

Alert Management for Asthmatic Children and their Parents Using an Integrated Telephone-based Communication System

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Background

Recent advances in telecommunications technology have made it possible to link patients in their homes to computer networks via computer, telephone, and other devices – creating new opportunities for the application of information science to support the monitoring and care of chronic conditions such as asthma.

We have previously described TLC-Asthma,¹ an integrated information system developed to link patients, case managers, and their primary clinician. The system includes: 1) an automated telephone-based patient communications system; 2) a Web-based alert reporting and nurse case management system; 3) transfer of patient reported information to primary care clinicians; and 4) use of EHR-based reporting for clinical decision making at the point-of-care. The system has been developed for use within a multi-specialty group practice in eastern-Massachusetts.

System Overview

The core element of asthma care in TLC-Asthma is alert detection, communication and asthma case management by IT enabled nurse case managers. To-date, 65 patients have been enrolled in a randomized trial to evaluate the TLC-Asthma system (32 in the TLC-Asthma intervention group). Approximately 160 children and parents will be enrolled in the study by the end of June 2004. In this paper, we present preliminary results summarizing alerts generated and case management interventions provided by TLC-nurses.

Methods

The TLC-Asthma Alert Log was analyzed with regard to number and type of alerts generated for study children and their parents. Case manager documentation notes were manually reviewed and classified into the 5 groups shown in Table 3.

Conclusion

These results summarize alerts reported and care provided by nurse case managers using TLC-Asthma. The system is able to detect important deficiencies and opportunities in asthma care leading to case management interventions.

Results

Table 1. Summary of TLC-Alerts Generated

	Child # (%)	Parent # (%)
Total calls to system	279	246
Total Alerts	161	149
# (%) Level 1 - emergent	3 (2)*	1(1)*
# (%) Level 2 - appropriate for case management	158(98)	148(99)

*all level 1 alerts were found to be non-emergent

Table 2. Alerts Generated

	Child # (%)	Parent # (%)
Child seriously ill	5(3)	2(1)
Persistent asthma symptoms	29(18)	31(21)
Missed school due to asthma	9(6)	0(0)
Medication change	21(13)	22(15)
Out of medication	11(7)	6(4)
Medication knowledge deficiency	15(9)	22(15)
Rx does not match symptoms	20(12)	24(16)
Excessive reliever med. use	37(23)	42(28)
Persistent trigger exposure	0(0)	3(2)
Peak flow monitoring problem	14(9)	11(7)

Table 3. Findings after Alert Follow-up

	# (%)
Family contacted	301 (98)
Symptoms reviewed – child doing well	130(41)
Asthma Education Provided	75 (23)*
Medication refilled	1 (1)
Referred to PCP	7(2)
Patient or system error	93 (29)
EMR documentation warranted	91 (28)
Copy to PCP warranted	28(9)

* all children were also doing well

References

1. Adams, WG, Fulbridge, AL, Miller, CW et. al. TLCasthma: An Integrated Information System for Patient-centered Monitoring, Case Management, and Point-of-Care Decision Support. Proc. AMIA Symp. 2003; 1-5.