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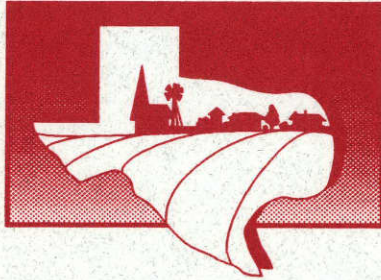
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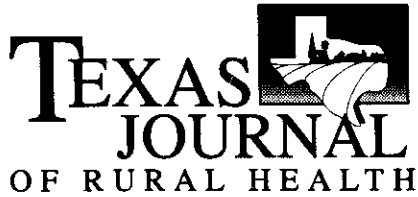
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**VOLUME XXI, NUMBER 3
2003**

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2003



M I S S I O N S T A T E M E N T

The purpose of this journal is to provide a forum for sharing ideas related to rural health.

Authors are encouraged to submit relevant and current research studies as well as legislative and/or health care policy papers. Descriptions of innovative strategies in primary health care settings are especially welcome. Manuscripts will be evaluated for pertinence to the issues on a statewide basis. Response to our articles is also encouraged and will be printed under the section "Letters to the Editor."

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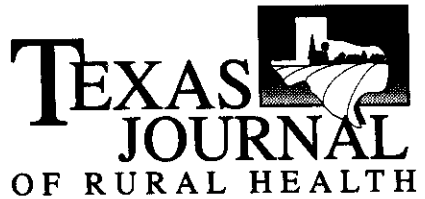
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for the Texas Journal of Rural Health

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A manuscript should be presented in the form described in “Manuscript Specifications.”

Step Two: Blind or Masked Review Process

The editor and managing editor reserve the right to invite manuscripts for publication. The editor and managing editor also reserve the right to accept or reject manuscripts outright. Before a manuscript is sent for review, it **must** meet APA specifications. Manuscripts sent for review are read by those considered experts on the subject. Thus, a peer review is conducted. The author’s name does not appear anywhere on the manuscript, providing a fair review.

Step Three: Recommendations from Reviewers

After the manuscript is reviewed, it is forwarded to the managing editor who discusses the reviewer’s recommendations and comments with the editor and members of the editorial board. If a manuscript is rejected during the initial review, every effort is made to encourage the author to proceed with the manuscript to make the article publishable. Reviewers’ remarks are included with the return of the manuscript.

Step Four: Editorial Board

The editorial board has quarterly meetings to discuss the manuscripts recommended by the reviewers. Content is the most important feature discussed at this meeting. Recommendations are to either (a) accept the manuscript, (b) accept the manuscript with revisions, (c) revise and resubmit the manuscript, or (d) reject the manuscript. In all cases, authors are encouraged to continue toward publication and every effort is made to facilitate that process.

Step Five: Getting the Manuscript Ready for Publication

Recommendations are sent to the author. The manuscript is scrutinized for content, accuracy in interpretation and application of referenced material, and for topic completeness.

Step Six: Return of Manuscript to Managing Editor

The manuscript is read to make sure all recommended revisions have been satisfactorily completed. Sometimes, a reviewer will request that the revised manuscript be returned for another reading. When that happens, the reviewer may accept the manuscript or request more changes. If the author has not proven diligent in satisfying the reviewer’s or editorial board’s requests for revisions, the manuscript may be rejected.

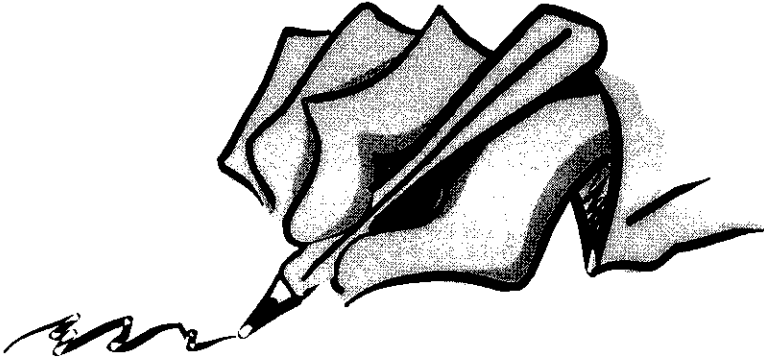
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The managing editor performs the job of editing, proofing for grammar, syntax, spelling, and word usage and then puts the manuscript into page layout form.

Step Eight: Authors Final Approval

The article will be sent to the author in page-proof (galley) form only if major changes are required within the text. In that event, the author usually signs “approval for printing with/without changes.” Beyond this, no other changes can be made.

Call for Papers



The *Texas Journal of Rural Health* is currently accepting manuscripts for publication on various topics relating to rural health issues. We are specifically looking for articles to go into the following sections:

- Notes From the Field
- Policy and Law
- Research

Topics of special interest:

- Nursing Shortages
- Rural Health Policy

Papers should be submitted to the Managing Editor as outlined in the “Instructions for Authors.”

TABLE OF CONTENTS

EDITOR'S COMMENTS

James E. Rohrer, Ph.D. 1

NOTES FROM THE FIELD

Health Literacy Assessments of Patients in Rural Florida

*Kimberly Harper, Ph.D., M.P.H., Melva Thompson-Robinson, Dr.P.H.,
Marisa Lewis, Pharm.D., M.P.H.* 3

Using Outreach Endeavors to Determine Hispanic Diabetics

Carol Boswell, R.N., Ed.D. 9

Telemedicine Burn Project at the Texas Tech University Health Sciences Center

Debbie Voyles, M.B.A. 15

Ophthalmologic Care Among Diabetic Mexican-American Adults Residing in a Colonia

Mark Gallardo, M.D., Arthur Islas, M.D., Darryl M. Williams, M.D., M.P.H. 19

Using Partnerships in Developing a Diverse RN Workforce on the South Plains of Texas

*Elizabeth Amos, R.N., Ph.D., Alexia Green, R.N., Ph.D., F.A.A.N.,
Mike McMurry, R.N.* 27

POLICY AND LAW

A Rural Texan Talks About Policy and Health Care in Rural Texas

Ramsey L. Longbotham 39

RESEARCH

The Impact of Rural Hospital Closure on the Economic Health of the Local Communities

David R. Pearson, C.H.E., M.P.A., Hassan Tajalli, Ph.D. 46

Commentary on The Impact of Rural Hospital Closure on the Economic Health of the Local Communities

Richard Hoeth, FACHE 52

Pediatric Emergency Departments: "Safety-Net" Providers for Vulnerable Children

Lonnie C. Roy, Ph.D., Susan Brown Eve, Ph.D., Naveed Ahmad, M.D., M.P.H. 54

BOOK REVIEW

Review of "Mirror, Mirror: A History of the Human Love Affair with Reflection"

Lee Ann Paradise 70

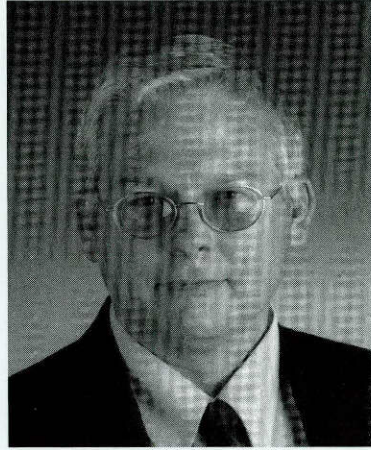
SALIVATING WHEN WE HEAR THE ICE CREAM TRUCK JINGLE

The results of a weight control experiment for rural patients were recently reported in *Preventive Medicine* (Ammerman et al., 2003). The sample consisted of eight health departments in North Carolina and 216 people who were found to have high cholesterol. The experimental program involved delivery of three individual diet counseling sessions by public health nurses. The comparison group received a similar clinical assessment but did not undergo the three individual diet counseling sessions.

The program reduced weight by 1.6 pounds after 12 months. This difference was statistically significant, even though the effects obviously were not very large. The program was reported as successful in reducing blood cholesterol, however.

Common sense tells us that losing 1.6 pounds in a year is nothing to write home about. Yet, the majority of weight control experiments reported in the scientific literature have very weak effects (though many are statistically significant). Obviously, some breakthrough is needed if the nation is going to make any progress against the "obesity epidemic."

Why is it that most health promotion programs have so little impact on the weight of participants? After all, the participants are volunteers, so they must have been motivated to lose weight. Let me suggest that the problem may lie in a key assumption made in virtually all of these programs; i.e., that the health behavior of the average person is a result of cognitive processes, or rational



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decision making. In other words, if the benefits of weight control are explained, a healthy diet plan is provided, and people are given moral support to prop up their will-power, then they will just stop eating too much.

Yeah, right. Let me argue another point of view: people eat too much because we have been programmed to do so. Eating feels good. Eating too much rewards us by stimulating our sense of taste and creating a feeling of fullness. Certain cues will trigger our craving for food, because we are conditioned to eat when we notice those cues. For example, when we hear the jingle played by an ice cream truck. Does that jingle bring a smile to your face? Does it make your stomach smile, too? When I sit down in my favorite chair and turn on a movie, I will crave a bowl

of popcorn within minutes. This is not rational behavior; this is a conditioned response. Behaviorists figured it out years ago, when they were running rats through mazes and making dogs slobber by ringing bells.

Most health promotion programs would have us fight our food cravings using the rational part of the brain. A behaviorist would say: "Don't sit down in that chair!" Not sitting in the chair prevents the craving.

I could be wrong, but I suspect the no-nonsense approach of the behaviorists might appeal to the rural mindset. After all, we know how much of the behavior we see in the natural world happens without conscious thought on the part of the animals involved. And we are not so arrogant as to believe that we are that much more in control of our behavior than your average ranch dog.

So, if you want to lose weight, stay out of that chair.

REFERENCE

Ammerman, A. S., Keyserline, T. C., Atwood, J. R., Hosking, J. D., Zayed, H., & Krasny, C. (2003). A randomized controlled trial of a public health nurse directed treatment program for rural patients with high blood cholesterol. *Preventative Medicine*, 36, 340-351.

HEALTH LITERACY ASSESSMENTS OF PATIENTS IN RURAL FLORIDA

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NOTES FROM THE FIELD

ABSTRACT

The purpose of this study was to gain a greater understanding of the health literacy needs of a rural minority population in Gadsden County, Florida. The Short Test of Functional Health Literacy in Adults (STOFHLA) was used to assess health literacy levels among participants. Twenty-nine participants out of 30 (93%) had adequate functional health literacy. The STOFHLA is a reliable and valid instrument for measuring functional health literacy. Limitations of this study are as follows: the population from which the participants were recruited was biased, the number of participants recruited was small, and the recruited participants may not have represented the larger populations.

Key words: African-American women, Hispanic-American women, health literacy, rural Florida. (*Texas Journal of Rural Health* 2003; 21(3): 3-8)

INTRODUCTION

Health literacy is defined as the ability to read, understand, and act correctly on health information. The link between low health

literacy and poor health has been shown in a series of recent studies that took into account the differences in education, socioeconomic status, and other demographic variables that are frequently associated with poor health (Schillenger et al., 2002). Weak literacy skills are barriers to good health care practices and healthy lifestyle decisions like disease screening, smoking cessation, proper nutrition, and exercise (Baker, Parker, & Clark, 1998). Low health literacy may be a serious barrier to a patient's understanding of and compliance with treatment regimens required for self-management of chronic diseases (Parikh, Parker, Nurss, Baker, & Williams, 1996).

The 1992 National Adult Literacy Survey (NALS) surveyed 26,000 adults to ascertain their literacy level (Kirsh, Jungeblut, Jenkins, & Kinstad, 2000). The survey found that 50% of all adult Americans might not function sufficiently in health care settings. About 23% of all adult Americans read at or below the fifth-grade level or cannot read at all. This population is called functionally illiterate. About 26% of all adult Americans are generally able to locate and assimilate information in a simple text, but they are unable to perform tasks that require them to synthesize information from complex and lengthy documents. This survey also determined that the proportion of the population that is functionally or marginally illiterate is higher in African-Americans (44%) and Hispanic-Americans (56%) than in Whites (30%).

When trying to correlate literacy level with health status, Weiss and colleagues (1992) found that persons with the lowest reading skills has poorer physical and psychological health than those with better reading skills. Literacy level was a stronger correlate of health status than education level or other

sociodemographic variables.

Montalto and Spiegler (2001) conducted a study at a rural community health center where 183 adult patients were invited to participate in an unspecified study. In a closed-door session, interested invitees were told the study required taking the Test of Functional Health Literacy in Adults (TOFHLA). After the purpose of the study was privately disclosed, 70 patients agreed to enroll (38.25% acceptance rate). Approximately 15% demonstrated literacy/numeracy deficits, scoring in the Inadequate and Marginal Functional Health Literacy ranges.

Nurss and colleagues (1997) evaluated the functional health literacy level of patients from outpatient medicine and diabetes clinics. They found that only 47% of new patients at the diabetes clinic and 25% of established patients at all sites had adequate functional health literacy.

In a large study (n=2659) examining functional health literacy, 42% of the patients were unable to comprehend directions for taking medications on an empty stomach (Williams et al., 1995). In addition, Williams and colleagues (1995) found that 35% of the English-speaking patients at a large urban public hospital could not read or understand basic health-related materials.

The overall significance of this study will be a greater understanding of the health and literacy needs of a rural minority population. Gadsden County, which is located in the North Florida Panhandle, consists of underserved, sparsely populated areas and generations of illiteracy and poverty. The county has the highest drop out rate in the state and the second lowest graduation rate with almost half of the students (49%) not completing the twelfth grade (Gadsden Citizens for Healthy Babies, 1999). The county chosen for the study has the highest percentage of persons

below the poverty level in the state (29%). The current population of Gadsden County includes 9,594 females of childbearing age (5,979 Blacks and 3,625 Whites) (Gadsden Citizens for Healthy Babies, 1999). Gadsden County is one of only two counties in Florida with a majority of Black residents (63%); Hispanics comprise 2.3% of the population. Combining the low level of literacy with poor health status indicators, compounded by rural poverty and limited access to health care services, Gadsden County is a perfect location to explore issues of racial disparity. The county covers 516 square miles, with a population density of 90 persons per square mile compared to a statewide average of 256 persons per square mile, which exacerbates problems such as access to health care and transportation issues (Gadsden Citizens for Healthy Babies, 1999).

The majority of Gadsden's residents are African-American (57.6%) as of 1999 (Gadsden Citizens for Healthy Babies, 1999). Hispanics (mainly White) comprise 2.3% of the population. The population of primary concern is African-American women of childbearing age residing in Gadsden County who are pregnant or parenting young children. This project will also target health care providers and home visitors that serve these women so they better address delivering information at the appropriate literacy levels.

Maternal and infant health services seem to be an ideal area to address health literacy concerns, because low levels have a direct impact on health status (Ladd, 1985). An unbiased look at the health outcomes for the county will also show an overall worsening in the proportion of women seeking prenatal care in the first trimester, as well as an overall worsening of low birth weight and infant mortality rates over the past few years.

Thus literacy-appropriate and culturally sensitive materials and methods are of increased importance to impact the overall health status of this rural county's residents. Consistently, these researchers found that persons with inadequate literacy levels had poorer physical and psychological health, poorer disease management skills, and less knowledge and understanding about their disease as compared to persons with adequate literacy levels (Weiss et al., 1992).

HEALTH LITERACY ASSESSMENT BACKGROUND

There are three primary instruments that are used to assess health literacy levels: Test of Functional Health Literacy in Adults (TOFHLA), Short Test of Functional Health Literacy in Adults (STOFHLA), and the Rapid Estimate of Adult Literacy in Medicine (REALM). The TOFHLA is a functional literacy assessment tool designed to evaluate adult literacy in the health care setting. This tool measures functional literacy on the assumption that more than classroom reading ability is necessary to understand and negotiate the health care system adequately. TOFHLA is especially directed toward capturing numeracy and reading comprehension skills in the middle to low levels of literacy ability. The full TOFHLA includes two sections. One section is on reading comprehension and the other is on numeracy. This health literacy tool measures the ability of patients to perform such tasks as reading labels on prescription bottles, instructions about how often to take medication, notices about when is the next doctor's appointment, informed consent forms, instructions about diagnostic tests, and how to complete insurance forms. The full TOFHLA takes

about 22 minutes to administer. Reliability of the TOFHFLA has been calculated by both split-half and internal consistency measures, using Equal Length Spearman-Brown and Cronbach's Alpha formulas, respectively (Nurss, Parker, Williams, & Baker, 2001). The calculated Cronbach's Alpha of TOFHFLA is 0.98 (Nurss et al., 2001). Construct validity for this functional literacy test was ensured by using actual hospital medical texts for both the Reading Comprehension and Numeracy subtests (Nurss et al., 2001).

The STOFHFLA is a quicker, more efficient way of determining patient functional health literacy. This instrument mainly focuses on reading comprehension and does not include a numeracy section. The STOFHFLA takes about seven minutes to administer. It consists of 36 reading comprehension items covering x-ray preparation and Medicaid application. The STOFHFLA has a correlation of 0.91 with the full TOFHFLA; therefore, it is a good estimate of the patient's functional health literacy (Nurss et al., 2001).

The REALM provides an estimate of the patient's reading ability and can be administered in one to two minutes. This instrument can be used in a clinical setting to identify patients with poor reading ability, but does not assess quantitative literacy that is an essential component of health literacy.

METHODOLOGY

Participant Recruitment

Participants were recruited into this study through visiting nurses and literacy organizations. An informational postcard was distributed by the Family Support Workers of Healthy Families Gadsden, the Home Visitors of Early Head Start and Federal Healthy Start,

and the Diamond Academy Program to recruit participants. While these postcards were distributed to clients, the interviewer was being trained to administer the STOFHFLA exam. The training session for the interviewer included specific directions and practice for administering and scoring the health literacy assessment test. The STOFHFLA instrument administration incorporated a vision test to verify that all participants had a visual acuity of at least 20/50. The interview consisted of the following: reviewing and signing of the informed consent form; answering any question the participants may have; completing a demographic questionnaire; conducting an eye examination; and completing a 36-question health literacy test.

RESULTS

Of the 2708 Gadsden women who gave birth between 1993 and 1996, 962 had less than a high school education. The following percentages and rates are for that specific population of women. In this group the infant mortality rate was 7.3 per 1000 live births, 13% of the births were low birth weight (less than 2500 grams), and 12.2% of these women gave birth at less than 36 weeks gestation. The mean highest grade completed was ninth grade, while the mean age was 21, and 73% of these women were unwed mothers. Twenty-two percent of these women entered prenatal care in the second trimester and 2.1% received no prenatal care at all. Forty-four percent of these women had some medical risk factor during their pregnancy with 24.5% experiencing complications during delivery and 33.9% of these women delivered high-risk infants.

A total number of 50 participants contacted the interviewer to inquire about the interview process. Thirty completed the

interview process, 11 were no shows, six were unable to be contacted by phone to schedule an interview appointment time, and three did not even attempt to schedule an appointment for an interview due to lack of interest in the project. The main limitation of having a small sample size in this pilot study includes a less than representative picture of the overall population.

Demographics

Demographics of participants for the health literacy assessment included 30 women in which 14 participants were between the ages of 16 and 20, 28 participants earned less than \$1000 per month, 28 participants has not finished high school, 28 participants were African-American, and 13 participants had one child. See Table 1 that summarizes the demographics of the study population.

Health Literacy Assessment

Twenty-nine participants were found to have an adequate functional health literacy level. One participant had a marginal functional health literacy level. However, it should be noted that the participant with the low score may not have been able to finish the test within the allotted seven minutes due to distractions from her three children that were present at the time of the interview.

CONCLUSIONS

The STOFHLA test is an effective tool to assess health literacy based on its validity and reliability values. Both the full and short versions of the TOFHLA have yielded strong levels of reliability and validity. This pilot study assessed the health literacy levels of 30 women who were enrolled in a visiting nurse or literacy program. Twenty-nine of the participants were found to have adequate functional health literacy (score of 23-36 on the STOFHLA) and one of the participants was found to have marginal functional health literacy (score of 17-22 on the STOFHLA). The sample that was recruited may not have been representative of the defined population due to recruitment through visiting nurses

Table 1. Demographics of the Study Sample

Age of Respondent	
Less than 15	7%
16-20	47%
21-25	30%
26-30	13%
Over 30	3%
Highest Educational Level	
Didn't Attend High School	3%
Attended High School, but Didn't Finish	73%
High School Diploma or GED	13%
Less than 2 Years of College	7%
AA degree	3%
Household Income of Respondent	
Less than \$1000/mo.	93%
\$1000-\$1500/mo.	3%
\$1500-\$2000/mo.	3%
Ethnicity of Respondent	
African-American	93%
Hispanic	3%
White	3%
Number of Children in Household	
Currently Pregnant	37%
1	43%
2	10%
3	13%
More than 3	7%

organizations and literacy programs. As noted earlier, the main limitation of having a small sample size is that the overall population may not be accurately represented. It is important to take the time to recruit the proper sample that you are seeking to represent the population of concern. Biased methods of recruiting study participants and too few participants in the study sample can yield incomplete study results.

REFERENCES

Baker, D., Parker, R., & Clark, W. (1998). Health literacy and the risk of hospital admission. *Journal of General Internal Medicine*, 13(12), 791-798.

Gadsden Citizens for Healthy Babies (1999). Statistics on Gadsden County. [On-line]. Available: <http://www.myflorida.com>.

Kirsch, I., Jungeblut, A., Jenkins, L., & Kinstad, A. (2000). *Adult literacy in America: A first look at the results of the National Adult Literacy Survey*. Washington, DC: National Center for Education Statistics.

Ladd, R. (1985). Patients without choices: The ethics of decision-making in emergency medicine. *Journal of Emergency Medicine*, 3, 149-156.

Montalto, N. & Spiegler, G. (2001). Functional health literacy in adults in a rural community health center. *West Virginia Medical Journal*, 97(2), 111-114.

Nurss, J., El-Kebbi, I., Gallina, D., Ziever, D., Mussey, V., Lewis, S., Liao, Q., & Phillips, L. (1997). Diabetes in urban African-Americans: Functional health literacy of municipal hospital outpatients with diabetes. *The Diabetes Educator*, 23(5), 563-599.

Nurss, J., Parker, R., Williams, M., & Baker, D. (2001). TOFHLA: Test of functional health literacy in adults (Technical Report). Snow Camp, NC: Peppercorn Books & Press.

Parikh, N., Parker, R., Nurss, J., Baker, D., & Williams, M. (1996). Shame and health literacy: The unspoken connection. *Patient Education and Counseling*, 27, 33-39.

Schillinger, D., Grumbach, K., Piette, J., Wang, F., Osmond, D., Daher, C., Palacios, J., Sullivan, G., & Bindman, A. (2002). Poor health literacy may contribute to excess diabetes-related complications among disadvantaged groups. *Journal of the American Medical Association*, 288(4), 475-482.

Weiss, B., Hart, G., McGee, D., & D'Estelle, S. (1992). Health status of illiterate adults: Relation between literacy and health status among persons with low literacy skills. *Journal of the American Board of Family Practice*, 5(3), 257-264.

Williams, M., Parker, R., Baker, D., Parikh, N., Pitkin, K., Coates, W., & Nurss, J. (1995). Inadequate functional health literacy among patient at two public hospitals. *Journal of the American Medical Association*, 274(21): 1677-82.

USING OUTREACH ENDEAVORS TO DETERMINE HISPANIC DIABETICS

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ABSTRACT

Supporting the Hispanic population with the management of diabetes mellitus is escalating into an overriding challenge for health care providers. Developing an effective outreach undertaking is one mechanism for addressing barriers that restrict access to health services for Hispanic clients. This discussion of one clinically focused outreach endeavor is presented to provide a framework for considering the implications for practice when working toward the successful management of key risk factors related to the disease process.

Key words: diabetics, Hispanic population, outreach, Texas. (Texas Journal of Rural Health 2003; 21(3): 9-14)

INTRODUCTION

Assisting the Hispanic population with the management of diabetes mellitus is growing into a paramount challenge for health care providers. In Texas, the pervasiveness of a diabetes mellitus diagnosis for the Hispanic race over the age of 18 was established as 8.1% (Texas Diabetes Council, 2003). This percentage is the utmost intensity acknowledged for the race/ethnicity groups listed by the Texas Department of Health. The problem can be further understood by considering

other aspects of importance in the administration of health care for successful compliance with the treatment plan. The estimated cost (indirect and direct) for diabetes in Texas was 9 billion dollars in 1994 (Texas Diabetes Council, 2003). According to the National Coalition of Hispanic Health and Human Services Organizations (1990), the identified barriers that frequently result in restricted access to health services for Hispanics include: language differences or lack of bilingual health providers; lack of knowledge regarding what services are available; lack of insurance coverage; high costs of health care; lack of transportation to health care facilities; misunderstanding arising from differences in cultural expectations, communication styles and values; and institutional policies that display insensitivity to important values in the Hispanic community. Development of effective outreach undertakings is one mechanism for addressing several of these barriers. Diabetes is a major chronic illness that increasingly demands more health care dollars. Methods must be determined to address the management of this disease for this population.

Within the United States, the numbers for a diagnosis of diabetes emulate the same trends. According to *Healthy People 2010*, “800,000 new cases are diagnosed each year” (United States Department of Health and Human Services, 2000). In addition, *Healthy*

People 2010 asserts that diabetes goes undiagnosed in approximately 5 million people (United States Department of Health and Human Services, 2000). The goals within *Healthy People 2010* speak to the areas of individuals receiving formal diabetes education, annual hemoglobin A1C assessments, and daily blood-glucose monitoring (see Table 1) (United States Department of Health and Human Services, 2000). The Hispanic population is considered one of the most vulnerable, high-risk populations for this disease. This ethnic designation is identified with having a double to triple chance of developing diabetes mellitus, particularly non-insulin dependent diabetes mellitus (NIDDM) when compared to other ethnicities (Texas Diabetes Council, 2003). Multiple variables contribute to the negative effect of this disease process on the population. According to Lo (1999), “patient non-adherence is a well-recognized although poorly understood phenomenon that affects patients in all areas of health care.” Outreach endeavors need to be considered to facilitate the identification of “at-risk” individuals.

Despite the insidious dilemma of diabetes mellitus within the Hispanic population, limited research is documented on this group of individuals. In fact, research has been directed toward the Black ethnic group. Wagner, Schnoll, and Gipson (1998) found that Black clients (N=216) were non-compliant

Table 1. Healthy People 2010 Statistics Related to the Hispanic Race/Ethnicity

Category	Hispanic	Goal
Individuals receiving formal diabetes education	34%	60%
Annual Hgb A1C assessment	22%	50%
Daily Self Blood Glucose monitoring	36%	60%

when they couldn't recall the recommendations given to them, they didn't have a clear understanding of how to do a certain task, or what changes to make after getting the results of a glucose level. Each aspect was perceived as a barrier to the effective management of the diabetic regimen. Schlenk and Boehm (1998) investigated the problem of the Black client (N=117) not understanding instructions. The authors found contingency contracts between client and health care providers were useful if there were explicit directions from the health care provider concerning the goals to be met.

Brown and Hanis (1999) conducted research related to the development of a culturally competent diabetes education program for Mexican-Americans (N=247). This research was directed toward Mexican-Americans who resided in a border community. The research supported the use of focus groups as an effective intervention for improving compliance with the treatment regime.

OUTREACH PROJECT

The process of incorporating outreach endeavors to locate these individuals has not been adequately documented within the literature. The project was initiated to consider the use of outreach endeavors to identify and correlate aspects of undiagnosed Hispanic Diabetics in a medically underserved area of West Texas. A convenience sample was utilized for the process. One outreach aspect of the study was that a primary characteristic of minority individuals is the difficulty in getting participation. Burns and Grove (2001) endorsed the use of partnerships and face-to-face recruitment as a method to improve involvement. The use of

an outreach clerk who was a member of the targeted population and familiar with the community sites addressed these issues. The study interacted with 321 individuals (N=321). No power analysis was done prior to the initiation of this study. According to Burns and Grove (1999), a power analysis is used to establish the likelihood that a statistical test would detect a significant discrepancy that existed between the variables under examination. However, to examine the adequacy of the study, power analysis was done after the completion of data collection. According to Cohen (1988) with an N = 300, the power for this study would be 97% with an effect size of 0.20 and a significance level of 0.05.

A descriptive research design using a structured, cross-sectional design for collection and analysis of the data was employed. The variables used for this project were diagnosis of diabetes, risk factors identified, and results from random capillary blood sugar. Any individual with a random capillary blood sugar assessed at greater than 126 mg/dl was instructed to seek further medical attention. The focus for this study was to identify risk factors. Consequently, no direct follow up was initiated within this study.

PROCESS

An outreach clerk was hired to conduct outreach undertakings at a wide selection of community sites within a predominately Hispanic community. At these encounters, the outreach clerk offered random capillary blood sugar testing to interested Hispanic individuals. During the process, the participants were given the option to complete a demographic sheet concerning risk factors and other pertinent information. Policies and

procedures were established to ensure safe and appropriate management of the outreach sessions. A wide selection of community settings was utilized for these encounters such as grocery, general, jewelry, and boutique stores, hair salon, schools, and churches.

RESULTS

The data from the demographic/risk sheet reflected several interesting aspects for consideration when engaged in rural health. The 321 individuals were assessed during the outreach sessions over a period of approximately six months. The age range for the individuals assessed was 18 to 81 years with the mean age being 39.8. Out of the individuals evaluated, 38 reported a previous diagnosis of diabetes. The range in years since the diagnosis of diabetes was 3 months to 45 years with the mean years since diagnosis calculated as 5.8 years. Seventy-one percent of the individuals in the study group were females.

As further investigation into the risk factors for diabetes were assessed, several characteristics were noted. When asked if anyone in the family had a diagnosis of diabetes, half of the individuals surveyed reported at least one family member. Eighteen percent conveyed that more than one family member had the diagnosis. The primary family members listed with a diagnosis of diabetes were mothers (11%) and fathers (10%).

Each individual was asked if certain risk factors were present in their daily lives. The possible symptoms were assessed as reports of hunger (27%), reports of thirst (26%), and frequent urination (31%). Risk factors such as elevated blood pressure (22%), obesity (40%),

and a birth weight of more than 9 lbs. (15%) were also assessed. Weight was the risk factor with the highest percentage. The final factor assessed for each individual was the random capillary blood sugar. The blood sugars ranged from 58 to 369 mg/dl with the mean being 100 mg/dl.

For the four characteristics of thirst, hunger, frequent urination, and obesity, a Spearman's rank-order correlation (Spearman's rho) was completed comparing age and gender to the symptoms. This statistical test is used to designate the extent of a correlation between variables calculated on the ordinal scale. Both gender and age were significantly correlated with obesity at the 0.05 and 0.01 significant levels respectively.

IMPLICATIONS FOR PRACTICE

Outreach endeavors are an effective method for initiating contact with selected populations. Attention to cultural sensitivity consideration by the program planners prior to the initiation of the outreach process allows for improved entry into the designated community. Although health care providers frequently focus on the characteristics of thirst, hunger, and urination when assessing individuals, other factors, such as obesity, should be considered within the development and implementation of any outreach program. From this project, the area of weight was determined to carry more significance for identifying "at risk" individuals.

The challenges that occurred during this project supported the importance of health care providers taking the time to understand the social and cultural aspects of groups being attended to within the process. Only by working within these cultural and social

standards will a therapeutic relationship develop, which may result in improved management of the health care needs of the identified population.

Another challenge identified and confronted during this project was the magnitude for identifying strategic sites within the service area and making regular appearances at those strategic locations. To gain access within any culturally sensitive community, the individuals need a time period to become comfortable with the health care providers. Regular appearances at designated locations allow for the development of this sense of trust toward the health care providers. For the Hispanic community, becoming familiar and confident with the dedication of the individuals involved in the outreach endeavor is as important as the knowledge level of those individuals. During this project, the outreach clerk's repeated interactions with people at the designated sites provided an opportunity to develop trust and confidence with the project. Outreach projects and follow up procedures are one mechanism for addressing the health care disparities, which are present in our communities. Without the commitment to the community by the members of a project, many opportunities to facilitate the health care within the community are lost because of the lack of trust.

One of the paramount recommendations, which resulted from this study, is the need to develop an ongoing outreach process for these communities. Regular interaction and follow up with "at risk" individuals within any community would address the fundamental challenge of health promotion. The ability to become engaged in health promoting activities instead of waiting for the health problem to develop into a life-threatening situation must be cultivated. The health disparities, which are well documented within our society

must be addressed and managed effectively to aid in the reduction of health care cost. Outreach endeavors such as this one meets the expectation for preventing the development of major, costly health care problems. Avenues to allow for the continuation of outreach endeavors to identify "at risk" individuals must be carefully and thoroughly investigated.

REFERENCES

- Brown, S. A. & Hanis, C. L. (1999). Culturally competent diabetes education for Mexican Americans: The Starr County study. *The Diabetes Educator*, 25(2), 226-236.
- Burns, N. & Grove, S. K. (2001). *The practice of nursing research: Conduct, critique, and utilization* (4th ed.). Philadelphia, PA: W. B. Saunders Company.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Lo, R. (1999). Correlates of expected success at adherence to health regimen of people with IDDM. *Journal of Advanced Nursing*, 30(2), 418-424.
- National Coalition of Hispanic Health and Human Services Organizations (1990). *Delivering preventive health care to Hispanics: A manual for health providers*. Washington, DC: Author.
- Schlenk, E. A. & Boehm, B. P. (1998). Behaviors in type II diabetes during contingency contracting. *Applied Nursing Research*, 11(2), 77-83.
- Texas Diabetes Council. (2003). Texas diabetes fact sheet 2004-2005 state plan. [Online]. Available: <http://www.tdh.state.tx.us/diabetes/PDF/>

USING OUTREACH ENDEAVORS

FS2003.pdf

United States Department of Health and Human Services (2000). *Healthy people 2010: Understanding and improving health* (2nd ed.). Washington, DC: United States Government Printing Office.

Wagner, J. A., Schnoll, R. A., & Gipson, M. T. (1998). Development of a scale to measure adherence to self-monitoring of blood glucose with latent variable measurement. *Diabetes Care*, 21(7), 1046-1051.

TELEMEDICINE BURN PROJECT AT THE TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER

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ABSTRACT

Many people, whether young or old, will be affected by a burn injury at some point in their lives. This article discusses the telemedicine burn project at the Texas Tech University Health Sciences Center (TTUHSC). It addresses some of the challenges that rural patients face when seeking treatment and discusses solutions through telemedicine.

Key words: burn project, rural patients, telemedicine, TTUHSC. (Texas Journal of Rural Health 2003; 21(3): 15-18).

INTRODUCTION

The seriousness of the injury is determined by a variety of factors such as the type of burn, the location of the burn, and the actual location of the patient. According to the American Burn Association (2003), there are approximately one million burn injuries per year. Furthermore, 4,500 of these injuries will result in death and another 45,000 will result in a hospitalization for treatment. Effective burn treatment helps to reduce the amount of damage and complications and at the same time promote the healing process. Depending on the severity of the burn, some patients can be treated on an outpatient basis; others with more serious burns may require hospital

admission or advanced treatment at a special burn center (SkinHealing.com, 2003). Rural patients have a disadvantage as their access to care is often delayed by sheer physical distance to a treatment facility. After patients are released from the hospital, they will need follow-up visits in order to monitor their progress. The follow-up visits will last up to two years with weekly or bi-weekly visits during the first two months. The frequency of appointments after the first two months will depend on the patients' improvement. (Massman, Dodge, Fortman, Schwartz, & Solem, 2002). Many aspects can make these follow-up visits a challenge for a burn patient, especially those who live in a rural area.

RECOGNIZING A PROBLEM

Imagine traveling 350 miles to spend 15-20 minutes with a burn specialist and then having to drive the 350 miles back home. This is what happens to many patients who live in rural areas. In Texas, with a population of 5,713,350, there are only eight burn care centers (Winkelblech, 2003; American Burn Association, 2003). The majority of these centers are on the eastern side of the state. University Medical Center (UMC) in Lubbock has the only burn center between Dallas and Albuquerque. It services patients throughout the southwest including parts of New Mexico, Oklahoma, and Colorado.

John Griswold, M.D., Chair of the Department of Surgery at Texas Tech University Health Sciences Center (TTUHSC) oversees many of the patients that are sent to UMC for treatment. After seeing a patient fall asleep in the waiting room, Dr. Griswold discovered that the patient, from the El Paso area, left at 4:00 a.m. to drive to Lubbock for a scheduled appointment. As soon as the check-up was

over, the patient planned on driving six hours back home. Dr. Griswold decided that something had to be done. There had to be a better way for these patients to receive their follow-up care. Since TTUHSC was already using telemedicine to see over 2500 patients a year throughout the western side of Texas, it was a logical step to see if this technology could be used to link the patients in the El Paso area with Lubbock for their follow-up care.

SOLUTIONS THROUGH TELEMEDICINE

On October 17, 2001 Dr. Griswold saw the first burn patient from El Paso via the telemedicine system. Since then, over 63 patients have received follow-up care with Dr. Griswold over the telemedicine system. The equipment, known as TeleDoc, includes video conferencing software and cameras that can zoom in to see specific areas of the skin and body. All clinics are live interactive video. According to Dr. Griswold, the equipment allows him to see everything that is needed to monitor the patient's progress (Voyles, 2003a). A competent presenter at the remote site is vital to the success of a telemedicine consultation. It is important that the burn specialist and the presenter have a good working relationship. The specialist has to have confidence in the presenter's understanding of burn patients as well as an understanding of how the TeleDoc works. Lydia Ramos, R.N. and nurse manager of the TTUHSC El Paso surgery clinic, is that person. She and Dr. Griswold worked together when he would travel to El Paso to see patients there. According to Ms. Ramos, working with the burn patients and this project "is a lot of work," but she also finds it to be "the most satisfying work" she has ever done (Voyles,

2003b). Ms. Ramos indicates that the patients love the ability to see Dr. Griswold without having to travel the 350 miles to Lubbock. Being on television does not seem to bother any of the patients, despite their age. In fact, as Ms. Ramos stated, “the patients see it as an extension of our care here” (Voyles, 2003b). The only improvement she believes is necessary is to have more personnel to assist in the whole process, “but for now we will take it one clinic at a time” (Voyles, 2003b). Dr. Griswold sees this project as a way to improve both “physical and psychological outcomes,” because the patients get to stay in their own communities where they have friends and family (Voyles, 2003a).

PLANS FOR EXPANSION

Dr. Griswold would like to see the Telemedicine Burn Project expand by setting up a telemedicine system in the Thomason ER at the TTUHSC El Paso campus and a system here in Lubbock at the UMC ER. This would allow round the clock access to burn specialists for those living in the El Paso area. According to Dr. Griswold, some patients that are airlifted from the El Paso area to Lubbock could possibly stay in El Paso for treatment. This would save \$2200 for the air flight to Lubbock and another \$200 for the commercial trip back to El Paso. By having the system set up in the ER, the patients could first be evaluated in El Paso by the trauma doctors. If they had questions regarding the seriousness of the burn(s), they could consult Dr. Griswold or other burn specialists at UMC via live interactive video. The second opinion that this would provide just might save someone a trip to Lubbock. Dr. Griswold sees this as a way to keep the patients close to

home where family and friends would be there for support without the added burden of being away from home. In addition to the Thomason ER, Dr. Griswold would like all of the hospitals in El Paso as well as other rural areas to be tied into the telemedicine network. As someone once said “a picture is worth a thousand words.”

CONCLUSION

The advent of telemedicine brings people in rural areas to the doctor without having to spend long hours in a vehicle. The technology is here and every day there are more and more willing participants. The goal of the telemedicine department at TTUHSC is to continue to develop additional telemedicine programs that will enable individuals in rural West Texas easier access to care.

REFERENCES

- American Burn Association (2003). Burn incidence and treatment in the United States: 2000 fact sheet. [On-line]. Available: <http://ameriburn.org>.
- Massman, N. J., Dodge, J. D., Fortman, K..K., Schwartz, K. J., Solem, L. D. (2002). Burn follow up: An innovative application of telemedicine. [On-line]. Available: <http://www.regionshospital.com>.
- SkinHealing.com (2003). Burn Treatment. [On-line]. Available: <http://www.skinhealing.com>.
- Voyles, D. (2003a). Personal interview with Dr. John Griswold, January 2003.
- Voyles, D. (2003b). Personal interview with Lydia Ramos, R.N., August 2003.
- Winkelblech, P. (2003). *Population estimates 2003*. Arlington, TX: Research and

TELEMEDICINE BURN PROJECT

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OPHTHALMOLOGIC CARE AMONG DIABETIC
MEXICAN-AMERICAN ADULTS RESIDING IN A *COLONIA*

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ABSTRACT

Ocular damage with possible progression to blindness is a common complication of diabetes mellitus. These changes can be diminished by early detection through regularly scheduled eye examinations and by intervention that includes better control of hyperglycemia. In Mexican-American populations, both type 2 diabetes and the ophthalmologic complications appear to be more prevalent and perhaps more severe than in the general population. Using a survey of diabetic patients enrolled in community clinics as well as a sponsored screening program, this study shows that access to eye care is inadequate within a small survey population drawn from residents of *colonias* along the Texas-Mexico border. These individuals are exclusively Mexican-American and also possess many of the characteristics of low socio-economic status that impede access to health care. At the same time, the reservoir of ophthalmologic disorders appears to be high, based upon the findings of a comprehensive screening program. Taken together, these findings strongly suggest the need for new strategies employing provider and patient education as well as modified referral methods in order to improve the access to recommended health care services for this rural population.

Key words: diabetes, *colonias*, Mexican-American, ophthalmology, Type 2 diabetes mellitus, visual complications of diabetes. (Texas Journal of Rural Health 2003; 21(3): 19-26)

INTRODUCTION

Diabetes mellitus is the most common underlying cause of blindness in older populations (Klein & Klein, 1995). Background diabetic retinopathy develops in varying degrees in all diabetic patients, and patients are usually unaware of their disease. However, the disease can evolve into such visually debilitating complications as vitreous hemorrhage, neovascular glaucoma, retinal detachment, macular edema, and ischemic maculopathy. Some of these complications can be prevented by strict diabetic control (Diabetes Control and Complications Trial Research Group, 1995). Others can be ameliorated by early detection and intervention (Rodriguez-Villalobos, Ramiez-Barba, Cervantes-Aguayo, & Vargas-Salado, 1999). Type 2 diabetes mellitus is more common in Mexican-Americans than in the United States population as a whole (Stern & Mitchell, 1995). Thus, older Mexican-Americans might be more likely to experience ophthalmologic complications of diabetes. Indeed, there is evidence to suggest that the prevalence of diabetic ophthalmopathy is greater than predicted in this population (Haffner et al., 1988). Possible explanations for this excess include inadequate control of hyperglycemia, lack of knowledge concerning the risks of diabetes, and inadequate access to health care, particularly regularly scheduled eye examinations and early intervention. Low income has been identified as a particularly important risk factor (West et al., 2002). The

purposes of this study are to identify by means of a questionnaire, the pattern of eye care in a diabetic population residing in impoverished *colonias* along the Texas-Mexico border, and to describe the effectiveness of a screening program in identifying individuals with abnormalities of vision.

MATERIALS AND METHODS

This study was conducted in primary care clinics located in under-served, predominantly Mexican-American rural communities (so-called "*colonias*") located in El Paso County, Texas. These clinics are operated and staffed by the School of Medicine of Texas Tech University Health Sciences Center at El Paso and the College of Health Sciences at the University of Texas at El Paso. Subjects were drawn from patients who were registered in these clinics. In general, these patients received their care within the clinics, but some of the patients were new registrants. The study protocol and the questionnaires used in the study were reviewed and approved by the Institutional Review Board.

In the first phase of this study, adult (older than 21 years of age) patients with established type 2 diabetes mellitus were invited to participate in the study. After signing a written consent, enrolled subjects were asked to complete an eleven-item questionnaire concerning the duration and severity of their diabetes mellitus as well as frequency and nature of ophthalmologic care they had received. Questions were directed to age of onset, interval to treatment, interval to first ophthalmologic examination and subsequent intervals of examination, visual symptoms, other potential complications of diabetes, and modalities of treatment used by the subject for diabetes and ophthalmic disorders. The

questionnaire was provided in English and Spanish with Flesch readability score of 73.6 and Flesch-Kincaid Grade Level score of Grade 5.8 for the English version. A clinic employee fluent in the appropriate language assisted individuals who asked for assistance to complete a written document. The questionnaires contained no personal identifiers, and the completed questionnaires were collected and assigned a number for the purpose of collating and analyzing data. Some participants did not respond to all the questions, especially those related to annual income.

In the second phase of the study, individuals were recruited to a vision-screening session to be held at one of the community clinics. Participation was solicited by posted notices at a single clinic site and by direct contact with or telephone calls to individuals who had been seen in the clinic with the diagnosis of type 2 diabetes mellitus. However, it was not required that participants have the diagnosis of type 2 diabetes mellitus. Participants were invited to come to the clinic on a designated date at which time the Texas Commission for the Blind conducted a screening program for visual problems. Screening included a brief questionnaire

about general health and diabetes mellitus as well as tests for visual acuity, peripheral vision, oculomotor status, tonometry, and ophthalmoscopy. A trained optometrist conducted the testing. Individuals who were identified to have previously undiagnosed or progressive ophthalmic abnormalities were referred to a participating ophthalmologist for further evaluation and management.

RESULTS

In the first phase of the study, 39 subjects completed the survey with questionnaires that were sufficiently complete for evaluation. Not all participants responded to all questions. In particular, only 24 participants reported on family income. Of the completed questionnaires, 33 were in Spanish and 6 were in English. Demographic characteristics of the subjects completing the survey are shown in Table 1. The population was exclusively Hispanic, and over three-fourths were women. Subjects were from an older age group with a mean age of 57.7 years. The average age at the time of diagnosis of diabetes was 47.0 years, so that patients had lived with the diagnosis of diabetes for a mean duration of

Table 1. Demographic Characteristics of Diabetic Subjects Responding to the Questionnaire

Characteristics	n	
Ethnicity	39	100% Hispanic
Gender	39	76.9% women
Age	39	57.7±12.08 *
Age at diagnosis	32	47.0±12.46 *
Annual household income	24	\$9,424±\$4,935 *

* (mean±SD)

10.7 years. These subjects also came from a low socio-economic status (SES) in that the mean annual family income of the 24 individuals reporting this information was \$9,424.

The relative poverty of the population is also reflected by the source of funding for health care services (see Table 2). Over half the subjects had no third-party health care coverage. An additional one-quarter relied on Medicaid alone. Only 5% reported having commercial insurance.

Methods of diabetes control most commonly included use of oral hypoglycemic agents (data not shown). Some subjects did not include the use of diet and/or exercise in their treatment. A few (5%) subjects reported using herbal remedies in their treatment plan. No effort was made to assess diabetic control or the effectiveness of a particular treatment strategy in either diabetic control or prevention of ophthalmologic and other complications.

Only 37 of the 39 subjects reported on the interval between diagnosis of diabetes and the first detailed eye examination. Of these, nine (24%) reported never having had an examination. Of the remaining 28 subjects, the interval ranged from one week to 19 years with a mean of 3.8 months. Of 29 subjects who reported on the interval since their most recent eye examination, the range was as

recent as one month and as long as 10 years. The mean interval was 2.8 years. Twenty-one subjects reported experiencing changes in their vision while only seven subjects reported treatment for eye disorders. Concerning other possible complications of diabetes, nine subjects reported loss of peripheral sensation that they attributed to diabetes. Only one subject described foot ulcers. There were five subjects who said that they had diabetes-related renal disease.

In the second phase of the study, 47 subjects participated in the vision screening. Of these subjects, 27 had the diagnosis of type 2 diabetes mellitus while 20 did not. A total of nine subjects were referred for further evaluation. Seven of the nine referred subjects also had diabetes mellitus. Reasons for referral included evidence of cataract, possible visual field defects, and vitreous hemorrhage.

DISCUSSION

This small, descriptive study of eye care in a diabetic population residing in the *colonias* provides evidence for shortcomings in the quality of that care and the receptivity of the population to improved access to such care. These observations form the basis for specific

Table 2. Health Care Insurance Coverage of 39 Subjects Responding to the Questionnaire

Type of Coverage	n	%
Medicare	7	17.9
Medicaid	6	25.4
Medicare and Medicaid	5	12.8
Commercial or other	2	5.1
None	20	50.3

suggestions to improve the quality of and access to eye care in *colonias* populations. Those recommendations will be discussed below.

Although the study is hampered by problems associated with sample size and the qualitative methods using self-administered questionnaires, it is consistent with other observations about diabetes mellitus and its management in a Mexican-American population. There are now numerous studies that document that the Mexican-American population is at greater risk than the population as a whole for the development of type 2 diabetes mellitus (Stern & Mitchell, 1995). Genetic predisposition as well as sociologic and environmental factors such as diet and level of exercise may all play a role (Duggirala et al., 1999; Mitchell et al., 1999; Mitchell et al., 1996). There is also evidence that Mexican-Americans may have a higher incidence of the late-term complications of diabetes including cardiovascular events such as myocardial infarction and stroke, nephropathy and renal failure, and retinopathy and blindness. Many of these complications can be delayed or even prevented by weight loss, exercise, and careful regulation of hyperglycemia (Tuomilehto et al., 2001). Practice guidelines describe prevention measures to be used in the long-term care of diabetes patients, including a complete eye examination after the initial diagnosis of diabetes, at least annual follow-up examinations by an experienced ophthalmologist or optometrist, and prompt consultation following changes in vision (Fong et al., 2003). These measures depend upon patient compliance as well as access to health care services and effective lifestyle counseling and intervention. Thus, access to care is essential for the reduction of long-term complications in diabetic patients.

However, access to health care is depen-

dent upon a number of socioeconomic factors. Age, poverty, poor acculturation, language incompatibilities, and lack of medical insurance are all indicators of low socioeconomic status (SES) that favor limited access to health care. The population of the *colonias* along the Texas-Mexico Border possesses most of these characteristics. The *colonias* are unincorporated rural communities, usually on the outskirts of a large urban area, that have developed rapidly without planning or regulation. Until very recently, none of these communities had utilities including water and sewage services. Many of the residents are recent immigrants from Mexico, and in the great majority of homes, Spanish is the preferred language. Unemployment is high, and those who do work are often employed in entry-level jobs.

In this small study population, the subjects with diabetes who received their health care within the community came from a low SES. Average annual household income was \$9,424 or 78% of the poverty level for a family of 2 (Federal Register, 2003). Over half had no third-party medical insurance coverage. As mentioned above, these factors are especially strong indicators for poor access to health care. However, the diabetic patients who participated in the survey had additional risk factors for poor health care access: they were relatively older and had known about their disease for a number of years; Spanish was clearly their preferred language; and some individuals had only a rudimentary level of reading abilities in that language.

It is not surprising, then, to observe that the majority of these patients had received no or inadequate screening for ophthalmologic complications even in a university-sponsored clinic. One must keep in mind that screening referrals are also dependent upon patient compliance as well as the availability of

consulting physicians who are willing to see patients without reliable insurance coverage. This is a growing national problem, but our study did not consider these issues. We also did not consider the level of diabetes control achieved by the study subjects although most patients were on a treatment regimen including diet, exercise, and medications. Irrespective of medical management, it is clear that the study population had neither received adequate preventive evaluation nor care for potential ophthalmologic complications of their diabetes.

Conversely, there is evidence that the reservoir of eye disease within the *colonias* community is large. Recruitment for participation in the screening clinic was remarkably easy. Relatively few published notices and patient alerts were used and yet turnout was much higher than had been anticipated, suggesting that individuals within the community wished to take advantage of a resource that was not readily available, or that they had concerns about potential eye disease that could be diagnosed and treated. Not all of the individuals who were screened had diabetes, but over half did have that diagnosis. Nearly twenty percent of the participants were referred for further evaluation including one-tenth of those without diabetes and over one-fourth of those with diabetes.

Taken together, the low SES of *colonias* residents, the low level of preventive eye care, the enthusiasm for ophthalmologic screening, and the number of referrals for secondary screening and care, all strongly suggest the need for more effective processes for the preventive care of *colonias* residents with diabetes. These measures include ongoing education of providers and patients, development of reliable referral capabilities, and targeted use of screening services provided

by governmental agencies.

There are several potential remedies that should be explored. Perhaps most obvious is the need for a rational, comprehensive health care funding policy. There are other specific potential solutions. First, care providers should employ protocols in their management of patients with diabetes mellitus to assure that recommended evaluations are requested on schedule. Appropriate follow up and patient counseling are also important. Second, educational programs for diabetic patients should be reevaluated to make sure that they contain information about the importance of ophthalmologic care and also information about how to access health care. *Promotores de salud* (community health workers) may be the most effective individuals in the health care team to convey this information. It is essential that training programs for these individuals incorporate these concepts and emphasize their importance. Third, providers of care to uninsured or underinsured patients should seek practical alternatives to referrals to unwilling specialists. State agencies such as the Texas Commission for the Blind often have excellent screening capabilities as well as highly developed referral resources. These agencies are often eager to provide expanded services and may be underutilized by busy practitioners.

Prevention of blindness should be a major treatment objective in the management of patients with diabetes. Failure to accomplish this potentially achievable objective leads to patient discomfort and disability as well as increased later burdens on the health care system. Individuals with poor access to health care because of socioeconomic status or level of education should enjoy efforts at prevention that are comparable to the population as a whole. Improved clinical practices, renewed and reinforced efforts at

patient education, and the use of additional resources such as *promotores de salud* and governmental agencies may all serve to effect positive change.

REFERENCES

- Diabetes Control and Complications Trial Research Group (1995). The relationship of glycemic exposure (HbA_{1c}) to the risk of development and progression of retinopathy in the Diabetes Control and Complications Trial. *Diabetes*, 44, 968-983.
- Duggirala, R., Blangero, J., Almasy, L., Dyer, T. D., Williams, K. L., Leach, R. J., O'Connell, P., & Stern, M. P. (1999). Linkage of type 2 diabetes mellitus and of age at onset to a genetic location on chromosome 10q in Mexican-Americans. *American Journal of Human Genetics*, 64(4), 1127-1140.
- Federal Register (2003). *2003 Federal Poverty Guidelines* [volume 68(26)]. Washington, DC: United States Government.
- Fong, D. S., Aiello, L., Gardner, T. W., King, G. L., Blankenship, G., Cavallerano, J. D., Ferris, F. L., 3rd, & Klein, R. (2003). Diabetic retinopathy. *Diabetes Care*, 26(Sup. 1), S99-S102.
- Haffner, S. M., Fong, D., Stern, M. P., Pugh, J. A., Hazuda, H., Patterson, J., Van Heuven, W., & Klein, R. (1988). Diabetic retinopathy in Mexican-Americans and non-Hispanic whites. *Diabetes*, 37, 878-884.
- Klein, R., & Klein, B. E. K. (1995). Vision disorders in diabetes. In M. I. Harris & C. C. Cowie & M. P. Stern & E. J. Boyko & G. E. Reiber & P. H. Bennett (Eds.), *Diabetes in America*. 2nd ed. (pp. 293-337). Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases.
- Mitchell, B. D., Almasy, L. A., Rainwater, D. L., Schneider, J. L., Blangero, J., Stern, M. P., & MacCluer, J. W. (1999). Diabetes and hypertension in Mexican-American families: relation to cardiovascular risk. *American Journal of Epidemiology*, 149(11), 1047-1056.
- Mitchell, B. D., Kammerer, C. M., Blangero, J., Mahaney, M. C., Rainwater, D. L., Dyke, B., Hixson, J. E., Henkel, R. D., Sharp, R. M., Comuzzie, A. G., VandeBerg, J. L., Stern, M. P., & MacCluer, J. W. (1996). Genetic and environmental contributions to cardiovascular risk factors in Mexican-Americans. The San Antonio family heart study. *Circulation*, 94(9), 2159-2170.
- Rodriguez-Villalobos, E., Ramiez-Barba, E. J., Cervantes-Aguayo, F. C., & Vargas-Salado, E. (1999). Diabetic retinopathy and risk of blindness in Mexico. Are we doing enough? *Diabetes Care*, 22(11), 1905.
- Stern, M. P., & Mitchell, B. (1995). Diabetes in Hispanic Americans. In M. I. Harris & C. C. Cowie & M. P. Stern & E. J. Boyko & G. E. Reiber & P. H. Bennett (Eds.), *Diabetes in America*. 2nd ed. (pp. 631-659). Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases.
- Tuomilehto, J., Lindstrom, J., Eriksson, J. G., Valle, T. T., Hamalainen, H., Ilanne-Parikka, P., Keinanen-Kiukkaanniemi, S., Laakso, M., Louheranta, A., Rastas, M., Salminen, V., Uusitupa, M., & Finnish Diabetes Prevention Study, G. (2001). Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. [comment]. *New England Journal of*

OPHTHALMOLOGIC CARE AMONG DIABETIC MEXICAN-AMERICAN ADULTS

Medicine, 344(18), 1343-1350.

West, S. K., Munoz, B., Klein, R., Broman, A. T., Sanchez, R., Rodriguez, J., & Snyder, R. (2002). Risk factors for Type II diabetes and diabetic retinopathy in a Mexican American population: Proyecto VER. *American Journal of Ophthalmology*, 134(3), 390-398.

USING PARTNERSHIPS IN DEVELOPING A DIVERSE RN WORKFORCE ON THE SOUTH PLAINS OF TEXAS

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ABSTRACT

In an attempt to address the nursing shortage on the South Plains of West Texas, a unique partnership was formed between the Texas Tech University Health Sciences Center School of Nursing (TTUHSC SON) and the South Plains WorkSource (SPWS). The goal of this union was to increase rural and minority community awareness of nursing as a profession and to enhance university efforts to recruit, retain, and graduate disadvantaged and rural students (DARS). The project used a simple model (Bessent, 1997) to guide enhanced efforts and strategies developed to meet DARS program objectives. The model emphasizes the strategy of community awareness and partnerships to enhance the overall process of recruitment, retention, and graduation of DARS. This article describes these major project strategies and evaluates their effectiveness in enhancing recruitment and retention of disadvantaged and rural students.

Key words: nursing, recruitment, rural West Texas, TTUHSC SON, SPWS. (Texas Journal of Rural Health 2003; 21(3): 27-38)

THE NURSING SHORTAGE AND DECLINING ENROLLMENTS

A critical shortage of nurses grips the nation, with estimates of 13% of registered nursing positions remaining unfilled in hospitals (American Nurses Association, 2000). Current projections reveal a growing shortage with an estimated 800,000 registered nurses (RNs) missing from the bedside by 2020 (Buerhaus, Staiger, & Auerbach, 2000). Although nursing is a profession with a long history of cyclic shortages, this shortage proved to be different as an aging nursing workforce begins to retire over the next 10-20 years. One factor in the aging of the nursing workforce is that younger birth cohorts, those born after 1955, are smaller in population size as well as significantly less likely to choose nursing as a career (Buerhaus et al., 2000). This has resulted in schools of nursing experiencing significant declines in nursing school enrollments, accompanied by significant reductions in budgets which negatively impacted recruitment efforts. Overall, nursing school enrollments dropped by 23% between 1995 and 2000 (Carpenter, 2000). Since many young nurses are attracted to the excitement of a critical care setting, hospitals in particular have been hit hard by this decline in younger nurses entering the workforce. The declining size of graduating classes of professional nurses has resulted in a shrinking supply of RNs wanting to work in hospital settings (Buerhaus et al., 2000). The shrinking workforce is complicated by two factors: an overall smaller number of younger individuals are available to enter the workforce and there are expanded career opportunities for women outside of nursing. Women currently make up 90% of the professional nursing workforce (Bednash, 2000).

Complicating the problem further is a

failure of the nursing profession to recruit and educate a diverse workforce, one which reflects the demographics of our nation and communities. A culturally diverse workforce is essential to meeting the health care needs of communities and in reducing the health disparities that exist among the population. Hispanics comprise a growing segment of the United States population and a major concern is the paucity of nurses that are Hispanic. Only 2% of United States RNs are Hispanic, while in Texas approximately 7% of nurses are Hispanic. A national report entitled, "*A National Agenda for Nursing Workforce-Racial/Ethnic Diversity*," called for the education of minority and rural communities regarding nursing as a career and for increased recruitment and graduation of disadvantaged and rural students into the profession of nursing (Health Resources Service Administration, 2000).

Numerous efforts are presently underway to recruit more students into nursing. Twenty-one of the nation's leading nursing and health care organizations has formed a coalition, *Nurses for a Healthier Tomorrow*, in an attempt to provide long-term help (Sigma Theta Tau International, 2000). According to the coalition, highly visible patient and professional complaints about managed care in the early 1990s have discouraged young people from entering the nursing profession. The first phase of the coalition's work reveals that students from second through tenth grades are confused about the education involved to become a nurse, are unsure of job security and career advancement possibilities, and voice a lack of compelling reasons to become a nurse. Another significant initiative includes the *Campaign for Nursing's Future*, a multi-year nationwide effort to enhance the image of the profession and the recruitment of nurses sponsored by the Johnson & Johnson

Family of Companies in 2003.

In addition to strategies being developed at the national level, the state of Texas took the initiative to begin addressing the nursing shortage with the passage of legislation during the 2001 session. One component of this legislation focused specifically on recruiting qualified applicants to enroll in RN educational programs, retaining them once enrolled, and graduating them by establishing a competitive grant program under the auspices of the Texas Higher Education Coordinating Board. Texas Tech University Health Sciences Center School of Nursing (TTUHSC SON) applied for and received funding to focus specifically on increasing rural and minority community awareness of nursing as a profession and enhancing efforts to recruit, retain, and graduate disadvantaged and rural students (DARS).

RURAL WEST TEXAS AND PARTNERSHIPS

TTUHSC serves the 108 county of West Texas, including 98 counties designated as rural. This project focused specifically on the 15 county region of the South Plains (SP), consisting of 9 rural counties, 5 frontier counties, and 1 suburban county. With the exception of Lubbock County, whose population has increased over the last 20 years, the surrounding 14 counties that make up the SP area are confronted with the challenges that most rural counties in West Texas face. Rural residents have greater health care needs than urban residents because they are generally poorer, older, and less insured. In addition, 2000 census data indicated that the Hispanic population of West Texas grew at an astounding rate of 28.5%, comprising almost 42% of the West Texas population (United States Census Bureau, 2001).

Enhancing TTUHSC SON's efforts to recruit, retain, and graduate DARS became vitally important as a result of the nursing shortage, knowing that many students return to serve their rural communities upon graduation. To catalyze this process, in 2001 TTUHSC SON formed a partnership with the South Plains WorkSource (SPWS), a state supported entity under the auspices of the Texas Workforce Commission. SPWS's mission includes increasing awareness of opportunities and training requirements for individuals to access long-term career opportunities and has an infrastructure for career counseling within the 15 SP counties. Together, a grant proposal was submitted to the Texas Higher Education Coordinating Board (THECB) and funding was received in January 2002 with a focus on enhancing awareness of nursing as a profession, and recruitment, retention, and graduation of DARS.

PROJECT PLANNING AND EVALUATION

Planning and evaluation for the project utilized a timeless process described by Suchman (1967). This process focuses on key processes of:

- Value Formation – need for nurses who are prepared to care for a diverse population and reflect the demographics of that diverse population;
- Goal Setting – increase number of disadvantaged and rural students graduating from TTUHSC SON;
- Goal Measuring – increase recruitment, retention, and graduation of DARS;
- Identifying Goal Activity – project planning by the grant team based upon the Bessent model;

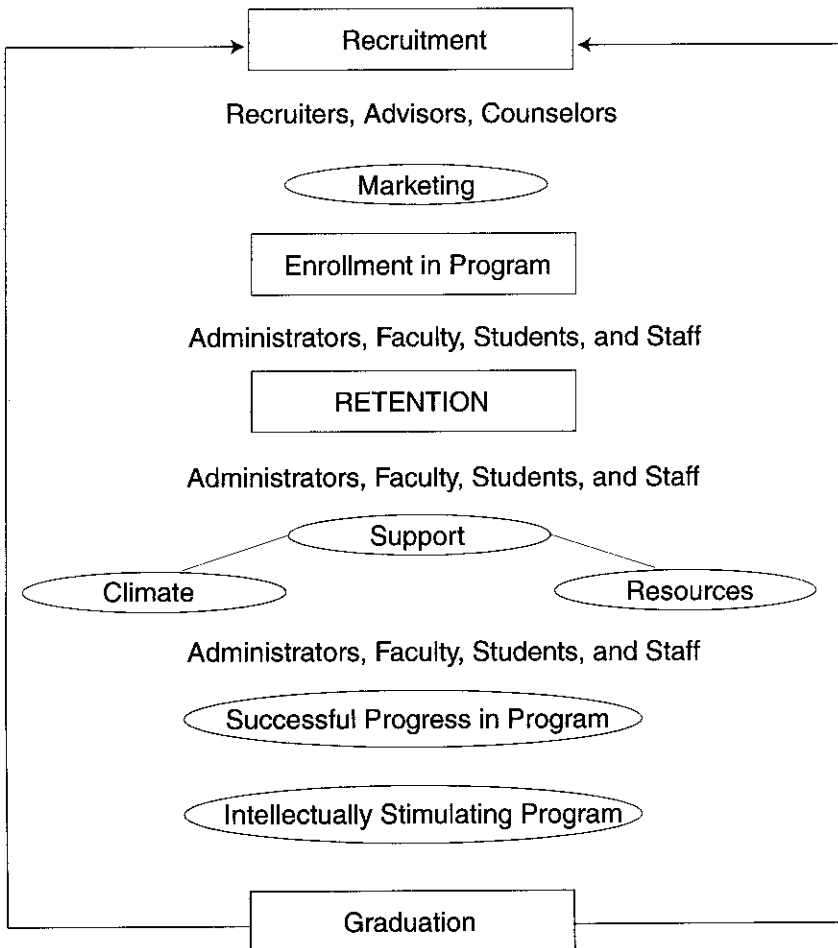
- Putting Goal Activity into Operation – operationalizing the project plan; and
- Assessing the Effect of the Goal Operation – evaluation research.

Value formation occurred as the state of Texas recognized the value of nurses in providing quality health care and thus the impact of a nursing shortage on the quality of health care to Texas citizens resulting in the

passage of the 2001 legislation. Goal setting and goal measuring were identified by the project team in preparing the grant application.

Project planning was guided by adapting a simple, generalized framework developed by Bessent (1997) to exhibit *Exemplary Strategies to Recruit, Retain, and Graduate Minority Students in Schools of Nursing*. The model is shown in Figure 1a and highlights

Figure 1a. The Bessent Model

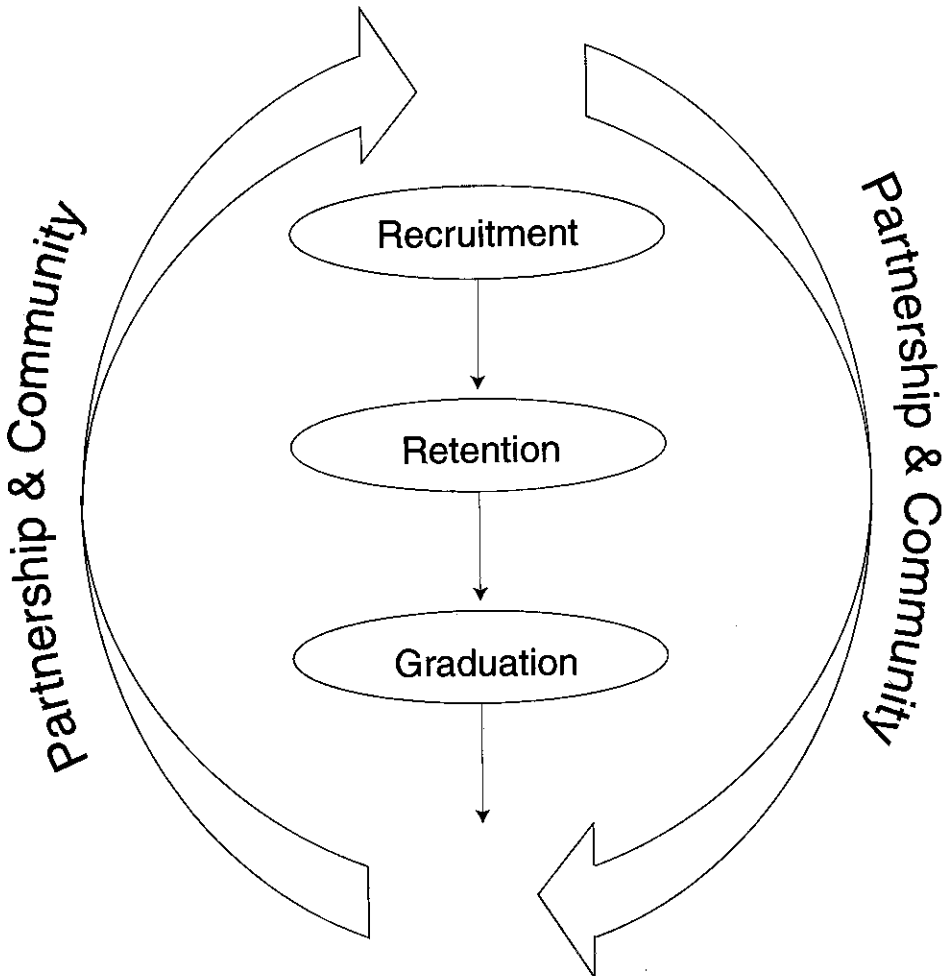


the basic elements for goal activity necessary to achieve the project goal. Figure 1b shows a simplified version of the Bessent model. The model was adapted for the grant with increased emphasis on leveraging community awareness and partnerships to facilitate the progress.

The adapted model, Figure 2, effectively captures the intertwining of elements and processes required to develop the DARS

project. Community awareness is increased through leveraging partnerships and in turn enhances recruiting opportunities. Recruitment benefits from offering a strong student support/retention program based on awareness of DARS student community background. Retention activities support graduation where the student's community awareness can lead the graduate to support activities and partnerships that can in turn re-

Figure 1b. The Bessent Model Operationalized



enforce and renew the overall process.

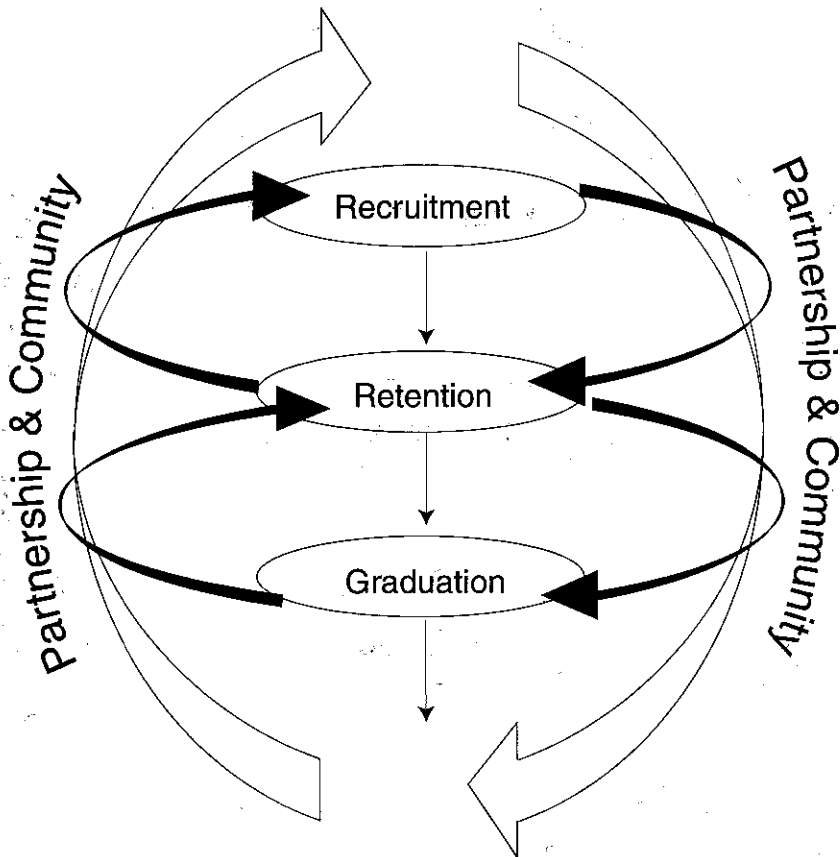
Identification of goal activities was initiated with the project proposal utilizing the Bessent model. The project had three major objectives:

- Educate rural and minority communities regarding nursing as a profession;
- Enhance efforts to increase the recruitment, retention, and graduation of disadvantaged

- and rural students (DARS) in nursing; and
- Evaluate the effectiveness of the DARS project model and disseminate project findings.

A project of this scope also required building an organization with assigned roles and responsibilities. An organization chart for the DARS project is given in Figure 3.

Figure 2. Disadvantaged and Rural Student, Retention, and Graduation Model



Note: Model designed and under study by Amos, Green, & McMurry in 2003.

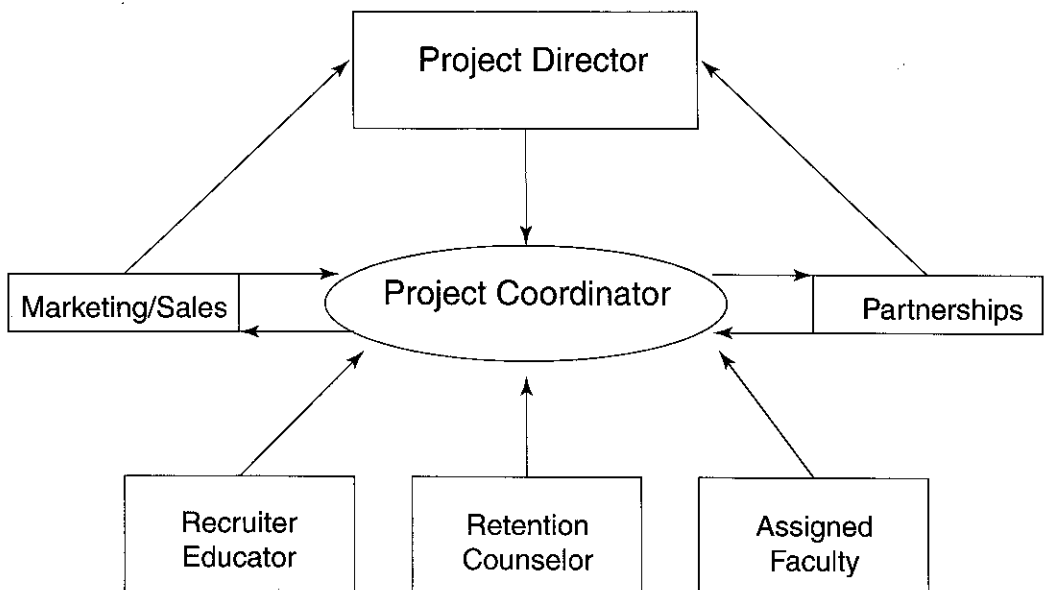
OPERATIONALIZING THE PROJECT AND ASSESSING EFFECTIVENESS

Partnerships: Partnerships were integral to the success of this project by providing additional avenues and resources to improve community awareness of nursing and reach out to capture DARS candidates. The main objective of collaborative partnerships was to increase awareness about nursing as a career option for DARS and to provide students and parents in rural communities current information about nursing as a career choice, including the educational tracts available to enter nursing in the South Plains area of West Texas. Under the auspices of the DARS project, the SON devoted resources to proactively foster and manage partnerships. The SON purposefully identified partners who could contribute to focusing on the nursing profession and the potential for each partner to contribute to project goals was carefully

analyzed. Resources and energies were directed to those partners that were believed to have the greatest benefit and access to disadvantaged and rural individuals who could become successful nursing students with the school.

The initial and key partnership with South Plains WorkSource provided a credible existing set of aggregate sites with which to begin sharing nursing career options. The initial partnership with the South Plains WorkSource evolved into a more comprehensive model of addressing the nursing shortage on the South Plains with the creation of a larger, more encompassing partnership of all professional schools of nursing in the 15 county area of West Texas. The South Plains Nursing Education Community Coalition in collaboration with the South Plains WorkSource submitted a competitive grant proposal to the United States Department of Labor and was awarded \$2.9 million to further

Figure 3. Organizational Chart for the DARS Project



address the nursing shortage, particularly addressing the recruitment and retention of disadvantaged and rural students in West Texas. The coalition built upon the momentum generated by the DARS project and the Bessent model.

Community partnerships were also extended beyond the South Plains WorkSource. Another key partnership was the Community Workforce Partnership, where the SON gained access to the resources and strengths of many community groups, both public and private. This included the regional education service center for public schools, a community college, two private universities, and three Chambers of Commerce, including the Hispanic and African-American chambers. Cultural liaisons with the Hispanic and African-American Chambers of Commerce were key to the success of the project by involving the SON at the grass roots level via association membership and participation in community activities.

Partners were specifically groomed to understand the value nursing brings to the community and to their own individual entities. Methodologies used to create “nursing value” with partners included such strategies as sponsoring partner programmatic activities (i.e., such as banquets and health fairs) and providing scholarship and summer camp opportunities to partner members. The activity found to be most effective was active participation by the SON in partner organizations, which included joining the Hispanic Chamber of Commerce and Raiders Rojos’s (Hispanic alumni organization). The potential partnering organizations responded positively to the pro-active SON outreach and assisted the SON in achieving the DARS project objectives. Positive examples of partnership outcomes include:

- South Plains Hispanic Association of Women (SPHAW) and the SON cosponsored two annual banquets and made available new scholarship funds and mentoring support for DARS;
- Hispanic Chamber of Commerce recognized the SON as the Outstanding Community Organization during 2002 for our increased emphasis on diversifying the nursing profession; and
- A local bank, American State Bank, partnered with TTUHSC and the South Plains Nursing Coalition to establish a scholarship fund for DARS and to enhance awareness of the nursing shortage. This included a multi-media campaign utilizing a celebrity spokesperson, Lorretta Swit, (MASH Star, Hot Lips Hollahan), press conferences, and public service announcements via television and radio.

An additional focus was improved collaboration between departments within TTUHSC. An example of this is a summer academy collaboratively developed between TTUHSC SON and the TTUHSC Office of Rural and Community Health to promote interest and basic study in the health related fields. A partnership was also created with the South Plains AHEC to enhance an awareness of nursing as a profession.

COMMUNITY AWARENESS AND RECRUITING

By definition, the DARS population presents a demographic challenge for increasing community awareness and recruiting new nursing professionals. To cost effectively facilitate rural community contact with recruiting sites and systematically develop improved practices, a SON Nurse

Educator/Recruiter position was created. This strategy served dual grant objectives. Responsibilities of the position included increasing community awareness of nursing as a profession as well as foster SON recruiting of DARS. In the absence of a devoted Nurse Educator/Recruiter, it would have been necessary to otherwise recruit and coordinate the activities of multiple volunteers to contact target populations in multiple areas with prepared materials.

The project leaders determined a full time Nurse Educator/Recruiter position was needed to coordinate and enhance community awareness in collaboration with recruiting efforts. The Nurse Educator/Recruiter was a TTUHSC graduate student in the critical care nurse practitioner tract. The project team was pleased when an experienced male nursing student applied for the position, because he brought a wealth of nursing experiences to each discussion with prospective students from the rural communities and exemplified the need for a diverse profession, including more men, parental responsibilities and rural roots.

Target populations for increasing community awareness and recruiting contacts through WorkSource partnership, in order of priority, consisted of:

- Rural high school students, counselors, school nurses, principals;

- Chambers of Commerce, library personnel, community hospital staff; and
- Elementary and junior high school students.

Table 1 provides an overview of the numbers and types of organizations who participated in project activities in the South Plains area.

Both formal and informal networkings were identified as key strategies in promoting awareness of the nursing profession and the TTUHSC SON. Both networking strategies were given a trial of six months to determine their effectiveness in the community.

Formal strategies involved attending career days and setting appointment times to access key personnel in community schools such as principals, counselors, and school nurses.

Informal networking was based on drop-in visits at schools, the community hospital, chambers of commerce and libraries. Contact consisted of face-to-face meetings with all available personnel with printed materials provided in person.

Clearly informal strategies proved to be the preferred strategy over formal recruitment activities, especially when dealing with rural communities. Rural school personnel were appreciative of the direct personal contact. The time spent on a site was longer and more

Table 1. Types and Numbers of Participating Organizations

Type	Urban	Rural	Total
K-12 Schools	60	59	119
Community Based Organizations	15	15	30
Health Care Organizations	30	20	50
Higher Education Institutions	4	10	14

persons were greeted and educated when an impromptu meeting occurred. The effectiveness of the informal strategies (short trips to specific sights with no fixed appointments) quickly evolved into the preferred methodology for disseminating information to rural communities. More effective recruitment and education occurred with smaller groups of 15 or less. Formal strategies with career days and scheduled meetings were also continued throughout the South Plains area, however, the less structured, informal activities proved more efficient and cost effective.

Through the community awareness/recruiting program, contact was made with thousands of individuals in the target population. In the first 9 months for example, 1000 persons were contacted in groups of 15 or more, and 800 persons were contacted as individually and in smaller groups. Contacts increased exponentially over time.

Significant increases were seen in the recruitment of minority and rural students to the TTUHSC SON, as indicated by overall increased admissions of 39.7% from academic year (AY) 2001 (pre-grant) to AY 2003 (see Table 2). Although, improvements were made in increasing the number of Hispanic individuals admitted to the SON, this particular ethnic group remains an important challenge considering that Hispanics compose 42% of the West Texas population.

RETENTION AND GRADUATION

In an effort by the university to further examine issues of recruiting and retention for all schools, a university-wide assessment was performed. The DARS program faculty participated in the TTUHSC assessment to identify and document motivators, facilitators and barriers that affect disadvantaged and

rural students from participation in a university level education. Identified motivators were consistent with the theme of entering nursing in order to make a difference, necessitating leaving their community to pursue the educational requirements. The barriers reported were fear of being inadequately prepared to succeed, lack of eligibility for financial/scholarship support, and concern over abandoning family farm/business responsibilities. Additional barriers were lack of vision and self-confidence. The prime facilitator identified was personal contact with recruiters and other educated role models. The experience of this study led directly to the search for a supporting model and was the incentive to pursue a grant to build on the motivators identified and to reduce barriers and perceptions for rural students.

Retention efforts enhance the recruiting potential, indicating TTUHSC SON's commitment to assist disadvantaged nurses in overcoming perceived barriers in pursuing a nursing career. The retention efforts also increase the probability of reaching the ultimate goal of graduation. Strategies for retention began with the identification of students at risk currently in the SON. All students entering the school fill out a survey that aids in identifying students who are disadvantaged. Disadvantaged student status may include ethnicity, financial need, and being a first generation college graduate, working student, and/or parent, as well as having rural educational background. Students interested in a nursing career and who were identified as meeting disadvantaged criteria were offered an opportunity to participate in a special retention program aimed at DARS. These students participated in monthly seminars, tutoring, and other mentoring activities. Retention efforts by the SON were enhanced with the addition of a

second retention counselor being employed to specifically work with students identified as being disadvantaged. This component of the project was funded by a second, smaller grant funded by THECB, which augmented the larger grant. Overall the majority of project participants were retained and graduated from the SON. National licensure exam pass rates exceeded state and national averages for baccalaureate graduates, as indicated by a range of 92% to 98% pass rate for the classes graduating during the project period.

Examples of strengthened retention activities included monthly seminars focused on learning styles and the development of test taking strategies, as well as stress relief techniques, financial advisement, and community resource utilization. Faculty played an active roll in the mentor program with activities scheduled on and off campus. Seminar attendance improved as relationships between and among faculty and students were strengthened. Alumni surveys have been distributed but not yet reviewed for the most recent graduating class. It is hoped that

the new graduates will spread a positive word about nursing as a career, the study of nursing, and the benefits of nursing as a profession whether the new graduate practices outside the South Plains or stays in West Texas.

A significant increase in the availability of scholarships provided DARS with better financial stability and more opportunities to focus on their education versus earning an income. Through the many new partnerships, both public and private, the SON increased scholarship awards from \$46,730 in 2001 to \$576,366 in 2003. This would not have been possible without the support of the community in recognizing the value nursing brings to quality health care delivery.

CONCLUSIONS

The goal of this partnership was to increase rural and minority community awareness of nursing as a profession and to enhance university efforts to recruit, retain, and graduate disadvantaged and rural

Table 2. Ethnicity and Urban Versus Rural Origin of TTUHSC SON Undergraduate Student Admissions

Category	AY 2001	AY 2003	% Increase/Decrease
African-American	16	25	+ 56.0%
American-Indian	2	4	+ 50.0%
Hispanic	47	58	+ 23.4%
Pacific Islander	14	12	- 14.0%
Caucasian	293	421	+ 43.6%
Urban	302	387	+ 28.0%
Rural	70	116	+ 65.7%
Other State/Country	2	17	+ 11.7%
Total	372	520	+ 39.7%

students (DARS). The efforts to attain this goal have been highly successful with increased visibility in the communities and increased partnerships impacting rural and disadvantaged communities. Project outcomes data overwhelmingly support the Bessent Model as a positive guide to enhancing recruitment, retention, and graduation of disadvantaged and rural students. This model could be applied to other health professions facing shortages. Overall, the SON experienced a 28% growth in enrollments with significant improvements in the recruitment, retention, and graduation of DARS. This compares to an increase of enrollments at nursing schools across the nation of only 8% during a similar time-frame (American Association of Colleges of Nursing, 2003). TTUHSC SON hopes that by increasing the numbers of disadvantaged and rural students becoming nurses, there will be a positive impact on reductions in health disparities as many of these nurses return to disadvantaged and rural settings to practice.

ACKNOWLEDGMENT

The authors wish to extend their appreciation to the Texas Higher Education Coordinating Board Nursing Innovation Grant Program for funding the research presented in this article.

REFERENCES

- American Association of Colleges of Nursing (2003). *Enrollment and graduation in baccalaureate and graduate programs in nursing*. Washington, DC: Author.
- American Nurses Association (2000). *Nursing workforce and the environment of care. Status Report 2000 ANA House of Delegates*. Washington, DC: Author.
- Bednash, G. (2000). The decreasing supply of registered nurses: Inevitable future or call to action? *Journal of the American Medical Association*, 283(22), 2985-2987.
- Bessent, H. (1997). *Strategies for recruitment, retention and graduation of minority nurses in colleges of nursing*. Washington, DC: American Nurses Association.
- Buerhaus, P., Staiger, D. & Auerbach, D. (2000). Implications of an aging registered nurse workforce. *Journal of the American Medical Association*, 283(22), 2948-2954.
- Carpenter, D. (2000). Going....going....gone? *Hospitals & Health Networks*, 74(6), 32-42.
- Health Resources Service Administration (2000). *National agenda for nursing workforce – racial/ethnic diversity. National advisory council on nursing education and practice, United States Department of Health and Human Services, Health Resources Service Administration (HRSA)*. Rockville, MD: Author.
- Sigma Theta Tau International (2000). Nurses for a healthier tomorrow. [On-line]. Available: <http://www.nursesource.org>.
- Suchman, E. (1967). *Evaluative research: principles & practices in public service and social action programs*. New York, NY: Russell Sage Foundation.
- United States Census Bureau (2001). General population. [On-line]. Available: <http://www.census.gov/hhes/www/income.html>.

A RURAL TEXAN TALKS ABOUT POLICY AND HEALTH CARE IN RURAL TEXAS

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■■■■■■ POLICY AND LAW

ABSTRACT

What can we say about health care for our rural areas in Texas these days? A lot has happened in recent years and we often talk more about the loss of services than we talk about improvements and access. However, we can say that policy, whether from the federal, state, or private level, has impacted the health care services we receive, and most of it has been in the budget arena. For every two steps forward, we seem to take one step back!

Key words: physician retention, quality care, rural health, rural hospitals, Texas. (Texas Journal of Rural Health 2003; 21(3): 39-45)

RURAL HEALTH ISSUES

Access to Care

An issue that has always been on the minds of rural citizens has been access to quality health care. This was recently pointed out in a research project by the Southwest Rural Health Research Center at the Texas A&M University School of Rural Public Health that conducted a rural *Healthy People 2010* project. It assessed the levels of agreements on priority areas among state and

local rural leaders nationwide. A survey was mailed to 999 rural health leaders, with 501 respondents. Respondents were asked to rank rural health issues. There was substantial agreement on the top rural priorities among state and local rural health level agencies across the 50 states. "Access to quality health services" was the top priority among leaders of state-level rural agencies and health associations, local rural public health agencies, rural health clinics and community health centers, and rural hospitals. It was the top priority across all four major census regions of the nation as well. The next top four ranking rural priorities— "heart disease and stroke," "diabetes," "mental health and mental disorders," and "oral health"—were selected as one of the top five rural priorities by one-third or more of the respondents across most groups and regions.

Quality of Care

Debbie Phillips, M.D., the task force leader for the National Rural Health Association's (NRHA) group that is developing an association policy brief on "Rural Quality Care," addressed some of these quality of care issues. In her initial draft to the work group, Dr. Phillips said that the concept of quality health care does not vary from urban to rural settings. The focus of quality clinical efforts remains on providing the right service at the right time in the right way to achieve optimal outcome. The elementary differences in the rural/urban context are within scope and scale. Whereas the urban setting features a high volume of patients with an emphasis on technology-intensive and inpatient services, the rural setting focuses more on ambulatory care and lower patient volume. But then again, the volume of patients will depend on each clinical site and some may actually have a

higher volume than urban sites.

Rural health care systems tend to take care of a higher proportion of elderly patients and patients with more advanced or chronic conditions, possible due to delays in seeking health care. Also, rural residents have higher risk factors than the general population. Rural areas also face greater shortages of health care providers, and even where primary care is covered, there is no depth, making it difficult to replace those that leave or suffer burnout. Always there is a shortage of specialists and reimbursement for providers who practice in rural areas tends to be less than their urban counterparts. While issues of workforce and reimbursement are not explicitly quality issues, they do impact the system's ability to produce quality care. However, none of these factors, in and of themselves, means that rural residents should expect or receive a lower quality of care.

As mentioned in the draft by Phillips, managed care has infiltrated rural health and implemented their methods of "disease management" and data collection, but some experts question the effectiveness of these methods in rural areas. Access and quality health care problems in rural areas seem to be a combination of:

- lack of providers;
- lack of transportation to health care providers;
- lack of trust of the medical system, which is not unique to rural America; lack of money; and
- lack of education/illiterate (embarrassment/cultural factor).

If experience has taught us anything, we know that rural citizens need more than a one-size-fits-all system. The unique and complex dynamics of living in a rural community need

to be considered when health care delivery systems are designed and implemented.

Physician Retention

Physician retention is also an ongoing problem for many rural communities. Financial issues are often at the heart of this problem. Many doctors want the lifestyle that suburban/urban life brings. However, rural doctors infrequently make as much money as their suburban/urban counterparts, but they have just as much student debt. In addition, most physicians who have started practices in rural areas will tell you that insurance reimbursement rates are lower in rural areas, making it difficult to sustain a profitable practice. In addition, rural primary care doctors suffer longer hours due to less coverage and have less specialist response and availability. The reimbursement will need to be equalized. Some suggest subsidizing medical school for those who will commit to practicing in rural areas.

Family practice physicians do a great deal of basic counseling in all areas. It is this counseling time and expertise that often makes the difference in the patient's life, but insurance companies refuse to acknowledge this financially. Rural communities need the best primary care doctors that schools can produce.

THE LOCAL HOSPITAL

There is another provider that plays a very large part in providing health care services in rural communities and that is the local hospital. This article will not address the hospitals' concerns, because they are mainly budget issues for the hospitals that are complex and tied heavily to the Medicare and

Medicaid policies for reimbursement. Hospitals have their advocates constantly working hard to maintain these services in rural Texas. But what should be noted is information in a recent report from the Department of Health and Human Services' Office of the Inspector General (OIG) that addressed the trends in rural hospital closures from 1990 to 2000. The OIG's findings on this national review of rural hospital closures that occurred during this period revealed that:

- Two hundred-eight hospitals closed— 7.8% of all rural hospitals.
- Rural hospitals that closed were generally smaller and treated fewer patients than rural hospitals nationally.
- Generally, rural hospital closures resulted from business-related decisions or low number of patients.
- Following a closure, alternative forms of health care were often available within the community.

New rural hospital openings, critical access hospitals, and rural health clinics have reduced the overall impact of the rural hospital closures.

Of the 58 rural hospitals that closed from 1998 through 2000, 40 of the facilities either converted to, or were located less than 20 miles from, a rural health clinic (RHC). In 32 of the communities, multiple RHCs were less than 20 miles from the closed hospitals. For example, a rural California community lost its hospital in 1998; however, five RHCs were located less than 20 miles from the closed facility. The OIG did not maintain such material prior to 1998.

Interestingly, even Texas has seen this type of scenario. An example is the hospital in Shiner, in South Texas, which closed in the mid-1990s. The RHC that existed at the time in

Shiner eventually moved into the old hospital facility. And, not too long ago, a hospital in Hale County, West Texas, closed and now there is an RHC that has relocated its operations to an old hospital facility within the county. There is a new RHC next to the old hospital in Rosebud in Central Texas that recently opened to provide services to that small community. The community lost its hospital some time ago and the facility was converted to a nursing home. The nearest hospitals are about 30 miles away from Rosebud.

During the 11-year trend period, rural hospitals closed in 39 states. Texas had the greatest number of rural closures (24), followed by Minnesota and Mississippi (15), Kansas (10), Montana (9), and California and Louisiana (8). These seven states account for 43% of all rural hospital closures from 1990 through 2000.

POLICY IMPLICATIONS

So how are other health care services in Texas rural communities? The *Austin American-Statesman* (July 28th edition) looked at the impact of state cuts in funding and found that rural areas fear the worst with these cuts looming in the future. The newspaper reported 36 counties have no licensed social workers. Twenty-four have no primary care physician. Regional mental health centers cover vast geographical areas and further cuts are being planned. There are 64 rural Texas counties without hospitals, 40 without dentists, and 13 without pharmacists, according to the Texas Office of Rural Community Affairs. There are only 20 of Texas' 196 rural counties that have a family violence shelter. In 1999, there were 444 certified rural health clinics; today that has dropped to 338 RHCs.

Where there may be an expansion is in the community health center family with the new federal expansion grant funds to increase nationwide the Federally Qualified Health Centers (FQHC) to 1,000 more centers in the country. Currently there are about 80 community health centers serving rural Texans.

So what does policy have to do with all of this? Well, policy created the rural health clinic system, the community health centers, and the critical access hospitals. But policy gets changed over the years and some of the criteria for these establishments to continue to exist changed, for good or bad. In the Texas RHC world, the environment took on a seemingly gluttonous attitude to gobble up the countryside with a RHC in every nook and cranny. However, when "policy" on how RHCs were to be paid for their services changed in the late 1990s and curtailed some of the reimbursement, the larger hospital systems that owned RHCs started to shut their clinics. This trend continues today with a number of the large hospital systems shedding themselves of their clinics in all parts of Texas by either shutting down clinics or giving/selling them to small community hospitals or private physicians to run.

This has lent itself to a "policy" conflict for access to care in the rural area. Due to regulations, a physician assistant (PA) cannot be paid directly by Medicare or Medicaid for their services but reimbursement must be paid to their employer (the RHC) or supervising physician. There are now PAs who are starting their own rural health clinics to fill the gaps in rural areas of the state where there was no health care or health care providers pulled out of a community. The policy glitch is occurring where the PA owns a RHC that has lab or x-ray facilities. (Medicare policy was clarified earlier this year and now allows PAs to own their own RHCs from the Medicare

payment aspect.) However, the PA cannot get paid by Medicare or Medicaid for these lab/x-ray services. Commercial payors have not found it a problem to reimburse for the lab and x-ray services. One PA-owned RHC was able to work out the problem with this Part B payment with the Central Office in Baltimore for the Centers for Medicare and Medicaid Services (CMS) and the clinic is now being paid for the services without the funds going to a supervising physician. Policy was adjusted to help this clinic continue to be paid for the services rendered. However, Medicaid does not issue a Texas Provider Identification number (TPI) to physician assistants. TPI numbers are issued to physicians, advanced nurse practitioners, and Rural Health Clinics. And in this case, the state's Medicaid policy personnel have tried to solve the problem by including the expenses for lab and x-ray in the clinic's cost report so that it is reflected in the RHC Medicaid Prospective Payment System encounter rate. However, the PA owner does not agree with this policy decision because it is not adequate compensation nor does it come close to the expense for the operation of the lab testing equipment or x-ray machine. An extra dollar or two added to each Medicaid visit does not cover the costs for each time a Medicaid patient has an x-ray taken or extensive lab work done in the RHC. A possible solution (the owner's policy) is to send that Medicaid patient 30 miles to the nearest health care provider, a hospital, for lab and x-rays. Whose policy is correct or best for ... the provider ... the patient ... the business... the state? It is not a denial of RHC services because, other than the mandated six RHC-waived lab procedures, lab services are not a RHC service requirement. That is policy also! So, is this two steps forward for access to care in that community, and one step back because of the policy on reimbursement?

Another policy that could conflict with services in rural areas is the expansion of community health centers. An example of this unfortunately occurred earlier this year. A community health center desiring to expand its services went into a couple rural towns about 90 miles and 60 miles from its base clinic and approached the community leaders about all the services it could provide and take care of the areas' under-served populations. However, it was perceived as a strong-arm approach by the existing dentists, pharmacies, and rural health clinics that had been in operation in these communities for many years. Although the results were that it did not set up clinics in those towns, it left a bad impression. So much so, in fact, that some people made visits to the congressional representative of the district where the community center was located and cited the situation as a poor example of federal policy without consideration for existing providers. But then, it is national policy to expand these community health centers in the country and the governor of Texas has also backed this policy for the state. Now, there are rural physicians and hospitals researching as how they can apply to become a federally qualified health center because of higher reimbursement and federal tort protection on malpractice.

Managed care insurance policies are not provider friendly as evidenced in their policy to bundle or down code procedures. Is it a good business practice to bundle codes differently than the national Medicare bundling methods just to save money or manage the care given to patients by withholding funds using their own proprietary formulas? What will be the consequences when providers start managing health care according to how they are reimbursed? Again, it is someone's policy that has put this into

action. Is this a situation of two steps forward in providing quality health care only to take one step back in reimbursement?

How do we take care of the uninsured and under-insured? With the budget cuts to Medicaid and the resulting fallout, do we turn patients away? Do we take the mushrooming medical discount card business from patients that walk in the door? It is simply a discount program that buys doctors' names from the health care provider networks and requires the patient to pay for services received at the time of service according to the provider's contracted rates. It is interesting that some discount programs charge up to \$99.95 a month for a family plan and they advertise a discount of up to 80% on health care services. This does not work in my area. I don't know any doctor who will discount 80% off the services provided; it's really more like a discounted contract rate from 10% to 25 % with the networks. In this situation, the rural patients end up taking two steps forward in trying to help themselves and then six steps backward when one considers the amount of money they will eventually pay. Whose policy was at play here? It must have been a business policy of some company to sell the discount cards. What has been the state's policy on this? The Texas Department of Insurance does have an informational handout cautioning people to be careful and understand fully what they are buying with these programs. My experience is that most people don't really understand that it is not insurance and they must pay in full at the time of the office visit for the services they received according to whatever contracted network rate the doctor is on. It is "only" policy to do it that way in order to receive the discounted rate.

CONCLUSION

Does policy affect how we as rural Texans receive our health care services? You bet it does! As was pointed out at the beginning of this article, there is concern for access to quality care. And a high concern for the treatment of heart disease, diabetes, mental health, and oral health that should be made our priorities for policy development in rural Texas. We can monitor and react to policy. Whether it involves federal or state budgets or new programs, we can be vigilant and speak out when it affects access to not only the health care we receive, but also the quality we must have as rural citizens. Do not be intimidated by regulations, especially those dealing with health care policy. Regulations are only a guide and while they should be followed in spirit, apply large doses of common sense to their interpretation. Be wary of well-intentioned but misguided policy people who sometimes use rules as justification for unfair or unwise decisions. A good thing to consider is that for every regulation that flies in the face of common sense, prohibits a reasonable action, or validates wrong-headed judgment, there is usually a companion rule that addresses your particular circumstances, authorizes a more reasonable solution, and thus allows smarter, provider-friendly decisions. Beware of statisticians who look only at numbers to judge units. They may know a lot about arithmetic, but many don't know that much about patients or why some providers are better than others are. Don't confuse changes from haphazard planning or careless assumptions with flexibility. Protect your health care services by making it one of your life's primary missions to reduce the number of anti-rural Texan policies or changes caused by poor prior planning. And finally, don't be afraid to ask

A RURAL TEXAN TALKS

the so-called dumb question, because that's smarter than the dumb mistakes later.

THE IMPACT OF RURAL HOSPITAL CLOSURE ON THE ECONOMIC HEALTH OF THE LOCAL COMMUNITIES

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RESEARCH

ABSTRACT

The purpose of this study is to assess the economic impact of rural hospital closures on the local communities. The data used in this study are from 24 Texas rural counties that have experienced hospital closures matched with 24 equivalent Texas rural counties that did not have such experiences. This research uses a quasi-experimental design similar to the “Pre-test and Post-test Design with Nonequivalent Groups” design described by Cook and Campbell (1979). The results do not show that hospital closure has a significant short- or long-term harm on the economies of the rural counties examined in this study.

Key words: economics, hospital closure, rural health. (Texas Journal of Rural Health 2003; 21(3): 46-51)

INTRODUCTION

Conventional wisdom suggests that when a major economic sector of a small community ceases to exist, the entire community suffers. To what extent is this economic truism valid for the rural communities that lose their hospital? Rural hospitals are often the only entities that attract new residents and

businesses and infuse outside money into the otherwise depressed economies of these communities (Doeksen, Johnson, & Willoughby, 1997; Mick & Morlock, 1990; Christianson & Faulkner, 1981). There are those who argue that economic fall out of hospital closures in rural communities often leads to the unraveling of a community's social fabric and the demise of its economy (McGuire, Walker, & Cantieri, 1993; Lichty, Jesswein, & McMillan, 1986). Other studies have not found a significant economic impact on the rural communities that lost their only hospital (Probst, Samuels, Hussey, Berry, & Ricketts, 1999). Nor have the neighboring hospitals benefited from rural hospital closures (McKay & Dorner, 1996). The Department of Health and Human Services (1993) did not even find an adverse health impact on the rural communities that lost their hospital. The purpose of this study is to shed some light on the controversy by examining the short-term and the long-term impact of hospital closure on the economies of rural counties in Texas. The findings can assist us to assess the resiliency of rural communities to bounce back to normal economic conditions.

Throughout the last two decades a large number of rural hospitals closed their doors nationwide due to the impact of rural out-migration, shifting demographics, and changes in Medicare payment methodologies. In the ten-year period between 1988 and 1997, 243 rural hospitals throughout the nation had to close their doors (Moscovice, Wellever, Stensland, 1999). States such as Texas, Louisiana, Mississippi, Minnesota, and Alabama suffered double-digit losses in these years (Rural Hospital Flexibility Program National Tracking Team, 2001; Moscovice et al., 1999).

No place was harder hit than Texas, which

has the most rural counties of any state (196 out of 254). Texas led the nation in hospital closures during the 1980s (almost 20% of the national total), and most of these closures took place in the rural areas (Department of Health and Human Services, 1993). There are currently 63 rural Texas counties that no longer have a hospital located within their borders. There are another 103 that are down to just one such facility, while only one rural county has managed to add a hospital to the total over the past three years. The threat of hospital closure is a reality that is still present for many rural Texas communities.

METHODOLOGY

The following hypothesis is being tested in this study. Hypothesis: Rural hospital closures have negative impact on the economies of their communities.

Five measures of economic development were considered in this study. They are: the total labor force employed, the unemployment rate, the total earned income (sum of all wages and salaries in the county), total personal income (sum of earned income plus all other earnings), and population size.

Method

This study employs a quasi-experimental design similar to the "Pre-test and Post-test Design with Nonequivalent Groups" design described by Cook and Campbell (1979). This design is depicted in Table 1. To assess the short-term and the long-term economic impact of rural hospital closure four measures of economic development are observed at three time periods for a group of rural counties that experienced hospital closure (henceforth, experimental group) and a group of matching

Table 1. Pre-test and Post-test Design with Nonequivalent Groups

	Pre-test	Closure	Post-test t+1	Post-test t+10
Experimental Group	O_{t-1}	X	O_{t+1}	O_{t+10}
Comparison Group	O_{t-1}		O_{t+1}	O_{t+10}

rural counties that retained their hospitals during the same time frame (henceforth, comparison group). The observations are for one year before the hospital closure (O_{t-1}), one year after the closure (O_{t+1}), and ten years after the closure (O_{t+10}) for each of the experimental counties and their matching comparison counties. Comparison of (O_{t+1}) – (O_{t-1}) between the experimental and the comparison groups will represent the short-term impact of hospital closure, and the comparison of (O_{t+10}) – (O_{t-1}) between the two groups will represent the long-term effect of the closure. This design addresses some of the major threats to the internal validity of the findings.

The Study Groups

The experimental counties in this study consist of a total of 24 rural Texas counties that lost their hospital during the last three years of 1980s. Selection of these counties in this time frame will allow us to examine the long-term impact of the closures. Every county in the experimental group was matched with a similar Texas rural county that did not experience hospital closure. The comparison group was chosen using nearly the same demographic information that the Health Resources Services Administration (HRSA) uses to select peer counties for their

Community Health Status Indicators Project (Health Resources Services Administration, 2000). The HRSA selects peer counties according to their population density, population size, poverty level, and age structure.

When adapting HRSA’s method of selection, it was necessary to make some changes specific to Texas. Due to the ethnic diversity of the state, this research substituted minority status for poverty (typically, these two items are highly correlated) and rearranged the priorities to reflect the importance of two other issues. First, we made total population size as our top priority. Second, the percent of residents over age 65 was given a higher priority due to the fact that, as established earlier, rural hospitals are heavily dependent on revenues generated from treating this particular segment of the population.

We collected the 1980 demographic data for all 254 Texas counties and prioritized them according to 1) population size, 2) number of persons per square mile, 3) percent of the population age 65 and older, and 4) percent of the population that is considered minority or non-Anglo. This process helped us to select our comparison counties that most closely matched each member of the experimental group. The 24 matched counties have at least one currently licensed acute care hospital.

Table 2. List of the Texas Counties Experiencing Hospital Closure and the Matched Texas Counties That Have not Experienced Hospital Closure

	Experimental Counties	Comparison Counties
1	Foard	Throckmorton
2	Menard	Stonewall
3	San Saba	Fisher
4	Archer	Jack
5	Hamilton	Bailey
6	Leon	Clay
7	Marion	Madison
8	Kendall	Castro
9	Newton	Burleson
10	Jackson	Grimes
11	Bosque	Gillespie
12	Morris	Aransas
13	Robertson	Terry
14	Freestone	Wilbarger
15	Austin	Hood
16	Falls	Burnet
17	Lamb	Colorado
18	Lavaca	Fayette
19	Shelby	Washington
20	Milam	Erath
21	Bastrop	Hopkins
22	Hutchinson	Bee
23	Jasper	Cass
24	Howard	Brown

Both experimental and the comparison groups now consist of 24 different counties. Table 2 provides a list of these counties.

Table 3 shows that the counties selected for the comparison group are indeed equivalent to those in the experimental group on each of the four selected criteria. Equivalency is vital to establish the validity of the comparison group and to control for intervening variables. In this case, no significant differences were found between the treatment and comparison groups with regard to total county population, population density, percent elderly, or percent minority.

RESULTS

Five economic indicators were used to assess the short-term and the long-term impact of rural hospital closures. Table 4 depicts the results of ten independent t-tests that compare economic changes in the experimental and the comparison counties. The results indicate that there are no significant short-term or long-term economic differences between the counties that lost their hospitals and the ones that retained their hospitals. Total personal income, total earned income, and total population increased for both experimental counties and the comparison counties. But the differences are not statistically significant. Nor are the differences in unemployment significant for the groups. No

Table 3. Comparison of the Experimental and Comparison Groups Using Paired t-test

	Experimental Group	Comparison Group	Mean Difference	t-value
Population Mean	15,629	15,517	112	1.10
Population Density	20.14	20.60	-0.46	-0.56
Percent Age 65+	18.76	17.67	1.08	1.05
Percent Minority	18.12	14.38	3.73	1.45

short-term and long-term significant differences were observed in the labor force of the two sets of counties. The evidence of this study clearly fails to support our hypothesis that rural hospital closures hurt local economies.

CONCLUSION

This research does not in any way support the proposition that the closure of rural hospitals is not harmful, nor is it meant to undermine the important role that they play in the lives of millions of rural citizens. This research examined only the economic side of rural hospital closure. Rural hospitals have a number of other important tangible and intangible effects on the lives of rural residents. Two tragic results from rural hospital closures are the lack of access to acute care services and the loss of sense of community.

The results of our findings suggest that there is a certain degree of resiliency to be found in the local economies of Texas rural communities. One may also argue that at the

time rural hospitals are forced to shut down, their economic impact had already drastically diminished. They had to close beds, make staffing reductions, eliminate services, and make any other changes they need in order to stay on their feet. Long before they close down these hospitals are no longer the powerhouses that once invigorated the economies of their local communities. The findings do not suggest that hospitals are not important contributors to local economies. Clearly, rural hospitals that are in full operation are major economic engines of these communities. However, once the point of closure has been reached, the economic impact is severely diminished.

REFERENCES

Cook, D. T. & Campbell, D. T. (1979). *Quasi-experimentation: Design & analysis issues for field settings*. Dallas, TX: Houghton Mifflin Company.
 Department of Health and Human Services

Table 4. Short-Term and Long-Term Economic Impact of Hospital Closure

	Short-term change (t+1)-(t-1)			Long-term change (t+10)-(t-1)		
	Exper.	Comp.	t-value	Exper.	Comp.	t-value
Labor Force	22.54	-46.63	-0.627	957	1283	0.924
Unemployment Rate	-2.25	-1.83	0.555	-2.90	-2.52	0.332
Total Personal Income (in,000)	16,115	19,358	0.555	150,316	176,962	0.745
Total Earned Income (in,000)	5,949	3,914	-0.794	54,644	57,233	0.185
Population*	718	1,620	1.010	3,005	4,462	0.748

* Population is only measured reliably at the beginning of each decade. Short-term and the long-term population differences are computed based on (1990) – (1980) and (2000) – (1980).

- (1993). Trends in rural hospital closure: 1987-1991 (OEI-04-92-00441). Washington, DC: Office of the Inspector General.
- Doeksen, G. A., Johnson, T., & Willoughby, C. (1997). *Measuring the economic importance of the health sector on a local economy: A brief literature review and procedures to measure local impacts* (SRDC Report No. 202). Mississippi State, MS: Southern Rural Development Center.
- Health Resources Services Administration (2000, July). *Community health status report: Data sources, definitions, and notes*. Merrifield, VA: Author.
- Lichty, R. W., Jesswein, W. A., & McMillan, D. J. (1986). Estimating medical industry impacts on a regional economy. *Medical Care*, 24(4), 350-362.
- McGuire, C. C., Walker, M., & Cantieri, C. H. (1993). *Rural hospital models for Texas*. Austin, TX: Health Care Options for Rural Communities.
- McKay, N. L. & Dorner, F. H. (1996). The effect of rural hospital closures on the financial performance of neighboring rural hospitals. *Inquiry*, 33(Fall), 271-282.
- Mick, S. S. & Morlock, L. L. (1990). America's rural hospitals: A selective review of 1980s research. *Journal of Rural Health*, 6(4), 437-466.
- Moscovice, I., Wellever, A., & Stensland, J. (1999). *Rural hospitals: Accomplishments and present challenges*. University of Minnesota, Minneapolis.
- Probst, J. C., Samuels, M. E., Hussey, J. R., Berry, D. E., & Ricketts, T. C. (1999). Economic impact of hospital closure on small rural counties, 1984 to 1988: Demonstration of a comparative analysis approach. *Journal of Rural Health*, 15(4), 375-390.
- Rural Hospital Flexibility Program National Tracking Team (2001). Rural hospital flexibility program: The tracking project reports first-year finding. *Journal of Rural Health*, 17(2), 82-86.

COMMENTARY ON THE IMPACT OF RURAL HOSPITAL CLOSURES
ON THE ECONOMIC HEALTH OF THE LOCAL COMMUNITIES

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COMMENTARY

This month's edition of the *Texas Journal of Rural Health* contains an interesting article entitled, "The Impact of Rural Hospital Closure on the Economic Health of the Local Communities." The authors test the hypothesis that rural hospital closures have a negative impact on the economies of their communities. Following a comparison of five economic indicators in a selected list of communities where hospitals closed versus where they remained open, the authors found that there were no significant differences between the groups. Furthermore, the data compared both short-term (one year after closure) versus long-term (ten years after closure) results. Therefore, they concluded that "this study clearly fails to support our hypotheses that rural hospital closures hurt local economies."

First of all, the 1980 demographic data used to arrive at their conclusion is outdated. The 2000 census data shows a marked shift in population from West Texas to East, Central, and South Texas. As a result, there has been a significant change in our state demographics, which most certainly have affected rural economies, particularly in West Texas.

Second, the authors do not take into account the method of financing rural hospitals in Texas, many of which are supported by hospital taxing districts. If it were not for significant local tax subsidies for many

of the rural hospitals, they may not have been able to remain open and serve their rural citizenry.

Third, there is no reference to studies of the multiplier affect, which state that for every dollar a hospital employee is paid enables another dollar and a half of other goods and services to be purchased within the community. The hospital and the school system are usually two of the top three businesses within each rural area, and there is often a ripple affect on maintenance of the local economy and new business development when such vital services are ailing or missing from an area.

Additionally, there is no attention given to either the sense of community pride or tradition engendered by a local rural hospital. While it is true that it is very difficult to measure such intangible qualities, the maintenance of a local hospital is interwoven into the very fabric of our rich Texas cultural traditions. Generations of families have been born in their local hospitals, and they support them through the good times and the bad times.

In my travels throughout the Lone Star State, which take me to approximately 150 to 175 rural hospitals each year, it is clearly evident that most Texans love and support their local hospitals. The closure of any one of them, although infrequent in most recent years, is devastating to any rural community experiencing it, and the loss cannot be measured only in economic terms. And so, although the economic data submitted by the authors would seem to support the notion that rural hospital closures do not affect the local economies, I can tell you from my visits to rural towns that have suffered a hospital closure: It hurts, both economically and in other harder to measure ways.

PEDIATRIC EMERGENCY DEPARTMENTS:
“SAFETY-NET” PROVIDERS FOR VULNERABLE CHILDREN

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ABSTRACT

This research investigates the socio-economic conditions and health service use behaviors of children using an emergency department for non-emergent medical care and contrasts those to a random sample of children in the Dallas, Texas area. The use of hospital emergency departments for non-emergent care among children was significantly associated with lower socio-economic status and lack of medical insurance. Low income, minority, and uninsured children are disproportionately more likely to rely on hospital emergency departments to supplement or supply the array of health care needs typically provided in a physician's office.

Key words: non-emergent care, pediatric emergency, Texas children. (Texas Journal of Rural Health 2003;21(3): 54-69)

BACKGROUND

Use of emergency departments for non-emergency care, is neither desirable nor effective for maintaining children's health. By its very nature, episodic emergency department care lacks all the benefits associated with the continuity of care received from a primary care physician, including enhanced prevention, compliance, diagnostic accuracy,

and early detection of disease (Christakis, Mells, Koepsell, Zimmerman, & Connell, 2001; Christakis, Wright, Koepsell, Emerson, & Connell, 1999; Starfield, 1998).

Nevertheless, vulnerable adults (Baker, Stevens & Brook, 1994; Aday, 1993; Stern, Weissman, & Epstein, 1991; Dickhudt, Gjerdingen & Asp, 1987; Lavenhar, Ratner, & Weinerman, 1968) and children (Halfon, Newacheck, Wood, & St. Peter, 1996; St. Peter, Newacheck & Halfon, 1992; Field, Black, Kincannon, & Arnold, 1987) (lower income, uninsured, minority groups, poorly educated, and Medicaid insured) are likely to use emergency departments as their primary source of health care. Although patients may experience low priority and long waits in busy emergency departments when they present with non-emergent conditions, the availability of care (24 hour services, no appointments) and the comprehensiveness of care (radiology, lab work, etc. all in one place) in hospital emergency departments make them an attractive source of care in spite of the inconvenience (Baker et al., 1994).

The underlying reasons for using emergency departments for non-emergency care are complex, and frequently poorly understood. In addition to a lack of family financial resources, research also indicates that other factors contribute to use of emergency departments, such as family structures (i.e., single parent families vs. married couples), and region of residence (Halfon et al., 1996). A large body of research indicates that emergency departments fill a gap in services by providing treatment, medical advice, and parent reassurance because there is a lack of access to primary care physicians (Mayefsky, El-Shinaway & Kelleher, 1991; Feigelman et al., 1990).

Because of increased use of emergency departments for non-emergent care, many

hospitals are struggling to continue to provide non-emergent care in the emergency department. In the past, many hospitals and providers, especially those in economically depressed areas, counted on commercial insurance and government reimbursement to supplement their charity care and, thereby, provide more services to uninsured patients (Cunningham, Grossman, St. Peter, & Lesser, 1999; MacPherson, 1996; French, 1995). As commercial and governmental insurance plans negotiate lower rates, available resources to support episodic emergency department care have significantly diminished (MacPherson, 1996; French, 1995).

In an attempt to understand the underlying reasons for non-emergent emergency department use, this research examines the socio-demographic and health service use patterns of two samples of children in Dallas, Texas. It describes and contrasts the socio-demographic and health service use patterns of a sample of patients from the predominant "safety-net" pediatric provider in the area (Children's Medical Center of Dallas) with those of a random sample of Dallas metropolitan area children, the hospital's primary catchment area. It was hypothesized that vulnerable children are still likely to rely on "safety-net" emergency departments as their regular source of medical care due to socioeconomic reasons and lack of access to primary care, even in this era of health care reform and broadening federal/state medical insurance programs.

MATERIALS & METHODS

Children's Medical Center of Dallas

Children's Medical Center of Dallas (CMCD) is a 322-bed pediatric hospital in

Dallas Texas and is the dominant pediatric provider in the North Texas area. Even though it is heavily used by urban and inner-city patients, the hospital also serves suburban and rural populations residing in the surrounding counties.

In 1999 (the year of data collection for this research), CMCD admitted 22,590 patients 15 years of age or younger (inpatients, ambulatory surgery, 23-hour observations) and had 226,180 outpatient visits. Of the outpatients, 93,553 were visits to the emergency department, and 46,455 (50%) of those were emergency department visits for non-emergent medical care.

CMCD developed a pediatric fast track service, known as First Care (FC), adjacent to its emergency center in 1997 to provide services for non-emergent patients. Lower acuity patients who present to the emergency center are triaged by qualified hospital personnel to FC for treatment because their conditions do not require emergency department treatment. FC is staffed by pediatricians and pediatric physician extenders. Two comprehensive internal hospital analyses of patient volumes in 1998 and 1999 indicated that FC essentially provided walk-in non-emergent medical services that parents accessed via the emergency department.

Table 1. Sampling Results & Weighting Scheme

Sampling Frame				
Target Groups	Number of Patients	Percentage of Patients	Sample Obtained	Frequency Weights
First Care Patients				
Insured	1,043	18.38%	167	0.6736
Medicaid	1,891	33.32%	219	0.9310
Uninsured	2,742	48.30%	226	1.3079
Total	5,676	100.00%	612	—
Sample Margin of Error at 95% Confidence Level			±4.0%	
	Number of Households	Percentage of Households	Sample Obtained	Frequency Weights
Urban Population				
Less than \$20,000	81,528	7.68%	267	0.4621
\$20,000 - \$34,999	60,460	5.69%	267	0.3423
\$35,000 or more	109,938	10.35%	269	0.6178
Suburban Population				
Less than \$20,000	105,701	9.95%	269	0.5947
\$20,000 - \$34,999	127,173	11.98%	267	0.7205
\$35,000 or more	577,027	54.34%	267	3.2685
Total	1,061,827	100.00%	1,606	—
Sample Margin of Error at 95% Confidence Level			±2.4%	

Additionally, these internal studies found FC to have sustained substantial patient volume growth over the previous years; two-thirds of its patients were from the Dallas urban/ inner city area, half were uninsured, and the overwhelming majority were minorities (predominantly African-American and Hispanic).

Sampling Technique

Data were originally collected from two different stratified samples: a sample of guardians to children in the general population of the Dallas metropolitan area and a sample of guardians to patients who had been admitted to FC at CMCD. Disproportionate sampling was originally used for both samples to ensure adequate frequencies of low income and uninsured children and achieve ± 6% level of precision with 95% confidence levels within each strata. Because of this sampling technique, it was necessary to frequency weight the data to reflect each strata’s appropriate proportion in the population for this aggregate analysis (based on 1999 Unites States Census data obtained from Claritas Data Services (1998) for the population sample and patient volumes for the FC sample; see Table 1). Case weights were determined by dividing the appropriate proportion of the population (or patients) by the sample obtained (e.g., row 1 in Table 1: $(0.1838 * 612)/167 = 0.6736$).

The patient sampling frame consisted of guardians who brought their child to CMCD’s emergency department and were subsequently triaged to FC. Guardians (612) of the children treated in FC between April and May 1999 were interviewed via the telephone subsequent to their visit. Guardians (1,606) of children were interviewed via the telephone for the Dallas area population sample. The

total N for this study was 2218.

Data Collection

Surveys were conducted by telephone by the Survey Research Center at The University of North Texas in Denton, Texas. Random digit dialing was used to identify households with children 15 years of age or less living with them. No household was interviewed more than once. Multiple occurrences of the same phone numbers across samples (FC and population samples) were eliminated so that a household could only be selected once. When multiple visits by the same patient during the time frame occurred in the FC sample, the record from the patient’s first visit was used. Therefore, no household in either sample was interviewed more than once nor did the population sample contain respondents who appeared in the FC sample.

Respondents were limited to adults aged 18 or over who had primary health care responsibility or shared the health care responsibility for the children under 15 years of age living in the home. For the population sample, respondents were asked the ages of the children under 15 in their homes. Because the respondents with more than one child could have answered the survey for several children, they were asked to answer the questions using a “target” child that was randomly selected by the interviewing software from among the children under 15 in their home. Respondents in the patient sample were asked to answer questions respective to the child who had visited the emergency center. Interviews were conducted in either Spanish or English, depending on the respondent’s language preference.

Variable Measures

Our research incorporated a variety of traditional predictors of health care service use found in the literature, as well as special characteristics of vulnerable populations that may also influence their use of services (Gelberg, Andersen & Leake, 2000; Aday, 1993). Two measures of health care service use were included: The child's number of physician visits in the six months preceding the interview, and the number of emergency department visits during the previous six months.

Guardians were also asked about the child's usual source of sick care and their usual source of well care. They were asked to specify whether the child usually received treatment in a private physician's office, a hospital emergency department, or a community or public health clinic. This variable was included in our analysis because of the well-known benefits of the continuity of care provided by a primary care physician (e.g., more preventative care, better patient compliance, more accurate diagnoses, earlier detection of disease, and coordinated specialty referrals and ancillary care) (Starfield, 1998).

In an attempt to measure continuity of care, and lack thereof, we constructed a variable termed "medical home." A medical home was defined as the place where patients received both well and sick care at one location outside of a hospital emergency department, which presumably would provide the patient access to a regular source of care at one place on an uninterrupted basis. Children who received well and sick care at a physician's office were coded as having a medical home with a private physician. Medical homes at community health centers were computed similarly. Any other combina-

tion of these two variables were coded as "no" medical home, since that would involve some type of mismatch between using a private physician and community health center or reliance on an emergency department for well and sick care.

Three variables measured the guardians' anxiety about acquiring medical care for their children: (a) degree of difficulty obtaining their child's medical care, (b) worry about acquiring their child's medical care, and (c) worry about paying for their child's medical care. Worry about acquiring and paying for their child's medical care were measured with response categories of (1) "never," (2) "seldom," (3) "occasionally," and (4) "often." Degree of difficulty obtaining care was measured with response categories of (1) "very easy," (2) "easy," (3) "somewhat difficult," and (4) "very difficult."

Health status was measured by two traditional measures. First, guardians were asked whether or not their child had a severe disability or medical condition that required frequent hospitalizations or specialized medical care. Second, guardians' perceptions of their children's overall health was measured (Poor/Fair, Good, Very Good, Excellent). Guardians were also asked how many days of school their child had missed in the past six months because of illness and the number of work hours missed in the past six months to care for their child when sick. Low-income parents who use safety-net providers are especially likely to miss work because they have fewer resources with which to access alternative caregiver resources, such as sick-child day care providers.

Socio-economic and demographic characteristics were included: ethnicity (White, Hispanic, African-American, and other), income, education, and area of residence. Dallas County is an urban county,

with more affluent families living in the suburban areas, and poorer families more likely to live in the inner city urban areas. In addition, attributes thought to be especially characteristic of vulnerable populations were included. These included the type of insurance coverage (or if they were uninsured) and the guardian's age, because children in vulnerable populations may be especially likely to have guardians that are either very young or very old (e.g., grandparents). Gender, marital status, and the number of adults in the child's home that were responsible for the child's health care were included. This is important because children in vulnerable populations are especially likely to live in single-parent families, usually with the mother, and are therefore likely to have fewer adult guardians available, especially male guardians. The number of children in the household was included because poorer families, especially among Hispanic populations, are likely to be larger. More children represent more competing needs for family caregiving and financial resources that may negatively influence children's use of health care services.

All N's and percentages are presented using weighted data. Student's t-tests, chi-square, and Fisher's Exact tests were used as appropriate for statistical analysis. The Statistical Program for the Social Sciences (SPSS) was used for all statistical analyses.

RESULTS

Table 2a-b presents the demographic frequency distributions for the general population and FC samples. FC sample respondents were significantly more likely to be minority, low income, and less educated than the general population. The vast majority

of the FC patient sample were African-American or Hispanic (37% and 46%, respectively), while African-Americans and Hispanics represented only 38% of the general population sample. Over half of the FC sample (56%) had total household incomes less than \$20,000 per year, while nearly half (46%) of the general population had total household incomes of \$50,000 per year or more. Nearly two-thirds (63%) of the FC children's guardians had a high school education or less, with over one quarter (26%) reporting less than a high school education. Educational levels in the general population were noticeably higher, with over a third (37%) completing a Bachelor's degree or more.

Children in the FC sample were three times more likely to have very young guardians. Twenty-eight percent of FC guardians were 24 years of age or younger compared to 9.3% in the general population. FC children were also somewhat more likely than children in the general population to have guardians who were 55 years of age or older (3.4% vs. 2.3%). FC children were somewhat more likely to have a female guardian and much more likely to have a guardian who was never married than children in the general population. More guardians in the general population were married than guardians in the FC sample (75.9% vs. 55.8%) and more of the guardians in the FC sample were never married than was found in the general population (27.8% vs. 9.7%). Guardians of children in the FC sample also had more children under 15 years old in the home and were significantly more likely to live in the urban area than the suburbs.

The data also suggest that FC children experience discontinuity in care and greater use of emergency department services than their general population counterparts (see Table 3a-c). Children in the FC patient sample averaged 25% more physician visits, and

Table 2a. Demographic & Socio-economic Comparisons of Children's First Care and the Population Samples*

Variable	Children's First Care		Population		Sig Level
	Count	Percent	Count	Percent	
Total Sample	612		1606		
Race/Ethnicity					
White-Non-Hispanic	91	14.9%	898	56.1%	
Hispanic	279	45.7%	324	20.3%	
African-American	225	36.9%	289	18.0%	
Other	15	2.5%	89	5.6%	
Total	610	100.0%	1,600	100.0%	(P < 0.001)†
Income					
<\$10,000	135	22.8%	91	5.7%	
\$10-19,999	196	33.2%	192	12.0%	
\$20-34,999	154	26.1%	284	17.7%	
\$35-49,999	59	10.0%	307	19.1%	
\$50-74,999	29	4.9%	293	18.2%	
\$75,000+	18	3.0%	439	27.3%	
Total	591	100.0%	1,606	100.0%	(P < 0.001)†
Education					
<High School	161	26.3%	171	10.7%	
High School or GED	223	36.4%	304	18.9%	
Trade/Vocational	38	6.2%	81	5.1%	
Some College	118	19.4%	333	20.7%	
AA	26	4.2%	119	7.4%	
BA	32	5.2%	380	23.7%	
Graduate Education	14	2.3%	217	13.5%	
Total	612	100.0%	1,605	100.0%	(P < 0.001)†

* All N's and percentages presented using weighted data; total N will vary because of incomplete responses, † Chi-square or Fisher's Exact as appropriate.

nearly eight times as many non-emergent emergency department visits in the previous six months than children in the general population. FC patients were more likely to use emergency departments for a usual source of care, especially sick care and were significantly less likely to have medical

homes. These children are five times more likely than children in the general population sample to use a hospital emergency department as their usual source of sick care (26.7%). The FC children are three times more likely to report different sources of usual care for sick care and for well care or to rely on

Table 2b. Demographic & Socio-economic Comparisons of Children's First Care and the Population Samples

Variable	Children's First Care Sample Count		Population Sample Count		Sig Level
	Count	Percent	Count	Percent	
Area of Residence					
Urban	378	62.4%	381	23.7%	(P < 0.001) [†]
Suburban	228	37.6%	1,225	76.3%	
Total	606	100.0%	1,606	100.0%	
Guardian's Age					
18-24	169	27.7%	149	9.3%	(P < 0.001) [†]
25-34	269	44.0%	603	37.5%	
35-44	113	18.5%	643	40.0%	
45-54	39	6.4%	175	10.9%	
55+	21	3.4%	36	2.3%	
Total	611	100.0%	1,606	100.0%	
Guardian Gender					
Male	112	18.3%	436	27.1%	(P < 0.001) [†]
Female	500	81.7%	1,170	72.9%	
Total	612	100.0%	1,606	100.0%	
Marital Status					
Married	340	55.8%	1,218	75.9%	(P < 0.001) [†]
Never Married	169	27.8%	155	9.7%	
Divorced	44	7.2%	160	10.0%	
Widowed	9	1.5%	10	0.6%	
Separated	47	7.7%	61	3.8%	
Total	609	100.0%	1,604	100.0%	
Mean (SD)					
Average Number of Adults Responsible for Child's Health Care in the Home	1.81(0.73)		1.68(0.56)		(P < 0.001) [‡]
Average Number of Children <15 in Household	2.12(1.19)		1.80(0.91)		(P < 0.001) [‡]

† Chi-square or Fisher's Exact as appropriate, ‡ T-test

hospital emergency departments for care (36.8%) and the majority (62.1%) of the FC children used community and public clinics as their usual source of well care while the majority of the community sample children (79.2%) used private physicians.

Access to care was more problematic in the FC sample than in the general population. Although the majority of guardians in both samples said that acquiring medical care for their children was easy or very easy, the guardians of FC children were twice as likely to report that getting care was somewhat or very difficult and significantly more likely to worry about acquiring medical care for their children. An astounding 42.0% of the guardians of FC children reported that they *often* worry about getting their children in to see a doctor and 45.2% reported that they often worry about having enough money to pay for their child's care.

The percentage of children with medical insurance was remarkably different between the samples. Nearly half (48%) of the FC patients were uninsured, whereas less than one-fifth (17%) of the general population was uninsured. Of those with insurance, managed care predominated in the general population, with half (52%) reporting that they had one of several types of managed care plans (HMO, PPO, POS plans). Among the FC sample, the largest percentage was uninsured (48%), while the insured FC patients were more likely to rely on Medicaid (33%).

DISCUSSION

This research investigated non-emergent emergency department use among patients at Children's Medical Center of Dallas (CMCD) in Dallas, Texas and compared them to a random sample of children in the Dallas

metropolitan area. The majority of children who use the emergency department at CMCD for non-emergent care are among the most vulnerable children in the Dallas metropolitan area. These children were proportionately more likely to be part of a minority group, from low income, poorly educated households, uninsured or on Medicaid, have more difficulty accessing care, and to be more likely to lack medical homes than the children in the general population.

These findings suggest that the use of hospital emergency departments for acute, but non-emergent care is disproportionately more common among children from families with lower socio-economic status (low income and educational levels). Since children's access to care is a direct function of their parents' or guardians' ability to acquire medical insurance or pay for their care, pediatric hospital emergency departments appear to serve a "safety-net" function for vulnerable children much like the previous research indicates they do for adults. Emergency departments frequently supply or supplement an array of non-emergent health care services typically provided in a private physician's office. Regardless of whether or not this role is cost effective, medically ideal, or even preferable, hospital emergency departments continue to provide a broad array of primary and acute health care services to vulnerable populations, which also includes increasing numbers of children.

This study also demonstrates that children who use the urgent care center, FC of CMCD, are more likely to experience discontinuity of care than children from a random sample of families living in the area. A much larger proportion of the children in the FC sample lacked a medical home of any kind than children in the general population. This disjuncture in sources of care is a major policy

Table 3a. Health Status and Access to Care Comparisons*

Variable	Children's First Care Sample Count		Population Sample Count		Sig Level
	Count	Percent	Count	Percent	
Overall Health Status					
Poor/Fair	72	11.8%	59	3.7%	
Good	147	24.0%	209	13.0%	
Very Good	163	26.7%	515	32.1%	
Excellent	229	37.5%	821	51.2%	
Total	611	100.0%	1,604	100.0%	(P < 0.001)†
Disability Present					
Yes	38	6.2%	91	5.7%	
No	573	93.8%	1,515	94.3%	
Total	611	100.0%	1,606	100.0%	(P = 1.00)†
	Mean (SD)		Mean (SD)		
Average Number of Work Hours Missed in the Past Six Months to Care for a Sick Child	24.22(61.59)		13.47(43.31)		(P < 0.001)†
Average Number of School or Day Care Days Missed Due to Illness in the Past Six Months	7.14(12.90)		3.40(7.93)		(P < 0.001)†

* All N's and percentages presented using weighted data; total N will vary because of incomplete responses, † Chi-square or Fisher's Exact as appropriate, ‡ T-test

issue for the care of vulnerable children, because, as children's health services researchers have discussed, the health care delivery system for children the United States has evolved a unique set of public and private financing and organizational arrangements that do not work together seamlessly (Forrest, Simpson & Clancy, 1997; Halfon, Schuster, Valentine, & McGlynn, 1998). Such is the case in Dallas County. In Texas, the provision of health care for people who are medically indigent and uninsured is primarily the

responsibility of counties in a system based on English Poor Laws. The state accepts the minimum of federal funding for public insurance programs through Medicaid and State Children's Health Insurance Program (SCHIP), and consequently, has one of the largest percentages of uninsured children in the nation (Fenz, 2000).

Dallas County provides a vivid example of how complex this system can become, and the challenges it can pose for guardians of sick children, for providers, for health care

Table 3b. Health Status and Access to Care Comparisons

Variable	Children's First Care		Population		Sig Level
	Count	Percent	Count	Percent	
Worry About Child's Access to Health Care					
<i>Currently, how difficult is it for you to get medical care for your child?</i>					
Very easy	275	45.7%	921	57.7%	
Easy	192	31.9%	489	30.6%	
Somewhat Difficult	79	13.1%	108	6.8%	
Very Difficult	56	9.3%	78	4.9%	
Total	602	100.0%	1,596	100.0%	(P < 0.001)†
<i>How often do you worry about getting your child in to see a doctor?</i>					
Never	156	25.6%	759	49.5%	
Seldom	79	13.0%	331	21.6%	
Occasionally	118	19.4%	208	13.6%	
Often	256	42.0%	236	15.3%	
Total	609	100.0%	1,534	100.0%	(P < 0.001)†
<i>How often do you worry about having enough money to pay for your child's medical care?</i>					
Never	183	30.1%	795	49.6%	
Seldom	54	8.9%	265	16.5%	
Occasionally	96	15.8%	224	14.0%	
Often	274	45.2%	319	19.9%	
Total	607	100.0%	1,603	100.0%	(P < 0.001)†
Use of Health Services					
Average Number of Physicians Visits	Mean (SD)		Mean (SD)		
Average Number of Emergency Room Visits	Mean (SD)		Mean (SD)		
	1.92(2.46)		1.53(1.93)		(P < 0.001)‡
	1.42(1.30)		0.25(0.85)		(P < .001)‡

† Chi-square or Fisher's Exact as appropriate, ‡ T-test

administrators, and for policymakers. In addition to the array of private practitioners who serve those children who are medically insured or whose parents can otherwise afford to access their services, the Dallas County Hospital District has historically provided tax funding for a public safety-net hospital that is nationally recognized as a

leader in innovative indigent health care. The county also funds a series of geographically dispersed community health centers to serve predominantly low-income and/or uninsured populations in the county.

It is these community clinics that are the major source of sick and well care for the vulnerable children seen in CMCD's urgent

Table 3c. Health Status and Access to Care Comparisons

Variable	Children's First Care Sample Count		Population Sample Count		Sig Level
	Count	Percent	Count	Percent	
Source of Health Care					
<i>Usual Source of Sick Care</i>					
Private Physician	200	32.8%	1,265	79.1%	
Hospital Emergency Department	163	26.7%	88	5.5%	
Community/Public/ Other Clinics	247	40.5%	246	15.4%	
Total	610	100.0%	1,599	100.0%	(P < 0.001)[†]
<i>Usual Source of Well Care</i>					
Private Physician	209	34.7%	1,260	79.2%	
Hospital Emergency Department	19	3.2%	17	1.1%	
Community/Public/ Other Clinics	373	62.1%	313	19.7%	
Total	601	100.0%	1,590	100.0%	(P < 0.001)[†]
<i>Medical Home</i>					
Private Physician Community Health Center	156	26.0%	1,184	74.7%	
None	223	37.2%	192	12.1%	
	221	36.8%	209	13.2%	
Total	600	100.0%	1,585	100.0%	(P < 0.001)[†]
Insurance Coverage					
<i>Medical Insurance</i>					
Yes	315	51.7%	1,329	82.8%	
No	294	48.3%	277	17.2%	
Total	609	100.0%	1,606	100.0%	(P < 0.001)[†]
<i>Type of Insurance</i>					
Commercial Managed Care	82	13.2%	836	52.0%	
Fee-for-service					
Medicaid	202	33.0%	150	9.4%	
Uninsured	294	48.3%	277	17.2%	
Other	3	0.5%	191	11.9%	
Don't Know	19	3.0%	101	6.3%	
Undeterminable	12	2.0%	51	3.2%	
Total	612	100.0%	1,606	100.0%	(P < 0.001)[†]

† Chi-square or Fisher's Exact as appropriate, ‡ T-test

care center. However, these require payment or a coverage arrangement for services (although substantially less expensive than private practices). Additionally, parents have difficulty accessing care the same day and may be required to wait several days for appointments. The appeal of the emergency department is self-evident. FC can be accessed 24 hours a day, seven days a week, on a walk-in basis. Further, it provides a substantial level of charity care and is overwhelmingly perceived in the area as a reputable institution that provides high quality care.

This situation is not unique to Dallas. Some researchers argue forcefully that evaluation of children's health care services must integrate the multiple service sectors from which children receive their care, including, in this instance, the not-for-profit urgent care center in a free-standing children's hospital, and the tax-supported system of community health centers (Forrest et al., 1997). Smooth working relationships between these various providers and convenient, consistent access to care outside of the emergency department are critical to providing continuity of care and appropriate follow-up services for children. This is especially important for public policy related to populations that are vulnerable because of risk factors related to culture, race, socio-economic status, family, and environment, as is the FC population studied in this research (Simpson & Fraser, 1999; Szilagyi & Schor, 1998).

Working relationships among urban care providers must also extend to the treatment of rural patients who use urban medical facilities. Many rural hospitals lack sufficient emergency medical staff and specialists to meet patient care needs and, therefore, must focus on patient stabilization, admission, or transfer

to urban emergency departments with better diagnostic and treatment facilities (Williams, Ehrlich & Prescott, 2001; Sklar, et al., 2002). Also, rural residents are less likely to obtain preventative care, have greater unmet medical care needs, and frequently must travel to urban facilities to acquire specialty care (e.g., surgeons and cardiologists) (Long, Coughlin & Kendall, 2001; Borders & Rohrer, 2001; Buczko, 2001; Casey, Call & Klingner, 2001; Buczko, 1997; Melzer, Grossman, Hart, & Rowenblatt, 1997). For these reasons urban hospitals and emergency departments anticipate patients from rural areas for acute and specialty care. However, hospital patient demographics during the study period (1999) of this research indicated that some rural children used the emergency department at CMCD for *non-emergent* care.

Approximately 6% of the children treated in the CMCD emergency department for acute medical needs were from rural adjacent and rural non-adjacent north-central and north-east Texas counties, while 2% of the total FC patient volume came from these rural counties. Therefore, at least a small percentage of parents were apparently willing to bypass local medical providers and travel to the CMCD emergency department for care that could have been provided in a local physician's office or primary care clinic. We suspect that emergency departments serve the same "safety-net" function for these rural children who have difficulty accessing care as they do for their urban counterparts. In any case, there is an apparent need for pediatric emergency departments in urban centers to also consider utilization by the surrounding rural population for acute, specialty, and *non-emergent* emergency department care when formulating policies and services.

A limitation to this study should be noted. The number of emergency room visits and

physician use was obtained from parent/guardian recall alone. Although we used a time frame (six months) based on the research findings by the consortia of Harvard Medical School, RAND, and Research Triangle Institute who found that a six-month interval is the optimal time-period about which to measure health care use, recall is inherently subject to inaccuracies and incompleteness (Harris-Kojetin, Fowler, Brown, Schnaier, & Sweeny, 1999). Studies that use medical record, hospital admission, and physician/clinic visit data would likely have produced more accurate data. This, however, was logistically impossible for our population wide comparative sample.

Finally, this study has several implications for further research. First, these data confirm that even in a large metropolitan area with a large network of health care providers the socio-economic stratification in health care service use found by previous researchers continues and, therefore, requires additional monitoring and redress. Second, it may be inferred from this research that providing medical insurance and allocating children to medical homes that minimize access barriers would likely decrease reliance on emergency departments for non-emergent care. Medicaid managed care and SCHIP were implemented in the Dallas area after these data were collected. More research is, therefore, needed that directly tests allocation to a primary care physician (as required by Medicaid managed care) and SCHIP on emergency department use for non-emergent care by these vulnerable populations. Third, while the literature discusses the reasons urban emergency departments can expect to see rural patients with acute and specialty care needs, more research is needed that specifically investigates why some rural parents are willing to travel to an urban emergency department and

bypass local care facilities for non-emergent care.

REFERENCES

- Aday, L. (1993). *At risk in America*. San Francisco: Jossey-Bass Publishers.
- Baker, D. W., Stevens, C. D., & Brook, R. H. (1994). Regular source of ambulatory care and medical care utilization by patients presenting to a public hospital emergency department. *Journal of the American Medical Association*, 271(24), 1909-1912.
- Borders, T. F. & Rohrer, J. E. (2001). Rural residence and migration for specialty physician care. *Health Care Management Review*, 26(3), 40-49.
- Buczko, W. (2001). Rural Medicare beneficiaries' use of rural and urban hospitals. *Journal of Rural Health*, 17(1), 53-58.
- Buczko, W. (1997). Nonuse of local hospitals by rural Medicare beneficiaries. *Journal of Health and Human Services Administration*, 19(3), 319-340.
- Casey, M. M., Call T. K., & Klingner, J. M. (2001). Are rural residents less likely to obtain recommended preventive healthcare services? *American Journal of Preventive Medicine*, 21(3), 182-188.
- Christakis, D. A., Mellis, L., Koepsell, T. D., Zimmerman, F. J., & Connell, F. A. (2001). Association of lower continuity of care with greater risk of emergency department use and hospitalization in children. *Pediatrics*, 103(3), 524-529.
- Christakis, D. A., Wright, J. A., Koepsell, T. D., Emerson, S., & Connell, F. A. (1999). Is greater continuity of care associated with less emergency department utilization. *Pediatrics*, 103(4), 738-742.
- Claritas Inc. (1998). *1998 United States census demographic estimates*. [DVD].

- San Diego, CA: Author.
- Cunningham, P. J., Grossman, J. M., St. Peter, R. F., & Lesser, C. S. (1999). Managed care and physicians' provision of charity care. *Journal of the American Medical Association*, 281(12), 1087-1092.
- Dickhudt, J. S., Gjerdingen, D. K., & Asp, D. S. (1987). Emergency room use and abuse: How it varies with payment mechanism. *Hospital Medicine*, 70(10), 571-574.
- Feigelman, S., Duggan, A. K., Bazell, C. M., Baumgardner, R. A., Mellits, E. D., & DeAngelis, C. (1990). Correlates of emergency room utilization in the first year of life. *Clinical Pediatrics*, 29(12), 698-705.
- Fenz, C. (2000). *Providing health care to the uninsured in Texas: A guide for county officials*. Boston, MA: The Access Project, Brandeis University.
- Field, C., Black, C., Kincannon, J., & Arnold, W. C. (1987). The effect of medicaid criteria on pediatric emergency room visits. *Pediatric Emergency Care*, 3(3), 150-152.
- French B. (1995). The urgent care crunch. *Hospital Health Networks*, July, 20:34-38.
- Forrest, C. B., Simpson, L., & Clancy, C. (1997). Child health services research: challenges and opportunities. *Journal of the American Medical Association*, 277, 1787-1793.
- Gelberg, L., Andersen, R. M., & Leake, B. D. (2000). The behavioral model for vulnerable populations: application to medical care use and outcomes for homeless people. *Health Services Research*, 34(6), 1273-1302.
- Halfon, N., Schuster, M., Valentine, W., & McGlynn, E. (1998). Improving the quality of healthcare for children: Implementing the results of the AHSR research agenda conference. *Health Services Research*, 33(Part 2), 995-996.
- Halfon, N., Newacheck, P., Wood, D. L., & St. Peter, R. F. (1996). Routine emergency department use for sick care by children in the United States. *Pediatrics*, 98(1), 28-34.
- Harris-Kojetin, L. D., Fowler, F. J., Brown, J. B., Schnaier, J. A., & Sweeny, S. F. (1999). The use of cognitive testing to develop and evaluate CAHPS™ 1.0 core survey items. *Medical Care*, 37(3), Ms10-Ms21.
- Lavenhar, M., Ratner, R., & Weinerman, E. (1968). Social class and medical care: Indices of nonurgency on use of hospital emergency services. *Medical Care*, 6, 368-380.
- Long, S. K., Coughlin, T. A., & Kendall, S. J. (2002). Unmet need among rural Medicaid beneficiaries in Minnesota. *Journal of Rural Health*, 18(3), 437-446.
- MacPherson, P. (1996). Walk on by. *Hospital and Health Networks*, July 20, 60-64.
- Mayefsky, J. H., El-Shinaway, Y., & Kelleher, P. (1991). Families who seek care for the common cold in a pediatric emergency department. *Journal of Pediatrics*, (Dec), 933-934.
- Melzer, S. M., Grossman, D. C., Hart, L. G., & Rowenblatt, R. A. (1997). Hospital services for rural children of Washington, Seattle, United States of America. *Pediatrics*, 99(2), 196-203.
- Sklar, D., Spencer, D., Alcock, J., Cameron, S., & Saiz, M. (2002). Demographic analysis and needs assessment of rural emergency departments in New Mexico. *Annals of Emergency Medicine*, 39(4), 456-457.
- St. Peter, R. F., Newacheck, P. W., & Halfon, N. (1992). Access to care for poor chil-

- dren. *Journal of the American Medical Association*, 287(20), 2760-2764.
- Stern, R. S., Weissman, J. S., & Epstein, A. M. (1991). The emergency department as a pathway to admission for poor and high-cost patients. *Journal of the American Medical Association*, 266(16), 2238-2243.
- Simpson, L. & Fraser, I. (1999). Children and managed care: What research can, can't and should tell us about impact. *Medical Care Research and Review*, 56 (Suppl 2), 13-36.
- Starfield, B. (1998). *Primary care: Balancing health care needs, services, and technology*. New York, NY: Oxford University Press.
- Szilagyi, P. G. & Schor, E. L. (1998). The health of children. *Health Services Research*, 33(Part 2), 1001-1039.
- Williams, J. M., Ehrlich, P. F., & Prescott, J. E. (2001). Emergency medical care in rural America. *Annals of Emergency Medicine*, 38(3), 323-327.

BOOK REVIEW

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REVIEW

Mirror, Mirror: A History of the Human Love Affair with Reflection. Mark Pendergrast. Basic Books, New York, 2003. Hard cover, 404 pages including index. ISBN 0-465-05470-6. Price \$27.50 U.S./\$39.95 Canada.

Although the common mirror may initially appear unrelated to the matters of health, few worldly fixtures are more interrelated with the state of our mental well being. Self-perception and body image are inherently defined by how we perceive ourselves. Some mental illnesses, such as body dysmorphic disorder, are directly linked to a distorted self-perception. As previous authors have discussed in the *Texas Journal of Rural Health*, mental health problems related to body image are on the rise, not only in urban populations but in rural settings as well.

That is why it is so important to examine, from many different points of view, our close social connection with mirrors. Indeed, many researchers have focused on various aspects of self-perception by using mirrors as a tool. However, it is rare for the tool itself, a mirror, to be discussed in scientific detail from a cultural historian's point of view.

In "Mirror, Mirror: A History of the Human Love Affair with Reflection," Mark Pendergrast addresses the intimate connection between man and mirror with both

REVIEW

precision and wit. Beginning with the dawn of man, Pendergrast leads the reader through the ages, discussing how our relationship with reflection has shaped the society we live in today. This detailed look at mirrors makes for a surprisingly enjoyable read, relaying numerous facts with a light-hearted approach. Students of science are likely to appreciate Pendergrast's ability to explain complex material in understandable language; the book is exceptionally well referenced. The final chapter, which discusses the psychological conditions associated with self-perception, may be of particular interest to mental health specialists.

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