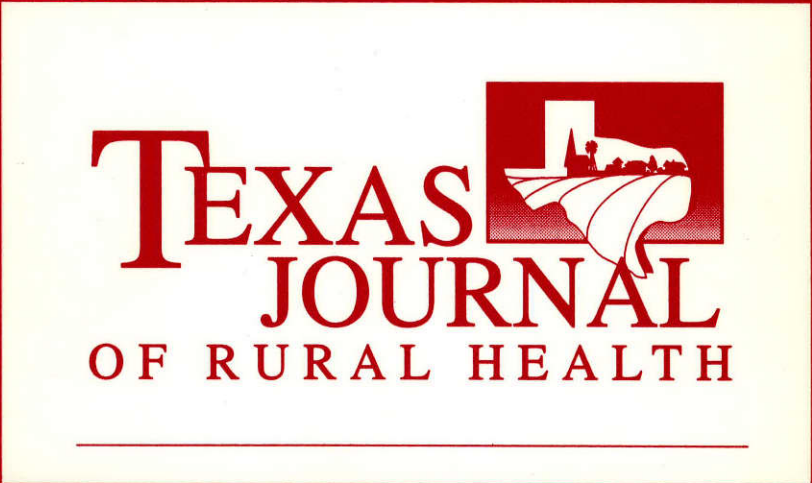


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OF RURAL HEALTH

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## MISSION STATEMENT

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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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## MANUSCRIPT SPECIFICATIONS

- **Blind Review:** Prepare manuscript for blind review—authors names on cover sheet only and title sheet without names.
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- **Cover Sheet:** The cover sheet of the manuscript should include: (a) the title of the article, (b) the complete name(s) of all the authors, degrees, and certifications, (c) a brief biographical sketch (one or two sentences) about each author with present employment position and location, (d) addresses and phone numbers of all authors, and (e) one fax number.
- **Title Sheet:** Include name of article and abstract or summary of article.
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# **The Editorial Process**

## **for the Texas Journal of Rural Health**

### **Step One: Submit Manuscript**

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.

### **Step Seven: Getting Ready for Publication**

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 is sent to the author in page-proof (galley) form. Minor changes and corrections may be made at this time. The author usually signs "approval for printing with/without changes." Beyond this, no other changes can be made.

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# Call For Papers

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The Journal is now accepting manuscripts for publication on various topics relating to rural health issues. The Journal is especially interested in articles on the following topics: migrant farmworker health, primary and emergency care in a rural setting, current legislative issues, and rural health clinic management.

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

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## Amendments Section

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With regard to the article entitled, "Expanding Health Care Access to Rural West Texas through Education and Technology" by H. H. Merrifield, Ph.D., and Lacey Case, P.T., which appeared in Volume XVII, Number 1, two references were cited in the text, but were not included in the reference list. They are the following:

McLarty, A. (1994). HealthNet pioneering telemedicine, distance learning applications. *Texas Journal of Rural Health*, (12), 52-56.

Reid, K. (1996). *Student attitudes toward distance learning*. [WWW document]. <http://www.ttuhsr.edu/>.

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## LETTERS TO THE EDITOR

The letter below was submitted in reference to an article written by Leslie Furlow, R.N., M.P.H. entitled, "Crisis in the Country: Addressing the Challenges of Rural Trauma Care," which was published in the 1999 Volume XVII, Number 1 issue. Also referenced is the article entitled, "The National Health Services Corps: A New Perspective" by Dr. David Smith, President of the Texas Tech University Health Sciences Center.

Letter—February 16, 1999

### **Crisis in the Country: Addressing the Challenges of Rural Trauma Care**

*To the Editor.*—Thank you for the comments of Drs. Furlow and Smith regarding the challenge of improving rural health services (Smith, 1999; Furlow, 1999).

In 1990, the Department of Family Medicine (DFM) established the Tipton County Family Practice Group in response to the maldistribution of physicians in Tennessee. After staffing a small office and the ED for six years, a new 10,000 sq. ft. center opened April 1997. This group of OB-capable family physicians, nurse practitioners, and staff successfully combined comprehensive family practice, community medicine, emergency medicine, and women's health care (Rodney, Hahn, & Martin, 1998).

The rural curriculum defined comprehensive family care by educating and training young physicians to provide traditional hospital care, emergency care, first-hour stabilization of trauma victims, and public health services. This combination of curriculum and service has proven to be a cost effective and practical solution to a variety of rural health care needs (National Rural Health

Association, 1999; Blondell, Norris, & Coombs, 1992).

By providing coverage in the office, the hospital, and the emergency department, the Family Practice Group coordinates efficient community care 24 hours per day, 365 days per year. This model also doubles as a training site and breeding ground for future rural care providers. Therefore, this system provides an additional recruitment benefit for rural communities. The success of this community care system and physician training site stems from and depends upon a coordinated combination of practice management, curriculum, funding, and full-service physician faculty.

### Table 1. Services Provided by Rural Faculty

1. Supervision of students and fellows in the emergency department, office, and hospital, including inpatient services, labor and delivery, nursery, ultrasound, and surgical assisting.
2. Supervision of office procedures (colposcopy, cryosurgery, endoscopy, ultrasound, and office surgery).
3. Supervision of mood disorders clinic.
4. Supervision of nutrition clinic.
5. Supervision of office and practice management.
6. Delivery of in-service and community education.
7. Liaison with university administration and Accreditation Council for Graduate Medical Education.

These faculty simultaneously enhance the maternity care services and the training environment by providing cesarean section coverage and labor management. Additional clinical skills are enhanced by competency-based testing in Advanced Cardiac Life Support (ACLS), Advanced Trauma Life

Support (ATLS), and Advanced Health Life Support in Obstetrics (ALSO).

This model provides service to the community, and through its residency training component, multiplies the number of cost efficient, continuing care physicians who can staff and sustain Rural Family Practice Centers. This provides a partial solution to some of the challenges presented by Drs. Furlow and Smith.

## References

- Blondell, R., Norris, T., & Coombs, J. (1992). Rural health and family medicine. *American Family Medicine*, 45(6), 2507-10.
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- National Rural Health Association (1999). *Legislative and Regulatory Agenda*. Washington, DC: NRHA.
- Rodney, W., Hahn, R. G., & Martin, J. (1998). Enhancing the family medicine curriculum in deliveries and emergency medicine as a way of developing a rural teaching site. *Family Medicine*, 30(9), 712-9.
- Smith, D. (1999). The national health services corps: A new perspective. *Texas Journal of Health*, 17(1), 7-17.

*K. M. MacMillan Rodney*  
Research Assistant  
Department of Family Medicine  
The University of Tennessee  
Memphis, Tennessee

the solutions I have implemented as described in the article. Family Practice Physicians and NP/PA coverage is an excellent way to provide medical care. Competent medical providers who will work with existing nursing and EMS personnel to ensure the competency of the latter is an effective method of keeping the rural area safe and up-to-date.

*Leslie Furlow, R.N., M.P.H.*  
President of AchieveMentors, Inc.  
Tolar, Texas

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*Reply.*— I would like to thank K. M. MacMillan Rodney for sharing the University of Tennessee Baptist Rural Demonstration Project. I feel that this is a perfect adjunct to

LETTER FROM THE  
MANAGING EDITOR

While primarily focusing on Texas, the *Texas Journal of Rural Health* has undertaken a global approach to its views on rural health. In the past year, the *Journal* has picked up a great deal of momentum and is now circulated internationally. Its voice has begun to reach not only the people of Texas and the United States, but is now read in places such as Australia, Canada, and the United Kingdom. Everyday the horizon for the *Journal* expands a little further, and its future grows stronger as the millennium draws to a close.

In review of the articles contained in this issue, it occurred to me that many of them, at least on some level, discussed the need for health care awareness and advocacy. Often we think that our singular voice will be lost in the crowd or that we have to be part of some strong political group in order to be heard. However, to believe this is to deny our own strength as individuals. In truth, each of us, with our singular, determined voice, has the power to be an effective advocate for change that will improve health care in rural communities. This sentiment was also echoed at the recent National Rural Health Association Conference in San Diego.

In truth, I wasn't sure what to expect when I arrived in San Diego. It was my first visit to the city and my first opportunity to attend the National Rural Health Association Conference. I did so with a natural sense of trepidation, wondering what it would be like to rub shoulders with hundreds of my peers that aren't normally found together in one place, but instead are spread out in rural communities all across America. It was uplifting to see so many wonderful people committed to rural health care. And yet, I wondered how could my voice be heard among so many others?



Lee Ann Paradise

What effect could I actually have on the people I would meet and learn from while I was there?

But quickly I found my worries displaced. People immediately recognized the *Texas Journal of Rural Health*, and commented on how helpful they had found its contents. I received praise for my work and inspiration to continue on the path we at the *Journal* have undertaken. We have made a difference with our work, and that is what is important. Our voice has been heard and remembered.

Throughout the conference I was reminded that one person could make a difference. That one voice could be heard. Advocacy is not something simply confined to special interest groups and governments. Even the softest voice can speak volumes and can be heard beyond the horizon.

We may believe we are alone, but we are far from it. We live in a global community, and just because we live in rural Texas, does not mean that we do not share the same hopes and concerns as another person outside our state or even across the ocean. One needs

only to read rural health journals from other countries or talk with those concerned about rural health to see that we have a lot in common.

This sense of global community reminds me that it is important not only to speak up on behalf of my own rural community, but to take the interests of other communities to heart as well. Advocacy is synonymous with action. Thus, in order to be an advocate, one must embrace a sense of commitment to a cause. This commitment must be founded in the belief that change can be realized, even if the change you desire doesn't happen overnight. Sometimes in order for change to occur, it becomes necessary to hold your ground with people who would say that the needs of rural communities are secondary or unimportant.

One way to make your voice heard is to write a letter to your local official or to Congress. In a communication course I took some years back in college, I remember the professor telling us that one letter received by a company regarding a product is perceived to represent the voices of 1000 other people who did not take the time to write a letter. Our elected officials take a similar view. They know that not everyone takes the time to write or call. So, when someone does, they listen. We often think that they don't, but they do.

In fact, during the conference, Darin E. Johnson, Government Affairs Director of the National Rural Health Association, passionately reminded us in his presentation on rural health policy that it is essential that we become advocates for the improvement of rural health care. He suggested that we get to know the staff people associated with our state representatives and reminded us that they do listen to us and view our comments as important.

So, even though we sometimes think that we are small fish in a big sea, with commitment and determination, together we can deal with the rural health care challenges we face each

day and the challenges of tomorrow. Indeed, we do have a voice and our voices come together by the sharing of knowledge. We should never forget that each one of us can make a positive difference by being an advocate for the improvement of rural health care.

## CORRECTIONAL MANAGED HEALTH CARE

James M. Childers, M.S.  
*Northern Regional Administrator  
Managed Health Care  
Amarillo, TX*

### ■ NOTES FROM THE FIELD

Although the words “managed care” can have a negative connotation to some rural hospital administrators, correctional managed care has been a positive force for many rural facilities.

In 1993, the Texas legislature enacted provisions of Sections 501.059 of the Texas Government Code to establish the Correctional Managed Health Care Advisory Committee (CMHCAC). The CMHCAC, in effect, serves as the board of directors for the prison health care program. The primary key functions of the committee include examining and setting policy and ensuring that financial and administrative operations are efficient in the state correctional health care settings. This committee was formed to curtail the rapid escalation of state prison health care costs. This was to be accomplished by implementing a managed care model for the delivery of health care. This model was created by formulating a collective partnership between two of the state’s leading health sciences centers and the state prison system. The CMHCAC, in accordance with statute, is contracted by the Texas Department of Criminal Justice (TDCJ). The CMHCAC, in turn, contracts with the University of Texas Medical Branch (UTMB) and the Texas Tech University Health Sciences Center (TTUHSC) on a capitated rate for health care services in their assigned sectors of Texas.

**Figure 1: Texas Tech University Health Sciences Center  
Prison Unit Locations  
(Texas Department of Criminal Justice)**

**TYC--Texas Youth Commission Units**

Brownwood	TTUHSC Operated
El Paso	TTUHSC Operated
Pyote	TTUHSC Operated
Sheffield	TTUHSC Operated
Vernon	TTUHSC Operated

**Location**

Brownwood	Brownwood Regional Medical Ctr.
Childress	Childress Regional Medical Ctr.
Colorado City	Mitchell County Hospital
Dalhart	Coon Memorial Hospital
El Paso	TTUHSC Operated
Ft. Stockton	Pecos County Memorial Hospital
Lamesa	Medical Arts Hospital
Lubbock	TTUHSC Operated
Pampa	TTUHSC Operated
Plainview	Methodist Hospital Plainview
Snyder	DM Cogdell Memorial Hospital
Tulia	Swisher Memorial Hospital
Wichita Falls	TTUHSC Operated

**Subcontract Hospital**

**Location**

**Subcontract Hospital**

Abilene	Southwestern Health Dev. Corp.
Amarillo	TTUHSC Operated
Breckenridge	Stephens Memorial Hospital
Brownfield	Brownfield Regional Medical Ctr.



## THE SYSTEM

Texas recently completed an aggressive prison expansion program that has resulted in the confinement of approximately 140,000 prisoners. The majority of these prisons, 80%, are located in the eastern half of the state. The remaining 20% are scattered throughout west Texas.

UTMB at Galveston was contracted to provide health care in the eastern sector of the state and TTUHSC in the west (see Figure 1). TDCJ Health Services still retains primary responsibilities for preventative medicine, offender grievances, operational review, and coordination of offender transfers for medical reasons. Under the current managed care model, complete medical, dental, and psychiatric services are provided by contracts with the universities for a fixed sum per prisoner.

The capitation amounts negotiated by the CMHCAC with UTMB and TTUHSC are re-evaluated biannually. Factors such as increased rates on infectious diseases, the aging of the prison population, and the rising costs of health care are taken into consideration when renegotiating contracts.

Both universities are responsible for recruiting and hiring health care personnel, overseeing daily operations, and maintaining the accessibility of health care to offenders while ensuring adequate quality of services as the top priority. These tasks are accomplished by highly sophisticated departments within each university, which concentrates on keeping this managed care model highly efficient.

Each unit has, at a minimum, primary care services. Larger units may include infirmaries and/or specialty care services such as minor surgery, psychiatric, or hospice.

Often times, TTUHSC enters into subcontracts and capitated or discounted fee for service arrangements with rural hospitals and

specialists to provide health services to offenders. The arrangements may include only outpatient service or the hospital may provide all services possible to the prison population. Specialty care is provided locally where possible. Otherwise, the offenders are transferred to regional medical facilities located throughout the state.

The above arrangement has provided incentives for controlling costs and has increased interest in preventive care. Telemedicine has also become standard technology to enable cost-effective access to specialty care.

With the expansion of prisons into West Texas in the late 1980s, many small and rural communities welcomed TDCJ into their areas. These communities have benefited greatly, not only with jobs and increased dollars into their economy, but also by keeping their hospitals viable.

Childress Regional Medical Center (CRMC) is an excellent example of a win-win situation for the hospital and TTUHSC. Childress Regional Medical Center is subcontracted to provide medical services to the T. L. Roach Unit and Childress Boot Camp, which hold approximately 3,500 offenders.

The prison health service administrator and all medical staff except the physician, nurse practitioner, and dentist are CRMC employees. The prison health service administrator and TTUHSC regional administrator work closely together to maintain excellent health care for the offenders.

While Childress Regional Medical Center provides care on a daily basis, TTUHSC is responsible for monitoring quality control, utilization management, establishing and maintaining contracts with specialty providers, and ensuring that the terms of the CMHCAC contract are not violated. This medical unit, as all Texas correctional health units, must be accredited every three years by the National Commission on Correctional

## CORRECTIONAL MANAGED HEALTH CARE

Health Care. Additionally, biannual TDCJ operational review audits are performed. Accreditation must be maintained for the sub-contract to remain in effect.

According to the prison health services administrator at the T. L. Roach Unit in Childress, not only the community, but also the hospital, have greatly benefited from the prison being located near their town. Jobs have been created and monies poured into the local community. A constant and dependable income has been generated for the hospital. Also, additional support and training opportunities are available and this assists in recruiting health care professionals to small communities.

If the Texas Department of Criminal Justice considers building a prison in a community with a floundering rural hospital, take into consideration the health care benefits of all involved. This could be just the event needed to breathe life back into a rural hospital.



# ACCREDITATION AND RURAL HEALTH CLINICS

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## ABSTRACT

Rural Health Clinics (RHCs) have been in existence since 1978, and are generally viewed as a positive force in providing health care in medically under-served areas in the United States. This article examines the need for further strategy development in the future direction of RHCs and the potential of accreditation for assuring the continued existence and improvement of such an important health delivery system for rural Texans.

## INTRODUCTION

In 1977, Congress enacted Public Law 95-210, which established the basis for the development of RHCs. The purpose of this law was to ensure the availability of medical services in rural areas where these essential services or personnel were lacking. The year 1999 marks the twenty-first anniversary of Public Law 95-210. During this period, the number of RHCs in Texas has increased dramatically (Center for Rural Health Initiatives, 1997). With the increased number of clinics in operation, there has been an increased scrutiny of the program. In connection with the growing utilization of the program, many states have looked to the federal government for guidance on how to regulate or control this program. A report from the United States Department of Health

and Human Services, Office of the Inspector General, was completed in response to these inquiries. The Inspector General's report (United States Department of Health and Human Services, 1996) on the growth, access, and payment of RHCs highlighted several of the problems presently confronting RHCs. Among the problems were: (1) no reliable data quantifying the impact of RHCs on access to care; (2) little or no incentives for efficiency; (3) inflated or inappropriate costs; (4) complexity of the system; and (5) lack of oversight. The report made preliminary recommendations on how to deal with the issues, but lacked implementation strategies. Conversely, utilization and the positive effects of RHCs have been well-documented (Tessen, Dugi, & Reese, 1998; Schoenman, Cheng, Mueller, & Blanchfield, 1998; Sinay, 1998; Center for Rural Health Initiatives, 1998). However, the critical issue facing rural health, and ultimately RHCs, is the federal government's onerous Balanced Budget Act of 1997. The intent of this legislation is to reduce Medicare cuts by approximately 100 billion dollars over the next five years (Greene, 1998). This legislation has far-reaching implications for the survivability of RHCs. The need to develop appropriate strategies is imperative if RHCs are to survive in the future.

### FUTURE STRATEGIES AND RHCs

The development of strategies in health care organizations has been studied extensively (Rivers & Glover, 1998; Nasralla & Cochran, 1999; Barber, Koch, Parente, Mark & Davis, 1998; Shortell & Kaluzny, 1997; Fottlier, Hernandez & Joiner, 1994). Although most of these researchers are concerned with various models of competitive advantage between organizations and systems, the strategies used by these researchers can be applied to

federal health initiatives such as RHCs. One of these appropriate strategy models is the Organizational Life Cycle Model (Shortell & Kaluzny, 1997; Rivers & Glover, 1998). Much has been written about organizational life cycles and the strategies associated with each cycle that allow an organization to function properly in the environment in which it finds itself. Studying the life cycle of organizations can be a useful tool for RHCs when attempting to develop appropriate strategies to improve upon their mission of providing medical services to under-served populations. In the life cycle an organization progresses through four successive cycles: Start-Up, Growth, Maturity, and Decline. The Start-Up cycle is characterized by developing new markets or new methods of delivering health care services. Organizations in this phase must be adept at raising capital, recruiting health care personnel, and producing results. The Growth phase is characterized by the development of an internal management structure as well as the development of a market niche. In the Growth cycle, more time is spent on planning, coordinating, and training. The Maturity cycle indicates that the organization is synchronizing with its environment. Concentration is on formalization and control strategies. In the Decline cycle, there is a declining internal response to the external environment. The organization in this last cycle is usually suffering from a stifling bureaucracy, which allows no innovation or change. It is important to note that there are different strategies an organization will use when it identifies itself as being in one of these growth phases.

The life cycles of RHCs follow the same cycles as other health care organizations/ programs; therefore, similar strategies can be utilized to study these entities. For example, in the Start-Up phase, RHCs nationally grew from 29 in 1978 to 2,199 in 1995 (United States

Department of Health and Human Services, 1996). Growth is still continuing, but it is not as quick as it has been. With reference to the Organizational Life Cycle Model (Shortell & Kaluzny, 1997; Rivers & Glover, 1998), the RHC program has passed the Start-Up phase and has been in the Growth phase for the last three years. This is evidenced by the number of RHCs developed, which is presently estimated around 3,100. With a tremendous amount of time spent on developing new clinics, the Growth phase is also characterized by following the federal mandates regulating program structure. The Growth phase of RHCs has been phenomenal and it now appears that movement to the third, or Maturity phase, of the program's life cycle is now in progress. The move to the Maturity phase predicts a need to develop a strategy to keep RHCs viable in the eyes of the users and payers. Sustaining this credibility will focus on specific strategies. One strategy that appears to have promise is determining if an RHC's viability in the eyes of users and payers will be enhanced by the development of an accreditation process relevant to RHCs.

### ACCREDITATION AND RHCs

When considering potential strategies to improve the performance of RHCs, accreditation and its potential to improve performances need to be taken into consideration. The literature is replete with the benefits of accreditation of health organizations/programs. The potential to coordinate private accreditation activities of RHCs and federal evaluation could do much to improve the operations of RHCs.

Accreditation of health care organizations began in earnest over 40 years ago with the establishment of a hospital accreditation organization, which is now called the Joint Commission on Accreditation of Healthcare

Organization (JCAHO). The accreditation used by JCAHO is considered to be the most comprehensive program in the health care industry with five program-specific accreditation manuals. The JCAHO is guided by four major principles: (1) a frugal, focused, pragmatic measurement, evaluation, and improvement system; (2) the premise that quality improvement must be a practical accountable process; (3) the belief that health professionals want to improve their performance and meet their public accountabilities; and (4) the focus should be on both standards and outcome measures (O'Leary, 1995a). Other accrediting bodies such as the Commission on Accreditation of Rehabilitation Facilities (CARF) (Bailis, 1995), the National Committee for Quality Assurance (NCQA), and the Utilization Review Accreditation Commission (URAC) have also developed standards and maintain them through accreditation processes similar to the JCAHO (Probyn, 1996).

### ACCREDITATION ISSUES

Accreditation has generally been accepted as a process that can assist health care organizations to improve their performance in the areas of care planning and outcome measurement, organizational structure, staffing, physical plant design, patient rights, accessibility, and safety. Accreditation agencies have developed a positive reputation as the accreditation process is seen to be improving the quality of care rather than just meeting Medicare and payer requirements (Morrissey, 1996; Modern Healthcare, 1995). Medicare providers such as RHCs must comply with Medicare Conditions of Participation. These conditions also apply to organizations such as ambulatory care surgery centers, health maintenance

organizations, home health agencies, hospices, hospitals, long-term care facilities, and other similar organizations. In most states, accreditation by one of the aforementioned agencies results in recognition of the provider as meeting the Conditions of Participation for receiving reimbursement for Medicare and Medicaid patients (Brandt, 1995).

In recent years, there has been a proliferation of non-hospital health care organizations that have decided to seek specific accreditation relating to the function of their organizations. This is viewed in the context of accreditation representing a culture of continuous quality improvement and team building (Spatz, Morales, Bohannan, 1996). One example is subacute-care accreditation (Morrissey, 1995a). Most subacute programs found that in the process of accreditation they have learned some lessons on how to improve their operations. These include patient assessment, patient care management, physician credentialing, and quality improvement programs. The Accreditation Association for Ambulatory Health Care has developed self-assessment materials to help evaluate ambulatory health organizations regarding standards for improving quality and achieving accreditation (Accreditation Association for Ambulatory Care, 1996). Small and rural hospitals working in conjunction with JCAHO are presently developing an experimental model for developing the rural hospital accreditation process of the future. The central elements of this model would include a regional representative program, a measurement system that meets the particular needs and characteristics of individual small and rural hospitals, and efforts to coordinate requirements of external review bodies at the state or local level (Joint Commission on Accreditation of Healthcare Organizations, 1995; Blair & Milner, 1995). Other efforts at the expansion of accreditation of specialty health care organizations include accredita-

tion of health plans and networks (Joint Commission on Accreditation of Healthcare Organizations, 1996), behavioral health care organizations, physician hospital organizations (Probyn, 1996), and managed care organizations (Turner, 1996). Each of the above organizations have developed specific survey manuals that meet their respective needs. For example, the accreditation manual for preferred provider organizations focuses on the main activity of providing a panel of practitioners who are competent to meet the health care needs of their clients (Joint Commission on Accreditation of Healthcare Organizations, 1997).

Accreditation is not without its detractors. Some feel that accreditation standards can become restrictive regulations that undermine creativity. Lack of objectivity and consistency among surveyors have also been identified as a problem (Hospital Peer Review, 1995). Further, because accreditation focuses on the individual pieces in a health care system, it (accreditation) may bolster the outdated notion that providers are not part of a larger whole. In other words, accreditation needs to be able to evaluate the delivery system as a system (Sandrick, 1995). Surveys conducted by JCAHO show some client dissatisfaction with regard to the identification and facilitation of improvements relating to the quality of care received as well as some dissatisfaction with the cost of medical care (Morrissey, 1995b). In addition, some health care organizations seek accreditation more for financial reasons than out of concern for the quality of patient care (Burda, 1995). There have been some claims that compliance with JCAHO standards does not necessarily make a facility better or safer (Green, 1995). One problem often cited with accreditation is its lack of ability to respond to a rapidly changing health care environment (Moore, 1999; O'Leary, 1995b).

Accreditation agencies, especially JCAHO, are well aware of the above problems and are constantly attempting to make the accreditation process more meaningful for payers, providers, and the public (Morrissey, 1995c). The JCAHO has embarked upon its agenda for change to create initiatives to develop a strong contemporary private sector accrediting body in health care that will ensure value and trust in its accreditation process (O'Leary, 1996). This JCAHO mission has been viewed positively by the JCAHO's most active detractor, the American Health Association (Morrissey, 1995d). Recent improvements in departmental, team, or hospital-wide efforts to improve quality are being given priority (Lathrop, 1995). The JCAHO's willingness to embrace other quality assessing entities, such as the Malcolm Baldrige National Quality Award, should assist the JCAHO in the improvement and utilization of a more generalized criteria (Hospital Peer Review, 1995). The JCAHO is also involved in informational programs directed toward the public on the value of accreditation of health care organizations (Moore, 1998).

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# TREATMENT OUTCOMES OF A SEVEN-WEEK PULMONARY REHABILITATION PROGRAM

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## ABSTRACT

This study investigated the effectiveness of a seven-week pulmonary rehabilitation program established in a rural West Texas hospital. In the seven years since the program was established, a total of 62 patients (24 females and 38 males) have completed the program. The effectiveness of the program, as measured by increased exercise bicycle and treadmill tolerance, is discussed. Subjects showed significant improvement in exercise tolerance for both areas. In addition, variables such as gender and age were also investigated. Implications for changes to the program and for further research are discussed. A program cost analysis is presented as well as an estimate of revenue generated.

## INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a term used to describe a number of diseases, usually including chronic bronchitis, chronic asthma, and pulmonary emphysema, which effect the lung's ability to properly ventilate (Thomas, 1985). Currently more than 15 million Americans have COPD (Colorado Health Net, 1998) and it is the fourth leading cause of death in the United States (National Center for Health Statistics, 1996). Dyspnea (breathlessness) is the most commonly reported symptom of COPD and the disease is progressively degenerative,



resulting in an increase in the amount of dyspnea experienced with progressively lower levels of physical exertion. This cycle frequently leads to substantial decreases in functional mobility, and can result in the COPD patient experiencing dyspnea at rest (Paine & Make, 1986). A contributing factor in the way dyspnea is experienced by COPD patients is the concurrent and increasing sense of anxiety that shortness of breath produces (Oswald, Waller, & Drinkwater, 1970). The relationship between dyspnea and anxiety in COPD patients is reciprocal, with increasing levels of anxiety placing additional demands on the cardiopulmonary system. As these demands increase, the body's ability to provide adequate ventilation is often exceeded, causing increased dyspnea. Dudley, Martin, and Holmes (1968) found that dyspnea and anxiety experienced by patients is a highly subjective, conditioned response. They concluded that the dyspnea experienced is frequently not correlated with the amount of change or damage to the cardiopulmonary system. The impact of this conditioning is usually progressive, with the patient learning to avoid situations which might result in dyspnea (Agle & Baum, 1977). Dyspnea and anxiety, when taken in combination with other factors such as age, socioeconomic status, psychiatric disturbance, and social support, have a direct impact on the COPD patient's quality of life and ability to perform Activities of Daily Living (ADL's) (Light, Merrill, Despars, Gordon, & Mutalipassi, 1985; Borson, Barnes, Kukull, Okimoto, Veith, Inui, Carter, & Raskind, 1986; Rutter, 1979; Ries, Kaplan, Limberg, & Prewitt, 1995; McSweeney, Grant, Heaton, Adams, & Timms, 1982). Therefore, the challenges that face the COPD patient, as well as COPD rehabilitation programs, are to successfully overcome both the physiological and the psychological implications of the disease.

Traditionally the manner in which COPD

rehabilitation programs have responded to these challenges is through a multi-disciplinary approach that emphasizes education about the disease process and physical conditioning. An abundance of research is available that supports such an approach and results in improvements for the COPD patient (Bass, Whitcomb, & Forman, 1970; Fishman & Petty, 1971; Haas & Cardon, 1969; Moser, Bokinsky, Savage, Archibald, & Hansen, 1980; Nicholas, Gilbert, Gabe, & Auchincloss, 1970; Petty, Nett, Finigan, Brink, & Corsello, 1969; Toshima, Kaplan, & Ries, 1990; Vyas, Banister, Morton, & Grzybowski, 1971). Research has concluded that pulmonary rehabilitation programs have little or no spirometric effect on patients. The greatest benefit reported by virtually all studies involves some form of increased exercise tolerance and decreased reports of dyspnea (Atkins, Kaplan, Timms, Reinsch, & Lofback, 1984; Unger, Moser, & Hansen, 1980; Swerts, Kretzers, Terpstra-Lindeman, Verstappen, & Wouters, 1992).

Increases in exercise tolerance and decreases in experienced dyspnea impact many areas of COPD patients' lives. O'Donnell, Webb, and McGuire (1993) reported that the positive impact of pulmonary training and decreased dyspnea "are often impressive and include improved self-esteem, greater independence, and the freedom to participate in a greater range of activities of daily living." They also concluded that "in patients with advanced disease, improvements of this magnitude translate into substantial functional gains with respect to activities of daily living."

Clearly the benefits of pulmonary rehabilitation lie in the patient's increased sense of well being and ability to perform a variety of tasks previously associated with dyspnea. However, the challenges that face rural hospitals in the implementation of such programs are numerous. Staffing is often

one such difficulty, because rural facilities frequently call upon their staff members to fulfill multiple roles and pulmonary rehabilitation programs require the participation of multiple staff members. Budgetary requirements are also a consideration as rural facilities must weigh the potential capital benefits of such programs with the initial expense of equipment and the continued costs of manpower to support the program. Access to the facility and potential patient populations are also concerns for rural facilities as small communities often do not have an indigenous population capable of supporting a program. Despite these difficulties, rural hospitals can provide financially viable and effective treatment for their patients with minimal expense. O'Donnell et al. (1993) noted "there is little evidence, however, that complex, comprehensive programs achieve better results in terms of improvement in subjective and objective outcome parameters than simple EXT [exercise training] programs supervised by knowledgeable and dedicated healthcare professionals."

This study evaluates treatment outcomes of a seven-week pulmonary rehabilitation program. It was anticipated that patients would show increases in exercise performance as measured by upper extremity exercises and aerobic exercises. Further, it was expected that patients would report decreased dyspnea as measured by a breathlessness scale.

## METHOD

### Program Overview

Our program involves a multidisciplinary team of professionals who comprise the Pulmonary Rehabilitation Team. The team includes a physician who serves as medical

director, the cardiopulmonary department director, a Registered Respiratory Therapist (RRT) who supervises and coordinates patient activity, a registered/licensed dietitian (RD/LD), a licensed professional counselor (LPC), and a registered nurse (RN). The RRT is the only full-time team member. The emphasis of the program is to help patients increase their tolerance for physical activity and to reduce the frequency and symptoms of dyspnea. It is our goal to increase a patient's functional abilities while concurrently reducing anxiety related to breathlessness. It is our belief that such intervention strategies will directly impact a patient's physical status.

The program lasts for seven weeks, with patients meeting for one to two hours three times a week. Incorporated in the program is an exercise program utilizing an exercise bicycle and motorized treadmill. Patients also exercise using rubber exercise bands and small free weights. Program participants and their family members also attend training and lecture sessions provided by team members that emphasize the medical aspects of COPD, proper nutritional support, disease factors that effect emotional and psychosocial well being, and the effects of various medications. At the conclusion of the program patients are asked to attend a final testing session at which their exercise tolerance is evaluated. Six weeks after the conclusion of the program patients attend a follow-up session for re-evaluation of their exercise performance. A breakdown of the training provided during the program, by discipline, is presented below.

### Exercise Training/Breathing Retraining — (RRT)

Admission criteria for the program are relatively simple. Patients must have a primary diagnosis of COPD or some other related pulmonary deficiency and must also have written orders from their primary care

physician to participate in the program. Program participants undergo a number of screening procedures before beginning the program. These include an Arterial Blood Gas (ABG) profile and Co-oximetry, laboratory blood work up that includes a Comprehensive Metabolic Panel (CMP), a Complete Blood Count (CBC), a Lipid Profile, and a Theophylline level. They also complete a Pulmonary Function Test (PFT) and Pulmonary Stress Test (PST). A chest x-ray and Electrocardiogram (EKG) are completed as well as a measurement of Negative Inspiratory Force (NIF). Once initial testing is completed, patients are educated about their results and how they affect pulmonary status. Patients are also given education about basic anatomy and physiology with regard to how oxygen is distributed throughout the body and how various diseases affect this distribution. Within this material, patients are also presented with information about bronchial drainage, its use and precautions, and the proper use of inhalation medications such as bronchodilators. When applicable, patients also learn about the proper use and maintenance of oxygen equipment and aerosol therapy devices. Spouses and family members are encouraged to participate in all training and lecture sessions.

Because of the dyspnea experienced by COPD patients, respiratory muscle fatigue and changes within the primary respiratory muscles occur and patients become increasingly reliant on other thoracic and skeletal muscles to aid in respiration (Breslin, 1995; Carter & Coast, 1993). Patients begin their breathing retraining with instruction of diaphragmatic breathing, pursed lips breathing, and diaphragmatic breathing in conjunction with a P-FLEX (Healthscan Products, Cedar Grove, NJ). These three techniques help patients regain a greater reliance on primary respiratory muscles used in breathing.

Diaphragmatic breathing is a technique in which patient's are taught to expand the abdominal wall during inspiration. With repetition, such muscles may lead to improved expiratory muscle strength (Breslin, 1995). Pursed lips breathing is a technique in which patients are instructed to breath in through their nose followed by expiration through partially closed lips. Breslin (1995) states that "Pursed lips breathing has been shown to increase rib cage and accessory muscle recruitment during inspiration and expiration, increased abdominal muscle recruitment during expiration, decreased  $T_I/T_{TOT}$  [inspiratory time-total respiratory cycle time ratio] and RR [respiratory rate], and improved  $SaO_2$  [oxygen saturation]." Patients are also instructed in the proper use of a P-FLEX in combination with diaphragmatic breathing. The P-FLEX is a simple device used for inspiratory muscle training, which strengthens diaphragmatic muscles.

The results of the patients' initial PST are reviewed by the program medical director and the initial exercise parameters are established. Initial exercise goals are usually set at 50% of the maximum exercise time exhibited during the PST with the exercise bicycle's Revolutions Per Minute (RPM) remaining at or near those initially recorded and the treadmill grade set at zero. Throughout the seven-week program patients use either the treadmill or stationary exercise bicycle during each program session. In addition, patients are instructed on the importance of continued physical exercise and provided education designed to maximize their exercise potential. Patients are also instructed to record their perceived exertion level using the scale outlined by Borg (1982). This scale is a subjective measure of perceived dyspnea and is recorded on a 1 to 10 scale with scores of ten being the most severe.

Nutritional Assessment, Support, and Education — RD/LD

Food and nutritional goals involve an assessment of patients' nutritional status for related health risks and needs that may interfere with participation in the program. Patients are also assessed for problems which may interfere with immunity levels and present complications in COPD patients. An evaluation of patients' independence in meal preparation and access to proper nutrition is also performed. In addition, patients complete a nutritional screening questionnaire, which is combined with information gathered from patients' measured laboratory values and used in a consultation with the dietitian. This includes an assessment for physical signs of malnutrition and anthropometric assessment. Laboratory values are also assessed for potential signs of anemia, poor nutritional support, and malnutrition in the patient. From this information the dietitian and patient work in conjunction to form a nutritional plan of care. This plan is specifically designed to support patients' pulmonary rehabilitation goals by incorporating food and nutritional goals. If applicable, this plan also incorporates any special diet regimens that a patient is encouraged to follow. Dietary education includes principles of good food and nutrition for COPD patients and handouts related to nutritional support (Moser, Ries, Sassi-Damborn, Ellis, Limberg, & Myers, 1991; American Lung Association, 1995).

Assessment and Education of Mental Health/ Psychosocial Needs — LPC

Patients are assessed by a Licensed Professional Counselor for potential mental health problems and psychosocial factors that may effect their performance in the program. A questionnaire is completed by each patient that outlines potential areas of difficulty

related to these factors. Special emphasis is placed on any reports of anxiety or depression experienced by patients. Several studies have indicated that depression is a major risk factor for older adults and particularly for those older patients with significant life event changes, decreased health status, increased somatic symptoms, and pulmonary insufficiency including COPD (Murrell, Himmelfarb, & Wright, 1983; Paykel, Myers, Dienelt, Klerman, Lindenthal, & Pepper, 1969; Blazer & Williams, 1980; Agle, Baum, Chester, & Wendt, 1973; Dudley, Glaser, Jorgenson, & Logan, 1980; Kent & Smith, 1977). Patients have the freedom to schedule individual sessions with the therapist and patients reporting excessive levels of anxiety or depressive symptoms are consulted and, if indicated, referred back to their private physician for treatment. Patients are also taught the relationship between physiological and psychological elements of COPD and how emotions play an important role in proper breathing. Patients are further instructed in behavioral techniques associated with their ADL's that may assist in their personal and social interactions. They are provided with information and instruction on how to assist themselves, family members and friends in coping with COPD (Moser et al., 1991). Patients are also given instruction on how COPD affects sexual relations. Finally, patients are instructed in the proper use of progressive relaxation exercises (Bernstein & Borkovec, 1973) to control anxiety and fear caused by dyspnea. Progressive relaxation training has been well documented to relieve anxiety in a wide variety of subjects (Wolpe, 1961; Rachman, 1959).

Medication Education — RN

A registered nurse provides education on the use and effects of various medications. Medications such as oral bronchodilators,

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steroids, expectorants, antibiotics, diuretics, heart medications, anxiolytics, and antidepressants are discussed. The effects of these medications are discussed in relation to the patient's diagnosis of COPD.

### Program Medical Director — MD

The medical director oversees all aspects of patient care and coordinates patient treatment with all disciplines and reviews all clinical values, outcome measures, and the findings addressed by the team. The medical director is also instrumental in evaluating patient goals and determining additional medical needs for the patient and advises patients and team members when additional information should be forwarded to a patient's referring physician. In addition, the medical director serves as a liaison with physicians and as a continuous reference for patient questions and provides patient education. Patients are educated about the proper use of medications and are provided with information on how the respiratory system functions. Finally, the medical director evaluates patient progress and provides patients with "exercise prescriptions" that will hopefully ensure that patients continue proper physical activity at the conclusion of the program.

### Participants

All participants in this study have a diagnosis of COPD and have been referred by their primary care physician. Aggregate data on program outcomes have been gathered since the program's inception in 1993. Sixty-two patients have completed the program since it began; 38 were male (61.3%) and 24 were female (38.7%). Mean age for participants was 67.74 years with an age range of 52 years to 83 years. Fifty-two of the participants used oxygen while completing the program, while ten participants completed the

program on room air. Recidivism rates for participants were relatively low with 49 of the participants having completed the program once, five having completed it twice, and one participant completing the class three times. At the time this report was generated the mortality rate for those completing the program was 29% (N=16). Data collected from multiple participations and participants who have died since completing the program were included in the statistical evaluation.

### Procedure

All measurements were taken during the course of the seven-week program with a total of 21 sessions conducted over this time period. Only participants completing the entire seven-week program were included in this research. In addition, measurements were also taken during a single session conducted approximately six weeks after program completion. All participants exercised using a motorized treadmill (Quinton Model Q50 Series 90, Seattle, WA) or stationary exercise bicycle (Schwinn Airdyne, Chicago, IL) for the aerobic exercise portion of each session. Participants alternated usage of the exercise bicycle and treadmill on a session by session basis. During upper extremity exercise, participants used a combination of small free weights (1 lb., 2 lb., or 3 lb.), therapeutic exercise bands, and upper extremity exercises without weight (such as arm extensions, arm raises, arm curls, etc.). For the six-week follow-up, participants exercised on the treadmill for aerobic purposes.

Measurements for each session were recorded on a data sheet and included in the participants' chart. Each session began with a baseline measurement of initial blood pressure, initial heart rate, initial O<sub>2</sub> saturations, and initial Borg scores. Participants then performed aerobic exercise. As mentioned above, aerobic exercise was completed

on either a motorized treadmill or stationary exercise bicycle. Measurements gathered for treadmill performance include total time (in minutes) and the grade at which the treadmill is inclined. Exercise bicycle measurements include total time (in minutes) and minimum/maximum RPMs. Aerobic exercise blood pressure, O<sub>2</sub> saturations, and Borg scores are assessed at five minute intervals. After a 5 to 10 minute recovery period, patients then performed upper extremity exercises. Two measurements (the total number of upper extremity exercises completed and the total number of repetitions performed for each exercise) were taken during this period. At five minute intervals during upper extremity exercises, participants were again assessed for blood pressure, heart rate, O<sub>2</sub> saturations, and Borg scores. Once the aerobic exercises and upper extremity exercises were completed and after another recovery period of usually 10 to 15 minutes, participant's blood pressure, heart rate, O<sub>2</sub> saturations, and Borg scores were assessed one final time. At the six-week follow-up participant's blood pressure, heart rate, O<sub>2</sub> saturations, and Borg scores were assessed during both the initial and recovery period as well as at five-minute intervals during aerobic exercise. Participants did not perform upper extremity exercises during the six-week follow-up and aerobic exercise was conducted on the treadmill only.

### Results

All data analysis was completed using SPSS version 8.0 for Windows (SPSS Inc., Chicago, Il.). Main effects were assessed by comparing participant's performance recorded during their initial session (session #1) with those of the last session (session #21). The variables used to assess main effects included comparisons of exercise bicycle start/finish times, exercise bicycle start/finish RPM, treadmill start/finish times, and treadmill start/

finish grades. Upper extremity exercise performance was assessed by comparing performance during the first and second parts of the program. This was done by computing performance means for sessions 1 to 11 and for sessions 12 to 21. Upper extremity performance variables assessed in this split-half analysis included total number of upper extremity exercises and total number of upper extremity exercise repetitions. As a further measure of program efficacy, six-week follow-up treadmill time and grade scores were compared with their corresponding treadmill final and treadmill starting scores. Table 1 shows the means and results of paired samples t-test analyses for each of these comparisons.

As can be seen in Table 1, participants showed statistically significant increases in performance for all main effect variables with the exception of the final treadmill exercise. Program participants improved their treadmill performance by 91% ( $t(60) = [-9.279]$ ,  $p < .001$ ) and their exercise bicycle performance by 81% ( $t(59) = [-11.255]$ ,  $p < .001$ ) during the program. The treadmill grade was increased by 171% ( $t(60) = [-5.611]$ ,  $p < .001$ ) and exercise bicycle RPM was increased by 23% ( $t(58) = [-8.602]$ ,  $p < .001$ ). Participants increased their upper extremity exercises by 10% ( $t(61) = [-3.724]$ ,  $p < .001$ ) and their upper extremity repetitions by 12% ( $t(61) = [-5.249]$ ,  $p < .001$ ). At the six-week follow-up, treadmill performance was increased by 40% ( $t(39) = [-4.584]$ ,  $p < .001$ ); however, the treadmill grade showed a 37% decrease ( $t(37) = 1.071$ , n.s.). Participants were able to maintain a statistically significant improvement over their initial treadmill grade at the six-week follow-up ( $t(37) = [-3.083]$ ,  $p < .01$ ).

Gender was considered a possible confounding variable so differences in main effects were evaluated by gender grouping. One variable, exercise bicycle final RPM, reached statistical significance, with males

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**Table 1. Comparison of Sample Means of Main Effects**

<u>Comparison</u>	<u>N</u>	<u>Mean Performance</u>	<u>T value</u>	<u>Degree of Freedom</u>	<u>2 Tail Probability</u>
Starting Treadmill Time vs. Final Treadmill Time	61	13.55	-9.279	60	.001
Final Treadmill Time vs. Six-Week Treadmill Time	40	26.75	-4.584	39	.001
Starting Treadmill Grade vs. Final Treadmill Grade	61	.53	-5.611	60	.001
Final Treadmill Grade vs. Six-Week Treadmill Grade	38	1.15	1.071	37	.291
Starting Treadmill Grade vs. Six-Week Treadmill Grade	38	.43	-3.083	37	.01
Starting Exercise Bicycle Time vs. Final Exercise Bicycle Time	60	14.43	-11.255	59	.001
Starting Exercise Bicycle RPM vs. Final Exercise Bicycle RPM	59	24.62	-8.602	58	.001
Mean Number of Upper Extremity Exercises-Sessions 1-11 vs. Mean Number of Upper Extremity Exercises-Sessions 12-21	62	2.56	-3.724	61	.001
Mean Number of Upper Extremity Repetitions-Sessions 1-11 vs. Mean Number of Upper Extremity Repetitions-Sessions 12-21	62	18.01	-5.249	61	.001

(mean = 31.63) recording faster bicycle RPM scores than females (mean = 28.56). This resulted in a statistically significant difference between groups ( $t(57) = 2.061, p < .05$ ). To better assess performance outcomes, difference scores were computed for four of the main effect variable comparisons. Difference scores are measures of overall variable performance and represent the difference between two respective variables. No statistically significant comparisons were found, indicating that gender had little impact on measures of overall program performance.

Age was also considered a possible confounding variable and the role that age plays in program performance was investigated through a series of Pearson Correlation Coefficients. The results of these correlations are listed in Table 2. As was expected, the majority of variables showed inverse relationships with two of these relationships reaching statistical significance. Age was significantly correlated with bicycle start RPM ( $r(59) = -.293, p < .05$ ) and treadmill final time ( $r(61) = -.306, p < .05$ ). Such scores indicate that as the age of the participant increases, performance on these two variables decreases.

To further assess differences between age groups, participants were split into quartiles (four groups of roughly equal number of participants representative of the entire sample). Age ranges for group one consisted of 52 to 63 years ( $N = 18$ ), group two ranged from 64 to 68 years ( $N = 16$ ), group three ranged from 69 to 74 years ( $N = 15$ ), and group four ranged from 75 to 83 years ( $N = 13$ ). An Analysis of Variance (ANOVA) was then conducted to compare performance for each of the main effect variables by age group classification. Two statistically significant differences were found: bicycle finish time ( $F(3, 56) = 2.770, p = .05$ ) and treadmill finish time ( $F(3, 57) = 2.818, p < .05$ ). These results

indicate that while some differences were noted between age groups for specific variables, age did not significantly affect overall program performance.

As mentioned above, Borg scores were also recorded at various times during each program session. Table 3 lists the mean initial Borg scores, upper extremity exercise Borg scores, aerobic exercise Borg scores, and recovery Borg scores. As can be seen from Table 3a and Table 3b, mean Borg scores remained very consistent across all measures. Mean initial Borg score ranges were from .84 to 1.29 and mean scores for upper extremity Borg ranged from 1.64 to 2.50. Aerobic exercise mean Borg scores ranged from 2.32 to 2.77 and mean recovery Borg scores ranged from .91 to 1.56. To assess differences between mean Borg scores in these four main areas, scores were once again split into two groups, with group one representing scores for sessions 1 to 11 and group two representing scores for sessions 12 to 21. Paired samples t-tests were used in assessing the differences between means and the results of these procedures are listed in Table 4. Mean scores for this evaluation were also very consistent and no statistically significant differences were found.

#### POST-HOC EVALUATIONS

Overall measures of blood pressure, heart rate, and oxygen ( $O_2$ ) saturations were used in post-hoc comparisons of performance. Measures for these three variables were taken during both the initial and recovery period of each session. Each variable was also measured at five-minute intervals during upper extremity, exercise and aerobic exercise. Blood pressure was not measured during upper extremity exercises.



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Table 5 lists mean O<sub>2</sub> saturations for each session for the initial, recovery, upper extremity, and aerobic exercise periods. Initial O<sub>2</sub> saturations ranged from 95.22 to 96.15 and recovery O<sub>2</sub> saturations ranged from 95.69 to 96.66. O<sub>2</sub> saturations for upper extremity exercise ranged from 93.25 to 94.68. During aerobic exercise, O<sub>2</sub> saturations ranged from 93.18 to 94.27. Once again for statistical comparisons, these means were split into two groups, with group one representing sessions 1 to 11 and group two representing sessions 12 to 21. The paired sample t-test results indicated a statistically significant increase in O<sub>2</sub> saturations during the second half of the recovery period ( $t(61) = [-2.072]$ ,  $p < .05$ ), with O<sub>2</sub> saturations rising from a mean of 95.99 during the first half of the program to a mean of 96.23 during the second half. No statistically significant differences were noted for the initial, recovery, upper extremity, or aerobic

exercise measurements. In a comparison of initial and recovery O<sub>2</sub> saturations for all 21 sessions combined, participants were found to have a statistically significant increase in O<sub>2</sub> saturations during the recovery period ( $t(61) = [-3.550]$ ,  $p < .05$ ) with mean recovery O<sub>2</sub> saturations rising to 96.11 in comparison with a mean initial O<sub>2</sub> saturation of 95.74.

Each participant's heart rate was also measured during the initial, recovery, upper extremity, and aerobic exercise periods of each session. Mean initial heart rate ranged from 89.61 to 93.01. Means for recovery heart rate ranged from 92.08 through 94.54. Upper extremity heart rate means range from 95.17 to 99.83 and aerobic exercise heart rates averaged 105.31 through 109.93. To compare these means, split group comparisons were again used. Paired samples t-tests analyzed the differences between means and a statistically significant increase in upper extremity

**Table 2. Correlation Between Variables and Participant Age**

<u>Comparison Variable</u>	<u>N</u>	<u>2 Tailed Significance</u>	<u>r Value</u>
Bicycle Start Time	60	.480	-.093
Bicycle Finish Time	60	.220	-.161
Bicycle Start RPM	59	.024	-.239
Bicycle Finish RPM	59	.259	-.149
Treadmill Start Time	61	.288	-.138
Treadmill Final Time	61	.017	-.306
Treadmill Grade Start	61	.969	.005
Treadmill Grade Finish	61	.236	-.154
Treadmill Time Six-Week Follow-up	41	.460	-.119
Treadmill Grade Six-Week Follow-up	39	.988	.002
Difference Score 1	61	.101	-.212
Difference Score 2	40	.972	-.006
Difference Score 3	60	.904	-.016
Difference Score 4	59	.225	.160

exercise heart rate was noted during the latter half of the program,  $t(61) = [-2.764]$ ,  $p < .01$ . The mean scores for participants' blood pressure were also noted. Initial blood pressure means ranged from a low systolic pressure of 116 through a high systolic of 121. Initial diastolic means ranged from 69 through 74. Systolic means for recovery blood pressure ranged from 115 through 121 and diastolic means ranged from 70 through 74. During aerobic exercise mean systolic pressure ranged from 130 to 140 and diastolic pressure ranged from 73 through 80. The results of paired samples t-tests comparing the split group means for initial, recovery, upper extremity, and aerobic exercise blood pressure were recorded. Several statistically significant differences were found. A decrease of more than two points was noted during the second half of the program for initial diastolic blood pressure ( $t(61) = 4.164$ ,  $p < .001$ ). Measures of both systolic and diastolic recovery blood pressures showed decreases, with systolic blood pressure dropping just under two points ( $t(61) = 2.262$ ,  $p < .05$ ) and diastolic blood pressure showing a drop of 1.86 points ( $t(61) = 3.126$ ,  $p < .01$ ). Diastolic blood pressure also dropped during the second half of the program during aerobic exercise by an average of 1.45 points ( $t(61) = 2.346$ ,  $p < .05$ ). No statistically significant decreases in blood pressure were noted for initial systolic blood pressure or aerobic exercise systolic blood pressure.

In summary, post-hoc comparisons of  $O_2$  saturations and heart rate indicated little change as a result of the program. Participants did show statistically significant differences for measures of blood pressure. By the end of the program participants had dropped their pre-exercise diastolic blood pressure, their aerobic exercise diastolic blood pressure, and both systolic and diastolic blood pressure during the recovery period.

## DISCUSSION

Participants in this study showed marked increases in all measures of main effects, indicating substantial improvement in exercise performance and tolerance. Such increases in performance have been documented in other studies (Ries et al., 1995; McSweeney et al., 1982; Haas & Cardon, 1969; Petty et al., 1969; Toshima et al., 1990). On the average, participants increased their exercise bicycle time by almost 12 minutes and their bicycle exercise RPM by almost six RPM. Treadmill exercise time increased by an average of 12.36 minutes and the treadmill grade almost tripled. Across all four measures of exercise bicycle and treadmill performance only four participants showed decreases in performance. Clearly the results of this research continue to support the efficacy of pulmonary rehabilitation programs that provide a structured program of aerobic and upper extremity exercise, coupled with breathing training, in improving exercise tolerance and performance in COPD patients. It further supports the contention that such programs can be established and maintained in rural communities; our facility is licensed for 85 beds and serves a county of some 14,000 people. These results can also be sustained at a minimal cost in staffing and equipment, and still provide significant improvement in patient outcome. The initial purchase costs for program equipment were less than \$20,000. The costs for materials and staffing for each session are approximately \$570 per patient. As many as six patients per program can be treated with our current staff and billable services range from approximately \$3800 to \$4800 per patient. Most importantly, the outcomes of our program exceed, or are comparable to, those of larger facilities.

Research has indicated that performance improvement in pulmonary rehabilitation

**Table 3a. Mean Borg Scores**

	Initial Borg Scores				Upper Extremity Borg Scores			
	N	Minimum	Maximum	Mean	N	Minimum	Maximum	Mean
Session 1	56	.00	3.50	.94	49	.00	8.00	1.64
Session 2	57	.00	9.00	.95	52	.00	5.66	1.67
Session 3	60	.00	4.00	.84	54	.00	4.00	1.65
Session 4	58	.00	4.00	1.08	55	.00	7.00	2.20
Session 5	58	.00	4.00	1.12	53	.00	6.00	2.13
Session 6	57	.00	4.00	1.15	54	.00	8.00	2.42
Session 7	59	.00	4.00	1.13	57	.00	6.50	2.50
Session 8	59	.00	4.00	1.22	58	.00	6.00	2.50
Session 9	58	.00	4.00	.99	54	.00	4.66	2.16
Session 10	60	.00	4.00	1.13	60	.00	7.00	2.15
Session 11	58	.00	4.50	1.13	56	.00	5.50	2.12
Session 12	55	.00	4.00	1.06	54	.00	6.00	2.23
Session 13	60	.00	7.00	1.29	57	.00	7.00	2.26
Session 14	58	.00	7.00	1.12	58	.00	6.00	2.41
Session 15	51	.00	3.50	1.11	51	.00	5.25	2.31
Session 16	58	.00	6.00	1.18	57	.00	6.50	2.20
Session 17	56	.00	7.00	1.16	55	.00	6.00	2.14
Session 18	56	.00	6.50	1.21	54	.00	7.50	2.08
Session 19	56	.00	7.00	1.19	56	.00	6.00	2.36
Session 20	53	.00	7.00	1.15	53	.00	6.00	2.17
Session 21	54	.00	4.00	.91	33	.00	5.00	2.15

programs is likely attributable to a number of factors including decreased dyspnea, decreased anxiety during exercise, increased muscle strength and tone, increased pulmonary efficiency and increased patient autonomy (Ries et al., 1995; Agle et al., 1973). Factors such as improved aerobic capacity, participant motivation, improved inspiratory and ventilatory muscle performance and their concurrent improvements in gas exchange are

also noted as possible mechanisms of improvement (Swerts et al., 1992; Breslin, 1995). Such factors may also increase the efficacy of inhalant medications such as bronchodilators as well as the efficiency of any O<sub>2</sub> therapy. The fact that such a multitude of factors directly impact upon participant performance underscores and supports the need for multidisciplinary involvement in rehabilitation programs. It is also important to

Table 3b. Mean Borg Scores

	Aerobic Exercise Borg Scores				Recovery Borg Scores			
	N	Minimum	Maximum	Mean	N	Minimum	Maximum	Mean
Session 1	56	.00	9.00	2.77	54	.00	4.00	1.02
Session 2	55	.00	7.00	2.41	56	.00	4.00	.91
Session 3	59	.00	8.00	2.63	59	.00	4.00	.97
Session 4	58	.00	6.50	2.65	58	.00	6.00	1.27
Session 5	57	.00	7.00	2.62	57	.00	5.00	1.42
Session 6	55	.00	6.50	2.52	56	.00	6.00	1.28
Session 7	58	.00	7.00	2.70	58	.00	6.00	1.37
Session 8	58	.00	7.66	2.69	59	.00	5.00	1.43
Session 9	57	.00	6.00	2.61	58	.00	4.00	1.19
Session 10	60	.00	6.50	2.54	60	.00	5.00	1.38
Session 11	58	.00	7.50	2.55	56	.00	6.50	1.40
Session 12	55	.00	7.00	2.44	54	.00	4.00	1.31
Session 13	59	.00	6.66	2.53	59	.00	6.00	1.31
Session 14	58	.00	7.00	2.59	57	.00	6.00	1.45
Session 15	51	.00	6.20	2.63	51	.00	4.00	1.27
Session 16	58	.42	6.00	2.57	57	.00	6.00	1.23
Session 17	55	.00	7.00	2.41	56	.00	6.50	1.38
Session 18	55	.00	6.50	2.62	54	.00	6.50	1.37
Session 19	56	.00	7.00	2.74	56	.00	6.00	1.56
Session 20	53	.00	6.25	2.56	52	.00	7.00	1.41
Session 21	54	.00	6.00	2.32	53	.00	6.00	1.23

note that participants increased their exercise tolerance at the six-week follow-up, which indicates that the efficacy of the program is generally sound in the home environment. At the six-week follow-up, participants increased their treadmill time performance by almost 11 minutes over their final scores. They also maintained increases in treadmill grade at the six-week follow-up when compared to initial measurements. Previous research has indicated that post-rehabilitation compliance

with exercise programs is mixed, with some studies noting favorable compliance and with others noting a decay in compliance (Ries et al., 1995; Fishman & Petty, 1971; Haas & Cardon, 1969; Moser et al., 1980; Toshima et al., 1990; Atkins et al., 1984). To combat possible decay, participants in this program were encouraged during several of the sessions to continue their exercise regimen at home. To further stress this point, participants were asked to consider that their

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**Table 4. Paired Samples T-Tests for Initial, Upper Extremity, Aerobic Exercise, and Recovery Borg Means**

<u>Comparison</u>	<u>Mean</u>	<u>T-Value</u>	<u>Degrees of Freedom</u>	<u>2 Tailed Significance</u>
Mean Initial Borg Session 1-11	1.06	-1.085	61	.282
Mean Initial Borg Sessions 12-21	1.15			
Mean U.E. Borg- Sessions 1-11	2.12	-1.109	61	.272
Mean U.E. Borg- Sessions 12-21	2.23			
Mean A.E. Borg- Sessions 1-11	2.60	.576	61	.566
Mean A.E. Borg- Sessions 12-21	2.55			
Mean Recovery Borg-Sessions 1-11	1.26	-1.657	61	.103
Mean Recovery Borg-Sessions 12-21	1.35			

rehabilitation doesn't begin until after they have completed the program. As indicated by the relatively low recidivism rates noted above, such an approach seems to be effective. Program participants are also offered the option of joining a "walkers club" sponsored by our facility. Club members walk within the hospital, allowing participants to continue their exercise regimen in a climate controlled, safe environment. It should be noted, however, that the re-evaluation period for this program, six weeks, is relatively short. To better assess the long term effectiveness of the program, participants are now being asked to return for both a six-month and one-year follow-up. One of the potential factors affecting compliance with follow-up sessions

has been the participant drop out rate. Indeed, in this study a full one-third of participants failed to return for the six-week follow-up. In addressing this issue, the program has begun emphasizing follow-up visits during the training sessions as a method of evaluating participant performance, reported symptoms, and disease progression. Recently, participants have also been issued exercise "prescriptions" formulated by the medical director. These "prescriptions" are individualized and based upon the participant's final, six-week, and eventually, six-month exercise performance. It is hoped that these "prescriptions" will assist participants in continuing their exercise performance over extended periods of time.

Participants' performance in this study also seems to have been affected very little by confounding variables such as gender and age. Only one variable, exercise bicycle final RPM, reached statistical significance when performance comparisons were based on gender. Males outperformed females for exercise bicycle RPM during the final session. However, when the differences between starting and final exercise bicycle RPM were taken into account, no significant differences existed between gender groups. Overall males and females seemed to show similar improvements in program performance.

Age also appears to have little impact on

program performance. It was anticipated that most of the measured variables would show an inverse correlation with participants' age. This was indeed the case, however only two of the main effect variables reached statistical significance. None of the difference score variables, which represent overall program performance, showed significant correlations with participants' age. Similar results were found during the ANOVA, and age also appeared to have impacted program performance very little.

The results of participants' reports of perceived dyspnea were surprising. It had been anticipated that participants would show

**Table 5. Mean Initial, Recovery, Upper Extremity, & Aerobic Exercise O<sub>2</sub> Saturations by Session**

Session #	Initial O <sub>2</sub> Sats	Recovery O <sub>2</sub> Sats	Upper Extremity O <sub>2</sub> Sats	Aerobic Exercise O <sub>2</sub> Sats
1	95.45	95.80	94.11	93.18
2	95.35	96.00	94.65	93.47
3	95.93	96.25	94.38	93.43
4	95.68	96.24	94.49	93.53
5	95.96	96.17	94.40	93.70
6	95.22	95.69	93.25	93.58
7	95.93	95.86	93.93	93.38
8	95.84	95.81	93.77	93.82
9	95.86	95.79	93.75	93.98
10	96.15	96.21	94.26	93.94
11	95.93	96.08	94.51	93.55
12	95.94	96.38	93.88	94.07
13	95.61	96.08	93.29	93.32
14	95.84	96.08	93.43	94.22
15	95.88	96.62	94.68	93.45
16	95.72	96.17	93.69	93.53
17	95.62	96.21	94.52	93.56
18	95.46	96.35	93.97	93.47
19	95.82	96.10	93.89	93.41
20	95.88	95.78	93.95	93.33
21	95.61	96.66	94.28	94.27

decreases in perceived dyspnea throughout the program as measured by Borg scores. Such decreases were not found and participants' Borg scores remained consistently low throughout the study. While the anticipated decrease in Borg scores was not seen in this research, it should be noted that participants maintained relatively low Borg scores while substantially increasing their exercise performance across a variety of measures. Such scores indicate that while exercise parameters increased, program participants did not experience a corresponding increase in dyspnea. Mean initial Borg scores for all sessions combined was mean = 1.09. During upper extremity exercises Borg scores rose to mean = 2.16 and aerobic exercise scores rose to mean = 2.57. Recovery Borg scores fell to an average of 1.28 for all sessions. Previous research (Ries et al., 1995; Swerts et al., 1992; O'Donnell et al., 1993) has found that similar pulmonary rehabilitation programs have resulted in significant decreases in perceived dyspnea. Indeed, in this research the results of the Borg scores appear to be quite low for all measures and are not congruent with the participants' reports of decreased dyspnea, increased exercise tolerance and increased mobility as recorded. Upon review of chart documentation participants frequently reported decreased dyspnea and increased ADL's. Clearly such subjective reports are not reflected by changes in Borg scores. Two factors are noted as possibly contributing to this incongruence. First, since sessions are usually conducted in groups of two participants or more, participants may have felt compelled to "compete" against each other. Such "competition" may have led to the under-reporting of Borg scores. Second, participants may have been affected by some form of experimenter effect in which they under-reported Borg scores in an effort to fulfill the perceived purpose of the program.

In an effort to control these possible

confounding factors, participants are now given specific instructions not to compete with one another in reporting Borg scores. Further, the method of instruction for teaching participants how to use Borg scores has been re-evaluated, with participants being regularly reminded that reports of Borg scores may vary considerably from session to session; in essence giving "permission" for participants to report high Borg scores if applicable.

This research has also underscored the need for pulmonary rehabilitation programs to provide a direct measure of the connection between perceived dyspnea and functional ADL's. At the beginning of each program participants in this study were asked to establish one or two goals for the program. Typically these goals involved social activities and recreational activities or ADL's. Naturally, the overall goal is to achieve a higher level of participation in these activities once rehabilitation was completed. Participants were encouraged to select goals that they are highly motivated to achieve and were assisted by program staff in ensuring that these goals were realistic (given the participants current medical status). Emphasis was placed on providing participants with a number of options during goal-setting. Participants were encouraged to consider alternate methods of performing a given task or to set a series of goals that provide graded approximations of their overall goal. To better assess changes in participants' functional mobility, this program has recently created an ADL checklist, which includes questions relating to social, recreational, and ADL functioning. The checklist includes items which have been noted to be of particular concern to the COPD patient and is based upon the subjective reports of this program's participants. It is hoped that once this instrument's reliability and validity have been established, this checklist may be used as a pre-program/post-program method of evaluat-

ing changes in participants' functional mobility. Measures in this instrument may then be used in correlation with measures of perceived dyspnea in evaluating program outcomes. It is also hoped that in establishing an instrument specific to the needs of the COPD patient, program participation and staff involvement may become more focused in providing individualized treatment plans and goals.

As noted previously, pulmonary rehabilitation is not generally associated with changes in pulmonary function, as the damage to the pulmonary system is irreversible. This study showed relatively few changes in either O<sub>2</sub> saturations or heart rate. As noted above, however, patients did show significant decreases in blood pressure at rest and during exercise.

Implications for further research within the field of pulmonary rehabilitation are many. One such area the current program has chosen as a focal point addresses the relationship between psychological factors and pulmonary rehabilitation. The relationship between dyspnea and anxiety in COPD patients is well-established, but a host of concurrent factors noted in elderly and chronically ill patients such as depression, dementia, somatic complaints, and personality traits also contribute to the patients' well being. In addressing these issues, the current program has recently begun administering a personality inventory before participants begin the program. The Personality Assessment Inventory (PAI) provides t-score scale analyses for measures of validity, clinical scales, treatment consideration scales, and interpersonal scales (Morey, 1991). The PAI is used in evaluating psychological and psychosocial factors that may affect participant performance. The use of this instrument with COPD patients is still preliminary and subject to continued evaluation, but initial

results have proven useful in evaluating variables affecting participant performance that would have not been identified without this instrument. It is hoped that continued use and validation of this instrument will assist the program in development of a COPD patient profile which, when used in combination with other variables such as gender, age, and initial performance times, will allow the program to predict participant performance. If such a prediction proves possible, the implications for improvement in patient outcomes could be substantial, allowing a more individualized treatment plan to be developed and expanding the parameters of pulmonary rehabilitation.

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# RURAL PHARMACEUTICAL CARE AND DISEASE MANAGEMENT SERVICES IN TEXAS

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## ABSTRACT

Health care indicators show that Texans living in rural parts of the state have less access to health care services than do their urban counterparts. A "fix" for the problem would be to increase the number of primary care physicians practicing in rural areas, but the facts show that this is not a likely scenario. However, there are more pharmacists in rural Texas than primary care physicians. With changes being made to the profession of pharmacy, the pharmacist is being trained to become part of the primary care team. With the acquisition of these new skills, the pharmacist should be reimbursed for providing these services because this type of intervention would save money for third party providers while reducing morbidity for the patient.

## INTRODUCTION

The words "rural Texas" might bring to mind visions of the Big Bend, Judge Roy Bean, or the Piney Woods. Not to take away from "Big D," Houston, or San Antonio, the Lone Star State has lots of wide-open spaces under its starry skies. Out of the 254 Texas counties, 196 are considered rural (nonmetropolitan) and 15.8% of all Texans (2.9 million people) live in these rural counties (Texas Statewide Health Coordinating Council, 1998a).

Living in the country is attractive to many Texans. The demography of rural Texas shows that many are retiring there for a higher quality of life and a less expensive quality of life (Smith, 1997). Twenty-eight percent of Texans age 65 and older live in rural areas (Texas Statewide Health Coordinating Council, 1998b). With the increase of retirees to the rural areas of the state, and other factors unique to a rural setting, it is appropriate to examine the status of health care in rural Texas.

According to the Center for Rural Health Initiatives (Center For Rural Health Initiatives, 1999), rural Texans have less access to health care because:

- a) The population/primary care physician ratio is 2,296:1, compared to 1,660:1 for urban counterparts;
- b) Only 11% of the 12,849 primary care physicians (1,440 M.D.'s, D.O.'s) practice in rural Texas;
- c) Twenty-five rural counties (17 having a population of 1,500 or more) have no primary care physicians;
- d) Seventy-four rural counties had two or fewer practicing primary care physicians;
- e) Rural physicians see an average of 143 patients per week compared to 100 per week for urban counterparts;
- f) Seventy-eight rural counties do not have a nurse practitioner licensed in the county;
- g) Sixty-nine rural counties do not have a physician assistant within the county;
- h) There were 474 acute care hospitals in Texas in 1998, 167 (30%) were in rural counties. Sixty percent of these rural hospitals had fewer than 50 beds;
- i) Sixty-two rural counties do not have hospitals;
- j) The population/RN ratio is 170:1, compared to 130:1 for urban counterparts;
- k) Nineteen rural counties have no active pharmacists and 11.9% of active pharmacists were licensed in a rural county.

Fifty-four percent of all counties in Texas (108 whole counties and 28 partial counties) are designated as areas that have a health professional shortage. The Health Professional Shortage Area (HPSA) program is administered by the Health Professional Resources Center in cooperation with the Health Care Financing Administration (HCFA) and is designed to identify counties that have a shortage of primary care physicians based on population to physician ratios. Ninety-one percent of the 108 whole county HPSAs are rural counties (Texas Statewide Health Coordinating Council, 1998b).

The statistics presented above show that there is a gap between medical services available in rural versus urban settings in Texas. The ideal situation for "fixing" the problem of access to health care in rural Texas would be to attract more practicing physicians. Physicians would employ more nurses, nurse practitioners, and physician assistants and keep hospital beds full as well as write more prescriptions. But recently proposed changes to laws and policies that supply physicians to rural areas make that prospect look bleak. A September 1, 1998 ruling proposed by the Department of Health and Human Services' Health Resources and Services Administration (HRSA) would reconfigure the formula for designation of HPSAs and Medically Under-served Areas. The impact of this change would alter the existing criteria by which federal dollars are allocated for incentive payments, grants, scholarships, and other programs to attract physicians to rural areas (Wright, 1998). This proposal could affect 69 rural Texas counties in varying ways that would include a loss of the 10% bonus payment for providing

services to Medicare beneficiaries, loss of eligibility to hire physicians from the National Health Service Corps, loss of funds to make medical education loan repayments, loss of the ability to sponsor local students studying to be physicians, and the loss of certification of up to 30% of Texas' Rural Health Clinics (Center for Rural Health Initiatives, 1999).

Also affecting the supply of physicians is a recent recommendation by the Council on Graduate Medical Education that, while acknowledging international medical graduates compensate for physician shortages, Medicare subsidies for physicians with exchange visitor visas be eliminated, leading to a reduction in international medical graduates (Baker, Ricketts, Konrad, & Mick, 1998).

Without an increase of physicians into rural areas, there will not be the corresponding increase of nonphysician primary care providers. Thus, the supply and corresponding access problem remains.

### BRIDGING THE GAP

There is one group of mid-level providers that could be marshaled to bridge this gap in rural access. This provider is the pharmacist. Primary care physicians number 12,849 in Texas, while pharmacists number 18,491 (Graubart, 1999). There are more rural counties without primary care physicians than there are rural counties without pharmacists. Thus, the pharmacist could be a key player in improving access to medical care in rural Texas.

Pharmacists are natural members of a primary care team because of the role prescription medicine plays in the treatment of diseases. Expenditures for prescription medications were \$78.6 billion in 1995 with 70.4% of the 2.3 billion prescriptions written

that year filled at ambulatory care facilities (Knapp, Katzman, Hambright, & Albrant, 1998). The costs associated with suboptimal medication use was estimated at \$76 billion annually (Bonfiglio, Lewis, Nesbit, & Krinsky, 1997). There is much documentation to show that pharmacists' intervention results in large cost savings (Norwood, Sleath, Caiola, Lien, 1998). Pharmacists are the obvious members of the health care team to bring optimization to societies' need for medication services.

There are many changes occurring within the profession of pharmacy that will make the pharmacist a more valuable member of the network of rural health care providers. Their current role as a provider of services is well respected by patients. Pharmacists are identified as the "most accessible" health care provider in rural settings (Gangeness, 1997). The moral standing surrounding the pharmaceutical profession is also well documented. For the ninth straight year, pharmacists have ranked highest out of nearly two dozen professions on honesty and ethical standards, ahead of "clergy" and "physicians" (Knowlton, 1998). The pharmaceutical profession should now take what Knowlton calls the "moral capital" that it has earned and expand its role from that of just dispensing drugs and advice to a full partnership with the primary care delivery team. Patients already accept pharmacists as members of their care team. It is now up to pharmacists to gain acceptance from the professional side of the primary care team.

### CHANGES IN EDUCATION

Several of the changes in the practice of pharmacy will prepare the profession to take on this new mantle of membership of the primary care team. Some of these changes are generic to the entire profession of pharmacy

and some are specific to the practice of pharmacy in Texas.

For many years, the five-year Bachelor of Science degree was the entry-level pharmacy degree. While most schools of pharmacy still offer the five-year degree, this will change. In 1992, the American Association of Colleges of Pharmacy voted to make the six-year Pharm.D. the sole entry-level degree for the profession. This will take effect in every school of pharmacy by the year 2005. Advanced degrees (Master and Ph.D.) will also be obtainable (Graubart, 1999). All pharmacists, starting in the year 2005, will have more advanced training, which will enable them to take on a more proactive role.

The four pharmacy schools in Texas (University of Texas at Austin, University of Houston, Texas Southern University, and Texas Tech University Health Sciences Center at Amarillo) have developed a new curriculum that will allow the Pharm.D. to be obtained by those pharmacists that wish to upgrade their Bachelor of Science degree. The TxPHARM program is a nontraditional program for practicing pharmacists. In the standard curriculum (eight semesters) or in the accelerated curriculum (six semesters), the pharmacist will receive advanced training through a statewide television delivery system and internet-based system (Wade, 1999). This will provide an avenue of additional training at remote locations so that pharmaceutical skills can be upgraded for those pharmacists wanting additional training. This program is important to expanding the pharmacist's role to full member of the primary care team because in addition to the basic statistics and pathophysiology knowledge base, the TxPHARM graduate will also get additional education in pharmacokinetic principles and

patient-specific pharmacy practice methodology. This methodology includes creating a patient-specific database, identifying and assessing drug therapy problems, creating a pharmacist's care plan, and implementing, monitoring, and adjusting drug therapy using a pharmacist's care plan (UT College of Pharmacy, 1999). These patient-specific methodologies, which are already part of Pharm.D. programs, will bring the skill level of the pharmacist on par with entry level nonphysician providers. This will be an important skill if the rural pharmacist is to assume some portion of the role of a primary care provider. The first admission cycle for the TxPHARM program will begin in October, 1999 for the academic year 2000 (Wade, 1999). The American Association of Colleges of Pharmacy anticipates that 33 colleges of pharmacy throughout the United States will offer a nontraditional Pharm.D. program by 1997-98 (Zgarrick & MacKinnon, 1998).

In 1976, an American Pharmaceutical Association task force created the Board of Pharmaceutical Specialties (BPS). The BPS recognizes five specialty areas in which a pharmacist can receive specialized training and be certified with credentials to practice in the areas of nuclear pharmacy, nutrition support pharmacy, oncology pharmacy, pharmacotherapy, or psychiatric pharmacy. The BPS-certified pharmacist functions as a member of a treatment team, using their skills and knowledge to ensure optimal, cost-effective drug treatment for the patient's unique needs (Bertin, 1999). While geared toward a hospital/patient setting, the rigorous, peer-reviewed testing process is another measure available to pharmacists to enhance their readiness to participate in their roles as primary care providers.

### ADVOCACY AND THE CURRENT LEGISLATION

Texas is one of a handful of states that has given prescribing authority to its pharmacists. Under rules that went into effect on April 7, 1997, pharmacists will be able to practice pharmacy using drug therapy management under protocol. Under the new rules (Texas Medical Practice Act, 1997; Texas Pharmacy Act, 1997), pharmacists will be able to order lab tests, make dosage adjustments, prescribe medications, and administer immunizations under the written protocol of a licensed physician. While having more applicability to hospital pharmacy, this legislation opens the door for all licensed pharmacists to practice prescriptive authority under protocol, including community-based pharmacists. A licensed pharmacist must have six hours of continuing education in this area each year (as part of the 12 hours already required by law) in order to maintain this privilege (Anderson, 1997). So the major hurdle of prescribing capability has been overcome by pharmacists to help the profession progress to membership within the primary care team.

Texas pharmacists also have a history of cooperation. The Texas Pharmacy Practice Coalition (TPPC) is an organization composed of participants from the three major pharmaceutical organizations in the state, the Texas Society of Health-System Pharmacists, the Texas Pharmaceutical Association, and the Texas Federation of Chain Drug Stores. When issues come before the Texas State Legislature that affect the profession of pharmacy, the TPPC examines each issue and if there is consensus on an issue, speaks as a more powerful collective voice for the advocacy of pharmacy (Ginsburg, 1999). Having consen-

sus on issues related to the profession of pharmacy is important. As demonstrated by the 1997 rules that gave pharmacists prescriptive authority under protocol, had consensus not been achieved, the physician lobby could have prevented approval of the rule. Political skills are just as important in building a place on a primary care team as clinical skills because in order to get authority to handle patient needs, laws have to be amended. Without the support of those entities that currently hold power (physicians, physician assistants, and nurse practitioners) new ground cannot be broken.

### THE ROLE OF TELEMEDICINE

Telemedicine will also influence the ability of the pharmacist to provide primary care services in a rural setting and be reimbursed for such services. Telemedicine is the provision of health care services in an interactive fashion to one or more patients by one or more providers at a location remote from the patient (Crump & Pfeil, 1995). Telemedicine's applications are divided into four levels.

Level one involves the transfer of records, facsimiles, on-line text references, and email over analog telephone lines. Level two is the transmission of X-rays and other images and use of telemetry and still video. Level three is interactive video and the use of satellites and microwave transmissions of an image. Level four is robotics where one location causes action at a remote location (Ziegler, 1995).

With level four still being experimental, pharmacists in Texas have the ability to participate in levels one through three. Texas provides for the Medicaid reimbursement to

health professionals for telemedicine consultations at the same rate as in-person consultations. Also health benefit plans provided within Texas are prohibited from excluding a service from coverage if the service was provided via telemedicine (Center for Rural Health Initiatives, 1999). While the Legislature is cooperative in the advancement of telemedicine, it will be years before all areas have access to the services available. The cost of running the necessary transmission equipment to many rural areas is cost prohibitive. Federal dollars for telemedicine are only currently available to not-for-profit entities. There are still some rural areas of Texas that do not provide the pulse tone telephone service that is necessary for the modem connection to the Internet. But as technology advances, and as more of the barriers are removed, the pharmacist will be one of the first providers in rural areas to have access to the technology. This will be because of their need to interact with the primary care team and to fill prescriptions as well as to get credit card purchases authorized, making their link in the primary care chain vital to the team.

The second advantage that telemedicine will bring to the pharmacist will be the sharing of patient-based information. In order to provide drug therapy management, it will be necessary to have access to patient information. Now, when a patient comes to the pharmacy, the patient has to repeat answers to redundant questions that were asked by the physician or nonphysician provider earlier in the medical encounter. This can be a nuisance for both the patient and the pharmacist, taking up valuable time for both parties and inhibiting the provider-patient relationship. When a telemedicine system is in place, specifically an electronic medical record, the transfer of health information will be immediate and in real time. All health care providers in different locations will have access to the medical information simultaneously. Safe-

guards must be in place to protect patient privacy and this can be accomplished through encryption and passwords. The benefit will be in providing the most accurate information without redundancies, enabling caregivers to provide an integrated service (Maine & Regan, 1998).

While pharmacists in Texas currently have the ability to provide drug management therapy services under protocol, the reimbursement of such services is limited. The only service in Texas in which a pharmacist can currently be reimbursed with regularity is immunizations. This is because the pharmacist is reimbursed under the physician's provider number. The law in Texas does not currently allow pharmacists to have a provider number. The provider number is necessary to receive reimbursement from third party payors like Medicaid and insurance companies. Because of other political issues, the different pharmacy lobbies in Texas are not going to press the Texas legislature for provider numbers this session (Ginsburg, 1999). But to enable the profession of pharmacy to fulfill its place in the provision of pharmaceutical care in rural Texas, it will be necessary for pharmacists to have provider numbers. Fortunately, this bold step has been accomplished in another state and can serve as a model for other states in the future.

### A COMPARATIVE ANALYSIS

Effective April 1, 1998, HCFA approved the state of Mississippi Medicaid Plan to allow pharmacists to be reimbursed for disease management services for four conditions—asthma, coagulation disorders, diabetes, and dyslipidemia, on a per encounter basis. This is the first state to get such approval (Slezak, 1998). Rather than amend Medicaid legislation to allow this to happen,



the state of Mississippi used the "Other Licensed Practitioner" law. This law provides federal financial participation for "medical care, or any other type of remedial care recognized under state law, furnished by licensed practitioners within the scope of their practice as defined by state law (Social Security Act, 1997a)." "Medical care or any other type of remedial care provided by licensed practitioners means any medical or remedial care or services, other than physicians' services, provided by licensed practitioners within the scope of practice defined under state law (Social Security Act, 1997b)."

Utilizing the "Other Licensed Practitioner" law should be the same approach that Texas should use in securing the ability to be reimbursed. The rationale for reimbursing pharmacy disease management services is to save money. The pharmacist functions in an educational capacity to help the patient comply with the drug therapy prescribed by the physician. By monitoring the progress of the therapy and making adjustments to the therapy, more costly hospitalizations and emergency room visits are reduced and access is improved (Mississippi Pharmacy, 1999). A thorough study of the Mississippi plan should be made by parties interested in copying their protocols in order to determine if the desired savings materialize. If there truly is a cost savings for Medicaid, it is anticipated that other third party payors will follow suit in paying for pharmacy disease management services.

## CONCLUSION

It has been shown that many elements of the practice of rural Texas pharmacy are ready to take on the role as a member of the primary care team. Pharmacists have the respect and confidence of patients. Rural pharmacists are the "most accessible" medical providers.

Primary care physicians and hospitals are at a premium in rural Texas. Nonphysician providers are also scarce in rural Texas. Texas has in place the facilities to advance the training of pharmacists to the next level of practice skills through the Pharm.D. program, the TxPHARM program, and four schools of pharmacy. Telemedicine technology is making its way into all areas of the state and laws have been put in place to provide reimbursement for telemedicine services. Other laws are breaking ground to allow pharmacists to provide services under protocol from a physician and to receive reimbursement from Medicaid. Coalitions between the various pharmacy groups in Texas have been forged and are working effectively with other health care provider groups. Yet one important link in the primary care provider chain is still weak. The perceived strength of this link will determine whether or not the profession of pharmacy has a place in the provision of primary care in Texas. That link is the pharmacist's own desire to take on this new role. To advance the practice of pharmacy means to change and change is sometimes uncomfortable. Many pharmacists, much to the dismay of the visionaries of the profession, see themselves as dispensers of medicine and nothing more (Berger & Grimley, 1997). To be ready to move to the next level, pharmacists will have to see themselves as pharmaceutical care providers rather than pharmaceutical dispensers (Posey, 1997). This metamorphosis can occur when the concept of "Pharmaceutical Care" is fully embraced.

Pharmaceutical care is a term first used in 1980, and is constantly in a state of refinement. Pharmaceutical care has been defined as the pharmacist's responsibility for the provision of drug therapy for the purposes of achieving definite outcomes that improve a patient's quality of life (Norwood et al., 1998). Clearly the pharmacist taking a place on the primary care provider team will be under the

banner of pharmaceutical care.

The concept of pharmaceutical care encompasses the responsibility and liability of assuming patient-centered care, reimbursement issues, information sharing issues, and the demonstration of the value of pharmacy. There are capital related costs associated with bringing a pharmacy facility up to standards so that the disease management services can be offered in a professional setting. Because the concept is new to providers and payors alike, there is as much as a 10 month lag from the provision of service to receipt of first payment, and an almost two year period before the conversion costs are paid out (Norwood et al., 1998). This has contributed to the reluctance of the profession to make the necessary changes.

The educational component required to provide pharmaceutical care is also a formidable barrier. The Mississippi plan requires 24 to 30 hours of certification courses for each disease state (Mississippi Pharmacy, 1999). The cost of the Pharm.D. through the TxPHARM program is estimated to be between \$14,000 to \$16,000 (UT College of Pharmacy, 1999). While the number of entry level pharmacists seeking the Pharm.D. is increasing, their numbers will not be adequate to provide all the services needed in rural Texas. It will be those pharmacists currently in practice that will set the tone for the future of the profession of pharmacy in Texas.

Much of rural Texas, while remote and having limited accessibility, is attracting many people that are looking for a higher quality of life. Because there are "costs" and sacrifices associated with living in a rural area, people moving to the country will be taking on risks similar to the early pioneers of Texas; trading familiarity for a quality that cannot be supplied by urban living. The profession of pharmacy in Texas is pioneering new areas in health care. Like all pioneers, they will experience successes and hardships. But had

those early pioneers not taken the risks of exploring new ground, Texas might not have come into existence. Like those early pioneers, today's pharmacists must take the risks to ensure that the quality of health care that we have come to expect is maintained and improved for all present and future generations of Texans.

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# MOVE YOUR COMMUNITY TO EDUCATE WOMEN ABOUT HEART DISEASE

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## ABSTRACT

Heart disease is the number one killer of women. The most recent statistics (1998) indicate that 40% of Texans die from cardiovascular disease (CVD) and stroke (Jackson, 1998). Women are moving ahead of men in number of deaths from heart disease and stroke. Many health care workers and women don't recognize the unique symptoms women have with heart disease. Heart disease tops the list of causes of death in women and is ahead of cancer, lung disease, diabetes, AIDS, and accidents. Records that indicate deaths in Texas found that a woman's chance of losing her life from cancer, after menopause, is 4%; her chance of dying from heart disease is 36% (Glatzer, 1999). How do we reach women to educate them about watching for heart disease symptoms and the promotion of wellness? Women need to take charge of their health; take more responsibility to learn about disease prevention; and get more information to promote wellness.

## INTRODUCTION

The Center for Disease Control estimates that more than 2600 Americans die daily of cardiovascular disease, an average of one death every 33 seconds. Approximately 53% of these are women and 33% are under the

age of 55 (American Heart Association, 1995). Statistics from the TDH indicate that the incidence of cardiovascular disease in women is higher in Wichita County and surrounding counties than in any other county in Texas. The statistics show 215 women per 100,000 died of cardiovascular disease in Wichita County in 1996, while the state average was 136.

There are facts about fighting CVD and stroke that every woman needs to know. In a recent publication from the Texas Nurses Association, Brenda Jackson stresses these facts as: (1) CVD and stroke is just as much a woman's disease as a man's; (2) About 4.9 million Americans live with some type of CVD, which is estimated to cost \$274 billion in medial expenses and loss of productivity; (3) Minority populations are particularly at risk for CVD and stroke; (4) CVD starts in children and young adults; and (5) There are modifiable risk factors that can influence a decrease in CVD (Jackson, 1998).

The American public has become increasingly aware of the risk factors of CVD and the benefits of behavior changes. In a five-year educational program in two rural southeastern Kentucky counties aimed at decreasing systolic and diastolic blood pressures of both men and women, a decrease was noted despite a five-year increase in age. In addition, persons with hypertension were observed. In this study done on lifestyle changes among rural men, women residing in the intervention and control counties experienced similar changes in blood pressure as in the men (Kotchen et al., 1986). Educating women about CVD will help decrease the numbers of CVD for both women and men and the younger generation.

## WOMEN AND HEART DISEASE IN WICHITA COUNTY

A pilot study was conducted, with responses from 233 women, to assess the knowledge women have about heart disease in and around Wichita County. The results indicate that the women are quite knowledgeable about heart disease, but are not aware of the warning signs of women's heart disease or what plays into the development of heart disease. What format of education will increase women's knowledge of the prevention of heart disease and recognition of the warning signs?

The American Heart Association (AHA), North Texas Region (Region 4), has had a number of educational programs for the community about CVD over the past years. For three years they have had a "Women and Heart Disease Luncheon." People are more likely to attend a function if food and door prizes are offered. Announced speakers can also effect attendance. Each year the number of people attending the "Women and Heart Disease Luncheon" grows, and in 1999 the Wichita Falls educational luncheon expects 450 women. It is planned that in 1999, through the AHA educational luncheons, well over 1000 women in and around Wichita County will be reached. The AHA will host other luncheons in surrounding counties. Some of these are smaller rural counties. Will this make a difference in the future number of women with CVD? It is hoped that it will.

So, how does a community take action to have a luncheon for women? Cheryl Johnson, AHA North Texas Regional Director, put the Wichita Falls committee of 14 together. It consisted of members from hospital and health clinic settings, universities, schools,

nursing organizations, and business groups. Every attempt was made to assure that the committee membership be cross-cultural and include a cross-section of the community. The committee was aware that women are more likely to attend an educational event if there is a purpose involved, lunch included, and door prizes. The education needs to include something that they can take home to review and not just hear in a speech.

### SEVEN STEPS IN PLANNING AN EDUCATIONAL PROGRAM FOR WOMEN

1. Be sponsored by an organization and supported by the health workers in the community. For Wichita Falls, the AHA sponsored the luncheon and the community hospital and clinics supported the luncheon with funds and personnel. Additional support came from a number of drug companies, individuals, and private enterprises through contributions of funds and door prizes. The University of Texas at Arlington School of Nursing provided attending nurses with continuing education credits. With this information a budget was developed.

2. Have a committee selection, a meeting place, and set the schedule. For Wichita Falls, the committee was selected and began meeting no less than once a month ten months before the luncheon. The chairperson prepared the agenda. A budget was agreed on at the first meeting and volunteer members and assignments were selected.

3. Select a date. This date needs to be carefully chosen and should be a date that does not conflict with other activities in and around the community. For Wichita Falls, it was apparent that after the end of the year,

when the holiday season had passed, women were more drawn to have an interest in life style changes for improved health status.

4. Determine the luncheon site. The luncheon needs to be held at a place that women favor and is in some way special or upscale. In Wichita Falls, it was the Wichita Falls Country Club.

5. Plan the program. Six months before the lunch, decisions about the format for the luncheon should be completed. For Wichita Falls, this meant decisions needed to be made regarding the keynote speaker; the other speakers; some health break sessions, each with a list of possible speakers; and a review of what the program was to accomplish.

6. Get the publicity out to all areas in the community as early as possible. The television stations, newspapers, magazines, churches, schools, and health care settings are just some of the places to put the information. Publish the plans and spread the word about the luncheon date and program at least four months ahead of the luncheon. For the Wichita Falls luncheon, it was decided to utilize all forms of advertisement. The local cable station, the newspaper, and the medical publications were especially cooperative in spreading the information about the luncheon.

7. Conduct the luncheon. Get groups to attend and sit at a table together. Prepare a report of the luncheon for the community. Include the educational information and the number of people attending. For Wichita Falls, the information included making sure all the contributors received recognition at the luncheon and on the programs. Video taping the information to use at the other AHA county luncheons was contributed. Plus, the people that attended the luncheon were asked

to fill out a survey. This was done so that a follow-up analysis regarding the outcome of the educational program could be developed at a later date.

*How are heart problems detected as early as possible in women?*

First, a complete physical assessment, including the following should be done (Glatzer, 1998):

1. A Blood Pressure Test – A person's blood pressure should be checked every three to six months, if the pressure is high.

2. A Lipid Profile – A blood test done on the recommendation of your physician. Depending on a person's age, this test might be done every year. It is recommended that a person's total cholesterol should be below 200, with LDL (bad cholesterol) below 130 and HDL (good cholesterol) of 45 or higher and triglycerides (blood fat) below 200.

3. An Electrocardiogram (ECG) – This test is done to check your heart rhythm. If warranted from the results of the above tests, your health care professional might suggest a Lipoprotein/Homocysteine test to get a cleaner picture. The level of Homocysteine, an amino acid, should be between six and ten and the lipoprotein should be less than 30.

Numerous literature resources, including the AHA, recommend that when women and men have any signs and symptoms of heart problems they should chew an aspirin while waiting for medical help to arrive. Heart disease is more complex in women. Also, women experience more non-coronary causes of chest pain. While limited literature exists on the specific treatments of women with heart disease, it has generally been believed

that women will respond to the same therapeutic interventions as men. However, the clinical outcomes may be quite different. It is important not to assume that in our practice and research what we learned about heart disease by observing men can also be applied to women (Halm, 1997).

*What are the risk factors of heart disease that can be changed?*

A risk factor is an activity or trait that increases a person's chance of developing a specific disease. According to the AHA, the CVD risk factors that can not be controlled are family history, race, and age. However, the CVD risk factors that can be controlled are weight problems, lack of exercise, elevated cholesterol, elevated blood pressure, diabetes, smoking, stress, and alcohol use. Gender-specific CVD risk factors include employment-role conflict, oral contraceptives, and menopause (Halm, 1997). Research is uncovering another risk factor, especially for women. Numerous literature sources identified that feeling unhappy puts you at risk for a heart attack. Harlan M. Krumboltz, M.D. believes that women's hearts, "May suffer more because isolation makes women more prone to the hormonal effects of stress and they are less likely to care for themselves when they feel no one else cares for them." A regular practice of utilizing stress reduction techniques and taking care of yourself could prevent your heart attack (Meade, 1999). Yes, bad feelings can break your heart. Anger is a feeling within that category and is a risk factor that one can change. A way to a healthier heart is through your mind.

*What are the warning signs of a heart attack?*

There are some differences between men and women's symptoms and/or warning signs. The AHA states that the "classic warning signs of a heart attack" are more commonly a "crushing chest pain" as reported by men and the signs and symptoms of fatigue, nausea, dizziness, and indigestion by both women and men. More than one in five women have some form of CVD. No previous evidence of disease was found in 63% of the women who died suddenly of CVD.

*The "classic" or most common warning signs of a heart attack:*

- Uncomfortable pressure, fullness, squeezing or pain in the center of the chest that lasts more than a few minutes or goes away and comes back;
- Pain that spreads to the shoulders, neck, or arms;
- Chest discomfort with light-headedness, fainting, sweating, nausea, or shortness of breath; and
- Some patients express a feeling of impending doom (American Heart Association, 1997).

*As a woman, you may have other less common warning signs of a heart attack:*

- Atypical chest pain, stomach, or abdominal pain;
- Nausea or dizziness;
- Shortness of breath and difficulty breathing;
- Unexplained anxiety, weakness, or fatigue; and

- Palpitations, cold sweats, or paleness (American Heart Association, 1997).

Marianne J. Legato, M.D. reminds women that some cases of heart attacks are silent attacks, but real attacks. They can be every bit as damaging as heart attacks that scream to be noticed. We may not know when they are happening, but we can do a lot to prevent them (Legato & Colman, 1991). Dr. Legato's book contains many other tips about women and CVD and how to take care of yourself.

SUMMARY

Women need to take charge of their health. Women need to act immediately on any symptoms of a heart problem and follow through with getting the necessary treatment. Women need to take action in their community, with families, in health settings, and in the workplace to spread the information about women and heart disease. Stroke also needs the same attention as heart disease. Community action can help women make changes.

The United States Department of Health and Human Services in the publication, "Healthy People 2000" stresses that national health promotion and disease prevention is a community responsibility (Healthy People 2000, 1990). This challenge is for me and my community and you and your community. The Stanford Center for Research in Disease Prevention study showed that community-based CVD prevention trials can have sustained effects. The study further stated that newer community-based intervention models may need a combination of approaches in which interventions are offered on a more sustained level. These endeavors to incorporate collaborative efforts in the area of public health and public policy and



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strategies are accelerated for changes in those at the highest risk of CVD (Winkleby & Jandis, 1996). The AHA (Region 4) community continues to provide all types of CVD education, including educational luncheons for women in all the counties served. Heart disease will affect one in three women. With the education of women (and men), the percentage of deaths due to heart disease and stroke in women can decrease.

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# ESTIMATING THE FEASIBILITY OF ADULT DAY SERVICES CENTERS: MADILL, OKLAHOMA CASE STUDY

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## ABSTRACT

Rural communities like urban communities are trying to implement and deliver health services to the growing number of elderly. The popularity of Adult Day Service (ADS) centers as a choice for community members continues to increase. Challenges associated with operating an ADS center have been well documented. Research focusing on inherent differences with rural centers has been limited. The purpose of this article is to provide results of a research project (Eilrich, St. Clair, Doeksen, & Travis, 1997) that devised a procedure to assess the feasibility of ADS centers in rural communities. Specifically, the procedure (a) estimates daily participation; (b) estimates capital and operating costs; and (c) projects revenue and the expected profit or loss. This article will focus on a case study of Madill, Oklahoma.

## INTRODUCTION

Questions concerning the expanding population of the elderly and how to meet their long-term health care needs continue to arise throughout the academic community, health care provider industry, and with local community leaders. As this demographic shifts and the changes in the health care delivery system persist, there is a growing interest by communities to contribute to the needs of their members. Adult day services

(formerly adult day care) is increasingly being viewed as a promising long-term care option with community leaders and families alike. Over 3,000 programs exist in the United States across all 50 states, with a projected need for 10,000 total centers by the year 2000 (Reifler, 1995).

The negative impacts on informal caregivers such as increased unpaid leave, forced unemployment, and periodic elevated stress levels have been identified and documented for some time (Stone & Short, 1990; Scharlach & Boyd, 1989; and Johnson & Catalano, 1983). Community-based programs can serve as invaluable mechanisms toward reducing those impacts and bridging the gap between inaccessible and/or often unacceptable contemporary services and the need for more affordable alternatives. This is particularly true in rural areas where the rural elderly have been found to have access to a smaller number and narrower range of formal health and human services (Coward, Bull, Kukulka, & Galliher, 1994; Krout, 1994). Furthermore, many rural elderly are resistant to and/or cannot afford traditional formal long-term care assistance. Finally, the significant travel distances make it difficult to utilize existing health and social services alternatives.

Most of the state of Oklahoma can be considered rural with 66 out of 77 counties defined as nonmetropolitan counties. In many areas the population is sparse and great distances must be traveled to access services. The residents choose to live in these areas for quality of life preferences such as family roots, the pace, and the surroundings. People who are fond of small town life describe small towns as ideal communities, easygoing places where family, religion, neighborliness, and friendship still thrive (Hummon, 1990).

The isolation has made these pioneer-spirited people self-sufficient and proud of their independence. However, it also brings

many challenges. Rural communities in Oklahoma are trying to meet the growing needs of the elderly. Several communities have established or are considering the establishment of an ADS center. In 1998, there were 19 centers and one satellite center in Oklahoma. Although there is a conceivable need in the rural areas, only five of the 20 locations are in nonmetropolitan statistical areas. Numerous other centers have been started, but due to the many barriers presented in the following discussion, they have been forced to close their doors.

#### PREVIOUS RESEARCH

The increasing popularity of adult day services (ADS) has prompted significant literature. There has been an abundance of literature focusing on structural models and program issues with less attention relative to average costs and budgeting. In 1986, national survey data were used to comprehensively examine funding, operating expenses, and the possible effects of capacity utilization for ADS centers (Weissert et al., 1990; Zelman, Elston, & Weissert, 1991). Financial data were collected from 60 centers located in metropolitan areas with populations greater than 80,000.

More recently, the notable failure rate associated with ADS centers has heightened interest in evaluating financial performance and improving financial viability (Reifler et al., 1997; Yee & Capitman, 1995; and Reifler, Henry, Miller, & Borg, 1993). These research efforts resulted from the Robert J. Wood Foundation project, Dementia Care and Respite Services Program (DCRSP), which was introduced to determine if ADS could be provided in a financially viable manner. The foundation initially selected 18 ADS programs to receive grant support in 1988. Similar to other available research, little information was

obtainable regarding rural sites. Only two of the DCRSP sites were considered rural.

### *Rural Challenges*

The challenges associated with operating an ADS center are numerous, especially in rural areas. Inherent differences between urban and rural areas often make it difficult to compare services or utilize interpretation of results. The prevailing wisdom is that rural health and human service networks require different service modalities as well as different preparation and behavior, and that the barriers to rural service delivery are unique in both nature and scope compared to those encountered in more urban and suburban settings (Krout, 1994). The vast differences are detailed in a published compendium of existing research on aging in rural America (Coward & Krout, 1998). The authors note that most rural services are based on programs and policies designed for urban places, and that "scaled down" urban programs have not been shown to be effective. This suggests that a better understanding of these differences is necessary and that they must be considered when planning a new program.

The following discussion presents the conclusions of research highlighting differences critical to ADS operations. The results of the DCRSP studies concluded that higher fees were not related to lower utilization rates and that reducing the level of nonoperating revenue (i.e., grants, donations, contracts) was essential to reaching financial viability. The demographic differences make both of these conclusions much harder to realize in rural areas. Lower personal incomes and a higher incidence of poverty limit the amount that rural centers can charge and make it much more difficult to expect a high-level of private pay participation. The United States Census Bureau reported that after age 65, when most people are no longer employed, the 1993

median income of nonmetropolitan elders from all sources was considerably lower (\$9,229) than that of metropolitan elders (\$10,351). Lower lifetime earnings, lower Social Security benefits, less pension coverage, and failure to enroll in Supplemental Security Income (SSI) were identified as reasons for the income disadvantage (McLaughlin & Jensen, 1993).

Efficient utilization of capacity was shown to dramatically impact daily participation costs (Zelman, Elston, & Weissert, 1991). Utilization levels are influenced by two basic factors: demand for the center and actual attendance rates. Regional differences discovered from a survey of 1,300 centers in the United States demonstrated that factors such as geography, climate, and demographics influenced operation and utilization rates (Conrad, Hanrahan, & Hughes, 1990). They concluded that the lower proportion of rural centers in the south and west regions illustrated the difficulties involved with rural demographics. While many small communities have a very high proportion of elders, the actual number of elders may be too small to support any health or social services targeted directly toward that age group (Glenn, Hicks, Daugird, & Lawhorne, 1988). The required service area for an ADS center may be the entire county in order to insure adequate daily participation levels. However, required travel distances will be significantly increased.

Previous research concerning the financial aspects of ADS has focused on metropolitan areas. The brief literature summary presented demonstrates that the inherent differences can and do significantly impact service delivery in the rural areas. For example, it is not always possible to reduce the level of nonoperating revenues. These differences do not mean that the rural elderly and their informal caregivers must be denied the benefits of ADS, but instead rural programs will vary from their urban counterparts. Oklahoma operators of ADS centers reported

that the majority of their participants were receiving some level of assistance. Assistance is based on a per day rate. Therefore, it is sometimes difficult to set fees to reflect actual costs. Periodically, participants were not able to contribute their co-payment. To manage daily attendance and to provide the service to those that need it, operators rarely turned participants away for lack of ability to pay. These factors make it imperative that potential operators have some knowledge of the nonoperating revenue requirements associated with their center. This knowledge is unavailable without estimates of daily participation, capital and operating costs, and revenues.

#### CASE STUDY FOR MADILL, OKLAHOMA

Community leaders in Madill, Oklahoma identified a need for an ADS facility. Madill, located in south central Oklahoma, is the county seat community in Marshall County. The population estimates for the primary service area in 1995 totaled 1,360 elderly and 36 residents, age 16 to 64, had a self-care limitation.

The cost data used for this analysis are the estimated average costs based on the comprehensive case studies of six Oklahoma ADS centers for the fiscal year 1995 as well as detailed information acquired from additional center operators. The Oklahoma rural centers and many of the metropolitan centers were social services oriented centers as compared to the Weissert's Auspice Model II grouping (Weissert et al., 1989). The proportion of clients with mental disorders as well as the level of dependency varied. Some centers had mini Alzheimer units. Regardless, the primary objectives of all surveyed centers followed Weissert's findings. Their mission was to provide social and supportive services

while offering a variety of health care services as required. Caregiver respite was also a goal as was assistance with transitional periods (i.e., between hospital or nursing home and home). Staffing was minimized with heavy emphasis on volunteer assistance in many cases. For analysis purposes, it was assumed that the Madill center would follow the same guidelines.

#### Estimated Daily Participation

Two major questions must be answered before proceeding with the planning stages of an ADS center. How many potential participants will a given service area generate? How many of those needing the service will be willing to attend the center? This number can deviate depending on the mix of participants accepted and the type of programs offered. Some participants will use the service for a short rehabilitation period following surgery, while others will have a more long-term association. The client base and mix will depend on the desires of the center. Typically, ADS is associated with servicing the impaired elderly. However, rural service areas often do not have a sufficient number of older adults to maintain adequate daily census. A diversified client base will increase the number of participants within a convenient travel distance of the center. Some Oklahoma centers have included younger adults diagnosed as developmentally disabled. Operators expressed their choice as a successful endeavor to manage daily participation levels.

National data indicate that approximately 15% of the older adult population are sufficiently impaired and could benefit from ADS, but for various reasons only 1.25% of the elderly are expected to actually participate (Halpert and Isbell, 1985). [The data, although somewhat dated, achieves plausible estimates.] If a diversified client base is being

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considered, potential participants age 16 to 64 are estimated using United States census county level mobility and self-care limitation data. Halpert and Isbell data suggest that 8.3% [1.25/15] of those who could benefit would actually use the services.

Scheduling daily staffing and activities requires an estimate of full-time equivalent (FTE) participants. The average participant visits to ADS centers in the south region were 3.7 times per week (Conrad, Hanrahan, and Hughes, 1990). Daily FTE demand can be estimated given the number of total participants, attendance times per week, and weeks per year. Typically, centers operate five days a week (except holidays) for an average of 254 days per year.

The application of usage coefficients to population estimates the number of people that would most likely use the center in Madill as 17 elderly [1,360 x .0125] and 3 under 65 [36 x .083], or 20 participants. Therefore, daily FTE attendance expected from the Marshall County service area would be 15 participants [(20 x 3.7 x 52)/254]. The usage coefficients give a conservative estimate, thereby, minimizing the opportunity to start with tremendous excess capacity. As people become more confident with the center's services and quality of care, daily attendance can be expected to increase.

Projected Capital and Operating Costs

The total costs of starting and operating an ADS center are composed of capital costs and annual costs. The capital costs include acquisition and preparation of a suitable site as well as the purchase of equipment necessary to operate the center. Total annual costs are operating and annual capital costs combined. Operating costs are those costs incurred in the every day process of providing ADS. The annual capital costs include the depreciation expenses required to

accumulate replacement funds for new equipment purchases.

*Capital Costs.* The major components of capital costs for an ADS center includes land, building and parking lot (if purchased), and equipment. Equipment purchases will be required to furnish the director's office, reception area, activity rooms, office space for additional staff, food preparation area, medical room, and exercise/therapy room.

The capital expenditures for a basic ADS center in Madill include equipment and furnishings. Estimated equipment costs for each room is shown in Table 1. The total estimated capital costs for equipment are \$23,530. It was assumed that the facilities were rented; therefore, no capital costs associated with these items were included. It was also assumed that the average life of all capital items was ten years. Based on a straight-line depreciation schedule, one-tenth of the overall capital expenditures totals \$2,353.

**Table 1. Estimating Capital Expenditures for the Proposed Madill ADS Center**

<u>Category</u>	<u>Estimated Costs</u>
Director's Office	\$3,230
Reception Area	3,850
Activity Room	7,470
Additional Staff Office	2,040
Food Preparation Area	3,675
Medical Room	925
Exercise/Therapy Room	2,340
<b>Total Equipment and Furnishing Costs</b>	<b>\$23,530</b>

Source: Eilrich et al., 1997.

**Table 2. Estimating Annual Operation Costs**

<u>Category</u>	<u>Estimated Costs</u>	<u>Projected Annual Costs</u>
A. Annual Operating Costs		\$2,353
B. Annual Operating Costs		
a) Personnel		91,270
b) Building Costs	\$3.50/square foot	10,500
c) Utilities	2.80/square foot	8,400
d) Phone	75.00/month	900
e) Staff Development	125.00/FTE Employee	638
f) Meals/Snacks	900.00/FTE Participant	13,500
g) Supplies	250.00/FTE Participant	3,750
h) Insurance	1,500.00/year	1,500
i) Accounting/Legal	1,500.00/year	1,500
j) Miscellaneous	1,000.00/year	<u>1,000</u>
C. Total Annual Operating Costs		<u>132,958</u>
D. Total Annual Capital and Operating Costs		<u>\$135,311</u>
E. Costs per Participant per Year		<u>\$9,021</u>
F. Costs per Participant per Day		<u>\$35.52</u>

Source: Eilrich et al., 1997

*Annual Operating Costs.* Operating costs are daily out-of-pocket expenditures associated with the staffing, meals, program activities, and the facility. Personnel costs (salary plus benefits) contribute the greatest amount to the operating budget. The size of the staff will vary depending on the size of the center, the program model, and the functioning level of participants. Oklahoma licensing regulations for ADS centers specify minimum requirements for staffing. As a minimum, each center must have a director, licensed activity director, social services director, dietary supervisor, and certified medical staff. Each center shall employ or have access to additional staff such as a secretary/receptionist, a

licensed practical nurse, and maintenance personnel. Staff can serve in more than one position as long as qualifications are met and time is documented for each position. Specialty services may be needed in the form of physical therapy, mental health counseling, and speech pathology, for example. These services may be obtained on a volunteer basis or on a flat fee basis. Staff development costs should be included to cover educational programs, travel, and professional dues and licenses for the staff of the center.

Total estimated operating expenses are shown in Table 2. Estimated personnel costs included salary and benefits (estimated at 30% of salary) for the basic positions.

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Additional staff such as therapists and consultants, for example, could increase the total operating budget. Estimated personnel costs are \$91,270. The total annual operating expenses including additional operating expenses for rent, utilities, and phone, for example, were \$132,958. Combined annual capital and operating expenses total \$135,311. Annual costs per average number of participants (15) are \$9,021, or \$35.52 per day per participant without transportation costs. Providing transportation can significantly increase the center's operating cost and can be cost prohibitive for smaller centers. One alternative is a partnership or contractual agreement with existing community carriers.

Revenue

The primary revenue source is participant fees. Revenue is collected from either reimbursement or client payments. The economic eligibility or ability to pay for the services will vary significantly among participants. Participants that pay for the services without assistance are called private pays. Some centers will opt to charge a higher fee to private pays. If a participant's financial welfare is low enough; they can receive full reimbursement from the Department of Human Services Title XX program. Those participants that qualify for assistance but do not qualify for full reimbursement will have a co-payment based on their income.

**Table 3. Estimating Annual Revenues and Equating Revenue to Annual Operating Costs**

Total FTE Participants			15
Source of Pay*			
A. Participants Qualified for Full Reimbursement (20%)			3
B. Participants Qualified for Partial Reimbursement (70%)			10
C. Private Pay (10%)			2
Annual Revenue			
E. Full Reimbursement	\$26,670		
F. Partial Reimbursement	<u>84,340</u>		
G. Total Reimbursement		111,010	
H. Private Fees		17,780	
I. Partial Co-Payment Fees		<u>4,560</u>	
J. Total Annual Revenue			133,350
Profit/Supplemental Revenue Required			
K. Total Facility Annual Capital and Operating Costs		135,311	
L. Total Uncollected Co-Payments (30%)		<u>1,368</u>	
M. Total Costs			<u>136,679</u>
N. Profit or Supplemental Revenue Required			<u>(\$3,329)</u>

\*Based on estimate or percentage of total participants.  
Source: Eilrich et al., 1997



Medicare does not reimburse for basic adult day services and currently reimbursements from Medicaid are not available in Oklahoma. Two other typical reimbursement programs in Oklahoma are veterans' entitlements and mental clinic referrals.

It was estimated that 90% qualified for some level of assistance. Twenty percent qualified for full reimbursement, while the other 70% would be responsible for a co-payment. The remaining 10% were private pays. The Title XX reimbursement has been increased to \$35 per day since the original analysis was completed. Assuming that all participants are charged the reimbursement rate and co-payment averages \$38 per month, the total annual revenue for the Madill center is \$133,350 (see Table 3). It is not uncommon for ADS operators to continue accepting those participants that lack the ability to contribute their co-payment. Therefore, some level of uncollected fees should be included. With an estimated 30% co-payment balance that is uncollected, the Madill center has an operating deficit of \$3,329. An integral part of developing an ADS center is the consideration of the sources of revenue and other resources available to the community with which to finance the program. Operators of this center would have to acquire supplemental financial assistance or increase participant fees to cover total annual costs.

## DISCUSSION

Estimated budgets for an ADS center in Madill revealed that even with the recent adjusted reimbursement rate, conservative personnel costs and no transportation costs, it would not break even with participant revenues. ADS centers currently operating in Oklahoma expressed their reliance on nonoperating revenues. Despite the uncertainty of future federal and state money, operators

choose to make their services available to all regardless of their ability to pay. They also noted that setting fees higher than the reimbursement rate would significantly inhibit participation. The successful continuation of services necessitates creative and exhaustive efforts to obtain supplemental financial support. The barriers that accompany rural areas (sparse populations and a higher poverty rate) often dictate this practice to maintain optimal daily attendance. However, they all agree that it is also important to accommodate the needs of fellow friends and neighbors and that without their services many will be faced with much less desirable alternatives.

It must be emphasized that this was a preliminary analysis based on assumptions of the service area, services provided, and client base and mix. National utilization coefficients may overestimate the demand in some rural areas due to family preferences for providing the service themselves or cost barriers. Likewise, specialization and/or diversification decisions could increase or decrease utilization rates. This analysis was based on current regulations and the best available cost and revenue data.

In summary, the procedure developed by this research allows for community leaders to estimate participation, capital costs, annual capital and operating costs, and annual revenue for an ADS center. The information can assist ADS operators, policy makers, and community decision-makers in their decision to establish an ADS center. It also informs the interested parties in advance of the required supplemental financial assistance, available volunteer labor, and transportation alternatives.

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# HEALTH PLANNING EXPERIENCES IN OKLAHOMA COMMUNITIES

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## ABSTRACT

The objective of the community health planning process is to involve a cross-section of local citizens and leaders in health care decisions. Traditionally, health care decisions in local communities have been left up to the local providers, the hospital trustees, the physicians, or the community health agencies or organizations that serve them. For effective local community health planning, local citizens and their leaders must take action to ensure that their communities provide health care that is "tailor-made" to local needs. The process of community health planning enables communities to do this to plan for their future health care needs locally.

## INTRODUCTION

"A Guidebook for Community Health Planning" (St. Clair, Doeksen, Biard-Holmes, & Schott, 1995) is available as a resource and reference manual only. It is meant to be utilized only as a guide through the community health planning process. Anyone utilizing the process of community health planning should modify the process and individualize the process to fit their circumstances and individual needs. Local leaders involved in the community health planning process will review their own community data, determine their own problems and priorities, design their own community health plan to

meet their own needs, and determine their implementation steps and timetables.

The community health planning process described in the guidebook is a tool that can be applied to any local community. It must be emphasized that this is not a new health planning guidebook. The Oklahoma process utilized materials from the many excellent health planning guidebooks and did not reinvent the wheel. Rather, the resource team borrowed from those documents and developed a guidebook that worked for them. References utilized in developing this guidebook are included.

The community health planning technical assistance effort in Oklahoma is a project of the Oklahoma Rural Research Demonstration Center (ORRDC). ORRDC is provided through a cooperative agreement between the Oklahoma Cooperative Extension Service, University of Oklahoma Health Sciences Center, the Oklahoma State Department of Health, the Oklahoma State University College of Osteopathic Medicine in Oklahoma, and the United States Agency for Health Care Policy and Research. The Oklahoma Office of Rural Health, Oklahoma Office of Primary Care, and the Oklahoma Area Health Education Agencies (AHEC's) also participated.

The guidebook was developed from a grant received from the Southern Rural Development Council and was a cooperative effort of the Rural Health Projects, Inc., the University of Oklahoma Health Sciences Center, the Oklahoma Cooperative Extension Service, the Oklahoma Office of Rural Health, and the Oklahoma State Department of Health. The guidebook is designed as a working document that could be used by the Oklahoma resource team or local communities to guide them through the community health planning process. ORRDC is available to provide technical assistance to communities who wish to use the guidebook in a struc-

tured planning effort. The strategies described in the guidebook could be tailored to meet the community needs of rural areas throughout the United States. Rural communities in Texas, for example, could utilize the guidebook's suggestions and then implement them with regard to the specific medical needs of rural Texas.

### AN OVERVIEW OF THE COMMUNITY HEALTH PLANNING PROCESS

The community health planning process is a strategic planning process and assists local communities:

- in identifying their health care needs;
- in examining the social, economic, and political realities affecting the local delivery of health care;
- in determining what they want and realistically can achieve in a health care system to meet their needs; and
- in developing and mobilizing an action plan based on their analysis and planning.

The community health planning process involves cooperation among people, organizations, and institutions to pursue common goals (Hooten, Raftery, McCord, & Stalker, 1992). The process is designed to answer three questions:

- 1) Where is the community now?
- 2) Where does the community want to be?
- 3) How will the community get there?

The process should be started when community citizens have a shared need or vision for health care, when community leaders can be mobilized to take action, when a local citizen is willing to become the

community facilitator, and when a resource team or facilitating group can be identified to assist the community through the process.

The community health planning process must be “community-driven.” The community, as represented by the community leaders, must “own” or “drive” the process; it should be community-based, not hospital-based or health care provider-based. Local community residents and the community leaders must come forth; a current knowledge of the health care industry is not necessary; this process is about local people solving local problems. The local community hospital and community health care providers should be involved and have input into the process and should support and “trust” the process. But ultimately, the community must provide the energy and commitment (Amundson, Hagopian, Robertson, 1991).

The definition of community is important to this process. A community is a place where individual citizens’ basic health needs are met. In this respect, a person may live in one place, but link with another place to meet health care needs. This linkage makes up the greater community. The Community Health Steering Committee will have to define their health care “community.” A community could be a single town and its surrounding agricultural area or it may be a cluster of towns that collaborate to solve their health problems and needs. In other cases, the health community may be the entire county area. When defining a health care “community,” the community leaders should consider the following:

- Do the leaders have a shared vision and/or need?
- Are there current health linkages that can be strengthened such as hospitals that share common administration or service delivery?
- Is there evidence of past cooperation among towns?

- Is there a shared problem or common set of needs now or anticipated in the next few years?
- Will the process increase the capacity of the citizens to meet or provide health care needs?
- Can a collaborative process be sustained?
- Will the benefits of shared planning be greater than the risks?

The defined “community” is determined by current and anticipated health care linkages and the citizens’ willingness to implement a health care plan (Center for Rural Health and Primary Care, 1994).

The community leaders must be willing to assess the citizens’ perceptions of available health care services and, when appropriate, those health care services and needs that are not currently being met. Community leaders must analyze and identify key issues facing the community and realistically evaluate what is feasible. The resource team can provide technical assistance in the identification and evaluation of the key issues.

A local community facilitator is necessary to provide an interface between the resource team and the local Community Health Steering Committee. This connection is vital for arranging meetings, mailing notices, contacting people, writing and distributing publicity, providing continuity, and nurturing local leadership and participation.

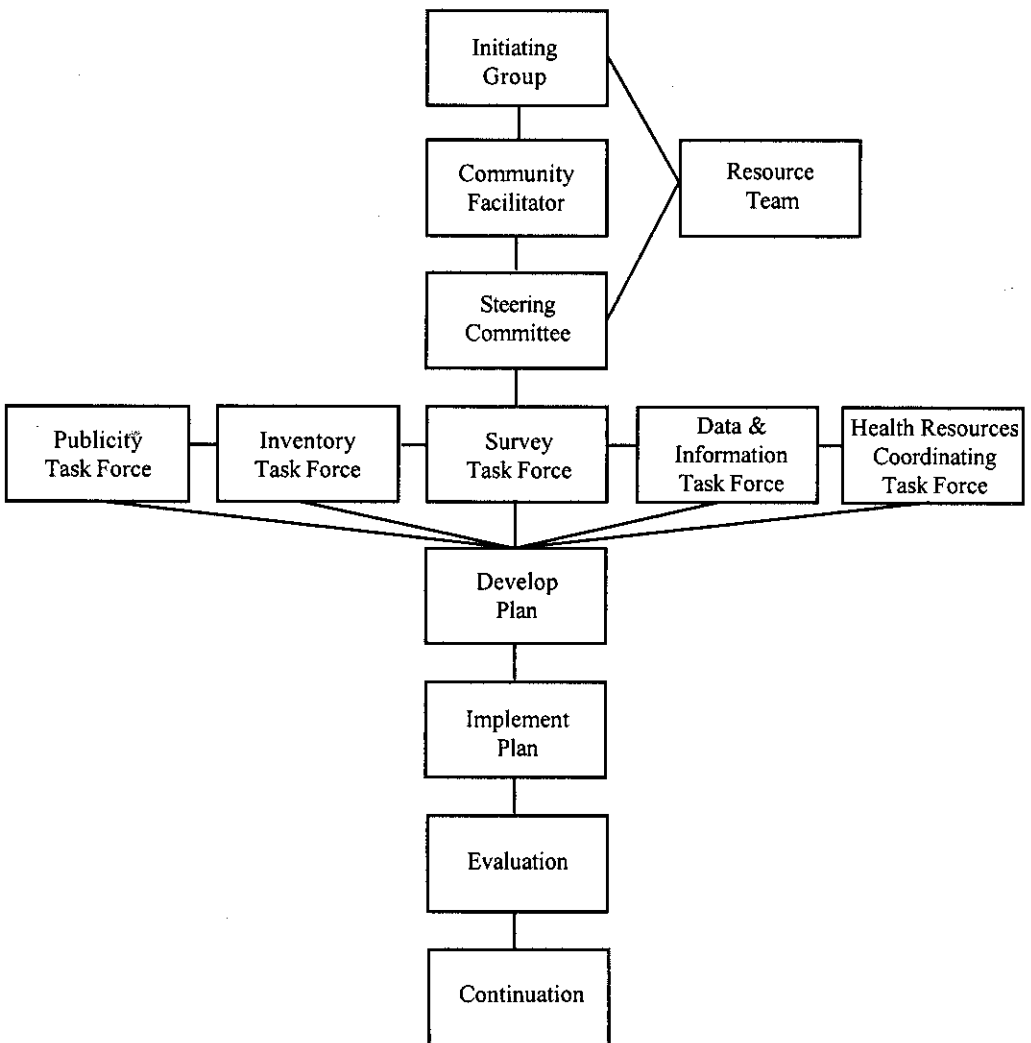
The use of the guidebook can help to guide a community through the health planning process. The guidebook describes a set of activities that involve the community and the resource team. The resource team consisted of representatives from the Oklahoma State Department of Health, the Oklahoma Office of Rural Health, the Area Health Education Center (AHEC), the Oklahoma Cooperative Extension Service, the Oklahoma Office of Primary Care, and the University of Oklahoma Health Sciences

Center. The goal of the resource team is to create an interagency resource team available to assist Oklahoma rural communities with community health planning and to create a process for rural communities to use to enhance local health care systems. The resource team offers technical assistance to the local community with the development, presentation, and analysis of data and

information. It also offers assistance with regard to surveys and health services as well as with analytical skills, facilitation skills, and strategic planning skills.

The community health planning process is outlined in Figure 1 and begins with a group of citizens of a community becoming interested in reviewing and analyzing the health care system of the community. This group of

**Figure 1. Overview of the Community Health Planning Process**



citizens is the initiating group (Figure 1). Often, this may result from a change in the current health care delivery system such as the loss of a physician or a hospital or a change in the type of services or facilities offered. A community that is not currently experiencing changes or problems in their health care system can also benefit from community health planning by enhancing or improving the current system or by being prepared for future changes and developments in health care. The initiating group of citizens will form the Community Health Steering Committee to work through the process of community health planning.

An individual or an organization will need to take the lead role and become the community facilitator to maintain communications. The Community Health Steering Committee, through the community facilitator, will work closely with an outside resource team. The utilization of an outside resource team is necessary as the resource team is trained in the community health planning process and has health sector expertise. The resource team also has contact with other agencies who may be able to provide special technical assistance and other resources.

Communities must fully understand the impact of the health sector on their local economy (Doeksen, Johnson, & Willoughby, 1997). In addition, they must understand their health care needs as well as other factors that influence how health care services are provided in order to make wise decisions in the planning process. To develop a community health plan, the Community Health Steering Committee will need information and data about the community and will need to communicate with the community. As specified in Figure 1, the Community Health Steering Committee will divide into five task forces that include:

- Publicity,
- Inventory,
- Survey,
- Data and Information, and
- Health Resources Coordinating.

The Publicity Task Force will provide news articles, radio announcements, and other public notices, including meeting notices for the Community Health Steering Committee.

The Inventory Task Force will gather detailed information on all health services and facilities provided within the community. A result of this task force could be a directory of health services and facilities in the community. The resource team can be helpful in gathering the basic health services and facilities' data. However, the task force members will know the local services and facilities firsthand and will be critical in determining the accuracy and completeness of the directory.

The Survey Task Force will design a community health survey, have the survey conducted and analyzed, and will review the results of the survey analysis (United States Department of Health and Human Services, 1992). This task force will determine the local community's opinions and needs related to the health care system by obtaining input and feedback from the community. The need for further community input could result in a community needs assessment with focus discussion groups. The Survey Task Force will review the community survey results to determine the need for further community analysis of specific needs. The resource team can assist with conducting and analyzing a survey and can assist with the determination of the need for further community analysis.

The Data and Information Task Force will gather and analyze current sources of data and information about the community and the

community's health care system. Demographic, economic, and health/medical data and information are available from different secondary sources. The resource team can be helpful in gathering, presenting, and analyzing this data and information (A Project of the Center for the New West, 1992).

The Health Resources Coordinating Task Force will be formed only if needed within the specific community. This task force will review the health resources and health care provider organizations within the designated health service area and look for optimal efficiency in provision of health care services to meet the community needs.

The Health Resources Coordinating Task Force will consider optimal size and function of health service organizations given identified health needs, utilization patterns and financial viability (McGinnis, 1991). The task force will examine interrelationships among and between health care providers and health service organizations in light of potential benefits of cooperation; filling in gaps, eliminating duplications, and providing collaborative opportunities. This task force is seen as an effort to sustain the collaborative and coordinating relationships and interrelationships over the long-term.

After the task forces (except for the Publicity Task Force) have completed their research and analyses, final reports, including each task force's listing of health problems, needs, or concerns, will be presented to the complete Community Health Steering Committee. The information from these four task forces will be reviewed and integrated with duplications eliminated. The steering committee will then determine the main issues to build a plan of action. It is recommended by the resource team that only one to three health issues should be identified for action in the first year. Other items may and should be addressed in subsequent years. The Community Health Steering Committee may want to

use some type of point system to rank the issues and determine the top issues.

In analyzing and prioritizing the issues, certain questions should be considered:

- What do the different sets of data suggest about health care services in the area? Is there agreement or apparent contradiction?
- What does the community want?
- Is there a difference between needs and wants?
- What are the prioritized health services needed?

Research may be needed on some of the points of emphasis to determine what course(s) of action are feasible. The resource team can assist with developing further information related to specific points of emphasis. After all items have been thoroughly researched, the Community Health Steering Committee will review the final information. A proposed plan of action will be completed with a timetable and specific steps for implementation. The plan should cover the following areas:

- What does the community have to do to maintain existing services which are already meeting needs?
- What does the community have to do to develop needed services?

A proposed plan of action will need to be completed for each issue, with a timetable and specific steps of action for implementation for each issue.

The proposed plan of action will be shared with the community through the news media. This allows the members of the community the opportunity to provide input and to discuss the plan. Every community member is invited to participate in the community health planning process and in the implementation of the plan at any time. After publicizing the



proposed plan to the community and reviewing the input from the community members, the Community Health Steering Committee will then modify and revise the plan, as appropriate. The final plan will include specific community assignments and timelines. A system for reviewing the results of the plan of action must be determined and follow-up assignments and meetings are crucial for accomplishment of the plan.

The Community Health Steering Committee will start the entire community health planning process again at the end of the first year. The process is designed to be ongoing annually. The first year's plan of action will be in the implementation stage while the second year plan is being initiated and the entire process begins anew. The second year will be less intense as the process will build on the first year's plan and much of the data will only have to be updated. The community involvement in the community health planning process is key to continuing the process on an annual basis.

## EXPERIENCES IN OKLAHOMA COMMUNITIES

### *McCurtain County*

McCurtain County was one of two pilot health planning projects in Oklahoma. The McCurtain County Hospital was a key member of the initiating group and organized the steering committee and provided the community facilitator and the overall coordination of the process. The director of the local McCurtain County Extension Office was also very active and assisted with community contacts and support for the project. With this being a pilot project, the entire process took almost two years. The resource team soon realized that the coordination and

overlap of the task force activities was critical to a timely completion of the process. Subsequent planning projects were better organized and proceeded in a more timely manner, within 9 to 12 months.

Although the process took longer, McCurtain County maintained interest in the process through their publicity. Several members of the Steering Committee were interviewed and a series of articles were published in the local newspapers. Numerous avenues were utilized to publicize the survey including television and radio as well as the local newspapers. The Publicity Task Force did an excellent job in maintaining communications with the community and with the Steering Committee.

McCurtain County only participated in the first four task forces: Publicity, Inventory, Survey, and Data and Information. The fifth task force did not become a reality until after the completion of the pilot process. It became very apparent to the resource team that a Health Resources Coordinating Task Force was critical to the accomplishment of the process. The resource team also became aware of the lack of coordination and communication among the health care providers within the communities. The formation of the fifth task force, the Health Resources Coordinating Task Force, was a direct outcome of the pilot projects.

One of the main accomplishments in McCurtain County was the initiation of the communication and coordination of providers. Some of the providers did not know each other and had not worked together to plan future health care services in the past. However, the community health planning process brought these providers together and opened the avenues for multi-agency projects and future cooperative efforts. This one accomplishment seemed the most significant in the health planning process in McCurtain

County.

After reviewing the secondary data that the resource team prepared, (after reviewing the health resources available in the community and after reviewing the health care survey results), the McCurtain County Steering Committee narrowed their focus of concern to three main areas of need:

1. Under-coordination/under-education in the areas of health education, wellness, and nutrition; alcoholism and drug abuse, and elderly outreach;
2. Under-feasibility/funding in the areas of telemedicine; renew/upgrade of the ER; and mobile clinic; and
3. Under-physician needs in the areas of pediatrics; OB-GYN; and orthopedic surgery.

These three main categories actually resulted in nine separate needs. Other factors were identified that would affect the areas of need. These included available physician offices, available housing, and the county road problems. Each of the nine subareas were assigned to specific individuals and specific organizations/institutions. For instance, the under-coordination/under-education in the area of health education, wellness, and nutrition was to be studied by a task force consisting of a representative from each of the following agencies:

- The McCurtain County Public Resources Association.
- The McCurtain County Health Department.
- The McCurtain County Education Co-Op/ APRC.
- The McCurtain County OSU Extension Office.

After assignments were made and the new task forces were formed, the resource team bowed out of the process and left the local

community members to the task of accomplishing their action plan. The resource team provided a physician study to show how many OB-GYN, pediatric, and primary care physicians the community required to adequately cover the need for these services. The resource team maintained communication with the Steering Committee and provided other information or referrals, as needed.

McCurtain County adopted an aggressive plan of action in their first year. Later, the resource team realized that the Community Health Steering Committee needed to narrow their focus to a smaller first-year plan of action. Thus, for the best possible success, it was determined that it is better to start with much smaller, more easily attainable goals in the first and second year of the process. More complex needs can be addressed in the later years of the planning process.

#### El Reno, Oklahoma

The community of El Reno was also centered around a hospital provider, the Park View Community Hospital in El Reno. The Steering Committee was chaired by the Director of Nursing, with the Administrative Assistant to the Hospital Administrator providing the community facilitation. El Reno was able to build a large, very active Steering Committee and maintained their full participation throughout the process. Participation included all community agencies and provider organizations as well as other public, private, and civic organizations. The membership was based on a diverse, community-wide team concept.

The process was completed in a more compact time frame, which was approximately 10 months. This was much better for the group; the group participation was much better because the tasks were accomplished in a more timely fashion, which kept everyone better focused.

El Reno had never had a resource directory before this process. The Hospital and the Russell-Murray Hospice collaborated financial resources and were able to print 1,000 copies for distribution. Each organization/agency represented on the Steering Committee was allowed to take a few copies with them for distribution. Each organization/agency was encouraged to have additional copies printed and distributed, when and if appropriate or feasible.

After the review of the health resources, the secondary data, the health care survey, and the health resources coordinating task forces, the El Reno Steering Committee determined their priority needs basically fell into two general categories with several subcategories as follows:

**Health Prevention Education**

- What currently exists: Who, where, and how effective?  
Other available health prevention education programs.
- Look at data in detail from seven areas of need.
- Community resiliency training.

**Access to Health Care**

- Feasibility study–Need for mental health professionals.
- Educating community.  
Promotion campaign.  
Distribution of Health Resource Directory.
- Feasibility study–Need for after hours/urgent care/free clinic.

The group divided into two committees, health prevention education and access to health care. The resource team was able to assist the El Reno group by conducting a

study of three different free clinics and then providing this information to the group to assist them with the organization of a free clinic. The resource team also assisted by assessing the availability of behavioral health services in the community and by conducting a focus group survey of key mental health professionals in El Reno. This resulted in the preparation of a Mental Health Resources Directory for the El Reno community.

In the El Reno planning process, the resource team focused more on providing additional technical assistance to the El Reno planning group after the needs were determined. The resource team was able to maintain involvement with the El Reno planning group during a portion of the implementation of the action plan. The adherence to a better time frame was instrumental in allowing the resource team to remain involved during these additional phases of the process. The El Reno Steering Committee had considerable success in accomplishing their action plan and in continuing the process for future years.

*Noble County, Oklahoma*

Noble County had a very active Community Health Group. This group had been active for several years and had been working on several goals. The group was expanded and became the Steering Committee. Noble County had strong support from the Mayor of the county seat of Perry and from the hospital administration. However, in the middle of the process, the Mayor passed away and the hospital administrator left the hospital to take other employment. In the interim, the Noble County Health Department member took up the slack and kept the Steering Committee together and on track. The Health Department soon became the driving force of the Steering Committee.

## HEALTH PLANNING EXPERIENCES IN OKLAHOMA COMMUNITIES

The membership of the Steering Committee is paramount to the success of the planning process. The resource team, having learned from past experience in other planning communities, emphasized the importance of the diversity and community-wide representation of the Steering Committee. If the overall Steering Committee representation is committed and if most of the community agencies, health care providers, and other public, private, and civic organizations are well represented, then the Steering Committee can survive even when personnel changes or other outside forces occur or interrupt the process. Therefore, the support of many different agencies/organizations and key individuals from these agencies/organizations is of utmost important. One agency/organization or individual cannot provide the impetus for the community health planning process to be successful.

Noble County utilized the health planning process in a modified version. The community already had a very comprehensive resource directory; therefore, this task force was not utilized. The Health Resources Coordinating Task Force was also not utilized; this community had already realized the importance of coordination of health care services by the different health care providers and had been involved in this for several years. An economic impact of the health sector of Noble County was prepared by the resource team and presented to the group, as well as the secondary data study.

The main interest of the Noble County Steering Committee was the health care survey. The community had obtained a small grant to pay for the health survey. The survey was conducted and the results were prepared by the resource team then presented to the Steering Committee. The Noble County group was so pleased with the results that the

hospital administrator prepared a PowerPoint presentation and presented the survey results to the hospital board and many other private, public, and civic groups in the community.

The Noble County Community Group had been dealing with their high rate of teen pregnancy for several years. The survey showed they were making progress in this area in the Perry area (County Seat) and that the more rural areas still needed to work on this. The teen pregnancy issue will continue to be a priority of the Noble County Steering Committee. The other primary issues that will be their focus are:

- to determine why so many residents utilize health care services outside of Noble County;
- to provide the necessary health care services in the county; and
- to keep as many residents as possible utilizing the services in the county, which will also help the local economy.

### SUMMARY

The comprehensive health planning process has evolved in Oklahoma through the resource team's experiences with many different rural communities. The three illustrated above were selected based on the lessons learned and the overall successes of the projects, even with the obstacles encountered in each community. The health planning process has undergone many transformations since the resource team started in 1995 and continues to evolve with each new community.

The resource team through their experiences has come to understand the importance of commitment from the local community. The desire of the community to be involved in

health planning is easily assessed by the number of organizations and agencies committed and represented on the Steering Committee. More time is spent on the mobilization of the community and the building of the Steering Committee now than in 1995. The successful projects are the ones with a Steering Committee that is diverse and well represented by all organizations in the community.

The resource team also discovered that keeping the action plan of the Steering Committee simple and workable is very critical to the success of the process. A first year plan should only attempt to work on one to three health issues. If the Steering Committee is not able to show actual results from the first year, it is highly unlikely that they will attempt a second year plan. The success of comprehensive health planning is based on the continuance of the process year after year after year. If the Steering Committee quits after their first year action plan, then the process was not successful. Planning is not a one year project in any arena, but especially not in a community health arena. Health care provisions are critical to the well being of any community.

The involvement of the resource team in the initial phases of the action plan has proved beneficial to the continuance of the communities in the process. Initially, the resource team ended their involvement once the Steering Committee had determined their top priorities and made assignments on how to proceed with the action plan. However, the resource team has found that their involvement needs to continue for a longer period during the implementation of the first year plan. The resource team has been able to assist the communities in finding additional resources, in conducting and presenting feasibility studies on different health issues,

and in making state, regional, and national contacts.

As discussed earlier, the health planning process is designed to be modified and adjusted to fit the specific circumstances of the community. It is a tool that can be utilized by any community in any state. Any state can organize and develop a resource team and provide the comprehensive planning services to the state communities.

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# CUERO COMMUNITY HOSPITAL'S RESPONSE TO THE 1998 FLOOD

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## ABSTRACT

The flood of 1998 devastated the town of Cuero in Dewitt County, and President Clinton declared it a disaster area. The flood ravaged the rural community of Cuero and forced its residents and health care community to institute emergency procedures to address the health needs of the city and surrounding areas. This study documents Cuero Community Hospital's response to the 1998 flood.

## INTRODUCTION

An extensive literature review of rural hospitals' responses to natural disasters, such as floods, resulted in scant findings. Disasters can happen every day and although many agencies are devoted to providing aid and relief in times of need, there is little literature that concentrates on the rural hospital's response. Hospitals are at the center of medical concerns in rural communities. It is obvious that hospitals play an essential role in emergency response and disaster relief. It is unusual that such an important role would go largely unreported in health care journals.

Hospitals are required to have and practice a specific disaster plan to maintain accreditation by the Joint Commission on Accreditation of Healthcare Organizations (Joint Commission on Accreditation of Healthcare Organizations, 1996). The Occupa-

tional Safety & Health Administration also recognizes the importance of coordinating an emergency response with the city or community (Occupational Safety & Health Administration, 1999).

When Pope Air Force Base experienced a mass casualty situation, Womack Medical Center was forced to take immediate action. From their experience, emergency staff learned "while terrible misfortunes sometimes just happen, a professional response to crisis is no accident. Training, hard work, esprit, and dedication ... pay off in emergencies." Although Pope Air Force Base is not a rural setting, a major lesson—teamwork—was the common thread to Womack and Cuero (Initial Medical Response, 1999).

## METHODOLOGY

The flood of 1998 hit most of South Central Texas hard. As the large city of San Antonio struggled to survive, a small town in DeWitt County was being devastated by raging floodwaters. Cuero suffered the flood's most devastating effects, but managed to come through with grace and strength that surprised the researchers.

The study methodology is a case report of a community event. Case reports are among the most common types of studies published in medical journals. In epidemiological terms, "Case reports document unusual medical occurrences and can represent the first clues in the identification of new diseases or adverse effects of exposures" (Hennekens & Mayrent, 1987). Our report of Cuero's response is a case report of a community response rather than a classical case study of an individual patient or disease.

Preliminary research regarding Cuero was found on a well-constructed Internet page designed by the Cuero Chamber of Commerce.

It was obvious to the researchers that Cuero Community Hospital was an integral part in the rescue and rebuilding of the town. After several telephone conversations with both the hospital CEO and his staff, researchers conducted an on-site evaluation to gain more insight into the role of Cuero Community Hospital during and after the flood. Following the interview, the researchers were given a tour of the hospital facilities and community. Finally, after the research observations were completed, results were compiled on a poster that was presented at the Southwest Texas State University, School of Health Professions, Research Forum. The poster was subsequently presented to Cuero Community Hospital for its own display.

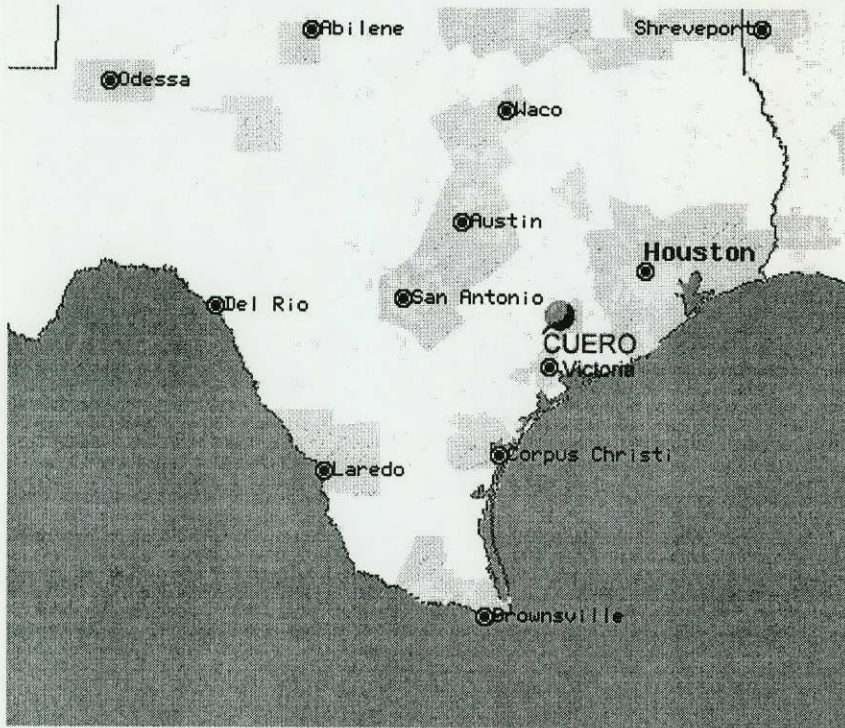
## THE RESPONSE

Every hospital has a mission statement and slogan aimed at good deeds toward its community. Indeed Cuero Community Hospital (CCH) is no exception with its slogan, "there's no place like home." After 25 years of service, this rural hospital and its slogan were put to a severe test. On October 17, 1998, the Guadalupe River swelled and forced approximately 4,000 of Cuero's residents to seek shelter. Cuero Community Hospital served as the temporary home for many residents and provided a sense of security to the community. The health concerns of the community shifted from health care to basic food, water, and shelter. Cuero Community Hospital was true to the slogan adopted long before the flood devastated the rural town of Cuero.

The town of Cuero (see Figure 1) is a rural community (population 6758 based on the 1995 updated census) located in DeWitt County, in South Central Texas. It is 90 miles Southeast of San Antonio and 150 miles



**Figure 1: Area Map of Cuero and Surrounding Area**



Southwest of Houston. Cuero is Caucasian (47%) and Hispanic (33%) and the median family income is approximately \$23,149. The Guadalupe River flows through the middle of Cuero. This beautiful feature of downtown became a nightmare to residents of the town.

The crisis began on October 17, a beautiful Saturday afternoon. The blue sky dimmed and it began to rain relentlessly. James E. Buckner, the Administrator of CCH woke up at 2 o'clock in the morning and noticed the rain had not slowed. His immediate thought was of the river and how quickly it would rise (Buckner, 1999). The next morning reports of severe flooding upriver began to reach Cuero. The average yearly rainfall for Cuero is 35 inches, but areas upstream had received as

much as 20 inches in only a matter of days. By Tuesday afternoon, the Guadalupe River had risen 43 feet above the flood stage (Hayward, 1998) and was beginning to spill into town, devastating everything in its path. U.S. Highway 87, Cuero's major thoroughfare, was completely submerged and the town was divided (see photographs). Many residents were unaware of the danger and were not prepared to evacuate. Media coverage from the major metropolitan areas focused on rainfall rather than the effects of downstream areas. As a result, Cuero received inadequate warning until it was too late.

Many were forced to leave their homes with only the clothes on their backs. Several shelters were set up and residents were forced

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**Photographs of Cuero suffering from flood damage.**

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**Main thoroughfare (top). Another shot of Cuero from higher altitude (bottom).  
Photographs by Bobby Heyer**

**CUERO COMMUNITY HOSPITAL'S RESPONSE TO THE 1998 FLOOD**

into hotels as far as away Hallettsville, 60 miles to the South. Twenty-five percent of the town was destroyed and damages were estimated to be well over \$60 million. DeWitt county, among the 22 counties hit by what has been labeled a 500-year flood, was the hardest hit of the counties in terms of damage according to the Federal Emergency Management Agency Reports (Cooper, 1999). Cuero enacted a community-wide curfew in an attempt to minimize looting and keep spectators out of the town.

Cuero Community Hospital became an active participant of the local effort to assist the victims of the flood. There were several minor injuries to handle and many of the community's homeless were forced to leave their medication behind. Cuero Community Hospital worked with several area pharmacies

to aid people who desperately needed their medicine.

Cuero Community Hospital, a 49-bed facility, is the largest employer in Cuero. Seventy-two of CCH's 444 employees were left homeless and had no where to go. The hospital was on dry ground and did not sustain any damage from the flood. An empty nuns' quarters were used to house 14 families. A new skilled nursing facility and child-birthing center, both which were not completed, were transformed into more housing. The hospital staff donated a tremendous amount of food, clothing, and time. Many of the hospital's personnel remained in the hospital's kitchen after their shifts making sandwiches for those in the shelters. Others let coworkers stay as houseguests until permanent homes could be found. The



**Many flood victims were forced to leave their homes due to the rising water.  
Photograph by Bobby Heyer.**

hospital did not stop there; the Board approved a cash advance to each employee.

Roadways were closed for more than a week. Several of the staff commuted to work. Many employees lived in Victoria, a town 20 miles to the south, which was flooded as well. Therefore, they could not report to work. Cuero Community Hospital made arrangements with a Victoria Hospital to exchange employees. Several other hospitals including Yoakum sent supplies. The Texas Hospital Association and the Texas Rural Hospital Association sent food, clothing, and cleaning supplies. The staff received a total of \$37,000 from other health care workers in surrounding communities. "As an administrator I must say it has been most rewarding to see how other hospitals responded," expressed Buckner (Buckner, 1999).

Cuero Community Hospital did have a disaster plan, but it served only as a preparation tool. During the true disaster, it was too late to pull it out and the hospital relied on the instincts and kindness of its employees. Together, they were able to survive a devastating flood. However, most residents still get nervous when the sky begins to dim.

### LESSONS LEARNED

James Buckner stated that the 1998 Flood taught many valuable lessons. First and foremost is the importance of having a crisis management team of key management personnel and selected staff from crucial departments who are familiar with Disaster Plan guidelines, roles, and responsibilities. It is very important to know where each and every staff member and physician lives and how best to contact them (this is particularly true for staff working in critical areas). Realizing the County Disaster Command Center is responsible, overall, for citizens, the

hospital liaison should work very closely with this group to coordinate how to effectively utilize hospital resources. Buckner credits the City of Cuero with doing an excellent job. The State's response team was also impressive, coming in, establishing a command center, and working in a sharp and flexible manner with missions and critical objectives. Buckner states that Cuero Community Hospital will strive to improve the hospital response similar to the State's response (Buckner, 1999). He also realizes the necessity of establishing in-house laundry capabilities and will ask the Board to approve this item. Finally, it is important to have sufficient operating cash reserves for such contingencies.

### CONCLUSION

Buckner notes that Americans seem to always pull together in a tragedy; time and time again we are reminded that people are generous, have giving hearts and want to help (Buckner, 1999). The human perspective is the most important. Patient surveys have never been better, perhaps because the flood sensitized everybody to look for the positive. Buckner says, "We bonded with our staff and morale did not suffer; deeper loyalty was established." He notes, however, that out on the streets there remains a "sense of loss." "You can't measure it, but you can feel it and see it on peoples' faces (Buckner, 1999)."

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Photos are courtesy of Bobby Heyer of Cuero, Texas.





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