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**Title:** Redihaler with filter mouthpiece versus NebuChamber with inhalation valve

Ms. Ellen 23130 Ruberg e.ruberg@isala.nl<sup>1</sup>, Ms. Irene 23131 Steenbruggen i.steenbruggen@isala.nl<sup>1</sup>, Mr. Steven 23132 Uil s.m.uil@isala.nl<sup>2</sup> and Dr. Hans 23133 Grotjohan h.p.grotjohan@isala.nl MD<sup>2</sup>.<sup>1</sup> Lung Function Laboratory, Isala Klinieken, Zwolle, Netherlands, 8011 JW and <sup>2</sup> Dept of Pulmonary Diseases, Isala Klinieken, Zwolle, Netherlands, 8011 JW .

**Body:** Introduction The NebuChamber has a removable one way inhalation valve, therefore we use this device at our lab to administer salbutamol for assessing bronchodilator response. However, the production of the NebuChambers has been discontinued due to manufacturing issues. A new way to administer salbutamol could be the Redihaler with a filter mouthpiece. We examined whether this filter affected the outcome of bronchodilator response after methacholine challenge. Methods From October to December 2011, in 97 patients (73 women (mean age 45±20) and 24 men (mean age 51±19)) salbutamol was administered with a NebuChamber after a positive methacholine test (decrease FEV1≥ 20%). From March to December 2012, in 94 similar patients (68 women (mean age 46±16) and 26 men (mean age 51±18)) salbutamol was administered with the Redihaler with filter mouthpiece. The number of patients returning to FEV1≥95% of the initial value between both groups was compared. Results In the NebuChamber group, 68 patients (70%) returned to FEV1 ≥95% of the initial value, whereas 29 patients (30%) did not return to it. In the Redihaler group these numbers were 62 patients (66%) and 32 patients (34%), respectively. The difference of 4% between the two groups was not significant (P=0.54) Conclusion This study found no clinically relevant nor a statistically significant difference in outcome of the bronchodilator response after administration of salbutamol with NebuChamber or Redihaler with filter mouthpiece. For assessing bronchodilator response after methacholine challenge, the Redihaler with filter mouthpiece is a useful alternative.