

Market Potential Opportunity of Anticancer Drug in
India and Competitive Analysis of Gatwell's
Oncology Drug

By

Richa Pandey

*Dissertation submitted for the partial fulfillment of the
MBA Pharmaceutical Management*

Academic year, 2017-2019



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

Market Potential Opportunity of Anticancer Drug in
India and Competitive Analysis of Gatwell's
Oncology Drug

By

Richa Pandey

*Dissertation submitted for the partial fulfillment of the
MBA Pharmaceutical Management*

Academic year, 2017-2019

Getwell Pharmaceutical, Haryana



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

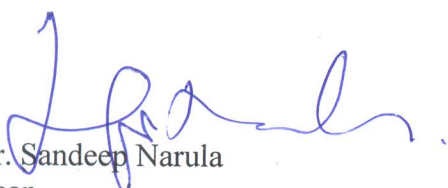
TO WHOMSOEVER MAY CONCERN

This is to certify that **Ms. Richa Pandey**, student of **MBA Pharmaceutical Management** from The IIHMR University, Jaipur has undergone internship/dissertation training at **GetWell Pharmaceuticals** from **04th Feb 2019** to **04th May 2019**.

The Candidate has successfully carried out the study assigned to her during internship/dissertation training and her approach to the study has been sincere, scientific and analytical.

The Internship/dissertation is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.


Dr. Sandeep Narula
Dean,
School of Pharmaceutical Management
The IIHMR University, Jaipur


Mr. Rahul Sharma
Academic Guide
School of Pharmaceutical Management
The IIHMR University, Jaipur

To be obtained on official stationary

The certificate is awarded to

Richa Pandey

In recognition of having successfully completed her
Internship in the department of

Sales and Marketing

and has successfully completed her Project on

**“Market Potential opportunity of Anti-Cancer Drugs in India and
Competitive Analysis of Getwell’s Oncology drug”**

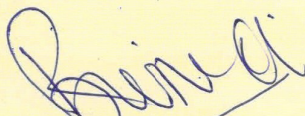
From 04-02-2019 to 04-05-2019

In

GETWELL PHARMACEUTICALS

She comes across as a committed, sincere & diligent person who has a
strong drive and zeal for learning.

We wish her all the best for future endeavors



Rakesh Dwivedi
V.P.-Sales & Marketing



Getwell Pharmaceuticals

474, Udyog Vihar, Phase-V, Gurgaon -122 016, Haryana, INDIA

t: +91 124 4477 981/82 f: +91 124 4477 986

e: info@worldofgetwell.com w: www.worldofgetwell.com

THE IIMMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled Study of **Market Potential opportunity of Anticancer Drug in India and Competitive analysis of Gatewell's oncology drug** and submitted by **Richa Pandey** Enrollment No. **112** under the supervision of **Mr. Rahul Sharma** for award of MBA in Pharmaceutical Management in the University carried out during the period from 4th February 2019 to 4th May 2019 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.



Signature

Richa Pandey

Acknowledgement

It is not easy to achieve anything, without a proper combination of perspiration and inspection . There is always a sense of sincere gratitude which we express to others for the help and the needy services they rendered during the phases of lives and I have taken efforts in this project. However it would not have been possible without the full support and help of many individuals and organizations and I would like to extend my sincere and heartfelt thanks to all of them.

I am very much indebted to **Mr. Rakesh Dwivedi**, Vice President(International Business), Getwell Oncology, Gurugram, for his guidance and constant supervision as well as for providing necessary information regarding the project and for his support in completing the project. His perceptive criticism kept me working to make this project more genuine proof.

I would like to express my special gratitude and thanks to organization’s persons for giving me such attention and time.

I would like to extend my heartfelt gratitude an regards towards my mentor **Mr Rahul Sharma**, Assistant Professor, The IIHMR, Jaipur for his continuous guidance and support throughout this project.

My thanks and gratitude also go to my colleagues in developing the project and people who helped me with their abilities.

Contents

Company profile:	5
Introduction.....	8
LITERATURE REVIEW	18
Objectives	19
Research Methodology	20
Study Design:.....	20
Sampling:	20
Target respondents: Oncologists.....	20
Sample Size: Number of doctors: 70	20
Sample area:.....	20
Tool: Questionnaire to collect primary data, Microsoft Excel and SPSS for analysis.....	20
Data Collection:	20
Data Collection Tool:.....	20
DATA ANALYSIS:	20
Estimated number of incident cases from 2018 to 2040, all cancers, both sexes, all ages	31
Findings from secondary research-.....	36
Findings from primary research-.....	37

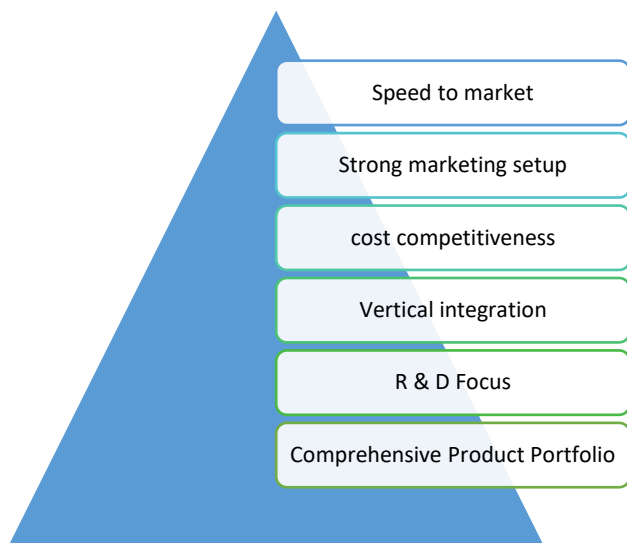
Company profile:

Getwell is an Indian pharmaceutical organization specializing exclusively in Cancer chemotherapy **Headquartered in Gurugram-** India.

Getwell Pharmaceuticals was established in year 1985 by Sh. Rajiv Tandon. After more than decade now in oncology, Getwell is well known in the onco-generic space for its quality, reliability and presence. One of the very few companies that is 100% dedicated into oncology

Nation-wide presence in private, Government and Army Hospitals. Company is rapidly Growing global presence and available in 23 countries worldwide. Getwell has one of the widest and most complete oncology product range which include liquid vial, lyophilized vial, powder vial, oral solid dosage.

VALUE PROPOSITION



Product development strategy of Getwell-

- **Developing affordable versions of well-established generics**
- **Mainly focused towards hematological malignancies & certain solid tumors.**
- **Establishing quality mainly by conducting pharmaceutical equivalency and in-vivo studies in comparison to market leaders / Innovators.**
- **Currently four generics under development-**
 1. Albumin Based Nanoparticle Paclitaxel Inj: Drug of choice in Pancreatic cancer & other solid tumors too
 2. Carmustine Inj: Various types of brain tumors
 3. Carfilzomib Inj: relapsed multiple myeloma
 4. Cabazitaxel Inj: Hormone refractory prostate cancer

India’s one of the leading manufacturers and marketers of branded generic anti cancer drugs with a Vision; **To become one of the leading oncology company globally** and a mission; **To make cancer therapy affordable to more people.**

Core Capabilities

- Product Mix: 40 molecules strong product mix targeted to various forms of cancer – Solid tumors, Hematological Malignancies and supportive care
- Infrastructure: Compliant, Compact, Cost-effective and Reliable. Four most important pillars of a generic oncology company
- Garnering strength through partnership: Suppliers of API, Hospitals, Doctors, Pharmacists, Supply Chain; each adding value to the final product
- Focus on novel drug delivery system & targeted therapies

India with 1.32 Billion people, accounts for almost 18% of the global population. The access to healthcare services is quite challenging, as the affordability varies to a great degree, so affordable cancer therapy is the prime concern of Getwell. .

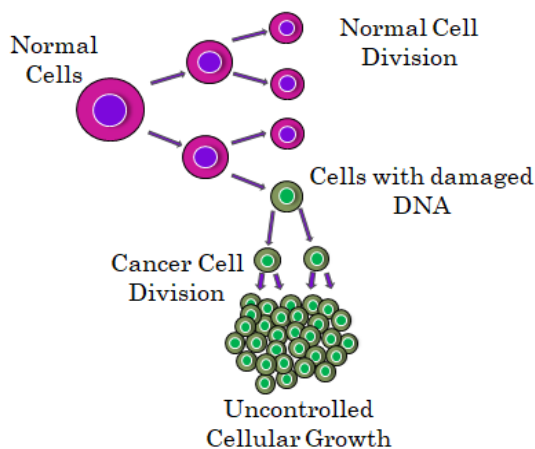
Dosage Forms-Product Range



Introduction

Introduction to cancer

A disease caused by an uncontrolled division of abnormal cells in a part of the body.



Types of Cancer

Carcinoma- The most common type of cancer which are formed by epithelial cells, the cells which covers the inside and outside surfaces of the body. There are many types of epithelial cells and carcinomas that begin in different epithelial cell types they have different names.

- Adenocarcinoma is a type of cancer that form in the epithelial cells which produces fluid or mucus. Mostly breast, prostate and colon are adenocarcinomas.
- Basal cell carcinoma is a type of cancer that forms in the basal or lower (base) layer of the epidermis, that is person’s outer layer of skin.
- Squamous cell carcinoma is a type of cancer that forms in squamous cells that lie just beneath the outer of surface of the skin. Squamous cells line many other organs which include stomach, intestines, lungs, kidney, bladder.

- Transitional cell carcinoma is a type of cancer that forms in a type of epithelial tissue which is a transitional epithelium or urothelium. This tissue is made up of many layers of epithelial cells which can get bigger or smaller and found in the linings of the ureters, bladder and some part of the kidneys (renal pelvis), and some other organs.

Sarcoma- Is a type of cancers that form in bone and soft tissues and also including muscle, fat, lymph vessels, blood vessels, and fibrous tissue (such as tendons and ligaments). Examples are Osteosarcoma (bone) and Kaposi sarcoma (soft tissue).

Leukemia- Cancer of blood-forming tissue of the bone marrow is known as leukemias.

Lymphoma- Lymphoma is a type of cancer that begins in lymphocytes (T cells or B cells). These are disease-fighting white blood cells which is a part of the immune system. In lymphoma, the abnormal lymphocytes build up in lymph vessels and lymph node or in other organs of the body.

There are two main types of lymphoma:

Hodgkin lymphoma – People with this disease have abnormal lymphocytes which is known as Reed-Sternberg cells and these cells usually form from B cells.

Non-Hodgkin lymphoma – Is a large group of cancers that starts in lymphocytes. This cancer can grow quickly or slowly or can form from B cells or T cells.

Multiple Myeloma- Is a type of cancer that begins in plasma cells, an another type of immune cell. The abnormal plasma cells known as myeloma cells, build up in the bone marrow and form tumors in bone throughout the body.

Melanoma-Is cancer that begins in cells that become melanocytes, these are specialized cells that make melanin (the pigment that gives skin its color). Most of the melanomas are form on the skin but melanomas can also form in other pigmented tissues, such as eyes

The global cancer therapy market was valued at USD 136,254.35 million in 2018 and is estimated to be valued USD 220,701.26 million in 2024 and witnessing a CAGR of 8.37%. Certain factors which are driving the market growth include increasing Patient Assistance

Programs (PAPs), increasing government initiatives for cancer awareness, cancer worldwide, , rising prevalence, and strong R&D initiatives from key players.

Treatment for Cancer have been advanced and at a accelerated pace in recent years with offering of notable improvements in clinical benefit, as well as increased specificity through selection according to biomarkers, through engineered cell or gene therapies. Global spending on cancer therapies and supportive care drugs now exceeds and reached \$133 billion and as the value of these medicines is recognized and a greater share of drug budgets is allocated to these products. Over the next five years this amount is projected to reach \$180—200 billion.

Key drivers of change in the oncology market-

- By 2030 it is predicted that there will be 41 mega-cities, with more than 10 million inhabitants. 3 Urbanization is leading to changes in lifestyle, predisposing populations to the emergence of cancer (e.g. activity, diet etc.).
- **Increased Cancer incidence-** Circulation of pollution is being attributed to an increasing proportion of lung cancer cases and it is widely recognized that further decreases in ozone levels are likely to result in increase in the number of cancer cases globally.
- **Increased pharma R&D cost-** Circulating pollution is being attributed to an increasing proportion of lung cancer cases, and it is widely recognized that further decreases in ozone levels are likely to result in an increase in the number of cancer cases globally.
- **Healthcare Budget pressure-** Rising spending on healthcare will place ever increasing pressure on public budgets. Without action, healthcare expenditure in OECD countries is forecast to double as a share of GDP by 2060, which is considered unsustainable.

Indian oncology Market-

India has around 1.8 million people suffering from different type of cancer, with patients of breast, cervical and oral cancers are topping in the list. Even every 13th new cancer patient in the world is an Indian. Official data shows that there are only about 1600 trained oncologists in the country and the ratio of oncologists to cancer patients is about 1:2,000ncer . Cancer ranks as the 6th leading cause of death in India. The Cancer mortality rate in India is very high at 68% of the

annual incidence. Ratio indicates that the 30% of the patient survive 5 years or longer after diagnosis.

Cancer rates are increasing in a very fast manner in developing countries. With rising incomes and better access to childhood vaccinations, people are living longer in developed countries. The major health risks worldwide are basically averaged to tobacco use and household air pollution. Due to inadequate regulatory intervention and effective health policies in developing countries, people are developing cancer at young age, in greater numbers.

The last few decades have seen considerable efforts made in the treatment and prevention of cancer around the world, but it still looms large over our lives, especially in India for a multitude of reasons. The incidence of cancer has reached high in number with India being the third country after China and the USA with the maximum number of cancer cases. Ignorance about the disease, its symptoms and a delay in visiting medical experts for a proper diagnosis has increased the prevalence of this illness which is anticipated to grow by 30 percent in coming 5 years. The Indian Council of Medical Research (ICMR) has predicted that by the year of 2020 India will witness more than 17.3 lakhs new cases of cancer and even more than 8.8 lakh Indians would die because of it. Unfortunately, a majority of the patients visit hospitals for diagnosis or treatment in the advanced stages of the illness. The need of the hour is therefore heavy investments in prevention techniques, cancer awareness, vaccinations and screening, along with a focus on clinical data research and studies for developing better cancer fighting techniques.

Market Drivers-

The market driver of the cancer treatment market in India is generally three-fold: There have been improvements in health-care access and delivery have been small so far, and public health improvement in India has been less of a political priority than in other countries at a similar developmental stage. This has been possible due to the initiation of government to improve the access to diagnosis and treatment of cancer by focusing in various areas such as awareness, monitoring research, building skills of the staffs, providing capital grants to backward districts within the country to promote health in such regions. The comprehensive plan has been led out in the 12th plan of Government of India as a part of Cancer specific initiatives. The adoption of the technology by the private and public health institutions are increasing where, level of

technology used in cancer treatment is advanced with 90% of installations being of moderate to high technology levels. According to Frost and Sullivan, Oncology will be a key area of growth in India's healthcare sector. As there will be more emphasis on health coverage both by central and state governments, spending on coverage of medicines for oncology will see substantial rise in 3-5 years.

Market by therapeutic modalities-

- Cytotoxic Chemotherapy
- Hormonal Chemotherapy
- Immunological Chemotherapy
- Targeted Cancer Therapy
- Supportive Care Therapy

Cytotoxic Chemotherapy- Cytotoxic drugs (also cytotoxic chemotherapy) are drugs used to destroy cancer cells. Cytotoxic drugs inhibit the cell division and in this way they cause cancer cells to die. Cytotoxic drugs are transported in the blood throughout the body. These drugs can be used to destroy tumors, boost the outcomes of surgery or radiotherapy, reduce metastases and alleviate cancer symptoms. Cytotoxic drugs can be effective outside the primary tumor and also destroy small tumors that have not been detected in tests. These drugs affect all dividing cells, including healthy tissue but because cancer cells often divide markedly faster than normal cells, they are particularly sensitive to cytostatics. The effects on normal cells are less and healthy cells also recover faster.

Hormonal Chemotherapy- It is a cancer treatment that slows or stops the growth of cancer that uses hormones to grow. Hormone therapy is also called hormonal therapy, or endocrine therapy.

How hormone therapy is used with other Cancer Treatment-

When used with other treatments, hormone therapy can:

- Make a tumor smaller before the surgery or radiation therapy. This is called neo-adjuvant therapy.

- Lower the risk of cancer will come back after the main treatment. This is called adjuvant therapy.
- Destroy cancer cells that have spread or returned to other parts of your body.

How Hormone Therapy Is Given

Hormone therapy may be given in many ways. Some common ways include:

Oral- hormone therapy comes in pills form that you swallow.

Injection-The hormone therapy is given by a shot in a muscle of your arm, thigh, or hip, or right under the skin in the fatty part of your arm, belly or leg.

Surgery- surgery is done to remove organs that produce hormones. In women, the ovaries are removed. In men, the testicles are removed.

Immunological Chemotherapy-

Immunotherapy boosts the immune system or helps the immune system to find cancer and attack on it. Immunotherapy is used to:

- stop or slow down the growth of cancer
- stop cancer from spreading to other parts of body
- help immune system work better to destroy the cancer cells
- deliver toxins such as radiation or chemotherapy, directly to cancer cells

Types of immunotherapy:

Monoclonal antibodies-

Monoclonal antibodies are made in the lab. Like the antibodies that your immune system makes, their job is to trigger an immune system reaction. Some monoclonal antibodies work by finding a specific antigen (such as a protein) on a cancer cell and then attach to it. The immune system then knows to attack and destroy those cells. Example of this type of monoclonal antibody is rituximab (Rituxan). Rituximab is used to treat some types of chronic lymphocytic leukemia (CLL) and non-Hodgkin lymphoma.

Immune checkpoint inhibitors- The immune system basically stops T cells (a type of immune system cell) from attacking the normal cells in the body by using proteins called checkpoints. Checkpoints are part of a pathway that the immune system uses to slow down and put the brakes on an immune system response. Some cancer cells send signals that confuse T cells by turning on a checkpoint pathway and stopping them from attacking cancer cells. This lets the cancer continue to grow because the cancer cells are hidden from the immune system.

Immune checkpoint inhibitors are monoclonal antibodies that work by blocking checkpoint proteins so immune system cells can attack and kill the cancer cells. They are used to treat melanoma skin cancer, kidney cancer and Hodgkin lymphoma, non-small cell lung cancer.

Monoclonal antibodies such as pembrolizumab (Keytruda), atezolizumab (Tecentriq) and nivolumab (Opdivo) target PD-1 or PD-L1 to help boost the immune system’s response to attack cancer cells and destroy them

Non-specific immunotherapy

Interferon-it is a type of cytokine made by the body. Interferon that is made in a lab to treat cancer is known as interferon alfa. Interferon can help trigger a stronger immune response against cancer cells and also slow the growth of cancer or cause cancer cells to die. Interferon alfa is used to treat melanoma and some types of blood cancers for example non-Hodgkin lymphoma and chronic myelogenous leukemia (CML).

Interleukin- is another cytokine made by the body. Interleukin-2 (Proleukin) can be made in a lab. It helps the body to make more of certain types of immune cells that boost the immune system’s response. It also helps the body to make more antibodies against cancer cells. This helps the immune system to find out the cancer cells and destroy them. Interleukin-2 is sometimes used to treat kidney cancer and melanoma also.

Granulocyte colony stimulating factor (G-CSF) and granulocyte-macrophage colony stimulating factor (GM-CSF) are blood growth factors that stimulate the bone marrow to make more granulocytes and macrophages, which are types of white blood cells that help fight

infection. G-CSF and GM-CSF can also be given to boost up the immune system along with other types of immunotherapy.

Bacillus Calmette-Guerin (BCG) is a type of bacteria that has been changed in the lab so that it doesn’t cause disease. It causes inflammation in the bladder which triggers an immune response to attack and destroy cancer cells. BCG is generally used to treat early-stage bladder cancer.

Toll-like receptor agonists- These are the drugs that bind to toll-like receptors and cause an immune response that kills cancer cells. Toll-like receptors are found on the surface of most of the immune cells that can detect cancer cells and other germs in the body. When the receptor detect cancer cells or germs, this signals immune cells to attack. Imiquimod (Aldara) is a toll-like receptor agonist that is used to treat early-stage basal cell carcinoma, a type of non-melanoma skin cancer.

About Doxorubicin Hydrochloride-

The hydrochloride salt of doxorubicin is an anthracycline antibiotic with antineoplastic activity. It is isolated from the bacterium *Streptomyces peucetius* var. *caesius*, is the hydroxylated congener of daunorubicin. Doxorubicin intercalates between base pairs in the DNA helix, thereby preventing DNA replication and ultimately inhibiting protein synthesis. Additionally, doxorubicin inhibits topoisomerase II which results in an increased and stabilized cleavable enzyme-DNA linked complex during DNA replication and subsequently prevents the ligation of the nucleotide strand after double-strand breakage. Doxorubicin also forms the oxygen free radicals resulting in cytotoxicity secondary to lipid peroxidation of cell membrane lipids and the formation of oxygen free radicals also contributes to the toxicity of the anthracycline antibiotics, named as cardiac and cutaneous vascular effects.

Liposomal doxorubicin hydrochloride-

Liposomal doxorubicin is a chemotherapy drug that is also called by the brand name of Caelyx or Myocet. It contains the chemotherapy drug doxorubicin (Adriamycin) wrapped up in a fatty covering known as liposome. It is used as treatment for some types of cancer, including:

- breast cancer
- ovarian cancer
- multiple myeloma
- a type of sarcoma called Kaposi's sarcoma

How it works-

Cancerous tumors are characterized by cell division which is no longer controlled as it is in normal tissue. "Normal" cells stop dividing when they come into contact with like cells, this mechanism is known as contact inhibition. Cancerous cells lose this ability and cancer cells no longer have the normal checks and balances in place that control and limit the cell division. The process of cell division whether normal or cancerous cells, is done through the cell cycle. The cell cycle goes from the resting phase, through active growing phases, and then mitosis (division).

The ability of chemotherapy to kill cancer cells depends on its ability to halt the cell division. Usually, drugs work by damaging the RNA or DNA that tells the cell how to copy itself in division. If the cells are unable to divide, then they die. The faster the cells are dividing the more likely it is that chemotherapy will kill the cells and causing the tumor to shrink. They also induce cell suicide (also known as self-death or apoptosis).

Chemotherapy drugs which affect cells only when they are dividing are called cell-cycle specific. Chemotherapy drugs that affect cells when they are at rest are known as cell-cycle non-specific. The scheduling of chemotherapy is based on the type of cells, rate at which they divide, and the time at which a given drug is likely to be effective. That's why chemotherapy is typically given in cycles.

Chemotherapy is most effective at killing the cells that are rapidly dividing. Unfortunately, chemotherapy does not know the difference between the cancerous cells and the normal cells. The "normal" cells will grow back and become healthy but in the meantime, side effects occur. The "normal" cells most commonly affected by chemotherapy are the blood cells, the cells in the

mouth, bowel and stomach, and the hair follicles; resulting in low blood counts, mouth sores, nausea, diarrhea, and/or hair loss. Different drugs may affect different parts of the body.

Doxorubicin is classified as an antitumor antibiotic. Antitumor antibiotics are made up from natural products produced by species of the soil fungus *Streptomyces*. These drugs act during multiple phases of the cell cycle and are considered as cell-cycle specific. There are several types of antitumor antibiotics:

Anthracyclines: Doxorubicin, Daunorubicin, Mitoxantrone, and Idarubicin

Chromomycins: Dactinomycin and Plicamycin

Miscellaneous: Mitomycin and Bleomycin

Doxorubicin (liposomal) is the drug doxorubicin which is encapsulated in a STEALTH® liposome. Liposomes are closed lipid spheres that are made up of the basic components of natural human cell walls. The STEALTH® liposome have a substance on their surface to protect the liposome from detection by the body's immune system and to increase the time this medication is circulating in the blood. By enclosing a drug in a STEALTH® liposome, scientists have shown they are able to get close to the tumor and the encapsulated drug doxorubicin becomes available to work against the tumor cells.

It is important to note that pegylated liposomal doxorubicin should not be substituted for conventional doxorubicin on a milligram per milligram basis because as conventional doxorubicin is administered at doses of 60–90 mg/m² in every 3 weeks, while the current FDA-recommended dose of pegylated liposomal doxorubicin is 50 mg/m² in every 4 weeks. This difference in the dosing is due to the substantial changes in the functional properties of a drug (i.e., increased half-life, ability to evade the immune system) that occur with liposomal encapsulation. Moreover, different liposomal formulations of doxorubicin can vary in terms of the chemical composition and the physical properties of the liposomes themselves and thus should not be used as a direct substitute for pegylated liposomal doxorubicin either.

Doxorubicin market overview:

The global liposomal doxorubicin market is expected to reach a value of USD 1.39 billion by 2024, according to a new report by Grand View Research, Inc. The presence of various pipeline products awaiting approval by the U.S. FDA and European Medicines Agency is one of the key attributes of this market. The first liposomal doxorubicin formulation was launched in 1995, namely Doxil/Caelyx by Janssen Products and LP & Myocet by Teva Pharmaceutical Laboratories.

The increasing U.S. FDA approval for drug production is also anticipated to boost the market. The increasing indication of these drugs for various conditions such as AIDS-related Kaposi sarcoma, multiple myeloma, neuroblastoma, osteosarcoma, and ovarian cancer signifies the growth in demand. The technological advancements in the drugs formulations to overcome the

LITERATURE REVIEW

The growing burden of cancer in India: epidemiology and social context

Mohandas K Mallath*, David G Taylor*, Rajendra A Badwe, Goura K Rath, V Shanta, C S Pramesh, Raghunadharao Digumarti, Paul Sebastian,

Bibhuti B Borthakur, Ashok Kalwar, Sanjay Kapoor, Shaleen Kumar, Jennifer L Gill, Moni A Kuriakose, Hemant Malhotra, Suresh C Sharma,

Shilin Shukla, Lokesh Viswanath, Raju T Chacko, Jeremy L Pautu, Kenipakapatnam S Reddy, Kailash S Sharma, Arnie D Purushotham

Cancer can have profound social and economic consequences for people in India often leading to family impoverishment and societal inequity. Reported age-adjusted incidence rates for cancer

are still quite low in the demographically young country. More than 1 million new cases of cancer are diagnosed every year in a population of 1.2 billion. In age-adjusted terms this represents a combined male and female incidence of about a quarter of that recorded in western Europe. However, an estimated 600 000–700 000 deaths in India were caused by cancer in 2012. In age-standardised terms this figure is close to the mortality burden seen in high-income countries. Such figures are partly indicative of low rates of early-stage detection and poor treatment outcomes. Many cancer cases in India are associated with tobacco use, infections, and other avoidable causes. Social factors, especially inequalities, are major determinants of India’s cancer burden, with poorer people more likely to die from cancer before the age of 70 years than those who are more affluent. In this first of three papers, we examine the complex epidemiology of cancer, the future burden, and the dominant sociopolitical themes relating to cancer in India.

Objectives

1. To study the potential of domestic oncology market

Scope of study:

- To study the domestic oncology market.
- To find out the geographic wise cancer pattern in India.

2. To study the competitive analysis of Getwell Oncology Product in India (Delhi)

Scope of study:

- To study the Doctor’s awareness about the currently used Getwell’s Oncology products.
- Effect of the attributes such as availability, affordability etc. on the prescription pattern.
- To examine the level of satisfaction among doctors for currently available Getwell’s oncology product.

Research Methodology

Study Design: Descriptive study

Sampling: Non-probability, convenience sampling

Target respondents: Oncologists from various govt. and private hospitals.

Sample Size: Number of doctors: 71

Sample area: Delhi

Tool: Questionnaire to collect primary data, Microsoft Excel and SPSS for analysis

Data Collection: Primary- Through questionnaire and meeting with respondents

Study duration: 3 Month

Data Collection Tool: Primarily, Secondary Data collected (Company Annual Reports, various research articles and publications). Data was triangulated using both primary and secondary approach.

DATA ANALYSIS:

Secondary data-

2018 Statistics

	MEN	WOMEN
1	LIP, ORAL CAVITY	BREAST
2	LUNG	LIP, ORAL

3	STOMACH cancers can be prevented, screened or detected early and treated at an early stage. Cancers of oral cavity and lungs account for over 25% of cancer deaths in males and cancer of breast and oral cavity account for 25% cancers in females	CERVIX
4	COLORECTAL	LUNG
5	ESOPHAGUS	GASTRIC

The top five cancers in men and women account for 47.2% of all cancers; these

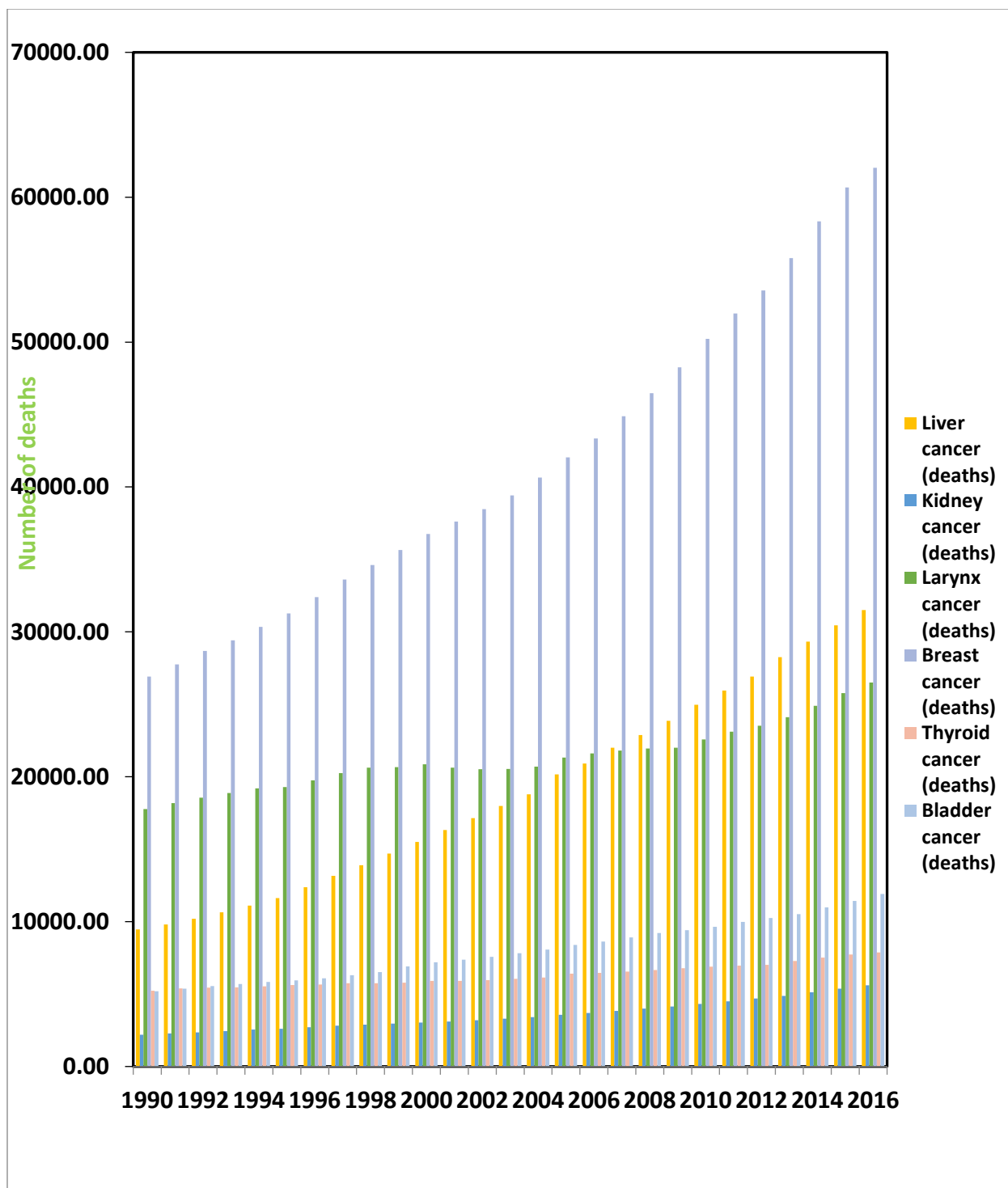
Death table output1

Descriptive Statistics

Deaths	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
Bladder cancer	27	6724.61	5189.60	11914.21	216717.52	8026.5747	2009.82968
Brain and nervous system	27	11440.01	9602.31	21042.32	400847.61	14846.2079	3205.38189
Breast cancer	27	35125.24	26911.04	62036.29	1121175.81	41525.0301	10587.04558
Cervical cancer	27	8448.39	29355.68	37804.07	905286.45	33529.1278	2289.31858
Colon and rectum cancer	27	31121.01	22605.68	53726.68	957722.28	35471.1957	9310.70329
Esophageal cancer	27	16164.54	22271.28	38435.82	783315.07	29011.6694	4596.26855
Gallbladder and biliary tract cancer	27	16834.26	9251.31	26085.57	460646.53	17060.9826	5469.42412
Hodgkin lymphoma	27	1312.06	5153.16	6465.22	160258.15	5935.4872	458.53906
Kidney cancer	27	3414.82	2192.77	5607.59	95561.29	3539.3070	998.68354
Larynx cancer	27	8734.52	17768.71	26503.23	575560.22	21317.0451	2231.34189
Leukemia	27	12287.23	17645.22	29932.44	649316.34	24048.7532	3597.30606

Lip and oral cavity cancer	27	31761.82	27445.42	59207.24	1104377.98	40902.8883	9515.98760
Liver cancer	27	22052.72	9454.43	31507.15	509860.42	18883.7192	6974.58831
Malignant skin melanoma	27	1212.76	881.72	2094.48	35972.69	1332.3220	363.97351
Multiple myeloma	27	5614.16	3100.90	8715.05	144697.93	5359.1827	1706.69092
Nasopharynx cancer	27	2229.65	5372.12	7601.76	162241.82	6008.9564	703.35735
Non-Hodgkin lymphoma	27	14565.00	8235.00	22800.00	394694.00	14618.2963	4574.19982
Non-melanoma skincancer	27	1277.22	1084.36	2361.58	42631.68	1578.9511	416.80177
Other cancers	27	58967.23	15607.91	74575.13	1090523.35	40389.7538	20699.11799
Other pharynx cancer	27	31484.42	26009.05	57493.47	1050234.90	38897.5890	9454.39187
Ovarian cancer	27	10971.62	6321.00	17292.62	288576.24	10688.0090	3450.10861
Pancreatic cancer	27	14034.87	10071.08	24105.95	412504.27	15277.9358	4185.09410
Prostate cancer	27	13139.32	7814.25	20953.57	353674.63	13099.0603	4040.44251
Stomach cancer	27	25842.82	51293.09	77135.91	1721440.66	63757.0613	7840.61905
Testicular cancer	27	463.46	1293.18	1756.64	41002.50	1518.6110	174.60156
Thyroid cancer	27	2655.86	5222.61	7878.47	169729.12	6286.2636	759.05417
Tracheal bronchus and lung cancer	27	42219.95	27380.79	69600.75	1185118.78	43893.2880	13008.32510
Uterine cancer	27	2535.77	4928.10	7463.87	166248.09	6157.3366	639.06893
Valid N (listwise)	27						

By descriptive statistics and graph it is interpreted that breast cancer is most common cause of death among different type of cancers followed by liver cancer and larynx cancer.



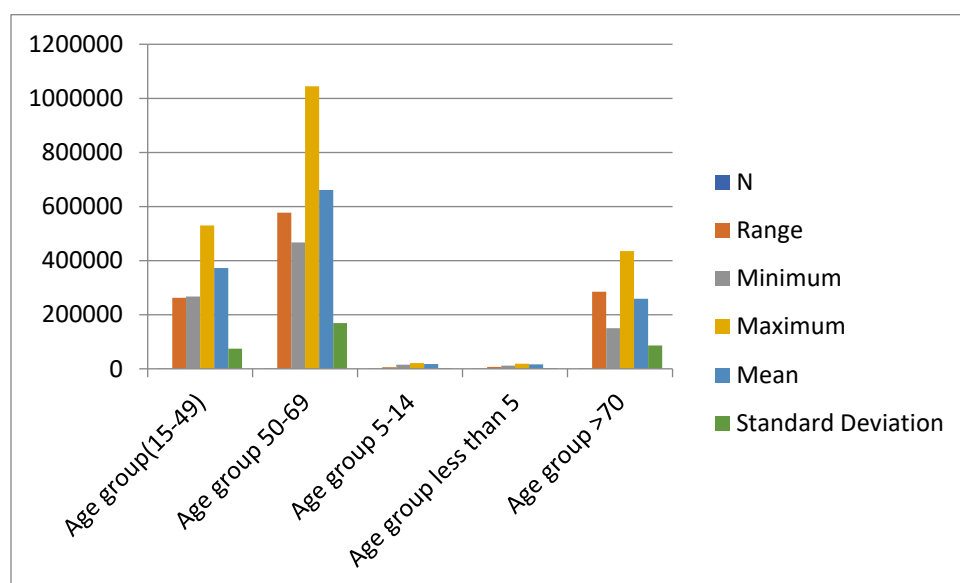
Descriptive Statistics

Age	N	Range	Minimum	Maximum	Mean	Std. Deviation
Age group(15-	27	262053.88	267674.47	529728.36	373091.8939	74931.86984

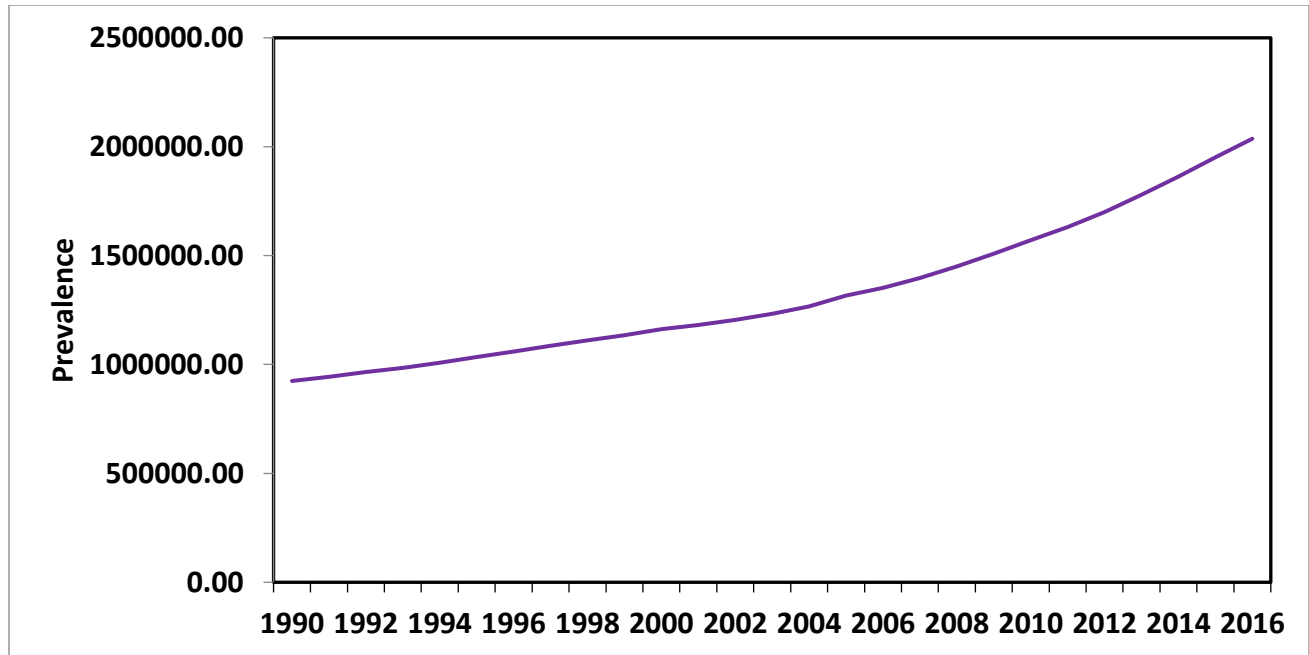
49)						
Age group 50-69	27	577436.30	467409.73	1044846.03	661215.0894	169689.93917
Age group 5-14	27	6197.04	14851.27	21048.31	18036.5385	2163.78854
Age group less than 5	27	7030.91	12293.09	19324.00	16176.1919	2003.78299
Age group >70	27	284816.63	150282.79	435099.42	259404.3359	86121.70453

- From the data we can interpret that age group 50-69 has the maximum mean value ranges from 467409.73 to 1044846.03 and standard deviation 16989.93.

Figure: Number of cancer cases according to age group in india

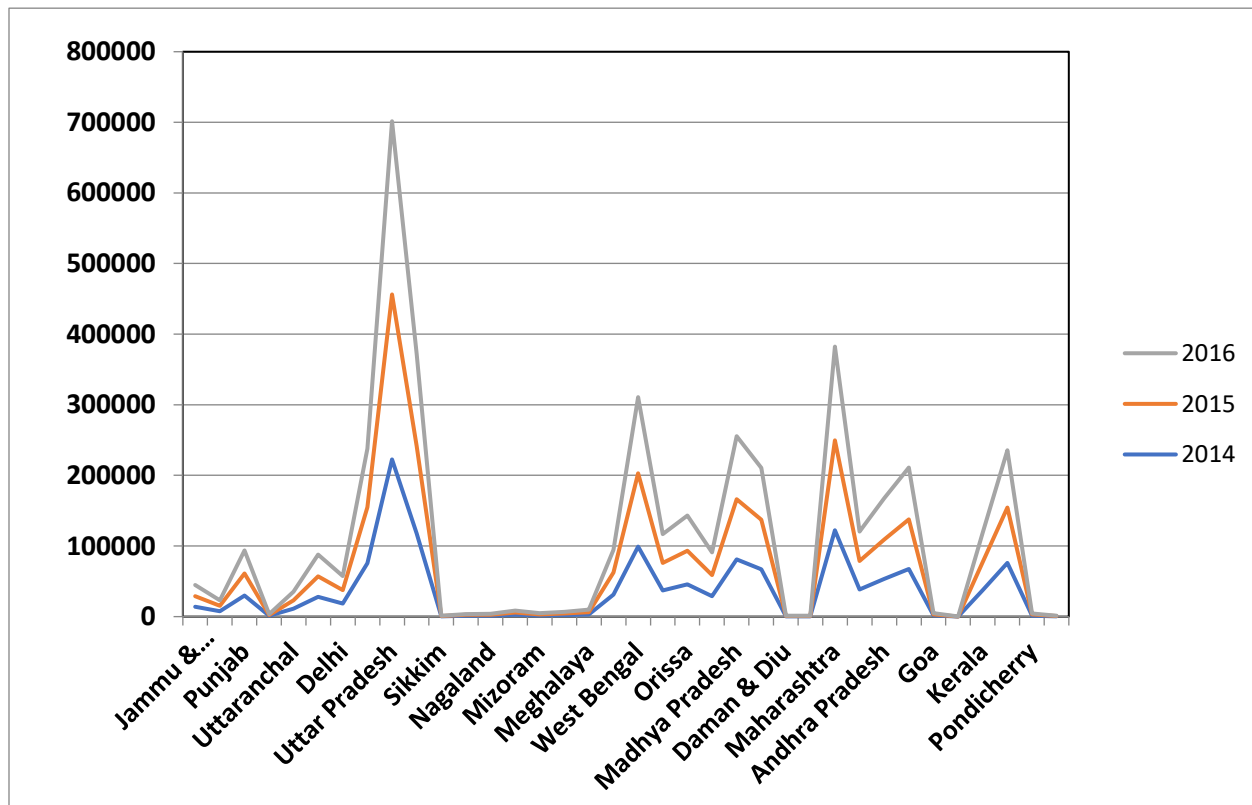


It was observed that the maximum number of cancer cases is in between the age of 50 to 69 as it has the highest mean value according to descriptive statistics followed by age group of 50-69.



According to data, it is observed that the prevalence is increasing year by year with very high rate. In 1990 the Prevalence of both sexes and all age people was 924457.17 and in 2016 it has increased and become 2036818.16.

Cancer incidence cases statewise distribution from 2014 to 2016



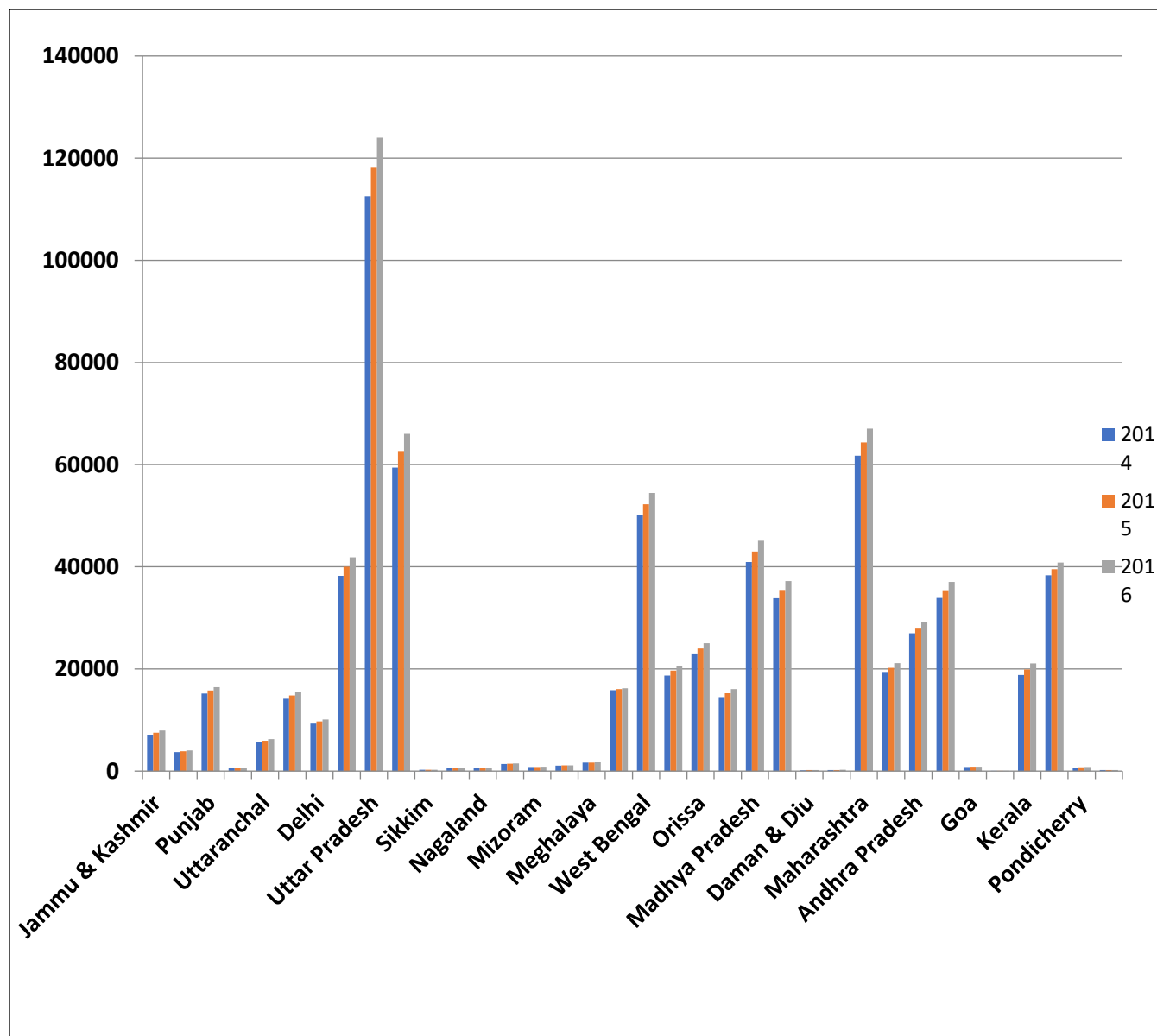


Figure: Statewise Cancer Mortality Cases

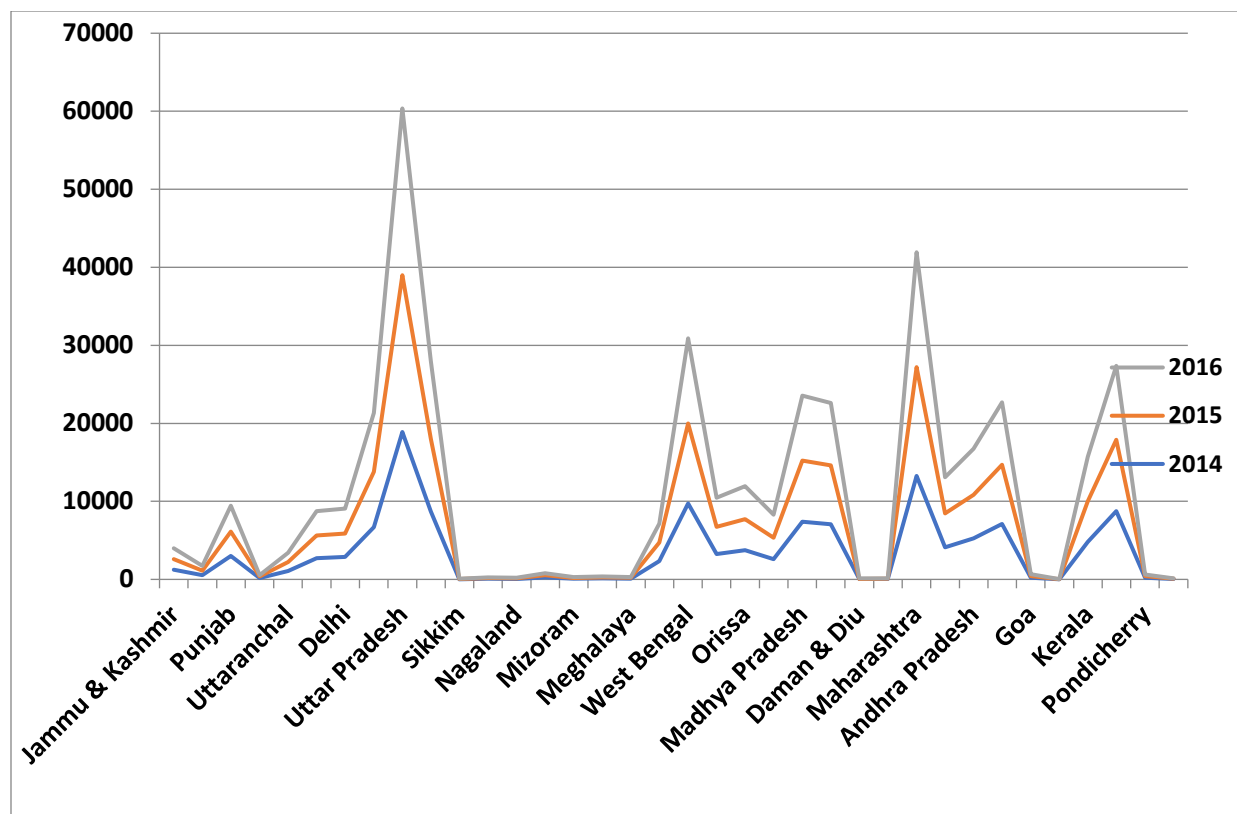


Fig: Breast Cancer Incidence

The estimated number of incident breast cancer cases in India in 2016 was 142283 , 98.1% of which were in females, Breast cancer is the leading cancer in Indian females, accounting for the largest crude incidence rate and prevalence of any cancer type. The highest incidence rate of breast cancer were in Uttarpradesh,, West Bengal, Maharashtra, Kerala.

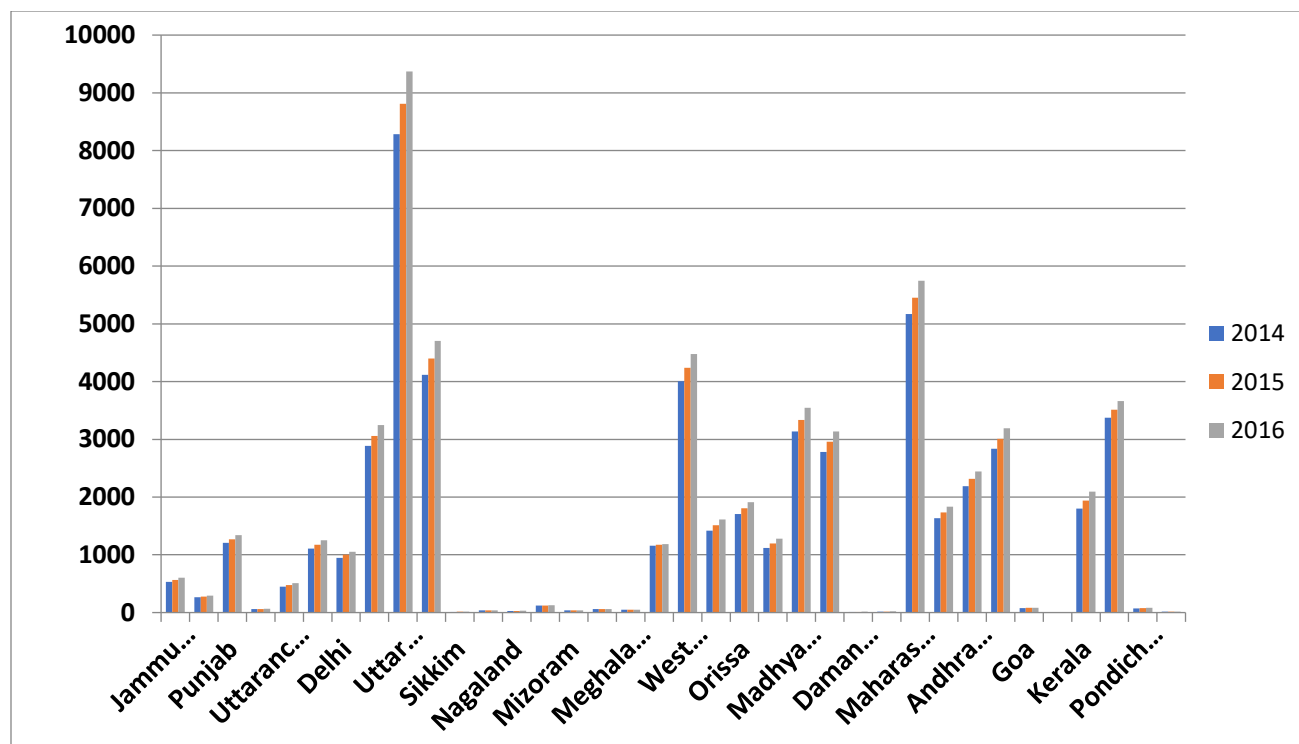


Figure: Statewise Breast Cancer Mortality Cases

By analyzing incidence and mortality rate we can interpret that the maximum incidence and mortality **rate of cancer was in uttar Pradesh and over a period of time cancer mortality cases are increasing in** different states of india.

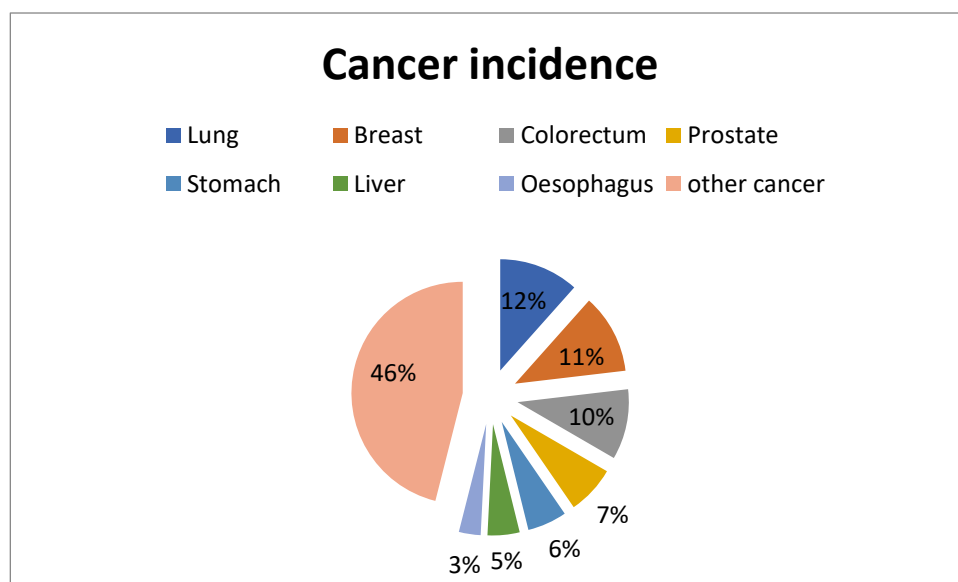
Molecules available for breast cancer treatment in India-

Bevacizumab				
Brand Name	Lead Manufacturer	Dose	MRP	Form
Bevatas	Intas Pharmaceutical	100mg	₹ 25,990.00	Injection
Bevazza	Lupin Ltd	100mg	₹ 21,993.00	Injection
Zybev	Zydus Cadila	100mg	₹ 27,000.00	Injection
Advamab	Alkem Laborateries	100mg	₹ 27,428.00	Injection

Anastrozole				
Brand Name	Lead Manufacturer	Dose	MRP	Form
Altroz	Alkem	1mg	810	Tablet
Altrol	Taj Pharma	1mg	722.82	Tablet
Anabrez	Sun Pharma	1mg	263.75	Tablet

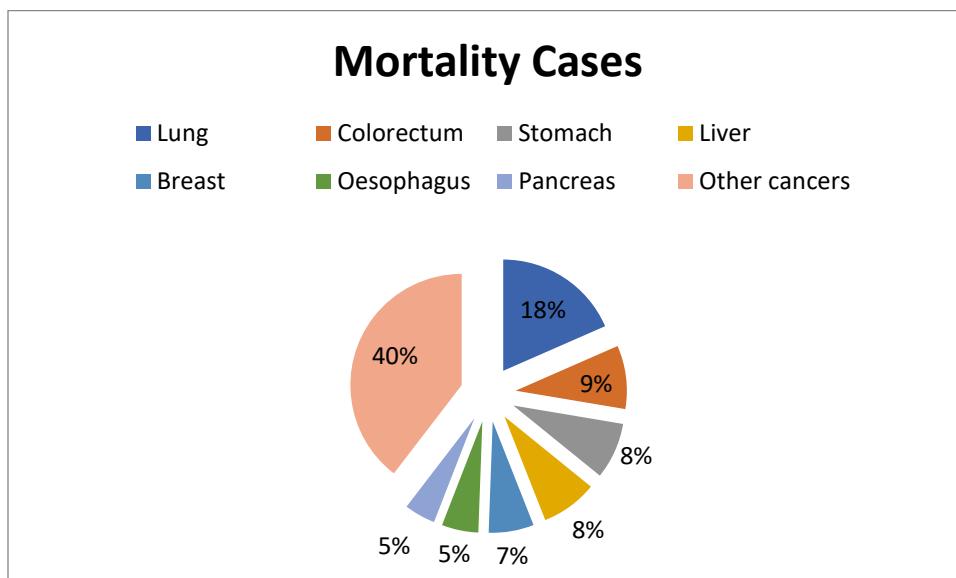
Letrozole				
Brand Name	Lead Manufacturer	Dose	MRP	Form
Trozet	Dabur	2.5mg	428.96	Tablet
Oreta	Dr Reddy's	2.5mg	378	Tablet
Luprolide	Lupin	3.75mg	4000	Injection
Fempro	Cipla	2.5mg	60	Tablet

Global Cancer Statistics 2018

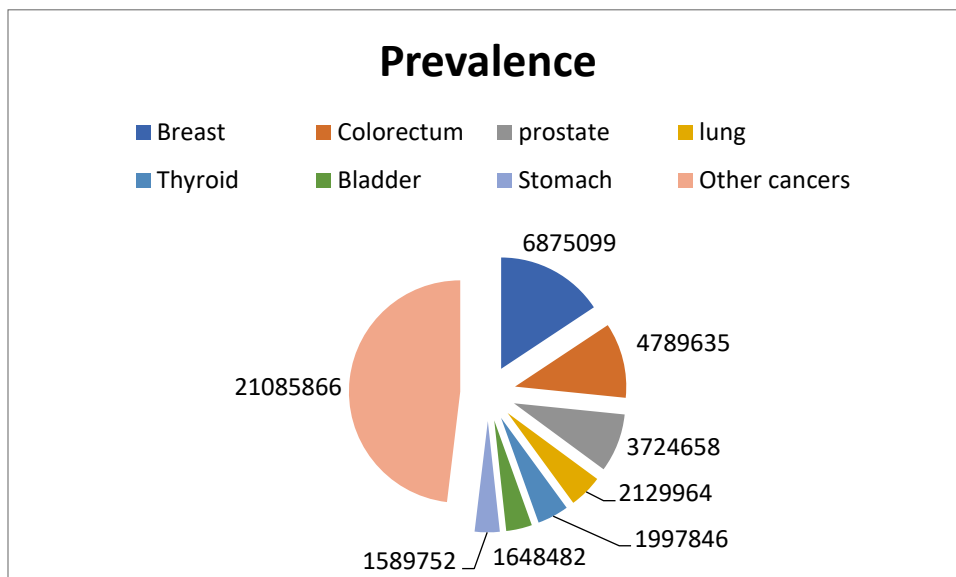


In both sexes combined, lung cancer is the most commonly diagnosed cancer (12% of the total cases) followed by Breast cancer with 11%, Colorectum cancer (10%), Prostate cancer (7%),

Liver cancer (5%) and oesophagus cancer (3%) and other cancers including cervix cancer, thyroid cancer, etc. Total count of incidence cases was 187078957.



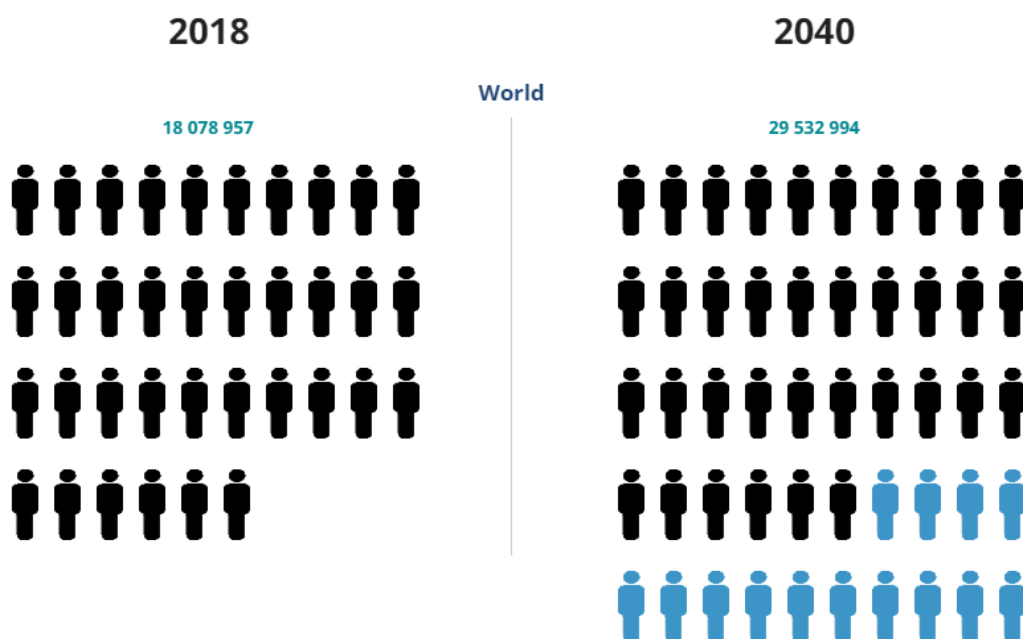
In both sexes combined, the leading cause of death is Lung cancer (18%), Colorectum cancer (9%), Stomach cancer (9%), Liver cancer (8%), Breast cancer (7%), Oesophagus cancer (5%), Pancreatic cancer (5%).



In both sexes combined, for 5 year time period the prevalence of breast cancer is highest with count number 6875099, followed by colorectum cancer (4789635), Prostate cancer (3724658),

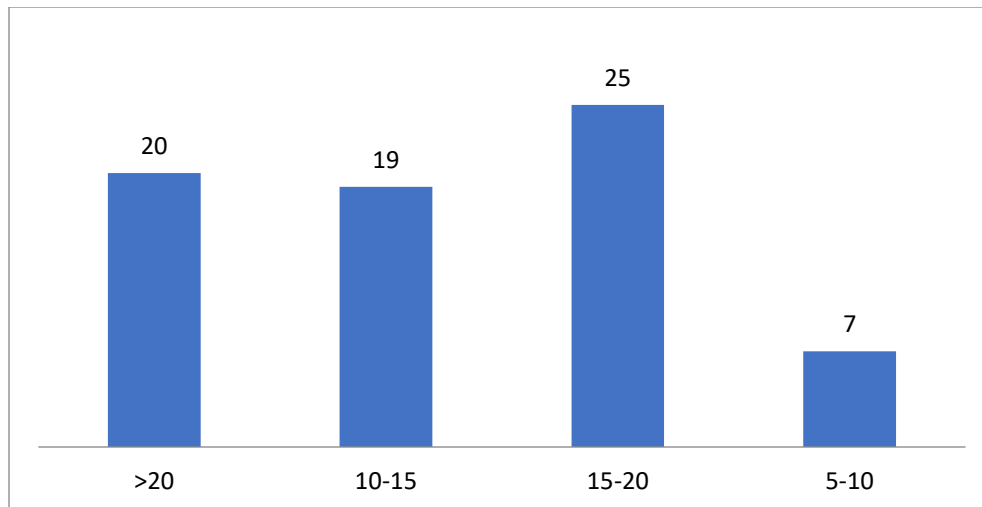
Lung cancer (2129964), Thyroid cancer (1997846), Bladder cancer (1648482), Stomach cancer (1589752).

**Estimated number of incident cases from 2018 to 2040, all cancers, both sexes,
all ages**



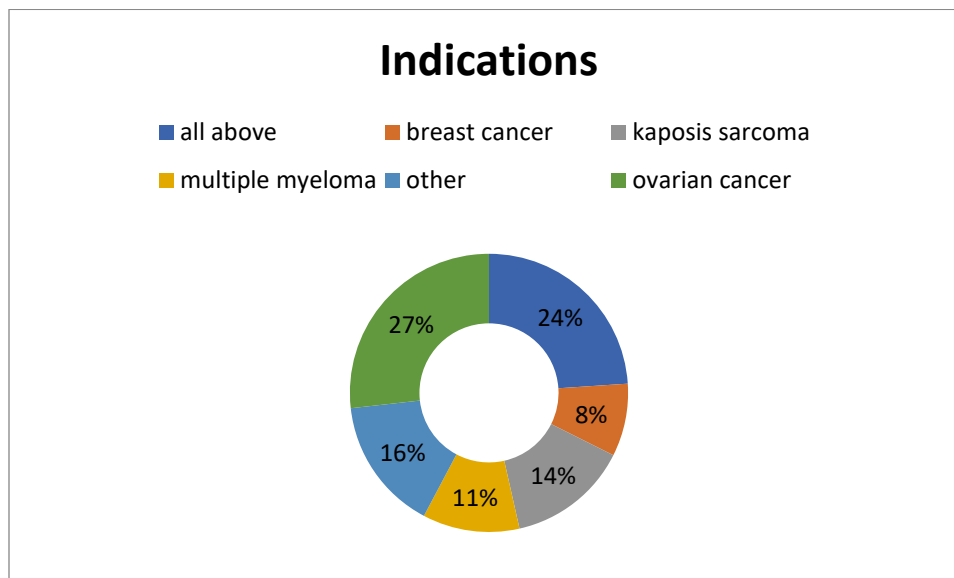
Primary Data Analysis-

Total count of cancer patients seen by doctor per day



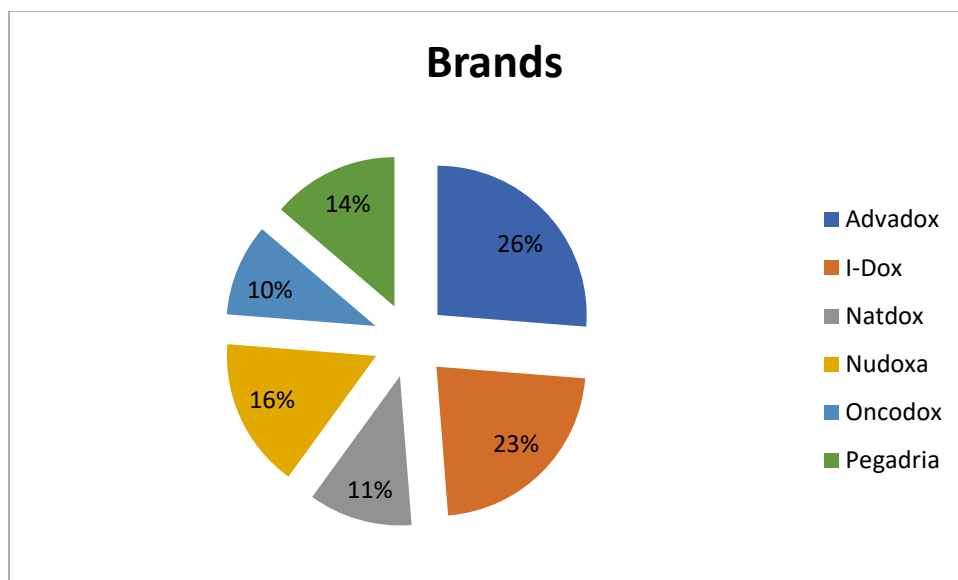
It was observed that burden of cancer patients is high on oncologist i.e 15-20 patients per day followed by more than 20 patients per day due to availability of less oncologist and more patients.

Indication in which Getwell’s Product (Doxorubicin Hydrochloride) is prescribed



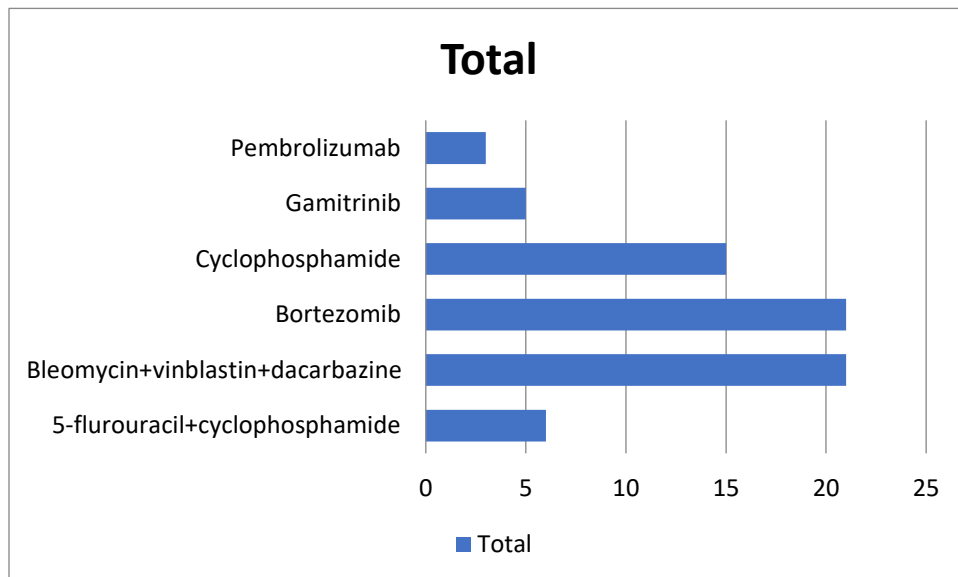
It was observed that doxorubicin hydrochloride is prescribed majorly in Ovarian cancer but in other cancer also like Kaposi sarcoma, multiple myeloma, breast cancer also.

Most preferred brand of doxorubicin hydrochloride by doctors-



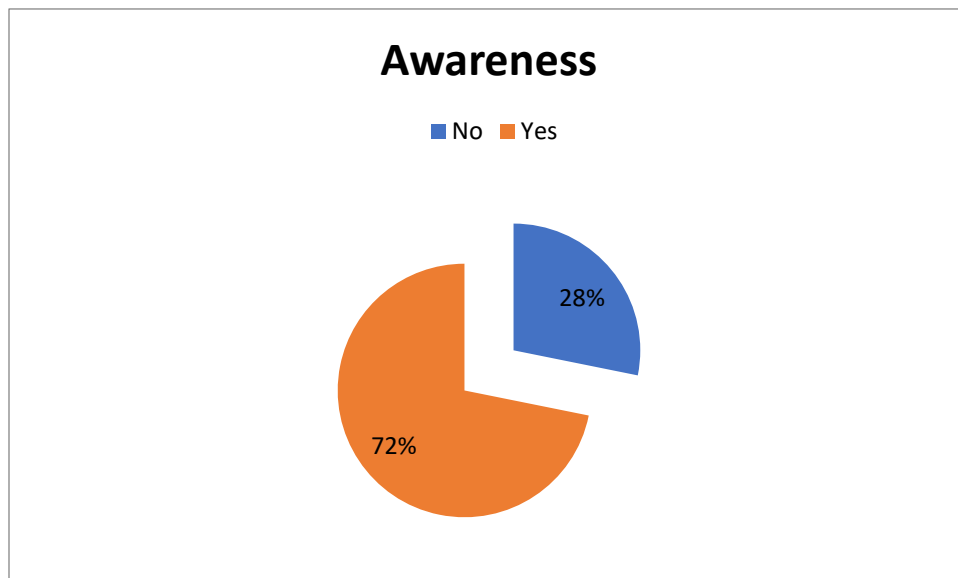
It was observed that Advadox by Sunpharma is the most preferred brand of doctors for Doxorubicin Hydrochloride molecule followed by I- Dox (getwell oncology), Natdox (Nacto pharma), Nudoxa(Zydus), Oncodox (cipla).

Combination Therapies given with Doxorubicin Hydrochloride



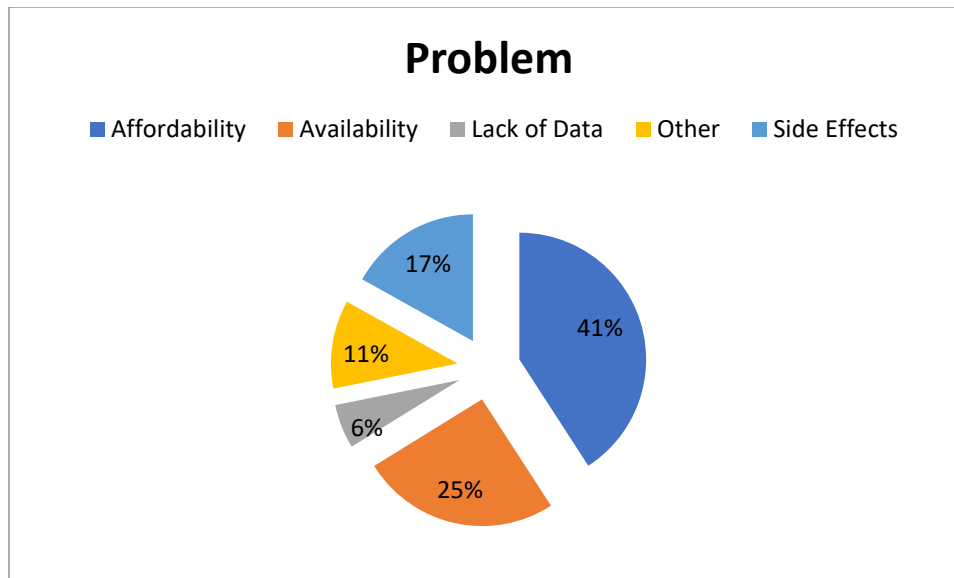
Commonly used doxorubicin-containing regimens are Doxorubicin with Bortezomib, and Doxorubicin with bleomycin,vinblastine, dacarbazine .Note: Doxorubicin with Bortexumib is prescribed in Multiple Myeloma.

Percentage of Doctors aware about the existing brand of Getwell's product in the market



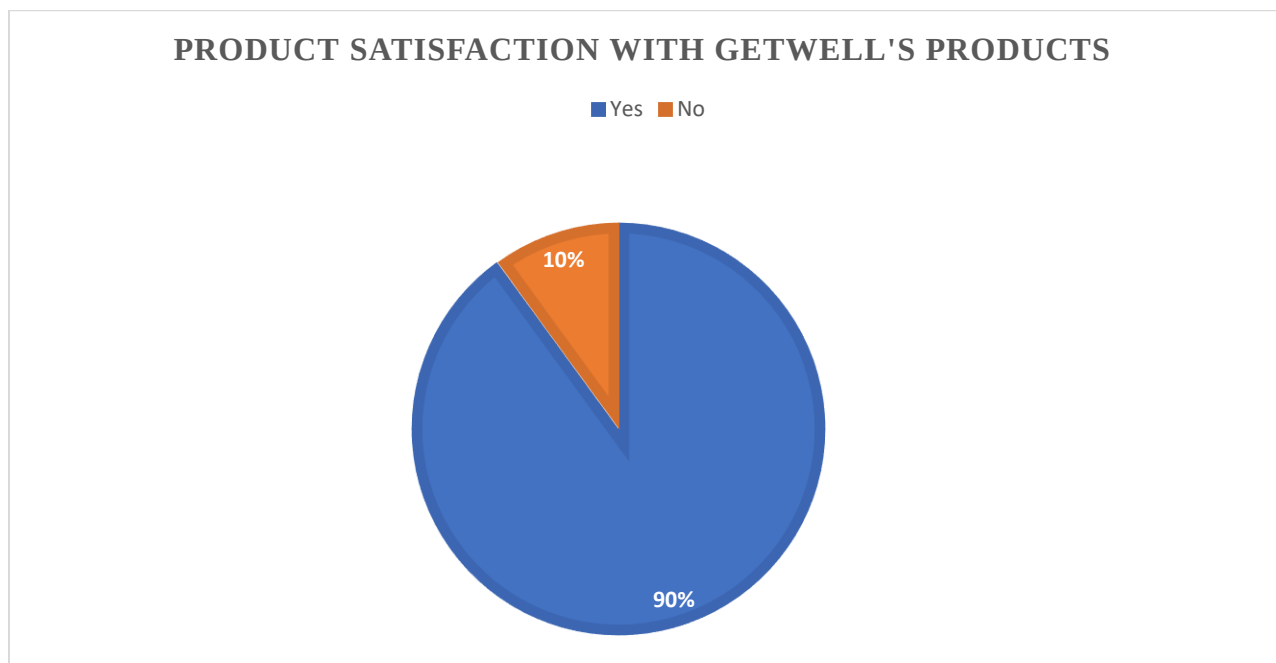
During conversation I asked from respondents about the existing brand of Getwell's products in the market and the answers which i get approx. 72% doctors know about it whereas 28% of them don't know.

Problem Considered while prescribing Oncology drugs-



According to Oncologists the major problem they face while prescribing Anti cancer drug is Affordability followed by Availability and Side effects.

Percentage of doctors satisfied with the performance of available Getwell's products in the market.



About 90% of the respondents are satisfied with the performance of the available Getwell’s products in the market where as about 10% of the respondents are not satisfied with the performance of the available products in the market. Those who are not satisfied will be looking for the various benefits in the products like cost, risk of the infections, side effects of products .

Findings from secondary research-

Global Cancer Market opportunity-

- In both sexes combined, lung cancer is the most commonly diagnosed cancer (12% of the total cases) followed by Breast cancer with 11%, Colorectum cancer (10%), Prostate cancer (7%), Liver cancer (5%) and oesophagus cancer (3%) and other cancers including cervix cancer, thyroid cancer, etc. Total count of incidence cases was 187078957.
- In both sexes combined, the leading cause of death is Lung cancer (18%), Colorectum cancer (9%), Stomach cancer (9%), Liver cancer (8%), Breast cancer (7%), Oesophagus cancer (5%), Pancreatic cancer (5%).
- In both sexes combined, for 5 year time period the prevalence of breast cancer is highest with count number 6875099, followed by colorectum cancer (4789635), Prostate cancer (3724658), Lung cancer (2129964), Thyroid cancer (1997846), Bladder cancer (1648482), Stomach cancer (1589752).

Domestic Cancer market opportunity-

- By descriptive statistics and graph it is interpreted that breast cancer is most common cause of death among different type of cancers followed by liver cancer and larynx cancer.
- Age group 50-69 has the maximum mean value ranges from 467409.73 to 1044846.03 and standard deviation 16989.93 so, the maximum number of cancer cases is in between the age of 50 to 69.

- The prevalence is increasing year by year with very high rate. In 1990 the Prevalence of both sexes and all age people was 924457.17 and in 2016 it has increased and become 2036818.16.
- The estimated number of incident breast cancer cases in India in 2016 was 142283 , 98•1% of which were in females, Breast cancer is the leading cancer in Indian females, accounting for the largest crude incidence rate and prevalence of any cancer type. The highest incidence rate of breast cancer were in Uttar pradesh,, West Bengal, Maharashtra, Kerala.
- By analyzing incidence and mortality rate we can interpret that the maximum incidence and mortality rate of cancer is in Uttar Pradesh and over a period of time cancer mortality cases are increasing in different states of India.

Findings from primary research-

Findings from the doctors-

- It was observed that burden of cancer patients is high on oncologist i.e 15-20 patients per day followed by more than 20 patients per day due to availability of less oncologist and more patients.
- It was observed that doxorubicin hydrochloride is prescribed majorly in Ovarian cancer but in other cancer like Kaposi sarcoma, multiple myeloma, breast cancer also.
- It was observed that Advadox by Sunpharma is the most preferred brand by doctors for Doxorubicin Hydrochloride molecule followed by I- Dox (getwell oncology), Natdox (Nacto pharma), Nudoxa(Zydus), Oncodox (cipra)
- 72% doctors are aware about Getwell’s products.
- According to Oncologists the major problem they face while prescribing Anti cancer drug is Affordability followed by Availability and Side effects.
- About 90% of the respondents are satisfied with the performance of the available Getwell’s products in the market where as about 10% of the respondents are not satisfied with the performance of the available products in the market. Those who are not satisfied

will be looking for the various benefits in the products like cost, and side effects of products .

References-

1. Mallath MK, Taylor DG, Badwe RA, Rath GK, Shanta V, Pramesh CS, et al. The growing burden of cancer in India: Epidemiology and social context. *Lancet Oncol.* 2014;15:e205–12. [PubMed]
2. Deepali Narula, Laura Medford-Davis, MD, Seema Parmar, and Edward Levine, MD, “The Quality Payment Program under MACRA: Strategic implications for providers and payers,” McKinsey on Healthcare, December 2017, <https://healthcare.mckinsey.com/quality-payment-programunder-macra-strategic-implications-providers-and-payers>. Accessed March 9, 2018.
3. President Donald J. Trump’s State of the Union Address, January 30, 2018, <https://www.whitehouse.gov/briefingsstatements/president-donald-j-trumps-state-unionaddress/>. Accessed March 9, 2018.
4. Global Cancer observatory- <https://gco.iarc.fr/>
5. [https://www.ey.com/Publication/vwLUAssets/EY-Call-for-action-expanding-cancer-care-in-india/\\$FILE/EY-Call-for-action-expanding-cancer-care-in-india.pdf](https://www.ey.com/Publication/vwLUAssets/EY-Call-for-action-expanding-cancer-care-in-india/$FILE/EY-Call-for-action-expanding-cancer-care-in-india.pdf)