

MARKET ASSESSMENT OF NATURAL SURFACTANT (ALVEOFACT) BY BHARAT SERUMS AND VACCINES LIMITED IN TELANGANA

GUIDED BY

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OVERVIEW OF THE PRESENTATION

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- **Introduction to Respiratory Distress Syndrome**
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- **ALVEOFACT as a surfactant**
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ABOUT BHARAT SERUMS AND VACCINES LIMITED

- Bharat Serums and Vaccines Limited was founded in 1971 with an aim to produce healthcare products to meet the needs of market. It is one of the fastest growing bio-pharmaceutical companies in India and ranked among top 10 Indian bio-pharmaceutical companies.
- The products of BSV are sold in India as well as internationally with the help of distributors in market. Company also has an extensive platform for research and development which is currently working on developing ne drug delivery system.
- **VISION-To be an innovative, caring and trustworthy partner in bringing life to life.**
- The products are sold in market with the help of 6 divisions-
Gynecology, Assisted Reproductive Technology, Critical Care, Emergency medicine, Urology and Neurology, Nephrology and Haematology

- Bharat Serums and Vaccines Limited started its international business operations in early 2000. The products are available in almost 45 countries and it is also having partnerships with various health agencies like World Health Organization (WHO)

PRODUCTS OF BHARAT SERUMS AND VACCINES LTD.



PRODUCTS CONTINUED

Alveofact[®] 45 mg/ml

Pulver und Lösungsmittel zur Herstellung einer Suspension
Phospholipidfraktion aus Rinderlungen (Surfactant)

54 mg

Alveofact[®] 45 mg/ml

Pulver und Lösungsmittel zur Herstellung einer Suspension
Phospholipidfraktion aus Rinderlungen (Surfactant)

108 mg

1 Durchstechflasche mit Pulver
1 Fertigspritze
1 Kanüle
1 Vial-Adapter



INTRODUCTION TO RESPIRATORY DISTRESS SYNDROME



RESPIRATORY DISTRESS SYNDROME

- Respiratory Distress Syndrome (RDS) is a problem that occurs in those infants in which the lungs have not been fully developed making difficult for the child to breathe.
- It generally occurs in the children born before completion of 28 weeks of gestation.
- The main reason behind this disease is the lack of a slippery substance present in the lungs called surfactant.
- There are many treatment methods for RDS but the most effective method is Surfactant Replacement Method that is used by the doctors by replacing the body surfactant with an artificial surfactant.

INTRODUCTION TO SURFACTANTS

SURFACE ACTING AGENTS REDUCE SURFACE TENSION



SURFACTANTS

- These are the compounds that help in lowering the surface tension between two liquids or between a solid and a liquid. They are of two types- Natural and Synthetic surfactants.
- Natural surfactants are better than synthetic ones in their action because they look more similar to human surfactants.
- There are many types of natural surfactants available in the market but the most commonly used natural surfactants for treating RDS are SURANTA, CUROSURF, ALVEOFACT, NEOSURF.

ALVEOFAC[®] AS A SURFACTANT



ALVEOFACT

- ALVEOFACT is a surfactant which is derived from the bovine lungs.
- This drug is helpful in treating those patients who are at high risk of developing RDS or are suffering from RDS.
- 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.
- ALVEOFACT has shorter mean intubation days, oxygen days and hospital days as compared to other brands of surfactants.
- ALVEOFACT has long term stability of three years.
- While treating the infants with ALVEOFACT, over dosage of the drug should not be given because the infants are sensitive to this kind of surfactants when over dosage is provided to them.

NEED FOR STUDY AND OBJECTIVES

- RDS is a common problem in infants, especially in India. So, after watching market scenario, Bharat Serums and Vaccines introduced ALVEOFACT for treating RDS patients.
- It had a good market growth initially but now its market is drastically changing due to the presence of other competitors in the market such as CUROSURF, SURVANTA and NEOSURF.
- This study will help to achieve the following **objectives**-
 - **To find out the market potential of ALVEOFACT**
 - **To find out the most preferred brands of natural surfactants in the treatment of RDS**

LITERATURE REVIEW

- **Roger Soll and Fermin Blanco** had a study on “**Natural surfactant extract versus synthetic surfactant for neonatal respiratory distress syndrome**”. For checking the efficacy of both type of surfactants, many randomize control trials were done 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.
- **Mirhadi Mussavi, Keyvan Mirnia and Khairollah Asadollahi** did a study on “**Comparison of the efficacy of three natural surfactants-Curosurf, Alveofact and Survanta in the treatment of Respiratory Distress Syndrome**”. 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.

LITERATURE REVIEW CONTINUED...

- **Ascanio Tridente, Lucia De Martino and Daniele De Luca (2019)** performed a systematic review on “**Porcine versus bovine surfactant therapy for preterm neonates with RDS**” 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.
- **Hans Proquitte, Thekla Dushe, Hannes Hammer, Mario Rudiger, Gerd Schmalisch, Roland R. Wauer** performed an **observational study to compare the clinical efficacy of the natural surfactants Alveofact and Curosurf in the treatment of respiratory distress syndrome in premature infants**. It was observed that there were no significant changes between infants treated with Alveofact and Curosurf in mean gestational stage, birth weight and time of first surfactant application. So, it was concluded that independent of gestational age, there was no significant difference in the clinical efficacy of Alveofact and Curosurf.

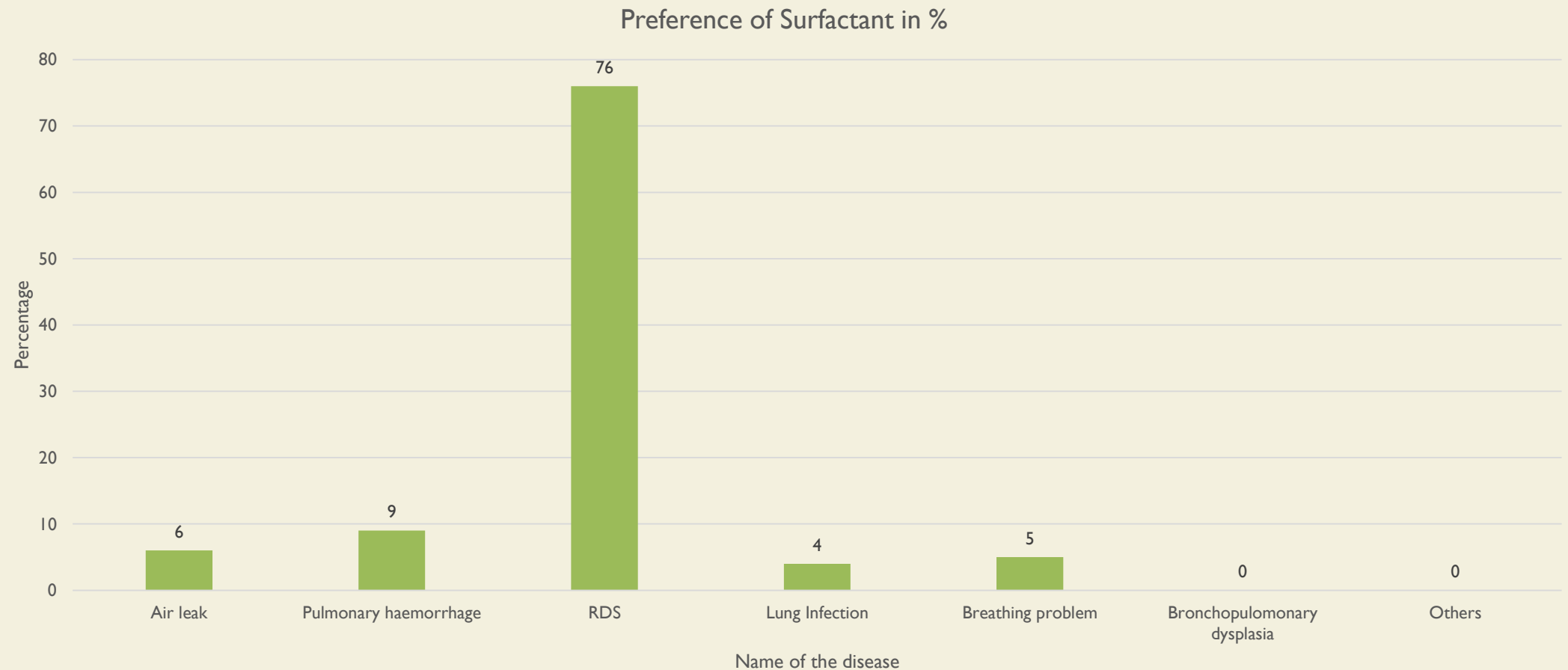
RESEARCH METHODOLOGY

- **Research Design-** Cross-sectional descriptive study was conducted
- **Sampling Method-** Non-probability sampling method was used
- **Study Area-** The given study was conducted in various regions of Telangana
- **Study Tool-** A structured questionnaire was prepared for collecting data
- **Sample Size-** The sample size was taken as 200 out of which 100 were doctors(Pediatricians) and 100 were chemists
- **Study Duration-** The time duration of the study was approximately 3 months (18 February-12 May)
- **Data Collection and Analysis Technique-** Data was collected by taking responses in the questionnaire and analysis was done with the help of MS Excel

**ANALYSIS OF THE QUESTIONS
RESPONDED BY THE DOCTORS
(PEDIATRICIANS)**

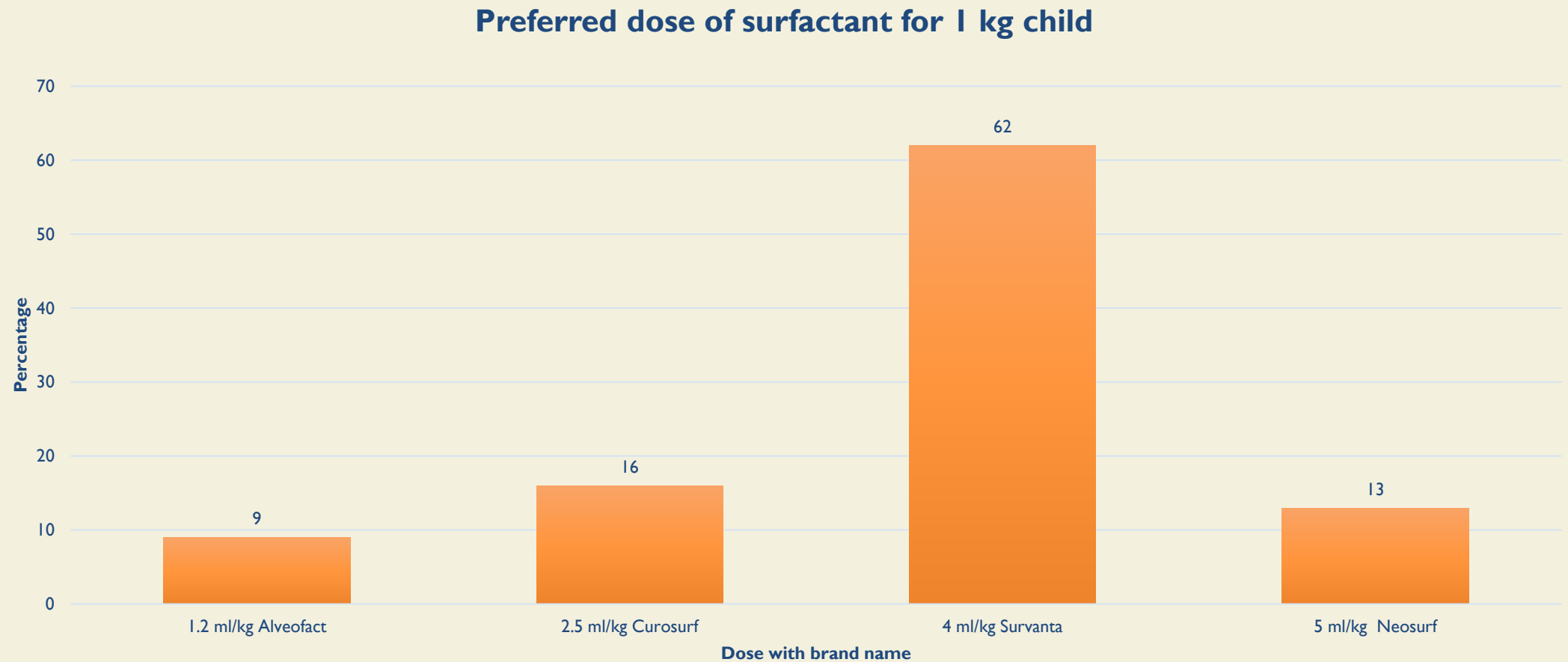
1. WHAT IS THE INDICATION IN WHICH NATURAL SURFACTANTS ARE PREFERRED?

THIS ANALYSIS SHOWS THAT SURFACTANTS ARE PREFERRED THE MOST (76%) IN THE TREATMENT OF RDS.



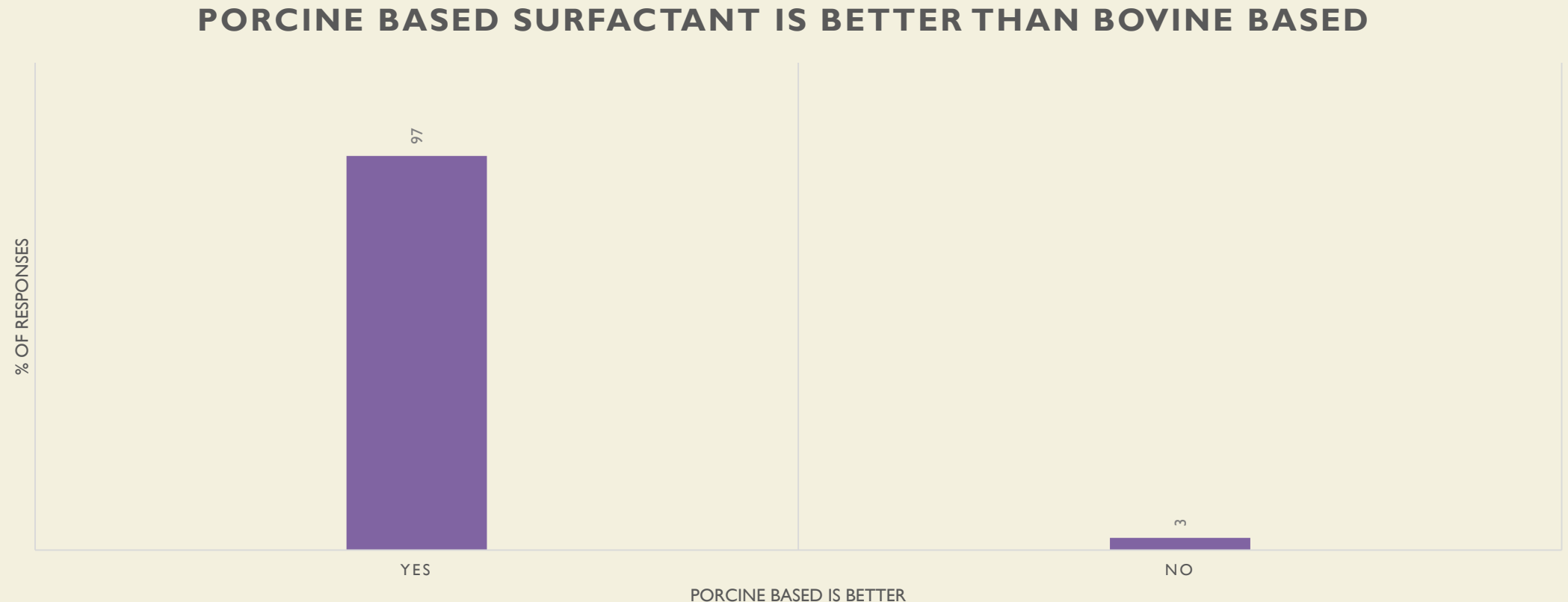
2. WHAT IS THE PREFERRED DOSAGE OF SURFACTANT FOR THE CHILD OF ONE KG WEIGHT?

THIS ANALYSIS SHOWS THE PREFERENCE OF DOSE OF VARIOUS NATURAL SURFACTANTS BY DOCTORS IN TREATING RDS.



3. WHETHER THE PORCINE BASED SURFACTANT IS BETTER THAN THE BOVINE BASED OR NOT?

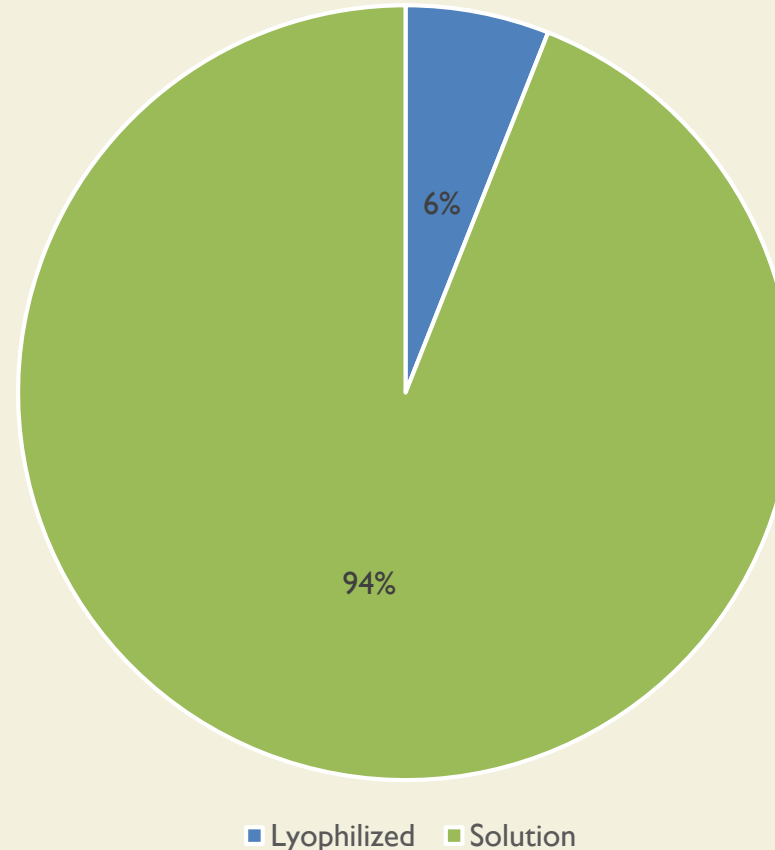
THIS ANALYSIS SHOWS THAT 97% RESPONDENTS AGREED THAT PORCINE BASED SURFACTANT IS BETTER THAN THE BOVINE BASED SURFACTANT.



4. WHAT IS THE MOST ACCEPTED FORM OF ADMINISTRATION OF SURFACTANT BY THE PATIENTS?

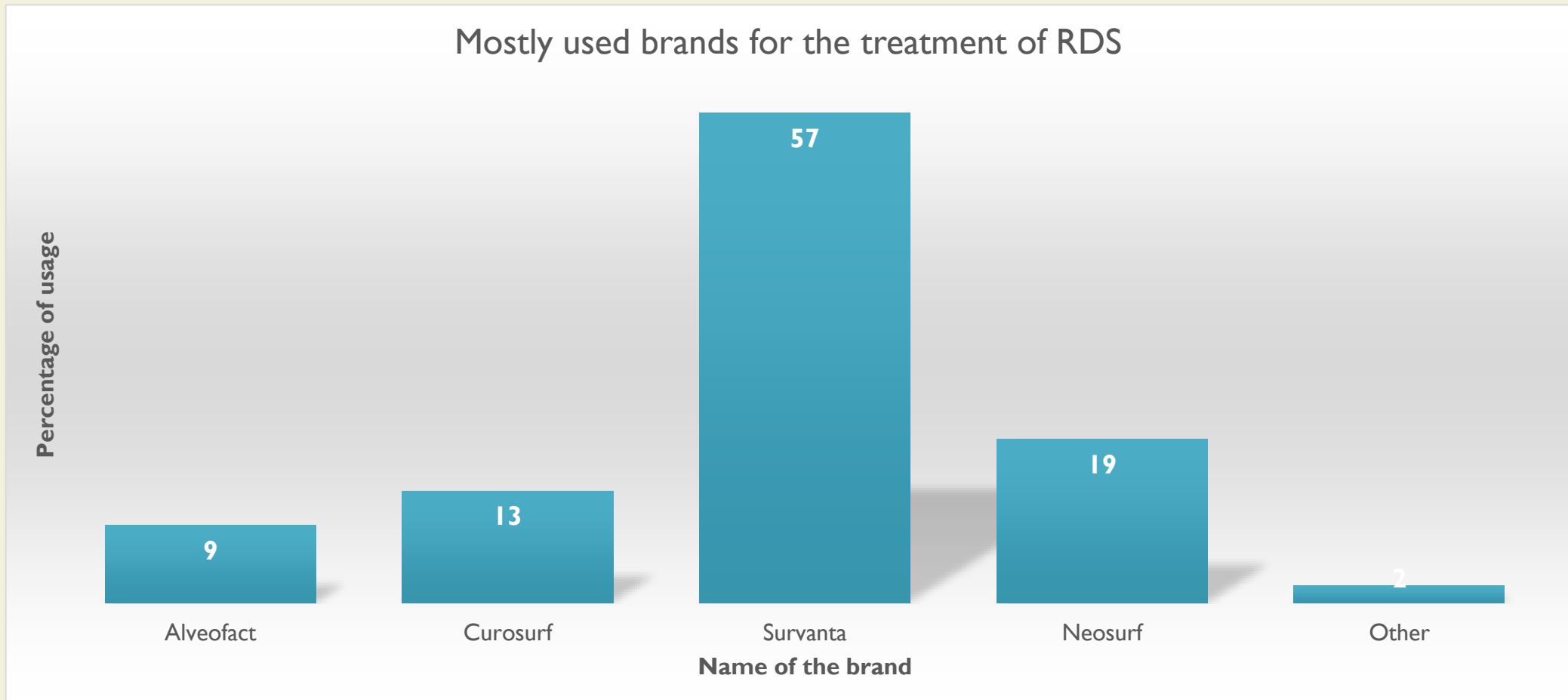
IT WAS OBSERVED THAT THE MOST ACCEPTED FORM WAS THE SOLUTION FORM (94%) FOR THE ADMINISTRATION OF SURFACTANT

Most accepted form of administration of surfactant



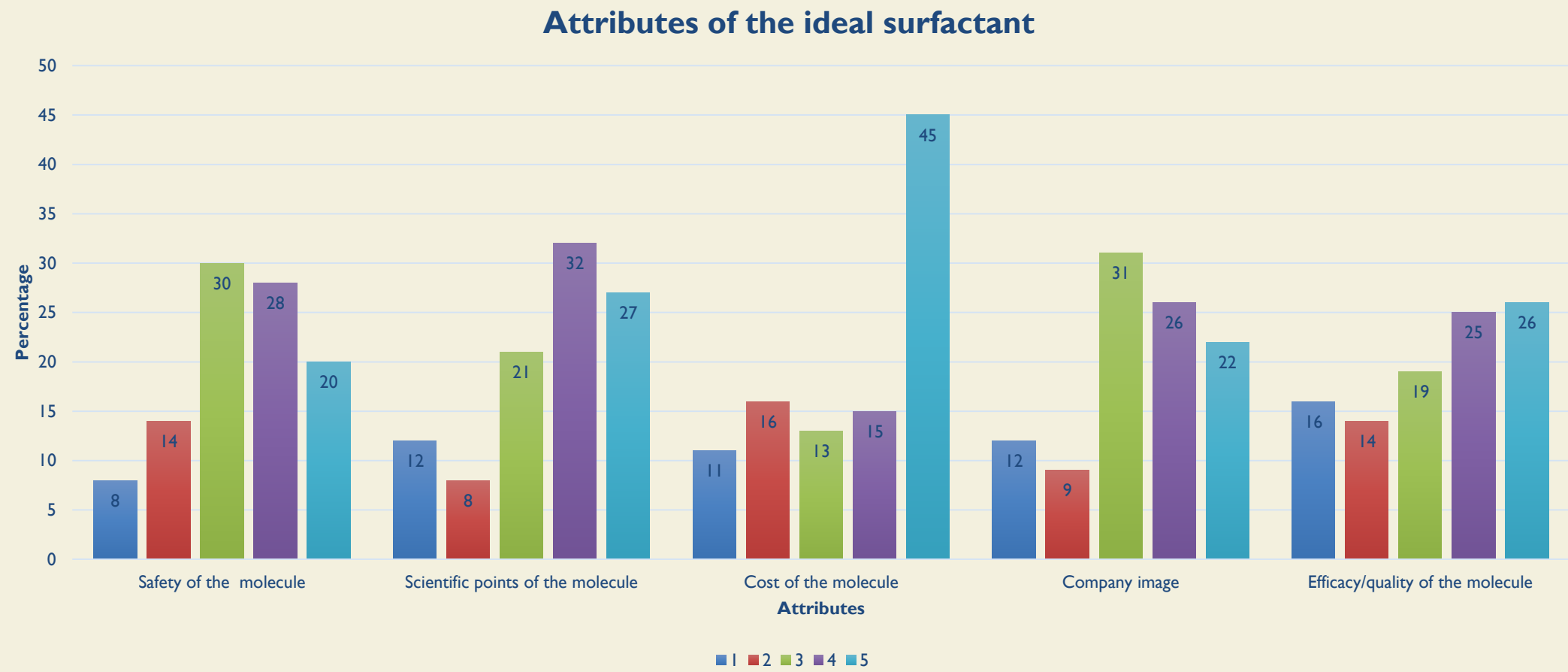
5. WHAT ARE THE MOST PREFERRED SURFACTANT BRANDS FOR THE TREATMENT OF RDS?

THE MOST PREFERRED BRANDS FOR TREATING RDS WERE IDENTIFIED BY THIS ANALYSIS AND IT WAS FOUND THAT SURVANTA WAS THE MOST USED BRAND (57%) BY THE DOCTORS



6.WHAT ARE THE ATTRIBUTES OF AN IDEAL SURFACTANT?

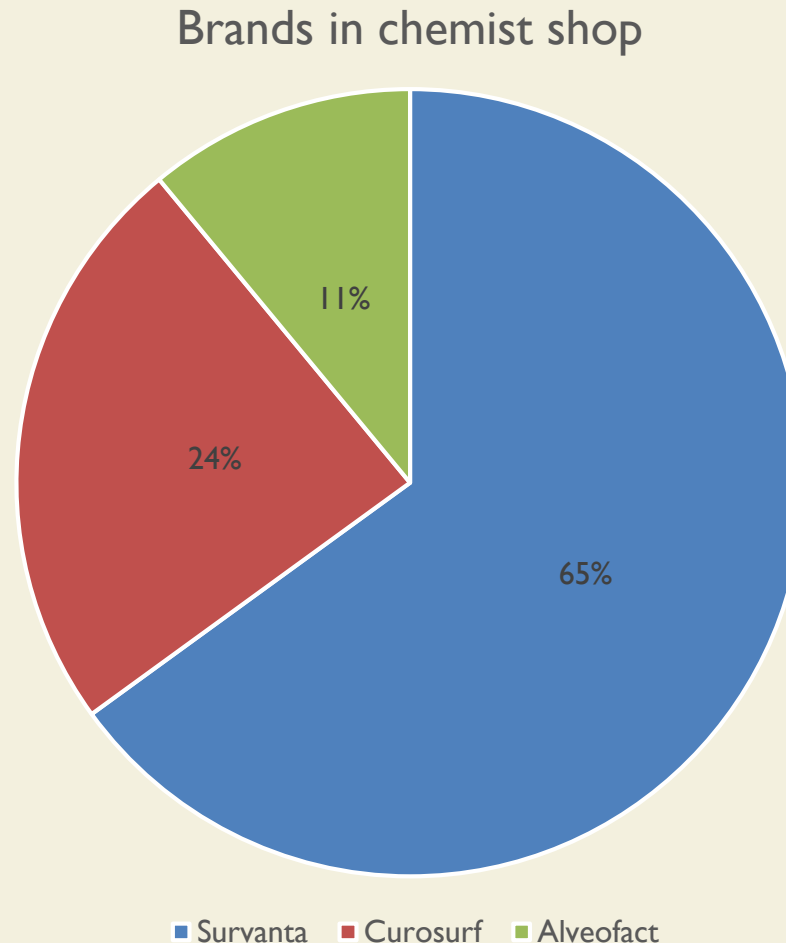
THE ATTRIBUTES OF THE SURFACTANTS WERE RANKED FROM 1 TO 5 ACCORDING TO THEIR IMPORTANCE FOR THE RESPONDENTS AND IT WAS OBSERVED THAT ALL ATTRIBUTES SOMEHOW PLAY AN IMPORTANT ROLE IN MAKING THE SURFACTANT AN IDEAL ONE



ANALYSIS OF THE QUESTIONS RESPONDED BY THE CHEMISTS

1.WHAT IS THE MAJOR BRAND OF NATURAL SURFACTANT IN THE CHEMIST SHOP?

IT WAS OBSERVED THAT THE MOST SELLING BRAND IN THE CHEMIST SHOP WAS SURVANTA(65%),FOLLOWED BY CUROSURF(24%) AND ALVEOFACT(11%)



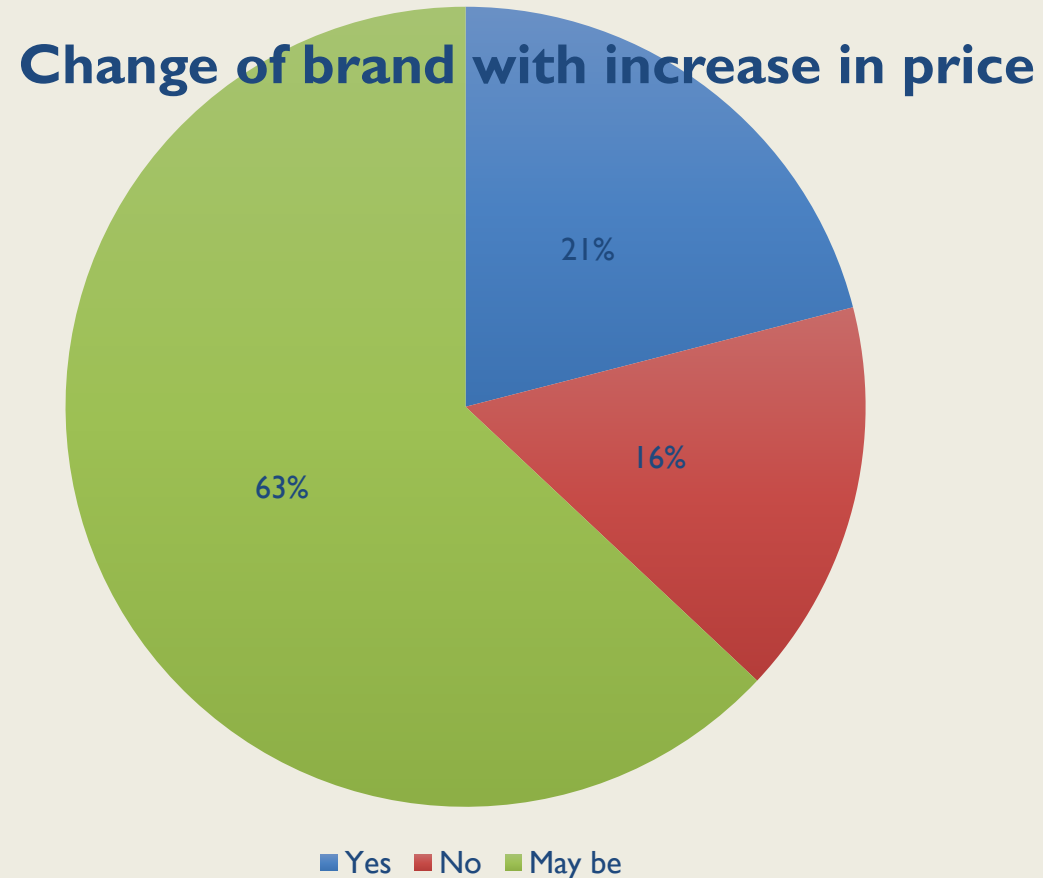
2. WHAT ARE THE REASONS FOR KEEPING THOSE SPECIFIC BRANDS IN THE STORE?
THE MAIN REASONS FOR KEEPING THOSE BRANDS IN THE SHOP WERE HIGH
PRESCRIPTION(83%),AVAILABILITY OF DISTRIBUTORS(8%) AND HIGH MARGINS(6%)



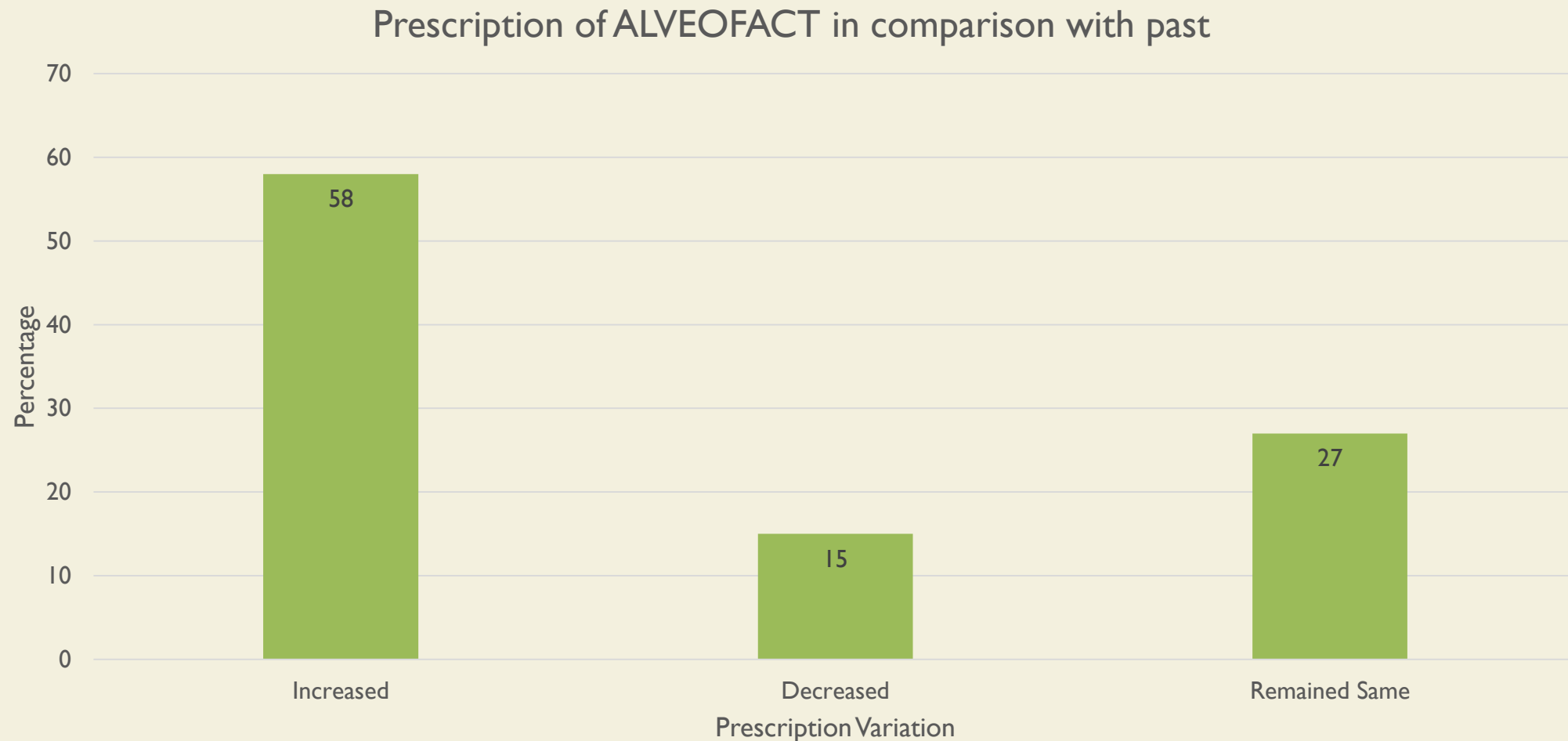
3

.WHETHER THE STORE CHEMIST WILL CHANGE THE BRAND WITH INCREASE IN PRICE OR NOT?

21% AGREED ON YES, 16% DENIED AND 63% MIGHT CHANGE THE BRAND AFTER INCREASE IN PRICE.

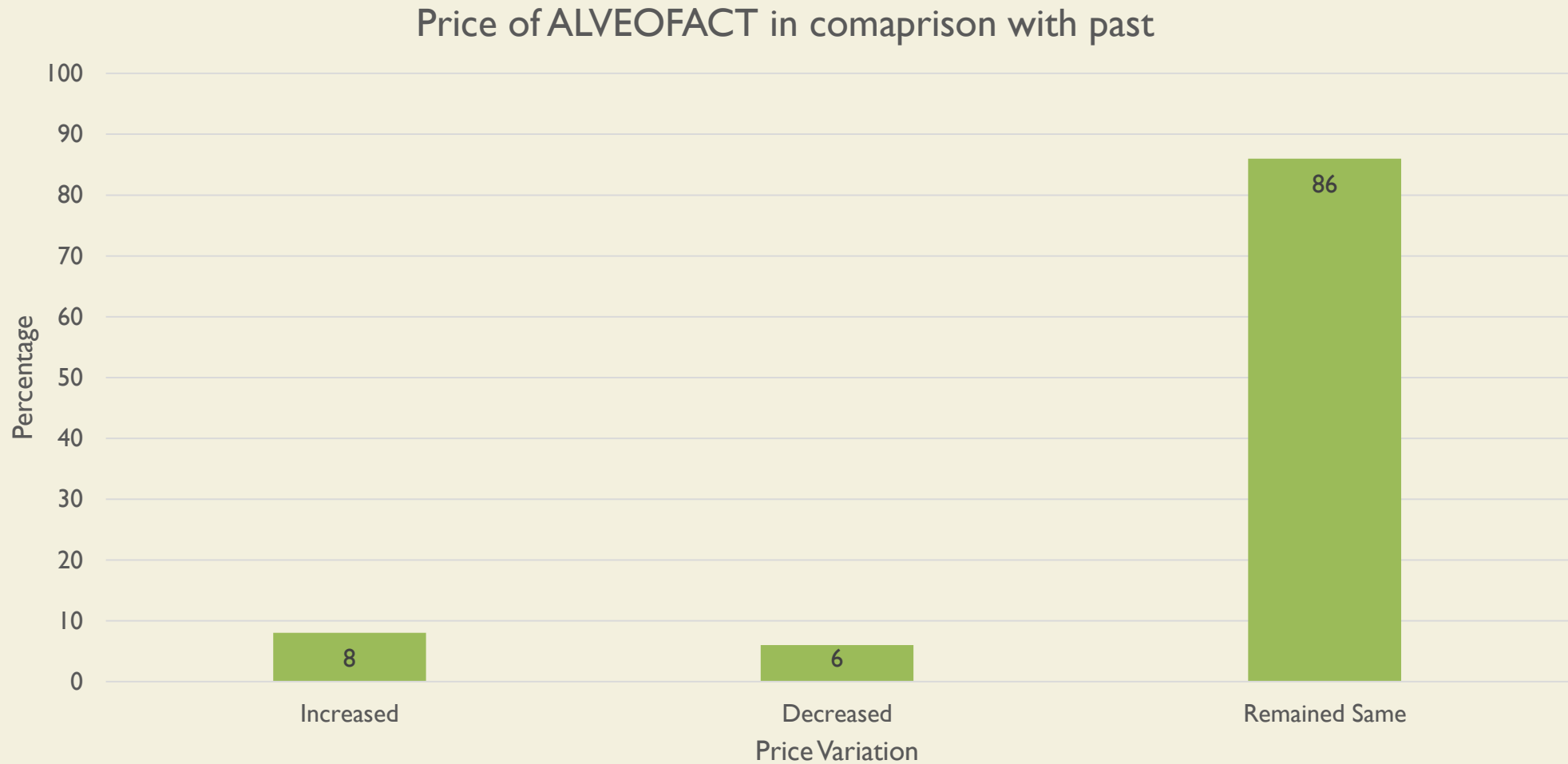


**4.WHAT IS THE PRESCRIPTION OF ALVEOFAC IN COMPARISON WITH PAST?
THIS ANALYSIS SHOWS THE VARIATION IN PRESCRIPTION OF ALVEOFAC IN
COMPARISON WITH PAST AND MAJORITY (58%) OF THE RESPONDENTS SAID
THAT ITS PRESCRIPTION HAS INCREASED IN COMPARISON WITH PAST**



5. WHAT IS THE PRICE OF ALVEOFACT IN COMPARISON WITH PAST?

THIS ANALYSIS SHOWS THE CHANGE IN PRICE OF ALVEOFACT WITH RESPECT TO PAST AND MAJORITY OF THE RESPONDENTS (86%) AGREED THAT PRICE HAS REMAINED SAME



OBSERVATIONS AND CONCLUSION

- The study shows that the doctors highly prescribe the use of natural surfactants for treating RDS in infants, so there is a good demand of surfactants in the market.
- High prescription and availability of distributors were leading factors in the availability of specific brands in the market.
- There are certain attributes such as efficacy, safety, cost and quality of the molecule, and the image of the brand that make the surfactant an ideal surfactant.
- The most preferred brands of surfactants are SURVANTA, CUROSURF, ALVEOFACT and NEOSURF. ALVEOFACT occupies a good market share but its market has been drastically influenced by the increasing market of other brands such as CUROSURF and SURVANTA.

LIMITATIONS

- The study was conducted only in a specific geographical area.
- The sample size was small, so it affected the accuracy of the outcomes.
- Time duration of the study was short so it did not allow more collection of data in a given period of time.

REFERENCES

- Soll, Roger & Blanco, Fermin. (2001). Natural surfactant extract versus synthetic surfactant for neonatal respiratory distress syndrome. Cochrane database of systematic reviews (Online). 2. CD000144. 10.1002/14651858.CD000144.
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