF AS AN ULTRASOUND SENSOR MATERIAL	11
TABLE 5 ULTRASONIC PROPERTIES OF BIOLOGICAL MATERIALS	11
TABLE 6 KEY ADVANTAGES OF MEDICAL ULTRASOUND IMAGING	12
TABLE 7 KEY ULTRASOUND SENSOR APPLICATIONS IN OBSTETRICS AND GYNECOLOGY	12
TABLE 8 KEY ULTRASOUND SENSOR APPLICATIONS USED IN CARDIOLOGY	13
TABLE 9 ULTRASOUND DEVICES USED IN UROLOGY	13
TABLE 10 KEY DRIVERS OF THE MEDICAL ULTRASOUND DEVICES INDUSTRY	13
TABLE 11 ESTIMATED PERCENTAGE OF THE POPULATION AGE 65 OR OLDER BY SELECTED COUNTRY, 2012-2017 (%)	14
TABLE 12 ESTIMATED U.S. HEALTH-CARE COSTS BY AGE GROUP, 2004-2011 (%)	15
TABLE 13 ALLOCATION OF MEDICARE SPENDING IN MASSACHUSSETTS ON DIAGNOSTIC IMAGING SERVICES BY TYPE OF SERVICE, 2007-2009 (%)	15
TABLE 14 ESTIMATED AVERAGE ANNUAL CHANGE IN MEDICARE SPENDING IN MASSACHUSSETTS ON DIAGNOSTIC IMAGING SERVICES, 2007-2008 (%)	16
TABLE 15 MEDICARE SPENDING IN MASSACHUSSETTS ON MEDICAL DIAGNOSTIC IMAGING SERVICES PER MEMBER, 2007-2008 (\$ MILLIONS/%)	16
TABLE 16 ESTIMATED AVERAGE ANNUAL CHANGE IN PRIVATE INSURER SPENDING IN MASSACHUSSETTS ON DIAGNOSTIC IMAGING VS. ULTRASOUND, 2006-2009 (%)	17
TABLE 17 PRIVATE INSURER SPENDING IN MASSACHUSSETTS ON ULTRASOUND AS A PERCENTAGE OF ALL DIAGNOSTIC IMAGING SERVICES, 2007-2009 (\$ MILLIONS/%)	17
TABLE 18 PRIVATE INSURER SPENDING PER MEMBER IN MASSACHUSSETTS ON ULTRASOUND AS A PERCENTAGE OF ALL DIAGNOSTIC IMAGING SERVICES, 2007-2009 (\$ MILLIONS)	18
TABLE 19 MASSACHUSSETTS MEDICAL IMAGING MARKET SHARE BY TECHNOLOGY TYPE SERVICE, 2007-2009 (%)	18
TABLE 20 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	21
TABLE 21 PRIMARY PURCHASERS OF MEDICAL DIAGNOSTIC TECHNOLOGY (%)	22
TABLE 22 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN CARDIOLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)	22
TABLE 23 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN OBSTETRICS AND GYNECOLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)	23
TABLE 24 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN THYROID DIAGNOSIS BY REGION, THROUGH 2016 (\$ MILLIONS)	24
TABLE 25 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN UROLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)	25
TABLE 26 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN BREAST DIAGNOSIS BY REGION, THROUGH 2016 (\$ MILLIONS)	26
TABLE 27 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN RADIOLOGY BY REGION, THROUGH 2016 (\$ MILLIONS)	27
TABLE 28 GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES USED IN OTHER APPLICATIONS BY REGION, THROUGH 2016 (\$ MILLIONS)	28
TABLE 29 POPULATION AND GDP IN KEY ASIAN MARKETS, 2011	30

TABLE HEADING	PAGE NO.
TABLE 30 ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)	31
TABLE 31 ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	31
TABLE 32 AUSTRALIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	33
TABLE 33 CHINESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	34
TABLE 34 INDIA'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	35
TABLE 35 JAPANESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	36
TABLE 36 SOUTH KOREAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	37
TABLE 37 TAIWANESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	38
TABLE 38 SOUTHEAST ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)	39
TABLE 39 SOUTHEAST ASIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	40
TABLE 40 INDONESIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	41
TABLE 41 MALAYSIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	42
TABLE 42 PHILIPPINE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	43
TABLE 43 THAILAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	44
TABLE 44 VIETNAMESE DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	45
TABLE 45 DEMAND FOR MEDICAL ULTRASOUND DEVICES IN THE AMERICAS BY COUNTRY, THROUGH 2016 (\$ MILLIONS)	47
TABLE 46 DEMAND FOR MEDICAL ULTRASOUND DEVICES IN THE AMERICA'S BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	48
TABLE 47 U.S. AGING POPULATION TRENDS: POPULATION OVER 65, 2000-2050 (MILLIONS)	49
TABLE 48 ESTIMATED U.S. TRENDS IN THE SHIPMENT OF SURGICAL APPLIANCES AND SUPPLIES, 2002-2005 (\$ MILLIONS)	50
TABLE 49 U.S. DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	50
TABLE 50 ARGENTINIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	51
TABLE 51 BRAZILIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	52
TABLE 52 CANADIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	53
TABLE 53 CHILEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	54
TABLE 54 COLOMBIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	55
TABLE 55 MEXICO'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	56

TABLE HEADING	PAGE NO.
TABLE 56 VENEZUELAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	57
TABLE 57 ESTIMATED HEALTHCARE EXPENDITURES ON THE ACQUISITION OF DIAGNOSTIC TECHNOLOGY IN EUROPE VS. THE U.S., 2008-2012 (%)	60
TABLE 58 ESTIMATED EUROPEAN MEDICAL EQUIPMENT MARKET, 2005-2008 (\$ MILLIONS)	61
TABLE 59 WESTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)	62
TABLE 60 WESTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	64
TABLE 61 AUSTRIAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	64
TABLE 62 BELGIUM DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	65
TABLE 63 DENMARK'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	66
TABLE 64 FINLAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	67
TABLE 65 FRANCE'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	68
TABLE 66 GERMANY'S ESTIMATED MEDICAL EQUIPMENT MARKET, 2007-2012 (\$ MILLIONS)	69
TABLE 67 GERMANY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	69
TABLE 68 GREECE'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	70
TABLE 69 ITALY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	71
TABLE 70 NORWAY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	72
TABLE 71 PORTUGAL'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	73
TABLE 72 SPAIN'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	74
TABLE 73 SWEDEN'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION THROUGH 2016 (\$ MILLIONS)	75
TABLE 74 SWITZERLAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	76
TABLE 75 THE NETHERLANDS DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	77
TABLE 76 U.K. DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	78
TABLE 77 EASTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY COUNTRY, THROUGH 2016 (\$ MILLIONS)	79
TABLE 78 EASTERN EUROPEAN DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	80
TABLE 79 THE CZECH REPUBLIC'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	81
TABLE 80 HUNGARY'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	82
TABLE 81 POLAND'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	83
TABLE 82 ROMANIA'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	84

TABLE HEADING	PAGE NO.
TABLE 83 RUSSIA'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	85
TABLE 84 UKRAINE'S DEMAND FOR MEDICAL ULTRASOUND DEVICES BY APPLICATION, THROUGH 2016 (\$ MILLIONS)	86
TABLE 85 KEY GLOBAL HARMONIZATION TASK FORCE OBJECTIVES	88

LIST OF FIGURES

FIGURE TITLE	PAGE NO.
SUMMARY FIGURE GLOBAL DEMAND FOR MEDICAL ULTRASOUND DEVICES BY REGION, 2010-2016 (\$ MILLIONS)	6
FIGURE 1	89