

Market Assessment of Natural Surfactant (Alveofact) in Mumbai

**Submitted By
Pathak Gaurav T.**

**Guide By
Dr. Ashok Peepliwal**



Introduction

- Neonatal respiratory distress syndrome (NRDS), also known as hyaline membrane disease (HMD), is a condition of increasing respiratory distress, commencing at or shortly after birth and increasing in severity until progressive resolution occurs among the survivors, usually between the second and fourth day.
- About 1% of all new-born infants are affected with this condition.
- It is due, to insufficiency of pulmonary surfactant and is mainly confined to preterm infants.
- The foetus does not start to produce surfactant until 22-23 weeks gestation.
- By 32-33 weeks, most babies have enough endogenous surfactant.

Literature Review

- According to author **Coen HMP Willems, Florian Urlichs, Silvia Seidenspinner, Steffen Kunzmann, Christian P Speer, Boris W Kramer** state that, the porcine extracted lung surfactant (poractant alfa) enriched the phagocytosis of apoptotic neutrophils by alveolar macrophages which leads to anti-inflammatory properties.
- According to author **WOLFGANG BERNHARD, JASMIN MOTTAGHIAN, ANDREAS GEBERT, GUNNAR A. RAU, HORST von der HARDT and CHRISTIAN F. POETS**, the surface tension lowering properties of natural surfactants (Curosurf, Alveofact) is equivalent to native surfactant whereas the semisynthetic surfactants (Survanta, Exosurf) were unqualified to indicate surface tension lowering property as compared to native surfactant.
- According to author **Mirhadi Mussavi, Keyvan Mirnia, and Khairollah Asadollahi**, in the Alveofact group, the new cases of pneumothorax was impressively higher, the mean hospital-stay length, mean ventilation time and the new cases of PDA were also impressively higher in the Alveofact group.

- 
- According to author **Hans Proquitte, Thekla Dushe, Hannes Hammer, Mario Rudiger, Gerd Schmalisch, Roland Wauer**, there is no significant difference between Alveofact and Curosurf for treating the NRDS patients.
 - According to author **Seeger, C. Grube*, A. Günther, R. Schmidt**, the surface tension lowering properties of the natural surfactant Curosurf and Alveofact meet mainly accepted standard of satisfying surfactant function.



Research Question

With the help of this study we can find out the market potential of natural surfactant in Mumbai?

Objective

- To know the most selling natural surfactant brands in Mumbai
- To know the competitive scenario of Alveofact.
- To know the doctors' attitude towards surfactant.

Research Question

What are the opportunities to increase the sale of Alveofact in hospital pharmacy?

Objective

- To know the most selling natural surfactant brands in Mumbai.
- To know the competitive scenario of Alveofact.
- To know the doctors' attitude towards surfactant.

Research methodology

- **Study Design**

Descriptive Study was performed to get market insights

- **Sample size**

100 doctors and 100 chemists in Mumbai city

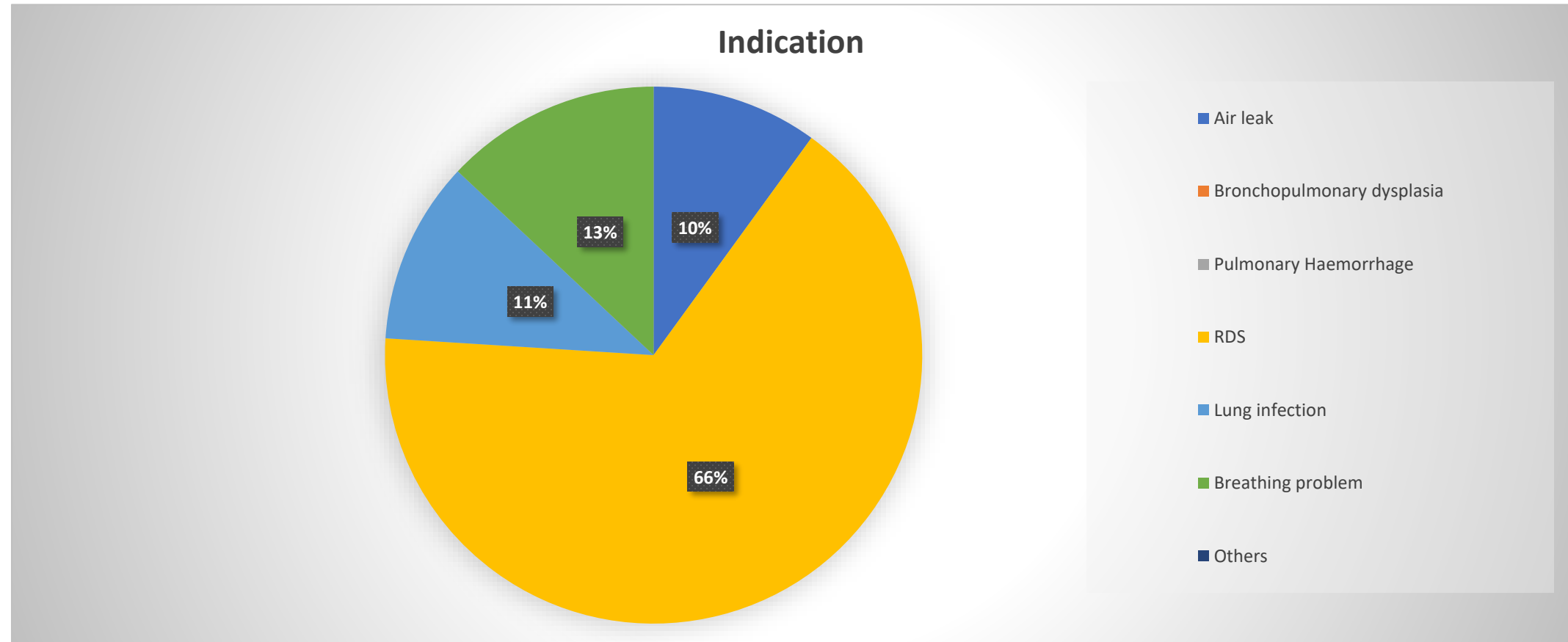
- **Sampling Method**

Nonprobability sampling

- **Method of data collection**

Primary and secondary data

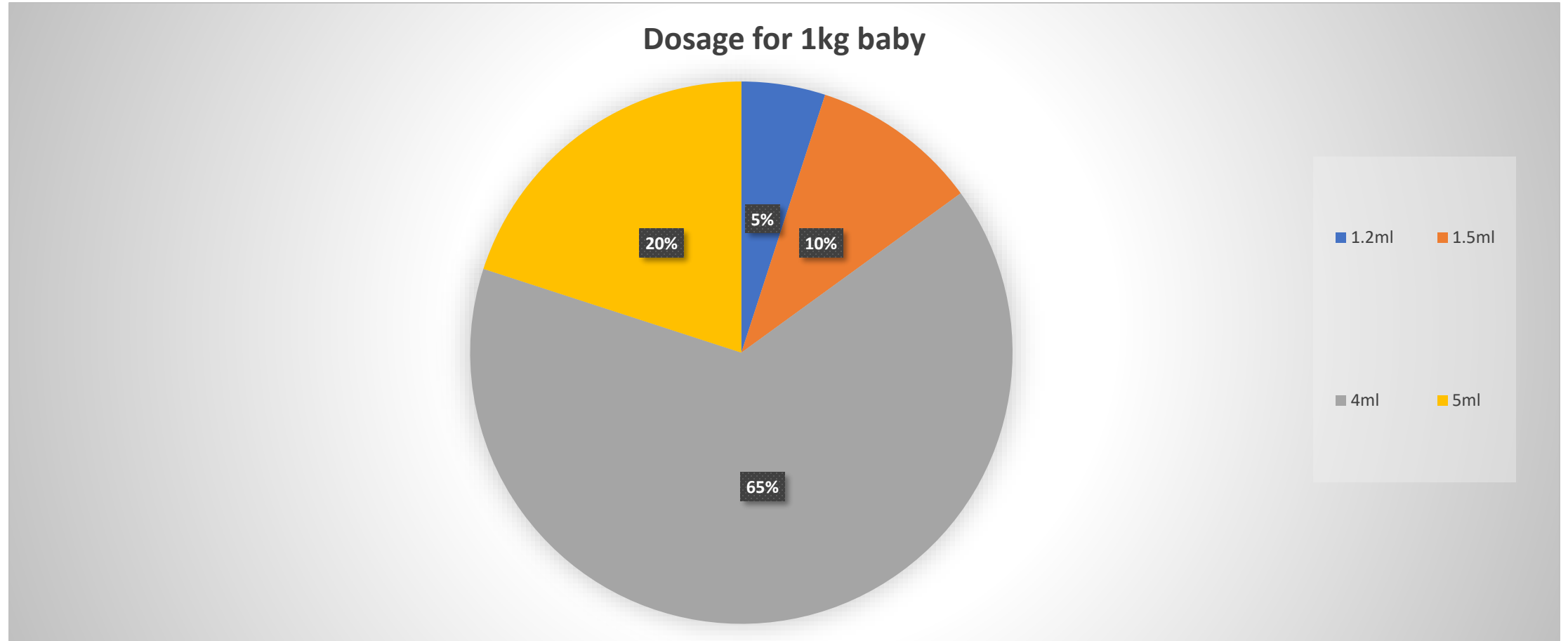
Q1. Doctor in which indication do you preferred Natural surfactant?



Interpretation

Most of the doctors (66%) prescribe surfactant to treat RDS as compared to other doctors.

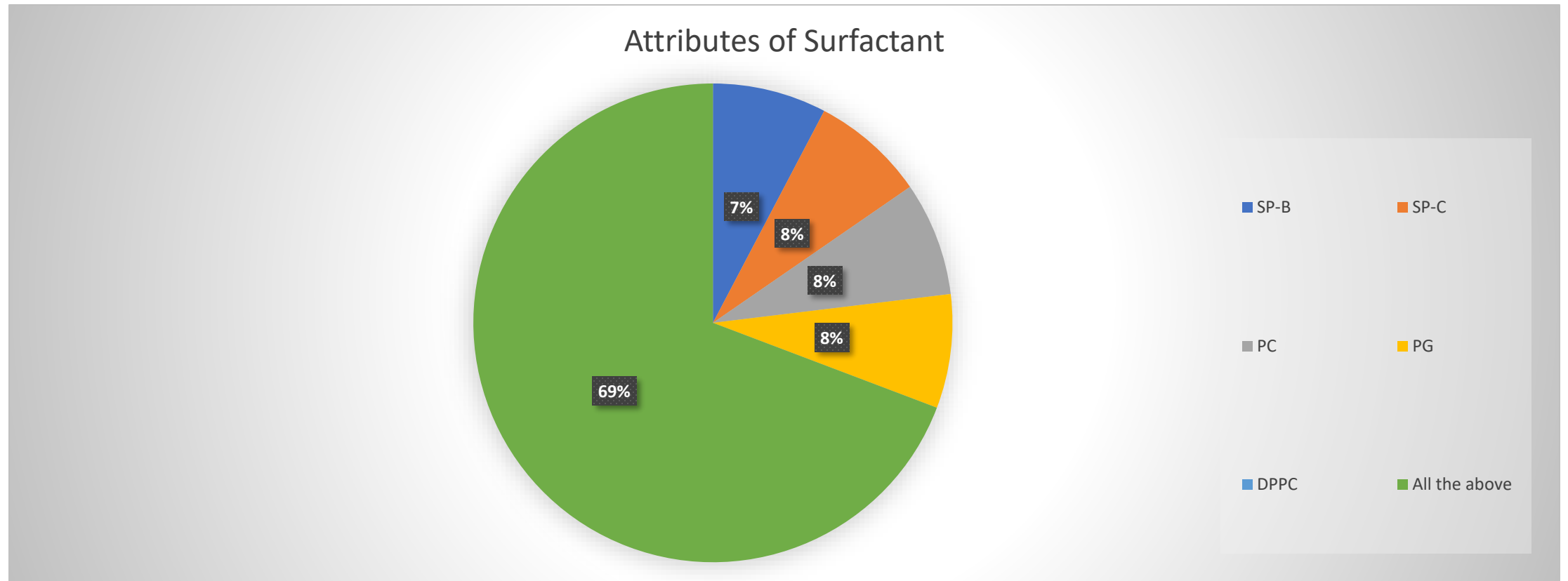
Q2. Doctor what is the preferred dosage for 1kg baby in RDS case?



Interpretation

According to data 65% of the doctors go for Survanta for the treatment of RDS.

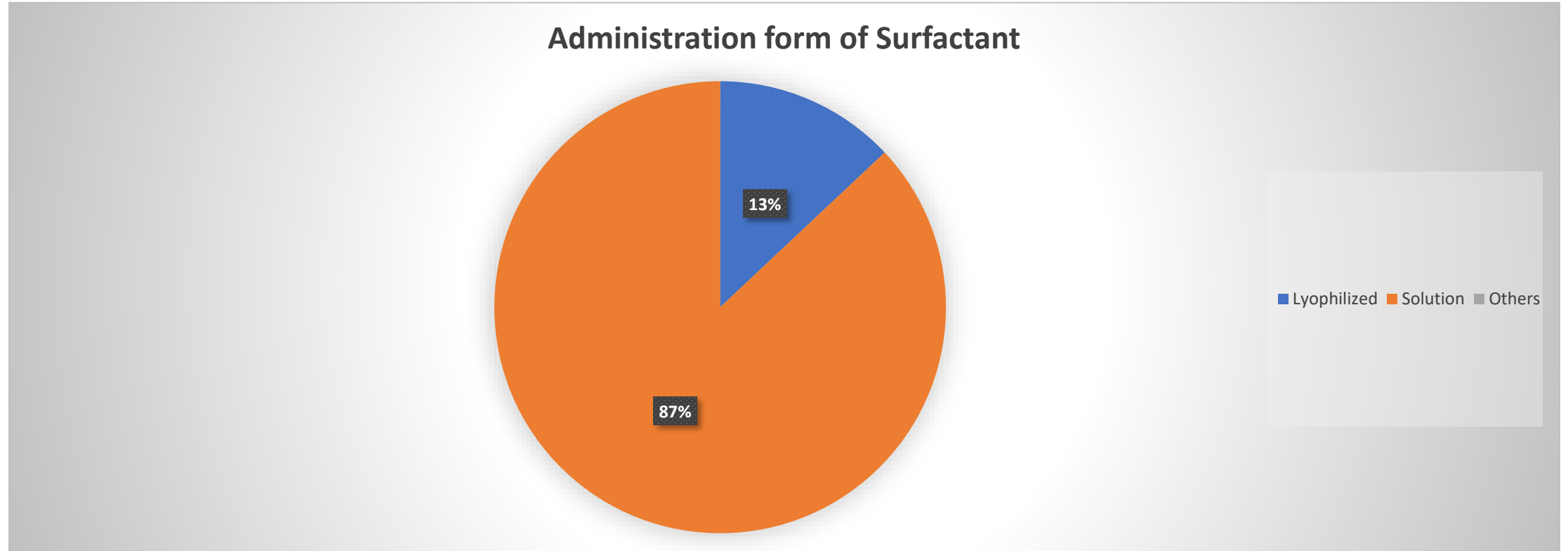
Q3. Doctor according to you, what are the attributes of ideal Natural surfactant?



Interpretation

69% of the doctors preferred all the attributes of the natural surfactant, which is mentioned in question number 3 (i.e. SP-B, SP-C, PC, PG, DPPC)

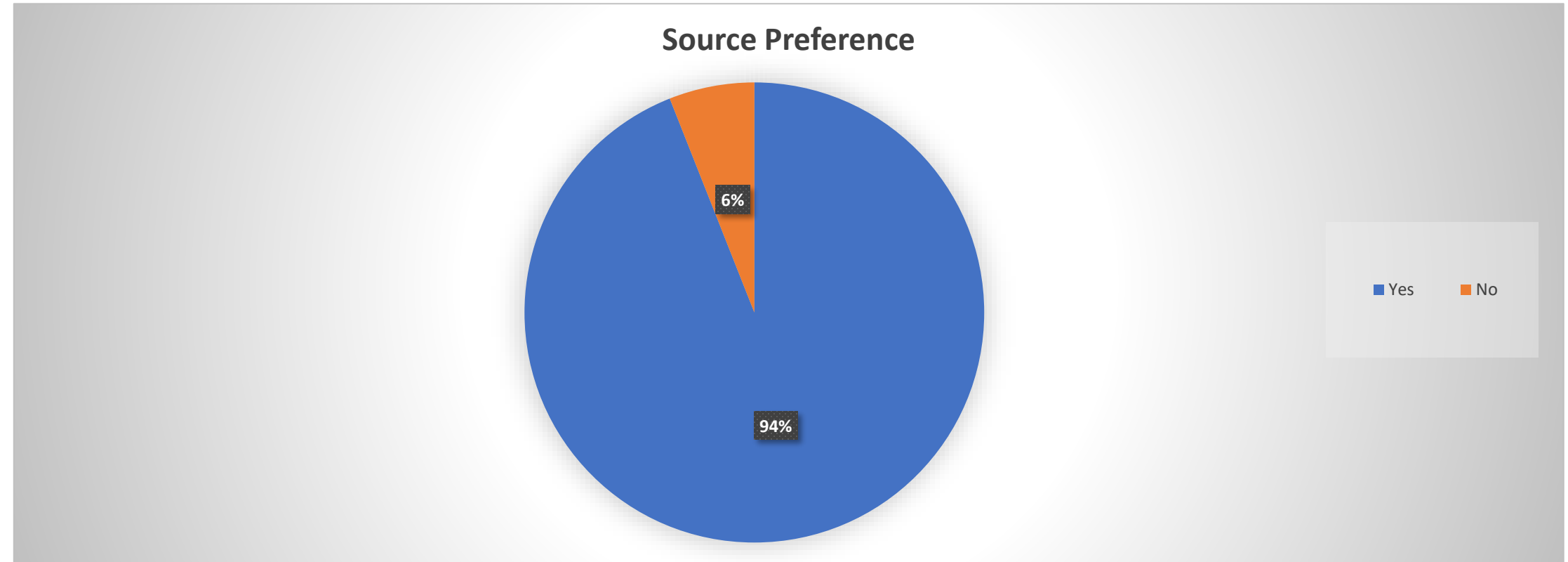
Q4. Doctor which is the most accepted form of administration by patients?



Interpretation

For administration of the surfactant in patients, 87 % of the doctors shown response on lyophilized form and 13% of the doctors shown response on solution form.

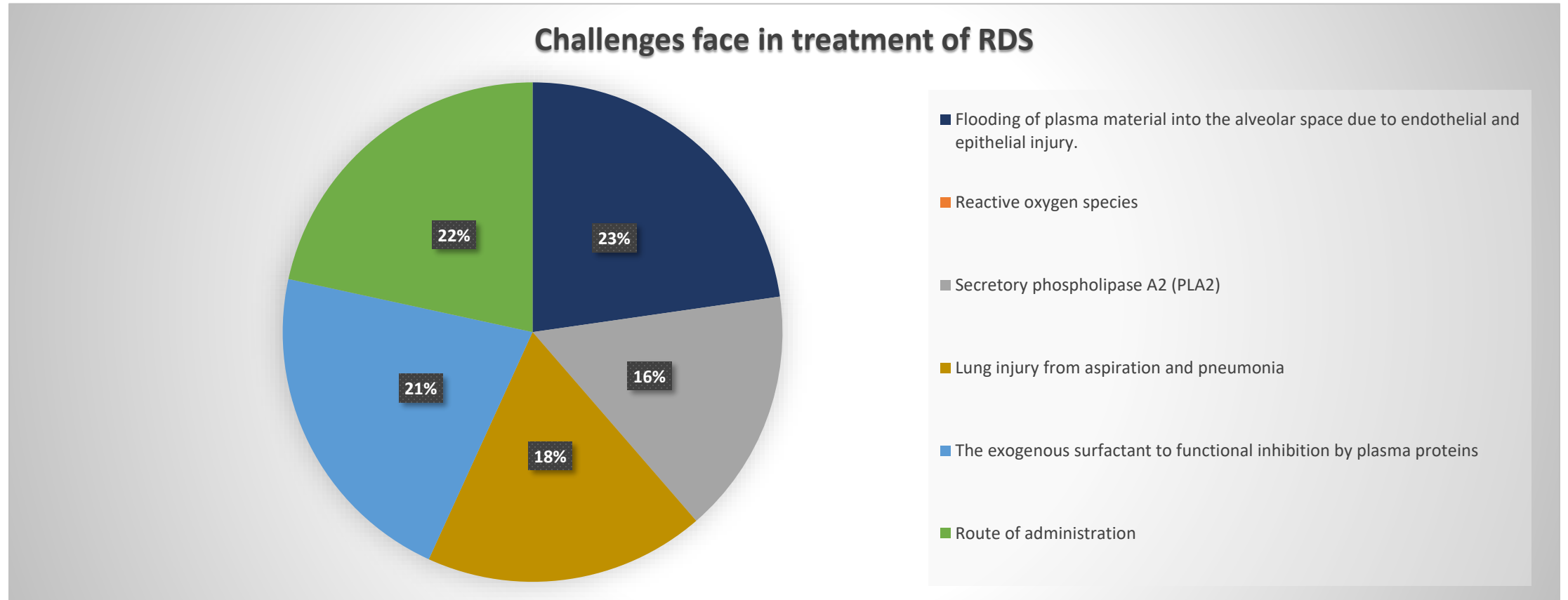
Q5. Doctor do you think bovine based Natural surfactant is an effective than bovine based?



Interpretation

94 % of the doctors agreed that bovine natural surfactant is an effective than porcine based.

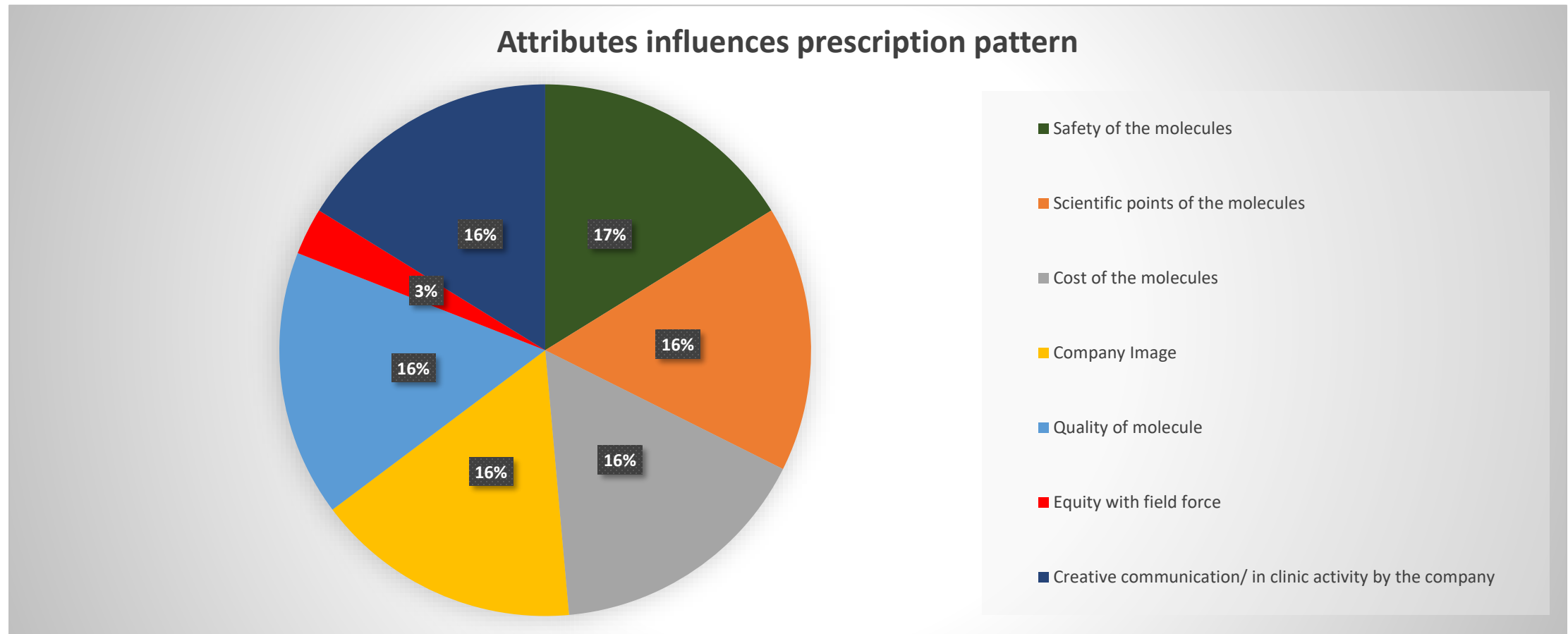
Q6. Doctor what are the challenges you face in treatment of RDS at patient level?



Interpretation

Flooding of plasma material into the alveolar space due to endothelial and epithelial injury is faced by doctor's in treatment of RDS at patient level.

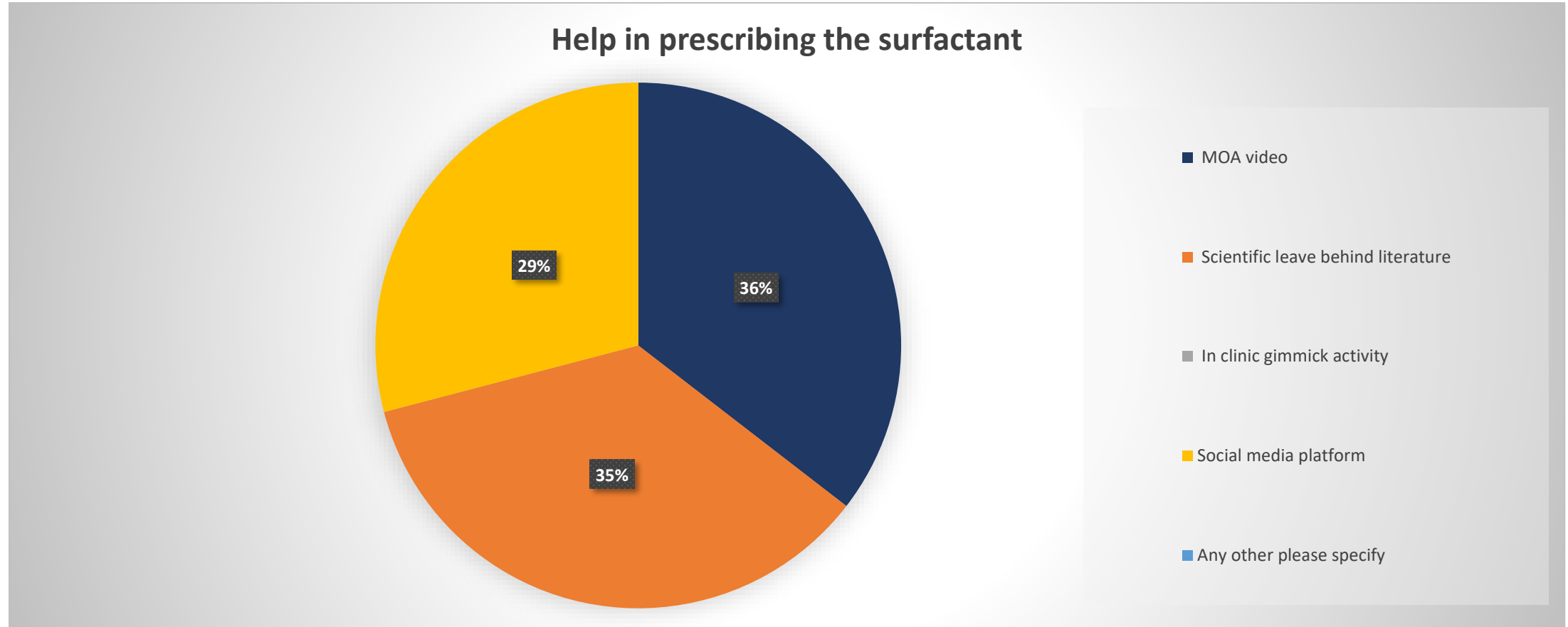
Q7. Doctor which of the following attributes influences your prescription?



Interpretation

97 % of the doctor's prescription influence by cost of the molecules, scientific points of the molecules, safety of the molecules, quality of molecule, creative communication or in clinic activity by the company.

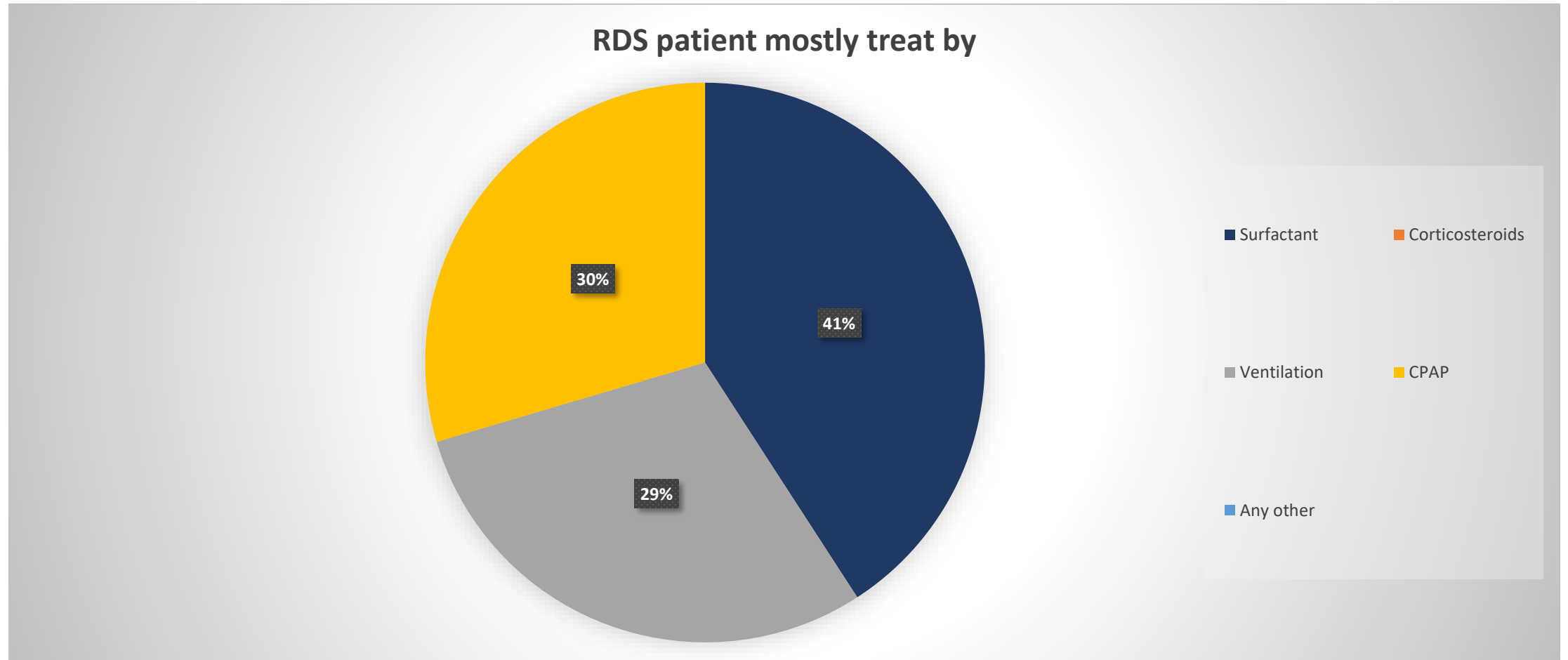
Q8. Doctor which of the following activities will help you in prescribing the Natural surfactant?



Interpretation

From the data analysis 71% of the doctors given a response on MOA video, and scientific leave behind literature, only 29% of the doctors given a response on social media platform.

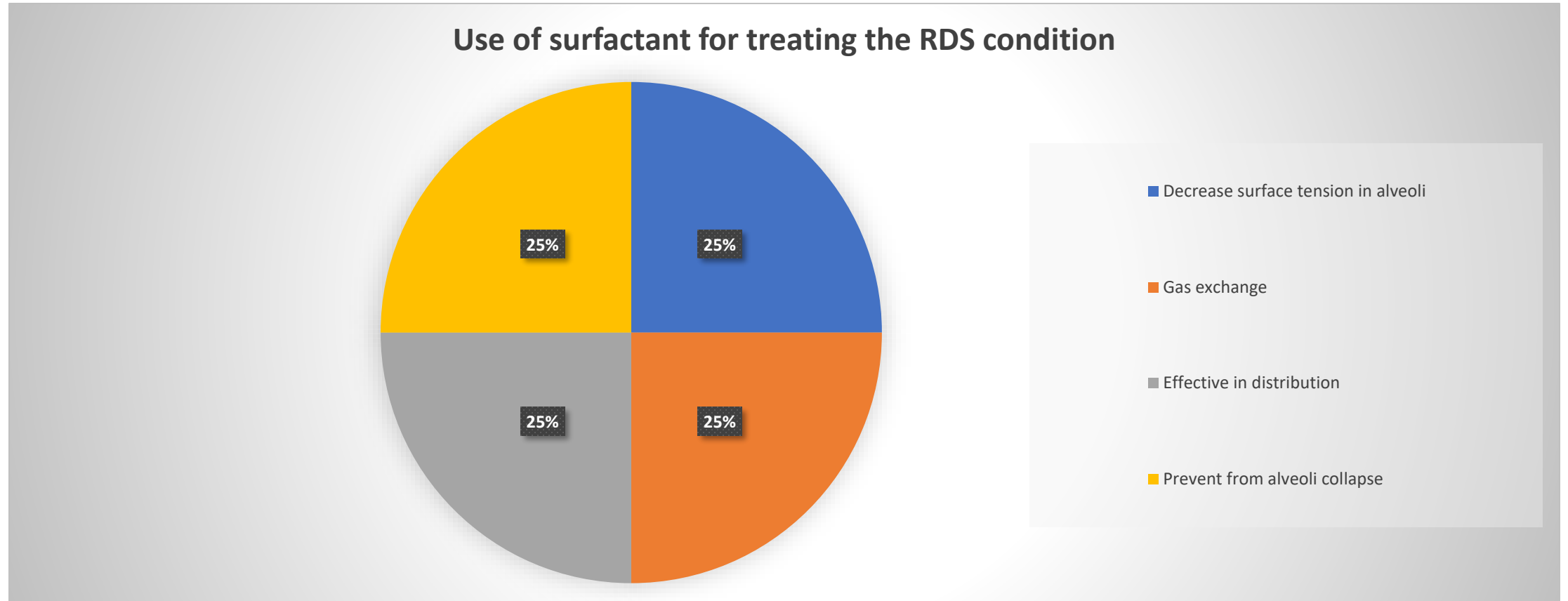
Q9. How do you treat RDS Patients mostly?



Interpretation

41% of the doctors go with surfactant but 30% of the doctors preferred CPAP and 29% of the doctors preferred ventilation for RDS patients. As in the case of emergency, the doctors go for CPAP and ventilation.

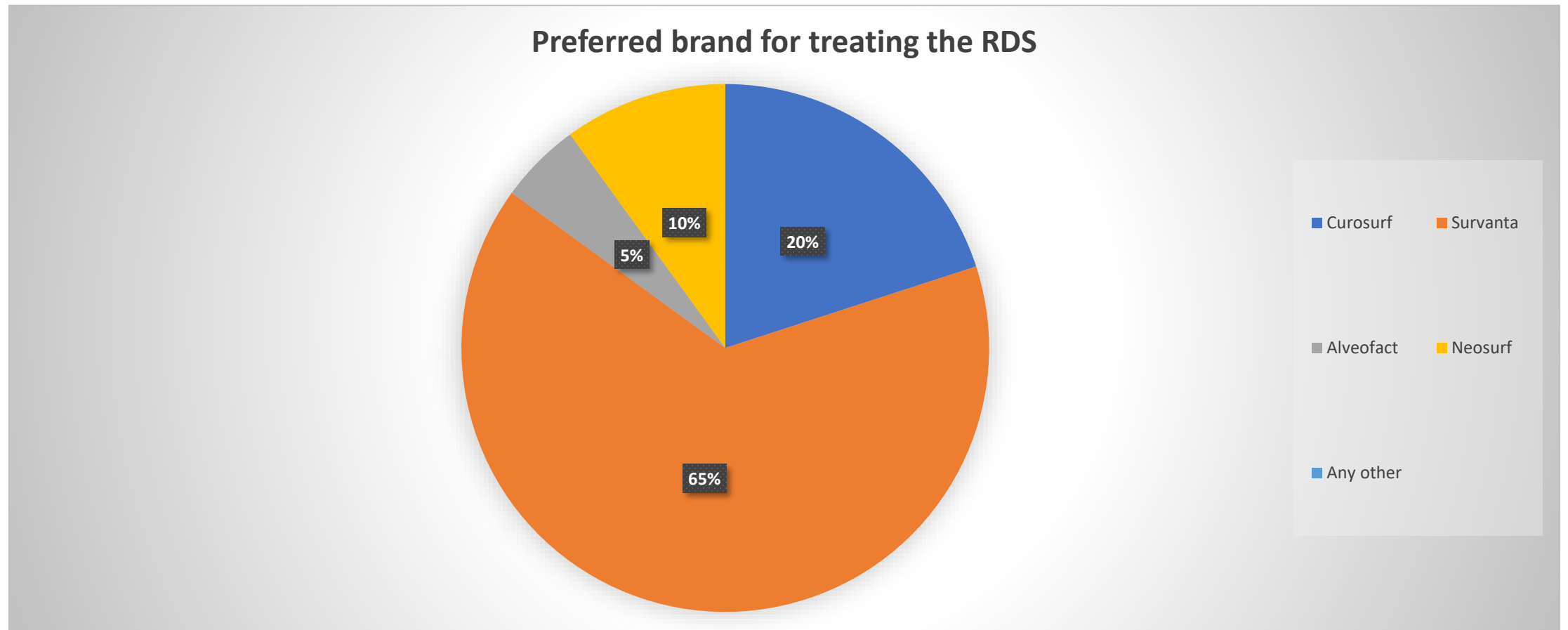
Q10. How does the use of surfactant help in treating the RDS conditions?



Interpretation

All the doctors were agreed that the used of surfactant help in to treat the RDS conditions by decrease surface tension in alveoli, gas exchange, effective in distribution of phospholipids, and prevent from alveoli collapse.

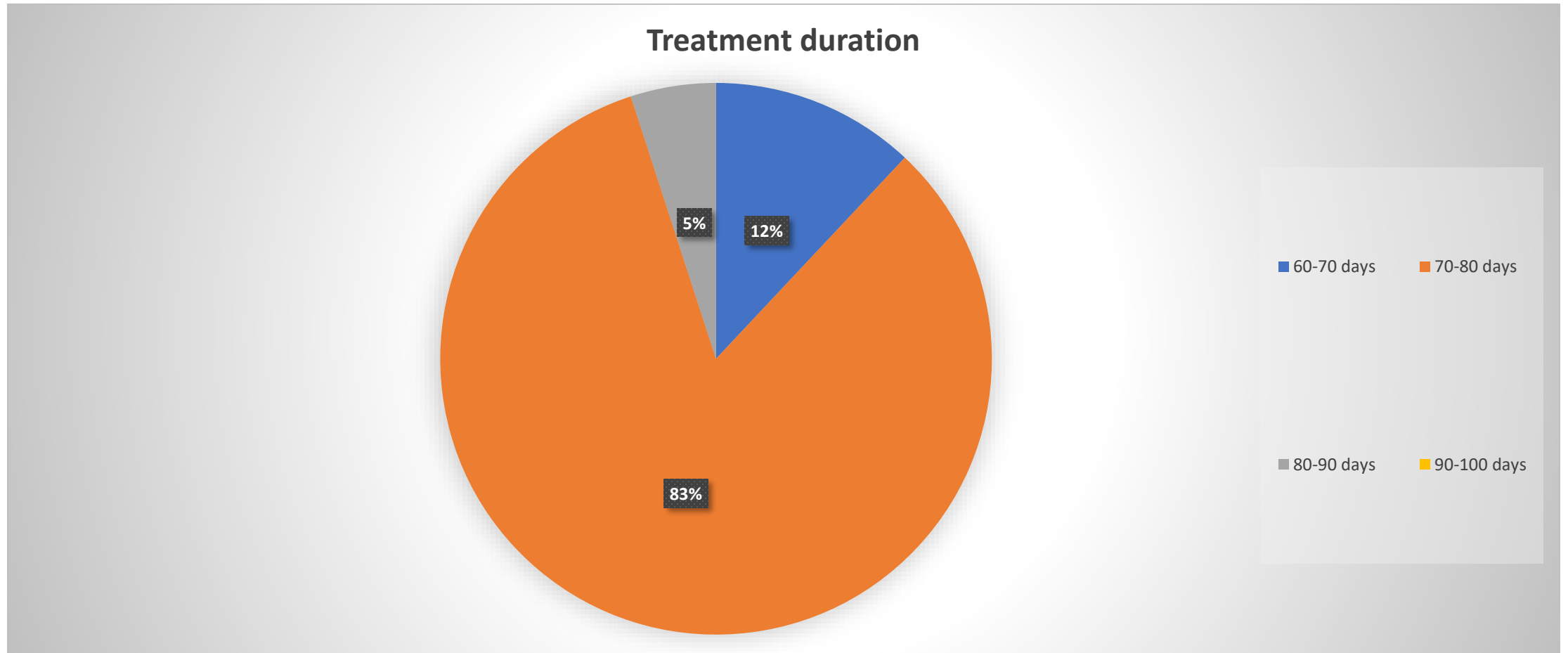
Q11. Which brand do you preferred to prescribe Natural surfactant?



Interpretation

As per survey data 65% of the doctors preferred Survanta for treating the NRDS patients over the other natural surfactant products (Alveofact, Curosurf, and Neosurf).

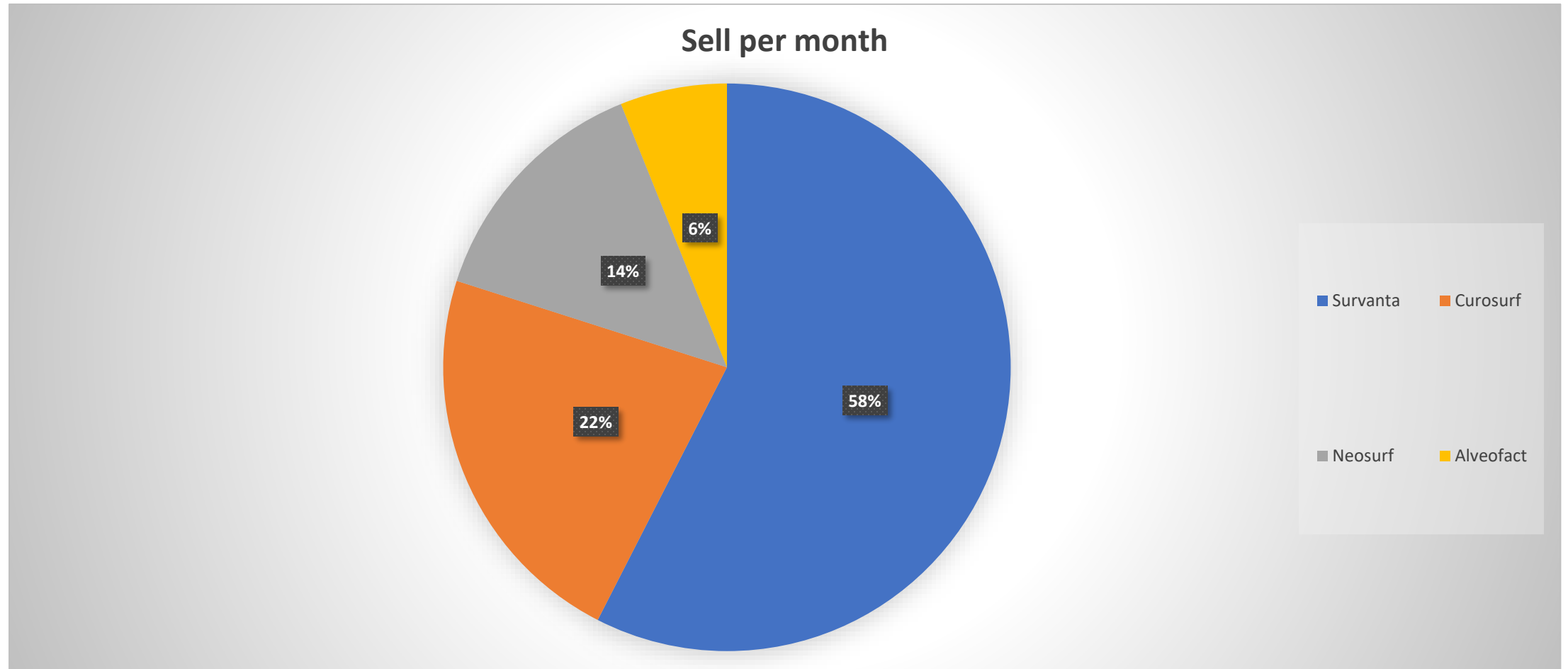
Q12. How long do you use surfactant to your RDS patient's?



Interpretation

83% of the doctors said that 70 to 80 days of hospitalization is required for treating the NRDS patients.

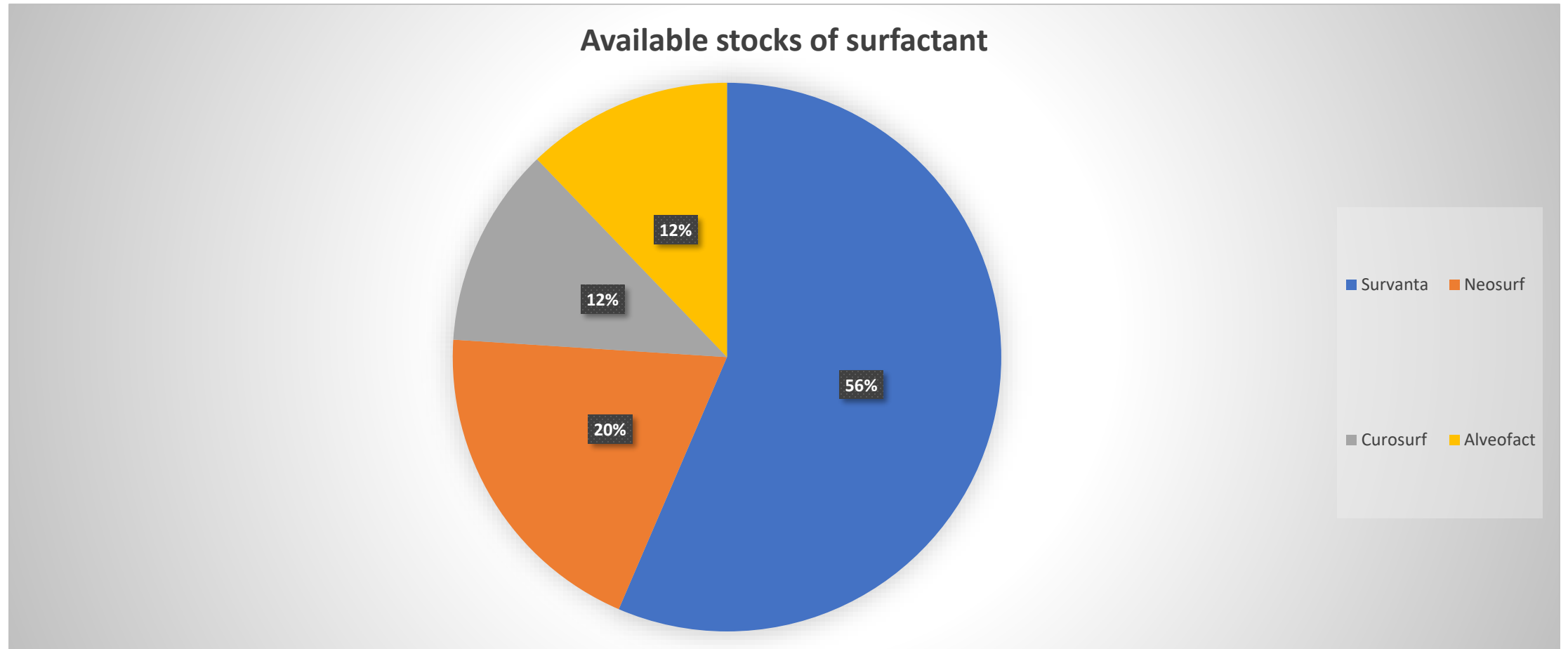
Q2. How much do you sell?



Interpretation

According to total 58% of the retailer's responses, 321 survanta were sold. So as from the data Survanta is highly selling surfactant per month in Mumbai.

Q3. How much stocks do you have now?



Interpretation

After gathering the stocks data from 100 retailer, the total 56% of the retailer have 153 stocks of survanta. So as from data Survanta is highly stock surfactant in Mumbai.

Recommendation

- There is need of conference with the help of neonatologist KOL doctors and in that conference to address the other doctors regarding the surfactant compositions, attributes of ideal surfactant, dosage form and Alveofact. Make small RTMs with neonatologist doctors regarding surfactant compositions in treatment of RDS.
- Do some promotional activity of Alveofact in children's hospital.
- To boost sales of Alveofact it is necessary that stocks should be available in the market around the clock for 12 months.

Conclusion

Almost all the neonatologist preferred surfactant for treating the NRDS patients. Natural surfactant has shown to have a better prognosis than synthetic surfactants. The intraventricular haemorrhage, pneumothorax and rate of bronchopulmonary dysplasia were similar among patients treated with Alveofact, Curosurf and Survanta. The doctors preferred brand for the treatment of neonatal respiratory distress in preterm baby is Survanta (Abbott) because of well-established surfactant brand for the treatment of NRDS patients and high margin on Survanta in hospital pharmacy. There is another reason of doctors to prefer Survanta because Survanta is available in prefilled suspension form therefore no need to make suspension as in Alveofact before injecting to baby.

References

1. *Surfactant inhibition by plasma proteins: differential sensitivity of various surfactant preparations* . **W. Seeger, C. Grube*, A. Günther, R. Schmidt**. 6, s.l. : European Respiratory Journal, 1993. ISSN 0908,1936
2. *Comparison of the Efficacy of Three Natural Surfactants (Curosurf, Survanta, and Alveofact) in the Treatment of Respiratory Distress Syndrome Among Neonates: A Randomized Controlled Trial*. **Mirhadi Mussavi, Keyvan Mirnia, Khairollah Asadollahi**. s.l. : 2016, 2015.
3. *Poractant alfa (Curosurf®) increases phagocytosis of apoptotic neutrophils by alveolar macrophages in vivo*. **Coen HMP Willems, Florian Urlichs, Silvia Seiden spinner, Steffen Kunzmann, Christian P Speer, Boris W Kramer**. 2013, s.l. : Respiratory Research, 2012, Vol. 13. PMID: 22405518.
4. *Treatment Investigational New Drug Experience With Survanta (Beractant)*. **Elizabeth M. Zola, A. M. Overbach, J. Harry Gunkel, Brian R. Mitchell, Barbara T. Nagle, Nicola G. DeMarco, Geraldine A. Henwood, Alan J. Gold**. 3, s.l. : The American Academy of Pediatrics (AAP) News and Journals, 1992, Vol. 91.
5. *Commercial versus Native Surfactants Surface Activity, Molecular Components, and the Effect of Calcium*. **Wolfgang Bernhard, Jasmin Mottaghian , Andreas Gebert , Gunnar A. Rau , Horst Von Der Hardt , and Christian F. Poets**. 4, s.l. : American Journal of Respiratory and Critical Care Medicine, 2000, Vol. 162.

 Thank you