

**Dissertation at
The Enablers**

**“PREFERENCE OF DOSAGE FORM OF VITAMIN D3 AMONG ORTHOPAEDIC AND
CONSULTING PHYSICIAN”**

UNDER THE GUIDANCE

OF

MR. Vivek Hattangadi

(Chief Mentor, Enablers)

&

Dr. Ashok Peepliwal

(Associate Professor, IIHMR University)

By

SHUBHAM PRAKASH

MBA PHARMACEUTICAL MANAGEMENT

(2019-2021)



INSTITUTE OF HEALTH MANAGEMENT AND RESEARCH

1, Prabhu Dayal Marg, Near Sanganer Airport, Jaipur, India

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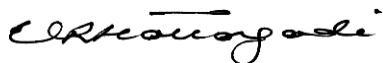
DECLARATION BY STUDENT

I hereby declare that this dissertation titled “PREFERENCE OF DOSAGE FORM OF VITAMIN D3 IN ORTHOPAEDICS AND CONSULTING PHYSICIANS” is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Name of the student- Shubham Prakash.

CERTIFICATE

This is to certify that Shubham Prakash in partial fulfilment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur has successfully completed her internship at IIHMR University, Jaipur during March 22, 2021 to June 19, 2021.



Vivek Hattangadi
Chief Mentor, 'The Enablers'
5th July 2021-07-05 Ahmedabad

This is to certify that dissertation titled “PREFERENCE OF DOSAGE FORM OF VITAMIN D3 IN ORTHOPAEDICS AND CONSULTING PHYSICIANS” is a record of the research work undertaken by SHUBHAM PRAKASH in partial fulfilment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide

IIHMR University, Jaipur

Date-

School Dean

IIHMR University, Jaipur

Date-

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Acknowledgement

It gives me enormous pleasure to acknowledge my mentor Mr. Vivek Hattangadi at The Enablers, for his supervision throughout my Dissertation, it is the persistent inspiration that has enriched my growth as an intern.

I would also like to express my gratitude to my university mentor Dr. Ashok Peepliwal, Associate Professor, at Institute of Health Management Research, Jaipur. I am thankful to them for giving their significant direction at all phases of the examination, his recommendation, valuable proposals, positive and strong demeanour, and persistent support, without which it would not have been conceivable to finish the venture.

I am obligated to all teachers for grooming me for the motivation needed to work with commitment and enthusiasm throughout as an Intern at The Enablers.

I hope I can repose on the experience and knowledge that I have gained and make a remarkable contribution towards the industry in the forthcoming.

Shubham Prakash

Executive summary:

Nutrient D3(cholecalciferol) is created when cholesterol in our skin is exposed to daylight and it is additionally present in little sums in some creature sourced food. Our skin contains a particular kind of cholesterol, called 7-dehydrocholesterol, which is changed to provitamin D3 on openness to UVB (frequency 270-300nm). Then, at that point it is changed to cholecalciferol before it suffers actuation inside the liver and kidneys to become compelling nutrient D. This compelling nutrient D is known as 1,25 dihydroxy nutrient D3 (1,25(OH)D) or calcitriol. Nutrient D3 is open in the market as conventional and over the counter medications. This examination planned to comprehend the inclination of dose type of Vitamin D3 in muscular health and counselling doctors. Organized poll was produced for information assortment from respondents for example 200 which incorporates muscular health and counselling doctors from Jaipur, Rajasthan. Information was investigated and the discoveries furnished with specialists and doctors, assessment and a thorough audit of the market situation to be utilized for outlining and recommending the techniques of market. The venture was directed in 3 phases: First stage was to learn about Vitamin D3 and set up a poll followed by stage two which includes reaching and arriving at specialists and doctors in emergency clinics and centers and leading the review. In the wake of finishing the study the last stage followed which includes deciphering the information and arriving at a resolution. (ALEXANDER T. CARSWELL, 2018)

Experience and learning at The Enablers:

I was chosen as Intern in The Enablers for a time of 90 days. Thesis at organization like The Enablers, allowed me an opportunity to figure out how to break down the information of brand, market, how to consider your image, how we can build our image market, how to orchestrate cycle gatherings, how to deal with pharma advertising pressure. I got a handle on the extent of Pharmaceutical Marketing at introductory level.

Learnings from Dissertation:

- Data analysis
- Marketing Strategies
- Aim for excellence
- Time management

Introduction:

Nutrient D is a fat-dissolvable nutrient that advances the assimilation of calcium, controls bone development, and assumes a job in safe capacity. Nutrient D is some of the time called the "daylight nutrient" since it is created in your skin considering daylight. Your skin produces nutrient D when it is presented to daylight. In any case, if you invest most of your energy inside or live at a high scope, you should get this nutrient from your eating regimen. Great dietary sources incorporate greasy fish, fish oils, egg yolk, spread, and liver. Be that as it may, it might be hard to get sufficient measures of this nutrient from your eating routine alone, as rich characteristic sources are uncommon. Hence, it is regular for individuals to not get enough.

Fortunately, numerous food makers add it to their items, particularly milk, margarine, and breakfast grains. Enhancements are additionally well known. To forestall lack side effects, try to eat nutrient D-rich nourishments consistently, get some daylight or take supplements. Since nutrient D is fat-dissolvable, it is smarter to pick oil-based enhancements or take them with food that contains some fat. (Stefan Pilz, 2019)

VITAMIN D2(Ergocalciferol):

Ergocalciferol, otherwise called nutrient D2 and calciferol, is a kind of nutrient D found in food and utilized as a dietary enhancement. As an enhancement it is utilized to forestall and treat nutrient D inadequacy. This incorporates nutrient D inadequacy because of helpless ingestion by the digestive organs or liver infection. It might likewise be utilized for low blood calcium because of hypoparathyroidism. It is utilized by mouth or infusion into a muscle. It is

suggested that individuals on high dosages have their blood calcium levels normally checked. Ordinary portions are protected in pregnancy. It works by expanding the measure of calcium consumed by the digestive tracts and kidneys. Food in which it is found incorporates a few mushrooms.

Ergocalciferol was first portrayed in 1936. Ergocalciferol is accessible as a conventional medicine and over the counter. In 2017, it was the 55th most endorsed medicine in the United States, with more than 14 million solutions. Certain nourishments, for example, breakfast grain and margarine have ergocalciferol added to them in certain nations.

VITAMIN D3 (Cholecalciferol):

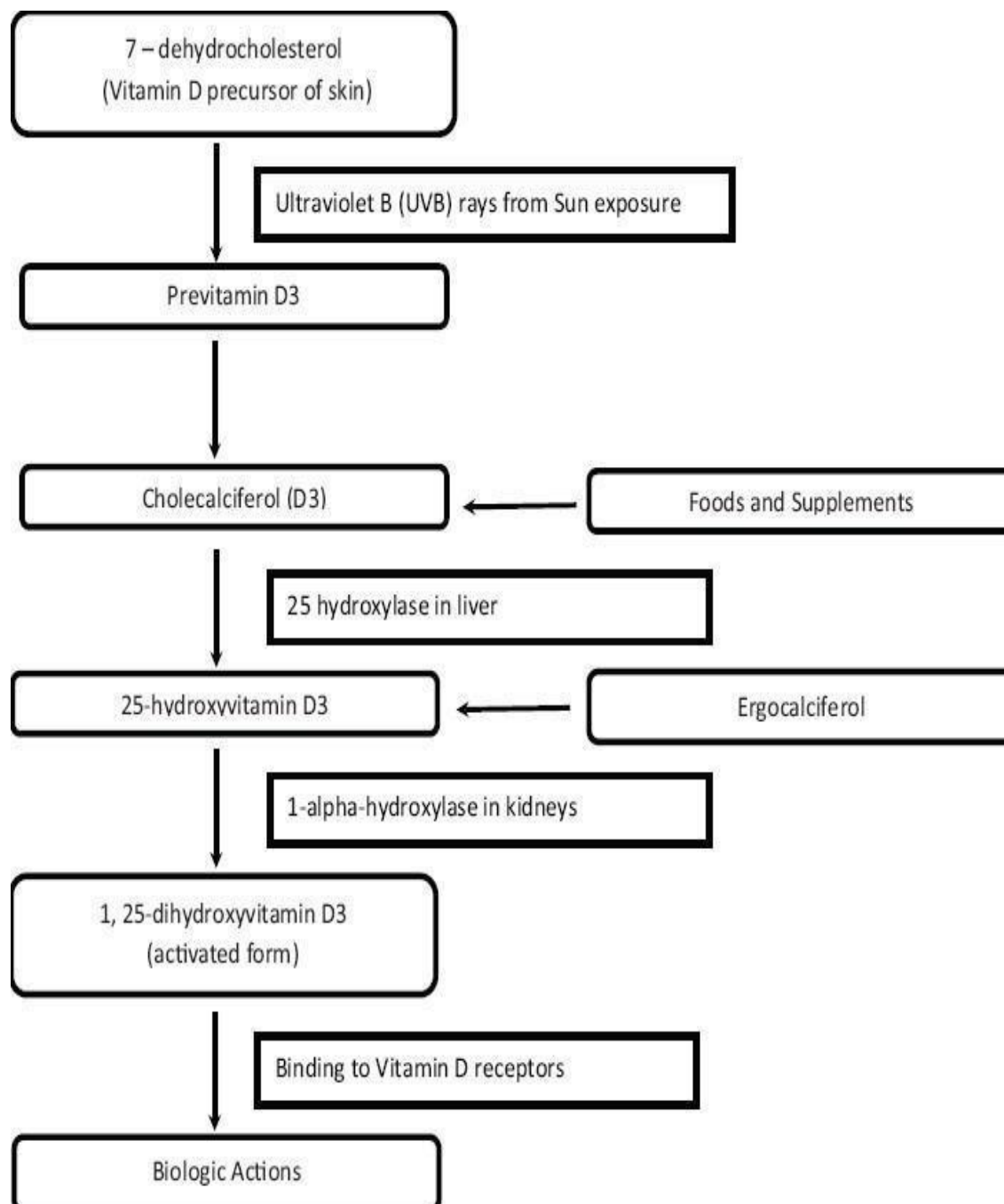
Cholecalciferol, otherwise called nutrient D3 is a kind of Vitamin D which is formed by the skin when subjected to daylight; it is additionally found in certain nourishments and can be taken as a dietary supplement. It is utilized to treat nutrient D inadequacy and related illnesses, including rickets. Nutrient D enhancements may not be viable in individuals with serious kidney sickness. Dosages more prominent than 40,000 IU (1,000 µg) every day are commonly needed before high blood calcium happens. Ordinary dosages, 800–2000 IU every day, are protected in pregnancy.

Side effects of Vitamin D3 includeallergic reactions, swelling of face, throat and tongue, severe dizziness, trouble breathing, changes in rhythm of heart, etc. (Holick, 2007)

Vitamin D3 Brands in Market:

PRODUCT	BRAND	PRICE
Rockbon-D 400IU New Tablet	ABBOTT	154.67
Revocal Tablet	ZUVENTUS	162.00
TripleACal FD Tablet	USV	89.00
Nervz D Tablet	INTAS	122.00
Uprise-D3	ALKEM	74.50
Vehycal Tablet	ALEMBIC	123.00
CC 74 Tablet	WOCKHARDT	191.00
D3 Must Forte Drop	MANKIND	64.00
Bon DK 60K Capsule	GLENMARK	102.00
D-Sol 60K Vitamin D3 Chewable Tablet Orange	CIPLA	92.00

Vitamin D synthesis:



Literature review:

1. (R Nair, 2012) In his exploration paper he found that Vitamin D inadequacy influences practically half of the populace around the world. An expected 1 billion individuals around the world, across all nationalities and age gatherings, have a nutrient D lack (VDD). Quantities of individuals with VDD are ceaselessly expanding; the significance of this chemical in generally speaking wellbeing and the avoidance of constant infections are at the front line of exploration. VDD is normal in all age gatherings. Not many food varieties contain nutrient D along these lines rules suggested supplementation of nutrient D at mediocre UL levels. It is additionally recommended to gauge the serum 25-hydroxyvitamin D level as the underlying indicative test in patients in danger for insufficiency. Treatment with either nutrient D2 or nutrient D3 is suggested for the lacking patients. More exploration is needed to suggest screening people who are not in danger for lack or to endorse nutrient D to achieve the noncalcemic advantage for cardiovascular insurance.
2. (Naeem, 2010) This investigation was completed as of late among youthful sound man living in eastern area of Saudi Arabia uncovered the commonness of nutrient D insufficiency between 28% to 37%. Likewise, different examinations led in Saudi Arabia on populace at high danger announced the nutrient D insufficiency to be half to 80%. Long haul methodologies to address this inadequacy issue ought to incorporate state funded instruction, public wellbeing arrangements for screening and counteraction through food stronghold, and treatment with nutrient D supplementation. Taking everything into account nutrient D insufficiency is scourge around the world, Saudi Arabia and numerous other radiant nations are no special case.

Research Methodology:

Objective & Scope of Study:

Objective: - The main objective is to find out the preference of dosage form of Vitamin D3 in orthopaedic doctors and consulting physicians.

Primary Objectives:

- To find out the potential of Jaipur's market towards Vitamin D3
- To study and understand the concept of market research

Scope of the study:

The major scope of this study is to know what is the preferred dosage form of Vitamin D3. And then to identify its market strategy to increase its sales and promotional tools.

Sample Design:

Descriptive Study

Sampling:

Non-probability convenience sampling

Sample Size:

Respondents: 200

Sample Population:

Orthopaedic doctors

Consulting Physicians

Sample Area:

Jaipur

Tools utilized for information assortment:

Direct Questionnaire Method

Kind of Questionnaire:

Structured

Sort of Questions:

Closed and Open-ended

Tools used for information investigation:

MS-EXCEL

Information assortment:

Essential Primary information has been gathered by the methods for survey.

Auxiliary The optional information has been accumulated from the clinical diaries, writing, and web.

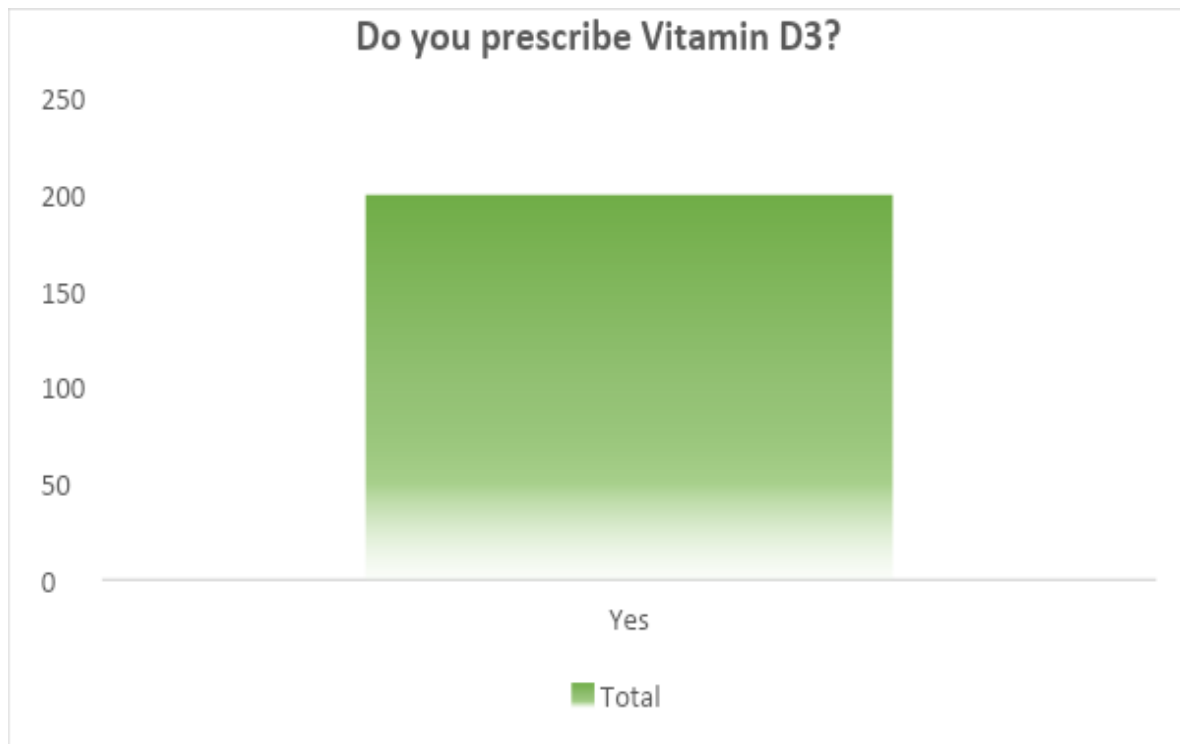
Study length:

90 days

Information examination, Findings, and Interpretation:

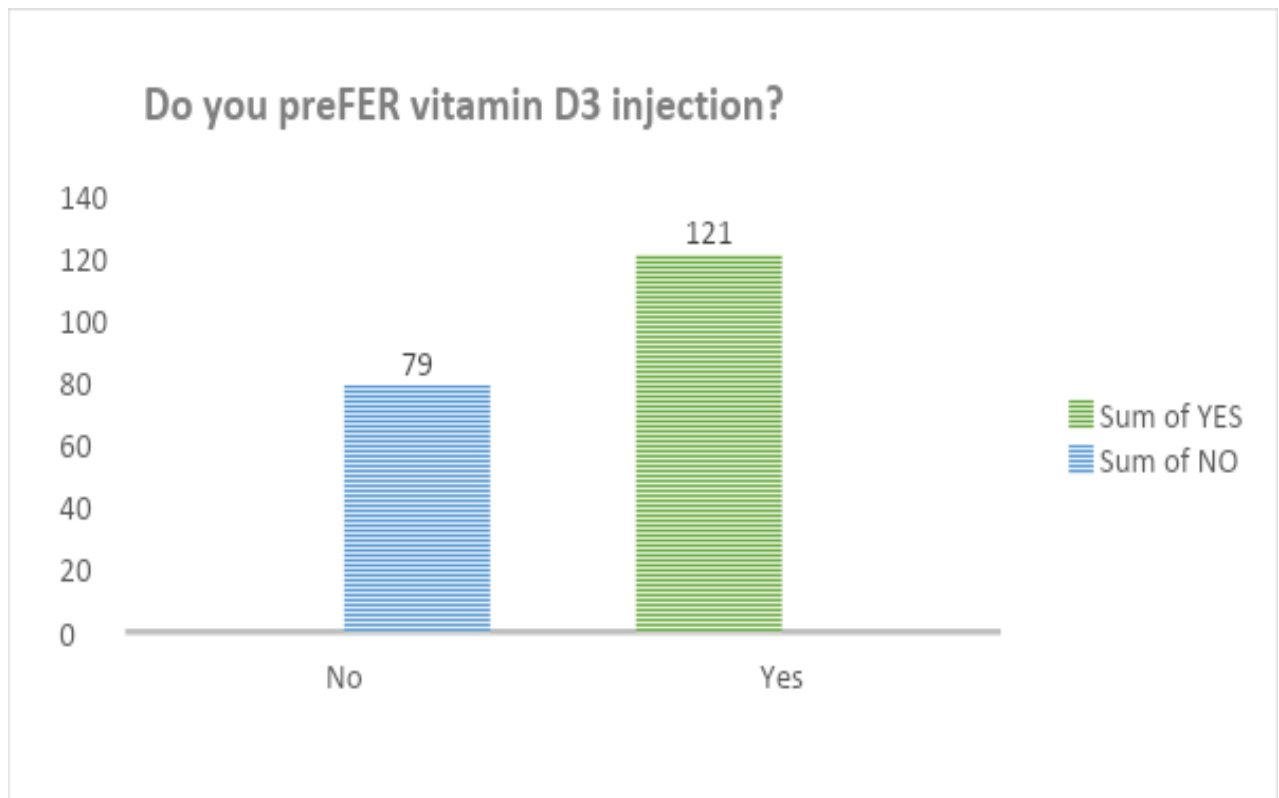
This part presents the report of information examination, Interpretation, and rundown of discoveries. As referenced in research strategy, the investigation used enlightening insights. Recurrence tables were created to feature the aggregate scores for factors of interest. For pictorial show, structured presentations and graphs were attracted to empower clients to conceptualize the outcomes.

Question 1: Do you prescribe Vitamin D3?



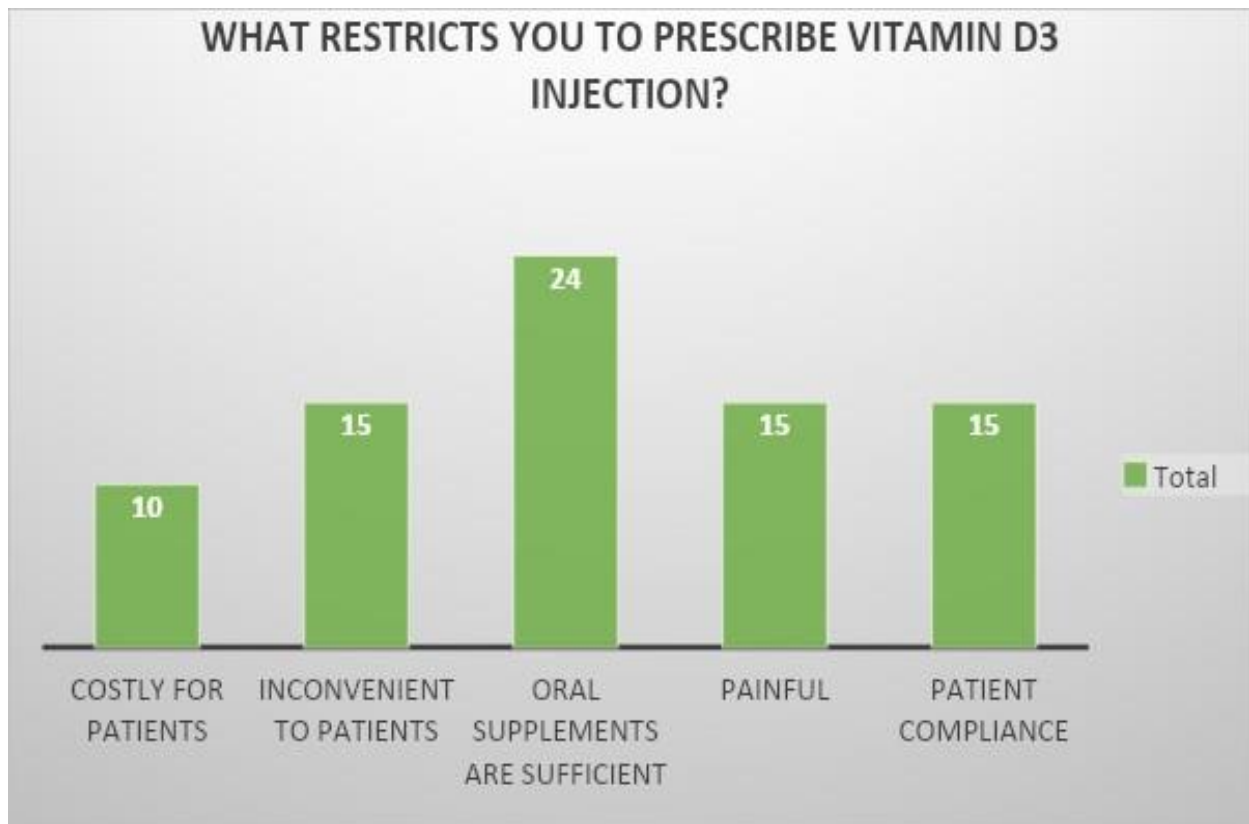
Inference: It was found from the research study that all the doctors including orthopaedic doctors and general physicians prescribe Vitamin D3.

Question 2: Do you prefer Vitamin D3 Injection?



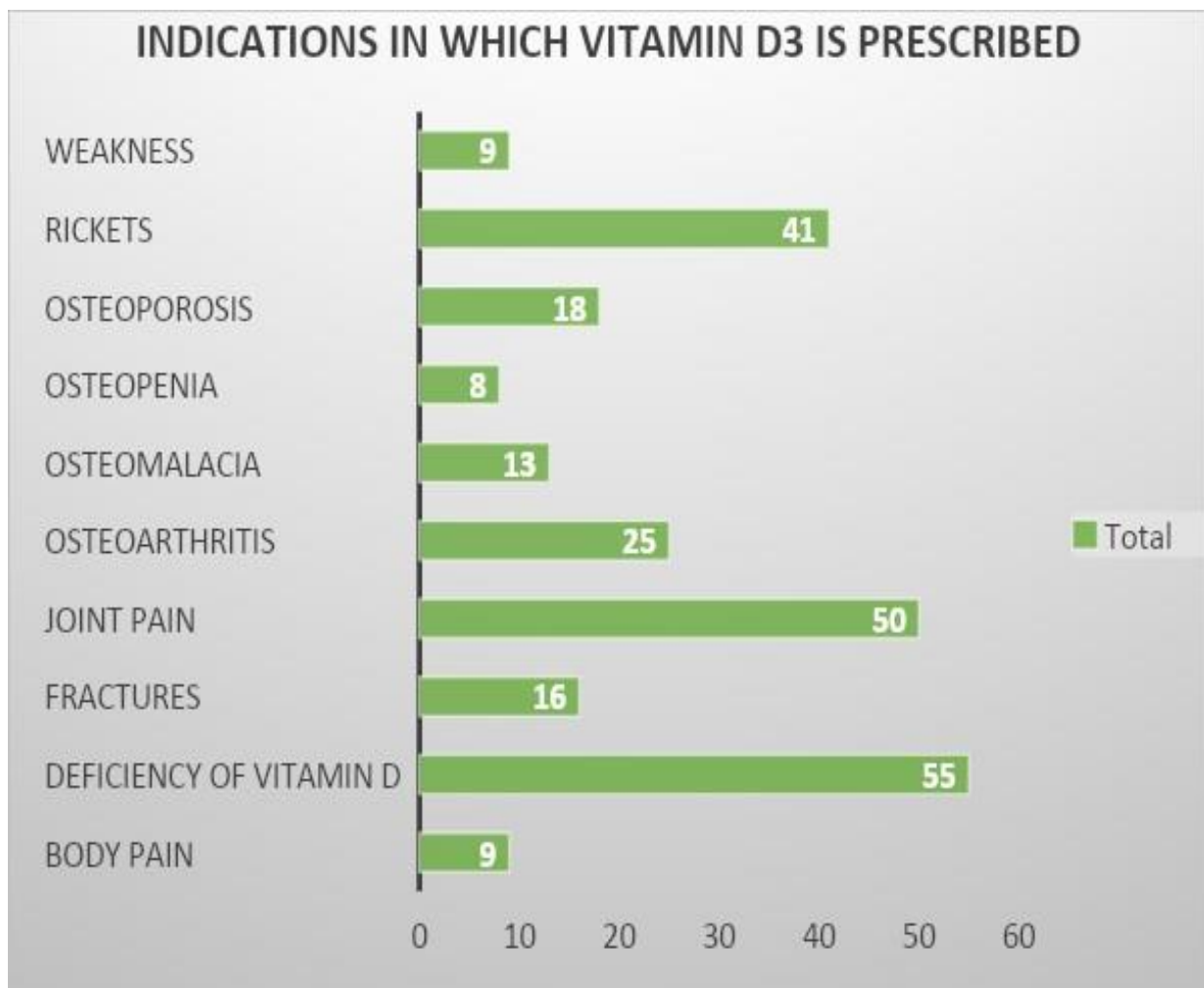
Inference: When the question was asked by the researcher to the orthopedic doctors and general physicians about whether they prescribe Vitamin D3 injection or not, most of the doctors said they prescribe Vitamin D3 injection as they think it is effective for the patients.

Question 3: If no, what restricts you to use Vitamin D3?



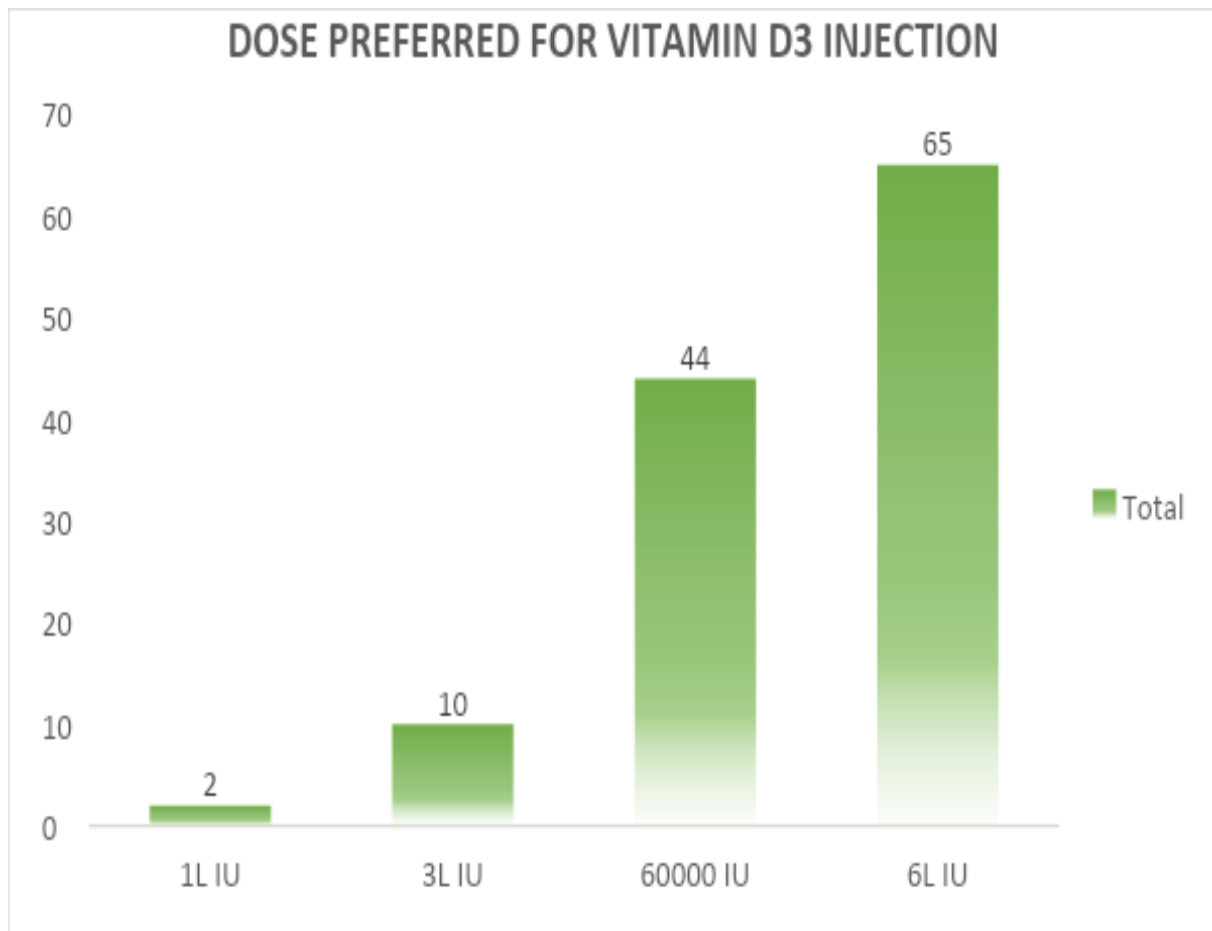
Inference: It is observed that most of the orthopedic doctors and general physicians consider the oral supplements are good enough and show a good response in Vitamin D deficit patients and also some of the doctors agree with the fact that injections are painful to the patients and are inconvenient for them, and also injections are costly too.

Question 4: What are the major indications in which you prescribe Vitamin D3 injection?



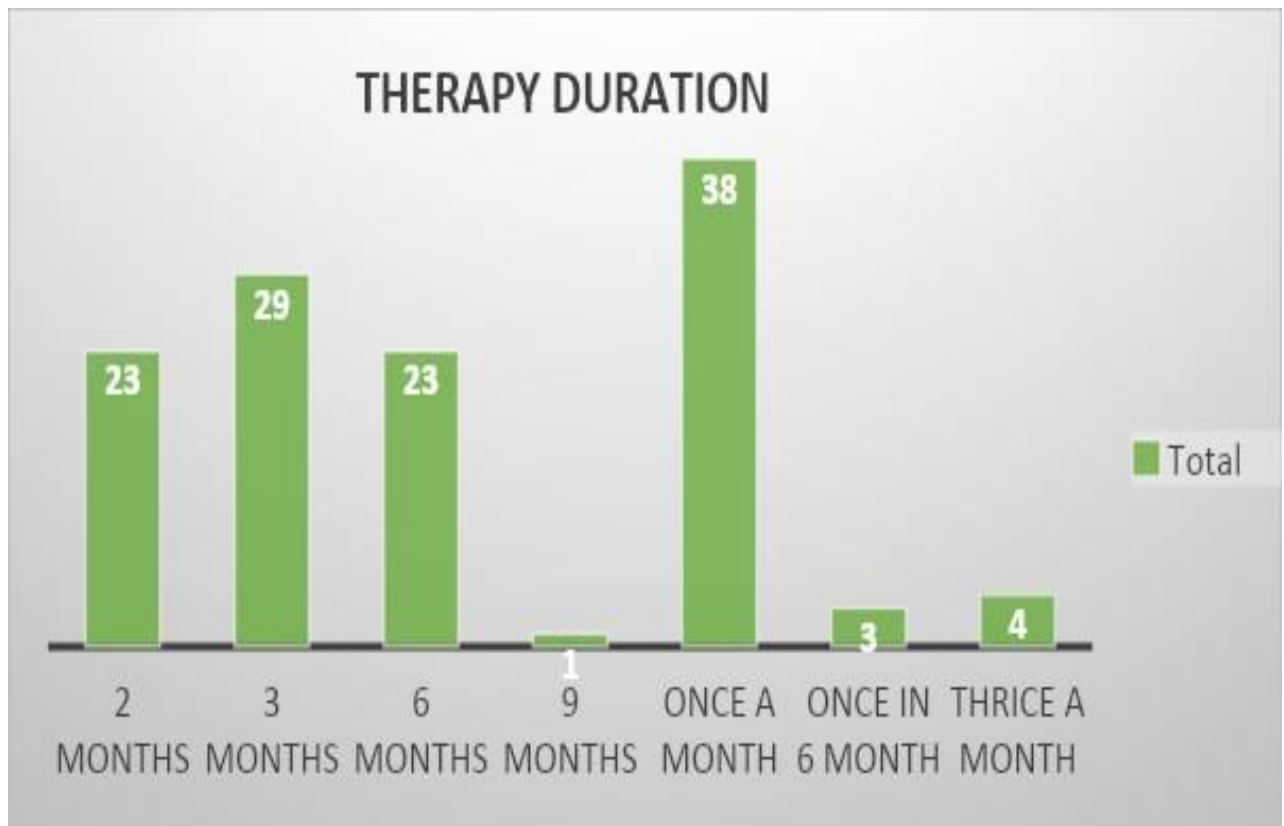
Inference: This question enlightens on all the indications in which Vitamin D3 is prescribed. Out of all the various indications mentioned above, doctors feel three major indications of Vitamin D3 deficiency i.e., Documented severe low Vitamin D3 levels, joint pain and Rickets. Indications of bone disorders such as Osteoarthritis, Osteomalacia, Osteoporosis and Osteopenia was also seen.

Question 5: What dose you usually prefer for Vitamin D3 Injection?



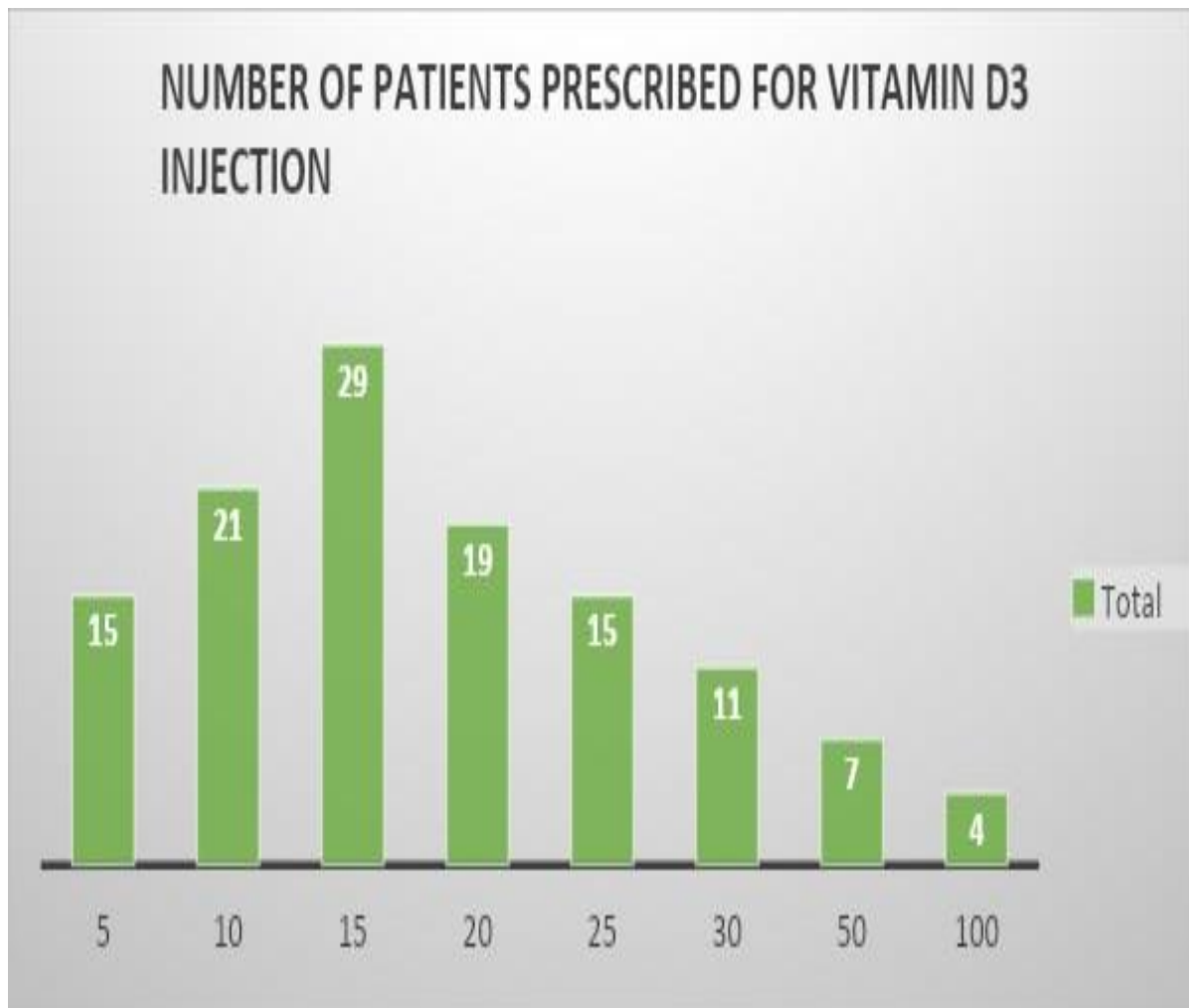
Inference: This bar graph displays the preferred dose used by orthopedic doctors and general physicians, in which most of the doctors preferred a dose of 6L IU and 60000 IU which will help the patients recover faster.

Question 6: How long do you prescribe Vitamin D3 Injection?



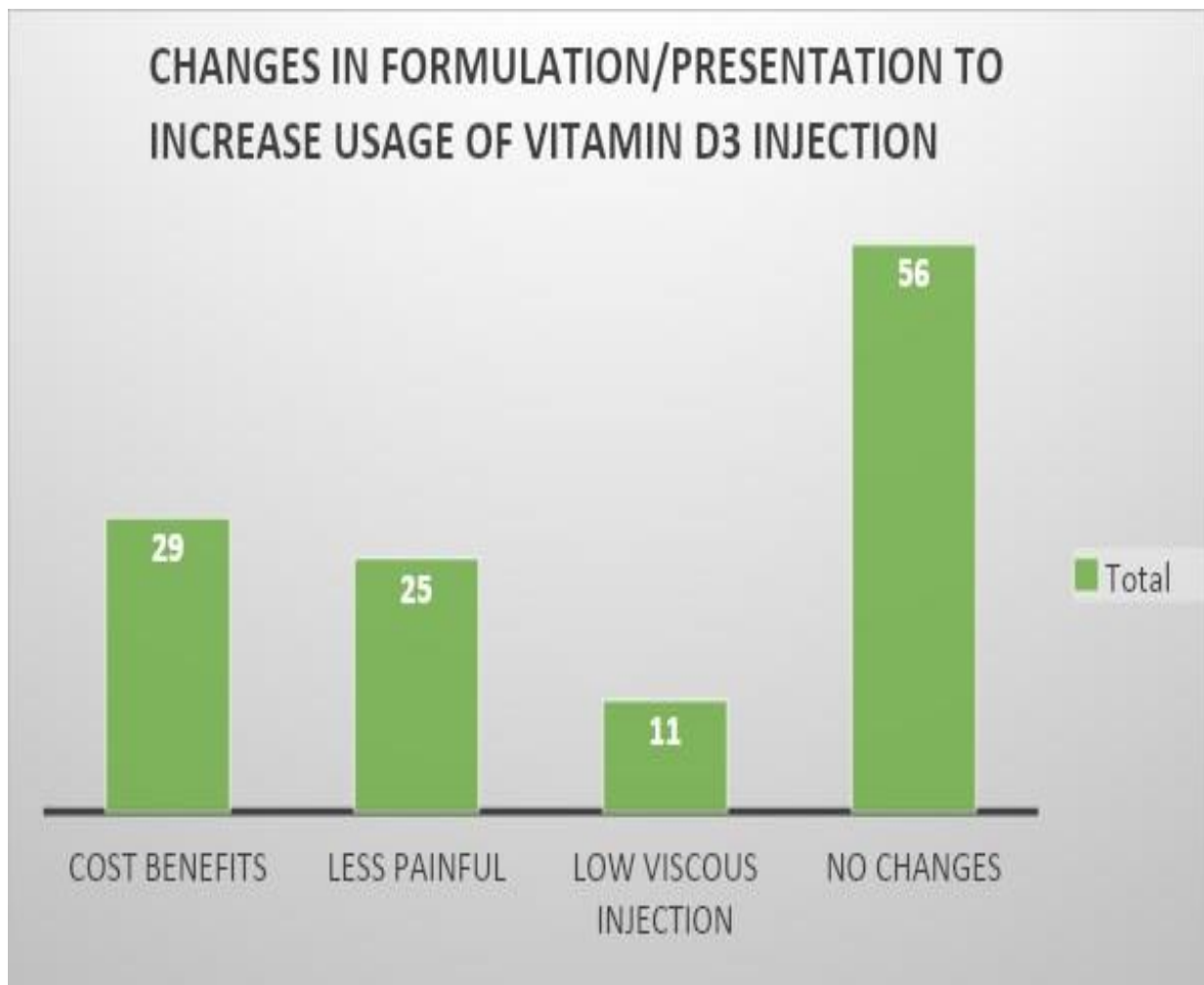
Inference: This question enlightens on the therapy duration of Vitamin D3. It was found according to the orthopedic doctors and general physicians that Vitamin D3 injection once a month shows better and faster response in patients.

Question 7: How many patients do you prescribe Vitamin D3 injection in a month?



Inference: It was found that data taken from most of the Orthopaedic doctors and general physicians have a strong prescribing base with 15 doctors per month.

Question 8: What changes you want in formulation/presentation to increase your usage of Vitamin D3 Injection?



Inference: Most of the orthopaedic doctors and General Physicians did not want any changes although for some doctors' parameters like cost of the injection, low viscous injection and injections should be painless are considered.

Doctors have also suggested the following:

- Oral supplements are showing good responses in patients.
- Overdose of Vitamin D leads to toxicity.
- Vitamin D injections are painful.

Conclusion:

Number of individuals with Vitamin D lack are quickly rising; the significance of this in general wellbeing and avoidance of constant infections are at the front line of examination. Nutrient D shortfall is extremely normal in all age gatherings. Nutrient D insufficiency should be tended to with due thought and strong demonstration. The Vitamin D3 market is becoming quickly. While endorsing Vitamin D3, many the specialists think about understanding consistence, cost boundaries and so forth for simplicity of patients.

Restrictions of the investigation:

- Due to individual mentalities, singular qualities and authoritative strategies, muscular specialists and general doctors keep quiet.
- The scientist got insignificant collaboration from certain respondents. The Unavailability of target respondents because of their bustling timetable during COVID-19 was a significant test.

Marketing Strategy:

- Customer Based – Focus on MAB with potential and competitor docs
 - Need to increase customer base “The Vitamin D3 Leadership Conclave”
 - We need to create a buzz by using digital platform
 - Patient support program
- Field Force – Marketing Incentive Program need to run for motivation as well as we need to increase the customer base

- We need to think about PPE kit distribution as a safety care
- My Buddy Campaign (Performance Recognition)
- Motivational Training to team

Promotions:

- Marketing Literature- Study Analysis / Research Paper
- Digital – Social-Media (Facebook, LinkedIn, YouTube)
- Patient Fan Page
- Web product information/Testimonial
- Experience share/ Blog
- Promotional Materials

Marketing Activities:

- CME/ Symposia/ Day celebration online or offline
- Marathon Run
- Care Inspires Care (Marketing Campaign associated with newspaper)
- Vitamin D3 Magazine or Bulletin (Monthly)

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ANNEXURE:

DOCTOR'S NAME:	SPECIALTY:
QUALIFICATION:	CONTACT:
PLACE:	DATE:

I. Do you prescribe Vitamin D3?

- Yes
- No

II. If no, give reason:

.....

III. Do you prescribe Vitamin D3 Injection?

- Yes
- No

IV. If not, what restricts you to use Vitamin D3 Injections?

.....

V. What are the major indications in which you prescribe Vitamin D3 Injection?

.....

VI. What is the dose you usually prefer for Vitamin D3 Injection?

- 60000 IU
- 1L IU
- 3L IU
- 6L IU

VII. How long do you prescribe Vitamin D3 Injection?

.....

VIII. How many patients do you prescribe Vitamin D3 Injection in a month?

.....

IX. What changes you want in formulation/presentation to increase your usage of Vitamin D3 Injection?

.....

X. Any other comments/suggestions:

.....