The “Stop Asthma” Clinical System: Description of a Computer-Based Decision-Support Program for Community Pediatric Asthma Management.

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Practical problem: Although clinical guidelines for asthma exist, there is a lack of dissemination and implementation at the level of community pediatric clinics. Further, while clinical guidelines provide comprehensive focus on medical practice they provide less information on behavioral teaching and communication strategies to enhance patient compliance and self-management. Real-time cues and CME provided at the point of care have been shown to be effective in enhancing physician practice. Aims: The Stop Asthma Clinical System (SACS) is designed to provide real-time computer-based decision-support and continuing medical education (CME) credit to community pediatricians involved in the management of inner city asthma patients. System Description: SACS assists the primary care clinician to classify a patient’s asthma severity and control, to develop a prescription (or action) plan, and to identify and intervene in management problems experienced by the patient. SACS represents a computer-based application of expert decision algorithms and intervention methods drawn from inductive knowledge acquisition, NAEPP and local clinical guidelines, and behavioral science theory and models. Components of the program include (1) an expert system component to determine asthma severity and control utilizing 11 symptom, medication, and functional status variables; (2) a stepped problem solving ‘determinant’ framework to resolve medication management issues that features 76 patient profiles (based on use of maintenance, rescue, and rhinitis medications), classification of determinants of medication management problems (including beliefs about asthma and medicine, therapeutic goals, scheduling problems, skills, child cooperation, and financial barriers), and over 250 possible permutations of intervention cues to resolve the management problems encountered; (3) a staged intervention framework to resolve environmental management issues that features 11 environmental asthma trigger categories (including dust mite, mold, animal dander, pollen, cockroach, tobacco smoke, strong odors, air pollution, emotion, weather, infection), categorization of patient’s readiness to adopt environmental control behaviors (i.e. precontemplation, contemplation, preparation, action, maintenance), and over 1000 possible permutations for environmental interventions; and (4) online help resources for CME in the application of clinical protocols and behavioral methods in each of the components mentioned above. Other features of the program include video clips to enable physicians to provide age-appropriate modeling of medication-taking techniques, example quotations to exemplify how to operationalize behavioral methods suggested within the program, and facts sheets to support educational activities. Tailored patient interventions are in the form of bulleted cues for use by the clinician in the clinic encounter and a printed action plan and support materials for use by the patient at home. A printed physician report supplements patient case records, providing tabulated data on patient medical and symptom parameters, assessment of patient behavioral status, and physician behavioral strategies. This information is retained by SACS and is available at subsequent visits. Evaluation: Pilot testing of SACS by 10 physicians has yielded favorable perceptions regarding ease of use, thoroughness, accuracy, and effects on patient interaction, with limited clinic disruption. SACS is currently being evaluated in a community-based randomized clinical trial to assess its effectiveness in impacting physician practice, patient self-management, and symptom outcomes. Conclusion: SACS can provide a real-time CME resource to cue clinical and behavioral interventions for asthma management. SACS has the potential to serve as a practicable channel by which to diffuse application of clinical guidelines into community clinics.

Supported by NIAID Grant R18 AI39782