

**Summer Training at
IMS Health, Gurgaon
(April 7-June 6, 2014)**

Developing a Patient Based Forecast Model for Breast Cancer

**By
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**Under the guidance of
Dr. Nutan P. Jain**

**MBA- Hospital & Health Management (MBA-HM)
2013-2015**



**The IIHMR University, Jaipur
2014**

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CERTIFICATE

This is to certify that **Dr. Aliasgar Patanwala** has undergone his summer training in **IMS Health, Gurgaon** from 7th April, 2014 to 6th June, 2014. The candidate himself has completed his project "**Patient Based Market Forecast Model for Breast cancer**".

His approach to the study has been scientific and analytical. This summer training is in the partial fulfilment of the course requirement recommended for the award of Post Graduate Diploma in Hospital and Health Management with specialisation in Hospital Management.

I wish him success in all his future endeavours.



Col. (Dr.) Ashok Kaushik
Dean (Academic & Student Affairs)
IIHMR University, Jaipur



Dr. Nutan P. Jain
Professor & Mentor
IIHMR University, Jaipur

CERTIFICATE

This is to certify that **Dr. Aliasgar Patanwala**, a student of the Post-Graduate Diploma in Management, IIHMR Jaipur has worked on “**Developing a Patient based Forecast Model for Breast Cancer**” under my guidance and supervision. This Summer Project Report has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other summer project, monograph, report or book.

Faculty Guide:

Dr. Nutan P. Jain

(Professor IIHMR, Jaipur)

Corporate Guide:



Dr. Saurabh Kumar

(Manager Syndicated Analytics, IMS Health)

CERTIFICATE

Date: 6th Jun 2014

To whomsoever it may concern

This is to certify that **Dr. Ali Asgar Patanwala** has undergone Internship in Syndicated Analytics Disease Insight team at IMS Health Gurgaon from 7th April to 6th June. During his tenure he got well acquainted with all the teams at Syndicated Analytics and understood the functioning over here. During his tenure he worked for ASCO (American Society of Clinical Oncology) in a project, done a pipeline analysis for Neuropathic pain, and completed his project on developing Market Forecast model for Breast Cancer.

I appreciate the work done by him and wish him all the very best for his future endeavors.



Dr. Saurabh Kumar

Manager, Syndicated Analytics

IMS Health Gurgaon

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. **Aliasgar Patanwala** has successfully completed his internship at **IMS Health India Private Limited**.

The tenure of his internship was from **7th April 2014 to 6th June 2014**.

During his tenure in IMS Health he has worked on live/internal projects and has also actively participated in all extracurricular activities.

It was a pleasure having him with us and we wish him all the very best for his future endeavors.

Thanks and Regards



(Human Resource)

(Aliasgar Patanwala)

Contents

GLOSSARY

ACKNOWLEDGMENT

CERTIFICATE

About the Organization

1.0 INTRODUCTON	3
1.1 Categories of forecasting methods are.....	3
1.2 Breast cancer	4
2.0 RATIONALE.....	6
3.0 REVIEW OF LITERATURE	6
3.1 Epidemiology.....	6
3.2.0 Oncology Market	6
3.2.1 Asia Pacific Market of Breast Cancer	7
4.0 RESEARCH QUESTION	8
5.0 STUDY OBJECTIVES	8
6.0 METHODOLOGY.....	8
6.1 Various steps in generating a forecast model for a disease market.	8
6.2.0 Algorithm followed for developing Breast Cancer model	11
6.2.1 Define Breast Cancer Market in Input Sheet	11
6.2.2 Setting the parameters to be forecasted.	11
6.2.3 Start building the Input Sheet.....	12
6.2.4 Developing Core Sheet.....	13
6.2.5 Output Sheet.....	13
7.0 FORECAST ANALYSIS AND INTERPRETATION	14
8.0 ETHICAL CONSIDERATION	14
9.0 RESULTS	14
9.1 Total Forecasted market for breast cancer according to biomarker type HER2+HR+ would be :	14
10.0 LIMITATION OF THE MODEL	19
11.0 DISSCUSSION	19
12.0 BIBLIOGRAPHY	21

GLOSSARY

HR+	Hormone receptor-positive
HER2+	Human Epidermal Growth Factor Receptor-2 positive
HR-	Hormone receptor-negative
HER2-	Human Epidermal Growth Factor Receptor-2 negative

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It gives me immense pleasure to acknowledge Dr. Saurabh Kumar, Manager, Syndicated Analytics (Disease Insight Team), GTO, India at IMS Health, Gurgaon; my mentors Mr. Budhesh Choudhary, Jr. Consultant, GTO, India at IMS Health, Gurgaon; and Mr. Shubhro De, Jr. Consultant, GTO, India at IMS Health, Gurgaon; and my Buddy Dr. Ankur Goyal, Manager, Syndicated Analytics, GTO, India at IMS Health, Gurgaon; for their guidance throughout my Internship; it is the constant encouragement that has enriched my growth as an intern, they have always been an inspiration and will continue to be.

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I place on record, my sincere gratitude to all my teammates for being such a supportive and a wonderful team, it was pleasure working with them.

I owe a debt of gratitude to my mentor Ms. Nutan P. Jain, Professor, at Institute of Health Management Research, Jaipur; Our Alumni Mr. Manish Choudhary, Jr. Consultant, GTO, India, at IMS Health, Gurgaon; all my teachers for grooming me and my classmates for the inspiration needed to work with dedication and motivation at IMS Health, Gurgaon.

I hope that I can build upon the experience and knowledge that I have gained and make a valuable contribution towards the industry in the coming future.

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Faculty Guide: Nutan P. Jain

Designation: Professor

IIHMR, Jaipur

Date:

Organizational Guide: Dr. Saurabh Kumar

Designation: Manager, Syndicated Analytics

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Date:

About the Organization

IMS Health is the world's leading information, services and technology company dedicated to making healthcare perform better.

By applying cutting-edge analytics and proprietary application suites hosted on the IMS One intelligent cloud, the company connects more than 10 petabytes of complex healthcare data on diseases, treatments, costs and outcomes to enable our clients to run their operations more efficiently.

Drawing on information from 100,000 suppliers, and on insights from more than 45+ billion healthcare transactions processed annually, IMS Health's approximately 10,000 professionals drive results for over 5,000 healthcare clients globally.

Customers include pharmaceutical, medical device and consumer health manufacturers and distributors, providers, payers, government agencies, policymakers, researchers and the financial community.

IMS Health is a company that provides information, services and technology for the healthcare industry. It is the largest vendor of U.S. physician prescribing data.[11][12][13] IMS Health was founded in 1954 by Bill Frohlich and David Dubow. In 2010, IMS Health was taken private by TPG Capital, CPP Investment Board and Leonard Green & Partners.[14] Ari Bousbib is IMS Health's Chairman and Chief Executive Officer. Bousbib, a long-time senior executive at United Technologies Corporation,[15] joined the company in September 2010.[16] IMS Health is headquartered in Danbury, CT.

IMS Health Holdings Inc. reported earning \$2.5 billion in 2013, with \$1.5 billion in information sales and \$1 billion in technology services.[17][18]

IMS Health is best known for its collection of healthcare information spanning sales, de-identified prescription data, medical claims, electronic medical records [19] and social media.[20] IMS Health's products and services are used by companies to develop commercialization plans[21] and portfolio strategies,[22] to select patient and physician populations[23] for specific therapies, and to measure the effectiveness of pharmaceutical marketing and sales resources. The firm uses its own data to produce syndicated reports such as market forecasts and market intelligence.

The original name of the company was Intercontinental Marketing Services, hence the IMS name. IMS Health's corporate headquarters is located in Danbury, Connecticut, USA. The company's chairman and chief executive officer is Ari Bousbib.

In 2013, the firm was included on IDC Health Insights' list of top life science Information technology vendors [24] The ranking is based on the global market intelligence firm's survey of 102 industry leaders on their planned IT spend.

1.0 INTRODUCTON

If a man gives no thought about what is distant he will find sorrow near at hand.

"Confucius"

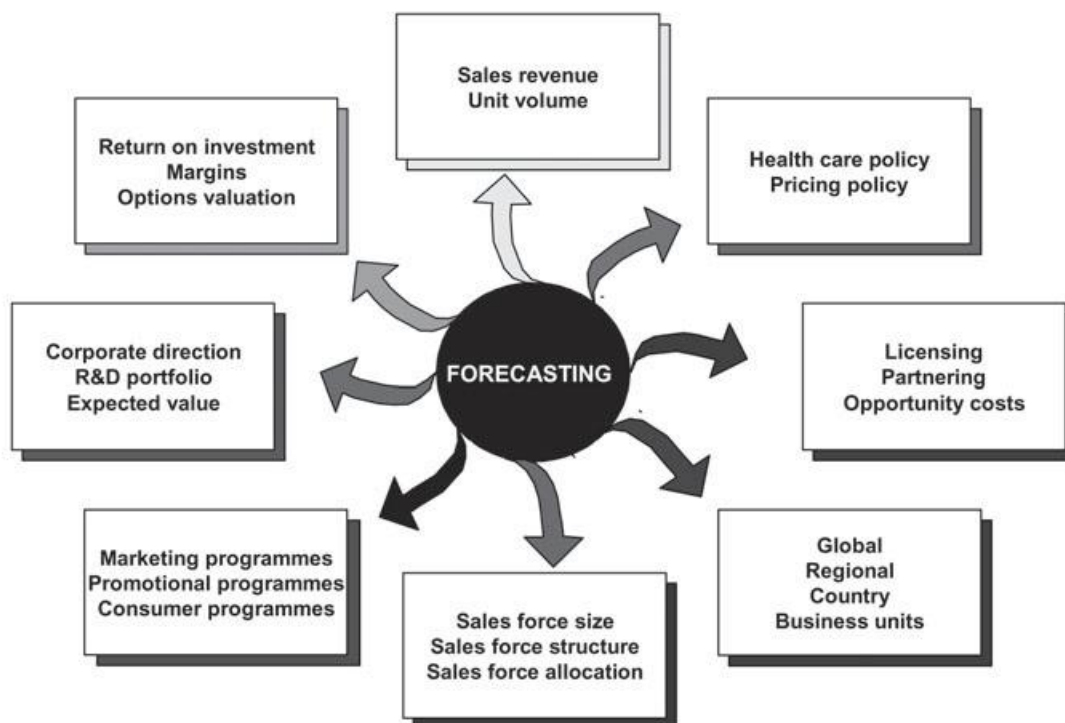
Forecasting is the process of making statements about events whose actual outcomes (typically) have not yet been observed. A common place example might be estimation of some variable of interest at some specified future date.

1.1 Categories of forecasting methods are:-

1. Qualitative vs. quantitative methods
2. Naïve approach
3. Time series methods
4. Causal / econometric forecasting methods
5. Judgmental methods
6. Artificial intelligence methods.

Forecasting feeds into and influences many other functional areas within an organization (see Figure). These linkages may be unidirectional or bidirectional. The links reflect the varied uses to which a forecast can be applied – such as revenue planning, production planning, resource allocation, project prioritization, partnering decisions, compensation plans, lobbying efforts and so forth. These varied uses, and the effect of forecasting on many functional areas in an organization, reflect the first major challenge of forecasting – meeting the needs of varied and diverse stakeholders.

Forecasts may be done at a global, regional, country, or business unit level. Each forecast has differing levels of data required, both at the input and output level. These forecasts need different structural constructs – for example, if doing a regional forecast for a product in Europe do I assume one European launch date or individual launch dates in each of the key countries? Is there a ‘pan-European’ adoption curve for the product or should individual country’s adoption patterns be modeled? The answer to these, and many other, questions dictate the design of the forecast



model.

Besides having various different methods of forecasting, disease market forecasting is bit different which all together follows more logical way rather than the hard core mathematical equations.

1.2 Breast cancer

It is a type of cancer originating from breast tissue, most commonly from the inner lining of milk ducts or the lobules that supply the ducts with milk. ^[1] Cancers originating from ducts are known as ductal carcinomas, while those originating from lobules are known as lobular carcinomas. Breast cancer occurs in humans and other mammals. While the overwhelming majority of human cases are in women, breast cancer can also occur in men. ^[2]

Breast cancer typically is detected either during a screening examination, before symptoms have developed, or after symptoms have developed, when a woman feels a lump. Most masses seen on a mammogram and most breast lumps turn out to be benign; that is, they are not cancerous, do not grow uncontrollably or spread, and are not life-threatening. When cancer is suspected based on clinical breast exam or breast imaging, microscopic analysis of breast tissue is necessary for a definitive diagnosis and to determine the extent of spread (in situ or invasive) and characterize the pattern of the disease. The tissue for microscopic analysis can be obtained via a needle or surgical biopsy. Selection of the type of biopsy is based on individual patient clinical factors, availability of particular biopsy devices, and resources.

Treatment depends on clinically defined stage and segment of Breast cancer. Treatment options include:

1. Surgery
2. Mastectomy, BCS, Lumpectomy
3. Radiation therapy
4. Chemotherapy
5. Hormone therapy
6. Targeted therapies

1.2.1 Breast Cancer Market

The breast cancer segment of the industry is still growing; it has a number of successful FDA–approved products. This model will provide knowledge of the current state of the industry. More importantly, it will describe potential and novel commercial developments in this area.

The report also provides information regarding the less-developed sectors of this market and presents a list of current companies that have new predictive testing products and drugs in development for breast cancer.

2.0 RATIONALE

The project helps to better understand an estimation of market size for breast cancer, along with its forecast.

The project helps to better understand the growth of a drug/molecule after its launch.

The project also develops understanding about future unmet needs.

3.0 REVIEW OF LITERATURE

3.1 Epidemiology

Worldwide, breast cancer accounts for 22.9% of all cancers (excluding non-melanoma skin cancers) in women. ^[5] In 2008, breast cancer caused 458,503 deaths worldwide (13.7% of cancer deaths in women). ^[5]

In 2013, an estimated 232,340 new cases of invasive breast cancer were expected to be diagnosed among US women, as well as an estimated 64,640 additional cases of in situ breast cancer. ^[8]

3.2.0 Oncology Market

IMS expects that Oncology will remain the top therapy area by share value in the world's leading eight geographic markets through 2020. Thus, quite predictably, the Oncology market is of intense interest to both large and small R&D companies, to those with existing Oncology franchises, as well as those not yet in the field. Indeed, the industry's collective pipeline is brimming with promise from significant innovation. ^[7]

Polgreen *et.al.* (2007) said Physicians, nurses, pharmacists, and microbiologists have access to unique information. In some instances, this information provides insight into future diseases activity. But because this information is subjective and asymmetrically distributed across multiple professions, the collection and analysis of the information is not amenable to standard statistical methods.

Focus groups and surveys are used by businesses to capture subjective information from both customers and employees to improve business decisions. Often, these decisions relate to future expectations (i.e., sales forecasts and industry trends). Recently, both academic researchers and businesses have used prediction markets to guide decisions regarding future events. Prediction markets provide real-time information about the probability of forthcoming events by aggregating expert opinions. Forecasting of these markets can provide useful information about future activity for diseases. Such information would allow time for planning and allocation of resources to help with treatment and preventative interventions. Prediction markets also are used to estimate the success of interventions or to predict the likelihood of new drug or vaccine developments.^[9]

3.2.1 Asia Pacific Market of Breast Cancer

The breast cancer therapeutics market in the four Asia-Pacific (APAC) countries of India, Australia, China and Japan was worth \$1.5 billion in 2013 and is expected to grow at a Compound Annual Growth Rate (CAGR) of 7.6% to \$2.5 billion by 2020. Japan had the largest market in 2013 with a value of \$872m, or a share of 58%, followed by China with \$320m or 21%, and Australia with \$234m or 16%. India had the lowest market share and value at 5% and \$81m, but is expected to witness the fastest growth over the forecast period with a CAGR of 13.8%, compared to Australia at 7.8% and China and Japan both at 7.7%^[6]

4.0 RESEARCH QUESTION

What are the key components in developing a patient based forecast model for Breast Cancer?

5.0 STUDY OBJECTIVES

The main objectives of the study are as under:

To identify the market size for breast cancer for a particular country.

To develop a patient based forecast model for breast cancer.

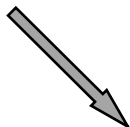
To access the uptake of new product launch in a market.

6.0 METHODOLOGY

6.1.0 Various steps in generating a forecast model for a disease market.

Common Algorithm for the patient based forecast model for a product level forecasting is divided into three components.

A) MARKET



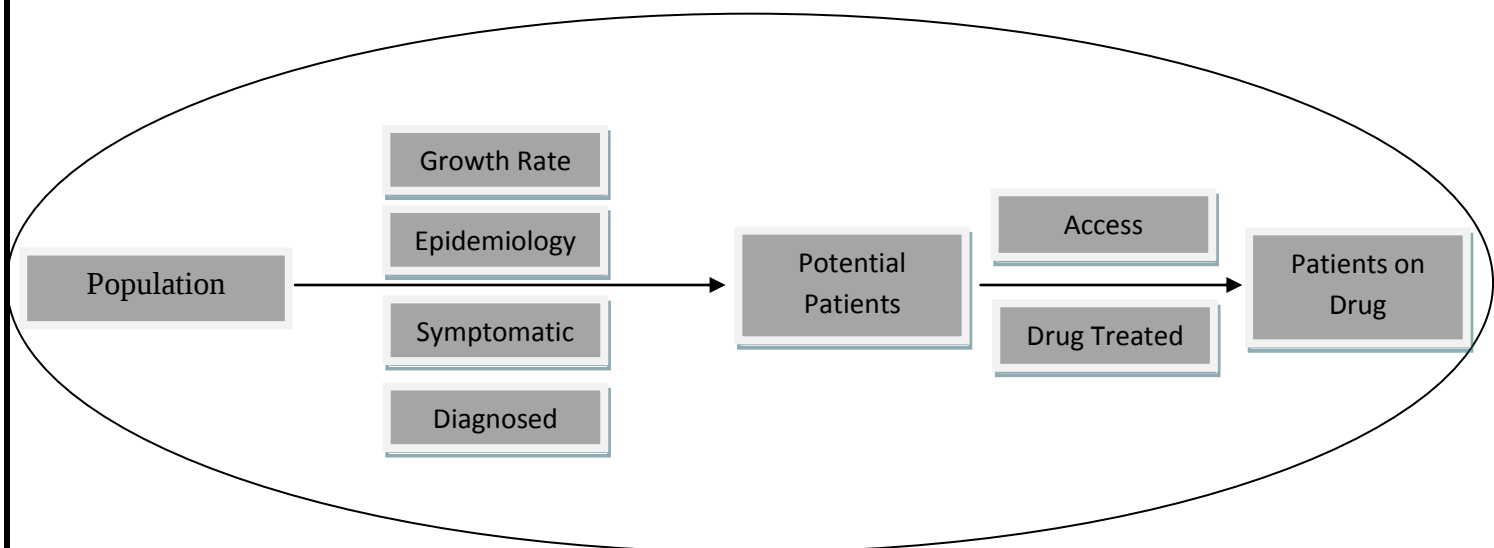


Figure 6.1.1

In this approach we first define the theoretical maximum number of patients with a given disease state and then contract, or filter, the market to arrive at the number of patients who currently are receiving therapy. This is done through a series of filters, as shown in above Figure6.1.1

B) PRODUCT

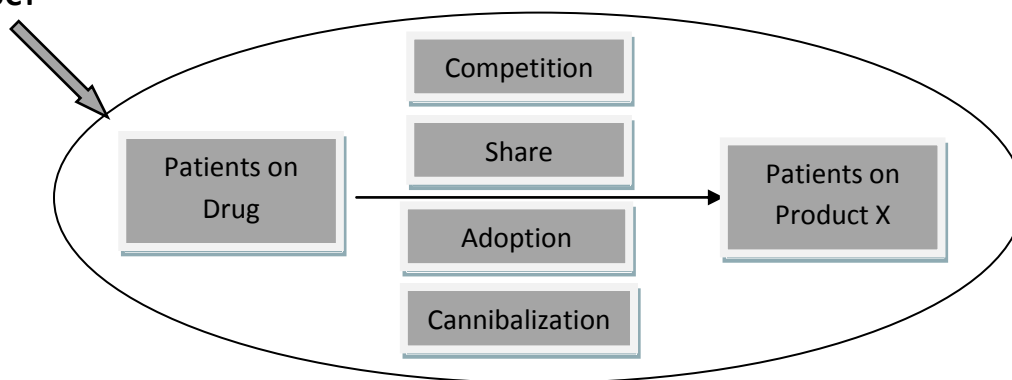


Figure 6.1.2

Once the market potential has been modelled the forecaster is ready to proceed to the calculation of potential patients who are treated with the product being forecast. This is referred to as patient share, product share, or market share depending upon the definition of the share calculation. For purposes of discussion we will refer to this section using patient

share. The elements of the algorithm presented in this section represent the 'product' section in Figure 6.1.2 and Figure 6.1.3

C) CONVERSIONS

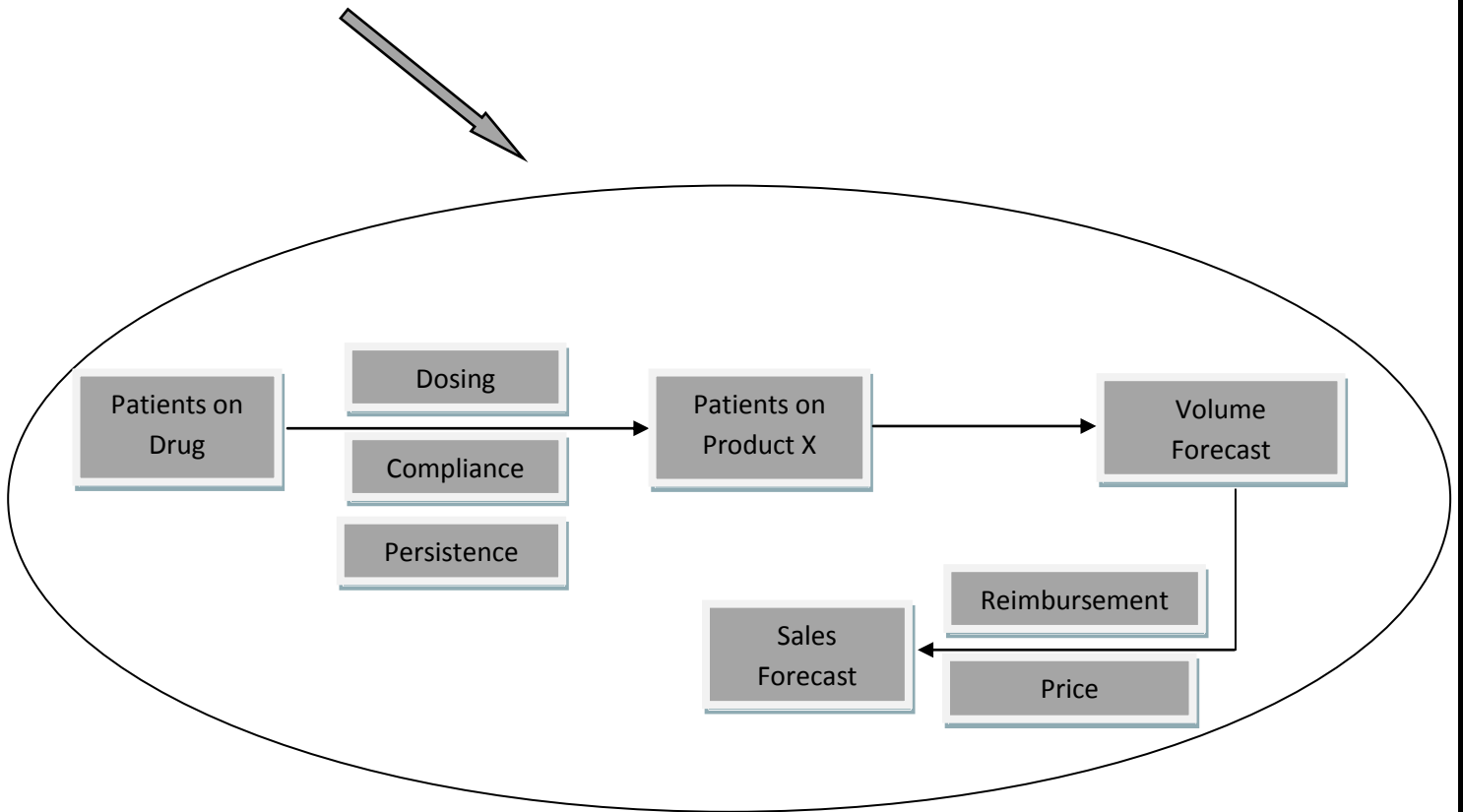


Figure 6.1.3

Hence finally we get is volume forecast which when multiplied with its unit price gives us sales forecast.

6.2 Algorithm followed for developing Breast Cancer model

Steps in building oncology Model are:

6.2.1 Define Breast Cancer Market in Input Sheet

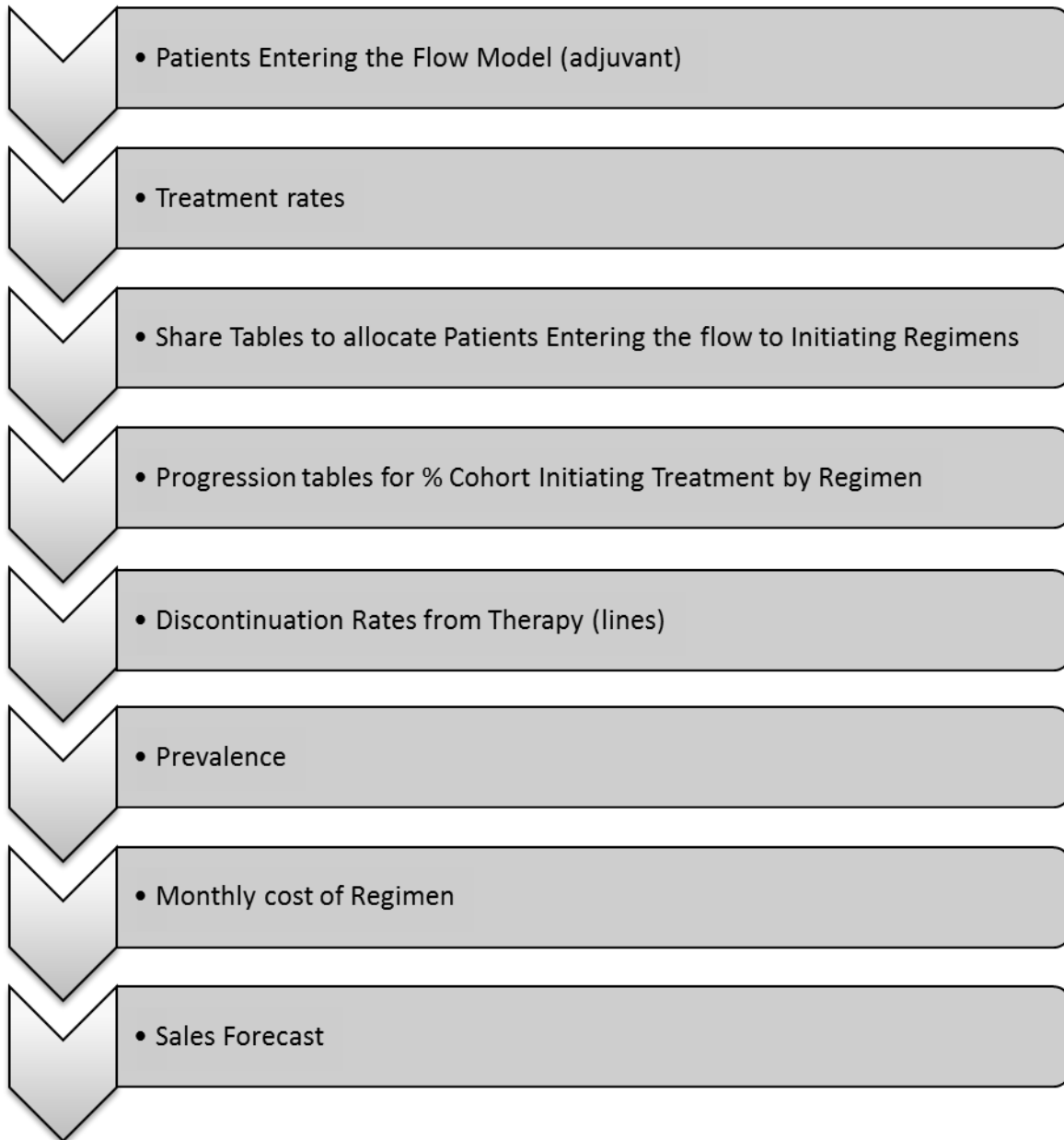
This is can be done in multiple ways what I have followed is:-

- a) On basis of Diagnosis (biomarker) there are 4 segments
- b) Each type follows 3 lines. (Adjuvant, 1L, 2L+)
- c) Each line has an option of 15 existing regimen and 10 new regimen launch
- d) Take a base year as an input and historical data of patients for 5 years.

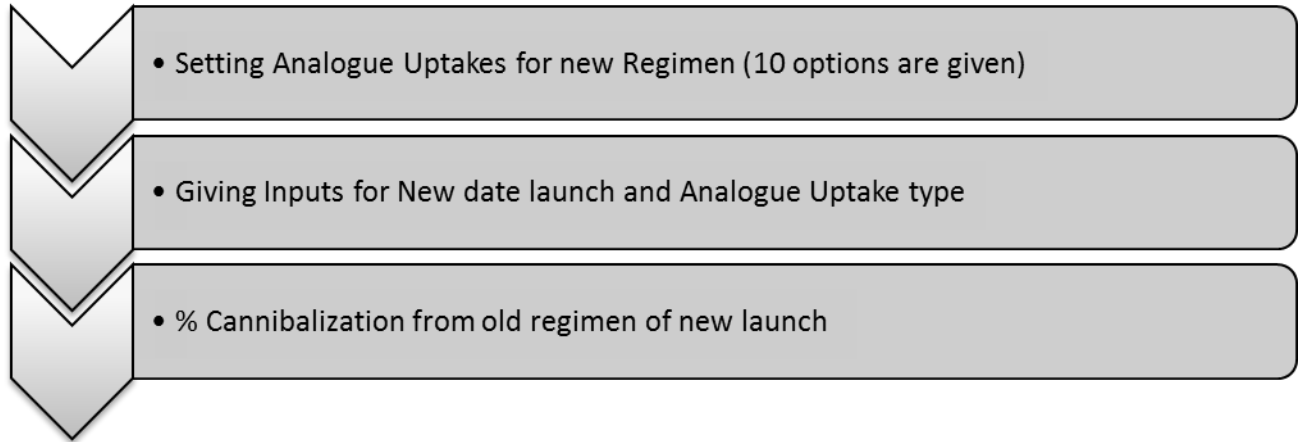
6.2.2 Setting the parameters to be forecasted.

- a) Initiating Patients
- b) Prevalent patients
- c) Sales (LCD)
- d) Patient Share
- e) Market Share

6.2.3 Start building the Input Sheet



For the new Product Launch



6.2.4 Developing Core Sheet

Here with the help of various formulas a dynamic core sheet is made where all computations are done.

6.2.5 Output Sheet

Finally output sheet is generated where user can see various forecasted parameters.

7.0 FORECAST ANALYSIS AND INTERPRETATION

- **Data Inputs** - Data inputs for the model was collected using IMS Internal database and secondary desk research

Forecast Analysis – It is done using Excel

8.0 ETHICAL CONSIDERATION

Confidentiality of the company data was assured

9.0 RESULTS

Detailed Analysis for biomarker type HER+HR+ for Adjuvant segment is as under:

9.1 Total Forecasted market for breast cancer according to biomarker type HER2+HR+ would be :

Parameter (in millions)	Forecasted Years				
	2015	2016	2017	2018	2019
Initiating Patients	59,797	60,873	61,984	62,786	62,090
Prevalent patients	1,855,050	2,137,070	2,354,449	2,548,739	2,735,355

9.2.0 Initiating patients on regimen would be:

Initiating Patients(in millions)	Forecasted Years				
	2015	2016	2017	2018	2019
Non-taxane chemotherapy combination	9,232	9,420	8,902	7,241	6,939
Trastuzumab combination	18,464	18,839	16,858	11,129	9,925
Other hormonal combination	3,077	3,140	3,204	3,252	3,301
Trastuzumab therapy new	0	0	3,075	10,897	12,844

9.2.1 Prevalent patients on regimen would be:

Prevalent patients(in millions)	Forecasted Years				
	2015	2016	2017	2018	2019
Non-taxane chemotherapy combination	317,786	322,981	326,639	311,422	289,051
Trastuzumab combination	906,200	920,779	929,646	873,119	781,676
Other hormonal combination	147,205	149,573	152,144	154,804	157,468
Trastuzumab therapy new	0	0	9,116	103,948	250,994

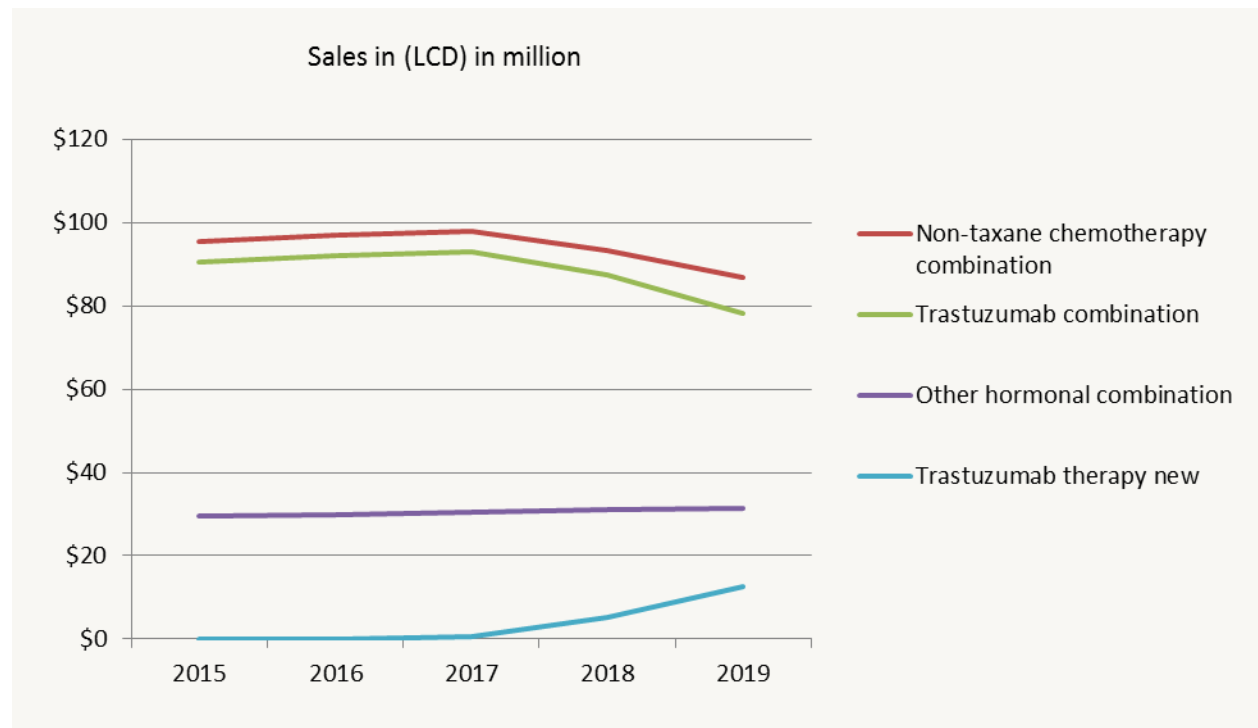
9.2.2 Patient Shares on regimen would be:

Patient Shares	Forecasted Years				
	2015	2016	2017	2018	2019
Non-taxane chemotherapy combination	23.2%	23.2%	23.0%	21.6%	19.5%
Trastuzumab combination	66.1%	66.1%	65.6%	60.5%	52.8%
Other hormonal combination	10.7%	10.7%	10.7%	10.7%	10.6%
Trastuzumab therapy new	0.0%	0.0%	0.6%	7.2%	17.0%

9.2.3 Market Share on regimen would be:

Market Share	Forecasted Years				
	2015	2016	2017	2018	2019
Non-taxane chemotherapy combination	44.3%	44.3%	44.2%	43.1%	41.5%
Trastuzumab combination	42.1%	42.1%	41.9%	40.3%	37.4%
Other hormonal combination	13.7%	13.7%	13.7%	14.3%	15.1%
Trastuzumab therapy new	0.0%	0.0%	0.2%	2.4%	6.0%

9.2.4 Sale in (LCD):



- Above graph shows that after the launch of new therapy there is decrease in sales of Non-taxane chemotherapy combination and Trastuzumab combination therapy which clearly shows cannibalization of new therapy launching onwards 2017.

Note: The data Input used in model are dummy data inputs on the basis of which results are generated.

10.0 LIMITATION OF THE MODEL

- **It is built considering following assumptions :**

- 1) Patients biomarker status will not change during the treatment course
- 2) All the patients will start treatment from Adjuvant line and will flow down to the subsequent lines (based on progression curves and discontinuation rates)
- 3) A minimum of five years of historical data is taken into account to build prevalence
- 4) All patients are tracked for 5 years, from the point they come on treatment
- 5) A patient cannot take the same regimen in the subsequent line
- 6) We are not tracking patients once they have progressed from 2nd line of treatment
- 7) Forecasting is on regimen level and cost per regimen is taken for a monthly basis
- 8) Data is confidential it's a representative of actual data
- 9) Only three existing regimen and a new regimen is taken in account that to for adjuvant line of HER+HR+ for representing the model.

11.0 DISSCUSSION

The oncology market is facing new trends and therapies that present great opportunities for the future of pharma. Biomarkers and targeted therapies are increasingly prominent, and realizing their full potential impact on pharma revenue requires considering the implications they pose to the forecasting of oncology products. These new therapies, as well as the differences in oncology drug / regimen use compared with other therapeutic areas, add to the difficulties of oncology product forecasting and can make it challenging to determine the most effective forecasting approach.

Even before considering the recent emergence of biomarkers and targeted therapies, the usage of oncology drugs compared with drug use in most other therapeutic areas creates the need to carefully examine product forecasts and approaches. Whereas radiation and surgery are used primarily in the early stages of cancer, oncology drugs are used in late-stage treatment, as well as in the adjuvant setting after radiation and / or surgery to improve outcomes for patients in remission. In most cases, these drugs are used in combination rather than as single agents.

A significant concern in cancer treatment is that once a patient has used a certain drug, he or she may not be able to use it for a subsequent line of therapy, making it difficult to identify the appropriate forecasting approach. If the patient cannot reuse a therapy he or she has already received, a patient-flow model may be needed for forecasting. Patient-flow models can track patients from their diagnosis through various levels of treatment. The model also takes into account patients' patterns of recurrence, remission and survival. Tracking therapy usage through the full course of disease ensures that patients who are ineligible for certain therapies due to previous treatment are accounted for accurately. While the benefits of using patient-flow models are clear, the approach is much more complex than the cross-sectional approach, which also can be utilized. The cross-sectional approach, however, does not explicitly consider a patient's prior treatment. The complexity of patient-flow models requires more time, effort and resources. It is critical to carefully evaluate these factors when considering business needs to identify the best approach.

12.0 BIBLIOGRAPHY

- [1]Sariego J (2010). "Breast cancer in the young patient". *The American surgeon* **76** (12): 1397–1401.
- [2] ^ US NIH: Male Breast Cancer
- [5]"World Cancer Report". International Agency for Research on Cancer. 2008. Retrieved 2011-02-26. (cancer statistics often exclude non-melanoma skin cancers such as basal-cell carcinoma, which are common but rarely fatal)
- [6] <http://www.marketresearch.com/GBI-Research-v3759/Breast-Cancer-Therapeutics-Asia-Pacific-8160310/>
- [7] http://www.imshealth.com/77D4CC5D-AF97-4415-A87B-CD1C33ADAD66/FinalDownload/DownloadId-0F6954C3597A634353E626F9F8FA02FA/77D4CC5D-AF97-4415-A87B-CD1C33ADAD66/deployedfiles/imshealth/Global/Content/Healthcare/Life%20Sciences%20Solutions/Specialty%20Oncology/Launch_Excellence_in_Oncology.pdf
- [8] American cancer society
- [9] <http://cid.oxfordjournals.org/content/44/2/272.full>
- [11] Steinbrook, R (Jun 29, 2006). "For sale: physicians' prescribing data.". *The New England journal of medicine* 354 (26): 2745–7. doi:10.1056/nejmp068125. PMID 16807410.
- [12]. Fugh-Berman, A (August 2008). "Prescription tracking and public health.". *Journal of general internal medicine* 23 (8): 1277–80. doi:10.1007/s11606-008-0630-0. PMID 18473146.
- [13]. Fugh-Berman, A; Ahari, S (April 2007). "Following the script: how drug reps make friends and influence doctors.". *PLoS medicine* 4 (4): e150. doi:10.1371/journal.pmed.0040150.PMID 17455991.
- [14]. "IMS Health sold to TPG, CPPIB, LG&P"
- [15]. "CEO's of Tomorrow"
- [17].<http://www.sec.gov/Archives/edgar/data/1595262/000119312514000659/d628679ds1.htm>
- [18].Ornstein, Charles (10 January 2014). "Big Data + Big Pharma = Big Money". *portside.org*. Retrieved 5 February 2014.

[19]. <http://blogs.wsj.com/health/2009/11/05/what-does-ims-health-do-anyway>

[20]. <http://www.forbes.com/sites/danmunro/2014/01/21/new-study-ranks-johnson-johnson-1-in-pharma-for-social-media-engagement/>

[21]. Drive to Develop New Commercial Models.pdf "The Drive to Develop New Commercial Models"

[22]. in the News/Documents/Kleinrock, 2011 CA Biomed Industry Report_FINAL.pdf "CA Biomed Industry Report"

[23]. Market Maps TL.pdf "Patient Market Maps"

[24]. "Perspective: IDC Health Insights' Top Preferred Life Science Technology Vendors for 2013"

- ZS Associates; study material publication