VOLUME XVII, NUMBER 2
1999

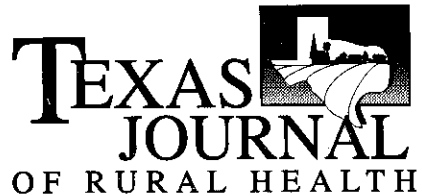# TEXAS JOURNAL
OF RURAL HEALTH

TEXAS JOURNAL
OF RURAL HEALTH

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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."

TEXAS JOURNAL
OF RURAL HEALTH

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TEXAS JOURNAL OF RURAL HEALTH

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Lee Ann Paradise
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Texas Tech University Health Sciences Center
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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.
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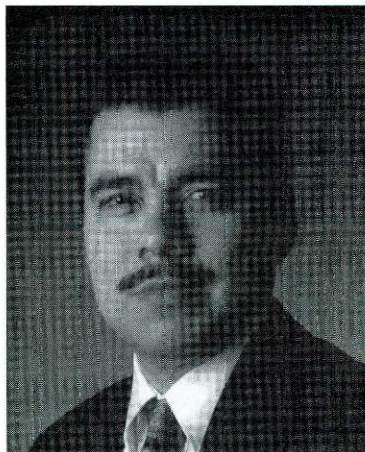
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I am sure that most of you have seen the clocks in various public places that graphically display the time remaining until the new millennium. Before your eyes the seconds and minutes succumb irretrievably to this unabated millennial countdown. Most individuals witness this time display with excitement about the future, but also with a sense of urgency. It leads our minds to wonder about the past and to take stock on how we have prepared to face the challenges of the new age. More than anything we keep wondering about the future. In terms of rural health, will it be more of the same or will the new millennium usher in new opportunities and new solutions?

Leonel Vela, M.D., M.P.H.

I prefer to reflect on the lessons learned from the past, and how we can continue to realize better health and well being in rural communities. First of all, it is important to acknowledge that significant progress has been achieved, thanks to the goodwill and commitment of so many individuals and organizations—both private and public. I believe that the most significant achievement, particularly during the last decade, has been the expanded awareness of the plight of rural communities. The enhanced awareness has led to the growth of advocacy and support for addressing the health needs of rural populations. However, the salient questions remain: what are the specific achievements in terms of improved lives for rural citizens; and what still remains to be done? Stated plainly—where are we and where do we want to be in regard to rural health?

The epidemiological infrastructure needed to track indices of health status in rural communities throughout the United States is lacking. Even though the impact of specific interventions and programs on the lives of rural citizens may not be fully ascertained quantitatively, the benefits are irrefutable. For example, the development of regional trauma systems incorporating rural communities has added an indispensable conduit for obtaining life-saving care. Another example is the National Health Service Corps and the various state programs that have facilitated the recruitment of health care providers to rural communities. Countless numbers of individuals have benefited from the care and expertise that these professionals have provided. Telemedicine has also increased access to health care for rural communities—particularly access to consultation from medical specialists. Telemedicine has transcended the barriers of time and distance in bringing health services to patients in rural communities. There are many other initiatives that continue to make a difference in helping to improve the health of rural populations.

So what remains to be done to address the future challenges in rural health? Well, as you may imagine, there is no source that can comprehensively answer this question. I believe that the following is a sampling of some areas of concern. For example, much work remains to be done to delineate the impact of managed care in rural communities.

It is necessary to address how differential access to managed care programs and disproportionately lower rates of insurance coverage impacts the health of adults and children in rural settings. Another area that has not received adequate attention is the role of environmental factors in predisposing rural populations to disease and injury. We need to identify strategies for addressing the unique plight of special populations, including the elderly, migrant farmworkers, minority populations, farmers, and others. Another important focus is the education and training of the future rural health care practitioners and leaders. These individuals need to be trained with multidisciplinary approaches that prepare them to fill diverse roles in rural communities. Finally, the need for advocacy and for establishing the reliable data infrastructure through research will remain an important priority.

I definitely did not intend for this editorial to represent a comprehensive analysis of the complex and multifactorial issues and problems facing rural health. As you can appreciate from the diversity of articles in this volume of the *Texas Journal of Rural Health*, we have come a long way in our knowledge of rural health, but there is still much to be learned and researched. With the level of commitment and goodwill that is exemplified everyday, we have much to look forward to as the clock winds down the last moments of this millennium.

Medical research that is shared and discussed in partnership with other communities has statewide, national, and international benefits. By sharing ideas and discussing solutions to problems that rural, under-served areas face, we can help each other. As a managing editor, I am always fascinated to see that despite geographical distances, people living in rural communities throughout the world have so much in common and share many of the same problems and concerns. We all have a lot to learn from each other—not only on a local level, but also on a global level.

Many people in a rural community depend on a small staff of medical people to meet their needs. Rural health clinics are valuable in such settings and the health care professionals that care for patients in those settings have unique problems versus their more metropolitan counterparts. Often with limited budgets, they have less trauma team members, have a greater need for helicopter services, see patients who have sometimes traveled long distances, and often have to function as a tightly knit team — working together in areas that may be outside their chosen specialty.

Learning together and working cooperatively benefits the entire rural community. Arguably, individual health in a rural community is tied to community cohesiveness. In Dr. Derek Browne's article, we see that a village's willingness to work together as a group by participating in community programs leads to better health. Programs that support the community, coupled with diet advice and an understanding of individual needs, help to motivate community members to take an active part in their own health.

Through Dr. Browne's article on healthy

Lee Ann Paradise

villages, we can learn about progress being made in other villages and rural communities around the world and maybe apply some of their methods to our own community development. Born in the former Belgian Congo and the son of the late Stanley Browne, world authority on Leprosy, Dr. Browne developed his interest in rural villages from his parents. They worked as medical missionaries in the Leprosy Research Unit in Nigeria. It is his deeply held belief, and mine as well, that rural villages all over the world can benefit by utilizing "Healthy Village" concepts. Traveling to places such as Shanghai, Nigeria, and throughout Europe to deliver his "Healthy Village" message, Dr. Browne teaches people how they can, through holistic methods, improve the quality of life for themselves and their rural community.

Interestingly, two articles researched in different parts of the world—one resulting from a study conducted in Wichita Falls, Texas by Dr. Ellen Palmer's team and the other from a two-year study in Scotland by Drs. McKie and Skerratt—discuss the effects that food choice, food availability, and the culture of the community can have on the health of

rural citizens. Alarmed by the high incidence of heart disease in Wichita County, Texas as compared to other Texans and the nation, Dr. Palmer embarked on a research study that brings to light some possible causes of the problem. She and her team surveyed and compiled the responses of the community members of Wichita Falls and began to see common answers that identified problematic areas. In comparison, Drs. McKie and Skerratt, aware of the dietary problems facing rural citizens in Scotland, conducted a study that involved face-to-face discussions. During their study, in order to encourage the rural community to open up to them, they had to promise complete privacy with regard to the answers given. Like the community in Wichita Falls, the Scottish respondents identified a variety of health barriers such as community location, financial concerns, and social traditions as well as food availability and how advertising effected food choice.

In regard to their research in rural Scotland, Drs. McKie and Skerratt discussed with me the importance of entering a rural community in a cooperative spirit. Dr. Palmer and her team also expressed the importance of talking to people in a way that makes them feel comfortable and encourages an honest, trusting interchange between the researcher and the respondent. Therefore, each researcher made a concerted effort to understand the needs of the community before attempting to question its members. The establishment of trust had to be built in order for the research to be effectively conducted.

As you read their respective articles, you will be reminded of what a small world it is—of how much we have in common—and of the similar characteristics of rural communities throughout the world. As a sociologist of health and illness and a Senior Lecturer in health education at the University of Aberdeen in Scotland, Dr. Linda McKie has been studying community health in rural areas for many years. Dr. McKie is currently part of a team reviewing key issues regarding rural general practice in seven European countries. Funded by EU BIOMED, the team's findings are expected to be released next year. As a Research Fellow at the Royal Agricultural College in England, Dr. Sarah Skerratt specializes in research regarding the farming community and their responses to shifts in agricultural policy. Currently focusing on the ways in which people make decisions in rural settings, Dr. Skerratt spent years as a freelance researcher studying issues associated with rural poverty and isolation as well as food availability and health within rural Scotland.

By sharing and exchanging ideas and research findings with other communities, not only in Texas, but also throughout the world, we are able to learn from each other and make global contributions to rural health care.

Y2K: A FIGMENT OF SOMEONE'S IMAGINATION OR A DISASTER COMING?

■■■■■■ NOTES FROM THE FIELD

For several months now we have read the news about Year 2000 (Y2K) compliance issues. At all levels of government and the private sector we all face the same problem: Will my computer be able to process date information after December 31, 1999. In Health Care it is more than just a computer problem, it is a technology problem. In the next few months, if the problems are not solved, we will face challenges both internally and externally that may threaten our very existence. Problems not corrected (Y2K failures) could compromise patient care, disrupt core business functions, and create substantial liability exposure. Rural communities and rural hospitals are not exempt from Y2K problems. It is imperative that all levels within health care facilities actively develop a comprehensive risk management strategy to address the Y2K problems in their facilities. How we handle our responsibilities will determine the degree of harm we suffer.

In our world, we are dependent upon technology for most of our business functions—word processing, accounting, data storage, time clocks for payroll, and a myriad of other functions that we take for granted, all of which are important and are critical to our financial well being. The electronic exchange of information with insurers and claims processors, physician practices and affiliated institutions, complex regulatory environment, industry consolidation combined with financial pressures only serves to magnify this dependence. Without these functions we could not survive given the complexity and speed required in today's world. More importantly, we are dependent on technology for the accuracy of equipment related to
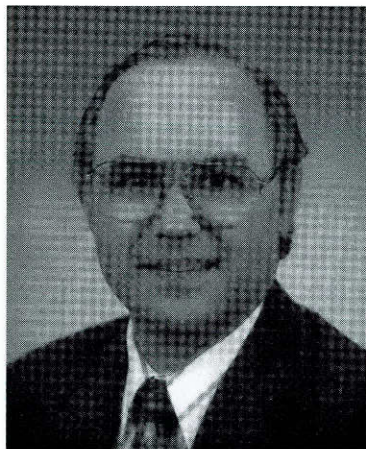
Marvin Cole
Director
Seton Medical Center
Austin, Texas

patient care. Items such as pumps, electronic measuring devices, or any equipment with a clock or date-sensitive embedded chip, which monitors or controls systems or touches a patient, are important in maintaining high quality of care in our facilities. We have become reliant on technology, and as a result we have exposed ourselves to significant business and legal risks. This is because we have the responsibility to protect both the health and lives of our patients. Coupled with a late start in preparing to achieve Y2K compliance, you may have significantly increased that risk.

Why do we have the Y2K problem? Computer storage space was very expensive until recently. In an effort to save that space, programmers used 2 spaces to code years. The result is the computer cannot tell the difference between 1900 and 2000 since we use 00 to denote a year. The problem is the

computer really thinks that 00 means 1900, because 1900 is the base year for all calculations in a computer that is not Y2K compliant. Imagine what could happen in computerized equipment with lab tests, admissions, surgeries, or appointments. Potentially, a disaster could result.

It is estimated that to handle the Y2K compliance issues it will cost $400 to 600 billion worldwide to correct. That could rise to as much as $1.6 trillion with potential litigation and damages added in. It has been estimated that as much as 90% of all computerized applications will fail without corrective action.

Y2K compliance is not an issue that can be ignored. It takes time to correct. If you have not started, your risk is significant. Without corrective action you may face significant risk in the following areas:

1. Operations: Any medical device or equipment with computer systems or embedded chips. This includes any diagnostic equipment, infusion pumps, defibrillators, monitors, CT scans, or MRIs.

   Life Safety Code or Safety Equipment: Monitoring or control systems, fire alarms including detection, sending, receiving and suppressing units. Security systems, badge readers, HVAC equipment, energy management and lighting control, emergency generators, and elevators.

   Telecommunications Equipment: Telephone switching equipment, call management systems, pagers and cell phones, and uninterruptible power supplies are all subject to failing.

2. Financial Losses: Reports indicate that government payments may be late to providers, because they will not have their Y2K compliance problems solved. This may also translate into unreliable data from intermediaries and other payors. Additionally, your own noncompliance computer systems may produce unreliable data. Electronic deposits, including both payors and payroll, may be affected, depending on the system.

3. Business Failures: It is estimated that 5% to 7% of businesses will fail and 30% of all businesses will not have critical computer applications in place, which will have an effect on all businesses. With margins thin, and very little wiggle room, any miscalculations or rejected claims for payment will have significant impact on health care organizations, especially those in rural areas.

4. Increased Liability Exposure: Potential personal injury, wrongful death suits, and medical malpractice claims will result from those who are non-compliant. The increased danger of personal liability is real for those who ignore Y2K.

What do you do? It's never too late to get started. First, plan. Get the job organized! Assign specific responsibilities to specific people.

Second, do an inventory; know what electronic equipment you have. Include in the inventory all manufacturer names and contact them. Develop a method to track their compliance efforts. They know if they are compliant. Get a letter from them.

Third, develop contracting and purchasing policies for electronic equipment that may present Y2K compliance problems. Don't purchase equipment unless you have documentation that it is Y2K compliant. Investigate all new business relationships to ensure they are Y2K compliant.

Fourth, be prepared with contingency and disaster recovery plans; notify your insurers

of potential claims.

Fifth, be prepared for any potential litigation by and against your hospital. Document everything you have done to be Y2K compliant.

Sixth, inform your governing authority to ensure they are aware of the problem. Protect them and yourself.

Seventh, tell people what you have done. There will be increased concern as we get to January 1, 2000. If your community knows you have addressed the Y2K problem (even if they don't know what the problem is), they will have more confidence in you.

Last, get started. Better late than never if you want to avoid the disaster. There is an excellent article on the Web at http://www.dc-is.org/ for more detailed information.

A METHODOLOGY FOR COMMUNITY NEEDS ASSESSMENT IN RURAL LOCALITIES

Linda McKie, M.Sc., Ph.D.
Senior Lecturer in Health Education
Department of General Practice
and Primary Care
University of Aberdeen
Foresterhill Health Center
Aberdeen,
SCOTLAND

Sarah Skerratt, M.A., Ph.D.
Post Doctoral Research Fellow
Royal Agricultural College
Gloucestershire,
ENGLAND

ABSTRACT

Increasingly health policy makers and practitioners are seeking to identify the health needs of people residing in remote and rural localities. How do rural residents perceive their health needs and are there geographical factors in determining needs and access to services? In this article we report on two studies on the topic of food availability and choice in rural localities. The research team developed an approach for community needs assessment in rural localities through a qualitative methodology.

INTRODUCTION

In this article we consider a methodology for a participative community needs assessment and the potential for the findings of such projects to inform health policy and practice. We explore the process and outcomes of two studies conducted in remote and rural localities of Scotland on the topic of food availability and choice (Clark, MacLellan, McKie, & Skerratt, 1996; McKie, Clark, MacLellan, & Skerratt, 1998; Skerratt and McKie, 1998). Both research projects were based upon a key principle of the Ottawa Charter (WHO, 1986) namely, the active participation of communities in health promotion research, and the design and implementation of resultant activities. The challenge was to design and develop a

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methodology that actively involved people living in remote and rural localities and ensured that the emphasis placed upon data truly reflected the dynamics, understandings, and solutions of the participants (Popay, 1996; Tones, 1996).

Health needs assessment has become a crucial component of planning and the evaluation of policies and practice. A popular method of ascertaining health needs is through epidemiological surveys that measure the incidence and the prevalence of a condition or set of circumstances. Epidemiological research has been criticized as focusing upon normative need, that is, services required for normal functioning as defined by health professionals. By contrast, community health needs assessment seeks to build upon epidemiological research by considering the use and experiences of services, the perceived needs of people, and comparative needs between various groups in a locality (Stacey, 1994; Williams and Popay, 1994; Green and Thorogood, 1998). These considerations necessitate a review of the methodological approach.

FOOD AVAILABILITY, FOOD CHOICE AND THE SCOTTISH DIET

The topic of diet, health and healthy eating, is one that receives major attention in health policy and health promotion in the UK (Scottish Office, 1993). Scotland's diet has been described as "notoriously unhealthy and worse than that of almost any other country in the Western world" (Scottish Office, 1996) and a diet action plan has been published by the Scottish Office (ibid.). While this plan calls for action between a range of groups (for example, primary producers, manufacturers and processors, the retail

sector and communities) and in a number of settings such as schools, workplaces, and homes, the issues of availability and choice of foodstuffs for communities in rural areas of Scotland are not actively considered. This is largely because previous research has concentrated upon food availability and choice in urban and deprived localities. Yet, a third of the Scottish population reside in areas defined by government as rural (Shucksmith, Chapman, Clark, Black, & Conway, 1996).

THE RESEARCH LOCALITIES

The two community needs assessment projects we report from were conducted in three localities (Clark et al., 1996; Skerratt and McKie, 1998). The first project was located in a number of the islands of the Western Isles of Scotland, previously known as the Outer Hebrides. These are sparsely, but widely populated islands with approximately 7,000 people residing across the seven islands. Travel between the islands is by causeway or ferry. The second project was conducted in the Highland Region of mainland Scotland in two localities; Upper Loch Torridon and Thurso. Upper Loch Torridon has a similar environment to the islands of the Western Isles. Single track roads run between small settlements. There is little public transport and people are dependent upon access to a car. Food availability and food choice are restricted. There are a number of small shops and post offices selling food items, but neither the islands nor Upper Loch Torridon have a population that would sustain a supermarket. The Upper Loch Torridon locality, on the west coast of mainland Scotland, is approximately a hour's drive from Inverness where supermarkets are located. By contrast the presence and changing fortunes of the Dounreay Nuclear Plant have domi-

nated the Thurso locality. Established in the 1950s, the plant provided significant employment opportunities. Infrastructual developments such as roads, schools, and supermarkets followed as workers and their families moved to the area. However, this locality, in the far northeast of mainland Scotland is several hours from the nearest major service center, Inverness.

There are obvious socio-economic differences in the population in these rural localities and, at times, there are tensions between so called "incomers" and indigenous "locals." The economies of each locality are increasingly dependent upon tourism while agriculture declines. Food prices are higher than in urban localities of Scotland. On the islands food prices can be up to 15% higher than elsewhere and at times access to food may be restricted due to limited deliveries resulting from harsh weather conditions. Many residents in these localities express the view that they are on the "edge" in political, geographical, social, and economic terms and verbal expressions of isolation and alienation are common (McKie, 1996; Shucksmith et al., 1996).

RESEARCH METHODOLOGY AND METHODS

Mason (1996), noting that qualitative methodology derives from a number of philosophical traditions and disciplines, identifies a number of common elements in qualitative research, namely:

- it is concerned with how the social world of the participant is interpreted, understood, experienced, or produced;
- the actual methods are flexible and sensitive to the social context in which data are produced, and
- it is based upon methods of analysis and explanation building that involves the

understanding of complexity, detail, and context.

In both of the projects we started from the premise of a research design, which would actively encourage participation by local people and, dependent upon resources, we wanted to return to the communities to consider the emphasis placed upon data jointly. The respective Health Boards for the project localities were keen to tackle health issues within the social and economic context of rural life. Of specific interest were local views on culturally sensitive and appropriate policies and activities. Given these aims, it was agreed that a qualitative methodology was appropriate (Crabtree and Miller, 1992; Beattie, 1995). The resultant findings were contextualized in available epidemiological data.

Focus groups, semi-structured interviews, observation, and community workshops were the methods employed in both projects. In the Western Isles project seven focus groups were conducted with both new and existing groups; 29 semi-structured interviews were conducted with people resident on the islands, four further interviews were held with senior staff in distribution and haulage companies on mainland Scotland, and two workshops were conducted for the purposes of participant validation. In addition, a feedback workshop was held on completion of the project to ensure that participants and the local population were updated on, and involved in, the progress with developing health promotion activities from the research. In the Highland region four focus groups were conducted with existing groups, 33 semi-structured interviews with food retailers, health professionals, local residents, and 10 semi-structured interviews with representatives of the food and economic development sectors. On completion of the final report, two community workshops were conducted in each of the study localities. In contrast to

other components of the research, health promotion staff conducted these.

DATA COLLECTION

The project in the Western Isles was conducted in 1995 and in the Highland Region during 1997. Both projects started data collection in the winter months. This timing was considered crucial as in the summer months people are active in the tourist trade and related work, receiving visitors, and undertaking maintenance work on homes and buildings.

It was agreed that schedules should reflect local interests and employ local terms and language. So both the focus group and semi-structured interview schedules were piloted in each of the localities. Contact was made with several local people who had an obvious interest in food availability and choice. They were asked to nominate others who might be interested in participating in the research. The research team monitored this process to ensure that people from a diverse range of backgrounds were interviewed. However, this process compensated for the research team's lack of local knowledge across all localities.

A number of participants expressed concern that responses should be treated as anonymous for there was a fear that concerns expressed about food retailing might have a negative impact on local retailers and, thus, availability. As one participant noted "we want things to improve; we don't want to put anyone out of business because of what we've said." Anonymity was guaranteed in terms of data analysis; although it proved difficult to achieve confidentiality about who was interviewed as residents readily observed the movements of the research team.

DATA ANALYSIS AND VALIDATION

Data were available in the form of transcripts from the focus groups and detailed notes from the semi-structured interviews. While an initial analysis of data from the early focus groups formed the basis for the first version of the semi-structured interview schedule, it was ultimately decided to pool data derived from both methods. The validity of this method of analysis and interpretation must be considered (Crabtree and Miller, 1992; Mason, 1996). On an initial, but separate analysis, it became evident that neither data set provided any distinct differences in content. Combined, the data sets, provided a fuller explanation of the social and economic processes of food systems in the islands. In addition, the weaving together of data sets potentially enhanced anonymity for participants.

The analysis of data was based on a thematic approach. During analysis, issues that were raised by, or in relation to, particular individuals or groups were considered as separate topics. Throughout the analysis of data, the views of one group or individual were not given priority over any others, and comments from participants, whatever their background or specialist knowledge, were regarded as equally valid.

Community workshops were held after the initial stages of analysis. In the case of the Western Isles project, two workshops were held prior to the completion of data analysis and a final feedback seminar was held to discuss the implications of the research. In the second project, two community seminars were conducted during the final stages of completing the report. Again, the emphasis in these sessions was upon how to take the findings forward into policy and practice.

SELECTED FINDINGS FROM
RESEARCH PROJECTS

A range of themes was identified in the data analysis. In this section we report some of the major findings that illustrate the potential for the methodological approach to represent local views and ideas. Data on three themes are presented: healthy eating and healthy diets, food availability and choice, and local agendas.

Healthy Eating and Healthy Diets

Participants reported that they have been given no clear definition and understanding of what constitutes healthy eating and a healthy diet. The main reasons for this observation are that:

* such messages appear to change all the time;
* there are conflicting messages (for example, concerning butter & margarine), and
* a diet, which is healthy for one person, is not necessarily healthy for another.

Thus, although there is generally a broad consensus that certain foods are healthy such as fruit and vegetables, fish, pasta, and salads, there are, at a local level, among indigenous and in-migrants alike, questions which remain concerning what healthy eating actually is.

The majority of participants felt that they were constantly "falling by the wayside" in their quest for a healthier diet, frequently associated with weight loss, and suggested that changing attitudes regarding what was "good to eat" would take many years:

"It's really a case of changing people's attitude and that's going to take years. We think of chocolate biscuits as a big treat - not four carrots on a plate."
—Health professional, Western Isles.

A number of participants stressed that a healthy diet was only one element of good health and felt that a contemporary sedentary lifestyle meant that people were now more susceptible to illness. Social isolation and the impact of the weather exacerbated this over the long winter months:

"Food is a big issue—I've put on a stone and a half (21 pounds) since I arrived last year. There's nowhere to go, no cinemas, no theatre, so you sit in the house and eat..."
—Recent adult migrant to the Western Isles.

Yet, in all of these localities, people spoke of food advertising in the media as a constant reminder of what was difficult or impossible to access. In addition, healthy eating messages proved frustrating as many of the items (or changes) suggested were difficult to achieve due to restricted availability of foods and exercise activities.

However, there are differing views on whether those living in these relatively isolated areas eat more, or less, healthily than those with better access to "healthy foods." As one interviewee explained:

"The elderly have a better chance here than they do in the city: home helps, butcher, fish vans, and fruit and vegetables vans are all coming in weekly here."
—Local, indigenous adult in Upper Loch Torridon.

Food Availability and Food Choice

When comparing the present with past times, participants described the decline of local food sources and production:

"There's no fish in the loch now (for local fishing)—compared with 20 years ago when you could catch herring. The fish are sporadic and aren't in good supply. It's

possible to catch a FEW—one for tonight, one for the morning and three for the freezer...in the summer months that is it."
> —*Indigenous resident, Upper Loch Torridon.*

In the Western Isles and Upper Loch Torridon current food availability through the local shops is also felt, by the majority of the local residents, to be less than is required. For example:
> "You can't get everything you'd like to get, like low-fat products. So, we go to town (Inverness) once a month for low-fat spreads and salad dressing."
> > —*Indigenous local elderly with doctor's advice to cut down on fats.*

It is also felt that food availability through the local shops is affected by the tourism. Many of the shops have seasonal opening hours and there is seasonal availability. In the summer months the shops are open for longer hours and there is greater variety. Participants stated that prices also tend to increase during the tourist season. It was also reported that such prices do not always go down again after the end of the tourist season. Although local residents comment on the seasonality of availability, they accept that this has to be the case within an area of low population density, as illustrated by the following quote:
> "The turnover at the local shops is small, so the shopkeeper has to charge more. Especially in the winter months when the demand isn't there. The selection's not there because the throughput isn't there. In the summer, the selection goes up."
> > —*Local resident, Upper Loch Torridon.*

However, participants did remark upon the overall cost of using the local shops, particularly in relation to foods such as milk and bread; the following quote is illustrative of the dominant view held by those within the Upper

Loch Torridon study area:
> "Shopping locally is expensive. For example, bread in Inverness is 30p [pence] a loaf; here it's 95p [pence] a loaf. And milk is twice as much as in Inverness. Fruit and vegetables are much more expensive."
> > —*Indigenous local with teenage daughters.*

The transport costs, borne by the local shops, are recognized as a major factor, comprising some justification for the higher costs within the study areas. By contrast, in the Thurso locality, the existence of supermarkets greatly enhanced availability. However, a number of participants suggested that the location of the supermarkets—the most northerly point of mainland Scotland—lead to distribution problems and poorer quality fruit and vegetables:
> "They (the supermarkets) must think we're pretty boring up here; there's not much variety."
> > —*Recent in-migrant to Thurso locality.*

> "... the fruit and vegetables—it's not always fresh. And the bananas! They're either really green or really black, or not there at all.
> > —*Young mother, Thurso locality.*

Participants within the study areas outlined a number of reasons for the purchasing, shopping, and cooking patterns that take place. In terms of the apparent resignation to the status quo (in terms of seasonal availability, higher prices and so on), data point to an element of "fatalism." Further, and significantly, interviewees spoke of not having anger concerning lack of local availability. In the specific context of the price of foodstuffs, the response of the indigenous and long-term in-migrants appears to be one of acceptance:
> "We have to accept paying more. The grocer and butcher can charge what they

like; there's no opposition. There's so little we can do about it... Rather than make a nuisance of yourself."

> —*Indigenous local, Upper Loch Torridon.*

The apparent reticence in identifying any problems associated with the status quo was also linked with a certain amount of personal pride.

It was highlighted that it is often the in-migrants who initiate change, rather than the locals:

"Locals don't have big ambitions, and the confidence; and also they don't necessar-ily have the money (to start up businesses, for example); people don't pressure for change."

> —*Professional involved with community work.*

An experienced worker in the area commented that:

"You can't break their (locals') system, but you can fall in with it. You HAVE to go with the tide."

> —*Professional involved with community work.*

In addition to the above complexity concerning the understanding of, and attitudes toward, the local status quo, there are additional factors that affect the choice of purchasing, cooking, and eating patterns in the context of accessing healthy eating within the study area. Participants stressed that income levels are also related to (i) local availability and to (ii) transport (to other shopping options), and that these factors should be viewed in conjunction with one another. Other factors cited by interviewees include selecting those foods that are easiest to prepare, and choosing what the family likes to eat.

Local Agendas

Generally, participants enjoyed talking about food. This may be stating the obvious, but it is easy to forget that food has a central role is social relationships and structures. Food production and distribution is also linked to the potential for sustainable local economies. Many people depend upon food and related industries for their livelihoods and, thus, were keen to support the develop-ment of a local food economy.

Residents need to purchase food and many participants recognized a series of barriers to the consumption of a better diet. The most obvious barrier identified is the limitations posed by the remoteness of localities from major service centers. With an increasing emphasis upon paid employment, the idea of "growing your own" fruits and vegetables was no longer as popular as it was said to have been.

In the Western Isles, the potential for health and social activities based upon a core element of a "remembered" culture, prized for its sense of cohesion, was noted by a number of participants at the community workshops. Many spoke of a "traditional diet" evident in the islands 50 years ago and largely based upon local food production and patterns of work on the land. While a return to this diet was impossible, it was suggested that elements of the diet—an emphasis upon oat-based foods and root vegetables—might be promoted through the collection of recipes and an exploration of diet in history. Several local groups decided to pursue this interest.

In the Western Isles, and on the mainland, there was concern expressed with the manner of displaying foods, especially fresh foods, in smaller shops. A number of participants pointed out that more display space was given to alcohol, sweets, and chocolate than to fruit and vegetables. Retailers appeared to work with a presumption that fresh foods

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were not popular. But a number of people suggested that this reflected advertising and promotion by stronger elements of the food industry. Suggestions were made of discussions between local people and retailers, consideration of displays, and the provision of recipe cards for ideas on the use of fresh foods and frozen vegetables.

Haulage of the food to the shops was a concern for many. Tackling this was considered to be an issue for local and national government. It was suggested that government should consider the costs of transporting and distributing foods to remote and rural areas. A subsidy to food and haulage firms may be appropriate. Local public transport was limited and this was also an issue for economic development and sustainability of communities.

There were also a number of positive points made about food activities. In the long winter months many people are eager to get involved in community activities. Cooking skill classes, cooking for men and teenagers, and a celebration of local foods were all suggested. One participant commented that residents often "shared" foods; for example, distributing potato crops or carrots and suggested that the idea of "growing your own" vegetables be promoted as a hobby which would provide some physical exercise and good quality foods.

The range of the ideas on the local agendas were something of a surprise to the health professionals whose concern was to develop leaflets, activities, and policies that would promote healthy eating largely through increased consumption of fruit and vegetables. Local people had to work with the available food and often the recipes in health promotion booklets contained ingredients that could not be purchased locally. Professionals had to consider wider structural issues with regard to food distribution and food costs and these necessitated lobbying

and policy activities that were outside the community setting.

REVIEWING THE METHODOLOGY AND METHODS

The research team met on a regular basis to consider all forms of data and participants' views of the process. In reviewing our approach and the methods, we would suggest that the following points are of relevance to the design and conduct of similar projects:

- life in remote and rural areas moves at a different pace and this presents certain issues for the researcher. In particular, people were reluctant to make appointments for interviews preferring that "someone calls in." Initially, we thought this might be indicative of a reluctance to participate, but rather it reflected differing ways of organizing work and time;

- it proved relatively easy to make contact with local people and our initial concerns about a team comprised largely of external researchers were not born out. However, we did spend time attuning ourselves to the local culture and pertinent issues;

- from the earliest stages, the need for feedback to the local community was articulated and a commitment was sought from the research team to undertake this;

- local people were concerned about anonymity and data had to be reported in a sensitive fashion, and

- overall, local people had a range of ideas on how to move issues concerning diet and health forward. An appreciation of their perceptions of the issues provided an agenda for future activities that purely epidemiological research could not have done.

We were aware that our presence in the

study localities created certain expectations for future health activities and, at times, we had to reiterate our role as commissioned researchers and not practitioners. We were left in no doubt that local people are eager to see improvements in food availability and food choice. The research was perceived as a useful starting point, but only as long as the potential implications and future outcomes were considered with community participation.

CONCLUSIONS

The majority of participants felt that the contemporary diet was unavoidably unhealthy and were keen to be part of any new initiative or process that would tackle the "unhealthy" eating patterns. Participants also stressed, however, that any health promotion activities relating to diet should be based on the priorities outlined by local residents, and felt that some of the more recent health promotion campaigns had been "out of touch" with the practical realities of rural life.

The research, through a process of working with participants, ensured that both the conduct and outcomes of the research (especially community activities) were grounded in local knowledge and experiences. It remains to be seen which, if any, of the various activities proposed will be sustained. For the researchers and health professionals it was a lesson in the value of participant validation activities for ascertaining local agendas and enhancing the participation of local people in future debate and developments.

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Dental Health Attitudes and Knowledge Levels of Rural and Suburban Texas

Linda Russell, M.S.
Doctoral Candidate in Health Education
University of Texas at Austin
Austin, Texas

Abstract

This study was conducted to measure and compare differences in dental health attitudes and knowledge levels between patients in a selected rural dental practice and those in a selected suburban dental practice. Demographic information, dental health attitudes, and dental health knowledge levels were determined and compared in 120 dental patients. Statistically significant differences in dental health knowledge and dental health attitude levels between the two groups were found. Differences in the average age levels in each dental practice, differences in education levels, and differences between dental insurance, and dental practice sites were also revealed; however, there were no statistically significant differences between males and females in dental health attitudes and dental health knowledge levels. These findings may indicate that some rural populations may be dentally compromised due to various demographic and cognitive factors in some rural residents.

Introduction

In today's modern era of preventive dentistry, special emphasis is frequently placed on achieving optimum dental health. However, various rationalizations keep some individuals from utilizing available dental services (Syrjala, Knuuttila, & Syrjala, 1992).

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Many individuals ignore unmet dental needs when assessing the state of their overall health. In addition, differences in dental attitudes and dental knowledge as well as residential demographics can affect an individual's dental health status (Jack & Bloom, 1986).

Measures and indicators of the discomfort, disability, and disadvantage associated with oral conditions are needed in order to record the extent to which these affect the quality of life of an individual and the well being of society (Locker, 1988). Thus, dental health attitudes and knowledge levels must be understood because they are important determinants of both oral health behavior and dental health status of an individual.

Although dental disease is not life-threatening, a vast majority of people fail to recognize the importance of dental care and its relation to their overall well being. Maintaining oral health and attractiveness increases self-esteem and effective social interaction, which can enhance the quality of life (Giddon, 1987). Certain variables, such as demographics, can contribute to a person's attitude and knowledge about dental health as well as influence his or her dental care and utilization of dental services. As a result of reported demographic differences between rural and suburban communities, an individual's dental behavior may vary (Beazoglou, Guay, & Heffley, 1989). Some factors which influence individuals' dental health attitudes and knowledge levels are economic factors, past dental experiences, education levels, formal and informal dental health education strategies, access to available dental services, and dental benefit plans, which a person may or may not have.

This study determined differences in dental health attitudes and knowledge levels of patients in a selected rural dental practice and those in a selected suburban dental practice in the state of Texas. Differences in education levels and dental insurance coverage between the two practice sites as well as differences in the average age levels of the two dental practice sites were also determined.

METHODOLOGY

This descriptive study utilized a post-test only, quasi-experimental research design. A dental health knowledge test and a dental health attitude scale, which consisted of dental health concept questions, were used as instruments to collect the data from a convenience sample of 120 dental patients from both rural and suburban dental practices. One hundred-twenty questionnaires (100%), in addition to demographics information regarding age, gender, education levels completed, and dental insurance coverage were administered and collected at both practice sites.

The reliability coefficients for the instruments used in this study were within an acceptable range for assuring confidence in the scores tabulated and in the significance of the differences between the two groups of subjects; they were estimated at .62 and .78. The Dental Health Knowledge Test utilized an answer key to determine the number of correct answers. Each respondent's score was determined by summing the total number of correct answers out of the 15 statements that were answered; mean scores were used for interpretation and comparisons between the two groups. The Dental Health Attitude Scale utilized a five category rating scale and reverse scoring was used for all negative items. The respondents' scores were determined by summing all item values. Data were interpreted as qualitative and quantitative data. Statistical results were analyzed by using descriptive (frequencies and percentages) and inferential statistics (independent t-

tests, ANOVA, and chi-square analysis). A .05 significance level was set for this research and an ex-post facto reliability factor for the two instruments used in this study was determined by using the Spearman-Brown split-halves formula (Safrit & Wood, 1989).

RESULTS

The age group of the respondents varied from 19 to 80 years old in the rural practice; whereas, in the suburban practice, they varied from 18 to 73 years old. Statistically significant differences between these two groups were revealed with the mean age in the rural group being 48.61 (SD = 17.24) and 40.32 (SD = 12.31) in the suburban group.

The overall education levels of the respondents in both groups ranged from those who completed only grammar school to those who completed college. Table 1 demonstrates the frequencies and percentages for the three education levels of each dental group. There was a significant difference in patients' dental health knowledge levels among the education level groups with a group mean score of 8.51 (SD = 2.56) for both dental groups' overall high school education level and a group mean score of 9.67 (SD = 1.86) for both dental groups' college education level. The one-way ANOVA revealed a statistically significant difference between these scores (F = 12.36, p < 0.000). A Scheffe method post-hoc test was utilized to determine which groups differed from each other. The grammar education level group differed significantly at the .05 level from both the high school education level group and the college level group. The high school education level group differed significantly at the .05 level from the grammar education level group and from the college education level group at the .01 level. Table 2 depicts the analysis of the variance summary for the dental health knowledge means in the education level groups.

Both dental groups' dental health attitude levels among education level groups also differed significantly with a group mean score

Table 1. Education Levels Completed in Each Dental Group by Frequency and Percentage

Education Level*	Frequency	Percentage
Completed Grammar School		
Rural dental group	12	20.03
Suburban dental group	0	0.0
Completed High School		
Rural dental group	37	62.7
Suburban dental group	23	39.0
Completed College		
Rural dental group	10	16.9
Suburban dental group	36	61.0

NOTE—Number of subjects in each group=60. Total rural group=99.95 due to rounding.
[*One subject out of each group did not answer.]

Table 2. Summary of Education Level Groups' Dental Health Knowledge

Source*	DF	SS	MS	F	p
Education	2	113.111	66.5	12.36	.0001**
Error	115	619.092	5.38		

NOTE—Total number of subjects=120.
* Two subjects did not answer.
** $p < .0001$

of 79.66 (SD = 12.35) for the overall grammar education level, a group mean score of 88.70 (SD = 8.54) for the overall high school education level group, and a group mean score of 90.5 (SD = 7.15) for the overall college level group. A one-way ANOVA revealed a statistically significance difference between the scores (F = 7.79, p < .0007). A Scheffe method post-hoc test also demonstrated a significant difference at the .05 level between the grammar education level groups and the high school and college education level groups. Table 3 depicts the ANOVA summary for the dental health attitude means in the education level groups.

Most of the respondents (48%) in the rural dental practice did not have dental insurance coverage; whereas, almost all of the respondents (85%) in the suburban dental practice were covered by dental insurance. A Yates corrected chi-square analysis was used to observe the two dimensions. A two-way chi-square post-hoc test was used to demonstrate the significant difference between the expected and the observed frequencies between the two groups (DF = 1, p < .0001). The chi-square analysis indicated that there was a significant difference between the two values ($c^2 = 48.254$, p < .0001).

The overall dental health attitude scores for both dental groups ranged from 56 to 100, with a mean score of 85.73 (SD = 10.30) for the rural dental group, and a mean score of 96.61 (SD = 7.33) for the suburban dental group. The difference between the mean scores was 4.68. The statistically significant difference between the groups' attitude scores are depicted in Table 4.

The overall dental health knowledge scores for both dental groups ranged from 1

Table 3. Summary of Education Level Groups' Dental Health Attitudes

Source*	DF	SS	MS	F	p
Education	2	112.699	561.349	7.79	.0007**
Error	115	8288.766	72.0762		

NOTE—Total number of subjects in each group = 120.
* Two subjects did not answer.
** $p < .0007$

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Table 4. Group Mean Scores of Dental Health Attitudes and Dental Health Knowledge in Rural and Suburban Groups

Variable	Range	M	SD	t	p
Dental Health Attitudes					
Rural dental group	42 (56-98)	85.73	10.30	2.99	.003
Suburban dental group	26 (74-100)	96.61	7.33		
Dental Health Knowledge					
Rural dental group	11 (1-12)	7.63	2.67	-4.55	.0001
Suburban dental group	9 (5-14)	9.63	2.10		

NOTE—Number of subjects in each group = 60
$p < .05$

to 14, with a mean score of 7.63 (SD = 2.67) for the rural dental group, and 9.63 (SD = 2.10) for the suburban dental group. There was a difference of 2 between the two groups' mean scores. The statistically significant differences between the scores are depicted in Table 4.

DISCUSSION

According to the data analysis in this study, significant differences which were revealed in some of the demographic variables that were measured may have contributed to the significant differences that were revealed in dental knowledge and dental health attitude levels between the two dental groups. Education levels in each of the dental groups were significantly different; whereas, 20% of the rural patients had completed only grammar school, everyone in the suburban group had either completed high school (39%) or college (61%).

Another variable measured in this study was dental insurance coverage in both groups. According to the data analysis, this may have been another determinant in the participants' dental health knowledge and attitude levels; hence, it is likely that these variables influenced the frequency with which patients seek dental care. Subsequently, the data analysis revealed that most of the rural patients (80%) were not covered by dental insurance; whereas, 85% of the suburban patients were. These two distinct differences are a probable indication as to why rural residents do not visit the dentist as often as suburban residents (Chen, 1986; Hayward, Meetz et al., 1986), and thus have less exposure to good dental health.

The difference in dental health knowledge and attitudes between the two groups is probably attributable, in part, to the differences in education levels (Kinnbg, Palm, & Widenheim, 1991; Syrjala et al., 1992), as some researchers have attributed better dental health attitudes to higher education levels.

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Some explanations may account for some of the differences found between the two dental practices in this research. In addition to the small sample sizes, limitations should be acknowledged when generalizing these two groups to other suburban and rural dental practices. The demographics' effects and the dental practices from which these two samples were extracted could be a reflection of the dental knowledge and the dental health attitudes held by both dental groups. Since the rural dental practice operated for 35 years under an interventionist's philosophy, the lack of awareness and importance of good dental health may have influenced this group. The suburban dental office operated under a preventionist's philosophy of dentistry since its inception. Therefore, the suburban dental group has undoubtedly had more exposure to six-month recall cleanings and the importance of practicing good oral hygiene; hence, they have an advantage over the rural dental group. The fact that their education level was higher than the rural dental group is also possibly an indication of a higher quality of life.

CONCLUSION

Based on this study's findings, dental health educators should concentrate their efforts in reaching disadvantaged communities. New educational strategies or programs designed to reach less fortunate groups should be explored. Many disadvantaged adults and children would probably benefit significantly from more dental health awareness and dental health education. The quality of their lives could also be improved by appropriate dental care. Children who fail to have their dental problems treated grow into adults with decayed, missing, or maloccluded teeth. Older people who do not receive

appropriate dental care may suffer from periodontal disease, missing teeth, or poorly fitting dental appliances (Kovar, Jack, & Bloom, 1988). Thus, the prevention of any of these problems through proper dental health education could be less costly than the negative effect produced by them.

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PROSTATE CANCER SCREENING AND RURAL HEALTH

Jessica L. Harden, M.P.H.
Principal Investigator and
Executive Chairman, Houston Chapter
National Black Leadership
Initiative on Cancer
Houston, Texas

ABSTRACT

The objective of this project was to screen for prostate cancer in under-served minority male populations. This project was a collaborative effort among public health and academic communities.

Four hundred seventy-six men were screened. Seventy-four percent were Black, 19% Caucasian, and 7% Hispanic and other. It was concluded that this project was successful in recruiting minority men due to the culturally sensitive methodology.

Although conducted in an inner city community, it is replicable for rural communities, because men in the inner-city and rural areas face many similarities regarding beliefs, attitudes, and barriers to prostate screening. As such, support for prostate cancer health services by urban and rural health care providers is recommended.

INTRODUCTION

Prostate cancer is the second leading cause of cancer deaths in American men (United States Department of Health and Human Services, 1990); however, it has been the subject of relatively few epidemiologic studies and the causes remain unclear. Numerous studies have suggested that certain environmental risks such as occupation, smoking, alcohol consumption, nutrition, and general life style factors may be associated with an elevated prostate cancer risk

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(Flanders, 1984; Morrison, Savitz, Semenciw, Hulka, Yao, Morison, & Wigle, 1993). Pesticides used in the farming occupations, primarily phenoxy herbicides and cadmium used in pesticides were strongly associated with prostate cancer (Ronco, Costa, & Lynge, 1992; van der Guden, Kolk, & Verbeek, 1995). Morrison et al. (1993) noted that the risk associated with acres sprayed with herbicides increased when 250 or more acres were sprayed. The test for a trend was significant. Exposure response relation may be stronger among younger farmers (45 to 69 years of age).

It is estimated that in 1998, 184,500 men (down from 244,000 men in 1995) will be diagnosed with prostate cancer and 39,200 will die from the disease (American Cancer Society, 1995; American Cancer Society, 1998). In Texas in 1997, there were 1,867 deaths due to prostate cancer of which 373 were Black men; the age-adjusted incidence for Black men was 58.98/100,000 compared with 21.45/100,000 for Caucasian men (Texas Cancer Data Center, 1998). Despite the higher incidence of prostate cancer in Black men in Texas as well as the United States population, most research on prostate cancer screening has been reported from studies of Caucasian men. Whittemore (1990) suggested that minority men would avail themselves of a prostate screening program if one was offered to them; it follows that there have been few such offers. In light of the fact that Blacks are at highest risk, more screening is needed in minority populations, especially in rural areas where barriers to health services are greater than that of urban areas.

The purpose of the project reported herein was to screen minority men >40 years old, who are at high risk for prostate cancer. In this report, we describe our methodology for recruiting a large number of minority men in an inner-city community. We suggest that our approach is applicable to recruitment efforts for a screening program in a rural community.

METHODS

A collaborative effort to screen minority males in Houston, Texas was initiated during National Prostate Cancer Awareness week in two consecutive years. Free screenings were conducted during one-week periods in September 1991 and September 1992 at two public health centers of the Houston Department of Health and Human Services. The chosen centers were situated in predominately Black populated areas. The two areas had a combined population of 141,663, of which 18,380 and 1,590 were Black and Hispanic men, respectively, 40 years of age and older. The median annual income for the two areas was $17,762 (Health of Houston, 1990). Recruitment for the screening focused on minority men 40 through 70 years of age. A health and wellness breakfast was held for area Black ministers to recruit them to serve as role models. Black women played an important role in recruiting men and administering the exam.

An electronic and print media campaign was conducted. Two national network television stations ran a public service announcement several times a day for one week; the announcement included the screening sites, dates, times, and footage of a local Black minister stating his intentions of getting screened. Two local radio stations, one Black-oriented and one country western music-oriented, ran public service announcements and featured the screening project on their news and talk shows; the project's medical committee members and academicians were invited to appear on the talk shows to discuss and answer questions about prostate cancer. One local weekly Black newspaper and a major daily newspaper printed announcements. Announcements also appeared in community newspapers. Program flyers were distributed to churches, barber-

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shops, and stores in area shopping malls.

The American Cancer Society (1995) recommends an annual prostate specific antigen (PSA) test and a digital rectal examination (DRE) as the most effective means for early detection of prostate cancer in asymptomatic men (Metlin, Murphy, & Ray, 1993; Kane, Littrup, & Babaian, 1992). Catalona, Smith, Ratlif, and Basler (1993) indicate that the PSA test allows detection of some prostate cancers before they become evident on the DRE. In addition, several other authors have suggested that screening by PSA is valuable in improving early detection of malignancy, despite its limitations (Gerber & Chodak, 1991; Nakao & Babaian, 1992; Kane et al., 1992). Prostate specific antigen testing is the only objective modality utilized to detect prostate cancer and is less expensive that transrectal ultrasound (TRUS) (Babaian & Camps, 1991; Babaian, von Eshenbach, Miyashita, Evans, Ramierez,

1991). PSA may lead to fewer false positive results than TRUS and DRE, resulting in minimizing the number of unnecessary biopsies. Because of these considerations, the screening methodology for this project included a PSA test and a DRE administered by oncology nurse practitioners in collaboration with community physicians and urologists. PSA and DRE information from screening guidelines were adapted from those of the American Cancer Society (1995). A PSA greater that 4.0 ng/ml was considered positive (abnormal). The DRE was considered abnormal if the examiners found induration, nodularity, asymmetry, and/or enlargement of the prostate.

RESULTS

Results of the DRE were given to participants immediately after the examination.

Figure 1. PSA-Age Regression
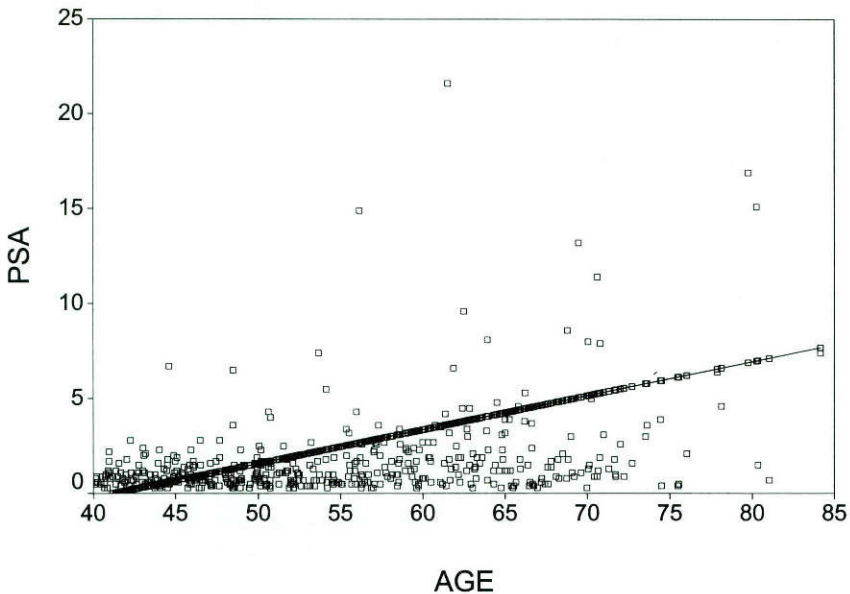
Figure 2. DRE-Age Linear Regression

AGE
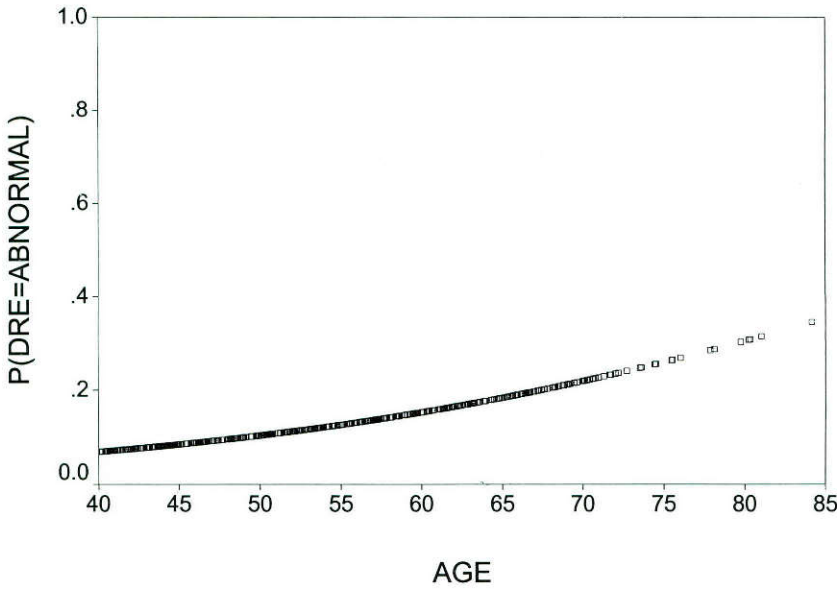
Results of the PSA test and DRE were mailed by certified letter within 30 days of the test to all participants with abnormal findings. Telephone calls were made to follow up on their adherence to the recommendation to obtain additional testing.

Four hundred seventy-six men between the ages of 40 and 70 years (X=55 years) were screened. Three hundred thirty (69%) were Black, 83 (17%) were Caucasian, and 33 (7%) were Hispanic and/or another race. Fourteen men self-reported having prostate cancer, having had surgery, radiation, or hormonal therapy or were awaiting treatment. Four men reported having benign hyperplasia requiring treatment.

Thirty-three men had abnormal PSA levels (>4.0 ng/ml), 61 had abnormal DRE findings, and 9 had both abnormal PSA levels and abnormal DRE findings. The PSA values ranged from 0.3 ng/ml to 164.0 ng/ml. Of the 61 who had abnormal PSA and DRE findings, 40 occurred in Black men, 16 in Caucasian

men, and 5 in others. Of the 33 abnormal PSA findings, 25 occurred in Black men and 8 in Caucasian. Figures 1 and 2 suggest a significant positive relationship between age and the PSA test and age and the DRE.

DISCUSSION

This program, conducted in a local health department, was successful in reaching a large number of Black men, the population at highest risk of prostate cancer. Although at highest risk, this population has been under-served by screening studies (American Cancer Society, 1995). We surveyed the Black participants in the screening program to determine why minorities do not seek out screening. Answers to our questionnaire suggested several behavioral constrained that impeded early detection: they didn't feel sick, their doctors didn't recommend testing, they thought prostate cancer was due to old age

Figure 3. Male Cancer Profile From 1983-1993

Lubbock County

All Cancer Deaths (male)
195.04/100,000
Prostate Cancer Deaths
23.16/100,000

Prostate Cancer
Deaths
10.61%

All Cancer Deaths
89.39%

Harris County

All Cancer Deaths (male)
237.63/100,000
Prostate Cancer Deaths
27.76/100,000

Prostate Cancer
Deaths
10.46%

All Cancer Deaths
89.54%

Texas

All Cancer Deaths (male)
219.99/100,000
Prostate Cancer Deaths
24.29/100,000

Prostate Cancer
Deaths
9.93%

All Cancer Deaths
90.07%

Source: Texas Cancer Data Center, 1998.

and were embarrassed by such a test. Such health beliefs may explain the late stage of the disease when detected in many minority men.

The health belief model proposes that construct "barriers," such as accessibility to screening services, are significant deterrents to behavioral change (Rosenstock, 1990). The high level of participation by Blacks in this screening effort was due in part to: (1) role modeling by Black men whose identity was related to the target population, for example, a Black minister who pastors a well-known church in one of the screening site communities; (2) the participation of women (Black women in particular) in recruiting Black men and administering the examination; and (3) having chosen screening sites in neighborhoods close to the target population and familiar to the community. In contrast to the 74% participation of Black men in this project, in another local screening project conducted about the same time, only 18% of the participants were Black.

While the program in this report was conducted in an inner-city population at risk for developing prostate cancer, there is no reason why similar strategies, modified for a rural constituency could not be used. For example, Lubbock County, with a population of 225,997, has a prostate cancer mortality rate of 23.16 per 100,000 (see Figure 3 for a comparison of prostate cancer rates in Lubbock and Harris Counties and Texas.) The percent of deaths due to prostate cancer is 5.1% for Caucasian men and 5.7% for Black men. These rates appear low compared to the national average; therefore, more work is needed to determine the true levels of prostate cancer among men in the rural population. The conclusion is that prostate cancer screening in the Black population can be successful when appropriate target planning methodology is used. This methodology may be a model for other projects

recruiting minorities and/or other hard to reach populations.

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An Economically Viable Model for Providing Chronic Disease Management to Rural Communities Utilizing Pharmacists in Expanded Practice Roles

Judy K. Freeman, R.Ph., Ph.D.
Assistant Professor
Department of Pharmaceutical Sciences
School of Pharmacy
Texas Tech University
Health Sciences Center
Amarillo, Texas

Roland A. Patry, R.Ph., Dr. P.H.
Executive Associate Dean and Professor
Department of Pharmacy Practice
School of Pharmacy
Texas Tech University
Health Sciences Center
Amarillo, Texas

Arthur A. Nelson, Jr., R.Ph., Ph.D.
Dean and Professor
School of Pharmacy
Texas Tech University
Health Sciences Center
Amarillo, Texas

BACKGROUND

The Department of Health and Human Services (DHHS) defines medically under-served areas (MUA) as regions with a demonstrated shortage of personal health services. This deficiency is assessed by the comparison of national averages for four health care demand/resource indicators: percentage of elderly population, poverty rate, infant mortality rate, and ratio of primary care physicians per 1,000 population (Texas Department of Health, 1995). Medically under-served populations (MUP) represent areas where a shortage of personal health services has been exhibited for a specific population group. As an example, November 1995 data identified 229 Texas counties that were eligible for MUA/MUP designation with 177 counties designated as an MUA. Texas, like many mid-western and mountain region states, has a significant problem with access to primary care in rural areas.

The absence or inadequate supply of local health care providers in some rural communities often forces citizens to travel to larger, neighboring communities for basic health care services. Therefore, the presence of health care providers within a rural area benefits the community as a whole. However, it is often quite difficult for medical practitioners to maintain a practice in some rural areas without subsidy (Baldwin & Rowley, 1990.) Furthermore, small communities also have difficulty supporting a hospital (Rowley and Baldwin,

1984.) Thus, this lack of economic viability has forced many medical practitioners from the rural communities to more densely populated urban areas. Government subsidy programs do exist that target physicians willing to relocate to under-served areas. Subsidies include payments toward student loans in amounts contingent upon time spent in a rural area and these subsidies are not difficult to obtain.

If the community is fortunate enough to have a rural health clinic, this is a step in the right direction. However, even though the medical professionals associated with rural health clinics work hard to provide quality health care to rural citizens, circumstances beyond their control sometimes prevent them from being able to meet all the needs of their community. For example, some clinics have part-time hours, a limited staff, and face a variety of financial problems.

In some rural areas, the only full-time health care provider in the community is the local pharmacist. In January 1999, 11 Texas counties reported having no physicians, physician assistants, or nurse practitioners. The population of these counties ranges from 141 (Loving County) to 2,965 (Hudspeth County) (Texas State Board of Medical Examiners, 1999). Of these 11 counties, three report having one community pharmacy (Texas Board of Pharmacy, 1999). Therefore, the local pharmacist could serve as a vital link between patients and their primary care physicians. When a practitioner is unavailable, or difficult to access, alternate pathways for care should be considered. Naturally, one solution is to encourage physician relocation to rural areas or create networks of rural clinics affiliated with a regional medical center. However, other options to provide health care can be utilized as well. Medical care can be enhanced by using community pharmacists in a greater role as health care providers in a rural setting. This practice alternative also provides an economically viable opportunity for community pharmacists who are willing to reside in rural communities.

PHARMACISTS' HISTORICAL AND EVOLVING PRACTICE ROLES

Pharmacists are considered the most accessible provider in the United States health care delivery system (Center for Rural Initiatives, Rural Health in Texas: A Report to the Governor and the 75th Texas Legislature, January 1997). Few rural or urban communities are without easy access to a pharmacist, often available for walk-up service, through extended hours and on weekends. Pharmacists take pride in being accessible to the community; even after-hour prescription services are advertised by most pharmacies.

The role of the pharmacist in the community practice setting has been one of dispenser of medications prescribed by a physician, dentist, or any practitioner with prescribing authority granted by state law or regulation. As a result of a 1990 federal law (OBRA '90), the role of patient counselor on appropriate use of medication has been added to the pharmacist's legal responsibilities. Furthermore, the pharmacist has been a long-standing consultant on basic health issues, information on medications, side effects, contra-indications, and general reassurance. Although this information is given, typically without specific knowledge to the patient's need, the pharmacist is still held legally liable for the quality of the information. Pharmacists generally provide such consultations without charge to the patient as a professional and legal responsibility (Center for Rural Initiatives, Rural Health in Texas: A Report to the Governor and the 75th Texas Legislature, January 1997).

The 1951 Durham-Humphrey Amendment to the Federal Drug and Cosmetic Act

established the categories of medications (legend or prescription versus non-legend or over-the-counter) and required that legend drugs could not be dispensed except under medical supervision and only pursuant to a prescription order issued by a qualified practitioner. Prior to this amendment, pharmacists often served as a primary care provider to a community, treating minor ailments, triaging more acute medical conditions to physicians, and providing drug therapies. The corner drugstore was a clinic in every sense and the pharmacist was "Doc" to many. While one may argue the issue of quality with "counter" consultation, the Durham-Humphrey Amendment was not directed at the care provided by the pharmacist—quite the contrary, one of the authors of the legislation was trained as a pharmacist. An unintended consequence of the Act was the eventual commercialization of the practice of pharmacy to the point that the primary care role of the pharmacist became secondary to the delivery of a commodity, the prescription. Fortunately, the pharmacist's training and scope of practice has changed to meet the needs of an evolving health care system.

Pharmacists have entered a new era that has greatly expanded practice opportunities through the adoption of a new concept, pharmaceutical care. Pharmacists are a valuable asset to the present health care system and are capable of providing a variety of clinical, patient-centered services in addition to traditional medication dispensing (Hepler and Strand, 1990). Pharmacists can provide disease management services for patients with chronic illnesses. Currently, pharmacists are capable of conducting over 100 CLIA-waived, laboratory tests within a community pharmacy setting (www.cdc.gov, 1998). Disease management has the potential to influence the efficiency of health care delivery and patient outcomes (Armstrong and Langley, 1996).

Numerous states during the 1990s have modified their health professions practice acts to re-define the scope of practice for pharmacists to include therapeutic management of patients under written protocols of physicians (including prescriptive authority), diabetic self-management and training, and administration of vaccines and immunizations. Prior laws in some states allowed pharmacists to administer medications, but the administration of vaccines and immunizations were an ill-defined area within the regulations. The intent was to have pharmacists work with patients to monitor and adjust their drug therapy once they had been previously diagnosed. Pharmacists could order drug therapy related laboratory tests and administer medications. Thus, for many pharmacists in rural areas the opportunity exists to establish, working with a physician, a primary care practice for a large number of patients who do not need the critical attention of a physician in order to maintain their drug therapy management. This is a role that many recently trained pharmacists have been prepared to meet and is the current focus of most pharmacy schools.

In the past two decades, there has been a movement to enhance the level of care traditionally provided by pharmacists. Clinical pharmacy emerged as a specialty within the discipline of pharmacy that provided greater emphasis on pharmaceutical care beyond that of traditional drug product dispensing. The Doctor of Pharmacy Degree (Pharm. D.) began as a two-year, post-baccalaureate degree that provided candidates with intensive clinical training. Today, the Pharm. D. has been converted to an entry-level degree. By the year 2000, all pharmacy schools will only offer this entry-level Pharm. D., which is a four-year, professional curriculum (minimum of six years of college) as opposed to the traditional, three-year (baccalaureate) professional curriculum (minimum of

five years of college). By phasing in this extra year of study, and changing the focus of study from traditional pharmacology, pharmaceutics, and medicinal chemistry to an integrated, disease-focused curriculum, pharmacy education now offers more intensive, clinical training.

Baccalaureate pharmacists with practice experience are very capable of drug therapy management. Continuing education and certification programs are available that provide the opportunity for skill enhancement. Numerous states have now implemented certification programs to train pharmacists for disease management. Many universities have also incorporated a non-traditional Pharm. D. track that allows practitioners to earn the Pharm. D. degree while remaining in practice. Practitioners enrolled in this curriculum receive didactic courses in addition to clinical experience under the supervision of a trained preceptor. Drug therapy management in a rural community is an opportunity that awaits both baccalaureate and Pharm. D. practitioners. Many opportunities exist for practitioners to upgrade and enhance their skills.

Drug-related morbidity and mortality has been estimated to cost $76.6 billion in the ambulatory setting with drug-related hospitalizations as the largest component of this total cost (Johnson and Bootman, 1995). Clinically-trained pharmacists possess the knowledge and skills to address this phenomenon specifically within rural areas where possibly the pharmacist is the only easily accessible health care provider. Miller and Scott (1996) documented the number and type of pharmacists' interventions within 30 community pharmacies in rural Nebraska. Their major findings include: 1) pharmacists initiated the majority of the interventions, 2) the pharmacist interventions were well-received by patients and physicians, and 3) pharmacist interventions had a sizable financial impact.

THE PRIMARY CARE PROVIDER MODEL

The model in Figure 1 depicts the processes and outcomes that define the primary care scope of practice for a pharmacist in a rural area. Predictably, in most rural communities, direct patient care activities would require the patient management, telecommunication, and billing systems of an existing community pharmacy.

PHARMACIST-PHYSICIAN CONSULTATION

The lack of organized health care delivery in many communities can be overcome if community pharmacists become practitioners within an integrated health care network working closely with physicians in urban communities. Through such a network, pharmacists could deliver preventive health care services such as immunizations, chronic disease screening, and administer wellness programs such as weight control or smoking cessation programs. The expertise of the pharmacist could be used to initiate various chronic disease clinics or follow-up post-discharge hospitalization to ensure that patients were not experiencing any drug effects. In turn, the pharmacist would serve as another source of referrals to participating physician groups or to regional hospitals.

Telemedicine

Recent advances in technology and changes in physician payment systems may provide an even greater opportunity for physician/pharmacist collaboration in rural

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Figure 1. Pharmacist Role as a Health Care Provider in a Rural Community

Pharmacist ⟷ *Referral* / *Consultation* ⟶ Physician

Preventive Care
- Vaccinations
- Triage
- Chronic Disease Screening
- Smoking Cessation
- Weight Control
- Post MI Rehabilitation

Therapeutic Management
- Chronic Disease Management
- Drug Therapy Monitoring
- Adverse Drug Event Management

Prospective Economic Outcomes
- Decrease Hospitalizations
- Decrease ER Visits
- Decrease Work Loss

Prospective Humanistic Outcomes
- QOL Enhancement
- Increased Patient Satisfaction
- Increased Compliance with Medical Therapy Through Accessibility of Health Care Professional

Prospective Clinical Outcomes
- Decreased Clinical Events (MI, ADR, CVA)
- Physiologic and Metabolic Measures
- Increased Therapeutic Success
- Decreased Mortality
- Decreased Morbidity

Community Benefits
- Increased Access to Primary Care
- Increased Economic Growth of Community
- Increased Morale of Community Through Self-Provision and Self-Support
- Increased Efficiency of Resource Utilization
- Improved Health Status of Community

communities. Two-way, high-definition television systems with special attachments for physical assessment of patients distant to the physician are becoming widely available. Such systems are available for approximately $45,000. When linked with a multi-specialty physician group, a rural pharmacist could provide patient access to many medical services only available in large medical complexes. Such interactions typically require a "license to license" relationship that "physician to pharmacist" satisfies, with the pharmacist executing the basic procedures that have typically been provided by nurse practitioners and physician assistants.

Another feature of telemedicine is the ability to link rural homes with the pharmacist care provider for drug information. Using the Internet, the pharmacist could easily establish a Web page and through user name and password protection, tailor drug information based on the specific needs of the patient. The greatest potential benefit for the pharmacist using telemedicine is access to the integrated health system resource base. Tele-consultation can link the pharmacist to the poison control center, specialty practitioners, and the drug information center.

THERAPEUTIC MANAGEMENT

Functional disease management programs can influence patient outcomes in three areas: clinical, humanistic, and economic. Clinical benefits of drug therapy monitoring include: decreased clinical events including myocardial infarction, adverse drug events and cardiovascular accidents, alterations in physiologic and metabolic measures (blood pressure and cholesterol), increased therapeutic success, and decreased mortality and morbidity. Pharmacists, because of their accessibility, can be utilized to monitor drug

therapy. Pharmacists have demonstrated their value by improving patient compliance and disease control, detecting therapeutic duplication, controlling medication-related side effects, and decreasing re-hospitalizations (Monson, Bond, & Schuna, 1981, Bond and Monson, 1984, Bond and Salinger, 1979).

PREVENTIVE CARE

Health promotion is an area where a pharmacist has expertise. Community pharmacists have the opportunity to target patients with health care needs that could benefit from pharmacist consultation and establish a patient-provider relationship that supplements the physician-patient-pharmacist relationship. As the primary health care consultant provider in many rural communities, pharmacists should develop a greater public health role. An excellent example of this increasing role is the focus on immunizations for patients at-risk, such as, the elderly or pre-school children. This accessibility could influence these patients to receive the vaccine during the advised time period without making a special trip to the physician's office or clinic. Increased compliance with vaccinations could affect the entire community.

Adverse lifestyles including alcoholism, smoking, and obesity are noted more often in the medical records of patients who incur large medical expenses versus patients with lesser medical expenses (Cohen et al., 1982). These habits contribute significantly to the development of high-cost, chronic illnesses. Smoking cessation counseling provides an excellent opportunity for pharmacists to positively influence patients. Cummings et al. (1989) determined that many physicians do not routinely counsel smokers to quit smoking. Their findings, however, suggest that additional physician visits for smoking

consultation may be cost-effective. Currently, many insurance companies do not reimburse for physician smoking cessation consultation. In rural areas, the frequency of follow-up consultation may be inhibited by travel. Again, accessibility enables the pharmacist to establish a relationship with rural citizens who smoke and affords an opportunity to develop cessation programs that greatly enhance patient health status. Pharmacists possess the expertise through training necessary to counsel patients regarding the use of nonprescription nicotine products.

Cohen et al. (1982) determined that, with the exception of blood pressure monitoring, routine screening and preventive measures were rarely performed by primary care physicians. Through routine communication with patients, pharmacists have the opportunity to influence patients regarding preventive care and monitor their compliance with recommendations. Examples of preventive care that pharmacists can encourage and implement include blood pressure monitoring, blood glucose monitoring, cholesterol monitoring, and occult stool tests. Preventive care and health promotion provides new frontiers for pharmacy and can greatly enhance the health status of many rural residents.

PROSPECTIVE HUMANISTIC OUTCOMES

Increasingly, humanistic outcome measures such as functional status and patient satisfaction are incorporated into health services programs. In a rural health care setting, measuring health outcomes of the care provided is not optional. It may mean the difference between successful, locally-provided health care services or further erosion of local services and continued patient migration to urban health centers.

Although Epstein et al. (1996) suggest that within-person variability limits the use of many outcome measures as a monitoring tool for individual patients (as opposed to their use in population surveys), a pattern of adverse outcomes may provide valuable quality data to modify an existing service.

Patient satisfaction surveys are a simple means to gauge customer acceptance of health care services provided to rural populations. These surveys have become routine measurement tools with managed care organizations. Although these surveys provide an insight into the quality of service from the patient's perspective, their use as an outcome measurement (as opposed to a continuous quality improvement measurement) from the provider's perspective is limited.

A more commonly used outcome measurement employed by providers of care is the quality of life (QOL) survey. Probably the most common example of a quality of life measurement instrument is the Short Form 36 (SF-36) (The Health Insitute, 1999). The instrument can either be interviewer or self-administered and yields data on the patient's perceptions of functioning and well-being. From a provider's perspective, the administration of this instrument over a period of time can yield insights to the perceived effectiveness of patient management. Studies by Erickson et al. (1997) and Carter et al. (1997) incorporated the SF-36 as a method to determine the pharmacist's ability to influence the outcomes of hypertension therapy.

PROSPECTIVE ECONOMIC OUTCOMES

Pharmacist involvement in the management of chronic diseases has the potential to greatly reduce health care expenditures. These reductions in cost are through:

1) decreased hospitalizations, 2) decreased emergency room visits, 3) decreased work loss, and 4) decreased cost of disease. Bindman et al. (1995) determined that access to care was associated with hospitalization rates for five chronic medical conditions. Their results suggest that in communities where residents exhibit a perception of poor access to health care, hospital rates for chronic diseases were higher. This perception of poor access to health care possibly influences patients to delay seeking care at the onset of symptoms. The progression of disease following the onset of symptoms potentially leads to hospitalization. Zook and Moore (1980) determined that the use of health care resources is greatly skewed in that 13% of patients use as much of the resources as the remaining 87% of patients in a given year. They also suggested that 1.3% of the population consumes greater than half the hospital resources used in any given year and that repetitive episodes of illness from the same disease are the most prominent cause of excessive utilization by a few patients. This frequency of repeated hospitalization for the same disease may explain the high cost of long-term illness in the national medical budget. The reduction in hospitalizations for the chronically ill may greatly reduce health care expenditures.

Zook and Moore (1980) also targeted unexpected complications as a cost factor associated with the treatment of patients with large medical expenses. They suggest that unexpected effects or results of treatment, such as hemorrhage after anticoagulants, can move a patient from very low-cost of care to very high-cost of care episodes that may persist for years. Pharmacist monitoring of drug therapy such as anticoagulants can potentially reduce the number of these adverse drug events further reducing hospitalizations and health care costs.

PROSPECTIVE CLINICAL OUTCOMES

Ongoing communication with the chronically ill patient allows a health care professional to detect problems in the early stages. Pharmacists who closely monitor patients are able to detect therapeutic failures and adverse drug events early in the course of treatment and prevent additional problems. Drug therapies must be prescribed correctly to achieve maximum benefit. Pharmacists have been shown to prevent the risk of overdose and reduce drug cost through documentation of drug therapy, reduction of duplicate therapies, and improving patient compliance (Monson et al., 1981). Borgsdorf et al. (1994) demonstrated that a medication review service resulted in patients using fewer health services at a reduced cost. Additional research has demonstrated the therapeutic and economic benefits of a clinical pharmacy practice (Bond and Monson, 1984, Monson et al., 1981, Bond and Salinger, 1979, Miller and Scott, 1996). Drug therapy alterations and physician referral can prevent hospitalizations and allow the patient to continue normal activities such as work, therefore, reducing health care costs.

COMMUNITY BENEFITS

How does the community benefit by having a pharmacist provide health care services? As previously mentioned, the economics of rural life probably precludes a solo clinical pharmacy practice independent of a retail store. As noted, further research is needed to identify whether a clinic/retail store complex would be positively perceived by patients as a health care facility. If the pharmacist is successful in developing a client base for health care services, this will generate additional revenues and jobs to

support the community. Affiliation with a regional health care system could legitimize, in the eyes of the public, the pharmacist as a health care professional qualified to provide a variety of primary care services. Affiliation would also establish the outside link to channel information back to the pharmacist to ensure adequate follow-up on the care received at the regional facility.

A pharmacy can elicit a sense of self-sufficiency for the community by reducing the need to travel to neighboring communities to purchase goods. If residents are less likely to travel, then other businesses in the area would prosper by residents remaining in their community to shop. Not only does a pharmacy practice in a rural community provide the opportunity for enhancement of health care in the area; it also provides the opportunity for economic stimulation. As urban America begins to re-migrate back to rural communities, the twin concerns of health care delivery and access to primary care providers will become a public policy issue. An appropriately trained community pharmacist can relieve the shortage of care providers and serve as an economic stimulant to the community.

Integrated health care systems can significantly expand their market capabilities by forming networks of pharmacists that are engaged in some aspects of primary care. The health care system and the pharmacist equally share the benefits of this relationship. The pharmacist receives consultative expertise, when necessary, and the health care system becomes the referral center when patients require more acute medical care. The pharmacist, as the expert in drug therapy, can manage the chronic medical and pharmacotherapy needs of rural patients in the community, while the health care system enjoys the

benefits of less unpaid hospital stays and a decrease in emergency room visits.

Improved access to primary care is essential for patients in a rural setting. The availability of health care professionals within close proximity to rural communities can enhance the health status of area residents as well as improve the patient's perception of the health services provided in the community. Improving access to care provides the opportunity for rural residents to seek care at the onset of a problem rather than waiting for a convenient time to travel to a nearby health facility some miles from their home. For years, pharmacists have been triaging and determining whether a situation needed the immediate attention of a physician. This close proximity to a health care provider can lessen the severity of the disease/event potentially improving prognosis.

The model in Figure 1 does not consider external factors, for example, competition, willingness of patients to use the pharmacist for care, or the willingness of the pharmacist to engage in this type of practice. Research is currently in progress to assess how these external factors influence the primary care provider role for pharmacists. Additional research is also underway to determine if physicians in rural communities are more likely to engage in collaborative arrangements with pharmacists who engage in some aspects of primary care.

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Trust and Rural Health Care Providers in Distributed Organizations

Scott A. Chadwick, Ph.D.
Assistant Professor
Organizational Communication
Greenlee School of Journalism
and Communication
Iowa State University
Ames, Iowa

ABSTRACT

This article describes issues of trust related to rural health care providers working in geographically distributed organizations. Trust is introduced as the key factor in effectively working and managing at a distance. Research on the use and effectiveness of communication and information technology in distributed organizations is discussed. A model of trust is provided as a framework for workers and managers to better understand how trust works in their distributed organizations.

INTRODUCTION

Health care providers are faced with a unique challenge in serving their rural customers: how can they provide health care workers in rural areas and still maintain sufficient access to those workers to effectively manage and assist them? Pan, Straub, & Szigeti (1998) report the continuing flow from inpatient care to outpatient services with the resulting challenge of recruiting nurses to rural settings. Effectively managing such workers from a distance requires the use of communication and information technology (CIT). Results of historical analyses give a mixed view of CIT access in rural areas (Dillman & Beck, 1988; LaRose & Mettler, 1989). However, current technology (e.g., Irridium) allows a person to receive phone

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calls anywhere in the world. And there need be little gap in CIT acquisition between rural and non-rural workers, thanks to mail, telephone, and Internet ordering. While the issue of centralized vs. decentralized management is not new, the advances in CIT over the past ten years makes effective management of geographically distributed workers easier to do and allows more effective results. The key to effective management with regard to distributed workers rests on the mutual trust between the managers and the workers. This article contains a discussion on distributed organizations, work relationships and CIT use, trust and CIT use, and provides a trust model that managers and workers can use to better understand trust in their distributed organizations.

DISTRIBUTED ORGANIZATIONS

A distributed organization is one in which workers are separated by space and often time. Health maintenance organizations are routinely structured as distributed organizations when they have multiple locations for providing health care and administrative functions, often across several states and time zones. Health care providers, once limited to a specific location, can now extend their services over a broad geographic region by using the Internet and satellite-based CIT. Part of the decision to function as a distributed organization is to determine if the workers will be mobile, part of a geographically dispersed team, or work as telecommuters (National Research Council, 1994). Ellis and Usrey (1998) describe a "mobile program of continuing education" in rural communities where the educators spend a week at a time on the road. Sending educators "out" to the learners regularly for extended periods of time creates an organiza-

tional structure that is distributed.

Two phenomena make the creation of distributed health care organizations increasingly likely in the near future. First, the availability of CIT allows fast and easy communication across vast distances. For example, virtual corporations and virtual teams can take advantage of CIT to coordinate their efforts toward a common goal even if workers and team members never physically meet (Ahuja & Carley, 1998; Jarvenpaa & Leidner, 1998). Second, the increased use of CIT in the workplace has increased the pace of work. Workers are expected to use CIT, and anything else necessary, to respond to competitive pressures and find competitive advantages for their employers (Cushman & King, 1993; King & Cushman, 1994, 1995). The key to managing this high-speed process effectively is communication based on trust. It is trust that allows managers and workers to coordinate their actions to be "innovative, adaptable, flexible, efficient, and provide rapid response to change" (Cushman & King, 1993).

We should expect to see more health care providers entering into temporary business alliances, cellular organizations if you will, to take advantage of the structural forms allowed by the use of CIT (Allred, Snow, & Miles, 1996). Health care management can strategically link self-managed teams internal to the organization with similar teams from other organizations, even when those teams, or cells, are geographically distributed. The cells can be linked for as long as the task at hand requires, then released to be reformed with other cells for other tasks. Such an organizational structure requires workers who are self-directed, capable of swift change and adaptation (Hall, 1996), and who are "self-reliant, responsible, and self-monitoring" (Schein, 1996). Workers perceived as having those attributes are, by definition, worthy of trust by the organization.

These new organizational forms will allow health care organizations to more easily serve the rural community without as much need to create capital intensive structures as in the past. Facilities where patients can be seen will still be necessary, but management and administrative functions can be centralized and enhanced at a distance via CIT. Patient care can, at times, be realized via CIT as well. For example, telemedicine options can be utilized. But perhaps the two key issues from the workers and the organization's point of view are: (1) does CIT work in building and maintaining relationships and (2) how can workers and management enact trust at a distance?

WORK RELATIONSHIPS AND CIT USE

One key to maintaining effective working relationships in distributed organizations is engaging in regular, open communication about those relationships. Handy (1996) provides two rules to consider in this case. First, the coordination of work among managers and workers is dependent on trust and "trust is fueled by talk" (Handy, 1996). Second, "email, voice-mail, and every other kind of mail are essential, if out of sight is not going to mean out of mind" (Handy, 1996). Also, managers must walk a fine line between exerting too much control over workers and exerting such little control that workers feel abandoned and ignored (Handy, 1981; Zand, 1972). When working at a distance, workers may perceive a lack of trust when managers use CIT to monitor workers, their productivity, or their decisions (Atteweek, 1987; Kipnis, 1996; Perin, 1991; Spears & Lea, 1994).

The good news is that research demonstrates that communication about relationships is possible via CIT (Chidambaram, 1996; Walther, 1993). Such relational communica-

tion and the trust emerging from that communication can occur nearly as quickly and just as effectively via CIT as it can through face-to-face interactions (Walther & Burgoon, 1992). If managers work with their employees to build the anticipation of ongoing, long-term interaction, then trust will increase as well (Walther, 1994).

Research shows that CIT can be used effectively for tasks once reserved for face-to-face interactions. CIT can be used effectively in group idea generation (Valacich, George, Nunamaker, & Vogel, 1994; Valacich, Paranka, George, & Nunamaker, 1993). Email specifically has been shown to help distributed workers interact, coordinate activities, and build and maintain informal interpersonal relationships outside of an organization's hierarchy (Feldman, 1987; Garton & Wellman, 1995). Once workers learn to use CIT, they demonstrate clear preferences for specific CIT according to the task at hand (Sullivan, 1995; Whitfield, Lamont, & Sambamurthy, 1997).

ENACTING TRUST AT A DISTANCE

Trust and CIT Use

Whether looking at organizations in particular or our society in general, feelings of trust have declined over the past fifty years (Fukuyama, 1995; Putnam, 1995). Much of that decline took place before workers were routinely expected to trust people in virtual relationships, or at least, in geographically separated relationships. Yet, virtual or not, organizations are hierarchical. Trust in persons higher in the organization is a key component of organizational effectiveness and shown to be positively correlated with job satisfaction, overall job performance, (Pettitt, Goris, & Vaught, 1997) and satisfaction with communication (Roberts & O'Reilly,

1974). The latter is positively correlated with job satisfaction and job performance (Pincus, 1986).

Groups with high trust outperform groups with low trust (Klimoski & Karol, 1976). Trust in group work becomes even more important the less structured the tasks become (Zand, 1972). A high level of support given to subordinates from superiors is linked to trust, which in tern is linked to higher average performance evaluations (Albrecht & Halsey, 1992). The lack of trust can lead to concealed feelings about work issues, distorted mes-sages sent up the organizational hierarchy, and decreased morale (Jablin, 1979).

A Framework for Considering Trust in Your Organization

Definitions of trust abound across different academic disciplines[1]. Yet, across the disciplines, when trust is viewed as a psychological state, there appears to be two conditions underlying trust: risk and interde-pendency (Rousseau, Sitkin, Burt, & Camerer, 1998). In this view, trust is considered "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al., 1998). Disclosing personal information is one way to engender trust (Altman & Taylor, 1973) and begin interpersonal relationships (Gilbert, 1976), but trust can also be used to help bring about self-disclosure by others (Derlega, Metts, Petronio, & Margulis, 1993; McKinney & Donaghy, 1993). In addition, trust can exist in purely impersonal, economic, and competitive situations (Gabarro, 1990; Thibaut & Kelley, 1959). A key to someone trying to increase trust in a working relationship is to determine if self-disclosure will strengthen the relation-ship based on the context and demands of that situation. Sometimes just doing the task required of a worker acts to maintain or

enhance a trusting feeling by a manager and vice-versa.

Workers benefit from recognizing that people enter each situation with an idea of how much they trust people in general. The predisposition to trust (Creed & Miles, 1996) affects trust-related behavior until more specific information about other workers and the structure of the workplace is gathered. Early in workers' tenure with an organization, they will rely on their predisposition to trust and on organizational cues that "enable one person to trust another without firsthand knowledge" (McKnight, Cummings, & Chervany, 1998). For distributed workers with minimal contact with managers and coworkers at other locations, the predisposition to trust may drive their behavior for a substantial period of time. In these cases, it is crucial to actively communicate with the distributed workers, providing them the opportunities to build working and personal relationships with other workers.

It is also important that workers under-stand how their company is organized or structured. This is important both for newly hired workers and for workers in the field when structural changes are made. Organiza-tions can and do build structures or systems (Luchmann, 1979) that support the formation of trust. These structures can be as specific as legal structures and processes (Fukuyama, 1995) or as ephemeral as the company's culture (Miles and Creed, 1995). A company's management could create specific high-trust CIT-oriented structures. Those structures might include the encouragement of the use of CIT for relational development, the availability of a wide variety of CIT that allows workers to enact their task-technology preferences, and the formal recognition and support of telecommuters and other distance workers based on assumptions of trust more than control.

Workers new to an organization will

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attempt to make initial trust decisions based on who currently works there, what type of people work there, and what they know about the history of the organization, and how people are treated by the organization (Luhmann, 1979; Sheppard & Sherman, 1998). To the extent that a worker has been socialized about the organization prior to working for that organization, that worker will have specific preconceptions about work-related interactions (Eisenberg & Goodall, 1997; Jablin & Krone, 1994). Once in the organization, workers will find that their use of CIT will vary depending on the social structure of the organization (Zach & McKenney, 1995). Over time, CIT use and organizational structure shape each other (Allen & Hauptman, 1987; Johnson, 1993; Sherblom, 1988) and affect future conditions for trust within the organization.

Possibly the simplest advice to organizations seeking to build trust among distributed workers is to just do it. Theorists and workers agree that "trust is built by trusting" (Creed & Miles, 1996; Mishra & Morissey, 1990). In doing so, people in the organization can focus on four phenomena that bear directly on other peoples' decisions to trust: (a) the individual's predisposition to trust, (b) other organizational members' actions, (c) organizational structure, and (d) extra-organizational factors.

The first three of those phenomena have been addressed earlier in this article. Extra-organizational factors include any social or interpersonal phenomena that occur outside of the organization, yet influence the organizational dynamics because the meaning and significance of the phenomena are widely shared in the organization. For example, religious organizations in many rural towns

Figure 1. The Trust Model

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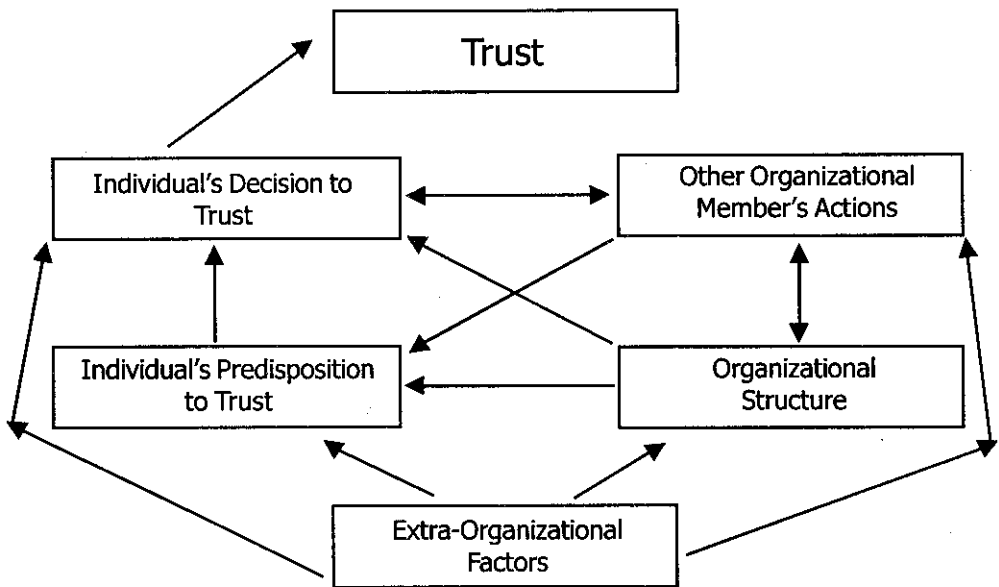
perform important social as well as religious functions. Phenomena as varied as participation in local volunteer organizations, how well kept is one's lawn, or the make of one's car or truck may have the same social effect. In other words, in rural communities, positive social interaction outside the workplace has an effect on a person's decision to trust within the workplace.

This model defines trust as "the individual's belief that another organizational member will act in a consistent manner, appropriate with regard to the parameters of the situation, the parameters of the organizational structure, and in a cooperative, or least not harmful, way such that the individual would consider not cooperating with the other member to be inappropriate" (Chadwick, 1998). In short, people in organizations trust others in that organization when their actions are interdependent, when people behave predictably given the situation, when the decision to trust fits the situation, and when not displaying trust would seem to go against the culture of the organization.

The trust model can be useful in determining what particular trust dynamics are at work in a particular organization. For example, if there is a lack of trust, a person may focus on another person's communication style and behavior in order to determine if he or she is trustworthy. In the process of that analysis, a person may find that opportunities are limited for workers to get to know each other. That is often the case in distributed organizations. Trust is difficult to establish and maintain when workers are not familiar with each other. The model may also be used to look at the policies and procedures of an organization to determine if those things help or hinder trusting actions. What may at first appear to be a problem with a worker, might well be a flawed policy. It might be that a worker or manager wants to exhibit trusting behavior, but feels constrained by a job description, an organizational policy on the use of telephones and email, or a mandate on when and where coffee breaks can be taken. Looking for causes behind workers' and managers' behavior can help restructure the organization into a more productive, trusting enterprise.

CONCLUSION

Distributed organizations and distributed functions in organizations that provide rural health care will continue in size and shape. The focus of these new organizational forms and functions will be on providing quality care and service. One of the keys to the success of those efforts is the effective use of CIT and the amount of relational support provided by the organization and its non-distributed workers to its distributed workers. Arguably, the key to that support is trust. Understanding how that trust operates is one step toward realizing an effective, distributed work force.

END NOTES

Academics concerned with interpersonal and/or organizational trust include at least communication theorists (Burgoon & hale, 1984, 1987; Canary & Stafford, 1993; Kalbfleisch, 1993; Millar & Rogers, 1976; Roiger, 1993; Wheeless & Grotz, 1977; Wood, 1993), economists (Dasgupta, 1988; North, 1990; Williamson, 1993), organizational theorists (Butler, 1991; McAllister, 1995); political scientists (Barber, 1983); psychologists (Deutsch, 1958; Lewicki & Bunkr, 1996; Rotter, 1971; Shepard & Tuchinsky, 1996), and social theorists (Gambetta, 1988; Granovetter, 1985; Zucker, 1986).

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WOMEN AT RISK FOR HEART DISEASE: KNOWLEDGE OF HEART DISEASE OF WOMEN LIVING IN NORTH TEXAS

Ellen Palmer, R.N., M.S.N., Ph.D.
Faculty Specialist
School of Nursing
University of Texas at Arlington
Arlington, Texas

Valerie Hart, R.N., M.N.Sc.
Administrative Research Assistant
Center for Nursing Research
School of Nursing
Univeristy of Texas at Arlington
Arlington, Texas

Alysha McCaskey, R.N., B.S.N.
Graduate Student
Family Nurse Practitioner Program
University of Texas at Arlington
Arlington, Texas

Sue Tripp, R.N., B.S.N.
Graduate Student
Family Nurse Practitioner Program
*University of Texas at Arlington*
Arlington, Texas

ABSTRACT

Heart disease is the single largest killer of American women. One of five women has some form of cardiovascular disease. Wichita County, in North Texas, has a higher incidence of mortality from heart disease than the rest of the state. Is there a lack of knowledge by women about cardiovascular disease? This study presents information from four questionnaires given to 233 women in rural North Texas to assess their knowledge of heart disease.

INTRODUCTION

Why is it important to study heart disease and women, especially in rural North Texas? According to the Texas Department of Health (1997), the leading causes of age-adjusted death for Wichita County are heart disease, malignant neoplasm, and cerebrovascular disease. The death rates for ischemic heart disease per 100,000 women in Wichita County during the time period of 1980 to 1996 were higher than the entire state of Texas combined (see Figures 1 and 2).

Health care providers must research and address this problem. Is creating programs to educate the public on risk factors, signs and symptoms, and the promotion of healthier lifestyles the answer? Nurses and physicians are trained to educate in order to promote health and prevent disease. Education has

Figure 1. Ischemic Heart Disease in Women
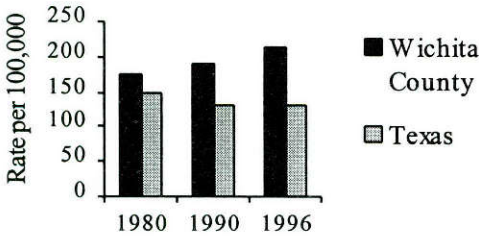
Source: Healthy Wichita 2000, 1997.

been shown to impact behavior and may be of value to the residents in Wichita County.

Wichita County has begun to identify the health needs of their community with the publication of *Healthy Wichita 2000*. This is a county needs assessment with the objective of reducing death related to heart disease to less than 100 per 100,000 people. In addition, the objectives are to increase the quality and number of healthy years of life, decrease health disparities, and improve access to preventive services. Factors have been identified that alter women's cardiovascular health in Wichita County: major health care facilities are not in easy driving distance from rural areas, women's concern for their family's

**Figure 2. Cerebrovascular Disease in Women**
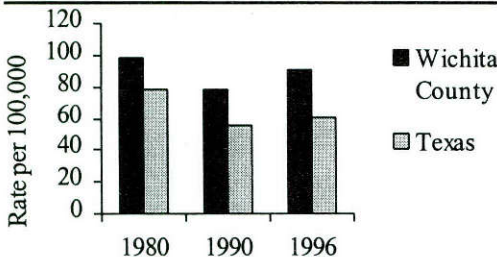
Source: Healthy Wichita 2000, 1997.

health is placed above their own, and diet. The women must know that immediate medical attention may save their life if they are experiencing a myocardial infarction. The longer time period without treatment in an emergency, the increased likelihood of severe cardiac damage or death. Women's knowledge of the signs and symptoms of heart disease may save their lives. Knowing what risk factors to monitor and how to modify those that can be changed is central in reducing their risk of dying from heart disease. Before implementation of interventions can begin, an assessment of what women know and do not know is essential.

LITERATURE REVIEW

In 1995 cardiovascular disease (CVD) claimed more than 505,440 women's lives, while cancer killed 256,844 women (American Heart Association, 1998). Massive public awareness campaigns in the United States focused on cancer and AIDS while the "silent epidemic" claims its victims. See Figure 3 for the major causes of death in the United States. According to Jackson (1998), cardiovascular disease and stroke claimed the lives of 26,555 women in Texas in 1995, more than the population of New Braunfels. More people in Texas died from CVD than from all other forms of cancer, accidents, and AIDS combined. Articles in popular literature reflect the growing concern for this problem. U.S. News & World Report (1998, September) discusses the Framingham study, which was begun in 1948 to discover why one in four men over age 55 develops heart disease. Researchers recruited both men and women to study the differences in health and health behaviors between the sexes, then discovered that women also died of heart disease – a decade later than men. This study is still producing valuable information, particularly

Figure 3. Major Causes of Death in the U.S.
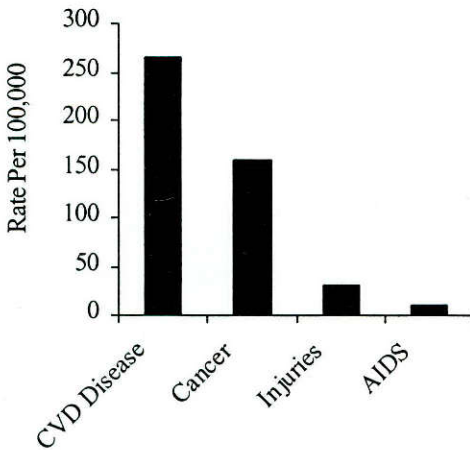
Source: U.S. Department of Health and
Human Services, 1998.

about cardiovascular risk factors that affect
both men and women.

There are multiple causes of cardiovascular disease, both modifiable and non-modifiable. Modifiable risk factors are: hypertension, smoking, hyperlipidemia, diabetes mellitus, lack of reproductive hormones, obesity, and inactivity (American Heart Association, 1997a; American Heart Association, 1997b). To reduce the high incidence of mortality, these factors must become common knowledge. Some risk factors, such as age, family history, or congenital defects, cannot be altered (American Heart Association, 1997a; American Heart Association, 1997b). Most, however, are directly influenced by our lifestyle choices (American Heart Association, 1997a; American Heart Association, 1997b).

Multiple studies have measured differences in risk factors between rural and urban populations. Research studies also proved that interventions to lower blood pressure

and cholesterol had long term effects in lowering the cardiovascular mortality rate (Kotchen, McKean, Jackson-Thayer, Moore, Straus, & Kotchen, 1986).

Better Homes and Gardens (1998, September) focuses attention on the symptoms unique to women that occur during a heart attack. Because women still perceive coronary disease as a man's problem, they are slow to seek treatment. Women may have atypical symptoms such as "fullness or discomfort" rather than a "crushing pain" in the chest (Ceimo, 1998). Abdominal pain, shortness of breath, or extreme fatigue are symptoms that a physician may not easily recognize (Murphy, 1998). New studies are showing definite gender differences in the way cardiovascular disease presents itself and how symptoms are perceived. The symptoms that women exhibit are often attributed to somatization or hysteria (Legato, 1996). Physicians are more likely to believe that cardiovascular symptoms are emotional or psychological, resulting in delayed treatment (Legato, 1996; Murphy 1998). Treadmill tests do not accurately screen for cardiovascular disease in women, and fewer women than men are referred for cardiac catheterization.

Forty-four percent of women experiencing a heart attack die within one year, compared to 27% of men (American Heart Association, 1998). Minority females are at greater risk than whites. African-American women culturally consider nutrition very important and are more likely to consume a diet high in fats and salt. They are also more likely to develop CVD, diabetes mellitus, and hypertension (Gates & McDonald, 1997). The American Heart Association (1995) reports that 45.4% of Caucasians, 66.6% of African-Americans, and 67.6% of Hispanic females are overweight or obese. Obesity increases the strain on your heart, raises blood pressure, and serum cholesterol and triglyceride levels,

which can induce diabetes (Murphy, 1998).

One of four Americans has high blood pressure. From 1985 to 1995 the death rate from high blood pressure for females declined 3%. The actual number of female deaths attributed to cardiovascular disease increased 30%. Smoking increases the risk of heart attack from two to six times in women (Murphy, 1998). We no longer have a choice if we want to maintain good health into old age. We must promote a healthy lifestyle.

REPORT OF KNOWLEDGE

A pilot study was conducted in Wichita Falls and the surrounding counties to assess women's knowledge of heart disease and cardiovascular risk factors. The study population consisted of women participants in three different heart health related activities. The first was a luncheon in Montaque

County, the second a luncheon for women over 55 in Wichita Falls, and the third involved volunteers who work in the United Regional Health Care System. The interest and participation in a health related activity may not be the same for the general population in these counties and has an effect on sample results. Two hundred and thirty-three questionnaires were returned for analysis. Three instruments were used to assess knowledge of heart disease and risk factors and one instrument identified demographics of the sample.

The sample consisted of 233 women with a mean age of 68 years and a mean education of 13 years. Most of the women receive regular check-ups every 12 months. Fifty-four percent of the women take hormone replacement therapy with 17 years being the average length of time on hormone therapy. Seventeen percent of the women are currently being treated for heart disease. Forty-one percent of the women have at least one parent being

Figure 4. Family Members with CAD
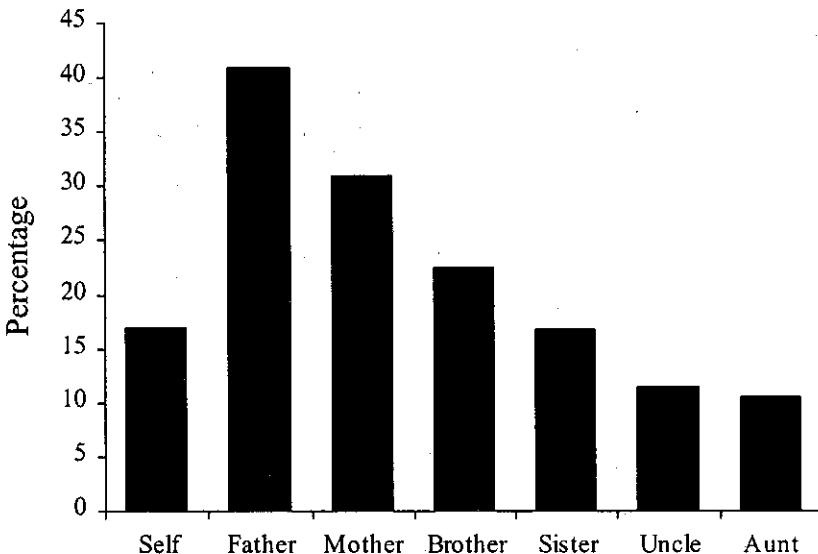
treated for coronary artery disease (CAD) and 23% have at least one sibling being treated for CAD (see Figure 3).

The first questionnaire measures the knowledge of the incidence of heart disease and associated risk factors (American Heart Association, 1997). Sixty-seven percent of the women scored over 76% correct in their answers.

The second questionnaire assesses a person's risk of heart attack: nutrition, family history, activity level, and habits are queried (American Heart Association, 1994). The summary risk score for the women showed that 40% are at the "low" risk level and 28% are at the "moderate" risk level. Thirty-two percent of the sample did not answer the questionnaire.

The third questionnaire consists of items relevant to understanding heart disease and risk factors obtained by the authors from a review of the literature and not included in the AHA questionnaires. Questions pertaining to the prevention of a heart attack, the effects of depression and anger on risk, and aspirin prophylaxis are the types of questions included in this questionnaire. Ninety-one percent of the sample answered at least half of the questions correctly and 50% of the women answered all of the questions correctly.

The pilot study showed that this sample of women are knowledgeable about heart disease and associated risk factors and had only a low to moderate risk for heart attack. The demographics indicated they usually receive annual check-ups with about 50% receiving hormone replacement.

A high percentage of the women have heart disease in their immediate family with 17% being currently treated for CAD themselves.

Is there knowledge about heart disease without the women using this knowledge to reduce their risk factors? What part does

education play in modifying risk factors? Which risk factors are accounting for the disease prevalence in this region? There are multiple questions still to be answered in order to begin making a difference with regard to heart disease and women in Texas.

KNOWLEDGE NEEDS

As shown by the surveys, knowledge about the risk factors of heart disease does exist in Wichita County. The problem is using that knowledge to change the incidence of cardiovascular disease. A closer examination of risk factors in our state, particularly in counties with a high percentage of death from CVD, must be done. We must identify what is needed by different cultural groups and target minorities that are at greater risk for CVD. Not only knowledge about these risk factors is necessary, but also motivation to change lifestyles must be encouraged. Primary care providers should be encouraged to teach patients about cardiovascular health. Children should be screened for risk factors and taught healthy choices at an early age.

Recognition of a problem is the first step in the change process. When statistics like those mentioned above become public knowledge, action begins. In Texas, a coalition of organizations has been formed to promote prevention of cardiovascular diseases and to achieve better coordination of services. The organizations involved in this include the American Heart Association, the Texas Nurses Association, the Texas Medical Association, the Texas Department of Health, insurance companies, pharmaceutical manufacturers, and others (Jackson, 1998). We as health professionals must educate ourselves about the incidence and causes of cardiovascular disease before we can educate the public.

Education is part of change. Physicians need to be educated about the symptoms of heart disease specific for women. Women are much more likely to describe vague symptoms such as abdominal discomfort, pain that radiates to the shoulders and neck, general fatigue, and tiredness. Risk factors are similar in men, women, and children, but because women are generally diagnosed with heart disease after menopause, less notice is paid to the symptoms. They postpone going to the doctor with chest pain, because they are socialized to take care of others first, often at their own expense (Ceimo, 1998). When they do see a physician, their symptoms are vague and usually not identified as heart problems, so treatment is further delayed.

Some of the risk factors cannot be avoided. For example, age, family history, and gender are non-modifiable factors that impact one's health. Others, like weight, cholesterol levels, hypertension, diabetes, smoking, alcohol use, inactivity, and stress, can be modified. If family history is positive for cardiovascular disease, then all risk factors should be modified as much as possible.

With 55% of American adults being over-weight (Brink, 1998), obesity poses one of the greatest modifiable risks. Inactivity, which nearly doubles your risk (Murphy, 1998), is one of the easiest risk factors to change. See Figure 5 for the behavioral risk factors as compared to the year 2000 goals.

Cholesterol levels, particularly triglyceride levels, should be watched more closely because that is a better predictor of cardio-vascular disease in women (Legato, 1996). Hormone replacement therapy for post-menopausal women is also important. Discussion with several women who had experienced heart attacks revealed that they dismissed their symptoms because they believed women don't have heart attacks. Once again, the public must be informed about women and cardiovascular disease.

MOVING OUT OF THE SILENT EPIDEMIC

The cost of treatment for cardiovascular disease is estimated at $9 billion annually. The Centers for Disease Control and

Figure 5. Behavioral Risk Factors Compared to Y2000 Goals
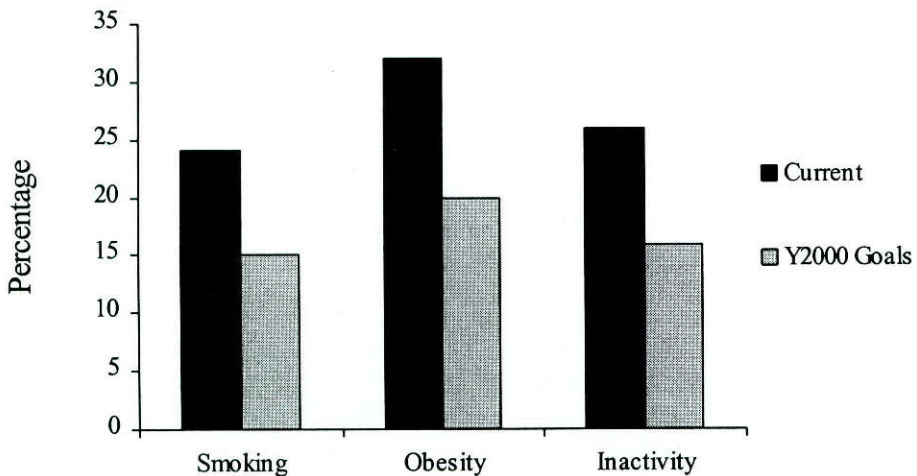
Source: U.S. Department of Health and Human Services, 1998.

Congress have recognized the burden of this disease and targeted funding of approximately $10.9 million in 1999 to initiate a national prevention program (United States Department of Health and Human Services, 1998). Together they are working to develop state-based cardiovascular disease programs, which will strengthen health promotion for the under-served, children, racial and ethnic minorities, women, and people of low socio-economic status. One woman asked, "Since when did women get to be second class citizens? Why has research not targeted women before now?" Today we recognize their discrepancy in knowledge and are actively researching women and heart disease. The public must be educated about the prevalence of heart disease and the benefits of a healthy lifestyle. When the public becomes aware of the magnitude of the problem of cardiovascular disease in women, we as health care professionals must use the "critical moment" to provide education, counseling, and behavioral interventions.

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Healthy Villages: A Holistic Approach to Community Sustainability

Derek Browne,
FRCGP, FRIPHH, MRCP, DTM &H
Chairperson, Rural Group of the
Royal College of General Practitioners
Medical Advisor Health Promotion,
Southhampton Community Trust
Brockenhurst, Hampshire,
UNITED KINGDOM

ABSTRACT

Brockenhurst and Sway are two rural villages in Hampshire, UK with a total population of 6500 patients with 26% over the age of 65. With increasing demands and expectations for health and social care and escalating costs with limited financial resources, a re-appraisal for a holistic model for health and social care was studied. A two-year pilot study identified the community resources and employed a healthy village coordinator who defined the population, developed a data base of community resources, and received referrals from the primary health care team. The outcome of the study showed a reduction in hospital referrals, a reduction in prescribed medicines, and an improved quality of living in the persons studied. This model can be replicated in rural communities worldwide.

INTRODUCTION AND BACKGROUND

The UK National Health Service (NHS) was founded in 1948 by a Labour Government and is funded mainly through taxation with 6.4% of the Gross National Product (GNP). General practitioners or family physicians are paid mainly on a capitation system with extra income from items of service payments. The general practitioner has, on average, 1800 patients on his or her list. Ninety-five percent of the UK population is registered with a

general practitioner. General practitioners see 70% of their practice population in a year and 90% in three years. Each patient sees a general practitioner, on average, 5.4 times in a year. There are no extra payments for consultations or visits to the patient home (RCGP summary sheets, 1998). There is a small remuneration for out-of-hours visits.

Demand for health and social care increases exponentially each year. The NHS has been through several reorganizations. The more recent changes are those that were introduced by the Conservative Government in 1990 with the "New Contract." The concept of "purchaser and provider" was introduced with the hospital as a "provider" and the Health Authority, who acted as the general practitioner's advocate, as the "purchaser."

Fundholding general practitioners were voluntary and given a budget for prescribing and hospital costs. Any savings made by the general practitioner could be spent on selected items to improve patient services and could be spent on the purchase of equipment or to obtain complimentary staff such as physiotherapists, podiatrists, counselors, and alternative medical practitioner services.

Since the last election of 1997, the Labour Government has introduced compulsory Primary Care Groups and maintained the "purchaser/provider" concept. Primary Care Groups are groups of general practitioners working together to look after the health and social care needs of populations of 100,000 people. These arrangements are scheduled to start in April 1999. Fundholding will be abolished in April 1999. The government is expecting that some Primary Care Groups will merge and take on Trust status. The Trust will have a budget to purchase all health and social care needs within the defined population. The Primary Care Trust may develop like the American Health Maintenance Organization, with the whole population of up to 200,000 persons being registered within the

trust.

Twenty percent of the UK population is considered rural. Inner city problems are more understood than those in rural areas. Rural areas are usually scattered populations with general and specialized needs, which are often not identified. General practitioners used to manage populations of between 500 and 2000 patients depending on the "rurality" of the area. With the new changes starting in April 1999, general practitioners will look after the same number of patients as before, but the Primary Care Group will have overall responsibility for the contracting arrangements for the health and social service needs for the whole population of approximately 100,000 persons.

There is rural deprivation and rural inequalities of health and social care (Rural Health Care, Cox and Mungall, 1998). Rural patients often have difficulties in mobility and accessibility for services. Travel for health and social provision is often a major expense and difficulty. Rural isolation, poverty, loneliness, and boredom are common. Farming communities have increased stress from recent agricultural polices. An independent report into inequalities in health, (Acheson Report, The Stationary Office, 1998), addresses the issues of social justice and the health divide between those at the top and bottom of the social scale, and supports policies to reduce the inequalities. The report contributes to the Labour Government's consultation document, "Our Healthier Nation," (Stationary Office, 1998) and includes reducing inequalities by partnerships between statutory, voluntary, and private organizations. Other government health policies include plans for "Health Improvement Programs" and "Health Action Zones." The report does not highlight rural poverty and inequalities.

Rural areas will not develop as a result of a free market. Lack of economies of scale in rural areas leads to centralization of services.

Also, there aren't adequate resources to meet the perceived health and social needs of rural areas. There is difficulty in attracting and retaining doctors to work in rural, remote, and isolated practices (World Organization of Family Doctors, 1995). Rural areas are considered idyllic with less social and health needs than in urban areas. Much has been written about the potential substantial earnings from dispensing health care by rural practitioners, but not much has been written about the 50 miles of travel necessary for a patient visit or the need for emergency or maternity services.

In view of the increased demands for health and social services in our rural practice of 6500 patients in Brockenhurst and Sway in Hampshire, UK, we decided to adopt a "Healthy Village" concept where a paid community or "healthy village coordinator" could identify the community resources and then use these resources for patients who had been referred to the coordinator (Browne, 1994; Browne, 1995). The general practice team has four doctors, two practice nurses, a community nurse, and a nurse adviser for older people. The practice team felt that there was a need for more social support than medication with prescriptions and pills. A holistic approach to health and social care was considered, which improved the quality of living and well-being for many patients.

METHODS

The Brockenhurst Healthy Village project is based on the concepts of "well being," "community," "building local networks," "inter-agency collaboration," and "involving local people." These ideas are enshrined in the World Health Organizations Healthy Cities movement and Health for All by the Year 2000 strategy and the NHS Management Executive

report on "Local voices: The views of local people in purchasing for health."

The health benefits of prescribing exercise and art therapy was part of the holistic approach to health. Increased physical activity for all ages and disabilities can help reduce cardiovascular illness and osteoporosis and improve the control of asthma and diabetes; it can also help to reduce stress, depression, weight loss, and improve blood pressure control (Royal College of Physicians, 1991). The coordinator was employed for 18 hours a week and received referrals from the local general practitioners, practice nurses, social worker, and from self-referrals or from individuals in the community. Referred patients were seen within 48 hours and their needs were assessed. Opportunities were offered to use the community resources. These included statutory or voluntary organizations, activities in the village and church hall, and adult education courses at the local education college.

Brockenhurst Village Hall was built in 1982 and over 40 organizations use the facility regularly. Dr. Derek Brown, this article's author, ran the London Marathon in 1982 and raised over £34,000 to purchase the freehold site of the village hall, which was owned by the County Council. He wore the logo "Exercise Prevents Body Rust" on his running slip and involved the whole community in the fund raising activity, which was completed in six months. The County Council, who received the money, was strongly encouraged to spend the whole amount on improving the local primary school. A research project on prescribing exercise from a general practice level had a positive outcome (Campbell, Browne & Waters, 1985).

The village hall has classes for mothers and toddlers, badminton groups, indoor bowls, 50+ activities, yoga, keep fit classes, a frail elderly group "called knit and knatter," and a weekly dancing group. The local

church hall provides musical movement classes for the youngsters, a luncheon club for the elderly, and a regular meeting place for bereaved relatives. The local tertiary college provides adult education classes and facilities for arts and crafts, sports, and non-vocational classes. The local hotel has a leisure facility and provides special 10-week courses on healthy living and lifestyle as well as providing a club for persons to keep fit and activity programs for post-coronary rehabilitation. The swimming pool offers group aqua-aerobics. The local authority swimming pool provides regular sessions for the elderly and one 82-year-old learned to swim and dive, having been told by a friend that "when you get old, you have to gives things up." He had learned to swim, joined other local classes, and is not sure what he has to give up!

OUTCOMES

The community audit identified that there were several needs groups in the village with over 26% over the age of 65.
- Lonely older people
- Frail old people
- People with transport difficulties
- Housebound people
- Recently bereaved people
- Lonely younger people
- Depressed and anxious people
- Overweight people

A data base of all the voluntary, statutory, and private organizations in the local community was compiled with over 150 entries.

Research data was analyzed on 30 people. A SF 36 questionnaire was developed to measure the quality of life across age, sex, and treatment groups. Some of the individuals felt uncomfortable in answering some of the questions. A positive outcome was demon-

strated in those who completed the questionnaire. Many people were involved in the wider community project. Alliances between community organizations formed "second generation alliances" and a Health and Care forum was developed with representatives from the voluntary, statutory, and private organizations who correlated the needs assessment data with community resources and provided new resources as indicated. These included information leaflets, a physiotherapist, podiatrist, and counselor at the general practice surgery area, more integration of services for the youth of the village, and the provision of a youth leader who was paid by the two local churches.

Table 1. Were individual goals attained?

Has the goal for the individual...

	Referrers	%	Users	%
Been achieved	16	53	17	57
On the way to being achieved	11	37	7	23
Not going to be achieved	3	10	6	20

Table 2. What was the effect on health and well being?

At the end of the program has individual health and well being...

	Referrers	%	Users	%
Improved	20	30	22	73
Remained the same	9	67	6	20
Detiorated	0	0	2	7
Don't know	1	3	0	0

Other outcomes:
- New bather's group
- Local stroke club for the two villages
- Dial a ride services from the District Council
- Youth advisory service
- Information packages on local resources and a local community data base
- Health and Care Forum
- Need for a local person to coordinate local facilities

Measures:
- 80% referred for social reasons
- 10% referred for exercise on prescription
- 70% felt more active
- 80% felt that their objective had been achieved
- 73% of those referred had achieved a new activity in the community
- 86% said that they would continue the new activity
- 60% of users were female

Table 3. Why was the program used?

Reason for referral given by the referrers and users...

Reason	Referrer	User
More physical activity	3	2
More social activity	24	23
Other	3	5

- 62% were over 70 years
- 70% were retired
- 10% were employed
- 30% lived alone

Every three months a poster on walking was exhibited on the surgery entrance lobby to encourage walking in the community (see below). Health walks with a volunteer leading groups of people were later encouraged and supported by different groups in the community, including retired businessmen, "welly walkers," and ramblers. Several comments were received by the coordinator from people who had achieved more respectable times for the distances specified on the poster (see Figure 1).

Figure 1. Walking Poster

Have you walked your brisk mile today?

Surgery to Chemist = 1/2 mile = 10 minutes
New Forest Drive to Surgery = 1 mile
Balmer Lawn Road to Surgery = 1 mile

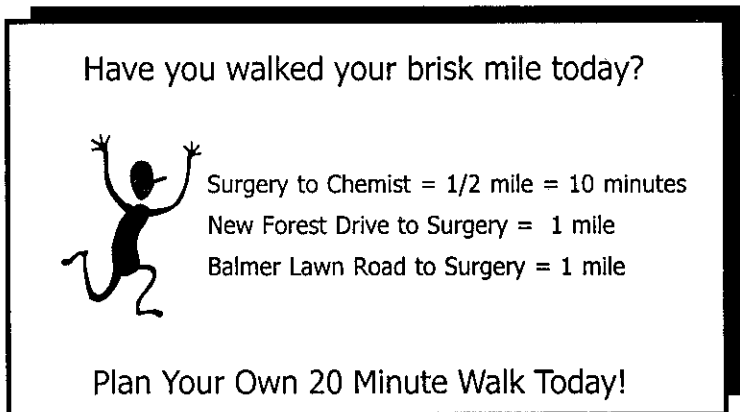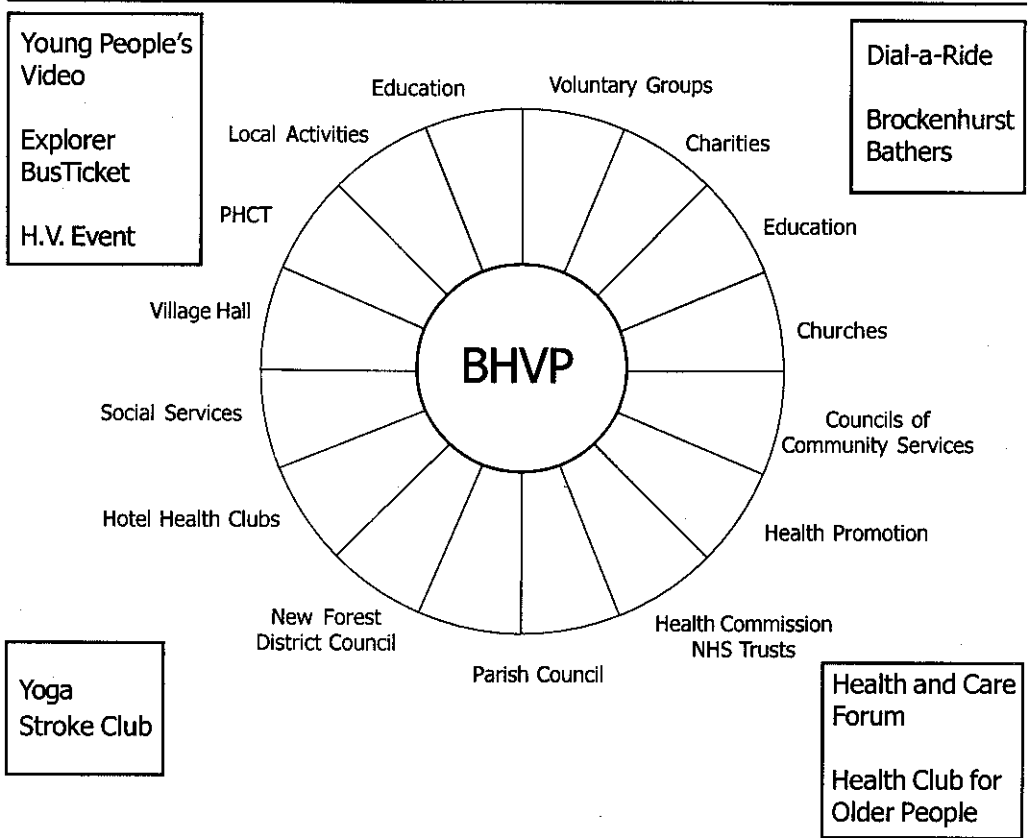Plan Your Own 20 Minute Walk Today!

Figure 2. The Brockenhurst Healthy Village Project: A Catalyst for Health and Social Care Alliances

The local education college supported computer training and hopes to introduce "cyber cafes" for the young and older persons in the community. Art classes, flower arranging groups, and bridge playing supported the well-being and healthy living programs for people of all age groups in the community including those with disabilities and special needs.

The coordinator was able to support health promotion and environmental topics and identify any service pitfalls in the community. Fewer prescriptions were given to patients in the referred group with corresponding reduced referrals to hospitals and social services, but the number of patients in the study were too small for a statistical study. A consultant geriatrician wrote that the "healthy living program had done more for a particular patient than any interventions offered by the hospital services." This patient was a hypertensive, obese, diabetic, who, through the healthy living program organized at the local hotel, was able to reduce weight, reduce his blood pressure prescriptions and his blood pressure, and was able to control his diabetes on diet alone.

DISCUSSION

The Brockenhurst Healthy Village Project was the first of its kind to be recognized by the World Health Organization. The appointment of a community coordinator has demonstrated that such a person can enable local people to discuss health and care issues and identify needs and resources in a community. The creation of arts, drama, and dance groups within the community was shown to have a health benefit. General practitioners can use the community as a resource for health and social care and help reduce demand for finite health resources. A holistic model of health has demonstrated that health can only benefit from an understanding of the integration the mind, body, and spirit. The holistic model of health using the community as a resource for health and social care is sustainable and supports rural development, rural communities, and offers new ideas to support an aging society.

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Texas Tech University
Health Sciences Center
Texas Journal of Rural Health
3601 4th Street – Suite 4BC416
Lubbock, Texas 79430