

# Improving the Health of the Community: Duke's Experience with Community Engagement

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## Abstract

Evidence is accumulating that the United States is falling behind in its potential to translate biomedical advances into practical applications for the population. Societal forces, increased awareness of health disparities, and the direction of clinical and translational research are producing a compelling case for AHCs to bridge the gaps between scientific knowledge and medical advancement and between medical advancement and health. The Duke University Health System, the city and county of Durham,

North Carolina, and multiple local nonprofit and civic organizations are actively engaged in addressing this need. More than a decade ago, Duke and its community partners began collaborating on projects to meet specific, locally defined community health needs. In 2005, Duke and Durham jointly developed a set of Principles of Community Engagement reflecting the key elements of the partnership and crafted an educational infrastructure to train health professionals in the principles

and practice of community engagement. And, most recently, Duke has worked to establish the Duke Translational Medicine Institute, funded in part by a National Institutes of Health Clinical Translational Science Award, to improve health through innovative behavioral, social, and medical knowledge, matched with community engagement and the information sciences.

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**R**esearchers and physicians at academic health centers (AHCs)—including Duke University Medical Center and Health System—are often viewed as the vanguards of innovation, testing creative solutions to reduce suffering and save lives. And, in most respects, they are. However, AHCs such as Duke need look only in their own communities to see that much of the population fails to benefit from the innovations funded by the American taxpayer.

North Carolina has three medical schools ranked in the top 50 best schools in the nation,<sup>1</sup> the second-highest-ranked public health school in the country,<sup>2</sup> and 27 different nursing programs.<sup>3</sup> Still, the Commonwealth Fund recently ranked North Carolina 30th in the country in terms of health care cost, quality, access, and efficiency; only 46% of adults with diabetes in North Carolina have received needed preventive care, and the

hospitalization rate for children with asthma is 196.1 per 100,000 children—three times the rate of the top-ranked state.<sup>4</sup>

Durham, North Carolina—both the city and the county—is a striking example of the discrepancy. With three times the state average of physicians per capita, a higher-than-average number of hospital beds and nurses than most other counties in North Carolina<sup>5</sup> as well as a top-10-ranked medical school and hospital,<sup>6</sup> and a rapidly expanding school of nursing,<sup>7</sup> the health status of residents of Durham County should be exemplary. Yet, its rates of chronic disease and health disparities and its overall health outcomes are barely better than the state averages.<sup>8</sup> This pattern is not unique to Durham; the urban neighborhoods surrounding many major AHCs exemplify disparities in the health of the American population.

To illustrate, in New York City the rate of diabetes in 2005 was 125 per 100,000 in the poorest neighborhoods compared with 14.8 per 100,000 in the richest neighborhoods.<sup>9</sup> Residents of New Haven, Connecticut are at elevated risk for several negative health outcomes when compared with Connecticut as a whole and with the rest of the United

States.<sup>10</sup> In Boston, an analysis done by the Boston Public Health Commission found similar disparities. The death rate for all causes is 30% higher in the poor neighborhoods; residents are two and a half times as likely to die from diabetes, four times as likely to die of HIV/AIDS, and twice as likely to die from injuries.<sup>11</sup>

Duke University Medical Center and Health System is committed to bringing an end to this disparity, to accelerating the path from biomedical discovery to care delivery, and to improving health outcomes for all groups of patients, especially those within our local community. Our efforts are occurring simultaneously with the revolution in understanding the biology of health and disease that will lead to the “four Ps” of medicine: personalized, prospective, preemptive, and personal responsibility.<sup>12</sup> We believe that the merger of personalized medicine and public health will create “learning health systems”<sup>13</sup> in which individuals, communities,<sup>14</sup> and health care providers work collaboratively to improve health. Although this theory has been put forward by many,<sup>15–17</sup> examples of successful programs are lacking.

We have been engaging the Durham community in collaborative partnerships

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that deliver care, especially to the underserved, and that provide both prevention and care management in neighborhoods and patients' homes. Our guiding principle is that health status can best be improved through care delivered in partnership with patients, families, and communities, using services based within community settings, evidence-based practices, and linked electronic health records. We are educating practicing and future doctors, physician assistants, nurses, nurse practitioners, and physical therapists to engage with communities to build the trust necessary to help patients make beneficial, long-term changes in their health behaviors. Further, we are preparing researchers to interact with communities, especially communities that have historically been left at the door of medical advances, so that medical discoveries are translated more quickly and efficiently for all. Although our experience with these activities is imperfect and evolving, we believe lessons from our experience could inform other AHCs.

### Preparing the AHS and the Community for Change

Duke and Durham share a long history of partnership. Throughout the era of segregation, Duke built alliances with local African American clinics and hospitals to train physicians of color, and Duke University Hospital, built in the 1930s, has always admitted African American patients. During the mid 1970s and 1980s, the Duke Department of Psychiatry's Child Guidance Clinic established The Therapeutic Pre-School to help children with behavioral or mental health problems. Through this work with educators, school guidance counselors, and the court system, a sense of trust began to develop within a segment of the people of Durham County. This trust, however, did not pervade the larger community.

In 1996, leadership and faculty of the Duke Department of Community and Family Medicine and the School of Nursing approached the leadership of Durham County's Health and Social Services Departments, the local federally qualified health center, and its then rival hospital, Durham Regional Hospital, to initiate a series of discussions about improving the health of Durham's low-income populations. When community

partners indicated they were struggling to make headway against uncontrolled asthma, which was a significant issue for Duke as well, a specific shared interest was discovered. Each of the partners donated time, and both Duke Hospital and the Department of Community and Family Medicine donated staff to support a common program to improve asthma outcomes; this first collaborative effort was funded by a grant from a local foundation.<sup>18</sup>

The process of building a common vision and collaborative interactions both within the AHC as well as within the community was—and is—laborious and fraught with complications. Initial meetings produced conversation and recitations of past problems, but no concrete suggestions. Eventually, partners were asked to describe the elements of a successful collaboration, and faculty sought out possible topics and programs to consider, on the basis of those elements.

An Office of Community Relations was established in 2002 by the chancellor and CEO of Duke University Health System. The office of community relations and the Department of Community and Family Medicine have worked together to enhance the positive experiences that members of the community have with Duke University Health System. The Department of Community and Family Medicine plans and runs health-related programs, and the Office of Community Relations helps the institution navigate the political environment and negotiate agreements between the health system and local governments.

In 2005, this office convened a committee of Duke and Durham representatives that identified principles for Duke's increasing involvement in the community. Both the chancellor to the health system and key community partners endorsed these Principles of Community Engagement:

- Proposed projects should be based on a need identified by the community that is beneficial to the community.
- The scope and time frame of project should be clear to the community. Partners must be willing to commit time and resources to the project.
- Partners must trust each other and build mutual respect while learning from each other's perspectives.

- A diverse range of community members and agencies need to participate to ensure that proposed activities meet the needs of a diverse population. All participants are considered experts.
- A safe environment must exist for all participants of all backgrounds to share ideas without fear of ridicule or criticism. No blaming or judgments. Keep lines of communication open.
- Partners must be good stewards of project data and include the community in outcome reporting and evaluation, potential programmatic intervention, education opportunities, and future program planning activities. (Created 9/20/05)<sup>19</sup>

During the last 10 years, the shared initiatives between Duke and Durham have expanded to include a wide array of clinical, care management, health promotion, and disease prevention programs. With 24 operating programs providing low-cost clinical services for more than 11,000 patients, care management programs serving 47,000 patients, and chronic disease prevention/reduction programs serving more than 100,000 people, we have fully established a model of community health that reduces unnecessary hospitalizations, improves health outcomes,<sup>20</sup> and strengthens relationships between the AHC and the community.

### Building the Educational Infrastructure

Working with communities is not sufficient for improving health. We also recognize the importance of preparing the medical workforce for community engagement, because the sustainability of community-based programs depends on how clinicians and researchers are recruited and trained.

Duke offers multiple educational opportunities for training in community health. As a prerequisite for any participation in community-based projects, medical, physician assistant, and nursing students all undergo formal orientation to community engagement and are required to complete and pass a 60-minute online training module (<http://chtraining.duhs.duke.edu>) and complete a 90-minute workshop taught by Duke faculty and staff on diversity, cultural

competence, and appropriate behavior in community settings (<http://learningtogether.duhs.duke.edu>). Medical students attend an additional class on community engagement during the orientation to their required family medicine clerkship, and they participate in community-based projects such as identifying local resources that encourage health behavior change for patients of the practice. The school of nursing is also enhancing its already substantial education and training in community health. For those desiring additional training, a master of health sciences in clinical leadership program, which includes classes on community engagement, and a full-time fellowship in community health, are both available. Exposure to community leaders is part of all of these programs. For example, during medical student orientation, students are introduced to community service, and they hear from the mayor of Durham about the importance of service activities.

One of the most difficult tasks in this conversion to community engagement and community service has been the transition in the medical center's family medicine residency program to one that is more community- and population-health based. The family medicine residency, one of the first in the country, had slowly suffered from the national downturn in U.S. medical school applicants to primary care. While the practice of family medicine was undergoing a shift to outpatient, community-oriented care, the residency remained firmly based in the inpatient, acute care setting. Continued attempts to link the program to the growing community-based programs, including opportunities to participate in classes and faculty development, were met with enthusiasm from some, but resistance from other residents and faculty. The latter saw their time in community-based, outpatient, and health-promotion settings as devaluing their clinical skills. These tensions culminated in a May 2006<sup>21</sup> announcement that the residency would stop accepting new applicants, to focus on developing new models of practice. This decision garnered considerable national attention and debate. With the advice of a Duke-appointed national steering committee and the unwavering support of the institutional leadership, a new family medicine residency was designed and is

being offered to new residents, beginning in July 2008. This new residency focuses on the outpatient and community setting; chronic disease prevention and management; teams; and leadership training. Residents' time in the inpatient setting has been reduced to allow increased time in the office and a continuous experience in community programs. Formal leadership training, comprising seven courses totaling 20 credit hours, is required through the first year of the two-year master in clinical leadership program, with completion of the additional year and award of the master degree an option for those who wish to extend their training to four years. For residents completing the four-year master degree option, completion of both a practice improvement project (such as redesigning the in-office flow of patients with diabetes so that blood sugar measurements are available when the patient is seen) and a community outcome project (such as assisting with analysis of barriers to care for patients with diabetes in the community) is required.

The goal in revamping the program is both to attract a different type of student—one who is enthusiastic and committed to community health—and to provide a blend of rigorous training and experience that will prepare family physicians to help design and practice new models of care within and with the cooperation of communities, so that the health of the community is improved.

The controversy of the family medicine residency is both a reminder of the multiple ways in which traditions and rules can inhibit innovation, and of the importance of the AHC in leading bold changes.

### **Building the Research Infrastructure**

Since 2004, Duke has been planning the development of the Duke Translational Medical Institute (DTMI), an effort that will facilitate the translation of novel discoveries to both human application and practice adoption. In addition, the Duke Global Health Institute was launched in 2006 to address health inequalities locally and internationally.

In October 2006, the National Institutes of Health (NIH) called for proposals for

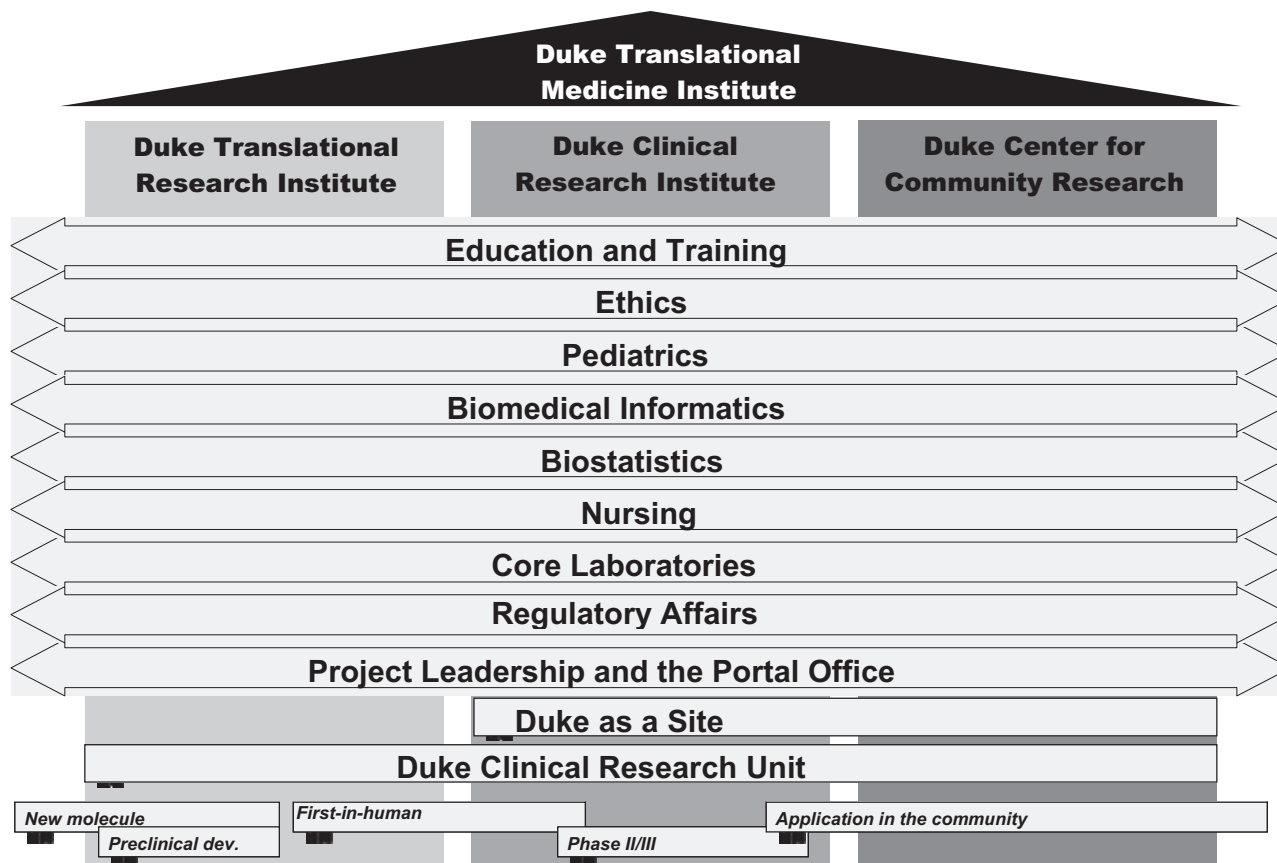
the Clinical and Translational Science Awards (CTSA).<sup>22</sup> NIH created this award program to reduce disparities and speed the process of discovery to improved care.<sup>23</sup> It provided a major catalyst for the implementation of DTMI.

The DTMI aspires to integrate and coordinate the multiple, dispersed elements of the research enterprise, and it spans the traditional clinical and basic science departments (see Figure 1). Faculty maintain their traditional departmental affiliations but are members of, and receive support for their translational research through, the DTMI. Funding comes from the CTSA award, and the institution provides additional support. The total budget for the DTMI exceeds \$600 million across five years.

Three "pillars" form the core of the DTMI. The first is a new Duke Translational Research Institute, which encompasses preclinical research through proof of concept in humans. The second is the Duke Clinical Research Institute, a long-standing, highly successful program which comprises Phase II trials as well as initial implementation of discoveries into practice. The third is a new Duke Center for Community Research (DCCR), which was formed to ensure effective research in community settings. The DCCR was established to

- provide culturally competent, community-based training, outreach, and support services to fully engage the Durham community in all aspects of the research process;
- establish a robust training capacity to train researchers and trainees to work effectively in community settings and with diverse patient populations;
- establish outreach and support, including relevant data acquisition, to community-based health agencies and organizations to help them formulate research questions directly relevant to their patients' and organization's needs; and
- measure the impact of innovative, community-engaged research on the improvement of community health.<sup>24</sup>

The DCCR reports to the vice chancellor for research, who directs the DTMI, and is guided by both an internal steering committee from the Duke schools and



**Figure 1** The Duke Translation Medicine Institute's (DTMI) organizational structure, 2008. The goal of the Duke Center for Community Research (DCCR) is to work across these three pillars to improve the health of the community, to engage the community in research, to include local medical practices in research, and to link the community, local medical practices, and researchers. The governance of the DTMI comprises the community advisory board and executive steering committee. The components of the DCCR are the research training center, the research liaison center, and the electronic health record.

centers and by an external community health advisory board, which is led by the chancellor for health affairs. The center is virtual, with faculty participating from across the medical center and university. The DCCR is led by the chair of the department of community and family medicine, assisted by the division chief and associate division director of the department's division of community health. The DCCR is composed of three units: a training center, a liaison center, and a group that assists with the development of a new electronic health record.

The Community Health Research Training Center, a core-funded component of the DCCR, serves as an education and training resource for faculty members and trainees contemplating either research in community settings or population-based research. DCCR faculty and staff train and support learners throughout the medical school and school of nursing in community engagement through online

training modules (available at: <http://chtraining.duhs.duke.edu>) and through workshops that introduce cultural competence and community etiquette. New modules on community-engaged research, to be part of the medical center's internal review board training (<http://www.dtm.duke.edu/dccr/community-linkedresearch/PracticingCommunityEngagedResearch.ppt>), are in the review process. The master of health sciences in clinical leadership program (<http://clinical-leadership.mc.duke.edu>) has been recreated as an online program, available for practicing clinicians and researchers throughout the United States, with new curriculum devoted to community-engaged research training. A shorter health leadership program (<http://healthleadership.duhs.duke.edu>) trains faculty from AHCs that are involved in community engagement, and features community-engaged and community-based participatory research. Additional formal training in community engagement for faculty and trainees is taught in venues

that include noon conferences, research seminars, and medical student interest groups.

A second component, the Community Research Liaison Center, serves as a connection between Duke and local communities, practices, and organizations. The liaison center helps connect communities with Duke researchers and helps ensure that local groups are aware of, included in, and informed by research. Programs can be initiated by either side; most commonly, interested researchers are provided training and are then brought together with community groups and agencies that have expressed interest in the topic. Funding thus far has been through external grants; however, a request for proposal for pilot funding is under development.

A third element is the ongoing development of an electronic health record for use by health care practitioners and institutes across the local region, including academic and community

practices as well as inpatient care. The health record is envisioned as extending well beyond the traditional physicians' office and hospital. Deidentified data will be shared with clinicians and community partners, using the powerful technology of geospatial mapping to identify, first, trends and, then, opportunities for coordinated interventions. A significant effort in empirical ethics, funded by the CTSA award, will address issues of consent and participation by Durham residents so that their privacy and rights will be protected.

Nine months since funding started, DCCR has consulted with more than 100 faculty members and has provided support to 23 research projects, ranging from projects seeking to better understand causes of hypertension and obesity to those that study community attitudes towards genomics. Most of the researchers involved with these projects have not previously been engaged with community-based research, and all of the projects engage multiple Durham partners in proposal formulation and development.

By addressing issues of prevention and adherence using low-cost interventions before disease is severe, we hope to show significant benefits in cost and clinical outcomes. Such services could demonstrate an unusual model of patient centrality by expanding low-cost and effective service to patients' homes and neighborhoods and providing patients with service in surroundings where they may be more comfortable and experience fewer barriers.

What is emerging from these efforts is a model of AHC which is responsive to the needs of its patients, respectfully engaged with its community, and continually redesigning its services and educational programs so that the health of the community is improved.

### Lessons Learned

Just as there is diversity across AHCs, there will be diversity in the degree to which institutions can and will effectively engage with their communities and/or train providers and researchers for community work. Duke is unusual in that it is the third-leading employer in North Carolina, operates both of the major hospitals in Durham, and has the potential to have an effect on its

community. One model of AHC–community partnership will not fit every community and AHC. But there may be some universal lessons for leaders of AHCs who want to improve the health of their communities.

**Commitment of the AHC leadership to improving community health is essential.** The leadership's articulation of the vision and its commitment to making translational medicine and community and global health a priority are critical because substantial resources are required. Concurrently, faculty must be committed to the design and implementation of curriculum reforms, innovative research designs, and demonstration–evaluation projects.

**AHCs will often face resistance when engaging in community health.** Many communities have long felt exploited by AHCs and may view the AHC with distrust. Providers and researchers may also resist change. And, as our residency redesign demonstrated, learners and faculty can be resistant to population-based care and community health concepts. Key to overcoming resistance is steadfast patience while helping those undergoing changes to envision a future that will fully employ their skills and make care more effective.

**Changing the relationship between researcher and community requires change of all parties.** Community–AHC collaboration necessitates training not only for members of community organizations to learn the language and demands of formal research, but also for researchers to learn the language, demands, and political realities of community providers and organizations. Retooling the research enterprise around communities requires a review of the roles of the researcher in everything from the selection of the research question to the obligation to share project findings.

**Interdisciplinary approaches are vital, whether for research, education, clinical care, or community engagement.** Medical care has been traditionally centered on the role of the physician, with subordinate roles for all other members of the health care team—including the patient. But as the demands and expectations on practices multiply with an aging, chronically ill population,

other practitioners, professionals, and the community are needed to help patients and family members make beneficial, long-term behavior change.<sup>20</sup>

**Learning from the experiences of other communities and health systems is helpful.** Population-focused health care is particularly new—and vitally important. Learning to engage in community-based research and service is a critical task for leaders of AHCs. Best practices and useful tools need to be shared and replicated.

**AHCs will have to learn the critical skills needed to understand the dynamics and roles of the community—a deceptively simple word for something extremely complex.** Communities are amalgamations of diverse collections of people, cultures, and institutions. *AHC* is also an overly simplistic acronym, given the tremendous size, heterogeneity, and complexity of AHCs. Every community and AHC has a different historical, cultural, and political context as well as a different relationship with surrounding communities. And, often, the cultural norms of many communities are not the same cultural norms of their AHCs. Understanding and acknowledging these differences is vital to collaboration.

### Looking Forward

Despite the many differences, there is an opportunity to find, work toward, and measure shared goals. We plan to use continuous measurement of key health parameters of Durham County as the scorecard for our effort. The use of proven, beneficial health interventions with application of standards of care extends what has been learned about practice improvement for hospital practice to the community.

Our experience has been challenging, and there is still much work to be done. Developing successful and sustainable solutions requires moving beyond our traditional boundaries, forming long-term partnerships with community agencies and groups, and finding solutions that build on complementary strengths.

This is a new task for many academic health systems. But, it is an old challenge for research universities. As Charles

## Glassick and colleagues<sup>25</sup> wrote in *Scholarship Assessed*:

Poised on the cusp of a new century, in a world that wrestles with a multitude of difficulties, the university must fulfill a more well-rounded mission. New generations of college-goers need scholarly teachers to help prepare them for a time when global interdependency is much more than a slogan. Knowledge, for all the glory and splendor of the act of pure discovery, remains incomplete without the insights of those who can show how to best integrate and apply it.

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