

# Market Analysis of Thrombectomy Devices

*used for Dialysis access*

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# INTRODUCTION



Chronic Kidney disease (CKD) is a growing health problem with an estimated prevalence of 11.5 percent worldwide.



High-income countries typically spend more than 2-3% of their annual health-care budget on the treatment of end-stage kidney disease (ESRD), even though those receiving such treatment represent under 0.03% of the total population.

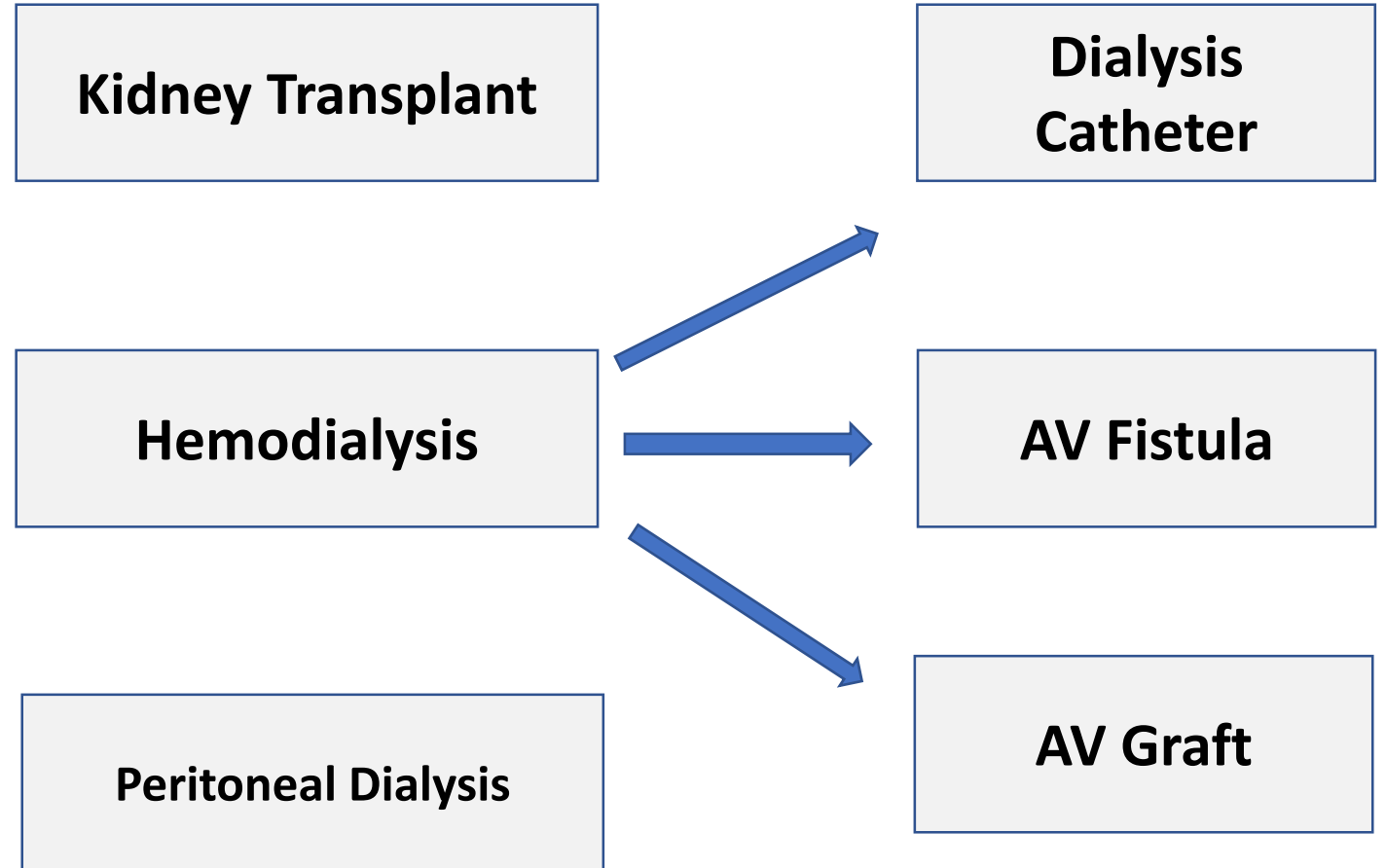


More than 80% of patients who receive treatment for kidney failure are in affluent countries with universal access to health care and large elderly population.

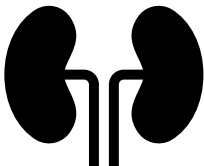


In 2010, 2.6 million people received dialysis treatment worldwide and the need of this was projected to double by the year 2030 by WHO

# Dialysis



PROCEDURES COVERED UNDER DIALYSIS ACCESS

|                                                                                                                         |              |                                                        |                          |  |
|-------------------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------------|--------------------------|--|
| <div>Access Creation</div> <div></div> | Technique    |                                                        |                          |  |
|                                                                                                                         | Surgical     | Product Type                                           |                          |  |
|                                                                                                                         |              | AVF                                                    |                          |  |
|                                                                                                                         |              | AVG                                                    |                          |  |
|                                                                                                                         |              | Dialysis Catheter                                      |                          |  |
|                                                                                                                         |              | HeRO Graft                                             |                          |  |
|                                                                                                                         | Endovascular | pAVF                                                   |                          |  |
| <div>Maintenance</div> <div></div>     | Technique    |                                                        |                          |  |
|                                                                                                                         | Endovascular | Procedure Type                                         |                          |  |
|                                                                                                                         |              | POBA(Plain old Balloon Angioplasty)                    |                          |  |
|                                                                                                                         |              | PTA-with-Stent(Percutaneous Trans-luminal Angioplasty) |                          |  |
|                                                                                                                         |              | Percutaneous Thrombectomy                              | Procedure Type           |  |
|                                                                                                                         |              |                                                        | PTA-with-Thrombectomy    |  |
|                                                                                                                         |              |                                                        | Stent-with-Thrombectomy  |  |
|                                                                                                                         |              |                                                        | Stand-alone-Thrombectomy |  |
|                                                                                                                         |              | CDT(Catheter directed Thrombectomy)                    |                          |  |
|                                                                                                                         |              | Embolectomy                                            |                          |  |

# Glossary of Terms & Bibliography

## Tools used

- MS Excel

## Terms

- **Forecasting** -Making predictions of the future based on past and present data and most commonly by analysis of trends.
- **Competitive landscape** -Business analysis which identifies direct or indirect competitors and at the same time.
- **CAGR** - Rate of return that would be required for an investment to grow from its beginning balance to its ending balance
- **ASP**- Average Selling Price
- **Market share**- The portion of a market controlled by a particular company or product.

# AGENDA



Market



Competitive  
landscape



Forecasting



## Research Question

- What is the market of key players of Thrombectomy devices segment used in Dialysis Access devices in European Union (France, Germany, Italy, Spain and the United Kingdom)?



**AIM:** The aim of the study is to understand the thrombectomy device market used for dialysis access specific to research by analyzing its key players and competitors

## OBJECTIVES



- To Analyse and estimate the market of Thrombectomy devices used for Dialysis Access of European Union region.
- To understand the competitive landscape associated with thrombectomy devices market used for Dialysis Access
- To find out the drivers and challenges of the market



# METHODOLOGY

- Type of Research: Market Research

## **MATERIAL AND TOOLS:**

- Data type: Primary + Secondary Data
- Research Design: Descriptive

## **Data collection tool:**

- Primary data acquired from telephonic interviews, LinkedIn
- Data analysis tool:
  - MS EXCEL
- Sample Audience:
  - Vascular Surgeons

# SAMPLING



- **Reference Population:** Vascular Surgeons in European Union
- **Sampling Technique:** Purposive Sampling
- **Mode of Survey administration:** LinkedIn
- **Sample size:** 50 vascular surgeons
- **Inclusion criteria:** Thrombectomy devices covered under Dialysis Access
- **Exclusion criteria:** Thrombectomy Devices covered under other procedures such as in treatment of acute ischemic stroke, pulmonary embolism (PE), venous thromboembolism (VTE) and deep vein thrombosis (DVT)

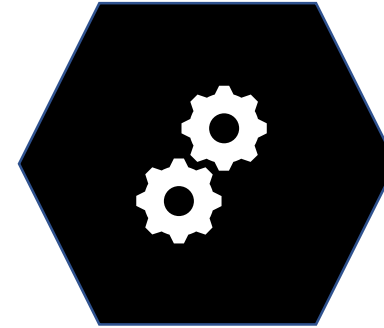
# Project Goals and Key Outcomes



## AUDIENCE ANALYSIS

What does my customer want?

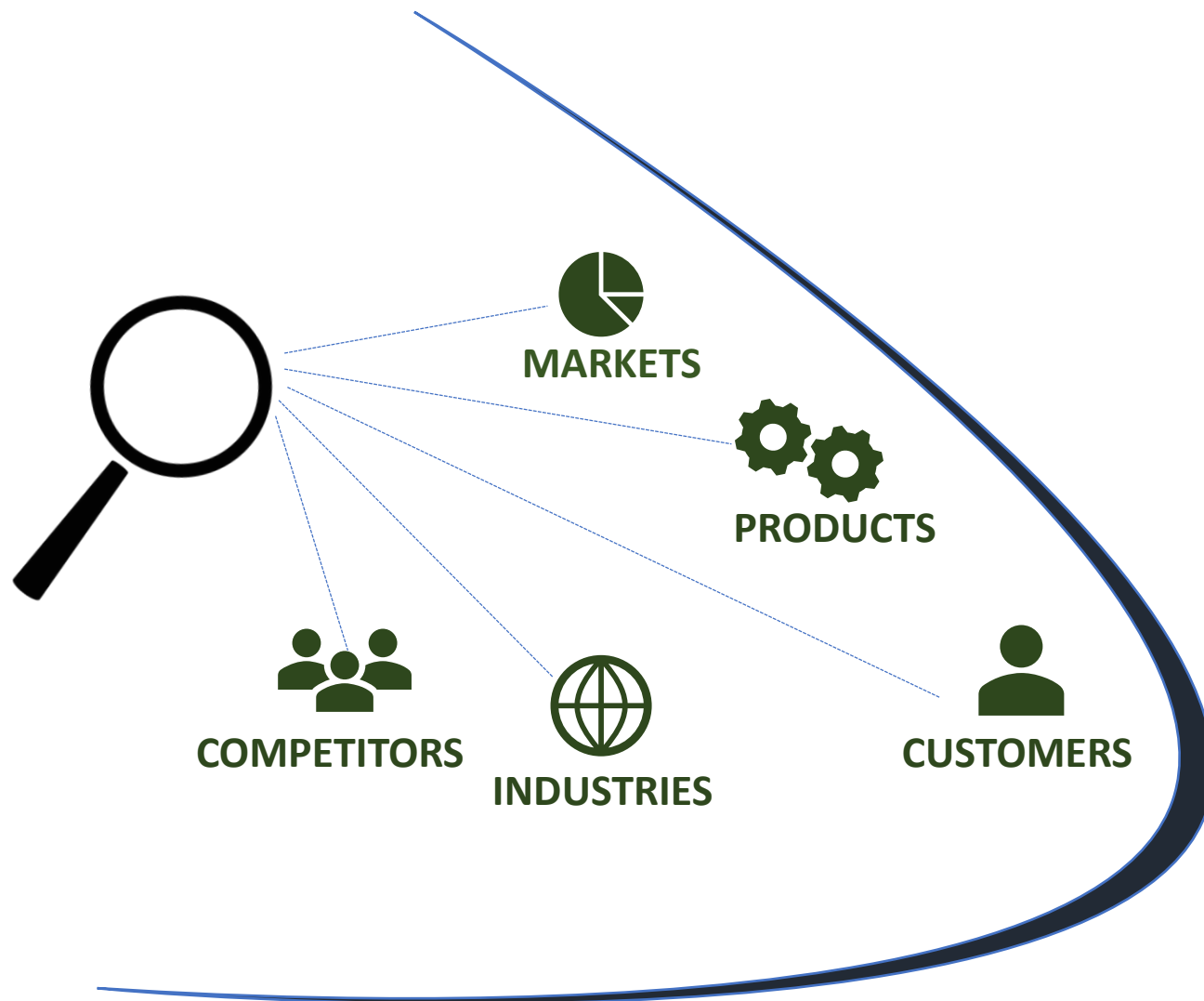
- Renal Replacement Therapy
- Minimally invasive procedure



## MARKET FORECASTING

What trend going on?

- Analysis of trends

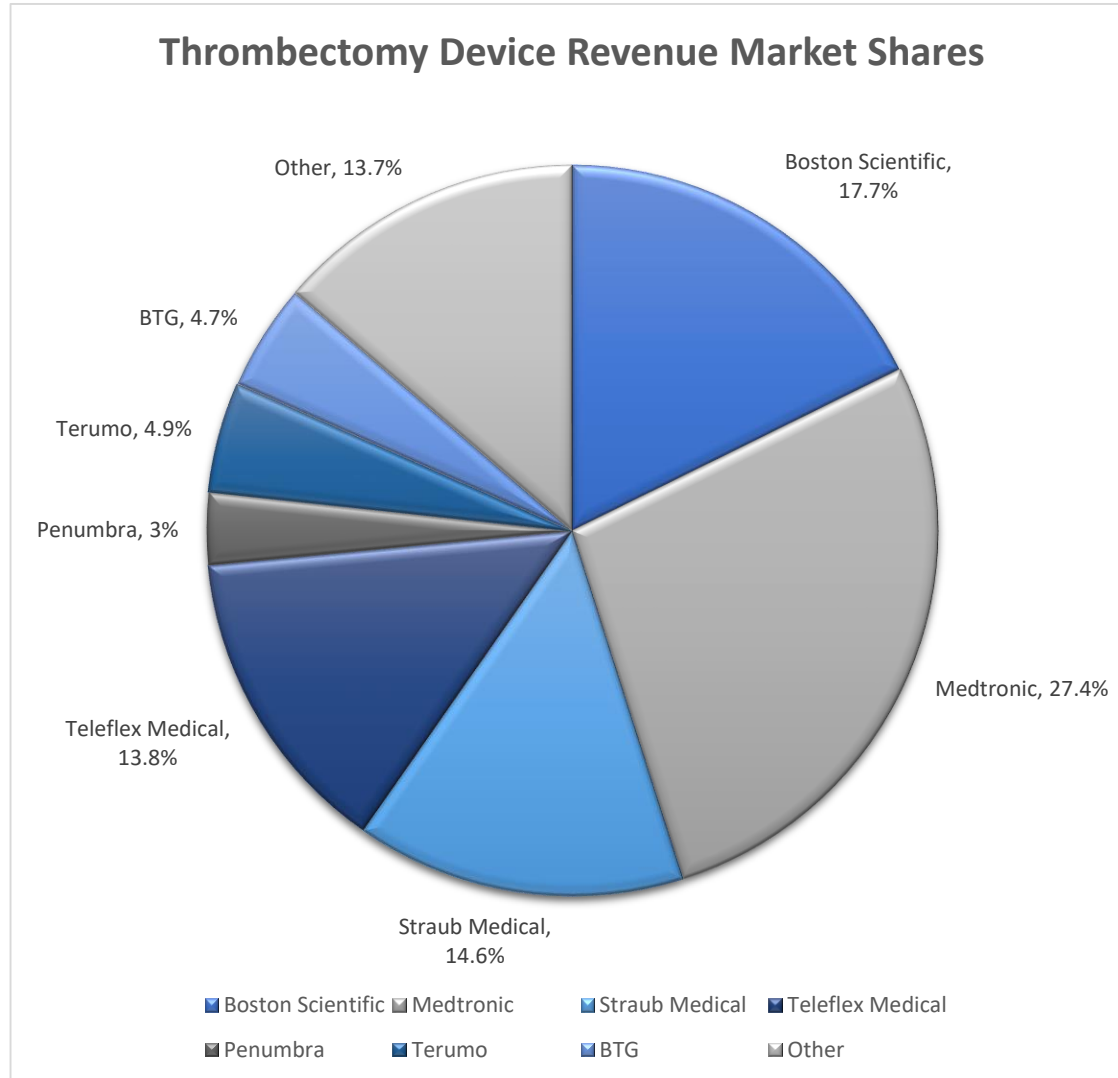


## COMPETITIVE LANDSCAPE

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| Access Creation   | Products Covered Under Dialysis Access |                               |                                   |                   |
|-------------------|----------------------------------------|-------------------------------|-----------------------------------|-------------------|
|                   | Technique                              |                               |                                   |                   |
|                   | Surgical                               | Product Type                  |                                   |                   |
|                   |                                        | AVGs                          | Material                          |                   |
|                   |                                        |                               | ePTFE                             | Product Feature   |
|                   |                                        |                               |                                   | Early Cannulation |
|                   |                                        |                               |                                   | Standard          |
|                   |                                        |                               | Biologic                          |                   |
|                   |                                        | Dialysis Catheters            | Product Type                      |                   |
|                   |                                        |                               | Acute                             | Product Feature   |
| Standard          |                                        |                               |                                   |                   |
| Coated            |                                        |                               |                                   |                   |
| Tunneled          | Product Feature                        |                               |                                   |                   |
|                   | Standard                               |                               |                                   |                   |
|                   | Coated                                 |                               |                                   |                   |
| Maintenance       | Endovascular                           | HeRO Graft                    |                                   |                   |
|                   |                                        | pAVF                          |                                   |                   |
|                   | Endovascular                           | Product Type                  |                                   |                   |
|                   |                                        | PV Stents                     | BMS SX                            |                   |
|                   |                                        |                               | Covered SX                        |                   |
|                   |                                        |                               | Standard                          |                   |
|                   |                                        | PTA Balloon Catheters         | Large                             |                   |
|                   |                                        |                               | High Pressure                     |                   |
|                   |                                        |                               | Specialty                         |                   |
|                   |                                        |                               | Drug-Coated                       |                   |
|                   |                                        |                               | Percutaneous Thrombectomy Devices |                   |
|                   |                                        |                               | Mechanical                        |                   |
|                   |                                        |                               | Aspiration                        |                   |
|                   |                                        | CDT Devices                   |                                   |                   |
|                   |                                        | Embolectomy Balloon Catheters |                                   |                   |
| Accessory Devices |                                        | Guidewires                    |                                   |                   |

# Key Competitors



Thrombectomy Device Revenue  
Market Shares, Europe, 2018

SOURCE: Annual reports, quarterly reports of respective companies

# Key Competitors



**Medtronic**

#VASCULAR PRODUCTS  
#DIABETES PRODUCTS  
#NEUROLOGICAL  
#ORAL MAXILLOFACIAL &  
DENTAL  
#RENAL CARE  
#SPINAL & ORTHOPAEDIC  
#HEART VALVES REPLACEMENT

**Boston  
Scientific**

#ACCESS DEVICE  
#ATHERECTOMY SYSTEM  
#BALLOONS  
#BAND LIGATOR  
#CTO SYSTEM  
#IMAGING SYSTEM



**Teleflex®**  
MEDICAL OEM



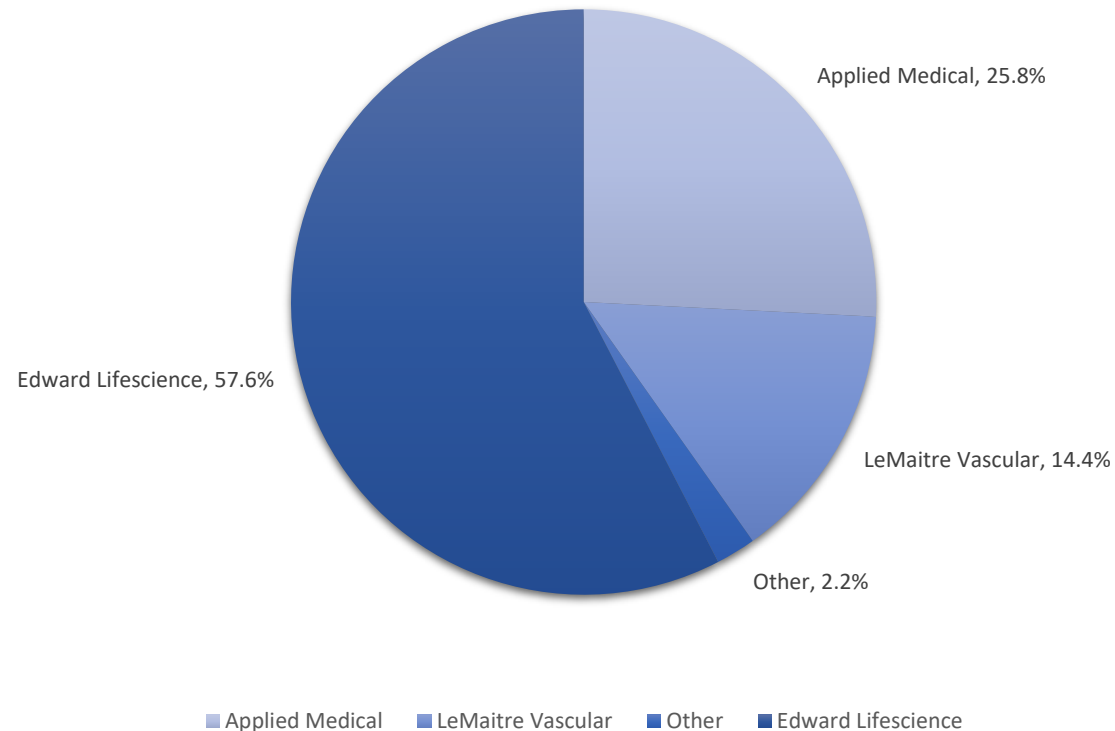
**Penumbra**



**LIHMR** UNIVERSITY

# Key Competitors

Embolectomy Balloon Catheter Revenue Market Shares, Europe, 2018



Embolectomy Balloon Catheter Revenue Market Shares, Europe, 2018



The Major Companies in the Embolectomy Balloon Catheter device segment holding the maximum shares are:

- Applied Medical
- Edward Lifescience
- LeMaitre Vascular

SOURCE: Annual reports, quarterly reports of respective companies



# Key Competitors

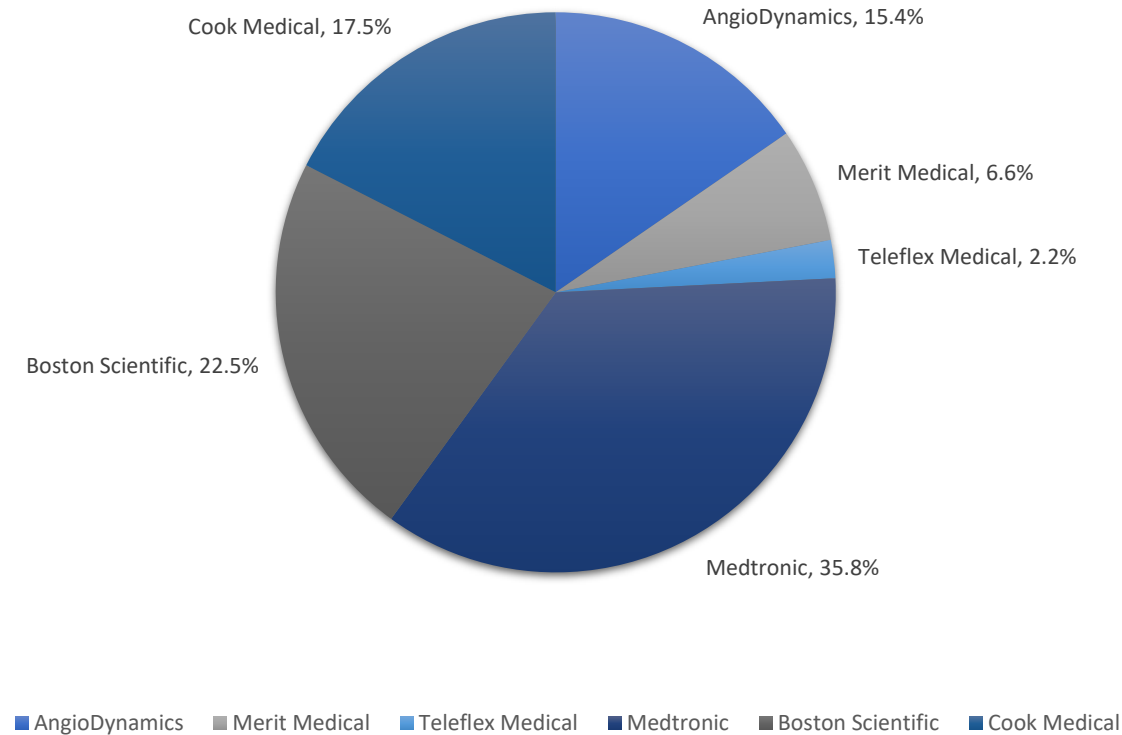


The Major Companies in the Catheter Directed Thrombectomy (CDT) device segment holding the maximum shares are:

- Medtronic
- Boston Scientific
- Cook Medical
- AngioDynamics
- Merit Medical
- Teleflex Medical

SOURCE: Annual reports, quarterly reports of respective companies

Device Revenue Market Shares, Europe, 2018



CDT Device Revenue Market Shares, Europe, 2018

# SWOT

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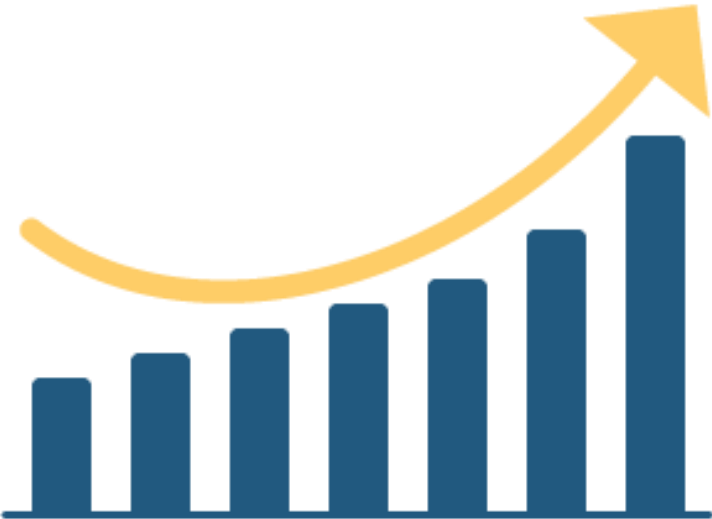
# FORECASTING

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# FORECASTING

## Dialysis Patients

| Dialysis Patients | 2015  | 2016  | (Growth/Yr%) |
|-------------------|-------|-------|--------------|
| France            | 42706 | 43680 | 2.3%         |
| Spain             | 21709 | 22401 | 3.2%         |
| UK                | 24661 | 25069 | 1.7%         |
| Italy             | 19010 | 20020 | 5.3%         |
| Germany           | 94237 | 97318 | 3.3%         |



| Dialysis Patients | 2018   | 2019   | 2020   | 2021   | 2022   |
|-------------------|--------|--------|--------|--------|--------|
| France            | 45695  | 46737  | 47803  | 48894  | 50009  |
| Spain             | 23852  | 24612  | 25397  | 26206  | 27042  |
| UK                | 25905  | 26334  | 26770  | 27213  | 27663  |
| Italy             | 22204  | 23384  | 24626  | 25934  | 27312  |
| Germany           | 103785 | 107179 | 110683 | 114301 | 118038 |

Registry of European  
Renal Association

# FORECASTING

The percentage of patients going for AVF and AV Grafts taken from dopps country report about vascular access and based on that forecasting was done.

| Dialysis Patients going for AVF | 2018  | 2019  | 2020  | 2021  | 2022  |
|---------------------------------|-------|-------|-------|-------|-------|
| France                          | 31712 | 31641 | 31550 | 31439 | 31305 |
| Spain                           | 17054 | 16662 | 16762 | 16851 | 16928 |
| UK                              | 25050 | 17828 | 17668 | 17498 | 17317 |
| Italy                           | 18118 | 15831 | 16253 | 16676 | 17097 |
| Germany                         | 95068 | 72560 | 73051 | 73496 | 73892 |

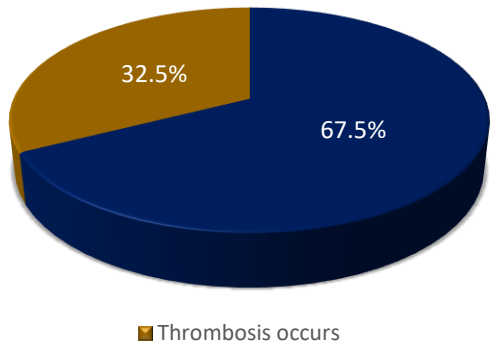


| Dialysis Patients going for AV Graft | 2018 | 2019 | 2020 | 2021  | 2022  |
|--------------------------------------|------|------|------|-------|-------|
| France                               | 2467 | 3131 | 3824 | 4547  | 5301  |
| Spain                                | 1288 | 1649 | 2032 | 2437  | 2866  |
| UK                                   | 1399 | 1764 | 2142 | 2531  | 2932  |
| Italy                                | 1199 | 1567 | 1970 | 2412  | 2895  |
| Germany                              | 5604 | 7181 | 8855 | 10630 | 12512 |

# FORECASTING

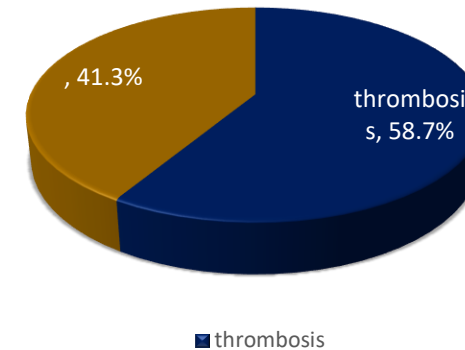
Percentage split in both AVF and AV Graft patients in which thrombosis occurs.

AVF Patients-Thrombosis  
Rate



- From primary data the above information was obtained that 32.5% patients suffers from thrombosis out of total patients of AVF

AVG Patients-Thrombosis  
Rate

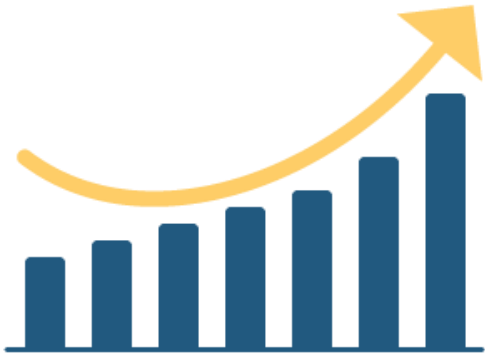


- From primary data the above information was obtained that 58.7% patients suffers from thrombosis out of total patients of AVF

# FORECASTING

Based on previous AVF and AVG thrombosis data,  
Forecasting was done for year (2018-2022)

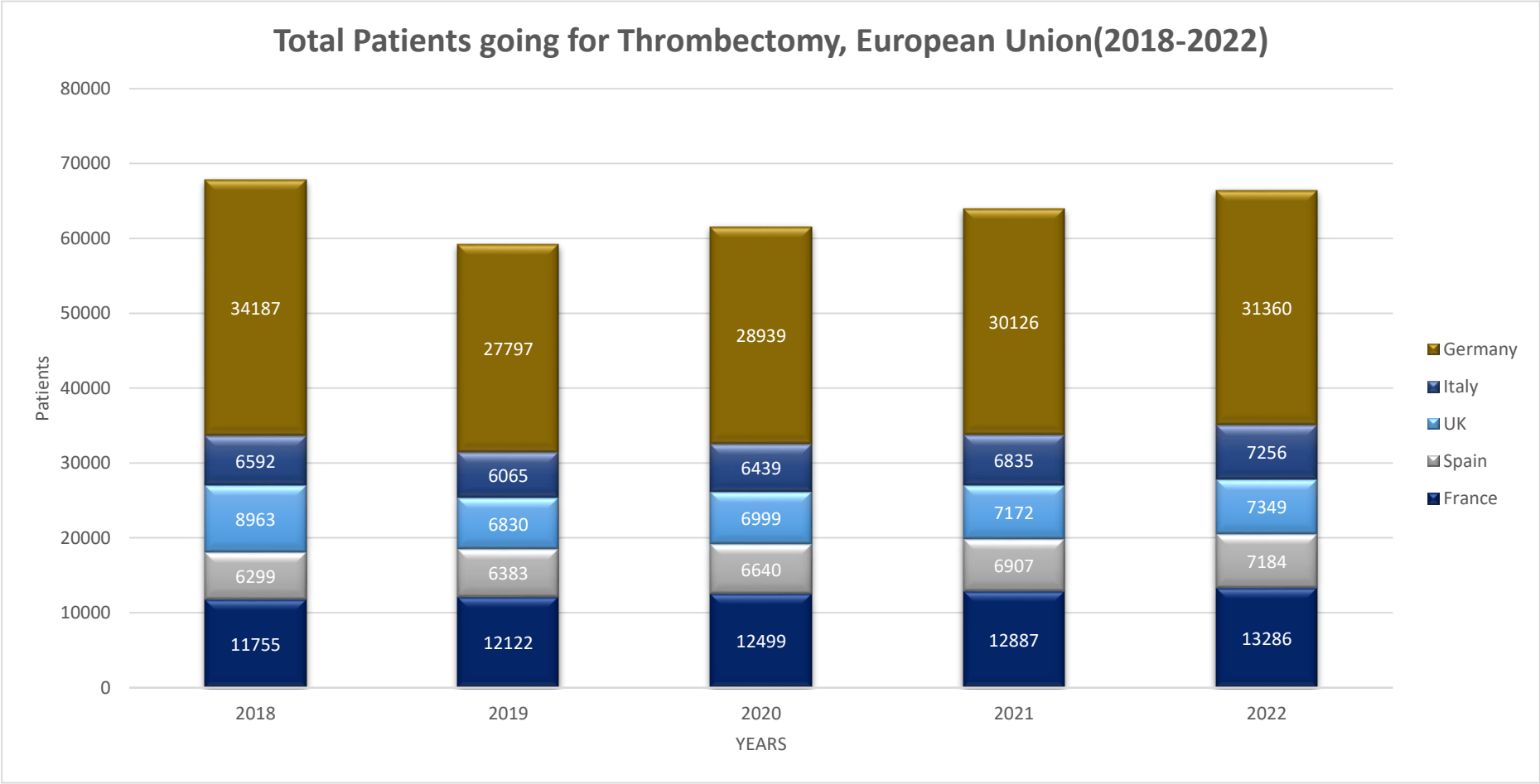
| AVF Patients in which thrombosis occurs | 2018  | 2019  | 2020  | 2021  | 2022  |
|-----------------------------------------|-------|-------|-------|-------|-------|
| France                                  | 10307 | 10283 | 10254 | 10218 | 10174 |
| Spain                                   | 5543  | 5415  | 5448  | 5476  | 5502  |
| UK                                      | 8141  | 5794  | 5742  | 5687  | 5628  |
| Italy                                   | 5888  | 5145  | 5282  | 5420  | 5557  |
| Germany                                 | 30897 | 23582 | 23741 | 23886 | 24015 |



| AV Graft patients in which thrombosis occurs | 2018 | 2019 | 2020 | 2021 | 2022 |
|----------------------------------------------|------|------|------|------|------|
| France                                       | 1448 | 1838 | 2245 | 2669 | 3112 |
| Spain                                        | 756  | 968  | 1193 | 1431 | 1683 |
| UK                                           | 821  | 1036 | 1257 | 1486 | 1721 |
| Italy                                        | 704  | 920  | 1156 | 1416 | 1699 |
| Germany                                      | 3290 | 4215 | 5198 | 6240 | 7345 |

# FORECASTING

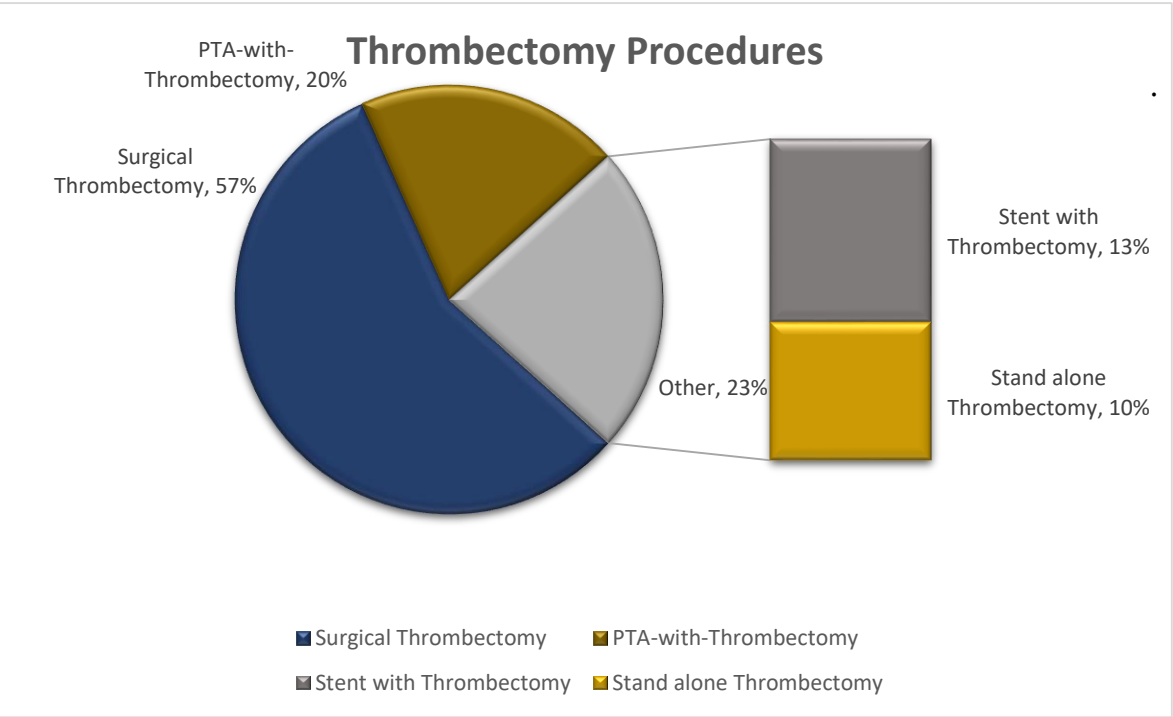
Since most of the dialysis patients are covered under AVF and AV Graft in which thrombosis occurs, we have forecasted the values for European Union for years 2018-2022



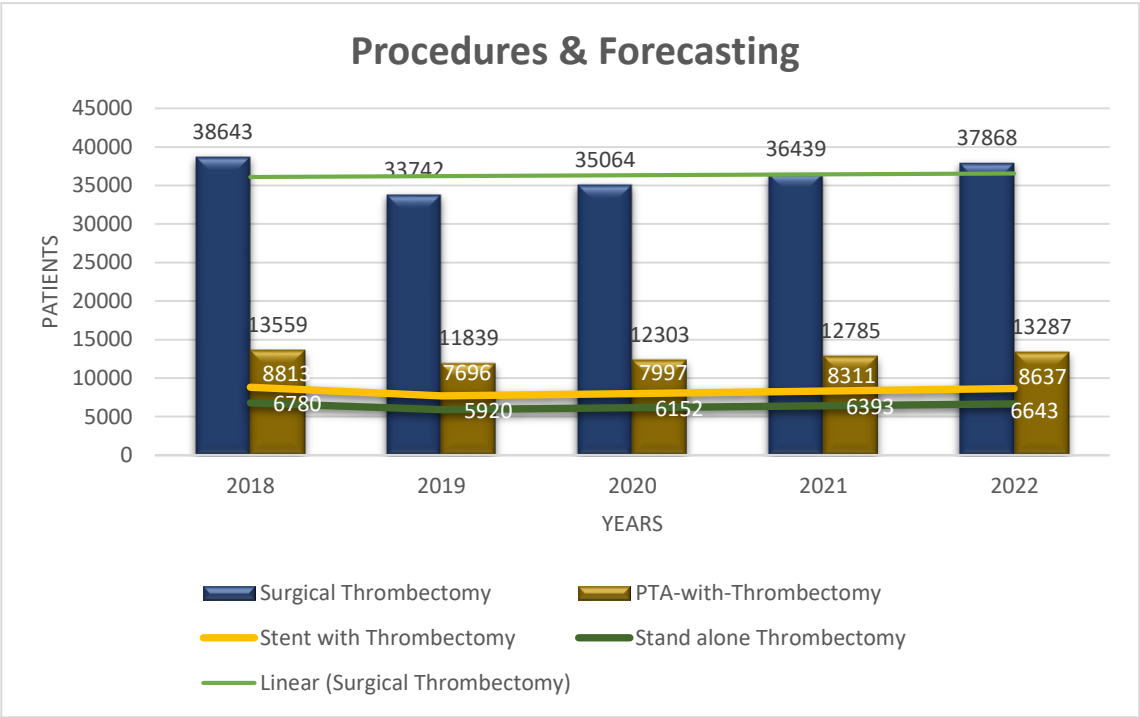


# FORECASTING

From KOL and industry experts the data was forecasted for European Union for years 2018-2022



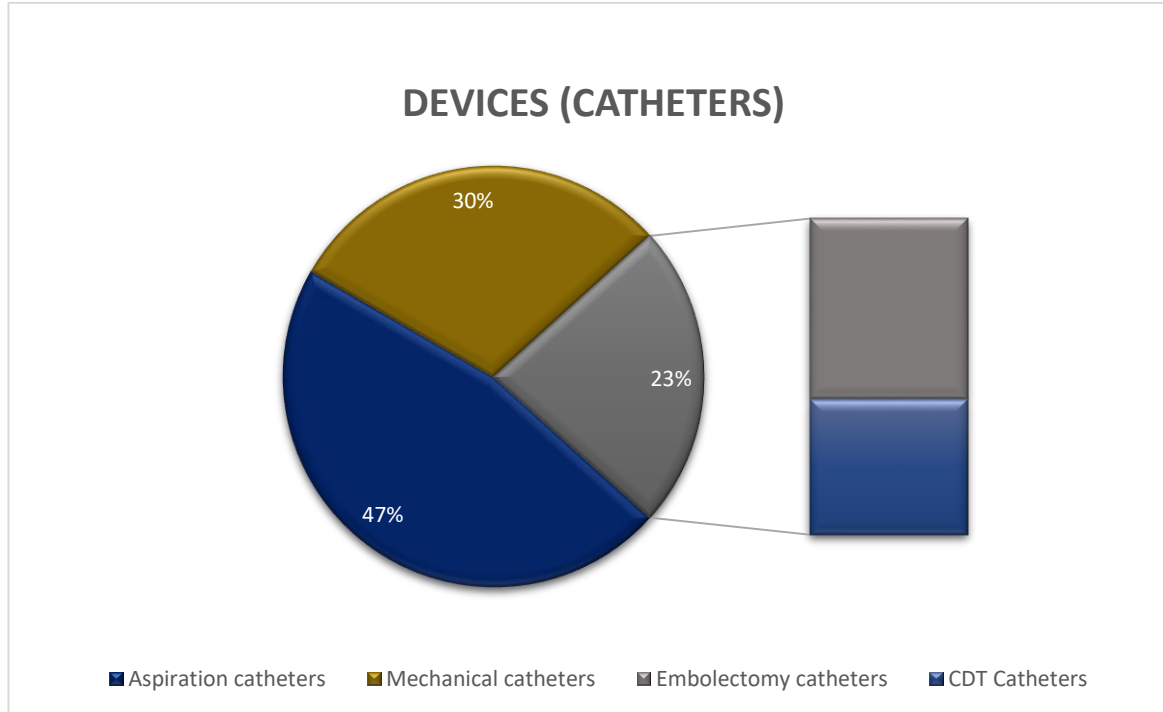
The above insight was obtained from the Primary data that was taken from key opinion leader i.e. vascular surgeons



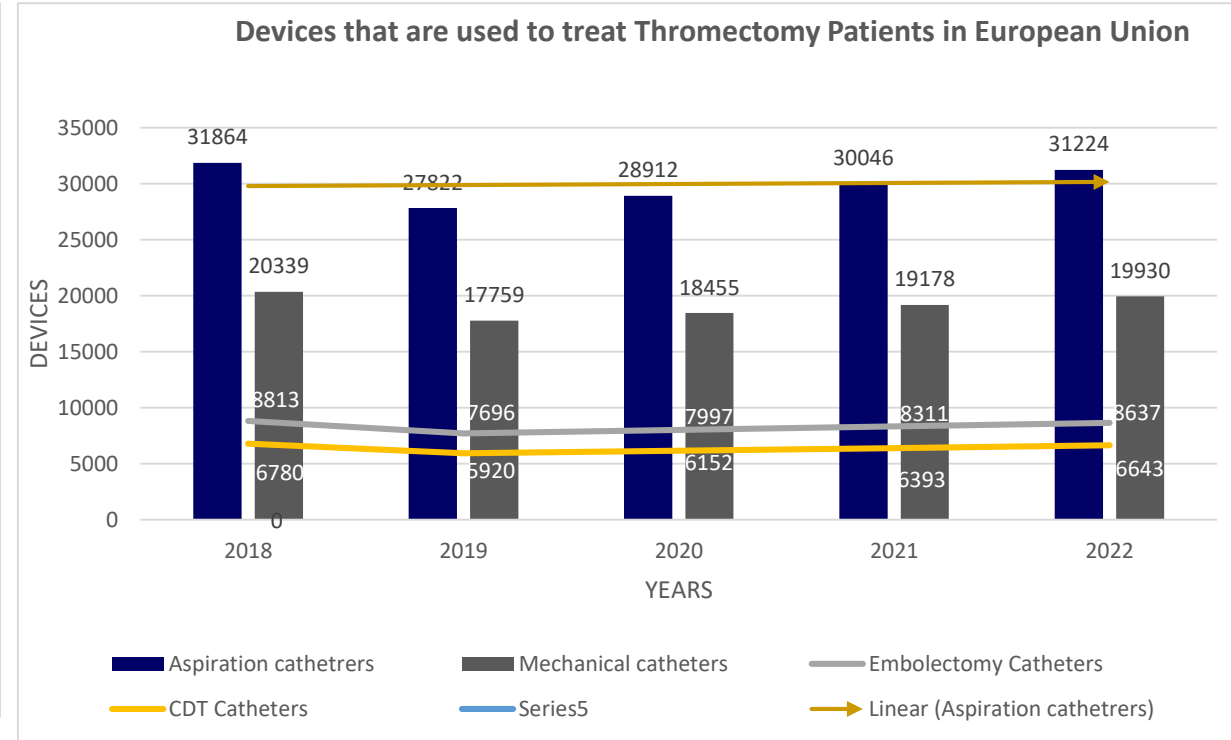
The above graph shows, that Surgical Thrombectomy is the most preferred procedure performed by vascular surgeons whereas stent with Thrombectomy and stand alone Thrombectomy are the least preferred ones

# FORECASTING

From KOL and industry experts the data was forecasted for European Union for years 2018-2022



- The above insight was obtained from the Primary data that was taken from key opinion leader i.e. vascular surgeons
- The above graph shows that, the Aspiration catheter is mostly preferred for Thrombectomy Procedures



The forecasting is done based on the Primary data that was taken from the KOL and Industrial Experts

| Thrombectomy device Catheter Market, By Country 2018-22 |         |          |          |          |          |          |             |
|---------------------------------------------------------|---------|----------|----------|----------|----------|----------|-------------|
| Measures                                                | country | 2018     | 2019     | 2020     | 2021     | 2022     | CAGR(18-20) |
| unit sold(K)                                            | France  | 26.74    | 26.48    | 26.08    | 25.77    | 25.2     | -1.20%      |
|                                                         | Germany | 33.77    | 34.04    | 34.48    | 34.78    | 35.12    | 0.80%       |
|                                                         | Italy   | 19.13    | 18.26    | 17.37    | 16.22    | 15.34    | -4.30%      |
|                                                         | Spain   | 9.67     | 9.25     | 8.80     | 8.45     | 7.86     | -4.10%      |
|                                                         | UK      | 17.19    | 16.64    | 15.98    | 15.41    | 14.78    | -3.00%      |
|                                                         | Total   | 106.5    | 104.67   | 102.71   | 100.63   | 98.3     | -1.60%      |
| ASP per Unit(USD)                                       | France  | 604      | 614      | 627      | 645      | 658      | 1.70%       |
|                                                         | Germany | 774      | 771      | 768      | 762      | 760      | -0.40%      |
|                                                         | Italy   | 470      | 474      | 478      | 482      | 493      | 1.00%       |
|                                                         | Spain   | 465      | 462      | 462      | 465      | 468      | 0.10%       |
|                                                         | UK      | 467      | 479      | 488      | 493      | 507      | 1.70%       |
|                                                         | Total   | 556      | 560      | 564.6    | 569.4    | 577.2    | 0.80%       |
| Market Value(USD K)                                     | France  | 16150.96 | 16258.72 | 16352.16 | 16621.65 | 16581.6  | 0.50%       |
|                                                         | Germany | 26137.98 | 26244.84 | 26480.64 | 26502.36 | 26691.2  | 0.40%       |
|                                                         | Italy   | 8991.1   | 8655.24  | 8302.86  | 7818.04  | 7562.62  | -3.40%      |
|                                                         | Spain   | 4496.55  | 4273.5   | 4065.6   | 3929.25  | 3678.48  | -3.90%      |
|                                                         | UK      | 8027.73  | 7970.56  | 7798.24  | 7597.13  | 7493.46  | -1.40%      |
|                                                         | Total   | 63804.32 | 63402.86 | 62999.5  | 62468.43 | 62007.36 | -0.60%      |

# CONCLUSION

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- There are several competitors in this market and a few others are still attempting to gather safety and efficacy data to bring their products in the market.
- Medtronic and Boston Scientific are leading the market of percutaneous thrombectomy
- From the overall patients going for dialysis, in around 32% AV Fistula cases and in around 58% AV Graft cases thrombosis occurs.
- It was found out that out of all the patients going for thrombectomy, around 57% patients go for surgical thrombectomy procedures and also mechanical catheters and aspiration are preferred devices while doing these procedures.
- Germany is the most penetrated market in Europe and is responsible for most of the unit sales.

- According to industry sources, despite also having a Diagnosis Related Group reimbursement system, France's reimbursement for percutaneous thrombectomy procedures is lower compared to that of Germany; as a result, the use of mechanical thrombectomy devices in that country has been limited. However, reimbursement is expected to improve for mechanical thrombectomy devices in France, given that the Ministry of Health has considered implementing a device-specific reimbursement system akin to Germany's.
- In Italy and Spain, reimbursement for percutaneous thrombectomy is available, but the lingering effects of the economic crisis and ongoing budgetary concerns are prompting physicians to keep overall procedural costs down.
- While UK physicians are generally conservative in adopting new technologies, positive clinical data and adequate reimbursement will encourage adoption and drive procedure volumes.

- Several factors such as rising target patient population, ongoing technological advancements, favourable medical device reimbursements, increasing demand for minimally invasive thrombectomy procedures, and increasing expenditure on healthcare across emerging markets like Europe are making an impact on the growth of the thrombectomy device market.
- However, the stringent regulatory scenario, limited patient awareness resulting in delayed treatment for chronic kidney diseases, and dearth of skilled and well-trained surgeons to perform thrombectomy procedures are the key challenges faced by majority of the thrombectomy device manufacturers across the globe and in the European market.

THANK YOU!