

The Potential for Intersectoral Collaboration in Addressing Rural Health Needs

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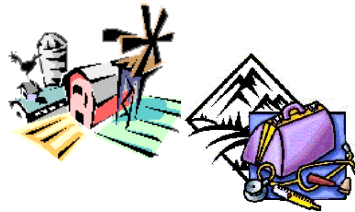
Abstract

Individual health as a function of community health is influenced by behavior and genetics, built, natural and social environments, healthcare infrastructure, and public and private policy. People living in rural America, and their communities, face disproportionate challenges to health. Rural residents are characterized as older, sicker, and poorer than their urban counterparts. Rural communities struggle with economic instability, inadequate healthcare infrastructure, geographic isolation, and scarcity of resources at individual and community levels. It is assumed that these combined personal and community challenges make it more difficult to address issues of health. Intersectoral collaboration is identified as a tool successfully employed in tackling similarly difficult, multifactorial problems of environment and community planning.

This paper explores the potential for intersectoral collaboration on the ability of rural communities to positively impact the health of their residents. Literature identifying the social construct of health, interrelated determinants of health, and theory of collaboration is presented. The current state of collaboration is highlighted through representative examples of existing efforts. Finally, barriers and benefits to the development of rural community collaborations are presented with recommendations for ongoing research in the design of intersectoral collaboration and support to enhance the development and continuance of rural collaborations to improve and maintain health.

To Al and Brendan —

you have sustained me throughout this process – in school and life.



This paper would not have been possible without the help of two people I am pleased to consider friends as well as mentors. Dr. James Bohland provided encouragement to begin this program of study and has assisted me throughout my work. As chair of my committee, he guided the development of my major paper from concept to final product. Dr. William Herbert, who generously committed to being my external committee member, has consistently given needed insight and feedback far above and beyond what was expected. In addition, I wish to thank all the faculty and staff of the Department of Urban Affairs and Planning at Virginia Tech who have guided and instructed me through this journey.

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Introduction

There is universal acceptance that “health” is good. The definition of health, or the means to achieve health, is not as universal. Since the advent of modern medicine, there has been a focus on the biomedical model of health for individuals. The past two decades, however, have seen a shift back to consideration of health within a broader context in which communities and organizations have a larger role.

People living in rural America, and their communities, face disproportionate challenges to health. Rural communities are typically characterized as older, sicker, and poorer than their urban counterparts. Individuals face social isolation, limited educational and economic opportunities, and behavioral mores not conducive to good health. Communities are struggling with economic stability, inadequate healthcare infrastructure, and geographic isolation. Programs to improve individual and community health are often segregated into sectors of society without appreciation of their interconnectedness. Even the federal government has identified that it has hundreds of disjointed, but overlapping, programs supporting rural populations.

The purpose of this paper is to examine the potential impact of intersectoral collaboration on the ability of rural communities to positively affect the health of their residents. The assumption underlying this investigation is that communities have an important role in improving the health of residents. Given the sparse resources present in most rural communities, it is also assumed that they have more difficulty addressing issues of health. In these circumstances, pooling, sharing, or creating new resources through collaboration is offered as a strategy for enhancing individual health. This paper examines the validity of these assumptions for rural America. As a result of this literature synthesis, recommendations are proposed for developing intersectoral collaborations to improve rural health.

Issues of Health and Healthcare

"The United States spends more than any other nation on health care – well over twice the per capita average among industrialized nations... Yet it is increasingly clear that our money is not buying the best achievable care."

(Davis, 2005, p. 3)¹

"New York City... home to the nation's largest municipal public health department, an impressive array of academic medical centers, and some of the nation's leading health care delivery systems... still suffer(s) from an unacceptably high burden of illness and injury."

(Cagan, et al, 2001, p. 176)²

The United States invests a vast array of resources towards the provision of healthcare for its population. The annual per capita spending on healthcare in the U.S. exceeds that of the other 29 industrialized countries in the Organization for Economic Cooperation and Development (OECD).³ In 2000, spending was \$4,631 per person in the U.S. compared to \$1,623 to \$2,749 in seven of these similarly industrialized countries (see Figure 1).⁴ Thirteen percent of the U.S. gross domestic product (GDP) was spent on the provision of medical care that same year, again, above the percentage of these same countries (see Figure 2).⁴

The expected superiority in population health indicators, however, are not evident.^{3,5} Despite decades of innovative medical care in the United States, many individuals continue to be in poor health. UNICEF reports the United States infant mortality rate in 2003 was higher than for these seven comparable countries (see Figure 3).⁶ The Commonwealth Fund reports higher 1999 diabetes mellitus death rates in the U.S. than in these same countries (see Figure 4).⁴ These mortality statistics, significantly affected by access to primary medical care and community health initiatives, are believed to highlight problems in the Western biomedical approach to health.⁷

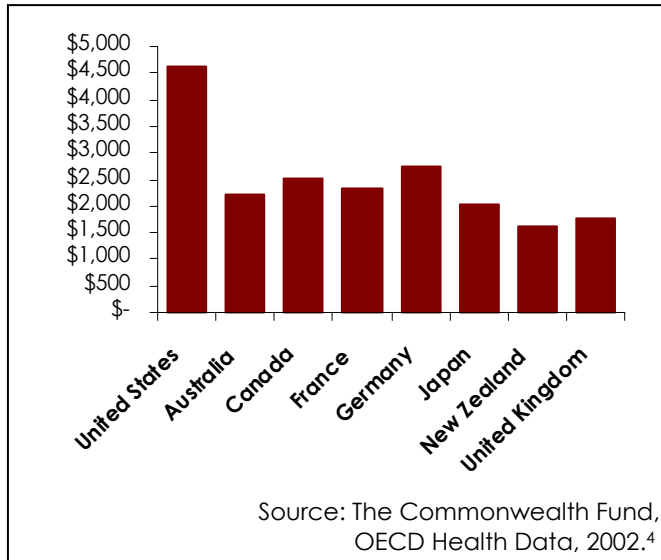


Figure 1. Healthcare Spending per Capita in 2000.
(Adjusted for Differences in the Cost of Living)

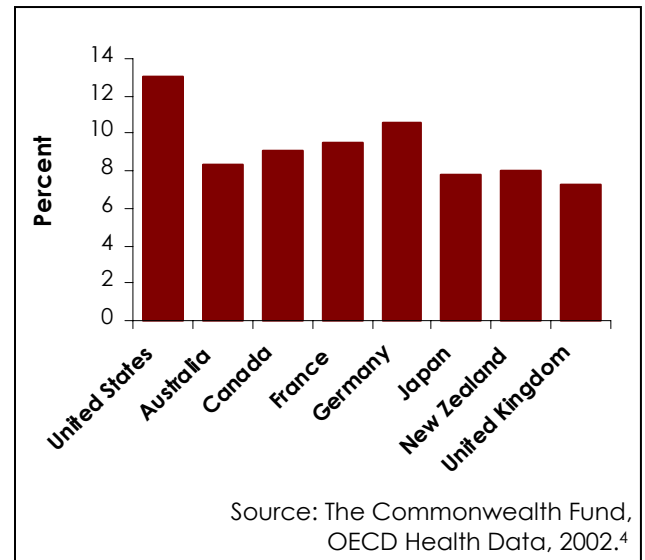


Figure 2. Percentage of Gross Domestic Product (GDP) Spent on Healthcare in 2000.

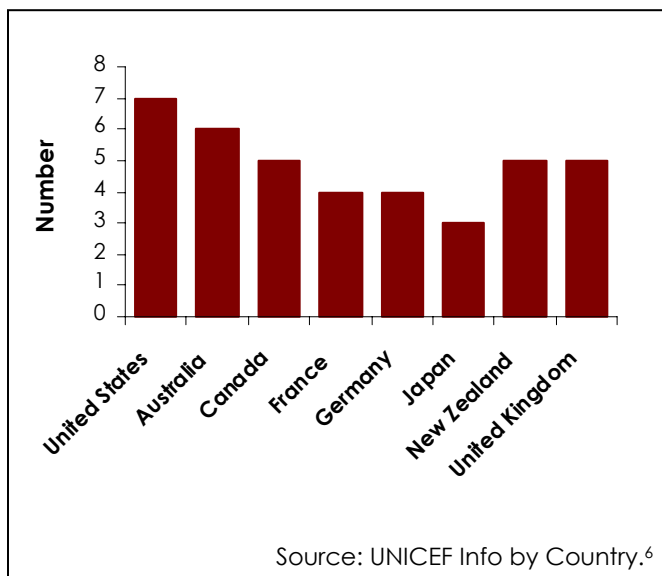


Figure 3. Infant Mortality Rate (under 1 year age) in 2003.

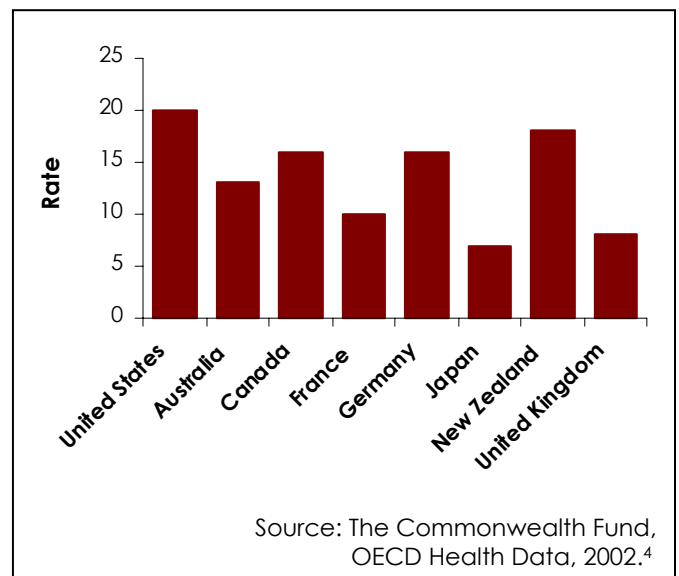


Figure 4. Age-Standardized Mortality Rates for Diabetes Mellitus per 100,000 Population in 1999.

The costly innovative medical technology often cited as a rationale for higher expenditure on medical care in the United States, does not always yield

improved health status from disease. Coronary angioplasty is performed at a rate more than double the closest comparison country, however, mortality rates from myocardial infarction are similar to those in countries carrying out far fewer procedures (see Figures 5 and 6).⁴ It appears that technology will not fully negate the impact of genetic predisposition to disease, unhealthy behavioral choices, and lack of access to quality primary and preventive healthcare.

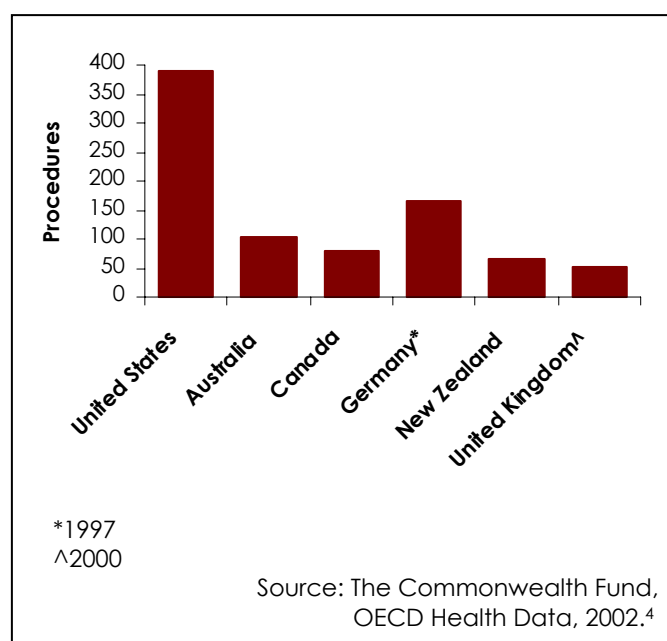


Figure 5. Coronary Angioplasty Procedures per 100,000 Population in 1999

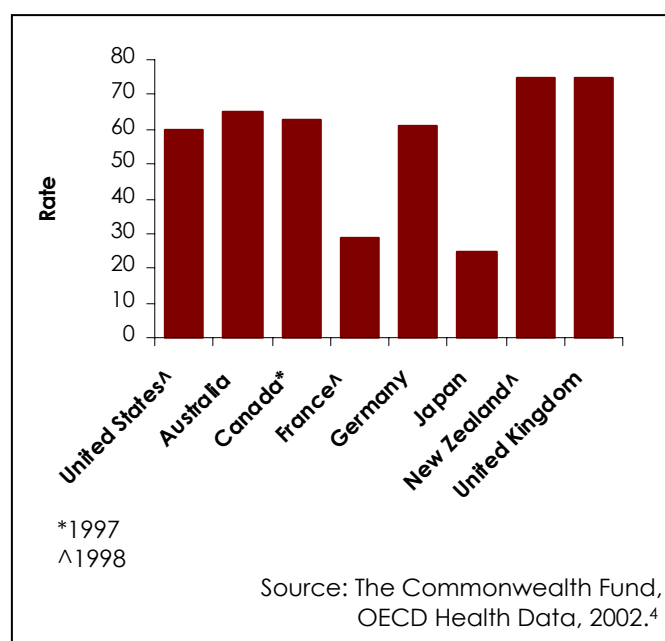


Figure 6. Age-Standardized Mortality Rates for Acute Myocardial Infarction per 100,000 Population in 1999.

Healthy People 2010, the *2003 National Healthcare Disparities Report*, and *Quality through Collaboration* from the Institute of Medicine identify geographic location as an important contributor to individual health.⁸⁻¹⁰ Rurality is linked to increased risk of poor health, however, there is no single standard of definition for rural. The U.S. Census Bureau 2000 defines rural as a place not classified as urban; urban as urbanized areas (population density >1,000 per square mile; minimum population of 50,000 people) and places of more than 2,500 persons

outside of urbanized areas.¹¹ This definition is refined further by The Economic Research Service (ERS) of the U.S. Department of Agriculture and Office of Management and Budget (OMB) with identification of micropolitan counties (traditionally rural counties with small cities of at least 10,000 persons) and non-core rural counties which are not adjacent to small urban areas (population of 10,000–50,000).¹² *Healthy People 2010* defines rural based on the U.S. Census definition while the *Healthcare Disparities Report and Quality through Collaboration* also include the classification of non-core based areas. A review of literature fails to identify the use of one common definition; however, studies consistently reveal decreased health status with increasing rurality regardless of designation. Therefore, for the purpose of this paper, rural is defined as non-core based areas with places of less than 2,500 persons.

Residents of rural communities are more likely to have unmet health needs and poorer health status than people living in more populated areas.^{10,13-16} Premature mortality is significantly higher in isolated rural counties compared to urban and suburban counties.¹⁷ For younger (1-24 years of age) rural residents, the rate of death is 31% higher in rural counties than urban and 65% higher than suburban counties.¹³ The age-adjusted death rate for adults aged 25 to 64 years is 32% higher comparing the most rural counties with suburban ones.¹⁴ The prevalence of reported limitations in activity due to chronic health conditions is significantly higher in rural areas for both men and women.¹⁷ Fewer preventive healthcare services are obtained related to both decreased availability and utilization. People are less likely to travel long distances or able to afford preventive chronic or “minor” care.¹⁸ Eventually, this leads to the need for more costly treatment of advanced disease, given later diagnosis, or treatment of complications.^{10,14,19} “Ambulatory care sensitive conditions” are those for which hospitalization is considered potentially avoidable through preventive care and early disease management, most often delivered in an ambulatory setting.

Hospitalization for such conditions, an indicator of problems in access to, and quality of, primary care, is higher in rural counties.¹⁴

The issue of causation of geographic health disparity is complex. Individual socioeconomic and behavior patterns as well as community factors combine in creating this crisis in rural health.²⁰⁻²⁴ A review of individual and community determinants of health, based on the *Healthy People 2010* model, is included within this paper to assist in identifying the complex, interactive nature of biology, behavior, social and physical environments, healthcare infrastructure and policy impacting health.⁸

The thesis of this paper centers on the concept that collaboration among people from all sectors of society is an effective means of addressing the complex determinants of individual and community health in rural areas. To that end, the basic concepts of health, the impact of the biomedical and social models of health, determinants of health, and the potential to improve health through collaboration are reviewed. Policy supporting the development and maintenance of collaborations inclusive of the many members from public and private sectors of society concerned with improving community and individual health is recommended.

The Social Construct of Health and Healthcare

"...the notion of the body as machine, disease as the consequence of breakdown of the machine, and the doctor's task as repair of the machine..."

Engel, 1977 p.131)²⁵

"Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

(World Health Organization, 1946)²⁶

"Health is the result of much more than medical care; people are healthy when they live in nurturing environments and are involved in the life of their community; when they live in Healthy Cities."

(International Healthy Cities Foundation, 1985 Conference)²⁷

What is Health?

Health is a social construct.²⁸ Throughout the decades, changing demands of health and societal priorities have led to varied definitions. It is important to recognize historical views of health in the changing context of society to better understand past efforts and recognize potential for future efforts in improving health in rural communities.

In the mid-19th century lack of health, or illness, was the focus. Within this context, there was a growing understanding of factors creating illness, leading to identification of interrelationships between individual health and community. For example, John Snow, identifying a water pump in London as the source of contamination in a cholera epidemic, made a connection between place of residence, public sanitation, and health ("Sanitary Idea").²⁹ The 1848 Public Health Act in Great Britain addressed the realization that collective action was necessary to tackle difficult social problems leading to illness in expanding industrial cities.³⁰ Curtis and Tackett recognize social issues that were primary concerns in that day: overcrowded housing which increased the risk of spreading infectious disease; lack of sanitary facilities for safe water and food and disposal of sewage; poverty leading to inadequate nutrition, clothing, or medical attention when needed; inadequate education resulting in poor health behavior and decreased earning potential; and dangerous work conditions from extreme fatigue and exposure to hazards.³¹ Government led efforts created the public health system and legislatively mandated advances in community infrastructure.²⁹

The 20th century focus on scientific advances and technology saw continued changes in the definition of health. Disease was defined as

impairment of functioning of the individual components making up the person; health was the absence of disease.²⁸ Development of the germ theory and discoveries in the realm of component physiology of the body led to growth of the biomedical model of health and treatment. The medical profession was now able to identify a cause (germs) and effect (illness) and became a dominant force in addressing health. In this biomedical model, emphasis is placed on disease in the individual, measurement of physiological or chemical data, and development of increasingly sophisticated diagnosis and treatment.³¹ Social, cultural, economic, and environmental factors are put aside. Here, health falls almost exclusively within the purview of physicians. Under this model, significant advances have been made in linking biomedical causes of disease and high technology treatment resulting in ever more sophisticated and costly medical services.

The World Health Organization (WHO) adopted a broadened concept of health in 1946 in response to increasing global health concerns (see WHO definition quoted p. 6). This definition incorporates body, mind, and spirit thus changing the social concept of health.²⁶ By 1972, the medical profession had adopted this characterization and defined health as “a state of physical, mental, and social well-being” (p. 410).³² In this changing social climate, and concurrent with the advent of the healthy cities movement, the definition of health has continued to expand to include not only the individual but also the community.³³ In 2005, *Stedman's Medical Dictionary* defines health incorporating this broader context including the social determinants of health and healthy communities:³⁴

1. The state of the organism when it functions optimally without evidence of disease or abnormality.
2. A state of dynamic balance in which an individual's or a group's capacity to cope with all the circumstances of living is at an optimum level.
3. A state characterized by anatomic, physiologic, and psychologic integrity, ability to perform personally valued family,

work, and community roles; ability to deal with physical, biologic, psychologic, and social stress; a feeling of well-being; and freedom from the risk of disease and untimely death.

Healthy Cities / Healthy Communities

The social view of health was incorporated into the Healthy Cities movement in the 1980s. Initiated at a 1985 Toronto conference entitled “Beyond Health Care,” the World Health Organization (WHO) provided momentum to the movement with the development of the Healthy Cities Project in Europe.^{27,35} The United States Department of Health and Human Services formally joined the movement in 1989 with the U.S. Healthy Communities Initiative.³⁶ The movement professes that healthy communities are the result of healthy choices and environments that support shared responsibility.³⁶ The concept that people’s lives are affected by interactions of place, surroundings, relationships, and opportunities they experience place focus on the interconnections of these diverse elements, problems in society, and health.^{27,37} As a result, collaboration among citizens, business, government, and others in society is proposed as a means of impacting the well-being of the entire community.²⁷

The principles of the Healthy Cities / Healthy Communities movement incorporate a broad definition of health being a byproduct of a wide array of choices and factors (including and beyond clinical intervention), a broader definition of community beyond geographic lines, shared vision of community values reflecting a diverse membership, equity in commitment to quality of life for everyone, diverse citizen participation and empowerment, development of community assets and resources, measures of progress and outcomes that expand the flow of information and accountability to all citizens, and policy promoting equity and prevention.³⁶ The movement speaks to the goals of personal well-being, healthy natural environment, vital economy, and full participation in civic life.³⁸ Figure 7 displays these four goals at the center of a

Healthy Community. Key attributes seen in a community reaching the Healthy Community goals are surrounded by local, state, regional, national, and global policy that creates an environment conducive to development of these characteristics.

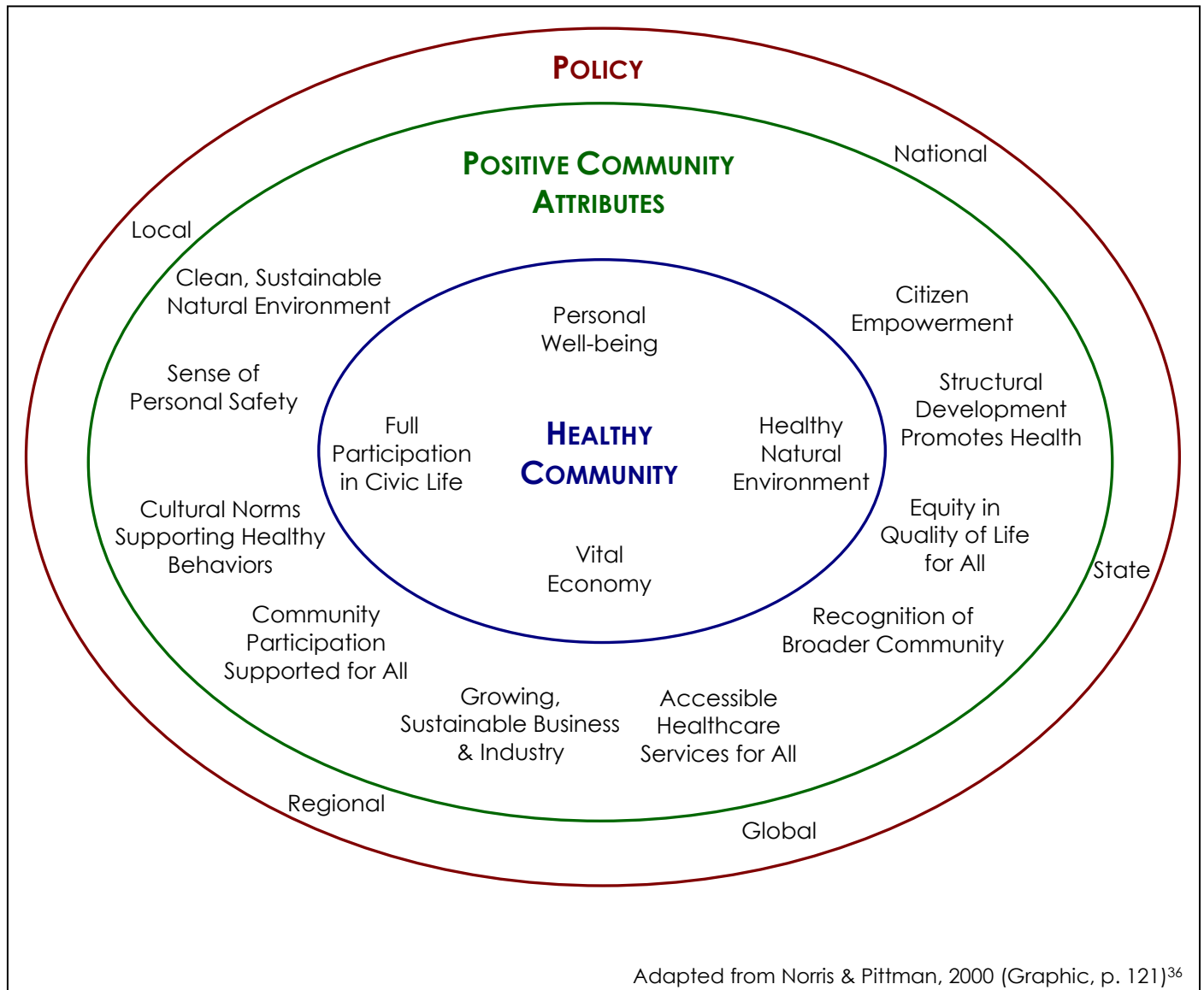


Figure 7. Components of a Healthy, Sustainable Community

Medical care has a much smaller role in ensuring individual health in the Healthy Communities model than in the biomedical model of health. Emphasis is placed, rather, on primary and secondary prevention. Healthy Communities

believes that many community resources contribute to health, not simply the medical care and public health promotion efforts. Formal and informal community resources identified as contributing to community health include:³⁶

- Cultural norms supporting positive behavior and lifestyle choices
- Health promotion and prevention
- Education, learning and skill building
- Recreation and culture
- Public safety
- Community participation: youth mentors and volunteers
- Employment: workplace and jobs that pay a living wage
- Housing: safe and adequate
- Family
- Nonprofit organizations
- Faith community
- Media
- Government
- Public services: e.g., transportation, water and sewage infrastructure

A healthy community is one where opportunities for beneficial choices and behaviors exist in conjunction with cultural norms and encouragement for positive choices.³⁹ For example, seatbelts are mandated in all cars allowing the opportunity for use, however, if community culture (e.g., teenage friends) places higher value on unwrinkled clothes, individuals are less likely to “buckle up.”

Determinants of Health

“Determinants of health: the wide variety of interacting proximate and distal influences on the health of individuals and populations...”
(Starfield, 2001, p 452)⁴⁰

“...individual health is closely linked to community health – the health of the community and environment in which individuals live, work, and play. Likewise, community health is profoundly affected by the collective beliefs, attitudes, and behaviors of everyone who lives in the community.”
(Healthy People 2010, 2000, p 3.)⁸

The concept of multifactorial determinants of health has been recognized for centuries. As far back as the Romans, environmental interventions were identified as important in the protection and promotion of health.⁴¹ Hippocrates identified the importance of locating cities based on air, water and other environmental factors. Fresh water and proper sewers were built in Roman cities to reduce malaria. The “Sanitary Idea” and Healthy Communities ideologies advanced this concept of multiple factors impacting health. More recently, *Healthy People 2010* states that the health of individuals is inseparable from the health of their neighborhood and larger communities of region, state, and nation.⁸ The report identifies a close link between individual health and the health of the community and environment in which individuals live, work, and play. Similarly, community health is profoundly affected by the collective beliefs, attitudes, and behaviors of every resident in a community.

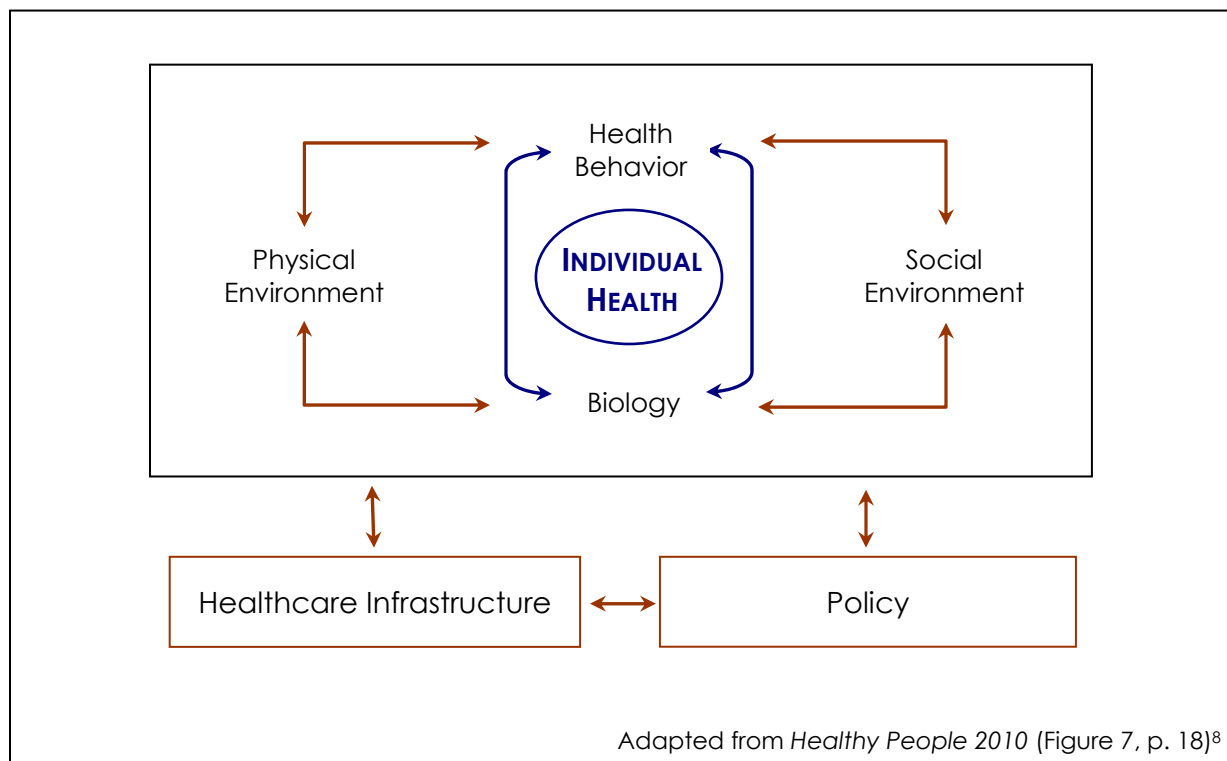


Figure 8. Individual and Community Determinants of Health

Individual health, defined as a state of complete physical, mental, and social well-being, is the goal of a healthy community.⁸ Figure 8 is an adaptation of the *Healthy People 2010* model identifying multiple determinants impacting individual health.⁸ Biology and health behaviors comprise individual components. Community components, consisting of physical and social environment, healthcare infrastructure, and policy, are seen as interacting at multiple levels within community and with individuals.⁴² “Healthcare infrastructure” replaces “access to quality healthcare” in this model to highlight the importance of the development of healthcare delivery systems within the public and private sectors as a primary means of providing accessible quality services.

The following discussion provides an overview of each of these determinants. Examples are provided to highlight the complexity of interdependency between these factors and potential for impacting health. Factors are placed within individual and community categories based on interpretation of literature. There is, however, disagreement among various authors regarding placement within these categories and identification of interactions. The intent of this synopsis is to enhance comprehension of the multiple components impacting health. To that end, discrepancy regarding proper placement and interaction speaks to the complexity of the issues.

Individual Determinants

Biology. Biology encompasses an individual's genetic makeup, clinically recognized as family history, and health problems acquired throughout life.⁸ These components, such as race, family history of high cholesterol, and history of stroke, lay the groundwork for determination of individual health. Biology, however, is not isolated from behavioral and community determinants. For example, while genetics predisposes an individual to disease (e.g., cardiovascular), the potential is altered through individual behavior choices

(e.g., diet and smoking) and the built environment (e.g., lack of venues for physical activity). Personal decisions may be based on family history (e.g., cardiac disease), but are likely affected by cultural mores (e.g., acceptance of high fat diets) and social environment (e.g., community violence leading to self-imposed isolation resulting in chronic stress). The consequences of acquired health problems are impacted by healthcare infrastructure (e.g., presence of an accessible healthcare provider) and policy (e.g., employer provided healthcare insurance).

Knowledge of the interrelatedness of biology to other determinants of health is growing rapidly. The science of genomics is dramatically changing our understanding and potential treatment of previously believed to be “fixed” biological determinants. For example, maternal alcohol use and exposure to toxic chemical compounds has been demonstrated to alter the genetic development of fetuses. Such alterations have the potential to increase disease risk. On the other hand, developing treatments through genetics may be hindered or enhanced by public policy providing financing to research and treatment. Ongoing research is likely to identify increasing linkages between genetics and community determinants of health.⁴³

Rural health challenges relating to biology. People living in rural America face similar challenges in genetics, family history, and acquired health problems as their urban counterparts. The impact of living in a rural area, however, increases the burden of their biology. For example, African Americans in urban and rural areas may experience similar genetic and familial risk for cardiovascular disease, however, a higher prevalence of poverty and lack of health insurance compounds ability to minimize behavioral risk factors (e.g., ability to purchase healthy food choices or continue prescribed medications). Rural healthcare infrastructure similarly impacts health for persons with acquired problems such as cancer. The Appalachia Cancer Network reports a higher burden of cancer in rural areas attributed to lack of healthcare infrastructure,

policy impacting access to insurance, and physical environmental challenges such as poor roads making participation in clinical trials difficult.⁴⁴

Health behavior. Individual behaviors profoundly impact health. Behavioral choices are influenced by internal and external stimuli.⁸ For example, a person with family history of diabetes may choose to carefully monitor diet, activity, and weight to alter the effect of genetics and biology. A socially isolated person may opt to drink alcohol in excess when alone. Individuals may decide to not use seat belts when the community culture devalues their importance or education regarding risk is lacking. Inactivity may be the choice of residents in communities without venues for physical activity.

Behavioral choices also influence community determinants. For example, residents who choose to drive rural roads without seatbelts or under the influence of alcohol assist in creating a culture devaluing the significance of these activities. Should these behaviors lead to injury, the community must adapt to provide resources in the form of healthcare infrastructure, economic assistance, and changes in the built environment to accommodate the individual's needs.

Conversely, community factors have the potential to impact individual behavior. For example, educational programs and legal regulations have significantly altered individual smoking behavior. Across the nation, bans on smoking in public buildings and community-wide educational programs highlighting the negative effects for smokers and people who share their air have changed cultural norms. Once accepted everywhere, smokers now complain that they are pariahs conscripted to facing the elements outside to partake in the habit. Recognition of the health risk and personal cost has led to a significant decrease in the number of people smoking. The financial burden of increasing cigarette taxes has also necessitated cessation of smoking for

some people. Clearly, a multi-pronged effort through economics, education, and law has impacted behaviors.

Rural health challenges relating to health behavior. Many communities see higher rates of poor health behaviors contributing to worse health.^{14,45,46} Smoking, believed to be the single most preventable cause of disease and death, is seen at significantly higher rates among teenagers and adults in rural areas.¹⁴ Environmental smoke, increasingly identified as a substantial contributor to poor health, is more culturally acceptable in rural communities.⁴⁷ Obesity is more prevalent in both adults and children who live in rural counties.^{48,49,50} Rural residents are less likely to be physically active during leisure time than urban residents.^{13,48} Diets often consist of low cost, energy-dense foods composed of refined grains, added sugars and fats contributing to these high rates.⁵¹ Rural roads account for a disproportionate percentage of fatalities (40% of vehicle miles traveled with 60% of total fatalities in 2001), in part due to lower rates of seatbelt and child safety use among rural residents.^{24,52}

Community Determinants

Categorization of community determinants is difficult and, at times, somewhat arbitrary due to the interconnection of these factors. For example, the built environment is included in the category of social environment consistent with *Healthy People 2010*.⁸ The close interdependence of housing and roads to physical environment, however, speaks to the haziness of boundaries between these categories. Similarly, environmental toxins, while a component of the physical environment, may be as well categorized as a component of manufacturing waste in the built environment.

Social environment. Social environment is defined in *Healthy People 2010* as interactions with individuals in the community, social institutions such as law enforcement, workplace, schools and places of worship, housing, public

transportation, and community safety.⁸ In addition to these elements of interaction, social environment includes the structural components of socioeconomics and the built environment. Social environment is demonstrated to have a profound impact on individual health.⁵³ Social capital, socioeconomic status and inequity, and the built environment are key, interrelated components of the social environment as they pertain to health. For example, a person's place and interaction within society impacts perceptions of self.⁵⁴ Health behaviors are shown to be strongly influenced by social isolation and socioeconomic status and inequity.^{55,56}

Social capital. Social capital is defined as the features of a community, such as trust and reciprocity among residents and density of civic associations, that facilitate cooperation for mutual benefit.^{54,57,58} Social capital as a community concept is built by the social interactions of individuals within a community. Individuals with high levels of connectedness, control, and socioeconomic equity positively interact with others and build cohesive, active communities with high levels of social capital. Social networks, social cohesiveness, and community involvement impact the health status of individuals and communities.^{55-57,59-63} Levels of interpersonal trust, norms of reciprocity, and mutual aid are features of social capital that facilitate collective action for mutual benefit.^{54,59} Social capital is believed crucial in the function of a community, impacting life across many domains. Identification of direct causation of social capital on health is difficult; however, an interconnection between the two dimensions is clearly demonstrated.^{55,59}

Social capital has been tied to many potential mechanisms affecting health.^{56,61-64} For example, community stability impacts social networks and cohesiveness, a sense of trust and connectedness, and the likelihood of reciprocity among residents. When the people who live in a community are constantly changing, neighbors are less able to establish the close ties and networks required for building social capital. Trust and mutual support are

weakened in the face of potentially changing cultural norms. Community cohesiveness is undermined as fewer residents are willing to become involved in collective action.⁵⁴

Cacioppo and Hawkley identified a link between social isolation and an individual's overall stress.⁶⁰ People perceiving themselves to be isolated from community demonstrated increased perception of stress in everyday life, were less likely to be exposed to social norms related to health behaviors, demonstrated increased anxiety, depression, irritability, mistrust and hostility, and had lower feelings of self worth. Everyday stressors such as interpersonal conflict, work deadlines, or perceived insults lead to increased physiological stress responses. In addition, being connected was found to increase the probability of assistance, support, comfort or relief from other people at a time of stress.⁶⁰

Sampson studied Chicago neighborhoods to better understand the impact of social control.⁶² Neighborhoods found to have created change through collective action with participation of a large number of residents had lower levels of violence, a commonly used proxy for healthy communities. However, the ability of these urban residents to achieve control over their environment and engage in collective action for the common good was found to occur independent, or perhaps in spite of, traditional strong social ties.⁶² This finding highlights the difficulty in establishing cause and effect among the strongly interconnected social determinants of health.

Socioeconomic status and inequity. Income, educational attainment, and employment status are the basic components of socioeconomic status consistently associated with access to healthcare and health status.⁶⁵⁻⁶⁷ Absolute income levels are correlated with health due in part to a link to inadequate nutrition, substandard housing, exposure to environmental and work hazards, unhealthy lifestyles, lack of healthcare insurance, and decreased access to medical services.⁶⁸⁻⁷² One commonly used indicator of access to healthcare is the number of people visiting a medical provider in a given

year.^{70,73} Figure 9 identifies the percentage of persons not accessing healthcare in the year 2000 by race and income. Income, categorized by poverty level of <100% or 200% and higher, is shown to impact reported medical provider visits regardless of race/ethnicity.⁷³

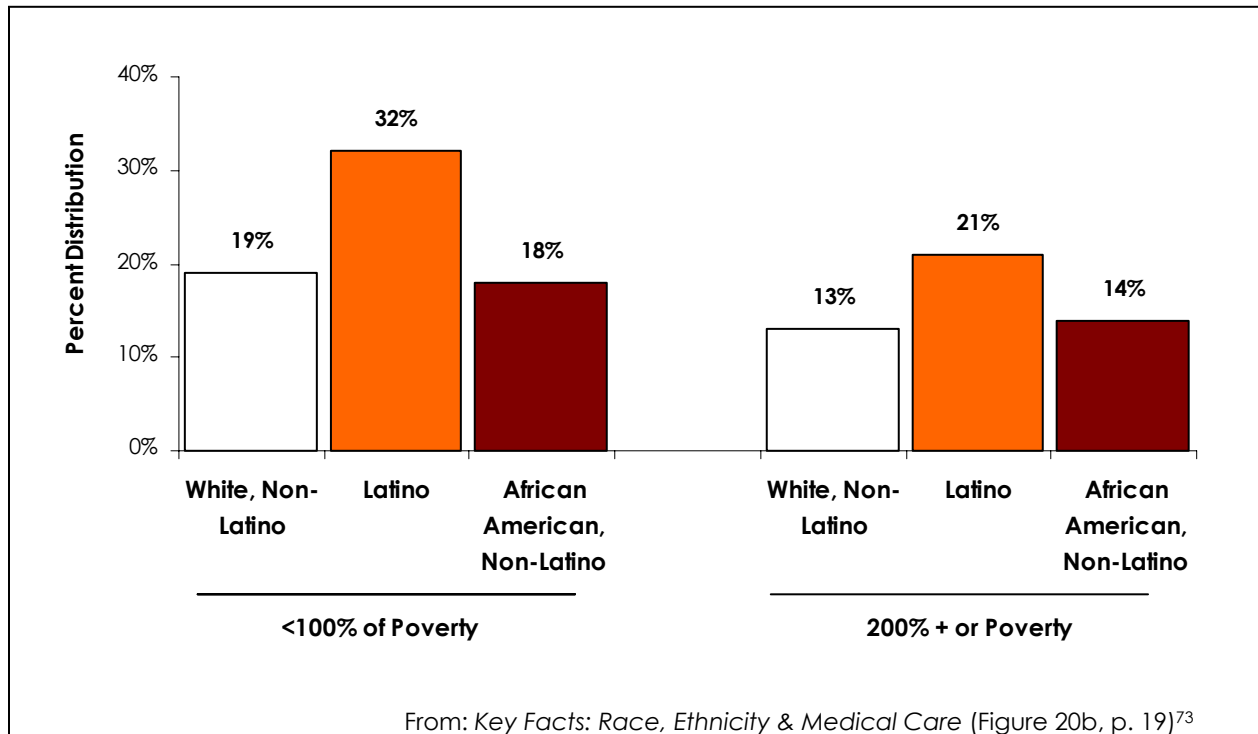


Figure 9. No Healthcare Visits in the Past Year, by Race/Ethnicity and Poverty Status, 2000.

Increasing numbers of people report fair or poor health status as income decreases (see Figure 10).⁷⁴⁻⁷⁷ Recent literature suggests that income and insurance status are as strong a predictor of poor health and healthcare as race and ethnicity.^{73,77-80} Social isolation, a component of social capital, is also increasingly likely for individuals unable to obtain the material goods relative to societal norms.⁶⁴

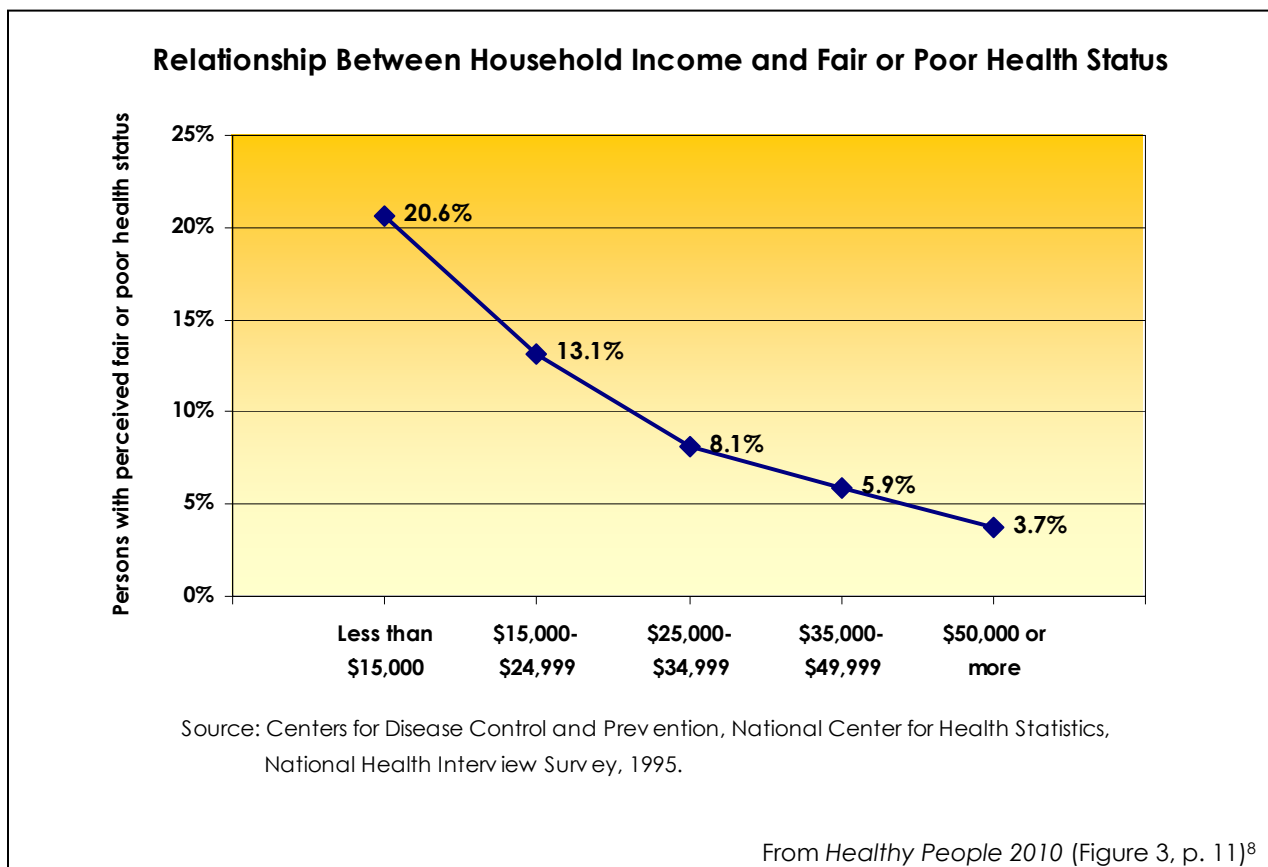


Figure 10. Percentage of Persons Reporting Fair or Poor Health Status by Household Income, United States, 1995.

Beyond absolute income, a person's perception of socioeconomic position in society is directly connected to social capital and health inequality.^{54,61,64,81-83} In a history of the population health movement, Szreter documented the negative health impact of unrestricted economic growth leading to significant class differences.²⁹ Marmot evaluated socioeconomic inequity as a cause of continued health inequalities despite decades of nationally funded care in the United Kingdom.⁶⁴ He identified a correlation between the relative position of an individual and community within a broader societal context and health. Individuals and communities of lower status experienced discrimination and social exclusion and were generally in poorer health.⁶⁴

The concept of social class is generally not acknowledged in the United States, but arguably plays a role in discussion of inequity and health beyond socioeconomic status. Social class melds socioeconomic status with individual and community cultural issues. Persons born into one social class (e.g., the working class) and rising to another class as adults (e.g., wealthy class) may exhibit health behaviors based on the working class values instilled in childhood (e.g., real men don't seek medical care). Poor prenatal and childhood healthcare due to elements of social class influence development of disease and future health issues.^{84,85} Published reports evaluating the impact of identified social class on health are based on data primarily from outside the United States. A review of recent literature finds little reported association of class beyond income and education.⁸⁴⁻⁹⁰ There is need for future research into the causal relationships of social class beyond socioeconomic markers with respect to health.^{89,90}

Veenstra reviewed research regarding the impact of absolute and relative income on health focusing on reports identifying individual perception of social standing relative to others.⁶³ Health inequalities were determined to be due less to medical care than to societal inequalities. Using a social capital index measuring aggregated associational and civic participation and density of social life, he found a direct tie to income inequality and other factors of social capital, population health status, and policy related to inequality and health.⁶⁴

Neighborhood poverty is associated with negative effects on resident health.⁶¹ Affluence is considered essential for a community to sustain neighborhood social organization, which in turn positively impacts health. Community poverty is seen in a dearth of resources and systematic underinvestment in human, physical, and social infrastructural dimensions. A lack of shared infrastructure resources in the realms of natural (e.g., air and water quality) and built (e.g., quality of housing) environment, as well as

collective social functioning (e.g., level of crime, networks of community support) and neighborhood reputation in larger society compounds the negative impact of individual poverty.^{37,61}

Built environment. The built environment, increasingly viewed as a major determinant of health, is defined as human-formed, developed, or structured areas.^{8,58,91} It encompasses components of region, neighborhood, and dwelling.^{37,92} Regional factors include size, quantity and distribution of commerce, spatial structure, and transportation systems. Aspects of neighborhood include population density, street patterns, land use mix, open space, and walkability. Dwelling components include age, design, physical structure, and health irritants. The nature of development affects individual behavior and lifestyle choices through opportunities provided for activities promoting health, social capital through the existence (or lack) of common activities and meeting places, structural condition of housing and work environments, and natural environments.^{33,92-94}

Housing, a common focus of the built environment, is identified by the World Health Organization (WHO) as a functional dwelling in an affordable residential setting for a household that provides adequate privacy, space, light, heat, accessibility, and stability.⁹¹ In addition, Srinivasan and colleagues include the community's basic infrastructure such as water and sanitation, environmental quality, and accessibility to work and play.³⁷ The quality of housing affects individual health directly (e.g., the impact of extensive mold) and indirectly (e.g., the impact of high crime rates).⁹¹

Social bonds may be enhanced or hindered by the structural development of a community. Leyden, for example, emphasizes the importance of walkable neighborhoods on social capital.⁵⁶ Analysis of data from a household survey in Galway, Ireland, indicated that people living in mixed-use neighborhoods conducive to walking were more likely to know their neighbors, participate in the political process, trust others, and be involved with

others socially. Health outcomes were not directly evaluated, but in addition to the presumption of positive health benefits of improved social capital, individuals experienced higher levels of physical activity potentially resulting in better health.⁵⁶ Conversely, Srinivasan and colleagues, relates inadequate housing to mental stress and increased exposure to harmful chemicals and pests, and deteriorating neighborhoods with higher crime rates contributing to sedentary lifestyles, social isolation, and decreased social capital.³⁷

Rural health challenges relating to the social environment. The viability of many rural communities is threatened. Scarcity of resources has kept many communities from developing the built environment to accommodate an increasingly technological world. A sometimes fierce sense of individualism has led to hesitation in pooling of limited resources and talents for the common good. Consequently, rural communities are experiencing worsening economies and poor health.

Factors associated with high medical needs and poor health are more prevalent in rural communities. Rural populations are often identified as “older, sicker, and poorer” than urban populations.^{13,16,19} Median age increases as urbanization decreases.¹⁰ Eighteen percent of the rural population is over the age of 65 compared to 15% in urban areas.⁹⁵ Borders and colleagues identified increased risk for poor health associated with age and socioeconomic status in rural southwestern Texas.¹⁶ Those in poorest health were found to be older (over the age of 75 years), had less education (less than a high school degree), and low household income.¹⁶ As in urban areas, ethnic minorities in rural counties are three times more likely to live in poverty compared to their white neighbors.^{96,97} Rural residents are disproportionately represented among the uninsured leading to financial barriers in accessing care.²²

U.S. Census 2000 data provides further insight into these differences (see Table 1).⁹⁸ Data table categorization of urban defined by Census 2000 as all territory in urbanized areas and in places of more than 2,500 persons outside of

urbanized areas (i.e., combined central core cities and surrounding area) is "urban". The broad category of rural in data tables includes places with population greater than 2,500 people and places defined as "in metropolitan areas". For the purpose of providing urban/rural comparisons based on rural as defined in this paper, rural data includes two subcategories: "rural, not in metropolitan area"; and "rural, place of less than 1,000 population". People living in rural communities, not dependent on definition, were older, less educated, and poorer than their urban counterparts.⁹⁸ Access to timely medical care is strongly linked to adequate insurance. A higher percentage of rural residents are not offered employee provided insurance, are uninsured, or are on government insurance than residents of urban communities.⁹⁶

Migration patterns also affect rural communities. Since the 1960s there has been a trend of outward migration of younger people from rural areas.¹⁰ Those leaving are more likely to enhance social capital, are more highly educated, and have greater income potential than those who remain. As a factor in, or result of, economic instability, youth migration often signals an overall decrease in community income and resources. Social capital is affected as those leaving are more likely to develop close ties, social networks, and be involved in community action than youth who remain. To compound the effects of outward migration of youth, older people are moving back to rural areas for reasons of retirement, safety, and perceived lower cost of living. As rural communities age, individuals remaining are more likely to be impoverished and in poor health, imposing significant demands on healthcare and social infrastructure.¹⁰

Table 1. Urban and Rural Differences

	Urban	Rural Not in metro area	Rural Place of <1,000
Median age (in years), 2000	34.6	38.3	37.8
People 25 years or older, 2000			
Percent with less than a 9 th grade education	7.5	9.2	9.4
Percent with a bachelor's degree or higher	26.6	13.8	12.2
Median per capita 1999 income (in dollars)	22,198	17,026	15,941
Percent of population with 1999 income below poverty level (all ages)	12.7	13.3	14.7
Percent families with children with 1999 household income below poverty level	9.4	10.1	11.2
Percentage of workers whose employer offers health insurance, 1998	47.1	36.4	-
< 20 employees	80.5	76.0	-
20 or more employees			
Percentage of non-elderly population uninsured, 1998	17.9	23.7	-
Percentage of non-elderly population uninsured for entire year, 1998	13.6	20.4	-
Percentage of non-elderly population with Medicaid/other coverage (S-CHIP, Medicare and TriCare), 1998	10.6	15.8	-

Sources:

U.S. Census Bureau, Census 2000, Data sets with geographic comparisons⁹⁸

Population data: Census 2000 Summary File 1, Matrix P1.

Age data: Census 2000 Summary File 1, Matrices PCT12 and P13.

Education data: Census 2000 Summary File 3, Matrices P19, P36, P37, P38, PCT24, and PCT25.

Poverty/Income data: Census 2000 Summary File 3, Matrices P53, P77, P82, P87, P90, PCT47, and PCT52.

Medical Expenditure Panel Survey (MEPS), 1998, health insurance coverage.⁹⁶

Employer offered health insurance: Figure 28, p. 42.

Non-elderly uninsured: Figure 4, p. 15.

Non-elderly uninsured for entire year: Figure 7, p.18.

Non-elderly Medicaid coverage: Figure 6, p.17.

Rural communities frequently lack components of the built environment that have the potential to mediate other health determinants. Housing is often inadequate and substandard. Most rural communities, even those closest to urbanized areas, lack public water and sewer. Well water is increasingly contaminated with environmental pollutants.⁹⁹ People living in poverty in rural communities are more likely to lack reliable working transportation, paid time off for healthcare visits, and adequate child care.^{100,101} The negative effects of these factors are further increased, for example, when there is a lack of public

transportation and affordable child care options. These challenges, in addition to the cost of care, affect health behavior as decisions to seek services for minor health problems or routine prevention are made.

Physical Environment. Physical environment includes not only the natural environmental elements that can be seen, touched, heard or smelled, but those less tangible elements such as infectious agents, irritants and hazards.⁸ Individual and community health may be harmed through exposure to toxic or infectious substances (e.g., volcanic ash or avian flu), inability to obtain important resources (e.g., clean water), or physical hazards (e.g., mountainous terrain). Similarly, individual behavior choices (e.g., campfire safety) and community policy (e.g., development of sewer systems) significantly impact physical environment and ultimately health.⁹⁹ The complex relationship between environment and society is discussed by Corvalán and colleagues.⁹⁹ Traditional environmental hazards (e.g., access to safe drinking water, inadequate basic sanitation and solid waste disposal, food contamination with pathogens, and disease vectors from insects and rodents) are correlated with poverty and insufficient infrastructure development. Modern environmental hazards (e.g., water pollution from industry and overpopulation, urban air pollution from automobiles and industry, emerging infectious disease, and land deforestation and degradation) are directly and indirectly linked to health.⁹⁹ These identified traditional and modern hazards interplay with other individual and social determinants of health to impact an individual's experience with wellness and disease.

As previously identified, the distinction between the placements of factors in broader categories is difficult. In this example, Corvalán and colleagues placed sanitation and waste disposal in the arena of physical environment while other authors and this paper include these elements in the category of built environment.⁹⁹ The precise placement of these determinants is believed to be

less important than the understanding of the interrelationship of these multiple factors on individual health.

Rural health challenges relating to the physical environment. Rural communities, while often idealized as clean, healthy places to live, have experienced increasing levels of pollution due to unregulated agriculture and manufacturing.⁹⁵ The physical environment in rural areas also provide great challenges to residents. Geographic regions often remain “rural” due to challenging terrain and poorly developed road systems that lead to physical isolation and excess injuries.¹⁰² The rate of injury and disability due to injury for rural residents, higher than for urban residents, places a significant burden on rural community health and the sustainability of its infrastructure.¹⁰³

Healthcare Infrastructure. Adequate access to healthcare is key to good health.^{19,21,65,104} Healthcare infrastructure, while a component of the built environment, is identified in a separate category of determinants due to its importance as a prime element of access. Healthcare infrastructure, the public health system and private healthcare, includes the number and types of providers, range and organization of services, physical and financial accessibility of services, and use and participation of residents in healthcare.⁴⁰ Communities lacking basic medical resources are unable to provide timely access to the range of healthcare services, from primary to tertiary, which is vital to good health.^{21,23,65,104} In communities where a significant number of individuals are unable or unwilling to utilize existing medical resources, the healthcare infrastructure that exists may not be sustainable.

Public health infrastructure through local health departments provides assessment of community health status, guides policy pertaining to development of structures to serve public health, and assurance including the systems, services, programs and quality of public health.¹⁰⁵ The public health system has long been a leader in collaborative efforts to improve health.

Communities with inadequate public health infrastructure may experience increased health burdens in the form of poorer behavioral health choices due to insufficient educational opportunities, fewer numbers of residents receiving immunizations resulting in outbreaks of disease, or inability to provide policy makers with needed data to shape programs.

Rural health challenges relating to the healthcare infrastructure. Rural communities face a different mix of health challenges than those in urban areas. Coupled with an increased need for care and scarcity of community resources, core healthcare services are often lacking due in large part to a long-standing shortage of qualified health professionals willing to live in rural communities.^{10,106-109} This affects both public health services and private healthcare providers. As a result, rural residents are less likely to have regular access to healthcare.^{19,21,23}

Rural areas have significantly fewer physicians serving the population (physician to person ratio 136% higher in urban compared to rural counties) as well as allied health professionals (e.g., dentists, nurse practitioners, and hospital-based nurses).^{106,110,111} Seventy-five percent of the counties designated as Health Professional Shortage Areas by the Bureau of Health Professions of the Health Resources and Services Administration (HRSA) are rural.¹⁰⁸ Many societal factors mediate the maldistribution of healthcare providers in the United States. Rural communities offer limited resources in areas such as spousal employment opportunities, quality housing, regional and cultural activities, and educational opportunities for children that are necessary to attract and retain healthcare professionals.^{106,110} Professional issues also make practice in rural areas difficult. Physicians tend to be solo providers resulting in lack of relief coverage for emergencies, conferences, and vacations and poor accessibility to consultation for challenging problems. In addition, lower pay due to an increased percentage of uncompensated or poorly compensated care, fewer patients to allow efficient scheduling of office hours, 24/7 on-call status for solo rural

practitioners, and limitations in available medical technology contribute to the difficulties of rural practice.^{106,110} The rapid increase in professional malpractice insurance is increasingly onerous for providers in both rural and urban settings, but is heightened by the lack of support resources in isolated communities.¹⁰⁶

In addition to the lack of providers, geographic isolation, encompassing rough terrain, poor roads, and lack of public transportation, creates challenges to the healthcare system.^{106,112} People living in rural areas have greater difficulty reaching the few available providers while providers find it difficult to deliver outreach care.^{18,113} Increasing the distance to providers and decreasing the timeliness of emergency and local medical services negatively affects quality of care and outcomes.¹⁰

Rural hospitals also face economic hardships with low patient populations, fixed overhead expenses, and high percentages of uninsured and Medicaid patients.¹¹⁴ The current trend in rural hospital sales to for-profit companies less likely to provide charity care and closure of critical access hospitals in isolated rural communities further erodes the fragile healthcare infrastructure and increases community burden. Already disadvantaged rural communities face significant economic impact from inadequate healthcare infrastructure.¹⁰ Losses occur in the form of poorer health, impaired child development, earlier deaths, lost job productivity, and financial stress on families.

Public health departments in rural communities experience greater demands than those in urban areas. Rural local health departments provide a higher percentage of services in the area of community assessment, immunizations, outreach and health education, and laboratory services compared to urban departments (see Table 2).¹⁰⁵ Fewer accessible private health providers require a greater presence of public services at higher cost to communities. The greater population dispersion (e.g., increased time spent on travel to clients or programs), difficulty with maintaining adequate public health workforce capacity (e.g., inability to attract qualified public health nurses), and

lack of built community infrastructure (e.g., inadequate roads) make delivery of some services difficult. For example, fewer rural health departments are able to provide comprehensive primary care to underserved residents or maintain a monitoring presence to prevent food borne outbreaks (see Table 2).¹⁰⁵ State resource shortages, with an emphasis on provision of resources in more populated areas with high demand, also increase stress on local rural health departments.

Table 2. Comparison of a Sampling of Services Provided by Urban and Rural Public Health Departments

	Urban Metropolitan	Rural Non-metropolitan
Community assessment	54%	66%
Immunizations	64-65% child/adult	81% adult & child
Outreach and health education	62%	75%
Laboratory services	30%	56%
Comprehensive primary care	15%	7%
Prevention of food borne outbreaks	89%	70%

Source: Berkowitz B. *Rural public health service delivery: Promising new directions*¹⁰⁵

Policy. Local, state, regional, federal, and global policy impacts community and individual health. Governmental and civic sector policies and interventions such as those that promote community growth, transportation systems, housing, planned development, natural environment, healthcare infrastructure, health professional education and training, and healthcare access have potential to impact healthy communities and individual health.¹¹⁵ For example, organizational policy on provision of healthcare benefits and level of employee contribution can positively or negatively affect healthcare seeking behaviors. Support of programs such as initiatives to decrease impaired driving, immunization clinics, and hospital development directly support health.¹¹⁶ Other programs providing indirect support include economic and cultural

development programs, provision of recreational space, and environmental protection, support improved social capital and overall healthy communities.

Rural health challenges relating to policy. Power is a key political concept which underlies policy. Power is a prerequisite for the ability to define values, beliefs, and interests, influence agenda, and determine allocation of goods and services. Policy is formulated based on priorities determined by the influential.¹¹⁵ Rural America, with only 20% of the population, has not experienced political leverage comparable to urban America. Public officials are more likely to be local residents serving their communities on a part-time basis than those in more populated areas. Generally, rural officials have little training or experience in leadership or insight into larger needs of society. As a consequence, rural resident interests and needs have had little influence on state and national policies. For example, there has been little consideration of the rural impact of policies affecting provision of healthcare insurance and inequality in socioeconomic status, the two social determinants most closely associated with good or poor health status.¹¹⁶ Similarly, Federal agencies with direct influence on the rural infrastructure are constantly at risk of not being reauthorized (e.g., National Health Service Corps, Office of Rural Health Policy, and the Appalachian Regional Commission).

To date, policy efforts intended to improve rural health have focused on increasing the availability of medical services in rural communities despite evidence of limited success in increasing access to care.¹¹⁷⁻¹²¹ A wide variety of programs provide incentives for practicing in rural areas (e.g., National Health Service Corps, state funded loan repayment and scholarship programs for medical students, and international medical graduates J1 VISA waivers), increased enrollment of persons from rural regions (e.g., targeted admission of rural residents), enhanced exposure to rural communities (e.g., clinical experiences in rural clinics and hospitals), rural provider practice assistance (e.g., Robert Wood Johnson Foundation's Southern Rural Access Program), and federal

funds and enhanced reimbursement of clinics serving in rural areas (e.g., Federally Qualified Health Centers, Community Health Centers, Rural Health Clinics).^{106,122-125} Larger societal issues that are consistently associated with health status (e.g., lower income and educational status and access to employer provided insurance) are seldom considered in efforts to improve health.

Intersectoral Collaborations to Address Rural Health

"... the health care system of the 21st century should balance and integrate the need for personal health care with broader communitywide initiatives that target the entire population and the environment."
(IOM, 2004, p. 23)¹⁰

"It is... important to think beyond the delivery of health and public health services in order to address the needs of rural areas... Addressing the needs of rural areas requires building upon the positive aspects of rural life while addressing the health, public health, infrastructure, and economic needs..."

(Phillips and McLeroy, 2004, p. 1663)²⁰

The health status of the United States population is not optimal. Both individual and community determinants influence health. Individuals living in rural communities, and the communities themselves, face greater challenges to health than those in more populated areas. The demands on communities are greater in rural areas. At the same time, resources are scarce due in part to low population density, poor individual and community socioeconomic status, lack of influence within the broader society, and physical environmental challenges. The array of health determinants and complexity of interaction between them speaks to the need for collaborative approaches in working to improve individual and, therefore, community health. Determinants of health are

influenced by all sectors of society - civic (e.g., citizens and non-profit organizations), public (e.g., government agencies), and private (e.g., business). The intersectoral nature of these determinants begs consideration of broad-based efforts incorporating people and organizations across these three sectors.

What is Collaboration?

The definition of collaboration often depends on the writer.¹²⁶ Merriam-Webster defines collaboration as “working jointly with others or together, or cooperating with an agency with which one is not immediately connected.”¹²⁷ Barbary Gray, equating collaboration to the town meeting concept, states it is “a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible” (p. 5-6).¹²⁸ Roussos and Fawcett define collaborative partnerships as “an alliance among people and organizations from multiple sectors, such as schools and businesses, working together to achieve a common purpose.”¹²⁹ In the arena of environmental decision-making, collaboration is identified as a means to address competing interests.^{130,131}

In a broader sense, collaboration brings together multiple stakeholders from the three sectors of society to innovatively address complex problems. The underlying assumption is that pooling of thought and resources enhances effectiveness and efficiency, increases understanding of the breadth of issues, and increases capabilities and commitment of community residents.^{132,133} As early as 1919, Mary Follett proposed that collective ideas were better than any individual idea.¹³⁴ In bringing together isolated efforts through collaboration, increased understanding and innovation is likely. The call for broad-based efforts to deal with complex problems of society, including the multisectoral determinants of health, is increasing.^{132,135-137}

Traditional Collaborations to Improve Health

Calls for collaborations have frequently focused on single sector (often public or private sectors) or limited stakeholder efforts (e.g., healthcare providers within the public and private sectors).^{10,138} Rural health networks have emerged as a popular construct for mobilizing resources and efforts to address healthcare issues, primarily concerning access to services, in rural communities.^{139,140} They commonly integrate interdisciplinary health professionals (e.g., hospitals, providers, public health agencies, emergency services, and long-term and home health services) with minimal participation of non-provider stakeholders (e.g., community residents).¹³⁹ Development is spurred by national, state, or regional assessments of health need and funded by agencies outside the community.^{141,142}

Using the medical model, projects are driven by health professionals, frequently from academic settings. Partners determine program components, implement interventions, and evaluate outcomes. Commonly, these partnerships include federal agencies (e.g., Agency for Healthcare Research Quality), state departments of health, regional public health departments, and academic health centers. Social service professionals may be included to represent “non-medical” concerns such as education, employment, and family situations impacting health.¹⁴³ Programs are often focused on specific health issues or access to care and are time limited.¹⁴⁴⁻¹⁴⁶ Community members may be involved in local health assessment, participate in programs, and receive information regarding outcomes but are overtly missing from planning and design phases. Social capital and community capacity, key to dealing with ongoing health issues, are seldom built through such models.¹⁴³

In 1993, Amundson identified problems with sustainability of programs created through these models and called for national efforts and resources to foster and support community-based solutions to poor health.¹⁴⁷ He envisioned networks that brought together practitioners, organizations, and businesses at

the community level as partners to improve efficiency and quality of healthcare delivery.

In looking at one growing health concern, obesity, potential limitations of single or limited sector collaborations are identified. While a national epidemic, it is of particular concern to rural communities experiencing obesity at higher rates than urban communities.^{14,148} Behavior, environment, socioeconomic status, and genes are some of the many factors associated with obesity.^{149,150} Public and private sectors of society are active in the development of programs to turn the tide. Nationwide efforts include *5-A-Day for Better Health*, *ACES: Active Community Environments Initiative*, *KidsWalk to School*, “anti-obesity” legislation, the University of Kansas’ Weight Control Research Program, and even lawsuits against private enterprises such as McDonald’s. These programs, some resulting from collaborative efforts across similar disciplines, are often driven by one area of cause (e.g., diet and activity behaviors) and not coordinated with other programs. Broader determinants such as socioeconomic status or social control are seldom considered. To date, despite these many efforts, epidemiologic data suggests dramatic increases in obesity and diabetes prevalence during the 1990s and continuing into the 21st century.¹⁵¹⁻¹⁵³

Role of Collaboration in the Social Model of Health

Recognizing the broad array of determinants of health in the social model and, therefore, the range of potential strategies to improve health, collaborations are increasingly recognized as a valid approach to change.^{2,80,138,154,155} The interrelationship of individual biology and health behaviors, social environment, physical environment, and healthcare infrastructure demands broad-based action to achieve community health. Rural communities, with a high incidence of poor health and scarcity of resources, are positioned to benefit from a pooling of thought and assets. As an example, difficulties in accessing rural healthcare, identified as a prime

precursor to poor health, arise for a variety of reasons including lack of healthcare insurance, geographic isolation, scarcity of services, and lower educational attainment and rates of employment. Programs that address only one factor have made limited progress in improving healthcare access and health of the community. Collaborative theory recognizes a potential for greater impact with intersectoral collaboration.

The Call for Intersectoral Collaborations

Intersectoral collaboration, defined for this paper as a broad-based shared effort with participants from the civic, public, and private sectors, is increasingly recognized as a model for improving health. There is mounting voice to the need for more comprehensive collaborative efforts to address the multifactorial issues of community health.^{39,135,138,156} *Healthy People 2010* promotes community partnerships that reach out beyond the traditional medically focused partners as an effective tool for improving health in communities.⁸ Emphasis is placed in a complex web of factors and identifies that “addressing the challenge of health improvement is a shared responsibility that requires the active participation and leadership of the federal government, states, local governments, policymakers, healthcare providers, professionals, business executives, educators, community leaders, and the American public itself” (p. 4).⁸ A 2005 Institute of Medicine report, *Quality Through Collaboration: The Future of Rural Health Care*, emphasizes the importance of a broader population health focus in decision making within the civic, public and private sectors.¹⁰ Included are participants from the community, healthcare, education, and environmental planning. The “bottom-up” approach is viewed as essential to health system reform.¹⁰

Healthy Community Collaborations

The Healthy Cities / Healthy Communities movement provides insight into the potential for collaborative efforts to improve health.^{36,39,157} Assuming that community health is created by actions of multiple components of the public and private sectors within society, intersectoral collaboration, or bringing together people from a variety of disciplines within each sector, is believed essential.³⁸ To build a healthy community, Wilcox and Knapp propose inclusion of members of healthcare and human services, government, education, business and industry, the faith community, cultural and recreational organizations, media organizations, and people living, working and playing in the community.³⁹

Healthy community collaborations may be formed with a specific focus or purpose. For example, the California Smoke-Free Cities initiative used the Healthy Communities principles of broad-based participation in efforts to pass local ordinances, and eventually state law, banning smoking in all workplaces. The community approach allowed local people to take control and advocate for change to improve health and quality of life.^{157,158}

Other collaborations form to address broader issues of health. In urban planning, for example, participating cities commit to programs of action to promote healthy and sustainable planning policies. These policies subscribe to the concept that environmental quality and the nature of development are major determinants of health. Health, in turn, is an important stimulus to economic productivity.¹⁵⁹ Shaping Our Summit (SOS) empowers citizens to take an active role in community planning with an eye to improved health. SOS has increased community capacity by educating residents in the process of master planning resulting in increasing active participation.¹⁵⁷ The Champlin Initiative in Burlington, Vermont, demonstrates the potential for increased community capacity. The United Way organized the initiative to encourage citizen participation in addressing wide-ranging issues of health. By forming a civic

infrastructure that allows for broad-based citizen participation, residents have taken part in a variety of focused projects that ultimately provided recommendations to local and state policy.¹⁵⁷

The Current State of Intersectoral Collaboration to Improve Health

Collaborative community health efforts are ongoing worldwide. Table 3 provides examples of initiatives ranging in focus and participant involvement. The Mectizan Donation Program in Peru exemplifies a partnership of experts and agencies brought together to provide medical care to decrease the incidence of an endemic disease.¹⁶⁰ The Local Committees for Health Administration (CLAS) in Peru are small, community based groups focusing on improved access to medical services. In assessing community capacity and obtaining expert assistance in developing leadership skills, CLAS has demonstrated increased access to care in targeted underserved communities. This was most evident in those communities which were highly involved.¹⁶¹ The New York City Turning Point initiative is a broad-based collaboration composed of public and private sector organizations and community members to address the many determinants of health in strengthening the public health system.²

Some collaborative efforts recognize change beyond their initial intent. The Interdisciplinary Neighborhood Teams, constructed by an innovative public health nursing team, sought to bring together local experts and residents to assume responsibility for community health protection and promotion services. Participating residents have been involved in community assessments and the development of specific health promotion activities. In addition, the creation of a maternal-child support group for previously isolated Iraqi mothers has led to increased connectedness, support and capacity for dealing with many social issues ultimately impacting their health.¹⁶² The Border Health Strategic Initiative, initially conceived to address the quality of diabetes care, expanded focus to include prevention and patient empowerment goals. As a result, the Special

Action Groups have been instrumental in recognizing the need for planning and implementing policy change to improve health. This has resulted not only in a walking program but development of improved walking trails within communities; not just nutritional education in the schools but decreased vending machines and healthy, affordable food choices; not just child in-school programs but community-wide challenges to decrease weight.¹⁶³

The initiatives identified in Table 3 demonstrate important concepts that may facilitate successful collaborations. Several of the projects focused on specific community problems such as disease control (e.g., Mectizan Donation Program and Dutch Heart Health Community Intervention) or need to improve access to medical services (e.g., NW Georgia Healthcare Partnership and Local Committees for Health Administration). Other projects addressed broader goals of health promotion with consideration of the multiple determinants of health (e.g., Creggen Health Information Project and New York City Turning Point). Need was most commonly identified by experts outside the community; the impetus and funding for creation of collaborative efforts and identification of partners being external to community members.

Despite the lack of evaluation, a key factor in success appears to be the degree of involvement of a broad range of partners, particularly those from the community. Beyond this, however, is insight into the importance of involvement of external experts and support. Contrary to idealistic views of the formation of collaborations, communities lacking resources and significant internal capacity to form and sustain complex collaborative efforts will likely require significant external support. Similarly, despite the multiple determinants of health, ranging from issues such as individual health behavior choices to national economy, focusing on “manageable” issues (e.g., creation of walking trails) initially may allow measurable success and build capacity to broaden focus to larger societal factors (e.g., socioeconomic resulting in poor healthcare access).

Table 3. Examples of Intersectoral Collaboration Initiatives in Health

Collaboration	Purpose/Goals	Partners	Evaluation and Identified Impact
Mectizan Donation Program ¹⁶⁰ (MDP) Focus: disease control	Control of onchocerciasis in Africa and Latin America	• local & international experts • liaisons from WHO, CDC, Merck • government agencies • local & international private development organizations • philanthropic groups	Process Evaluation: • perceived benefit & cost to partners, governance style Outcome Evaluation: • number of treatments in endemic communities • economic value Identified Impact: • partner benefits – increased access to high-risk populations, improved use of resources, better relationships • treatment benefits – decreased incidence of disease with increased, cost effective services
EVERGREEN ¹⁵⁴ (UK) Focus: problem focus	Reduce drug-related harm in a deprived community	• national agency • local health authority • public sector agencies • voluntary sector agencies • community representatives	Process Evaluation: • participant working relationship & commitment • community involvement & improved communication Outcome Evaluation: • count of preventive interventions • change in knowledge, attitude & behavior, & crime • support programs for parents • promotion of leisure alternatives for youth
Dutch Heart Health Community Intervention ¹⁶⁴ (Hartslag Limburg) Focus: disease control	Reduce regional cardiovascular disease risk	• regional municipal authorities • public health institute • community social work organizations • regional community healthcare organization • providers • academics • private, local organizations	Process Evaluation: • project components (e.g., training, committee structure) • community principles (e.g., extent of collaboration, long-term continuation) Outcome Evaluation: • count, involvement, satisfaction of prevention activities Impact: • concern – level of training support and participation • little long-term continuation efforts • activities isolated – no coordination of risk factors • high level of satisfaction & reported behavior change
NW Georgia Healthcare Partnership ¹⁶⁵ Focus: access to medical services	Improved use of resources to ensure access to care	• healthcare providers & payers • business & industry • consumers • social organizations • local government • educators • public health agencies	Current: Process Evaluation • counts of program users Planned: Outcome Evaluation • impact of partnership & programs on viability of providers • access to care • health status

(Table 3. Examples of Intersectoral Collaboration Initiatives in Health – Continued)

Collaboration	Purpose/Goals	Partners	Evaluation and Identified Impact
Local Committees for Health Administration ¹⁶¹ (CLAS) (Peru) Focus: access to medical services	Provide cost effective, affordable care to indigent population Note: community participation encouraged but subordinate to national policies/priorities	• local health provider • community members – 3 appointed by head physician & 3 elected by community	Process Evaluation: • health ministry support • community involvement Outcome Evaluation: • patient SES mix, charges for care, & satisfaction Identified Impact: • process success varied & dependent on Ministry support • satisfaction of patients tied to level of community participation & regional commitment • increased access to care for those in lowest SES categories • reduced or eliminated user charges
Steps to a Healthier US ¹⁶⁶ Focus: expert identified, national problems	Prevention of obesity, diabetes, asthma	• local Dept. of Health • local Dept. of Education • government agencies • school districts • healthcare providers • academic institutions • faith-based agencies • private sector	Current: Process Evaluation • counts of programs initiated and participants Planned evaluation of process and outcomes
Interdisciplinary Neighborhood Teams ¹⁶³ Focus: community identified problems	Provision of health protection and promotion services addressing needs identified by community	• public health nurses • social worker • nutritionist • health educator • office assistant & program manager • community mobilizer • health outreach workers	Outcome Evaluation: • improvement in community capacity • engagement in core public health functions • effectiveness in service delivery Identified Impact: • improved healthcare access for high-risk groups • improved linkage of providers/community priorities • increased capacity of community participants

(Table 3. Examples of Intersectoral Collaboration Initiatives in Health – Continued)

Collaboration	Purpose/Goals	Partners	Evaluation and Identified Impact
Border Health Strategic Initiative¹⁶³ (Border Health iSI!) Focus: problem focus with recognition of individual capacity	Prevention goals Patient self-management & empowerment Improved quality of diabetes care	- University of Arizona - Special Action Groups (SAGs) - community health workers - patients & families - healthcare providers - social service agencies - school officials, Head Start - tribal council - government agencies - incl. planning, police, etc. - faith organizations - city library - local media	Current: Process Evaluation - sustainability of SAGs - formulation and implementation of policy Planned: Outcome Evaluation - reduction in health risk factors - change in health status
Creggen Health Information Project¹³² Focus: health promotion capacity	Health promotion: To put health on the agenda for the community	- health professionals - social service professionals - community - voluntary workers	Process Evaluation: - reflection on pros and cons of partnerships Identified Impact: - lack of strategic planning hindered progress - issues of trust, power, and common understanding of concepts impacted nature of partnerships - sustainability of efforts requires appropriate expectations and action within what is possible
New York City Turning Point² Focus: broad-based determinants of health	Strengthen the city's public health system – uses broad view of system beyond healthcare provision	NYC Public Health Partnership - Department of Health - healthcare providers - social service providers - academic institutions - government agencies - community-based organizations - community members	No formal evaluation reported Identified Impact: - increased community participation in public health planning process - resident identification of needs and assets - infrastructure created to support community activities & participation

Evaluation, Cost and Benefits of Collaborations to Improve Health

Development of evaluation models for community collaborations is vital to creating and sustaining commitment of people and resources. The ultimate goal of many current initiatives is to improve access, quality, and outcomes of programs while maintaining or reducing community and individual cost. Evidence, however, has shown that it is unrealistic to expect programs to demonstrate effectiveness toward these goals in a relatively short time frame.^{167,168} Evaluation is also complicated by varied definitions of population health (e.g., health status or determinants of health), methods of measuring health (e.g., health-adjusted life expectancy or measure of health processes within the population), and models of health (e.g., biomechanical or holistic).¹⁶⁹ Evaluation of health status change, presumably due to collaborative program efforts, fits the clinical model of health research. This model, however, may not be appropriate for programs addressing the complex issues of health. There is often no clear linear relationship between intervention and disease; the outcome is a product of complex interactions between factors and concepts.^{170,171}

Shortell and colleagues suggest the use of process-outcome evaluations.¹⁶⁸ Such evaluations assess progress against vision, attend to issues of partnership governance and management focusing on the impact on participants, and develop monitoring, evaluating, and tracking systems that span the evolution of the collaborative partnership to assess its sustainability. This model uses qualitative and quantitative measurements to assess group success in issues associated with maintaining a strong coalition as well as efficiency and effectiveness of getting the work done.¹⁶⁸ An extensive literature review of measurement tools by Granner and Sharpe revealed that information on reliability and validity is often lacking.¹³³ The authors contend that more work must be done to better understand the association of factors that influence optimal partnership functioning and community health impact and outcomes.

Defining the costs and benefits of collaborative efforts is hindered by the lack of evaluation. Collaborative processes generally require an initial higher level of resources than implementation of expert-driven, autocratic programs. Time constraints, hierarchical and inflexible organizational structures, territorial interests, varied philosophy and mandates, and negative political or economic climates are often barriers to undertaking or sustaining such efforts.^{132,137}

The potential benefits of collaboration, however, extend beyond improved delivery of care or health outcomes to development of community and individual capacity to address the broader determinants of health. Capacity building is described as increasing the abilities to define, assess, analyze, and act on important issues.¹⁷² The Interdisciplinary Neighborhood Teams (see Table 3) provide just one example of the potential to improve individual capacity in dealing with complex social issues within traditional budget constraints.¹⁶² Foster-Fishman and colleagues identified the core benefits of successful collaborations as enhanced member competencies, establishment of new relationships, strengthened operations between members, as well as promotion of the design and implementation of effective community-based programs.¹⁵⁵

Recommendations

There are many issues to be explored in enhancing the development of models for rural community health collaborations. Methods of relatively easy, accurate, and cost effective assessment of community skills and needs must be developed. Collaborative models should to be refined and tested to determine appropriate scopes of partnership, from formal to informal, based on community capacity and goals.¹²⁶ Leadership skills in identifying and conveying

a clear vision and mission, inclusion of stakeholders, and planning need to be developed and supported. Technical expertise providing infrastructure, training, and support is essential. Financial resources to support the development and continuation of collaborative efforts need to be developed.¹²⁹

Appropriate evaluation is vital to continuation of collaborative partnerships. Individual health changes occur over an extended timeframe and direct links between action and health are complex. Sustainability of community partnerships is often dependent on the ability to show success in achieving outcomes.^{37,99} Methods of evaluating process and capacity that can be used across collaborations must be developed to supplement health indicator measurements. This paper identified initial efforts at process evaluation, but more work is needed.

Finally, policy that supports the development and maintenance of intersectoral collaborations to improve overall community health, and ultimately individual health, is crucial. The Healthy Communities movement has made significant strides in promoting the need and potential of integrated efforts. Conceptually, the civic, public, and private sectors must develop an understanding of the potential impact of collaborative efforts. Innovative public health practice integrating social theory into current structure will enhance the role of the public health departments in intersectoral efforts.¹⁷³ It is imperative that the healthcare profession looks beyond the limited biomedical causes of disease to the multiple, complex determinants of health. They must be willing to fully partner with people from all aspects of society. Recognition of the need is not enough, however. Resources must be dedicated to the process, often with seemingly slow return on investment, to create an environment conducive to collaboration. In pooling knowledge and resources, rural communities will be better able to assemble the power needed to make significant impact on policy.

The role of external experts must be supported in the development of rural community collaborations. Local agencies and organizations, both public and private, as well as residents, commonly have few skills or resources to develop the capacity required in establishing an effective collaboration. Policy supporting inclusion of expertise from outside communities, as well as appropriate development of internal skills in leadership, needs assessment, and all aspects of collaborative efforts is vital to allow an evolution to community driven efforts. The W.K. Kellogg Foundation provides a model for development of community capacity. All grant recipients, external and internal to communities, are required to complete modules supporting development of community-based initiatives that include promotion of citizen participation, action and leadership.¹⁷⁴ Promotion of similar educational efforts is essential in the growth of community collaborations.

Conclusion

Community collaborative partnerships provide a good conceptual framework for addressing the complex issues of individual health. People do not live in isolation from communities and the consequences of poor health extend far beyond the individual. The determinants of health cross all sectors of society and interrelate in an intricate manner. Factors seemingly unrelated to health, such as culture, education, income, and geographic location of residence, play a role. Consequently, policies such as those affecting the physical environment, economic development, and housing significantly impact health. Community collaborations extending beyond local efforts are likely to have the greatest influence on these national issues. Integration of collaborations, not only across sectors within a community, but integrated with regional, state, and national

efforts, is essential. It is important to recognize, however, that the difficulty in implementing and sustaining collaborative efforts addressing local health factors is magnified when tackling the greater challenges of state or national issues impacting health.

Rural communities experiencing high rates of illness, scarcity of resources, and little power over policy stand to significantly benefit from combining efforts in addressing these issues. Limited progress has been made to date in solving the difficult issues of healthcare access and chronic disease prevention and control in rural communities. Examples of collaborative models provided in this paper suggest a potential for improved health through building community capacity and health promoting policy.

Despite this potential, rural communities face many barriers to forming effective, sustainable collaborative efforts. The same scarcity of resources, high demand of a weakened healthcare infrastructure, and lack of power to impact policy make implementation of collaborative theory very difficult. It is crucial that initiatives are individualized to the strengths and needs of each community and given strong policy and financial support.

While collaborative efforts theoretically “make sense,” their actual impact has been poorly evaluated. Identification of realistic outcomes, methods of measuring success, and evaluation of ongoing group processes are being debated. Literature suggests this lack of evaluation hinders identification of key concepts and generalizability of successful models. To this end, more evaluation must be done to determine appropriate, successful models of collaborative partnerships in health addressing the needs of a range of communities.

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Coursework completed in M.A. in Human and Health Services Administration
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1972-1976

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PROFESSIONAL EDUCATION

Functional Neuroanatomy / Neurophysiology. (1981). Extension Division of the
University of Minnesota, Minneapolis, MN.

Neurological and Neurosurgical Intensive Care. (1985). A workshop sponsored by
Harvard Medical School, Boston, MA.

Research Statistics: A two day primer. (1993). A workshop presented by Hennepin
County Medical Center, Minneapolis, MN.

Medical Legal Consulting. (1993). A workshop presented by the Carondelet
Management Institute of Tucson, AZ, in Minneapolis, MN.

Congress on Health Outcomes and Accountability. (1995). A workshop presented by Thomas Jefferson University Hospital of Pennsylvania in Washington, D.C.

Straight Talk: A primer on award administration. (1999). A teleconferenced workshop presented by the National Council of University Research Administrators. Sponsored by the Office of Research and Sponsored Programs, Ohio University.

Indirect Costs for the Lay Audience. (2000). A teleconferenced workshop presented by the National Council of University Research Administrators. Sponsored by Ohio University.

Rural Health Outreach Grant Program and Network Development Grant Program: Technical Assistance Workshop. (2000). A workshop presented by the Federal Office of Rural Health Policy, Health Resources and Services Administration, U.S. Department of Health and Human Services, in Chicago, IL.

PROFESSIONAL LICENSURE AND CERTIFICATION

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Registered Nurse, Minnesota Board of Nursing: R-081982-2

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Graduate Assistant

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Grant Development Consultant

Clients include Center of Excellence, Ohio University College of Osteopathic Medicine

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1998-2000

Clinical Research Coordinator

Ohio University College of Osteopathic Medicine, Office of Research
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Independent Consultant in Outcomes Research

Clients included Minneapolis Medical Research Foundation and Neurosurgical
Consultants, Minneapolis, Minnesota

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Clinical Systems Program Coordinator

Office of the Medical Director, Hennepin County Medical Center
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Nursing Program Specialist / Research Program Coordinator

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Neurosurgery Nurse Clinician / Research Nurse

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Neuroscience Nurse Clinician / Research Nurse

The Johns Hopkins Hospital
Baltimore, Maryland

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University of Minnesota Hospitals and Clinics
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PUBLICATIONS

Pheley PJ, Sung HG. (2005). *How Safe Are Our Roads? 2004*. Annual report of the Washington Regional Alcohol Program. Available online at www.wrap.org.

Simpson C, Pheley AM, Pheley PJ. (2001). Do osteopathic residencies encourage rural practice? *Ohio Research and Clinical Review*, 12:9-11.

Simpson C, Pheley AM, Pheley PJ. (2001). The American Osteopathic Association's Database: Implications for identifying practice location. *Ohio Research and Clinical Review*, 12:12-13.

Bergman TA, (Pheley) Lavik PJ. (1993). Head injury in the multiple trauma patient. Partial chapter: Management of the patient with multiple trauma. IN: *Fractures and Dislocations* Eds. Gustillo RB, Kyle RF, Templeman DC. Mosby Year Book Inc.

Rockswold GL, Pheley PJ. (1993). Patients who talk and deteriorate. *Annals of Emergency Medicine*, 22:1004-1007.

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PRESENTATIONS

Bohland JR, Pheley PJ. (2004). Public health system evaluation beyond the NPHPSP. Presented at the Annual Meeting of the American Public Health Association, Washington, DC.

Pheley AM, Blazyk J, Simpson C, Pheley PJ, Harley DW. (2000). Access to care and utilization of medical services: Lessons from Appalachia Ohio. Presented at the annual research conference of the American Osteopathic Association, Orlando, FL.

Pheley AM, Simpson C, Blazyk J, Pheley PJ, Harley DW. (2000). Health status of rural populations and relationship to poverty indicators. Presented at the annual research conference of the American Osteopathic Association, Orlando, FL.

Pheley P. (1992). Grantsmanship, the steps to funding research. Presented at the Annual Meeting of the American Association of Neuroscience Nursing, Anaheim, CA.

Pheley P. (1991). The role of the neuroscience outpatient coordinator in managed patient care. Presented at the Annual Meeting of the American Association of Neuroscience Nursing, New Orleans, LA.

Pheley P. (1989). Helping your patient with vertigo. Presented at the Annual Meeting of the American Association of Neuroscience Nursing, Washington, D.C.

Pheley P., Bowman-Cloyd T., Lagaard M. (1989). A multidisciplinary team approach to the neuro oncology patient. Presented at the Annual Meeting of the American Association of Neuroscience Nursing, Washington, D.C..

Pheley P. (1983). Cerebral arterial spasm: a report on the findings in a trial of Nimodipine. Presented at the Annual Meeting of the American Association of Neuroscience Nursing, Washington, D.C.

INVITED PRESENTATIONS

Pheley P. (1998). Epidemiological methods for quality assurance. Presented to Community Epidemiology, HLTH 330. College of Health and Human Services, Ohio University, Athens, OH.

Pheley P. (1996). A Neuroscience clinical nurse perspective on brain death. Presented at Transplantation into the '90's: A Journey into the Unknown, United Resource Networks National Clinical Conference, Minneapolis, MN.

Pheley P. (1991). Subarachnoid hemorrhage. Presented at Tracks in Critical Care Nursing, American Association of Critical-Care Nurses Fall Symposium, Minneapolis, MN.

Pheley P. (1990). Lumbar drains. Presented at Neuroscience Nursing Today, Abbott Northwestern Hospital Continuing Education, Minneapolis, MN.

Pheley P. (1987). Brain death: Update on guidelines. Presented at Primary Care of CNS Disease and Trauma, Continuing Medical Education, St. Paul Ramsey Medical Center, St. Paul, MN.

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Pheley P. (1986-1992). Neurological review. Presented semiannually at the CCRN Review Sessions, American Association of Critical-Care Nurses, Minneapolis & St. Paul, MN.

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Pheley P. (1983). Cerebrovascular anatomy. Presented at the CNRN Examination Review Course, Department of Neurology, The Johns Hopkins Hospital, Baltimore, MD, February 3.

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Pheley P. (1982). Spina Bifida: an overview; Meningocele: what can we do? Presented at Congenital Disorders of the Neural Tube, Spina Bifida Association, a community based organization of families affected by Spina Bifida, St. Paul, MN.