

A COMPREHENSIVE STUDY ON GLOBAL MARKET POTENTIAL FOR THERAPIES OF URINARY BLADDER CANCER

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in

Pharmaceutical Management

By

Shriyani Roy

Under the Supervision and Guidance of

Mr. Rahul Sharma

2024

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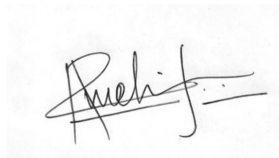
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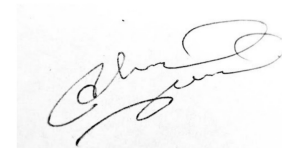
To commemorate her completion of the Market Research Internship program at Triomics from **15th-March-2024** to **14th-June-2024**. Her work during the training period was found to be impeccable. We wish her best for her future endeavours.

17th June, 2024

Date



Ms. Sakshi Purohit
Human Resource Manager



Mr. Aniket Jaiswal
VP, GTM & Market Intelligence

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Study on A Comprehensive Study on Global Market Potential for Therapies of Urinary Bladder Cancer** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

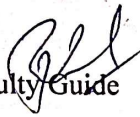

Signature

Name of Student **SHRIYANI ROY**

Date **06/07/2024**

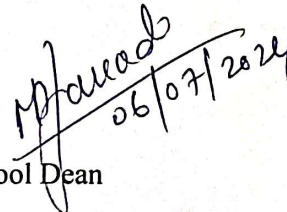
CERTIFICATE

This is to certify that dissertation titled **A Comprehensive Study on Global Market Potential for Therapies of Urinary Bladder Cancer** is a record of research work undertaken by **Shriyani Roy** in partial fulfillment of the requirements for the award of the degree of MBA Pharmaceutical Management from IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific and analytical.


Faculty Guide

IIHMR UNIVERSITY, Jaipur

Date 06/07/2024


School Dean

IIHMR UNIVERSITY, Jaipur

Date 06/07/2024

ABSTRACT

Bladder cancer is becoming a prominent cause of death among people round the globe. It is estimated that more than 83,000 cases of bladder cancer will be diagnosed in US by the end of 2024 making it the fourth most causes of death in the country. Hence, it becomes vital to understand the industry, treatment options available, diagnostic methods, growth, opportunities and challenges constituted by the industry. The market is sectionalized based on the type of cancer, treatment methods, diagnostic tools and treatment channel. An in-depth analysis of the market is done in the study focusing on the historical updates, forecast period, dominant players in the market and their pipeline drugs. The study revealed that there was a constant rise in the market with a CAGR of 4.97% in the historic period and predicted that there will be a steep rise in the market in coming years. Transitional Bladder cancer accounted for the most quotidian form of bladder cancer. Cytoscopy diagnostic tool showed the highest adoption rate. The spiking cases of this disease across the globe, especially in US, Asia Pacific, and major European regions are likely to further necessitate the demand for the treatment. There are various drugs being approved and marketed which is further blossoming the potential of the market. With the ever jumping up population of smokers across the globe, the prevalence rate and incidence rate of bladder cancer is likely to grow at an alarming rate. This is likely to augment the demand for bladder cancer treatment market, leading the market to reach a value of 24.5 billion USD by 2031. Studies suggest that early diagnosis can protract the life of 8 by 10 people up to 5 years compared to 1 by 10 who are diagnosed at the last or severe stage. By December 2022, the FDA of the US granted approval to Adstiladrin. The said approval was made for a gene therapy that is based on a non-replicating adenoviral vector and which was indicated for patients who had high risk forms of NMIBC that are unsusceptible with BCG along with Carcinoma in Situ papillary tumors.

Keywords: Bladder Cancer, Transitional Bladder cancer, Cytoscopy, Forecast, Gene Therapy, Pipeline Drugs

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Date:

Place: Jaipur

Shriyani Roy

Name & Signature

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ABBREVIATIONS

1. MNC'S: Multinational Companies
2. HC: Healthcare
3. ASR: Age-Standardized Rates
4. BC: Bladder Cancer
5. TCC: Transitional Cell Carcinoma
6. SCC: Squamous Cell Carcinoma
7. NMIBC: Non-Muscle Invasive Bladder Cancer
8. MIBC: Muscle Invasive Bladder Cancer
9. CAGR: Compound Annual Growth Rate
10. Afford: Affordable
11. Aval: Availability
12. Access: Accessibility
13. SC: Supply Chain
14. BCG - Bacillus Calmette-Guérin
15. CT - Computed Tomography
16. OS - Overall Survival
17. R&D - Research and Development
18. QoL - Quality of Life
19. FDA - Food and Drug Administration
20. R&D - Research and Development
21. ML - Machine Learning
22. AI - Artificial Intelligence

CHAPTER 1

INTRODUCTION

1.1 Background and context

Bladder cancer is among the most quotidian cancers across the world, with an estimated treatment market of 12.6 billion USD in 2022. Bladder cancer is defined as one of the most recurrent cancers causing a notable number of deaths every year. According to recent statistics, it is estimated that this very cancer is very prominent form of disease in women ranking at eight position while fourth most notable among the men. Among all the types of cancer, this accounts for the 9th most quotidian cancer affecting people round the globe. This indicates that this cancer is more quotidian in male than in female. Among the mortality rate, it is found that women have less survival rate as compared to male. There is various underlying cause of this cancer, some of them include smoking, excessive exposure to various chemicals, carcinogenetic substances, geriatric populations, predispositions in the family, or sometimes due to certain other type of cancer modalities. Smoking accounts for almost 50% of the cases in US. The projections indicate that the number of people getting affected by this cancer is increasing gradually, hence increasing the demand for treatment of this cancer. This is one of the reasons sparking the growth of this market. The market is flooded with various treatment options which include chemotherapy, radiation therapy, immunotherapy and finally surgery. The mode of treatment depends upon the severity of the condition of the patient along with the stage of cancer. The stipulation of the market is further aggravated due to novel treatment methods which include minimally invasive surgeries and targeted drug delivery along with precision medicines. Treatment along with proper diagnosis can help prolong the life of the patients. The rising number of bladder cancer cases can be attributed to the late detection of the disease among the patients. Leveling up of cases of bladder cancer can also be attributed to the dissipation of drinking water high levels of arsenic. The growth of the treatment is likely to propel further in the coming years due to the rising approvals of new drugs, along with the Augmentation introduction of new therapies for treatment.

1.2 EPIDEMIOLOGY

According to World Cancer Research, it was found that more than 6 lakhs cases were reported for bladder cancer in the year 2022. China has the majority number of cases followed by United States while according to ASR, Spain has reported the highest rate followed by Italy. The number is higher in male compared to female. The death rate is the highest in Egypt.

1.3 MARKET KINETICS AND AGITATION

Drivers

- The growth of the market is being driven by key factors such as mounting cases of bladder cancer due to the rising number of smokers, growing awareness about the availability of treatments, and the rising drug approvals in the market.
- The various technological advancements in this field like novel targeted drug delivery, chitosan-based nanoparticles, precision medicines are further aggravating the demand for this market.

Trends

- The advent of Artificial Intelligence is shaping a bright future for this market by providing early diagnosis of the disease by analyzing the algorithms, predicting the condition followed by personalized treatment plans for the patients.
- The augmentation in demand of the methods which are less invasive like usage of robotic assisted surgeries by the patients is leading to the magnification of the market.

Constraints

- The treatment of bladder cancer could be expensive and unaffordable for a wide range of the population. This acts as a problematic condition for the growth of the market as treatment is not accessible to a major percentage of the patients.
- Another factor is the unavoidable side effects from the available treatments leading to lack of adherence among the patients.

Opportunities

- The growth and emergence of various market players leading to significant competitions in the market, hence creating opportunities of various treatment drugs, diagnosis modalities addressing the gap in the market and providing various budget friendly options to the patients.
- The launch of new products, joint ventures, partnerships, expansions, agreements between various companies are creating right set of circumstances for the growth.

Figure 1.3 Market Dynamics of Bladder Cancer Market

1.4 SWOT ANALYSIS

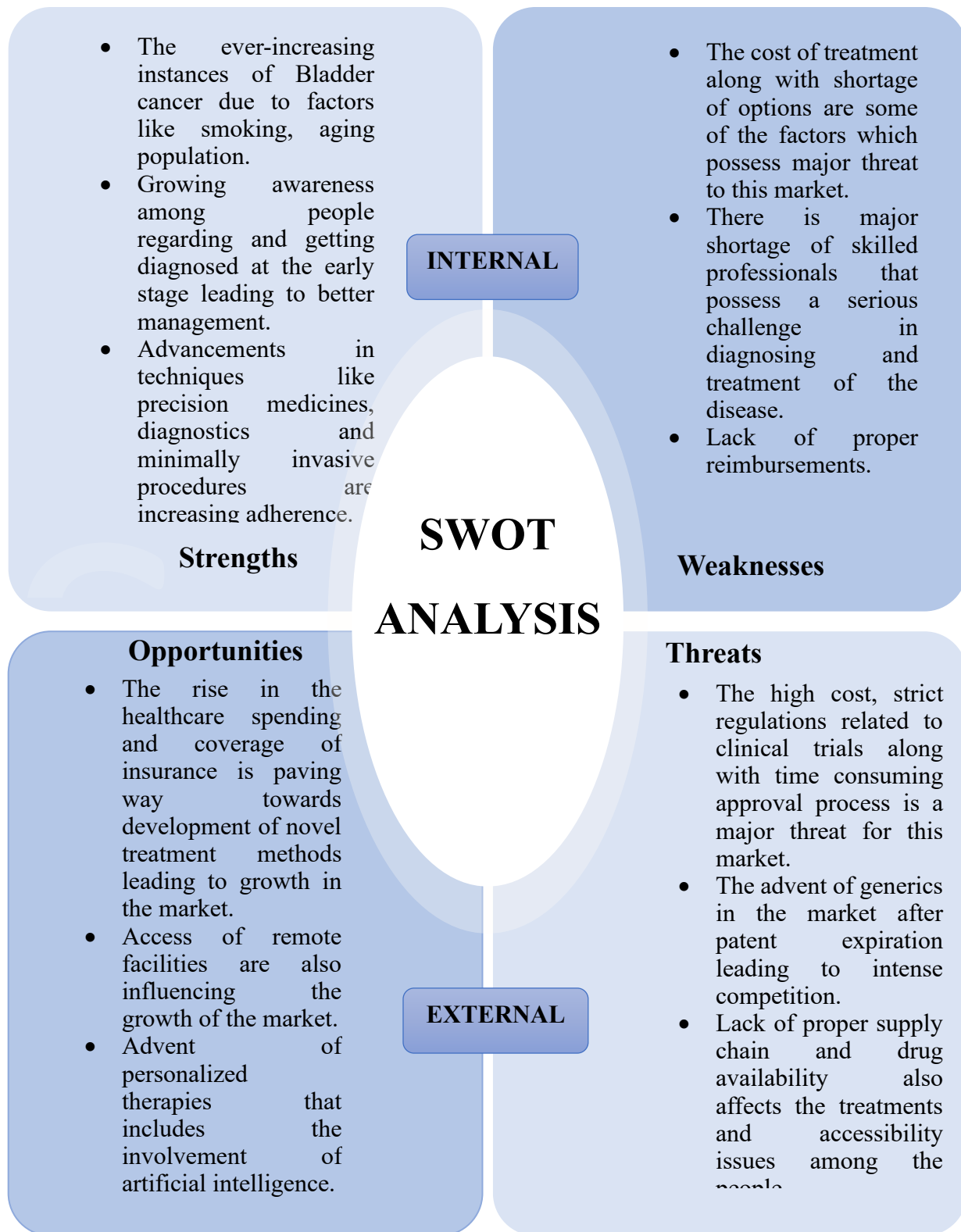


Figure 1.4 SWOT Analysis of the market

1.5 PORTER'S FIVE FORCES

Threats of New Entrants

- Developing and manufacturing of treatment methods and diagnostics require specialized expertise, significant investment in R&D, and compliance with stringent regulations.
- The barriers to entry are relatively low as established players in the market have strong brand recognition, distribution networks, and intellectual property rights.
- The opportunities of gaining profit and a good market share can attract many new potential enterants into the market.

Bargaining Power of Buyers

- The market is actively driven by hospitals, clinics, different healthcare centres which have about moderate to high bargaining power accounting to high cost of treatments and diagnostics.
- High amount of negotiations take place due to availability of alternative options based on the cost.
- The cost of switching to a different type of treatment and diagnostics is relatively low, giving buyers moderate bargaining power.

Bargaining Power of Suppliers

- Suppliers in the market have low bargaining power. This is due to the fact that the key components and raw materials used in manufacturing these may come from different suppliers, providing some options for manufacturers.
- There are various small scale as well as existing dominant players in the market providing drugs, devices and diagnostics.
- Hence, leading to switching of the options easily.

Rivalry among the Existing Players

- The intensity of competition in the market is high. This is because the market is dominated by a few established players, both multinational and regional, competing for market share.
- Competition is primarily based on factors such as product portfolio, technological advancements, clinical efficacy, pricing, brand reputation, and customer service.

Threat from Substitute Products

- The threat of substitutes in the market is relatively very low. While alternative treatments, such as surgery, medication, chemotherapy, radiation therapy exist for certain conditions but there is very less option which provide minimal side effects, hence willingness of patient to switch to different options is low.

1.6 VALUE CHAIN ANALYSIS

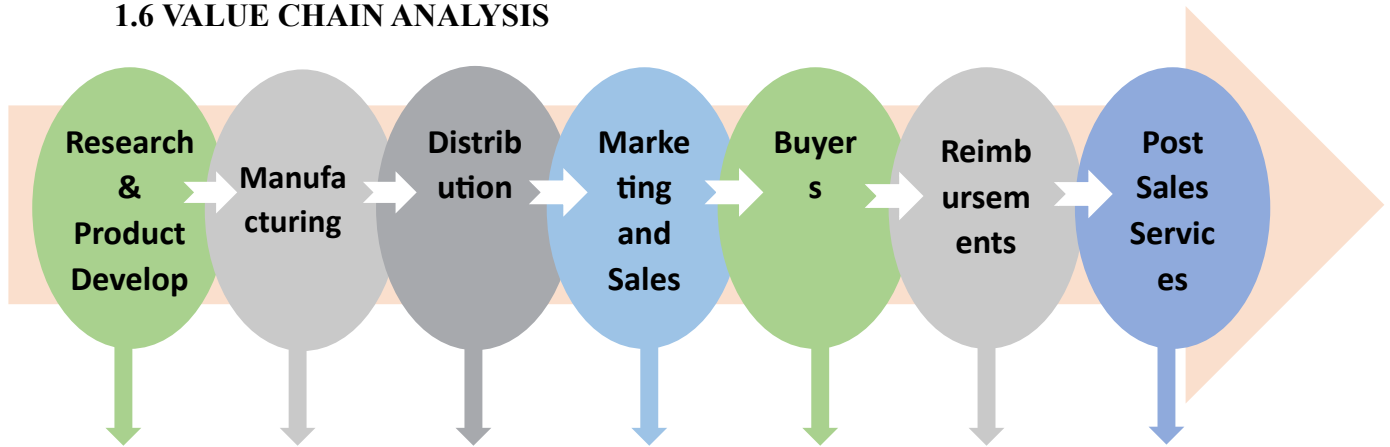


Figure 1.6 Value Chain Analysis of Bladder Cancer Market

- This market is constantly growing due to various factors leading to development in various firms, in terms of variety of new product launches, innovative products, novel drug delivery systems. Therefore, to achieve this successfully the firms need to invest properly to meet the required competition, sometimes its achieved through various acquisitions, mergers to grow the firm and this will help the firm gain competitive advantage by transfer of technology from the merged/acquired firm. This also involves management of human resources as well having trained and qualified professionals.
- Quality Control– QC is a crucial part of the value chain because it ensures that customers receive quality products that meet their expectations. The certificates required are CE Mark, FDA Approval, and ISO 13485 (voluntary).
- Procurement – Procurement activities are mandatory starting from the proper supply of raw materials to availability of the products. This also makes sure that the cost saving is also done. The major issue with this market is the lack of proper distribution and availability of the material.
- Inbound logistics deal with the procurement of raw materials followed by its manufacturing process to ensure adequate quantity and prevent stock out situation.

- Operations deals with the manufacturing of the drugs, devices, diagnostics.
- Outbound logistics consists of proper and evenly distribution of the final material to the retail shops to ensure easy availability, accessibility and prevent stock out situation.
- Marketing and sales play a crucial role in spreading awareness about the product, mentioning its features and addressing the gap that the drug has covered.

The various crucial activities involved in the value chain analysis of global bladder cancer market are:

1. Research and Development:

This is the most crucial step as all the pharmaceutical and biotechnology firms are actively involved in rigorous research of various new drugs, product launches, clinical trials and its approval. This also involves biomarker discovery, discovery of surgical techniques both invasive and non-invasive ones. The proper research involved in this market is very crucial for better improvement and prolonging the life of the patient.

The various activities taken place include:

- Imfinzi of AstraZeneca demonstrated great results in treating muscle invasive bladder cancer. The trial is in its third phase and has shown no side effects along with no safety concerns. Usually, one out of four people suffering with bladder cancer observe that the tumor reaches the muscle of the bladder, hence this new drug has shown promising results in those conditions.
- IDEAYA Bioscience has initiated the phase I trial of its targeted therapeutics having a combination of IDE397 and Trodelvy for MTAP-deletion urothelial bladder cancer.
- Ractigen Therapeutics received approval for a one of kind saRNA therapy targeting as well as activating p21 tumor suppressor gene for NMIBC. This is a unique product showing promising results as well as working towards preventing the progression of disease.

2. Manufacturing

The manufacturing process requires proper raw materials to produce drugs, surgical instruments, catheters, diagnostics required for bladder cancer diagnosis and treatment. Contract manufacturers play a very crucial role at this stage as they have the required skills

to produce all the components according to the required standards and specifications. All the components must be of a high quality and standard to give ultimate proper results.

3. Distributors and wholesalers

The final products reach the end consumers through a well-maintained network of wholesalers and distributors, hence reaching various hospitals, AMC's, Cancer centers, private cancer practices. There must be a proper cold chain maintained for the drug which is temperature sensitive to prevent it from degradation. Proper logistics involving pharmaceutical distributors and medical device distributors play a crucial role.

End Users: Hospitals, Pharmacies, Qualified skilled professional doctors, urologists, Academic centers

4. Hospitals and Clinics

The hospitals, private cancer centers, community centers, Urology centers are the places where cancer diagnosis, treatment and care is provided which includes a plethora of activities like chemotherapy, radiation therapy, and immunotherapy.

5. Diagnostics and Treatments

These tools are utilized by the hospitals, cancer centers, urology practice clinics to treat the cancer patients.

6. Reimbursement and Treatment

Claims are submitted by these healthcare providers to claim and cover insurance for these expensive drugs, treatments and diagnosis.

Value chain analysis plays a major role in understanding all the important activities that take place at each stage and the concerned stakeholders.

1.7 MARKET SECTIONALIZATION

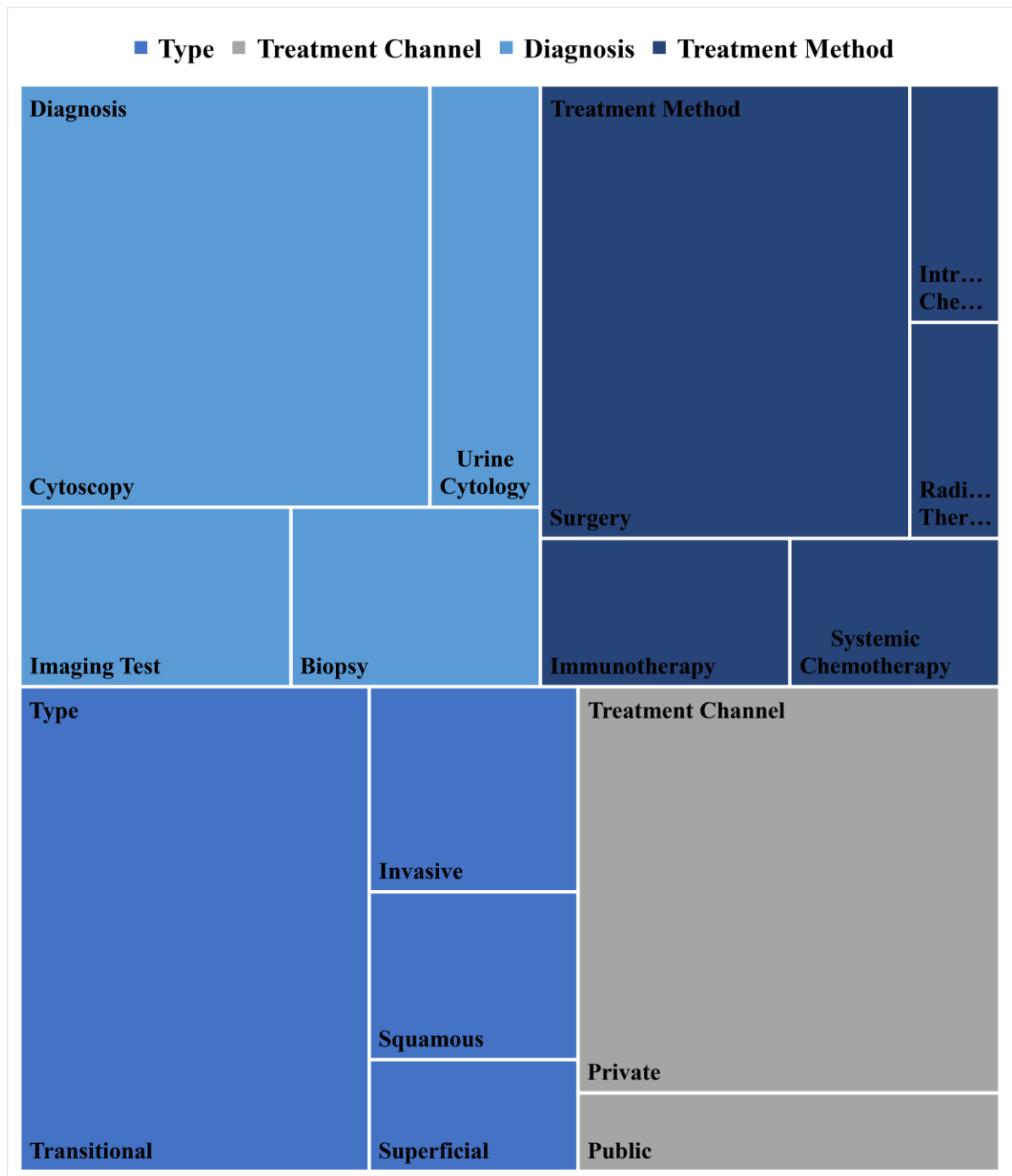


Figure 1.7 Market Sectionalization of Bladder cancer market

➤ **Market Overview by Type**

The bladder cancer market is classified into four types based on the cell which it targets and begins with. It is classified into Transitional Bladder cancer, Invasive Bladder Cancer, Squamous cell Bladder Cancer, Superficial Bladder Cancer. All these types of cancer have different types of features, treatment methods and diagnosis.

- Transitional Cell also called as Urothelial Carcinoma is the most quotidian of all types and reports the maximum number of cases. Transitional bladder cancer, also known as urothelial carcinoma, is among the most quotidian types among the patients. It could be of two grades- high and low grade. The low-grade cancer mostly does not spread, whereas the high-grade type spreads to the deeper layers of the bladder and to other parts of the body, it can be fatal and possesses a high chance of recurrence. Transitional cancer shows various symptoms such as turning up of blood in the urine, painful urination, severe go along with perennial pain in the back, fatigue, extreme weight loss, among others. The current treatments available for transitional cell carcinoma include endoscopic resection, fulguration, or laser surgery, segmental resection, and nephroureterectomy.
- Superficial Bladder Cancer also referred as Non-Muscle Invasive Bladder Cancer are less dangerous ones because this type of cancer has not penetrated deep inside the muscle and is less dangerous and requires consistent monitoring.
- Invasive Bladder Cancer also mentioned as Muscle-Invasive Bladder Cancer is devoted to the cancer cells that have broaden into or through the muscle layer of the bladder wall. There are different treatments used for treating this cancer, like surgery, chemotherapy, and radiotherapy. The best considered treatment for non-muscle invasive cancer of cancer is regarded of BCG vaccine. Invasive cancers grow inside the deeper layers of the lining of the bladder. These cancers are more likely to spread and are harder to treat. The demand for the treatment of these cancers is on the rise. Bladder cancer that does not grow into the muscle layer is known as superficial/ NMIBC.
- Squamous Cell is a very much less quotidian type of cancer.

➤ **Market Overview by Diagnosis**

The diagnosis market is crucial to diagnose and treat the bladder cancer and is divided into four parts called as Cytoscopy, Biopsy, Urine cytology, and imaging tests.

- Cytoscopy is one of the predominant methods for diagnosing bladder cancer since it carries a low risk and enables the urologist to take biopsy samples and resect papillary lesions simultaneously. The urethra and bladder can be examined and

sampled during a cystoscopy. Cystoscopy is utilized in both commencing the determination of bladder cancer and in ongoing surveillance for recurrence, together with urine testing and diagnostic imaging methods. Additionally, tiny bladder cancers are frequently removed or treated with cystoscopy-based techniques.

- Imaging exams work by capturing the pictures of the body parts from within using X-rays, magnetic fields to identify the tumor. In many cases sound waves and radioactive materials also take part in it. If the cancer has progressed to neighboring lymph nodes, nearby tissues and organs, or distant regions of the body. An imaging examination that reveals enlarged lymph nodes or other potential indicators of cancer spread may necessitate some sort of biopsy to confirm the results. Various imaging tests for bladder cancer diagnosis involve intravenous pyelogram (IVP), retrograde pyelogram and CT scan. The MRI scan, ultrasound, chest X-ray, and bone scan also play a very crucial role.
- Biopsy tests enable the medical practitioner to identify any bladder growths or cancer cells in the urine. The growth's malignant status cannot be determined by scans. That can only be determined once a laboratory examines the biopsy sample. Patient is provided with a TURBT procedure if anomalies in the bladder are discovered after a cystoscopy, in order to remove any abnormal tissue and examine it for cancer.
- Urine cytology is used for high-grade urothelial carcinoma. Some proteins in urine that could be indicators of bladder cancer are the focus of more recent studies. These consist of the following, UroVysion™ scans the chromosomal alterations that are frequently found in bladder cancer cells. CFHrp, also known as bladder tumor-associated antigen (BTA), is a substance that is searched for during these tests in the urine. ImmunoCyt™: This test searches for markers like mucin and carcinoembryonic antigen (CEA), which are frequently detected on cancer cells, in the urine cells. NMP22 BladderChek®: This test scans the urine for the presence of a protein known as NMP22 (nuclear matrix protein 22). Levels are frequently greater in bladder cancer patients.

➤ **Market Overview by Treatment**

There are various treatment methods available to treat bladder cancer and the treatments are based on the stage of the cancer. These include Surgery, Intravesical Chemotherapy, Systemic Chemotherapy, Radiation Therapy, and Immunotherapy.

- Surgery is the primary and most prominent method of treatment used to treat bladder cancer. By using this method, the cancer that has recurred or metastasized can be treated. Depending upon the stage of the cancer the surgery is performed, in some cases the bladder is preserved but in advanced stage removal of the bladder is considered as the safest option. Transurethral resection of bladder tumor is highly adopted among the patients. Other types are partial cystectomy and radical cystectomy are highly recommended by most of the doctors for treatment measures which is based on the severity, stage and condition of the patient.
- Intravesical chemotherapy process injects the chemotherapy medicines in the bladder directly. These drugs help in removing the inner lining from the tissue layers of the bladder, which is further removed from body with urine. Intravesical chemotherapy is the treatment option used in the initial phase of the cancer, when the cancer is in the inner lining of the bladder.
- Systemic chemotherapy provides anti-cancer drugs orally or are injected in the veins that travel through the blood flow in the body and kills the cancer cells and the spread over in the other body parts and nodes.
- Radiation therapy uses a variety of high-energy beams to destroy the cancers. This process dismantles the cancer cells and shrinks the cancer. This process is also coupled with surgery to destroy the remaining cancer cells and shrink down any further chances that may lead to reoccurrence of the cancer in the future. The following types of the therapies are being used in radiation therapy:
External Beam Radiation Therapy: Most quotidianly used treatment in radiation therapy, this used X-rays and sometimes charged particles like protons as radiations
Image Guided Radiation Therapy: This therapy uses a form of external beam radiations to verify the location of the tumor.

Intensity Modulated Radiation Therapy: This is the most precise radiation therapy as it is a computer program to calculate and deliver the dosage of the radiations.

➤ **Market Overview by Treatment Channel**

The treatment channel involves both public and private sectors. The public sector of the global bladder cancer market has been on a rise due to the increasing cases of bladder cancer. The part of the population that is not able to afford private treatment opts for public channels which are sponsored by the governments as it is much more affordable than the private sectors.

1.8 REGIONAL ANALYSIS



Figure 1.8 Regional Analysis of Bladder Cancer Market

- **North America Region Overview:** The market is becoming distended due to enormous number of strategic steps being taken by various government bodies, academic and research institutes to provide better accompanied by advanced treatment methods to curb the disease. The year 2018 was a successful one in terms of financial grants received by CDC to different health institutes in order to carry out research and advancements in this domain. The United States accounted for a significant share of the regional market, holding a significant share of about 92.1% in 2022. In the United States, only about 1-2% of the

cancers are squamous type. These cancer cells look like flat cells which are mostly found on skin surface, and these can only be seen with a microscope.

- **Europe Region Overview:** Among the regional markets, Europe accounts for the largest share. Greece has the highest incidence of bladder cancer in men Global, whereas Hungary has the highest incidence of bladder cancer in women. The highest prevalence of bladder cancer is seen in southern Europe, where 5.8 per 100,000 women and 26.6 per 100,000 men are diagnosed with the disease annually. Bladder cancer is ranked as the eleventh most dangerous cancer in the United Kingdom, with an anticipated 10300 cases being reported in the country between 2016 and 2018. The age-adjusted rate (on the World standard population, ASR) for men ranges from 31.0 for Belgium to a lower level of 9.2 for the United Kingdom.
- **Asia Pacific Region Overview:** The geriatric population are at the peak risk of developing this deadly disease as they have weakened immune system and henceforth their immune is incapable of fighting the disease. This is the foremost reason for which Asia Pacific region is known to possess the highest risk of developing this disease as the number of aging populations is at peak. It is estimated that China and Japan have very high number of aged people. India also witnessed a high number of people suffering from this disease accounting to be seventeenth in incidence and nineteenth in mortality.
- **Latin America Region Overview:** Recently, a lot of focus has been shifted to developing and low-income countries with respect to diagnosis and treatment of this disease. Additionally, the emergence of new therapies like immunotherapy in the treatment of cancer has reignited interest among qualified patients because it is a recently developed treatment modality and has fewer side effects than radiation therapy and chemotherapy, which are the standard therapeutic options for the management of bladder cancer.
- **Middle East and Africa Region Overview:** Africa has a combination of developed and underdeveloped countries in it. The issue is the lack of proper facilities and financing for the health of the population. There is a severe need for treatment facilities in these areas. Poor awareness is another factor but recently these countries have started receiving international supports and hence due to awakening knowledge and demand is being created leading to promising future in these areas as well.

CHAPTER 2

REVIEW OF LITRATURE

2.1 Overview of the Bladder Cancer Market

The ever jumping up of the instances of this disease around the globe is seeking for demand towards better healthcare facilities, diagnostic method and treatment towards the same. As per the GLOBOCAN estimates, there was about 18.1 million freshly identified cancer cases and around 9.6 million deaths from the disease in year 2018, the Global burden of cancer is predicted to have multiplied many times in the historical period. Global, men were four times more likely than women to develop bladder cancer. The rate of incidence was high for both men and female were at it peak in South Europe (26.5 for men and 5.5 for women), followed by West Europe (22.5 and 5.1 for women), and the lowest rates were found in South America (7.0 for men) and East Asia (1.9 for women). The market is growing enormously due to various ingenuity being adopted by different government bodies along with the cancer research institutes, academic centers, Hospitals in both public and private domain. In 2018, a large number of healthcare initiatives in the area received grant financing from the Centers for Disease Control and Prevention, a well-known public health organization in the United States.

2.2 Previous Studies related to Bladder Cancer Market

<u>TITLE</u>	<u>PUBLISHER</u>	<u>YEAR OF PUBLISHING</u>	<u>OBSERVATION</u>
Global research trends in non-muscle invasive bladder cancer: Bibliometric and visualized analysis	Frontiers in Oncology	2022	This study mainly focused on the trends related to NMIBC and the amount of research that took place related to NMIBC. The research focused on the mechanism of action of the very disease in which bladder cancer does not penetrate the muscles, the diagnostic methods for this cancer along with the treatment modalities used. This also emphasized various trends, collaboration and

			funding related to the market.
The global landscape of bladder cancer incidence and mortality in 2020 and projections to 2040.	Journal of Global Health	2023	The study focused on the regional variations and the spiking count of this disease cases, and the mortalities cause of same. The developed nations like Europe and North America registered the maximum number of cases while developing nations registered lower number but a high mortality- incidence ratio. The research mentioned the gender disparity as well that men are more likely to get impacted compared to women and the cases will be surging high till 2040 due to factors like lifestyle, carcinogenic exposure, aging people, smoking and genetics.
Bladder Cancer Incidence and Mortality: A Global Overview and Recent Trends	European Urology	2017	The study focused that the major number of bladder cancer cases was found in people who were susceptible to smoking and tobacco usage. Another very quotidian reason was the infection caused due to Schistosoma haematobium.
Global trends in the epidemiology of bladder cancer: challenges for public	Nature Reviews Clinical Oncology	2023	The study mentioned the rising cases of bladder cancer and the awareness related to it

health and clinical practice.			is very crucial for controlling the same. There is an urgent need for skilled professionals, urologists who can help treat the disease and the need of cost-effective diagnostics method. There are very limited financial resources related to bladder cancer, hence contributing to the augmentation risk of the disease in the near future. Urological biomarkers present a promising detection for bladder cancer at the early stages.
Epidemiology of Bladder Cancer	Medical Sciences	2020	The study mentioned epidemiology related to cancer, focuses on the reasons contributing to the cancer. It stated that majority of bladder cancer took place in people about the age of 55 and affected more men than women. It mentioned that 80% of bladder cancer cases could be prevented if there was proper awareness about the disease and contributed solely to smoking. Most of the cases in Africa and Middle East took place due to Schistosomiasis infection.

The global research of bladder cancer immunotherapy from 2012 to 2021: A bibliometric analysis	Frontiers in Oncology	2022	The study mentioned the shift of treatment method for superficial bladder cancer from immunotherapy to monoclonal antibody and targeted deliveries specific to patients have shown promising results. The research focused on the identification of biomarkers which will provide personalized treatment for bladder cancer. Immune checkpoint inhibitors (ICIs) have shown promising results for tumors.
Epidemiology, Screening, and Prevention of Bladder Cancer	European Urology Oncology	2022	This study mentioned the high-cost burden of treatment is a difficult one sided by causes of increasing instances and morbidity due to bladder cancer. This is accompanied by low care and treatment options along with safety concerns among the patients are the other reasons for high cases.

Table 2.2 Studies related to Bladder cancer

2.3 Theoretical Frameworks and Models

Analysis of bladder cancer market helps to understand the incidences, mortality rates, morbidity related to bladder cancer and the factors affecting this. This helps to know the historic pattern of bladder cancer market and its growth rate and predicts the market in the future. This provides insights to the companies who wish to invest in the research and development of new technologies and medicines related to bladder cancer. This tells us about

what the existing market situation is, gaps in the market and how technological advancements are taking place in the market. The report focuses on studying the whole bladder cancer market and how the present technologies are adopted by the patients. This tells whether there is a need for improvement in the market and growth of the market. The regional analysis provides insights into the number of cases, existing players in the market and the growth in that region. This is an in-depth study providing idea about competitors, strategic decision-making processes, investment decisions, cost of treatments, financials, grants, value chain analysis and how various types of treatment strategies are applied on to different patients based on their requirements.

2.4 Gaps in Existing Literature

There are several gaps in the existing studies which need to be addressed and worked on. The following gaps are as follows: Study required on minimally invasive therapies over the traditional approaches and the cost implications related to that. There is lack of studies related to cost effectiveness of real-world data with respect to the novel drugs discoveries, techniques, technologies over the traditional ones. The studies also lack data about the insurance coverage, claims, pricing trends of the latest diagnostics and treatment modalities. Study focusing on the usage of AI, machine learning models, telemedicine and remote monitoring methods which help in early detection, diagnosis of the condition and the accuracy related to it. There is also lack of study regarding the long-term impact, health condition, prolonging of life of patients after taking the treatments. There is lack of association-based studies which treatment and psychological impacts among the patients.

2.5 Summary

The complete analysis and study of the global bladder cancer market in this report talks about the treatment types, methods, diagnosis and all the latest advancements. This gives region wise analysis of cases, growth rate of the disease along with the factors responsible. This will give companies an idea about the region where there is high growth opportunity and a profitable chance of launching new products. This gives a comparative analysis of historic versus forecast data. This tells about the available treatment methods and the gaps in them and the forecast of how well the existing treatment method is there in the market. This also covers the top players in the market along with the cost of treatment of the drugs.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Bladder cancer is one of the most quotidian types of cancers nowadays affecting people Global. This happens when there is uncontrolled growth of cells in the bladder results in bladder cancer which are of mainly four types. The growing awareness for bladder cancer is raising concerns for advancements in treatments, early diagnosis and care. Hence, all these factors are contributing towards the heightening of this market. This very market is projected of germinating at an alarming rate due to various research and developments taking place in this sector. Therefore, it becomes crucial to do proper analysis of the market to understand the existing situation, players, treatments which will help new players to enter the market and hence gain a competitive advantage over the other players. Many drugs have already received regulatory approval and have been marketed while many are in clinical trials phases. This market is considered as one of the lucrative markets for growth as there is limited treatment available and hence as a great opportunity for new and advanced treatments brought up by new market players.

3.2 AIM

The aim of the study is to understand the global bladder cancer market, its growth, trends, insights, segmentation, regional analysis and the dominant players in the market. The study sectionalizes the market to get a broader picture of past trends and how it will impact the future growth of the market. The competitive landscape, product portfolio and strategies of dominant players in the market is also studied.

3.3 RESEARCH OBJECTIVES

The study's main objective is to do a thorough analysis of the bladder cancer market covering each aspect of the market, understanding the basic requisites to the advance forms. The investigative study's research goals are:

1. To assess the current situation of the Global bladder cancer market and its overall projections based on each segment and estimating the growth rate.
2. To assess the future projections based on each segment and estimating the growth rate.

3. To observe the recent shift in diagnosis, treatments towards novel approaches.
4. To establish a competitive analysis of the dominant players in the market based on the product portfolio, growth, financials and strategies.

3.4 RESEARCH QUESTIONS

1. What is the current scale of the global market for shock wave therapy devices, and how much will it grow?
2. How are demographics in different environments, such as the aging of people or spreading of long-term diseases affecting market growth in those places?
3. What is the impact on adoption rates by a growing awareness among patients and healthcare professionals?
4. Which developments in technology are driving changes in the landscape?
5. What is the relationship between market size and the growth of different types of bladder cancer and the adoption rate of various diagnostic tools among the patients?
6. How does the use of artificial intelligence and machine learning play a vital role towards the early detection and prolonging of the lives of patients along with its accuracy?
7. How are regional variations related to bladder cancer market affecting the growth of that market in terms of diagnostics and treatments?

3.5 HYPOTHESES

The investigative study holds a few hypotheses, these are as follows:

H1: The market will grow at an alarming CAGR for the forecast period due to upcoming approved marketed drugs, various research and development activities taking place, and arrival of new technologies.

H2: The high incidences of transitional bladder cancer will contribute to the highest growth rate for this cancer and hence leading to more treatment options, diagnostics and care for transitional bladder cancer.

H3: Cystoscopy diagnostic tools will be the dominant among all the other tools due to their high accuracy and adoptability rate.

H4: More than 50% of the market share will be collectively grabbed by the top 5 dominant players.

H5: Technological advancements in the domain which includes the advent of artificial intelligence and machine learning will further aggravate the market leading to better patient outcomes in terms of controlling the prognosis of disease at an early stage

3.6 METHODOLOGY

This is a detailed cross sectional descriptive study which includes various research methodologies to get the result. These are discussed below.

- **Research Design:** The research methodology used for the study involves mixed methods which combine qualitative and quantitative techniques. It covers a plethora of topics like data collection, data analysis, ethical issues, validity, dependability, as well as restrictions and presumptions. This mixed approach will help to understand and underline the comprehensive analysis of the market.
- **Study Plan**
- **Duration of Study: 3 Months**
- **Sample Size & Sampling Technique**
- **Sample Size:** The size of sample varied based on the number of companies targeted. The database contained a list of 800 companies along with their products to analyze the market. The companies were surveyed and thoroughly studied their published reports.
- **Sampling Technique:** Stratified Sampling- In this the market was sectionalized based on product type, treatment type, treatment channel, diagnostic tools, and regional analysis along with their growth factors
- **Data Collection Methods**
 - **Data Sources**

- **Primary Sources:** The study included distribution of questionnaire and survey to various stakeholders, healthcare providers, professionals in order to get insights about the latest trends in the industries, loopholes, highest segment of the market and distributions. Telephonic interviews were conducted to various key opinion leaders to get the inclination about the competitive landscape of the industries. Interviews with Key Market Player Leaders i.e. Country Sales Head, Vice President, Key Distributors, Hospitals, Diagnostic Centers, Clinics, Experts, Government Bodies.
- **Secondary Sources:** This includes data from data repository of published reports, Data from government bodies and associations, Annual reports/MCA filings, investor presentations, press releases, industry published reports, academic reports, research papers, Databases (Paid/Unpaid), LinkedIn, Factiva, Bloomberg, OneSource, Hoovers, GLOBOCAN, etc.
- **Data Collection Instrument Design and Test**
 - In-depth secondary research and study of published research papers
 - Secondary research and analysis of Company annual reports, white papers
- **Modes of Data Collection**
 - Data is collected through IDI and Desk/Secondary research
 - Telephonic interviews to be conducted with key industry participants and government officials
- **Data Processing, Quality assurance and Risk Mitigation**
- **Data Analysis Methods**
 1. **Quantitative Analysis:** This involves analysing the various market reports, annual reports of the company and databases to evaluate the data. This includes following steps
Market Size estimation: This was done on the basis of analysing the past data and making predictions for the future for each and every segment.
Trend Analysis: This was done to observe the pattern of growth for the segments and how much growth took place.

Regression Analysis: This involves identifying the relationship between variables, to understand how growth in one factor is significantly contributing its impact towards the others.

2. **Qualitative Analysis:** Using the data available through various research reports, studying about parameters like SWOT Analysis, Porter Five Forces, and value chain analysis to get deep insights about the industry. Qualitative analysis focussed on these factors of the industry.
3. **Longitudinal Analysis:** The study used this type of technique to look at the past data 2016-2022 to analyse the pattern and then utilise it to project the changes over time.
4. **Comparative Analysis:** The study evaluates the various product portfolio, clinical trial phases, patent analysis, financial analysis of various companies. For comparing the top players in the market in terms of the cost of treatments, growth and strategies these parameters played a significant role.
5. **Competitive Analysis:** This involves studying the top players in the market in terms of their company profiles which include recent developments, mergers and acquisition activities, product launches and finances. The study involves their market position and strategic initiatives like collaborations, partnerships.
6. **Forecasting:** Using Forecasting techniques like time series analysis to predict the pattern of growth of market in the forecast period along with that conducting situation analysis.

3.7 VALIDATION AND RELIABILITY

The data used triangulation method which involves studying it from various sources and confirming the authenticity of the data. The data was studied thoroughly, and statistical analysis was done to ensure the accuracy and validity of the data. The data was further confirmed by getting expert validation. An interview was scheduled with the industry expert to confirm the insights and the trends.

3.8 PAREMETER AND METRICS

The study categorizes the use of various parameters like market size, growth rate, treatment options, diagnostic tools, end user segment analysis, regional analysis. The total market value gives the revenue that is generated from bladder cancer market and analyzing it region wise to get the growth rate. Compound Annual Growth Rate (CAGR) was used to find growth on a yearly basis. Adoption rate helped to find out about the adoption among the patients towards a particular diagnostic tool, treatment plans. Efficacy parameter mentioned about the effectiveness of a particular treatment option in the patients. Company financials and analyzing the product portfolio was done for performing competitive analysis of top players in the market. The various metrics considered in the study are patient survival rate, treatment success rate, average cost of treatment, number of tests performed, number of procedures performed in the hospitals and clinics, patents filed by the company and market share of top players in the market.

3.9 SIGNIFICANCE OF STUDY

This study provides a circumstantial analysis of this disease market together with its offerings. The report provides insights regarding the market size, treatment options, demand for products in the market, which can help the concerned stakeholders to decide on the investments related to this market. The competitive analysis of companies will help the stakeholders to analyze their competitor's company and their strategies adopted. The healthcare providers like hospitals, private cancer clinics, urology clinics can be benefitted by the study by understanding the efficacy of a particular treatment plan over the other, the trends going on the treatment option, diagnostic tools and can optimize the same accordingly. The study also mentions how technological advancements help in early detection of the disease and will finally augmentation the survival rate.

3.10 SCOPE OF STUDY

The study is a detailed and comprehensive analysis of the market which can be utilized by many concerned authorities like hospitals, market players, doctors, physicians as the report provides in depth analysis of all the parameters of market dynamics like trends, opportunities, challenges, and patient adoption. This mentions strategic recommendations to the key opinion leaders. A complete economic and financial analysis of the companies is added to the report which will help the

concerned person to make proper decisions regarding any partnership, collaboration and investments.

3.11 LIMITATION AND ASSUMPTION

There were limitations in the study which include lack of availability of data of underdeveloped or low-income countries, which was making it a bit difficult to make predictions for such regions. The data available was a few years old which again caused a problem to accurately determine the growth rate. The advancements in the new approaches made it a little difficult to understand the paradigm shift and to determine the exact numbers. Economic fluctuations like recession made it difficult to find out the exact healthcare spending and insurance claims. The appearance of brand new advanced players into the market also affected the analysis of market share contributed by the existing players in the domain.

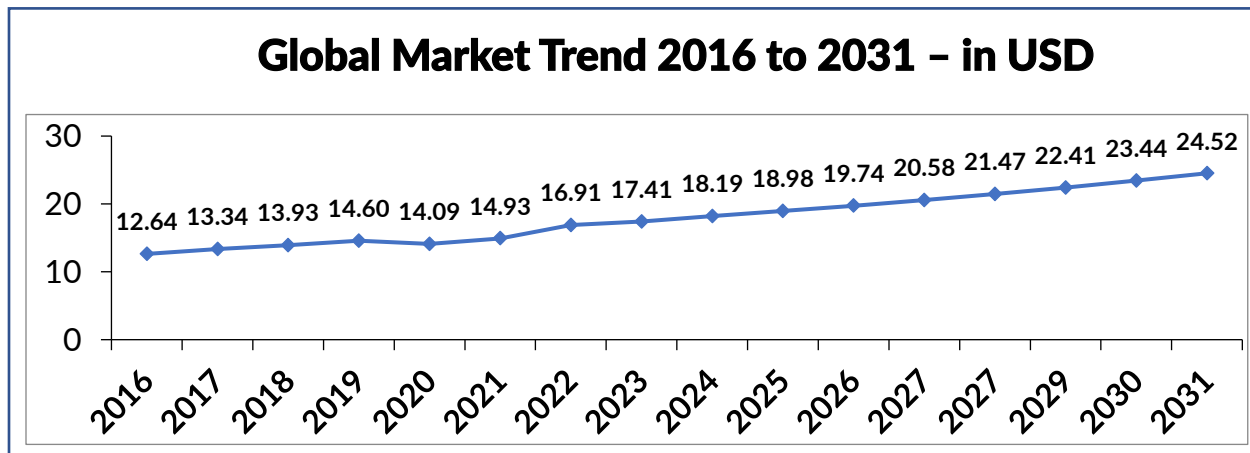
3.12 ETHICAL CONSIDERATION

All the people involved in the interview and survey process were informed about the purpose of the study and informed consent was taken from all of them. The concerned industry experts, key stakeholders were assured that their responses will be kept strictly confidential and is used only for research purposes and won't be disclosed to anyone else.

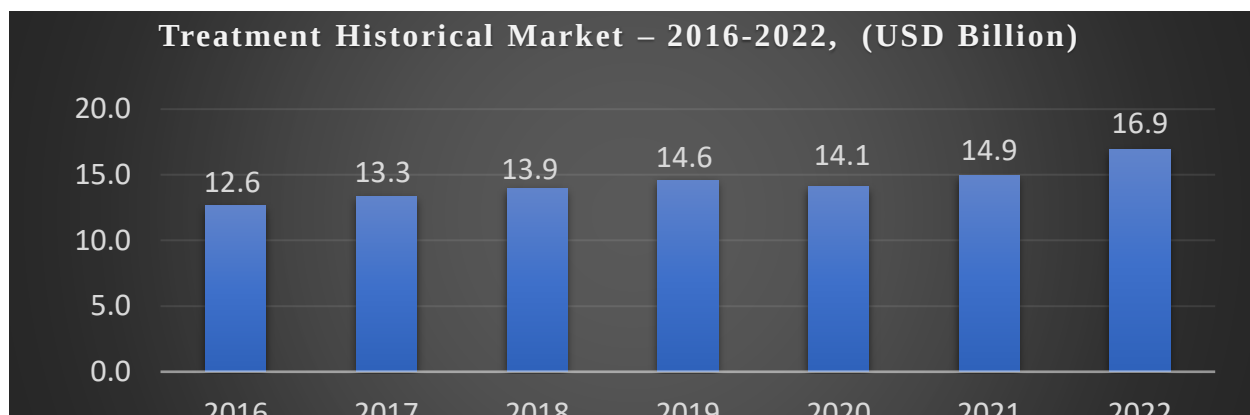
CHAPTER 4

RESULTS

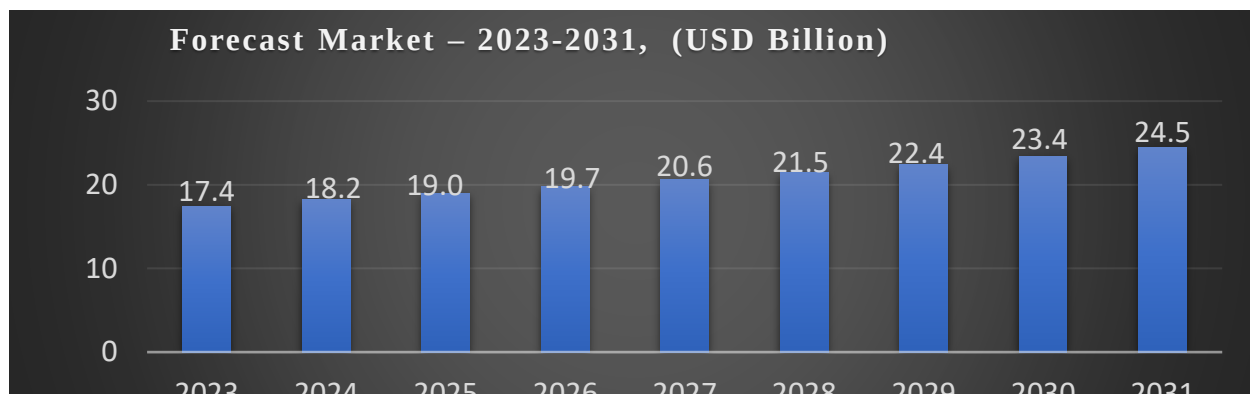
4.1 ANALYSIS OF TREND OF GLOBAL MARKET 2016 TO 2031



Graph 4.1.1 Global Bladder cancer market (2016-2031)



Graph 4.1.2 Historical data of Bladder cancer market

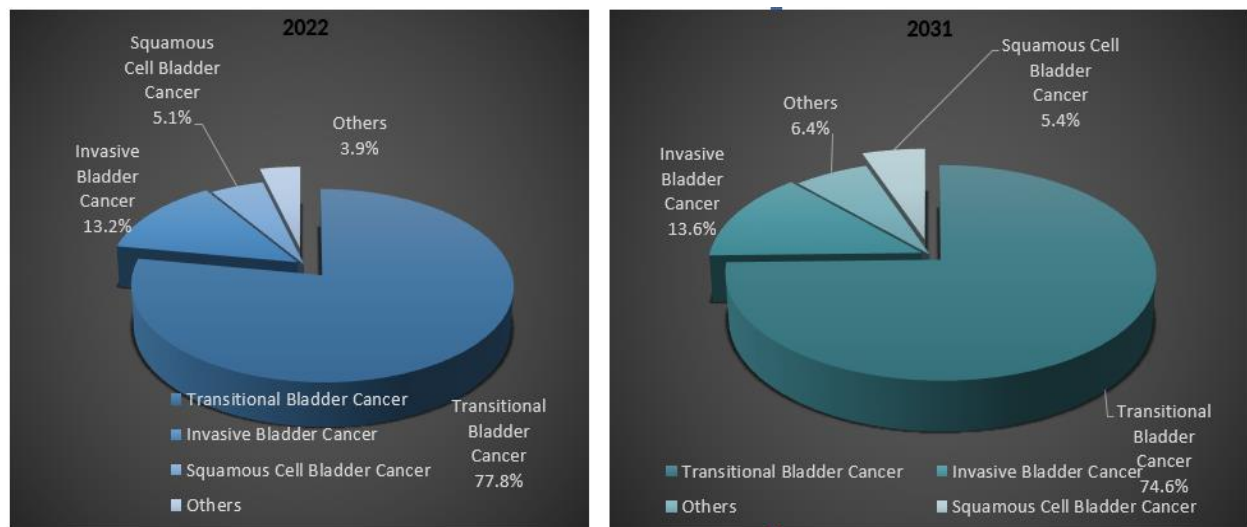


Graph 4.1.3 Forecast of Bladder cancer market

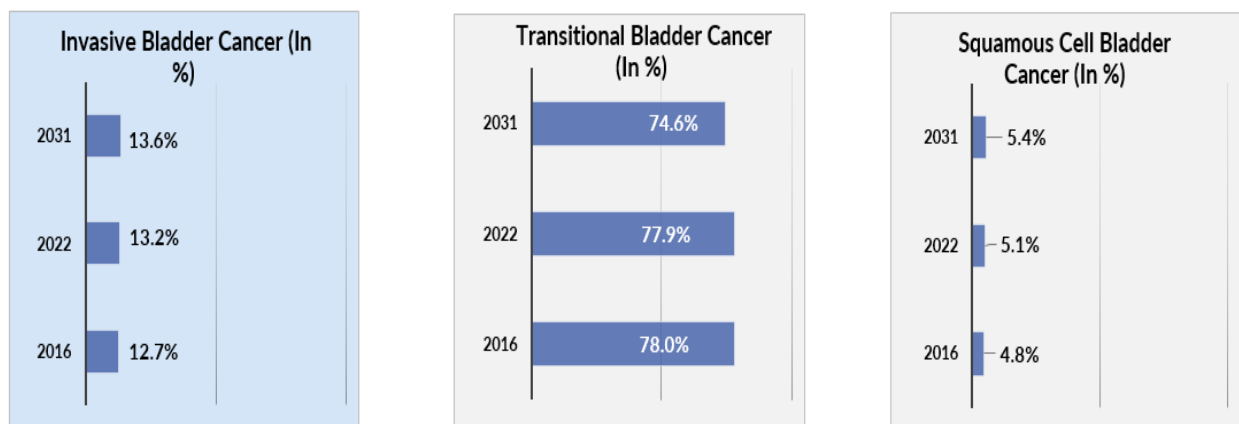
INSIGHTS

The global market was at USD 12.64 Billion in the year 2016 and is anticipated to grow up to USD 24.5 Billion in 2031. There is seen a constant rise in the overall market value due to rising prevalence of bladder cancer. It is expected that there will be further rise in the bladder cancer cases due to reasons like lack of pure drinking water (arsenic deposits), defects in bladder from birth and use of urinary catheters for a long duration.

4.2 ANALYSIS OF MARKET BY DISEASE TYPE



Graph 4.2.1 Historical and forecast overview of market by type of bladder cancer

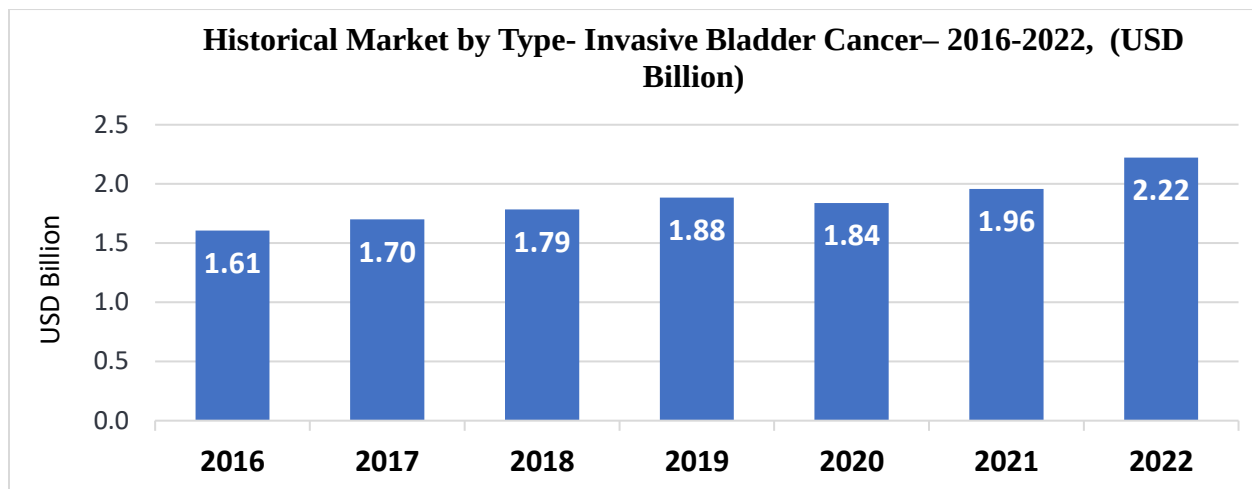


Graph 4.2.2 Market share captured by three types of bladder cancer

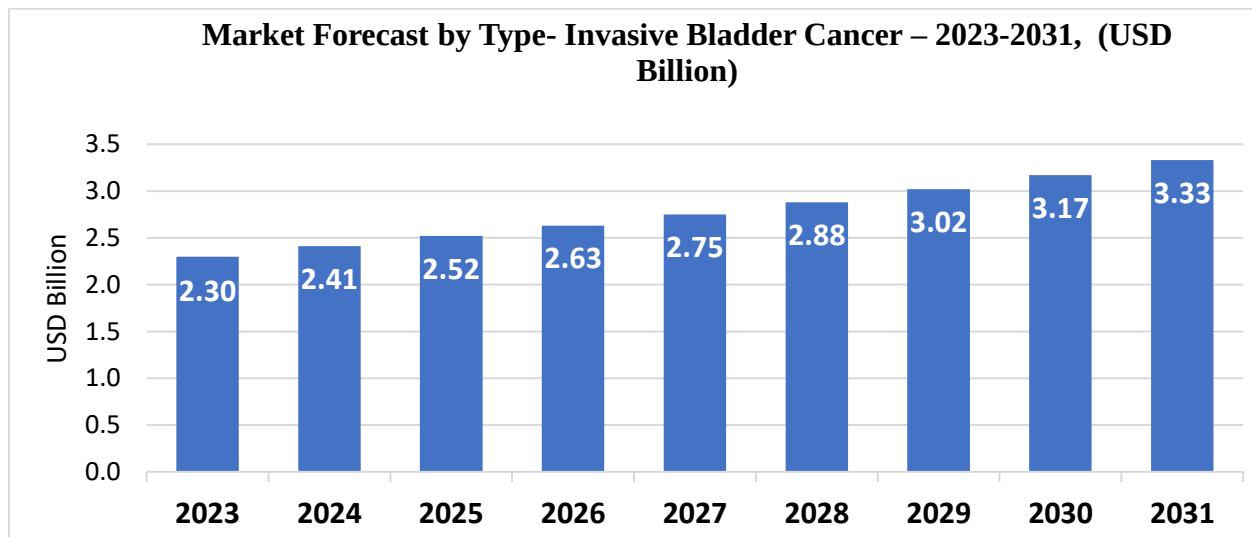
INSIGHTS

Based on type, the market is likely to be dominated by the non-invasive treatments as it is more convenient for the patients and invasive procedures are mostly the last resort. The rising demand for non-muscle invasive treatment has been aiding the growth of this type. It accounted for a market share of 13.2% in 2022. The squamous cell bladder cancer is the least quotidian type of bladder cancer in the market, which accounted for a market share of 5.1% in 2022. The transitional bladder cancer is the most quotidian type and reports for 90% of the total cases. It holds for a market share of 77.9% in 2022.

4.3 ANALYSIS OF MARKET DISEASE TYPE (INVASIVE BLADDER CANCER)



Graph 4.3.1 Historical period trends of Invasive bladder cancer market

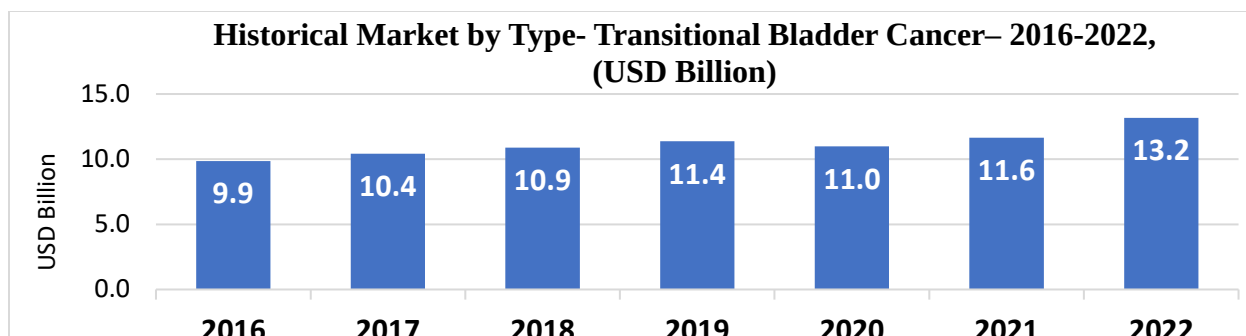


Graph 4.3.2 Forecast period trends of Invasive bladder cancer market

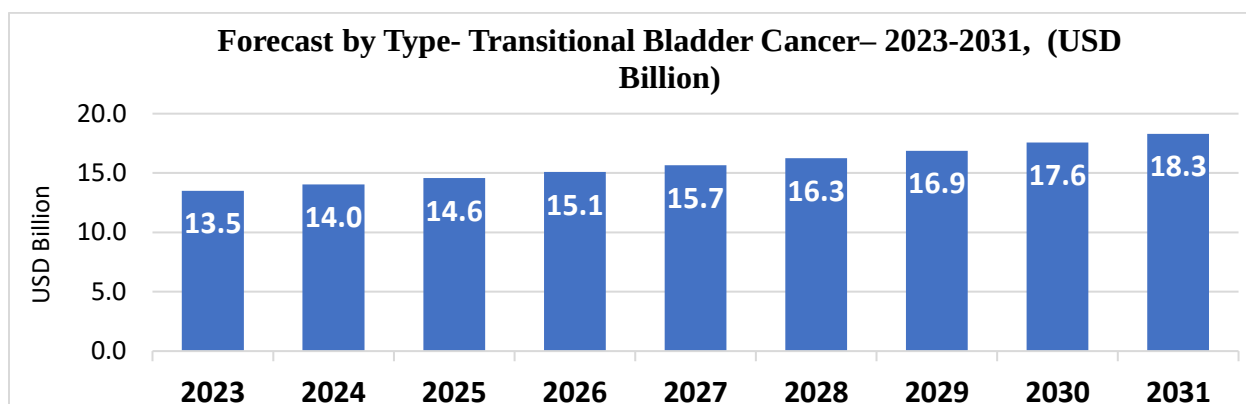
INSIGHTS

- The invasive bladder cancer treatment market stood at a value of USD 2.22 billion in 2022. The market augmentation at a CAGR of 5.59% during the historical period of 2016-2022. The market is forecasted to grow at a rapid CAGR and reach a value of USD 3.33 Billion. This type of cancer doesn't penetrate the muscles but penetrates deep into the linings of bladder making it very fatal and hard to treat, hence treatments for this type of cancer is in very high demand due to its fatalities and the cost of the treatment is very high.

4.4 ANALYSIS OF MARKET DISEASE TYPE (TRANSITIONAL BLADDER CANCER)



Graph 4.4.1Historical period trends of Transitional bladder cancer market

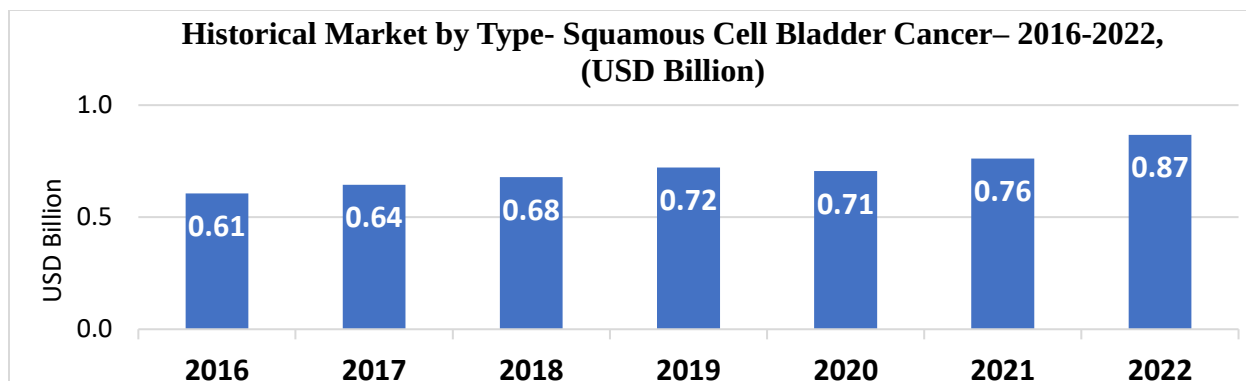


Graph 4.4.2 Forecast period trends of Transitional bladder cancer

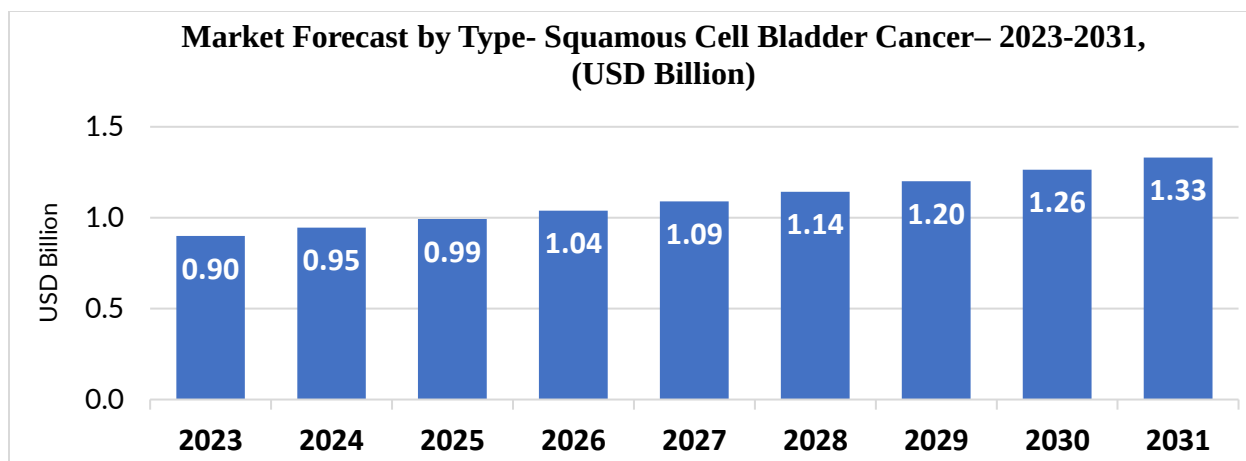
INSIGHTS

The treatment market for transitional bladder cancer secured a value of USD 13.17 billion in 2022. The market grew at a CAGR of 4.94% during the historical period of 2016-2022 and is forecasted to grow upto USD 18.3 Billion in 2031. This is the most quotidian of all cancer and hence many drugs are in the clinical trial phases promoting the growth of the market.

4.5 ANALYSIS OF MARKET DISEASE TYPE (SQUAMOUS CELL BLADDER CANCER)



Graph 4.5.1Historical period trends of Squamous cell bladder cancer market

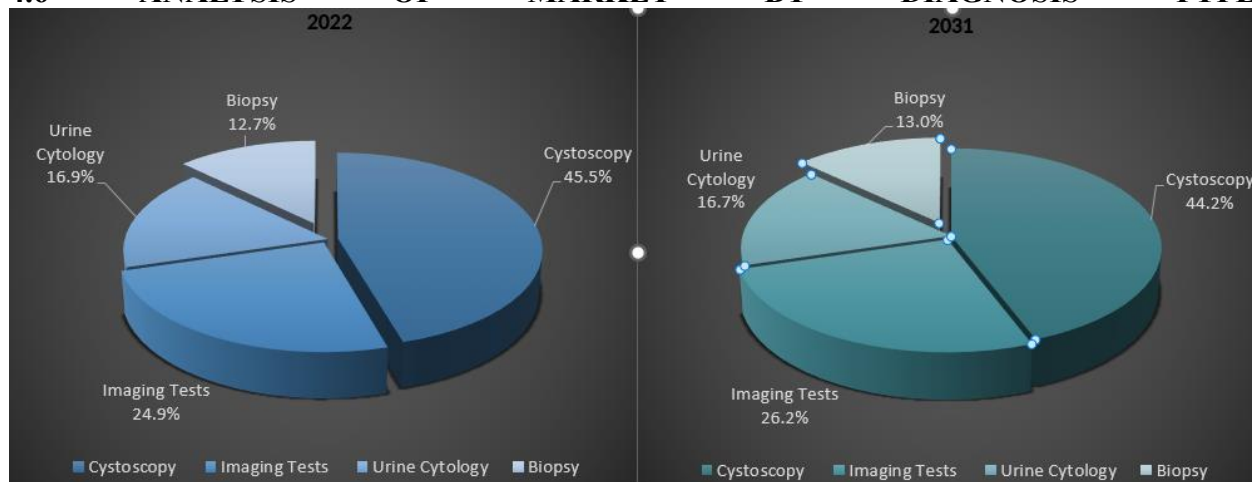


Graph 4.5.2 Forecast period trends of Squamous cell bladder cancer market

INSIGHTS

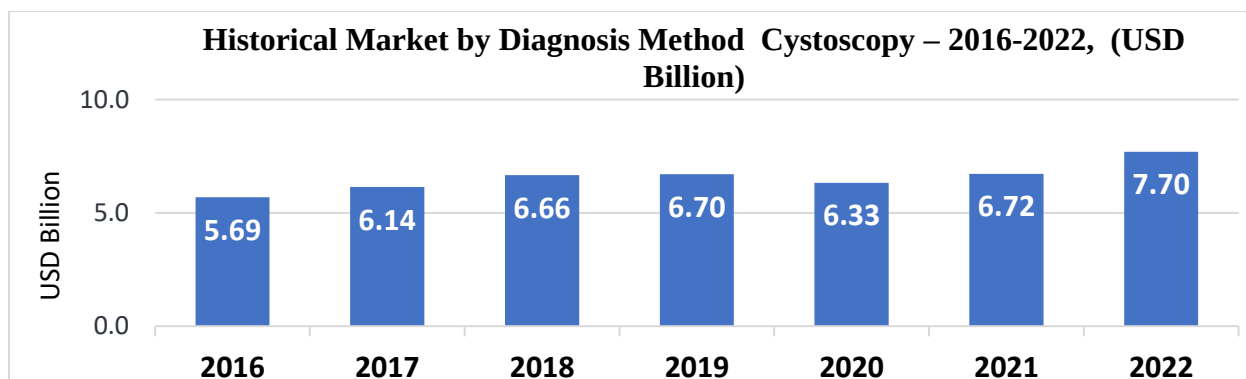
The squamous cell bladder cancer type obtained a value of USD 0.87 billion in 2022, while growing at a CAGR of 6.15%. This happened in historical period of 2016-2022, driven by the rising healthcare spending and reimbursement scenario, along with the rising geriatric population and is forecasted to rise upto USD 1.33 Billion due to presence of awareness among people and early detection.

4.6 ANALYSIS OF MARKET BY DIAGNOSIS TYPE

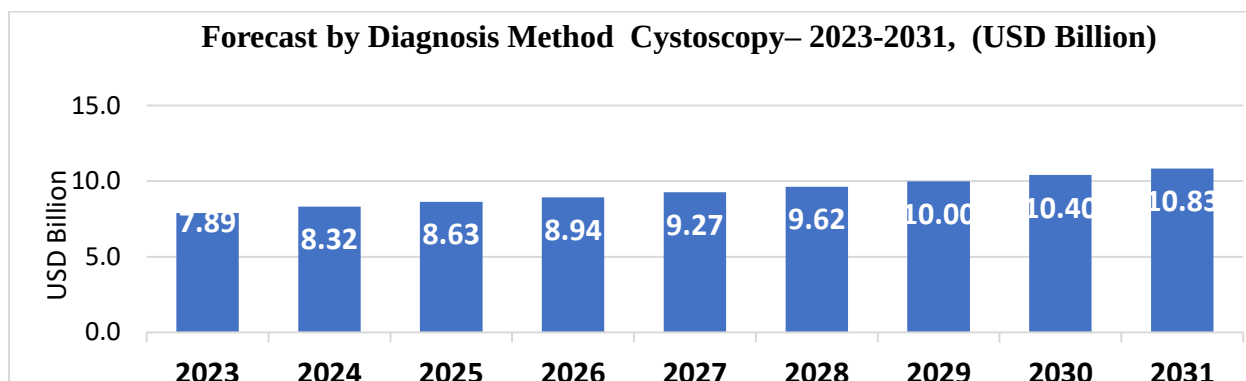


Graph 4.6.1 Historical and forecast overview of market by Diagnostic tool used to detect bladder cancer

4.7 ANALYSIS OF MARKET DIGNOSTIC TYPE- CYTOSCOPY METHOD



Graph 4.7.1 Historical period trends of Cystoscopy Method

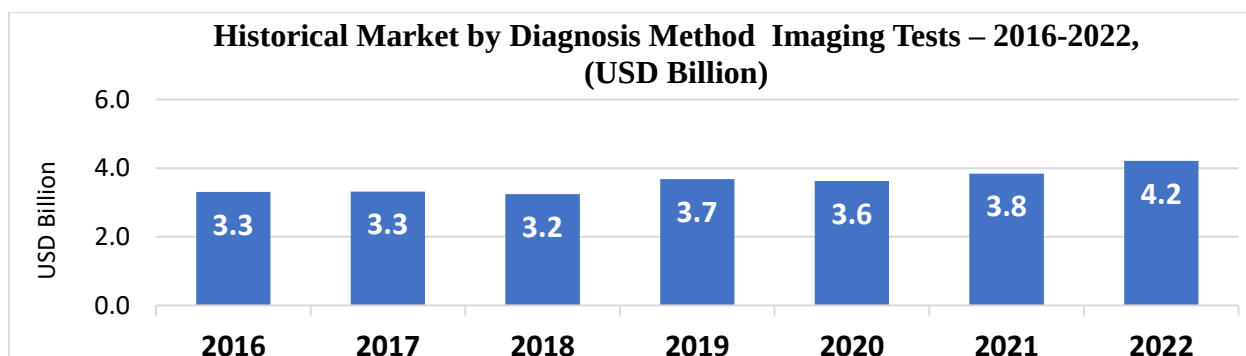


Graph 4.7.2 Forecast period trends of Cystoscopy Method

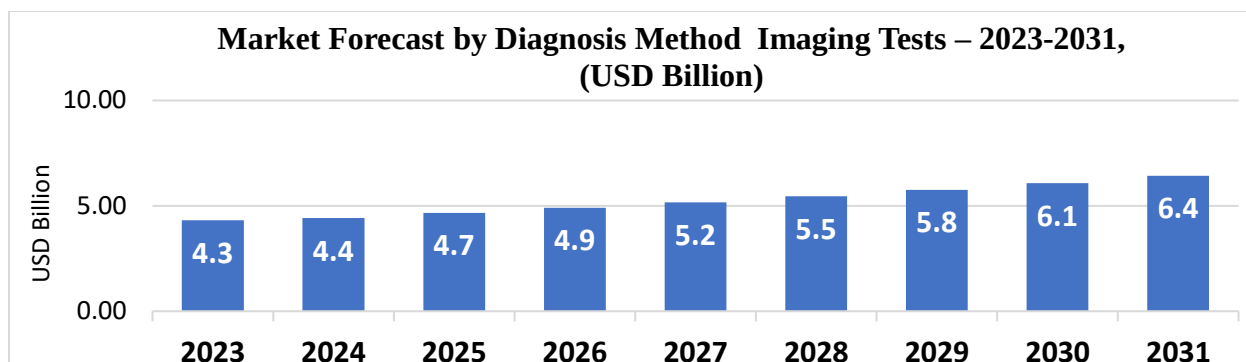
INSIGHTS

The cystoscopy diagnosis segment of the market reached a value of about USD 7.7 billion in 2022, growing at CAGR of 5.16% during the historical period of 2016-2022 and is expected to grow upto USD 10.83 Billion in 2031. It is one of the predominant methods for diagnosing bladder cancer since it carries a low risk and enables the urologist to take biopsy samples and resect papillary lesions simultaneously.

4.8 ANALYSIS OF MARKET DIGNOSTIC TYPE- IMAGING TESTS METHOD



Graph 4.8.1 Historical period trends of Imaging tests method

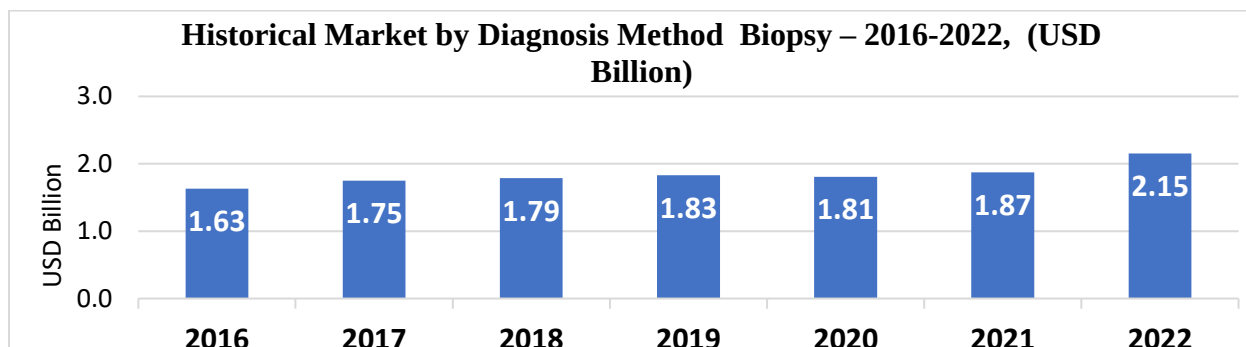


Graph 4.8.2 Forecast period trends of Imaging Tests Method

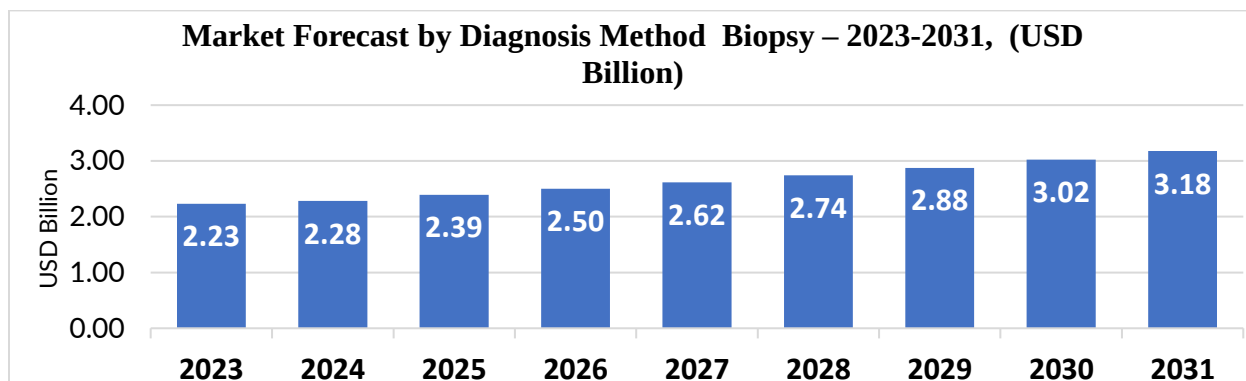
INSIGHTS

The imaging tests segment of the bladder cancer treatment market reached a value of about USD 4.2 billion in earliest, while growing at CAGR of 4.11%. This took place at the historical period of 2016-2022. The imaging tests segment is highly anticipated to extend at a CAGR of 5.11% during the forecast period of 2023-2031 to reach a prominent amount of about USD 6.4 billion by 2031.

4.9 ANALYSIS OF MARKET DIGNOSTIC TYPE- BIOPSY METHOD



Graph 4.9.1 Historical period trends of Biopsy method

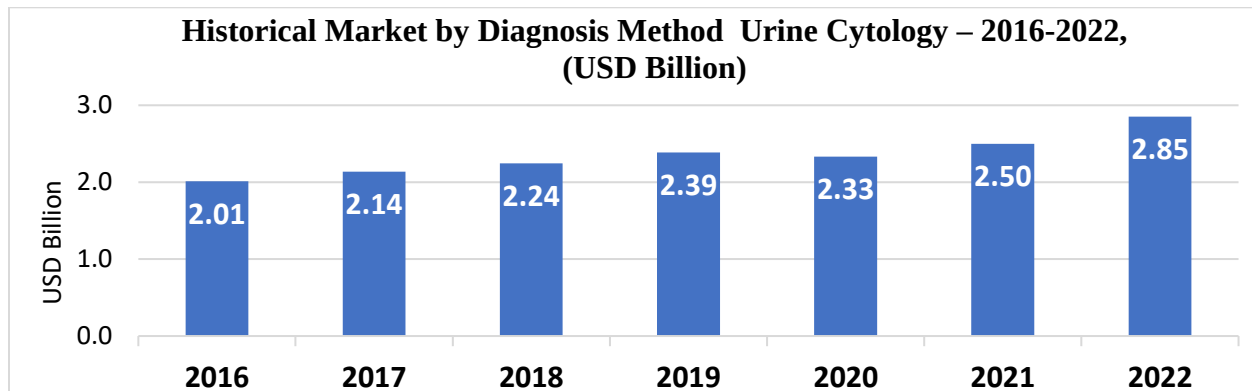


Graph 4.9.2 Forecast period trends of Biopsy method

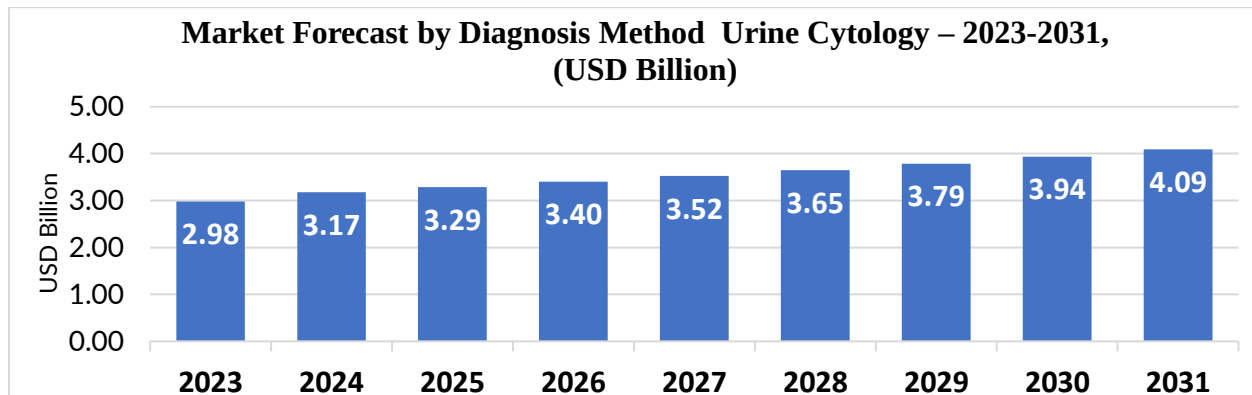
INSIGHTS

The biopsy segment of the bladder cancer treatment market reached a value of about USD 2.15 billion in 2022, growing at a CAGR of 4.74% during the historical period of 2016-2022. The market is going to attain a value of about USD 3.18 billion by 2031. The market will accomplish a CAGR of 4.51% in the forecast period of 2023-2031.

4.10 ANALYSIS OF MARKET DIAGNOSTIC TYPE- URINE CYTOLOGY



Graph 4.10.1 Historical period trends of Urine Cytology

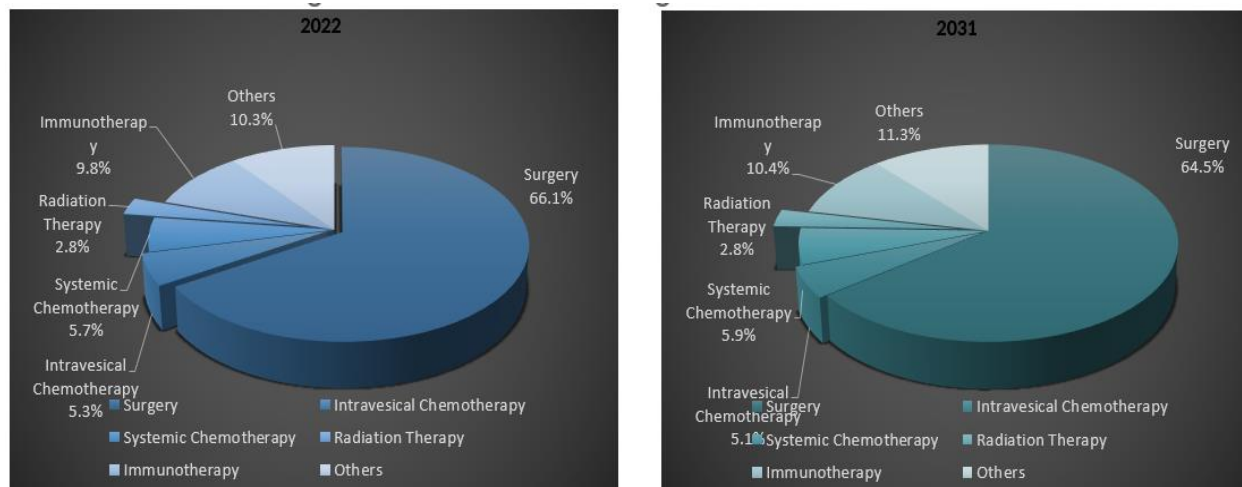


Graph 4.10.2 Forecast period trends of Urine Cytology

INSIGHTS

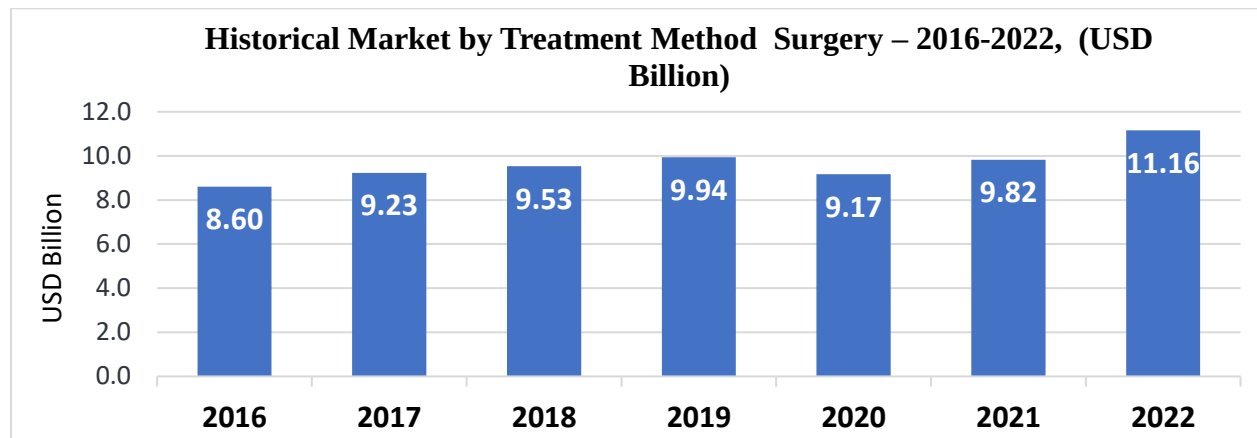
The urine cytology diagnostic tool gained a value of about USD 2.85 billion in 2022 reporting at a CAGR of 5.98%. This happened to be in the historical period of 2016-2022. The urine cytology segment is going to achieve a value of about USD 4.09 billion by 2031, will shine at a CAGR of 4.03% during the forecast period of 2023-2031.

4.11 ANALYSIS OF MARKET BY TREATMENT TYPE

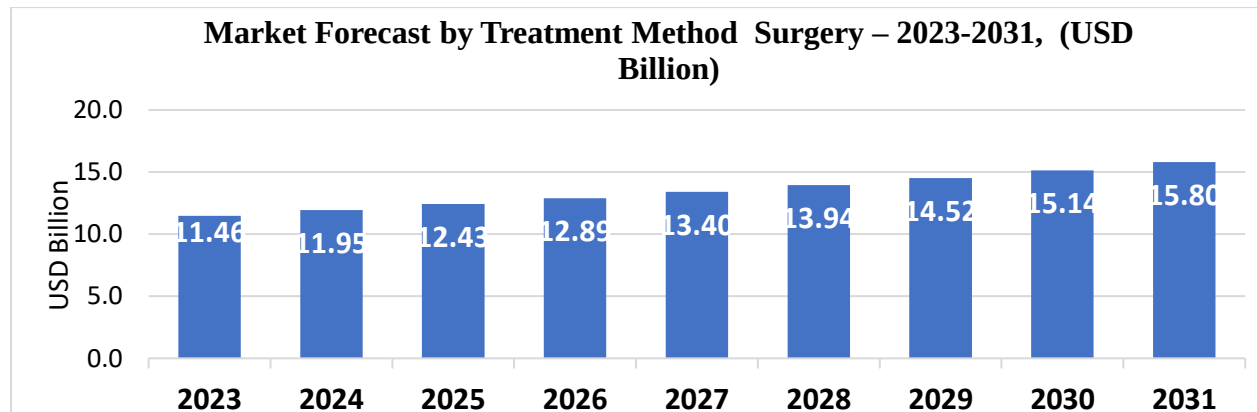


Graph 4.11.1 Historical and forecast overview of market by treatment methods to cure Bladder cancer

4.12 ANALYSIS OF MARKET BY TREATMENT TYPE- SUEGERY



Graph 4.12.1 Historical period trends of Surgery

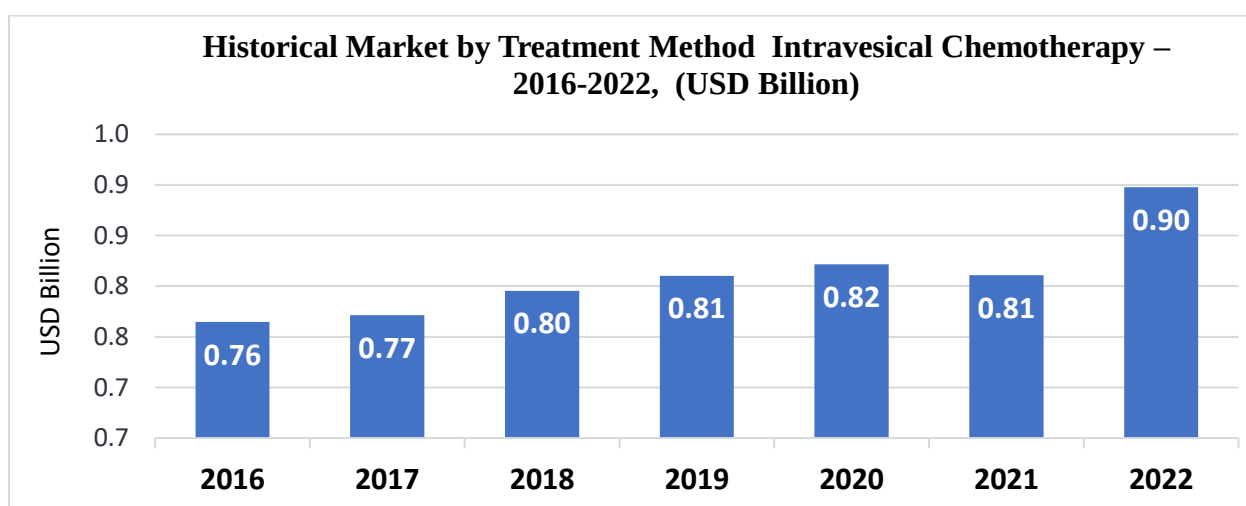


Graph 4.12.2 Forecast period trends of Surgery

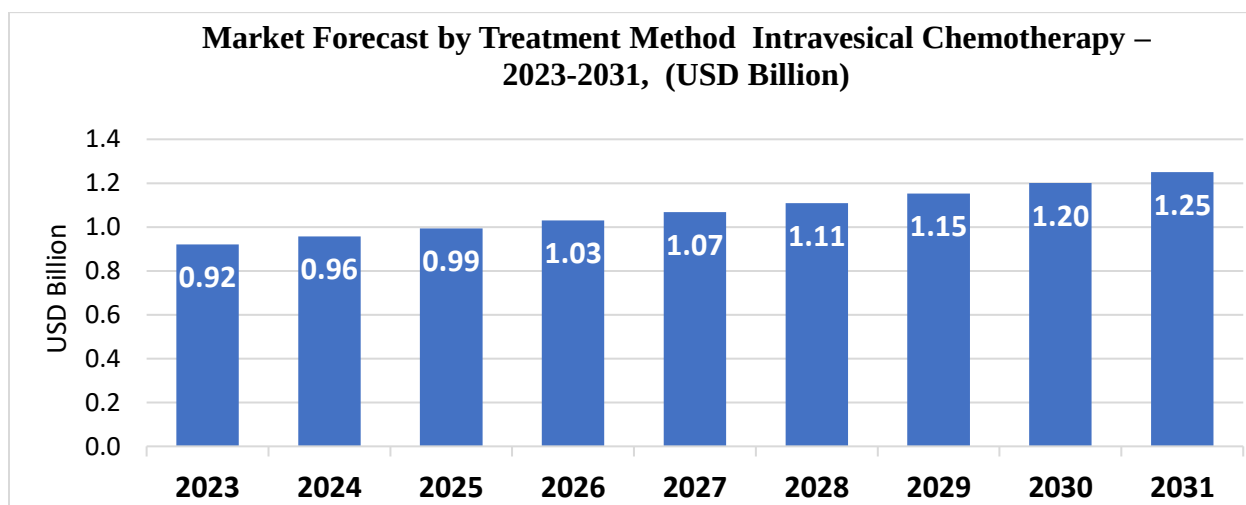
INSIGHTS

The surgery segment of the bladder cancer treatment market reached a value of about USD 11.16 billion in 2022, blossoming at CAGR of 4.4%. This happened in the historical period of 2016-2022. Surgery is the primary and most prominent method of treatment used to treat the bladder cancer. The surgery segment of the bladder cancer treatment market will attain a value of about USD 15.80 billion by 2031, achieve to grow at CAGR of 4.09% during the forecast period of 2023-2031.

4.13 ANALYSIS OF MARKET BY TREATMENT TYPE- INTRAVESICAL CHEMOTHERAPY



Graph 4.13.1 Historical period trends of Intravesical Chemotherapy

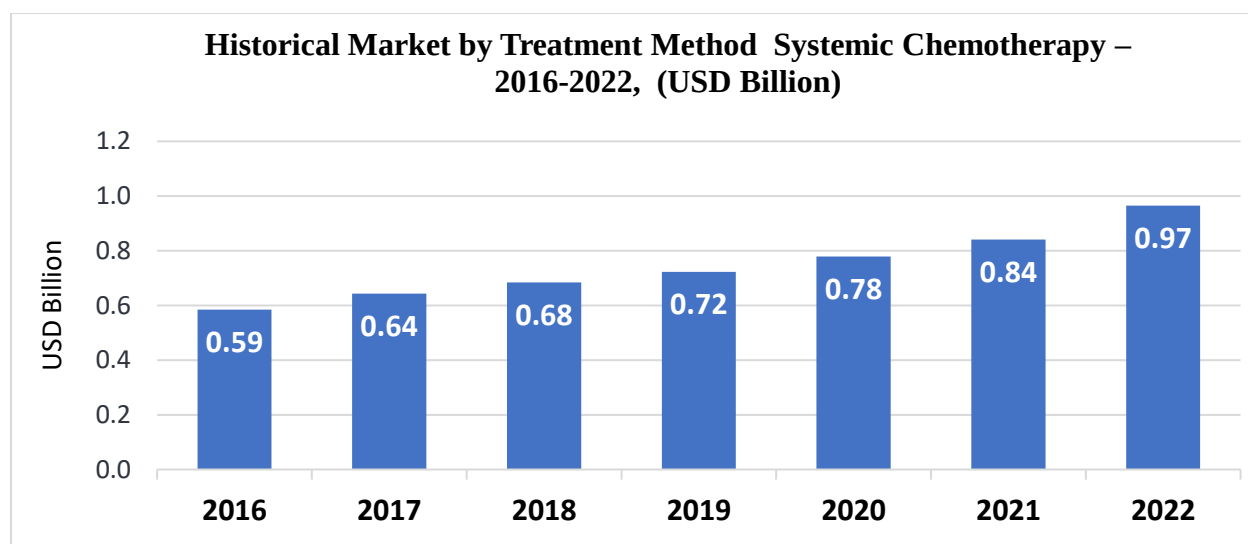


Graph 4.13.2 Forecast period trends of Intravesical Chemotherapy

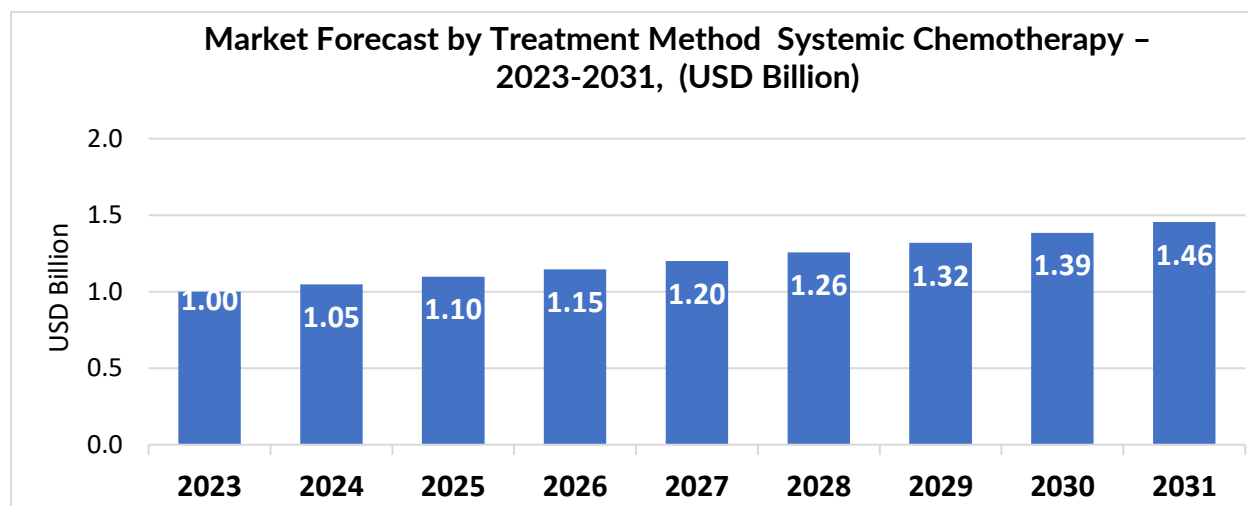
INSIGHTS

The intravesical chemotherapy segment of the global market reached a value of about USD 0.90 billion in 2022. The market registered a CAGR of 2.71%. This took place in the historical period of 2016-2022. The intravesical chemotherapy segment is going to blossom and henceforth reach a value of about USD 1.25 billion in 2031, will secure a CAGR 3.9% during the forecast period of 2023-2031.

4.14 ANALYSIS OF MARKET BY TREATMENT TYPE- SYSTEMIC CHEMOTHERAPY



Graph 4.14.1 Historical period trends of Systemic Chemotherapy

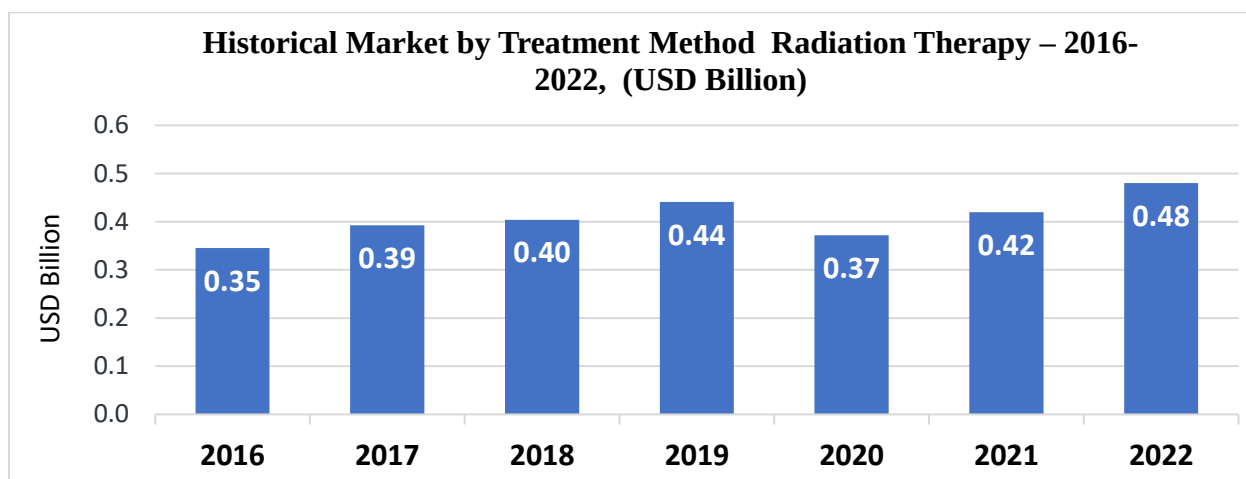


Graph 4.14.2 Forecast period trends of Systemic Chemotherapy

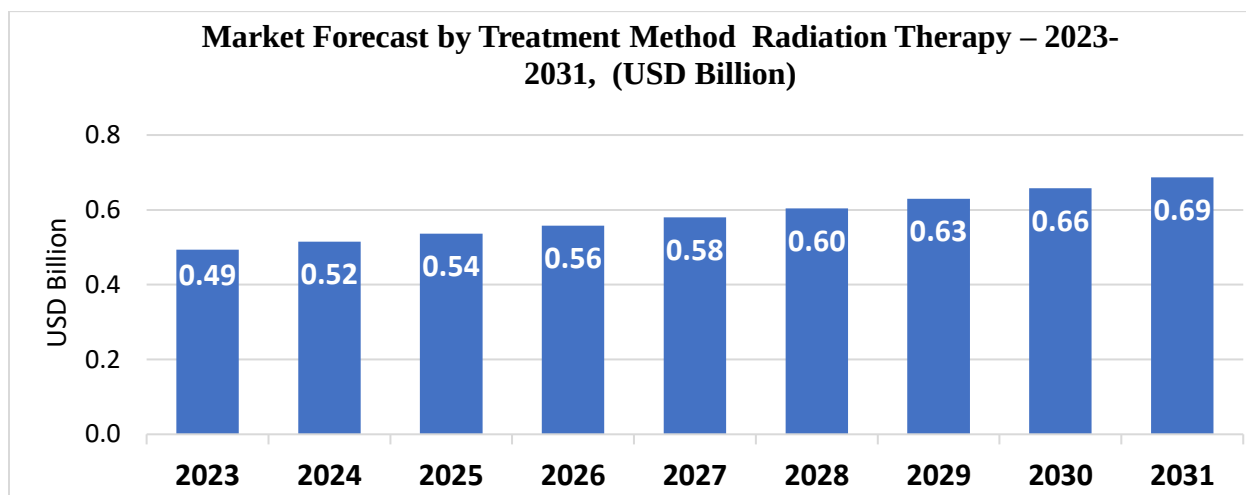
INSIGHTS

The market was at a slow growing value of about USD 0.97 billion in 2022, secured CAGR 8.7%. This was registered in the historic period. The market for systemic chemotherapy will reach an outstanding USD 1.46 billion in 2031. The market will flourish at a CAGR of 4.82%. This will occur in forecast period of 2023-2031.

4.15 ANALYSIS OF MARKET BY TREATMENT TYPE- RADIATION THERAPY



Graph 4.15.1 Historical period trends of Radiation Therapy

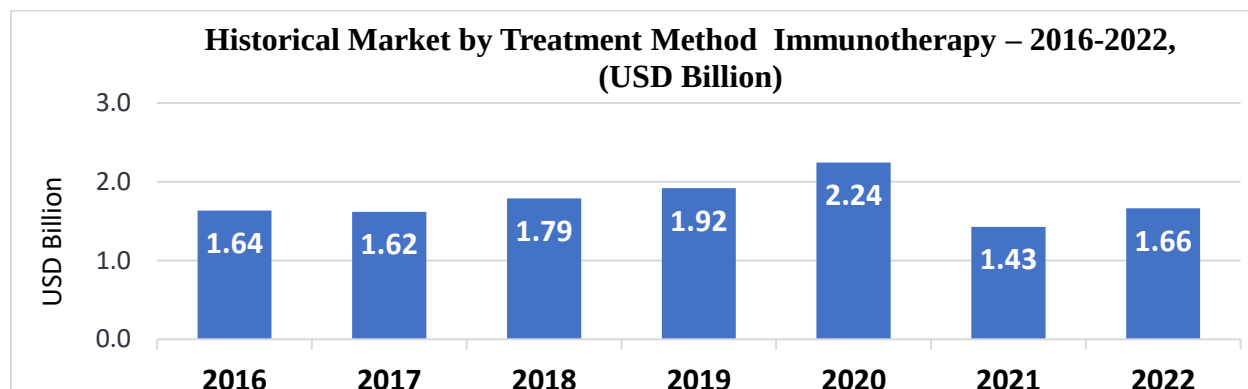


Graph 4.15.2 Forecast period trends of Radiation Therapy

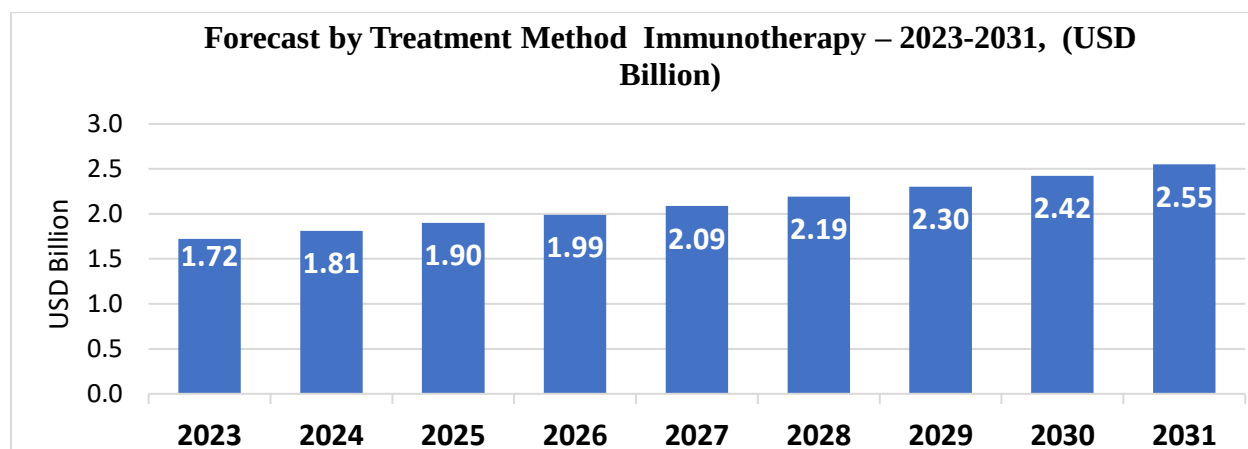
INSIGHTS

The market was at a slow growing value of about USD 0.48 billion in 2022, secured a CAGR 5.67% during the historical period of 2016-2022. The Radiation Therapy market will reach about USD 0.69 billion in 2031, growing at a CAGR of 4.21% in 2023-2031.

4.16 ANALYSIS OF MARKET BY TREATMENT TYPE- IMMUNOTHERAPY



Graph 4.16.1 Historical period trends of Immunotherapy

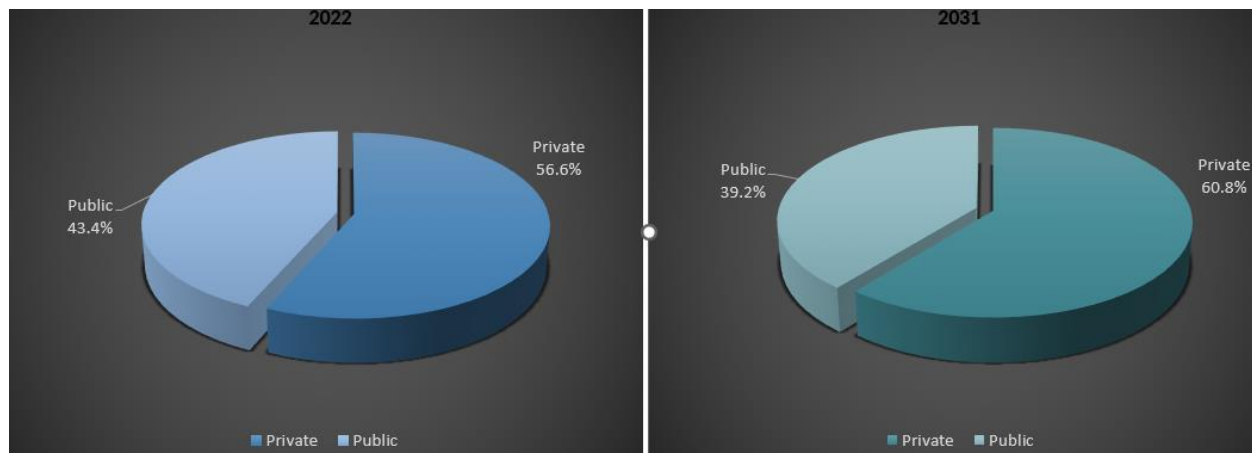


Graph 4.16.2 Forecast period trends of Immunotherapy

INSIGHTS

The Immunotherapy market for bladder cancer reached about USD 1.66 billion in 2022, growing at a CAGR 0.27% in 2016-2022. The Immunotherapy market will accomplish about USD 2.55 billion in 2031, expanding at a CAGR 5.03% in the forecast period. The first immunotherapy treatment to receive FDA approval (BCG) for bladder cancer was administered back in 1990.

4.17 ANALYSIS OF MARKET BY TREATMENT CHANNEL

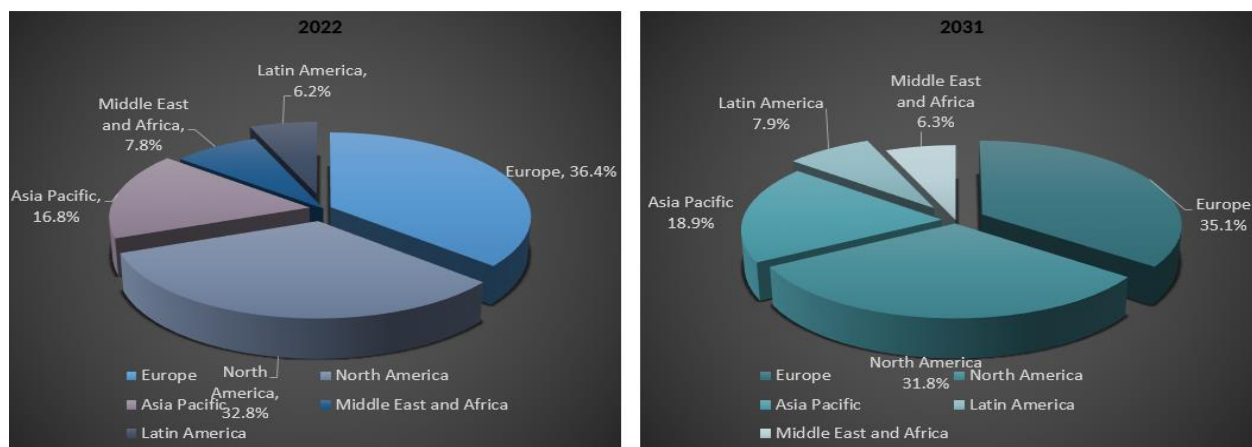


Graph 4.17.1 Historical and forecast overview of market by treatment channel

INSIGHTS

- The public sector of this disease attained market share about USD 5.62 billion in 2016. It further grew at a CAGR of 4.52% during the historical period of 2016-2022, reaching USD 7.33 billion in 2022. The public sector will be spiking up significantly to USD 5.62 billion in 2016. It further spiked at a CAGR of 4.52% during the historical period of 2016-2022, reaching to USD 7.33 billion in 2022.
- The private treatment channel of the bladder cancer treatment market secured USD 7.01 billion in 2016. The segment witnessed further growth at a CAGR of 5.33% in the historical period of 2016-2022, attaining a value of USD 9.58 billion in 2022. The private treatment channel is likely to attain a value of USD 9.95 billion in 2023. The segment is anticipated to augmentation at a CAGR of 5.18%. This will take place in the forecast period of 2023-2031 to reach USD 14.90 billion by 2031.

4.18 REGIONAL ANALYSIS OF GLOBAL BLADDER CANCER MARKET



Graph 4.18.1 Regional Analysis of Bladder Cancer Market

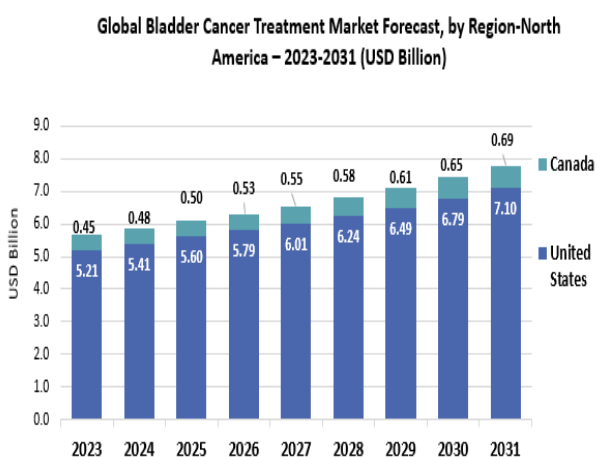
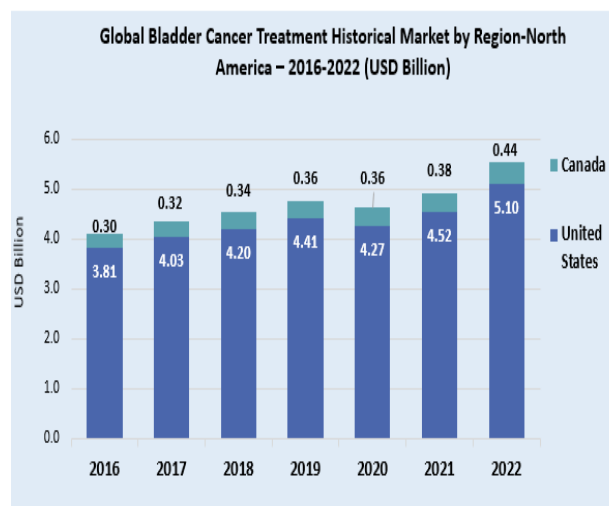
North America - 5.54		Europe - 6.16		Asia Pacific - 2.84		LATAM -1.05		Middle East and Africa - 1.32	
	USA - 5.10		Germany - 1.53		China- 0.54		Brazil- 0.36		Saudi Arabia-0.15
	Canada - 0.44		France - 0.97		Japan- 1.05		Mexico - 0.24		South Africa- 0.11
			UK - 0.85		India- 0.37		Argentina- 0.09		Nigeria- 0.17
			Italy- 1.06	ASEAN- 0.20		Rest of LATAM 0.36			UAE- 0.08

Table 18.1 Regional and their country wise analysis of the market

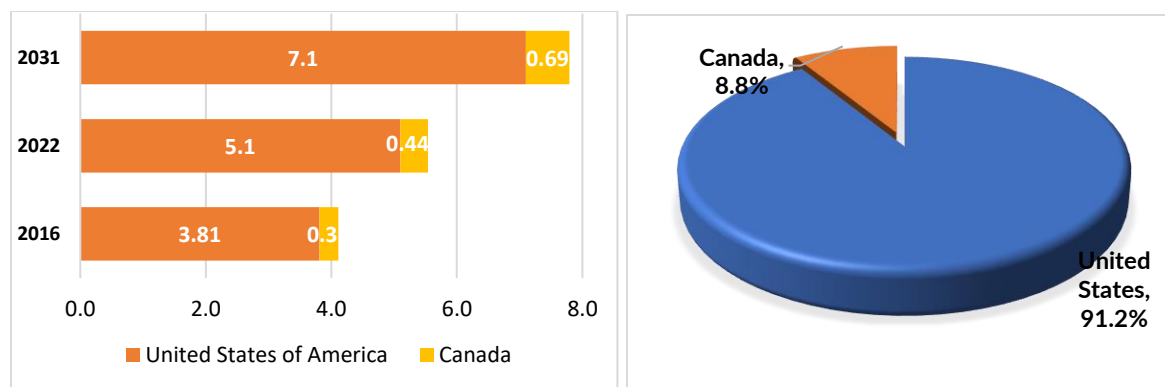
INSIGHTS

The highly demanded is likely to register at a CAGR of 4.37%. This is the status of the forecast period of 2023-2031 where it is likely to establish USD 24.5 billion by 2031. Europe due to several factors will hold the largest share of 35.1%, followed by North America, Asia Pacific, Latin America, and Middle East and Africa, having the shares of 31.8%, 18.9%, 7.9%, and 6.3%, respectively.

4.19 ANALYSIS OF NORTH AMERICA REGION



Graph 4.19.1 Historical and forecated analysis of North America Region market

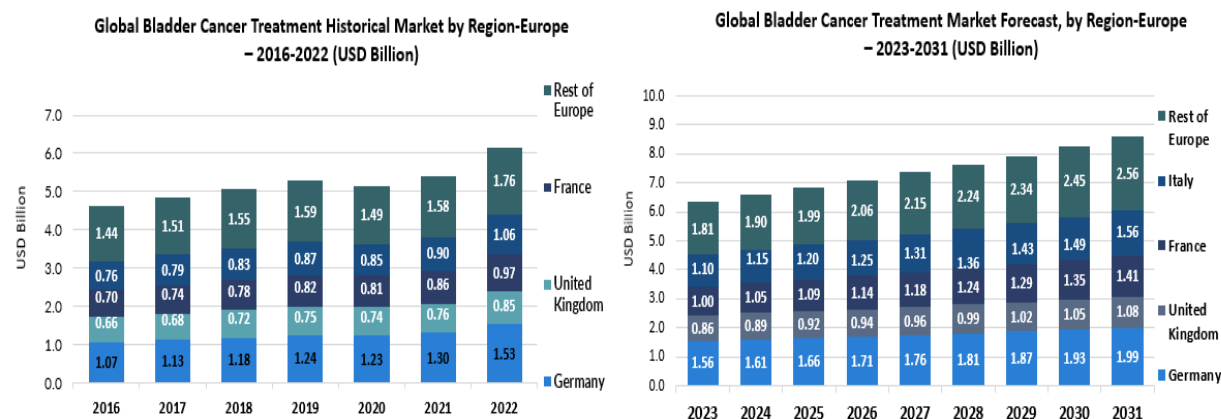


Graph 4.19.2 Analysis Country wise in North America Region market

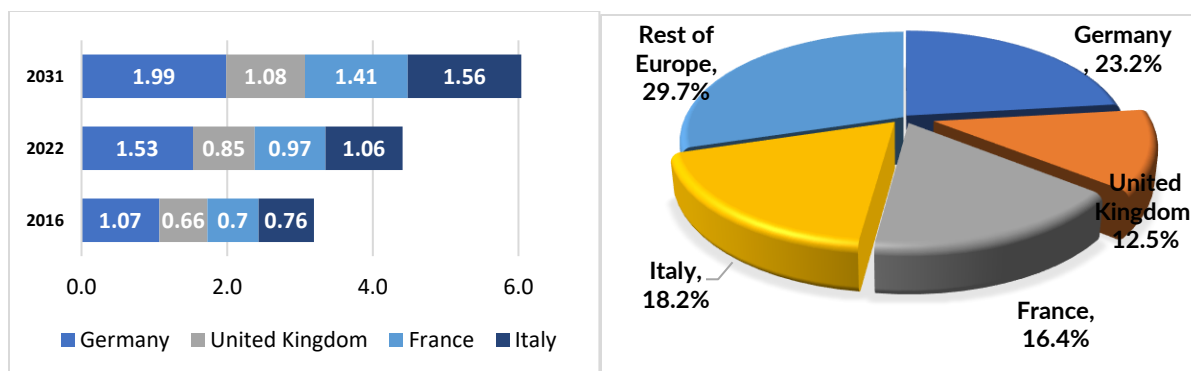
INSIGHTS

The North America bladder cancer treatment market attained a value of USD 5.54 billion in 2022, while rising at a CAGR of 5.11% during the historical period of 2016-2022. The bladder cancer treatment market in North America is likely to grow at a CAGR of 4.06% during the forecast period of 2023-2031. The increasing activities related to the market which comprises of new discoveries related to novel drug delivery, personalized medicines and targeted approach is likely to aggravate the market to its fullest.

4.20 ANALYSIS OF EUROPE REGION



Graph 4.20.1 Historical and forecasted analysis of Europe Region market

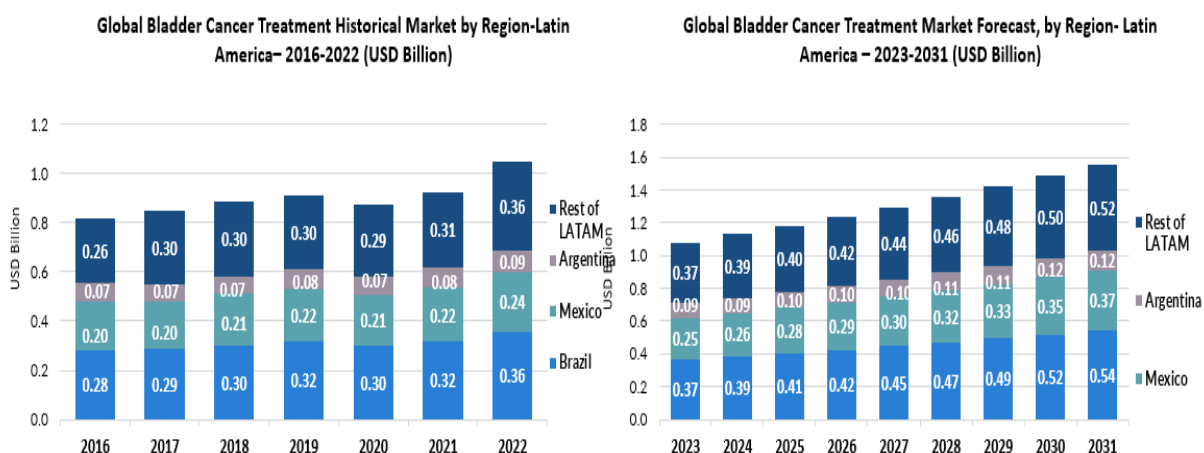


Graph 4.20.2 Analysis Country wise in Europe Region market

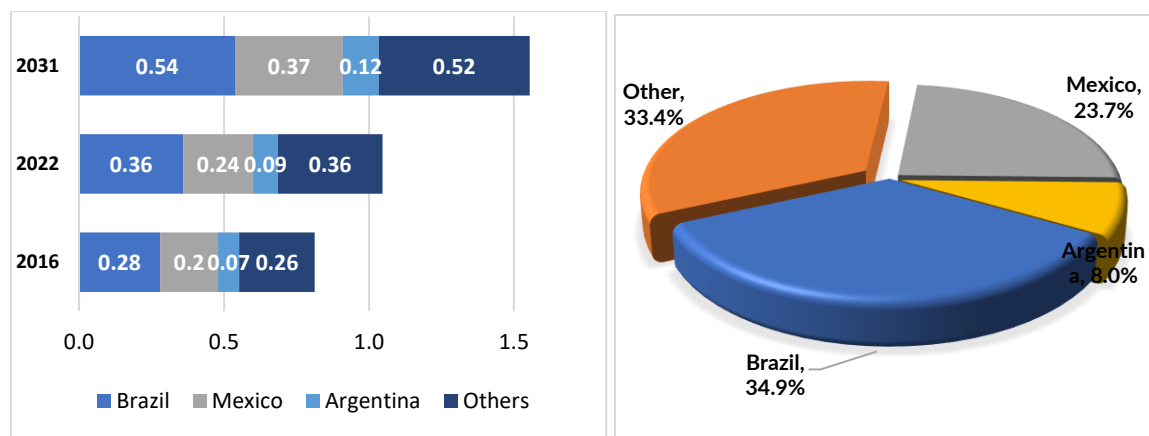
INSIGHTS

The bladder cancer treatment market in Europe attained a value of USD 6.16 billion in 2022, while growing at a CAGR of 4.89% during the historical period of 2016-2022. The bladder cancer treatment market in Europe is likely to attain a value of USD 6.33 billion in 2023. It is likely to grow further at a CAGR of 3.93% during the forecast period of 2023-2031 to attain a value of USD 8.61 billion by 2031. Greece has the highest incidence of bladder cancer in men worldwide, whereas Hungary has the highest incidence of bladder cancer in women. The highest prevalence of bladder cancer is seen in southern Europe, where 5.8 per 100,000 women and 26.6 per 100,000 men are diagnosed with the disease annually.

4.21 ANALYSIS OF LATIN AMERICA REGION



Graph 4.21.1 Historical and forecasted analysis of Latin America Region market

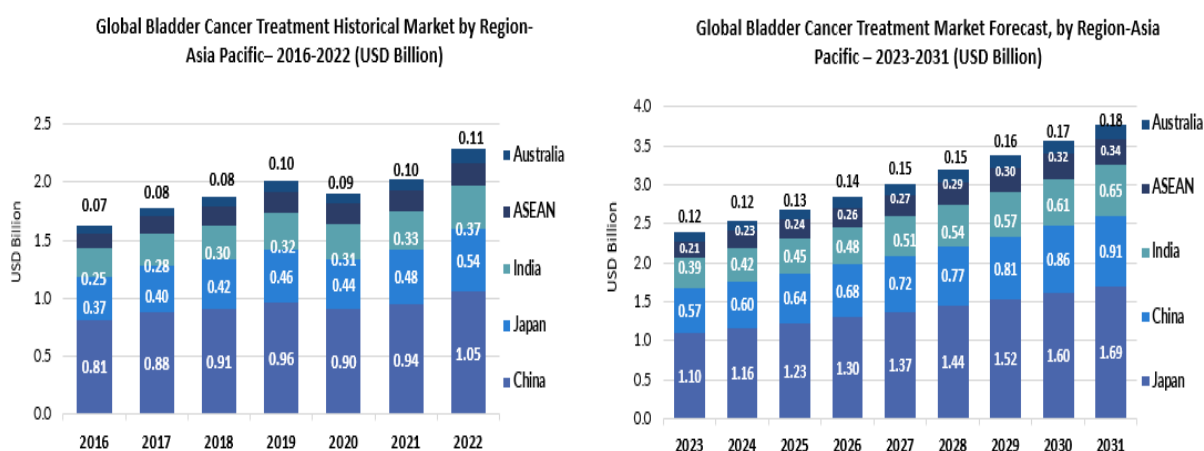


Graph 4.21.2 Analysis Country wise in Latin America Region market

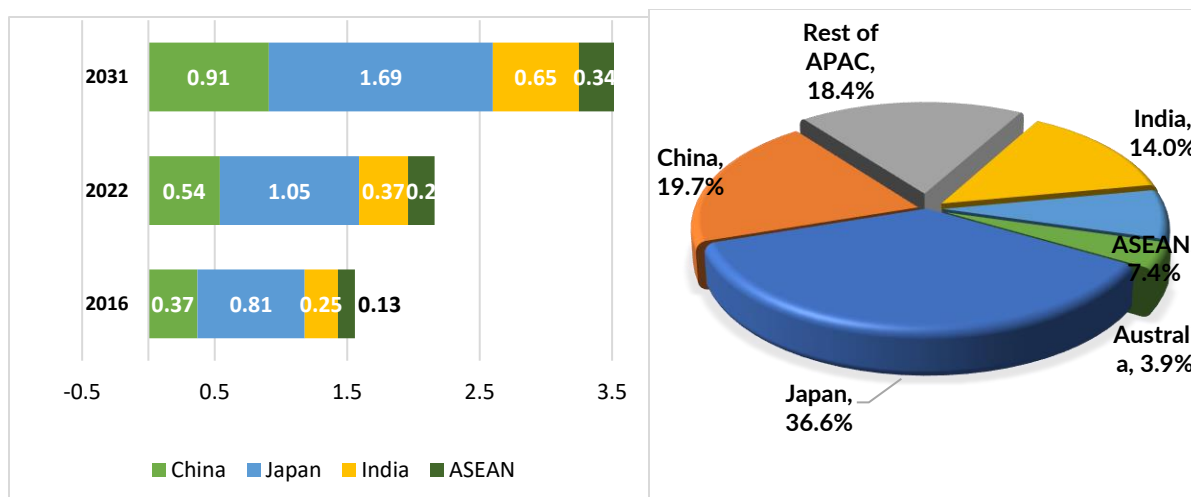
INSIGHTS

The market attained a value of USD 1.05 billion in 2022. While cancer rates associated with westernization were primarily rising, mortality patterns of cancers due to infectious diseases tended to fall in most countries. By 2040, there will be 2.4 million new instances of cancer annually in Latin America and the Caribbean (LAC), increasing by 67% if current rates do not change. Progress has been made in several national and regional cancer control projects in Latin America and the Caribbean (LAC), which has helped to shorten delays in diagnosis and treatment beginning.

4.22 ANALYSIS OF ASIA PACIFIC REGION



Graph 4.22.1 Historical and forecasted analysis of Asia Pacific Region market

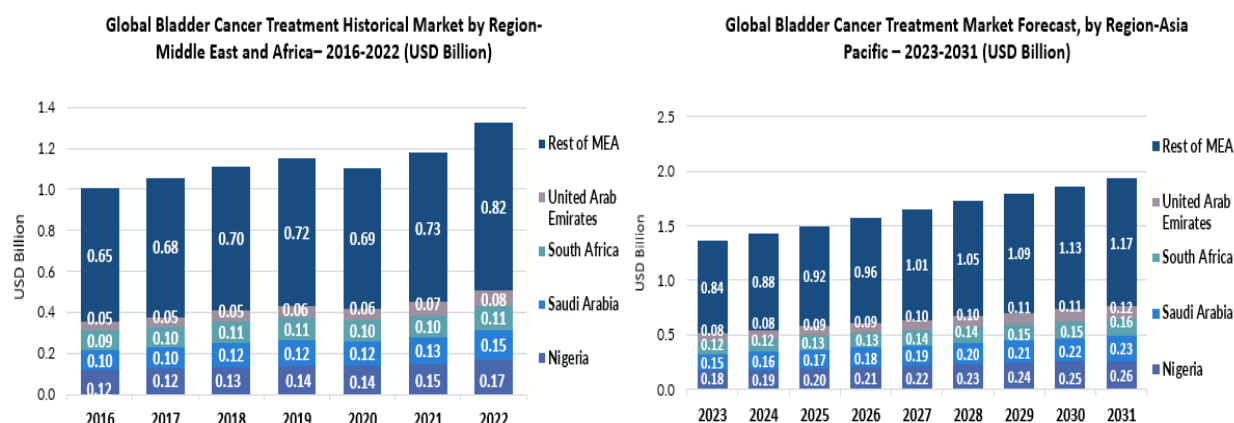


Graph 4.22.2 Analysis Country wise in Asia Pacific Region market

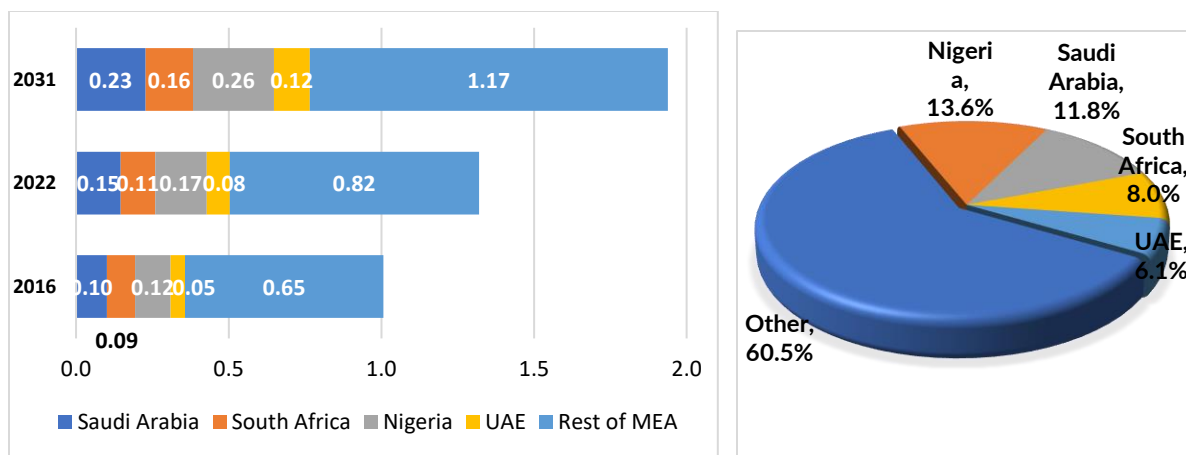
INSIGHTS

The bladder cancer treatment market in Asia Pacific attained a value of USD 2.84 billion in 2022. The regional market grew at a CAGR of 5.33% during the historical period of 2016-2022. The bladder cancer treatment Asia market is likely to augmentation at a CAGR of 5.67% during the forecast period of 2023-2031 to attain a value of USD 2.97 billion in 2023 and USD 4.62 billion by 2031.

4.23 ANALYSIS OF MIDDLE EAST AND AFRICA REGION



Graph 4.23.1 Historical and forecasted analysis of Middle East and Africa Region market

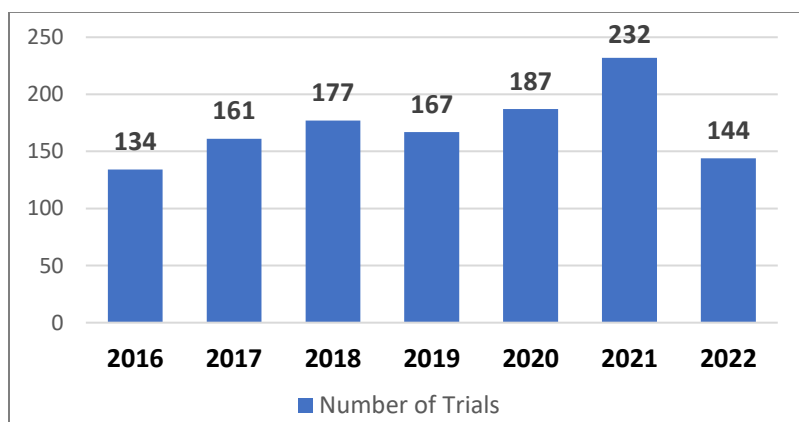


Graph 4.23.2 Analysis Country wise in Middle East and Africa Region market

INSIGHTS

The bladder cancer treatment market in Middle East and Africa attained a value of USD 1.32 billion in 2022, growing at a CAGR of 4.61% during the historical period of 2016-2022. The market for bladder cancer treatment medicines is anticipated to be driven by rising bladder cancer cases, technical developments, pharmacological breakthroughs for the treatment of bladder cancer, government initiatives, an older population, and advanced healthcare systems.

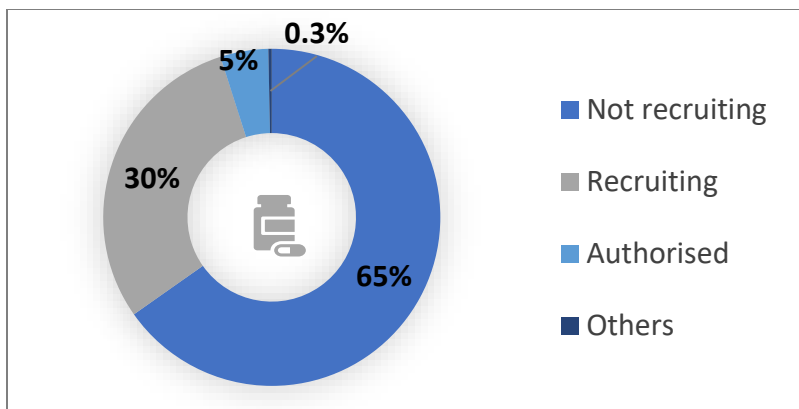
4.24 CLINICAL TRIALS AND PRODUCT LANDSCAPE ANALYSIS



Graph 4.24.1 Clinical Trials Distribution by Year

INSIGHTS

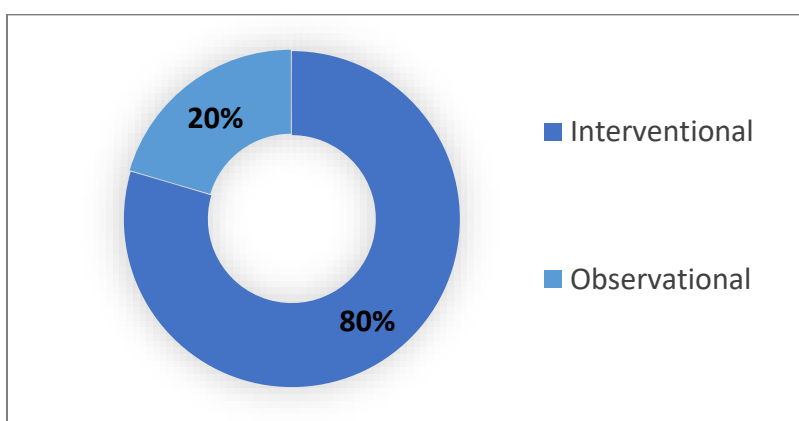
As the number of cases started increasing from previous studies, it is shown that the number of trials has been on rise constantly, 2021 showed the maximum number of trials



INSIGHTS

This tells about how many numbers of trials are recruiting, not recruiting, authorized and it is observed that 65% of trials of not recruiting followed by 30% recruiting.

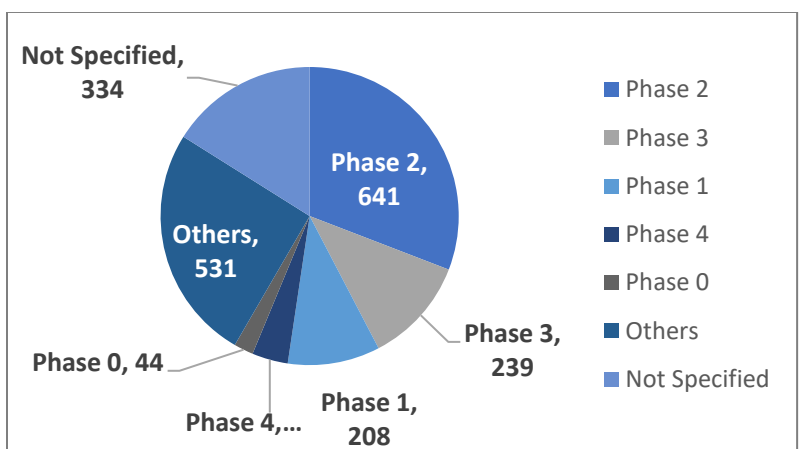
Graph 4.24.2 Clinical Trials Distribution by Trial Status



INSIGHTS

The maximum number of clinical trials in the domain of bladder cancer is Interventional that is 80% and only 20% is observational.

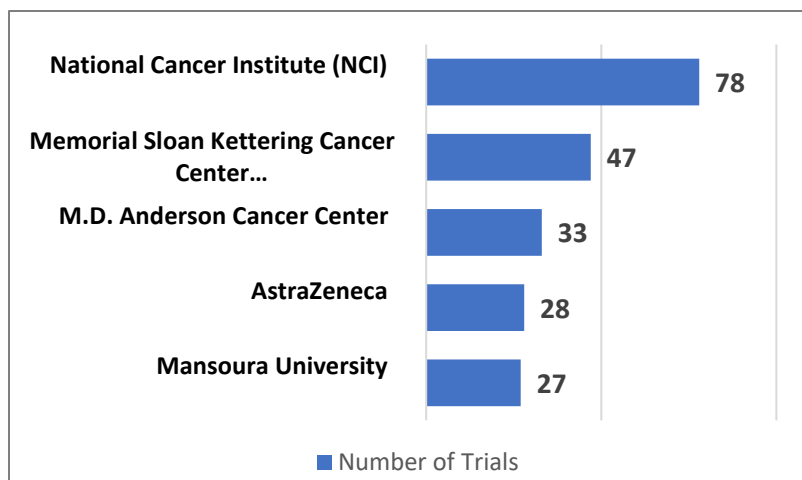
Graph 4.24.3 Clinical Trials Distribution by Study Type



INSIGHTS

It is depicted from the study that maximum number of drugs are in the phase 2 of clinical trial that is 641 drugs followed by 239 drugs in phase 3.

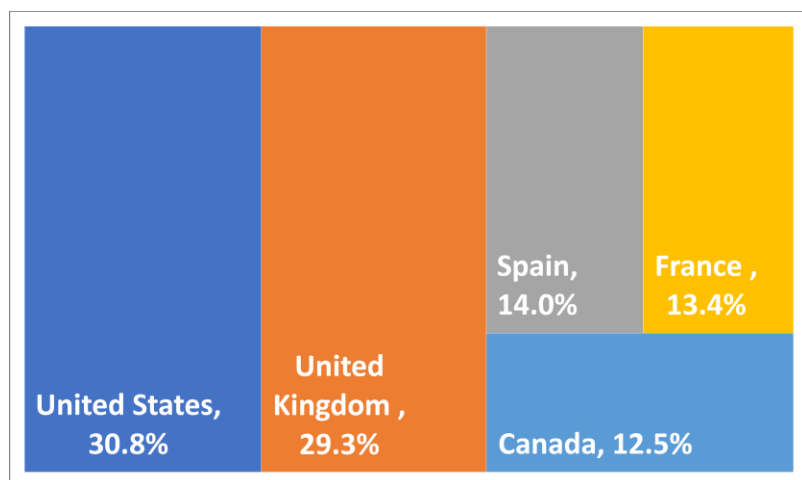
Graph 4.24.4 Clinical Trials Distribution by Trial Phases



Graph 4.24.5 Top Active Sponsors

INSIGHTS

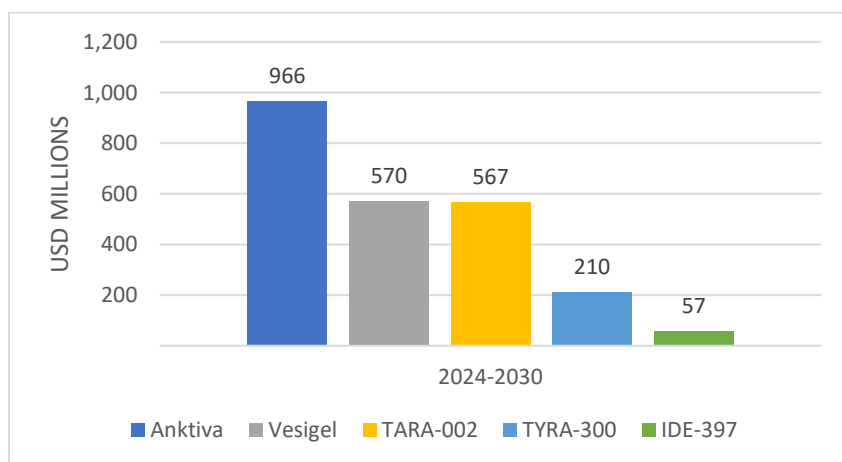
The maximum number of trials are sponsored by National Cancer Institute followed by Memorial Sloan Kettering cancer center.



Graph 4.24.6 Top Countries running Clinical Trials

INSIGHTS

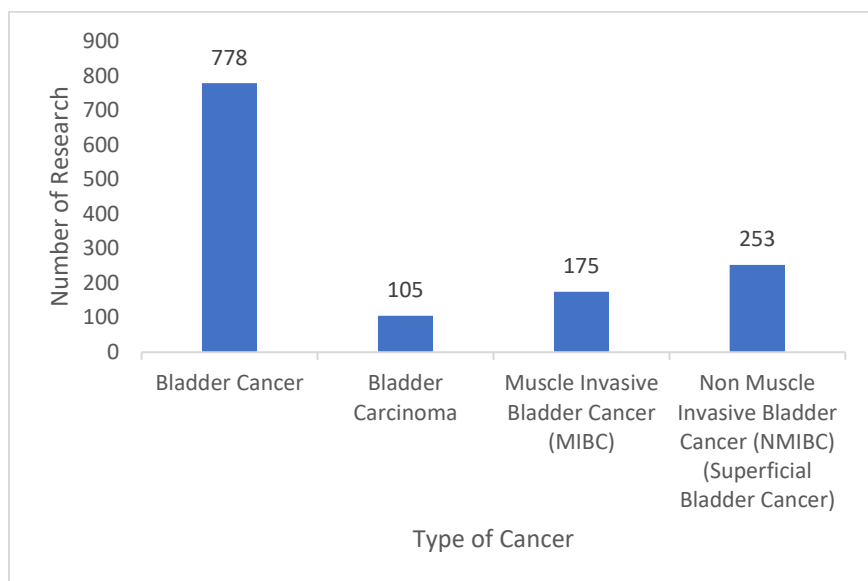
Maximum number of clinical trials are taking place in United States followed by United Kingdom.



Graph 4.24.7 Top Bladder cancer drugs and their sales

INSIGHTS

Anktiva will be the top selling drug for bladder cancer treatment generating maximum number of sales followed by Vesigel.

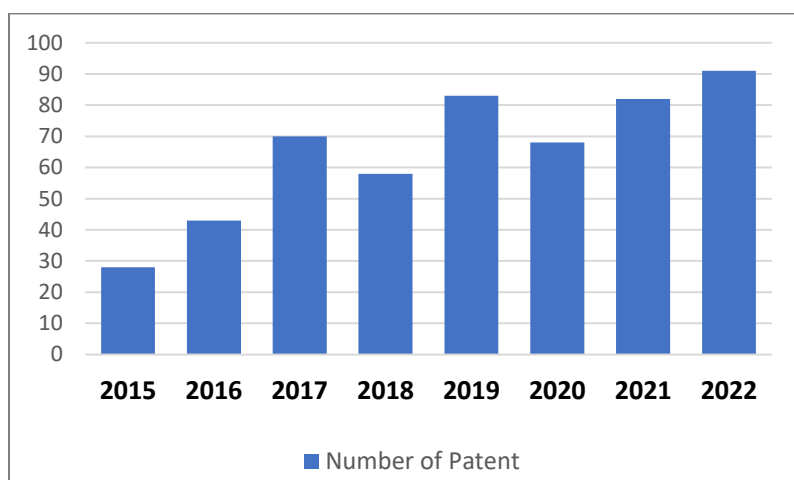


INSIGHTS

Globally 778 studies are going on related to bladder cancer, 253 studies are being carried out for NMIBC and 175 for MIBC.

Graph 4.24.8 Type of cancer and study going on

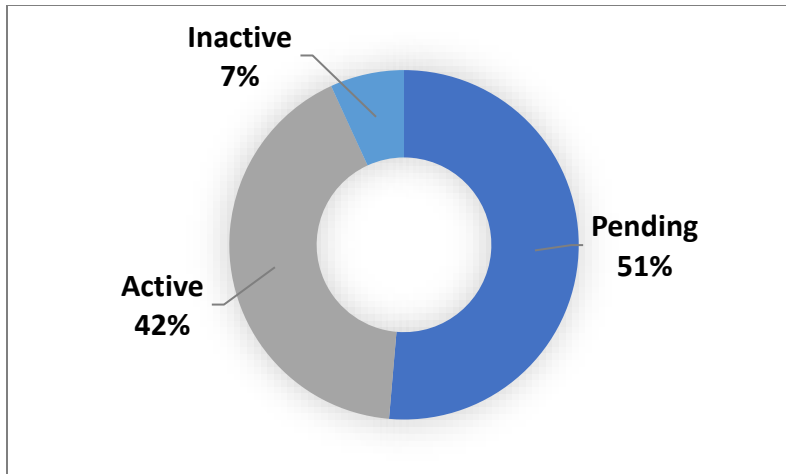
4.25 PATENT LANDSCAPE ANALYSIS



INSIGHTS

There has been a constant augmentation in the number of patent filling since 2016 to 2022. This shows that loads of research work taking place in the domain.

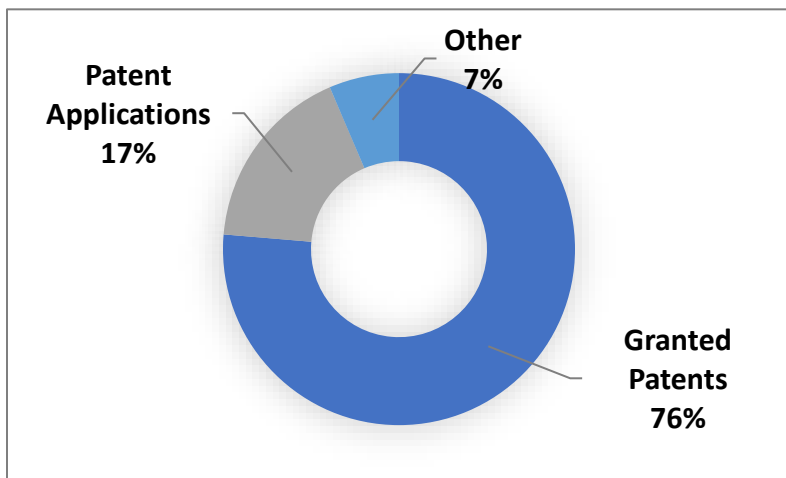
Graph 4.25.1 Patent Publications by Year



Graph 4.25.2 Patent Distribution by Patent Status

INSIGHTS

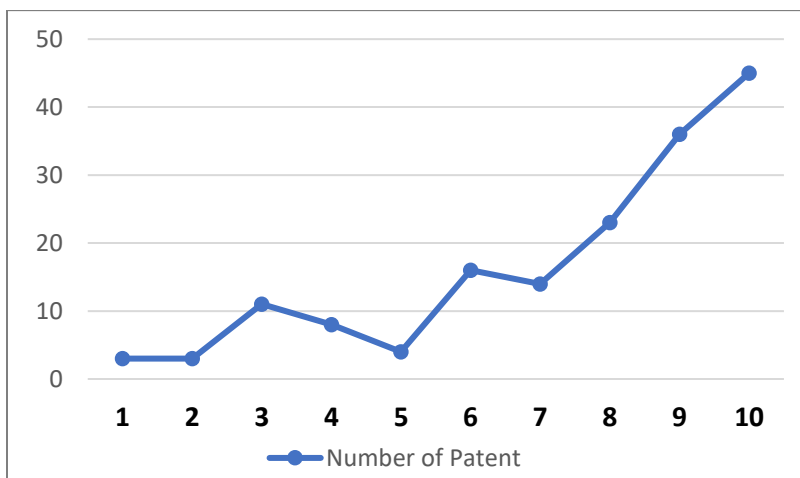
About 42% of patent is in active stage that is trials going on and showing promising results.



Graph 4.25.3 Patent Distribution by Documentation Type

INSIGHTS

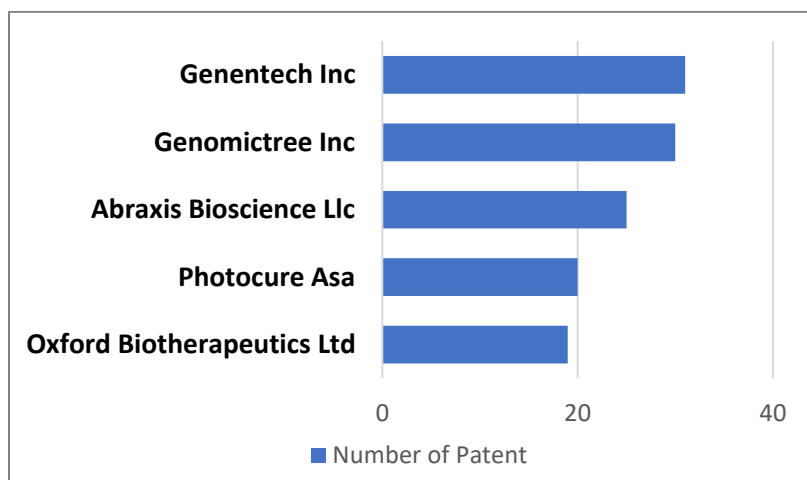
About 76% of the patents have been granted by the regulatory authorities and only 17% of the filed patents are in the application stage.



Graph 4.25.4 Patent Expiration Age

INSIGHTS

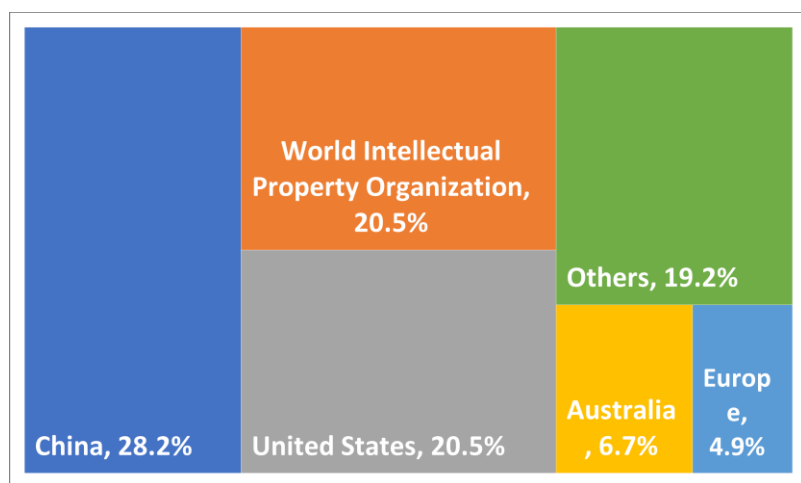
This tells about the number of patents and their age of their expiry that is in how much time will it get expired. There is almost 50% of patents which will expire after 10 years.



Graph 4.25.5 Most Active Industry Players

INSIGHTS

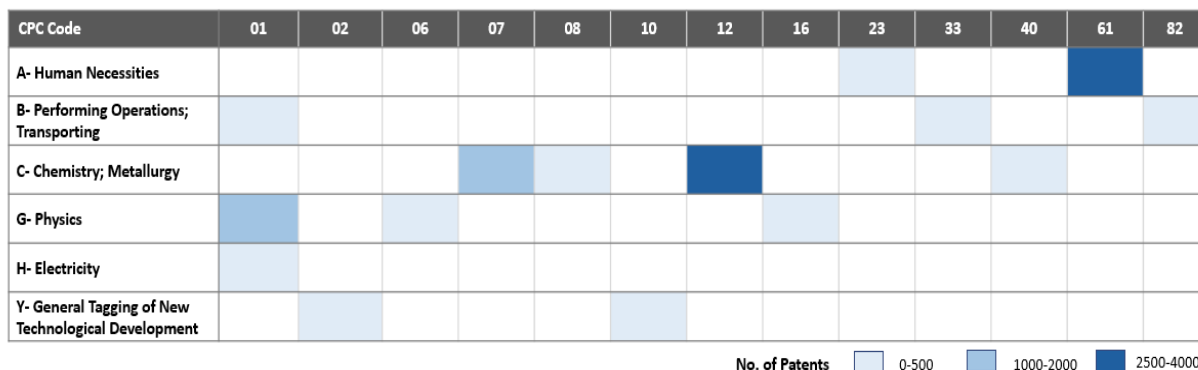
This tells about the top companies which have filed the maximum patents for global bladder cancer market. Genentech Inc has filed maximum number of patents.



Graph 4.25.6 Top Jurisdictions for Patent

INSIGHTS

This tells about the top patent jurisdiction which files maximum number of patents.



A23 - foods or foodstuffs; treatment thereof, not covered by other classes

A61 - medical or veterinary science; hygiene

B01 - physical or chemical processes or apparatus in general

B33 - additive manufacturing technology

B82 - nanotechnology

C07 - organic chemistry

C08 - organic macromolecular compounds; their preparation or chemical working-up; compositions based thereon

C12 - biochemistry; beer; spirits; wine; vinegar; microbiology; enzymology; mutation or genetic engineering

C40 - combinatorial technology

G01 - measuring; testing

G06 - computing; calculating or counting

G16 - information and communication technology [ict] specially adapted for specific application fields

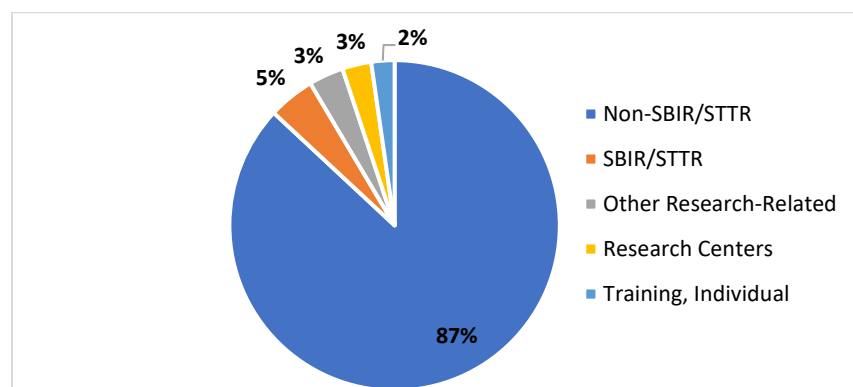
H01 - electric elements

Y02 - technologies or applications for mitigation or adaptation against climate change

Y10 - technical subjects covered by former uspc

Graph 4.25.7 PATENT CPC LANDSCAPE- HEAT MAP

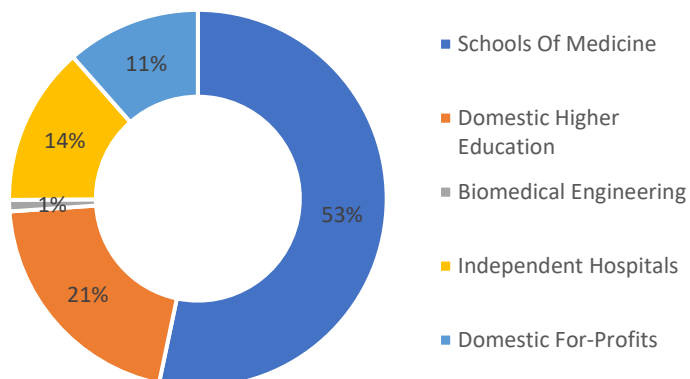
4.26 GRANT ANALYSIS OF BLADDER CANCER MARKET



Graph 4.26.1 Analysis by Funding Mechanism

INSIGHTS

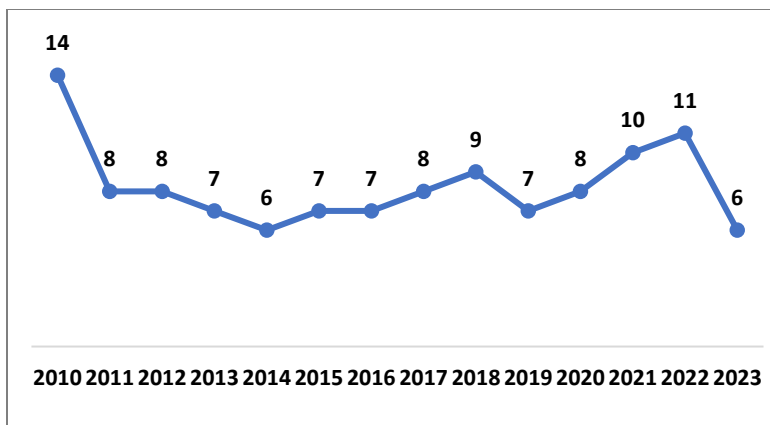
Non small business innovation research (SBIR) and Non-small business technology transfer (STTR) received the most grants (97%), followed by the (SBIR) and (STTR) (5%).



Graph 4.26.2 Analysis by Product Type of Organizations

INSIGHTS

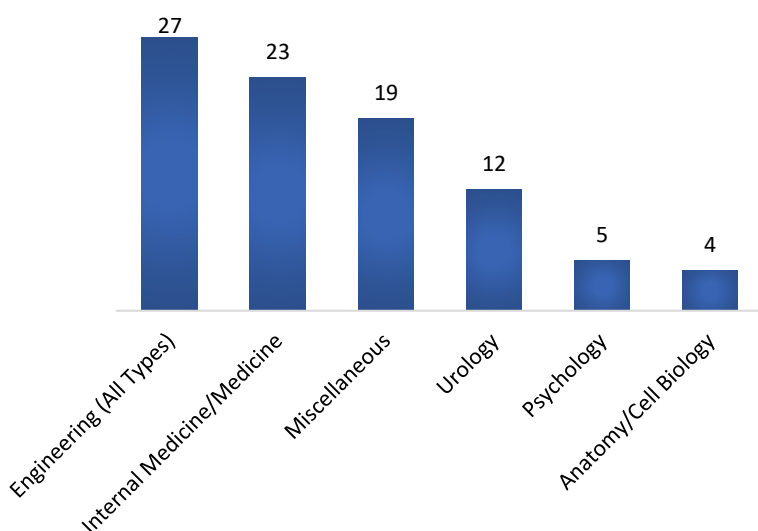
Domestic higher education (31%) and School of medicine (30%) are the two major type of grants, biomedical engineering (19%), Organized research unites (12%).



Graph 4.26.3 Analysis by Grants Timeline

INSIGHTS

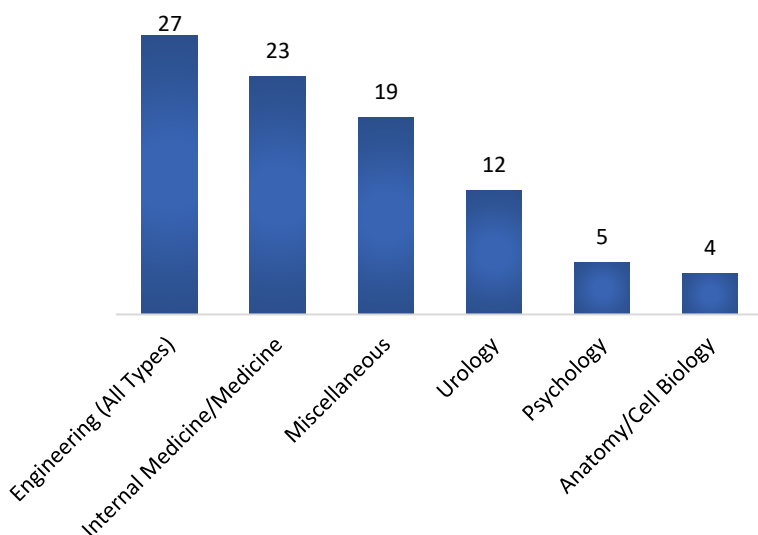
From 2015 to 2022 the grants augmentation at the CAGR of 7%. It is worth mentioning that the domain of bladder cancer have received 6 grant in 2023 (till July).



Graph 4.26.4 Analysis by Grant Amount (USD Million)

INSIGHTS

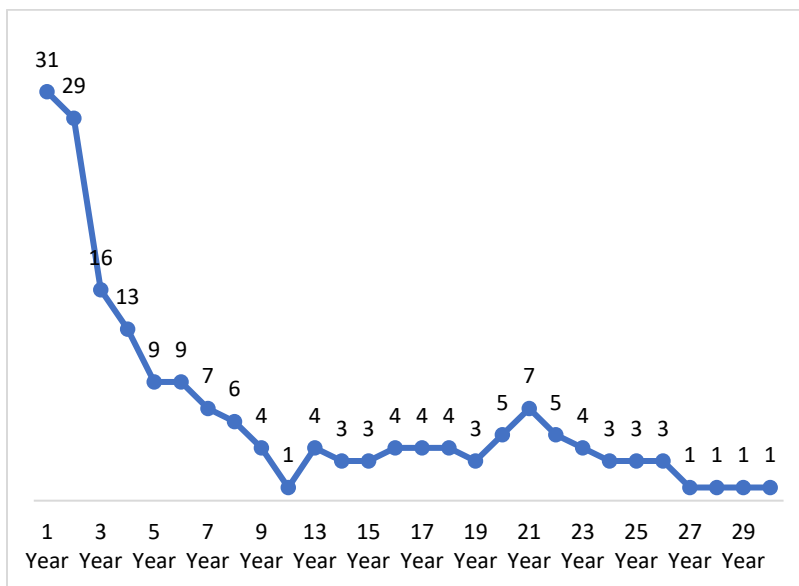
From 2010, grant amount of ~43 USD millions have been received in the domain of the Bladder cancer. In 2021 grant amount of 2.76 USD million was received followed by the 2.67 million in 2022 and 1.73 million in 2023.



Graph 4.26.5 Analysis by Department

INSIGHTS

In this Domain, Engineering is the department that received the most (27) grants, followed by Internal medicine (23) and urology (12).

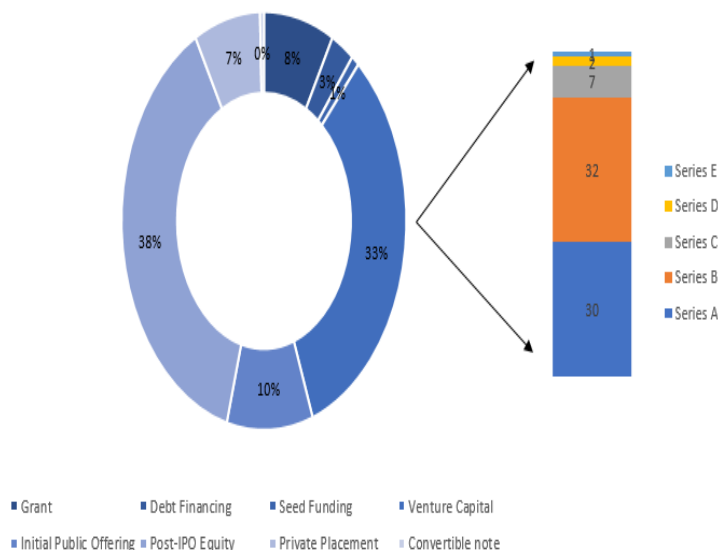


Graph 4.26.6 Analysis by Support Period

INSIGHTS

Support period received in the domain of bladder cancer of the 98 grants is 1-5 years. Followed by the support year of 6-20 years are 57 and for support year of 21-30 years are 29.

4.27 FUNDING ANALYSIS



Graph 4.27.1 Funding Analysis of the market

INSIGHTS

This tells about how the funding for the bladder cancer treatment is adopted by various companies. Maximum of the companies are going for grants (38%) Initial Public offering followed by grants (33%) which consists of series A,B,C,D,E type of funding.

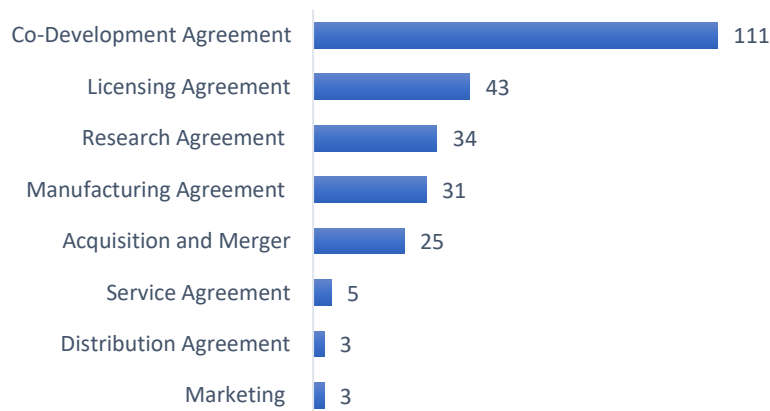


Graph 4.27.2 Funding Analysis of top companies

INSIGHTS

This graph tells that most of the financials deals were closed by Bristol-Myers Squibb and then followed by Cytodyn Inc.

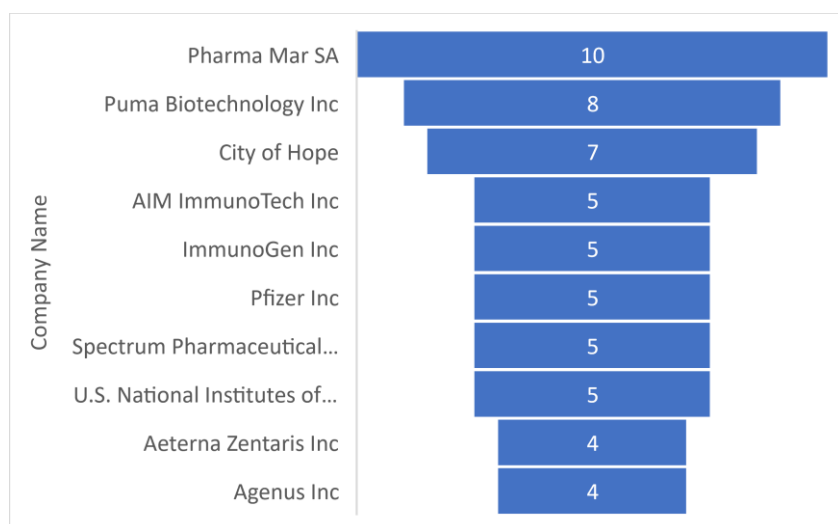
4.28 ANALYSIS OF PARTNERSHIPS IN BLADDER CANCER MARKET



Graph 4.28.1 Partnership Analysis of the market

INSIGHTS

This graph represents the type of strategic initiatives taken by maximum companies. Majority of the companies entered into Co- development partnership followed by licensing agreements.

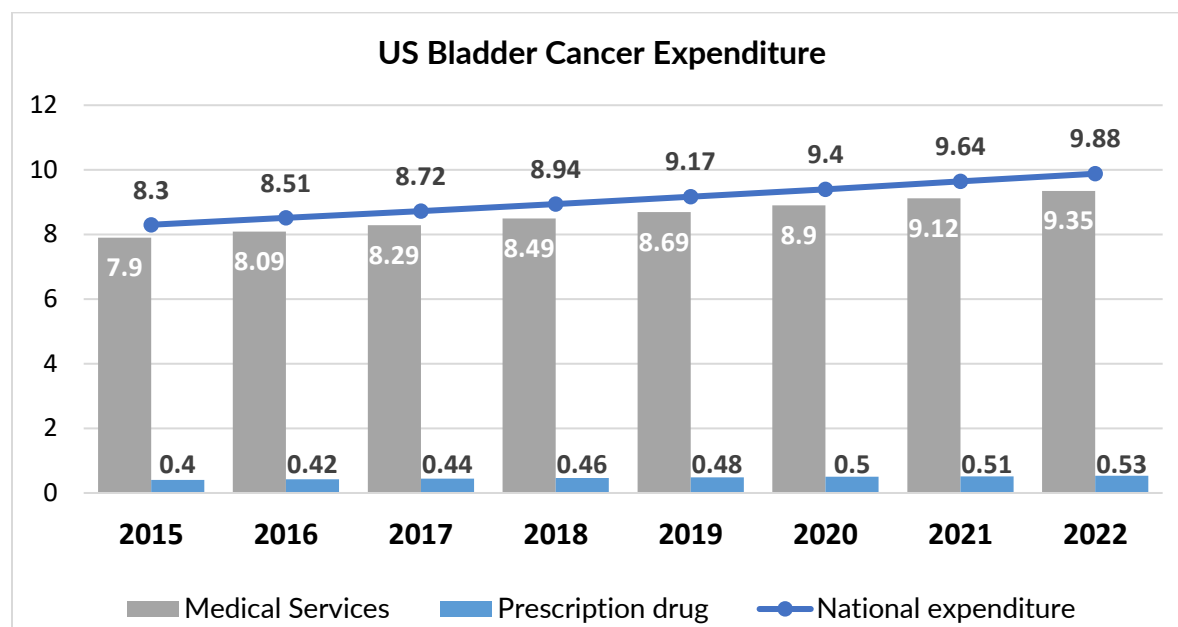


Graph 4.28.2 Partnership Analysis of the top players of market

INSIGHTS

The top companies which entered into maximum number of partnerships in the domain of bladder cancer is depicted in the graph.

4.29 ANALYSIS OF COST OF BLADDER CANCER TREATMENT IN US



Graph 4.29.1 Analysis of cost of treatment in Bladder cancer US

FINDINGS

The estimated national expenditures for bladder cancer care were USD 8.3 billion in 2015 and reached about USD 9.4 in 2020. 60% of the costs were due to surveillance and treatment of recurrences. 30 % of the costs were due to complications from bladder cancer. The most expensive stage III patients for bladder cancer have the highest lifetime expenses. Most of the expenses for all phases are driven by hospitalizations. Many of these hospitalizations did not incur expenses for cystectomy.

4.29 TIMELINES FROM DRUG DEVELOPMENT TO LAUNCH

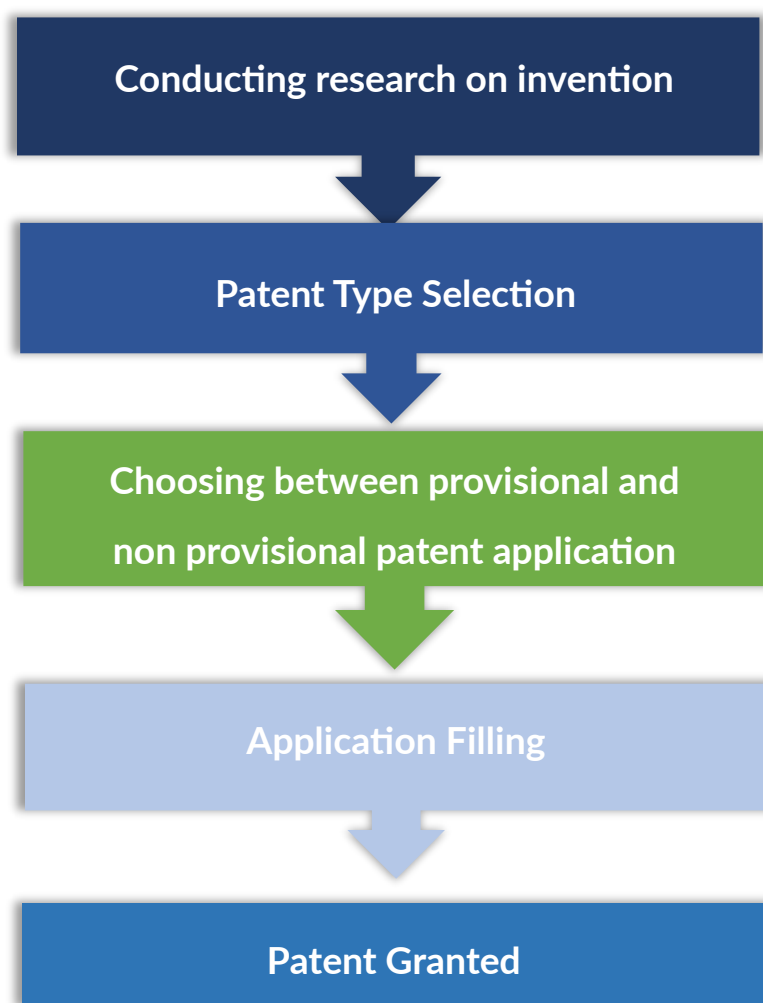
YEAR	DRUG NAME	STATUS
2014	Avelumab Pembrolizumab	Study Start
2015	Atezolizumab	Study Start
2016	Adstiladrin	Study Start
2017	Avelumab	Study Start
2018	Imfinzi + CTx NIAGA	Study Start
2019	Avelumab	Study Start
2020	Sacituzumab Goviteca	Commercially Available
2022	Avelumab	Commercially Available
2023	Adstiladrin	Study Completed

2024	Imfinzi + CTx NIAGARA Atezolizumab (Genentech)	Study Expected to be complete
2026	Atezolizumab (Tecentriq)	Upcoming Launch

Table 4.29.1 The Study start, completion and launch of drugs

4.30 Documentation approval in USA

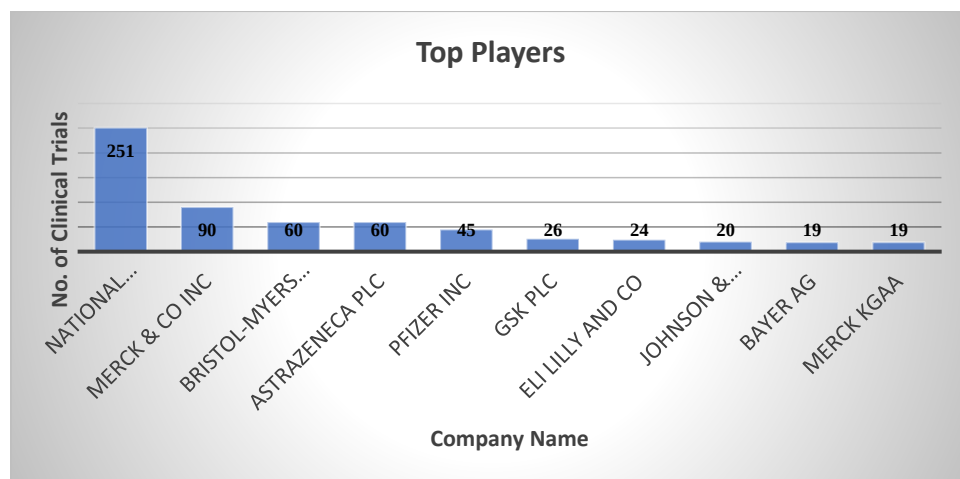
The average wait time to receive the first office action in a trademark application has Augmentation from the prior year in 2021, to 6.3 months on average. For applications that were neither contested or suspended during prosecution, the average total pendency is 11.2 months.



CHAPTER 5

COMPETITIVE ANALYSIS OF TOP PLAYERS

5.1 Analysis of Top Players in the market



Graph 5.1 Dominant players in the bladder cancer market

4.2 MERCK & CO

Merck & Co is one of the largest biopharmaceutical companies which is actively involved in the discovery, manufacturing, Research and marketing of prescription drugs, vaccines and biological products. It offers its products in a wide range of areas starting from cancer, cardiovascular, respiratory, infectious disease and immune disorders. It is a public company involved extensively in Research and Development areas. It has got a market capitalization of \$323,490 m, net income of \$365 m and 72,000 employees. The company has its main presence in New Jersey, US and has subsidiaries round the globe which include Americas, Europe, the Middle East, Africa, Asia Pacific, and Latin America.

CERTIFICATIONS

- FDA Approved
- ISO
- CE

PIPELINE ANALYSIS

Merck is actively involved in the bladder cancer domain.

Drug Name	Generic Name	Region
Keytruda	pembrolizumab	Global

Keytruda	pembrolizumab	US
Keytruda	pembrolizumab	Europe
Oncotice/Tice BCG	-	Global
Oncotice/Tice BCG	-	US
MK-6070 gebasaxturev	-	Japan
zilovertamab vedotin	-	US

Table 5.2 Bladder cancer pipeline Analysis for Merck & Co

SWOT ANALYSIS

Strengths

Merck's Keytruda is a global leader in immunotherapy drugs for bladder cancer. The drug has shown great results in terms of clinical trials for all types of cancer. The drug works wonders both as a monotherapy and in combinations with other drugs. The great financials play as a boon to invest more in the bladder cancer domain.

Weakness

The portfolio of drugs for the company is very less. The treatment cost is significantly higher.

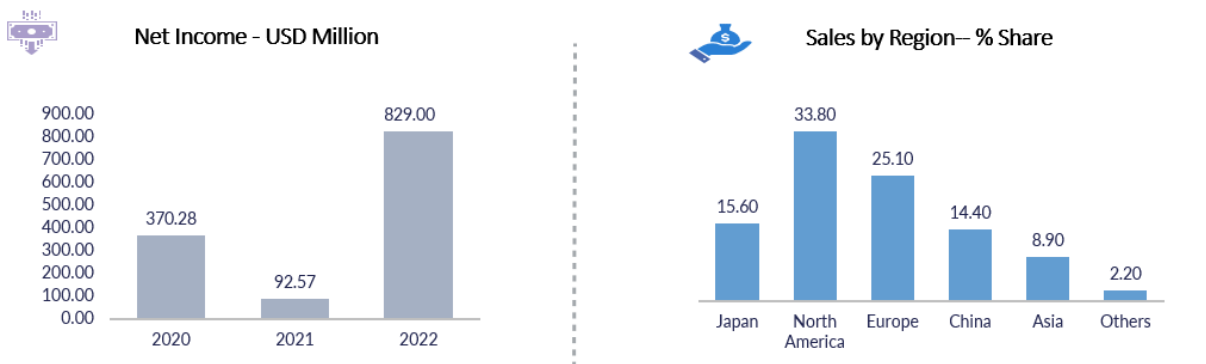
Opportunities

Investigating research for new drug approaches to treat bladder cancer by partnering with companies. Developing cost effective treatments for bladder cancer.

Threats

The stringent rules and regulations of the industry along with the extensive time in the approval of drugs.

Financial Analysis



Graph 5.2.1 Financial Analysis of Merck & Co

4.3 BRISTOL MYERS SQUIBB

Bristol Myers Squibb is a biopharmaceutical involved in the discovery, manufacturing, licensing and marketing of the drugs related to serious medical conditions. The company has its main operation center in New Jersey, US and has its other branches in US, Europe, and Japan. The market capitalization of the company is \$81,996 m while the net income is \$8,025 m. The company has a net profit of 17.83%.

CERTIFICATIONS

- FDA Approved
- ISO
- CE

PIPELINE ANALYSIS

Opdivo was the first approved drug for bladder cancer. The company is highly involved in immunotherapy drugs for treating bladder cancer.

Drug Name	Generic Name	Region
Opdivo + Yervoy	ipilimumab + nivolumab	Japan, Europe, US
Istodax	romidepsin	Japan, Europe, US
paclitaxel	Abraxane	Japan, Europe, US
lenalidomide	Revlimid	Japan, Europe, US

relatlimab	relatlimab	Japan, Europe, US
lirilumab	lirilumab	Japan, Europe, US
urelumab	urelumab	Japan, Europe, US
bempegaldesleukin	bempegaldesleukin	Global
linrodostat mesylate	linrodostat mesylate	Global
nivolumab	nivolumab	Global
nivolumab	nivolumab	Global

Table 5.2 Bladder cancer pipeline Analysis for Bristol Myer Squibb

FINANCIAL ANALYSIS



Graph 5.2.1 Financial Analysis of Merck & Co

CHAPTER 6

DISCUSSION

6.1 ANALYSIS OF THE GROWTH BLADDER CANCER MARKET

On performing the study, it was concluded that this market is a ever increasing market with a need for more treatment methods and advancements taking place by various companies are making this market a competitive one. Due to the ever-increasing number of cases in bladder cancer market attributed to various factors, it has been shown that the market has been on a steady rise from the year 2016 where it was USD Billion 12.6 and grew at a CAGR of 4.97% to USD 16.9 Billion in 2022. The market showed a rise in 2023 catering to USD 17.4 Billion and the projections suggest that it will reach USD 24.5 Billion in 2031 with a CAGR of 4.37%. This rise is because of many factors as depicted in the results section, this is due to a rise in the number of cases and hence urge in demand of new treatment methods which will be not only cost effective but possess targeted delivery. The other reasons are the constant launch of new medicines and approvals by the regulatory bodies. This growth in the market is creating a lucrative option for the companies to invest in bladder cancer domain.

6.2 ANALYSIS OF THE SEGMENTS OF BLADDER CANCER MARKET

The bladder cancer market is sectionalized based on the type of cancer, Diagnostic tool, treatment method, and treatment channel. Based on the type of cancer, Transitional bladder cancer is the most quotidian type of cancer. This has registered the maximum growth rate both in the historical period as well as the forecast period. It is also called urothelial carcinoma and is found in two grades; the lower grade ones do not spread but the high-grade ones spread to areas. 90% of cancer cases are due to this type of cancer. These cancers go deep into the layers and linings of the bladder. Hence, the market needs more and more of the treatment methods for this cancer. Augmentation in the number of clinical trials is aggravating the market, companies who wish to enter this market, can target this cancer to grab the market share. The combination drug Padcev and Keytruda got approval which is further likely to boast the market. Another type of cancer includes Invasive Bladder cancer and squamous cell bladder cancer, which again grab a significant share of the market but there are a few cases for the same.

In Diagnostic tools, Cytoscopy method has been in demand since the historical period and have shown the rise in demand in the forecast period as well. This is a comparatively risk-free method which has the capability to diagnose the cancers even at its initial stages along with that it can also remove the cancer using cystoscopy-based techniques. This method helps in the proper viewing of the urethra and the bladder. This method is in high demand due to rising number of early detection and adoption rates among the doctors. This is followed by image testing which helps to analyses if the cancer has evaded to nearby lymph (adjoining nodes or cells). This uses X-rays, magnetic fields, and sound waves to detect the tumor. Vesical Imaging-Reporting and Data System (VI-RADS) score is the latest advancement in this field which is likely to aggravate this market in the near future. PET/MRI method ia a new technology in this domain which is another reason responsible for the growth of the market. This method is followed by biopsy and urine cytology.

Based on method of treatment, Surgeries are preferred to be adopted by most of the oncologists. Depending on what stage the cancer is in, the doctors perform the surgeries. In many cases, the bladder is removed in order to treat the disease, but this option is not feasible for the advanced stage cancer. Urinary division, a new way for the passage of urine when the bladder is removed from the body. This is followed by Immunotherapy, most of the top companies are working on this. Top companies are manufacturing immunotherapy drugs as a means to treat bladder cancer. The bladder cancer detected at the early stages is curable using this method. This method is followed by intravesical chemotherapy in which the life of the patient gets prolonged to 5 years. Based on channel, public sectors are highly preferred by the patients than the private ones due to the expensive treatments costs and the reimbursements issues. The treatment options for bladder cancers are very expensive, the private sectors charge three to four times more, hence the public sectors are preferred more by the people.

6.3 ANALYSIS OF THE REGIONS OF BLADDER CANCER MARKET

Due to the ever leaping up cases of this deadly disease, spiking healthcare costs, the presence of key players, the handiness of cutting-edge cancer treatments, and advancements in R&D activities in the healthcare sector in the region, this market currently

holds a supreme position in North America accompanied by prediction to do so throughout the anticipated period. However, due to an jumping up in the frequency of urinary tract cancer, an augmentation in smokers, government measures, and a growing older population, Asia-Pacific is predicted to have the greatest CAGR from 2022 to 2030. Europe registers the maximum market share as the disease is very prevalent there. Italy registers maximum number of mortality cases while in UK, it is considered as one of the most quotidian causes of cancer. Thus, Europe and North America are the most favorable market for the companies who wish to target the bladder cancer market. Asia Pacific region demonstrates rapid CAGR in the near future.

6.4 PROVING OF HYPOTHESES OF BLADDER CANCER MARKET

All the hypotheses made in the research paper have been proved. Based on the investigation and research conducted, it is hence proved that the market will be growing at an alarming rate soon. Since the number of people getting affected by transitional bladder cancer is more, henceforth this type of cancer will be having the maximum market share as proved by the prediction model. Cytoscopy also grabbed the highest market share. The top 5 companies which consists of National Institute of cancer, Merck &CO, Bristol Myers Squibb, Astrazeneca and Pfizer are the top dominant players in the market grabbing most of the market share. Early detection by advance technology like AI, machine learning is further increasing the demand of the market as more number of prediction, diagnosis and hence treatments taking place leading the market to bloom in coming future.

6.5 OTHER OBSERVATIONS OF BLADDER CANCER MARKET

It has been observed that the market is blooming because of the shift towards a more targeted approach, personalized medicines and early detection is helping to augmentation the survival rate. Therefore, there is a demand for novel approaches to the treatment methods. These latest technologies are making this demand for the market aggravated as early detection is possible along with that early treatment and hence better prolonging of life in the patients is seen.

CHAPTER 7

RECOMMENDATION AND MITIGATION

1. **Data Accuracy:** In order to have more accuracy of the data, it is crucial to examine each aspect of the market which includes proper availability of the data of all the areas to conduct proper analysis.
2. **Economic and Policy Factors:** The treatment for bladder cancer is very expensive, hence there must be proper policies and reimbursement to fund these treatments. There must be proper investments in the healthcare facilities to ensure that there is availability to safe and few side effects treatment options.
3. **New innovations and technological advancements:** The bladder cancer market though its growing but it is a growing market but still it lacks different treatment options. There are many drugs which are yet to receive the approvals and are still in the clinical trial phase. The existing drugs possess a lot of side effects; hence it is mandatory to have drugs which have fewer side effects along with proper efficacy that can aid in the prolonging of the life of the patients. It is important to derive new technology diagnostic tools that are accurate and help in early detection of the disease. The advancements in the targeted approach can help further provide better personalized treatments to the patients. Therefore, companies should rapidly engage in mergers, acquisitions, partnerships and development agreements with each other to help speed up the drug research and manufacturing process.
4. **Regional Variations:** It has been shown through the studies that most of the research and development has been taking place in the developed regions like North America and Europe, there must be proper resources available in the developing and low-income countries for better growth of the market Global and also for the better treatment of the people to battle this disease at a cost-effective treatment method.
5. **Public private relationship:** The existing gaps in the market can be addressed by the support of both public private relationships which can help provide safe, quality, improved diagnosis, and treatment at an affordable cost to the patients.

CHAPTER 8

CONCLUSION

Market Research about disease or industry helps to get a better understanding of the complete scenario of the market. This helps companies to identify the areas where there is a gap and address the same. This also helps new companies to enter the market based on the existing and forecast of the global market. Cancers are among the most quotidian diseases in the world. Incidences of Bladder cancer have been increasing since 2016 and the prediction model has indicated the augmentation in the cases as well as the market. The clinical trial landscape and product landscape give the idea about the ever-increasing number of trials, there are many active trials which are both recruiting and non-recruiting individuals, the market is a very active one showing promising growth. There are many patents filed in the previous years for the diagnosis and treatments related to bladder cancer market. There are rigorous funding activities and deals closed by various companies in the domain. There have been many strategic initiatives like partnerships, mergers, acquisitions, licensing agreements being closed by different companies. All of these suggest that companies who wish to enter this market or launch products in the market have promising growth in the near future. They can expect a good market share after entering this market. Hence, it is a profitable industry with immense opportunities for growth. The market is further aggravated with the advent of Artificial Intelligence and machine learning which aids in the early detection of bladder cancer. There are already existing treatments in the market, but they possess certain gaps in terms of side effects and safety concerns, so any company that wishes to enter the market can address the gap and excel in the market. Despite already existing treatments there is a high demand for novel approaches and advancements in the field as not much development has taken place in the market. There is a medium level of competition, hence creating immense opportunities for new players in the market.

CHAPTER 7

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