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2 Introduction

Medical Equipment Procedure Reports are the ideal guide for anyone wishing to understand the market better in terms of number of surgeries performed.

2.1 What Is This Report About?

This report provides orthopedic procedures volume data related to the country. The report provides procedures data at the overall orthopedic market level and by category.

2.2 Orthopedic Procedures Segmentation

Orthopedic procedures are segmented into the following categories, as described below, in this report:

- **Arthroscopy Procedures** includes segments such as
  1. Shoulder Arthroscopy Procedures
  2. Knee Arthroscopy Procedures
  3. Hip Arthroscopy Procedures
  4. Small Joints Arthroscopy Procedures

- **Cranio Maxillofacial Fixation (CMF) Procedures**

- **Hip Replacement Procedures** includes segments such as
  1. Primary Hip Replacement Procedures
     - Primary Hip Replacement Procedures includes sub-segments such as Primary Cememted and Cementless Hip Replacement Procedures. Primary Hip Replacement Procedures are also sub-segmented into Unilateral and Bilateral Primary Hip Replacement Procedures
  2. Partial Hip Replacement Procedures
  3. Revision Hip Replacement Procedures
  4. Hip Resurfacing Procedures

- **Knee Replacement Procedures** includes segments such as
  1. Primary Knee Replacement
     - Primary Knee Replacement Procedures includes sub-segments such as Primary Cemented and Cementless Knee Replacement Procedures.
  2. Partial Knee Replacement Procedures
  3. Revision Knee Replacement

  Knee replacement procedures are also segmented into Unilateral and Bilateral Knee Replacement Procedures

- **Orthobiologics Procedures (Bone Graft Procedures)**

- **Orthopedic Prosthetics (Amputation) Procedures** includes segments such as
  1. Upper Limb Amputation Procedures
2. Lower Limb Amputation Procedures

- **Small Joints Procedures includes segments such as**
  1. Ankle Replacement Procedures
  2. Elbow Replacement Procedures
  3. Digits Replacement Procedures
  4. Wrist Replacement Procedures

- **Spinal Surgery includes segments such as**
  1. Spinal Surgery Procedures
     - Spinal Fusion Procedures includes sub-segments such as Cervical Fusion Procedures and Thoraco-Lumbar Fusion Procedures
  2. Spinal Non-Fusion Procedures
  3. Vertebroplasty Procedures
  4. Kyphoplasty Procedures

- **Shoulder Replacement Procedures includes segments such as**
  1. Primary Shoulder Replacement Procedures
  2. Partial Shoulder Replacement Procedures
  3. Revision Shoulder Replacement Procedures
  4. Reverse Shoulder Replacement Procedures

- **Trauma Fixation Procedures**
2.3 Definitions of Procedures Covered in the Report

Arthroscopy Procedures
Arthroscopy is a minimally invasive surgical procedure involving diagnosis and treatment of the damaged interior of a joint using an arthroscope. Arthroscopic surgical procedure allows the doctor to examine joint surfaces and the tissues surrounding joints. It is used to diagnose joint problems, surgically repair a joint, and remove loose bones or cartilage. Shoulder, knee, hip and small joints arthroscopy procedures are covered in this report.

Shoulder Arthroscopy Procedures
Shoulder arthroscopy procedure includes procedures done on rotator cuff, labrum, subacromial decompression and tenodesis.

Knee Arthroscopy Procedures
Knee arthroscopy procedure includes procedures done to repair injuries to tissues such as ligaments, cartilage, or bone within the knee joint area.

Hip Arthroscopy Procedures
Hip arthroscopy procedure includes repair of torn labrum and for treating hip impingement syndrome and removal of small pieces of bone or cartilage floating inside the hip joint.

Small Joints Arthroscopy Procedures
Small joint arthroscopy procedures include arthroscopy procedures done on joints such as elbow, hand, wrist, foot and ankle.

Cranio Maxillofacial Fixation (CMF) Procedures
Cranio Maxillofacial Fixation (CMF) procedures include surgeries done to restore the anatomic configuration of the cranium and facial bones (mandible, maxilla, frontal bone and others). CMF procedures include all types of cranio maxillofacial skeletal surgeries, including trauma surgery, oncologic surgery, orthognathic and craniofacial surgery.

Hip Replacement Procedures
Hip replacement procedure involves replacement of the damaged or diseased parts of the hip joint with prosthesis. Primary hip replacement, partial hip replacement, revision hip replacement and hip resurfacing procedures are tracked in this report.

Primary Hip Replacement Procedures
Primary hip replacement is a surgical procedure which involves total replacement of a damaged hip joint by prostheses. During the procedure, the damaged ball and socket of the hip joint are removed and replaced with artificial material.

Primary hip replacement procedures are segmented into primary cemented and cementless hip replacement procedures. Primary Hip Replacement Procedures are also sub-segmented into unilateral and bilateral primary hip replacement procedures.
Partial Hip Replacement Procedures
Partial hip replacement is a surgical procedure in which the damaged portion of the hip joint is replaced. This procedure involves replacement of the diseased head of the femur with an artificial ball joint to relieve hip pain and restore mobility.

Revision Hip Replacement Procedures
Revision hip replacement procedure involves removal of a previously implanted prosthesis, and replacement with a new prosthesis.

Hip Resurfacing Procedures
Hip resurfacing is an alternative intervention to total hip replacement. In hip resurfacing, damaged surfaces of the hip joint are removed and replaced with metal parts to improve mobility and reduce pain. In hip resurfacing, the femoral head is trimmed and a smooth metal covering is used to cap it up. The damaged bone and cartilage within the socket is removed and replaced with a metal shell.

Knee Replacement Procedures
Knee replacement procedure involves replacement of the damaged or diseased parts of the knee joint with a prosthesis. Knee procedures are segmented into unilateral and bilateral knee replacement procedures. Primary knee replacement, partial knee replacement and revision knee replacement procedures are tracked in this report.

Primary Knee Replacement Procedures
Primary knee replacement is a surgical procedure which involves replacing the parts of the knee joint with prostheses. The procedure helps relieve pain and improve function in severely diseased knee joints. During this procedure, damaged bone and cartilage are removed from the thighbone, shinbone and kneecap and replaced with prostheses. Primary knee replacement procedures are segmented into primary cemented and cementless knee replacement procedures.

Partial Knee Replacement Procedures
Partial Knee replacement is a surgical procedure which involves replacement of a portion of the knee joint with artificial implant. This procedure is done to replace either the inside (medial) or outside (lateral) parts of the knee.

Revision Knee Replacement Procedures
Revision knee replacement procedure involves the replacement of the previously failed knee prosthesis with a new prosthesis.

Orthobiologics Procedures (Bone Graft Procedures)
Orthobiologics procedures (Bone Graft procedures) involve use of bone graft when there is a breakage in the bone or in case of a void between or in the bones due to number of factors such as age and degenerative diseases.

The application of bone graft is based on the division of entire skeleton structure into Trauma for fractures, CMF (excluding dental market which is covered as a different market), spinal, and joint reconstruction and replacements (including repairs) of joints which includes hip knee, shoulder, elbow, wrist, digit and ankle.
Orthopedic Prosthetics (Amputation) Procedures
Orthopedic prosthetic (amputation) procedures involve use of an artificial mechanical device as a substitute for a missing body part or limb. Both upper and lower limb prosthetics are tracked in this report.

Upper Limb Amputation Procedures
Upper limb amputation procedures involve replacing missing upper extremities of the human body with a prosthetic.

Lower Limb Amputation Procedures
Lower limb amputation procedures involve replacing missing lower extremities of the human body with a prosthetic.

Small Joints Procedures
Small joints procedures tracked in the report include ankle, elbow, digits and wrist replacement procedures.

Ankle Replacement Procedures
Ankle replacement is a surgical procedure replacing the damaged bone of the ankle joint with artificial implants. Total ankle replacement procedures are tracked in this report.

Elbow Replacement Procedures
Elbow replacement is a surgical procedure whereby the damaged surfaces of the humerus and the ulna at the elbow joint are surgically replaced with artificial implants. Primary replacements are tracked in this report.

Digits Replacement Procedures
Digits replacement is a surgical procedure during which one or more damaged joint surfaces in the hand are replaced by artificial implants. Primary replacements are tracked in this report.

Wrist Replacement Procedures
Wrist replacement is a surgical procedure whereby the diseased or damaged components of the carpals at the wrist joint are surgically replaced with artificial materials. Primary replacements are tracked in this report.

Spinal Surgery Procedures
Spinal Surgery procedures involve surgical treatment of degenerative disc diseases, intra-vertebral fractures, scoliosis and so on. Spinal surgery procedures covered in this report include spinal fusion, spinal non-fusion, vertebroplasty and kyphoplasty procedures.

Spinal Fusion Procedures
Spinal Fusion procedure is a surgical procedure done to join the vertebrae in the spine. Spinal fusion procedures covered in this report include cervical fusion procedures and thoraco-lumbar fusion procedures.

Spinal Non-Fusion Procedures
Spinal non-fusion procedure is a surgical procedure done to restore the mobility of the spine by implanting an artificial disc in place of the diseased or damaged disc.
Vertebroplasty
Vertebroplasty is a surgical procedure done for treating the compression fractures in the spine. Bone cement is injected through a small hole in the skin into a fractured vertebra.

Kyphoplasty
Kyphoplasty is a surgical procedure done to reduce the pain caused by a spinal fracture and to stabilize the bone. The aim of the procedure is to restore the lost vertebral body height due to the compression fracture.

Shoulder Replacement Procedures
Shoulder replacement procedure involves replacement of the damaged or diseased parts of the shoulder joint with a prosthesis. Primary shoulder replacement, partial shoulder replacement, revision shoulder replacement and reverse shoulder replacement procedures are tracked in this report.

Primary Shoulder Replacement Procedures
Primary shoulder replacement is a surgical procedure that is done to replace the diseased or damaged ball and socket joint of the shoulder with prosthesis.

Partial Shoulder Replacement Procedures
Partial shoulder replacement is a surgical procedure where only shoulder end of the humerus bone is replaced. The glenoid part is not replaced in this procedure.

Revision Shoulder Replacement Procedures
Revision shoulder replacement procedure involves the replacement of the previously failed shoulder prosthesis with a new prosthesis.

Reverse Shoulder Replacement Procedures
In a reverse shoulder replacement procedure, the prostheses for the damaged humeral and the glenoid component of the shoulder are reversed. During the procedure, the socket (glenoid) of the shoulder is replaced with an artificial ball and the ball (humeral head) is replaced with an implant in the shape of a socket to accommodate the artificial ball.

Trauma Fixation Procedures
Trauma fixation procedures are done for the treatment of bone fractures, which are caused by accidents. Both internal and external fixation procedures are included under the trauma fixation procedures.
3 Orthopedic Procedures, Spain

3.1 Orthopedic Procedures, Spain, 2005-2020

Figure 1: Orthopedic Procedures, Spain, 2005-2020

Source: GlobalData
Table 1: Orthopedic Procedures, Spain, 2005-2020

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Source: GlobalData
3.2 Orthopedic Procedures Market, Spain, Category Comparison by Procedures, 2005-2020

Figure 2: Orthopedic Procedures Market, Spain, Category Comparison by Procedures, 2005-2020

Source: GlobalData
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Source: GlobalData
The data and analysis within this report are driven by Medical eTrack. Medical eTrack gives you the key information required to drive sales, investment and deal-making activity in your business. It includes the following:

- 15,000+ data tables showing market size across more than 780 medical equipment segments and 15 countries, from 2005 and forecast to 2020
- 6,000+ primary expert interviews, conducted annually to ensure data and report quality
- 1,100+ medical equipment conference reports
- 1,000+ industry-leading reports per annum, covering growing sectors, market trends, investment opportunities and competitive landscape
- 600+ analysis reports, covering market and pipeline product analysis, by indication; medical equipment trends and issues, and investment and M&A trends worth over $3m
- 50,000+ medical equipment company profiles
- 2,000+ private, emerging and technology start-up company profiles
- 4,000+ company profiles of medical equipment manufacturers in China and India
- 2,000+ company profiles of medical equipment manufacturers in Japan
- 825+ companies’ revenue splits and market shares
- 1,100+ quarterly and annual medical equipment company financials
- 700+ medical equipment company SWOTs
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- 14,000+ marketed product profiles
- 16,900+ clinical trials
- 17,000+ trial investigators
- 18,000+ new product patents
- 3,700+ reports on companies with products in development
- 21,500+ reports on deals in the medical equipment industry
- 1,300+ surgical and diagnostic procedures by therapy area
- 50+ key healthcare indicators by country

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14.1 Research Methodology

GlobalData’s dedicated research and analysis teams consist of experienced professionals with advanced statistical expertise and marketing, market research and consulting backgrounds in the medical devices industry.

GlobalData adheres to the codes of practice of the European Pharmaceutical Marketing Research Association (http://www.ephmra.org/).

All GlobalData databases are continuously updated and revised.

14.1.1 Coverage

The objective of updating GlobalData’s coverage is to ensure that it represents the most up-to-date vision of the industry possible.

Changes to the industry taxonomy are built on the basis of extensive research of company, association and competitor sources.

Company coverage is based on three key factors: revenue; product and media attention; and innovation and market potential.

The estimated revenue of all major companies, both private and public, are gathered and used to prioritize coverage.

GlobalData aims to cover all major news events and deals in the medical devices industry, updated on a daily basis. The coverage is further streamlined and strengthened with additional input from GlobalData’s expert panel.

14.1.2 Secondary Research

The research process begins with extensive secondary research using internal and external sources to gather all relevant data and information pertaining to a particular market model for a particular country. The secondary research sources that are typically referred to include, but are not limited to:

- Company websites, annual reports, financial reports, broker reports, investor presentations and SEC filings
- Industry trade journals, scientific journals and other technical literature
- Association and healthcare organization websites
- PubMed, Medscape and other relevant services which compile extensive reviews of clinical literature
- Internal proprietary databases
- Relevant patent and regulatory databases
- National government documents, statistical databases and market reports
- Procedure registries
- News articles, press releases and web-casts specific to the companies operating in the market
14.1.3 Primary Research

GlobalData conducts interviews with industry participants and commentators in order to validate its data and analysis. A typical research interview fulfills the following functions:

- Provides first-hand information on market size, market trends, growth trends, competitive landscape and future outlook
- Helps to validate and strengthen secondary research findings
- Further develops the analysis team’s expertise and market understanding

Primary research involves email correspondence, telephone interviews and face-to-face interviews for each market, category, segment and sub-segment across a range of geographies.

The participants who typically take part in such a process include, but are not limited to:

- Industry participants: CEOs, VPs, marketing/product managers, market intelligence managers and national sales managers
- Distributors, paramedics and representatives from hospital stores, laboratories and pharmacies
- Outside experts: investment bankers, valuation experts and research analysts that specialize in specific medical equipment markets
- Key opinion leaders: physicians and surgeons that specialize in the therapeutic areas in which the medical device is used

The following table lists the total number of primary research participants by country, in this case for the orthopedic devices market. Market data is validated using input from 1,200 primary research participants. These include demand-side stakeholders such as orthopedic surgeons, and supply-side participants such as marketing managers, sales managers and product managers of companies manufacturing/marketing orthopedic devices.
### Table 35: Total Number of Primary Research Participants, Orthopedic Devices Market, by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Total number of primary research participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>80</td>
</tr>
<tr>
<td>UK</td>
<td>104</td>
</tr>
<tr>
<td>Germany</td>
<td>83</td>
</tr>
<tr>
<td>France</td>
<td>86</td>
</tr>
<tr>
<td>Italy</td>
<td>85</td>
</tr>
<tr>
<td>Spain</td>
<td>75</td>
</tr>
<tr>
<td>Brazil</td>
<td>80</td>
</tr>
<tr>
<td>China</td>
<td>90</td>
</tr>
<tr>
<td>India</td>
<td>112</td>
</tr>
<tr>
<td>Russia</td>
<td>64</td>
</tr>
<tr>
<td>Japan</td>
<td>74</td>
</tr>
<tr>
<td>Australia</td>
<td>71</td>
</tr>
<tr>
<td>Canada</td>
<td>66</td>
</tr>
<tr>
<td>Mexico</td>
<td>64</td>
</tr>
<tr>
<td>South Korea</td>
<td>66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,200</strong></td>
</tr>
</tbody>
</table>

Source: GlobalData

14.1.4 Market Modeling and Forecasting

GlobalData uses an epidemiology-based treatment flow model and capital equipment-based model to estimate and forecast market size.

**Epidemiology-Based Market Model and Forecasting**

The epidemiology-based forecasting model uses epidemiology data gathered from research publications and primary interviews with physicians to establish the target patient population and treatment flow pattern for individual diseases and therapies. The data covers prevalence, incidence, diseased population, diagnosed population, and treatment population.

- The market forecast begins with the general population, the size of which varies depending on the indication.
- Prevalence is the percentage of the total population that suffers from a particular disease or condition.
- Incidence is the number of new cases of a condition, symptom, death or injury that develop during a specific time period, such as one year.
- The diseased population is the population suffering from a particular disease or condition.
- The diagnosed population is the population that has been diagnosed with a particular disease or condition, expressed as a percentage of the prevalence population.
- The treatment population is the percentage of the population that has been diagnosed with a particular disease or condition.
• Device uptake is the percentage of the treatment population using a particular device, determined based on the primary responses and the information available in secondary sources.

The epidemiology-based forecasting model for a medical device is used to:

• Determine the patient segment using a particular device or procedure
• Determine the frequency of usage of a particular device depending on the patient type, which further helps to determine the absolute unit sales of a device in a year

The market for any medical device is directly proportional to the volume of units sold and the price per unit.

\[ \text{Market size} = \text{volumes of units sold} \times \text{ASP (Average Selling Price)} \]

The volume of units sold is calculated from the number of patients using or that has been implanted with the device. Data on treatment rate, diagnosis and surgical treatment rate, if unavailable from research publications, is gathered from interviews with physicians and used to estimate the patient volume for the disease under consideration.

The ASP of a device is mostly gathered from primary and secondary sources. ASP is the price at which a device is available in a target country to an end-user. For capital equipment, the end-user is typically considered to be the healthcare setting. For implants and consumables purchased by patients, the end-user is the patient.

Factors such as company share, reimbursement, company type (local/domestic or multinational) are taken into consideration during ASP analysis, which uses the following sources:

• Company websites
• Annual reports/industry reports
• Press releases
Epidemiology-Based Forecasting Model

The capital equipment-based forecasting model is based on the installed base, replacements and new sales of a specific type of capital equipment in healthcare facilities such as hospitals, clinics and diagnostic centers. The installed base is calculated from the average number of units per facility. Sales for a particular year are arrived at by calculating the number of replacement units and new units (additional and first-time purchases). Secondary sources and interviews with supply-side participants and key opinion leaders from healthcare facilities are used to arrive at installed base and unit sales for a particular year. The factors typically affecting the forecast growth rates are:

- Growth in the number of healthcare facilities
- Healthcare spending and government programs and initiatives
- Migration from low-end equipment to high-end equipment
- Growth in the diagnosed population and treatment population
14.1.5 Company Share Analysis

Company shares are calculated by analyzing a company's sales in a particular market. In the case of public companies, annual reports and regulatory filings, investor presentations, earnings call transcripts and broker reports are used to determine a company's revenue in a particular market and in a particular geography.

In the case of the private companies, company share data is gathered mostly from primary interviews and secondary sources. Company share analysis is based on primary interviews with:

- **Supply side (manufacturers)**
  - Procurement side
  - Distributors
- **Hospital purchasing groups**
- **Demand side (surgeons/specialists)**
The benefits of this approach are:

- High number of respondents to validate and from which to derive accurate company shares
- Broad view from the supply, demand, and procurement side
- Prevents biased opinions being reproduced
- Demand-side interviews with key opinion leaders help to understand their preferences for the devices of specific companies, strengthening company share estimates

**Primary Interviews by Participant Type**

![Figure 37: Primary Interviews by Participant Type (%)](image)

The final company share data is based on input from the supply side, the procurement side and the demand side, as well as secondary sources.

### 14.1.6 Distribution Share Analysis

Distribution share information is gathered using a combination of secondary and primary research. It is supported by primary interviews because the availability of secondary data is limited in most cases.

### 14.2 Expert Panel

GlobalData uses a panel of experts to cross-verify its databases and forecasts.

GlobalData’s expert panel comprises marketing managers, product specialists, international sales managers from medical device companies, academics from research universities, key opinion leaders from hospitals, consultants from venture capital funds and distributors/suppliers of medical equipment and supplies.

Historic data and forecasts are relayed to GlobalData’s expert panel for feedback and adjusted accordingly.
14.3 GlobalData Consulting

We hope that the data and analysis in this brief will help you to make informed and imaginative business decisions. If you have further requirements, GlobalData’s consulting team may be able to help you. GlobalData offers tailor-made analytical and advisory services to drive your key strategic decisions.

14.4 Disclaimer

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