

Market Assessment of Natural Surfactant  
(ALVEOFACT) by Bharat Serums and Vaccines  
Limited in Telangana

*By*

*Rishabh Khandelwal*

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

*Academic year, 2017-2019*



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**TO WHOMSOEVER MAY CONCERN**

This is to certify that **Mr. Rishabh Khandelwal**, student of MBA Pharmaceutical Management from The IIHMR University, Jaipur has undergone internship training at **Bharat Serums and Vaccines Limited** from **18<sup>th</sup> Feb 2019 to 12<sup>th</sup> May 2019**.

The Candidate has successfully carried out the study on **Market Assessment of Natural Surfactant (Alveofact), Telangana** assigned 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. Sandeep Narula

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**The certificate is awarded to**

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**In recognition of having successfully completed his  
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**Bharat Serums and Vaccines Pvt. Ltd.  
(Celero Division)**

**and has successfully completed his Project on**

**“Market Assessment of Natural Surfactant (Alveofact) in Hyderabad,  
Karimnagar, Jubilee Hills, Gachibowli Kokapet, and Kukatpally Miyapur  
(Telangana)”**

**Date 12<sup>th</sup> May 2019**

**Bharat Serums and Vaccines Pvt. 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.**

**For Bharat Serums and Vaccines Limited,**

**Akhilesh Mishra**

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## CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled “**Market Assessment of Natural Surfactant (ALVEOFACT)**” by **Bharat Serums and Vaccines Limited in Telangana** and submitted by **Mr. Rishabh Khandelwal** MBA-PM 09 Enrollment No.0113 under the supervision of **Mr. Rahul Sharma** for award of MBA in Pharmaceutical Management of the University carried out during the period from 18 February 2019 to 12 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

## ACKNOWLEDGEMENT

The dissertation opportunity I had with **Bharat Serums and Vaccines Limited**, Hyderabad was a good probability of learning and the skill development. Therefore, I feel that I am very lucky that I got a chance to work with this company. I am grateful to all the professionals whom I interacted with and who helped me in completing my study and gaining useful knowledge. I am deeply thankful to **Mr. Rakesh Shrivastava**- General Manager at Bharat Serums and Vaccines Limited for providing all the support and motivation throughout my study. I would also like to thank my institute, The IIHMR University, Jaipur for giving me a proper learning environment. Further it would be my pleasure to have a gratitude to **Dr. (Col.) Ashok Kaushik**-Dean of Academics and student affairs, and **Mr. Rahul Sharma**, my project guide for having faith in me and showing me the right directions in learning and providing the support and help throughout my study. I am also thankful to my family whose blessings are always there with me in every stage of my life. At last, I would be thanking all the individuals who have helped me in completing my study.

Sincerely

Rishabh Khandelwal

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## ABBREVIATIONS:

1. RDS- Respiratory Distress Syndrome
2. CPAP- Continuous Positive Air Pressure
3. RCT- Randomized Control Trials
4. NRDS- Neonatal Respiratory Distress Syndrome
5. WHO- World Health Organization
6. BSV- Bharat Serums and Vaccines Ltd.
7. ANOVA- Analysis of Variance
8. SP-B- Surfactant protein-B
9. SP-C- Surfactant protein-C
10. DPPC- Dipalmitophosphatidylcholine
11. PC- Phosphatidylcholine
12. PG- Phosphatidylglycerol

## LIST OF FIGURES:

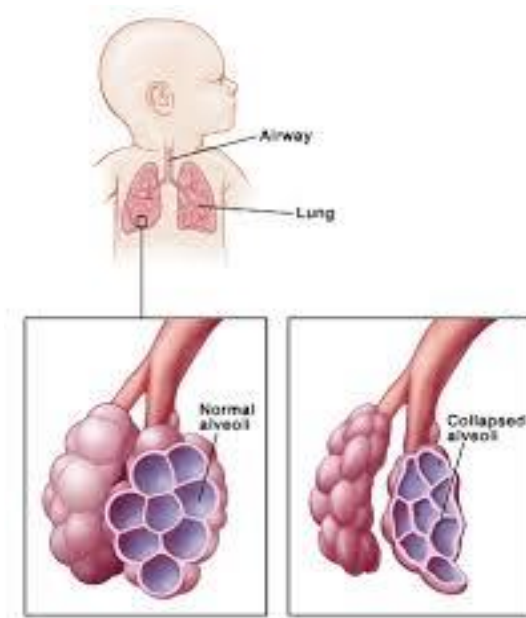
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## **INTRODUCTION**

### **RESPIRATORY DISTRESS SYNDROME:**

#### **INTRODUCTION:**

Respiratory distress syndrome is a disease that occurs in infants as their lungs are not fully mature. It also used to be called disease of hyaline membrane. This disease can vary from days to months and the duration of this disease depends on the age of the child and the extent of the spread of disease or whether the child needs any artificial mechanism to help him/her breathe or not.



#### **What causes RDS?**

RDS occurs due to the lack of a slippery substance which is present in the lungs and it is called surfactant. When there is not enough surfactant in the lungs, then the alveoli of the tiny child collapse whenever the child takes a breath. When the alveoli of the child collapse,

then the damaged cells that are present in the airways get collected and further affects the health of the child and the child gets more problems in breathing.

As the functioning of the lungs of the child decreases, the amount of oxygen taken is becomes less and more synthesis of carbon dioxide starts in the blood and it gets collected in the blood. This can lead to the increase in the amount of acid content present in the blood and this can affect the other body organs also. Then it becomes very difficult for the child to have proper breathing and the child feels exhausted and eventually gives up.

### Who gets affected by RDS?

RDS most commonly occurs in the children who are born before the completion of 28 weeks of gestation. The more the child is premature, the more the risk of developing this disease.

Although many cases of the children with RDS come out to be premature, but there are certain more factors that can also have an impact on the chance of developing the disease.

The factors are listed below-

- When the previous baby was born with RDS
- Due to cesarean delivery
- A condition that does not allow the production of surfactant in the body of the child
- Infection that occurs in the body of the child during 22<sup>nd</sup> to 28<sup>th</sup> week
- Many births at a single time because this can cause the children to born immature

### Symptoms of RDS:

The most common symptoms of RDS are-

- The child having any respiratory disease at the time of birth that gets worse with time
- Nostrils get widen while the child breathes (i.e. Flaring)
- Fast breathing of the child
- Cyanosis (blue coloring)
- When the child is having any grunting sounds while the child breathes

The symptoms of RDS generally increase day by day usually and they are on the peak stage on the third day, and it can get resolved easily when the baby excretes the excess amount of water during the process of urination.

### Treatment for RDS:

The doctor will determine the treatment of RDS based on the following assumptions-

- The gestational age of child, health condition of the child and by checking the medical history of the child if he/she had any previous diseases before
- The toleration ability of the child for specific medications and therapies
- The extent to which the disease is spreading in the body of the child

The treatment of the child includes the following things-

- Placing the endotracheal tube into the windpipe of the child
- Supplement oxygen (i.e. by providing the extra oxygen amount to the child)
- Mechanical breathing machine (to perform breathing work for baby)
- Continuous Positive Air Pressure (CPAP)
- Replacing the surfactant with any artificial surfactant

This is the most effective method if gets started in first six hours after the birth of the child. This type of replacement method is best known to reduce the disease in the child. Surfactants are provided to the child a preventive treatment in some extreme cases when there is a high risk of developing RDS.

### SURFACTANTS:

Surfactants are referred as those compounds which help in lowering the surface tension between the liquids. Surfactants play many roles i.e. they may act as detergents, foaming agents as well as emulsifiers.

The composition of the surfactants is derived from 90% phospholipids and 10% proteins. They are the organic compounds which have both hydrophobic part (tail) and hydrophilic part (head) i.e. they are amphiphilic.

So, a surfactant has both kind of components- water soluble as well as water insoluble.

Many therapeutic studies have been done on the administration of surfactants. Trials have been going with the production and on-going development of surfactant products. It can be clearly identified from the RCTs (Randomized Control Trials) that the replacement therapy of the surfactants plays a very important role in the preventing as well as treating RDS.

Two main subtypes of surfactants have been introduced. They are-

- Natural surfactants
- Synthetic surfactants

The animal derived surfactants, which are also called natural surfactants, look similar to the human surfactants. Natural surfactants have been considered better due to their greater ability to mimic the human surfactant. Animals used in their production are cows and pigs. Few examples of natural surfactants are-

- Poractant (example Curosurf) which is derived from minced lungs of porcine
- Beractant (example Survanta) which is extracted from bovine

If we compare the synthetic surfactants with natural surfactants, then we observe that the therapeutic effect is inferior to that of natural surfactants.

Number of studies have been done by comparing the effect of both- natural and synthetic surfactants in the prevention as well as treatment of RDS. The studies have shown that the natural surfactants displayed better outcomes in comparison to synthetic surfactants. There are many types of natural surfactants that are available in the market but among all of them, the most preferred surfactants are ALVEOFACT, SURVANTA AND CUROSURF. There are many retrospective studies that have already been done for checking the clinical efficacy of the surfactants which are derived from animals but there is a lot of discussion which is still going on about their effectiveness.

### LIMITATIONS:

Despite the positive findings after the administration of the natural surfactants, there are a few drawbacks of using surfactants which are mentioned as followed-

- Lack of affordability
- Inconsistent efficacy

### ALVEOFACT as a surfactant-

As we know that surfactants are used for the treatment of RDS and two kinds of surfactants are there- Natural and Synthetic surfactants

Natural surfactants, as they are derived from the animals that is why they are considered to be better than the synthetic surfactants.

Alveofact is also a natural surfactant which is derived from the bovine. This drug is helpful in treating those patients which are at high risk of developing the disease (i.e. RDS) or in the treatment of those which are already suffering from the disease

The single dosage of Alveofact that is available in the market is of 54 mg having the total amount of phospholipids per kg body weight.



## DRUG ADMINISTRATION-

When the child is administered with ALVEOFACT, then always a catheter tube is used in the treatment. With the help of this catheter, the ALVEOFACT drug is given to the patient using a syringe. After the installation of this to patient, more injections of air are also supplied for making sure that the installation of the drug is appropriate and complete. To have the proper administration of ALVEOFACT and to make sure if the drug is getting equally distributed in the body of the patient, the doctor can also turn the patient from one side to the another in few seconds. When the catheter is removed and the installation of the drug is complete, then the patient is connected again to the respirator. It should be taken care that the drug administration should always be done under the supervision of the clinician.

It has been noticed that the infants are very sensitive and their body is also sensitive to this kind of surfactants, so it should be taken care that the over dosage of the drug should not be given at all.

In many studies that have been conducted on the surfactants, the specific reduction in the mortality of the infants taking ALVEOFACT during their treatment has also been noticed. Over dosage of the drug has not been noticed yet in any patients. Other brands of surfactants are also available in the market but ALVEOFACT is a drug which is having a good market share and better efficacy as compared to many other surfactants.

There are also a few studies that are done on the surfactants to compare their efficacy with respect to each other.

### NEED FOR STUDY:

Respiratory Distress Syndrome (RDS) is a serious problem which is very common in the infants especially in India. So, after analyzing the market scenario, Bharat Serums and Vaccines Limited took an initiative to introduce the natural surfactant in the market with the name of **ALVEOFACT** with good promotional strategies and had a good amount of sales in the very few initial months of its launch. Since last few months, the sales of **ALVEOFACT** has shown slight negative growth in the market. So, this study is carried out to find out the market potential of **ALVEOFACT** according to the feedback of the participants.

This will also help to find out-The most preferred surfactant brand for the treatment of RDS and the attributes associated with the prescription of the **ALVEOFACT**. By performing this study, we can also come to know about the major competitors in the market and the identification of highest stock and sales of natural surfactants in the market.

### STUDY OBJECTIVE:

#### PRIMARY OBJECTIVES-

- To find out the market potential of **ALVEOFACT** drug
- To find out the most preferred brand of natural surfactants in treatment of RDS

#### SECONDARY OBJECTIVES-

- To investigate the factors responsible for the prescription of natural surfactants
- To study the market scenario for **ALVEOFACT** in treatment of RDS
- To analyze the prescription pattern of **ALVEOFACT**

## LITERATURE REVIEW

1. **Roger Soll and Fermin Blanco** had a study on “**Natural surfactant extract versus synthetic surfactant for neonatal respiratory distress syndrome**”. The main center of attraction of the study was to compare the effect of natural and synthetic surfactants in the treatment of infants who are at risk of developing respiratory distress syndrome or are already having the disease. For checking the efficacy of both type of surfactants, many randomize control trials were done for this study. The data of the clinical outcomes of various respiratory diseases such as chronic lung disease, pneumothorax and mortality were extracted out by them and hence the analysis of the data was done. The results of the study showed that there was a decrease in pneumothorax and the risk of mortality which was associated with the use of natural surfactants. Lastly, it was concluded that both type of surfactants were effective in the treatment of RDS but there was less mortality and improvement in the conditions of the patients who received the treatment provided by the extract of natural surfactant.
2. **Christopher Cheng Hwa Ma and Sze Ma(2012)** studied about the role of surfactants in the treatment of RDS. They reviewed about the causes of RDS and the types of surfactants used in the treatment of RDS. For this purpose, a comparative study was performed and the comparison of the efficacy of different types of surfactants was done and it was concluded that the efficacy of the surfactant in the prevention and treatment of RDS depends on the type as well as the mode and timing of administration. They concluded that the natural surfactants have better efficacy than the synthetic-surfactants but the superior subtype of the natural surfactant is still debatable. Lastly it was concluded that the further research and development in the administration of surfactants as more innovations are introduced, but its therapeutic potential in RDS is promising.
3. **AscanioTridente, Lucia De Martino and Daniele De Luca (2019)** performed a systematic review on “**Porcine versus bovine surfactant therapy for preterm neonates with RDS**”. Their main objective was to check whether the bovine or

porcine surfactants should be preferred in the treatment of RDS. The methods that was applied for this was a systematic review of the various features of surfactants for having an understanding about the biological causes of any clinical trial and the meta-analysis of porcine and bovine surfactants for various respiratory diseases and mortality was done. The results of this study showed that there were total 16 articles that were included in the review and 14 were included in the process of meta-analysis and it was concluded from the review that 200 mg/kg poractant (which is a porcine surfactant) is producing better outcomes when compared with the bovine surfactants.

4. **Iran J Pediatr (2016)** published an article on **“Comparison of the efficacy of three natural surfactants-Curosurf,Alveofact and Survanta in the treatment of Respiratory Distress Syndrome”**. The main objective of the study was to compare the effects of all three natural surfactants in the clinical outcomes of the respiratory syndrome. For this, randomized clinical trials were done by dividing the patients into three different groups, each receiving one of the three surfactants. The incidents of various respiratory diseases and hospital stay length and the continuous positive airways pressure (CPAP) failure were recorded and measured and comparison was done. The results concluded that there were not much differences between the groups before and after the use of surfactant but there were some significant differences between Alveofact and Survanta groups for the incident rates of pneumothorax.

## **METHODOLOGY**

### **Research Questions:**

- What is the market potential of ALVEOFACT in Telangana?
- What are the other preferred brands of natural surfactants?
- What are the factors that affect the prescription of ALVEOFACT?

### **Research Design:**

A descriptive research study was conducted. (Cross Sectional)

### **Sampling Method:**

The method for sampling used in the study was Non-probability method

### **Region of the study:**

The given study was performed in Telangana

### **Study Population:**

The population selected for performing the study consisted of all the doctors (pediatricians) and pharmacists.

### **Sample Size:**

The sample size was taken as 200 out of which 100 were doctors (Pediatricians) and 100 were pharmacists.

### **Study Duration:**

The study was conducted in Telangana for the duration of approximately 3 months (18 February 2019-12 May 2019)

### **Data Collection:**

A structured questionnaire was prepared for collecting the data related to the assessment of the product and the data was collected from the respondents by performing face to face interviews.

### **Research Instruments (Tools and Techniques):**

For this study, the research instrument used was a questionnaire consisting of relevant questions related to the study topic. The questionnaire was prepared for both- doctors as well as the retail chemists and the information got collected with the help of interview that was conducted for the respondents.

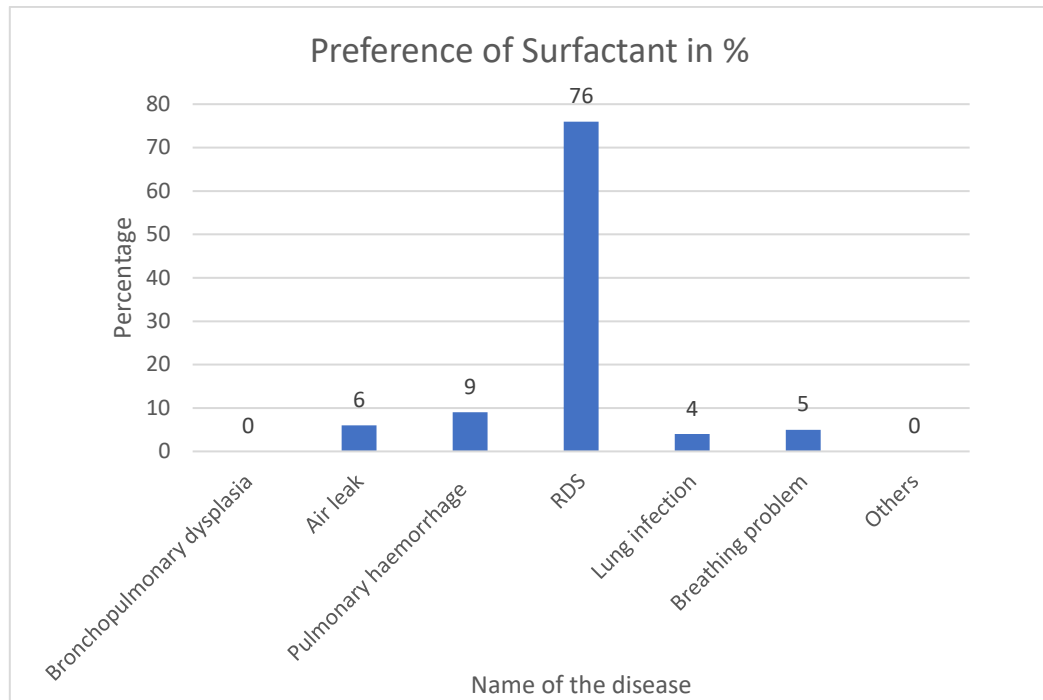
### **Data Analysis Technique:**

The technique used for the purpose of data analysis is MS Excel. After the whole data was collected from the respondents, it got analyzed and the interpretations were formulated in MS Excel by taking the help of various graphs and pie charts.

## DATA ANALYSIS:

### ANALYSIS OF QUESTIONS FOR DOCTORS:

#### 1. What is the indication in which the natural surfactant is preferred?

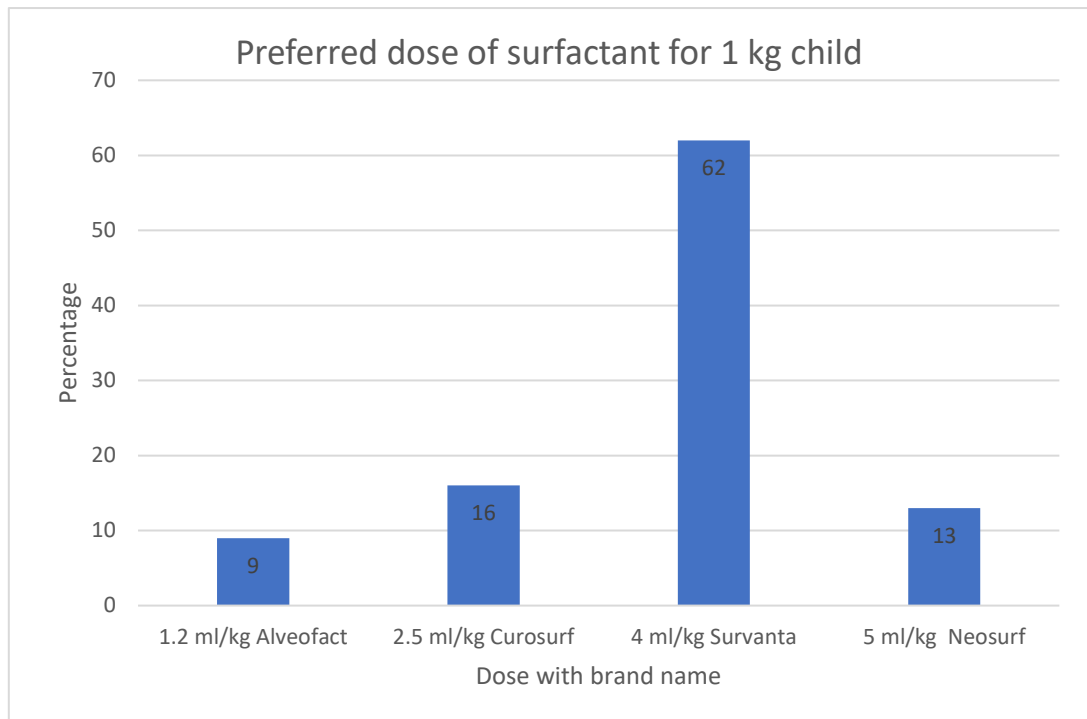


**Fig. 1: Preference of Natural Surfactant by doctors in treating various diseases**

#### Observations-

It was found that the doctors preferred natural surfactants the most in the treatment of RDS (the percentage found was 76), 9% of the cases of pulmonary haemorrhage, 6% cases of air leak, 5% cases of breathing problem and 4% cases of lung infection were treated with the help of natural surfactants. This graph shows the importance of natural surfactants in the treatment of RDS.

**2. What is the preferred dosage of natural surfactant for the baby of 1 kgweight?**



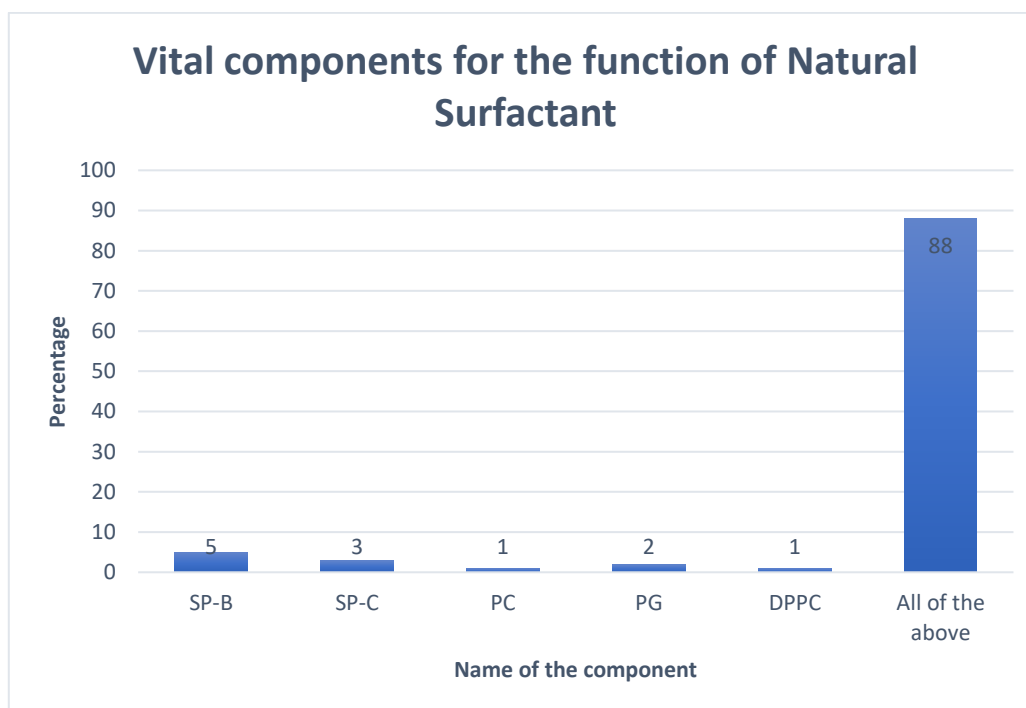
**Fig. 2: Preferred dosage of Natural surfactant for the baby of 1 kg weight having RDS**

**Observations-**

This analysis shows the preference of the amount of dose of various natural surfactants used by the doctors in the treatment of RDS. By this we come to know about the various brands of the natural surfactants preferred by the doctors for treatment and which brand is used the most.

It was found that 62% doctors prescribed 4ml/kg SURVANTA, 16% prescribed 2.5 ml/kg CUROSURF, 13% prescribed 5ml/kg NEOSURF and 9% doctors prescribed ALVEOFACT for treating their RDS patients.

3. **What are the components for the proper functioning of the natural surfactant?**



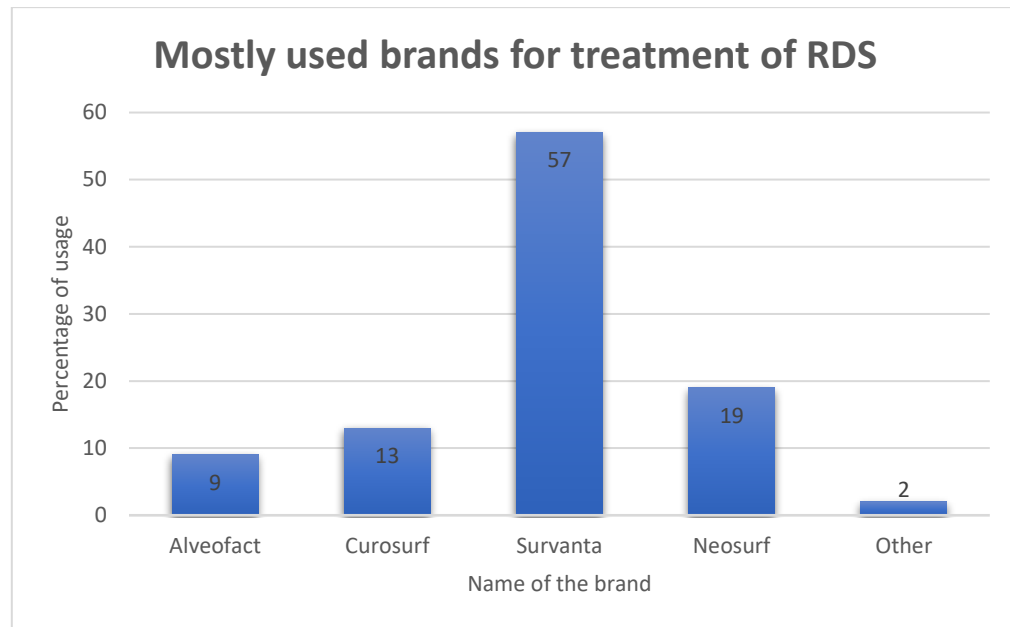
**Fig. 3: Components for the proper functioning of natural surfactants**

**Observations-**

This analysis was done to check that according to the doctors, what are the components that are important for the functioning of the natural surfactants.

The data shows that 5% doctors said SP-B is most important, 3% doctors said SP-C is most important, 1% selected PC, 2% think PG is important, 1% think DPPC is important and 88% of the total doctors said that all the components are important for the proper functioning of the natural surfactant.

#### 4. What are the most preferred brands for the treatment of RDS?



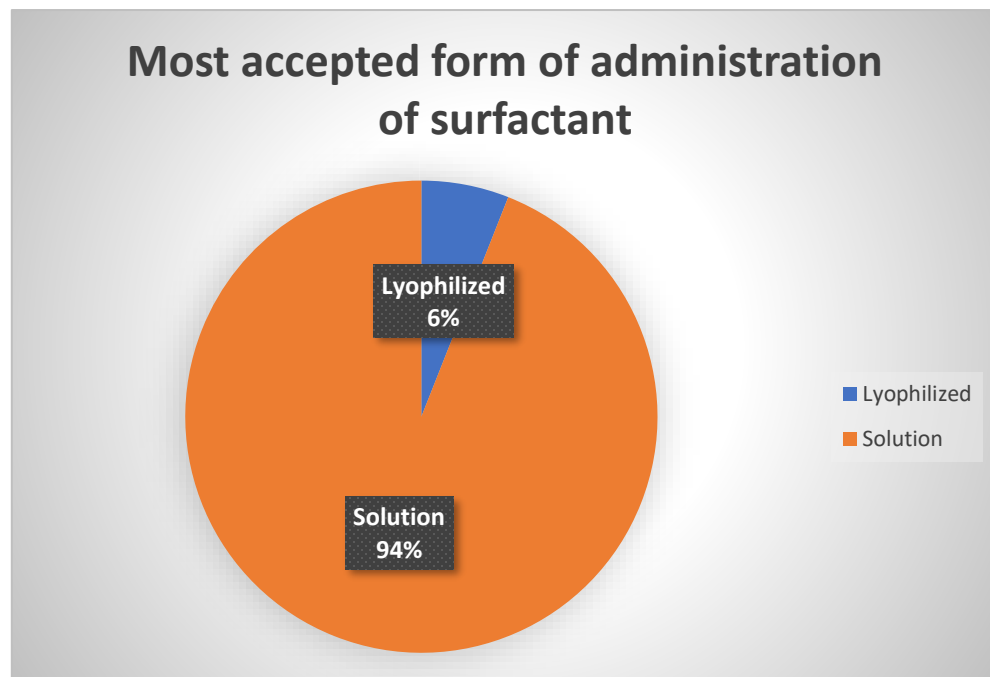
**Fig. 4: Most preferred brands in treatment of RDS**

##### **Observations-**

This analysis shows the percentage of brands which are used by the doctors in the treatment of RDS patients.

It shows that SURVANTA is preferred the most (the percentage is 57), and NEOSURF is preferred by 19% doctors, CUROSURF is preferred by 13% doctors and 9% doctors use ALVEOFACT and the remaining doctors use other brands for the treatment of RDS patients.

5. What is the most accepted form of administration of the surfactant by the patients?

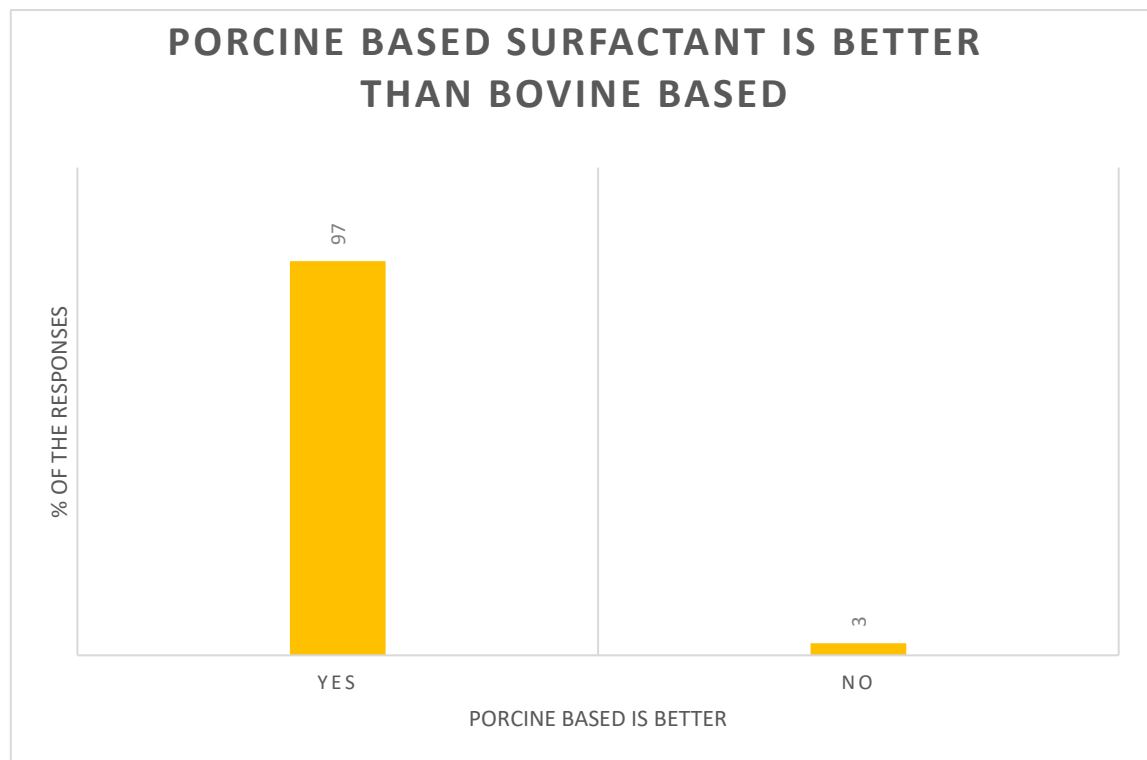


**Fig.5: Most accepted form of natural surfactant by the patients**

**Observations-**

This shows the most accepted form of the natural surfactant administration by the patients of RDS. So, we came to know that in 94% cases, the natural surfactant is given in the form of a solution and in the remaining 6% cases, it is lyophilized and taken by the patients.

6. **Whether the porcine based surfactant is better than the bovine based surfactant or not?**

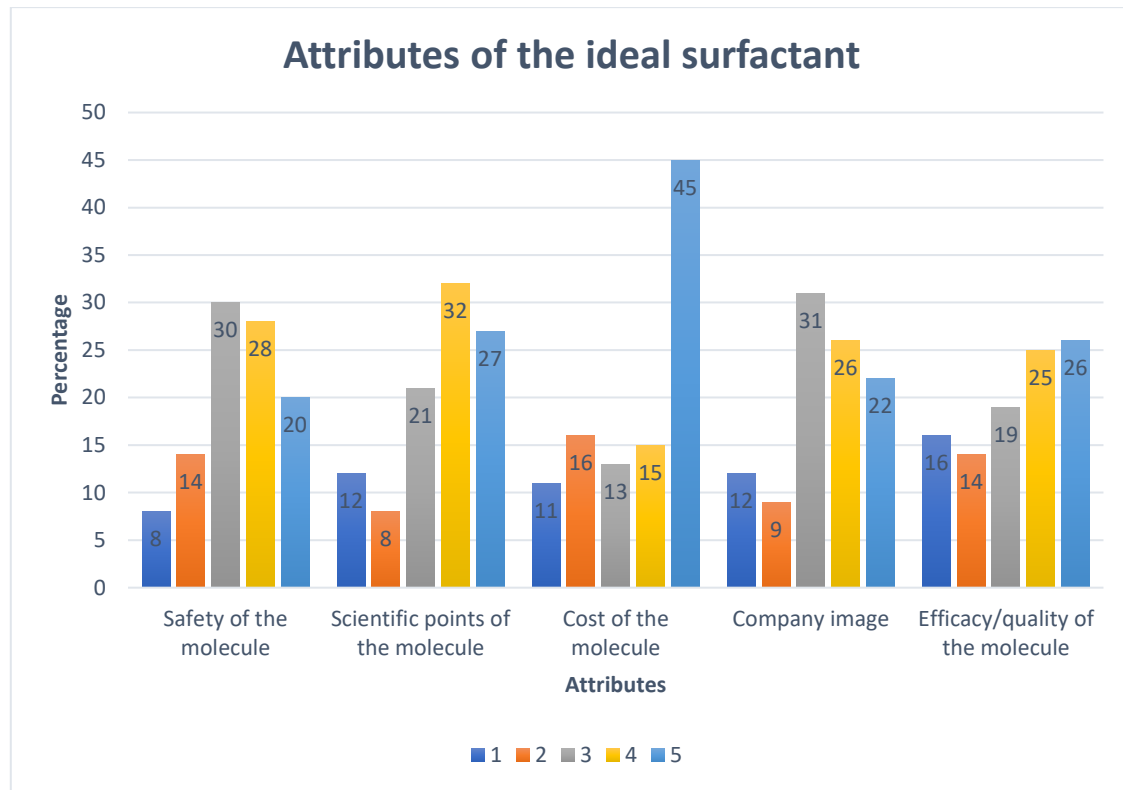


**Fig.6: Porcine and bovine based surfactant-which is better**

**Observations-**

97% of the doctors agreed that the porcine based natural surfactant is better than the bovine based natural surfactant (which is 3% only)

## 7. What are the attributes of an ideal surfactant?

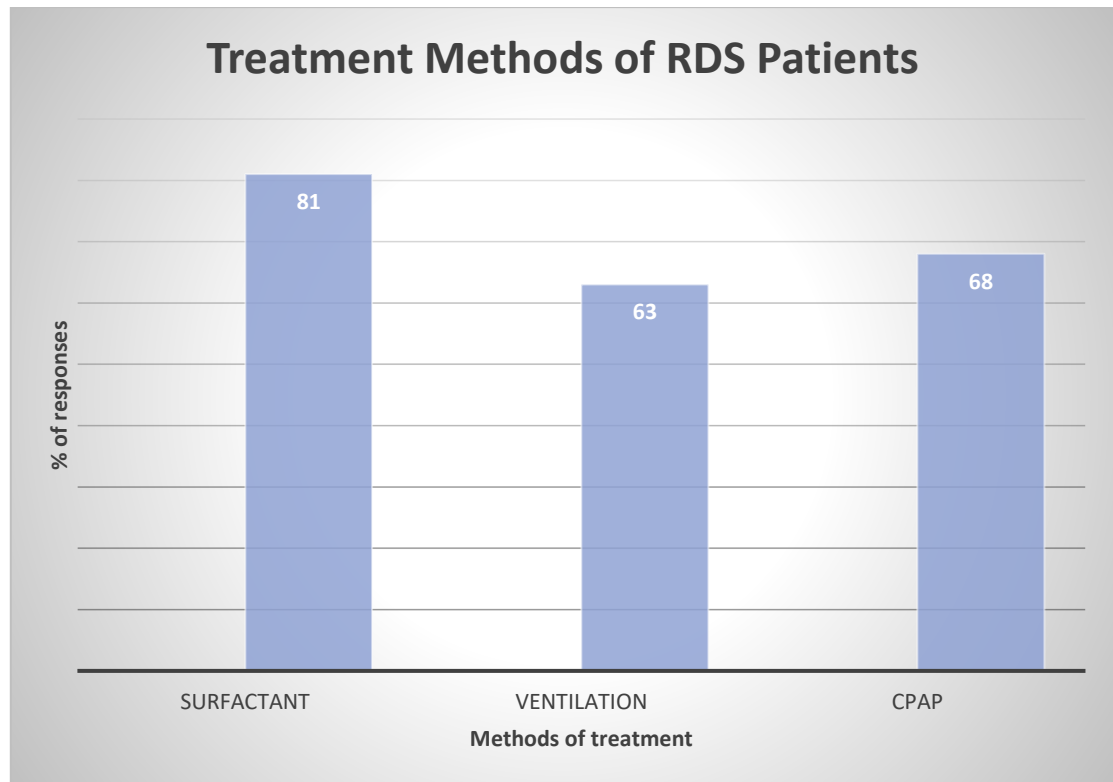


**Fig.7: Attributes of the ideal surfactant on the basis of ranking from 1 to 5**

### Observations-

In this analysis, all the attributes were ranked from 1 to 5 on the basis of their importance to the respondent that they see before preferring the natural surfactant. It shows that all the attributes, somehow play an important role in making the surfactant an ideal one.

**8. How the RDS patients are treated mostly? (multiple options)**



**Fig. 8: Various treatment methods of treating RDS**

**Observations-**

This analysis was done taking multiple responses from the respondents.

It was found that in 81% cases, natural surfactants are used in the treatment and in 63% cases, ventilation is given to the patient and in the 68% cases, CPAP is used.

### ANALYSIS OF THE QUESTIONS FOR RETAIL CHEMISTS:

#### **1. What is the major brand of natural surfactant in the chemist stores?**



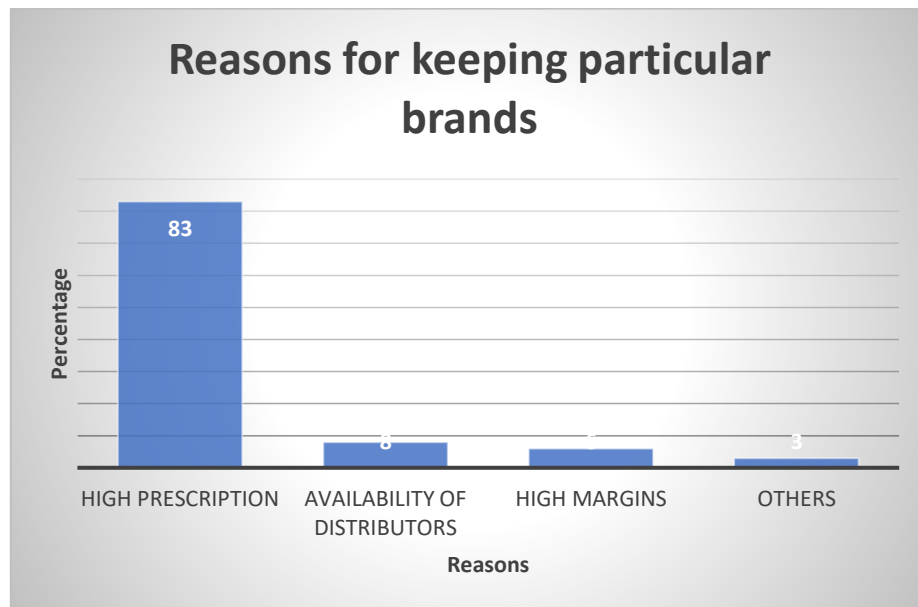
**Fig. 9: Top 3 brands sold by the chemists (having highest sales)**

#### **Observations-**

This question was asked to assess the names of the top 3 brands of the natural surfactants sold by the chemist.

By this we come to know that the most selling brand is SURVANTA (has got the highest percentage of 65), then second most selling brand is CUROSURF (with 24%), and then third most selling brand is ALVEOFACT (with 11%)

## 2. What are the reasons for keeping those specific brands in the store?



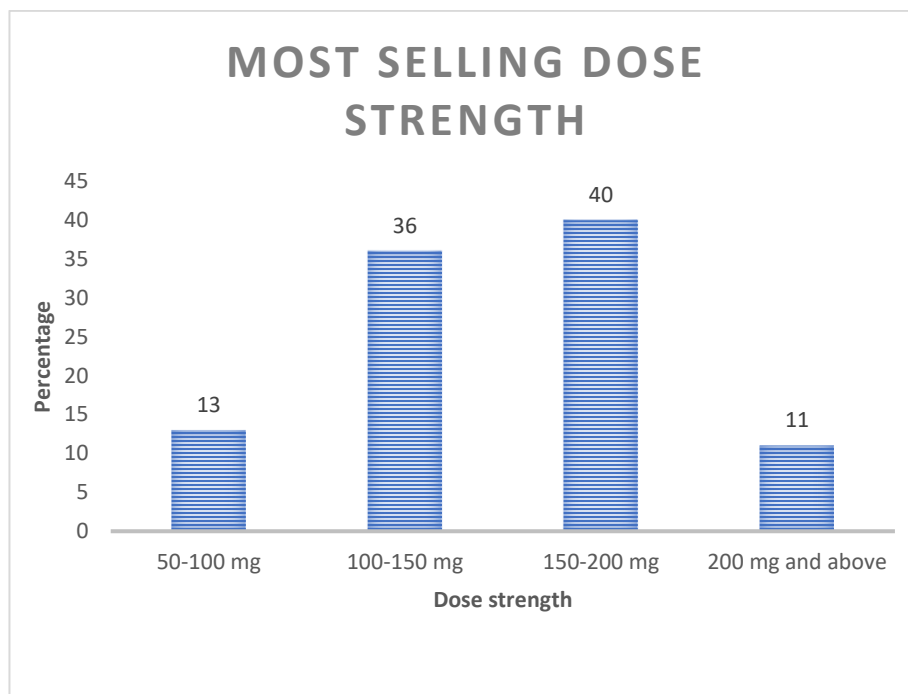
**Fig. 10: Reasons for keeping the brands in the shop**

### Observations-

This analysis was also done by taking the responses from the respondents. This shows that high prescription was the main reason (having 83%) for keeping the brands and availability of the distributors was also an important reason (with 8%).

The other attributes were- high margins (6%) and 3% respondents mentioned that there were some other reasons apart from these reasons for keeping those specific brands in their shop.

### 3. What is the most selling dose strength of the natural surfactants?

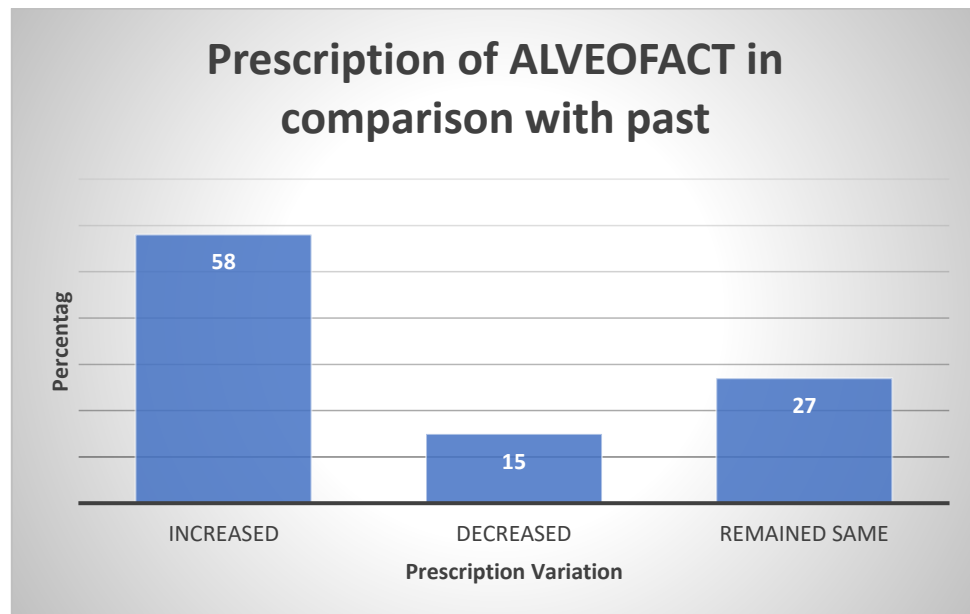


**Fig. 11: Most Selling Dose Strength**

#### **Observations-**

The most selling dose strength was 150-200 mg (with 40%), the second most selling dose strength was found to be 100-150 mg (with 36%), the third most selling dose strength was 50-100 mg (with 13%), and then it was 200 mg and above (with 11%)

**4. What is the prescription of ALVEOFAC<sup>®</sup> in comparison with past?**



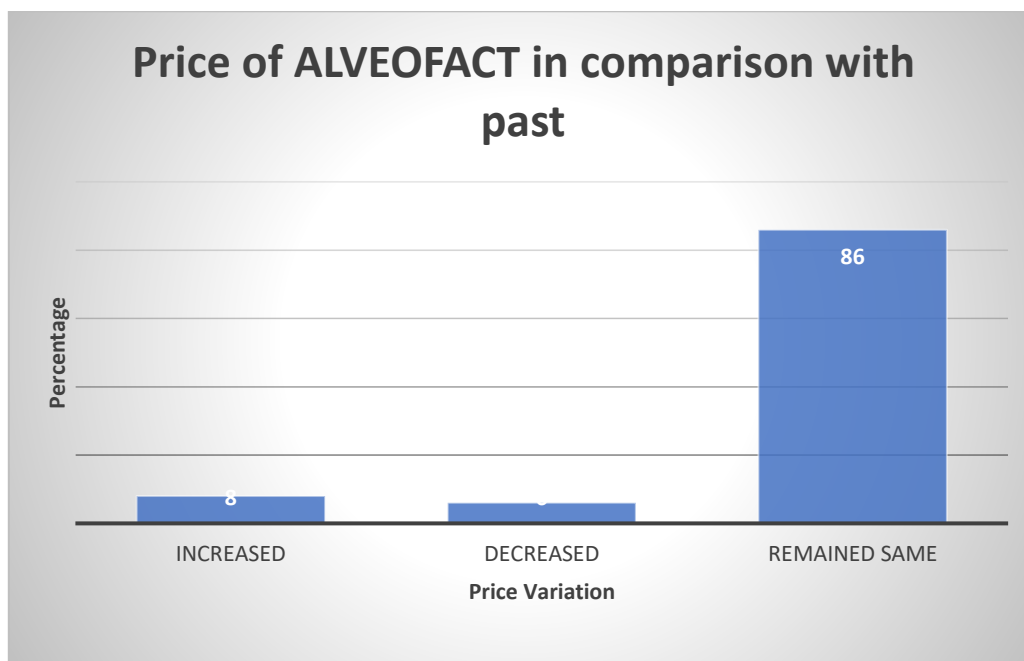
**Fig. 12: Prescription trend of ALVEOFAC<sup>®</sup> in comparison with past**

**Observations-**

This shows the prescription trend analysis of ALVEOFAC<sup>®</sup> in comparison with past.

According to this, 58% respondents have agreed that with time, the prescription of ALVEOFAC<sup>®</sup> has increased and 15% said that it has decreased and 27% said that it remained same with the passage of time.

5. What is the price of ALVEOFACT in comparison with past?



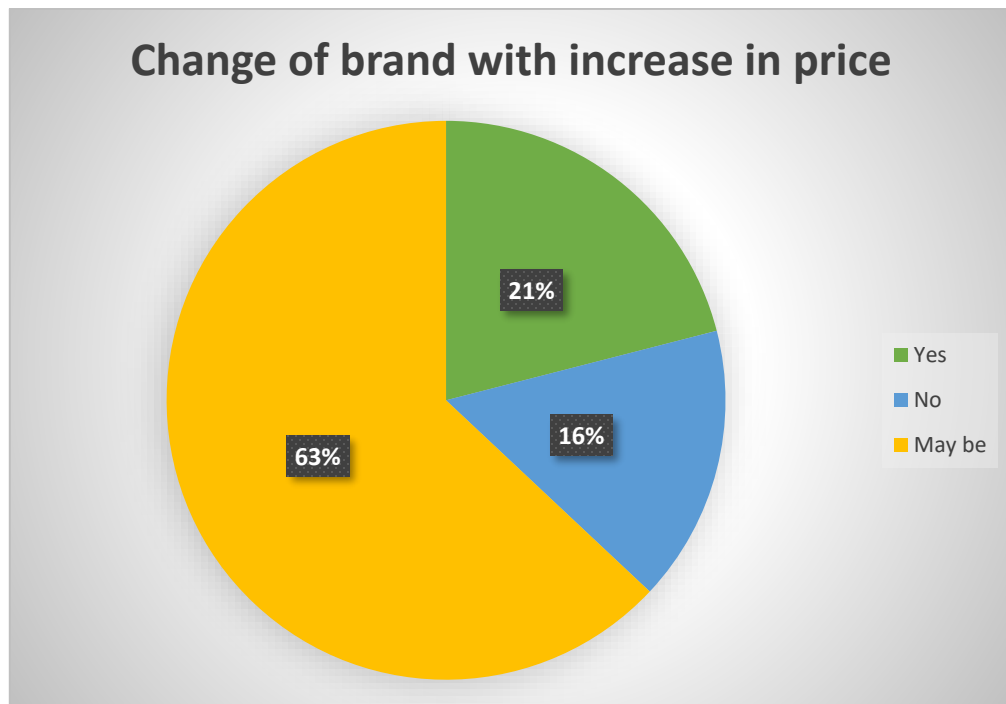
**Fig. 13: Price trend of ALVEOFACT in comparison with past**

**Observations-**

This shows the price trend analysis of ALVEFACT with time.

According to this, 8% of the respondents agreed that the price of ALVEOFACT has increased with time and 6% said that it has decreased with time and 86% said that the price has remained same with the passage of time

**6. Whether the store chemist will change the brand with increase in price or not?**



**Fig. 14: Change of brands with increase in price**

**Observations-**

Next analysis was done on the increase in price with the change of name of brand.

Here it shows that 21% respondents agreed that they will change the brand if the price of one specific brand increase. 16% respondents denied this fact and 63% were not sure whether they will surely change the brand or not change the brand after the increase in the price of a specific brand.

### DISCUSSION:

This study shows that the doctors highly prescribe the use of natural surfactants for the purpose of treatment of RDS in case of infants, so there is a good demand of the natural surfactants in the market. The brands of the natural surfactants which are most preferred for the treatment include SURVANTA, CUROSURF, NEOSURF and ALVEOFACT. The market value of ALVEOFACT is less than the other natural surfactants present in market such as CUROSURF and SURVANTA.

High prescription and availability of distributors were leading factors in the availability of specific brands in the market. There are certain attributes of the ideal natural surfactants such as efficacy of the molecule, safety of the molecule, cost and quality of the molecule and the brand image in the market that contribute to their prescription by the doctors.

The prescription of ALVEOFACT has increased in comparison with past according to the primary respondents and the average selling price has remained the same according to the majority of respondents.

### LIMITATIONS:

- This is a kind of pilot study and it was conducted out only in a specific geographical area.
- The size of the sample that was taken for the study was short, so it has affected the accuracy of the outcomes.
- The time during which study was performed was of short duration, so more data from the respondents could not be collected.
- Time duration of the interview was so short due to the working hours of the respondents. Therefore, more questions could not be asked in the given time period.

## CONCLUSION:

Natural surfactants are the highly used products in the treatment of RDS in infants and they are highly prescribed by the doctors also. There are many brands of natural surfactants, but the most selling brands are CUROSURF, SURVANTA, ALVEOFACT. High prescription, the availability of the distributors and high margins on the products are some of the reasons for keeping the specific surfactants in the chemist shop.

The drug ALVEOFACT occupies a good market share but its market has been drastically influenced by steadily increasing market of other products such as CUROSURF and SURVANTA. ALVEOFACT is prescribed by doctors but its market is also highly fragmented due to large number of other competitors. For new entrants, the market appears to be highly challenging due to established customer loyalty towards the brands that they are already using.

### SUGGESTIONS:

- This study gives an insight of how the market is performing and how would this flow of market facilitate the companies in deciding the right product which could be more profitable for them.
- The brand ALVEOFACT is facing stiff competition from the market. Hence future market strategy should come to address this problem.
- The company can choose to come up with a highly prescribed molecule for treating NRDS with highly prescribed strength and can compete in the market.
- The company can also choose to enter into a monopolistic market and try to grab the market share of the existing brand.

**Annexure:**

**Market Assessment of the natural surfactant (ALVEOFACT) by Bharat Serums and Vaccines Limited in Telangana**

**QUESTIONNAIRE FOR DOCTOR**

Name - \_\_\_\_\_

Gender - \_\_\_\_\_

Date - \_\_\_\_\_

City - \_\_\_\_\_

Q1. Doctor in which indication do you preferred Natural surfactant?

- a. Bronchopulmonary dysplasia
- b. Air leak
- c. Pulmonary haemorrhage
- d. RDS
- e. Lung infection
- f. Breathing problem
- g. Others

Q2. Doctor what is the preferred dosage for 1kg baby in RDS case?

- a) 1.2 ml/kg Alveofact
- b) 2.5 ml/kg Curosurf
- c) 4ml/kg Survanta
- d) 5ml/kg Neosurf

Q3. Doctor according to you, what are the vital components for the functioning of the Natural surfactant?

- a. SP-B
- b. SP-C

- c. PC
- d. PG
- e. DPPC (dipalmitoyl phosphatidylcholine)
- f. All of the above

Q4. Which brands do you use the most in treatment of RDS or breathing problem associated with other indication?

- 1. ALVEOFACT
- 2. CUROSURF
- 3. SURVANTA
- 4. NEOSURF
- 5. OTHERS

Q5. Doctor which is the most accepted form of administration by patients?

- a. Lyophilized
- b. Solution
- c. Any other

Q6. Doctor do you think porcine based Natural surfactant is an effective than bovine based?

Yes ☐

No ☐

Q7. Doctor what are the challenges you face in treatment of RDS at patient level?

- a. Flooding of plasma material into the alveolar space due to endothelial and epithelial injury.
- b. Reactive oxygen species
- c. Lung injury from aspiration and pneumonia
- d. Route of administration

Q8. Doctor, according to you, what are the attributes of an ideal natural surfactant? Rank the given attributes from 1 to 5.

- a. Safety of the molecule
- b. Research/ scientific points of the molecule

- c. Company image
- d. Cost of the molecule
- e. Efficacy/Quality of molecule

Q9. Doctor which of the following activities will help you in prescribing the Natural surfactant?

- a. Celebrity Endorsed VA pages
- b. MOA video
- c. Scientific leave behind literature
- d. In clinic gimmick activity
- e. Social media platform

Q10. How does you treat RDS Patients mostly? (multiple responses)

- a. Surfactant
- b. Corticosteroids
- c. Ventilation
- d. CPAP
- e. Any other

Q11. How does the use of surfactant help in treating the RDS conditions?

- a. Decrease surface tension in alveoli
- b. Gas exchange
- c. Effective in distribution
- d. Prevent from alveoli collapse
- e. All of the above

**Market Assessment of the natural surfactant (ALVEOFACT) by Bharat  
Serums and Vaccines Limited in Telangana**

**QUESTIONNAIRE FOR RETAIL CHEMIST**

Name - \_\_\_\_\_

Gender - \_\_\_\_\_

Date - \_\_\_\_\_

City - \_\_\_\_\_

1. Which is the major brand of surfactant selling most on your counter?
  - a) SURVANTA
  - b) CUROSURF
  - c) ALVEOFACT
  
2. What is the reason for keeping these brands in your shop?
  - a) High prescription
  - b) Availability of distributors
  - c) High margins
  - d) Other
  
3. What is the most selling dosage strength of the surfactants?
  - a) 50-100 mg
  - b) 100-150 mg
  - c) 150-200 mg
  - d) 200 mg and above
  
4. In comparison with past, the prescription of ALVEOFACT has-

- a) Increased
- b) Decreased
- c) Remained same

5. In comparison with the past, the average price of ALVEOFACT has-

- a) Increased
- b) Decreased
- c) Remained same

6. Will you switch the brand if its price increases?

- a) Yes
- b) No
- c) Maybe