

## Project Title

NCID ICU Retrieval Process for Intubated Patients

## Project Lead and Members

Project lead: Lim Voon Ping

Project members: Li Caihua ; Nichole Tan Xiu Lang; Lee Wan Lih; Ling Ging Poh;

Emelin Tan Pei Xin

## Organisation(s) Involved

National Centre for Infectious Diseases

## Healthcare Family Group(s) Involved in this Project

Nursing

## Applicable Specialty or Discipline

Respiratory Therapy, Intensive Care Medicine

## Project Period

Start date: September 2019

Completed date: February 2020

## Aims

To improve compliance to NCID Protocol\* for retrieval of intubated patients by retrieval team from 46 % to 100% over a 6-month period

*\* NCID Protocol refers to:*

- a) *activation response time of within 15mins on site*
- b) *completion of transport ventilator 4 Alarms safety check*
- c) *Bring required equipment as stipulated on the protocol during retrieval*

**Definition: Retrieval** = transportation of intubated patients to NCID ICU from general ward within NCID

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

See poster appended/ below

## **Additional Information**

NHG Quality Improvement 2021: Developing a Flexible & Sustainable Workforce  
(Best Award)

## **Conclusion**

See poster appended/ below

## **Project Category**

Care & Process Redesign, Quality Improvement, Value Based Care, Safe Care, Risk  
Management, Adverse Outcome Reduction

## **Keywords**

Patient Retrieval Protocol, Intubated Patients, Intra-Hospital Transfer

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National Centre for  
Infectious Diseases

# NCID ICU Retrieval Process for Intubated Patients

Lim Voon Ping  
NCID ICU Ward 3E

## Mission Statement

To improve compliance to NCID Protocol for retrieval of intubated patients by retrieval team from 46 % to 100% over a 6 month period

## Team Members

	Name	Designation	Department
<b>Team Leader</b>	Lim Voon Ping	Senior Nurse Clinician	NCID ICU
<b>Team Members</b>	Li Cai Hua	Nurse Clinician	NCID ICU
	Nichole Tan Xiu Lang	Assistant Nurse Clinician	NCID ICU
	Lee Wan Lih	Senior Staff Nurse	NCID ICU
	Ling Ging Poh	Senior Staff Nurse	NCID ICU
	Zhang Yu Yan	Senior Staff Nurse	NCID ICU
	Emelin Tan Pei Xin	Senior Respiratory Therapist	Respiratory Therapy

**Mentor:** Ms Yu Liang

**Sponsors:** Dr Benjamin Ho & Ms K Patmawali

## Evidence for a Problem Worth Solving



Transferring the critically ill patient: are we there yet?

Am J Crit Care (2015) Vol 19

Am J Crit Care 2011 March ; 20(2): 153-162, doi:10.4037/ajcc.2011.1478.

Adverse Clinical Events During Intrahospital Transport by a Specialized Team: A Preliminary Report

Ricky Kue, MD, MPH, Paul Brown, NREMT-P, Chyrl Ness, RN, and James Scheulen, MBA, PA-C

The importance of having a proper retrieval :

- to ensure patient's safety and lower incidence of technical problem (equipment)
- Retrieval team able to transfer sicker patients with fewer and less severe adverse events

Caring for ill patients during intra-hospital transport is a high risk activity:

- Use of dedicated transfer team can potentially reduce the number of adverse events
- Causes of adverse event were multi-factorial with mainly human based factors contributing such as inadequate preparation, failure to follow protocol and errors of problem recognition

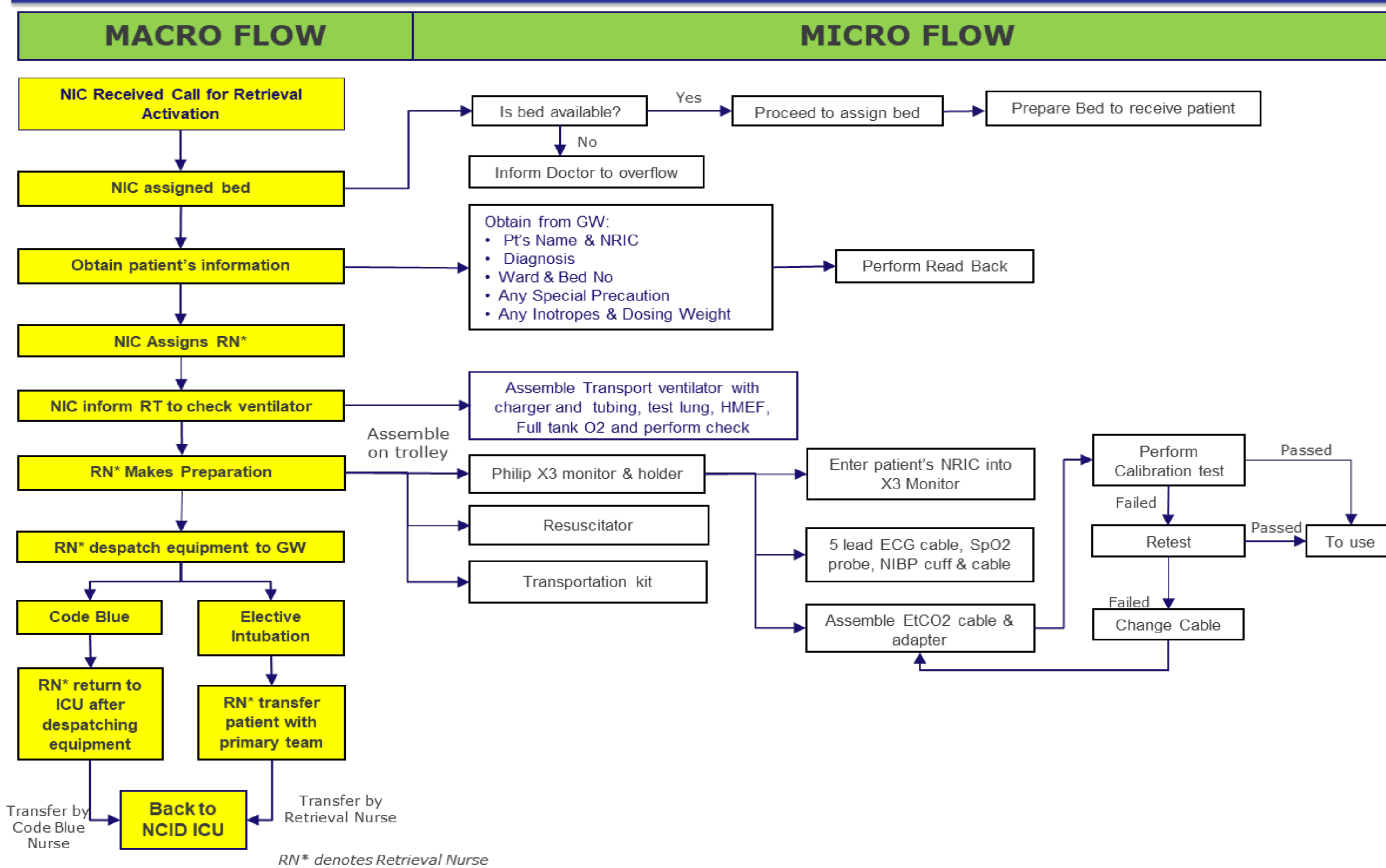
Am J Crit Care(2011) Vol 20

Baseline Data on Compliance to Retrieval Protocol from July to August 2019

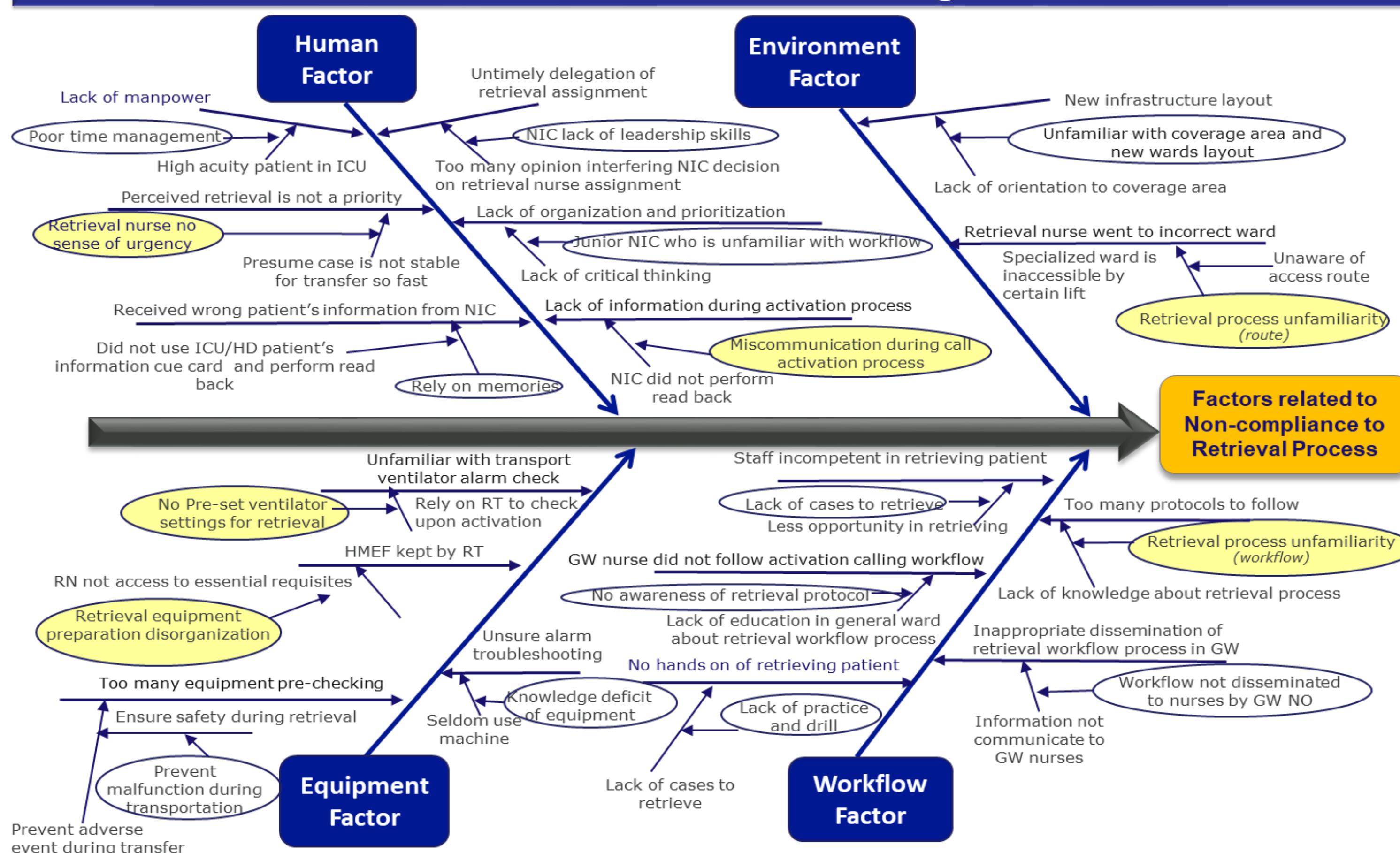
Month	Jul	Aug
Total no of Retrieval	4	14
Met	2	6
Not Met	2	8
% of Compliance	50%	42.85%

Pre Intervention Median = 46%

## Flow Chart of Process

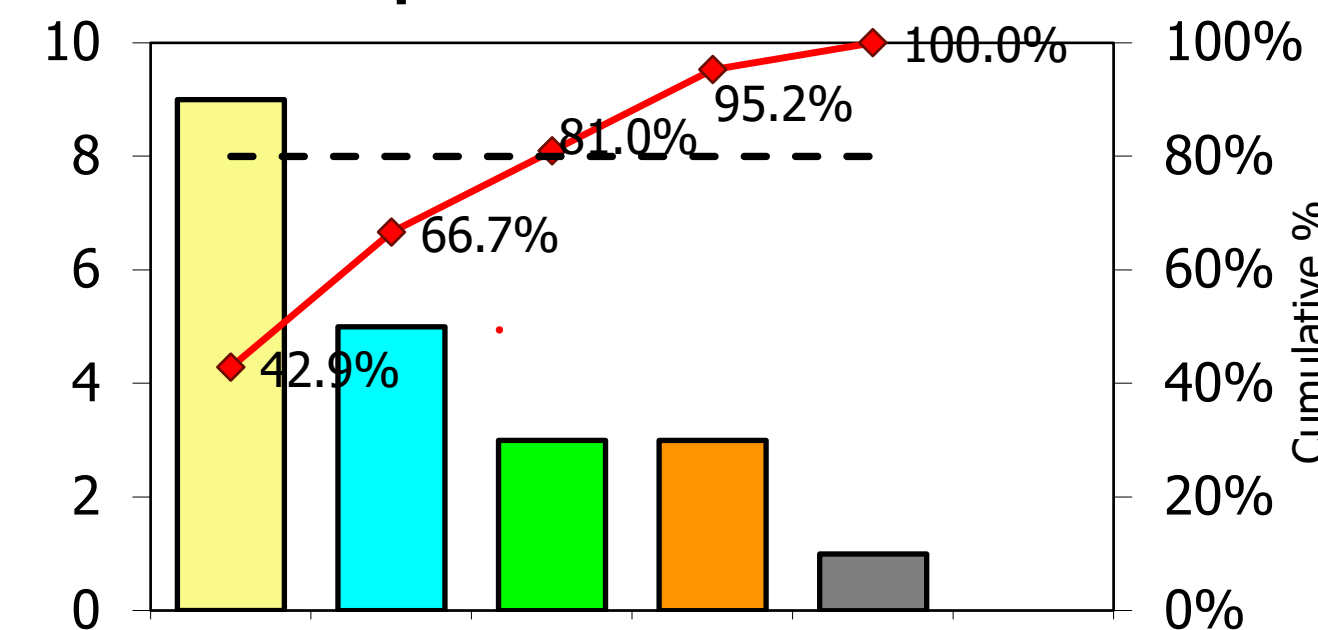


## Cause and Effect Diagram



## Pareto Chart

Poor compliance to Retrieval Process

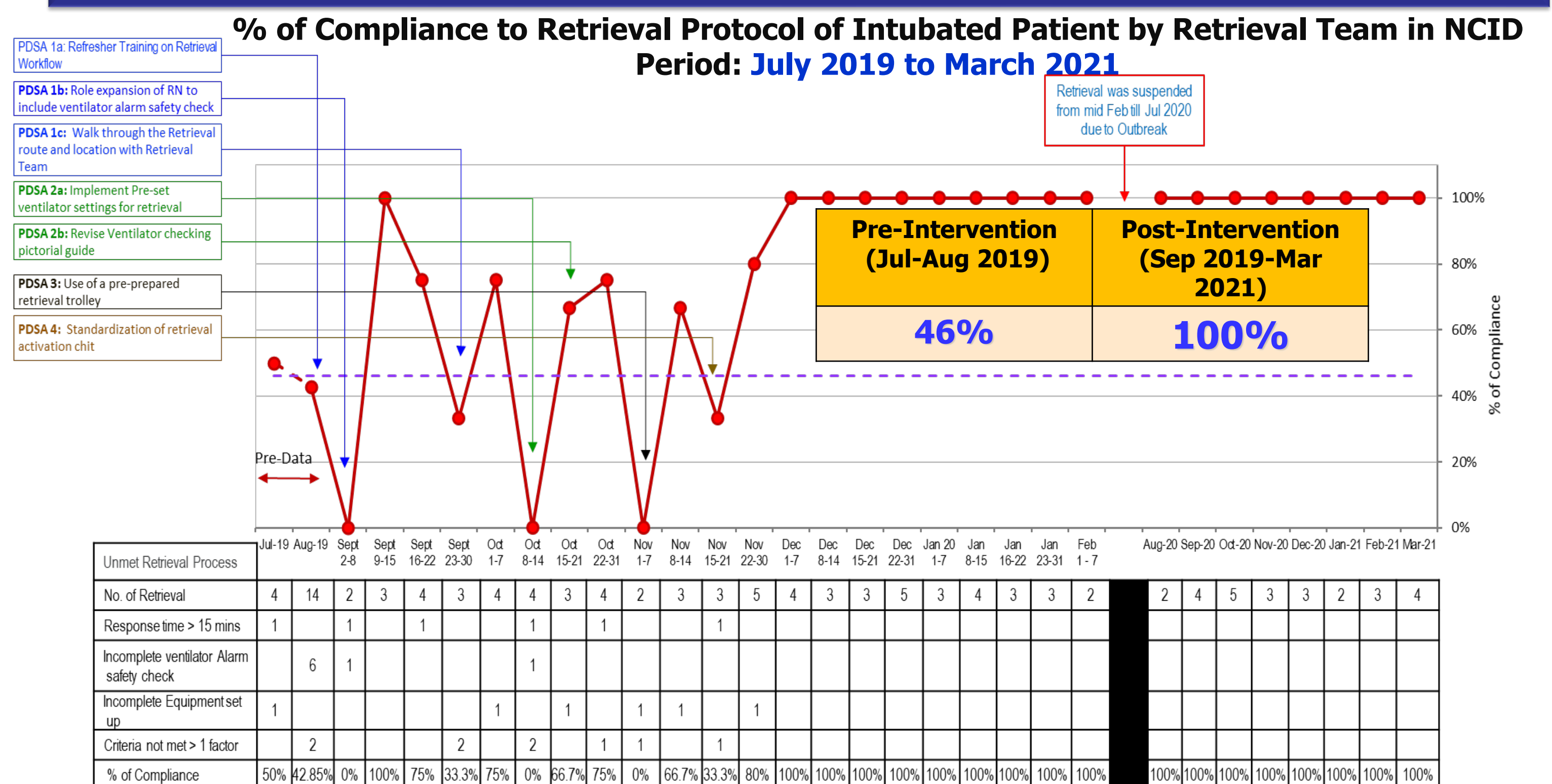


Cause 1	Retrieval process unfamiliarity
Cause 2	No Pre-set ventilatory settings for retrieval
Cause 3	Retrieval equipment preparation disorganization
Cause 4	Miscommunication during call process activation
Cause 5	Retrieval nurse no sense of urgency

## Implementation

CAUSES	INTERVENTIONS	IMPLEMENTATION DATE
<b>Cause 1:</b> Retrieval process unfamiliarity	<b>PDSA 1a:</b> Refresher Training on Retrieval Workflow	15 Aug 2019
	<b>PDSA 1b:</b> Role expansion of RN to include ventilator alarm safety check	7 Sep 2019
	<b>PDSA 1c:</b> Walk through retrieval route and coverage location with all retrieval nurse	23 Sep 2019
<b>Cause 2:</b> No Pre-set ventilator settings for retrieval	<b>PDSA 2a:</b> Implement Pre-set ventilator settings for retrieval	12 Oct 2019
	<b>PDSA 2b:</b> Revise ventilator checking pictorial guide	20 Oct 2019
<b>Cause 3:</b> Retrieval equipment preparation disorganization	<b>PDSA 3a:</b> Use of a pre-prepared retrieval trolley	7 Nov 2019
<b>Cause 4:</b> Miscommunication during call activation process	<b>PDSA 4a:</b> Create standard retrieval information slip for Nurse In Charge	15 Nov 2019

## Results



## Cost Savings

Task Required by the followings for 1 patient Transfer (in Mins)		Before	After
		Estimated Cost	
RT (Before) / ICU Nurse (After)	Check Ventilator	\$1.29 X 15 = \$19.35	\$0.97 X 5 = \$4.85
GW Medical Officer	Transfer patient	\$1.41 X 45 = \$62.25	\$1.41 X 25 = \$35.25
General Ward Nurse 1	Transfer patient	\$0.97 X 45 = \$43.65	\$0.97 X 25 = \$19.40
General Ward Nurse 2	Transfer patient	\$0.97 X 45 = \$43.65	
ICU Nurse	Patient retrieval		\$0.97 X 25 = \$19.40
Duration (Average)		60 mins	30 mins
Total Cost (Per retrieval)		\$168.90	\$78.90
Time Savings (Per retrieval)		30 minutes	
Difference in Cost (Per retrieval)		\$78.90 - \$168.90 = - \$90.00	
Based on 2 Retrieval per month			
Cost savings (Monthly)		- \$90.00 x 2 = - \$180.00	
Cost savings (Annualised)		- \$180.00 x 12 = - \$2160.00	
Time savings (Annualised)		30 x 2 x 12 = 720 min (12 hours)	

## Lessons Learnt

- Enhanced communication between various platform
- Buy in!!
- Working as a team
- Commitment to a changing behaviour both as an individual and to the organization
- Conducting weekly drill is challenging yet it empowered the ICU staff with higher efficiency in care

## Strategies to Sustain

- Continue to collect data through retrieval log, evaluate and monitor of the progress
- Maintain the routine of frequent retrieval drill
- Include Pre-set ventilatory settings and alarm check as part of daily nursing special assignment to keep nurses competency warm at all times
- Having a culture change whereby the importance of timely and safely retrieval of patients was prioritized