The role of occupational therapy in childhood chronic respiratory diseases: surveys of knowledge and perceptions

Rachel F. Lorenzo

The University of Toledo

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Surveys of Knowledge and Perceptions

Rachel F. Lorenzo

Research Advisor: Alexia E. Metz, Ph.D., OTR/L

Occupational Therapy Doctoral Program

Department of Rehabilitation Science

The University of Toledo

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Abstract

Chronic respiratory diseases such as asthma and cystic fibrosis, affect the functioning and quality of life of millions of children. Children with chronic respiratory diseases may have physical and psychosocial needs that could be addressed through occupational therapy. However, exploration of the potential role for occupational therapy in the care of children with respiratory conditions has been limited. This study attempted to fill this gap through two knowledge and perceptions surveys. We surveyed pediatric occupational therapists regarding knowledge and perceptions about chronic respiratory diseases. The knowledge and perceptions of respiratory care professionals was assessed through a survey about occupational therapy.

Responses were received from 104 occupational therapy practitioners, representing a response rate of 42% of the 249 surveys mailed out. Within this sample of occupational therapists, knowledge of chronic respiratory diseases was low as evidenced by fewer than half of respondents (47%) scoring 80% or higher on a test of knowledge of chronic respiratory diseases.

Fifty-four respiratory care professionals responded, representing a response rate of 38%. Respondents had inconsistent knowledge about occupational therapy (percent of respondents with correct answers ranged from 19 to 94 for questions in the knowledge section).

Amongst both professions, a high rate of respondents endorsed one or more roles for occupational therapy with children with chronic respiratory diseases, 93% of occupational therapists and 79% of respiratory care professionals. Respondents indicated that lack of education was the greatest limiting factor for referral.

Limited knowledge may prompt educational curriculums to make adjustments, while continuing education courses may expand in this area. Professionals generally support occupational therapy and are eager to learn more.
The Role of Occupational Therapy in Childhood Chronic Respiratory Diseases:

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Childhood Chronic Respiratory Diseases

Chronic respiratory conditions, like asthma and cystic fibrosis, affect the functioning and quality of life of millions of Americans every day. Asthma affects 16.4 million non-institutionalized adults and seven million children in the United States (Centers for Disease Control and Prevention, 2008). Asthma is one of the most prevalent long-term respiratory disorders of childhood. In most children the first symptoms occur in early childhood, usually before the age of five (Rogers, 2005).

Approximately 30,000 adults and children are impacted by cystic fibrosis (Cystic Fibrosis Foundation, 2010). Cystic fibrosis is a serious, multi-faceted respiratory problem. Some of the earliest signs of cystic fibrosis occur shortly after birth, so high-risk newborns are often screened and diagnosed (Rogers, 2005). In addition to health concerns, these conditions may interfere with individuals’ occupational performance.

Despite both the statistics and the implications, research about the role of occupational therapy in the care of children with asthma and cystic fibrosis is sparse. The present study represents an initial step toward filling this gap. In order to better understand the present study, the etiology of asthma and cystic fibrosis will be reviewed. In addition, an overview of the psychosocial effects of asthma and cystic fibrosis and their impacts on the quality of life for children with these conditions will be presented. The potential for occupational therapists to work with this population will be addressed followed by a description of the present study.

A well-functioning respiratory system is an integral component of overall health, wellness, and engagement in occupation. The respiratory system consists of air passageways, the
lungs, and the chest with the associated muscles of ventilation. These components help move air in and out of the lungs (Falvo, 2009). Functioning of these organs ensures that oxygen is delivered to the blood, where it can be distributed to body tissues (Falvo, 2009). Both asthma and cystic fibrosis cause a decrease in the overall efficiency of the respiratory system.

Asthma is a chronic inflammatory condition characterized by bronchial smooth muscle hyperactivity that causes airway constriction in the lower respiratory tract which result in bouts of wheezing and increased work of breathing (Rogers, 2005). Asthma appears to be an inherited trait and is often associated with familial patterns of allergy (Rogers, 2005). Triggers of asthma exacerbations appear to involve complex interactions with environmental factors (Holgate & Polosa, 2006). These factors include allergens (e.g. pollen, pet dander, fragrances), exercise, emotional stress, inhalation of cold air, exposure to airborne particles such as in cigarette smoke, and viruses or the common cold. These triggers set off an allergic response causing inflammation in which the airway swells and secretes excess mucus that clogs the airway passages. Simultaneously, muscles that control air passages constrict and spasm, causing the airways to narrow. Together, these result in air trapping and increased work of breathing and decreased lung efficiency (Falvo, 2009).

Cystic fibrosis (CF) is a complex disease, and its course varies amongst individuals (Geller & Rubin, 2009). Cystic fibrosis is an inherited autosomal recessive disorder related to a gene located on chromosome 7 (Rogers, 2005). There are as many as 1,500 described mutations for this gene which cause the variability of the condition (Geller & Rubin, 2009), although the vast majority of cystic fibrosis results from one mutation (Δf508). Due to the defective gene, there is faulty regulation of salt and water movement across cell membranes and malfunction of the exocrine glands. This malfunction results in the production of abnormally concentrated and
thick mucus. This mucus then blocks ducts in the lungs, pancreas, digestive tract, and reproductive system (Rogers, 2005). Respiratory involvement of the disease is one of the most frequent causes of functional limitation and occurs because of formation of thick mucus in the small airways. Because of its increased thickness, mucous is not normally cleared from the lungs as it is produced. The mucous chemically harbors pathogenic bacteria. The result is that individuals have intermittent episodes of respiratory infections, increased coughing, and gradual destruction of lung tissue which is ultimately fatal (Falvo, 2009).

Effects of Respiratory Diseases

Occupational therapists are concerned about the wide array of factors that can affect quality of life. The quality of life for individuals with asthma and cystic fibrosis is impacted not only by the physical effects of these conditions as described above, but also by the psychosocial components that impact daily functioning and occupational engagement. Newacheck and Halfon (1998) presented results from the National Health Interview Study, a nationwide cross-sectional survey carried out by household interview through the U.S. Bureau of the Census. Responses indicated 1,952 of 100,000 (1.95%) children under age 18 with chronic respiratory diseases as a main or secondary cause of their disability, making it the most common cause of childhood disability.

Due to increased hospitalization, doctor visits, and overall health care services needed to manage their conditions, children with chronic respiratory diseases have increased school absences and are not able to engage in play activities as much as their peers. These factors result in a substantial added burden on the child.

Falvo (2009) made a number of observations regarding the psychosocial effects of chronic respiratory disease in childhood. Often individuals with asthma feel that their necessary
treatment programs draw negative attention to them. Social opportunities can be affected due to environmental limiting factors. Stress is often exacerbated due to these restrictions impeding on social development. In addition, anger and low self-esteem may also cause children difficulty in accepting their condition. Children with cystic fibrosis have increased life responsibilities because of their condition including monitoring symptoms and decision making. The typical treatment for well managed cystic fibrosis can take 1-5 hours per day. These added responsibilities, accompanied by the need to “fit in” during childhood and adolescence, make behavioral responses more challenging.

Limitation in physical activity and exercise is another common concern for children with asthma and cystic fibrosis. Physical activity serves the same benefits, such as bone development, motor skills refinement, cardiovascular fitness, and self esteem, for children with asthma and cystic fibrosis as it does for children without these diseases. Furthermore, physical activity may directly mitigate the symptoms of chronic respiratory disease. Williams, Powell, Hoskins, and Neville (2008) demonstrated reduced hospital visits and an increased ability to cope with asthma as additional positive results of physical activity for children with asthma. Evidence suggests that for children with cystic fibrosis physical activity also serves a variety of benefits such as enhanced fitness, increased sputum clearance, reduced breathlessness, and increased survival (Webb & Dodd, 1999).

Yet, there are barriers to participation in physical activity for children with chronic respiratory diseases. Newacheck and Halfon (1998) indicated that 12.5% of children with chronic respiratory diseases were unable to conduct major activities because of their condition. Children with asthma often experience asthma attacks consisting of an unproductive cough and wheezing (Rogers, 2005); as a result, children with asthma may be fearful of overexertion and
physical activity. Williams et al. (2008) explored the low participation in physical activity in children with asthma. They identified factors that contributed to decreased participation as being the symptoms of asthma and psychosocial factors such as beliefs about asthma, perception of symptoms, and knowledge and perceptions. For children with cystic fibrosis, it can be difficult to incorporate physical activity into the demanding daily regime of self care.

It cannot be forgotten that the impacts of chronic respiratory conditions are not only felt by the child with the condition, but the parent of the child as well. Parents engage in many occupations which support optimal development of the child. Cronin (2004) assessed the occupations of mothers dealing with different childhood conditions, including cystic fibrosis. Mothers of children with cystic fibrosis stated that they were always child-focused in their daily choices and routines. Mothers’ abilities to organize and maintain routines contributed to their sense of well being and self efficacy in their roles as mothers.

**Role of Occupational Therapy**

The ultimate goal of occupational therapy is to increase the overall quality of life for those with whom we work through engagement in meaningful and purposeful occupations. Occupational therapists understand that health is supported and maintained when clients are able to participate in occupations that allow desired engagement in home, school, workplace, and community life (American Occupational Therapy Association [AOTA], 2008). Occupational therapists are not only concerned with occupational performance, but also with the individualized factors that empower engagement and increase quality of life, including family relationships and environmental factors (AOTA, 2008). The holistic viewpoint that occupational therapists adopt allows the profession to look beyond the physical elements of a condition so that the psychosocial components are appreciated and understood.
As addressed above, asthma and cystic fibrosis both have a variety of physical and psychosocial implications. These areas represent needs that could be filled by occupational therapy. Sandra Rogers (2005) suggests that occupational therapists can help children with asthma who may have a self-limited lifestyle by teaching the child to manage the condition, respond calmly to stress, and pace physical activities so that normal childhood patterns can be maintained. Rogers (2005) also makes suggestions for occupational therapists when working with children who have cystic fibrosis. These suggestions include techniques aimed at energy conservation and prevocational, recreational, and psychosocial support groups. Occupational therapists can also provide support for the parents of children with asthma and cystic fibrosis. For example, mothers can be encouraged to continue their routines, alter them, or discover new worthwhile occupations for themselves. Asthma and cystic fibrosis are conditions that include a variety of manifestations which vary greatly among individuals. Occupational therapy’s process involves the collaboration between practitioner and client allowing for highly specialized and individualized treatment depending on the client’s needs and desires (AOTA, 2008). In this way, treatment can be tailored to meet the specific and unique situations that children with asthma and cystic fibrosis and their families may encounter that hinder occupations.

**Knowledge of Occupational Therapy**

Jamnadas, Burns, and Paul (2001) discussed the importance of targeting populations where occupational therapy is under-utilized. Marketing occupational therapy through assessing viewpoints and knowledge is critical for advancement and increased awareness about the various roles that occupational therapy plays. Various health care professionals are involved in recommending occupational therapy services and in order for referral to occur professionals must understand the functions of occupational therapy. Jamnadas et al. (2001) used a descriptive
survey design with questions regarding knowledge about occupational therapy to explore the possible need for education and marketing within nursing, physicians’ assistants, and other health care curriculums and discovered that most survey respondents associated occupational therapy primarily with activities of daily living. Although occupational therapy does address activities of daily living, with this distinction comes a lack of understanding about the wide array of services and areas within the scope of occupational therapy practice.

Deitch, Gutman, and Factor (1994) suggested that in specialty areas within health care settings occupational therapy treatment for patients is not commonly understood by medical residents. The findings of the study, based on survey respondents, suggest that occupational therapists need to become more active in educating medical residents and physicians about the profession’s role in a variety of patient care settings. Continued marketing and the expansion of education about occupational therapy was encouraged in an effort to increase referral rates.

Patel and Shriber (2000) found through a survey that nurse practitioners have a strong general understanding about occupational therapy. However, the nurse practitioners, much like medical residents, had limited understanding in certain areas. Limited understanding was displayed regarding specialty treatment areas and certain roles and functions of occupational therapy. In response to a question regarding specialty care in respiratory rehabilitation, only 46% of nurse practitioner respondents felt that occupational therapy had important contributions to make to patient care in this area. This indicates that occupational therapy treatment for patients with respiratory diagnoses is not commonly understood by nurse practitioners. The nurse practitioners did express a desire for further education regarding the roles and functions of occupational therapy. The authors suggest that future educational efforts should be aimed at addressing what nurse practitioners do not know about occupational therapy services. With
increased knowledge, practitioners will be in a better position to serve their patients and recommend occupational therapy services. These findings provide additional evidence that health care professionals have limited knowledge and understanding about the benefits that occupational therapy can provide to those with conditions such as asthma and cystic fibrosis.

Though children with asthma and cystic fibrosis may have needs that could be addressed with occupational therapy services, occupational therapy does not traditionally play a major role on interdisciplinary treatment teams for chronic respiratory conditions. Might this be due to a lack of knowledge on the part of occupational therapists about asthma and cystic fibrosis? Are the knowledge and perceptions that exist contributing to the limited role that occupational therapy plays in respiratory care? Or perhaps is this due to the limited knowledge that respiratory care professionals have about occupational therapy? Are there misconceptions and perceptions about what occupational therapists do? Here, we have begun to explore these questions through conducting a pair of surveys. Surveys allow for the systematic collection of information from a sample of people to generate an understanding of the population from which the sample was drawn (Forsyth & Kviz, 2006). It is through survey that the present study explores the knowledge and perceptions that occupational therapists have about chronic respiratory conditions like asthma and cystic fibrosis while at the same time assessing the knowledge and perceptions of respiratory care professionals about occupational therapy through questionnaires.

**Methods**

**Pilot study and instrument finalization**

Before applying for approval from our Institutional Review Board, we conducted a pilot study for the purposes of finalizing the survey instruments and establishing their face validity. Three occupational therapists, two respiratory therapists, and one nurse who specialize in asthma
treatment participated in the pilot study. They were asked to provide feedback regarding the time required to complete the survey, the clarity of the questions, their confidence in providing an answer, and their impression of the validity of the content. The surveys were modified according to this feedback.

Participants

Participants solicited for this study were from two different populations of health care professionals.

First, to assess knowledge and perceptions of occupational therapists regarding chronic childhood respiratory diseases, we recruited occupational therapists (OTs) and occupational therapy assistants (OTAs) in the state of Ohio. The Ohio Occupational Therapy Association (OOTA) provided a data base of the members of its pediatric member support group (MSG). This included names and current addresses for 394 individuals who had identified themselves as OTs or OTAs, paid membership dues, and chosen the MSG. A random sampling of these therapists was used.

Second, children’s hospitals in the state of Ohio that specialize in treatment of children with cystic fibrosis and/or asthma and the Allergy and Asthma Clinic of Ohio were solicited for this study. A contact person at each clinic, such as a clinic manager, was identified in advance to proctor administration of the surveys. We requested participation from amongst their nurses, nurse practitioners, respiratory therapists, medical doctors, physician’s assistants, and social workers.

Instruments

The knowledge and perceptions of occupational therapists about the role of occupational therapy in childhood chronic respiratory diseases questionnaire consisted of three sections. See
Appendix A for the survey. All three sections of this survey were developed by the authors as no scale existed for measuring the knowledge and perceptions of occupational therapists in the area of childhood chronic respiratory disease care. However, we modeled the format of the survey after a previous questionnaire of knowledge and perceptions toward occupational therapy in a novel area of practice (Pitzen, 2010). The first section requested personal and professional demographic information about the participants. The second part of the questionnaire contained the Asthma and Cystic Fibrosis Knowledge Test. This test consisted of sixty multiple choice, fill-in, and true or false questions that assess the knowledge that a practitioner possesses about asthma and cystic fibrosis. The third part of the survey assessed the perceptions occupational therapists have toward the expected impacts of chronic respiratory diseases on children and the role of occupational therapy in the care of these diseases. The participant was asked to rate his or her agreement on each of twenty-three statements using a five-point Likert scale where 1 is strongly disagree and 5 is strongly agree. Validity of the questionnaire was tested through the Cronbach’s alpha. On the 60-item test of knowledge about CRD, Cronbach’s alpha was .79 indicating that reliability of the whole knowledge test was adequate. The test was therefore scored by the percent of correct responses. On the 23-item survey of perceptions, Cronbach’s alpha was .82 indicating that it was a reliable measure of perception.

The knowledge and perceptions of health care professionals providing care to children with chronic respiratory diseases about occupational therapy and its role in childhood chronic respiratory diseases questionnaire consisted of three sections. See Appendix B. All three sections of the survey were developed by the authors because no present scale exists for measuring the knowledge and perceptions of health care professionals who work with children with chronic respiratory diseases about the role of occupational therapy. A review of similar past surveys
(Jamnadas, Burns, & Paul, 2001; Patel & Schriber, 2000) was undertaken during survey development. The first part of the survey requested personal and professional demographic information about the participants. The second part of the questionnaire assessed the participants’ knowledge of occupational therapy. This test consisted of ten fill-in questions and true/false questions. The third of the survey assessed the perceptions of the participants regarding the abilities and potential role of occupational therapists in the care of children with chronic respiratory diseases. This section consisted of eighteen statements. The participant was asked to rate his or her agreement of each statement on a three point scale where 1 is “yes”, 2 is “I don’t know”, and 3 is “no”. Three items that present untrue statements about occupational therapy were reverse scored. Validity was assessed through Cronbach’s alpha. On the 10-item test of knowledge about CRD, Cronbach’s alpha was .43 indicating that reliability of the whole knowledge test was poor. The test was therefore not scored as a whole. On the 18-item survey of perceptions, Cronbach’s alpha was similarly low at .12 indicating that it was not a singular measure of perception.

**Procedures**

The number of needed respondents was determined using power analysis (Cohen, 1992) with a significance level of alpha less than or equal to .05 approximately 85 respondents were required to detect a medium effect size using correlation analysis (Cohen, 1992).

Individual surveys were mailed out to 250 randomly chosen members of the Ohio Occupational Therapy Association Pediatric Member Support Group. The mailing contained a cover letter (see Appendix C), the questionnaire, and a return envelope with postage provided. Reminder postcards were sent to all recipients two to three weeks after the initial mailings.
For the survey of respiratory health professionals, 137 surveys were batch mailed to respiratory care centers in Ohio, such as the Children’s Hospitals and Allergy and Asthma Clinics of Ohio. Eight packets were mailed to different facilities containing one to thirty surveys each. The packet contained an introductory letter, instructions to the contact person, and the questionnaires each with a cover letter. In addition, the packet contained a return form requesting the name of a contact person and an indication that the facility was willing to distribute, collect, and return surveys. See Appendix D for packet materials (aside from the questionnaire). Return postage was provided. A packet of reminder postcards was sent to each site two to three weeks after the initial mailings.

**Data Analysis**

Data from both surveys was analyzed using Excel and SPSS for Windows statistical software. Significance was set at the 0.05 level. Descriptive statistics were calculated. Data are reported as mean and standard deviation. Knowledge about chronic respiratory diseases amongst occupational therapy practitioners was described by frequency distribution of test scores. Test scores were normally distributed; therefore, differences in knowledge amongst groups of respondents were tested using t-tests and ANOVA. Among the occupational therapy practitioners, average ratings of perception toward the effects of chronic respiratory diseases were not normally distributed; therefore, differences between groups were tested using Mann-Whitney and Kruskal Wallis tests. Various correlations were tested using Pearson’s for normally distributed, continuous data and Spearman’s Rho otherwise. Effect size for correlations was calculated as the Z score divided by the square root of \( n \).

**Results**

**Survey of Knowledge and Perceptions of Occupational Therapy Practitioners**
Demographics.

A total of 250 surveys were mailed to a random sampling of the 394 member 2010 Ohio Occupational Therapy Associations pediatric member support group (MSG). One survey was returned as undeliverable. One hundred four (104) surveys were returned providing a response rate of 42%. One hundred two (98%) of the respondents were female. All reported practicing in Ohio, while five also reported practicing in other states. Average years of practice in the occupational therapy field was 18±11 years. Amongst respondents, 87 (84%) indicated that they were occupational therapists (OTs), while 17 (16%) reported they were certified occupational therapy assistant (OTAs). Of the responding occupational therapists, the educational level was as follows: one (1%) certificate, 46 (52.9%) Bachelor’s, 36 (41%) Master’s, and four (5%) doctoral. Areas of practice identified were as follows: 67 (64%) schools, 13 (13%) outpatient, five (5%) retired, four (4%) inpatient, four (4%) skilled nursing, three (3%) mental health, three (3%) academia, two (2%) home health, one (1%) early intervention, one (1%) consultation, and one (1%) daycare. Fifty-three (51%) respondents reported that they had treated an individual with a chronic respiratory disease. Of those respondents, 14 (26%) reported asthma or cystic fibrosis as the primary reason for treatment. The average proportion of respondent’s caseload of children with chronic respiratory diseases ranged from ten to fifty percent. Forty-six (45%) respondents reported having a family member or close friend with a chronic respiratory disease.

Knowledge

On the 60-item test of knowledge about chronic respiratory diseases, the average percent of items answered correctly was 77.4±9.6, ranging from 57 to 95. Fewer than half of respondents (47.1%) demonstrated high knowledge of chronic respiratory diseases (as evidenced by scores of
80% or higher). See Figure 1 for the distribution of test scores. Table 1 reports the results of each question of the knowledge survey.

None of the other variables collected accounted for knowledge amongst respondents. Knowledge did not correlate with age ($r = 0.054$, $p > 0.05$) or years of practice ($r = 0.108$, $p > 0.05$). There was no significant difference in knowledge between occupational therapists and occupational therapy assistants ($t(102) = -6.08$, $p > 0.05$). There was no significant difference in knowledge between those who had and had not treated individuals with chronic respiratory diseases ($t(102) = -1.81$, $p > 0.05$). There was no significant difference in knowledge between those who had a family member or friend with a chronic respiratory disease ($t(100) = -2.846$, $p > 0.05$). Finally, there was no significant difference according to level of degree held ($F(4,99) = 0.339$, $p > 0.05$).

**Perceptions**

Individual average responses to 23 items on a 5-point Likert scale regarding occupational therapy practitioners’ perceptions regarding chronic respiratory diseases (where higher numbers represent perceptions that demonstrate understanding of the impact the disease can have on occupational performance) averaged $3.62 \pm 0.3$, ranging from 2.35 to 4.57. Table 2 presents the results of this portion of the survey. The highest perceptions were in response to the following statements: a child with asthma may experience fear and panic during an attack ($4.54 \pm 0.71$) and a child with cystic fibrosis may feel less control over his or her life ($4.23 \pm 0.51$). The lowest perceptions were in response to the following statements: management of asthma severely impacts a child’s occupations of daily living ($2.70 \pm 0.96$) and children with asthma must alter daily routines ($2.79 \pm 0.89$).
Correlation of perception to respondent characteristics indicated that perception did not correlate with age ($r_s = 0.175$, $p > 0.05$) or years of practice ($r_s = 0.138$, $p > 0.05$). Occupational therapists had significantly higher perceptions than occupational therapy assistants (3.67±0.35 and 3.41±0.3 for OTs and OTAs, respectively, $Z = -3.028$, $p = 0.002$, effect size -0.298, moderate). Those who reported having treated an individual with a chronic respiratory disease had significantly higher perceptions than those who did not (3.7±0.89 compared to 3.6±0.3, $Z = -2.364$, $p = 0.018$, effect size =0.23, moderate). There was no significant difference in perceptions between those who had a friend or family member with a chronic respiratory disease ($Z = -0.687$, $p > 0.05$). Perception varied with degree level (associates 3.38±0.29, certificate 3.6, bachelor’s 3.69±0.33, masters 3.65±0.39, doctoral 3.7±0.22, $x^2 = 12.17$, $p > 0.05$). Adjusting alpha to 0.007 to control for multiple comparisons, respondents with master’s level education had higher perceptions than those with associates degrees ($Z = -2.96$, $p > 0.01$, effect size =-0.40). No other direct comparisons were significant.

**Correlation**

Perception and knowledge had a low significant positive correlation ($r = 0.259$, $R^2 = 0.067$, and $p = 0.008$). These values indicate that knowledge accounts for a small proportion of perception. See Figure 2.

**Role of occupational therapy**

Ninety-seven respondents completed the item asking if occupational therapy has a role in treating children with chronic respiratory diseases. Ninety (93%) responded yes. The following roles for occupational therapy were endorsed by the indicated number of respondents: discovering efficient ways to do occupations of daily living (89), patient and family education (86) energy conservation (85), adjusting habits and routines (85), engagement in physical activity
(83), coping (77), positioning (75), instructing about breathing techniques (64), counseling (20), and medication management (16). For the ten roles presented, the average number of roles endorsed was 6.5±2.7.

The following barriers for occupational therapy’s role were endorsed by the indicated number of respondents: confusion (73), referrals (58), awareness (57), and interest (16). For the barriers presented, the average number endorsed was 1.96±1. Additional barriers provided by respondents were lack of knowledge (seven), care provided by other disciplines (six), reimbursement (three), and not school related (two). One respondent felt that there was no role for occupational therapy.

One hundred and four participants responded to the question asking whether they would be comfortable treating a child with asthma. Eighty-eight respondents (96.3%) indicated they would be comfortable treating a child with asthma, three additional respondents added they would need more training and knowledge to do so.

One hundred and one (101) participants responded to the question asking whether they would be comfortable treating a child with cystic fibrosis. Sixty-seven (66%) of respondents indicated they would be comfortable treating a child with cystic fibrosis, with four additional respondents replying that they would need more training and knowledge to do so.

Survey of Knowledge and Perceptions of Respiratory Professionals.

Demographics

In order to assess respiratory professionals knowledge of occupational therapy one packet each was mailed to eight children’s hospitals and respiratory clinics. Each packet contained surveys ranging in quantity from one to thirty. Fifty-two surveys were returned out of a total of 137 that were mailed, representing a 38% return rate. Of these respondents 40 (77%) were
female. All but one respondent reported practicing in Ohio. A variety of disciplines were represented with the following number of respondents practicing in each field: 15 (29%) respiratory therapy, 12 (23%) nursing, eight (15%) pediatric pulmonology, eight (15%) medical doctors/other, four (8%) other including student, researcher, dietician, and physician assistant, three (6%) physical therapy, and two (4%) social work. The average years of practice reported was 15.8±12.4. Forty-nine respondents (94%) reported that they treat individuals with chronic respiratory diseases. Fifty-one participants responded to the question about whether they have a family member or a close friend who is an occupational therapist with six (12%) indicating that they did. Twenty-two (42%) reported making referrals to occupational therapy. Of those who responded that they make referrals, sixteen referred one to two clients each month. The top reasons for referring to occupational therapy were dysphagia (seven as primary reason, one each as secondary and tertiary reason), activities of daily living (three as primary reason, four as secondary), developmental delay (two as primary reason, five as secondary, three as tertiary). Other reasons for referral included adaptive equipment, energy conservation, upper extremity function, weight loss, career advice, and various specific diagnoses such as premature birth, stroke, or deconditioned.

Knowledge and perceptions

Because of low reliability, we only report the responses to each item individually for both the test of knowledge and the survey of perceptions amongst respiratory care professionals. See Table 3 for the results of the test of knowledge about occupational therapy practice. In response to a multiple choice question 96% of respondents responded correctly that a child with cerebral palsy, autism, and muscular dystrophy may all benefit from occupational therapy services. In response to a true/false statement, 88% appropriately responded true in response to occupational
therapy assistants must be supervised by an occupational therapist. In response to a question about how occupational therapy goals and activities are chosen, 82% correctly selected the answer patient and family in collaboration with the occupational therapist. Only 15% of respondents knew that a Master’s degree is required to begin practicing as an occupational therapist. In response to the multiple choice question about occupational therapy evaluation, only 19% knew that an occupational therapist often evaluates a patient’s self-care skills. See Table 4 for the results of the perceptions survey Accurate perceptions were in response to the following statements: occupational therapists can assess a client’s function in the home (100% responded yes), occupational therapists can promote parent and child education about their condition (98% responded yes), and occupational therapists help children reorganize routines and habits to increase health (96% responded yes). Least accurate perceptions were in response to the following statements: 37% of respondents indicated that occupational therapy is a complementary or alternative form of medicine; 26% indicated that occupational therapists work with children to increase reading abilities; and 25% indicated occupational therapists work with children to increase their hearing abilities. As all three of these statements were intentionally included as false positives, the response rate to them may indicate a positive response bias rather than the perceptions of the respondents.

**Mechanisms for learning about occupational therapy**

The following number of respondents (out of 50) indicated these mechanisms for learning about occupational therapy: personal contact, 24 (48%); educational curriculum, 15 (30%); from a patient, 14 (28%); family/friend, 6 (16%); reading literature, 7 (14%); in a formal presentation, five (10%); and website, two (4%). Other mechanisms listed include working with occupational
therapists, having a child receive occupational therapy, having a friend interested in occupational therapy, and the provided survey.

**Role of occupational therapy**

Forty-one (79%) of respondents indicated they feel that occupational therapy has a role in the treatment of children with chronic respiratory diseases. The following number of respondents (out of 48) endorsed these roles for occupational therapy: habits and routines, 39 (81%); task efficiency, 39 (81%); energy conservation, 28 (58%); coping, 26 (54%); engagement in physical activity, 30 (53%); patient and family education, 25 (52%); positioning, 20 (42%); instruction for breathing techniques, 19 (40%); counseling, 11 (23%); and medication management, four (8%). The average number of roles that respondents endorsed was 4.9±2.7 out of ten. Various reasons were suggested for the limited role and referrals for occupational therapy with regard to treating children with chronic respiratory diseases. Results are as follows: lack of education/knowledge on the part of professionals/caregivers (ten), overlap of professional roles (seven), reimbursement (seven), don’t know (two), and priorities (one).

**Discussion**

Chronic respiratory diseases, including asthma and cystic fibrosis, are a leading cause of disability among children in the United States (Newacheck & Halfon, 1998). In addition to the need for medical attention, these children also face barriers to participation in everyday, age-appropriate tasks for a variety of reasons including time spent in medical care, increased self-care burden, decreased physical capacity, social isolation, and psychosocial factors such as anxiety and depression. Though well-suited to address these issues, occupational therapy has not traditionally played a role in the treatment and care of children with chronic respiratory diseases. The responses to the surveys validate the potential for the role of occupational therapy in this
population. Amongst both professions, a high rate of respondents endorsed one or more role for occupational therapy with children with chronic respiratory diseases, 93% of occupational therapists and 79% of respiratory care professionals. To motivate expansion of occupational therapy services for this population, it is important to note the current barriers and potential directions to be taken.

**Occupational Therapists’ Knowledge of Childhood Chronic Respiratory Diseases**

Within our sample of occupational therapists, knowledge of chronic respiratory diseases was low as evidenced by fewer than half of respondents (47%) scoring 80% or higher on a test of knowledge of chronic respiratory diseases. Recognizing this may prompt educational programs to expand coverage of chronic respiratory diseases inside and outside the classroom. Textbooks commonly used in occupational therapy curriculum already address cardiopulmonary diseases (Atchison & Dirette, 2011 and Case-Smith & O’Brien, 2010, for example). Additional resources about the conditions can be made available to students through links to professional organizations such as U.S. National Library of Medicine (2011), the Centers for Disease Control (2011), the Mayo Clinic (2011), the Asthma and Allergy Foundation of America (2011), the Cystic Fibrosis Foundation (2010), and the American Association for Respiratory Care (2011). Occupational therapy programs may wish to take advantage of faculty in respiratory programs within their academic institutions to develop learning opportunities for students such as guest lectures and web-based modules. Discussions should expand to include application of occupational therapy principles with this population in clinical settings. For established practitioners, continuing education courses in this area are warranted. These could include online courses, seminars, open forums, and panel discussions with occupational therapists and respiratory care professionals.
Occupational Therapists’ Perceptions

The low perceptions of practitioners revealed through this research are unsettling. Responses were particularly low regarding management of asthma and its severe impacts on a child’s occupations of daily living and how children with asthma must alter their daily routines. In addition, occupational therapists had a significantly higher perception than occupational therapy assistants. Those who reported having treated an individual with a chronic respiratory disease also had a significantly higher perception than those who did not.

The ultimate goal of occupational therapy is to increase the overall quality of life for those with whom we work through engagement in meaningful and purposeful occupations, especially occupations of daily living. Health is supported and maintained when clients are able to participate in occupations that allow desired engagement in home, school, workplace, and community life which promote physical and psychosocial well-being. However, according to survey results, occupational therapy practitioners do not understand or have accurate perceptions in all treatment areas regarding childhood chronic respiratory conditions, especially their impact on daily occupations and routines. Without knowledge or positive perceptions, working to achieve therapeutic goals and improving health and quality of life becomes more challenging.

Occupational therapy practitioners must assess how to alter perceptions in order to best support occupational performance of clients. One’s perception may have the power to impact the therapeutic relationship between client and therapist in a positive or negative way. Because of the correlation between knowledge and perception, it may be reasonable to anticipate that an increase in knowledge would be followed by a slight increase in the accuracy of perceptions. In order to increase understanding amongst occupational therapy practitioners must take it upon themselves to learn more about chronic respiratory diseases of particular relevance in their areas.
of practice and embrace the opportunity to work with this unique population. It is clear, however, that knowledge accounted for only a small proportion of the variability in perception.

Another factor influencing perception appears to be personal experience. Those who reported treating an individual with a chronic respiratory disease had higher perceptions than those who did not. This suggests that positive perceptions about children with chronic respiratory disease and their capabilities may develop as a result of real-life interactions with this population. Qualitative studies and biographical works which elucidate the lived experience of this population may be an avenue for simulating this interaction when clinical placement is not possible.

**Respiratory Care Professional’s Knowledge of Occupational Therapy**

Respiratory care professionals in this study had inconsistent knowledge about occupational therapy with percent of respondents with correct answers ranging from 19 to 94 for questions in the knowledge section. Results indicate that respiratory care professionals understand who may benefit from occupational therapy services and how goals and activities are chosen, although they have low knowledge regarding the focus of occupational therapy treatment, evaluation procedures, and education level of occupational therapists.

Within academic institutions, faculty of occupational therapy programs could provide education to students in various medical fields in advance of their clinical placement, as was suggested for medical residents by Deitch, Gutman, and Factor (1991). In addition, through collaborative teaching opportunities accompanied by increased exposure to resources and materials, areas in which knowledge about occupational therapy appears low may increase including the professions scope of practice. In clinical settings, marketing and the expansion of education about occupational therapy is encouraged in an effort to increase referral rates and
clinical understanding of the role of occupational therapy for children with chronic respiratory diseases. Results of the present survey are consistent with what Patel and Shriber (2000) found through a survey that nurse practitioners have a strong general understanding about occupational therapy. However; respiratory professions, much like nurse practitioners and medical residents, had limited understanding in certain areas. Limited understanding was displayed regarding specialty treatment areas and certain roles and functions of occupational therapy. In accordance with the findings of Jamnadas, Burns, and Paul (2001), we found that activities of daily living are a top reason for referral to occupational therapy. Although occupational therapy does address activities of daily living, with this distinction comes a lack of understanding about the wide array of services and areas within the scope of occupational therapy practice. Various potential roles for occupational therapy were endorsed through this survey with the top three responses being: discovering efficient ways to do activities of daily living, patient and family education, and energy conservation. These identified roles also coincide with Rogers (2005) who suggests that occupational therapists can help children with chronic respiratory conditions through teaching the child to manage the condition, pacing physical activities so that normal childhood patterns can be maintained, energy conservation, and support groups. These roles, however, were not listed as reasons for referrals to occupational therapy by our respondents.

Other health care professionals generally support occupational therapy and are eager to learn more about the skill sets of occupational therapists. Nurse practitioners in the Patel and Shriber (2000) study expressed a desire for further education regarding the roles and functions of occupational therapy. Respiratory care professionals indicated through this survey that they were also interested in learning more about occupational therapy’s role in respiratory care. Occupational therapy practitioners must take advantage of the mechanisms that respiratory care
professionals identified for learning about occupational therapy. The most commonly identified means for learning about occupational therapy was personal contact. This is a calling for individual practitioners to talk openly with other health care professionals, patients, and caregivers about the unique skills and the role that occupational therapy can play with this population. In addition, research in this area of practice must continue in order to provide qualitative and quantitative data about the impact that occupational therapy services can have for children with chronic respiratory diseases.

Results of this study provide support the potential for a close interdisciplinary relationship between respiratory care professionals and occupational therapists in order to provide high quality health care and meet the wide range of needs that children with chronic respiratory diseases present. Both groups of professionals require further education: occupational therapists about chronic respiratory diseases and respiratory professionals about the scope of practice of occupational therapy. This can occur during academic training and in clinical settings through collaboration of the two fields. In addition to education, advocacy efforts are required in order to improve reimbursement models in order to support occupational therapy practice with this population. Occupational therapy’s scope of practice will continue to grow through these efforts.

Limitations

Several limitations in the current study are noteworthy. The use of self-report as a method of inquiry presents several possibilities for bias. Response bias may have occurred in our study if respondents were unable to recall information accurately or interpreted a question differently than intended. There is a chance of non-response bias if those who received the survey chose not
to respond based on individual feelings toward the survey topic. Further, respondents may have used outside sources in completing the surveys.

The sample of respiratory professionals was mixed in discipline. Consequently, their responses represent a variety of educations, trainings, and experiences with occupational therapists such that the results cannot be interpreted as being representative for any single respiratory care profession. The sample was limited to occupational therapy practitioners and respiratory care professionals in the state of Ohio. Their responses may not be representative of all practitioners in the United States.

The surveys themselves present additional limitations. Despite the adequate internal consistency of the survey, responses to several items on the survey of perceptions of occupational therapists may be difficult to interpret. For example high responses to the item “Children with asthma tend to engage less than their peers without asthma” may indicate that the respondent thinks that children with asthma have impairment in engagement or it may indicate that the respondent thinks that children with asthma are less motivated to engage. The surveys of respiratory professionals had poor internal reliability which limited the conclusions that could be drawn from the results.

**Future Research**

Future research related to occupational therapy’s role in working with children with chronic respiratory diseases should be expanded to include practitioners outside the state of Ohio. Information should be solicited from professionals in numerous states throughout the country in order for the results to be more generalizable.
In addition, this survey was conducted through the mail. Other formats for surveys should be explored that may increase response rate, such as online. An online format may increase ease of completion and decrease completion time.

While this study was specifically aimed at the pediatric population, future research may also expand to include adults with chronic respiratory diseases. In this way connections may be made that can improve quality of care and expand occupational therapy’s role across the lifespan.

**Conclusion**

Occupational therapists and respiratory care professionals believe that there is a role for occupational therapists to work with children with chronic respiratory diseases. Occupational therapists can fulfill numerous roles on the interdisciplinary respiratory care team including adjustment of habits and routines, increasing task efficiency, energy conservation, coping, patient and family education, safe means of physical activity, and positioning. Occupational therapists must continue to advocate for our role in working with this population and educate other health professionals and patients about our unique skill sets.

Additionally, in order to increase perceptions and knowledge occupational therapy practitioners must take it upon themselves to learn more about chronic respiratory diseases of particular relevance in their areas of practice and embrace the opportunity to work with this population. Occupational therapy curriculums should expand coverage of chronic respiratory diseases in order to increase learning opportunities both inside and outside the classroom. Occupational therapists and respiratory care professionals must continue to take advantage of both clinical and educational opportunities to collaborate and share knowledge in order to improve quality of care and patient outcomes throughout the lifespan.
Acknowledgements

During the production of this scholarly research project various individuals contributed in a substantial ways that warrant recognition and thanks. First and foremost, I would like to acknowledge my research advisor, Alexia Metz, Ph.D., OTR/L for sharing her expertise, providing support, giving insight, and for offering constant encouragement during the production of this research project. Without her time and devotion this project would not have been possible. A special thanks to Craig Black, Ph.D., RRT-NPS, for his interest in occupational therapy and exploring it’s potential for helping enhance the lives of children with chronic respiratory diseases. In addition, Dr. Black’s continual input and review of the survey instruments and manuscript throughout the research process are appreciated. I would also like to acknowledge Marilynne Wood, Ph.D., MSN, RN for sharing her experiences and expertise in caring for children with chronic respiratory diseases from a nursing and research-based perspective. Dr. Wood’s review of survey instruments and manuscript throughout the research process are also valued. I would also like to recognize Barbara Kopp Miller, Ph.D., for sharing her knowledge and expertise regarding the survey research process as well as reviewing and providing advice about survey instruments and the research manuscript. Finally, a special thanks to Catherine Wolf for her time and effort while interratering my data during the analysis phase of this project. The valuable contributions each individual mentioned above made to this research project were greatly appreciated and positively influenced the overall quality and implications for this project to the profession of occupational therapy.
References


Pitzen, K.M. (2010). *Occupational Therapy and Palliative Care: A Survey of Attitudes and Knowledge* (Unpublished scholarly project). The University of Toledo, Toledo, OH.


### Table 1. Results of Each Question on the Knowledge of Chronic Respiratory Diseases Survey Sent to Occupational Therapists

<table>
<thead>
<tr>
<th>Question</th>
<th>Percent of respondents who answered correctly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma is primarily characterized by________________.</td>
<td></td>
</tr>
<tr>
<td>A. a genetic chromosomal defect</td>
<td>98.1% (B)</td>
</tr>
<tr>
<td>B. airway inflammation associated with airflow obstruction</td>
<td></td>
</tr>
<tr>
<td>D. infections of the upper respiratory tract.</td>
<td></td>
</tr>
<tr>
<td>Asthma attacks can vary in______.</td>
<td>100% (D)</td>
</tr>
<tr>
<td>A. Severity</td>
<td></td>
</tr>
<tr>
<td>B. duration</td>
<td></td>
</tr>
<tr>
<td>C. frequency</td>
<td></td>
</tr>
<tr>
<td>D. All of the above</td>
<td></td>
</tr>
<tr>
<td>Common symptoms of asthma include (Check all that apply):</td>
<td></td>
</tr>
<tr>
<td>____Wheezing</td>
<td>100% (Check)</td>
</tr>
<tr>
<td>____Coughing</td>
<td>75.7% (Check)</td>
</tr>
<tr>
<td>____Tightness in chest</td>
<td>94.2% (Check)</td>
</tr>
<tr>
<td>____Sweating</td>
<td>68.9% (Not a symptom)</td>
</tr>
<tr>
<td>____Difficulty breathing</td>
<td>99.0% (Check)</td>
</tr>
<tr>
<td>____Vomiting</td>
<td>84.5% (Not a symptom)</td>
</tr>
<tr>
<td>____Increased heart rate</td>
<td>68.9% (Check)</td>
</tr>
<tr>
<td>____Cyanosis</td>
<td>58.3% (Check)</td>
</tr>
</tbody>
</table>
Asthma attacks can be precipitated by (Check all that apply):

- Exercise 97.1% (Check)
- Second hand smoke 98.1% (Check)
- Cold air 82.5% (Check)
- Emotional stress 78.6% (Check)
- Exposure to air pollutants 91.3% (Check)
- Humidity 54.4% (Check)
- Colds 70.9% (Check)
- Perfumes 81.6% (Check)
- Food preservatives 47.6% (Check)
- Social engagement 77.7% (Not a precipitator)
- Germs 27.2% (Check)
- Substances found in medication 48.5% (Check)
- Influenza 53.4% (Check)

Asthma is a chronic, incurable disease. 74.51% (True)

A child’s asthma can change over time. 100% (True)

Cystic fibrosis is characterized by____________.

- A. an allergic reaction
- B. faulty regulation of salt and water movement across cell membranes.
- C. a collapsed lung
- D. involuntary muscle contractions 84.69% (B)

Cystic fibrosis has the potential to impact_________ function.

- A. respiratory
- B. reproductive
- C. digestive
- D. all of the above 71.29% (D)
Symptoms of cystic fibrosis include (Check all that apply):

- Increased mucus production 94.2% (Check)
- Scarring of organs 60.2% (Check)
- Crying 92.2% (Check)
- Pronounced coughing 82.5% (Check)
- Thick mucus production 97.1% (Check)
- Poor vision 89.3% (Not a symptom)
- Delayed growth 63.1% (Check)
- Poor digestion of protein and fat 66.0% (Check)
- Blood clots 90.3% (Not a symptom)
- Excessive loss of salt 47.6% (Check)

Cystic fibrosis is a genetic condition. 95.15% (True)

Cystic fibrosis can be diagnosed at birth. 84.16% (True)

Acute respiratory infections may persist for an extended period of time for children with cystic fibrosis. 100% (True)

Quality management of asthma consists of (Check all that apply):

- Identifying precipitating factors for asthma attacks 98.1% (Check)
- Avoiding precipitating factors for asthma attacks 86.4% (Check)
- Avoiding exercise 95.2% (Not a strategy)
- Proper inhaler use 98.1% (Check)
- Surgery 99.0% (Not a strategy)
- Bronchodilators 77.7% (Check)
- Oral medication 62.1% (Check)
- Patient education 100% (Check)
- Asthma action plans 92.2% (Check)
Quality management of cystic fibrosis consists of (Check all that apply):

- Chest physiotherapy 78.4% (Check)
- Nebulizer therapy 72.6% (Check)
- Nutritional supplementation 63.7% (Check)
- Antibiotics 32.4% (Check)
- Airway clearance techniques 79.4% (Check)
- Postural drainage strategies 89.2% (Check)
- Supplemental oxygen 50.0% (Check)
- Dietary prescription 48.0% (Check)
- Enzyme administration 33.3% (Check)
- Avoiding humid conditions 82.4% (Not a strategy)
- Patient education 98.0% (Check)
Table 2.

Results of the Perceptions Section of the Survey Sent to Occupational Therapy Practitioners Regarding Chronic Respiratory Diseases

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean Response ± Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise serves the same benefits for a child with asthma as a child without.</td>
<td>3.9±0.9</td>
</tr>
<tr>
<td>Exercise serves the same benefits for a child with cystic fibrosis as a child without.</td>
<td>3.47±0.96</td>
</tr>
<tr>
<td>A child with asthma may experience unwanted attention.</td>
<td>3.88±0.80</td>
</tr>
<tr>
<td>A child with asthma may experience fear and panic during an attack.</td>
<td>4.54±0.71</td>
</tr>
<tr>
<td>Resistance to treatment plans is one of the greatest barriers to successful asthma control.</td>
<td>3.67±0.78</td>
</tr>
<tr>
<td>With proper treatment asthma should only have minimal effects on a child’s daily life.</td>
<td>3.96±0.68</td>
</tr>
<tr>
<td>Children with asthma tend to engage less than their peers without asthma.</td>
<td>2.94±0.91</td>
</tr>
<tr>
<td>Children with asthma may be vulnerable to social adjustment problems.</td>
<td>3.33±0.81</td>
</tr>
<tr>
<td>A child with cystic fibrosis may experience low self-esteem.</td>
<td>3.89±0.57</td>
</tr>
<tr>
<td>A child with asthma may experience low self-esteem.</td>
<td>3.58±0.78</td>
</tr>
<tr>
<td>A child with cystic fibrosis may feel less control over his or her life.</td>
<td>4.23±0.51</td>
</tr>
<tr>
<td>A child with asthma may feel less control over his or her life.</td>
<td>3.88±0.78</td>
</tr>
<tr>
<td>A child with asthma may engage less in physical activity.</td>
<td>3.83±0.75</td>
</tr>
</tbody>
</table>
A child with cystic fibrosis may engage less in physical activity. 4.00±0.69

Management of asthma severely impacts a child’s occupations of daily living. 2.70±0.96

A child with cystic fibrosis may experience difficulties in treatment adherence. 3.77±0.66

A child with cystic fibrosis may feel less able to “fit in.” 3.85±0.58

A child with cystic fibrosis may feel that treatment adherence is not worthwhile. 3.27±0.81

A child with cystic fibrosis may be less able to cope and adapt. 3.39±0.84

Children with cystic fibrosis may experience isolation and altered relationships. 3.74±0.70

Children with asthma must alter daily routines. 2.79±0.89

Children with cystic fibrosis must alter daily routines. 3.59±0.85

A child with asthma misses significantly more school days than a child without asthma. 3.17±0.89
Table 3. Results of the Knowledge Test about Occupational Therapy Practice Amongst Respiratory Care Professionals

<table>
<thead>
<tr>
<th>Question</th>
<th>Percentage of Respondents Who Answered Correctly (Correct response)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational therapists are licensed professionals in my state.</td>
<td>73.1% (Yes)</td>
</tr>
<tr>
<td>Occupational therapists must be supervised by physicians.</td>
<td>52.9% (False)</td>
</tr>
<tr>
<td>Occupational therapists can work as private practitioners.</td>
<td>60.8% (True)</td>
</tr>
<tr>
<td>What degree is required to begin practicing as an occupational therapist?</td>
<td>15.4% (Masters)</td>
</tr>
<tr>
<td>Occupational therapy assistants are trained on the job.</td>
<td>56.9% (False)</td>
</tr>
<tr>
<td>Occupational therapy assistants must be supervised by an occupational therapist.</td>
<td>88.2% (True)</td>
</tr>
<tr>
<td>An occupational therapist primarily works to (indicate all that apply):</td>
<td>38.5% (B) An additional 61.2% Indicated B along with other incorrect choices</td>
</tr>
<tr>
<td>A. Reduce symptoms of disease or injuries</td>
<td></td>
</tr>
<tr>
<td>B. Improve a person’s ability to function in daily life.</td>
<td></td>
</tr>
<tr>
<td>C. Enhance physical fitness</td>
<td></td>
</tr>
<tr>
<td>D. Help his or her client find a job</td>
<td></td>
</tr>
<tr>
<td>Which child may benefit from occupational therapy services?</td>
<td>96.1% (D)</td>
</tr>
<tr>
<td>A. A child with cerebral palsy</td>
<td></td>
</tr>
<tr>
<td>B. A child with muscular dystrophy</td>
<td></td>
</tr>
<tr>
<td>C. A child with autism</td>
<td></td>
</tr>
<tr>
<td>D. All of the above</td>
<td></td>
</tr>
</tbody>
</table>
Occupational therapy goals and activities are chosen by:

A. The occupational therapist
B. The parent of the patient
C. The doctor
D. Patient and family in collaboration with the occupational therapist

82.4% (D)

Occupational therapists often evaluate a patient’s (indicate all that apply):

A. Eating habits
B. Physical fitness level
C. Self-care skills
D. Lifestyle

19.2% (C)
Table 4.  
*Results of the Perception Survey about Occupational Therapy Practice*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage Responding “Yes”</th>
<th>Percentage Responding “I Don’t Know”</th>
<th>Percentage Responding “No”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational therapists work with young adults in vocational and prevocational services.</td>
<td>65%</td>
<td>31%</td>
<td>4%</td>
</tr>
<tr>
<td>Occupational therapists work with children who have difficulty losing weight.</td>
<td>27%</td>
<td>47%</td>
<td>25%</td>
</tr>
<tr>
<td>Occupational therapists offer ideas for energy conservation.</td>
<td>79%</td>
<td>10%</td>
<td>12%</td>
</tr>
<tr>
<td>Occupational therapists are part of the team that fabricates and monitors prosthetic devices.</td>
<td>65%</td>
<td>29%</td>
<td>6%</td>
</tr>
<tr>
<td>Occupational therapists can recommend and modify assistive/adaptive devices and train clients in their use.</td>
<td>92%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Occupational therapists work with children to increase their hearing abilities.*</td>
<td>25%</td>
<td>41%</td>
<td>33%</td>
</tr>
<tr>
<td>Occupational therapists work with children to increase reading abilities.*</td>
<td>26%</td>
<td>48%</td>
<td>26%</td>
</tr>
<tr>
<td>Statement</td>
<td>Yes (%)</td>
<td>No (%)</td>
<td>Comment</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Occupational therapists can assess the safety and accessibility of homes.</td>
<td>92%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Occupational therapists can assess a client’s function in the home.</td>
<td>100%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Occupational therapists can promote parent and child education about their condition.</td>
<td>98%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Occupational therapists help children reorganize routines and habits to increase health.</td>
<td>96%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Occupational therapists can assist with cognitive processing while engaging in an activity.</td>
<td>90%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Occupational therapy addresses psychosocial impacts of disease.</td>
<td>69%</td>
<td>17%</td>
<td>13%</td>
</tr>
<tr>
<td>Occupational therapy is holistic in nature.</td>
<td>63%</td>
<td>27%</td>
<td>10%</td>
</tr>
<tr>
<td>Occupational therapy is a complementary or alternative form of medicine.*</td>
<td>37%</td>
<td>25%</td>
<td>38%</td>
</tr>
<tr>
<td>Occupational therapists possess enough knowledge about underlying medical conditions to work with children with chronic respiratory diseases.</td>
<td>69%</td>
<td>29%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Occupational therapy currently has a role in working with children with chronic respiratory diseases.

Occupational therapists can assist with emotional regulation while engaging in an activity.

*NOTE: These items were reverse scored.*
Figure 1. Distribution of Test Scores Amongst Occupational Therapy Practitioners. Histogram of the number of respondents receiving each score (percent of items correct) on the 60-item test of knowledge regarding chronic respiratory diseases.
Figure 2. Correlation of Knowledge and Perceptions Amongst Occupational Therapy Practitioners Regarding Chronic Respiratory Diseases. There was a low, positive correlation between knowledge about CRD and attitudes within occupational therapy practitioners (n=104, $r=0.259$, $R^2=0.067$, and $p=0.008$).
Appendix A

Please provide us with the following information about yourself.

1. Age:________

2. Gender: ________Female  ________Male

3. In what state do you practice?__________________

4. Are you an occupational therapist or a certified occupational therapy assistant?__________

5. How many years have you been practicing in the occupational therapy field?__________

6. What is the highest entry level occupational therapy education that you have completed?
   _______Associate’s degree  _______Master’s degree
   _______Bachelor’s degree  _______Doctoral degree

7. What type of setting do you currently work in the majority of the time (i.e. outpatient, etc)?
   ___________________________________

8. What areas of practice have you previously worked in (i.e. pediatrics, geriatrics, etc)?
   ___________________________________

9. Have you treated a child with a chronic respiratory disease?
   _______Yes
   _______No (proceed to question 12)

10. If so, was either asthma or cystic fibrosis the primary reason for occupational therapy treatment?
    _______Yes  _______No

11. If so, what proportion of your caseload is made up of children with a chronic respiratory disease?
    ___________________________________

12. Do you have a family member or close friend with asthma or cystic fibrosis?
    _______Yes  _______No
Please answer the following questions to the best of your ability, without the use of reference material. Please indicate your choice clearly.

Asthma is primarily characterized by___________.

E. a genetic chromosomal defect  
F. airway inflammation associated with airflow obstruction

Asthma attacks can vary in___________.

E. severity  
F. duration

G. frequency  
H. All of the above

Common symptoms of asthma include (Check all that apply):

_____Wheezing  
_____Coughing  
_____Tightness in chest  
_____Sweating  

_____Difficulty breathing  
_____Vomiting  
_____Increased heart rate  
_____Cyanosis

Asthma attacks can be precipitated by (Check all that apply):

_____Exercise  
_____Second hand smoke  
_____Cold air  
_____Emotional stress  
_____Exposure to air pollutants  
_____Humidity  
_____Colds  

_____Perfumes  
_____Food preservatives  
_____Social engagement  
_____Germs  
_____Substances found in medication  
_____Influenza

Asthma is a chronic, incurable disease.  

______True  
______False

A child’s asthma can change over time.  

______True  
______False
Cystic fibrosis is characterized by___________.

A. an allergic reaction  C. a collapsed lung
B. faulty regulation of salt and water  D. involuntary muscle contractions
movement across cell membranes.

Cystic fibrosis has the potential to impact__________ function.

A. respiratory  C. digestive
B. reproductive  D. All of the above

Symptoms of cystic fibrosis include (Check all that apply):

_____Increased mucus production  _____Poor vision
_____Scarring of organs  _____Delayed growth
_____Crying  _____Poor digestion of protein and fat
_____Pronounced coughing  _____Blood clots
_____Thick mucus production  _____Excessive loss of salt

Cystic fibrosis is a genetic condition.

______True  ______False

Cystic fibrosis can be diagnosed at birth.

______True  ______False

Acute respiratory infections may persist for an extended period of time for children with cystic fibrosis.

______True  ______False
Please indicate your answer clearly.

Quality management of asthma consists of (Check all that apply):

- Identifying precipitating factors for asthma attacks
- Avoiding precipitating factors for asthma attacks
- Avoiding exercise
- Proper inhaler use
- Surgery
- Bronchodilators
- Oral medication
- Patient education
- Asthma action plans

Quality management of cystic fibrosis consists of (Check all that apply):

- Chest physiotherapy
- Nebulizer therapy
- Nutritional supplementation
- Antibiotics
- Airway clearance techniques
- Postural drainage strategies
- Supplemental oxygen
- Dietary prescription
- Enzyme administration
- Avoiding humid conditions
- Patient education
<table>
<thead>
<tr>
<th></th>
<th>Please use the following scale to indicate your answer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise serves the same benefits for a child with <strong>asthma</strong> as a child without.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>Exercise serves the same benefits for a child with <strong>cystic fibrosis</strong> as a child without.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>A child with <strong>asthma</strong> may experience unwanted attention.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>A child with <strong>asthma</strong> may experience fear and panic during an attack.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>Resistance to treatment plans is one of the greatest barriers to successful <strong>asthma</strong> control.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>With proper treatment <strong>asthma</strong> should only have minimal effects on a child’s daily life.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>Children with <strong>asthma</strong> tend to engage less than their peers without asthma.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>Children with <strong>asthma</strong> may be vulnerable to social adjustment problems.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>A child with <strong>asthma</strong> may experience low self-esteem.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>A child with <strong>cystic fibrosis</strong> may feel less control over his or her life.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>A child with <strong>asthma</strong> may feel less control over his or her life.</td>
<td>![1] ![2] ![3] ![4] ![5]</td>
</tr>
<tr>
<td>Statement</td>
<td>1</td>
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<tr>
<td>--------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>A child with <strong>asthma</strong> may engage less in physical activity.</td>
<td></td>
</tr>
<tr>
<td>A child with <strong>cystic fibrosis</strong> may engage less in physical activity.</td>
<td></td>
</tr>
<tr>
<td>Management of <strong>asthma</strong> severely impacts a child’s occupations of daily living.</td>
<td></td>
</tr>
<tr>
<td>A child with <strong>cystic fibrosis</strong> may experience difficulties in treatment adherence.</td>
<td></td>
</tr>
<tr>
<td>A child with <strong>cystic fibrosis</strong> may feel less able to “fit in.”</td>
<td></td>
</tr>
<tr>
<td>A child with <strong>cystic fibrosis</strong> may feel that treatment adherence is not worthwhile.</td>
<td></td>
</tr>
<tr>
<td>A child with <strong>cystic fibrosis</strong> may be less able to cope and adapt.</td>
<td></td>
</tr>
<tr>
<td>Children with <strong>cystic fibrosis</strong> may experience isolation and altered relationships.</td>
<td></td>
</tr>
<tr>
<td>Children with <strong>asthma</strong> must alter daily routines.</td>
<td></td>
</tr>
<tr>
<td>Children with <strong>cystic fibrosis</strong> must alter daily routines.</td>
<td></td>
</tr>
<tr>
<td>A child with <strong>asthma</strong> misses significantly more school days than a child without asthma.</td>
<td></td>
</tr>
</tbody>
</table>
Please indicate your response clearly.

1. There is a role for occupational therapy in working with children with chronic respiratory diseases.

   ______ Yes
   ______ No (proceed to question 3)

2. If so, what roles do you think occupational therapy could carry out for a child with a chronic respiratory condition? (Check all that apply)

   ___ Energy conservation
   ___ Engagement in appropriate physical activity
   ___ Patient and family education
   ___ Medication management
   ___ Adjusting habits and routines of the child
   ___ Discovering more efficient ways to do tasks of daily living
   ___ Instructing child about breathing techniques
   ___ Teaching coping techniques
   ___ Positioning
3. What do you think keeps occupational therapists from increasing their role with children with chronic respiratory diseases? (Check all that apply)

   ____ Confusion about role of occupational therapy in relationship to other treatments
   ____ Lack of awareness of a need of occupational therapy
   ____ Lack of interest from OTs to work with children with a chronic respiratory disease
   ____ Lack of referrals
   ____ Other ________________________________

4. I would feel comfortable working with a child who has asthma.

   ____ Yes  ____ No

5. I would feel comfortable working with a child who has cystic fibrosis.

   ____ Yes  ____ No
Appendix B

Please provide the following information about yourself.

1. Age:________

2. Gender:_____Female   _____Male

3. State of residence:______________State of professional employment: _________

4. What is your current profession?________________________

5. What is your highest level of education?

   _____Associate’s degree   _____Master’s degree

   _____Bachelor’s degree   _____Doctoral degree

6. How many total years have you been in practice in the respiratory care field? _____________

7. What type of setting do you work in the majority of the time (i.e.inpatient,etc)? ________________________

8. Do you regularly treat or provide care for children with chronic respiratory diseases?

   _____Yes   _____No (proceed to Question #10)

9. If so, are asthma or cystic fibrosis the children’s primary reason for care?

   _____Yes   _____No

10. Approximately what portion of your caseload includes children with a chronic respiratory disease? _____________

11. Do you have a family member or close friend who is an occupational therapist or a certified occupational therapy assistant?

    _____Yes   _____No
Please indicate your answer.

Do you make referrals to occupational therapy?

_____ Yes  _____ No

On average, how many referrals to occupational therapy do you make each month?

_____ N/A or 0

_____ 1-2

_____ 3-5

_____ 6-10

_____ More than 10

Please list the top three reasons you make referrals to occupational therapy.

1. _______________________________________

2. _______________________________________

3. _______________________________________

Occupational therapists are licensed professionals in my state.

_____ Yes  _____ No  _____ I do not know

Occupational therapists can work as private practitioners.

_____ True  _____ False

Occupational therapists must be supervised by physicians.

_____ True  _____ False
What degree is required to begin practicing as an occupational therapist?

- ______ Associates  
- ______ Bachelors  
- ______ Masters  
- ______ I do not know

Occupational therapy assistants are trained on the job.

- ______ True  
- ______ False

Occupational therapy assistants must be supervised by an occupational therapist.

- ______ True  
- ______ False

An occupational therapist primarily works to (indicate all that apply):

- A. Reduce symptoms of disease or injuries  
- B. Improve a person’s ability to function in daily life.  
- C. Enhance physical fitness  
- D. Help his or her client find a job

Which child may benefit from occupational therapy services?

- A. A child with cerebral palsy  
- B. A child with muscular dystrophy  
- C. A child with autism  
- D. All of the above

Occupational therapy goals and activities are chosen by:

- A. The occupational therapist  
- B. The parent of the patient  
- C. The doctor  
- D. Patient and family in collaboration with the occupational therapist

Occupational therapists often evaluate a patient’s (indicate all that apply):

- A. Eating habits  
- B. Physical fitness level  
- C. Self-care skills  
- D. Lifestyle
<table>
<thead>
<tr>
<th></th>
<th>Please indicate your impression of occupational therapy practice using the following scale:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Please indicate your impression of occupational therapy practice</td>
<td>Yes</td>
</tr>
<tr>
<td>occupational therapy practice using the following scale:</td>
<td></td>
</tr>
<tr>
<td>Occupational therapists work with young adults in vocational and</td>
<td>![ ]</td>
</tr>
<tr>
<td>prevocational services.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists work with children who have difficult</td>
<td>![ ]</td>
</tr>
<tr>
<td>losing weight.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists offer ideas for energy conservation.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists are part of the team that fabricates and</td>
<td>![ ]</td>
</tr>
<tr>
<td>monitors prosthetic devices.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists can recommend and modify assistive/adapt</td>
<td>![ ]</td>
</tr>
<tr>
<td>ive devices and train clients in their use.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists work with children to increase their</td>
<td>![ ]</td>
</tr>
<tr>
<td>hearing abilities.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists work with children to increase reading</td>
<td>![ ]</td>
</tr>
<tr>
<td>abilities.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists can assess the safety and accessibility</td>
<td>![ ]</td>
</tr>
<tr>
<td>of homes.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists can assess a client’s function in the</td>
<td>![ ]</td>
</tr>
<tr>
<td>home.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists can promote parent and child education</td>
<td>![ ]</td>
</tr>
<tr>
<td>about their condition.</td>
<td>![ ]</td>
</tr>
<tr>
<td>Occupational therapists help children reorganize routines and</td>
<td>![ ]</td>
</tr>
<tr>
<td>habits to increase health.</td>
<td>![ ]</td>
</tr>
</tbody>
</table>
Please indicate your impression of occupational therapy practice using the following scale:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>I Don’t Know</td>
<td>No</td>
</tr>
</tbody>
</table>

| Occupational therapists can assist with cognitive processing while engaging in an activity. | □ | □ | □ |
|---|---|---|
| Occupational therapy addresses psychosocial impacts of disease. | □ | □ | □ |
| Occupational therapy is holistic in nature. | □ | □ | □ |
| Occupational therapy is a complementary or alternative form of medicine. | □ | □ | □ |
| Occupational therapists possess enough knowledge about underlying medical conditions to work with children with chronic respiratory diseases. | □ | □ | □ |
| Occupational therapy currently has a role in working with children with chronic respiratory diseases. | □ | □ | □ |
| Occupational therapists can assist with emotional regulation while engaging in an activity. | □ | □ | □ |
Please clearly indicate your answer.

How did you learn about occupational therapy? (Indicate all that apply)

- Personal contact with an OT
- Educational curriculum
- Family or friend
- Through a patient
- Reading literature
- Formal presentation
- Websites/online
- Other: ____________________

Is there a role for occupational therapists to work with children with chronic respiratory diseases like asthma and cystic fibrosis?

- Yes
- No

If so, what roles do you think occupational therapy could fill for children with chronic respiratory diseases? (Check all that apply)

- Energy conservation
- Engagement in appropriate physical activity
- Patient and family education
- Medication management
- Adjusting habits and routines
- Counseling
- Teaching coping techniques
- Instructing child about breathing techniques
- Increasing efficiency of daily tasks
- Positioning
What barriers do you see that keep occupational therapists from increasing their role in this area of practice?
Appendix C

Dear Therapist:

You are being asked to participate in this survey to gain important information about occupational therapists’ attitudes and knowledge about childhood chronic respiratory diseases, like asthma and cystic fibrosis. Despite the large number of children that are affected by these lifelong conditions, little has been written about the role of occupational therapy in the care for children with asthma and cystic fibrosis. The results of this survey may help us understand how to expand the role of occupational therapy in this area. I am conducting this study in fulfillment of the requirements for my Doctoral degree in Occupational Therapy at the University of Toledo.

The enclosed questionnaire will take about 15 minutes of your time. You were selected as part of a random sample of members of the Ohio Occupational Therapy Association pediatric Member Support Group. Your participation is voluntary. The results of this study will be used for research purposes only. Your responses will not be identified with you personally. We are not aware of any risks to you for participating. Returning this survey to us gives us permission to use your responses.

If you have any questions, please contact me at Rachel.Lorenzo@rockets.utoledo.edu or (734-755-5906) or my research advisor, Alexia E. Metz, Ph.D., OTR/L at Alexia.Metz@utoledo.edu or (419-530-6696). This research was approved by the Institutional Review Board at the University of Toledo. If you have any questions about the rights of participants in this study, you may contact them at (irb.biomed@utoledo.edu) and (419-383-6796).

Thank you for your cooperation and the valuable information you are providing in this survey. Please return your completed questionnaire in the postage paid envelope that was provided in this mailing.

Your time and assistance is greatly appreciated.

Sincerely,

Rachel Lorenzo
Occupational Therapy Doctoral Student

Alexia E. Metz, Ph.D., OTR/L
Principal Investigator
Appendix C

Dear Respiratory Care Professional:

You are being asked to participate in this survey to gain important information about attitudes and knowledge of occupational therapy and its role with children with chronic respiratory diseases. Despite the large number of children that are affected by these lifelong conditions, little has been written about the role of occupational therapy in the care for children with asthma and cystic fibrosis. Though children with asthma and cystic fibrosis may have needs that could be addressed with occupational therapy services, occupational therapy does not traditionally play a major role on interdisciplinary treatment teams for chronic respiratory conditions. I am conducting this study in fulfillment of the requirements for my Doctoral degree in Occupational Therapy at the University of Toledo. The results of this study will be used for research purposes only.

The enclosed questionnaire will take about 15 minutes of your time. You were selected because you are work at a facility that specializes in the care of children with asthma and/or cystic fibrosis. Your participation is voluntary. The results of this study will be used for research purposes only. Your responses will not be identified with you personally. We are not aware of any risks to you for participating. Returning this survey to us gives us permission to use your responses.

If you have any questions, please contact me at Rachel.Lorenzo@rockets.utoledo.edu or (734-755-5906) or my research advisor, Alexia E. Metz, Ph.D., OTR/L at Alexia.Metz@utoledo.edu or (419-530-6696). This research was approved by the Institutional Review Board at the University of Toledo. If you have any questions about the rights of participants in this study, you may contact them at (irb.biomed@utoledo.edu) and (419-383-6796).

Thank you for your cooperation and the valuable information you are providing in this survey. Please return your completed questionnaire in the postage paid envelope that was provided in this mailing.

Your time and assistance is greatly appreciated.

Sincerely,

Rachel Lorenzo
Occupational Therapy Doctoral Student

Alexia E. Metz, Ph.D., OTR/L
Principal Investigator
Appendix C

Dear Respiratory Clinic Manager,

As you know, asthma and cystic fibrosis impacts the lives of millions of children in the United States. Despite the statistics, little literature has been written about the role of occupational therapy on interdisciplinary teams for the care of children with these lifelong conditions.

We want to explore this by assessing the knowledge and attitudes that respiratory care professionals have about occupational therapy. Please consider helping with this important study by distributing the enclosed surveys to respiratory care professionals at your facility. Each respondent should seal his/her survey in one of the enclosed envelopes to return to you. Then we request that you collect the surveys and return all the surveys (completed and uncompleted) in the large stamped envelope.

Please inform respondents that participation in this survey is voluntary and all responses are confidential.

If you have any questions, please contact me at Rachel.Lorenzo@rockets.utoledo.edu or (734-755-5906) or my research advisor, Alexia E. Metz, Ph.D., OTR/L at Alexia.Metz@utoledo.edu or (419-530-6696). This research was approved by the Institutional Review Board at the University of Toledo. If you have any questions about the rights of participants in this study, you may contact them at (irb.biomed@utoledo.edu) and (419-383-6796).

Please return the enclosed report form in the small stamped envelope to let us know your response to receiving this packet.

Gratefully,

Rachel Lorenzo
Occupational Therapy Doctoral Student

Alexia E. Metz, Ph.D., OTR/L
Principal Investigator
Please complete the form below and return it in the small stamped envelope.

Name of facility: ___________________________________________

Address:__________________________________________________
__________________________________________________
__________________________________________________

Check all that apply:

____ Yes! I understand the study purpose and my instructions.

____ Yes! I will disperse your survey to the respiratory care professionals at this facility.

____ Yes! I will collect your surveys and return them in the provided postage paid envelope.

____ No, I will not disperse your survey to the respiratory care professionals at this facility because,

__________________________________________________________ (please provide a reason).

Name (please print):___________________________________

Title:_______________________________________________

Phone number: ______________________________________

Email address: _______________________________________

Signature:___________________________________________ Date:________________
Appendix D

Two-Week Reminder Postcard

Dear Survey Participant,

 Approximately two weeks ago you should have received a survey in the mail regarding occupational therapists’ attitudes and knowledge about the role of occupational therapy in childhood chronic respiratory diseases such as asthma and cystic fibrosis. This card is just a reminder that if you would like to participate in this study the completed survey must be returned in the self-addressed, postage paid envelope as soon as possible. Your contribution to this study will be greatly appreciated and will help us to understand the current attitudes and knowledge base occupational therapists have about childhood chronic respiratory diseases. If you have already completed and returned the survey, thank you for your time. Questions regarding this survey can be directed to Rachel Lorenzo at Rachel.Lorenzo@rockets.utoledo.edu or Alexia Metz at (419) 530-6696.

Thank you again for your time and participation.

Rachel Lorenz, OTD Student
Alexia Metz, PhD, OTR/L, Research Advisor
Appendix D

Two-Week Reminder Postcard

Dear Survey Participant,

Approximately two weeks ago you should have received a survey in the mail regarding the knowledge and attitudes of health care professionals providing care to children with chronic respiratory diseases about the role of occupational therapy in childhood chronic respiratory diseases. This card is just a reminder that if you would like to participate in this study the completed survey must be returned in the self-addressed, postage paid envelope as soon as possible. Your contribution to this study will be greatly appreciated and will help us to understand the current attitudes and knowledge that health care professionals providing respiratory care to children have about occupational therapy. If you have already completed and returned the survey, thank you for your time. Questions regarding this survey can be directed to Rachel Lorenzo at Rachel.Lorenzo@rockets.utoledo.edu or Alexia Metz at (419) 530-6696.

Thank you again for your time and participation.

Rachel Lorenz, OTD Student
Alexia Metz, PhD, OTR/L, Research Advisor