An interactive monitoring device reduced asthma symptoms and functional limitations in inner city children with asthma


**QUESTION:** Does an interactive, home based device that monitors asthma symptoms, aspects of quality of life, and self care (Health Buddy) reduce asthma symptoms and increase self care behaviours in inner city children with persistent asthma?

**Design**
Randomised [allocation concealed]*, controlled trial with follow up at 6 and 12 weeks.

**Setting**
An inner city primary care clinic in Oakland, California, USA.

**Patients**
134 children who were 8–16 years of age (mean age 12 y, 57% boys, 76% African-American), had a diagnosis of persistent asthma, had an English speaking caregiver, and had a telephone at home. Exclusion criteria were involvement in other asthma or drug efficacy studies or behaviour modification research, mental or physical challenges that made it difficult to use the Health Buddy, or comorbid conditions affecting quality of life. Follow up was 96% at 6 weeks and 91% at 12 weeks.

**Intervention**
66 children were allocated to the Health Buddy (Health Hero Network, Mountain View, California), an interactive device connected to a home telephone. Each day, a nurse coordinator sent a set of queries (dialogues) using a standard internet browser. Children answered the queries by pressing 1 of 4 buttons. The dialogues were aimed at a third grade reading level and consisted of 10 questions about asthma symptoms, peak flow readings, use of medication and health services, and functional status. Each answer by the child received immediate feedback from the device (ie, praise for a correct answer or encouragement to try again). Children were to access the device on their own at a regular time once each day. 68 children were allocated to the control group and used a standard asthma diary to log their symptoms, peak flow, medication use, and restricted activity.

**Main outcome measures**
Main outcome was limitation in activity because of asthma. Secondary outcomes included peak flow readings in the red zone (< 50% of personal best, signalling asthma that is not sufficiently controlled and requires additional medication), and per-ceived asthma symptoms in the previous 14 days; missed school days and use of health services because of asthma; and urgent calls to health services when compared with a standard asthma diary.

**Conclusion**
In inner city children with asthma, an interactive communication device for monitoring asthma symptoms and functional status reduced limitations in activity and urgent calls to health services when compared with a standard asthma diary.

*Information provided by author.

**COMMENTARY**
The study by Guendelman et al used a child centred approach to asthma self management. Children communicated directly with nurses through the Health Buddy. Differences in the reporting of symptoms between parents and children and different perceptions of quality of life suggest that it is important to obtain information directly from children who have asthma rather than relying on adult carers to describe symptoms and quality of life. New communication technologies such as the Health Buddy could help to empower children to take a larger role in their own care.

Study participants were children attending an ambulatory clinic serving an inner city Medicaid insured population, and thus generalisability to other populations may be limited. The follow up period was too short to assess lasting changes in health behaviour, and the authors note that in both groups, children recording of health maintenance data diminished towards the end of the study, which might be attributed to saturation with the health messages.

The results of this study are relevant to community and hospital based nurses, particularly those planning self management programmes for children with asthma. Because of the eventual drop off rate in using the Health Buddy system and asthma diary, Guendelman et al suggest that this intervention might be better targeted to children during critical care management times, such as the start of asthma care or after an acute exacerbation or hospital admission. Further research is needed to evaluate the effectiveness of a more targeted use of the Health Buddy system, and whether the system is more effective and cost effective than close follow up by a nurse case manager alone.

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