

But First, Breathe: **STOP** Pneumonia in It's Track St. Andrew's Nursing Home (Buangkok)

Rainier A. Olendo, Rommel Quimzon, Pauline Jessel Briones, Maneni Pfokehii

BACKGROUND

Pneumonia is the leading cause of hospitalization and death in the nursing home settings and the second leading principal cause of death in Singapore as per Ministry of Health statistics. Data shows that from the year 2020 to 2022, 18% to 20% of deaths are caused by Pneumonia.

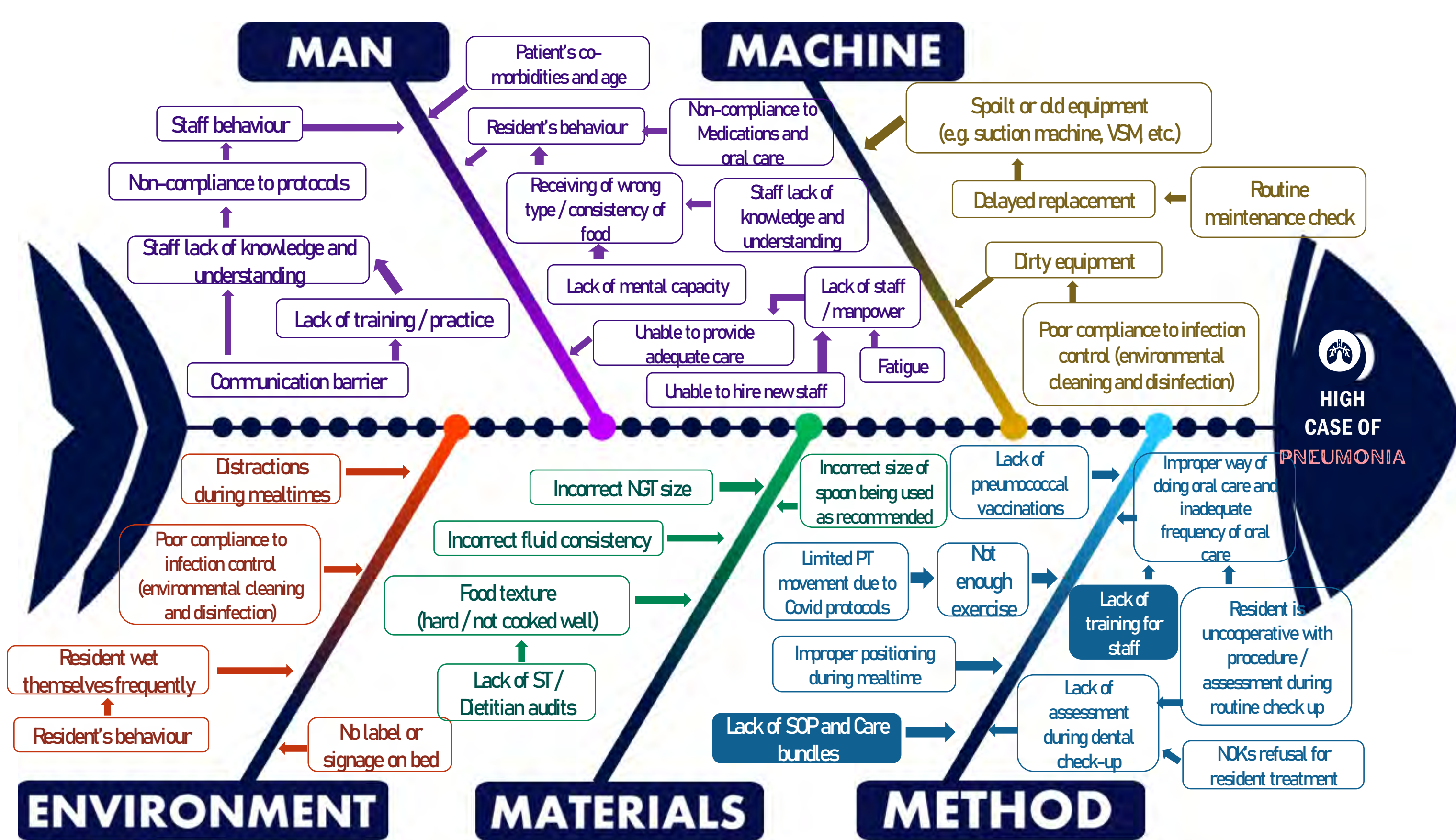
At St. Andrew's Nursing Home Buangkok (SANHB), a 300-bed nursing home for psychiatric and dementia residents, there were 32 cases of Pneumonia between January and June 2021 which all required hospitalization. This equates to incidence rate of 0.6 cases per 1000 resident days. In collaboration with Agency For Integrated Care - Quality And Productivity Division (AIC-QPD), SANHB embarked on a journey to reduce the Pneumonia incidences in the nursing home.

PROJECT GOALS

- To reduce Pneumonia incidence rate per 1000-resident days by 30% over 3 years from Sept 2021 at SANHB.
- To train over 75% of direct care staff to be skilled and knowledgeable in Pneumonia prevention and management.

ANALYSIS

In September 2021, nursing home champions attended a 5-day workshop by the AIC with various Subject Matter Experts in pneumonia prevention and management. An Ishikawa diagram was used to identify the root causes for high incidence rate of Pneumonia. We then used a pareto chart to identify areas to focus on which are lack of Standard Operating Procedures (SOP), staff trainings and care bundles.



SOLUTIONS AND IMPLEMENTATION PLAN

Based on multiple root causes identified, we developed care bundles and Pneumonia risk assessment tool to help staff screen residents and identify who are high risk of Pneumonia. Lectures and trainings were done to staff every Sunday for 5 consecutive weeks per ward. We started in Ward 1B and made it as our pilot ward. Progressively, the team were able to train the staff per Wards to equip them with the right knowledge and skillset. Furthermore, the management were able to procure Pneumonia vaccines for the residents to strengthen their body defense.

To monitor our progress, we submit our Pneumonia cases every month to AIC. These include any diagnosis made in the Nursing Home or in hospital discharge summary with the term "Pneumonia" in it. Nosocomial, aspiration, community acquired, and Covid-19 Pneumonia are all counted.

Conversely, Upper Respiratory Tract Infection (URTI) or Chest infection are excluded.

SOLUTIONS AND IMPLEMENTATION PLAN (CONTINUED)

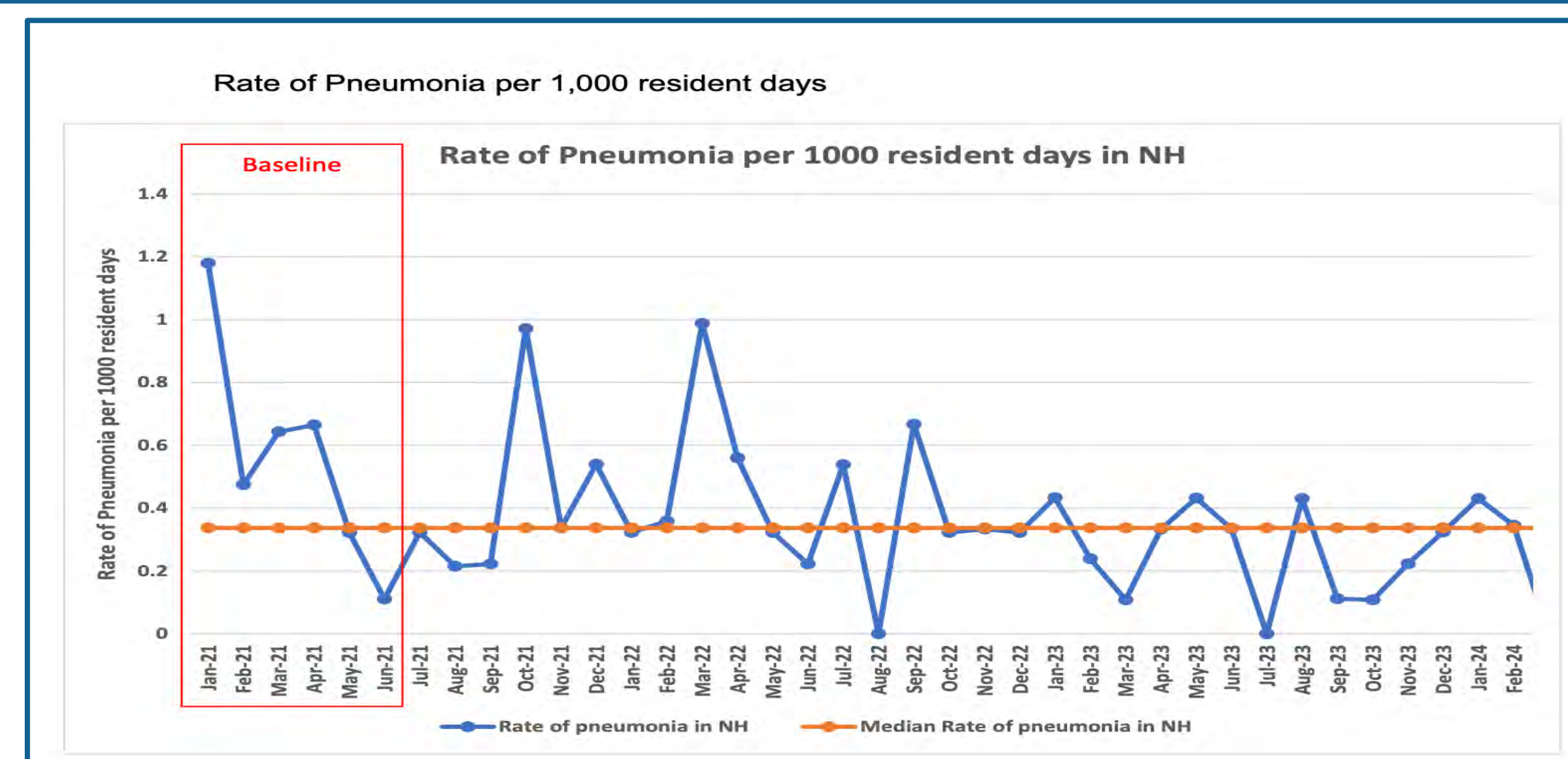
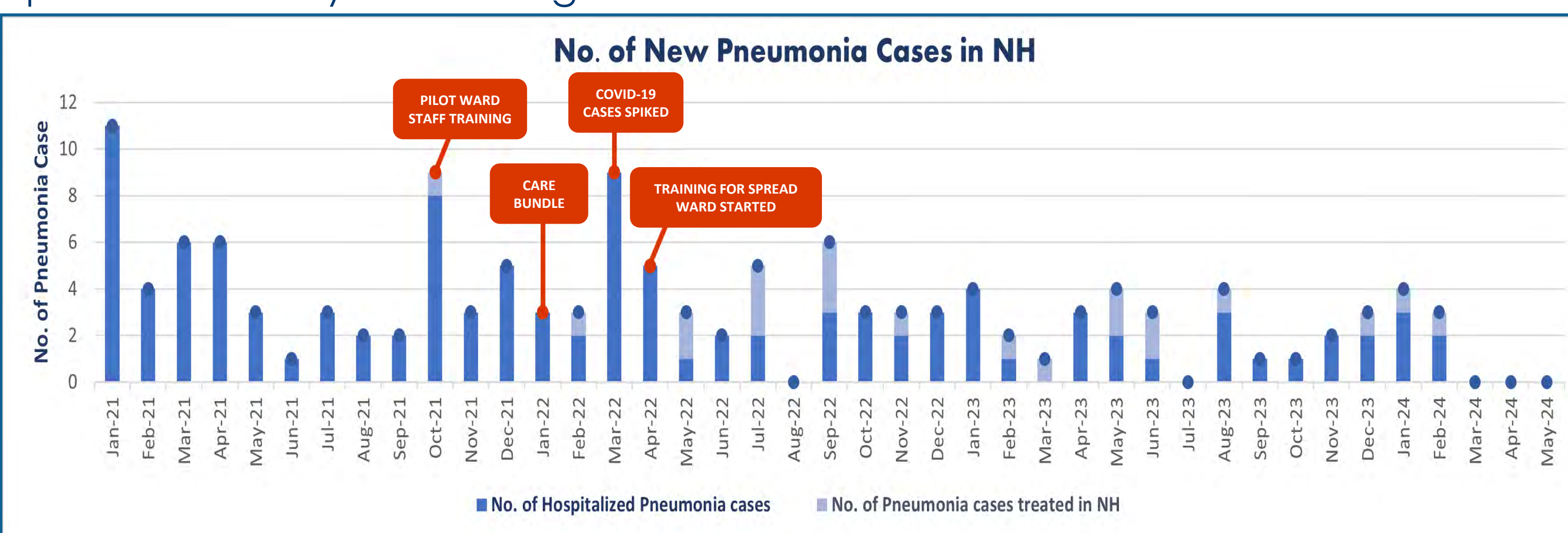
PNEUMONIA PREVENTION CARE BUNDLE

PNEUMONIA ALERT CARE BUNDLE	FEEDING CARE BUNDLE	ORAL HYGIENE CARE BUNDLE	MOBILITY CARE BUNDLE
<p>PNEUMONIA RISK ASSESSMENT TOOL</p> <p>Assessment on admission using the tool</p> <ul style="list-style-type: none"> Re-assessment (score of 1-3): 6 monthly High Risk (score of 4-7): 3 monthly <p>PNEUMONIA ALERT</p> <p>Watch out for Signs of infection</p> <ul style="list-style-type: none"> Fever Cough Shortness of breath Changes in mental status Persistent lethargic / drowsy <p>Report weight loss of more than 2kg/month</p> <p>Standby suction equipment at bedside</p> <p>Refer to Doctor</p>	<p>ORAL FEEDING</p> <ul style="list-style-type: none"> Hand Hygiene Check food / liquid consistency Assess conscious level (alert or drowsy) Proper positioning (sitting or high Fowler) <i>Staff to sit facing the resident at eye level</i> Chin tuck position Minimize distractions Observe swallowing Allow time to swallow (average 10 seconds) Ensure no pocketing of food Observe for any signs of aspiration (e.g. coughing) Maintain on upright position at least 30 minutes Document for any abnormalities observed <p>NGT FEEDING</p> <ul style="list-style-type: none"> Hand Hygiene Perform oral assessment and oral care before feeding Check the correct feeds (dilution, type) Check the external NGT length Ensure that the tape is secured Proper feeding position (sitting or high Fowler's) Check the last time of feeding and if there is any residual Check for aspirates and pH level If no aspirates noted, re-position for 15 minutes and check aspirate again pH of 1-5 may proceed to feed, if pH 6 and above don't proceed. Inform Staff Nurse. Watch out for any signs of aspiration or coughing episodes Stop NGT feeding if coughing noted and inform Staff Nurse Maintain in semi-Fowler's position for at least 30 minutes to 1 hour Document findings 	<p>ORAL CARE</p> <ul style="list-style-type: none"> Oral care twice a day for independent residents Oral care using oral swabs 3 times a day for residents with NGT (first feed, middle feed and last feed) Inform Staff Nurse for any abnormalities Change of toothbrush every 3 months or if needed <p>DENTURE CARE</p> <ul style="list-style-type: none"> Clean with mild dishwashing liquid Place the denture into denture containers labelled with the resident's name and NRIC No. Soak in clean water or denture cleansing agents at night Inform Next of Kin / Medical Doctor of dentures that are ill fitting or unsuitable for resident (For referral to the Dentist) <p>DENTAL REFERRAL</p> <ul style="list-style-type: none"> Yearly dental referral OHAT Score 19-25 Presence of toothache, tooth decay, plaque and pain 	<p>Physical Therapist assessment upon admission</p> <p>WHEELCHAIR BOUND</p> <ul style="list-style-type: none"> Sit out of bed twice daily ROM as recommended by PT <p>BED BOUND</p> <ul style="list-style-type: none"> Sit out of bed 3 times a week PROM as recommended by PT Turning 2 hourly in bed PT referral

BENEFITS / RESULTS

Primary outcome: The project's goal was met as the Pneumonia incidence rate in the whole nursing home was reduced by 40.3%. Baseline data from January to June 2021 was 0.6 cases per 1000-resident days, now the median incident rate is 0.33.

Secondary outcome: Staff Competency and residents' vaccination. 95% of staff were trained in Pneumonia prevention and management, exceeding the 75% target. Furthermore, 58% of our residents were able to receive the Pneumococcal vaccine since the approval of the vaccine procurement by our management.



SUSTAINABILITY

- To ensure sustainability of the project, the team will continue to:
- Screen the residents for risk of Pneumonia (high or low).
 - Lectures and training to all new staffs and updates for old staff.
 - Continuous procurement of pneumonia vaccines to residents.
 - Develop new Champions for each ward.
 - Continue monitoring Pneumonia statistics in the nursing home.