

Market Assessment of Vitamin D3 in Pediatric Market

By

Rushi Shah

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

Academic year, 2016-2018



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TO WHOMSOEVER MAY CONCERN

This is to certify that **Mr. Rushi. Shah** student of MBA Pharmaceutical management from The IIHMR University, Jaipur has undergone internship training at **Delcure Life sciences, Mumbai** from **5- Feb -2018 to 10th-May-2018**.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.


Dr (Col) Ashok Kaushik

Dean, Academics and Student Affairs

The IIHMR University, Jaipur


Dr. Seema Mehta

Associate Professor

The IIHMR University, Jaipur

The certificate is awarded to

Name: RUSHI SHAH

In recognition of having successfully completed his
Internship/Dissertation on the project

**MARKET ASSESMENT OF VITAMIN D3 IN PEDIATRIC
MARKET**

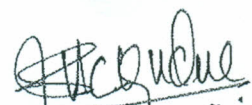
Date: 14.05.2018

Organization: Delcure LifeSciences Ltd

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

We wish him all the best for future endeavors

Shirish Vankudre



GM – Human Resource

THE IIMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **Market Assessment Vitamin D3 in paediatric Market** and submitted by **Mr. Rushi.Shah** Enrolment No. **MBA-PM-0078** under the supervision of **Mr. Anjikya Dalal** for award of MBA in Pharmaceutical Management of the University carried out during the period from **5th February 2018 to 5th May 2018** embodies my original work and has not formed the basis for the award of any degree, diploma associateship, fellowship, titles in this or any other institute or other similar institution of higher learning.



Signature

ACKNOWLEDGEMENT

An endeavor over a period can only be successful with the advice and support of well-wishers. The satiation and euphoria that accompany the successful completion of the project would be incomplete without the mention of the people who made it possible.

First of all, I express my sage sense of gratitude and indebtedness to our Dean, I would like to take the opportunity to thank and express my deep sense of gratitude to our President, Dr. S D Gupta for the timely kind co-operation and providing all the required facilities for our project.

I am also grateful to Dean of Academics Dr. Ashok Kaushik, and Dean of Placements Hem Bhargav & Dr.Sandeep Narula for putting their faith in me and giving me the wonderful opportunity of conducting my Dissertation at Delcure Life science.

I would like to express my sincerest thanks to my mentor Dr. Seema Mehta for his assistance, able guidance, encouragement, whole hearted cooperation and constructive criticism at each and every stage of the project.

I am extremely grateful to Mr. Ajinkya Dalal for providing me with optimum assistance and guidance, which helped in seamless completion of the project.

Sincerely

Rushi Shah\

MBA PM-08

The IIHMR University Jaipur

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ACRONYMS/ABBREVIATIONS: -

List of Abbreviations

IAP	India Academy of Pediatrician
AAP	American Academy of Pediatrician

INTRODUCTION

ORGANIZATION PROFILE

Paediatric Segment

- ✓ **Paediatric** is a branch of medicine that specializes in the treatment of Infant & Children, A doctor who practices this branch of healthcare is regarded as Paediatrician.
- ✓ India is home to the largest numbers of babies in the world. This is why the Paediatrics would never cease to exist. With an approximate population of 123 crs in India and a birth rate of 2.6%, increasing affluence and awareness of parents, paediatrics is the place to be in order to gain leadership position in the IPM.
- ✓ Paediatric Market is Around 15000 Crore.

ORGANIZATION PROFILE

DelCure LifeSciences Ltd. (DLL) is a full scale pharmaceutical company with an aim to bring differentiated high quality products through international collaboration with innovator companies

from the USA, Switzerland, and European countries. High quality products are assured from our manufacturing partner of high repute.

Vision:

“To become the most respected, uniquely positioned leading pharmaceutical company in the chosen areas or specialty verticals in India and abroad with distinct value based characteristics”.

Purpose, Culture and Value at DelCure LifeSciences:

At DelCure LifeSciences, we strongly believe in promoting the purpose of Happiness and creating the culture of Helpfulness for DLL family members and the society, with the learning from Mother Nature, promoting sustainability and augmenting life with growth. We firmly believe in value of Truthfulness.

The Visionary:

The company was envisioned by pharma veteran **Mr. Prashant Kumar Pathak**. An inspiring and visionary leader has approximately three decades of rich experience in pharmaceutical industry in Sales & Marketing, International Business, and Supply Chain Management & Operations. Mr. Pathak served as Chief Executive – Global Formulations with RPG Lifesciences and Senior Director – Sales & Marketing with Dr. Reddy’s Laboratories.

He has well-rounded experience of running business arms in APAC, Central & Latin American countries & Africa. During his professional career he has managed large number of in licensing assignments and brought new products to India and has been instrumental in collaborating with institutions of repute in the country and USA.

Delcure LifeSciences Limited has entered into strategic long term manufacturing collaboration with Akums Drugs & Pharmaceutical Limited, country’s largest formulation manufacturer, known for state of art facility & capable of manufacturing all dosage forms of high quality medicines.

AKUMS DRUGS & PHARMACEUTICALS LTD, Haridwar, (India), is an internationally recognized WHO-GMP certified and one of the leading contract manufacturing pharmaceutical companies of India.

Company already has Strategic international collaborations which is mentioned below:

- Pharmabase, Switzerland
- Helixor, Germany
- Cymbiotics, USA
- Amarillo Biosciences, USA
- VefaILac

Two Major Division:

WINSPIRE

DLL started marketing operations in the field from June 2013. The first Division was launched with 300 team members in Paediatrics, ENT and Chest specialities. This Division has products with differentiated technology, “Fast Absol” in all Tablet range and “KuraFast” in all dispersible Tablets, which will lead to faster onset of action and thus faster relief.

DELVOICE

DelVoice is the second division of DLL launched in Aug’2013. Devoice is a multispecialty division with a focus towards Orthopedics, Gastroenterologists and Consulting Physicians. DelVoice is credited in bringing innovative new products which are new to the country and also technologically superi

Purpose & Learning through Management Training

Institutional learning has always proved beneficial in delivering the theoretical knowledge when a potential candidate endeavors the new career, but the exposure of implementing this learning into real practical environment through on the job training helps to put a foundation stone for the prospective candidate. Chances for work, its presentations and mistakes done during this period are something, which will not be forgot and repeated respectively. This is an opportunity to develop a deep understanding about the type of work a company offers, their limitation, indication contraindication, scopes etc.

The Purpose of this Management Training was

1. Learn more about Pharmaceutical Industry & How Does Pharmaceutical Young Companies Work.
2. Application of my learning understanding and experience of Behavioral understanding into my Project effectively.
3. Learning more about the field and the industry and the work profile and gain valuable work experience.
4. To decide the path through which I want to explore the Industry.

5. Gain valuable Networking Contacts.

Thus, Management Training becomes an integral part for MBA Pharmaceutical Management.

EXPERIENCE & LEARNING AT Delcure LifeSciences

I was appointed as Management Trainee in Delcure Lifesciences for duration of three months. Internship at Startup Companies, like Delcure Lifesciences, gave an opportunity to Learn How to analyze the data of brand ,market , How think about Your Brand , How Can We Increase our Brand Market , How to make Visual Aid , How to Arrange Cycle Meeting , How You have to Handle Pharma Marketing Stress. Somewhat I understood scope of Pharmaceutical Marketing At Initial Level.

, LEARNING FROM INTERNSHIP::

- Scope and work of Home Health Care
- Data Analysis.
- Sales Force Management
- Marketing Strategies

REPORT

Introduction

Vitamin

"Vitamin is conditional upon the circumstances and the particular organism. For example, ascorbic acid (vitamin C) is a vitamin for humans, but not for most other animal organisms. Supplementation is important for the treatment of certain health problems, but there is little evidence of nutritional benefit when used by otherwise healthy people

Vitamin D:

Vitamin D is a vitamin. It can be found in small amounts in few foods, including fatty fish such as herring, mackerel, sardines and tuna. To make vitamin D more available, it is added to dairy products, juices, and cereals that are then said to be fortified with vitamin D."

Most vitamin D – 80% to 90% of what the body gets – is obtained through exposure to sunlight. Vitamin D can also be made in the laboratory as medicine. As well as maintaining your vitamin D levels, you also need adequate calcium in your diet to help prevent these conditions. Low vitamin D has also been linked to an increased risk of: · Multiple sclerosis · Diabetes (type 1 and type 2) · Various types of cancers (particularly colon cancer) · Heart disease · Mental health conditions (including schizophrenia) · Worse outcomes in stroke Vitamin D deficiency, recent time IAP has revealed that 92% of mothers are Vitamin D deficient thereby in turn making 86% of Indian infants Vitamin D Deficient.

Problem Associated with Vitamin D Deficiency :

Health problem associated with Vitamin D deficiency :

Symptoms of bone pain and muscle weakness can mean you have a vitamin D deficiency . However, too little vitamin D can pose health risks. Low blood levels of the vitamin have been associated with the following :

- Increased risk of death from cardiovascular disease
- Cognitive impairment in older adults
- Severe asthma in children
- Cancer

Signs You May Be Vitamin D Deficient:

- I. "You Feel Blue": Serotonin, the brain hormone associated with mood elevation, rises with exposure to bright light and falls with decreased sun exposure .
- II. Overweight or obese (or Have a Higher Muscle Mass) Overweight or obese, likely going to need more vitamin D than a slimmer person -- and the same holds true for people with higher body weights due to muscle mass .

- III. **Bones Ache** many of these symptoms are classic signs of vitamin D deficiency osteomalacia, which is different from the vitamin D deficiency that causes osteoporosis in adults .
- IV. **You Have Gut Trouble** Remember, vitamin D is a fat-soluble vitamin, which means if you have a gastrointestinal condition that affects your ability to absorb fat, you may have lower absorption of fat- soluble vitamins like vitamin D as well. This includes gut conditions like Crohn's, celiac and non-celiac gluten sensitivity, and inflammatory bowel disease .

Prevention :

The most important factor determining the vitamin D status in infancy is the maternal vitamin D status. Though practically difficult, all pregnant women should have their 25(OH) D levels checked during the first trimester of pregnancy. If they are deficient they should be treated with 3000-5000 IU until 25(OH)D is more than >20 ng/dL followed by 400 IU /daily. Routine vitamin D supplementation to all the pregnant women is controversial [39]. Administration of high dose of vitamin D (400-6400 IU) daily to breast feeding mothers increases the anti-rachitic activity of breast milk without causing hypervitaminosis in the mother. Preterm infants should be supplemented from birth with 400-800 IU/day because of inadequate transfer of maternal vitamin D stores and issues associated with prematurity. The preparations available in India are; Vitamin D3 – as oral drops 400 IU/mL; Syrup 400 IU/5mL; and Tablets as 1000 and 2000 IU in blister packing and also as sachet in powder form with each sachet containing 60000 IU of vitamin D3.

Recommendation:

According to Indian Paediatric Academy Supplementation in new born period For infants who are exclusively breastfed a minimum daily intake of 400 IU/ day should be initiated within a few days after birth .

“According to the recommendations established in 2008 by the **American Academy of Paediatrics**, all infants including those who are exclusively breast fed should be given 800 IU of vitamin D per day. The intake of vitamin D for children and adolescents is also 800 IU/day.”

IAP is now working on revising the guidelines for Vitamin D3 intake

“400 IU per day of vitamin D for all infants, children, and adolescents beginning in the first few days of life.”

Treatment:

I-Treatment Challenges with fat soluble Vitamin D

II- Fat-soluble vitamins will not be lost when the foods that contain them are cooked .

Requirements for vitamins may be expressed in different mathematical units .

Review of Literature

Difference between Fat soluble & Water soluble Vitamins :

I-“The fat soluble vitamins

The fat soluble vitamins are soluble in lipids (fats). These vitamins are usually absorbed in fat globules that travel through the lymphatic system of the small intestines and into the general blood circulation within the body. Fat soluble vitamins, once they have been stored in tissues in the body, tend to remain there. This means that if a person takes in too much of a fat soluble vitamin Leads hypervitaminosis Problem.

II-Water Soluble Vitamins:

Water-soluble vitamins that are not stored in the body and must be replaced each day .

These vitamins are easily destroyed or washed out during food storage and preparation .

Why we need to make Fat soluble ingredients Water Soluble?

Fats and fat-soluble micronutrients are insoluble in the water medium of the small intestine, so they must first be broken down through the normal digestive process to become water-soluble (aqueous) and be absorbed. The body’s manufacture of water-soluble fat is also called micellization . Fat soluble drugs always lead to greater number of side effects and tolerability becomes a big challenge for effective utilization of fat soluble it needs to get first solubilized in water.

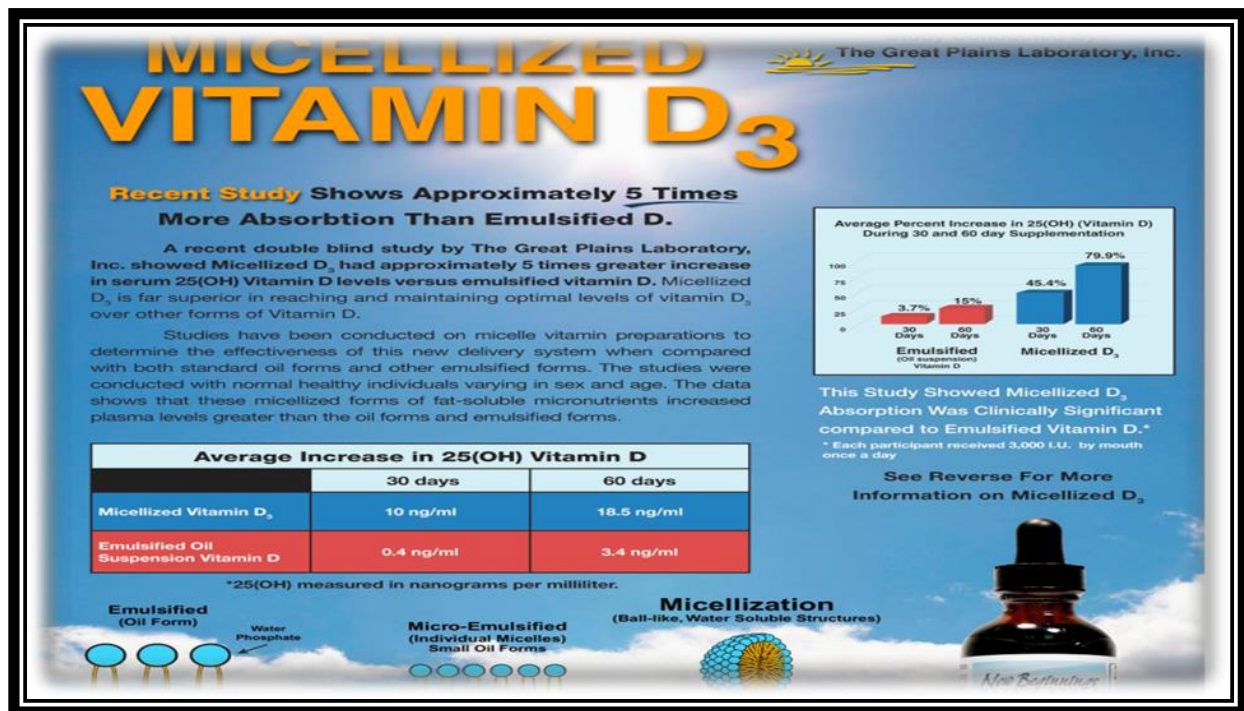
Vitamin D3

Vitamin D3 is the common name for cholecalciferol. Vitamin D3 can be taken as a supplement to improve Vitamin D3 Deficiency. It can also be used to treat conditions in which vitamin D3 levels may be low, such as in people who have underactive parathyroid glands, low levels of phosphate in the blood, or hereditary conditions in which the body doesn't respond to the parathyroid hormone .

Mechanism of Action

- Vitamin D is bound to the binding protein and carried to the liver via the bloodstream. From there it begins two hydroxylation processes.
- Beginning in the liver it is transformed into 25 (OH) vitamin D (calcitriol), which is the primary circulating form of Vitamin D .
- In the kidneys it is transformed into 1,25 Dihydroxy-vitamin D (calcitriol), which is the biologically active form of vitamin D

Clinical Trials



(Great Plan Laboratory)

Pharmacokinetics

Absorption: Water Soluble Vitamin D3 rapidly absorbed, has good oral bioavailability .

Distribution: Vitamin D3 distribution and status in the body

- 65% of this total was present as native cholecalciferol and 35% as 25(OH)D . 25(OH)D was more evenly distributed throughout the body (20% in muscle, 30% in serum, 35% in fat, and 15% in all other tissues)

Metabolism: Vitamin D is metabolized first to 25 hydroxyvitamin **D** (25OHD), then to the hormonal form 1,25-dihydroxyvitamin **D** (1,25(OH)₂**D**). CYP2R1 is the most important 25-hydroxylase; CYP27B1 is the key 1-hydroxylase

Excretion: Main route of elimination is through kidney

Research & Methodology

AIM

Market Assessment of Vitamin D3 in Paediatric Market

Objectives:

- To study the Market Scenario For Vitamin D3 With Reference To Market Value , & Prescription Trend & Competitors Prescription Value.
- To analyze the attributes associated with Vitamin D3 Prescription.
- To identify the Preferred Brand for Vitamin D3

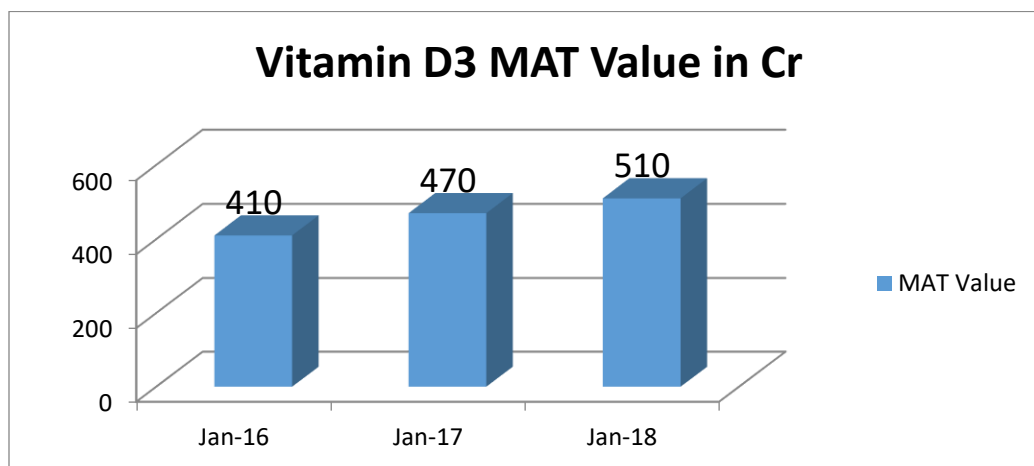
Research & Methodology

- Study Setting - Delcure Lifesciences
- Study Duration -3 Month
- Study Design-Cross Sectional Study
- Study Population – Pediatrician
- Sample Size – 60
- Sampling Method -Purposive Sampling
- Data Collection – Structured Question & Interview with Pediatric Drs.
- Data Analysis Technique –MS-Excel

Data Analysis & Result

- To study the Market Scenario For Vitamin D3 With Reference to Market Value , & Prescription Trend & Competitors Prescription Value.

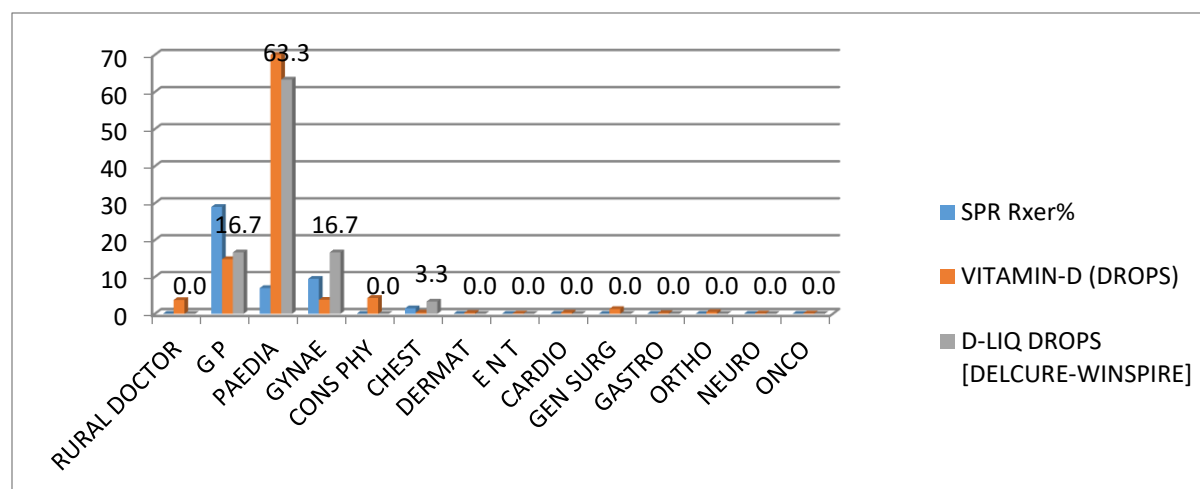
1- Vitamin D3 Market Value



(Researcher Own Analysis)

-Vitamin D3 MAT 16 Value is 410 Cr, Furthermore MAT 17 value is 470 Cr & MAT 18 value is 510Cr .It clearly indicates that Vitamin D3 Market is Growing Very Fast.

2- Prescription Trend of Vitamin D3 Brand & D-LIQ



(Researcher Own Analysis)

-65.5% Paediatric Prescribe Competitors Brand
14.8 % GP Prescribe competitors Brand.
65.5% Paediatric Prescribe D-LIQ .
16.7% GP Prescribe D-LIQ.

3-To Analyze

Market Value of Competitor Brand

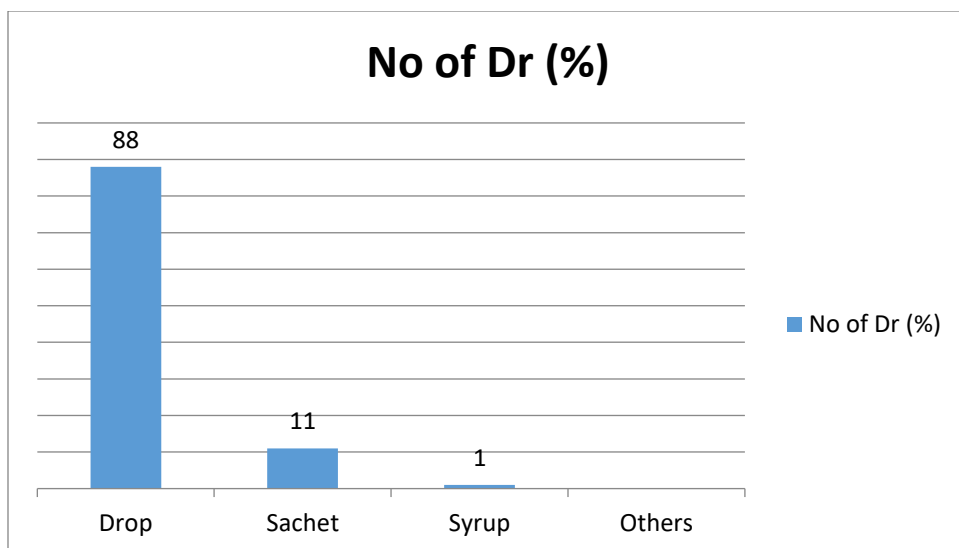
BRAND	PACK	STRENGTH	MRP	COMPANY	Sum of MAT VAL FEB 17	Sum of MAT VAL FEB 18	Sum of MAT VAL GR FEB 18
CALSHINE P	30 ML	800 IU	121	Eris	10.7	12.3	15.1
ULTRA D3	30 ML	801 IU	68	Mayer	9.7	10.6	10.3
D3 MUST	15 ML	400 IU/800	35	Mankind	7.3	10.2	39.3
KIDRICH D3	15 ML	800 IU	103	DR. REDDYS	5.9	9.1	53.8
VITANOVA D3	15 ML	800 IU	69	ZUVENTUS	5.9	7.7	29.8
DEPURA	15 ML	400 IU	126	SANOFI	3.6	7.3	103.9
ARBIVIT 3	15 ml	404 IU	68.2	RAPTAKOS	0.2	2.5	1204.2
DSOL	30 ML	407 IU	80	Cipla	1.7	2.2	35.9
D3 HD	30 ML	408 IU	71.8	corona	1.7	1.8	7.8
D LIQ	15 ML	800 IU	102	DELCURE	1.2	1.5	24.2
Grand Total					67.4	81.3	20.7

(Researcher Own Analysis)

-Top 3 Leaders of Vitamin D3 Drop Market are Calshine p , D3 Must , Kidrich D3.Calshine p Consumed 10.7 Cr Market from 67.4 Cr Total Vitamin D3 Market .

- **Attributes associated with Vitamin D3 Prescription.**

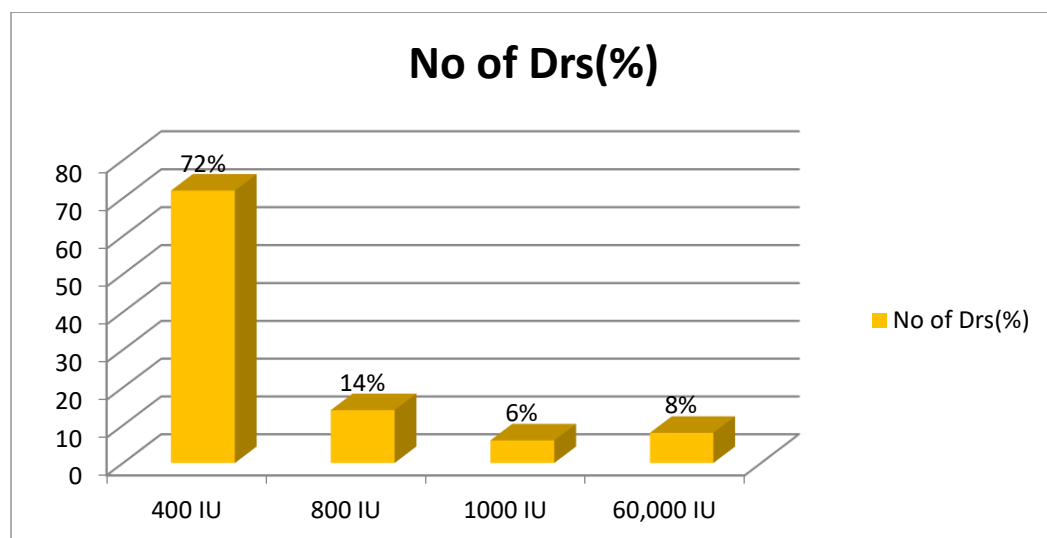
1- Right dosage Form do you prefer to give your Patient.



(Researcher Own Analysis)

-88% Drs Preferred to Prescribe drop & 11% Drs preferred Prescribe Sachet.

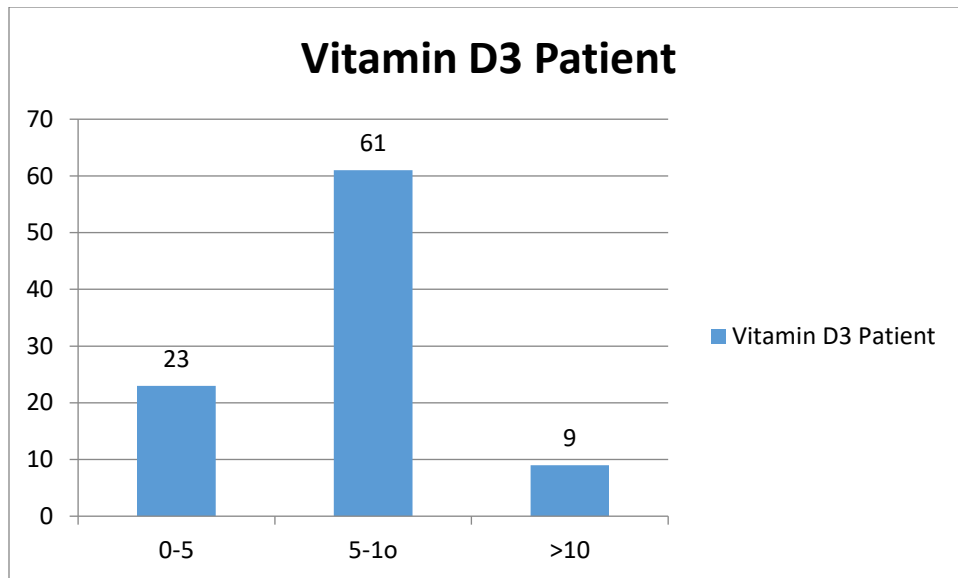
2- Right dose do you prefer to give your Patient.



(Researcher Own Analysis)

-72% Drs Prefer to prescribe 400 IU, whereas 14% Drs Prefer to Prescribe 800 IU & 6% Drs prefer to prescribe 1000 IU & 8% Drs Prefer to Prescribe 60,000 IU.

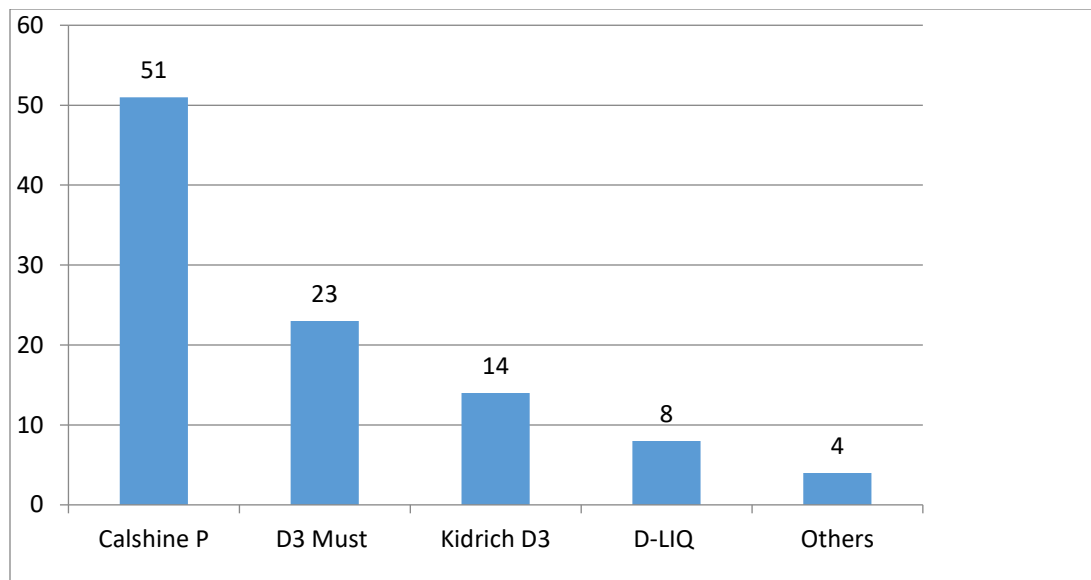
3- Vitamin D3 Patients are you Diagnosed in a Day.



(Researcher Own Analysis)

-23% Drs Diagnosed 0to5 Vitamin D3 Patient, 61% Drs Diagnosed 5 to 10 Vitamin D3 Deficiency Patient & 9% Drs Diagnosed More than 10 Patient.

Preferred Brand for Vitamin D3



Researcher Own Analysis)

- ✓ 51% Drs Prefer to Prescribe Calshine P, 23% Drs Prefer to Prescribe D3 Must , 14 % Drs Prefer to Prescribe Kidrich D3 & 8% Drs Prefer to Prescribe D-LIQ & 4% Drs Prefer to Prescribe Other Brands .

Conclusion

Vitamin D3 Market is going is very fast & Most of Paediatrician Preferred to prescribe Drops as Compared to Sachet .Recommendation of IAP, AAP, and ESPAGAN play Crucial Role in Vitamin D3 Dose & Dosage Form. While Prescribing the Vitamin D3 Brand Most of Doctors Consider Patient Compliance, Efficacy.

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