

# THE ROLE OF TELEPHONE CASE MANAGEMENT AFTER SCHEDULED OUTPATIENT VISITS FOR PEDIATRIC ASTHMA

Asthma is one of the most common chronic diseases of childhood and its management requires ongoing assessment. Asthma disproportionately affects under-served children, including those from ethnic minority groups, urban settings and low-income households. This evaluation targeted the telephone follow-up component of a comprehensive pediatric asthma management program based in an academic, urban public hospital.

Within two weeks of a visit to the pediatric asthma clinic, a culturally competent health worker, trained in pediatric asthma care, telephoned each patient's family to assess compliance with the patient's Asthma Action Plan, access to medications, receipt of appropriate supplies, and their overall understanding of the information presented at the clinic visit.

In 2007, 382 patients visited in the clinic for a total of 659 visits, with a patient age-range of 4 months to 20 years. Overall, 84% patients were successfully contacted after their visit. Among successful phone contacts, 99% reported that they had an Asthma Action Plan and 85% were able to accurately report their medications. Additionally, 4% had difficulty filling prescriptions and 79% were unclear how to approach an asthma emergency. In all of these cases, health workers resolved pharmacy problems and re-educated all patients. Among those who were not reached for telephone followup, 67% later returned for their next scheduled visit. Latinos comprised 56% of the total visit population, but 78% of those visits were not successfully followed by phone.

Telephone case management, an inexpensive, efficient method of followup, uncovered patient concerns not previously noted in clinic visits, such as pharmacy issues and emergency plans. Although not a replacement, telephone case management appears to be a helpful adjunct to clinic visits.

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pediatric asthma management program.

## INTRODUCTION

Asthma is a leading childhood disease. In a 2006 CDC report, 9.9 million US children had ever been diagnosed with asthma and, of these, about 6.8 million reported having current asthma symptoms. Symptoms of asthma can vary greatly in frequency and severity, ranging from intermittent mild symptoms to an incapacitating and life-threatening disorder.<sup>1,2</sup> Asthma morbidity and mortality disproportionately affect children,<sup>2</sup> particularly under-served children, including those from ethnic minority groups, urban settings, inner city children and low-income households.<sup>3</sup> CDC statistics report that 17% of African American and 13% of Hispanic children have asthma.<sup>2</sup> NHBLI guidelines for asthma management focus on several areas including correct diagnosis, appropriate use of medications, environmental triggers and ongoing assessment.<sup>1</sup> The comprehensive pediatric asthma management program at San Francisco General Hospital employs a multi-disciplinary team, including clinicians, nurse practitioners and healthcare workers who work with patients and their families to assess the patient's asthma and provide education on asthma management. The asthma clinic has added a telephone followup component to continue to keep contact with patients and provide immediate re-education when needed. This evaluation targeted the effectiveness of the telephone followup component at the San Francisco General Hospital comprehensive

## METHODS/MATERIALS

For the telephone followup, our study used a form that included key questions regarding a patient and their family's knowledge of their Asthma Action Plan, medication compliance, pharmacy problems, and an emergency asthma plan. The telephone followup forms were filed into binders by year and date of visit. To analyze 2007 telephone followup, data from binders were entered into an Excel file. The Excel file included the patients name, visit date, and date of next appointment as well as questions regarding the four key areas targeted in the study. After completing the data entry, the data were analyzed using STATA based on the four key areas of our study. After the data were analyzed, I gathered relevant demographic information for each patient from the hospital database. This included noting whether or not the unreachable patients returned for their next scheduled asthma clinic appointment. Throughout this study, I was also able to shadow clinic visits at the SFGH Asthma Clinic to actually see how the clinicians filled out the telephone follow-up forms in order to get a more well-rounded sense of patient visits and case management.

## RESULTS

In the period of this study, 382 patients visited in the clinic for a total of

659 visits, with an average patient age of 7.0 years (range 4 months–20 years). Overall, 554 of the contact attempts were successful and 108 (16%) were not contacted (Table 1). Of all surveyed ethnicities, Latinos had the greatest proportion of unreachable families—78%. Among all successful phone contacts, 99% reported that they had an Asthma Action Plan and 85% were able to accurately report the instructions for medication use on their Action Plans. Additionally, 4% had difficulty filling prescriptions and 79% were unclear how to approach an asthma emergency. In areas where knowledge gaps were noted, health workers provided additional individualized education via telephone. For pharmacy problems, health worker intervention resulted in receipt of medication for all patients. Among those who were not reached for telephone follow up in the weeks after a visit, a surprising 67% (almost 2/3) later returned for ongoing asthma clinic visits.

## DISCUSSION

The results regarding the telephone case management program indicate that almost all patients receive an Asthma Action Plan at their clinic visit. Also most patients and families understand their medication regimen after the clinic visit, but telephone followup is useful in reinforcing correct medication and identifying knowledge gaps. The results also indicate that pharmacy problems are rare and are resolved right away through telephone followup. Through conversations, outside of the followup call, with the clinic health workers it became clear that pharmacy problems are often resolved before telephone case

**Table 1. Patient Characteristics**

Total Visits	659
Successful phone contacts	554 (84%)
<b>Demographics</b>	
Persistent asthma	427 (79%)
Average age	7.0 (range 4 months–20 y)
Male	390 (51%)
<b>Ethnicity</b>	
Latino	374 (56%)
African American	182 (27%)
Asian	80 (12%)
Other	22 (5%)

management even occurs. These cases are addressed when either the pharmacy or the patients' families call the clinic themselves to report pharmacy problems, including non-formulary medication or other insurance issues.

Another significant finding in the study was that patients and families of the SFGH Pediatric Asthma Clinic might not have received adequate education regarding asthma emergency care during the clinic visit. This has led the clinic to improve the education given to patients and families during the clinic visit regarding proper use of medication in case of an asthma emergency.

A major finding in the study was the amount of unreachable patients, most of whom were Latino. Due to an overrepresentation of Latino patients in this study we have begun to hypothesize about the possible relationship between ethnicity and our unreachable patients. This correlation could also be a product of employment status or cell phone usage. However, since a surprising amount of the unreachable patients did return to the clinic for their next scheduled appointment, the clinic visit proves to be the most effective method

of reaching our patients with telephone case management as a useful adjunct.

With this new information about the comprehensive telephone case management program at SFGH Pediatric Asthma clinic, the clinic hopes to continue to manage patients and their families through telephone follow-up and improve the education provided in the clinic. More broadly, we would like this study to be used to educate other asthma management programs about the benefits of telephone case management among a culturally diverse patient population.

## REFERENCES

1. Expert panel report 3. *Guidelines for the Diagnosis and Management of Asthma (EPR-3 2007)*. NIH Publication No. 08-5846. Bethesda, MD: US Department of Health and Human Services; National Institutes of Health; National Heart, Lung, and Blood Institute; National Asthma Education and Prevention Program, October, 2007.
2. Bloom B, Cohen RA. Summary Health Stats for US children National Health Interview Survey, 2006. National Center for Health Statistics. *Vital Health Stat.* 2007;10(234)
3. Akinbami L, LaFleur B, Schoendorf K. Racial and income disparities in childhood asthma in the United States. *Ambulatory Pediatrics.* 2002;2:382–387.