

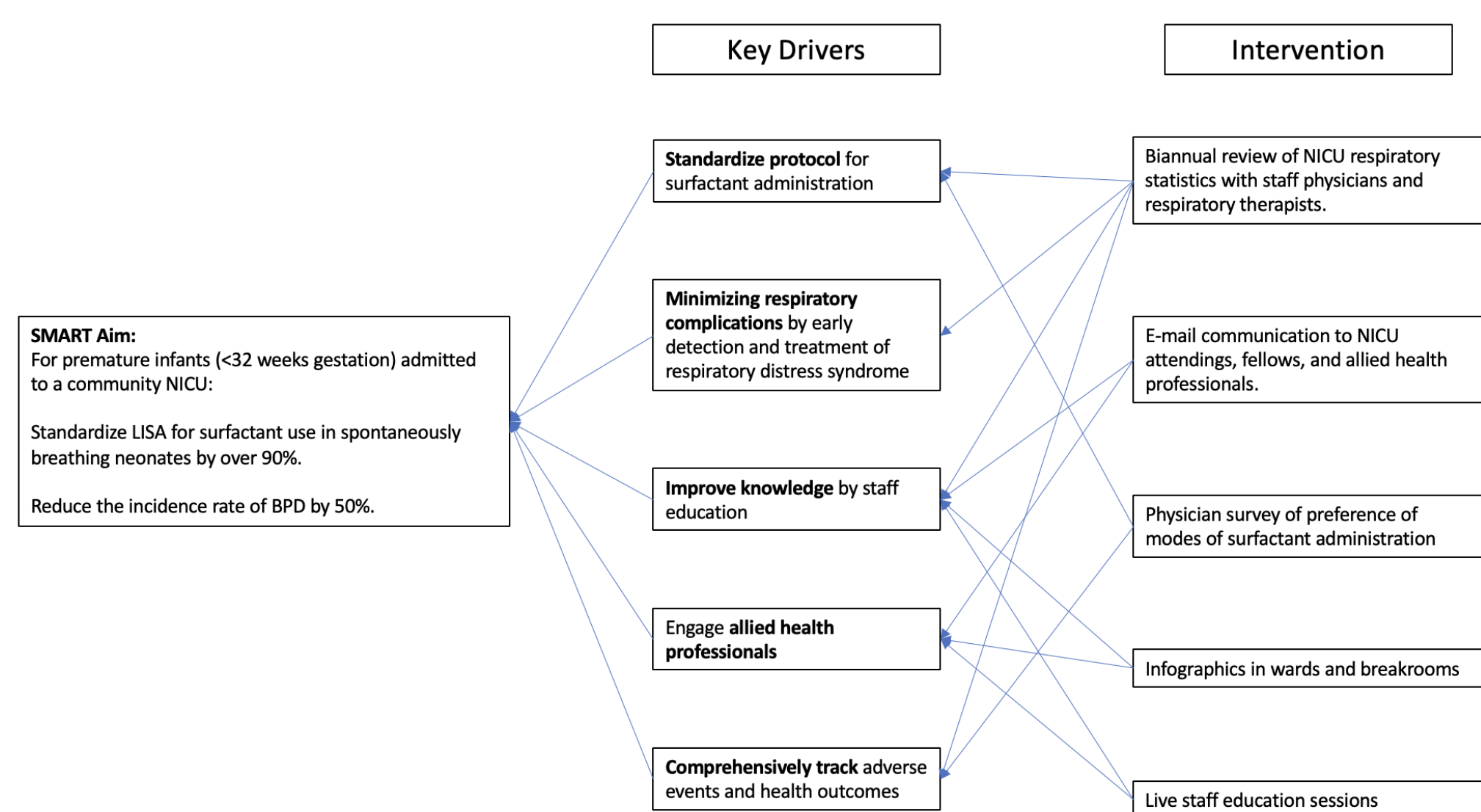
## Aim

**Aim:** to compare the efficacy of two surfactant administration methods in managing respiratory distress syndrome (RDS) among spontaneously breathing preterm infants (GA<34 weeks) in a Level II community neonatal intensive care unit (NICU).

## Importance

**Importance:** Surfactant therapy is the gold standard for treating RDS, but the mode of delivery varies depending on region and physician preference. By investigating the optimal mode of surfactant delivery, our study can inform clinical practice and improve outcomes for preterm infants in the study site as well as other community NICUs.

## Driver Diagram or any other aspect of development of plan



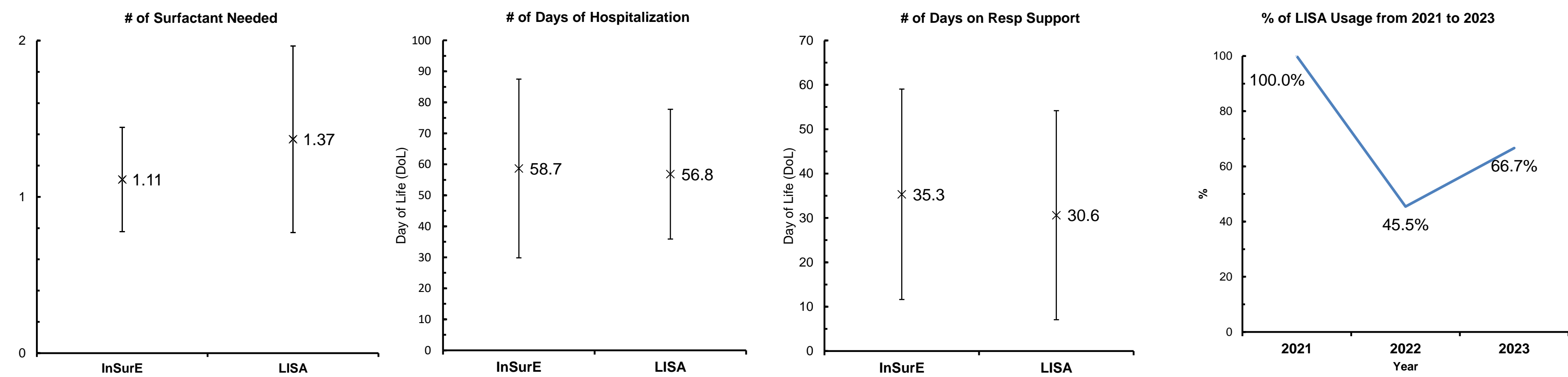
## PDSA Cycle / Change plan

Phase 1			Phase 2		
<b>Plan</b>	Reviewed literature, defined inclusion criteria, described steps for <i>less invasive surfactant administration (LISA)</i> , identified provider & created data tracking form	November 2018	<b>Plan</b>	Standard use of <i>less invasive surfactant administration (LISA)</i> in spontaneously breathing preterm babies	Jan 2021
<b>Do</b>	Pilot followed by implementation of <i>LISA</i> in eligible preterm, educated staff, RTs trained in the technique and data collected.	Pilot: 2019 Sample= 5 Roll out Jan 2020	<b>Do</b>	Procurement of new custom-made <i>LISA catheter</i> , educated staff, RTs trained in the technique and data collected.	SurfCath introduced April 2021
<b>Study</b>	Data collated & analyzed	Dec 2020	<b>Study</b>	Data collated & analyzed	Dec 2021
<b>Act</b>	Presented results to the group, further staff education and plan to capture additional data	Jan 2021	<b>Act</b>	Presented results to the group, further staff education and plan to capture additional data	Jan 2022

## Data / Results

**Table 1: incidence of intubation for the purpose of mechanical ventilation in the first 7 days after for infants <34 weeks GA**

Group	Average GA	# of eligible infants (n)	Requiring Intubation within first 7 days of life	Percentage (%)
<b>InSurE</b>	29.7 weeks	9	2	22.22
<b>LISA</b>	30.2 weeks	19	3	15.79



**Figure 1. Average number of surfactant, length of hospitalization and length of respiratory support required for spontaneously breathing preterm infants (GA < 34 weeks) who required surfactant administration. n = 22.** LISA group required higher number of surfactants, while also having shorter number of days requiring respiratory support and hospitalization. However, these numbers were not statistically significant.

**Figure 2. Percentage of babies receiving surfactant administration via LISA from 2021 to 2023.**

A total of 28 eligible preterm infants (GA < 34 weeks) were included between InSurE (n = 9) and LISA (n=19) group. In the InSurE group, 2/9 (22.2%) babies required intubation within first seven days of life compared to 3/19 (15.8%) babies in the LISA group. There was no significant statistical difference in number of surfactant, days of hospitalization and respiratory between the two groups.

The trend of LISA usage was also examined. In 2021, all eligible babies (6/6) received surfactant via LISA followed by a drastic drop in 2022 (5/11). This trend showed a rebound (8/12) in 2022 following the staff education regarding the custom LISA catheter.

## Lessons Learned / Next Stage/ Plan

For spontaneously breathing premature infants, surfactant administration via LISA method can lower the incidence of mechanical ventilation compared to the InSurE method. However, there is no significant improvement in reducing number of surfactants or length of hospitalization/respiratory support. We also found that the percentage of LISA usage in the study site is not meeting the expected rate. The next step is to continue collecting data on surfactant administration for an analysis of bigger sample size. Furthermore, staff re-education and interviews will be conducted to increase the usage of LISA in the study site.