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Title: A cross-sectional study examining inpatients' metered dose inhaler technique and the impact of assessment and education on its effective use

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Body: Introduction: Metered dose inhalers (MDI) are often prescribed during hospital admission. MDI technique influences clinical effectiveness, yet inpatient assessment and education regarding this skill may not happen routinely. Objectives: We hypothesised that a) inpatients on an acute medical ward often have poor MDI technique and b) simple assessment and education could improve MDI technique. Methods: A cross-sectional study was conducted on inpatients prescribed an MDI on an acute medical ward during the month of October 2011. Technique was assessed using an Aerosol Inhalation Monitor, by a Health Care Assistant (HCA) trained in its use. Patients with poor technique had simple training and assessment was repeated. Results: A total of 38 patients were studied (M:F=1.1:1, Age range=40-91). Initial assessment showed only seven patients (18.4%) were able to use the device effectively. The 31 patients (81.5%) that failed initial assessment had simple education regarding technique, and of these eight (25.8%) were then able to successfully use the MDI. Out of the 23 patients that failed reassessment, even after education, 10 (43.5%) were unable to “synchronise” administration of medication and a spacer was prescribed. The remaining 13 patients (56.5%) that failed reassessment were unable to use an MDI even with a spacer device. Conclusions: The majority of inpatients prescribed an MDI were unable to use the device effectively. Basic education and inhaler adjuncts addressed many of the difficulties with MDI usage in this patient group. HCA led assessment of inhaler technique appears to be an invaluable tool in tailoring the use of MDI.