

|   |    |
|---|----|
| CHAPTER ONE: INTRODUCTION.....                                    | 1  |
| STUDY GOAL AND OBJECTIVES .....                                   | 1  |
| REASONS FOR DOING THE STUDY .....                                 | 1  |
| INTENDED AUDIENCE.....  | 2  |
| SCOPE AND FORMAT .....  | 2  |
| TECHNOLOGIES .....  | 2  |
| HEALTHCARE AREAS .....  | 3  |
| COUNTRIES AND REGIONS.....  | 3  |
| METHODOLOGY .....   | 4  |
| INFORMATION SOURCES .....   | 4  |
| ANALYST'S CREDENTIALS.....  | 5  |
| RELATED BCC WORK CREDENTIALS .....                                | 5  |
| BCC ON-LINE SERVICES.....   | 5  |
| DISCLAIMER .....  | 6  |
| CHAPTER TWO: SUMMARY.....   | 7  |
| SUMMARY.....  | 7  |
| <i>SUMMARY TABLE GLOBAL SIZE OF THE MEDICAL DEVICE</i>            |    |
| <i>COATING MARKET BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 8  |
| <i>SUMMARY FIGURE GLOBAL REQUIREMENT FOR MEDICAL</i>              |    |
| <i>DEVICE COATINGS BY REGION, 2010-2017 (\$ MILLIONS)</i> .....   | 8  |
| CHAPTER THREE: INDUSTRY OVERVIEW.....                             | 9  |
| INDUSTRY OVERVIEW .....   | 9  |
| HOW COATINGS IMPROVE MEDICAL DEVICES .....                        | 10 |
| GLOBAL COATINGS AND TREATMENTS FORECASTS.....                     | 10 |
| <i>TABLE 1 EUROPEAN UNION (EU) ZONE COUNTRIES: FULL</i>           |    |
| <i>MEMBERS AS OF MARCH 1, 2012</i> .....                          | 10 |
| <i>TABLE 1 (CONTINUED)</i> .....                                  | 11 |
| <i>TABLE 2 OTHER DEVELOPED NATIONS: PER CAPITA GNI OF</i>         |    |
| <i>\$12,276 AND ABOVE</i> .....                                   | 11 |
| <i>TABLE 2 (CONTINUED)</i> .....                                  | 12 |
| <i>TABLE 3 REST OF THE WORLD: PER CAPITA GNI OF \$12,275 AND</i>  |    |
| <i>BELOW</i> .....  | 12 |
| <i>TABLE 3 (CONTINUED)</i> .....                                  | 13 |
| <i>TABLE 3 (CONTINUED)</i> .....                                  | 14 |
| <i>TABLE 3 (CONTINUED)</i> .....                                  | 15 |
| <i>TABLE 4 GLOBAL COATING FORECAST BY TECHNOLOGY,</i>             |    |
| <i>THROUGH 2017 (\$ MILLIONS)</i> .....                           | 15 |
| <i>TABLE 4 (CONTINUED)</i> .....                                  | 16 |
| <i>TABLE 5 GLOBAL COATING FORECAST BY HEALTHCARE AREA,</i>        |    |
| <i>THROUGH 2017 (\$ MILLIONS)</i> .....                           | 16 |
| STANDARDIZATION AND HARMONIZATION.....                            | 16 |
| STANDARDIZATION AND HARMONIZATION (CONTINUED) .....               | 17 |

|  |    |
|--|----|
| UNIVERSITY-BASED MEDICAL DEVICE COATING RESEARCH .....   | 18 |
| UNIVERSITY-BASED MEDICAL ...(CONTINUED) .....  | 19 |
| EFFECTS OF THE ECONOMIC SLOWDOWN (CONTINUED).....  | 20 |
| THE CHALLENGE TO ACA, THE NEW U.S. HEALTH INSURANCE<br>LAW.....  | 21 |
| <i>TABLE 6 COMPARATIVE COSTS FOR IMPLANT PROCEDURES, 2010</i><br><i>(\$)</i> .....   | 22 |
| THE CHALLENGE TO ACA, ...(CONTINUED).....  | 23 |
| CHAPTER FOUR: MEDICAL DEVICE COATING PATENT ANALYSIS.....  | 24 |
| <i>TABLE 7 THE 500 MOST RECENTLY ISSUED PATENTS</i><br><i>REFERENCING MEDICAL DEVICES AND COATINGS, AS OF</i><br><i>MARCH 3, 2012</i> .....        | 24 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 25 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 26 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 27 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 28 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 29 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 30 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 31 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 32 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 33 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 34 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 35 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 36 |
| <i>TABLE 7 (CONTINUED)</i> .....   | 37 |
| CHAPTER FIVE: THE COMMERCIAL SECTOR.....   | 38 |
| HOW FDA RULES DEFINE MARKET PARTICIPANTS.....  | 38 |
| <i>TABLE 8 TYPES OF FDA RECOGNIZED ENTITIES</i> .....  | 39 |
| INDUSTRY ADVOCACY ORGANIZATIONS .....  | 40 |
| <i>TABLE 9 COUNTRIES THAT INCORPORATE DEVICE</i><br><i>DEVELOPMENT INTO NATIONAL HEALTHCARE PLANNING AND</i><br><i>POLICIES (BY COUNTRY)</i> ..... | 40 |
| <i>TABLE 9 (CONTINUED)</i> .....   | 41 |
| COMMERCIAL PARTICIPANTS .....  | 41 |
| DEVICE MANUFACTURERS.....  | 42 |
| Abbott Laboratories.....   | 42 |
| Abiomed .....  | 43 |
| Bacterin International.....  | 44 |
| Bacterin International (Continued) .....   | 45 |
| Baxter Healthcare .....  | 46 |
| Biomet .....   | 46 |
| Boston Scientific .....  | 47 |
| BTG .....  | 48 |

|   |    |
|---|----|
| C.R. Bard Inc. ....                         | 49 |
| Cameron Health Inc. ....                    | 50 |
| CardioTech International.....               | 50 |
| Cook Medical Inc. ....                      | 51 |
| Conor Medsystems.....                       | 51 |
| Cordis .....                                | 51 |
| Corin Group .....                           | 52 |
| Depuy Orthopaedics .....                    | 52 |
| Edwards Lifesciences .....                  | 52 |
| Japan Medical Materials.....                | 53 |
| Johnson & Johnson.....                      | 54 |
| Kyocera Medical Corp.....                   | 55 |
| Lombard Medical Technologies.....           | 55 |
| Medtronic .....                             | 56 |
| Micrus Endovascular.....                    | 57 |
| Orthopaedic Synergy .....                   | 57 |
| Smith & Nephew .....                        | 57 |
| St. Jude Medical .....                      | 58 |
| Stryker .....                               | 59 |
| Symmetry Medical.....                       | 60 |
| Thoratec .....                              | 61 |
| Wright Medical Group.....                   | 62 |
| Zimmer Holdings .....                       | 63 |
| COATING MANUFACTURERS.....                  | 63 |
| 4th State Inc. ....                         | 63 |
| Accord Biomaterials .....                   | 64 |
| AcryMed .....                               | 64 |
| Advansource Biomaterials .....              | 64 |
| AeonClad Coating.....                       | 65 |
| Affinergy .....                             | 66 |
| Agion Technologies .....                    | 66 |
| Allvivo Vascular Inc. ....                  | 66 |
| Angiotech Pharmaceuticals.....              | 67 |
| Angiotech Pharmaceuticals (Continued) ..... | 68 |
| Armoloy of Connecticut .....                | 69 |
| AST Products .....                          | 69 |
| AST Products (Continued).....               | 70 |
| Bactiguard.....                             | 71 |
| Bayer MaterialScience .....                 | 71 |
| Biocoat.....                                | 71 |
| Biocompatibles International.....           | 72 |
| Bristol-Myers Squibb.....                   | 72 |
| Cerac .....                                 | 72 |
| Covalon.....                                | 73 |

|  |     |
|--|-----|
| Hemoteq .....  | 73  |
| Hydromer .....   | 74  |
| MC3 .....  | 74  |
| Novartis International Ag .....  | 75  |
| Sciessent.....   | 75  |
| Spire Biomedical.....  | 76  |
| Surface Solutions.....   | 77  |
| SurModics .....  | 77  |
| TYRX.....  | 78  |
| W.L. Gore & Associates Inc.....  | 79  |
| Williams Advanced Materials—Materion Corp. ....  | 80  |
| <br>   |     |
| CHAPTER SIX: HOW THE FDA STRUCTURES THE GLOBAL MARKET .....  | 81  |
| HOW THE FDA STRUCTURES THE GLOBAL MARKET .....   | 81  |
| HOW THE FDA STRUCTURES THE ... (CONTINUED) .....   | 82  |
| FDA MEDICAL DEVICE REVIEW PANELS .....   | 83  |
| <i>TABLE 10 MEDICAL DEVICE REVIEW PANELS</i> .....   | 84  |
| BRINGING A MEDICAL DEVICE TO MARKET .....  | 84  |
| CONTROL CLASS .....  | 85  |
| <i>TABLE 11 FDA REGULATORY CONTROLS</i> .....  | 86  |
| Class I Medical Devices.....   | 87  |
| Class II Medical Devices .....   | 87  |
| Class III Medical Devices .....  | 88  |
| COMBINATION PRODUCTS .....   | 89  |
| Combination Products (Continued) .....   | 90  |
| <i>TABLE 12 BIOABSORBABLE COATING MATERIALS</i> .....  | 91  |
| <i>TABLE 13 ANTIBIOTIC MEDICAL DEVICE COATINGS</i><br><i>(TRADEMARKED NAMES CAPITALIZED)</i> .....         | 91  |
| <i>TABLE 13 (CONTINUED)</i> .....  | 92  |
| CHALLENGES TO CURRENT FDA CLEARANCE PRACTICES .....  | 92  |
| ESTABLISHING SUBSTANTIAL EQUIVALENCE.....  | 93  |
| Establishing ... (Continued).....  | 94  |
| <i>FIGURE 1 510(K) “SUBSTANTIAL EQUIVALENCE” DECISION-</i><br><i>MAKING PROCESS</i> .....                  | 95  |
| PROPOSED REFORMS TO THE 510(K) PROCESS .....   | 96  |
| Proposed Reforms to the 510(k) Process (Continued) .....   | 97  |
| Proposed Reforms to the 510(k) Process (Continued) .....   | 98  |
| THE SAFETY OF UNTESTED AND NEW DEVICES ACT OF 2012 .....   | 99  |
| <br>   |     |
| CHAPTER SEVEN: COATINGS AND SURFACE TREATMENT<br>TECHNOLOGIES .....  | 100 |
| ALLOY COATINGS DESCRIPTIONS AND FORECAST .....   | 100 |
| <i>TABLE 14 FORECAST FOR ALLOY COATINGS BY HEALTHCARE</i><br><i>AREA, THROUGH 2017 (\$ MILLIONS)</i> ..... | 101 |
| TYPES OF ALLOY COATINGS .....  | 102 |

|   |            |
|---|------------|
| Aluminum .....  | 102        |
| Gold .....  | 102        |
| Nitinol .....   | 103        |
| Silver Compounds.....                                       | 103        |
| Stainless Steel .....                                       | 104        |
| Titanium .....  | 105        |
| Zinc Oxide .....  | 106        |
| CERAMIC COATINGS DESCRIPTIONS AND FORECAST .....            | 106        |
| <i>TABLE 15 FORECAST FOR CERAMIC COATINGS BY HEALTHCARE</i> |            |
| <i>AREA, THROUGH 2017 (\$ MILLIONS)</i> .....               | <i>107</i> |
| TYPES OF CERAMIC COATINGS .....                             | 107        |
| Alumina.....  | 107        |
| Bioglass .....  | 108        |
| Carbon-Based.....   | 109        |
| COMBINATION COATINGS DESCRIPTIONS AND FORECAST .....        | 110        |
| <i>TABLE 16 ACTIVE AGENTS AND CARRIERS USED IN</i>          |            |
| <i>COMBINATION PRODUCT COATINGS</i> .....                   | <i>111</i> |
| <i>TABLE 17 FORECAST FOR COMBINATION COATINGS BY</i>        |            |
| <i>HEALTHCARE AREA, THROUGH 2017 (\$ MILLIONS)</i> .....    | <i>112</i> |
| <i>TABLE 17 (CONTINUED)</i> .....                           | <i>113</i> |
| TYPES OF COMBINATION COATINGS.....                          | 113        |
| Bone Morphogenetic Protein 2.....                           | 113        |
| Cationic Steroid Antimicrobials.....                        | 113        |
| Collagen .....  | 114        |
| Dexamethasone.....  | 114        |
| Gore/Carmeda BioActive Surface Technology.....              | 115        |
| Heparin .....   | 115        |
| Hyaluronan .....  | 116        |
| Hydrogels .....   | 116        |
| Hydroxyapatite .....  | 116        |
| Hydroxyapatite (Continued).....                             | 117        |
| Medi-Coat Carrier Technology.....                           | 118        |
| Nitric Oxide.....   | 118        |
| Paclitaxel.....   | 118        |
| Parylenes.....  | 119        |
| Phosphorylcholine (PC Technology).....                      | 120        |
| PolymerDrugs .....  | 121        |
| Polyethylene.....   | 121        |
| Sirolimus, Everolimus and Zotarolimus.....                  | 122        |
| Stem Cell Coatings .....                                    | 123        |
| ENERGY-ABSORBING COATINGS DESCRIPTIONS AND                  |            |
| FORECASTS.....  | 123        |
| <i>TABLE 18 FORECAST FOR ENERGY-ABSORBING COATINGS BY</i>   |            |
| <i>HEALTHCARE AREA, THROUGH 2017 (\$ MILLIONS)</i> .....    | <i>124</i> |

|   |     |
|---|-----|
| TYPES OF ENERGY-ABSORBING COATINGS .....  | 125 |
| Types of Energy-...(Continued) .....  | 126 |
| ENERGY-EMITTING COATINGS DESCRIPTIONS AND FORECASTS.....  | 127 |
| <i>TABLE 19 FORECAST FOR ENERGY-EMITTING COATINGS BY HEALTHCARE AREA, THROUGH 2017 (\$ MILLIONS)</i> .....    | 127 |
| <i>TABLE 19 (CONTINUED)</i> .....   | 128 |
| TYPES OF ENERGY-EMITTING COATINGS .....   | 128 |
| Bioactive.....  | 128 |
| Conductive .....  | 129 |
| <i>TABLE 20 CONDUCTIVE COATINGS FOR MEDICAL DEVICES</i> .....   | 129 |
| Galvanic .....  | 129 |
| Radioactive.....  | 130 |
| MICRO- AND NANO-COATINGS DESCRIPTIONS AND FORECASTS.....  | 131 |
| <i>TABLE 21 FORECAST FOR MICRO AND NANO COATINGS BY HEALTHCARE AREA, THROUGH 2017 (\$ MILLIONS)</i> .....     | 131 |
| TYPES OF MATERIALS MICRO- AND NANO-MATERIALS.....   | 131 |
| Types of Materials Micro- and ... (Continued) .....   | 132 |
| PROTECTIVE POLYMER COATINGS DESCRIPTIONS AND FORECASTS.....   | 133 |
| <i>TABLE 22 LUBRICIOUS MEDICAL DEVICE COATINGS</i> .....  | 134 |
| PROTECTIVE POLYMER COATINGS ...(CONTINUED).....   | 135 |
| <i>TABLE 23 FORECAST FOR PROTECTIVE POLYMER COATINGS BY HEALTHCARE AREA, THROUGH 2017 (\$ MILLIONS)</i> ..... | 136 |
| TYPES OF PROTECTIVE POLYMER COATINGS.....   | 136 |
| Hexyl-PVP.....  | 136 |
| PDMS poly(dimethyl siloxane).....   | 137 |
| Polyurethane.....   | 137 |
| Polytetrafluoroethylene Teflon .....  | 137 |
| Polyvinyl Chloride .....  | 138 |
| SURFACE TREATMENT DESCRIPTIONS AND FORECASTS.....   | 138 |
| <i>TABLE 24 FORECAST FOR SURFACE TREATMENTS BY HEALTHCARE AREA, THROUGH 2017 (\$ MILLIONS)</i> .....          | 139 |
| TYPES OF SURFACE TREATMENTS.....  | 139 |
| Direct Deposition Techniques .....  | 139 |
| Plasma Techniques.....  | 140 |
| Ion Implantation Techniques.....  | 141 |
| Laser Activation .....  | 142 |
| Texturing .....   | 142 |
| <i>TABLE 25 FORECAST FOR SURFACE TREATMENTS BY HEALTHCARE AREA, THROUGH 2017 (\$ MILLIONS)</i> .....          | 143 |
| CHAPTER EIGHT: DEMAND BY HEALTHCARE AREAS.....  | 144 |
| LEADING DEMAND INDICATORS .....   | 144 |

|  |     |
|--|-----|
| DISTRIBUTION OF PHYSICIANS .....   | 145 |
| TABLE 26 DISTRIBUTION OF PHYSICIANS (NUMBER PER 1,000).....  | 145 |
| TABLE 26 (CONTINUED).....  | 146 |
| TABLE 26 (CONTINUED).....  | 147 |
| VARIATIONS IN INJURY RATES .....   | 147 |
| TABLE 27 LEADING INDICATORS: ROAD TRAFFIC DEATHS (PER<br>100,000 OF POPULATION) .....                                  | 147 |
| TABLE 27 (CONTINUED).....  | 148 |
| TABLE 27 (CONTINUED).....  | 149 |
| TABLE 27 (CONTINUED).....  | 150 |
| TABLE 27 (CONTINUED).....  | 151 |
| TABLE 28 LEADING INDICATORS: PHYSICIAN DENSITY (PER<br>100,000 OF POPULATION) .....                                    | 152 |
| TABLE 28 (CONTINUED).....  | 153 |
| NATIONAL SPENDING ON HEALTHCARE.....   | 153 |
| TABLE 29 LEADING INDICATORS: HEALTHCARE SPENDING, 2009<br>(PER CAPITA IN PPP INTERNATIONAL \$) .....                   | 154 |
| TABLE 29 (CONTINUED).....  | 155 |
| TABLE 29 (CONTINUED).....  | 156 |
| TABLE 29 (CONTINUED).....  | 157 |
| TABLE 29 (CONTINUED).....  | 158 |
| AMERICAN BOOMERS ENTER THE MEDICARE YEARS .....  | 158 |
| American Boomers Enter The ... (Continued).....  | 159 |
| TABLE 30 GLOBAL GROWTH IN OLDER POPULATIONS (% OF<br>POPULATION AGE 65 OR OLDER IN 2017).....                          | 160 |
| MEDICAL CONDITIONS AND THE ELDERLY.....  | 160 |
| TABLE 31 MOST COMMON INPATIENT SURGICAL PROCEDURES<br>FOR OLDER AMERICANS.....   | 161 |
| TABLE 31 (CONTINUED).....  | 162 |
| ANESTHESIOLOGY FORECAST .....  | 162 |
| TABLE 32 COATING FORECAST FOR ANESTHESIA DEVICES BY<br>TECHNOLOGY, THROUGH 2017 (\$ MILLIONS).....                     | 162 |
| TABLE 33 ALLOY COATING FORECAST FOR ANESTHESIOLOGY<br>DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....               | 163 |
| TABLE 34 CERAMIC COATING FORECAST FOR ANESTHESIOLOGY<br>DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....             | 163 |
| TABLE 35 COMBINATION COATING FORECAST FOR<br>ANESTHESIOLOGY DEVICES BY REGION, THROUGH 2017 (\$<br>MILLIONS).....      | 163 |
| TABLE 36 ENERGY-ABSORBING COATING FORECAST FOR<br>ANESTHESIOLOGY DEVICES BY REGION, THROUGH 2017 (\$<br>MILLIONS)..... | 164 |

|  |     |
|--|-----|
| <i>TABLE 37 ENERGY-EMITTING COATING FORECAST FOR ANESTHESIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 164 |
| <i>TABLE 38 MICRO- AND NANO-COATING FORECAST FOR ANESTHESIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 164 |
| <i>TABLE 39 PROTECTIVE POLYMER COATING FORECAST FOR ANESTHESIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 165 |
| <i>TABLE 40 SURFACE TREATMENT FORECAST FOR ANESTHESIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 165 |
| CARDIOVASCULAR FORECAST .....  | 165 |
| CARDIOVASCULAR FORECAST...(CONTINUED) .....  | 166 |
| CARDIOVASCULAR FORECAST...(CONTINUED) .....  | 167 |
| <i>TABLE 41 COATING FORECAST FOR CARDIOVASCULAR DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                | 168 |
| <i>TABLE 42 ALLOY COATING FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....              | 168 |
| <i>TABLE 43 CERAMIC COATING FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....            | 169 |
| <i>TABLE 44 COMBINATION COATING FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....        | 169 |
| <i>TABLE 45 ENERGY-ABSORBING COATING FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | 169 |
| <i>TABLE 46 ENERGY-EMITTING COATING FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 170 |
| <i>TABLE 47 MICRO- AND NANO-COATING FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 170 |
| <i>TABLE 48 PROTECTIVE POLYMER COATING FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 170 |
| <i>TABLE 49 SURFACE TREATMENT FORECAST FOR CARDIOVASCULAR DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 171 |
| CHEMISTRY FORECAST.....  | 171 |
| <i>TABLE 50 COATING FORECAST FOR CHEMISTRY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                     | 172 |
| <i>TABLE 51 ALLOY COATING FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                   | 172 |



|  |            |
|--|------------|
| <i>TABLE 52 CERAMIC COATING FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                | <i>173</i> |
| <i>TABLE 53 COMBINATION COATING FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>            | <i>173</i> |
| <i>TABLE 54 ENERGY-ABSORBING COATING FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)....</i>        | <i>173</i> |
| <i>TABLE 55 ENERGY-EMITTING COATING FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)....</i>         | <i>174</i> |
| <i>TABLE 56 MICRO- AND NANO- COATING FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)....</i>        | <i>174</i> |
| <i>TABLE 57 PROTECTIVE POLYMER COATING FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)....</i>      | <i>174</i> |
| <i>TABLE 58 SURFACE TREATMENT FORECAST FOR CHEMISTRY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>              | <i>175</i> |
| <i>DENTAL FORECAST.....</i>  | <i>175</i> |
| <i>TABLE 59 COATING FORECAST FOR DENTAL DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS).....</i>                       | <i>176</i> |
| <i>TABLE 60 ALLOY COATING FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS) .....</i>                    | <i>177</i> |
| <i>TABLE 61 CERAMIC COATING FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                   | <i>177</i> |
| <i>TABLE 62 COMBINATION COATING FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>               | <i>177</i> |
| <i>TABLE 63 ENERGY-ABSORBING COATING FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>          | <i>178</i> |
| <i>TABLE 64 ENERGY-EMITTING COATING FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>           | <i>178</i> |
| <i>TABLE 65 MICRO- AND NANO-COATING FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>           | <i>178</i> |
| <i>TABLE 66 PROTECTIVE POLYMER COATING FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>        | <i>179</i> |
| <i>TABLE 67 SURFACE TREATMENT FORECAST FOR DENTAL DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                 | <i>179</i> |
| <i>EAR, NOSE AND THROAT FORECAST .....</i>   | <i>179</i> |
| <i>TABLE 68 COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS).....</i>         | <i>180</i> |
| <i>TABLE 69 ALLOY COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>       | <i>180</i> |
| <i>TABLE 70 CERAMIC COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>     | <i>181</i> |
| <i>TABLE 71 COMBINATION COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i> | <i>181</i> |

|  |     |
|--|-----|
| <i>TABLE 72 ENERGY-ABSORBING COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....         | 181 |
| <i>TABLE 73 ENERGY-EMITTING COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 182 |
| <i>TABLE 74 MICRO- AND NANO-COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 182 |
| <i>TABLE 75 PROTECTIVE POLYMER COATING FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....       | 182 |
| <i>TABLE 76 SURFACE TREATMENT FORECAST FOR EAR, NOSE AND THROAT DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                | 183 |
| <i>GASTROENTEROLOGY AND UROLOGY FORECAST</i> .....   | 183 |
| <i>TABLE 77 COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....              | 184 |
| <i>TABLE 78 ALLOY COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....            | 184 |
| <i>TABLE 79 CERAMIC COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 185 |
| <i>TABLE 80 COMBINATION COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....      | 185 |
| <i>TABLE 81 ENERGY-ABSORBING COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 185 |
| <i>TABLE 82 ENERGY-EMITTING COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....  | 186 |
| <i>TABLE 83 MICRO- AND NANO-COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....  | 186 |
| <i>TABLE 84 NANO- AND MICRO-COATING FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....  | 186 |
| <i>TABLE 85 SURFACE TREATMENT FORECAST FOR GASTROENTEROLOGY AND UROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....        | 187 |
| <i>GENERAL AND PLASTIC SURGERY FORECAST</i> .....  | 187 |

|   |     |
|---|-----|
| <i>TABLE 86 COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                | 188 |
| <i>TABLE 87 ALLOY COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....              | 188 |
| <i>TABLE 88 CERAMIC COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....            | 189 |
| <i>TABLE 89 COMBINATION COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....        | 189 |
| <i>TABLE 90 ENERGY-ABSORBING COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | 189 |
| <i>TABLE 91 ENERGY-EMITTING COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 190 |
| <i>TABLE 92 MICRO- AND NANO-COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 190 |
| <i>TABLE 93 PROTECTIVE POLYMER COATING FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 190 |
| <i>TABLE 94 SURFACE TREATMENT FORECAST FOR GENERAL AND PLASTIC SURGERY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 191 |
| <i>GENERAL HOSPITAL USE FORECAST</i> .....  | 191 |
| <i>TABLE 95 AVERAGE LENGTH OF HOSPITAL STAY BY SEX AND AGE (DAYS)</i> .....   | 191 |
| <i>TABLE 95 (CONTINUED)</i> .....   | 192 |
| <i>TABLE 96 COATING FORECAST FOR GENERAL HOSPITAL USE DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                       | 192 |
| <i>TABLE 97 ALLOY COATING FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                             | 193 |
| <i>TABLE 98 CERAMIC COATING FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                           | 193 |
| <i>TABLE 99 COMBINATION COATING FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                       | 193 |
| <i>TABLE 100 ENERGY-ABSORBING COATING FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                 | 194 |

|   |            |
|---|------------|
| <i>TABLE 101 ENERGY-EMITTING COATING FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | <i>194</i> |
| <i>TABLE 102 MICRO- AND NANO- COATING FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | <i>194</i> |
| <i>TABLE 103 PROTECTIVE POLYMER COATING FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | <i>195</i> |
| <i>TABLE 104 SURFACE TREATMENT FORECAST FOR HOSPITAL USE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | <i>195</i> |
| <i>HEMATOLOGY FORECAST</i> .....  | <i>195</i> |
| <i>TABLE 105 COATING FORECAST FOR HEMATOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                  | <i>196</i> |
| <i>TABLE 106 ALLOY COATING FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                | <i>196</i> |
| <i>TABLE 107 CERAMIC COATING FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....              | <i>197</i> |
| <i>TABLE 108 COMBINATION COATING FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | <i>197</i> |
| <i>TABLE 109 ENERGY-ABSORBING COATING FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....     | <i>197</i> |
| <i>TABLE 110 ENERGY-EMITTING COATING FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....      | <i>198</i> |
| <i>TABLE 111 NANO- AND MICRO-COATING FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....      | <i>198</i> |
| <i>TABLE 112 PROTECTIVE POLYMER COATING FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | <i>198</i> |
| <i>TABLE 113 SURFACE TREATMENTS FORECAST FOR HEMATOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....           | <i>199</i> |
| <i>IMMUNOLOGY FORECAST</i> .....  | <i>199</i> |
| <i>TABLE 114 COATING FORECAST FOR IMMUNOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                  | <i>200</i> |
| <i>TABLE 115 ALLOY COATING FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                | <i>200</i> |
| <i>TABLE 116 CERAMIC COATING FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....              | <i>201</i> |

|   |     |
|---|-----|
| <i>TABLE 117 COMBINATION COATING FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 201 |
| <i>TABLE 118 ENERGY-ABSORBING COATING FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....     | 201 |
| <i>TABLE 119 ENERGY-EMITTING COATING FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....      | 202 |
| <i>TABLE 120 MICRO- AND NANO-COATING FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....      | 202 |
| <i>TABLE 121 PROTECTIVE POLYMER COATING FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | 202 |
| <i>TABLE 122 SURFACE TREATMENTS FORECAST FOR IMMUNOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....           | 203 |
| <i>MICROBIOLOGY FORECAST</i> .....  | 203 |
| <i>TABLE 123 COATING FORECAST FOR MICROBIOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                | 204 |
| <i>TABLE 124 ALLOY COATING FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....              | 204 |
| <i>TABLE 125 CERAMIC COATING FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....            | 205 |
| <i>TABLE 126 COMBINATION COATING FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....        | 205 |
| <i>TABLE 127 ENERGY-ABSORBING COATING FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | 205 |
| <i>TABLE 128 ENERGY-EMITTING COATING FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 206 |
| <i>TABLE 129 MICRO- AND NANO-COATING FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 206 |
| <i>TABLE 130 PROTECTIVE POLYMER COATING FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 206 |
| <i>TABLE 131 SURFACE TREATMENT FORECAST FOR MICROBIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 207 |
| <i>NEUROLOGY FORECAST</i> .....   | 207 |

|  |     |
|--|-----|
| <i>TABLE 132 COATING FORECAST FOR NEUROLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                              | 208 |
| <i>TABLE 133 ALLOY COATING FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                            | 208 |
| <i>TABLE 134 CERAMIC COATING FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                          | 209 |
| <i>TABLE 135 COMBINATION COATING FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                      | 209 |
| <i>TABLE 136 ENERGY-ABSORBING COATING FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                 | 209 |
| <i>TABLE 137 ENERGY-EMITTING COATING FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                  | 210 |
| <i>TABLE 138 MICRO- AND NANO-COATING FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                  | 210 |
| <i>TABLE 139 PROTECTIVE POLYMER COATING FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....               | 210 |
| <i>TABLE 140 SURFACE TREATMENT FORECAST FOR NEUROLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                        | 211 |
| <i>OBSTETRICS AND GYNECOLOGY FORECAST</i> .....  | 211 |
| <i>TABLE 141 COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....              | 212 |
| <i>TABLE 142 ALLOY COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....            | 212 |
| <i>TABLE 143 CERAMIC COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 213 |
| <i>TABLE 144 COMBINATION COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....      | 213 |
| <i>TABLE 145 ENERGY-ABSORBING COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 213 |
| <i>TABLE 146 ENERGY-EMITTING COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....  | 214 |
| <i>TABLE 147 MICRO- AND NANO-COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....  | 214 |

|   |            |
|---|------------|
| <i>TABLE 148 PROTECTIVE POLYMER COATING FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i> | <i>214</i> |
| <i>TABLE 149 SURFACE TREATMENT FORECAST FOR OBSTETRICS AND GYNECOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>          | <i>215</i> |
| <i>OPHTHALMOLOGY FORECAST .....</i>   | <i>215</i> |
| <i>TABLE 150 COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS).....</i>                            | <i>216</i> |
| <i>TABLE 151 ALLOY COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                          | <i>216</i> |
| <i>TABLE 152 CERAMIC COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                        | <i>217</i> |
| <i>TABLE 153 COMBINATION COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                    | <i>217</i> |
| <i>TABLE 154 ENERGY-ABSORBING COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>               | <i>217</i> |
| <i>TABLE 155 ENERGY-EMITTING COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                | <i>218</i> |
| <i>TABLE 156 MICRO- AND NANO-COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                | <i>218</i> |
| <i>TABLE 157 PROTECTIVE POLYMER COATING FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>             | <i>218</i> |
| <i>TABLE 158 SURFACE TREATMENT FORECAST FOR OPHTHALMOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                      | <i>219</i> |
| <i>ORTHOPEDIC FORECAST .....</i>  | <i>219</i> |
| <i>TABLE 159 COATING FORECAST FOR ORTHOPEDIC DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS).....</i>                               | <i>220</i> |
| <i>TABLE 160 ALLOY COATING FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                             | <i>220</i> |
| <i>TABLE 161 CERAMIC COATING FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                           | <i>221</i> |
| <i>TABLE 162 COMBINATION COATING FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                       | <i>221</i> |
| <i>TABLE 163 ENERGY-ABSORBING COATING FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS).....</i>                  | <i>221</i> |

|   |     |
|---|-----|
| <i>TABLE 164 ENERGY-EMITTING COATING FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 222 |
| <i>TABLE 165 MICRO- AND NANO-COATING FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 222 |
| <i>TABLE 166 PROTECTIVE POLYMER COATING FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 222 |
| <i>TABLE 167 SURFACE TREATMENT FORECAST FOR ORTHOPEDIC DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 223 |
| <i>PATHOLOGY FORECAST</i> .....   | 223 |
| <i>TABLE 168 COATING FORECAST FOR PATHOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                 | 224 |
| <i>TABLE 169 ALLOY COATING FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....               | 224 |
| <i>TABLE 170 CERAMIC COATING FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....             | 225 |
| <i>TABLE 171 COMBINATION COATING FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....         | 225 |
| <i>TABLE 172 ENERGY-ABSORBING COATING FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 225 |
| <i>TABLE 173 ENERGY-EMITTING COATING FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....     | 226 |
| <i>TABLE 174 NANO- AND MICRO COATING FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....     | 226 |
| <i>TABLE 175 PROTECTIVE POLYMER COATING FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....  | 226 |
| <i>TABLE 176 SURFACE TREATMENT FORECAST FOR PATHOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....           | 227 |
| <i>PHYSICAL MEDICINE FORECAST</i> .....   | 227 |
| <i>TABLE 177 COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....         | 228 |
| <i>TABLE 178 ALLOY COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....       | 228 |
| <i>TABLE 179 CERAMIC COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....     | 229 |
| <i>TABLE 180 COMBINATION COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 229 |



|  |            |
|--|------------|
| <i>TABLE 181 ENERGY-ABSORBING COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | <i>229</i> |
| <i>TABLE 182 ENERGY-EMITTING COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | <i>230</i> |
| <i>TABLE 183 MICRO- AND NANO-COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | <i>230</i> |
| <i>TABLE 184 PROTECTIVE POLYMER COATING FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | <i>230</i> |
| <i>TABLE 185 SURFACE TREATMENT FORECAST FOR PHYSICAL MEDICINE DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | <i>231</i> |
| <i>RADIOLOGY FORECAST</i> .....  | <i>231</i> |
| <i>TABLE 186 COATING FORECAST FOR RADIOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                        | <i>232</i> |
| <i>TABLE 187 ALLOY COATING FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                      | <i>232</i> |
| <i>TABLE 188 CERAMIC COATING FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                    | <i>233</i> |
| <i>TABLE 189 COMBINATION COATING FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                | <i>233</i> |
| <i>TABLE 190 ENERGY-ABSORBING COATING FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ....            | <i>233</i> |
| <i>TABLE 191 ENERGY-EMITTING COATING FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ....             | <i>234</i> |
| <i>TABLE 192 MICRO- AND NANO-COATING FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ....             | <i>234</i> |
| <i>TABLE 193 PROTECTIVE POLYMER COATING FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ....          | <i>234</i> |
| <i>TABLE 194 SURFACE TREATMENT FORECAST FOR RADIOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                  | <i>235</i> |
| <i>TOXICOLOGY FORECASTS</i> .....  | <i>235</i> |
| <i>TABLE 195 COATING FORECAST FOR TOXICOLOGY DEVICES BY TECHNOLOGY, THROUGH 2017 (\$ MILLIONS)</i> .....                       | <i>236</i> |
| <i>TABLE 196 ALLOY COATING FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                     | <i>236</i> |
| <i>TABLE 197 CERAMIC COATING FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....                   | <i>237</i> |
| <i>TABLE 198 COMBINATION COATING FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....               | <i>237</i> |

|   |     |
|---|-----|
| <i>TABLE 199 ENERGY ABSORBING COATINGS FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....  | 237 |
| <i>TABLE 200 ENERGY-EMITTING COATING FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....    | 238 |
| <i>TABLE 201 MICRO- AND NANO-COATINGS FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....   | 238 |
| <i>TABLE 202 PROTECTIVE POLYMER COATING FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> ..... | 238 |
| <i>TABLE 203 SURFACE TREATMENT FORECAST FOR TOXICOLOGY DEVICES BY REGION, THROUGH 2017 (\$ MILLIONS)</i> .....          | 239 |
| APPENDIX ABSTRACTS OF SIGNIFICANT COATING PATENTS .....   | 240 |
| ABSTRACTS OF SIGNIFICANT COATING PATENTS .....  | 240 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 241 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 242 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 243 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 244 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 245 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 246 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 247 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 248 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 249 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 250 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 251 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 252 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 253 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 254 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 255 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 256 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 257 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 258 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 259 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 260 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 261 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 262 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 263 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 264 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 265 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 266 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 267 |
| ABSTRACTS OF SIGNIFICANT ... (CONTINUED) .....  | 268 |

