

## Research Strategy

### (a) Significance

The Durham Health Resources Project proposed in this application seeks to address the objectives in Recommendation 2.1 of the National Library of Medicine's (NLM) long-range plan for 2006 -2016, i.e., to: "advance new outreach programs by NLM and National Network of Libraries of Medicine (NN/LM) for underserved populations at home and abroad; work to reduce health disparities experienced by minority populations; and share and actively promote lessons learned." Durham County, North Carolina, a county of more than 260,000 residents, is an ideal setting to develop replicable strategies to address the objectives in Recommendation 2.1. The County is characterized by significant racial and ethnic diversity, with minority groups including Blacks (37.2%), Latinos (12.3%) and Asians (4.4%) accounting for over half of the total residents (<http://quickfacts.census.gov/qfd/states/37/37063.html>). The African-American community has always been a strong element in the development of Durham in terms of business, education and health care. In the early 1900s, African Americans in Durham responded to segregation by establishing their own bank, library, hospital, insurance company and other institutions. For many years African Americans represented almost 50% of the population. There are strong faith-based and community organizations that serve the needs of the population. (Franklin, Green et al. 2000) However, the county's large minority population experiences many of the health disparities well-documented within the literature, including higher mortality rates for all leading causes of death. While death rates for cancer among minority males decreased from 325 per 100,000 in 2004 to 250 per 100,000 in 2005, these rates are still much higher than the 200 per 100,000 for those in the general Durham population. The rate of low-birth weight babies for minorities in the county is 128.5 per 1,000 live births compared with 88.7 per 1,000 live births for the overall Durham population. HIV prevalence rates for the overall population continue to rise with a 2.5 per 100,000 rate in 2005. The rate was 50 per 100,000 for African-American males and 25 per 100,000 for African-American women (2007 Durham County Health Assessment).

In contrast to the well-established African-American community is Durham's relatively young, fast-growing Latino population. Durham County has one of the state's largest concentrations of Latinos. Based on 2005 census projections, 16.8% of Durham residents spoke a language other than English at home. The majority (64.1%) of Latinos in Durham is of Mexican origin or descent; most work as heavy machinery operators or laborers; and many work two or three unskilled, low-wage jobs. Approximately 26% of Durham's Latino population lives in poverty, often spending more than 75% of their income on rent and utilities. At least 70% of Durham Latinos lack health insurance and 28% report having had to forego seeing a doctor because of the cost (Durham Health Partners and Department 2007). While there are no local estimates of health literacy and no direct estimates of the number of North Carolinians with low health literacy, the 2007 NC IOM Report states that North Carolina had a higher than average percentage of adults with low literacy levels based on the 1992 National Assessment of Adult Literacy (NAAL)(IOM 2007). It is likely that this rate underestimates the problem of low literacy, given the increasing age of the population and the rapidly rising numbers of Latino immigrants into the state and Durham County. This trend makes the development and implementation of coordinated, translated and patient-centered health information resources all the more imperative to address health disparities within the county.

#### *Applicant Organization, Partners, and Performance Sites*

While the Durham Health Resources Project will use outreach guidelines established by the National Networks of Library of Medicine for assessing and working with community groups, it will also leverage a strong network of health agencies and providers who have established community-engaged methods for identifying and addressing the greater health care needs of the Durham community.

***Duke University, through its Division of Community Health which is housed within the Department of Community and Family Medicine of the School of Medicine serves as the applicant organization for this proposal.*** Not only is improving community health part of Duke's mission, but the university has a vested interest in doing so. It is both the predominant health care provider in Durham and the county's largest

employer. Duke's Department of Community and Family Medicine (CFM), in particular, has taken a leadership role both locally and nationally in developing programs to improve the health of communities. CFM's Division of Community Health (DCH) was created in 1998 to build a bridge between Duke and the communities it serves by addressing health disparities in Durham and in communities across North Carolina. Examples of DCH's collaborative, community-engaged programs include clinics based in low-income schools; a multi-agency, multi-disciplinary team providing in-home primary care, nutrition, occupational therapy, and case management to elderly residents of Durham public housing projects; and care management programs for Medicaid patients (under contract with the NC Community Care of North Carolina Program) and the uninsured that draw on the resources of multiple agencies including the County Departments of Health and Social Services, and Lincoln Community Health Center (Durham's FQHC). Over the last several years, DCH has strengthened its research and evaluation capacity, and has utilized a community-engagement approach in all of these endeavors. In both research and service, DCH programs demonstrate the core concepts of collaboration required to engage community members, practitioners, and organizations and to build trust in the research enterprise.

With support from the Clinical and Translational Science Awards (CTSA), the Duke Translational Medicine Institute (DTMI) was created in 2006 to promote accelerated translation of bench research into clinical translation and of clinical research into practice. A premise of both the CTSA program in general and DTMI in particular is that translation into practice requires research that involves the community in setting research priorities, the research process, and follow-up. The Duke Center for Community Research (DCCR) was created as the community engagement pillar of DTMI, with the mandate of assisting community members and academic researchers and trainees in understanding and developing collaborative, community-engaged research. DCCR provides education and training for Duke faculty and trainees interested in conducting community-engaged research, and also serves as a community resource where agencies, organizations, and residents can avail themselves of training and information to better understand research, receive research coaching, better define their research needs, and seek researchers with whom they can work.

The Principal Investigator of the proposed Durham Health Resources Project (DHRP) serves in a dual role as Chief of the Division of Community Health and Associate Director of the Duke Center for Community Research and will ensure that the expertise and strengths of both entities will support the work of the proposed initiative.

Two collaborative programs administered by DCH are of significant relevance to this initiative:

***The African American Health Improvement Project (AAHIP)*** is a partnership between researchers from Duke and North Carolina Central University, health care providers, representatives from community agencies, health care consumers, area worksites and area churches. The partnership is dedicated to improving the health of African Americans in Durham, North Carolina. AAHIP was created in October 2005 through a grant from the National Center for Minority Health and Health Disparities (NCMHD), National Institutes of Health to Duke's DCH in partnership with the Community Health Coalition. The AAHIP research team includes faculty and staff from various parts of the Duke campus, as well as two community partners. A Community Advisory Board works in conjunction with the research team to establish AAHIP's direction and planning activities, and an external team evaluates the collaboration between the research team and the board. The mission of AAHIP is not only to conduct research and provide services during a defined grant period, but to work with others in the Durham community to create sustainable changes in the social/physical environments and the health care delivery system that will make it easier for people to live healthy lives. It is this goal that leads to AAHIP's strong support of the Durham Health Resources Project. AAHIP's first initiative, the Diabetes Improvement Project (DIP), helps African-American adults with Type 2 diabetes to better control their diabetes through peer support groups and through one-on-one coaching and education from professional health educators. The DIP pilot was funded by the grant that created AAHIP, and a full-scale study of the DIP model is currently underway with a second grant from NCMHD, awarded in 2008.

*The Local Access to Coordinated Healthcare Program (LATCH)* was initiated by the Division of Community Health in 2002, with Healthy Communities Access Program (HCAP) funding from the U.S Health Resources and Services Administration). Durham's HCAP grant chose to address the increasing numbers of uninsured—primarily Latinos—who lacked a regular source of care and for whom accessing the health care system was a challenge. Through a consortium of community agencies—health care and social service providers, local government, and community-based organizations—LATCH works to improve enrollees' health, access to health care, and health care utilization outcomes. The Duke Health System provides sustaining support for the LATCH program. LATCH services are available to all racial/ethnic groups. LATCH's current active patient population is 8053, of which the majority is Hispanic/Latino (75%) or African American (18%) and lives in households with incomes below the federal poverty level. Most Latino patients in LATCH have limited English skills, are often functionally illiterate in their native language of Spanish, and have low levels of formal education, making it difficult to obtain, process, and understand basic health information and services. LATCH accomplishes its work through a bilingual (Spanish/English) care management team comprised of a nurse, health educators, social workers, community health workers, disability services coordinator, and a Medicaid eligibility worker contracted through the Durham County Department of Social Services. Through individualized telephonic and in-home care/disease management, care managers work to improve patients' understanding and self-management of their health conditions and link them to available primary care services and community resources. The program operates according to the philosophy that services are meant to engage a patient as a partner in managing their health and other needs, rather than foster a long-term dependency on available support. The expectation is that from the point of initial engagement through the duration of the intervention, patients are active participants in identifying their needs and playing a role in whatever plan of action is defined by the patient and care manager to address the need. Through a strengths-based approach, patients are empowered to understand and eventually address their health needs and engage available health and social services and other community resources as needed, without support from the programs.

The proposed DHRP will emulate the philosophy of LATCH and AAHIP by collaborating with other local institutions and agencies and engaging users in the active evaluation of information sources that are available and determining new resources where gaps in information exist. Both LATCH and AAHIP have agreed to support the DHRP and letters of support are included in the package. Specifically, these programs will provide the DHRP with access to African-American and Latino consumers and community leaders who will provide feedback on our information portals, products and trainings. They will also provide access to health care providers (medical professionals, health educators, lay health advisors and others) who serve these communities and who will also vet DHRP products. DHRP core partners are:

*The Duke Medical Center Library & Archives (MCL&A)*, which serves the research, patient care, and educational communities of Duke Medicine. In addition to serving health professionals and students, it also serves patients and their families who need access to high-quality health information. MCL&A maintains a core collection of books to assist various reading levels, as well as providing access to professional literature. The library provides free borrowing privileges to any health professional that works or lives in Durham.

*The School of Library and Information Sciences at North Carolina Central University (NCCU)* was authorized by the State Legislature in 1939 when the charter of the then North Carolina College for Negroes was amended for the purpose of allowing the establishment of graduate and professional programs at the College. That amendment established the program in library education and the mission of educating African-American librarians for the state of North Carolina. During 2007-2008 NCCU School of Library and Information Sciences was funded by the United Negro College Fund to create the Eagles e-Health project, an approach to increase the utilization of NLM on-line resources by NCCU students, faculty, staff, and a network of local and statewide community partners.

*Healing with CAARE, Inc (CAARE)* is a not-for-profit community organization situated in downtown Durham, providing an array of free, comprehensive health care -- from prevention to diagnosis -- to

individuals of low wealth. Started in 1995 by Pat Amaechi and Sharon Elliott-Bynum, CAARE was registered with the North Carolina Secretary of State in March, 1996. In the fifteen years since its establishment, CAARE has grown to become a key health and social service agency with an annual budget of nearly one million dollars, supported by private sources, federal, state and local government sources and private donors. With a staff of 20 full-time employees and a group of 10 volunteers, CAARE currently provides assistance to more than 2500 at-risk individuals through its community outreach program. CAARE's services include: HIV/AIDS Prevention Education and Outreach, Transitional Housing, VA Per Diem Program, State Certified Non-Traditional Testing Site, State Certified Substance Abuse Treatment Facility, and Food Pantry, GED Program, Job readiness Classes, Computer Classes, Free Clinic and Wellness Center. In 2009, CAARE was awarded a NLM grant to create a medical library providing access to health information to consumers. This library space will provide the location for the proposed focus group and training sessions and enhance CAARE's primary goal to support, educate and empower these populations.

### **(b) Innovation**

This innovative project will engage the community in building upon existing infrastructure to create a coordinated health information resource system with products and trainings that are accessible, useful, and culturally appropriate for communities that experience health disparities. While many projects target consumers or health professionals, most do not consider the needs of both groups. Because access to sound clinical information is essential, DHRP will identify open access resources as well as major Web-based sources that provide medical and research information to support patient care. Portals will be created for consumers and providers with input and regular feedback from both target groups.

DHRP partners recognize that effective use of health information resources requires training of users. Web-based technologies, on-going tutorials and training modules will all be available to teach essential skills to both consumers and providers. A network of trainers will be developed who can continue the training beyond the project. Through Web technologies, the training tools and curricular materials will be available to others outside the Durham communities.

In addition to traditional Websites and resources, the project will focus on identifying multimedia materials that can enhance the usefulness of information to the target groups. Relevant podcasts, Webcasts, webisodes, and other materials will be sought and added to the portals. In addition, local speaker presentations will be captured and shared through the portals, making the content more widely available.

The project will also test the viability of a Web tool called LibGuides. This tool allows for easy changes to the structure and layout of pages, making it a good way to quickly develop and test models, and then change the design based on feedback and usability studies. The tool is also affordable and is a hosted service not requiring any technical commitment on the part of local agencies. Creating and maintaining Web portals can be difficult; the hope is that this tool could be used by not only project staff but by local health providers and even consumers who are engaged in creating and developing the Web portals.

### **(c) Approach**

Over the years, various Durham institutions and agencies have contributed to the array of health information and resource portals such as web pages and modules that exist locally to inform consumers and health professionals. In 2007, the School of Library and Information Sciences at North Carolina Central University (NCCU), a historically black university was awarded a grant from the United Negro College Fund to create the Eagles e-Health project, with the goal of increasing utilization of NLM on-line resources by NCCU students, faculty, staff, and a network of local and statewide community partners. The MCL&A at Duke University has created consumer health classes for the Durham community and been involved in the planning, and creation of Web resources pages for a statewide consumer health resource (NC HealthInfo and NC Go Local). MCL&A also have expertise in selecting consumer resources and training health providers. In 2009,

CAARE was awarded a NLM grant to create a medical library providing access to health information to consumers.

Coordination among these three disparate efforts has been lacking, and the voice of the community in the design of these products has been minimal. Additionally, there has not been a concerted effort among all entities to target information resources specifically to communities that experience health disparities and the health providers who care for them. To redress these limitations the core partners of DHRP: Duke's Division of Community Health, Duke Center for Community Research, Duke MCL&A, NCCU School of Library and Information Sciences, and CAARE have developed the following specific aims for the proposed 3-year project:

- 1) Coordinate efforts to provide health information to Durham consumers and health providers, including medical professionals, health educators, lay health advisors, and others.
- 2) Engage communities that experience health disparities (specifically the African-American and Latino communities) in developing health information portals and designing health information products that are accessible, useful and culturally appropriate.
- 3) Engage providers who serve the target community in developing health information portals and designing health information products that meet their needs as providers.
- 4) Develop and implement a train-the-trainer program through which members of the target communities and those who serve them will teach their peers how to use health information products.
- 5) In conjunction with the external evaluator, evaluate project processes and product utility.
- 6) Disseminate lessons learned.

Each of the partner entities will employ a community outreach librarian, who will have in-depth knowledge of the resources and assets of their partner entity. As described in greater detail below, each librarian will also bring to the project unique his/her unique strengths and skills. Overall, the outreach librarians will: 1) Evaluate the literacy skills of the target communities; 2) Hold group sessions at community sites to review the portals and health information products with consumers and health providers; solicit feedback on the suitability of these portals/products for meeting their needs; 3) Use this information to develop portals, health information products, and training curricula ; 4) Continue to solicit consumer and provider feedback and integrate this feedback and results of the external evaluation to revise portals, products and curriculum in an iterative process.

The bi-lingual librarian funded by NCCU will have a community base at consumer sessions at CAARE. One of the responsibilities of this bi-lingual librarian will be to develop a validated instrument intended to measure e-health literacy among Spanish speaking populations. Increasing health information literacy is a fundamental way of improving public health and reducing the social costs of unequal access to health resources. Few validated assessment tools of health information literacy have been developed, particularly for under-served populations, including minorities and the socio-economically disadvantaged. Health information literacy assessment tools for Spanish-speaking groups are even less common.

The health literacy measures will be comprised of a pre-test in the form of a survey/questionnaire that assesses awareness of, use of, and attitudes towards sources of health information, both traditional and online. The training session will then consist of project members presenting an introduction and tutorial regarding a number of free, high quality sources of consumer health information from the National Library of Medicine. Participants will be prompted to complete a post-training assessment of uses, attitudes and proficiency one month after the training. Librarians will also attempt to solicit the feedback of community members who are capable of reaching others through their occupation or social position. Such individuals include health providers and, instructors, community leaders, librarians, and pastoral figures. Individuals from these groups tend to have better access to information resources than the general public and have community ties that make them ideal gateways for subsequent public health information knowledge sharing. People from these groups have contact with other members of their communities, including individuals who have less access to information resources.

Educating both consumers and providers in effective use of information resources will be an essential part of the grant. MCL&A has a strong educational program for health professionals and has been teaching consumer courses within the Durham community. Health providers will need to be trained in the use of MedlinePlus and other key resources, such as ClinicalTrials.gov, focusing on both consumer information, as well as how to find ongoing clinical trials and final results. The training in this project will also need to extend to finding current information for health providers through PubMed, evaluating sites found through Google and other search engines, locating current clinical and research literature, and then managing the information found through free citation management tools and other social media designed to capture resources. In addition to live training sessions, MCL&A has experience in creating online modules for just-in-time learning and for reinforcing skills learned in previous sessions. Basic modules covering the topics listed in the prior paragraphs would be created and available to the community and share across the Internet with other groups who might be interested in the training. Again, MCL&A would assess what online training tools might already be available through NLM, NCI, and other sources and then develop modules that augment extant resources or more narrowly focus on the particular needs of the target population.

Access to the professional literature will be important to the health providers who are part of this project. The MCL&A librarians will identify free online resources that are available through open-access or embargoed journal policies, and cutting-edge research articles that have been deposited in PubMed Central which are relevant to the project. While expansion of existing electronic licenses may be cost prohibitive to those outside the traditional university communities, the MCL&A will assist in developing a system for requesting and delivering articles from its collection using DOCLINE or other automated request mechanisms.

The community hub for holding consumer focus groups and teaching sessions will be CAARE. CAARE's library space provided through a 2009 NLM grant will serve as the location for the proposed focus groups and training sessions and enhance CAARE's primary goal to support, educate and empower these populations. CAARE provides an important model of a case-based approach to reaching poor communities and recognizes that the health of these individuals depends not only on their medical condition, but on a range of factors related to their economic status, social environment, and emotional well-being. CAARE's active pursuit of community-based preventive health education with risk reduction will be enhanced by the provision of locally tailored information resources as proposed in this project.

Our team has paved the way for this project through previous collaborative relationships with community partners and is well positioned to initiate this kind of comprehensive approach. Further, our approach is bolstered by its focus on community feedback and participation in the coordination process. Through our community partners we can not only provide training and resources directly to community members, we can also learn from the input and needs of those members through direct contact in focus groups and interviews. The integration of community representatives and end-users into the development process will ensure that the final product is responsive to the real-world needs of the population it serves. Our experiences can subsequently inform the efforts of communities across the US who are attempting similar work.

Together the partner entities have developed the following objectives, specific activities and anticipated timeline for the DHRP:

**Year I (April 1, 2011-March 31, 2012)**

1. Identify and coordinate local health information portals, such as modules, and web-based resources targeted toward consumer and provider information needs of the Durham community, particularly those targeting communities of color, and those with language and health disparities (Aim 1).
2. Engage community residents to evaluate extant information resources and services for their effectiveness in addressing needs within communities experiencing health and language disparities (Aim 2).
3. Eliminate duplication of health information resources and services through on-going collaboration among community residents, providers, academic institutions and community agencies (Aims 1, 2, 3).

4. Select and train health resource trainers drawn from underrepresented communities and based in community settings who will in turn train users in the use of health information products (Aim 4).
5. Engage an external evaluator to assist in developing outcome measures that reflect impact and to facilitate program modifications if warranted through measured feedback from consumers and providers (Aim 5).

#### April-May 2011:

- Meet with local agencies, providers, and consumers to determine the scope of the content needed for addressing chronic health care issues within the Durham community, and determine the reading levels of materials needed to support health information behaviors (Aims 1, 2, 3).
- Target web resources toward the specific needs of the Durham community and include plain and Spanish language resources focusing on the specific chronic conditions identified (Aim 3).

#### June-August 2011:

- Work with local agencies to identify Web-based resources they have been using or have created for providers and consumers (Aims 1, 2).
- Evaluate the extant resources based on content, intended audiences or populations, languages and literacy levels covered and compare results to the intended aims of the project, the populations being served, and the content needed to support or alter health behaviors (Aims 1-4).
- Identify other state and national resources, such as NCHealthInfo, including NC Go Local, and MEDLINE Plus, that may have content to fill in gaps, address specific literacy levels, or provide additional content (Aims 1, 3).
- Begin to identify assessment methods [with consultant] to determine satisfaction with and usefulness of Web portals and training (Aim 5).
- Consider evaluation techniques such as focus groups, interviews, surveys, etc. and develop an assessment plan for the project (Aim 5)

#### September-November 2011:

- Establish criteria for evaluating Web sites using the National Library of Medicine, NC Health Info and other models developed for selecting high quality health information in conjunction with the project team and agencies (Aims 2, 3, 5).
- Train the agency staff, health providers, and consumers involved in the project in how to evaluate Web-based information sources using the established criteria (Aims 4, 5, 6).

#### September 2011-March 2012

- Develop model Web pages or portals according to input from consumers, agencies, and providers and test the ease of use of these portals and revise as needed (It is anticipated that the project will initially use LibGuides or other existing platform for developing and testing the model portals, but then identify a final and long-term platform as the project progresses) (Aims 1, 2, 3).
- Identify criteria for evaluating ease of usability of Web portals. Use Usability.gov and other standard Web design guides for methods and standards of determining usability (Aim 5).

#### December 2011-February 2012:

- Evaluate the computer literacy of the target population and determine if basic computer training will be needed. (This will be accomplished through discussions with agencies, providers, interviewing consumers, and observing consumers' ease of use visiting Internet sites during the review of information resources) (Aims 2, 3, 4).
- Identify resources within the community that provide Internet access to the general public and make web-based information accessible to consumers, agencies, and health providers (Aims 2, 3).
- Identify agencies frequented by consumers, such as senior or community centers, churches and libraries, and contact those groups to determine the availability of computers and Internet access in those locations (Aims 2, 3).
- Identify the ease of access to internet sites from work environments, assessing whether fire walls are creating obstacles (Aim 2).

### March 2012:

- Explore linkages to other health portals within the community and the state (Aim 1).

### **Year 2 (April 1, 2012-March 31, 2013)**

1. Building on partnerships convened during the first year and collaboratively modify health information portals, modules and web resources based on feedback garnered from community residents (Aims 2, 5).
2. Use other media sources, such as podcasts, webisodes and radio forums to target and extend reach within communities experiencing disparities and deliver culturally competent, literacy appropriate health information (Aims 2, 3).
3. Extend use of health resource trainers to expand use and awareness of health resources (Aims 4, 6).
4. Summarize implications of findings from year 1 and report to funder, local agencies and community groups through e-letters, flyers and other media sources as described above (Aims 5, 6).

### April-July 2012

- Set up sessions with health providers and agency staff to determine the ease of navigation of the portals and determine if there are gaps in coverage given the health issues of their clients (Aim 3).
- Set up usability studies to determine usefulness of the resources and portals established in Year one. Work with consumer groups to study how they find information, what is working or not working, and the ease of navigation. Through focus groups, determine if the reading level of materials is too high or low and if other materials, such as videos, might be more useful than written content for certain types of information (Aims 2 and 5).
- Evaluate whether LibGuides or another chosen platform for the portal is effective (Aim 5).
- Revise the Web portals and selection of linked resources based on feedback from consumers and community health providers (Aims 2 and 3).
- Create a feedback link on the portals to gather additional suggestions for content and comments on the portal (Aims 2, 3, and 5).
- Establish a system for tracking and reviewing Web statistics on the portals and data, establishing base-line data and tracking if promotional activities or training sessions have an impact on use (Aim 5).

### July-September 2012

- Develop and test training materials and PR about the portal and how to use it (Aim 4).
- Identify a core group of peer trainers who can train other consumers in accessing and using the Internet resources (Aim 4).
- Develop a basic training program for consumers and identify other training opportunities within the community such as at the Durham Public Library system, to address computer literacy issues and provide a link for providers to those training sessions to the healthportal along with information on where publicly accessible computers are available (Aim 4).
- Contact community groups such as churches, community centers, and libraries to schedule sessions to demonstrate the portal and the information resources available to the community (Aim 6).
- Develop a standard evaluation tool to be used for the different types of training sessions and a feedback tool that trainers can use to critique the portal and training materials (Aim 5).

### September 2012-March 2013

- Review and evaluate podcasts, webisodes, and radio forums that exist and that meet the criteria and subject content needed to reach the community (Aims 1, 2, and 5).
- Identify opportunities for presenting information about the project at local, regional and national professional meetings for both health professionals and librarians (Aim 6).
- Begin to identify possible venues for submitting scholarly articles about the project (Aim 6).



- Teach health providers and agency personnel how to use the health portals and the resources available to them, and how to train others in their use (Aims 4 and 6).
- Assist in developing handouts and other public relations types of materials that will increase awareness of the portal and the training programs (Aims 4 and 6).

### **Year 3 (April 1, 2013-March 31, 2014)**

1. Expand the “train the trainer” model to ensure sustainability and extensive use of the resources within communities after funding has ended (Aims 4 and 6).
2. Within academic settings, collaborate across disciplines such as schools of Public Health, Nursing, Medicine, and Library Science to ensure that health providers and learners are knowledgeable of health resources and where appropriate incorporate community feedback into applied curricula development (Aims 1,2, and 3).
3. Convene a speaker series targeted to the public to expound upon and disseminate health topic information relevant to community needs as expressed in year 1 and 2 (Aim 6).
4. Document the process for developing this model in order to share it with other communities and replicate it (Aims 5-6).

#### April-August 2013

- Conduct another round of usability studies on portal with consumers and health providers (Aims 2, 3, 5).
- Update and revise the portal as needed (Aims 1, 2, 3).
- Evaluate and revise training materials based on feedback from other trainers and participants (Aims 4, 5).

#### August 2013-March 2014

- Continue training sessions for consumer groups and trainers (Aims 4, 6).

#### September-December 2013

- Help establish a network of trainers who are committed to providing sessions for community groups and health providers on a continued basis (Aims 1, 4, 6).
- Identify where trainers are needed based on the chronic conditions within the community, and the geographic location of health care, faith- based and other community agencies (Aims 1, 4, 6).
- Train additional Duke Medical Center Library and NCCU Library staff in how to train the trainers about the health portal, and how to work with community groups and health providers (Aims 1, 4, 6).

#### September-October 2013

- Establish a portal where training materials will be posted and shared with all trainers (Aims 1, 6).

#### November-December 2013

- Integrate the inclusions of the portals into other consumer health classes offered through Duke, University of North Carolina Chapel Hill Health Sciences Library and the Durham Public Library (Aims 1, 6).

#### December 2013-February 2014

- Work with Duke Medical Center Library, NCCU, and the agencies for a process for updating and maintaining the portals ensuring feedback from consumer and health provider groups (Aims 1, 6).
- Document the process used to establish the program and the established model that can be shared with other communities or applied to other areas within the Durham community (Aims 1, 6).
- Identify possible venues for publishing the results of the study and the description of the model that was developed (Aim 6).

#### February-March 2014

- Finalize the platform and long-term support of the portal through Duke Medicine Center Library (Aim 1).
- Finish analysis of evaluations of use of portals and training programs and generate final report (Aims 5, 6).

#### *Training and Evaluation*

The DRHP will develop a train-the-trainers program where consumers will train other consumers, and health providers will train their colleagues. The project team will develop a curriculum for training the trainers as well as materials to be used by the trainers. Trainers will teach consumers and providers in how to use the portals developed through the project, evaluate Internet resources, and use major health sites such as

MedlinePlus. In addition, online tutorials will capture the core content and be available for just-in time or refresher training for trainers and their provider and consumer audiences. The training sessions will be tested with small groups initially, with both verbal feedback and written evaluation forms. As the training sessions are conducted, the trainers will be asked to evaluate the training tools and materials, and the participants will be asked to evaluate the relevancy, satisfaction with, and clarity of the program's content. Both the content and evaluation forms will be revised as needed. After several sessions of "train-the-trainer" and consumer and health provider programs have been held, the content will be developed into online tutorials and accompanying materials will be posted on the projects portals for further use by the community.

The project will hire an evaluation consultant, Cindy Olney, who has extensive experience in assessing and evaluating outreach projects including Web portals and consumer information. The project team will also use the checklists and guidelines made available through the National Networks of Libraries of Medicine's Outreach Evaluation Resource Center.[<http://nmlm.gov/evaluation/>]. The project's evaluation consultant was involved in the development of many of these resources. Initial assessments of community needs will begin with the project partners, who will then in turn identify other key agencies or community groups that need to provide input. These initial contacts will provide the basic information for starting to build the mock-ups for the portals. The portal designs will be evaluated through direct feedback from selected members of the target audiences using assessment methods such as focus groups, interviews, and usability studies. This process will be repeated as portal designs are revised based on evaluations. Links will also be placed on the portals so that users may make suggestions and comments as they are using resources. The proposed LibGuides tool also permits users to rate resources and that information will be collected and reviewed on a quarterly basis. Web statistics will also be gathered and reviewed as well to determine how much the portals are being used and which resources may be more helpful than others.

#### *Personnel & Project Management*

The partners of the proposed Durham Health Resources Project have strong collaborative relationships and a unified goal of serving the health literacy and education needs of at-risk populations in their community and the health providers who serve them. The Core Team of the Durham Health Resources Project consists of: **Michelle Lyn, M.B.A., M.H.A.**, Assistant Professor, will serve as Primary Investigator. Ms. Lyn will provide overall supervision, assessment and planning for the project and project staff to ensure compliance with the project aims as described in the application. Ms Lyn has been at Duke for eleven years and serves as Chief of the Division Community Health of the Department of Community and Family Medicine, and Associate Director of the Duke Center for Community Research of the Duke Translational Medicine Institute. Prior to coming to Duke, Ms. Lyn worked in the Durham Public School system and designed the first, highly successful school-based health clinic in Durham. She began her Duke career in 1998 as a founding member of the DCH and assumed a leadership role in the creation and expansion of a wide range of collaborative, community-engaged disease prevention and health promotion activities. She was instrumental in crafting the Local Access to Coordinated Healthcare (LATCH) program, serving uninsured Durham residents; neighborhood clinics; and the Just for Us Program, which cares for chronically ill homebound seniors in their homes. She also led the development of programs that integrate mental health services into the 4 school-based health centers operated by the Division. In addition, she planned and managed the Division's educational programs for trainees at all levels, as well as for faculty at Duke and across the US regarding community-engaged service and research. She served as the founding Program Director for Duke's Master of Health Sciences in Clinical Leadership, the Community Health Leadership Program, the Community Health Fellowship, and course director for the Community Health Elective in the School of Medicine.

In 2008, Ms. Lyn was appointed Associate Director of the Duke Center for Community Research of the Duke Translational Medicine Institute where she directs a team of faculty and professional staff in the research, educational and liaison activities of the Center. She serves on the Operational Leadership Team for the Durham Health Innovations initiative, which plans innovative Durham-Duke partnered approaches to improving health in Durham County.

**Barbara Gregory, MPH, MA** is the Community Data Librarian with DCCR and will serve as the Project Director. Ms Gregory will provide the day-to-day supervision, assessment and planning for the project and of project staff to ensure compliance with the project aims. Ms. Gregory will also serve as a liaison among partnering academic institutions and community agencies participating in the project to ensure sustained collaboration. She has been employed at Duke Department of Community and Family Medicine for over 10 years. She has been the Conference Project Manager for the 2009 and 2010 national Community Engagement conferences funded through a 5 year NCCR-NIH grant. In that role she coordinates all major aspects of planning and on-site logistics including overseeing details on-site during the 2-day conference. She has over 15 years of experience in quality improvement and community health management and since joining the DCCR, She has developed and maintains a virtual library of best practices in community engagement and assists both researchers and community members in the use of such resources and in forging community-engaged research partnerships. In addition, Ms. Gregory participates on the Durham Health Innovation (DHI) project as a co-chair of the Healthy in Place Seniors work group. She is a member of Durham Partnership for Seniors where she serves as a co-chair of a committee.

**Adrienne Leonardelli, MLS** is one of the three outreach librarians conducting consumer feedback and focus groups based in the community. She will take the lead in selecting Web resources for consumers and health professionals, developing models for the portals, participating in evaluation activities, creating curricular materials, teaching educational sessions, identifying computer literacy levels and available Internet access and computer training and assisting with other aims for the project. Ms. Leonardelli's prior experiences with consumer health and outreach projects, as well as teaching health professionals and consumers make her the logical choice for these activities. She has also been involved in selecting Internet resources for consumers and editing pages on the NC HealthInfo consumer health portal. She is based at the Duke Medical Center Library and Archives where she will have support of these activities and be able to tap into the other expertise of the library staff.

**Patricia Thibodeau, MLS, MBA**, is Associate Dean for the Duke Medical Center Library & Archives (MCL&A) and will bring planning, evaluation and organizational skills to the project. She will be involved in assessment and planning activities for the grant, assist in reviewing and developing the Web portals and training materials, and help teach train the trainer classes as needed. As associate dean of MCL&A she will also make the additional skills and resources available within the library available to the project. Ms. Thibodeau has successfully planned and implemented other grant and special projects, and has extensive experience in outreach activities after serving the health agencies in a 16-county region in western North Carolina. In addition to this experience she has been working on the steering committee and editorial group for the statewide NC HealthInfo Web site project and has developed customized Web portals using the LibGuide tool.

**Gabriel Peterson, MS, PhD** is Assistant Professor, School of Library and Information Sciences, NCCU. Dr. Peterson is bilingual in Spanish and English and will serve as the lead for the NCCU School of Library and Information Sciences' partnership in the project and will focus on the development of a Spanish-speaking literacy assessment tool. He has experience working in multicultural environments such New Mexico, South Texas and North Carolina. In 2007 & 2008 he was part of the core research team for the North Carolina Central University Eagles eHealth project, a joint National Library of Medicine (NLM) and United Negro College Fund initiative intended to increase awareness of NLM-sponsored consumer health resources in rural and underserved communities. Prior to joining the faculty of North Carolina Central University, he was employed as a research associate at the University of Missouri's J. Otto Lottes Health Sciences Library. In that position, he assisted with the NLM's Missouri GoLocal Project, whose purpose was to produce an information service directing residents of Missouri to regionally available health resources and services.

**Virginia Purefoy Jones, M.L.S.** is a Librarian/Adjunct Professor at the School of Library and Information Sciences Library, NCCU where she has been employed since 1993. On this project Ms. Jones will serve as one of the three outreach librarians conducting consumer feedback and focus groups based in the community. Ms

Jones is an experienced instructor and has taught several courses at NCCU including “Organization of Information” and “Selection and Use of Information Sources”.

**Sharon Elliott-Bynum, RN, PhD**, is the Executive Director, Healing with CAARE, Inc. Dr. Elliot-Bynum has a broad background in HIV Testing, Substance Abuse, Health Education and Prevention, Non Traditional Outreach in a community based setting including broad background in Nursing, and Research from Pediatrics to Geriatrics making her role as the Executive Director of CAARE, the community base for the project key to its success. She participates in several community based participatory research projects and is a member of the AAHIP research team. She has successfully collaborated with other health care professionals, community members, academia, and researchers on numerous projects.

**Mina Silberberg, PhD** is the Director of Research and Evaluation for the Duke Division of Community Health, a faculty member in the Duke Center for Community Research, and co-Principal Investigator for AAHIP. She will serve as the primary liaison between the Durham Health Resources Project and AAHIP.

**Cindy Olney, PhD** of C.O. Evaluation Consulting LLC will serve as the external evaluator, providing assistance with instrument design for assessing consumer feedback; assessing sustainability strategies beyond the duration of project funding; and assisting in determining usage statistics and providing summary reports for each year of the project culminating in a publishable final project report at the completion of Year 3.

#### *Dissemination*

Information about the project will be disseminated through the existing communication channels that the partners have established with community-based agencies via email, newsletters, etc. The project will also be promoted through press releases through local newspapers, including those that target minority populations within the Durham community. A final report will be generated that describes the model, how it was developed, and the lessons learned. That report and all evaluation tools, training materials, online tutorials, and other related materials will be publicly available through the MCL&A Web site as well as project portals. Other projects will be able to adapt and revise the tools to meet their own community needs. The project team will contact the developers of other consumer and health provider Web sites within the state, such as NC HealthInfo and the NC AHEC Digital Library, to offer the opportunity to link to the portals developed by this project. Finally, we will disseminate our model and lessons learned through professional meetings and publications.

#### *Future Support*

The project partners will develop a plan to ensure that trainers, training resources, and portals are continued past the project. MCL&A already provides public access to a number of tutorials and online training materials and will provide the necessary support for mounting documents and interactive programs. MCL&A will continue to work with the partners in identifying opportunities for training trainers working with consumers and health providers. If the use of LibGuides proves to be valuable and responsive to the needs of the community and the aims of the project, MCL&A will work with partners to develop on-going financial support for this tool. Another possibility to be explored is the integration of these portals into other existing statewide Web resources designed for consumers or health providers.

This proposal builds upon strong partnerships that already exist in the community to serve the needs of the minority population. It pulls together the combined expertise of health literacy and disparities focus that also exists. The project will leverage the health sciences information skills from both university libraries and provide consumer and provider training to meet the stated needs of the community. Being tied into the management of the existing DCCR and DCH partnerships in the community helps ensure the success of the project, its long-term sustainability, and its expansion beyond the initial participants in this project.