INCREASING PARENTAL EDUCATION OF PEDIATRIC UPPER RESPIRATORY INFECTION BY NURSE PRACTITIONERS AS A METHOD TO PREVENT NON-URGENT EMERGENCY ROOM VISITS

by

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ABSTRACT

Overcrowding and overuse of the Emergency Department (ED) is a growing and worrisome problem in the United States. Pediatric visits for non-urgent illnesses significantly contribute to the problem. Pediatric visits account for 31 per cent of ED visits in Arizona (ADHS, 2006) while the total population of children in Arizona is approximately 43 per cent (US Census Bureau, 2007). Otitis media and upper respiratory infection (URI) account for nearly five per cent of all ED visits in Arizona (ADHS, 2006). This project aims to reduce the problem of non-urgent ED use by pediatric patients and overcrowded EDs by educating parents regarding pediatric upper respiratory infection. Two theoretical models, the Interaction Model of Client Health Behavior and the Adult Learning Theory were used to guide this project. This project includes a teaching tool in the form of a PowerPoint™ slideshow, for presentation by nurse practitioners to groups of parents in church settings.
CHAPTER 1

Introduction

Overcrowding and overuse of the Emergency Department (ED) is a growing and worrisome problem in the United States (US). Emergency Department use climbed 23 per cent from 1992 to 2002 and yet, during the same time, the number of EDs decreased by 15 per cent (McCaig and Burt, 2004). Arizona is following these national trends. Although the population in Arizona grew by 7.3 percent in the two years from 2004 to 2006 (US Census Bureau 2004, 2006), ED use grew disproportionately by 9.2 per cent in the same amount of time (ADHS, 2004, 2006).

Unfortunately, the problem in Arizona is especially critical. In 2006, the American College of Emergency Physician’s (ACEP) graded Arizona’s access to emergency care as D+ on an A-F scale with Arizona ranked 42nd in the overall ability to meet the emergency demands of its residents. Arizona was ranked 43rd nationally in access to emergency care facilities with only 8.53 EDs per 1 million people (ACEP, 2006). With nearly 1.6 million annual ED visits by Arizona’s citizens (ADHS, 2006), the problem is not only concerning, it may be extremely dangerous with guaranteed access for real emergencies being questionable due to excess use of the ED for non-emergencies (Carret, Fassa, & Kawachi, 2007).

While ED use is appropriate much of the time, evidence exists to support widespread inappropriate use of the ED for non-emergency illnesses and injuries. Nawar, Niska, and Xu (2006) found that at least 13.9 per cent of visits nationally were non-urgent (required care in 2-24 hours). Within the US, from 1992-2002, the most common
primary ED diagnoses were contusions, acute upper respiratory infections, open wounds (excluding head), and abdominal pain (McCaig and Burt, 2004). The list of most common primary ED diagnoses in Arizona is the same as the national diagnoses, though in a different order: abdominal pain, acute upper respiratory infection, contusion, and open wound (excluding head). While some of these were undoubtedly emergency cases, many are managed effectively in out-patient clinics and primary care settings daily. Clearly adequate methods to direct non-emergency cases away from the ED either do not exist or are not being used effectively.

There are efforts to reduce the problem. At Newark Beth Israel Medical Center a check-in system has been developed where patients answer yes/no questions at a kiosk to determine priority (Bonifazi, 2008). At Tucson Medical Center in Tucson, Arizona, an Urgent Care Center has been created within the ED for less severe injuries and illnesses and Portsmouth Regional Hospital, in Portsmouth, New Hampshire has a Fast Track system in their ED which addresses minor illnesses in a different area of the ED (Portsmouth Regional, 2009). Although these and other methods may be effective and well accepted by patients, they have not been studied for long-term effectiveness or effect on patient care.

Problem Statement

The issue of overcrowded EDs related to non-emergency visits is very concerning; in particular, pediatric visits are especially problematic. It is notable that children account for only 31 per cent of ED visits in Arizona (ADHS, 2006) while the total population of children in Arizona is approximately 43 per cent (US Census Bureau,
2007); however, these pediatric visits account for a high proportion of inappropriate ED visits. It has been estimated that non-emergency visits by children in the ED range from 37 to 60 per cent (Brousseau et al., 2007). Non-urgent ED visits contribute to overcrowding, unnecessary health care costs, and poor health outcomes for children due to fragmented care (Brousseau, et al.)

As shown in Table 1, the top five diagnoses for children in Arizona EDs are: (1) acute upper respiratory infection (URI), excluding pharyngitis, (2) otitis media and eustachian tube disorders, (3) open wound of head, (4) fever, and (5) contusion with intact skin surface (ADHS, 2006). The first two diagnoses alone (URI and otitis media) account for nearly five per cent of all ED visits in Arizona (ADHS, 2006). Upper respiratory infection and otitis media are rarely emergencies in children and contribute considerably to the problem of ED overcrowding.

Overcrowding in the ED leads to unsuitable and expensive care, especially for common minor diagnoses, specifically URI and otitis media. Vanderweil, et al. (2007) found that antibiotics were prescribed for 35 per cent of ED discharge diagnoses of URI in 2004. Although this was improved from 55 percent in 1993 (Vanderweil, et al.), prescribing antibiotics for URI is not considered appropriate treatment and may contribute to antibiotic resistance (Goodhue & Brady, 2004). According to McWilliams, et al. (2008), children with otitis media contribute significantly to unnecessary and costly ED visits, while small reductions in non-urgent visits could make large contributions to health care cost savings.
Furthermore, overcrowding in the ED may lead to unsafe and fragmented care for children. An extended or chronic pediatric URI may signal one of many more serious conditions, including allergies, acute or chronic sinusitis, pertussis, recurrent acute or chronic bronchitis, or even pneumonia. Since the ED does not allow for follow-up care, these more serious conditions may easily be missed, even in recurring visits. Simply directing patients to follow-up with their PCP after an ED visit does not ensure they actually follow up. Many ED patients do not have PCPs. In fact, 25 per cent of patients in the ED used it as their regular source of care (O’Brien, Stein, Zierler, et al., 1997). Without a medical “home” these patients are more likely to make additional ED visits (Sarver, Cydulka, and Baker, 2002) resulting in continuing fragmented health care and ED overcrowding.

Purpose of Project

The purpose of this project is to develop a teaching tool for use by nurse practitioners (NPs) to improve parental education of pediatric URI to reduce the problem of non-urgent ED visits by children, and ultimately, overcrowded EDs. This teaching tool will be designed for presentation to parents in church groups. Two models, Cox’s Interaction Model of Client Health Behavior (IMCHB) and Knowles’ Adult Learning Theory (ALT) were used to guide the development and plans for implementation of this project.

Definitions Used in Project

Coryza—inflamed nasal mucous membranes (Dictionary.com, 2009)
Emergent Visit—ED visit requiring intervention within 15 minutes (McCaig and Burt, 2004)

Non-urgent Visit—ED visit requiring intervention in 2-24 hours (McCaig and Burt, 2004)

NP or Nurse Practitioner—A registered nurse prepared with a graduate level education who is able to practice as a direct health care provider in the state of Arizona (Advisory Opinion, 2009)

PCP or Primary Care Provider—Usually a doctor, nurse practitioner, or physician’s assistant who sees people for common medical problems and is involved in someone’s care for long periods of time (Hurd, 2007)

Urgent or Semi-urgent Visit—ED visit requiring intervention in 15-120 minutes (McCaig and Burt, 2004)

Upper Respiratory Tract Infection (URI)—This term encompasses viral or bacterial infections of the upper respiratory system, including the nasopharynx, oropharynx, laryngopharynx, and sinuses and may be termed: nasopharyngitis, pharyngitis, tonsillitis, tonsillopharyngitis, sinusitis, rhinitis etc., often referred to as the “common cold” (Goodhue and Brady, 2004). ICD-9 codes include 460-466.

Summary of Chapter

Arizona EDs are severely overcrowded, largely due to inappropriate use of emergency services. Specifically, non-urgent visits by pediatric patients with URI symptoms contribute largely to this overcrowding. Children account for 43 percent of the population of Arizona and only 31 percent of the ED visits; however, inappropriate use of
the ED by children is estimated at 37 to 60 percent. Improper ED use leads to unsuitable, expensive, unsafe, and possibly fragmented health care. This project aims to reduce non-urgent ED use by children by improving parental education of URI by nurse practitioners. This purpose will be accomplished using the IMCHB and ALT to develop a teaching tool for use by NPs in parish nursing.
CHAPTER 2

Introduction

In this chapter, the theoretical frameworks of the Interaction Model of Client Health Behavior and the Adult Learning Theory will be discussed. For nurse practitioners (NPs) nursing models or theoretical frameworks serve to maintain holistic care of the patient and guide advanced nursing practice (Mathews, Secrest, and Muirhead, 2007). In addition, literature will be reviewed related to pediatric URI, parental education and ED utilization, and adult education in church group settings.

Theoretical Frameworks

Cox’s Interaction Model of Client Health Behavior

The Interaction Model of Client Health Behavior (IMCHB) was developed by a nurse and is highly specific to guide nursing research and practice (Cox, 1982). The IMCHB most readily applies to client behavior in which the client seeks contact with a health care professional, no matter the health care setting (Cox, 1982); due to the scope of the model, the IMCHB can be used in any practice setting and is not limited by health care atmosphere (Mathews, et al., 2007). Cox and Roghmann (1984) found the model to be applicable to multiple health care situations, but that the weight of individual variables within the model would change depending on the subject. The IMCHB is ideal for use by NPs because it allows for use of a holistic nursing approach in providing primary care while complementing medical practice (Mathews, et al.). Succinctly, the IMCHB can be used to analyze and describe situations in which individual clients seek any type of health care from a nursing professional. The IMCHB was selected for this project because of its
view of the client as an individual, the importance placed on the client-provider interaction, its wide application to a variety of health care settings, and its relevance to NP practice.

**Major Concepts of Model**

The three foundational concepts of the IMCHB and how they are interrelated will be discussed. The first two major concepts of the IMCHB, the elements of “Client Singularity” and “Client Professional Interaction” interact together to ultimately determine the client’s “Health Outcomes” (Cox, 1982).

**Client Singularity.**

Each client that nurses interact with is an individual with individual needs. Cox (1982) conceptualized this as “Client Singularity.” Significantly, individual characteristics that must be accounted for by the health care professional in determining how to interact with the client and develop interventions for them. These characteristics include: background variables such as demographic characteristics, social influence, previous health care experience, and environmental resources; and dynamic variables such as intrinsic motivation; cognitive appraisal; and affective response (Cox, 1982). Mathews, et al. (2007) stated that the background variables come before the other client characteristics because they interact together to influence the subsequent dynamic variables.

**Client-Professional Interaction.**

Cox (1982) made it a point to steer away from previous theoretical models, which supported a unidirectional approach from client characteristics causing client health
behavior. Instead, the IMCHB considers the element of “Client-Professional Interaction” as a major power influencing health care behavior (Cox, 1982). Client-Professional interaction goes beyond client singularity in that the health provider will not only recognize the client as an individual, but style the health care to meet the individual’s needs (Cox, 2003). In addition, Cox further explained that when the relationship between client and provider continues beyond a single interaction, the elements of client singularity, client-provider interaction, and health outcomes continue to act reciprocally on each other.

*Health Outcome.*

In her original work, Cox (1982) found health outcome to encompass five factors: utilization of health care services, clinical health status indicators, severity of health care problems, adherence to the recommended care regimen, and satisfaction with care. The health outcome of interest will vary depending on study objectives (Cox, 1982). A positive health outcome in the IMCHB was defined by Cox as behaviors which maintain or improve a client’s health status.

*Adult Learning Theory*

The Adult Learning Theory (ALT) was developed by an educator, Malcom Knowles, and focuses on adult learning—andragogy—as a process model verses youth learning—pedagogy—as a content model (Broussard, McEwen, and Wills, 2007). ALT is not specifically a nursing theory, but is rather a cognitive learning theory borrowed by nurses who use it in practice (Broussard, et al.).
According to Broussard, et al. (2007), Knowles believed that instead of just teaching, presenters could facilitate true learning by combining several factors, including: a physically comfortable environment, recognized differences, openness, and trust and respect. Smith (2002) asserted that combining these factors would bring about Knowles’ ultimate goal of self-directed learning, that is, each learner is responsible for identifying their own learning needs and goals, recognizing learning resources, discovering learning strategies, and finally analyzing learning results. Responsibility and initiative for learning is placed on the individual in self-directed learning (Broussard, et al.). The ALT was selected as a framework for this project because it is a cognitive-based conceptual model which focuses on the best ways to help adults optimize learning.

Major Concepts of Model

Need to Know.

Knowles felt that adults need to understand why they should learn something (Broussard, 2007). When adults know their reason for learning something, they are more likely to benefit from education. Important implications for a teacher would include helping adults understand why something might be important to them (Broussard).

Self-Concept.

With time and maturity, Knowles recognized that an adult naturally develops a personality of self-direction rather than dependence (Broussard, 2007 and Smith, 2002). An adult is more aware of their learning needs and styles based on many learning experiences. A teacher or presenter who talks to adults as peers, enhances ability to
problem-solve, and encourages independence is more likely to be effective in getting information across (Broussard).

**Experience.**

The experiences that come with age and maturity create an abundant and ever-increasing reserve for adults to draw from as they learn (Smith, 2002 and Broussard, 2007). Knowles asserted that adults will learn more productively when they are able to draw on their own experiences and integrate them into the learning process (Broussard). Considering there are many diverse adult experiences, a teacher might use scenarios an adult learner might relate to. In addition, adults feel more valued when their experiences are valued (Broussard), making it important for a teacher to instruct as a peer instead of as a superior.

**Readiness to Learn.**

Since adults are problem-oriented learners rather than subject-oriented learners, real-life problems create a readiness to learn (Broussard, 2007). As an adult’s role changes, their readiness to learn becomes more oriented to their developmental tasks. As social roles evolve, readiness to learn becomes more appropriate for an adult’s newer stage of life (Smith, 2002). Adults are more likely to learn when teaching is focused on ways to help them solve problems (Broussard). To facilitate adult learning, an instructor might use simulation exercises, real-world applications, and examples of how the material being taught might relate to their personal lives.

**Orientation to Learning.**
Knowles proposed that adults want to know something because it will apply to their life now instead of in the future (Broussard, 2007). In other words, their time perspective is altered. For example, as a high school student, a teenager might learn how to complete a resume as practice for when they are ready to apply for a job, whereas an adult might need to know how to make a professional-looking resume because they need a job today. As time orientation changes, an adult’s orientation to learning will also become problem-centered instead of subject-centered (Smith, 2002). Considering adult orientation to learning, a teacher or presenter would focus on problem-solving and immediate resolution to optimize learning.

**Motivation.**

The keystone of Knowles’ theoretical model is adult motivation to learn (Broussard, 2007). By the time people are mature adults, Knowles asserts that motivation to learn has progressed to internal as opposed to external (Smith, 2002). The learner takes responsibility for learning into their own hands by deciding what needs to be learned and how (Broussard); in other words, adults are motivated to become self-directed learners. A teacher might facilitate better learning by taking time to find out a learner’s motivation.

**Pediatric Upper Respiratory Infection**

Pediatric upper respiratory infection (URI) occurs frequently with easily recognizable symptoms and treatment is generally straightforward. However, Arizona children still throng the ED to obtain treatment for this most basic illness. As shown in TABLE 1, in 2006, pediatric visits to Arizona EDs totaled over 45,000 for URI (ADHS, 2006), severely straining the emergency health care system. A review of the literature
related to pediatric URI is evidence that management is not appropriate at an Emergency Department.

Annually, pediatric URIs near 62 million cases, the product of which is 22 million lost school days (Diaz, Mainous, and deWet, 2005). Pre-school children may get between six and ten colds per year, each lasting seven to ten days and sometimes getting one right after another (Diaz, et al.). Due to the multiple organisms causing URIs, including the predominant rhinovirus, and the less common echovirus, coxsackievirus, influenza virus, respiratory syncytial virus (RSV), parainfluenza virus, corona virus, and adenovirus, URI is the most recurrent illness in humans throughout the world (Holmes, 2005). The risk of contracting a URI virus is increased by hand-to-hand contact, contact with wet fomites (Diaz, et al.), exposure to URI, and exposure to cigarette smoke (Holmes, 2005). Due to its common occurrence and generally mild course of illness, URI is a transitory illness and usually self-limiting (Pfeiffer, 2005).

Due to its frequent appearance, the signs and symptoms of URI should be universally recognizable by health care providers and even most parents. URI may start with general malaise and fatigue, and progress into sneezing, watery nasal discharge, sore throat and dysphagia, cough (often related to post-nasal drip), and a low-grade fever (Goodhue and Brady, 2004). Usually, the pediatric patient with URI does not appear toxic. A key finding in viral nasopharyngitis is prominent rhinorrhea. Specific findings in acute viral pharyngitis and tonsillitis are hoarseness, cough, coryza, and conjunctivitis (Goodhue and Brady). In addition, several findings may be suggestive of certain specific
viral infections. For example, Goodhue and Brady state that tonsillar exudate and cervical adenopathy may be present with an adenovirus URI.

Appropriate treatment of pediatric URI is straightforward and relatively simple. Treatment involves general respiratory management strategies targeted at symptom reduction, as medications and treatments will not shorten the course of upper respiratory illness (Goodhue and Brady, 2004). First and foremost, children need fluids to remain hydrated (Goodhue and Brady). Cool-mist vaporization can be helpful to a child with dry nasal passages and a dry oropharynx (Goodhue and Brady). Bulb syringes for infants may be helpful as they are obligate nose breathers (Goodhue and Brady). Normal saline nose drops or nasal spray will help to thin crusted or think mucus before infant feedings or as a comfort measure for older children (Goodhue and Brady). Honey may be used to soothe coughing (Parenting Q&A, 2008). Notably, none of these treatments require emergency intervention.

Care for pediatric URI also may include medications. While certain medications may be helpful, they should be carefully dosed for the child’s current weight. Analgesics and antipyretics can be used for pain relief and fever reduction, if applicable. Decongestants, antihistamines, expectorants, and cough medications may be used for symptom relief with extreme caution (Goodhue and Brady, 2004). In 2004, over 7,000 pediatric patients under the age of 12 were seen in EDs for improper ingestion of cough and cold medications (Schaefer, Shehab, Cohen, and Budnitz, 2008). New guidelines from the American Academy of Pediatrics (AAP) (Parenting Q&A, 2008) suggest no
child under the age of two take any cough or cold medications due to the risk of life-threatening side effects.

Medications that are not part of standard treatment for pediatric URI include all antibiotics (Goodhue and Brady and Diaz, et al., 2005). Healthcare providers should be aware of the current recommended treatment standards set forth by the American Academy of Pediatrics for pediatric URI as a measure to prevent superinfection by careless use of antibiotics (Goodhue and Brady).

Parental Education and ED Utilization

Compelling research shows parental education about pediatric illnesses can actually reduce the number of non-urgent ED visits. For example, McWilliams, et al. (2008) developed an anticipatory guidance program to help reduce ED visits for ear pain. The study was performed in a rural setting in Minnesota, in which there was one shared ED and urgent care, with no other readily available care within an 80-mile radius (McWilliams, et al.). Parental education was performed by nurses during the 15-month well-child visit (McWilliams, et al.). Nurses taught parents from a 10-slide PowerPoint™ presentation, going into detail about how to identify a child’s ear pain, how to safely reduce ear pain, and symptoms that might indicate a more serious illness (McWilliams, et al.). McWilliams, et al. reported a statistically significant (P=.009) 80 per cent decrease in ED visits for ear pain the following year. With better education regarding a simple illness, parents were able to avoid non-urgent ED visits for their children. There were no reported incidents of serious illness resulting from delayed care (McWilliams, et al.).
A pilot study was performed in 2004 by Herman and Mayer to determine if education among head-start families would reduce clinician visits and ED visits by children. Head Start directors gave parents a self-care tool, a book entitled *What To Do When Your Child Gets Sick*. The *What to Do* book was written at a 5th grade literacy level and discusses treatments for basic illnesses and injuries, making it easy for parents to understand and use. Survey results indicated parents in the intervention group understood the contents of the book and it helped them avoid non-urgent ED and clinic visits. These first results are promising, however further research is indicated due to only a moderate post-survey response (224 of 406 originally surveyed).

A large meta-analysis reviewed 32 studies of randomized, controlled trials of pediatric asthma education influencing lung function, morbidity, asthma control, and use of health care services (Guevara, Wolf, and Grum, 2004). To be included in the meta-analysis, the study had to educate parents or children or both (Guevara, et al.). Education methods varied from study to study (Guevara, et al.) Results indicated pediatric asthma patients who received education had reduced numbers of missed school days, fewer days with restricted activity, and lower numbers of emergency department visits compared to control groups (Guevara, et al.). A more recent meta-analysis of 37 studies, compared pediatric asthma education to “usual care” (Coffman, Cabana, Halpin, and Yelin, 2008). The analysis included parents and/or children who were educated by a variety of methods based on National Heart Lung and Blood Institute guidelines (Coffman, et al.). A statistically significant decrease in hospitalizations and ED visits were found in the asthma education groups (Coffman, et al.).
While thousands of children suffer from asthma, ear aches, fevers, and other illnesses, nearly all children will suffer from a URI at some time in their life. It is prudent then to educate as many parents as possible regarding the symptoms and treatment of pediatric URI. Based on research, when parents are better educated regarding their child’s illnesses, they are empowered to make informed decisions before “crises” occur and less likely to take their children to the ED for an unwarranted visit.

Education in Church Group Settings

Though a relatively new practice, parish nursing (faith-based health care), used to implement community-based nursing practice, has been gaining recognition as an effective method to impact cost and quality of health care (Magilvy and Brown, 1997). Goals associated with parish nursing include (1) recognizing health needs of congregations and developing appropriate programs, (2) improving access to and utilization of suitable health care services, and (3) encouraging improvements in health, well being, and changes in life styles (Magilvy and Brown).

Research revealed the effectiveness of adult education associated with faith-based communities (Campbell and Resnicow, et al., 2007). An intervention group of eight churches, with at least 200 members participating in the intervention in each congregation, was evaluated for improvements in fruit and vegetable consumption and reductions in fat intake over a six month period. Individuals and families, with the support of their pastor or clergy, participated in a church-sponsored kick-off event, received educational materials, and attended classes. Some even received supportive phone calls. Higher fruit and vegetable consumption and lower fat intake were associated
with attending the kick-off event, receiving educational materials, and attending classes. The researchers discovered that participants surveyed found it was easier to achieve desired changes when attending group activities with others and receiving church-wide support, especially support from clergy.

Summary of Chapter

Information regarding the background and major concepts of both the Interaction Model of Client Health Behavior and Adult Learning Theory were given. The major concepts of the IMCHB are: client singularity, client-professional interaction, and health outcomes. The major concepts of the ALT are: need to know, self concept, experience, readiness to learn, orientation to learning, and motivation. A literature review was presented which discussed prevalence, causes, signs and symptoms, and treatment, including medications, of pediatric URI. The literature showed parental education reduced non-urgent ED use by children for ear pain, asthma, and other childhood illnesses and injuries. Literature also revealed adult education in group settings, specifically church group settings, provided increased opportunity for change with support from other church members and clergy.
CHAPTER 3

Introduction

The purpose of this project is to develop a teaching tool for use by NPs to improve parental education of pediatric URI to reduce the problem of non-urgent ED visits by children, and ultimately, overcrowded EDs. This tool will be designed for presentation to informal clusters of parents in church groups. In this chapter, I will discuss development and content of the teaching tool, and give a detailed description of the tool itself. A copy of the tool can be found in APPENDIX A.

Project in Detail

Development

At the outset of this project, existing evidence-based educational instruments were sought to help parents determine appropriate care when their child experienced signs and symptoms of a URI. There were many websites dedicated to diagnosing a child before deciding if they needed care; however, often there was no information source identified, a “page last updated” section was missing, or no author was identified. Also, a computer and internet access is required to access websites and many families do not have these available. Notably, these websites were not interactive and did not provide opportunities to interact with a health care provider. Upon further investigation, no definitive guidelines were discovered for teaching parents or other caregivers about the signs and symptoms of pediatric URI. Development of a teaching tool to educate parents regarding prevalence, causes, signs and symptoms, and treatment of pediatric URI in a setting that
is comfortable and familiar and provides opportunity for interaction with a health care provider to help them avoid non-urgent ED visits was necessary and timely.

Specific elements of the IMCHB were used to help guide creation of the outline and content of the teaching tool. The tool was developed using two specific elements of client singularity—previous health care experience and intrinsic motivation (Cox, 1982). In the tool, the symptoms of pediatric URI are briefly reviewed. The assumption that parents have an intrinsic motivation to keep their child healthy and safe also guided the development of the teaching tool, leading to inclusion of information on the potential dangers of inappropriate ED use. Creation of the tool also considered client-professional interaction, specifically provision of health information (Cox, 1982). The teaching tool reviews little-known statistics related to ED use in Arizona, and other important health information, such as basic pathophysiology of pediatric URI, information about treatment of pediatric URI at home, and when to seek emergency treatment.

In addition to the IMCHB, the ALT was also used in development of the teaching tool. The major concepts used from the ALT were need to know and readiness to learn (Broussard and McEwen, et al., 2007). Because adults need to know why they need to learn something, a beginning section of the tool detailed the background of pediatric URI and significance of the problem of ED overuse for non-urgent visits. At the end of the tool, a case study is presented with multiple-choice answers to help parents relate this material to their lives and the lives of their children.

Description of Project
A PowerPoint™ slideshow was developed using two theoretical models as described above. It is intended to be presented by NPs to parents in church groups settings (See APPENDIX A: PowerPoint™ presentation). The presentation begins with slides providing information about the background of pediatric URI, including prevalence, risk factors, and causes. Signs and symptoms of infection are then explained, along with expected length and course of illness and how URI is spread. Specific parameters are included regarding appropriate home treatment of pediatric URI, going into detail about fever reduction and medication use. In addition, the tool provides information about when a URI is becoming a more serious illness, such as acute purulent sinusitis, bronchitis, pneumonia, or sepsis. Detailed information is specifically provided about the danger of a child with a toxic appearance, high-risk fever, high-risk cough, or difficulty breathing or bluish appearance.

Next, a section of slides describes why to avoid the ED when a child has a simple URI, and why care in the ED may be unsuitable for non-urgent illnesses and injuries. Information is also included about when the parent should seek additional care from their primary care provider or pediatrician and when to go to the ED. Finally, scenarios are presented to aid participants in integration of the material presented.

Summary

Development of the teaching tool for this project, a PowerPoint™ slideshow was presented. Development was based on the need for an interactive setting for parents to learn about recognizing and treating pediatric URI. Use of the IMCHB and ALT guided specific elements of the tool. A description of the tool which aims to reduce non-urgent
ED visits by pediatric patients with URI via parental education was discussed. Topics covered in the slideshow include prevalence, causes, signs and symptoms, and treatment of pediatric URI, reasons to avoid inappropriate ED use, and things to look for when a child is experiencing a more serious illness and needs definitive care.
CHAPTER 4

Introduction

This chapter will discuss briefly the plans for implementation and evaluation of the PowerPoint™ teaching tool. Furthermore, the strengths and limitations of this project will be presented, along with the significance to nursing and possible future directions.

Implementation and Evaluation

Before implementation of this project to targeted groups, it will be presented to a group of health professionals. At least one health professional specializing in emergency services and one specializing in pediatrics will be consulted. Feedback specific to accuracy and relevance will be obtained. The health professionals will be asked to make suggestions on additions or deletions based on clinical experience working with and educating parents. Revisions will be made based on feedback.

Once revisions have been made, the project will be presented to small groups of parents or individual parents. This will give the presenter an idea of how long the presentation will take and the number of questions the presentation evokes. Any flaws or confusing parts may be edited before mass presentation. Revisions will again be made based on feedback. After these two revisions, the project will be piloted by presentation by an NP to parents in church group settings as intended. Strategies based on the two theoretical models will continue to guide revisions of the tool as necessary.

Strengths

Strengths of this project include the use of theory and research-based evidence to guide the development of the teaching tool. The tool is based on two theoretical
models—one nursing based conceptual model and one cognitive learning theory focused on adult learning. Research presented supports the value of parental education as an effective method for reducing non-urgent ED use. Use of the teaching tool in a church setting will provide parents the opportunity to give and receive support in a familiar environment. Most importantly, the tool is interactive, allowing parents to ask the NP questions and raise concerns both during and after presentation.

Limitations

A limitation of this project is that it is unknown whether such an approach as a slideshow presentation to parents will reduce non-urgent ED visits. Study results suggest that parental education of pediatric otitis media and asthma reduce use of ED for non-urgent illness; this does not, however, guarantee that parents will be redirected from the ED for pediatric URI. In addition, there are no definitive guidelines for parental education of URI by National Heart Lung and Blood Institute or American Academy of Pediatrics, therefore this education is based on other published sources of epidemiology, risks, signs and symptoms, and resolution of pediatric URI.

Next, behavior change is complex and one method or interaction may not produce long-term effects. Parents may not be ready to make the changes this presentation suggests. Finally, it is not known if this strategy is appropriate across cultures. Arizona is very culturally diverse, with population estimates being 30 percent Hispanic, five percent American Indian, 4.2 percent Black, and 2.5 percent Asians (US Census, 2006). According to E. Welsh from the Arizona Department of Health Services (personal communication, July 8, 2008), data from the ED did not include race or ethnicity on
intake paperwork until 2008. It is not known if one race or ethnicity is predominant in ED visits, indicating a need for further research.

Significance

This project is significant to nursing, as well as to parents and families. Nurse practitioners are primarily concerned with improving the health and wellness of individuals and families by providing high-quality, cost effective health care. This project has the potential to reduce health care costs by reducing unnecessary ED visits. Improved health and wellness outcomes may be seen with improved home care. Additionally, a need for further research has been identified; much education has been done in regards to asthma and otitis media, but URI, the most common diagnosis for children being seen in the ED has not been researched.

This project is significant to parents and families because it has the potential to improve home treatment of pediatric URI and save time by avoiding long wait times or other ill people in the ED. Parents are empowered to make wiser health decisions as they learn the signs and symptoms of pediatric URI and how to determine when definitive health care is needed. Finally, this project provides parents and families with valuable health information from a reputable source.

Future Plans

There are several possible future directions for this project. First, this project could be used as formal research; funding may be provided by a party interested in reducing unnecessary ED visits, such as a large hospital group. Based on the research results, similar teaching tools could be developed for other pediatric illnesses. Second,
application of the project could be broadened to include different venues of presentation, such as community centers, schools, or even EDs. The presentation could be taken outside of Arizona to other states or to the US as a whole; if taken nationally, funding for the project may be obtained from the US government or related agencies. Finally, the project could be presented to various cultures, assessing for effectiveness and need for revisions based on specific cultural practices.
CONCLUSION

Upper Respiratory Infection is a common illness in the pediatric population (Diaz, et al., 2005). While the management of pediatric URI is very basic, many parents continue to bring their child to the ED for treatment (ADHS, 2006). Education of parents has been shown to reduce non-urgent ED visits for ear pain, asthma, and other childhood illnesses and injuries (McWilliams, et al., 2008, Guevara, et al., 2003, and Herman and Mayer, 2004). While the problem of ED overuse due to non-urgent visits continues to grow, NPs are in a unique position to provide health care information to parents in an attempt to reduce non-urgent ED visits by children with URI. A teaching tool has been developed for NPs to present to groups of parents in church settings. This tool will enable parents to make more informed decisions regarding management of pediatric URI potentially leading to fewer unnecessary ED visits and ultimately, reducing ED overcrowding.


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<th>Primary diagnosis group</th>
<th>ICD-9-CM code(s)</th>
<th>All Ages</th>
<th>&lt;15</th>
<th>15-19</th>
<th>Total for all children</th>
<th>Children as a percent of total ED visits in AZ</th>
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<td>1,591,881</td>
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<td>10,215</td>
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Upper Respiratory Infection—Emergency or Not?

Theresa L. Mooney, RN, BSN

Objectives

1. Increase knowledge and comprehension of Pediatric Upper Respiratory Infection (URI)
2. Be able to summarize how to care for children with URI at home with confidence
3. Remember when to take children to Emergency Department and when to avoid it
Outline

• Background and Significance of pediatric URI
• Causes of URI
• Signs and Symptoms of URI
• Treatment and Medications
• Why to avoid the Emergency Department when your child has a simple URI
• How to tell if a URI is becoming something more serious
• Case Studies

What is an Upper Respiratory Infection?

• An upper respiratory infection or URI is any infection of the upper respiratory structures
  – Nasal passages
  – Throat
  – Tonsils
• Often called the “Common Cold”
• Causes of URI are usually viral
• Nasal passages, throat, or tonsils become infected with a virus then become inflamed and sore
• Usually self-limiting (runs a definite or limited course)
How common are Upper Respiratory Infections?

- 62 million cases of pediatric URI annually
- 22 million lost school days annually
- Children may get 6-10 URI per year, often one right after another
- Most recurrent illness in humans worldwide
- 45,000 Arizona children who visit the Emergency Department each year are diagnosed with a simple URI

Why do children seem to get so many URIs?

- Anatomy
  - A child has narrower nasal passages and airways, so they are more easily susceptible to inflammation, foreign bodies, or mucus secretion
  - A child has shorter eustachian tubes, at a different angle than adults, making him or her more susceptible to viruses
  - Sinuses are immature
Children are at Increased Risk

- **Exposure**
  - Attendance at daycares
  - Puts objects in mouth
  - Poor hygiene

- **Smoking**
  - Parents or siblings who smoke increase risk of URI
  - Stop smoking!

What are the causes of Upper Respiratory Infections?

- **Viruses** are the most common causes of URI
  - Rhinovirus (predominant)
  - Echovirus
  - Coxsackievirus
  - Influenza Virus
  - Respiratory Synctial Virus (RSV)
  - Parainfluenza Virus
  - Corona Virus
  - Adenovirus
  - Epsteinn-Barr Virus

- **Bacteria** do NOT generally cause URI
What are the symptoms of URI?

- Gradual onset
- General malaise (feeling poorly)
- Fatigue
- Watery or thick yellow nasal discharge
- Sore throat
- Painful swallowing, though still should be able to eat/drink
- Cough, often especially at night
- Low-risk Fever (we will talk about this later)
- Hoarseness
- Coryza (swollen nasal passages)
- Conjunctivitis (swollen/red eyelids)
- Swollen Lymph Nodes around the face or neck

How Long Will a URI Last?

- Typically, a pediatric URI will last from 7-10 days
- Sometimes pediatric URIs occur one right after another, making it seem like the child is sick forever!
Spread of URI

- URI is spread by
  - Exposure to someone with a URI
  - Hand-to-Hand Contact
  - Wet Objects that may have been handled by someone with a URI

- Stop the Spread!
  - Wash hands frequently
  - Don’t share food or utensils, toothbrushes or towels
  - Wash all dishes in hot water with soap

What are ways to help my child feel better?

- General Respiratory Management Strategies
  - Fluids, Fluids, Fluids—children become dehydrated more easily than adults, especially when they are breathing harder and faster
  - Cool-mist Vaporization—be sure to clean the vaporizer often
  - Bulb Syringes for infants
  - Saline Nose drops or Nasal spray
  - Medication for fever or pain reduction
What if my child has a fever?

- A fever is defined as a core body temperature of >100.4°F
- Children with a low-risk fever may be treated at home while watching for symptoms of a more serious fever.
- Low-risk fevers include the following:
  - Infant 1-3 mo. 100.4°F<Fever<102.2°F & non-toxic appearing
  - Infant or Child 3-36 mo. 102.2°F<Fever<104°F & non-toxic appearing
  - Combined with URI, mild Nausea/Vomiting/Diarrhea, or cough

Should I try to reduce my child’s fever?

- Fever is a normal part of the body’s response to infection and does not always mean the child has a “serious” illness. Fever often means the body is fighting the infection and it accomplishes a desirable purpose.
- For fever over 102, sponge child in tub of room – temperature water.
- Dress child in loose clothing and/or diaper, or remove clothing
- Give cool fluids to drink, i.e. Pedialyte, juice, popsicles, jell-o, ice
- Don’t cool the child so much that he/she starts to shiver
What about Medication?

- Over-the-counter medications may be used to alleviate symptoms, but will not shorten the course of the illness. Call your health care provider or a local pharmacist to learn the appropriate dose for your child’s height and weight.
- Fever Reduction and/or Pain Management
  - Acetaminophen (Tylenol)
  - Ibuprofen (Motrin or Advil)
- Cough and Congestion—strongly suggested infants and children less than 2 years do NOT use these
  - Cough medicines (dextromethorphan)
  - Decongestants (guafenisen)
  - Antihistamines (diphenhydramine, phenylephrine)

Any Medication I shouldn’t use for my child?

- Medications that should NOT be used
  - Cough and cold medications in children and infants younger than 2 years
  - Leftover antibiotics or antibiotics prescribed for someone else—this could contribute to antibiotic resistance
  - Herbal medications should not be used without talking to your practitioner first. Many of these may interfere with other medications your child may be taking.
  - Aspirin—this is associated with Reye syndrome in children
Why should I not just take my child to the ED?

Unnecessary and Expensive

- URI is the most common pediatric diagnosis in Arizona EDs and is very rarely an emergency
- Small reductions in unnecessary ED visits would contribute significant health care cost savings
Care in ED may be Fragmented

- Extended or chronic pediatric URI may mean a more serious condition
  - Allergies
  - Sinusitis
  - Pertussis
  - Bronchitis
  - Pneumonia
- The ED does not have follow-up care so these more serious conditions may be missed
- Follow-up is difficult
- 25% of patients in the ED used the ED as their regular source of care
- Without a medical “home” patients are more likely to make additional ED visits possibly resulting in fragmented health care

The Take-Home Point

- ED use is for emergency illnesses and injuries, however use of the ED for non-emergency illnesses and injuries is widespread
- Guaranteed access for real emergencies is questionable due to excess use of the ED for non-emergency cases
- Don’t go the ED if you don’t have an emergency!
What if the illness is becoming more serious?

When do I see my child’s provider?
When do I take my child to the ED?

How do I know if it is more serious than a simple URI?

- There are a few things that may indicate a more serious illness than a simple URI
- See your Primary Care Provider for:
  - High-risk Fever
  - High-risk Cough
- Emergency Care required for:
  - High-risk Fever with Stiff Neck
  - Toxic Appearance
  - Difficulty breathing or Bluish appearance
High Risk Fever

- Children with these symptoms should be seen by a medical provider
  - Any febrile infant <1mo. of age
  - Febrile Infant 1-3 mo. Toxic appearing
  - Febrile Infant 1-3 mo. Fever ≥102.2°F
  - Prolonged fever >100.0°F for 3 weeks
  - No diagnosis after 3-7 days of outpatient visits, extensive studies, and continued fevers
  - Fever with seizures (twitching arms and legs)
  - Fever >104°F
  - Child develops spots or wide-spread rash with fever
  - Fever with refusal to drink fluids
  - Child becomes difficult to wake, is VERY sleepy or irritable
  - Any child with a high fever and stiff neck or neck pain should be seen in the ED right away

High-Risk Cough

- A cough that lasts 2-4 weeks is considered chronic, this may indicate a more serious illness
- Cough with very rapid breathing or child is turning blue or stops breathing
- A whooping or barking cough
- *Keep in mind, a child does not need to go to the ED unless they are having difficulty breathing with their cough
Toxic Appearance → ED care appropriate

- Pale skin
- Cyanotic—skin is bluish or purplish due to lack of adequate oxygenation
- Lethargic—drowsy or sluggish
- Inconsolably irritable
- May have a fast heart rate or rapid breathing

Difficulty Breathing or Bluish Appearance → 9-1-1 Call Indicated!

- Difficulty breathing means the child’s airway is becoming obstructed
- Bluish appearance means the child is not getting enough Oxygen to their tissues
Let’s look at a case study
~~~

What to do?

2 year-old Lydia has had a fever of 101.2 off and on for 2 days with a runny nose, dry cough, and sore throat. Her appetite is poor but she is drinking lots of juice and water. Her afternoon nap today was 3 hours instead of her normal 2 but once she was awake she was pleasant and playful with her brother.

» Lydia should:
1. Be cared for at home
2. Be seen by a provider in 2-4 days if still ill
3. Be seen by a provider today
4. Be seen in the ED now

» Why?
What to do?

The next day after her nap, little Lydia is falling asleep while watching her favorite movie, Cinderella. Mom checks her temperature and it is 103.2 three hours after her last Tylenol. She has been extra cranky today and her cough is more frequent, with yellowish-green mucus. Lydia had pneumonia when she was 6 months old but hasn’t had any similar problems since.

- Lydia should
  1. Be given Tylenol again right now
  2. Be seen by a provider in 2-4 days if still ill
  3. Be seen by a provider today
  4. Be seen in the ED now
- Why?

What to do?

• This child should
  1. Be cared for at home
  2. Be seen by a provider in 2-4 days if still ill
  3. Be seen by a provider today
  4. Be seen in the ED now
• Why?
Questions? Comments? Concerns?

Thank You!

References


REFERENCES


Portsmouth Regional Hospital Description of Medical Services (updated 2009). Retrieved January 30, 2009 from


