Self-management for pediatric chronic disease: A description of the
Watch, Discover, Think, and Act asthma education CD-ROM.

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Practical problem: The Watch, Discover, Think, and Act computer program (WDTA-CP) is a theory-based application of CD-ROM educational technology in pediatric asthma education. Asthma is among the most common chronic diseases in the United States and is particularly severe in inner city African American and Hispanic populations. It requires constant and complex self-management in order to maintain control of symptoms, prevent exacerbations, attain normal lung function and maintain health activity levels. The varied clinical pattern of asthma makes it impossible for the physician to discuss every contingency when instructing patients; as a result individuals must often make independent decisions about self-management. Aims: The WDTA-CP is designed to provide self-management skills training to inner-city minority children with asthma, and to provide a linkage system between the child, parents, and physician. System description: The WDTA-CP provides an interactive, risk-free simulation that is individualized for the learner by incorporating the learner’s own health data including asthma symptoms and triggers. It comprises 4 stages: data input, an introduction, a game of 4 levels (home, school, neighborhood, and a fantasy game played in a castle), and data output. Within the game there are 18 scenarios which represent differing environmental challenges. Children use a 4-step metacognitive problem-solving process (Watch-Discover-Think-Act) to treat the asthma of their chosen character. Social Cognitive Theory provides the principal source of theoretically based methods that are applied in the program to elicit change in determinants of self-management behavior including procedural knowledge, self-efficacy, outcome expectations and attributions. Evaluation: A prospective pre-test post-test randomized clinical trial was used to assess the motivational appeal of the WDTA-CP and to evaluate the impact of the program in eliciting change in knowledge, self-efficacy, and attributions of children with asthma. A sample of 76 children 9-13 years old were recruited from urban asthma clinics, community clinics, and schools. ANCOVA revealed that children receiving the WDTA-CP scored significantly higher (p<.01) on questions about steps of self-regulation, prevention strategies, and treatment strategies. These children also demonstrated greater self-efficacy (p<.05) based on the Asthma Partnership Self-management Self-efficacy Questionnaire and more positive attribution classification of asthma self-management behaviors (p<.05) than those children who did not use the WDTA-CP. Conclusion: The WDTA-CP is an intrinsically motivating educational program which has the ability to impact determinants of asthma self-management behavior in 9 to 13 year old children with asthma. The program appears to have application in pediatric asthma education and to provide one model for theory-based educational technology programs designed to teach self-management of chronic disease to children. The WDTA-CP is currently being implemented in two settings in projects funded by the National Institutes of Health—in the public school system in “Partners in School Asthma Management” and linked to a computer expert system in medical practice settings in “Stop Asthma: A Management Program for Minority Families”.

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