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Title: An investigation of peak cough flow (PCF) rates in patients post lung resection

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Body: Introduction: Postoperative patients have an impaired airway clearance mechanism and the amount of mucus they produce in the post operative period is often increased (Smith and Ellis 2000). Peak cough flow (PCF) rates <160L/min are considered inadequate to facilitate airway clearance (Bach 1996). Aim: To investigate whether inadequate PCF in patients following lung resective surgery was predictive of hospital length of stay (LOS), high dependency unit (HDU) bed days or days requiring non-invasive ventilation (NIV). Methods: PCF measurements were obtained preoperatively and day 1 – 3 postoperatively in 17 patients following lung resective surgery. Descriptive statistic and ANOVA analysis was performed using SPSS, results are presented as mean +/- standard deviation. Results: 17 patients met the inclusion criteria and consented for participation, 3 did not complete post operative testing, therefore results are presented for 14 participants (male 4; age 65.6 y +/-7.5; FEV₁/FVC 70.4 % +/- 9.1; HDU LOS 2.1 d +/- 1.2; hospital LOS 11.6 d +/-5.2). There was a reduction in PCF immediately following surgery (PreOp PCF 268 +/- 127; D₁PCF 118 +/-55; D₂PCF 130 +/- 62; D₃PCF 139 +/- 66). There was no correlation between post operative pain scores and PCF values. When differentiated into groups using <160L/min as a measure of ineffective cough, no difference was ascertained in requirement for NIV (n=2), HDU or hospital LOS at any time point. Conclusion: PCF is a simple easy tool to assess cough efficiency. Its use in this patient group is novel, however the figure of >160L/min unit is not a useful tool for prediction of NIV requirement, HDU or hospital LOS.