E-MONITORING OF ASTHMA THERAPY TO IMPROVE COMPLIANCE IN CHILDREN (e-MATIC)

Erwin Vasbinder¹,², Hetty Janssens³, Maureen Rutten - van Mölken⁴, Liset van Dijk⁵, Arnold Vulto¹, Patricia van den Bemt¹

(1) Department of Hospital Pharmacy, Erasmus Medical Center, Rotterdam, The Netherlands, (2) Department of Hospital Pharmacy, Groene Hart Hospital, Gouda, The Netherlands, (3) Department of Paediatrics, Erasmus Medical Center / Sophia Childrens Hospital, Rotterdam, The Netherlands, (4) Institute for Medical Technology Assessment (iMTA), Rotterdam, (5) NIVEL, Utrecht, The Netherlands

Background

Asthma is the most common chronic childhood disease in industrialised countries. Asthma control in children is poor, partly due to poor medication adherence. Effective interventions are needed to improve medication adherence.

Aim

The aim of the project is to improve adherence to inhaled corticosteroids in children with asthma by using a Real-Time Medication Monitoring system (RTMM) and SMS alerts and to study whether improved adherence has an effect on asthma control and cost-effectiveness of treatment.

Methods

Design: A multicenter, randomized controlled trial in the St Lucas Andreas Hospital, the Academic Medical Center, the BovenIJ Hospital (all three in Amsterdam), the Erasmus MC (Rotterdam) and the Groene Hart Hospital (Gouda).

Patients: Included are children (4-11 years) with moderate to severe doctor diagnosed asthma, who have been using inhaled corticosteroids (ICS) with a pressurized metered dose inhaler (pMDI) for asthma for at least 3 months.

Intervention: All children receive an RTMM-device, but only in the intervention group text-messages are sent to the parents and - in case the child has a mobile phone - to the child to warn that a dose is at risk of omission. The text-messaging-reminding is tailored in that warnings are only sent if non-adherence is likely to occur. Study period: 1 year.

Outcome measures and data collection: In both groups RTMM data are used to determine adherence, which is the primary outcome measure of this study. This outcome is defined as the percentage of prescribed dosages taken by the child within a 6 hour time-frame around the expected time of inhalation (from 3 ours before until 3 hours after). Secondary outcome measures are asthma control (collected from monthly, webbased Asthma Control Test for children), exacerbations and health care use (collected from hospital records, patient report and drug delivery data), and disease-specific quality of life (collected through the PAQLQ questionnaire). Online focus groups and patient questionnaires will be used to collect data on parental and children's acceptance of the system. An economic evaluation will be performed adopting a societal perspective, including all relevant healthcare costs and productivity loss of the parents. Furthermore, a decision-analytic model will be developed that includes different levels or forms of adherence and the outcomes, both clinical and costs, attributed to each level or form of adherence as well as different price levels for RTMM.