



Service Priorities and Programmes Electronic Presentations

Convention ID: 46

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Development, Validation and Application of an Inhaler Technique Competency Assessment Framework in Senior Dispensers and Dispensers in a Local Hospital

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Keywords:

Inhaler technique

Competency and competence

Training workshop

Assessment framework

Dispenser

Education and empowerment

Introduction

There is a substantial demand for patient education at outpatient pharmacies in Queen Elizabeth Hospital (QEH). Dispenser-grade staff are qualified to assist pharmacists in drug dispensing and patient education. Inhaler technique is a promising area for education. However, suboptimal inhaler technique was prevalent among healthcare professionals according to literatures. Therefore, establishing inhaler technique competency in the staff is important.

Objectives

(1) to develop and validate an inhaler technique competency assessment framework for Metered-dose inhaler (MDI), MDI+Aerochamber, Accuhaler, Turbuhaler, Handihaler, Soft Mist inhaler, Breezhaler and Ellipta inhaler; (2) to establish an inhaler technique training workshop; and (3) to assess the effectiveness of the workshop in improving and maintaining inhaler technique.

Methodology

An inhaler technique competency assessment framework was developed based on literature review and validated by 3 Board Certified Pharmacotherapy Specialist pharmacists from QEH and 2 academic pharmacists from the University of Hong Kong. All participants were assessed on both verbal and physical inhaler technique at baseline. They then attended a training workshop which consisted of a 30-minute video demonstration and a 90-minute practice session. Participants were assessed immediately and 1-month post-workshop. Participants were re-assessed until a pass score was achieved, defined as obtaining at least 95% of total score without meeting any failing criteria.

Result

All participants (N=12) failed at baseline [MDI: 55.20±11.8, MDI+Aerochamber: 65.83±9.24, Accuhaler: 54.17±15.00, Turbuhaler: 36.77±14.27, Handihaler: 63.14±8.49, Soft Mist inhaler: 16.40±16.32, Breezhaler: 70.54±9.72, Ellipta inhaler: 42.27±20.52]*. After training, participants' inhaler technique was significantly improved [MDI: 99.31±1.03, MDI+Aerochamber: 98.33±2.07, Accuhaler: 95.83±3.41, Turbuhaler: 97.99±2.18, Handihaler: 99.68±0.71, Soft Mist inhaler: 98.92±1.82, Breezhaler: 99.72±0.61, Ellipta inhaler: 100.00±0.00, p<0.01 for all pairs]*. Inhaler technique was retained after 1-month time without significant deterioration in assessment scores. (* All scores are expressed out of 100)

A validated inhaler technique competency assessment framework has been developed for staff training purpose. Suboptimal inhaler technique was prevalent among staff. A training workshop was effective in enhancing staff's inhaler technique. The competent staff are now given the responsibility to educate patients at outpatient pharmacies. This not only improves patient care but also enhances the professional development of dispensers and saves pharmacists' time for more specialized services.