Health Indicators: A Proactive and Systematic Approach to Healthy Aging

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Abstract

The challenge of serving a burgeoning elderly population that has an increasing burden of chronic illness cannot be met within the existing paradigm of "one hip fracture at a time"—a limited approach using discontinuous, reactive responses to crises that can be prevented or delayed. As the gap between needs and resources continues to grow, and as the understanding of how to effectively manage chronic conditions improves, a proactive system is needed: a community-oriented, evidence-based approach involving three components—self-care, medical care, and community care and support systems. Merely locating traditional health and social services in communities is not sufficient; any endeavor to effectively integrate these three components at the community level requires good data, strategic partnerships, thoughtful targeting, explicit cross-sector standards, and the capacity to track and measure the effort's effectiveness.

This article describes a data-driven, community-based, collaborative effort under way in 34 low- and moderate-income communities in New York City. The Health Indicators in NORC (naturally occurring retirement community) Programs initiative, started in 2007, has enabled community-based programs with limited resources to become more systematic in addressing the management of clients with diabetes, heart disease, or an increased risk for falls.

Background

In 2000, the Centers for Disease Control and Prevention (CDC) embarked on an ambitious national campaign, called Healthy People, with the intent of improving the health of the American people (HHS, ODPHP, 2010). Using key health indicators to measure the health of the nation every 10 years, the CDC established improvement objectives related to: what individuals can do to better care for themselves (self-care), what service providers can do to ensure that people have access to and are receiving appropriate care (medical care), and what communities can do to overcome known environmental barriers or stresses and provide appropriate supports to promote residents' health and well-being (community care). The Administration on Aging, as part of the wider government goal of improving health, has turned to evidence-based models as a way to promote healthy aging. Evidence-based health promotion programs (including A Matter of Balance, Healthy IDEAS [Identifying Depression, Empowering Activities for Seniors], PEARLS [Program to Encourage Active, Rewarding Lives for Seniors], Chronic Disease Self-Management Program, and others) are now offered by the Administration on Aging's network of aging-services providers. Because "many communities lack the chronic disease and risk factor data to effectively set priorities and evaluate programs" (Brownson and Bright, 2004), evidence-based health promotion programs are being offered to all older adults (regardless of their health condition) to prevent, slow the progression of, or lessen the consequences of health problems prevalent among the elderly, such as hypertension, diabetes, heart disease, and an increased risk for falls.

About 80 percent of today's elderly population has a single chronic condition and 62 percent has more than one (HHS, AHRQ, 2010). Effective care and management of chronic conditions require a complex set of coordinated activities among clients, health providers, and community support systems—a necessary partnership that can accomplish the right things, in the right communities, with the right people, at the right time.

Health Indicators in NORC (naturally occurring retirement community) Programs (Health Indicators) is a data-driven, quality-improvement process that employs evidence-based interventions and strategies to measurably improve the health status of older adults. This article begins with an overview of the NORC program model in New York City, followed by a description of Health Indicators and its results to date.

The NORC Program Model

Throughout the United States, an increasing number of older adults live in communities not built specifically for the elderly—naturally occurring retirement communities, or NORCs. First used by Michael Hunt in 1984, the term NORC is now used as a demographic descriptor for age-integrated housing developments or neighborhoods where older adults comprise a significant portion of the residents. NORCs cannot be built; rather, they evolve over time, in a variety of ways. Adults remain in communities where they raised their families; young people leave in search of opportunities, leaving behind older generations; and older adults move to a building or neighborhood because of amenities and services that fit with their retirement lifestyle. Analyses of census data from 1990 and 2000 document steady growth in the number of NORCs in urban centers and first-

ring suburbs in metropolitan areas across the United States (Lanspery and Callahan, 1994; Puentes and Warren, 2006).

NORCs consist of heterogeneous mixes of older adults in varying stages of health and well-being, with a variety of interests and needs that fluctuate over time. The relatively dense population in NORCs has made it possible to rethink conventional service delivery paradigms. Historically, aging, health, and long-term care services have been delivered to individuals in silos, disconnected from the community where an older adult lives. This approach bases service on a categorical eligibility that is usually triggered by a crisis and often involves a hospital stay.

NORCs have given policymakers and service providers the opportunity to shift their efforts from delivering specific services to specific individuals to focusing on the health and well-being of subpopulations of seniors within communities. In 1986, the first NORC Support Service Program (NORC-SSP, or simply "NORC program") began in response to the needs of a large concentration of older adults in Penn South Houses, a housing development in New York City. Using a mix of philanthropic funds and support from the housing company itself, a new service program integrating housing, social services, and health services was developed (Vladeck, 2004).

Based on the success of the original Penn South program and two other similar housing developments, in 1995, New York State provided financial support for the NORC program model because of its innovative approach to a public policy focused on aging in place; New York City followed suit in 1999. Today, $11.4 million in city and state funding leverages an equal amount in private sector revenue and in-kind support for 54 NORC programs operating in moderate- and low-income housing developments and neighborhoods. NORC programs have since been started in communities in 25 other states, and the model is now being tested as part of the Administration on Aging's Community Innovations for Aging in Place Demonstration Program.

New York City's NORC programs are structured partnerships among housing developments (or neighborhoods), residents, health and social service providers, and other community stakeholders. These programs work at both the community level and individual level to address the challenges to aging in place in the NORC. The NORC model builds communities and provides for services aimed at the following:

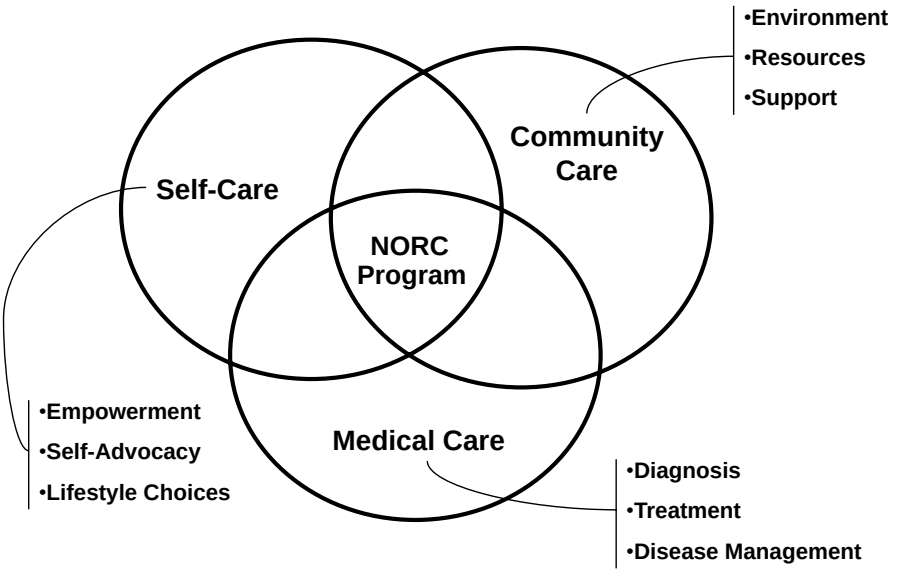
- Empowering older adults to take on new roles in their community.
- Fostering connections among residents within the community.
- Maximizing the health and well-being of all older adults in the NORC.

The 34 NORC programs funded by New York City are located in large and small public and private housing developments and are composed of both garden-style apartment complexes and single-family homes. Ten NORCs are located within New York City Housing Authority (NYCHA) public housing developments. In most instances, the lead agency is a social service provider from the network of aging-services providers; the health service partner is typically a home care agency, a local hospital, a nursing home, or a combination. Social workers, nurses, and residents staff NORC programs (UHF, 2010). Many of the program's health partners provide nurses as an in-kind resource to the programs, with each program receiving between 2 to 55 hours per week.

NORC programs, which integrate housing, social service, and health care for seniors, are located at the intersection of self-care, medical care, and community resources—making them ideally situated to maximize the health and well-being of older adults (exhibit 1).

Exhibit 1

Community Chronic Care Model



Source: United Hospital Fund, 2008

Origins of Health Indicators

The extent of positive effects that NORC programs have on the health of older adults in their communities has been a challenge to measure from the programs' inceptions. The programs' staff had few resources to determine which health risks were most prevalent in their community, making it difficult to connect residents' needs to appropriate services, and thereby limiting the staff's ability to reduce primary health risks to residents living with chronic conditions. Consequently, before 2007, the health components of the NORC programs focused on providing health education and health promotion activities (lectures on specific health topics and a range of physical and cognitive exercises); blood pressure checks (a very popular offering); and nurses monitoring the health of frail or medically complex residents, to help residents (and their caregivers) manage health conditions and to help residents navigate the healthcare system maze. Powerful stories of individuals who had been helped illustrate the value of NORC programs. The success rate of the program is measured by the number of forestalled hospitalizations and nursing home placements attributed to program interventions.

Shifting from a case-by-case, reactive crisis management style to a systematic, proactive practice style based on evidence required fundamental changes by NORC program staff. They needed to learn how to collect, interpret, and use relevant data to target their efforts toward a particular

health issue; appropriately integrate and apply standards of practice; develop strategies to exchange relevant information with other sectors and leverage additional resources; and measure the effectiveness of their interventions over time.

Health Indicators in NORC Programs

In 2007, New York City's Department for the Aging (DFTA) turned to the United Hospital Fund (the Fund), a research, policy, and grant-making organization focused on shaping positive change in the healthcare delivery system, to help NORC programs move to evidence-based practice. To help develop and implement the Health Indicators initiative, the Fund engaged the Center for Home Care Policy and Research of the Visiting Nurse Service of New York as a technical consultant for data collection tool development, website and database development and management, and data analysis.

Health Indicators involve three steps:

1. Identifying key health risks in a community-client population through a baseline survey.
2. Targeting, designing, implementing, and evaluating interventions focused on a specific health condition, using a quality-improvement process.
3. Periodically following up to measure effectiveness and identify new health risks.

The following paragraphs describe Health Indicators—the tools, the processes, the Fund's implementation process across New York City's NORC programs, and the results thus far.

Step One: Identifying Key Health Risks

The Health Indicators process begins with a survey examining three of CDC's key components of healthy aging. It is based on the belief that effective NORC programs promote healthy aging by ensuring that older adults (1) have access to health care; (2) engage in health promotion, disease prevention, and wellness activities; and (3) are able to manage their chronic conditions. (See appendix A for domains and indicators.) The Fund developed a 75-item survey instrument that corresponds to the three components and their relevant indicators. The instrument draws on standard or slightly modified questions derived from validated national and local surveys, including the Behavioral Risk Factor Surveillance System (HHS, CDC, 2010), the National Health Interview Survey, the U.S. Census, and the AdvantAge Initiative tool (VNSNY, Center for Home Care Policy & Research, 2010).[1] It takes 15 to 20 minutes for NORC program staff (social workers, nurses, or administrative staff) to administer the survey to clients and about 5 minutes to enter it into a web-based, electronic database developed specifically for Health Indicators. To get started, program directors were instructed to administer the questionnaire over a 3-month period to the health and case management staff and to health and case assistance clients seen during the course of their regular work. Interviews were conducted in person at the NORC program offices or in clients' homes.

[1] The AdvantAge Initiative is a project that has developed tools and processes to help communities measure their elder-friendliness (Visiting Nurse Service of New York, Center for Home Care Policy and Research, 2010).

The report format developed for the programs focused on identifying the most prevalent health conditions in each individual NORC program and in the aggregate of all programs. Reports identified and described the characteristics of people with the identified health conditions and explored differences by demographic characteristics and health condition. The Fund helped each program use the data to begin a conversation with community stakeholders about the findings. Each NORC program was given comparative city, state, and federal data, when available, in a standard format that arrayed program findings and comparative data for easy sharing with program partners and community stakeholders.

A total of 5,069 surveys were completed and entered into the database, representing 44 percent of the client caseloads across the NORC programs from 2006 through 2007. For the first time, each NORC program (and DFTA) had information about the most prevalent health risks in each community and learned how seniors with heart disease, diabetes, or an increased risk for falls were faring.

Survey Results

Demographics. As exhibit 2 illustrates, the 5,069 seniors surveyed were predominantly female (76 percent), lived alone (58 percent), and were White non-Hispanic (56 percent); 37 percent were either Black non-Hispanic or Hispanic. Of those surveyed, 66 percent were between the ages of 65 and 84, and 26 percent were 85 or older. NORC programs in NYCHA developments had a high concentration of ethnic minorities (72 percent non-White) and a higher concentration of younger residents than seen in non-NYCHA (that is, private, moderate-income) developments: 51 percent versus 27 percent were 60 to 74 years old and 48 percent versus 72 percent were 75 or older, NYCHA versus non-NYCHA, respectively.

Exhibit 2

Demographic Characteristics

Characteristic		Aggregate (100%) N=5,069	NYCHA (32%) N=1,615	Not NYCHA (68%) N=3,454
Age	60–64	7%	10%	5%
	65–74	28%	41%	22%
	75–84	38%	34%	40%
	85+	26%	14%	32%
Gender	Male	24%	24%	24%
	Female	76%	76%	76%
Race/ethnicity	White (Non-Hispanic)	56%	26%	70%
	Black (Non-Hispanic)	18%	20%	17%
	Asian	5%	9%	4%
	Hispanic	19%	43%	8%

NYCHA = New York City Housing Authority.

Note: Percentages may not add to 100 percent because of rounding and missing data.

Source: United Hospital Fund Health Indicators in NORC Programs Initiative, 2007 through 2008

Access to Health Care. Nearly all the seniors surveyed had primary health insurance coverage (99 percent) and prescription drug coverage (95 percent). Most had a regular source of care (96 percent); among those, virtually all had seen their doctor at least once in the past year, and 22 percent of

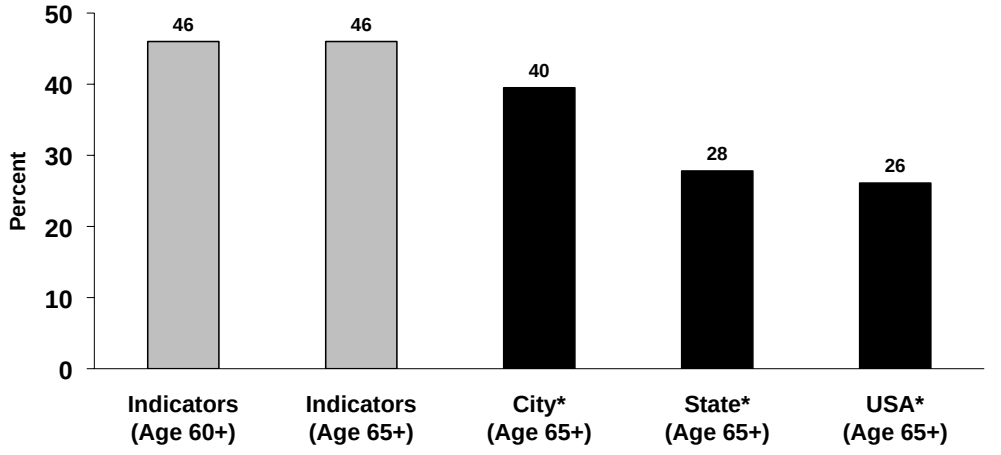
them had seen their health provider seven times or more over the year. Of those surveyed, 34 percent had used an emergency room in the past year, and 13 percent had done so more than once.

Health Promotion and Disease Prevention. Respondents in the 65-and-over age group were slightly more likely to rate their health fair to poor (46 percent) than the 65-and-over population of New York City as a whole (40 percent), as shown in exhibit 3. These figures exceeded the statewide rate (28 percent) and the national rate (26 percent), a difference that held true even when including younger respondents by expanding the age group to 60 and over. A self-reported health status of fair to poor was dramatically more common among people with certain chronic conditions—for example, 57 and 62 percent, respectively, for people with diabetes and heart disease.

Nearly all the clients surveyed (96 percent) reported taking at least 1 medication, and 15 percent reported taking 10 or more. In 2007, the group had higher rates of flu immunization (77 percent) and pneumonia vaccination (58 percent) than the citywide rates (57 and 48 percent, respectively). Only 4 percent of the women surveyed had never had a mammogram, and only 24 percent of all seniors surveyed had never had a colonoscopy, compared with a citywide rate of 33 percent for people over 65 (NYC DOHMH, 2006). The rate of social connections (frequency with which individuals see or speak to family members and friends) was high, at 93 percent, and 77 percent of the seniors surveyed reported leaving their homes three times a week or more. The levels of physical activity were consistent with national rates: 28 percent of seniors surveyed reached the recommended level of physical activity, and 35 percent reported no physical activity.

Exhibit 3

Fair/Poor Health Status (Indicators data compared with city, state, and national data)



** Percentages are rounded to the nearest whole number.*

Sources: United Hospital Fund Health Indicators in NORC Programs Initiative, 2007 through 2008; www.nyc.gov (city); http://www.cdc.gov (state); http://www.cdc.gov (USA)

Chronic Conditions. Only 16 percent of seniors surveyed reported having no chronic conditions. Overall, 25 percent had diabetes, 32 percent had heart disease, 66 percent had hypertension, 20 percent had lung disease or breathing problems, 26 percent were overweight or obese, 12 percent

had suffered a stroke (in two of the NORC programs, 20 percent or more had suffered a stroke), 63 percent had arthritis, 32 percent had osteoporosis, and 27 percent had fallen in the past 12 months.

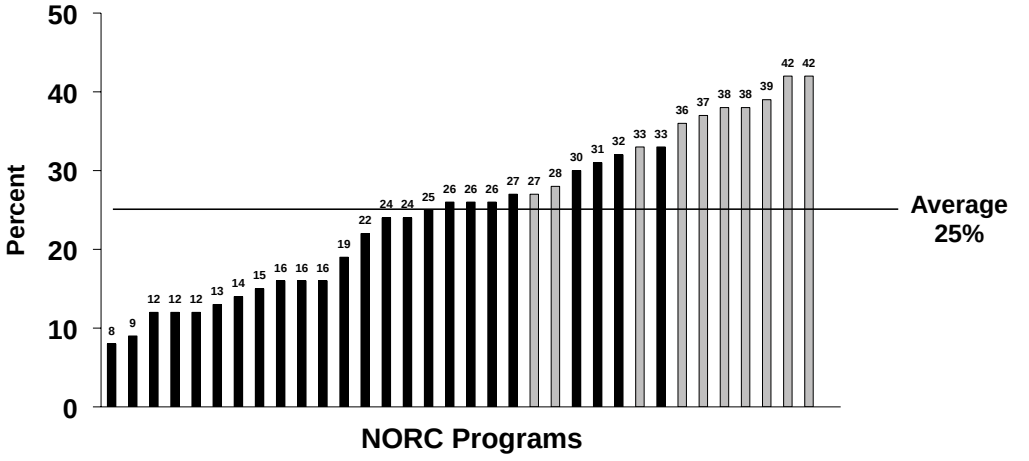
The power of the data is better revealed by looking at some of the findings in more detail. Diabetes data provide a useful example. Of those surveyed, 25 percent had diabetes. (The citywide prevalence of diabetes in a comparable age group is 23 percent). Of the NORC program clients with diabetes, 57 percent rated their health as fair to poor, and nearly one-fifth (18 percent) acknowledged difficulty managing the disease. Although diabetes is not curable, effective management of the disease can slow its progression and prevent life-threatening consequences.

The data also document patterns of chronic disease prevalence by community. Exhibit 4 shows the diabetes rates for seniors served by New York City's NORC programs. Each bar represents a NORC program. The gray bars represent the 10 programs in public housing, all of which are above the aggregate rate (25 percent), mirroring the prevalence of diabetes in New York City as a whole—namely, that it is concentrated in non-White, poorer, and younger populations.

Collectively, the data painted an informative picture of the health and well-being of seniors served by New York City's NORC programs. Access to care appeared not to be an issue because most NORC residents reported having insurance and a regular source of medical care. The surveyed seniors reported seeing their doctors frequently and taking a lot of medication. Nonetheless, they suffered from multiple chronic conditions and reported not feeling well. Overall, the data portrayed a population that needed help systematically addressing the health risks and symptoms associated with chronic conditions and common health problems. The challenge for NORC programs was to make that help relevant to its clients.

Exhibit 4

Prevalence of Diabetes Mellitus by NORC Program



Gray bars represent New York City Housing Authority programs.
Source: United Hospital Fund Health Indicators in NORC Programs Initiative, 2007 through 2008

Step Two: Targeting, Designing, Implementing, and Evaluating Interventions

Standards of Practice. After discussions with program partners and community stakeholders, NORC programs selected from heart disease, diabetes, or increased risk for falls (based on what was most prevalent) as a target for their interventions. To determine how well the NORC programs were addressing the known risk factors associated with the target condition, the Fund developed NORC Program Standards of Practice (SOPs), which reflect best practices and clinical guidelines in self-care, medical care, and community supports. The SOPs cover five areas: Knowing and Managing Your Numbers, Appropriate Medication Management, Healthcare Maintenance, Diet and Physical Activity, and Education and Information. Each SOP contains a series of detailed measures relating to the standard. The SOPs and measures were based on extensive literature reviews, established clinical guidelines, and evidence-based best practices. After being adapted for use by NORC programs, they were reviewed by a board-certified geriatrician and a group of NORC program nurses. (See appendix B for the SOPs.)

Quality Improvement. With NORC Program SOPs in place, a continuous quality-improvement process was designed in which program staff identify gaps in meeting the SOPs ("benchmarking"), set improvement goals and objectives, develop and implement strategies to reach their goals and objectives, measure progress through benchmarking at appropriate intervals, and repeat the process.

Benchmarking Process. The Health Indicators benchmarking tools comprise a short series of questions that NORC program staff complete by chart review, thus reinforcing for staff the crucial importance of documentation. The questions were designed to gauge what program staff know and have documented about their clients and to measure change in that documentation over time. For questions addressing the measures of the different SOPs, the choices are "yes," "no," or "don't know." (For example, "Is NORC program nurse monitoring client's blood pressure at least quarterly?") Even movement from a "don't know" to a "no" at different time points represents progress, because the program then knows who needs further attention (and what sort of attention), which, if effectively delivered, will generate a "yes" in time.

To assist programs with documentation, checklists were developed that align the SOPs and the benchmarking tools. Program staff use the checklists to track each client's status. The checklists resemble one-page nursing flowsheets, with space to record clinical values and boxes to check when these results are reviewed with the client.

The tools yield valuable information about both the individual NORC program clients and about the programs themselves. At an individual level, the checklist can indicate specific courses of action. When aggregated, the benchmarking results make it possible to look across all clients with a particular health issue to identify patterns among the group and devise and test strategies that increase program effectiveness. For example, if a large percentage of the diabetic clients in a program are not getting the recommended level of physical activity, the program might consider starting an evidence-based exercise program specifically for this group. Such information is invaluable to programs if they are to deliver more targeted and systematic interventions. Without it, programs have no way of knowing which seniors need assistance, what kind of assistance they need, and whether the assistance is helping them effectively manage their diabetes.

The quality improvement process began in December 2008, when programs conducted their initial benchmarking (referred to below as "T1"). All programs were provided with a registry of clients affected by the selected health issue, derived directly from the initial Health Indicators data. (Program staff can continually update the registry as other clients are identified with a particular health condition or existing clients die or move away.) Using the initial benchmarking reports as their guide, programs then set improvement goals and specific objectives. They developed and implemented improvement strategies and saw the fruits of their labor when the second benchmarking occurred 6 months later, in July 2009 ("T2").

Benchmarking Results

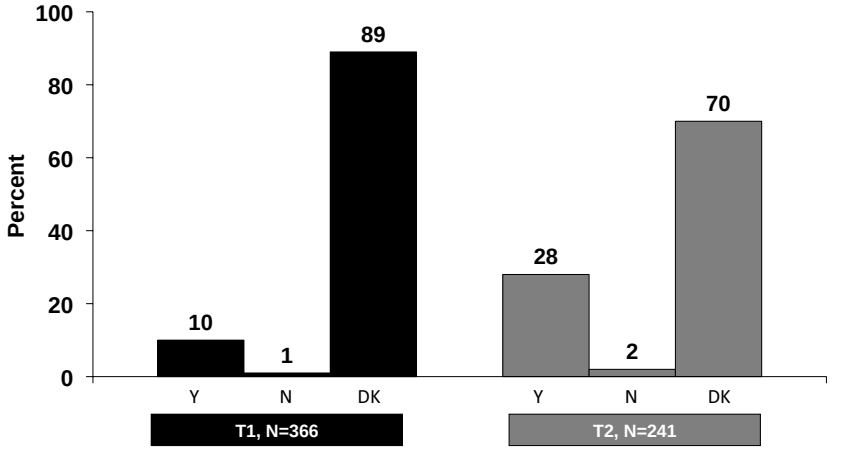
Results from the first two benchmarking periods provide a solid measure of the utility of the quality improvement process in helping programs systematically address health needs by following the NORC Program SOPs. This section of the article focuses on the results for programs addressing diabetes, although similar progress was seen in programs addressing heart disease and increased risk for falls. Across all issue areas, improvement was seen in measures within the different SOPs (Knowing and Managing Your Numbers, Appropriate Medication Management, Healthcare Maintenance, Diet and Physical Activity, and Education and Information), although this improvement occurred at different rates for different measures and standards.

The 10 programs focusing on diabetes ask the question, "Has client's hemoglobin level (HbA1c) been tested at least twice in the past 12 months?" (The HbA1c test shows average blood glucose level over the past 2 to 3 months. See appendix B for other standards of practice concerning diabetes.) At T1, the "don't know" response was given for 89 percent of the clients; at T2, this number fell to 70 percent. The percentage of "yes" responses increased over time as well (exhibit 5).

Similar patterns were seen for other indicators of effective diabetes management and control. In response to a question about whether blood pressure was being measured quarterly, the percent-

Exhibit 5

Diabetes: HbA1c Tested at Least Twice in Past 12 Months



DK = Don't know. N = No. Y = Yes.

Source: United Hospital Fund Health Indicators in NORC Programs Initiative, 2007 through 2008

age of "don't know" responses decreased from 34 percent at T1 to 26 percent at T2, and "yes" responses increased from 26 to 49 percent. In response to a question about cholesterol testing, the percentage of "don't know" responses decreased from 75 to 56 percent between T1 and T2, and "yes" responses increased from 24 to 44 percent.

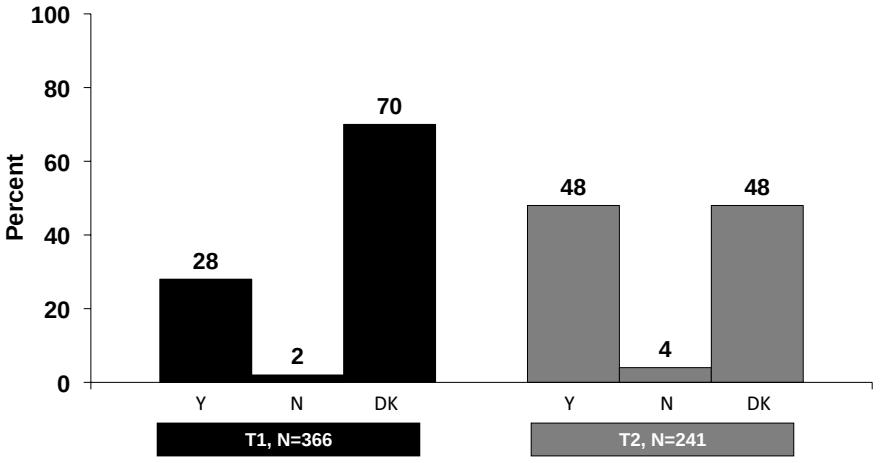
The bar charts in exhibit 6 also show steady improvement in the documentation of annual dilated eye exams for clients with diabetes between T1 and T2. Similarly, documentation improved on whether clients had an individualized diet plan—another essential component of effective diabetes care. "Yes" responses increased to 32 percent at T2 from 17 percent at T1.

NORC programs that focused on the other target conditions documented similar patterns in the benchmarked results. For example, the 15 programs that focused on heart disease asked program staff (in a questionnaire) if they knew whether their clients had a cholesterol test within the past 12 months. The response of "yes" increased from 36 to 62 percent and the "don't know" response decreased from 61 to 37 percent. Similarly, the "yes" responses to a question about the presence of EKG documentation rose from 36 to 64 percent. The eight programs that selected to focus on fall risk reduction documented dramatic improvements in several key measures: in orthostatic hypotension assessment, where the "yes" response rose from just 10 percent to 60 percent, and the "don't know" response dropped from 37 to 4 percent; in trigger drug assessment, where the "yes" response rose from 19 to 72 percent, and the "don't know" response dropped from 35 to 6 percent; and in assessments of gait, balance, and strength, where the "don't know" response dropped from 69 to 35 percent. We expect even more progress as this process continues and programs learn to work differently, both as a team and in the community.

It was not surprising that results from the first benchmarking period showed a high percentage of "don't know" responses. Previously, interventions were mere reactions to crises that happened to be noticed, rather than intentional responses in a systematic, comprehensive approach. The high

Exhibit 6

Diabetes: Dilated Eye Exam in Past 12 Months



DK = Don't know. N = No. Y = Yes.

Source: United Hospital Fund Health Indicators in NORC Programs Initiative, 2007 through 2008

percentages documented for "don't know" responses prompted the creation of a set of straightforward objectives that included regularly performing specific tasks, asking clients basic questions about their health care, and documenting these activities accordingly. Armed with the benchmarking data, NORC programs can measure improvement using the SOPs at both the client and program levels and follow up with individuals to address their specific needs. Each benchmarking question is designed to trigger a deliberate and evidence-based response.

Followup takes many forms, requires strategy development and implementation, and is often tailored to the individual. Using diabetes control as an example, clients first must be educated on the importance of the hemoglobin level test. The NORC programs require a copy of the lab results—either from the client or directly from the healthcare provider. Depending on the lab results, followup care may be recommended. Does the diabetic client require a medication change by a doctor, or nutrition counseling? Or, in the case of an eye exam, it is important to know why a client has not had one in the past 12 months. For example: Does the client have an issue of access? Is the lapse based on a client's fear? Are there other barriers, such as a lack of transportation? The followup questions and practices that result from the benchmarking have practical value for individual clients, because they indicate who may need assistance managing health needs and what form that assistance should take.

The benchmarking results are promising up to this point. Across all three health issues, programs have seen dramatic improvements in what they know and document, and they are also making great strides in developing and implementing strategies to better address clients' needs. Changing the programs' practices will not happen overnight, but programs are seeing the value of a targeted and systematic approach, which sets clear goals and objectives, and are measuring progress at regular intervals. Because benchmarking by these programs continues through 2010, DFTA is carefully examining how to incorporate elements of this data-driven, quality-improvement process into its own performance standards and measures across all its service delivery systems.

Step Three: Periodically Following Up

In 2011, participating programs will resurvey their client populations using the Health Indicators survey to identify new or emerging health risks. From there, programs can identify any new health issues on which to focus their quality improvement process. Eventually, the Standards of Practice will be embedded into regular program practice, helping to maximize the health and well-being of NORC program clients, and programs will no longer pursue a practice of "one hip fracture at a time."

Conclusions

As the nation grapples with the growing burden of chronic illness, especially in the elderly, both healthcare and aging-services providers have been encouraged to strengthen their participation in preventive efforts, especially in better educating patients about reducing and managing risk factors. The healthcare provider community, at varying rates among different institutions, is gradually adopting quality-improvement strategies and tools to focus on doing a better, more systematic job of managing the health of their patients with chronic illness or patients at risk for chronic illness.

Aging-services providers have been asked to encourage willing older adults to adopt healthier lifestyles by using an assortment of "evidence-based" health promotion programs.

These prevention and risk reduction efforts have largely taken place within the separate organizational silos of health care and aging services. This separation is particularly counterproductive with respect to older adults, many of whom have multiple chronic health conditions requiring coordinated, integrated management and care. Health promotion and preventive activities are of limited use if they are not getting to those who need them most, when they need them, and where they need them. NORC programs are perfectly positioned to take on the integrative functions of bringing together the separate realms of self-care, medical care, and community-based support. Mere positioning, however, is not sufficient; NORC programs also need specific tools to help improve the health status of older adults in a measurable, systematic way.

Health Indicators, a highly replicable suite of tools and processes, has already been demonstrated to help NORC programs shift practice from providing services on a first-come, first-served basis to targeting those most at risk and helping them get the education, care, and support they need for long-term living with chronic conditions. This approach should also be readily applicable to other providers serving communities with dense concentrations of older adults. To date, most aging-services practitioners have lacked the knowledge and tools to engage in evidence-based community health practice and, instead, do what they know best—react to specific acute illnesses, or install broad health promotion programs that are not targeted to a particular population. Borrowing experience from the healthcare community and adapting the quality-improvement process for community-based aging-services providers, Health Indicators uses data to drive what aging-services providers do and with whom they do it. It changes the expectations of community-based aging-services providers, shifting focus from the reactive provision of units of service to a more proactive, targeted, and systematic approach, continually measuring not only what they do, but also its effects, and enabling them to modify their strategies on the basis of reliable data. Although community-based aging-services providers will experience a steep learning curve in adopting such a change in approach, they can achieve the change.

In addition to helping community-based aging-services providers, Health Indicators also provides a vehicle for attaining the long-sought, but rarely realized, aspiration to better integrate health and social services in programs for the elderly. By providing accessible and understandable tools for aging-services providers, drawn largely from healthcare literature, Health Indicators equips providers to, first, work more effectively with the healthcare community and, second, to educate their clients in how they can better manage their own health care. At the same time, Health Indicators empowers the aging-services providers to monitor the performance of the healthcare system in the interest of their shared clients. In so doing, it creates a standardized, medically validated playing field on which aging-services and healthcare providers—and their clients—can work cooperatively to achieve shared goals.

Rooted as it is in the quality-improvement principles of continual feedback, learning, and programmatic adaptation, Health Indicators is, by definition, a work in progress. We already have come far enough, however, to have confidence that it can serve as the framework for long-sought changes in service delivery that will bring both short-term and long-term benefits to improve the health and well-being of elderly clients.

Appendix A
Health Indicators in NORC Programs: Domains and Indicators

GOAL: To advance healthy aging in the community

I. Objectives
- Identify health risks among NORC residents aged 60+
- Plan interventions/programs
- Measure the impact of NORC program interventions

II. Data to be collected in pilot NORC sites

A. Demographics
- Age
- Gender
- Living arrangements
- Language
- Race
- Ethnicity
- Living children & their proximity
- Country of origin

B. Domains & Indicators

1. Access to Care and Information
- Health insurance status
- Regular source of care & frequency of MD and ER visits
- Source of information about health concerns and service needs
- Health care proxy

2. Health Promotion, Disease Prevention, & Wellness
- Self-reported health status
- Number of prescription & non-prescription medications
- Problems paying for prescription medications
- Immunizations (flu shot & pneumococcal vaccine)
- Screenings (blood pressure reading, hearing test, eye exam, mammogram, Pap smear, PSA, colonoscopy, bone mass)
- Physical activity
- Tobacco use
- Alcohol use

- Connection to family, neighbors & friends
- Frequency of leaving the home

3. Health Conditions
   - Diagnosis and management of health conditions (diabetes, lung disease or breathing problems, high blood pressure, heart disease, stroke, arthritis, osteoporosis, obesity)
   - Interference with activities of daily living due to poor health
   - Falls
   - Depression
   - Use of assistive devices (eyeglasses, hearing aid, cane, walker, wheelchair, shopping cart, personal emergency device)

Appendix B
NORC Program Standards of Practice for Care of Client With Diabetes

Standard of Practice 1: Knowing and Managing Your Numbers

Elements of Practice for Knowing and Managing Your Numbers

1. **HbA1c** tested and reviewed with doctor at least twice annually at least 3 months apart or as otherwise prescribed.
   - 1a. **Adherence** to prescribed changes in care regimen as needed.
2. **Blood pressure** tested at least quarterly or as prescribed by doctor and discussed with client.
   - 2a. **Adherence** to prescribed changes in care regimen as needed.
3. **Lipids** tested and reviewed annually with doctor or as otherwise prescribed.
   - 3a. **Adherence** to prescribed changes in care regimen as needed.
4. **Microalbumin** level in urine tested and reviewed annually with doctor or as otherwise prescribed.
   - 4a. **Adherence** to prescribed changes in care regimen as needed.
5. **Weight goal** identified by appropriate professional and discussed with client (weight loss, gain, or maintenance).
   - 5a. **Appropriate followup** to ensure progress toward weight goal.

Standard of Practice 2: Appropriate Medication Management

Elements of Practice for Appropriate Medication Management

1. **Glycemic control** with glucose monitor (if prescribed)—glucose level tested as prescribed by doctor.
   - 1a. **Adherence to prescribed changes** in care regimen as needed.
2. **Annual medication review** by doctor, nurse, or pharmacist.
   - Medication review with each change in medication regimen (addition or subtraction of medication, dosage adjustment).
   - Medication review with any significant change in health status.
   - 2a. **Medication regimen adjustment** by doctor(s) as needed.
   - 2b. **Adherence** to prescribed medication regimen.
3. **Medication understanding assessment** by NORC program nurse every 6 months.
   - 3a. **Education and followup** as needed.

Standard of Practice 3: Healthcare Maintenance

Elements of Practice for Healthcare Maintenance

1. **Full foot examination** at least annually by trained healthcare provider.
   - **Foot inspection** at each primary care visit.
   - **Self-examination** daily.
2. **Dilated eye examination** annually.
   2a. **Followup** vision care as appropriate.
3. **Flu vaccination** annually.
4. **Pneumonia vaccination** one time after age 65 or as otherwise indicated.
5. **Smoking cessation** services and ongoing support offered if client smokes.

Standard of Practice 4: Diet and Physical Activity

Elements of Practice for Diet and Physical Activity

1. **Individualized diet** plan provided by appropriate professional.
   1a. **Adherence** to prescribed diet.
2. **Physical activity** as prescribed.

Standard of Practice 5: Education and Information

Elements of Practice for Education and Information

1. **Diabetes education** provided by diabetes educator or appropriate healthcare professional as needed.

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