

# Inhaler Optimisation and Cost-associated Impact of Inhaler Polypharmacy in Patients with Chronic Obstructive Pulmonary Disease

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## BACKGROUND

- Inhaler Device Polypharmacy (IDP) is a growing problem in COPD patients and has been linked to poor technique and frequent hospitalisation.
- Device rationalisation is an essential component of medication management which improves cost-effectiveness and reduces exacerbation rates.

## OBJECTIVE

To determine the appropriateness of inhaler rationalization and association with rehospitalisations in older people (>65 years) with moderate-severe COPD and determining the cost-effectiveness of Single-Inhaler Triple Therapy (SITT) versus Multiple-Inhaler Triple Therapy (MITT).

## METHOD

Medical records of 106 admissions with moderate-severe COPD (defined as Forced Expiratory Volume of less than 50% predicted) in the respiratory wards between December 2020-May 2021 were reviewed, along with pharmacy dispensing reports for cost evaluation.

Data collected include hospitalisation recurrence within 12 months, co-morbidities, and degree of polypharmacy. Inhaler technique was also assessed, through a checklist prepared by COPD Nurse, and utilised as part of the parameter derived from UR-RADAR Criteria (**U**ncont**R**olled COPD, **R**eview-**A**ssess-**D**iscuss-**A**llow-**R**e-educate) to evaluate appropriateness of inhaler simplification by switching MITT to SITT-eligible patients.

## RESULTS

- 60 admissions (57%) were discharged without appropriate puffer rationalisation.
- 85% had two inhalers while 3.3% had three long-acting inhalers.
- Good puffer technique was observed in only 23.2%.
- There is a general prevalence of 4.2 co-morbidities per admission, which includes Acid-reflux (58%) and Heart Failure (44.3%)
- Exacerbation recurrences (>2 readmissions) were comparably higher in MITT (44.3%) compared to SITT patients (33.1%).
- \$5,480.79 (19.9%) was spent on MITT, in comparison to \$3,726 (13.5%) for SITT on a dispensation-cost of approximately \$30,000 suggesting its cost-effectiveness.

'Figure 1: Number of admissions who received inhaler rationalisation from December 2020 to May 2021 (n=106 admissions)

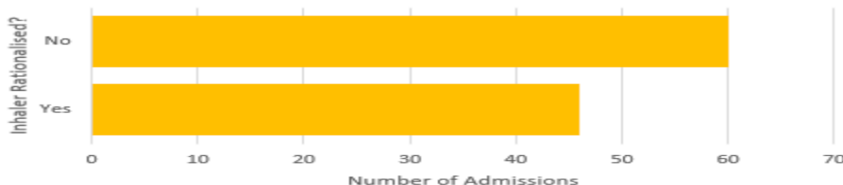
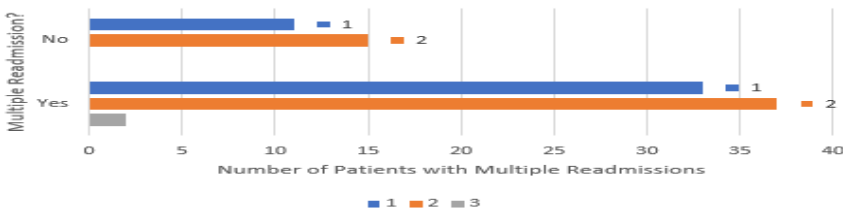


Figure 2: Readmission Rates According to Number of Inhalers from December 2020 to May 2021



## CONCLUSION

IDP is prevalent among COPD patients and presents a clinical opportunity for Pharmacists to intervene by rationalising therapy and provide inhaler education, which could potentially reduce exacerbation rates thus, maximising cost-effectivity of inhaler expenditure and improve patient compliance.

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