



## **“Chasing Zero VAP”**

**A Quality Improvement Initiative To prevent Ventilator Associated Pneumonia  
in the Intensive Care Unit**

**Max Smart Super Specialty Hospital, New Delhi**

**Project Team: Dr Arun Dewan/Dr Ritesh Aggarwal/Dr Bindu Sharma/Dr Manju Mani**

# Max Smart Super Specialty Hospital



214 bedded Tertiary Care Hospital



## Core Values



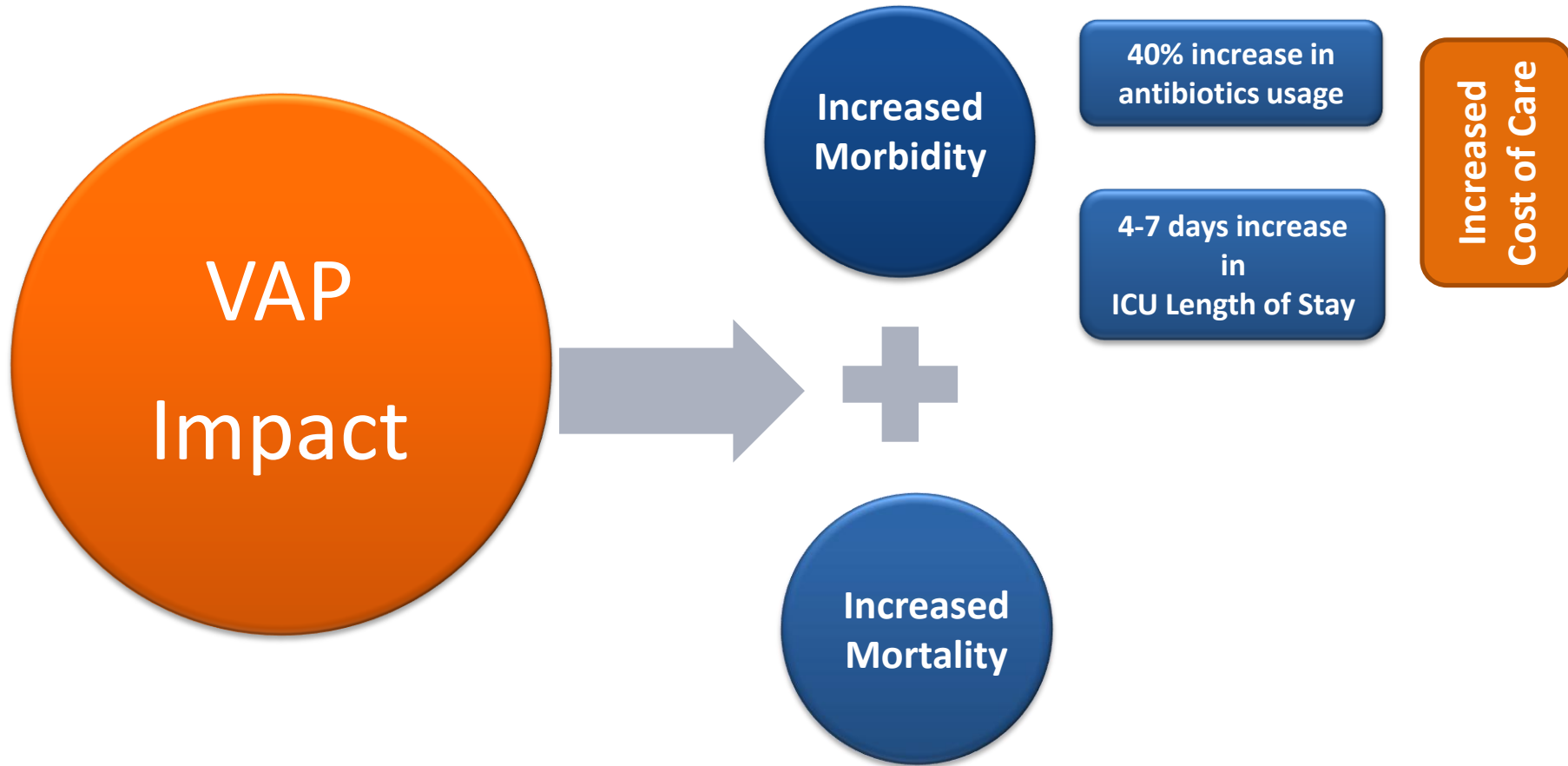
# What do we mean by VAP?

- Ventilator-associated pneumonia (VAP) is defined as pneumonia that occurs 48 h or more after endotracheal intubation or tracheostomy, caused by infectious agents not present or incubating at the time mechanical ventilation was started



- One of the most commonly encountered hospital-acquired infections in intensive care units.

# Impact of Ventilator Associated Pneumonia (VAP)



# Problem Identification

Retrospective analysis of last year's VAP data was carried out

VAP Rate was 8.43 per 1000 ventilator days which was very high



High Antibiotics Usage DDD – 134 per 100 bed days



Additional 6 days of Stay post detection of VAP

# Project Charter



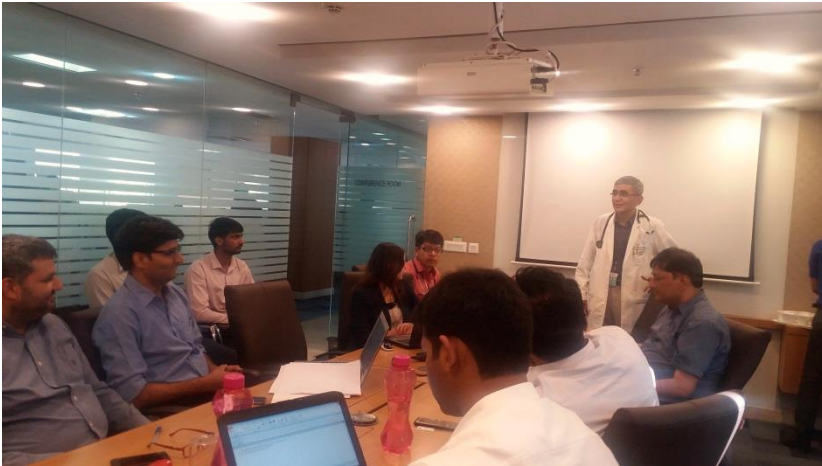
## Project Title: Chasing Zero VAP - Quality Improvement Initiative To Prevent Ventilator Associated Pneumonia in the Intensive Care Unit

Business Case				Opportunity Statement	
Ventilator-associated pneumonia have resulted in increased hospital mortality, longer hospital stays, and higher inpatient health care costs. Therefore, it is imperative to prevent occurrence of Ventilator associated pneumonias				Reduction in VAP rate to improve patient outcomes	
Goal Statement				Project Scope	
Metric	Current level	Goal / Target	Target date	In Scope: All Intensive Care Areas Exclusions: Non Critical Care Areas	
Reduction in VAP Rate per month	8.43	50% Reduction or more	31-Mar-17		
Project Plan				Team Selection	
Phase	Start	End	Remarks	Sponsor :- Nitin Navish Gupta/Vinita Bhasin/Dr Arati Verma	
Define	01 -Apr-16	30 Apr-16	Done	Champion :-Dr.Arun Dewan	
Measure	01-May-16	15-Jun-16	Done	Quality Head :- Dr Manju Mani/Dr. Bindu Sharma	
Improve	16-Jun-16	31-Dec-16	Done	Project Leader : Dr. Ritesh Aggarwal	
Control	1-Jan-17	31-Mar-17	Done	BB Mentor :- Puneet Bhatnagar	
				Team Members : Manju Tyagi, Manisha Rattan, Dr Bansidhar .Amit Sharma,Ebin Mathew,Subin Varghese	

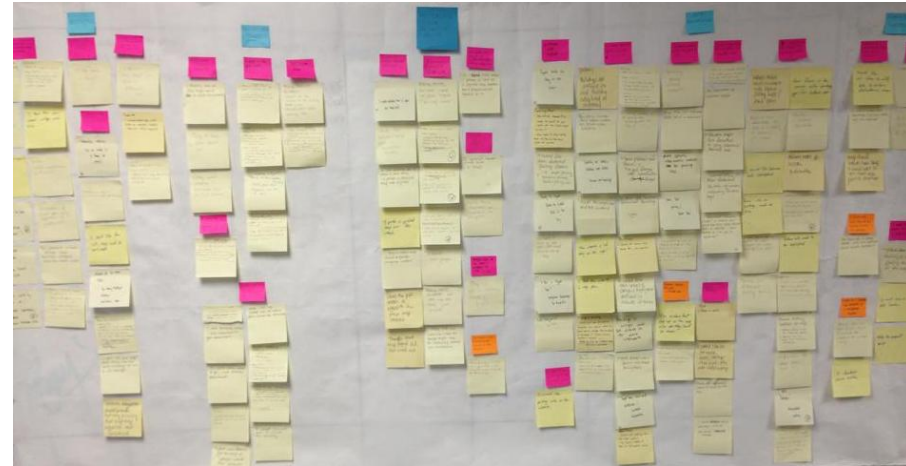


## Deep Diving – Finding the reasons

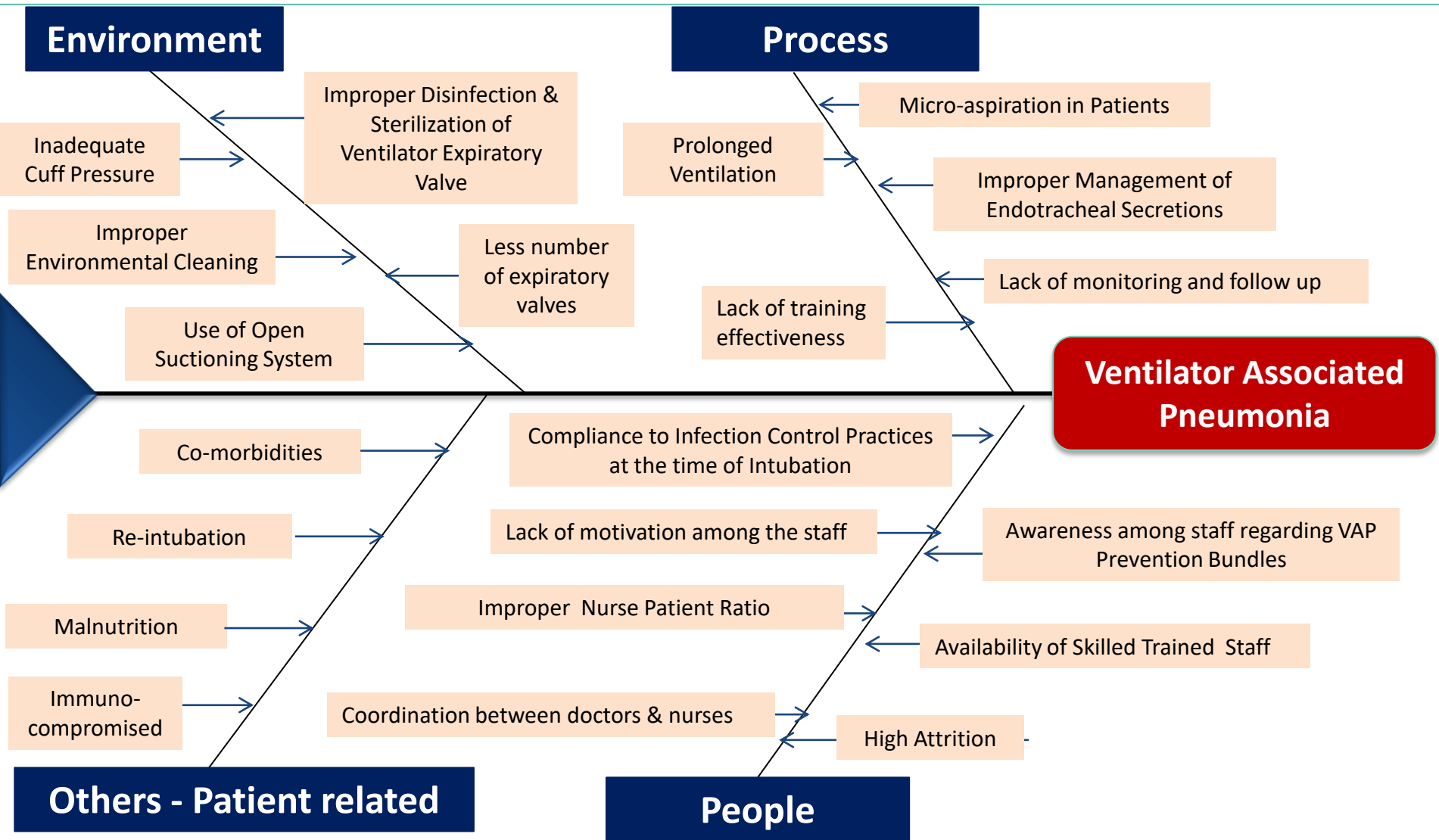
### Brainstorming Sessions



### Multi-voting



# Root Cause Analysis – Fish Bone Diagram





## Development of Action Plan

### Project Plan - Chasing Zero VAP - Prevention of VAP

Project Sponsor: Nitin Gupta

Core Team : Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan

WBS	Task	Lead	Start	End
1	Revision of Infection Control Guidelines for VAP Prevention	Dr Arun Dewan/Dr Ritesh Agarwal	1st April 2016	30th April 2016
2	Sensitization of ICU Doctors & Nurses	Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan	1st May 2016 onwards	Ongoing
3	Introduction of HIS based application for tracking VAP	Dr Manju Mani/Dr Bindu Sharma	1st May 2016 onwards	Ongoing
4	Monitoring of Optimum Cuff Pressure	Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan	1st May 2016 onwards	Ongoing
5	Introduction of Subglottic Suctioning	Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan	1st May 2016 onwards	Ongoing
6	Revision of existing nursing protocol for Oral Care was revised	Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan	1st May 2016 onwards	Ongoing
7	Weekly Review Meetings	Dr Manju Mani/Dr Bindu Sharma	1st May 2016 onwards	Ongoing
8	Closed Suction System	Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan	1st May 2016 onwards	Ongoing
9	Daily sedation interruption	Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan	1st May 2016 onwards	Ongoing
10	Sterilization of Ventilator Expiratory Valves	Manisha Rattan	1st May 2016 onwards	Ongoing
11	Identification of VAP Champs	Dr Arun Dewan/Dr Ritesh Agarwal/Manisha Rattan	1st July 2016 onwards	Ongoing
12	Reward & Recognition Plan	Nitin Navish Gupta/Dr Arun Dewan	1st July 2016 onwards	Ongoing

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## Sensitization of Doctors & Nurses



## Implementation of identified Best Practices

### Maintenance of Adequate Cuff Pressure



### Closed Suction System



### Subglottic Suctioning



## Implementation of identified Best Practices

### Revision of Oral Hygiene Protocol



### Daily sedation interruption



### Expiratory Valve Sterilization





## Surprise Audits & On the Spot Correction

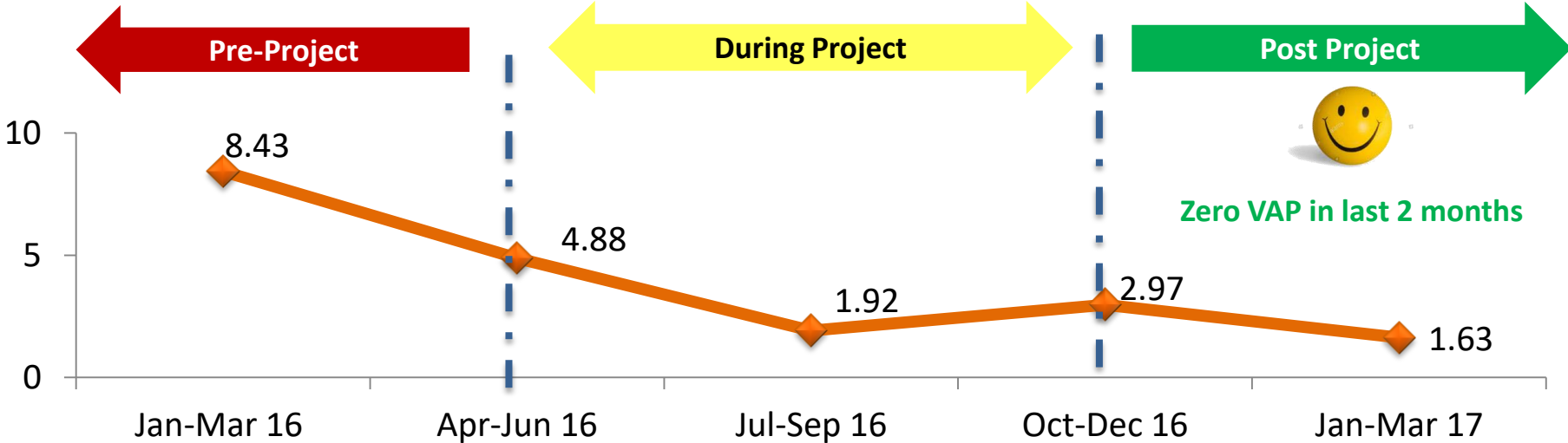


## Reward & Recognition of VAP Champs by Vice President - Operations

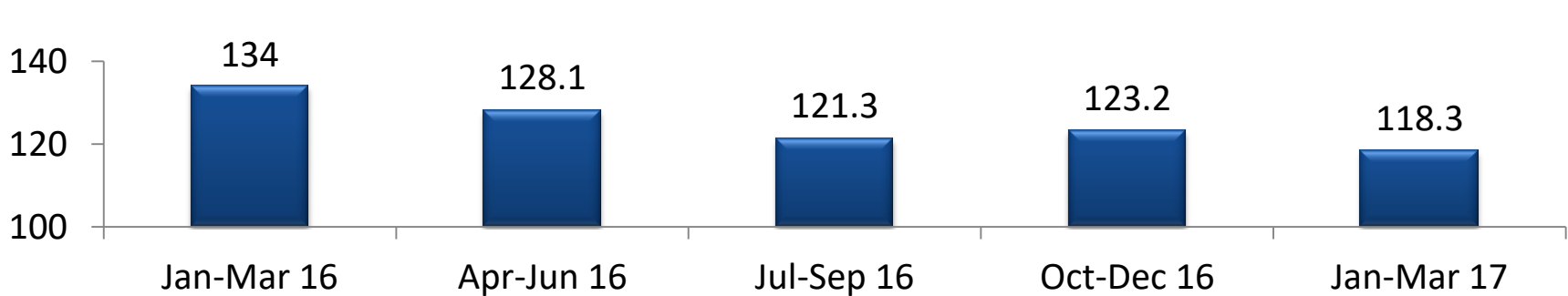


# Holding the gains..... Post Project - Benefits

## Ventilator Associated Pneumonia Rate per 1000 ventilator days



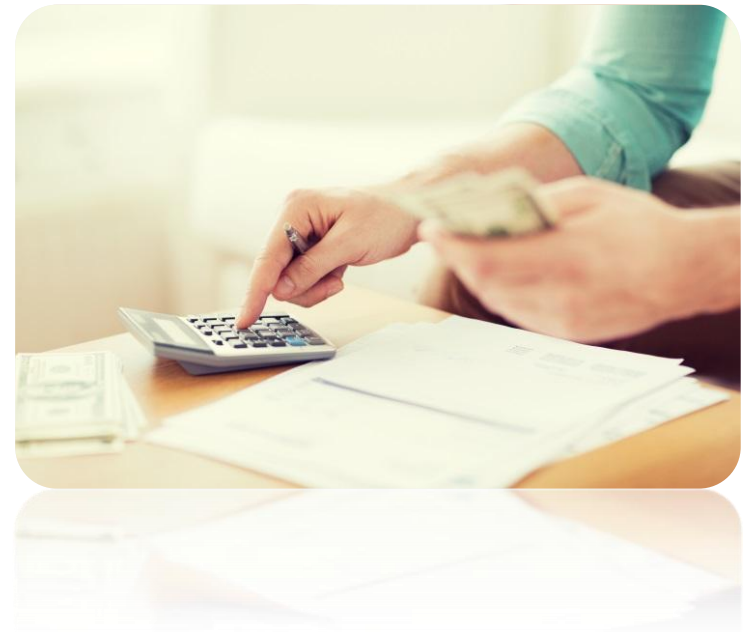
## Reduction in Daily Defined Dose (DDD) per 100 bed days





# Post Project - Benefits

	Pre-Project	Post Project
<b>Length of Stay</b>	Additional 6 days/VAP case	Saved 6 days of additional ICU Stay by VAP Prevention
<b>Cost of ICU Care</b>	INR 300000 for 6 days/VAP cases	



# Sustainability – Holding the Gains

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- Regular Refresher Sessions

- Audits & Surprise Checks

- Governance Reviews

- Departmental VAP Prevention Scorecards

# Lessons Learnt



- VAP Prevention in ICU is up hill task  
but **POSSIBLE**
- Staff Engagement is the key to success  
along with appropriate processes &  
infrastructure in place

**Thank You**