

# Home Long-Term Oxygen Therapy (LTOT): Increasing the Adherence to Home LTOT following hospital discharge in Patients admitted under Respiratory & Critical Care Medicine (RCCM)

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Department of Physiotherapy

## Mission Statement

To increase the percentage of patients admitted under RCCM who are discharged to home on LTOT who demonstrates adequate compliance\* at 1-week following hospital discharge from 56.3% to 80% (stretch goal: 90%) over the next 6 months.

#Includes patients who are newly initiated on Home LTOT and patients who are already on Home LTOT prior to admission

\*Adequate compliance: Using 15H/day on average/day after hospital discharge & SpO2 within set targets

Legend: LTOT: Long-Term Oxygen Therapy & RCCM: Respiratory and Critical Care Medicine

## Team Members

	Name	Designation	Department
<b>Team Leader</b>	Audrey Lee Jia Yi	Senior Physiotherapist	Physiotherapy
<b>Team Members</b>	Dr Coliat Cheila May Dizon	Senior Resident Physician	RCCM
	Quek Poh Seo	Advanced Practice Nurse	Specialty Nursing
	Nicole Low Ker En	Senior Medical Social Worker	Care & Counselling

### Sponsors:

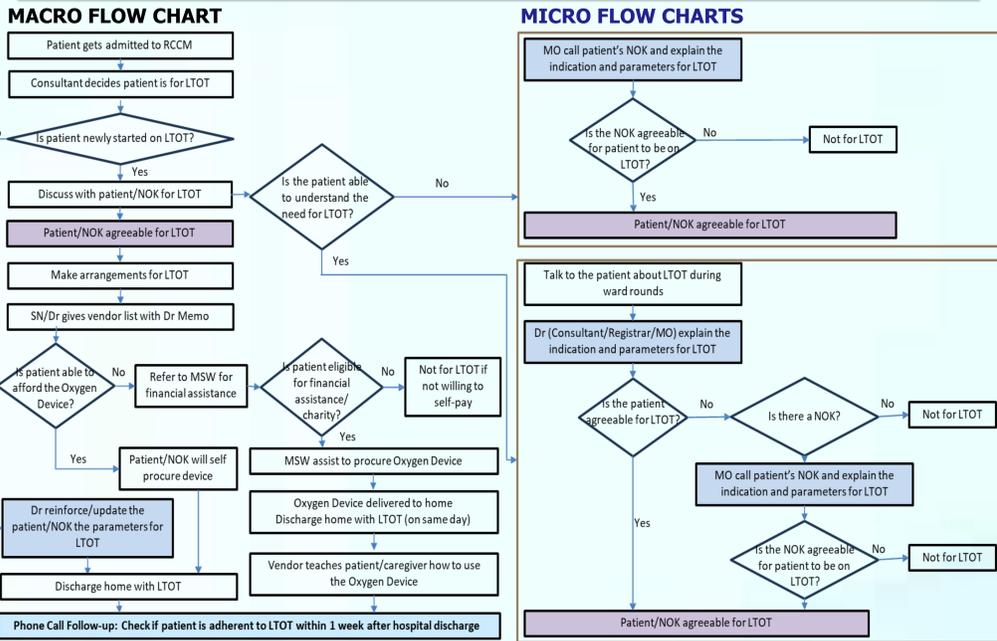
- Adj A/Prof Pua Ser Hon (Head of Department, RCCM)
- Mr Christopher Ng Thong Lian (Head of Department, Physiotherapy)

**Mentors:** Adj Asst Prof Justina Tan Wei Lynn & A/Prof Tay Jam Chin

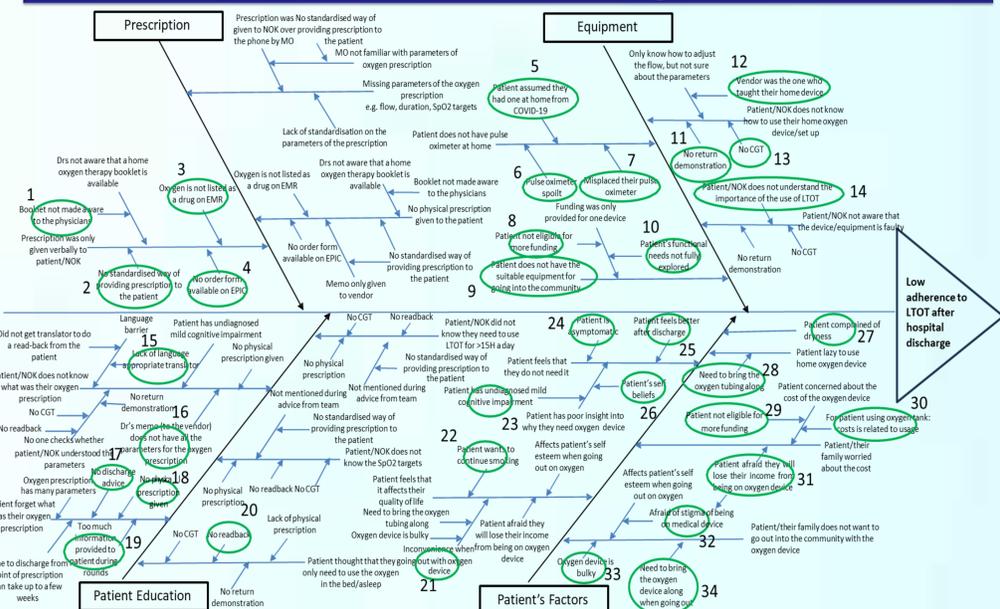
## Evidence for a Problem Worth Solving

- Long-term oxygen therapy is an established treatment to prolong survival along patients with chronic, severe resting hypoxemia\* (BTS Guidelines, 2015)  
Chronic, severe hypoxemia\*: (1) PaO2 < 55mmHg (2) PaO2 < 60mmHg in presence of signs of cor pulmonale, hematocrit > 55%
- For maximal benefits, Long-Term Oxygen Therapy is recommended to be used at least 15 hours/day (Superior to intermittent or nocturnal use) (NOTT trial group, 1980; Medical Research Council, 1981; Kocuzilla et al., 2018, MOH Clinical Practice Guidelines, 2017)

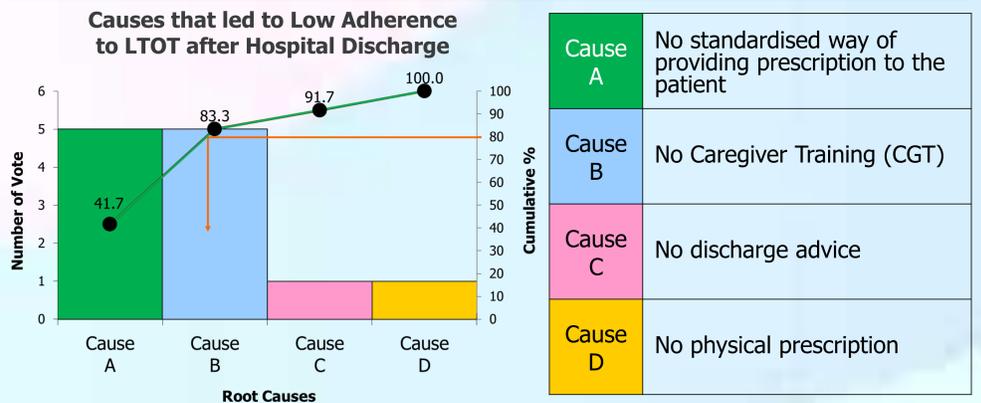
## Flow Chart of Process



## Cause and Effect Diagram



## Pareto Chart



## Implementation

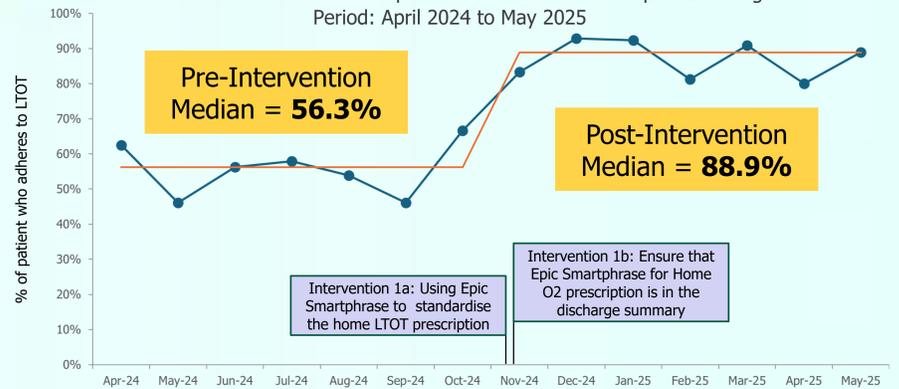
Root Cause	Intervention	Implementation Date
<b>Cause 1:</b> No standardised way of providing prescription to the patient	Standardise the way of providing prescription to the patient using Epic Smartphrase	24 Oct 2024

## Results

### Percentage of Patients\* Adherent to Home Long-Term Oxygen Therapy

\*Patients under RCCM who required Home LTOT after Hospital Discharge

Period: April 2024 to May 2025



	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25
Number of patients adhering to LTOT	10	12	9	11	7	6	8	5	13	12	13	10	8	8
Number of patients on LTOT	16	26	16	19	13	13	12	6	14	13	16	11	10	9
% of patient who adheres to LTOT	62.5	46.2	56.3	57.9	53.8	46.2	66.7	83.3	92.9	92.3	81.3	90.9	80.0	88.9

## Cost Savings

	Pre-Intervention 7 months: Apr'24 to Oct'24	Post-Intervention 7 months: Nov'24 to May'25	
% of patient who are compliant to home LTOT	56.3%	88.9%	
Number of patients who are non-compliant to home LTOT	52 (i.e. 7 patients per month)	10 (i.e. 1 patient per month)	
<b>Oxygen Concentrator</b>	<b>Stationary</b>	<b>Portable</b>	<b>Both</b>
Potential Cost Avoided (Per Patient)	\$2,000	\$3,900	\$5,900
Potential Cost Avoided (Per Month)	\$2,000 x (7 - 1) = \$12,000	\$3,900 x (7 - 1) = \$23,400	\$5,900 x (7 - 1) = \$35,400
Potential Cost Avoided (in 1 Year)	\$12,000 x 12 = \$144,000	\$23,400 x 12 = \$280,800	\$35,400 x 12 = \$424,800

## Strategies to Sustain

- Incorporate the education of rotating junior staff at department orientation meeting by MSW
- Organise roadshow to RCCM - Getting non-rotating staff in the department (e.g. consultants) to assist in reinforcing the use of the Epic Smartphrase
- Convert Epic Smartphrase into Order for Home O2 (similar to medications)
  - Making the process more familiar to regular medication order to make it easier for the Doctor to remember compared to using Smartphrase i.e. more related to documentation
  - Simplify the process for data collection and extraction via Epic

## Lessons Learnt

- Take feedback from different stakeholders including the patients
- Consider the stakeholders on the team depending on the duration of measurement
- Consider the work process to make it more sustainable for all the stakeholders