THE NATIONAL HEALTH SERVICE CORPS COMMUNITY ASSESSMENT PROJECT

PROJECT FINDINGS TO DATE

NATIONAL HEALTH SERVICE CORPS 25TH ANNIVERSARY CONFERENCE

REPORT PREPARED BY: FELIX, BURDINE AND ASSOCIATES

Michael R.J. Felix, James N. Burdine, Dr.P.H.,

Amy Llewellyn Abel, MSPH, Charles J. Wiltraut, B.A., Yvette Musselman

April 1998

NHSC COMMUNITY ASSESSMENT PROJECT PARTNERS

National Health Service Corps Alumni and Support Network/Association of Clinicians for the Underserved

- Larry Brandt, Director
- Kathie Westpheling, Director of Organizational Relationships

The Health Institute at the New England Medical Center

- Alvin R. Tarlov, M.D.
- Dana Gelb Safran, Sc.D.
- William Rogers, Ph.D.
- Jana Montgomery

The Mind/Brain/Behavior Faculty Study Group at Harvard University and The Harvard School of Public Health

- Benjamin Amick III, Ph.D.
- Lisa Berkman, Ph.D.
- Ichiro Kawachi, M.D., Ph.D.
- Bruce Kennedy, D.Ed.
- Nancy Krieger, Ph.D.
- Richard Levins, Ph.D.
- Richard G. Wilkinson, T.C.M.R, University of Sussex

The Kansas Partnership ***(with support from the Kansas Health Foundation)***

- Kansas Association for the Medically Underserved
- Kansas Hospital Association
- Kansas Department of Health and Environment
- Kansas Health Institute

Community partners

- Aroostook Valley Health Center, Ashland, Maine
- Brownsville Community Health Center, Brownsville, Texas
- Central Virginia Community Health Center, New Canton, Virginia
- Kearny County Hospital, Lakin, Kansas
- Manatee County Rural Health Services, Bradenton, Florida
- Providence Ambulatory Health Care Foundation, Providence, Rhode Island
- St. Claire Medical Center, Morehead, Kentucky
- Wallace County Family Practice, Sharon Springs, Kansas
- Venice Family Clinic, Venice, California

National Health Service Corps Staff

- Don Weaver, M.D., Director
- Andy Jordan, Deputy Director
- Sonya Leon Reig, Director, Division of Scholarships and Loan Repayments
- Charles VanAnden, Chief, Clinical and Professional Activities Branch
- Betty DeBerry-Sumner, D.D.S., Chief, Site Development and Placement
- Mike Berry, Health Policy Analyst
- Tira Robinson, 25th Anniversary Coordinator
- All other staff in the Divisions of the National Health Service Corps and Scholarships and Loan Repayments

THE NATIONAL HEALTH SERVICE CORPS COMMUNITY ASSESSMENT PROJECT

PROJECT REPORT FOR THE NATIONAL HEALTH SERVICE CORPS

25TH ANNIVERSARY CONFERENCE

Table of Contents

Background 1

Methods 11

Findings 30

Application 49

Next Steps 57

Acknowledgments 59

Works Cited 60

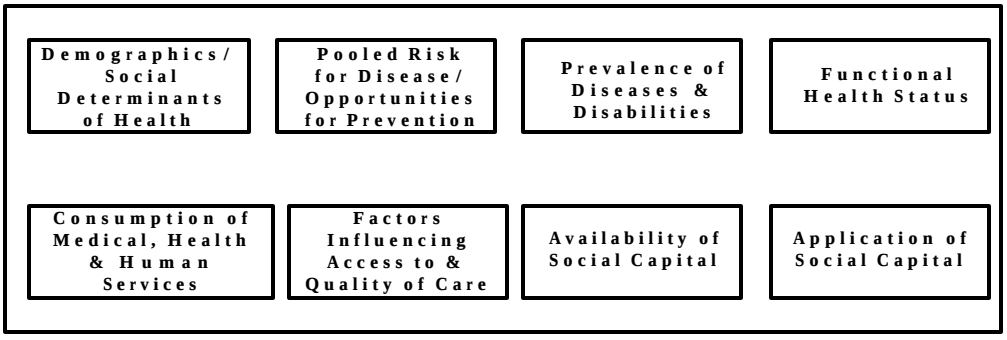
Conceptual Framework for the NHSC Community Assessment Project

Health is an individual's or a community's capacity, relative to aspirations and potential, to function fully in the social, political and economic environment (Tarlov 1992; Tarlov and Felix 1993; Burdine and Felix 1994). Based on this definition, health becomes a capacity--a potential to act--that is determined by a range of factors: the economy, the environment, lifestyles of individuals and their genetic makeup, the total level of disease and disability in a community, services available, and how people use their resources to stay, or become healthy (Tarlov 1992; Gerstein et. al 1991).

The underlying concepts for the work conducted as part of the National Health Service Corps (NHSC) Community Assessment Project are in population health: the science of understanding the multiple factors that contribute to the health of a group of individuals.

Understanding the health of a population requires looking across many concepts that, together, define health. Conceptual frameworks have been proposed for the study of population health (Patrick and Wickizer 1995; Ontario Health Review Panel 1987; World Health Organization 1948). These frameworks reflect the conceptual advances made in understanding what factors might interact to produce health in a community. The conceptual framework for population health on which the NHSC Community Assessment Project is based is illustrated below:

Conceptual Framework for Population Health



This framework has been developed over the past twenty years, through lessons learned in the application of population health data with communities for the purpose of implementing health improvement strategies. The application history of the framework has both contributed to its content, and driven the most recent addition: the availability and application of social capital. It is this aspect that drives the conceptual framework to be an active--and interactive--approach to the study of population health.

Each framework component requires definition. *Demographics* describe the "dimensions" of a population: its size, age, cultural and ethnic mix, income structure, employment levels, and educational attainment. The *social determinants of health* are the environmental, behavioral, cultural, and political factors that influence the health of populations. These factors include the societal infrastructure, physical environment, cultural characteristics, perceptions, and the institutional, economic, governmental and social organization, and policies of communities (McKeown 1984 ; Tarlov 1992). *Risk for disease and opportunities for prevention* include the prevalence of health behaviors that put individuals at risk for disease (smoking, exercise habits, drinking habits, stress) and the availability and use of activities designed to curb or detect the impact of these risks on health. *Prevalence of diseases and disabilities* is the prevalence of conditions such as heart disease or depression, or the extent of impaired physical abilities in the population. *Functional health status* is a measurement of an individual's ability to function in every day life, both mentally and physically. *Consumption of medical, health and human services* is an indication of resources needed and used by a population to address individual health challenges. *Factors influencing access to and quality of care* includes those measures which indicate if and how individuals obtain a basic service: primary medical care. Insurance status, health manpower available in a community, organization of medical-care services, and provider characteristics are contributing factors.

Social capital is defined here as the social networks, trust, civic involvement, and problem solving potential and ability present in a population, or, for this paper's purpose, a community. Dimensions of

social capital include the perceived disparities in income or power in a community, perceptions of individual influence and locus of control, and religiosity. Research to date has theorized social capital to be constructed of one or more of the following concepts: trust, good-will, co-operation, civic engagement, reciprocity, collective efficacy, social networks, obligations, and norms (Putnam 1995; Kawachi, Kennedy and Lochner 1997; Sampson, Raudenbush, and Earls 1997; Sirianni and Friedland 1995), or as a resource that represents community health (Cox 1995, Wall 1998). Social capital has also been described as existing in many forms, such as congregation-based community organizing, civic environmentalism, participatory school reform, and County Extension agents (Sirianni and Friedland 1995, 1998).

The definition of social capital proposed in this paper is expanded over previous definitions, to purposefully include the elements of support systems required to apply social capital for population/community health improvement. (Chavis, Florin and Felix 1993). For this reason, both the presence and the application of social capital for population health improvement are central facets of the conceptual framework for population health used in the NHSC Community Assessment Project. This important concept is the primary contributor to the authors' current belief that, like Alejandro Portes and Patricia Landolt,

> "For social capital to mean something, the *ability* to command resources through social networks must be separate from the level or the quality of such resources." (Portes and Landolt 1996).

Why this Framework?

The National Health Service Corps within the Bureau of Primary Health Care (BPHC) was established "to improve the delivery of health services to persons living in communities or areas of the United States where health personnel and services are inadequate to meet the health needs of residents of such communities and areas" (NHSC Report to Congress 1990-1994). As part of BPHC, the National Health Service Corps is an instrument through which the Bureau is working to increase access to

primary and preventive care and decrease health disparities, particularly for those populations that are underserved.

The reason for conducting the NHSC Community Assessment Project within a population health framework is that we believe progress toward the Bureau and NHSC goals must be: 1) considered in the context of all factors that produce health in a population, and 2) examined within the unit of solution in which a NHSC clinician is placed, a community.

The Social Reconnaissance

The Social Reconnaissance is a series of quantitative and qualitative methods, employed in a community setting, to understand the health of a population as defined in the conceptual framework.

The Social Reconnaissance as an approach for understanding population health is based in theory, and has evolved through application in the Lycoming County Health Improvement Program (Stunkard, Felix, and Cohen 1985) The Henry J. Kaiser Family Foundation National Health Promotion Program (Tarlov, et. al 1987; Williams 1990) and The Partnership Approach for Population Health Improvement (Felix and Burdine 1995). The Social Reconnaissance strategy is used primarily to plan, organize, monitor, evaluate, and apply health status improvement activities aimed at populations.

The Social Reconnaissance strategy was introduced by Dr. Irwin T. Sanders as a method for identifying research opportunities at a community level (Sanders 1975, 1985). Social Reconnaissance in his work included community site visits, and the gathering of available community information. The primary application of the Reconnaissance was for research, consultation, and training of students around community health issues (Sanders 1985).

The strategy was enhanced and applied for community health promotion purposes beginning with the Lycoming County Health Improvement Program of the late 70's and early 80's (Stunkard, Felix and

Cohen 1985). In the Lycoming County Health Improvement Program (CHIP), three activities framed the Social Reconnaissance: a preliminary series of community meetings, a collection and analysis of secondary information, and a population health survey (ibid 1995). A series of local individual and group meetings were held with a cross section of community members, a population health survey was conducted, and analysis of available health information occurred prior to planning local community health promotion interventions. The meetings with community members (civic organization and private sector leaders, health and human service providers, governmental officials, religious leaders, and citizens) were designed to understand current health promotion activity in the community from a range of perspectives. Community leaders were solicited, in the context of the discussions, about their interest in participating in a collaborative effort to plan and organize a community-wide health promotion and education strategy. The information collected from 150 community members was used by a local steering committee to plan and implement mass media and community health promotion activities (Norman et al. 1990).

In the mid-80's, the Henry J. Kaiser Family Foundation (HJKFF) began a National Health Promotion Grant Program. Similar tactics used in Lycoming County's CHIP were applied for grant making purposes by the Foundation (Williams 1990). This represented a revolution in grant-making theory: investigate before giving, in a way that organizes collaborative and wise use of foundation dollars. The Foundation arranged site visits to selected communities in the Western part of the United States who had submitted an application for health promotion program funding. Site visits were then conducted by Foundation staff, with a team of experts in community health promotion and community organization (ibid). Site visitors were looking for community interest, knowledge, current activity, and commitment to health promotion among community leaders, providers, and citizens. The information contained in application along with the site visit data was used to select and make grants to eleven (11) communities targeting prevention strategies for adolescent pregnancy, substance abuse, cardiovascular disease, cancer, nutrition, and injuries among the elderly (Tarlov, et.al 1987).

As the grant making strategy moved to other states in the South, Foundation staff adopted the "Social Reconnaissance" approach, as a reflection of the information gathering and partnership building approach that was being applied prior to making a grant. The strategy began in Tennessee, and from there it moved to Mississippi, Arkansas, South Carolina, Georgia, and Texas, to a total of 10 Southern states and Washington, D.C. Application of the Social Reconnaissance in the Southern states was another "revolution" in the HJKFF grant making process: rather than using an RFP process aimed at communities, the Foundation focused its attention on states as partners in the grant-making process. Foundation staff collected state health information, made state level contacts, identified partners who arranged community discussions groups state-wide, and meetings with individual leaders and citizens. The Social Reconnaissance process was used to glean the available infrastructure, partnerships, and commitment for state-wide community health promotion grants.

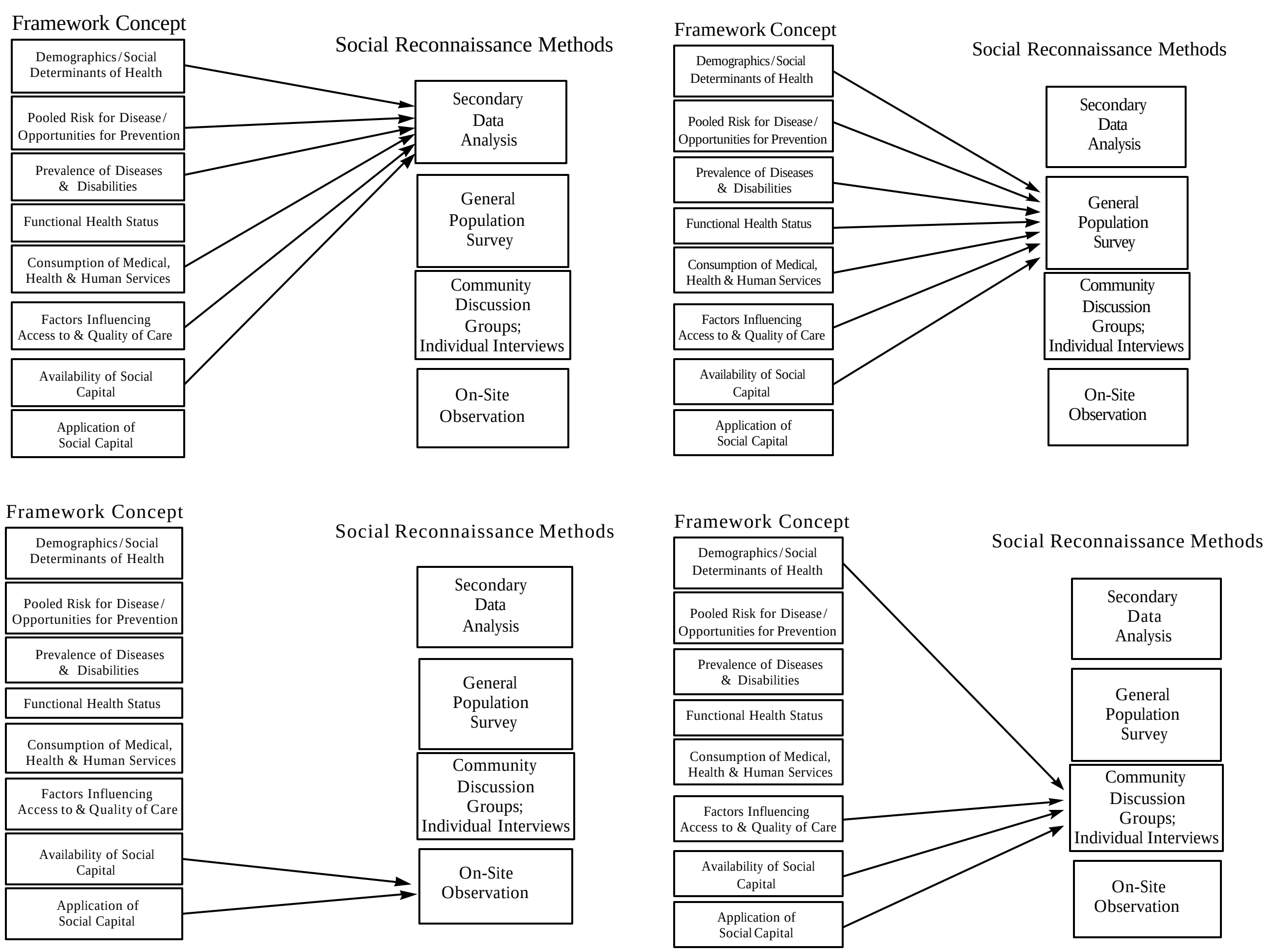
Among the many organizations influenced by the success of the Kaiser approach, the Centers for Substance Abuse and Prevention (CSAP) adopted the Social Reconnaissance in the late 1980s to train grant communities toward improving the local planning and implementation of drug and alcohol abuse prevention activities.

The Social Reconnaissance has evolved in the 1990's as a strategy for planning, implementing, and evaluating population health status improvements (Felix, et.al. paper in progress). It has been used by many communities as the method to initiate and evaluate local community health status improvement partnerships or coalitions (Crystal 1995; Felix and Burdine 1995; Watkins 1995; Felix 1993; Norman et.al 1990) and has even been used to preform market analysis for health service development (Felix, Burdine and Associates 1996, 1995).

The modern form of the Social Reconnaissance is composed of four methods that both define and give structure to the approach. These methods are:

- Collecting and analyzing available (secondary) information from the community that contributes to an understanding of the factors influencing health.
- Community discussion groups and individual interviews to identify community issues, challenges, and resources; to learn about the available social capital for population health improvement; and to seek community members' advice.
- Formal observations of how communities apply social capital for health status improvement.
- Collecting, analyzing, and applying information from a population health survey.

A picture of how the Social Reconnaissance data collection methods contribute to understanding components of the conceptual framework is shown below:



The strength of this approach is rapidly gaining ground as many in the field of population health research, and others, such as those involved in improving community health through the work of coalitions, recognize that multiple methods must be used to understand the complete picture of population health, and to examine a community for the study of any research question (Sanders 1966, Kohn 1997; Fawcett et. al 1997; Paine-Andrews et. al 1997).

Social Reconnaissance as Employed in the NHSC Community Assessment Project

For the past 25 years, the NCSC has matched primary care, dental and mental health clinicians with underserved communities, defined as areas and populations designated as a health professional shortage areas. A scholarship and loan repayment program has been utilized as the mechanism to enlist clinicians to serve in these health shortage areas. Presently, there are over 2,300 clinicians serving four and one-half million people in the United States, in over 1,100 communities.

In many reports and studies, the success of the NHSC has been measured on the basis of "retention:" whether clinicians have remained in the site or community of their original placement after they have completed their commitment (Weisgrau and McDowell 1997; OIG 1994; Pathman and Konrad 1996; Pathman, Williams and Konrad 1996; Pathman 1994; Pathman, Konrad and Ricketts 1994).

Strategic plans for the NHSC through the year 2000, call for the NHSC to build relationships with both the clinicians and the communities where they serve. As a Division within the Bureau of Primary Health Care, the NHSC is also a mechanism for increasing access and decreasing health disparities in underserved communities. These goals, coupled with an emphasis on changing relationships with communities by NHSC leadership, and the pending NHSC federal re-authorization, caused the NHSC to ask the following questions:

1) How can we highlight the success and impact of the NHSC in underserved communities?

2) Can we determine what new measures might be available to quantify and communicate the impact of the NHSC to policy makers, in addition to retention?

3) Can we develop a vehicle or process through which relationships with the communities who recruit NHSC clinicians could be strengthened?

In the summer of 1997, the NHSC, Felix, Burdine and Associates (FBA), the National Health Service Corps Alumni and Support Network/Association of Clinicians for the Underserved (NASN/ACU), The Health Institute at the New England Medical Center, The Harvard School of Public Health and The Mind/Brain/Behavior Faculty Work Group at Harvard University established project partnership to address those questions through a demonstration project with the following objectives:

- to provide the NHSC with qualitative data describing the perceived impact of the NHSC on individuals and the communities in which NHSC clinicians are/have been placed;
- to evaluate how a combination of approaches and methods allows the NHSC to measure the impact of its clinicians;
- to determine what additional measures might be developed to track the progress of the NHSC in addressing its mission and strategic goals;
- to explore how population health status data can be used to facilitate the development of national, state, and local collaborations for improving the health status of underserved populations;
- to demonstrate the value of collecting and applying population-based health status data for the purpose of planning, monitoring, and evaluating health status improvement in underserved communities; and
- to recommend roles and functions for the NHSC in underserved communities.

These objectives were addressed in the NHSC Community Assessment Project, conducted from September 1997 through April 1998. It is important to note that this project was not designed to evaluate the NHSC's program process, rather, it was designed to determine the impact of the NHSC from a qualitative perspective, lay the groundwork for continued quantitative assessment, and to

introduce the NHSC to a process that would allow it to explore new roles and partnerships with communities and clinicians in order to more effectively reach its goals and objectives.

To address the state-level partnership objective specifically, the project partners brokered support from a partnership of state health organizations in Kansas, for whom the question of supply and distribution of primary care providers is a critical issue, particularly in its frontier areas. The organizations involved in this partnership include the Kansas Association for the Medically Underserved, the Kansas Department of Health and Environment, the Kansas Hospital Association, and the Kansas Health Institute. This partnership was convened in September, 1997 and together made a request to the Kansas Health Foundation to support the work of this project in the state of Kansas, and to allow for an expanded scope of work within the state. A grant for this purpose was awarded in December, 1997. The Kansas Partnership will use the information from this study to: 1) develop a better understanding of placement issues and ways to support clinicians and communities in medically underserved areas; 2) use the information to inform state and local health policy related to underserved areas; 3) contribute to a growing body of knowledge by participating in state and national conferences on health status and the social determinants of health; and 4) create a blueprint for other communities involved in planning health delivery systems or services for medically underserved populations.

METHODS

Community Selection

Nine (9) communities across the country who have had, or currently have, a relationship with the National Health Service Corps agreed to be part of the NHSC Community Assessment Project. These sites were chosen to reflect the mix of communities geographically and demographically served by the NHSC, a mix of histories in working with the NHSC, the range of practice settings in which NHSC clinicians serve, and to include both grant and non-grant communities in the project. The participating communities are shown in Table 1:

Table 1

Community*	Sponsoring Facility/Institution
Aroostook County, Maine	Aroostook Valley Health Center (AVHC)
Brownsville, Texas	Brownsville Community Health Center (BCHC)
Cumberland, Fluvanna and Buckingham Counties, Virginia	Central Virginia Community Health Services (CVCHC)
Wallace and Greeley Counties, Kansas	Wallace County Family Practice (WCFP) and Greeley County Hospital
Bath, Carter, Elliot, Menifee and Rowan Counties, Northeastern Kentucky	St. Claire Medical Center (SCMC)
City of Providence, Rhode Island	Providence Ambulatory Health Care Foundation (PAHCF)
Manatee County, Florida	Manatee County Rural Health Services (MCRHS)
Kearny County, Kansas	Kearny County Hospital (KCH)
Venice/West Los Angeles, California	Venice Family Clinic (VFC)

*Listed in chronological order of NHSC Social Reconnaissance Site Visit.

Activities within the Social Reconnaissance approach for each site are shown in the figure below:

NHSC Community Assessment Project

NHSC Community Sites	Secondary Data	Site Visit (Community Discussions and Observations)	Population Survey
Aroostook County, ME	x	x	
Brownsville, TX	x	x	
Buckingham, Cumberland and Fluvanna Counties, VA	x	x	
Wallace and Greeley Counties, KS	x	x	x
Bath, Carter, Elliot, Menifee and Rowan Counties, KY	x	x	
Providence, RI	x	x	x
Manatee County, FL	x	x	
Venice, CA	x	x	
Kansas Partnership Site Kearny County, KS	x	x	x

The method for gathering data in each site, by each method, was similar. These methods are described in turn in this section.

Secondary Data Collection

As part of the original Social Reconnaissance methodology, Sanders included an extensive review of community "indicators." These indicators included 30 demographic, economic, and housing variables, compared over a twenty year period in order to trace change (Sanders 1985). These variables provided information to both supplement and contrast with information gained in the community discussion process, and from other data collection methods. It is for contextual value that secondary data were collected in the NHSC Community Assessment Project.

There are many sources that list or recommend indicators that capture the community or population's health at a given point in time (IOM 1997, Washington State County Health Profiles, World Wide Web), including the Healthy People 2000 Objectives for the Nation. FBA has incorporated much of this research to develop a list of population health indicators that can be collected via existing sources in communities, or via other state and national sources for the purpose of providing a community snapshot. The complete list is shown in Table 2.

Table 2

Demographics/Social Determinants

Total population

% Population has changed since 1990

Density of population (persons per square mile)

Age distribution

- Mean age
- % Less than 18
- % Age 18-64
- % Age 65+

Gender

- % Male

Race/ethnicity

- % White
- % Black
- % Hispanic
- % Other races

Education

- Total public school enrollment
- Ratio of high school graduates: 9th graders enrolled 3 years previous
- Mean educational attainment (years)
- Percent of population age 25+ with 12 or more years of education
- Proportion of seniors that enroll in college or post-high school education

Income

- Per capita income
- Median household income
- Households less than 100%, 100-200% of the FPL
- Persons less than 100%, 100-200% of the FPL
- Persons age <18, >65 that are <100% FPL

Demographics (continued)

Household composition

- Total families

Consumption of medical, health and human resources

Births

Total births in last year

- Proportion of births to white mothers
- Proportion of births to non-white mothers

Percent of births over last 5 years that are low birth weight

- Proportion of those that were premature
- Proportion of those for whom there was no prenatal care

Percent of births over last year and last 5 years to adolescents

- Proportion of those births with no prenatal care

Factors influencing access to and quality of care

Non-hospital primary care places in community

Not-for-profit hospitals

Dentist offices

School-based clinics offering primary care, dental or other direct services

Emergency/urgent care centers

Health manpower

- Doctors
- Dentists
- Nurse practitioners, other professionals

Health economic factors/indicators

- % Emergency room visits that are from uninsured persons
- % Of kids with free and reduced lunches
- % Of population uninsured
  - % Of uninsured that are children <18, <6
- % Of population food stamps
- % Temporary Assistance to Needy Families (Welfare)

Factors influencing access to and quality of care

Health economic factors/indicators (continued)

- % Of "managed care" market penetration

Single parent families (percent)

Proportion of single parent families female-headed

Families where both parents are working full-time

Employment

Top 25 businesses by number of employees (type of industry)

Number (or proportion) of businesses that employ <50, <25 people

Businesses new or closed in last five years

% Population age 25+ currently unemployed

Housing

Estimated number of homeless persons

% Population that owns homes

Affordable housing availability (Section 8, low income housing)

Available housing

New housing authorized/new housing "starts"

Transitional living facilities (shelters, nursing homes)

% Of total health care market

% Of Medicaid enrollees in a

What state is pay

Medicare AAPCC

Availability of social capital

Structure of local government (city/county)

Method of local governance (council/comm

Voting history for local elections

Last presidential election

Last mayoral/council election

Total county/city budget

Proportion of budget for direc

Number of churches/synagogues

Cultural/ethnic churches

Number of United Way funded agencies

Number of local philanthropies

Political nature of community--active/passiv

Reports requested from communities for

Latest vital statistics report from State Heal

All reports done in last year from local Hea

Last State Behavioral Risk Factor Survey re

Any local assessment/health planning repo

A subset of this list was employed in the NHSC project, highlighting those indicators which contribute to a designation of "underserved." A table from the five-county Northeastern Kentucky region that participated in this project is shown below to both illustrate these indicators, and to illustrate the types of information that were gathered from communities prior to a community site visit.

Table 3

Indicators	**Bath County**	**Carter County**	**Elliott County**	**Menifee County**	**Rowan County**
Total population (1995)	10,159	26,172	6,543	5,387	21,541
%Population age 17 and under (1995)	25%	25%	29%	26%	19%
%Population age 65+ (1995)	15%	12%	12%	13%	10.1
% Of population that is not White/Caucasian (1995)	3.1%	<1%	<1%	2.1%	2.3%
Persons per square mile (1994)	35	63	28	27	77
% Population below 100% of the Federal Poverty Level (1990)	27% (6% under 18; 32% are age 65+)	26% (36% under 18; 25% are age 65+)	38% (45% under 18; 39% are age 65+)	35% (41% are under 18; 36% are age 65+)	29% (33% are under 18; 33% age 65+)
% Population below 200% of the Federal Poverty Level (1989)	55%	55%	57%	66%	64%
% Population that is eligible/ receives Medicaid assistance (1995)	24%/30%	N/A	N/A	23%/30%	15%/24%
% Civilians unemployed (1995)	9.7%	14.2%	17.8%	11%	5.0%
% Of those age 25+ with a high school education (1990)	46%	51%	44%	46%	58%
Births to mothers under age 20 (1990)	22%	22%	15%	27%	18%
Infant mortality rate (five-year 1990-1994)	10.6	N/A	N/A	15.4	7.4

Excerpt from Kentucky, St. Claire Medical Center Briefing Packet, FBA, 1998

The collection of existing health information from a community is the first step in Social Reconnaissance data gathering. These data are organized with the assistance of community members prior to a community site visit. Reports and data available from the site or elsewhere in the community are organized by the site contact and sent to FBA. Typically, reports from the following sources of data are requested: Census data reports, Chamber of Commerce report (annual), school superintendent

reports for education and school enrollment, local economic development council reports, and reports from the State Department of Health. Many web-sites of federal agencies such as the Department of Education, the Department of Housing and Urban Development, and the Bureau of the Census contain information at the state and national level for many of the data elements requested. The secondary information gathering and analysis process is designed to gather information that will also illustrate the availability of social capital, particularly in the area of supportive functions required for health status improvement. Documents such as community health status assessment reports are one example that show social capital.

Community Site Visit as the Vehicle for Community Discussion and Observation Methods

On-site interaction and exchange with community members is an invaluable means to gathering information--data often unobtainable by any other means. For this reason, each community participating in the study organized a series of community meetings over two days with community leaders, providers, and consumers/community residents. FBA and representatives from the NHSC went on-site to the communities to facilitate these discussions.

The objectives of the community discussions in the NHSC project were to listen to a cross section of community members around community trends and themes that are important for understanding the health of the community; to understand community awareness of, experience with, and perceived impact of the NHSC; to elicit community members' advice for the NHSC around their role in underserved communities; and to listen to clinicians who are currently or formerly affiliated with the NHSC for their experiences and advice.

FBA worked with a contact person in each study community to organize a meeting schedule with community participants for the discussions. Materials were forwarded to the contact person to assist in this process, including a scheduling template, a list of the types of persons who should participate in the discussions, and draft letters of invitation which could be used with community members.

The following was the typical schedule for a community site visit:

Day 1	
Time	**Participants**
8:00 AM to 8:30 AM Morning Briefing	Site Visit Team
Tour of sites and facilities of interest (arranged as close to morning of first day as possible)	
9:30 AM to 10:30 AM	Community representatives
11:00 AM to 12:00 PM	Health, human and social service providers
Lunch	Leaders
1:00 PM to 2:20 PM	Community representatives
2:30 PM to 3:30 PM	Health, human and social service providers
4:00 PM to 5:00 PM	Community representatives
5:30 PM to 6:30 PM	Board Meeting / "Special audience"
Early evening	Community representatives
End of Day, 15 minute debriefing session	Site visit participants

Day 2	
Time	**Participants**
8:00 AM to 8:15 AM Morning Briefing	Site Visit Team
8:30 AM to 9:30 AM	Community Leaders
9:30 AM to 10:30 AM*	Health, Human and Social Service Providers
11:00 AM to 12:00 PM	Health, Human and Social Service Providers
Lunch	Community Leaders
1:00 PM to 2:00 PM	"Special audience"
2:00 PM to 3:00 PM	Health, Human and Social Service Providers
4:00 PM to 4:30 PM Debriefing Session	Site Visit Participants

Individual interviews are a second important part of the "discussion" process. Interviews are conducted with key stakeholders and leaders to establish strategic interests, political history, and to understand the social, cultural, and historical (or hysterical) community events. It is this level of community knowledge that often drives the requirement for an individual interview. Mayors, hospital CEOs, clinic or program administrators, and school superintendents are examples of persons who are often interviewed on an individual basis. FBA worked with the site contacts to establish individual interviews within the community discussion schedule.

Table 4 lists the total number of persons who participated in the site visit community discussions.

Table 4

Community Site	Number of Discussion Group Participants
Aroostook County, Maine	60
Brownsville, Texas	40
Cumberland, Fluvanna and Buckingham Counties, Virginia	65
Wallace/Greeley Counties, Kansas	115
Bath, Carter, Elliot, Menifee and Rowan Counties, Northeastern Kentucky	45
City of Providence, Rhode Island	70
Manatee County, Florida	65
Kearny County, Kansas	80
Venice, West Los Angeles, California	55
TOTAL PARTICIPANTS	**595**

The primary tool used during the community discussions to elicit information is the five-point agenda. For this project, agenda points were:

- Introductions and welcome
- Community description
- NHSC: Awareness of and impact on community
- Advice
- Follow-up activities with community

This agenda was written on a flip chart and displayed in the front of the room used for discussion; notes from the meeting were recorded on the same flip chart.

The facilitated discussion during course of the meeting incorporated open-ended questions, in a method that closely approximates "depth interviewing" as described in Patton, How to Use Qualitative Methods in Evaluation, 1987. FBA facilitated each community discussion and recorded notes from the meeting.

The results from the community discussions were compiled to construct a "case record" (Patton 1987), and a narrative was written that captures the site visit findings. For this project, that record took the form of a community report. Those reports were sent back to the participating communities in draft form. Modifications, suggestions or changes to the report were made during a follow-up conference call. (Note: these reports included information gathered prior to the community site visit as well.)

Observation as a Means for Understanding Community Social Capital

Prior to project implementation, a series of concepts were determined important to observe in order to make statements about social capital. These concepts were:

- social networks
- trust
- civic involvement
- problem solving potential and ability, defined as existence and application of supportive functions required for the application of social capital: training and technical assistance, monitoring and evaluation, resource acquisition, information and resource exchange, operation at multiple sites.

Observations of the site visit team around these concepts during community discussions and neighborhood "windshield tours" were used to determine if, in fact, social capital can be observed. The testing of this method resulted in a structured list of activities and places to be observed during the

course of a site visit to determine the level of social capital application. Observations also determined that the collaborative activity conducted around health improvement at the community level are evidence for networks and trust; these items can be cataloged as a result of community discussions and observations, and contribute to our understanding of the factors influencing health in a community.

Population Survey

The method used to quantitatively measure population health status has been refined through a series of community-based health status assessments conducted between 1992 and 1998 across the United States by Felix, Burdine and Associates (FBA). These assessments were conducted in the context of a Social Reconnaissance, and the results organized for application at the community level.

In each of these FBA community health status surveys, the survey instrument and data collection methodology were very similar. In all cases, the data collection process consisted of several common elements. Facilitating telephone calls were placed based on random digit dialing lists purchased from commercial list vendors to prefixes within targeted parameters (city, county, zip code or other geographic boundaries). Telephone interviewers screened potential respondents for age (18 or older) and attempted to randomize the sample by asking for the adult in the household with the next birthday. If that person was unavailable, the interviewer scheduled a callback to that person. Potential respondents were asked if they would be willing to participate in a "community health study" by completing a survey that would be mailed to them within one week. Local sponsors of the survey activity were provided by the recruiters to reinforce legitimacy of the survey activity. Each respondent was offered two dollars in cash as an incentive to participate in the study during the recruiting telephone call. Calls were made between the hours of 4 P.M. and 9 P.M. on weekdays and between 1 P.M. and 9 P.M. on weekends, local time. Each telephone number was called up to four times. Telephone cooperation rates varied from 44 to 76%, averaging 66% across the surveys using this approach.

The second recruitment element consists of a packet mailed to the persons who agreed to participate through the recruiting phone call. The packed contained a personalized letter explaining the process and thanking them for their cooperation, a two-dollar bill as a token of appreciation, the survey booklet, and a postage-paid return envelope. Reminder postcards were distributed one week after the initial mailing to bolster response rate. Response rates to the mailed survey component of the process ranged from 58% to 82%, averaging 70% across the surveys.

This approach was developed and refined on the basis of the experience of the authors and reflects the findings of others collecting population health status data. McHorney, Kosinski and Ware (1994) described the advantages of telephone versus mailed surveys of functional health status. They found that while each approach introduced non-response bias, a mixed mode survey strategy yields a higher overall response rate than either pure mail or telephone methodologies. These authors, among others, have also reported that cash incentives, reminder post cards, and alert letters announcing the survey have substantially positive effects on response rates. The "phone-mail" approach through which these data were collected seems to represent the most reasonable compromise between cost and quality of data.

This approach has been adopted by FBA as its standard community survey method. Modifications are made within this approach to improve response rates within communities, based on characteristics which are learned during the community discussion process.

The survey instrument used in the community assessment process has been refined over time as well. Questions in the survey have their origins in the Medical Outcomes Study, the RAND Health Insurance Experiment, the CDC's Behavioral Risk Factor Survey and the Carter Center's Risk Assessment, the Primary Care Assessment Survey, and the former-GHAA Consumer Satisfaction survey. All other elements in the survey have been developed by FBA in conjunction with the communities who have participated in surveys since 1992. The specific elements included in the survey are illustrated in Table 5 Each of the concepts captured in the survey contribute to an understanding of the conceptual framework.

Table 5
Population Survey Elements

Demographic Characteristics/Social Determinants
Age, Gender, Race/Ethnicity, Marital Status
Educational Attainment
Household Income
Household Composition
Home Ownership
Adequacy of Housing
Employment
Length of Time at Current Address

Health Habits
Smoking, Seatbelt Use, Exercise Habits
Alcohol Consumption/Drinking & Driving
Height and weight
Stress

Preventive Screening
Breast Exams, Mammography, Pap Smear
Prostate Exam
Dental Exam
Cholesterol/Hypertension
Colon Cancer Screening

Physician Diagnosed Conditions
Hypertension, Congestive Heart Failure, High Cholesterol, Angina , Diabetes, Cancer, Asthma, Emphysema/Chronic Bronchitis, Depression, Mental Health/Illness, Arthritis

"Self Diagnosed" Conditions
Depression/anxiety
Vision/Hearing Problems
Ulcers
Limited Use of Arm/Leg
Toothache
Migraines

Functional Health Status
Physical and Mental Components Score (SF-12)
Health Transition

Insurance History and Coverage
Type(s) of health insurance
Insurance requirements (choice/limitations)
Length of time without health insurance
Coverage (vision, dental, mental health, prescriptions, drug and alcohol services)

Need for/Use of Health and Human Services
Alcohol/Drug Abuse Services
Children and Youth/Family Services
Employment/Financial Assistance/Food Stamps
Family services
Health-related Services
Housing Services, Senior Citizens Services
Veterans Services
Day care for children

Access to Health Care
Convenience (Hours, Appointments, Waiting Times)
Access to Hospital/Specialists
Overall Quality and Satisfaction

Problems with Access
Choice, Coordination of Care, Delays Due to Insurance
Skip Medications/Delay Seeking Care Because of Cost
Travel distances and time

Primary Care Provider
Interpersonal Manner/Communication Skills
(Attention, Thoroughness, Advice/Instruction, Friendliness, Personal Interest, Reassurance, Time Spent with Provider, Knowledge of Patient's Values/Medical History/Worries)
Access to/choice of Providers
Trust
Prevention/Counseling/Education Provided

Perceptions of Community Issues
Crime/Violence/Safety
Air/Water Quality
Drug/Alcohol Use-Abuse
Access to Health Care
Availability of Affordable Housing
Domestic violence/Child Abuse
Safety/Youth Violence/Work Injuries
Homelessness/Poverty/Unemployment
Quality of Educational System
Transportation/Quality of Public Services
Racism
Mental Health & Illness
Lack of Cultural/Recreational Resources
Overall Quality of Life

Social Capital Availability
Civic Involvement
Religiosity
Perceived Income Disparity
Social Influence

As shown in the project component chart in the introduction of the paper, three communities were chosen to participate in the survey component portion of the Social Reconnaissance, communities which represent the urban/rural continuum, and both a grant and non-grant community practice setting for NHSC clinicians. These communities were Wallace/Greeley Counties in Kansas, Providence, Rhode Island, and Kearny County in Kansas, as an additional site of interest to the Kansas Partnership.

At the outset of the NHSC Community Assessment Project, the survey instrument was reviewed by an interdisciplinary faculty team at Harvard University, including faculty from the Harvard School of Public Health and Harvard Medical School. The purpose of their review was to determine if the instrument would contribute to achieving the objectives of the project. Additionally, and specifically for the survey sites in Kansas, elements of the survey were made comparable to similar elements in the 1995 Kansas Behavioral Risk Factor Survey (BRFS). This was a requirement of the partnership in Kansas to preserve comparability to the state database currently being constructed using the Kansas BRFS.

The social capital measures included in the survey were tested in a pilot during the community site visits in the states of Maine, Texas, Virginia, Kansas, and Kentucky. A short paper survey was distributed to community members with social capital test questions at the close of each community discussion session. Testing of the validity and reliability of these measures was conducted by The Health Institute of the New England Medical Center. The results of this analysis indicated that social capital measures correlated with overall health status measures at the community level, and measures which performed best in this capacity were chosen for final inclusion in the survey.

Survey Recruitment Modifications

Proven methods and techniques for conducing population health surveys provide only the framework of an approach; within that approach, modifications are almost always made to accommodate local conditions, norms, and needs. This section describes the modifications and enhancements that we made to the community survey process based on information gathered during the community site visit,

where questions were purposefully asked about the types of elements required for a successful survey in the community.

Kansas. Community members from Wallace and Greeley Counties recommended that local persons convey the message that a survey was happening, and that they be the agents to ask other local people to get involved in the survey; if outsiders were totally responsible for the survey, there will be a poor local response. "Volunteerism is the heart of the community," and local volunteers could be organized to help with a portion of the survey process, either in recruitment of participants or distribution of the surveys.

Community members shared with us that a "local voice" would be best received in the telephone recruitment phase. Therefore, on January 14th, 1998, a group of ten volunteers in each county were trained by FBA to perform the telephone recruitment phase of the survey. The training session taught volunteers how to use a script for the recruitment, how to obtain the adult sample, and how to keep records of the number of "agreeing" participants. Materials including phone lists, screener sheets and tracking forms used by professional survey recruiters were adapted for use by the community volunteers. The recruitment phase officially ended after two weeks. In total, these volunteers recruited approximately 75% of required participants in Wallace County and approximately 25% of required participants in Greeley County. An outstanding "cooperation" rate of over 90% was achieved by these volunteers. Additionally, in the respective counties, Wallace or Greeley County Family Practice letterhead was used in the survey packet, and the survey cover letter was signed by Dr. Moser, Dr. Ellis, and P.A. Kevin Iseman.

The survey methodology in Kearny County was not structured to use local volunteers for the recruitment phase, primarily because of the timing of the project. However, in the context of community meetings conducted one week prior to the survey recruitment, we provided background information and indicated that the survey was going to be implemented in the next few weeks. The

cover letter for the survey was on Kearny County Hospital letterhead, and a local contact was provided in the text of the letter.

Providence. The PAHCF serves a multi-cultural, low-income population. In this situation an interview format is one alternative to the phone-mail approach. After investigating this approach, it was determined that an interview format for the survey was not possible based on the availability of staff and resources. We also learned that the Rhode Island State Department of Health has a comprehensive approach in place to substantially improve the quality and quantity of information on minorities in the state: both the Rhode Island Health Interview Survey and the state BRFS had a minority over sample as part of its implementation.

The advice and recommendation of PAHCF staff was to assemble information from a Rhode Island State Department of Health community discussion process with minority communities around their access to health services as a supplement to information we might learn about the minority community served by the clinic. We also learned while we were on-site that there is an opportunity and a need to build linkages between Providence Ambulatory and the Mayor's Office in Providence, and it would be beneficial for PAHCF to do so using information.

For Providence clinic patients, then, a list of patients was requested who had been to a clinic within the Providence Ambulatory system within the past two years, and who are age 18 or over. A database of 1,260 names was obtained and a random sample of 1,000 was drawn. These persons were sent a survey packet, including a cover letter from the PAHCF Executive Director, a two dollar incentive, and a postage-paid return envelope.

For Providence City respondents, the FBA phone-mail approach was used. A cover letter for the survey was developed and signed by the Mayor of Providence, as a means of providing the recognition and legitimacy that would encourage city residents to participate.

Survey Instrument "Localization"

Each survey sample (three counties in Kansas, and the Providence sample) had a "tailored" survey document. Within the survey, there is one question that asks respondents to indicate the place they usually go for care, and another that asks respondents to indicate how many times they have been to certain types of facilities/providers in the past year. The response options in each of these questions was organized to reflect the local county or city facilities. An example of the questions from Kearny County are included below:

Which is the place you usually go for health care?

(circle one number)

Family Health Center, Lakin	1
Garden Medical Clinic, Garden City	2
Plaza Medical Center, Garden City	3
Hospital emergency room	4
County Health Department	5
Mexican American Ministries, Garden City	6
Area Mental Health Center	7
Chiropractor	8
High Plains Retirement Village	9
Receive care at home or other place of residence	10
Other (please write in):_____	11
I do not have a regular place for health care	12

In the past year, how many times did you go to any of the following places? (Please write in the number of visits, or circle "None" if you did not visit that place in the past year.)

(write in the number or circle "None" on each line)

a. Family Health Center, Lakin		None
b. Garden Medical Center, Garden City		None
c. Plaza Medical Center, Garden City		None
d. Hospital emergency room		None
e. County Health Department		None
f. Mexican American Ministries, Garden City		None

g. Area Mental Health Center		None
h. Chiropractor		None
i. High Plains Retirement Village		None
j. Received care at home or other place of residence		None
k. Dentist		None

Translations

Kearny County has a substantial Mexican population (16%). A junior college student from Deerfield, Leticia Camacho, who does the translation of the local Deerfield newspaper into Spanish, translated the survey instrument for use in Kearny County.

In Providence, Spanish speaking individuals identified by the clinic received a Spanish version of the survey, developed with a Puerto-Rican dialect, previously tested in a community assessment in the City of Hartford, CT. Portugese identified persons in the clinic sample received both an English and Spanish version with instructions to choose one survey. All other cultures/ethnicities in the clinic sample were sent an English version of the survey.

Recruitment Results

Table 6 summarizes the major recruitment and method components for the survey, as implemented in the study communities.

Table 6

	Survey Community				
Survey Component	**Wallace**	**Greeley**	**Kearny**	**Providence City**	**Providence--Patients**
Recruitment universe	650 households	650 households	1000 households	58,905 households	907 patients from a patient base of 24,000
Desired sample	400	400	400	400	400
Sample obtained	464	347	420 (17 Spanish)	326 (43 Spanish)	314 (66 Spanish)
Spanish translation	None	None	x (Mexican)	x (Puerto Rican)	x (Puerto Rican)

	Survey Community				
Survey Component	**Wallace**	**Greeley**	**Kearny**	**Providence City**	**Providence--Patients**
Phone Recruitment	Volunteer	Volunteer	Professional	Professional	None
Personalized cover letter stationery	WCFP	GCFP	KCH	City (Mayor's office)	PAHCF
Incentive	$2	$2	$2	$2	$2
Personal contact in text of letter	x	x	x	None	None
Phone phase cooperation rate	90.6%	77.4%	86.2%	60.9%	N/A
Mailed phase response rate	86.2%	84.0%	76.9%	58.4%	31.9%
Overall response rate	78.1%	65%	66.3%	35.6%	31.9%

The survey methodology imposes limitations. The phone-mail approach includes biases against persons without telephones, mailing addresses, who do not read English or Spanish at the 7th grade level, or who may be threatened by health-related survey or interview activities. The net effect in individual communities, and in the aggregate, is that this approach under-represents the homeless, those with lower incomes and/or non-English-speaking or low literacy individuals. In community-based application, significant efforts are undertaken to compensate for these biases, such as discussion groups of persons who can be described by the above characteristics, distribution of the survey instruments through local intermediaries (e.g., churches, shelters), and group administration of the survey with verbal translation into another language with facilitated completion.

Community Discussions

The community discussion groups were an opportunity to listen for the following from community leaders, providers, and consumers: how people described their community; community perceptions of health and health services; community knowledge of the NHSC; perceived impact of the NHSC on access to care and on disparities in health at the local level; and availability and application of social capital (evident in the networks, trust and collaborative activities of community members). The community discussions also provided the forum for community leaders, providers, and consumers to offer their advice to the NHSC. [This information is reported in the "Application" section of this report.]

The findings from our community discussions on impact are organized into three concept areas: access to care, disparities in health in the community, and the contribution of NHSC clinicians to the social capital of the community. These concept areas were chosen as the perspective to report our findings because of the strategic plan put in place by the Bureau of Primary Health Care which specifically poses increasing access and decreasing disparities as strategic goal areas.

A complete report on the site visit findings in each community was prepared and delivered to the community after the site visit (all reports were complete in February 1998). These reports contained *detailed accounts* and examples of what was heard during the community discussions. This section will reference *examples and themes* from our discussions to help communicate ideas. Additional details for any example discussed here can be found in those reports.

Access to care. In the community discussions, we were listening for how the NHSC has had an impact on the access to primary and preventive services in the community. We learned that in the remotest areas of our country, NHSC clinicians *are* the primary care delivery system. In these situations, clinicians stabilize local care delivery by keeping primary care practices intact and maintaining local delivery of care. In Wallace County, Kansas, NHSC clinicians Dr. Wendel Ellis and P.A. Kevin Iseman, have allowed the Wallace County Family Practice to operate for the residents of the county.

This practice is a satellite office of the Greeley County Family Practice/Greeley County Hospital. Prior to their arrival, Dr. Robert Moser was the sole practitioner for Wallace and Greeley Counties, where he was also serving as both counties' Coroner, Health Department Director and Nursing Home Director. Similarly, in Maine, NHSC clinicians are the only source of primary care in Aroostook County; one family practice physician and a physicians assistant maintain the Aroostook Valley Health Center, located in Ashland.

Community discussion participants shared that the NHSC enables underserved communities to expand the number of sites through which they provide preventive and primary care. In Central Virginia, the Central Virginia Community Health Center has expanded over the past ten years from one site to five, to become a primary care system--Central Virginia Health Services (CHVS). This system has had thirty clinicians from the NHSC contribute to its mission, and twelve NHSC clinicians (current and former) are serving the communities of Buckingham, Cumberland and Fluvanna Counties. In California, the Venice Family Clinic was able to assume operations of two county facilities, in a partnership with other health care providers, expanding its base of operations to include four sites in the West Los Angeles area. The St. Claire Medical Center, Kentucky, put in place four county medical clinics during the 1980-1990 period, using their NHSC clinicians to help provide this outreach into the rural counties that surround the tertiary facility in Morehead (Rowan County). In Florida, NHSC clinicians have allowed Manatee County Rural Health Services (MCRHS) to subsume primary care for approximately 3,000 persons formerly served by the Public Health Department, which, in transitioning to its "Future of Public Health" mission of assessment, assurance, and policy development, relied on its partnership with MCRHS to assume and assure care for these patients. In Kentucky, the Maternity Center was initiated by a Commissioned Corps clinician, and continues today as the primary provider of prenatal services to women who are poor or high-risk in the St. Claire Medical Center service area.

Access to care is influenced by its availability and convenience. The availability of local primary care services is attractive to community members who cite that not only are they more prone to receive

timely preventive and primary care, but they also save transportation costs when they choose local services. Community members from rural communities, in Kansas, Virginia, Kentucky, and Maine shared this perspective. In rural areas, particularly, community members shared that a doctor's office visit is a reason to "come to town" and also do other errands and shopping. By providing "local" care, NHSC clinicians also help communities to secure or maintain this retail and services base, particularly in pharmacy services, which enhances access to the complete range of necessary primary care services.

The philosophy of many of the community health centers and practices that "host" NHSC clinicians is to deliver preventive care and education whenever possible. The Venice Family Clinic (VFC) in California is one of the best examples: the Executive Director specifically stated to the site visit team that VFC protocols call for the delivery of wellness care in the context of whatever "sickness" care patients seek from the clinic. Through this philosophy and practice the NHSC makes health promotion more convenient.

In all communities visited, we learned that NHSC clinicians serve as a critical link in the continuum of primary to tertiary services: the primary care base developed in underserved communities when a primary care provider is available is attractive to larger, tertiary facilities. This attraction promotes partnerships that result in an expanded range of services which are available for the community. In conversations with hospital representatives in Maine, Florida, Rhode Island, and Virginia, the referral to hospitals for services is an important component of both how these institutions develop managed care strategies, and how community providers move to the forefront of negotiations for resources to cover primary care services. These symbiotic relationships result in expanded resources for communities, particularly in the forms of sponsorship of advanced technologies--such as telemedicine to promote the diagnosis and management of patients who may have need for advanced services--or access to residents who can rotate through community facilities. Services required in emergencies, such as "life-flight" helicopter services, are also made available to underserved communities because of these relationships.

Relationships with tertiary care facilities also result in a connection for clinicians to a range of specialists and other providers--a connection which battles feelings of remoteness, or professional isolation, and provides an environment more attractive to other clinicians who may be recruited by the community in the future. St. Claire Medical Center in Kentucky believes that their success with retaining NHSC clinicians has been largely due to their ability to provide a connection with the collegial, academic, and other practicing physicians for advice and input into daily practice. Similarly, the providers from Wallace County, Kansas, provide prenatal services to patients through Kearny County Hospital, allowing those clinicians to interact and share ideas. The Venice Family Clinic and Central Virginia Community Health Center both have NHSC clinicians with academic and medical appointments at UCLA and UVA, respectively, and staff responsibilities at the tertiary facilities that serve their patients. These relationships additionally enhance access to tertiary services for community members.

As another dimension of expanding access, NHSC clinicians promote the establishment or expansion of ancillary services in communities, specifically through their referrals for mental health services, physical therapy, and home health. A Home Health Department at Greeley County Hospital and a physical therapy program have started with the addition and support of NHSC clinicians in Wallace County. In Maine, primary care clinician oversight has allowed the development of physical therapy services in the Aroostook Valley Health Center, and drug and alcohol abuse counseling several days a week. In Florida, Manatee County Rural Health Services provides primary care services for inmates of a local prison, and provides the medical component of services delivered at Manatee Glens, a mental health facility.

Clinicians fulfill their NHSC commitment soon after the completion of their health professions training. This proximity between training and practice is perceived by the community as an added dimension of quality in the care provided by NHSC clinicians–and this perception, in turn, expands access at the local level by instilling a willingness and trust on the part of community members to use NHSC clinician

services. This quality is reflected in the implementation of processes by the clinicians themselves to improve quality of care in communities. For example, the first NHSC clinician with the Venice Family Clinic wrote protocols that allowed volunteer clinicians--the source and staple of care provided by the Venice Family Clinic--to make an effective contribution, and for staff clinicians to effectively manage the care of their patients. Similarly, in Kansas, NHSC clinicians wrote care process protocols for the nursing home, and protocols for the Emergency Medical Technicians (EMTs), which have significantly improved the quality of both services in the eyes of community members, improved the compliance of the nursing home with standards set by their state review organization, and promoted faster response times for the EMTs to emergency situations. The quality of NHSC clinician services is also evident in clinicians' capability to use new technologies for diagnosis and treatment, such as telemedicine.

Through both the expansion of sites and the provision of quality care, NHSC clinicians enable communities to provide primary and preventive care to the entire population, not just a segment who traditionally use these resources because they are poor or uninsured. The Central Virginia Community Health Center and the Brownsville Community Health Center in Texas, have, in the past few years, changed both their structure and mission, respectively, to reflect that they now address the primary care needs of the entire community. The reputation of the quality of care provided by NHSC clinicians has contributed to this change.

Elementary, middle, and high schools are another vehicle in which clinicians treat the "entire" community; for example, in Manatee County, preventive dental screenings and education is provided in the schools by NHSC dentists. In Central Virginia, school nurses are employed by Central Virginia Health Services, and their interface with clinicians on staff provides a high-quality service. In Wallace County, the clinicians have provided school physicals free to all children in the Wallace County School District, allowing them to play sports and to have timely school enrollment at the beginning of the year.

NHSC clinicians treat all persons regardless of ability to pay. This practice enables the NHSC to expand primary and preventive care in communities to persons who many be unable to pay for the services they receive. In states where mandatory enrollment in Medicaid managed care has caused significant shifts in both patients and financial resources, NHSC clinicians continue to care for the uninsured. Rhode Island serves as an example of how community health centers and NHSC clinicians are crucial to serving this population: the state has no public hospitals or primary care facilities, and has implemented an 1115 Medicaid waiver, increasing the number of uninsured persons seen at Providence Ambulatory.

NHSC clinicians allow employers, particularly in remote areas, to offer health plans to their employees because local primary providers are available. This option has an impact on the number of uninsured or underinsured employees, and in their tendency to use local health services. This specific scenario occurred in Maine, where a local lumber mill was able to offer a PPO plan (Preferred Provider Organization) to its employees that called for a modest co-payment with the use of a plan provider. The Aroostook Valley Health Center, with its NHSC clinician served as both an eligible primary care provider, and a resource that gave employees a choice about their care.

Disparities in health. Similar to access to care, disparities in health can be observed in the level of disease, disability and death of underserved communities, and how these might be different from other communities because of lack of access to services or income differentials. Disparities can also be defined as differences in the *opportunity* to be healthy or to prevent disease and disability, such as through the receipt of preventive screenings.

Using this perspective to examine disparities, NHSC clinicians have had an impact on the disparities in health experienced by underserved communities. For example, NHSC clinicians provide the necessary manpower to develop health education and health promotion programs in a community, programs that have not existed when the demand for services exceeds the time and resources available in

community's current clinical staff. These programs reach persons beyond the poor or uninsured, and allow the entire population to benefit, thus slowing the trend toward disparities in health between the poor, uninsured or underserved, and the remainder of the population or community. The clinical preventive services provided in Wallace and Greeley Counties that were previously unavailable, the health promotion and disease prevention research and activity conducted by the Central Virginia Community Health Center with the Baptist Convention around hypertension in African-Americans, and the immunization "push" effectively implemented by Manatee County Rural Health Services (moving the percentage of children appropriately immunized by age 2 from 42 to over 96% in three years) were all implemented via NHSC clinicians.

The new knowledge and innovative ideas of NHSC clinicians not only facilitates service expansion (as described under access to care), but brokers in techniques or approaches that can impact on the level of disease and disability in the population. The best example of this is in Central Virginia, where new treatment methods for childhood asthma were implemented by a recently trained clinician, resulting in fewer emergency room visits (to Charlottesville) for children with asthma.

Many community members observed that clinicians adhere to the mission of the NHSC: to care for--and about--the underserved. This caring attitude promotes the development of a culturally-competent provider. Often, underserved communities have a higher proportion of persons who are poor, of a minority group, or who do not speak English, and NHSC clinicians provide care to diverse populations in a way that assures continuity. Patients adhere with clinicians' advice about their health, thus, reducing the disparities they may face in their health. This competency allows a trust to develop between clinicians and populations who may be "wary" of the health system. The Providence Ambulatory Care Foundation, Brownsville Community Health Center, Venice Family Clinic, and Manatee County Rural Health Services are examples of facilities where culturally-competent providers contribute to decreasing disparities. All facilities serve a diverse, often non-English speaking, population. In Providence, the PAHCF is cited as the best source of care for immigrant populations (particularly Southeast Asian)

because of the quality and cultural capabilities of the center's clinicians. In Florida, the outreach of the Manatee County Rural Health Service has allowed migrant families to "trust" the local health system.

After their commitment is complete, NHSC clinicians often continue the mission of the NHSC, and provide care to uninsured or poor persons in their practice, either at their original placement site, or in a new community. This "spill-over" can help reduce disparities in health, as clinicians continue to provide services to those most at-risk for poor health. In Virginia, we heard of several practitioners who credit their experience at CVCHC with enlightening them to what it means to "serve the underserved," and carried over to their current practices. Similarly, in Brownsville, Texas, several providers who have been retained in the community continue to see poor or uninsured patients who were not only part of their previous practice, but new patients as well. UCLA Medical School and Nursing School administrators shared with us that rotation through the Venice Family Clinic helps to instill the mission in residents; two of the NHSC clinicians currently serving at VFC were UCLA students.

Social capital contribution to community. As stated in the beginning of this paper, social capital is defined as the social networks, trust, civic involvement, and problem solving potential and ability present in a population or community, including the dimensions of perceived disparities in income or power and the perceptions of individual influence. An overwhelming finding from our community discussions can be summed by stating that NHSC clinicians are called to be, and are expected to be, more than just a health care provider, and, in fulfilling this calling, they contribute to the social capital of underserved communities.

Regardless of length of time in communities, NHSC clinicians make contributions to the communities they serve. Their clinical service is perceived as most positive when they are "a part of the community"--evident in their participation in churches, school activities, social clubs, local recreation, and civic causes. Community members in Maine stated that the contribution of a clinician to the community socially was perceived as equal to, or greater than the primary care access they provide to

community members. In Kansas, community members noted that the clinicians, although they live in Tribune (Greeley County), make an effort to use services, such as the auto garage and grocery store in Wallace County. There are overwhelming examples of the types of contributions made by NHSC clinicians: two NHSC physicians in Kentucky are responsible for the Rowan County recycling program and for starting the Montessori School in Morehead. In Virginia, one NHSC clinician is responsible for starting a free clinic in Charlottesville, based on his observance of the underserved in a non-HPSA designated community. In Florida, a NHSC clinician serves on the local Head Start Board of Directors. The families and children of NHSC clinicians (where applicable) are also an important part of their integration into the fabric of community life; the good work and volunteer efforts of spouses or children are perceived by communities to also be a contribution by "the NHSC."

In some communities, NHSC clinicians are different racially and culturally than the community. Community members shared that clinicians often help to teach communities about how to interact with people of different backgrounds. In this project, this was observed in both Kearny County, Kansas and Maine (in Kansas, two clinicians are currently serving under the J-1 Visa Waiver Program, not as NHSC clinicians).

NHSC clinicians demonstrate, and are expected to have leadership qualities. There were many examples of how clinicians have played lead roles in the development of state policies (such as through the authorship of legislation that allows flexibility and expanded latitude in providing dental care across the Texas-Oklahoma border) and local health policies (such as through the writing of protocols for emergency or long-term care services). Community members cite that NHSC clinicians are role models in leadership for young people, which is especially important for children in underserved areas who would like to pursue medical or health careers. NHSC clinicians in Brownsville, Texas cited this as something they pay attention to in their daily practice.

In their leadership roles, NHSC clinicians provide oversight of community health programs, and also provide the necessary clinical oversight for rotating medical residents who may spend time at the facilities where they work. Through this type of leadership, NHSC clinicians broker resources to the communities they serve. Examples of this were heard in Providence, Rhode Island (oversight provided for local dental hygienist training program), Virginia (all UVA Internal Medicine students rotate through clinic), California (Medical students from UCLA serve at the Venice Family Clinic), and Kentucky (where a rural residency rotation is being developed for the University of Kentucky Medical School by a NHSC clinician).

Indirectly, NHSC clinicians provide a community with "capital" it may not have without their contribution: Chambers of Commerce, particularly in rural areas, promote schools and local health care as selling points to businesses who are relocating. NHSC clinicians assure that local, affordable health care is in place, which often helps to secure additional employers. Similarly, in stabilizing systems of care or maintaining primary care practices in underserved communities, NHSC clinicians enable facilities to employ local persons to fulfill the administrative and other positions required to run a successful practice. This, too, provides an economic benefit to communities.

In sum, community discussions are a powerful tool for learning the story behind the service of NHSC clinicians. In this project, those stories provided us with examples of NHSC clinician impact on access to care, disparities in health, and community social capital.

Observations of Social Capital Application

The following are observable dimensions of social capital (as defined for the NHSC Community Assessment Project) in communities:

- networks, via the community partnerships participated in or developed by community health center staff, clinicians or other community members;

- training and technical assistance available to address policy and practice issues of serving the underserved;
- monitoring and evaluation of health improvement activities in the community;
- resource acquisition, through leverage of outside and internal resources via grants, “matching” funds projects, and private-sector supported projects for health improvement;
- information exchange on programs, ideas, or policy issues related to the underserved; and the
- ability to operate at multiple sites for health improvement, evident in the number of sites operated by a program, or the use of other community facilities/agencies to deliver health improvement strategies.

We determined these to be observable dimensions, based on feedback of the site visit team. The team observed places where resources are exchanged, including community health centers, satellite operations of these centers, and other community facilities where community members meet. Local networks organized to deliver services were also observed, evident in the partnerships that community health centers or practices organize for health service delivery with schools, churches, and other social service organizations. We observed how resources are brokered into communities, sometimes via NHSC clinicians, for the benefit of the underserved. These resources were in the form of money, people, and volunteer time from other clinicians and community members.

We observed clinicians in underserved communities contributing to the social and cultural infrastructure of communities by their own volunteer activities and the contributions of their families. NHSC clinicians also help to develop trust, by bridging relationships with people of other cultures and providing culturally-sensitive care.

From this experience, tools that allow for the systematic collection of the observable dimensions of social capital have been developed, for piloting in other communities.

Secondary Data

The use of information collected from a community prior to a site visit was presented in the Methods section, and the compilation of this information into a "Briefing Packet" was one of its primary uses. The table for Kentucky presented in an earlier part of this paper is one example of how secondary data are applied.

Existing data on health indicators collected from communities also provides a local indicator that can be used as a comparison for any population survey conducted; for example, where possible, a local comparison figure was obtained for demographic characteristics and was reported with the survey results to show the comparability of the sample obtained from the survey and the community. Table 7 illustrates these data.

Table 7

		Kansas			Providence	
Characteristic	**Measure**	**Wallace County***	**Greeley County***	**Kearny County***	**City****	**PAHCF+**
Age	Percent of population age 18-64	53	52	55	62	41 (FY1998)
	Percent of population age 65+	16	16	11	14	<2 (1994)
Income	Percent of population under 100% of the Federal Poverty Level	20	9.2	10	23	66 (FY 1998)
	Percent of population between 100-200% of the Federal Poverty Level	25	29	24	19	21 (FY 1998)
Culture/ Ethnicity	Percent of population that is not White	5	7	18	30	87 (FY 1998)
Education	Percent of population age 25+ with at least a high school education	78	82	74	63	n/a
Insurance	Percent of persons who receive Medicaid	4.8	6.0	8.7	16	47 (1995)
	Percent of persons who are AFDC recipients	1.6	1.0	3.3	N/A	N/A

		Kansas			Providence	
Characteristic	**Measure**	**Wallace County***	**Greeley County***	**Kearny County***	**City****	**PAHCF+**
	Percent of persons who are uninsured	2.2% of the under 65 residents in frontier areas (1997) 9.4% of adults age 18-64 (1997) 11%, 1995 KS BRFS			11 (state figure for 1995)	32 (FY 1998)

* Information from 1994 County Profiles published by Kansas Department of Health and Environment

** Information from 1990 Census for the City of Providence

\+ Information from 1998 330 Funding Grant Application

From the data and reports collected from communities, we observed the following:

- Community Health Center's 330 Funding Request, or Uniform Data System (UDS) reports, are often the most valuable sources of information on indicators that relate to access and disparities in the population served by these facilities.
- Health status or community needs assessments conducted by communities/organizations are a second valuable source of information; if done in a community collaboration, information from these processes often represent data from a broader population than that served by the facility (and serves as evidence of networks).

The secondary information and reports collected continue to be used as reports from the complete findings of the survey are compiled for the survey communities.

Population Survey

The objective of the population survey in the context of the Social Reconnaissance was: 1) to demonstrate the value of collecting and applying population-based health status data for the purpose of planning, monitoring, and evaluating health status improvement in underserved communities; 2) to explore how population health status data can be used to facilitate the development of national, state, and local collaborations for improving the health status of underserved populations; and 3) to determine what additional measures might be developed to track the progress of the NHSC in addressing its mission and strategic goals.

The Bureau of Primary Health Care has set a strategic goal of increasing access for underserved communities, through the year 2003. This goal includes assisting persons in underserved communities to have an identifiable "health home." In listening to community members and in analyzing the survey data, we have defined access as having the following dimensions: the presence of a regular person or place for primary health care services; the perceptions and realities of convenience, availability, and distance for these services; and the financial ability to pay for or obtain services. Within services that are actually obtained, there are a range of primary care dimensions that can help to assure continuity and culturally sensitive care.

Disparities in health can be measured by the prevalence of disease, receipt of or lack of access to preventive screening services, and health outcomes for patients or a community as a whole.

Using the survey data, testing measures developed for social capital were organized into two indices, which capture key concepts within "social capital." The results of these indices are reported here, and continued research will highlight the importance of these measures in understanding how to improve population health.

The following table provides summary measures from each of the community samples in this project for indicators which highlight access to care, health disparities, and social capital. The data in Table 8 are organized to represent the types of data available from the survey that can inform both access to care and disparities in health in underserved communities.

Table 8*

Survey Measures	Kansas Respondents			Providence Respondents	
DEMOGRAPHICS	**Wallace**	**Greeley**	**Kearny**	**City**	**PAHCF**
% Age 18-34	18	21	20	39	53
% Age 35-44	21	27	28	20	21
% Age 45-54	18	17	18	15	11
% Age 55-64	15	12	15	9	8
% Age 65-74	16	15	13	9	5
% Age 75+	13	8	7	9	2
% Men	38	36	33	41	20

Survey Measures	Kansas Respondents			Providence Respondents	
% White (non-Hispanic)	97	96	88	66	17
% Hispanic	1	3	10	13	51
% African-American	<1	<1	<1	10	15
% Less than 12 years of education	14	7	17	16	39
% 12 years of education	38	32	39	20	28
% With some college education	48	61	45	63	33
Average # of years in community	19	16	10	11	3

Survey Measures	Kansas Respondents			Providence Respondents	
INDICATORS OF HEALTH DISPARITY	**Wallace**	**Greeley**	**Kearny**	**City**	**PAHCF**
% Diabetes	8	6	6	5	7
% Asthma	7	7	9	6	12
% Depression	10	15	18	22	22
% Hypertension	30	25	28	23	24
% Overweight (moderate-high risk)	47	37	40	30	40
% No exercise per week	30	28	26	34	34
% Smokers	14	18	21	23	22
% Don't "always" wear seatbelts	80	83	72	56	64
% Never had blood pressure screening	8	12	8	6	12
% Never had cholesterol screening	19	26	17	22	24
% Last dental exam 5+ years ago	14	13	12	9	13
% Women who "never" had Pap smear	5	6	6	9	14
% Women who "never" had clinical breast exam	7	9	8	5	14
% Excellent health	15	16	13	18	9
% Very good health	36	46	40	34	27
% Good health	32	28	33	33	33
% Fair health	16	7	12	11	26
% Poor health	1	2	2	4	5
% Physical function is worse than overall population	27	18	27	23	26
% Mental function is worse than overall population	15	21	22	33	37

Survey Measures	Kansas Respondents			Providence Respondents	
ACCESS INDICATORS	**Wallace**	**Greeley**	**Kearny**	**City**	**PAHCF**
% Household income 0-100% FPL	7	6	10	21	53
% Household income 101-200% FPL	26	17	20	20	26
% Uninsured	10	10	10	13	28
% Uninsured at some point over last three years	14	17	16	26	48
% With no prescription coverage	47	46	39	14	10
% Medicaid enrolled	<1	2	<1	5	15
% Medicare enrolled	30	24	23	21	23
% With no regular "provider"	13	16	29	31	34
% With no regular "place"	6	6	9	13	4
Average miles traveled for medical care	23	15	20	6	3
Average miles traveled for dental care	53	62	17	7	4
Average miles traveled for pharmacy services	26	9	25	3	3
% "Often" or "occasionally" delay medical care because of cost	45	44	46	25	31
% "Often" or "occasionally" delay prescriptions because of cost	25	27	28	19	28
SOCIAL CAPITAL	**Wallace**	**Greeley**	**Kearny**	**City**	**PAHCF**
Civic Involvement Index+	1.77	1.89	1.55	1.1	0.7
Social Integration Index++	28.9	28	26.4	25.7	25.2

* All figures in this chart have been rounded to the nearest whole number and are unadjusted. +The Civic Involvement Index is a test index of social capital measures designed to indicate voting activity, volunteer involvement, and participation in other community/civic activities. ++The Social Integration Index is composed of measures indicating the perception of how people work together, social trust, power distribution, social networks, and perceived influence on community.

Each community participating in the survey component of the Social Reconnaissance has received a report on preliminary findings. A full report will be developed and presented to these communities post the NHSC 25th Anniversary Conference. Additionally, a comparative analysis of the Kansas sites will be presented to the Kansas Partnership in May 1998.

In addition to these summary measures from the Community Health Surveys, preliminary analyses have been conducted to examine differences in access and disparities in health within the survey communities. This analysis will continue and supplemental reports will be issued to both the communities and the NHSC in upcoming months. From the analysis conducted to date, observations that hold *across* communities include the following.

- Differences in income and education levels are important to consider, even within ethnically/culturally non-diverse communities, such as in Kansas.
- Financial challenges in accessing care stem primarily from the immediate, or out-of-pocket, costs of care and insurance resources available to individuals.
- Poverty and low income remains the greatest challenge to access and to improved health, and is correlated with poor health status.
- Dental and mental health services may be the most challenging services to access in underserved communities.
- How community members perceive their access to services is a function of both perception and reality.
- Younger persons (those under age 45) present the greatest opportunities for health improvement: they are least likely to have a regular place or provider of care, more likely to be uninsured, more likely to report challenges in accessing care, and more likely to exhibit health risks.
- Health systems and models in which NHSC clinicians work are successful in providing community members with an identifiable "place" of care.

The application of the data at the local level is its primary source of value. Observations related to the application of these data by the communities participating in the survey include the following.

- The methodology used for the Community Health Surveys in each community obtained a sample that is representative of the population. (See findings from secondary data section of report for population figures that compare to sample figures.) It is critical that the survey methodology be informed by on-site observation and discussion for this to occur.
- The instrument used for the survey yields data that can assist the Bureau of Primary Care and the National Health Service Corps to measure progress toward the 1998-2003 strategic goals at the local level.
- New measures developed for social capital may be organized into indices that capture key concepts, such as social integration and civic involvement. Development of these indices will continue in conjunction with qualitative measures of social capital.
- The survey data have local value if they can contribute to the planning, implementation, and monitoring/measurement of activities to improve health.
- The survey data obtained from the method and instrument used for this project can be applied at the local level to: expose clinicians and other providers to the broader determinants of health and community health issues, fulfill accreditation requirements--such as for JCAHO, serve as quality improvement measures, inform service delivery and financial planning, and provide comparative data for local outcomes studies.
- The instrument used for the survey obtains data that allow for comparisons with goals outlined in Healthy People 2000 Objectives for the Nation, and with state data, such as Behavioral Risk Factor Surveys and State Health Interview Surveys (such as in Rhode Island).

Based on the application of the data to date by the participating communities, it is clear that the survey data have a powerful influence on the ability to build linkages and partnerships for health improvement. For example, in Wallace County, the survey has fulfilled the Wallace County Health Department's requirement for a population assessment, as required by the Kansas Department of Health and

Environment. In Providence, the sharing of survey data has initiated a relationship between the Providence Ambulatory Care Foundation and the Mayor's Office that did not exist prior to the Social Reconnaissance implementation.

APPLICATION OF SOCIAL RECONNAISSANCE BY THE NHSC

The NHSC Community Assessment Project examined the impact of the NHSC on underserved communities from a population health perspective--a perspective which incorporates the range of factors that influence health. The Social Reconnaissance methods implemented in the NHSC Community Assessment Project were used to not only gather population health information, but to evaluate how the "inter-activeness" of the methods can be used to facilitate national, state, and local partnerships, and discover new or enhanced roles for the NHSC with those partners.

Community Advice

Advice from community members is one source of information from this project that can help distill what the roles of the NHSC might be, and how the NHSC can apply findings from this project. This advice was solicited in the context of the community discussions; specifically, we asked discussion group participants what advice they would offer the NHSC. The advice given to the site visits teams is summarized, and grouped by topic area below.

Use the mission of the NHSC as a tool to match the values and expectations of clinicians and sites.

- The NHSC is a service opportunity and a financial program, but the NHSC was urged to promote the concept of "privilege to serve;" and to develop a screening tool that will allow clinicians to identify if they are appropriate for the mission of the NHSC.
- Place clinicians in organizations that have a mission similar to the NHSC, namely, those that serve poor and other underserved populations, and all persons regardless of ability to pay.

Promote a more earnest customer service orientation at the Federal and Regional levels.

- Improve telephone system to effect more personal contacts.
- Treat clinicians who call Federal and Regional Offices as a customer.

- Orchestrate timely and uniform communications at the Federal and Regional level, particularly as it relates to individual clinician cases.
- Be specific in communications around what the statutes are, and how and if they are different from regulations or policies of the NHSC.
- The moving service for scholars is an exceptional service that, according to them, "really starts things off on the right foot."

Develop a set of required competencies for clinicians who serve underserved communities. It was recommended that these competencies include:

- leadership;
- basic teaching and community education;
- ability to promote and foster new health program development in the community setting;
- an understanding of the social determinants of health;
- knowledge of public health principles, its core sciences (e.g., epidemiology), and their application (e.g., assessment of population health status);
- familiarity with rural health issues (prior rural health training was recommended by community members);
- advocacy skills at both the patient and policy level;
- management capability to be a medical director or to contribute to practice management;
- ability to recruit other health professionals;
- quality and accreditation process knowledge (such as those required by the National Committee for Quality Assurance and the Joint Commission for the Accreditation of Health Care Organizations);
- understanding of treatment and disease management protocols; and
- knowledge of managed care and the continuum of payment and "plan" arrangements that might be in place in a community market.

Implement the partnerships required to provide clinicians with the competencies desired by communities. This includes partnerships with the following:

- Medical, nursing and dental schools, to access both NHSC scholars during their education, as well as others who can be exposed to the concepts of public health and population health principles during their education.
- Mental health professions training programs.
- Schools of Public Health, to provide the educational component required for these competencies.
- Accreditation institutions, or community level-tertiary care facilities and health plans that can provide training around the accreditation process.
- State Primary Care Associations and Primary Care Offices, who can provide insights and knowledge into manpower, market or other health system conditions and policies within a given state.

Evaluate all aspects of NHSC clinician service while in a community, in addition to retention. Quantitative measures suggested by communities for evaluation included:

- volume and type of emergency visits over time for population served (all ages);
- patient outcomes, particularly those for conditions with established medical protocols, including a measure of clinician compliance with established protocols;
- patient satisfaction (based on quality of care provided, patients who would recommend provider); and
- overall health status of the community.

Population health status data (primary or existing community information) were recommended as the most appropriate source of data for these measures. In addition to providing information on the elements above, a population health information-gathering process in communities eligible for NHSC clinicians was suggested to enhance the following community activities:

- clinician recruitment, with data allowing communities to tell prospective providers about the health of the community as an orientation to their placement site;
- partnership opportunities between organizations in underserved communities, which can identify health issues to be addressed, and plan or evaluate activities from a common database;
- outcomes studies which are required, or which are being conducted, in underserved communities;
- accreditation and quality processes, such as fulfilling requirements for JCAHO or NCQA; and
- evaluation of local progress toward Healthy People 2000 Objectives for the Nation.

Measures of clinician contribution to community social capital were also suggested for incorporation into an evaluation of the NHSC's contribution to underserved communities. Suggested measures from community members that fall into this category include:

- educational component of care provided by NHSC clinicians;
- assistance given by NHSC clinicians to other providers in the local health system;
- establishment of partnerships or new health programs in the community by NHSC clinicians;
- participation of NHSC clinicians in volunteer activities;
- role of NHSC clinicians in recruitment of other providers to the community;
- resources leveraged by NHSC clinicians for health improvement during commitment period;
- role in organizational development of the practice or center where they work;
- desire of clinician to establish a local practice once commitment is complete; subsequent proportion of uninsured in clinician practice post-commitment; and
- fulfillment of leadership positions that influence policy around services to the underserved.

A program evaluation from the clinician's perspective was also suggested as an important component to incorporate in an evaluation of clinician service.

Application of the Social Reconnaissance by the NHSC: Roles with Communities

Community members recommended the following as roles and responsibilities of the NHSC in working with communities.

- Maintenance of an accurate Health Professional Shortage Area Placement Opportunity List (HPOL).
- Provision of training on-line, at national meetings, or via Field Offices to communities around the HPSA designation process and monitoring of HPSA status. This training would include information on how to fill out the HPSA application, what process the Field and Central Offices follow after the application is submitted, who monitors HPSA status for a state or region, how HPSA status is monitored, and what factors impact HPSA.
- Offering support through alumni who have experienced the NHSC. Clinicians cited the need for a contact at each site eligible for NHSC placement, to answer their questions about current practice and realities in the community. NHSC alumni were cited as one source that could identify the questions that NHSC clinicians should be asking relative to their placement, and the ACU Website was cited as a source of information that can offer both support to clinicians, and be a source that combats professional isolation.

Within these roles, the NHSC was given the following recommendations and advice from communities.

- Provide an annual HPSA update and status report to sites within a region/state to allow them to be knowledgeable about the HPSA designation process.
- Consider different standards or criteria for the HPSA designation in frontier, rural, and urban areas, incorporating a measure of the impact of the benefits derived from HPSA designation beyond access to the NHSC resources.
- Provide more detailed information on practice opportunities/requirements from sites, and characteristics that sites desire in a clinician. Maintain this list on-line, with links to individual community sites.
- Establish a minimum three- year commitment for either scholarships or loan repayment.

- Consider part-time payback periods, or pro-rated time/payback approaches for clinicians.
- Allocate "slots" for an eligible site, rather than a position. This slot could be available for three to five years, that can be filled by either a scholar or loan repayor, with the specialty and level of provider determined by the site (MD, NP, mental health professional).

The community advice provided to the NHSC was a primary source of information for what "new" or modified roles the NHSC can consider. Based on this advice, the following roles for the NHSC can be identified:

- *preparer of communities* to derive maximum benefit from NHSC clinician placement, understanding the networks, social capital, current health resources, and needs of underserved communities from the local perspective;
- *preparer of clinicians* for the "privilege to serve," incorporating population health knowledge and community expectations;
- *trainer of staff within the federal, regional and local infrastructure* through which the NHSC reaches underserved communities, around the multiple factors influencing the health of underserved communities, and the partnerships and resources required to address health issues;
- *convener of community members* and others to bring the issues of "underservice" to the forefront of community consideration and local action; and
- *evaluator of clinician contribution* in a manner that accounts for the contribution they make to underserved communities during and after their commitment. This includes incorporating both the qualitative and quantitative measures suggested by communities, in a population health perspective.

Listening to communities, within a scientific framework, with an understanding of a program's mandates, allows existing roles to be examined and new roles to be uncovered in meeting the needs of underserved communities. If the NHSC accepts a population health perspective, incorporating the social determinants of health, and the importance of social capital within a population, the NHSC must begin investing in this perspective through policy development, resource application, and training at the

federal level. The Social Reconnaissance process can be used to leverage this investment through linkages and partnerships to support policy development, resource application, or training.

Application of the Social Reconnaissance Information by Participating Communities

The most powerful testament to the value of the Social Reconnaissance is in the application of information obtained from the methods at the community level. Often in discussions that focused on advice to the NHSC, community members noted their own responsibilities and contribution to the clinician recruitment and retention process. These responsibilities included the development and implementation of a community-based recruitment process, including codified community expectations, roles, responsibilities, and steps required to organize. Communities eligible for providers recognized that they have to market their culture, qualities, expectations and needs, practice opportunities; health status information (as defined in the conceptual model) would help communicate this status to prospective clinicians. Web-based information was suggested as the easiest form to organize, display, and update.

Community members also recognized that the local health system has a responsibility to contribute the following to promote the recruitment and retention of a clinician: reaching out to include them, particularly in practice management; allowing interaction with an interdisciplinary team, where possible; providing specialist support to ward off isolation; and allocating time and resources for clinicians to continue their medical education in either a virtual (Internet) or real (conferences) forum.

Since our site visits and surveys, important events in each of the communities participating in the project have precipitated that show how the site visit communities have applied both the experience of the Social Reconnaissance and the information obtained from its methods:

- Aroostook, Maine is exploring how to implement a community assessment in partnership with another assessment that was slated for the county. Based on recommendations from the community

discussions, AVHC is currently exploring an alliance with the VNA and other community health centers in Northern Maine.

- Manatee County Rural Health Services has long prided itself on its ability to provide services to the community with a minimum use of public funding. Based on community feedback about the desire for expanded pediatric services, Florida Legislature has been petitioned for funds that can support an expanded pediatric caseload for the clinic and expanded dental services as well.
- The Venice Family Clinic is using the model of initiating a service line/protocol development with NHSC clinician support to address the dental care needs of the West Los Angeles population with a UCLA Dental School affiliate.
- Central Virginia Health Services resolved an issue--raised during the community discussion process--with the Bureau of Insurance that was preventing the center from serving as a primary care provider to employees of a local company.
- St. Claire Medical Center is exploring how it might access physician assistants through the newly instituted Physician Assistant training program at the University of Kentucky (taught locally at Morehead State).
- The Providence Ambulatory Health Center developed a new partnership with the City of Providence, which supported the data collection effort. The Director of Community Health at the Brown University School of Medicine and Providence Ambulatory are exploring how resources for the training and recruitment of clinicians in preventive and primary medicine can be done collaboratively.
- Kearny County has provided their NHSC clinician (beginning practice in July 1998) with a copy of the preliminary findings from the survey in Kearny County, so he can prepare to meet the types of conditions and health risks of the population. Additionally, the information will inform activities of the Pioneer Health Network, which was recently awarded a grant to examine cultural diversity and issues of access to care.
- Wallace County has used the survey information to help the Wallace County Department of Health fulfill its reporting requirements for 1997. Additionally, Wallace County has used both the interviews

and the survey data to write a grant to the Office of Rural Health in hopes of obtaining support for a clinician who can reside in Sharon Springs.

NEXT STEPS

Another powerful testament to the value of the Social Reconnaissance is the application of the information obtained from these methods at the Federal level. The NHSC has determined the following to be next steps in applying what has been learned in the nine Social Reconnaissance communities.

1) The Social Reconnaissance strategy will be implemented in an additional ten communities across the United States, in the next six months (through September 1988). One community in each Region of the United States will be chosen for participation in this project. This phase of the process will be used to specifically work with Field Office staff, State Primary Care Offices, and State Primary Care Associations to orient them to the methods and outcomes of the Social Reconnaissance. The Field Office involvement in the next phase of activity will begin to address the NHSC's role as "preparer" of communities through the resources of these partners.

2) The NHSC Community Assessment Project Partners will continue applying the population health status data obtained in this project. This will be accomplished in two ways: 1) each community that has participated in the survey will receive follow-up technical assistance to apply the information for program planning; and 2) resources from other national partners and philanthropies interested in examining the health of underserved communities will be brokered to continue the information gathering process. One means in which this will continue is through the preparation of a grant application to a national philanthropy, which will help the project partners to examine, among other things, how the social determinants of health contribute to the overall health of underserved communities.

3) The NHSC will continue to build partnerships with individuals, organizations, and institutions that can help the NHSC fulfill its role as the "preparer of clinicians for the privilege to serve." Communities believe that the NHSC has a role in providing a public health/population perspective to clinicians who serve underserved communities, and a role in developing leadership and program development skills in

those clinicians. The partners required to determine appropriate and feasible activities within those roles include medical, dental and nursing schools, mental health professions training programs, professional associations through which these students and professionals participate, Schools of Public Health, national quality and accreditation organizations--such as NCQA and JCAHO, and the state and local organizations that work with underserved communities.

The participation, involvement, linkages, and lessons resulting from the Social Reconnaissance in the communities participating in this project will be meaningful only if they are applied in the work of the NHSC. The three areas described above are powerful steps in that direction.

ACKNOWLEDGMENTS

We would like to thank the hundreds of community members from the communities participating in this project who made the time for community discussions and answered the surveys that were part of this project--you represent the reason, the heart and the soul of the work described in this paper.

The persons within each site who allowed for us to listen and question effectively are to be especially thanked: Jayne Wakefield (ME), Paula Gomez (TX), Rod Manifold (VA), Steve Reiner and Laura Dykstra (KS), Chrysanne Grund (KS), Mark Neff (KY), Mary Jean Francis and Dr. Stanley Block (RI), Mickey Presha (FL), and Liz Forer and Mary Richert (CA). They and their support staff poured many hours into organizing materials, time, and community members; and into answering our questions.

We thank our colleagues at The Health Institute at The New England Medical Center, the Harvard School of Public Health, and in Kansas, who provided us with fruitful partnership opportunities--and learning experiences. It is our hope and prayer that we have adequately captured the many wonderful things that all contributing persons brought to this project.

We would also like to thank the NHSC–it is a pleasure to work with an organization whose mission is identical to our own. We have learned from you, and hope that we have helped you to move one step further along your path.

Felix, Burdine and Associates

WORKS CITED AND REFERENCED DURING PROJECT

Burdine JN, Felix MRJ. Beyond the integration of public health and medicine. *Frontiers of Health Services Management* 1994; 10: 26-31.

Chavis DM, Florin P, Felix MRJ. Nurturing grassroots initiatives for community development: The role of enabling systems. In Community Organization and Social Administration. Mizrahaid and Morrison, eds. Haworth Press, 1993.

Cox E. A truly civil society. The 1995 Boyer Lectures, ABC Radio National. 14 November 1995.

Crystal B. Collaboration in the Carolinas. *Healthcare Executive* 1995; 10: 17-20.

Cullen TJ, Hart LG, Whitcomb ME, Lishner DM, Rosenblatt RA. The National Health Service Corps: Rural physician service and retention. Rural Health Working Paper Series (#28). WAMI Rural Health Research Center, 1994.

Fawcett SB, Lewis RK, Paine-Andrews A, Francisco VT, Richter KP, Williams EL, Copple B. Evaluating community coalitions for prevention of substance abuse: The case of Project Freedom. *Health Education and Behavior* 1997; 24: 812-828.

Felix MRJ. The Partnership Approach for sustaining heart health. *The Canadian Journal of Cardiology* 1993; 9 (Supplement D): 165D-167D.

Felix, Burdine and Associates. Intermediate Unit 20 (Pennsylvania) Managed Care Project Report. 1996.

----------. Development of a local Medicaid managed care system: System elements and recommendations. (Report to the Larimer County Partnership for the Medically Underserved) 1996.

----------. Feasibility of a local Medicaid managed care plan as a program of HSI Health Plans, Inc., Larimer County Colorado. 1995.

Gerstein R, Labelle J, MacLeod S, Mustard F, Spasoff R, Watson J. Nurturing Health: A Framework on the Determinants of Health. Premier's Council on Health Strategy, Ontario. March 1991.

GAO (General Accounting Office). *National Health Service Corps: Opportunities to stretch scarce dollars and improve provider placement.* GAO/HEHS-96-28. Washington, D.C., 1995.

Institute of Medicine (U.S.), Committee on Using Performance Monitoring to Improve Community Health. Improving health in the community: A role for performance monitoring. Durch JS, Bailey LA, and Stoto MA, eds. Washington D.C.: National Academy Press, 1997.

Kawachi I, Kennedy BP, Lochner K. Long live community: Social capital as public health. *The American Prospect* 1997: 35: 56-59.

Kohn LT. Methods in Case Study Analysis. (Technical Publication Number 2.) Washington, D.C.: Center for Studying Health System Change, 1997 (June).

McHorney CA, Kosinski M, Ware JE. Comparisons of the costs and quality of norms for the SF-36 Health Survey collected by mail versus telephone interview: Results from a national survey. *Medical Care* 1994; 32: 551-567.

McKeown, T. Determinants of Health. In The Nation's Health. McKeown, ed. Boyd and Fraser Publishing Company, 1984.

National Health Service Corps. Report to Congress for the years 1990-1994. (1995).

Norman SA, Greenberg R, Marconi K, Novelli W, Felix MRJ, Schechter C, Stolley P, Stunkard A. A process evaluation of a two-year community cardiovascular risk reduction program: What was done and who knew about it? *Health Education Research* 1990; 5: 87-97.

OIG (Office of Inspector General). *National Health Service Corps: A survey of providers, facilities and staff.* Washington, D.C.: U.S. Government Printing Office, 1994.

Paine-Andrews A, Harris KJ, Fawcett SB, Richter KP, Lewis RK, Francisco VT, Johnston J, Coen S. Evaluating a statewide partnership for reducing risks for chronic diseases. *Journal of Community Health* 1997; 22: 343-359.

Pathman DE, Konrad TR. Minority physicians serving in rural National Health Service Corps sites. *Medical Care* 1996; 34: 439-454.

Pathman DE, Williams ES, Konrad TR. Rural physician satisfaction: Its sources and relationship to retention. Journal of Rural Research 1996; 12: 366-377.

Pathman DE, Konrad TR, Ricketts TC. Medical education and the retention of rural physicians. *Health Services Research* 1994; 29: 39-58.

Pathman DE, Konrad TR, Ricketts TC. The National Health Service Corps: Experience for rural physicians in the late 1980s. Journal of the American Medical Association 1994; 272: 1341-1348.

Patrick DL, Wickizer TM. Community and Health. In Society and Health. Amick, Levine, Tarlov, and Walsh, eds. New York: Oxford University Press, 1995.

Patton, MQ. Depth Interviewing. In How to Use Qualitative Methods in Evaluation. California: Sage Publications, 1987.

Portes A, Landolt P. The downside of social capital. *The American Prospect* 1996; 26: 18-21, 94.

Putnam, RD. Bowling alone: America's declining social capital. *Journal of Democracy* 1995; 6: 65-78.

Sampson RJ, Raudenbush SW, Earls F. Neighborhoods and violent crime: A multi-level study of collective efficacy. *Science* 1997; 277: 918-924.

Sanders IT. The Social Reconnaissance method of community study. In Research in Rural Sociology and Development. Greenwich, Connecticut: JAI Press, Inc.,1985.

Sanders IT. The community social profile. *American Sociological Review* 1975; 25: 75-77.

Sanders IT. The Community: An Introduction to a Social System. New York: The Ronald Press Company, 1966.

Sirianni C, Friedland L. Social Capital and Civic Innovation: Learning and Capacity Building from the 1960s to the 1990s. Civic Practices Network: World Wide Web. 1995.

Sirianni C, Friedland L. Social Capital. Civic Practices Network: World Wide Web.

Stunkard AJ, Felix MRJ, Cohen RY. Mobilizing a Community to Promote Health: The Pennsylvania County Health Improvement Program (CHIP). In Prevention in Health Psychology. Rosen and Solomon, eds. Hanover: University Press of New England, 1985.

Tarlov A, Felix MRJ. The Production of Health in America: Mobilizing Communities. Unpublished manuscript, 1993.

Tarlov A. The coming influence of a social sciences perspective on medical education. *Academic Medicine* 1992; 67: 722-729.

Tarlov A, Kehrer BH, Hall DP, Samuels SE, Brown GS, Felix MRJ, Ross JA. Foundation Work: the Health Promotion Program of the Henry J. Kaiser Family Foundation. *American Journal of Health Promotion* 1987; 2: 74-80.

Toward a shared direction for health in Ontario. Report of the Ontario Health Review Panel, June 1987. Toronto, Ontario.

Wall E. Using social capital for measuring rural community health in southern Ontario (Social Capital Research Project as part of the Agroecosystem Health Project)University of Gelph, Ontario: World Wide Web.

Watkins SH. The Partnership for Community Health in the Lehigh Valley. Lehigh Valley Magazine 1995; 2: 14-18, 43.

Weisgrau S, McDowell SH. The economic impact of National Health Service Corps physicians on rural communities. Kansas City, Missouri: National Rural Health Association, 1997.

Williams RM. Rx: Social Reconnaissance. *Foundation News* 1990; 31: 24-29.

World Health Organization. The Constitution of the World Health Organization. Geneva, fSwitzerland: World Health Organization, 1948.