BUILDING PATHWAYS TO HEALTH CARE CAREERS FOR THE DEAF AND HARD-OF-HEARING COMMUNITY

Interim Report
Short-Term Recommendations

June, 2011

Acknowledgments

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Executive Summary

Gallaudet University, the National Technical Institute for the Deaf at Rochester Institute of Technology, the National Center on Deaf Health Research at the University of Rochester Medical Center, and Rochester General Health System formed a national *Task Force on Health Care Careers for the Deaf and Hard-of-Hearing Community* in June 2010. The Task Force mission is to provide recommendations that will increase career opportunities for Deaf and Hard-of-Hearing (D/HH) individuals in health care professions. Such professions include those positions typically requiring associate degree level training through those requiring graduate and professional education in a variety of health care fields (including medical and pharmacological technologies, clinical care, research, administrative and IT support). The Task Force was created in response to a national demand for more skilled health care professionals, a need to improve the quality of health care services for underserved citizens who are D/HH, and an ac-

knowledgment of the significant employment barriers that exist for qualified D/HH individuals in the health care industry. The Task Force also supports and furthers current Department of Labor goals that focus on increasing employment and career advancement opportunities for all workers and professionals with disabilities.

This Interim Report describes short-term recommendations that can be initiated immediately to expand opportunities for D/HH individuals within the health care field, laying the groundwork for long-term recommendations that will be made in the Task Force's culminating White Paper, due in March 2012. In operational terms, the Task Force defines short-term recommendations as those that can be implemented and accomplished over the course of the next 12 months by some combination of the founding institutions, along with national partners as appropriate, using existing institutional funds.

The Task Force urges the founding institutions to take the lead in implementing short-term recommendations in the following five areas:

Develop and implement a coordinated plan of information dissemination regarding health care careers and needed academic preparation for D/HH students and their parents, educators and other professionals working with D/HH individuals, gatekeepers in educational institutions, and health care employers. This should be undertaken in collaboration with other national partners such as K-12 schools, postsecondary institutions, and employers. The founding institutions need to establish and maintain a comprehensive Internet presence and public relations campaign that provides information about health care fields, including available mentoring/shadowing opportunities, success stories of D/HH health care professionals, information on accessibility services and technologies specific to health care settings, and career awareness opportunities for middle, high school, and college students.

Enhance educational curricula and training programs to assist D/HH individuals in preparing for and obtaining employment in health care professions. Founding institutions need to incorporate information and activities pertinent to health care fields within enrichment programs currently available at RIT/NTID, Gallaudet, and the University of Rochester for precollege, college, and graduate level students who are D/HH. These institutions should conduct preliminary feasibility analyses and exploratory discussions regarding new inter-institutional and intra-institutional degree programs in health care careers.

Adapt existing employer training programs to address health care organizations' ability to support the success of D/HH employees and ensure that such modified programs are available to a broad spectrum of current and prospective organizations that employ or could employ D/HH health care workers.

Promote improved access services for D/HH individuals within school and workplace settings by supporting the identification and development of best practices with respect to specialized interpreting for D/HH individuals in health care fields and the increasing array of available technological applications. This includes providing technical assistance and consulting for individuals and organizations seeking information about access services within the context of health care preparation and employment.

Initiate contact with relevant local, state, and federal agencies to inform them about the Task Force goals and recommendations and, as appropriate, ensure that the language of "eligibility criteria" for specific funding opportunities relevant to Task Force recommendations is inclusive of D/HH individuals and the institutions that serve them. Representatives of the founding institutions also need to explore how legislators might help with resources to expand upon those short-term recommendations having the most promise. It also is recommended that the founding institutions create an ongoing inter-institutional model for supporting a Sponsored Research/Policy Development Committee characterized by strong collaboration and central leadership.

Introduction

The United States recently completed a national reform of health care whose aim is to broaden the country's health care system. A major challenge in enacting this reform is the critical shortage of health care specialists at all levels to care for the citizens of our nation (Bureau of Labor Statistics, 2010). Health care is a significant component of the national economy and is expected to grow, even in challenging economic times.

Projections indicate numerous job openings in all health care employment sectors as a result of industry expansion, the need to replace workers who retire or leave their jobs for other reasons, and the insufficient workforce to fill projected job openings (Bureau of Labor Statistics, 2010). The health care industry will generate 3.2 million new jobs between 2008 and 2018, more than any other industry, largely in response to rapid growth in the elderly population. In addition, 10 of the 20 fastest growing occupations are related to health care. The industry is projected to increase 22% through 2018, compared with 11% for all other industries (Bureau of Labor Statistics, 2010).

This growth is due to many factors:

The proportion of the population in older age groups will grow faster between 2008 and 2018 than the total population. As a result, demand for health care will increase, especially in employment settings specializing in care for the elderly.

Advances in medical technology will continue to improve the survival rate of severely ill and injured patients, who will need extensive therapy and care.

New technologies will enable earlier diagnoses of many diseases, increasing the ability to treat conditions that previously were not treatable.

Industry growth will occur as a result of the shift from inpatient to less expensive outpatient and home health care because of improvements in diagnostic tests and surgical procedures, along with patients' desires to be treated at home. The growth of telemedicine also will increase the number of patients cared for at home.

Within the health care industry, from 2008 through 2018, total employment of specific occupations, including positions requiring associate degree level training through positions requiring graduate and professional education in a variety of fields, such as medical and pharmacological technologies, clinical care, research, administrative and IT support within health care settings, is projected to increase. For example, home health aides are projected to increase by 50%, medical scientists by 40%, physicians' assistants by 39%, biochemists and biophysicists by 37%, dental assistants by

36%, medical assistants by 34%, physical therapy assistants by 33%, pharmacy technicians by 31%, registered nurses by 22%, and physicians and surgeons by 22% (Bureau of Labor Statistics, 2010).
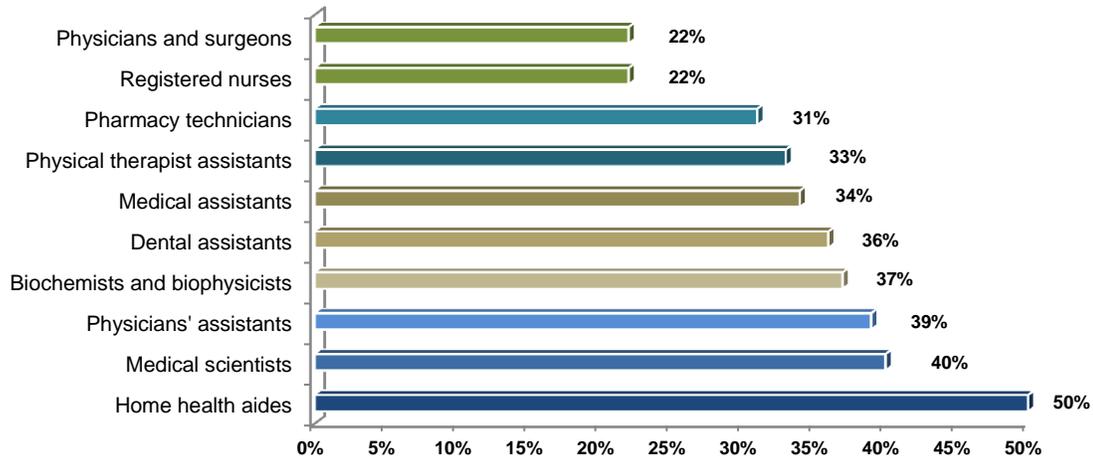
Health Care Positions: Projected Increases

The current critical shortage of health care workers coincides with a much lesser known, but related problem: the limited opportunities for qualified D/HH individuals in this country to pursue careers in health care. These limitations stem from a variety of sources, including attitudes by the general population that lead to lowered career expectations for D/HH individuals; the perception of prohibitive communication barriers for persons who are D/HH (e.g., Buchanan, 1999; Szymanski, 2010); and the self-limiting career perceptions held by some D/HH individuals about employment opportunities within health care. There also is a lack of academic readiness on the part of many D/HH individuals, particularly related to English literacy and preparation in Science, Technology, Engineering, Mathematics (STEM) and related disciplines (Walter, 2010).

A Commitment to Address These Challenges

The National Technical Institute for the Deaf at Rochester Institute of Technology (RIT/NTID), Gallaudet University, the National Center on Deaf Health Research (NCDHR) at the University of Rochester Medical Center (URMC), and Rochester General Health System (RGHS) established a *Task Force on Health Care Careers for the Deaf and Hard-of-Hearing Community* in June 2010. The Task Force also includes representatives from other institutions across the country, emphasizing the national scope of the issues and the work needing to be done.

The goal of the Task Force is to provide recommendations that will increase opportunities for D/HH individuals to enter and succeed in health care fields (see *Appendix I* for the Task Force Charge). Each addi-

tional nurse, hospital administrator, home care aide, physician, medical IT system administrator, lab technician, or mental health counselor who is D/HH not only helps respond to the growing national need for skilled health care professionals, but also helps to ensure that clinical practices and procedures throughout the health care system are as responsive as possible to the diverse needs and preferences of D/HH patients and clients.

This is critical considering that the limited information on the overall health status of approximately 35 million D/HH individuals (Mitchell, 2005) reveals disparities compared to the general population. Deaf adults report poorer health, and are less likely to receive health care services (Barnett & Franks, 2002). In one study, deaf adults found emergency departments more accessible than primary care services (Steinberg, et al., 2006), possibly due to the availability of interpreter services. Barnett and Franks (1999) linked National Health Interview Survey data with the National Death Index to identify increased mortality in deaf adults. The reasons for these disparities are complex, but language barriers creating low health literacy among deaf individuals likely play a prominent role (Margellos-Anast, Estarziau, & Kaufman, 2006; Pollard & Barnett, 2009). A recent Behavioral Risk Factors Surveillance System Survey of a population sample from Monroe County in New York State showed that deaf individuals were significantly more likely to be obese. Deaf individuals also appear to have higher risks for high cholesterol, pre-diabetes, or heart disease, regardless of educational status (Barnett et al., in press).

Increasing the numbers of qualified D/HH health care workers also has an important economic benefit. A longitudinal analysis of alumni from RIT/NTID shows that students in all majors, including those related to health care careers, graduating at the baccalaureate level earn substantially more throughout their careers than those graduating at the associate level; and those at the associate level earn substantially more than those who matriculate but do not graduate. Further, the higher the degree level of the graduate, the less chance there will be of an ongoing dependence on Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) (NTID Annual Report, 2010). We can assume, therefore, that, in terms of increased tax revenue and lower SSI/SSDI support, educational interventions resulting in more D/HH students graduating in health care fields at the associate degree level and beyond result in progressively higher rates of "return-on-investment" for those governmental funding sources supporting such interventions (Schley, Walter, Weathers, Hemmiter, Hennessey & Burkhauser, 2011).

In addition to these economic factors, another fundamental motivation for this Task Force initiative comes from our national commitment to the issues of social justice and equal opportunity. Deeply rooted in our American ethos is an affirmation of society's collective role in providing individual citizens, without discrimination based on personal background or individual characteristics, the opportunity to develop both their full potential as well as their full capacity to contribute to society. In putting forth the recommendations that follow, the

Task Force views itself as acting on this ethos.

Finally, the inclusion of more D/HH individuals in health care careers will have a significant impact on ALL health care workers. For example, technological innovations in the area of communication options for persons who are D/HH likely will benefit all health care workers. Positive attitudes toward D/HH employees will foster a more open and respectful workplace for health care workers representing other diverse backgrounds. In pursuing its charge and formulating its recommendations, the Task Force builds on this collective richness that individual diversity can engender.

Task Force Action Plan

The Task Force defines short-term recommendations as those that can be implemented by means of collaboration among the founding institutions, in association with national partners as appropriate, over the next 12 months by reallocating existing institutional funds.

Short-term recommendations fall into five areas:

(1) information dissemination; (2) education and training; (3) employer awareness; (4) accessibility strategies, including technological innovations, to accommodate D/HH individuals in educational programs and those employed in the health care professions; and (5) efforts related to external funding, governmental relations, and sponsored research/policy development. These recommendations will lay the groundwork for the culminating long-term recommendations to be published in the final White Paper.

(1) Information dissemination	(2) Education and training	(3) Employer awareness	(4) Accessibility strategies	(5) Funding/ Government Relations and Research/Policy Development

Short-term Recommendation Categories

This report is directed to the Task Force's founding institutions, which are the primary agents for implementing these recommendations using their existing resources. It is expected that they will work collaboratively in undertaking such implementation, and, as needed, will form national partnerships with other institutions and organizations in realizing optimal success. Finally, in taking up the challenge of increasing the number and advancement of D/HH individuals in health care career fields, the Task Force

acknowledges the ongoing commitment by educational institutions and employers throughout the country in furthering this cause, in accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, amended in 2008. The recommendations noted herein are intended to further support and advance these efforts.

Task Force Activities

The Task Force for Health Care Careers for the Deaf and Hard-of-Hearing Community held its first meeting September 11, 2010, at Gallaudet University in Washington, D.C. Subsequent meetings were held November 4 – 5, 2010, at the National Technical Institute for the Deaf at Rochester Institute of Technology in Rochester, N.Y.; January 25 – 26, 2011, at Gallaudet University; March 10 – 11, 2011, in Rochester; and June 8, 2011 at Gallaudet University.

These meetings focused on the following activities:

1. Review of the academic and occupational demographics of the deaf and hard-of-hearing population as they relate to the health care fields, and

2. Collection of information from three focus groups and 49 individuals interviews, and significant commentaries from various constituencies regarding the following issues: barriers to communication in educational settings and the workplace; accommodations that have been made to meet these communication needs (including access technologies); instructional and professional development strategies for enhancing the learning of D/HH individuals; assumptions and practices of individuals who serve as gatekeepers to admission to education and employment; the need for robust academic skills among D/HH students; effective "academic pipelines" leading to health care careers; and issues related to existing assessment and credentialing policies that restrict access of individuals who are D/HH.

Based on these activities, the Task Force focused on the following action areas:

I.   Maximizing Information Dissemination

II. Enhancing Educational Curricula and Training Programs

III. Creating Employer Awareness

IV. Promoting Accessibility and Technological Solutions

V.   Investigating External Funding, Cultivating Governmental Relations, and Creating Programs of Sponsored Research and Policy Development

Each of these topics is addressed in the next section of this report.

I. Maximizing Information Dissemination

Findings

The paucity of information available to D/HH students, their parents, educators, academic advisors, vocational rehabilitation personnel, educational institutions, licensing boards, professional testing services, and employers in the health care industry was repeatedly cited as an area that needs to be addressed in order to increase the numbers of D/HH individuals in health care fields.

The lack of information awareness has several causes:

1. D/HH students typically are not aware of career possibilities in health care fields. They generally have not had opportunities to work in health care as volunteers, interns, or emergency services workers, nor have they had opportunities to shadow and be mentored by professionals in health care fields. Many are unaware of the few D/HH individuals who are currently employed in health care fields. As a result, opportunities for role modeling and/or mentoring are limited.

2. Many D/HH students (and their parents as well as academic advisors) view health care careers from the limited perspective of nurses and doctors. Few are aware of the many other roles D/HH individuals can and do play in the health care field, nor do they know of the diverse professional, technical, managerial, human services, and supportive job opportunities in the broad health care sector.

3. Secondary and postsecondary educational preparation in the health care fields requires specialized curricula and equipment, as well as prerequisite knowledge and skills in STEM-related disciplines. Among D/HH students entering college, about the same percentage have taken calculus in high school as their hearing peers. However, fewer D/HH students have taken advanced mathematics courses. This difference probably places D/HH college freshmen who have not taken advanced mathematics in high school at an academic disadvantage in pursuing STEM-related fields, including health care professions, especially in courses where basic mathematics skills are required (Walter, 2010). D/HH students and their parents, teachers and academic advisors need to recognize the importance of such secondary school preparation in laying the groundwork for health care career possibilities.

4. Many health care industry employers of D/HH individuals have limited experience and training in providing communication access services, as well as developing and implementing professional development strategies for ongoing learning and advancement. There is limited information regarding the unique nature and role of the specialized interpreter in

health care settings needed to support D/HH individuals, especially physicians, nurses, physician's assistants, etc. Additionally, employers are often unaware of available creative technology solutions, such as C-Print®; CART (real-time captioning); voice recognition software; Video Relay Services (VRS), which is direct video communication between users of sign language and sign language interpreters at relay centers; telecommunications relay services (TRS), which enable multiple types of telecommunication venues, including relay services between text telephones and voice relay operators); Internet Protocol (IP) Relay; CapTel (based on receiving voice communication and sending text communication); Adobe Connect; and Skype, as well as various social networking devices. This lack of information about access and technological solutions on the part of employers limits the possibilities for D/HH individuals in the health care industry.

Given the need for increasing the number and career success of qualified D/HH health care professionals, it is critically important to inform D/HH students, those who serve them, and potential employers about the opportunities, challenges, and strategies for success in health care fields.

Recommendations

The Task Force recommends that the founding institutions develop and implement a coordinated plan of information dissemination using existing institutional resources, in collaboration as needed with national partners such as K-12 schools, postsecondary institutions, and employers. Of critical importance are the following action steps:

A. Establish and maintain a comprehensive Internet presence that can serve D/HH students and their parents, educators, and other professionals working with D/HH individuals, gatekeepers in educational institutions, and health care employers. This site would provide access to information about health care careers for individuals who are D/HH as well as technology that facilitates access and accommodation in health care fields. It is suggested that, at minimum, the following information be disseminated:

❖ **Educational Information**

1. Kinds of jobs available in health care

2. The future job outlook in health care fields, including the top 50 growing health care fields

3. Educational opportunities for individuals interested in the health care field, including pre-college, college, and post-college programs

4. Types of academic preparation and training needed to become a health care professional

5. Personal qualities needed to succeed in health care

6. Sources of information on health care careers, including other websites, books, videos, reports, etc.

7. Mentoring/shadowing opportunities needed by D/HH students and ways in which to access such opportunities

8. Success stories of D/HH health care professionals that focus on their motivation, academic preparation, the barriers faced during their education and employment, and how accommodations have helped make them successful professionals

9. Curricular standards and successful instructional approaches in STEM disciplines and English literacy that maintain high academic standards while enabling D/HH learners at the postsecondary level in full inclusion settings to succeed in health care careers. Project Access, which was developed at RIT/NTID, is one prototype that can be used for sharing this type of information.

❖ **Access Information for Students, Educators, Professionals, Gatekeepers, and Employers**

1. Information on accessibility services and technologies, such as assistive devices used by professionals in health care fields (for example, visual and amplified stethoscopes, clear surgical masks, visual notification systems, noise filtering, lighting solutions, etc.)

2. Information on existing technologies used for access, such as Video Remote Interpreting (VRI), Computer Assisted Real-time Translation (CART), TypeWell, C-Print®, FM technology, Induction and Bluetooth systems, Video Relay Service (VRS), hearing aids, cochlear implant technology, speech recognition (Dragon, etc.), interactive whiteboards, and student response systems

3. Sources of specialized information on access and technology for D/HH individuals in health care fields, including other websites, books, videos, reports, etc.

4. Information on specialized interpreting for health care professionals, including specialized training programs and links to appropriate websites

5. Information on employer training programs (culled from expertise already existing at Gallaudet and RIT/NTID) as well as web-based resources for employers within the health care industry

B. Develop and implement a public relations campaign directed toward parents, guidance counselors, academic advisors, regional centers on deafness, vocational training schools specializing in health care career training, community colleges with D/HH students, and other institutions serving the needs of D/HH individuals. This campaign would promote health care careers for D/HH secondary and postsecondary students to attract interest and answer questions about opportunities for D/HH individuals in health care professions. It would complement the Internet presence and reach audiences through more traditional products (brochures, posters, mailings, public service announcements, articles on success stories, etc.).

C. Develop opportunities for D/HH students to explore various careers in health care. In addition to stimulating interest in health care careers, these opportunities also could address the issue of being D/HH in a mostly hearing workplace environment. Examples of such activities are:

1. Developing accessible career awareness materials for middle and high school students related to health care careers that can be used by classroom teachers

2. Creating a network list of health professionals – both hearing and D/HH – who are willing to let D/HH students shadow them as a way of gaining experience and training in health care careers

3. Developing an optimal accommodation video, DVD, or webinar to help D/HH students know what is available for D/HH health care professionals regarding accessibility and technology that enable a D/HH student to pursue a health care career

4. Sponsoring a "speaker's bureau" at Gallaudet and RIT/NTID to showcase the need for more D/HH individuals in health care fields, emphasizing the benefits to the deaf community and the general society of this workforce issue

D. In disseminating the information listed above (A-C), collaborate with key organizations, e.g., PEPNet, National Association of the Deaf, Alexander Graham Bell Association for the Deaf and Hard of Hearing, American Society for Deaf Children, Hands and Voices, Association of Medical Professionals with Hearing Loss, Hearing Loss Association of America, Association of Late Deafened Adults, and Conference of Educational Administrators of Schools and Programs for the Deaf, as well as medical, educational, testing, training, and certification organizations, including not only national but also state and local organizations.

II. Enhancing Educational Curricula and Training Programs

Findings

Academic programs that prepare individuals for careers in health care are rigorous and require a high degree of skill in English, mathematics, and science. Currently, 76% of D/HH high school students score below the 25th percentile on a standardized test of reading comprehension, while 71% score below the 25th percentile on a standardized test of science, and 58% score below the 50th percentile in mathematics (National Longitudinal Transition Study - 2, 2005). For D/HH students in particular, the situation is even more extreme considering their difficulties in gaining access to challenging educational environments (Walter, 2010). Overall, college graduation rates for D/HH individuals tend to be lower than the 50% national average (Kuh, Kinzie, Schuh, & Whitt, 2010). The need for improved rigor in educational curricula is apparent.

While there is considerable literature available that describes and evaluates pipeline programs to encourage minority and disadvantaged youth to enter health care professions (Smith, Nsiah-Kumi, Jones, & Pamies, 2009; U.S. Department of Health and Human Services, 2009; U.S. Department of Health and Human Services, 2006), virtually no literature is available on such programs for individuals who are D/HH.

A comprehensive review of studies evaluating various pipeline programs designed to increase the numbers of minority students entering the health fields is reported in *Pipeline Programs to Improve Racial and Ethnic Diversity* (U.S. Department of Health and Human Services, 2009). This report summarizes a number of model programs that focus on early intervention (during secondary school) to attract youth from disadvantaged backgrounds to enter health care fields (Bediako, McDermott, Bleich, & Colliver, 1996; The City College of The City University of New York, 2008; University of California San Francisco at Fresno, 2010). The goal of these programs generally is to enhance students' academic achievements as measured by short-term outcome measures such as grade point averages, SAT scores, and scores on standardized tests of language. In addition, they generally support increased motivation to graduate from high school and matriculate in college, and hopefully stimulate greater interest in STEM-related areas.

Other pipeline programs focus on success while in college (Biology Undergraduate Scholars Program, (University of California Davis, 2010); Summer Medical and Dental Education Program, 1998; Health Connection Opportunity Program, (San Diego State University, 2010); Premedical Honors College (University of Texas-Pan American, 2010). These programs generally stress achievement in mathematics and sciences; experience in the health care professions such as internships and cooperative work

experiences; and social interactions with others seeking to enter the professions. Most of these programs seek to improve the participants' probability of being accepted to graduate health profession schools. A well-articulated and comprehensive program conducted in partnership between a medical school/allied health training program and a university college program has been shown to significantly increase the number of disadvantaged students matriculating into medical school and allied health disciplines such as public health programs, psycholo-gy, and medical technology (U.S. Department of Health and Human Services, 2009).

Evaluation of programs such as those referenced above suggest positive outcomes can be achieved for minority and underrepresented groups in gaining entrance to and graduating from health care training programs. These studies provide suggestions for programming that can be viable both in the short-term and long-term for individuals who are D/HH.

Recommendations

The Task Force recommends that the founding institutions lead a coordinated plan of pre-college, college, and post-college enrichment activities focused on health care career training and educational opportunities for D/HH students. This would include emphasizing access to health care career resources and programs in already existing institutional programmatic efforts as well as creating new activities and opportunities that would support increasing numbers of D/HH students entering health care fields. Outreach to national partners also could increase the numbers of D/HH pre-college, college, and post-college students participating in health-related experiences. The recommended initiatives are delineated below.

A. Expand and enhance academic opportunities for **pre-college** D/HH students to engage in health-related activities that could lead to increased numbers of these students entering the health fields.

1. Collaborate with NTID's Explore Your Future, University of Arkansas' iTransition College Camp, Gallaudet University's high school recruitment activities, and other enrichment/summer programs offered nationally for D/HH pre-college students to add a component that focuses on health care careers, including job prospects, academic readiness, and success stories of D/HH health care providers.

2. Collaborate with RIT's Biomedical Career Day and Mash Camp, Rochester Health System's New Vision Medical Careers and School-to-Work Youth Apprenticeship Program, the University of Rochester's Science and Technology Entry Program

(STEP) for high school students, and other national partners as appropriate to include D/HH pre-college students in their recruitment efforts.

3. Sponsor an Annual Symposium and/or "career weekend" on Biomedical and Allied Health Careers for D/HH high school students (Gallaudet and RIT/NTID). The symposium and/or weekend could offer workshops, panel discussions, and poster sessions with D/HH professionals in health care fields to learn about careers, accessibility strategies, and programs of study for participants.

4. Collaborate, on a pilot basis, with RIT/NTID's Project Fast Forward, which offers dual credit courses to high school students in various computer applications. This model could be adapted for the purpose of strengthening science and math skills within the context of preparation for health care majors.

5. Collaborate with the National Association of the Deaf and its Youth Leadership Camp to add a health care career leadership training track.

B. Expand opportunities for students already in the **college** pipeline to enter into and succeed in health-related majors. This can be accomplished in the short-term through articulation and collaboration efforts among existing programs throughout the founding institutions in the following ways:

1. Develop job shadowing, mentoring, and internship opportunities with D/HH or other health care providers for college health care majors at various health care sites within the vicinities of Gallaudet University, RIT/NTID, the University of Rochester Medical Center, Rochester General Health System, the University of California San Diego, University of Arkansas, and other national partners as appropriate.

2. Establish a Health Care Careers designated presence at Gallaudet University and RIT/NTID that serves as a clearinghouse and mentoring/advising center for D/HH health care majors and provides information to academic advisors and relevant departments on opportunities in health care careers.

3. Create a Health Care Careers Scholars Program as a special component of already existing support services offered by Gallaudet and RIT/NTID, which would provide additional academic support, social support, and mentoring opportunities for D/HH students pursuing health-related majors, with particular attention to the freshman and sophomore "gatekeeper" courses.

4. Collaborate (NTID) with the academic leaders of the newly established Institute of Health Sciences and Technology (IHST) at RIT to assure a "deaf friendly" environment for qualified D/HH students wishing to major in health-related fields and partner with IHST units on new initiatives that would increase the numbers of D/HH students training for health care careers.

5. Collaborate with University of Rochester Academic Leaders to increase the numbers of D/HH students in the Summer Research Fellowship Program (SURF). SURF is an eight-week academic program designed to strengthen the science, clinical, and research skills of selected college students to enhance their competitiveness for careers in medicine and the biomedical sciences.

6. Collaborate with Project Access, an RIT/NTID initiative to promote inclusive instruction for D/HH students in mainstream postsecondary settings, to implement an application of Project Access for D/HH students in health care majors at the University of Rochester and University of California San Diego.

7. Complete preliminary program feasibility analyses by January 1, 2012, regarding the following areas:

    a. The establishment of inter-institutional curricular and degree articulations among ***existing*** programs in health care careers. In conducting these feasibility analyses, the four partnering institutions should consider as well the involvement of the other institutions represented on the Task Force.

    b. The establishment of ***new*** programs in health care careers, both inter-institutionally and intra-institutionally. For example, what is the feasibility of a new joint Gallaudet/RIT bachelor's degree in a health-related field following the model of the recent UR/RIT joint master's program in Health Informatics? Examples of such an initiative would be a joint bachelor's degree in Social Work specializing in health care settings, or a joint bachelor' program in Biomedical Science. Other examples include a new associate degree program at NTID in Physical Therapy Assistant or Medical Assistant, new transferable NTID and Gallaudet A.S. degree programs in Health Sciences that articulate with bachelor level programs offered by RIT in Biomedical Sciences; and a new R.N. program at Gallaudet that articulates with advanced nursing degrees at the University of Rochester Medical Center. In conducting such feasibility analyses, the four partnering institutions should consider as well the involvement of the other institutions represented on the Task Force.

8. Complete exploratory discussions by January 1, 2012 with regional community colleges, including the Gallaudet University regional centers, regarding the establishment of joint associate degree programs and associate/baccalaureate transfer degree programs serving D/HH students in high demand health care career fields.

9. Complete exploratory discussions by January 1, 2012, regarding the establishment of a jointly sponsored Consortium Center of Excellence in Health Care Education resulting in various exit points for D/HH students. This Consortium could at minimum include Gallaudet University, RIT/NTID, the University of Rochester, Rochester General Health System, and other national partners represented by members of the Task Force. Such an initiative would build on the initiatives listed above, as well as incorporate "pipeline partners" with select high schools throughout the country.

Such a Consortium Center of Excellence could include:

- Career awareness and academic skills development related to health care careers for middle school and high school students at summer academies conducted throughout the country

- Associate level training at NTID (A.A.S. in Physical Therapy or Medical Assistant); at Monroe Community College (A.A.S. in Nursing, Radiology Technology, Dental Hygiene, Health Information Technology/Medical Records, Biotechnology); at Rochester General Health System (L.P.N. and Medical Records)

- Associate level training at Gallaudet and Montgomery College (A.S. in Biotechnology, Medical Coder/Abstractor/Biller, Nursing, Physical Therapy Assistant, Pre-Pharmacy, Radiology Technology, Nursing; other possible sites for collaboration include Northern Virginia Community College and Howard Community College

- Bachelor's level training at RIT (B.S. in Biomedical Sciences, Bioinformatics, Biomedical Engineering, Biotechnology, Diagnostic Medical Sonography, Physician Assistant, Psychology, pre-med, etc.); at Gallaudet (B.S. in Social Work, Psychology, pre-med, etc.); at Nazareth (B.S. in Communication Sciences and Disorders, Occupational Therapy, Nursing); and at the University of Rochester (B.S. in Nursing, B.A. in Bioethics, Epidemiology, Health Policy)

- Professional level training at the University of Rochester (M.D., M.D./Ph.D. in the School of Medicine and Dentistry, M.D./M.S. in Medical Education and Medical Neurobiology, M.D./M.P.H. in Medical Education and Master of Pub-

lic Health, M.D./M.B.A. in Medical Education and Master of Business Administration, Ph.D. in Psychology); at Gallaudet University (M.S.W.in Social Work, M.A. in Mental Health Counseling, Ph.D. in Clinical Psychology, Au.D. in Audiology, Ph.D. in Audiology); at Rochester Institute of Technology (M.S. in Bioinformatics, Health Systems Administration, Physician Assistant); at St. John Fisher College (Pharm.D in Pharmacy); at New York Chiropractic College (Doctor of Chiropractice, M.S.D.I.); at Nazareth College (M.S. in Occupational Therapy, B.S./D.P.T. in Physical Therapy, D.P.T. in Physical Therapy).

C. Coordinate **post-college** enrichment opportunities for D/HH college graduates desiring to enter health care fields through the following:

1. In collaboration with regional and national partners, identify mentoring opportunities for new D/HH college graduates with current D/HH health care professionals, including the University of California San Diego's "Eight Week Summer Science Training and Enrichment Program for Graduate Level Science Majors."

2. Collaborate with the University of Rochester in expanding The Deaf Health Pathway. The Pathway provides additional courses, electives, activities, and projects over the four years of medical school for those students with interests in the health, language, and culture of the Deaf community.

3. Collaborate with the American Medical Professionals with Hearing Loss and the Institute on Health Science Outreach Center at RIT, as well as other regional and national partners, to market opportunities in health care fields to D/HH individuals and promote or help implement Task Force recommendations as appropriate.

III. Creating Employer Awareness

Findings

Companies, organizations, and individuals need to appreciate the value of D/HH people who successfully enter the health care professions. Health care organizations, health industry employers, and gatekeepers (people or organizations who provide guidance and/or enable access to career fields) need ongoing training about the D/HH community, the skills and training available within this pool of employees, how access services and technological innovation have lowered the traditional communication barriers, and the overall benefits of having this diverse group of individuals in the health care workplace. Currently, both Gallaudet and RIT/NTID provide employer training in various forms and modalities to support cooperative work experiences and student placement. Additionally, both have Career Centers that assist undergraduate and graduate students in seeking and maintaining employment. While training exists for the current fields that Gallaudet and RIT/NTID provide, more outreach, training, and resources need to be available for D/HH people interested in the wider spectrum of health care fields and for employers within the health care industry.

Recommendations

The Task Force encourages the founding institutions to adapt current employer training programs to focus on improving the capabilities of health care organizations to support the ongoing professional learning and advancement of D/HH individuals. Resources should be reallocated so that such programs could be made available to a broad spectrum of organizations and employers, both current and potential, who employ or could employ D/HH health care workers.

A. Redirect current employer training programs at the partnering institutions to focus on increasing the effectiveness of health care employers in supporting the success of their D/HH employees. Begin efforts to disseminate such employer training programs nationally.

1. Request that resources be reallocated at the National Center on Employment at RIT/NTID and the Gallaudet University Career Center to adapt existing employer training materials for health care organizations and institutions. Request that these centers, together with other partnering institutions, disseminate information on D/HH individuals in the health care workforce, conduct training with selected health care

employers on integrating D/HH employees into the workforce, and showcase D/HH role models in science and health careers, including access and technology solutions used to achieve such integration (i.e., using PEPNet's model of *Achieving Goals!*).

2. Consolidate and formalize the health care career training currently being done by the National Center for Deaf Health Research (NCDHR) and Rochester General Health System (RGHS) that focuses on the needs of D/HH patients and D/HH providers so that this information can be shared nationally. NCDHR and RGHS provide health care training in many fields. Both centers utilize American Sign Language interpreters and various assistive devices to communicate with patients who are D/HH; both have, and have had, D/HH health care providers and residents and fellows in training. This level of expertise and experience needs to be captured and shared with the health care system for potentially increasing the numbers of D/HH health care providers.

B. Begin identifying potential partnerships with the corporate sector of the health and wellness industry (both for-profit and not-for-profit organizations, including pharmaceutical companies, device manufacturers, insurance companies, health care organizations, etc.) to develop employment opportunities for the increased numbers of D/HH individuals who will be trained for the health care industry. Such partners could provide both entry-level positions for graduates of training programs as well as temporary jobs and internships/co-op experiences for students in training.

IV. Promoting Accessibility and Technological Solutions

Findings

In order for D/HH persons to enter the "pipe-line" to educational programs and achieve ongoing career success, they must be able to access information and instructional processes required to achieve desired goals. While access services, especially the use of sign language interpreters, are supported by legislation, several access problems continue to hinder D/HH individuals from entering into and succeeding in health care fields.

Educational institutions and employers have serious concerns about the cost of providing access services, not only for the classroom, but also for off-site learning situations essential to health care-related professions, such as internships in medical care environments, job-related learning and studying activities involving both D/HH and hearing participants, and teamwork on collaborative projects that take place outside the classroom. Task Force focus groups and individual interviews with D/HH students and professionals revealed that many institutions will not admit D/HH students into professional programs or employ D/HH individuals because of the financial burden they incur in providing access services.

D/HH individuals pursuing professional training acknowledge limited availability of quality access services, particularly specialized sign language interpreters. There are practically no training programs for interpreters working with D/HH health care providers. RIT/NTID recently established a new certificate program in Health Care Interpreting that focuses on interpreting for deaf patients in the health care system. This certificate does not address the complex interpreting skills sets needed for interpreting in health care educational programs, for deaf health care workers, and especially for health care professionals. Many health care employers do not understand how to use interpreters and/or relay services, nor do they understand Health Insurance Portability and Accountability Act (HIPAA) guidelines. Many D/HH health care professionals report continuing confusion about the role of third-party interpreters and medical confidentiality despite existing federal guidelines for both areas.

Some technologies have begun to provide solutions to access issues. C-Print® and Computer - Assisted Real Time captioning (CART), voice recognition software, Telecommunications Relay services (TRS), Internet Protocol (IP) Relay, CapTel, and direct video communication between users of sign language and sign language interpreters at relay centers are being utilized by some health care professionals. Remote technologies such as videoconferencing, Adobe Connect, and Skype, as well as various social networking devices, also are be-

coming more prevalent. But many of these newer technologies are still not readily available to D/HH students and professionals. Schools and employers frequently are reticent to pay for technologies that are offered at cost. Many D/HH professionals in the field described how assertive they needed to be on a daily basis in order to achieve the access they need to do their jobs.

An immediate need exists for information dissemination regarding current accessibility services and technologies that can be used by D/HH workers in the health care fields as well as emerging technologies that could remove barriers to communication and work responsibilities that have hindered D/HH individuals from pursuing certain health-related careers. The following short-term recommendations should improve access to health care careers for D/HH persons.

Recommendations

The Task Force recommends that the partnering institutions address the critical issue of access and technological solutions by addressing the need for more qualified specialized interpreters, creating awareness of accessibility options and services, and promoting technological solutions for access needs. Specifically, the Task Force recommends the following action steps:

A. Support the continued growth of specialized interpreting for D/HH health care professionals and students in health care majors. While the new Health Care Interpreting Program launched at RIT/NTID this year is a strong first step in terms of interpreting for deaf patients in medical settings, there is a critical need for more highly trained and qualified interpreters to serve the increasing numbers of D/HH students and professionals in the health care fields. Over the next 12 months, the following activities would increase the numbers of such uniquely trained interpreters nationally:

1. Support development and delivery of an online curriculum for specialized interpreters that focuses on professionals and students in health care settings.

2. Identify shadowing opportunities for interpreters in health care settings and other continuing education opportunities in medical areas. Identify interpreters with significant experience in medical fields who are willing to serve as resource persons. Develop a listing of such resources for dissemination nationally.

3. Develop a program for delivering supervision for health care interpreters via the Internet.

4. Share information about the Certificate in Health Care Interpreting Program (for deaf patients) at RIT/NTID with other interpreting programs across the country.

5. Develop guidelines/policies on hiring specialized interpreters in consultation with D/HH health care professionals and interpreters.

6. Collaborate with Rehabilitation Services Administration (RSA), Registry of Interpreters for the Deaf (RID), and health care organizations to emphasize the need and priority for health care interpreting specialization.

7. Connect the Registry of Interpreters for the Deaf (RID) with spoken language interpreting organizations to share experiences and gain insight into job demands and strategies.

8. Publicize and support the ASL STEM Forum. The purpose of this national online community is to bring educators, interpreters, captioners, students, and others together in order to help build American Sign Language's technical vocabulary from the ground up.

B. Create awareness of accessibility services and currently available technological solutions by establishing an information clearinghouse. [This is referred to in the Information Dissemination portion (Section I) of this report as part of the comprehensive Internet presence.]

C. Work with national organizations and partners to promote awareness of technological innovation in delivering access services and create opportunities for replication of best practices.

D. Set up a health care access and communication consulting service that can promote the training of specialized interpreters for health care workers and provide information about current technological solutions in providing access services. This consulting service could house a technology lab where common assistive devices can be tested (i.e. stethoscopes, etc.). A loan program could be considered for D/HH individuals in the health care fields wanting to try different technology solutions. This short-term recommendation sets the foundation for a more comprehensive long-term recommendation that would enable such a consulting service to also work with manufacturers of acoustic instrumentation and advise on issues of "universal design" for prototype equipment.

Note: This Interim Report does not delineate short-term recommendations regarding the issue of funding access services for D/HH individuals in health care majors and careers. Since this issue is complex and not amenable to short-term recommendations, it will be addressed by the Task Force in its final White Paper.

V. Investigating External Funding, Cultivating Governmental Relations, and Creating Programs of Sponsored Research/Policy Development

Findings

Many Task Force recommendations, both short and long term, will require funding and policy support from state and federal governments. In addition, a rigorous and comprehensive research program will be critical in terms of gauging the effectiveness of interventions spearheaded by the partnering institutions and informing future policy development.

While reallocation of existing resources and small pilot funds may be sources of funding for short-term solutions, the founding institutions must immediately investigate federal funding opportunities to support both research and training programs in support of long-term goals. The Task Force recognizes that acquisition of funding is highly competitive, requires diligent advance preparation, and often includes several rounds of applications, reviews, revisions, and re-application.

Recommendations

A. Governmental Relations Specialists at each of the four founding institutions should initiate and maintain contact with local, state, and federal funding agency representatives to determine if the institutions qualify for specific funding opportunities in implementing Task Force recommendations. This coordinated effort must use all available legislative consultation resources. Several of these funding opportunities already have been identified, including the Health Careers Opportunity Program (HCOP), which encourages individuals from disadvantaged backgrounds to pursue education to enter a health profession, and Area Health Education Centers, which consist of academic (e.g., medical school) and community partnerships that provide health career recruitment programs for K-12 students and increase access to health care in medically underserved areas.

Based on Gallaudet University's record of successful funding through the HCOP program, it is clear that the institutions serving D/HH students qualify under the definition of "disadvantaged backgrounds" for this particular funding opportunity. Discussions with other agency heads for other opportunities will provide additional clarity regarding eligibility criteria and additional information about other funding opportunities in support of high priority Task Force recommendations.

The Task Force recognizes the importance of pursuing these contacts immediately. Given the urgency of this initiative in terms of potentially opening up additional streams of grant-based revenue, we urge the founding institutions to begin implementation no later than October 1, 2011. We recommend that the founding institutions, using their legislative consultants and contacts, collaboratively seek assistance from key federal agencies (e.g., Department of Education, Department of Labor, and Department of Health and Human Services) in clarifying the language commonly used in defining eligibility for agency-based grant opportunities. In particular, such commonly used eligibility phrases as "culturally and linguistically disadvantaged background," "cultural and linguistic competency" and "disadvantaged background" need to be amended to include explicit reference to D/HH persons. This will foster greater awareness and access regarding available funding opportunities.

B. In situations where agency heads indicate that the partnering institutions do not qualify for specific funding opportunities due to exclusionary definitions for criteria such as "disadvantaged," "inhibited" or "cultural and linguistic competency," Governmental Relations Specialists at the institutions should devise new wording to make these definitions more inclusive and then approach local, state, and federal legislative representatives for support of a change in agency interpretations of such definitions. This work will pave the way for the submission of applications to these agencies to support both short and long-term recommendations.

C. The Task Force also recommends that the founding institutions establish an ongoing inter-institutional Sponsored Research/Policy Development Committee that focuses on health care careers for D/HH individuals. Examples of sponsored research and policy development stemming from such a Committee include:

- Numbers of D/HH individuals currently in the health care fields, the types of positions held, sites of employment, nature of accommodations used, cost of accommodations, and longitudinal career advancement and economic outcomes that can be used to monitor progress and further educate employers and employees

- Numbers of D/HH students in health care programs at the postsecondary and professional training levels, types of accommodations provided, and graduation outcomes, including identification of institutional barriers and success strategies that can be used by federal and state agencies and individual educational programs

- Innovation/evaluation regarding instructional strategies and access services within health care fields (including both educational and professional development contexts) that can be used subsequently by educational institutions and employers

- International comparison of familial and societal career outcome expectations for D/HH individuals, particularly as related to health care careers, which can be used to inform future policy development at national and international levels.

This Committee should incorporate the two critical dimensions of strong collaboration among the founding institutions in bringing to bear areas of complementary expertise and strong central leadership in setting timely direction and ensuring efficient follow through.

Between now and January 1, 2012, representatives from the founding institutions should determine collectively the inter-institutional model best capturing these two dimensions in establishing the recommended Committee. In addition, these representatives should identify sources of "seed money" in fueling the Committee's preliminary activities.

D. At the same time, in coordinated fashion, Development Officers at the partnering institutions should explore pilot funding from private foundations and individual donors for select short-term Task Force recommendations as designated by the founding institutions. Such preliminary funding would be used to establish a portfolio of successful pilot interventions to be leveraged in securing ongoing funding (private, state, and federal) in support of designated long-term Task Force recommendations.

Conclusion

Deaf and hard-of-hearing individuals have made significant strides over the past 30 years in employment opportunities. They are engineers, educators, scholars, researchers, social workers, psychologists, graphic designers, and health care professionals. But the health care arena continues to be an underrepresented area for D/HH individuals. With the creation of the *Task Force on Health Care Careers for the Deaf and Hard-of-Hearing Community,* this situation can begin to change.

The short-term recommendations outlined in this report emphasize the immediate steps that can jumpstart the process of increasing the numbers of D/HH individuals entering this growing segment of the workforce and pave the way for more long-term and complex recommendations to be developed in the final White Paper. With existing resources and modest reallocations, we can begin to reconcile the disparity that currently exists.

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Appendix I: Task Force Charge

Charge to the Task Force on Health Care Careers for the Deaf and Hard-of-Hearing Community

Our country has just completed a successful effort to broaden and reform our national health care system.

One of the major challenges now facing us in fulfilling the demands of this recently passed legislation is the critical shortage of health care specialists at all levels of training to care for the citizens of our nation.

This challenge coincides with another, much lesser known serious challenge: the limited opportunities for qualified deaf and hard-of-hearing individuals in this country to pursue careers in health care.

Factors underlying this problem include:

❖ Limited educational opportunities

❖ Widely held perceptions among the general population that health care careers are not appropriate for deaf and hard-of-hearing individuals, and

❖ An insufficient number of deaf and hard-of-hearing health care professionals currently "at the table" as insiders to advocate for the needs and promise of people with hearing loss.

In response to this challenge, the following institutions have formed a Task Force on *Health Care Careers for the Deaf and Hard-of-Hearing Community*:

❖ Gallaudet University

❖ The Rochester General Health System

❖ The National Technical Institute for the Deaf at Rochester Institute of Technology

❖ The National Center on Deaf Health Research at the University of Rochester Medical Center.

The Task Force, fueled by this unique partnership, represents an historic national initiative. Its overall aim is to expand opportunities for deaf and hard-of-hearing individuals within health care professions through increased accessibility strategies and options, coordination and development of educational programs, and enabling policy.

The Task Force will address the following three major Guiding Questions over its 18-month timeline:

1. What can be done immediately and in the short-term to expand opportunities for deaf and hard-of-hearing individuals within health care professions? As part of this consideration, what are existing accessibility strategies and options for ensuring communication support and information access both for deaf and hard-of-hearing individuals training to become members of a wide variety of health care professions and for those already in the health care professions? Because of the short-term nature of this guiding question, the Task Force will report on this issue by June 30, 2011.

2. What new educational curricula and training programs, and new articulation agreements among existing curricula and training programs, are needed to expand opportunities for deaf and hard-of-hearing individuals within health care professions?

   a. Within this longer time frame, and with regard to ensuring communication support and information access both for deaf and hard-of-hearing individuals training to become members of the health care professions and for those already in the health care professions, what are emerging accessibility strategies and options?

   b. For both deaf and hard-of-hearing individuals training to become members of the health care professions and for those already in the health care professions, what are effective and efficient strategies and options for ensuring supportive and productive "learning and professional development environments"?

3. What national governmental policies and both private and public funding sources are needed to support expanded opportunities for deaf and hard-of-hearing individuals within health care professions? What are fruitful areas for national and international programs of applied research, technological innovation, and policy studies regarding health care and deafness, with broader implications for disability groups in general?

An Interim Report regarding Guiding Question #1, and culminating White Paper detailing recommendations in response to all three Guiding Questions will be the products of the Task Force, and represent fulfillment of the Task Force Charge. The Interim Report is due by June 30, 2011; the White Paper is due by the end of March 2012.

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Gallaudet University
800 Florida Avenue NE
Washington, DC
http://www.gallaudet.edu/

Rochester General Health System
1425 Portland Avenue
Rochester, NY 14621
http://www.rochestergeneral.org

Rochester Institute of Technology
National Technical Institute for the Deaf
52 Lomb Memorial Drive
Rochester, NY 14623
http://www.ntid.edu

University of Rochester Medical Center
601 Elmwood Avenue

Task Force on Health Care Careers
for the Deaf and Hard-of-Hearing Community

http://www.rit.edu/ntid/hccd