

## **Project Title**

“I Prevent Pneumonia” – Pneumonia Prevention Project

## **Project Lead and Members**

Project lead: Ms Zhang Ran, Nurse Clinician

Project members:

- Zhang Ran, Nurse Clinician
- Kalayar. Senior Staff Nurse
- Mark John, Staff Nurse
- Joy Sugi, Senior Nursing Aide

## **Organisation(s) Involved**

MWS Bethany Nursing Home (MWS BNH) – Choa Chu Kang; Agency for Integrated Care

## **Project Period**

Start date: Sep/ Dec 2019

Completed date: On-going

## **Aims**

To reduce the incidence/ prevalence rates of Pneumonia at MWS BNH

## **Background**

See poster attached/ below

## **Methods**

See poster attached/ below

## **Results**

See poster attached/ below

## Lessons Learnt

1. Management of Non-cooperative resident
  - a. Need to build rapport and trust with non-cooperative resident prior and during the implementation of the project so that they will accept this implementation willingly.
  - b. Need to train and educate staff on how to be flexible in the management and coaxing of non-cooperative residents for the project.
2. Sustenance of the practice
  - a. Ensure regular sharing and updating of the progress (e.g. data dashboard, feedback etc.) so that all will know and understand the situation and progress.
  - b. Implementation of Plan-Do-Study-Act (PDSA) to monitor the evaluation of the changes and adjustments whenever necessary.
  - c. Work in partnership with other healthcare professionals (e.g. OT/PT, medical Drs) to share the findings, and seek feedback/suggestions for improvement.

## Conclusion

See poster attached/ below

## Additional Information

It is of utmost importance to gain the understanding, support and trust from both the residents and staff prior and during the implementation of any project for good results to show.

With the implementation of this project, it has reduced the number of Pneumonia cases progressively. Staff have gained more understanding and are working proactively to prevent Pneumonia within MWS BNH. If it is adopted for use within the healthcare

system, it will help to greatly prevent/reduce the Pneumonia cases for the elderly people. Staff are also equipped with adequate knowledge and skills, and gain confidence to provide quality resident care.

### **Project Category**

Care & Process Redesign

### **Keywords**

Care & Process Redesign, Healthcare Training & Education, Safe Care, Nursing Home, Quality Improvement, Root Cause Analysis, Plan Do Study Act, Preventive Care, Elder Care, Nursing, MWS Bethany Nursing Home, Agency for Integrated Care, Pneumonia Prevention

### **Name and Email of Project Contact Person(s)**

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# “I Prevent Pneumonia” – Pneumonia Prevention Project

**Team Member:** *NC Zhang Ran, SSN Kalayar, SN Mark John, SNA Joy Sugi.*  
**Sponsor:** *DON Pauline Chong*  
**Nursing Department, MWS Bethany Nursing Home – Choa Chu Kang**

## BACKGROUND

Pneumonia is one of the leading causes of morbidity and mortality from infection in elderly patients<sup>1</sup>. Nursing Home residents are at high risk as they have more functional disabilities and underlying medical diseases. Recognition may be delayed because, in this population, pneumonia often presents without fever, cough, or dyspnoea.<sup>2</sup>

In our Nursing Home, Pneumonia prevention remains a priority with the majority of our resident population being elderly, frail and at high risk to develop Pneumonia. In Mar 2019 to Aug 2019, there were a total of 30 pneumonia cases were identified in our 303-bedder nursing home, 83% (25 out of 30) were hospitalized. Thus, early identification and prevention is crucial to reduce the incident rate of Pneumonia.

## PROJECT GOALS

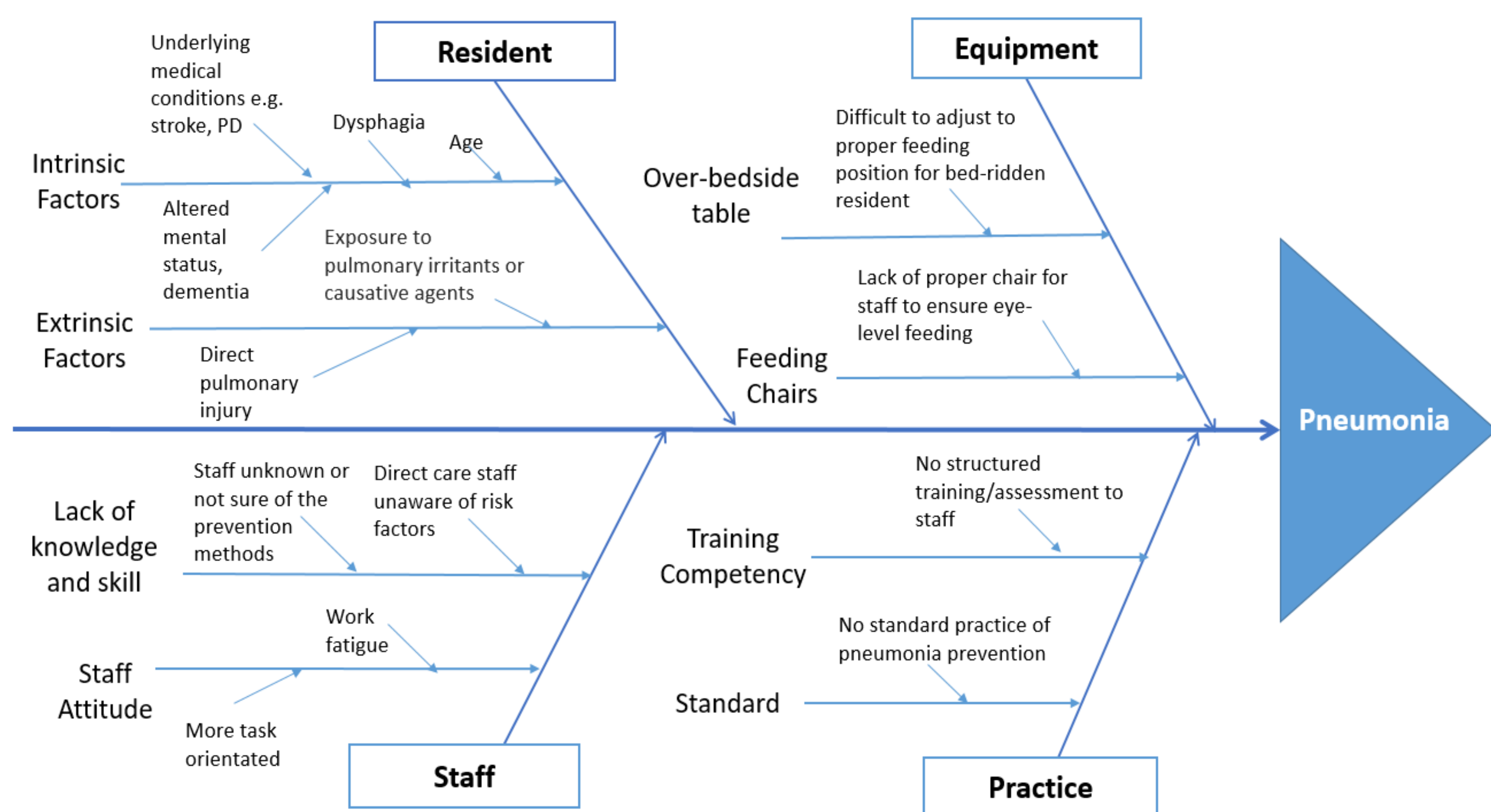
In this project, we aim to achieve the following goals:

1. Reduce the rate of Pneumonia per 1000-resident days by 20% over 3 years
2. To train at least 80% of all direct care staff in pneumonia prevention and management by end 2021

## ANALYSIS

Root Cause Analysis was performed to identify root causes. The Cause-and-Effect Diagram is shown below (Figure 1).

**Figure 1: Cause-and-Effect Diagram for occurrence of Pneumonia**



## SOLUTIONS AND IMPLEMENTATION PLAN

Based on the root causes identified, the team brainstormed various solutions. These solutions were evaluated for effectiveness, ease of implementation and sustainability.

Using the PICK chart, team decided to implement the following solutions:

1. Interactive staff training in pneumonia prevention
2. Pneumonia Prevention Care Bundle

**Figure 2: Components of Pneumonia Care Bundle**

Care Bundle Tagline: **I Prevent PNEUMONIA**

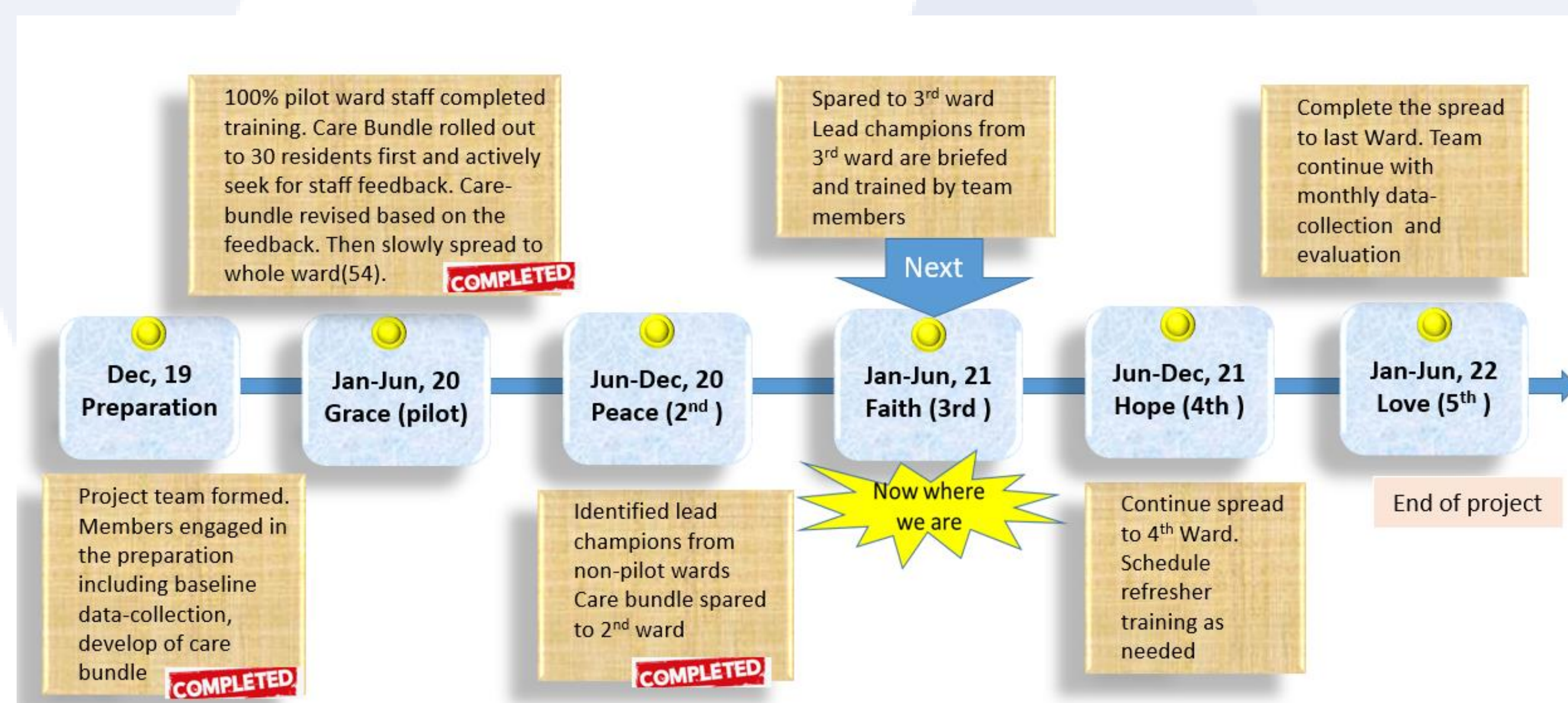
- Infection Prevention
- Pneumonia Alert
- Nutrition
- Education/Training
- Utensils & Oral feeding
- Mobility/ Chest Physio
- Oral Health/Care
- NGT Feeding
- Immunization
- Alert for dysphagia

## SOLUTIONS AND IMPLEMENTATION PLAN (continued)

We used “I Prevent Pneumonia” as a tagline, also an acronym for staff to easy remember the contents. Residents with more than 2 pneumonia risk factors are identified as high risk, and selected to use of care bundle. Residents with low risk, staff are reminded to continue current practice and monitor for any change in condition.

This project was started in Dec, 2019 in pilot ward, with a total of 54 residents. Both interventions (Staff Training and Care Bundle) were first piloted for 30 residents and then gradually spread to the whole ward, then spread to the 2<sup>nd</sup> ward. The project is still ongoing and below is the outline of the implementation plan for the project.

**Figure 3: Implementation Plan**

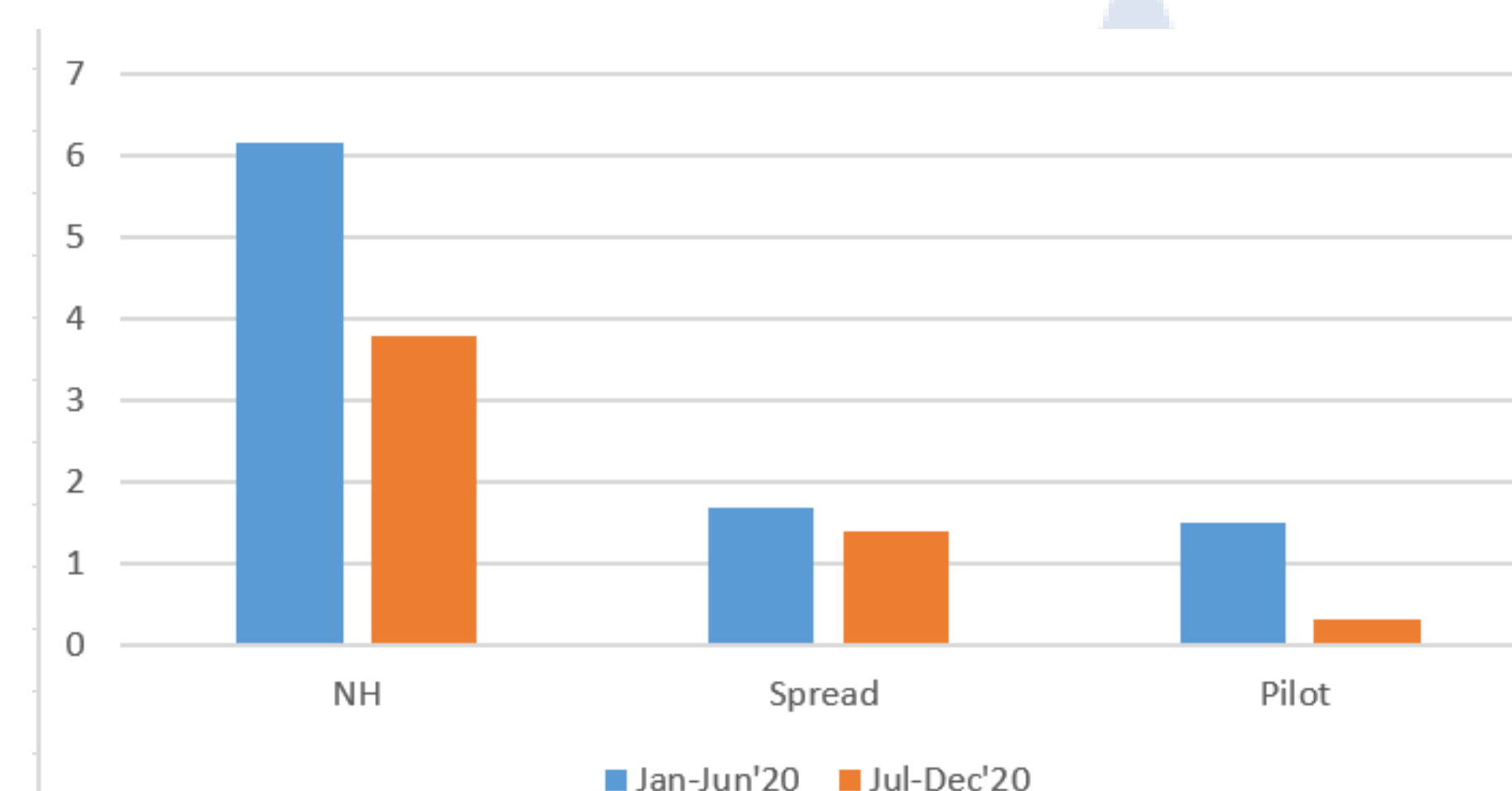


## BENEFITS / RESULTS

As of December 2020, we have completed staff training and roll out of project to 2 out of the 5 wards in our nursing home. 100% of direct care staff in these 2 wards have been trained. Pneumonia prevention training and use of care bundle has also been incorporated into the orientation training for new staff.

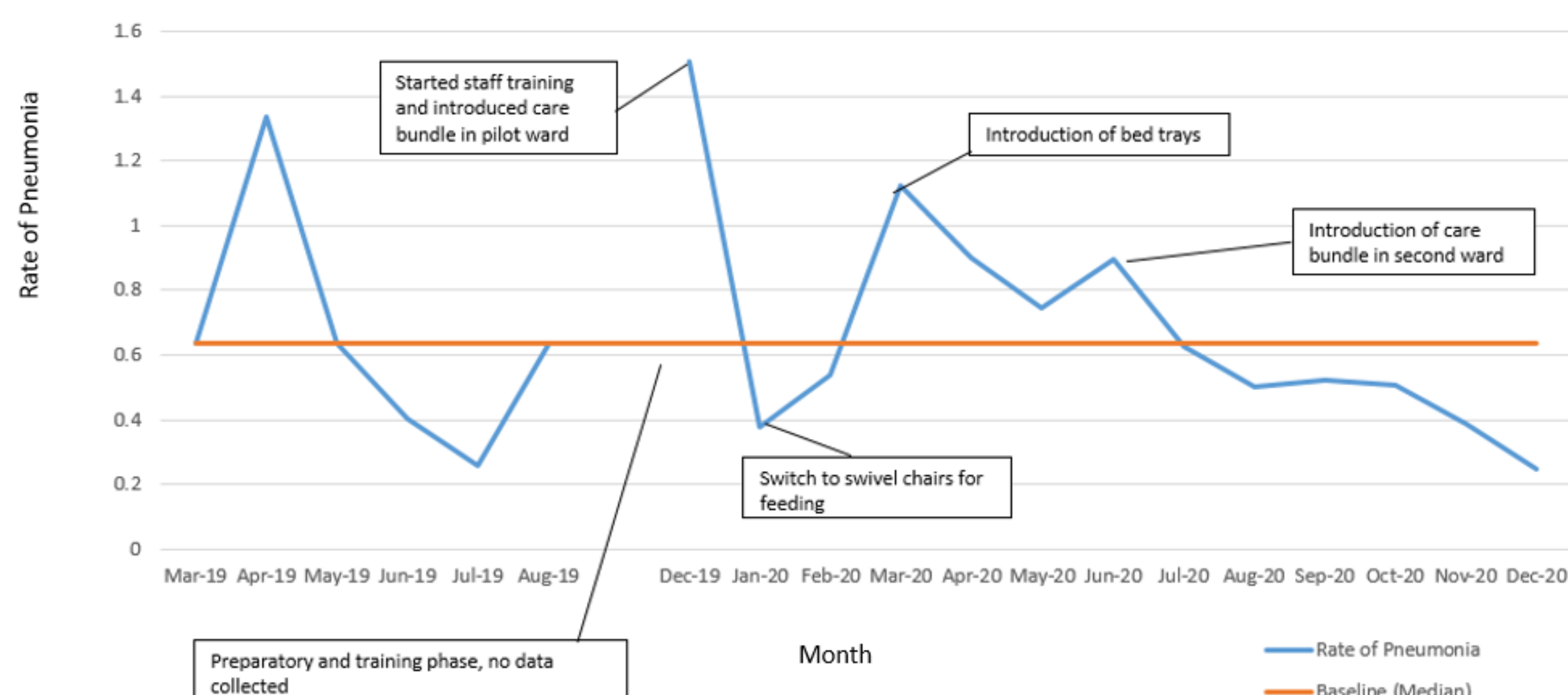
Comparing to 1<sup>st</sup> half year of 2020, there is a significant reduction of 73% (in pilot ward) and 16% (in spread ward) of pneumonia cases over 6 months.

**Chart 1: Comparison of Pneumonia cases over 6 months**



In Dec 2020, our rate of pneumonia cases per 1000-resident days is 0.24. This is an improvement from our baseline rate of 0.63. As of December 2020, our team has achieved a 9% reduction in rate of Pneumonia per 1000-resident days.

**Chart 2: Rate of Pneumonia in MWS Bethany NH-CKK**



## NEXT STEPS

While the project is still ongoing, we have successfully reduced the rate of Pneumonia by 9% from 63% (Mar-Aug 2019) to 54% from Dec 2019 –Dec 2020. The Team will continue to roll out to the entire nursing home by June 2022.

To ensure sustainability, the team will continue with:

- Monthly data collection,
- Regular check-ins with staff to collect feedback,
- Schedule refresher trainings on an annual basis, and
- Incorporate training on pneumonia prevention into new staff orientation training

References  
1. Collaborators GL (2017) Estimates of the global, regional, and national morbidity, mortality, and aetiologies of lower respiratory tract infections in 195 countries: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet Infect Dis* 17:1133–1161.  
2. Furman CD, Rayner, AV and Tobin, EP (2004) Pneumonia in Older Residents of Long-Term Care Facilities. *University of Louisville School of Medicine, Louisville, Kentucky*