



To increase the compliance rate of Hospital Acquired Pneumonia (HAP) Prevention bundle from 0% to 80%



Adding years of healthy life

Miss Gong Haiqing, Senior Case Manager, Case Management Unit

Mission Statement

To increase the compliance rate of Hospital Acquired Pneumonia (HAP) Prevention Bundle from current 0% to 80% for all elective inpatient (Same Day Admission) undergoing Major Colon and Rectal resection Surgery in GS Team 1 Department of General Surgery at Tan Tock Seng Hospital over a period of 6 month

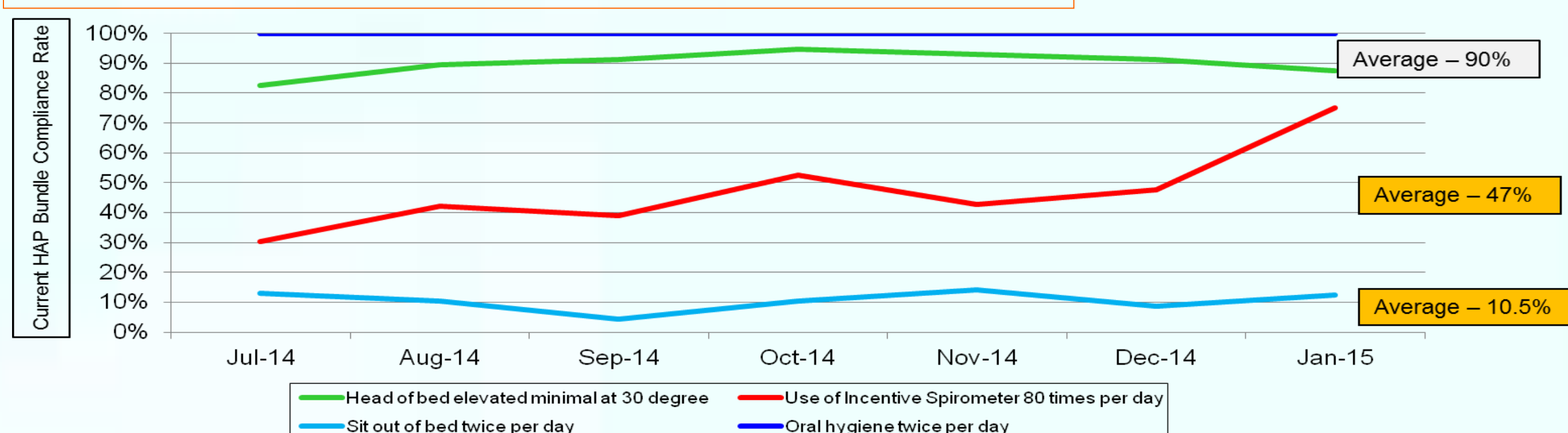
Team Members

Role	Name	Designation	Department
Leader	Haiqing Gong	Senior Case Manager	Case Management Unit
Co-Leader	Jayachandran Balachandran	Senior Physiotherapist	Physiotherapy
Team Members	Dr How Kwang Yeong	Associate Consultant	General Surgery
	Foong Mei Fern	Nurse Clinician	Ward 6C
	Yang HuiZhen	Staff Nurse	Ward 6C
	Ching Pei Fen	Staff Nurse	Ward 11C
	Charmaine Tan	Staff Nurse	Ward 11D
	Mitzy Mikee Romas	Enrolled Nurse	Ward 11D
	Low Su Ting	Nurse Clinician	Ward 12B
Sponsor	Lily Goh	Manager	Case Management Unit
Advisor	Dr Tay Guan Sze	Senior Consultant	General Surgery
	Dr Susan Loo	Consultant	Anaesthesiology

Evidence for a Problem worth solving

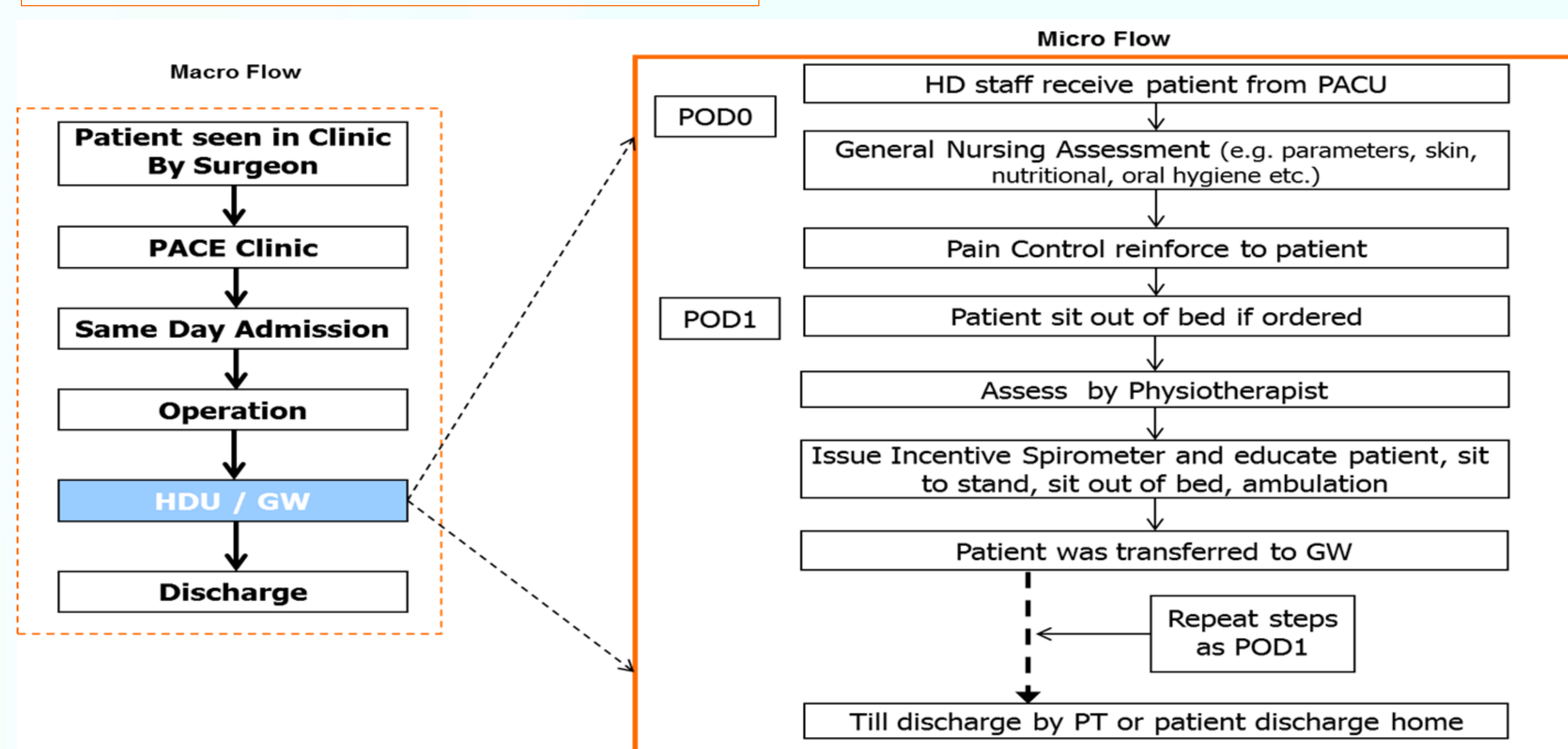
- “Achieving A Zero Pneumonia Rate in General Surgery Patient” – The Permanente Journal/Winter **2012**/Volume 16 No.1
- Pneumonia rate is reduced from **0.5% to 0%**.
- “Post operative Pneumonia-Prevention Program for Inpatient Surgical Ward” – Journal of American College of Surgeons, Vol.210, No.4, April **2010**
- The rate is reduced from **0.78% to 0.18%** and **Representing a 81% reduction**
- “The Long Term of a Postoperative Prevention Program for the Inpatient Surgical Ward” – JAMA Surg. **2014**;149(9):914-918
- Pneumonia rate is reduced from **0.78% to 0.48%**.

Current Performance of a Process

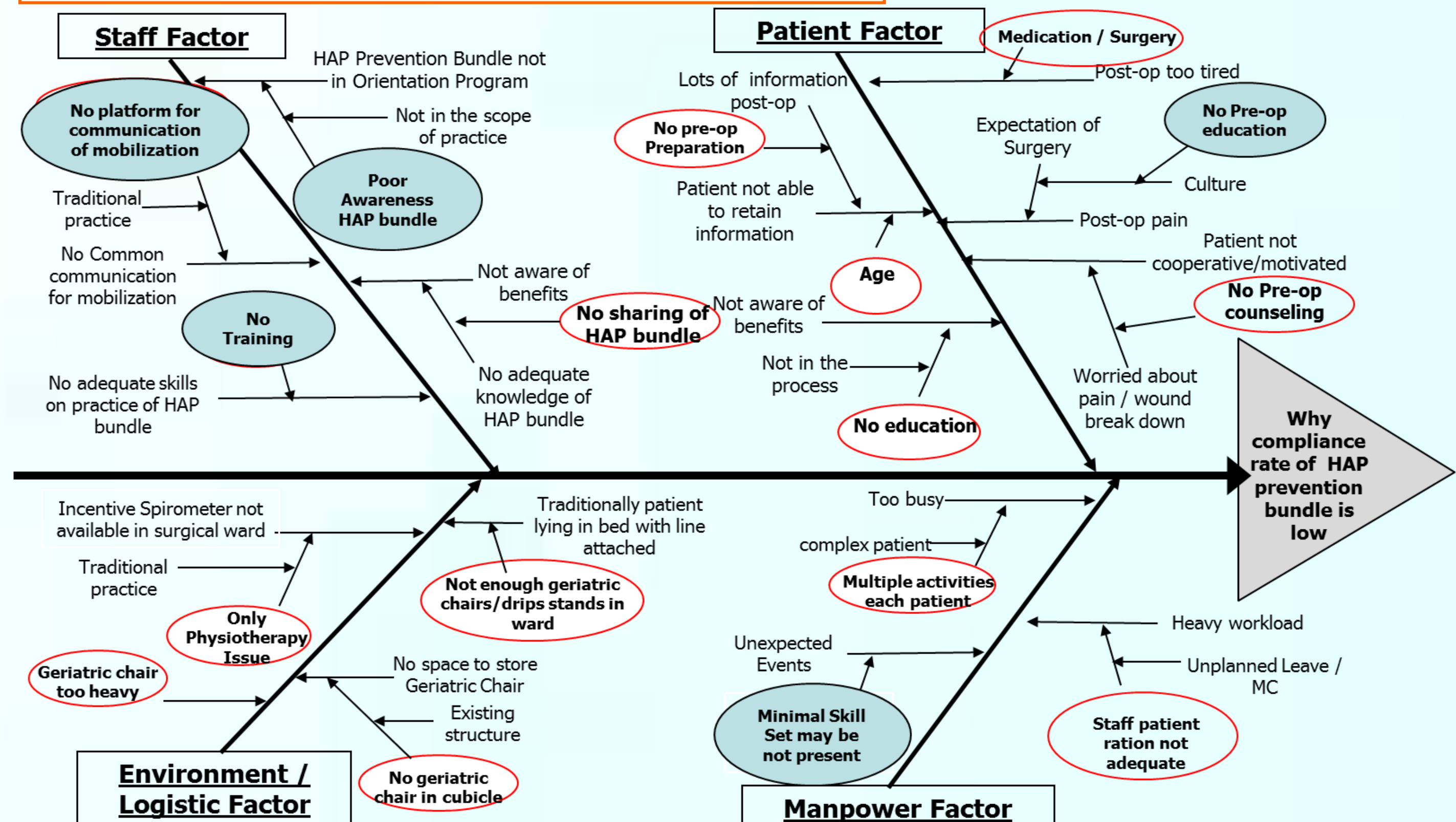


4.1% (10 out of 245) of patient developed HAP after Major Elective Colorectal Surgery in Year 2014

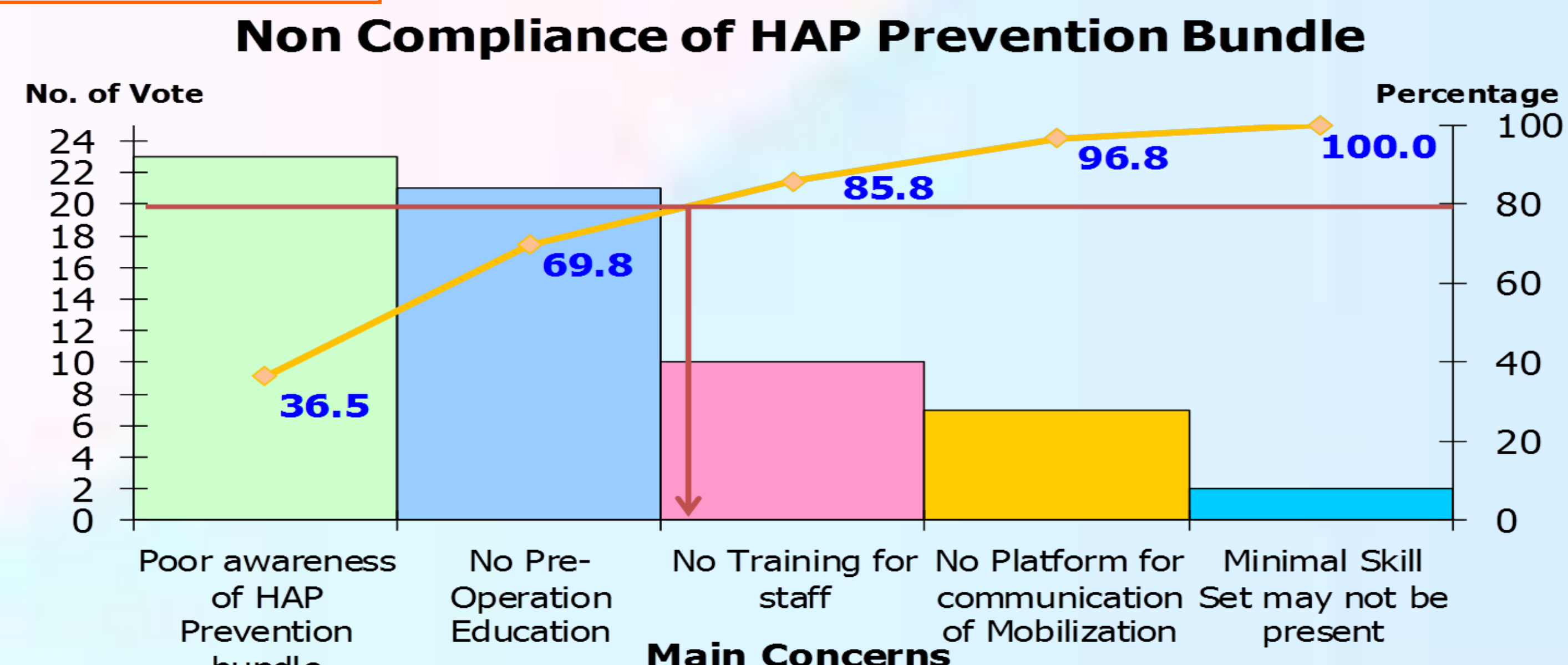
Flow Chart of Process



Cause and Effect Diagram



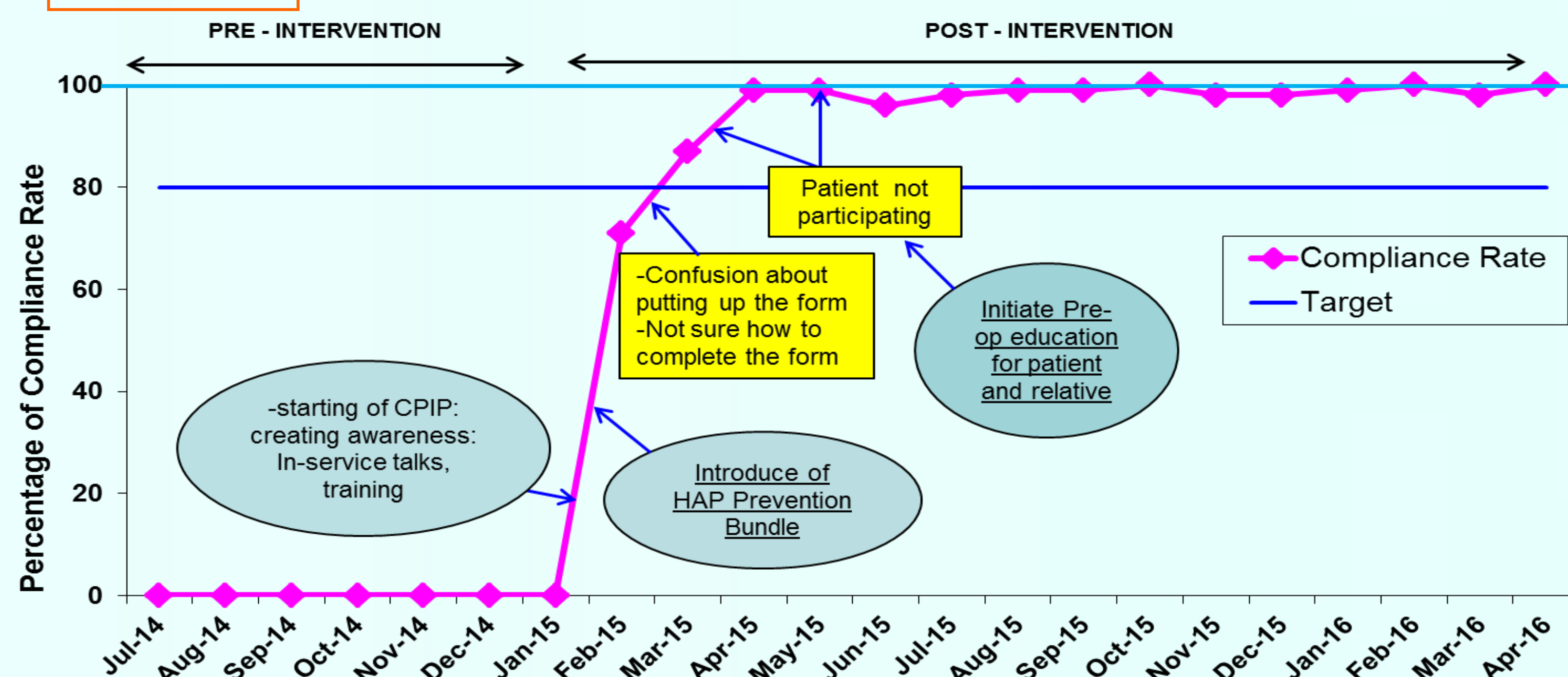
Pareto Chart



Implementation

PROBLEM	INTERVENTION	DATE OF IMPLEMENTATION
Poor Awareness of HAP Prevention Bundle	Creating awareness: Sharing / In-service talks for Ward 6C, 11C, 11D, 12B (piloting) staff Sharing with GS doctors	1 st of Feb 2015
No Training for Staff	Incentive Spirometer, Early mobilization training by Physiotherapist to Ward 6C, 11C, 11D, 12B ward staff Introduce HAP Prevention Bundle Form	1 st week of Feb 2015 3 rd week of Feb 2015
No Pre-operation Education	Pre-operation assessment and education by Physiotherapist	3 rd week of Mar 2015

Results



The overall compliance rate of the HAP Prevention Bundle across all 4 components increased during commencement of the 1st intervention, and achieved the compliance rate of more than 80% after the 3-month period until the end of the intervention period. The compliance rate has also been maintain almost at 100% for the subsequent months.

Comparing the HAP rate in the same time period (Feb 2014 to May 2014 versus Feb 2015 to May 2015), pre-intervention was 8.3% (5 out of 60 patients) vs. 0% (0 out of 44 patients).

In addition, after commencement of the interventions, the rate of HAP post colorectal surgery decreased to 0% and remained at 0% till June 2016.

Cost Savings

For Patient		For Organization	
Description	Cost	Description	Average Length of Stay (ALOS)
Outpatient Physiotherapy Clinic	S\$ 57.71	Average Length of Stay (Year 2014 Pre-Project)	10 days
In Patient Room Charge (C Class) per day	S\$ 203.74	Post-CPIP (Year 2015)	8 days
In Patient Daily Treatment (C Class) per day	S\$ 99.07	Reduction in LOS	2 days
Consumables (Daily), IV antibiotic	Not Analyzed	Cost of running a "C" class ward bed: S\$1000.00 Approx.	Save approx. S\$ 2000.00 per patient
Patient will be staying additional 7 days for IV antibiotic to complete the course of treating Pneumonia	S\$ 2042.29		

Problems Encountered

Difficulty in arranging all outpatient appointment in the same day (eg. PACE and outpatient Physiotherapy).

Strategies to Sustain

- Share the results to the wards, Outpatient Chest Physiotherapy Clinic and the GS Doctors.
- Incorporate into Unit Based Orientation Program for nursing staff.
- 6 monthly General Surgery HO/MO Orientation program.
- Incorporate the prevention bundle into clinical pathway.
- The HAP Prevention Bundle was incorporated into ERAS (Enhanced Recovery After Surgery) program for all Elective Colorectal Surgery patients.