

DISABLED AND ELDERLY ASSISTIVE TECHNOLOGIES



HLC047E
September 2015

Andrew McWilliams
Project Analyst

ISBN: 1-62296-151-X



BCC Research
49 Walnut Park, Building 2
Wellesley, MA 02481 USA
866-285-7215 (toll-free within the USA),
or (+1) 781-489-7301
www.bccresearch.com
information@bccresearch.com

TABLE OF CONTENTS

TOPIC	PAGE NO.
CHAPTER 1 INTRODUCTION	2
ASSISTIVE TECHNOLOGY PRODUCTS	2
STUDY BACKGROUND	2
STUDY GOALS AND OBJECTIVES	3
INTENDED AUDIENCE	3
SCOPE AND FORMAT	4
METHODOLOGY AND INFORMATION SOURCES	4
ANALYST'S CREDENTIALS	5
RELATED BCC RESEARCH REPORTS	5
BCC RESEARCH WEBSITE	6
DISCLAIMER	6
CHAPTER 2 EXECUTIVE SUMMARY	8
<i>SUMMARY TABLE U.S. ASSISTIVE TECHNOLOGY MARKET, THROUGH 2020 (\$ MILLIONS)</i>	8
<i>SUMMARY FIGURE U.S. ASSISTIVE TECHNOLOGY MARKET, 2014-2020 (\$ MILLIONS)</i>	8
CHAPTER 3 OVERVIEW	11
GENERAL DESCRIPTION	11
DEFINITIONS	11
Assistive Technologies	11
Disabilities Compared to Diseases	11
Assistive Technologies Compared to Pharmaceuticals	12
Assistive Technologies Compared to Prosthetics and Orthotics	12
Assistive Technologies versus Cosmetic Products	12
HISTORY	13
TECHNOLOGIES	14
MATERIALS	14
Lightweight Materials	14
Smart Materials	14
ELECTRONICS	14
Speech Recognition and Vocal Output	14
Communication Technology	15
Mobile Location Technology	16
Sensor Technology	16
Artificial Intelligence	17
ENERGY SOURCES	17
MINIATURIZATION	18
APPLICATIONS AND CONDITIONS ADDRESSED	18
<i>FIGURE 1 U.S. POPULATION WHOSE DAILY ACTIVITIES ARE LIMITED DUE TO HEALTH CONDITIONS BY AGE GROUP, 2012 (%)</i>	19
<i>TABLE 1 NUMBER OF DISABLED PEOPLE IN THE U.S., THROUGH 2020 (MILLIONS)</i>	20
<i>FIGURE 2 NUMBER OF DISABLED PEOPLE IN THE U.S., 2014-2020 (MILLIONS)</i>	20
SENSORY LOSS	21
Hearing Loss	21

TOPIC	PAGE NO.
<i>TABLE 2 REPORTED INCIDENCE OF HEARING PROBLEMS AMONG U.S. ADULTS, BY SEX/AGE GROUP, 2012 (%)</i>	21
Vision Loss	22
<i>TABLE 3 REPORTED INCIDENCE OF BLINDNESS AND VISION IMPAIRMENT IN THE U.S. BY SEX/AGE GROUP, 2012 (%)</i>	22
COMMUNICATION DISORDERS	23
Speech Impairments	23
Writing Difficulties	23
LOSS OF MOBILITY AND DEXTERITY	24
<i>TABLE 4 REPORTED INCIDENCE OF IMPAIRED MOBILITY AND DEXTERITY IN THE U.S. BY SEX/AGE GROUP, 2012 (%)</i>	24
Arthritis	24
<i>TABLE 5 INCIDENCE OF DOCTOR-DIAGNOSED ARTHRITIS CASES AND CHRONIC JOINT SYMPTOMS IN THE U.S. BY AGE GROUP, 2012 (%)</i>	25
Osteoporosis	25
Age-Related Loss of Strength/Balance/Coordination	26
Surgical Recovery and Rehabilitation	26
Arthroplasties	26
<i>TABLE 6 NUMBER OF U.S. HIP AND KNEE REPLACEMENT PROCEDURES, THROUGH 2020 (THOUSANDS)</i>	26
Amputations	27
OBESITY	27
NEUROLOGICAL DYSFUNCTIONS	27
Alzheimer's Disease and Related Dementias	28
Age-Related Loss of Cognitive Functioning	28
<i>FIGURE 3 PREVALENCE OF COGNITIVE/MENTAL IMPAIRMENT AMONG MEDICARE PARTICIPANTS, 2010 (%)</i>	28
CHRONIC DISEASE	29
<i>FIGURE 4 PREVALENCE OF SELECTED CHRONIC HEALTH PROBLEMS AMONG MEDICARE PARTICIPANTS, 2010 (%)</i>	29
INCONTINENCE AND LOSS OF BLADDER/BOWEL FUNCTIONING	30
<i>TABLE 7 POPULATION WITH OSTOMIES, BY AGE GROUP (%)</i>	31
PRODUCT TYPES	31
MOBILITY AIDS	32
Ambulatory Aids	32
<i>TABLE 8 AMBULATORY AID MANUFACTURERS</i>	32
Wheelchairs, Scooters and Accessories	32
Wheelchairs	33
<i>TABLE 9 WHEELCHAIR MANUFACTURERS BY LOCATION</i>	33
Scooters	34
<i>TABLE 10 SCOOTER MANUFACTURERS BY LOCATION</i>	35
Motor Vehicle Conversions	35
<i>TABLE 11 MOTOR VEHICLE DISABLED ACCESS CONVERSION KIT MANUFACTURERS IN THE U.S.</i>	36
Navigation Aids	36
Ultrasound (Sonar) Systems	36
Laser Systems	36
Combined Laser/Ultrasound Systems	37
GPS Systems	37

TOPIC	PAGE NO.
<i>TABLE 12 NAVIGATION AIDS MANUFACTURERS BY LOCATION</i>	37
ACCESS AIDS	37
Home Elevators	37
Wheelchair Lifts	38
Stair Climbers	38
Accessible Baths and Showers	38
Special Commodes	38
Bath and Pool Lifts	38
Transfer Lifts	38
Door Openers	39
<i>TABLE 13 ACCESS AID MANUFACTURERS BY LOCATION</i>	39
BEDS, SEATING SYSTEMS AND ERGONOMIC AIDS	39
Beds	40
Seating and Positioning Systems	40
Ergonomic Aids	40
<i>TABLE 14 DISABLED BED, SEATING AND ERGONOMIC AIDS MANUFACTURERS BY LOCATION</i>	41
DAILY LIVING AIDS	41
Toileting Aids and Incontinence Products	42
Commode/Shower Chairs	42
Incontinence Products	42
Ostomy Products	42
Other Daily Living Aids	43
<i>TABLE 15 DAILY LIVING AIDS MANUFACTURERS BY LOCATION</i>	43
COMMUNICATION AIDS	43
Speech Aids	44
Writing and Typing Aids	44
<i>TABLE 16 SPEECH AND WRITING AID MANUFACTURERS IN THE U.S.</i>	44
Hearing Aids	45
Analog Compared to Digital Hearing Aids	45
Behind-the-Ear Compared to In-the-Ear Designs	46
Eyeglass Hearing Aids	47
Other Features	47
<i>TABLE 17 HEARING AID MANUFACTURERS BY LOCATION</i>	48
Telephony Accessories	48
Text Telephones	48
Amplified Telephones	49
COMPUTER ACCESS AIDS	49
Input Devices	49
Speech Recognition	49
Special Keyboards	50
Touch Screens	50
Mouse Alternatives	50
Output Devices	51
Screen Magnifiers/Readers	51
Refreshable Braille Displays	51
Accessibility Software	51
<i>TABLE 18 COMPUTER AID MANUFACTURERS BY LOCATION</i>	51

TOPIC	PAGE NO.
VISION AND READING AIDS	52
Reading Machines	53
Braille Translators	53
Video Magnifiers	53
Accessible Books and Reader/Players	54
DAISY Books	54
Accessible Consumer Electronic Equipment	55
Telephones	56
Cellphones	56
Kitchen Appliances	57
Personal Digital Assistants	57
<i>TABLE 19 READING AND VISION AID MANUFACTURERS BY LOCATION</i>	57
ENVIRONMENTAL AIDS	58
<i>TABLE 20 ENVIRONMENTAL AID MANUFACTURERS BY LOCATION</i>	58
MEDICAL AND PERSONAL MONITORING AIDS	59
Activity/Emergency Location Monitors	59
Remote Medical Monitors	59
Mobile Phone-Based Systems	59
Bluetooth	60
ZigBee	60
Signal Transmission via Human Skin	60
Pervasive Monitoring	61
<i>TABLE 21 MEDICAL/PERSONAL MONITORING AID MANUFACTURERS BY LOCATION</i>	61
PATENT ANALYSIS	62
<i>FIGURE 5 U.S. ASSISTIVE TECHNOLOGY PATENTS ISSUED BY TYPE OF TECHNOLOGY, SINCE 1976 (%)</i>	62
REGULATORY, LEGISLATIVE AND INSURANCE ISSUES	63
UNITED STATES	63
Americans with Disabilities Act (ADA) and Other Related Legislation	63
Safety and Quality Regulations	64
Medicare and Private Health Insurance Reimbursement Issues	65
Patient Protection and Affordable Care Act	66
THE EUROPEAN UNION (EU)	66
JAPAN	67
CHAPTER 4 U.S. MARKET FOR ASSISTIVE TECHNOLOGIES	69
SUMMARY	69
<i>TABLE 22 U.S. ASSISTIVE TECHNOLOGY MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)</i>	69
<i>FIGURE 6 U.S. ASSISTIVE TECHNOLOGY MARKET, 2014-2020 (\$ MILLIONS)</i>	69
<i>FIGURE 7 U.S. ASSISTIVE TECHNOLOGIES MARKET SHARE BY SEGMENT, 2014 AND 2020 (%)</i>	70
DETAILED MARKET PROJECTIONS	72
MOBILITY AIDS	72
<i>TABLE 23 U.S. MOBILITY AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)</i>	72
<i>FIGURE 8 U.S. MOBILITY AIDS MARKET SHARE BY SEGMENT, 2014 AND 2020 (%)</i>	73
Ambulatory Aids	74
Historical Sales	74

TOPIC	PAGE NO.
<i>FIGURE 9 U.S. AMBULATORY AIDS MARKET SHARE BY PRODUCT TYPE, 2014 (%)</i>	74
Market Drivers	74
Ambulatory Aids Usage and Demographics	75
<i>TABLE 24 PROJECTED U.S. POPULATION, 65 YEARS AND OLDER, THROUGH 2020 (THOUSANDS)</i>	75
Projected Market	75
<i>TABLE 25 U.S. AMBULATORY AIDS MARKET BY PRODUCT TYPE, THROUGH 2020 (\$ MILLIONS)</i>	76
Wheelchairs and Scooters	76
Historical Sales	76
<i>FIGURE 10 U.S. WHEELCHAIR AND SCOOTER MARKET BY PRODUCT TYPE, 2014 (%)</i>	76
Market Drivers	77
Aging Population	78
<i>FIGURE 11 U.S. WHEELCHAIR/SCOOTER MARKET BY AGE GROUP, 2014 (%)</i>	78
<i>TABLE 26 WHEELCHAIR USE BY AGE GROUP, 2014 (%)</i>	79
Aging Baby Boomers	79
Incidence of Conditions Associated with Wheelchair/Scooter Use among Younger People	79
<i>FIGURE 12 PERCENTAGE OF USERS WITH LEADING CONDITIONS ASSOCIATED WITH WHEELCHAIR/SCOOTER USE, 2003 (%)</i>	79
<i>TABLE 27 U.S. POPULATION UNDER 65 YEARS OLD, THROUGH 2020 (THOUSANDS)</i>	81
Increasing Incidence of Severe Obesity	81
<i>TABLE 28 NUMBER OF SEVERELY OBESE AMERICANS, THROUGH 2020 (MILLIONS/%)</i>	82
Medicare Policies on Reimbursement for Powered Wheelchairs	82
Projected Market	83
<i>TABLE 29 U.S. WHEELCHAIRS AND SCOOTERS MARKET BY AGE GROUP OF USERS AND PRODUCT TYPE, THROUGH 2020* (\$ MILLIONS)</i>	83
Vehicle Conversions	83
Historical Sales	83
Market Drivers	84
Demographic Trends in Target Market	84
<i>TABLE 30 PROJECTED NUMBER OF U.S. WHEELCHAIR USERS AGED 18 TO 64 YEARS, THROUGH 2020 (NUMBER)</i>	84
Financial Incentives	84
Projected Sales	85
<i>TABLE 31 U.S. VEHICLE CONVERSIONS FOR THE DISABLED MARKET, THROUGH 2020 (\$ MILLIONS)</i>	85
Navigation Aids	85
Historical Sales	85
Market Drivers	86
Potential Market Size	86
Market Penetration	86
Projected Sales	86
<i>TABLE 32 U.S. ELECTRONIC NAVIGATION AIDS MARKET FOR THE BLIND, THROUGH 2020 (UNITS/\$ MILLIONS)</i>	87
ACCESS AIDS	87
<i>TABLE 33 U.S. DISABILITY ACCESS AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)</i>	87

TOPIC	PAGE NO.
<i>FIGURE 13 U.S. DISABILITY ACCESS AIDS MARKET SHARE BY SEGMENT, 2014 AND 2020 (%)</i>	87
Home Elevators	89
Historical Sales	89
Market Drivers	89
Projected Sales	90
<i>TABLE 34 U.S. RESIDENTIAL ELEVATORS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	90
Stair Lifts	90
Historical Sales	90
Market Drivers	90
Baby Boom Home Renovation Spending	91
<i>FIGURE 14 BABY BOOMER SPENDING ON HOME RENOVATION PROJECTS, 2014-2020 (\$ BILLIONS)</i>	91
Projected Sales	92
<i>TABLE 35 U.S. STAIR LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	92
Wheelchair Lifts	92
Historical Sales	92
Market Drivers	92
Projected Sales	92
<i>TABLE 36 U.S. WHEELCHAIR LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	93
Accessible Bathtubs and Showers	93
Historical Sales	93
Market Drivers	93
Projected Sales	93
<i>TABLE 37 U.S. ACCESSIBLE BATHTUBS AND SHOWERS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	93
Bath and Pool Lifts	94
Historical Sales	94
Market Drivers	94
Projected Market	94
<i>TABLE 38 U.S. BATH AND POOL LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	94
Transfer Lifts	94
Historical Sales	94
Market Drivers	94
Projected Market	95
<i>TABLE 39 U.S. TRANSFER LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	95
Door Openers	95
Historical Sales	95
Market Drivers	95
Projected Market	96
<i>TABLE 40 U.S. DOOR OPENERS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	96
BEDS, SEATING SYSTEMS AND ERGONOMIC AIDS	96
<i>TABLE 41 U.S. DISABLED BEDS, SEATING SYSTEMS AND OTHER ERGONOMIC AIDS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	96
<i>FIGURE 15 U.S. DISABLED BED, SEATING AND OTHER ERGONOMIC AIDS FOR THE DISABLED MARKET SHARE, 2014 AND 2020 (%)</i>	96
Special Beds and Chairs for the Disabled	98
Historical Sales	98

TOPIC	PAGE NO.
<i>FIGURE 16 U.S. BEDS AND SEATING FOR THE DISABLED MARKET SHARE, 2014 (%)</i>	98
Market Drivers	99
Projected Market	99
<i>TABLE 42 U.S. HOME CARE MEDICAL BEDS AND SEATING SYSTEMS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	99
Other Ergonomic Aids	99
Historical Sales	99
Market Drivers	100
Projected Market	100
<i>TABLE 43 U.S. MARKET OF OTHER ERGONOMIC AIDS, THROUGH 2020 (\$ MILLIONS)</i>	100
DAILY LIVING AIDS	100
<i>TABLE 44 U.S. DAILY LIVING AIDS MARKET BY PRODUCT TYPE, THROUGH 2020 (\$ MILLIONS)</i>	100
<i>FIGURE 17 U.S. DISABILITY AIDS MARKET BY PRODUCT TYPE, 2014 AND 2020 (%)</i>	101
Incontinence and Ostomy Products	102
Historical Sales	102
<i>FIGURE 18 U.S. INCONTINENCE AND OSTOMY PRODUCTS MARKET, 2014 (%)</i>	102
Market Drivers	102
Demographic Trends	103
<i>TABLE 45 U.S. FEMALE POPULATION, THROUGH 2020 (THOUSANDS)</i>	103
Attitudes Toward Incontinence and Loss of Bladder/Bowel Functioning	103
<i>TABLE 46 IMPACT OF GROWING PUBLIC AWARENESS ON MARKET FOR INCONTINENCE/OSTOMY PRODUCTS, 2001-2014 (%)</i>	104
Projected Sales	104
<i>TABLE 47 U.S. INCONTINENCE AND OSTOMY PRODUCTS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	104
Commode and Shower Chairs	105
Historical Sales	105
Market Drivers	105
Projected Market	105
<i>TABLE 48 PROJECTED U.S. SALES OF COMMODE AND SHOWER CHAIRS, THROUGH 2020 (\$ MILLIONS)</i>	105
Other Daily Living Aids	106
Historical Sales	106
<i>FIGURE 19 U.S. OTHER DAILY LIVING AIDS MARKET, 2014 (%)</i>	106
Market Drivers	107
Projected Market	107
<i>TABLE 49 PROJECTED U.S. SALES OF OTHER DAILY LIVING AIDS, THROUGH 2020 (\$ MILLIONS)</i>	107
COMMUNICATION AIDS	107
<i>TABLE 50 U.S. COMMUNICATION AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)</i>	107
Hearing and Listening Aids	108
Historical Sales	108
<i>FIGURE 20 U.S. DIGITAL VERSUS ANALOG HEARING AIDS MARKET, 2014 (%)</i>	108
Market Drivers	109
Macroeconomic Conditions	109
<i>FIGURE 21 TRENDS IN U.S. HEARING AIDS GDP VERSUS MARKET, 2003-2014 (%)</i>	109

TOPIC	PAGE NO.
Low Market Penetration	110
Measures to Increase Affordability of Hearing Aids	110
Changing Buyer Attitudes	111
Projected Market	111
<i>TABLE 51 U.S. HEARING AIDS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	112
Speech and Writing Aids	112
Historical Sales	112
Market Drivers	112
Technology	112
Projected Market	112
<i>TABLE 52 U.S. SPEECH AIDS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	113
COMPUTER ACCESS AIDS	113
Historical Sales	113
<i>FIGURE 22 U.S. COMPUTER ACCESS AIDS MARKET, 2014 (%)</i>	113
Market Drivers	114
Low Use of Computer Accessibility Aids Among the Disabled	114
Potential Benefits of Computer Accessibility Technology to Many Nondisabled Users	114
Increasing Number of Nondisabled Computer Users Likely to Benefit from Accessibility Technologies	115
Projected Market	115
<i>TABLE 53 U.S. COMPUTER ACCESS AIDS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	115
VISION AND READING AIDS	116
<i>TABLE 54 U.S. VISION AND READING AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)</i>	116
Eyeglasses and Contacts	116
Historical Sales	116
<i>FIGURE 23 U.S. EYEGLASSES AND CONTACT LENSES MARKET BY SEGMENT, 2014 (%)</i>	116
Market Drivers	117
Projected Market	117
<i>TABLE 55 U.S. EYEWEAR MARKET, THROUGH 2020 (\$ MILLIONS)</i>	118
Reading Machines	118
Historical Sales	118
<i>FIGURE 24 U.S. READING MACHINE MARKET BY SEGMENT, 2014 (%)</i>	118
Market Drivers	119
Projected Market	119
<i>TABLE 56 U.S. READING MACHINES MARKET, THROUGH 2020 (\$ MILLIONS)</i>	119
Accessible Books	120
<i>FIGURE 25 U.S. ACCESSIBLE BOOKS MARKET BY TYPE, 2014 (%)</i>	120
Market Drivers	121
Projected Market	122
<i>TABLE 57 U.S. ACCESSIBLE BOOK MARKET BY TYPE, THROUGH 2020 (\$ MILLIONS)</i>	122
ENVIRONMENTAL AIDS	122
Historical Sales	122
Market Drivers	122
Projected Market	122
<i>TABLE 58 U.S. ENVIRONMENTAL AIDS MARKET, THROUGH 2020 (\$ MILLIONS)</i>	123

TOPIC	PAGE NO.
MEDICAL/PERSONAL MONITORING AIDS	123
<i>TABLE 59 U.S. MEDICAL/PERSONAL MONITORING AIDS MARKET BY TYPE, THROUGH 2020 (\$ MILLIONS)</i>	123
<i>FIGURE 26 U.S. MEDICAL/PERSONAL MONITORING AIDS MARKET BY TYPE, 2014 AND 2020 (%)</i>	123
Activity/Emergency Location Monitors	124
Historical Sales	124
<i>FIGURE 27 U.S. ACTIVITY/EMERGENCY LOCATION MONITOR MARKET BY SEGMENT, 2014 (%)</i>	125
Market Drivers	125
Projected Market	126
<i>TABLE 60 U.S. PERSONAL EMERGENCY RESPONSE DEVICES MARKET, THROUGH 2020 (\$ MILLIONS)</i>	126
Remote Medical Monitors	126
Historical Sales	126
Market Drivers	126
Low Market Penetration	126
Rising Cost of Home Care Providers	127
Increasing Expenditures on Home Medical Care	127
Projected Market	127
<i>TABLE 61 U.S. REMOTE MONITORING DEVICES MARKET, THROUGH 2020 (\$ MILLIONS)</i>	127
CHAPTER 5 GLOBAL MARKETS	129
<i>TABLE 62 GLOBAL ASSISTIVE TECHNOLOGIES MARKET BY REGION, THROUGH 2020 (\$ MILLIONS)</i>	129
<i>FIGURE 28 GLOBAL ASSISTIVE TECHNOLOGIES MARKET SHARE BY REGION, 2014 AND 2020 (%)</i>	129
CHAPTER 6 INDUSTRY STRUCTURE AND COMPETITION	132
NUMBER AND SIZE OF FIRMS	132
MARKET SHARES	132
MOBILITY AIDS	132
<i>FIGURE 29 U.S. MOBILITY AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	132
ACCESS AIDS	133
<i>FIGURE 30 U.S. ACCESS AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	133
BEDS, SEATING SYSTEMS AND ERGONOMIC AIDS	134
<i>FIGURE 31 U.S. BEDS, SEATING SYSTEMS AND ERGONOMETRIC AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	134
DAILY LIVING AIDS	135
<i>FIGURE 32 U.S. DAILY LIVING AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	135
COMMUNICATION AIDS	136
<i>FIGURE 33 U.S. COMMUNICATION AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	136
COMPUTER ACCESS AIDS	137
<i>FIGURE 34 U.S. COMPUTER ACCESS AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	138
VISION AND READING AIDS	138
<i>FIGURE 35 U.S. VISION AND READING AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	139
ENVIRONMENTAL AIDS	140
MEDICAL/PERSONAL MONITORING AIDS	140

TOPIC	PAGE NO.
<i>FIGURE 36 U.S. MEDICAL/PERSONAL MONITORING AIDS MARKET SHARE BY COMPANY, 2014 (%)</i>	140
CHAPTER 7 COMPANY PROFILES	143
BAY ADVANCED TECHNOLOGIES LTD.	143
BLUE CHIP MEDICAL PRODUCTS	143
BRUNO INDEPENDENT LIVING AIDS INC.	143
COBOLT SYSTEMS LTD.	144
CONVATEC	144
CYBERNET MEDICAL CORP.	144
DOLPHIN COMPUTER ACCESS LTD.	145
DUXBURY SYSTEMS INC.	145
DYNAVOX TECHNOLOGIES	145
EXACT DYNAMICS B.V.	145
FREEDOM SCIENTIFIC INC.	146
GW MICRO INC.	146
HONEYWELL LIFE CARE SOLUTIONS	146
HUMANWARE	147
INCLINATOR COMPANY OF AMERICA	147
INVACARE CORP.	147
KROWN MANUFACTURING	148
LIFTAVATOR INC.	148
MEDLINE INDUSTRIES INC.	148
OTTO BOCK HEALTHCARE GMBH	148
PHILIPS LIFELINE SYSTEMS INC.	149
PRIDE MOBILITY PRODUCTS CORP.	149
RICON CORP.	149
SAVARIA CORP.	149
SCOTTCARE CORP.	150
SIEMENS HEARING INSTRUMENTS INC.	150
SUNRISE MEDICAL LLC	150
SVENSKA CELLULOSA AKTIEBOLAGET SCA	150
TERRY GROUP LTD.	151
THYSSENKRUPP ACCESS	151
TWIG	151
WHIRLPOOL CORP.	152

LIST OF TABLES

TABLE HEADING	PAGE NO.
SUMMARY TABLE U.S. ASSISTIVE TECHNOLOGY MARKET, THROUGH 2020 (\$ MILLIONS)	8
TABLE 1 NUMBER OF DISABLED PEOPLE IN THE U.S., THROUGH 2020 (MILLIONS)	20
TABLE 2 REPORTED INCIDENCE OF HEARING PROBLEMS AMONG U.S. ADULTS, BY SEX/AGE GROUP, 2012 (%)	21
TABLE 3 REPORTED INCIDENCE OF BLINDNESS AND VISION IMPAIRMENT IN THE U.S. BY SEX/AGE GROUP, 2012 (%)	22
TABLE 4 REPORTED INCIDENCE OF IMPAIRED MOBILITY AND DEXTERITY IN THE U.S. BY SEX/AGE GROUP, 2012 (%)	24
TABLE 5 INCIDENCE OF DOCTOR-DIAGNOSED ARTHRITIS CASES AND CHRONIC JOINT SYMPTOMS IN THE U.S. BY AGE GROUP, 2012 (%)	25
TABLE 6 NUMBER OF U.S. HIP AND KNEE REPLACEMENT PROCEDURES, THROUGH 2020 (THOUSANDS)	26
TABLE 7 POPULATION WITH OSTOMIES, BY AGE GROUP (%)	31
TABLE 8 AMBULATORY AID MANUFACTURERS	32
TABLE 9 WHEELCHAIR MANUFACTURERS BY LOCATION	33
TABLE 10 SCOOTER MANUFACTURERS BY LOCATION	35
TABLE 11 MOTOR VEHICLE DISABLED ACCESS CONVERSION KIT MANUFACTURERS IN THE U.S.	36
TABLE 12 NAVIGATION AIDS MANUFACTURERS BY LOCATION	37
TABLE 13 ACCESS AID MANUFACTURERS BY LOCATION	39
TABLE 14 DISABLED BED, SEATING AND ERGONOMIC AIDS MANUFACTURERS BY LOCATION	41
TABLE 15 DAILY LIVING AIDS MANUFACTURERS BY LOCATION	43
TABLE 16 SPEECH AND WRITING AID MANUFACTURERS IN THE U.S.	44
TABLE 17 HEARING AID MANUFACTURERS BY LOCATION	48
TABLE 18 COMPUTER AID MANUFACTURERS BY LOCATION	51
TABLE 19 READING AND VISION AID MANUFACTURERS BY LOCATION	57
TABLE 20 ENVIRONMENTAL AID MANUFACTURERS BY LOCATION	58
TABLE 21 MEDICAL/PERSONAL MONITORING AID MANUFACTURERS BY LOCATION	61
TABLE 22 U.S. ASSISTIVE TECHNOLOGY MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)	69
TABLE 23 U.S. MOBILITY AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)	72
TABLE 24 PROJECTED U.S. POPULATION, 65 YEARS AND OLDER, THROUGH 2020 (THOUSANDS)	75
TABLE 25 U.S. AMBULATORY AIDS MARKET BY PRODUCT TYPE, THROUGH 2020 (\$ MILLIONS)	76
TABLE 26 WHEELCHAIR USE BY AGE GROUP, 2014 (%)	79
TABLE 27 U.S. POPULATION UNDER 65 YEARS OLD, THROUGH 2020 (THOUSANDS)	81
TABLE 28 NUMBER OF SEVERELY OBESE AMERICANS, THROUGH 2020 (MILLIONS/%)	82
TABLE 29 U.S. WHEELCHAIRS AND SCOOTERS MARKET BY AGE GROUP OF USERS AND PRODUCT TYPE, THROUGH 2020* (\$ MILLIONS)	83
TABLE 30 PROJECTED NUMBER OF U.S. WHEELCHAIR USERS AGED 18 TO 64 YEARS, THROUGH 2020 (NUMBER)	84
TABLE 31 U.S. VEHICLE CONVERSIONS FOR THE DISABLED MARKET, THROUGH 2020 (\$ MILLIONS)	85
TABLE 32 U.S. ELECTRONIC NAVIGATION AIDS MARKET FOR THE BLIND, THROUGH 2020 (UNITS/\$ MILLIONS)	87
TABLE 33 U.S. DISABILITY ACCESS AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)	87

TABLE HEADING	PAGE NO.
TABLE 34 U.S. RESIDENTIAL ELEVATORS MARKET, THROUGH 2020 (\$ MILLIONS)	90
TABLE 35 U.S. STAIR LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)	92
TABLE 36 U.S. WHEELCHAIR LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)	93
TABLE 37 U.S. ACCESSIBLE BATHTUBS AND SHOWERS MARKET, THROUGH 2020 (\$ MILLIONS)	93
TABLE 38 U.S. BATH AND POOL LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)	94
TABLE 39 U.S. TRANSFER LIFTS MARKET, THROUGH 2020 (\$ MILLIONS)	95
TABLE 40 U.S. DOOR OPENERS MARKET, THROUGH 2020 (\$ MILLIONS)	96
TABLE 41 U.S. DISABLED BEDS, SEATING SYSTEMS AND OTHER ERGONOMIC AIDS MARKET, THROUGH 2020 (\$ MILLIONS)	96
TABLE 42 U.S. HOME CARE MEDICAL BEDS AND SEATING SYSTEMS MARKET, THROUGH 2020 (\$ MILLIONS)	99
TABLE 43 U.S. MARKET OF OTHER ERGONOMIC AIDS, THROUGH 2020 (\$ MILLIONS)	100
TABLE 44 U.S. DAILY LIVING AIDS MARKET BY PRODUCT TYPE, THROUGH 2020 (\$ MILLIONS)	100
TABLE 45 U.S. FEMALE POPULATION, THROUGH 2020 (THOUSANDS)	103
TABLE 46 IMPACT OF GROWING PUBLIC AWARENESS ON MARKET FOR INCONTINENCE/OSTOMY PRODUCTS, 2001-2014 (%)	104
TABLE 47 U.S. INCONTINENCE AND OSTOMY PRODUCTS MARKET, THROUGH 2020 (\$ MILLIONS)	104
TABLE 48 PROJECTED U.S. SALES OF COMMODE AND SHOWER CHAIRS, THROUGH 2020 (\$ MILLIONS)	105
TABLE 49 PROJECTED U.S. SALES OF OTHER DAILY LIVING AIDS, THROUGH 2020 (\$ MILLIONS)	107
TABLE 50 U.S. COMMUNICATION AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)	107
TABLE 51 U.S. HEARING AIDS MARKET, THROUGH 2020 (\$ MILLIONS)	112
TABLE 52 U.S. SPEECH AIDS MARKET, THROUGH 2020 (\$ MILLIONS)	113
TABLE 53 U.S. COMPUTER ACCESS AIDS MARKET, THROUGH 2020 (\$ MILLIONS)	115
TABLE 54 U.S. VISION AND READING AIDS MARKET BY SEGMENT, THROUGH 2020 (\$ MILLIONS)	116
TABLE 55 U.S. EYEWEAR MARKET, THROUGH 2020 (\$ MILLIONS)	118
TABLE 56 U.S. READING MACHINES MARKET, THROUGH 2020 (\$ MILLIONS)	119
TABLE 57 U.S. ACCESSIBLE BOOK MARKET BY TYPE, THROUGH 2020 (\$ MILLIONS)	122
TABLE 58 U.S. ENVIRONMENTAL AIDS MARKET, THROUGH 2020 (\$ MILLIONS)	123
TABLE 59 U.S. MEDICAL/PERSONAL MONITORING AIDS MARKET BY TYPE, THROUGH 2020 (\$ MILLIONS)	123
TABLE 60 U.S. PERSONAL EMERGENCY RESPONSE DEVICES MARKET, THROUGH 2020 (\$ MILLIONS)	126
TABLE 61 U.S. REMOTE MONITORING DEVICES MARKET, THROUGH 2020 (\$ MILLIONS)	127
TABLE 62 GLOBAL ASSISTIVE TECHNOLOGIES MARKET BY REGION, THROUGH 2020 (\$ MILLIONS)	129

LIST OF FIGURES

FIGURE TITLE	PAGE NO.
SUMMARY FIGURE U.S. ASSISTIVE TECHNOLOGY MARKET, 2014-2020 (\$ MILLIONS)	8
FIGURE 1 U.S. POPULATION WHOSE DAILY ACTIVITIES ARE LIMITED DUE TO HEALTH CONDITIONS BY AGE GROUP, 2012 (%)	19
FIGURE 2 NUMBER OF DISABLED PEOPLE IN THE U.S., 2014-2020 (MILLIONS)	20
FIGURE 3 PREVALENCE OF COGNITIVE/MENTAL IMPAIRMENT AMONG MEDICARE PARTICIPANTS, 2010 (%)	28
FIGURE 4 PREVALENCE OF SELECTED CHRONIC HEALTH PROBLEMS AMONG MEDICARE PARTICIPANTS, 2010 (%)	29
FIGURE 5 U.S. ASSISTIVE TECHNOLOGY PATENTS ISSUED BY TYPE OF TECHNOLOGY, SINCE 1976 (%)	62
FIGURE 6 U.S. ASSISTIVE TECHNOLOGY MARKET, 2014-2020 (\$ MILLIONS)	69
FIGURE 7 U.S. ASSISTIVE TECHNOLOGIES MARKET SHARE BY SEGMENT, 2014 AND 2020 (%)	70
FIGURE 8 U.S. MOBILITY AIDS MARKET SHARE BY SEGMENT, 2014 AND 2020 (%)	73
FIGURE 9 U.S. AMBULATORY AIDS MARKET SHARE BY PRODUCT TYPE, 2014 (%)	74
FIGURE 10 U.S. WHEELCHAIR AND SCOOTER MARKET BY PRODUCT TYPE, 2014 (%)	76
FIGURE 11 U.S. WHEELCHAIR/SCOOTER MARKET BY AGE GROUP, 2014 (%)	78
FIGURE 12 PERCENTAGE OF USERS WITH LEADING CONDITIONS ASSOCIATED WITH WHEELCHAIR/SCOOTER USE, 2003 (%)	79
FIGURE 13 U.S. DISABILITY ACCESS AIDS MARKET SHARE BY SEGMENT, 2014 AND 2020 (%)	87
FIGURE 14 BABY BOOMER SPENDING ON HOME RENOVATION PROJECTS, 2014-2020 (\$ BILLIONS)	91
FIGURE 15 U.S. DISABLED BED, SEATING AND OTHER ERGONOMIC AIDS FOR THE DISABLED MARKET SHARE, 2014 AND 2020 (%)	96
FIGURE 16 U.S. BEDS AND SEATING FOR THE DISABLED MARKET SHARE, 2014 (%)	98
FIGURE 17 U.S. DISABILITY AIDS MARKET BY PRODUCT TYPE, 2014 AND 2020 (%)	101
FIGURE 18 U.S. INCONTINENCE AND OSTOMY PRODUCTS MARKET, 2014 (%)	102
FIGURE 19 U.S. OTHER DAILY LIVING AIDS MARKET, 2014 (%)	106
FIGURE 20 U.S. DIGITAL VERSUS ANALOG HEARING AIDS MARKET, 2014 (%)	108
FIGURE 21 TRENDS IN U.S. HEARING AIDS GDP VERSUS MARKET, 2003-2014 (%)	109
FIGURE 22 U.S. COMPUTER ACCESS AIDS MARKET, 2014 (%)	113
FIGURE 23 U.S. EYEGLASSES AND CONTACT LENSES MARKET BY SEGMENT, 2014 (%)	116
FIGURE 24 U.S. READING MACHINE MARKET BY SEGMENT, 2014 (%)	118
FIGURE 25 U.S. ACCESSIBLE BOOKS MARKET BY TYPE, 2014 (%)	120
FIGURE 26 U.S. MEDICAL/PERSONAL MONITORING AIDS MARKET BY TYPE, 2014 AND 2020 (%)	123
FIGURE 27 U.S. ACTIVITY/EMERGENCY LOCATION MONITOR MARKET BY SEGMENT, 2014 (%)	125
FIGURE 28 GLOBAL ASSISTIVE TECHNOLOGIES MARKET SHARE BY REGION, 2014 AND 2020 (%)	129
FIGURE 29 U.S. MOBILITY AIDS MARKET SHARE BY COMPANY, 2014 (%)	132
FIGURE 30 U.S. ACCESS AIDS MARKET SHARE BY COMPANY, 2014 (%)	133
FIGURE 31 U.S. BEDS, SEATING SYSTEMS AND ERGONOMETRIC AIDS MARKET SHARE BY COMPANY, 2014 (%)	134
FIGURE 32 U.S. DAILY LIVING AIDS MARKET SHARE BY COMPANY, 2014 (%)	135
FIGURE 33 U.S. COMMUNICATION AIDS MARKET SHARE BY COMPANY, 2014 (%)	136
FIGURE 34 U.S. COMPUTER ACCESS AIDS MARKET SHARE BY COMPANY, 2014 (%)	138
FIGURE 35 U.S. VISION AND READING AIDS MARKET SHARE BY COMPANY, 2014 (%)	139

FIGURE TITLE	PAGE NO.
FIGURE 36 U.S. MEDICAL/PERSONAL MONITORING AIDS MARKET SHARE BY COMPANY, 2014 (%)	140