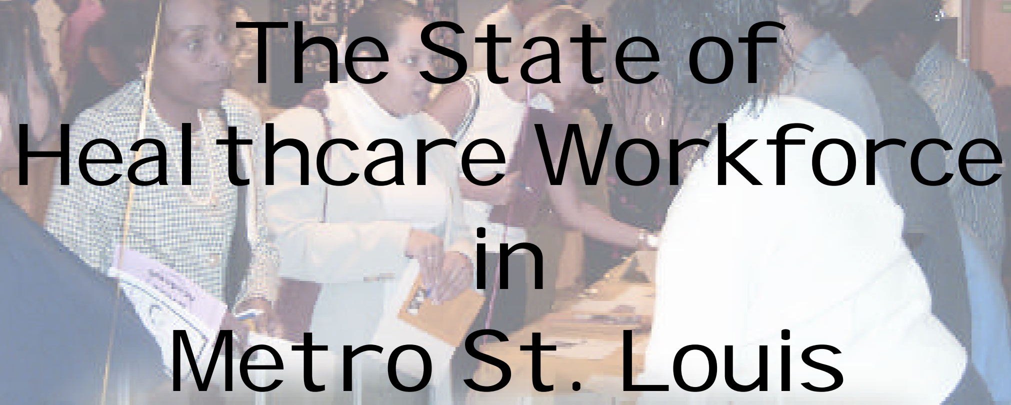
The State of Healthcare Workforce in Metro St. Louis



East-West Gateway Coordinating Council
10 Stadium Plaza
St. Louis, Missouri 63102-1714
314-421-4220
618-274-2750
Fax 314-231-6120
www.ewgateway.org

This report has been prepared as an informational resource for agencies and organizations whose mission is to connect low- and moderate-income job-seekers with good jobs and career advancement opportunities in the St. Louis metropolitan area.

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In addition to this hard-copy format, this report may be viewed online at www.workforcefutures.org and www.ewgateway.org. Other helpful sources of data are also available from these sites.

Table of Contents

Expanding Health System Capacity to Meet the Needs of the Aging Population

- Introduction
- Demands on the Healthcare System
  - Chronic Illness
  - Long-Term Care
  - Differences with the Senior Population
  - Conclusion

Barriers to a Successful Workforce

- Available Education and Employment Resources
- Worker Shortage
- Barriers to Success
  - Aging Workforce
  - Burnout
  - Effects of Managed Care on the Workforce
  - Health Insurance Portability and Accountability Act (HIPPA)
  - Education Shortage
  - Lack of Faculty, Budget Problems, and Lack of Clinical Space
  - Poor Perception of Occupation
  - School Counselors and Gender
  - Work-Supporting Systems Breakdown
  - Standardization and Certification of Training
  - Opportunities for New Americans

Seven Recommendations for Action

- Address Workplace Conditions
- Improve Image
- Market the Profession to Non-Traditional Students
- Encourage Career Ladder Programs
- Standardize Training and Certification
- Strengthen Work Supporting Systems
- Build St. Louis Regional Healthcare System

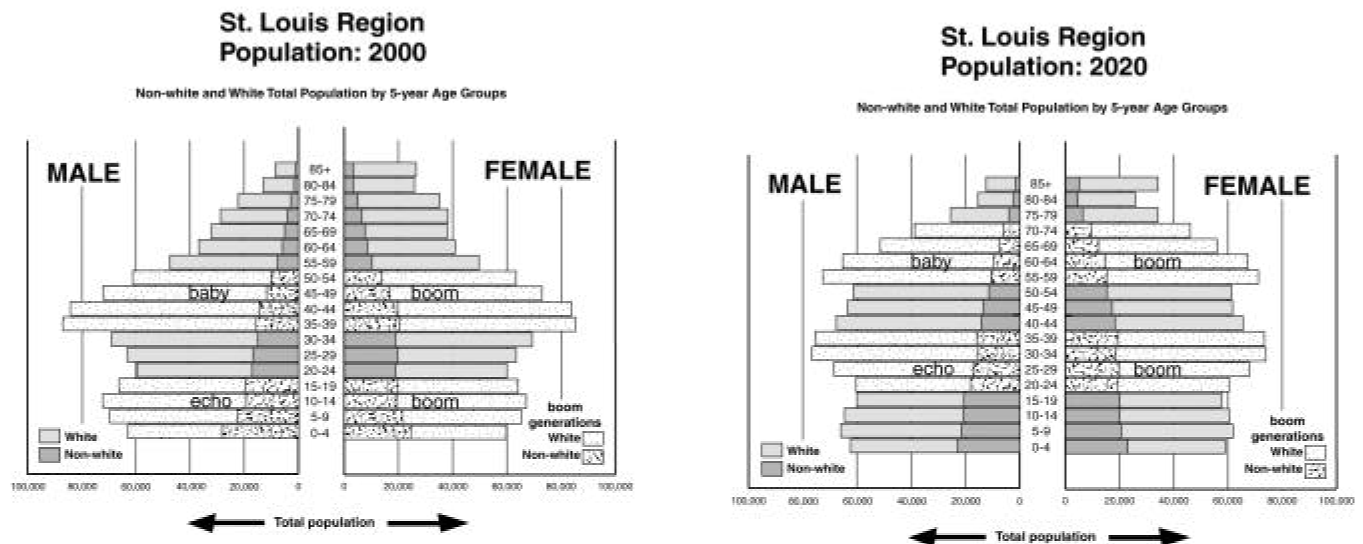
Expanding Health System Capacity to Meet the Needs of the Aging Population

Introduction

Is the St. Louis healthcare system ready for the baby-boomers? Baby-boomers are the disproportionately large cohort of people born between 1946 and 1964 (see Chart I and Graph I). And baby-boomers are aging. The oldest of these turned 57 in 2003. By 2011, baby-boomers will be approaching 65. Fortunately for baby-boomers, in the next 20 years people 65 and older are projected to live longer and thereby becoming a greater percentage of the general population (see Charts II and III).

As people age, they inevitably place a greater demand on the health system. People who live longer might experience chronic illness and other medical conditions that require increased or constant attention. Although new technology is helping people to live longer, it also increases our reliance on medicine, machine and manpower. With the number of baby-boomers expected to become dependent upon healthcare services, their sheer number will amplify the increased demands of performance and service already challenging the healthcare industry. How can the health system adjust to meet these demands?

Chart I: Age Distribution by Gender, 2000 and 2020[1]



[1] Missouri Office of Administration and Illinois State University. Compiled by staff at East-West Gateway Coordinating Council.

Graph I: Live Births, 1935-2000[2]
National Data

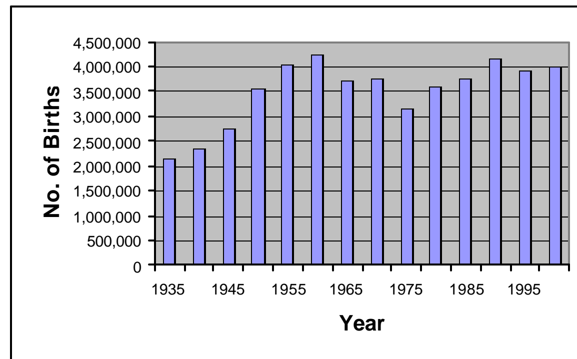


Chart II: Increase in Average Life Expectancy[3]

Year	Age
1930	59.7
1940	62.9
1950	68.2
1960	69.7
1970	70.8
1980	73.7
1990	75.4
2000	77.0

Chart III: Population Projection – Percent of Residents 65 +[4]

Year	St. Louis, MO-IL MSA	National
2000	12.9%	12.6%
2010	12.7%	13.2%
2020	15.7%	16.5%

[2] The second spike on Chart I, approximately 25 years after the first spike, is called the Echo Boom. It represents the time when the baby-boomers had their own children. Source: Division of Vital Statistics, National Center for Health Statistics

[3] National Center for Health Statistics, *National Vital Statistics Reports*, vol. 49, no. 12, Oct. 9, 2001.

[4] East-West Gateway Coordinating Council extrapolated data from U.S. Census Bureau for the population projections.

Demands on Healthcare System

Chronic Illness

As the population ages, doctors will see an increase in the number of chronic diseases such as arthritis, heart disease, cancer, and diabetes. In fact, five of the six leading causes of death among older Americans are chronic diseases.[5] In 1997, the leading cause of death among persons age 65 or older was heart disease (1,832 deaths per 100,000 persons), followed by cancer (1,133 per 100,000), stroke (426 per 100,000), chronic obstructive pulmonary diseases (281 per 100,000), pneumonia and influenza (237 of 100,000), and diabetes (141 of 100,000). Among persons age 85 and older, heart disease was responsible for 40 percent of all deaths.[6]

Chronic diseases like the ones discussed above are long-term illnesses that are rarely cured and require consistent monitoring and care. They become a significant health and financial burden not only for the persons who are unfortunately afflicted by them, but also for their families. Chronic conditions negatively affect quality of life, contributing to declines in functioning and the inability to remain active in the community.

Technology improvements (including medicines and procedures) do allow adults to live longer with these illnesses, but often require extensive assisted care (family or non-family caregiver). The demand for services, such as various levels of assisted living and long-term care will increase as the baby-boom population lives longer. The number of individuals using either nursing facilities, alternative residential care, or home care services is expected to increase from 15 million in 2000 to 27 million in 2050.[7]

Long-term Care

Long-term care is provided in both community and institutional settings. Community settings include board and care homes, adult day care, hospice, group homes, and private homes. Institutional care is provided in privately run nursing homes, assisted living facilities, as well as in-state institutions. In 2000, 13 million Americans received long-term care services in community-based settings, and two million Americans received long-term care services in institutional settings.[8]

The current trend in long-term care is to follow a “continuum of care.” This theory operates on the assumption that the least restrictive care a person can receive is the

[5] “Older Americans 2000: Key Indicators of Well-Being” Federal Interagency Forum on Aging-Related Statistics, 2000.
[6] *Ibid*
[7] “The Future Supply of Long-Term Care Workers in Relation to the Aging Baby Boom Generation,” Department of Health and Human Services’ Office of the Assistant Secretary for Planning and Evaluation (ASPE), May 2003.
[8] National Health Interview Survey, 1994-94

best care. It also encourages the elderly to remain in their homes instead of moving out of their communities and into institutional care. The assistance that they need ranges from someone climbing a ladder to change a light bulb to a home health care worker administering medicine. When it becomes too difficult for the elderly to remain in their homes, many long-term care providers are offering varying levels of assisted living. One person may move into an apartment-style residence that gives them independent living in a setting appropriate for their needs (i.e. easier to reach shelves in their own kitchen). Long-term care providers generally will develop areas of a residence where people may be moved if they require more assistance. These areas will vary in the levels of assistance and independence, but are all still located within the same community.[9]

Differences with the Senior Population

Nationally, more than 34 million Americans, or 12 percent of the U.S. population, is over the age of 65. This population has tripled since 1940 and is expected to double by the year 2050.[10] The Population Resource Center (PRC) points out that persons who reach the age of 65 have a life expectancy of 82.4 years. Older women outnumber older men reflecting the differences by gender in life expectancy.

According to Eldercare and the Population Resource Center, immigration is influencing the age component of minority groups, also. More and more elderly people from Latin America, Asia, and Africa are coming to the US to join their children. Data from the Federal Interagency Forum on Aging-Related Statistics state that different causes of illness and death vary according to sex and race and Hispanic origin. For example, in 1997, diabetes was the third leading cause of death among American Indian and Alaska Native men and women age 65 or older, the fourth leading cause of death among older Hispanic men and women, and ranked sixth among older white men and women and older Asian and Pacific Islander men[11]. The growth of the minority population among the elderly requires increased awareness of the susceptibility or resistance of some populations to certain conditions.

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[9] Data shows that the elderly recover from an injury or surgery faster and avoid depression when they remain in a familiar community.

[10] http://www.healthimaging.org/public_policy/decade_challenge.php

[11] "Older Americans 2000: Key Indicators of Well-Being" Federal Interagency Forum on Aging-Related Statistics, 2000.

Chart IV: Percentage of Minorities in the Elderly Population[12]

	Percent of Elderly Population	
	1995	**2030***
White	89.6	84.7
African-American	8.1	9.9
Asian and Pacific Islanders	2.3	5.3
Hispanics	4.5	11.2

** Projected*

[12] Population Reference Bureau "Americans are Living Longer than Ever," 2002.

Conclusion

The demands on the healthcare system are already high and will increase as baby-boomers age. Thus, the healthcare system must respond in policy and practice in order to anticipate the needs and demands of the growing population of people 65 and older. The changing demographics of this population will bring unique needs related to race, gender and ethnicity not seen before.

One important area where the health system is already feeling the increased demands is the healthcare workforce. Shortages in this workforce are not just inconvenient, they are dangerous. Before the quality of care begins to decline, the issues affecting this shortage must be addressed. We turn to this issue in Section II of this report.

Barriers to a Successful Workforce

The healthcare system is a web of resources. Of all of the healthcare resources strained by the increased demand caused by a shifting age population, none is more vital to patient health and safety than a well-trained healthcare worker. In the St. Louis metropolitan area a wide variety of education and training opportunities are available to interested students, as well as a large pool of prospective employers. Unfortunately, embedded deep into this system are barriers that prevent prospective students and workers from connecting with training and employment providers. What are these barriers? What is preventing the healthcare system from growing with the demand the population is placing on it? To answer these questions, we must first take stock of the available resources.

Available Education and Employment Resources

In the St. Louis region, there are a multitude of healthcare education and employment opportunities to prepare would-be healthcare workers with the skills necessary for successful healthcare careers. Participants of the region's programs are able to earn various certifications, degrees, advanced degrees, and also general training. In some areas, this education enables students to take a comprehensive exam to earn their licensure (i.e. nursing students may become Licensed Practical Nurses – LPN, or Registered Nurses - R.N.)

Chart V: Healthcare Education and Training Providers
St. Louis, MO-IL MSA

Applied Technology Services	Sanford Brown
Daruby School	Sanford Brown - St. Charles
Deaconess College	St. Charles Community College
East Central College	St. Louis College of Health Careers
Jefferson College	St. Louis Community College at Florissant Valley
Jewish Hospital	St. Louis Community at Forest Park
Lutheran Medical Center	St. Louis Community at Meramec
Maryville University	St. Louis University
Metropolitan Education and Training (MET) Center	University of Missouri in St. Louis
Missouri Baptist College	Washington School of Practical Nursing
North County Tech/Special School District (high school)	Webster University

Healthcare workers are able to work in a variety of occupations and settings region wide. The Bureau of Labor Statistics has categorized healthcare occupations into two categories: Healthcare Practitioners and Technical Occupations, and Healthcare Support Occupations. All of the occupations listed below require different levels of training and offer various opportunities for growth. The location where these occupations are carried out can vary greatly. One of the strengths of the healthcare field is the variety of settings in which one can choose to work. For example, a registered nurse can work in a hospital, a patient's home, a laboratory, an office or even a church. Few professions offer this many options.

Chart VI: Healthcare Occupations[13]

Healthcare Practitioners and Technical Occupations	Healthcare Support Occupations
Audiologists	Dental assistants
Cardiovascular technologists and technicians	Home health aides
Dental Hygienists	Massage therapists
Dentists	Medical assistants
Diagnostic medical sonographers	Medical transcriptionists
Dietetic technicians	Nursing aides, orderlies, and attendants
Dietitians and nutritionists	Occupational therapist aides
Emergency medical technicians and paramedics	Occupational therapist assistants
Licensed practical and vocational nurses	Pharmacy aides
Medical and clinical laboratory technicians	Physical therapist aides
Medical records and health information technicians	Physical therapist assistants
Nuclear Medicine technologists	Psychiatric aides
Occupational health and safety specialists and technicians	
Occupational therapists	
Opticians, dispensing	
Optometrists	
Pharmacists	
Pharmacy technicians	
Physical therapists	
Physician Assistants	
Physicians and surgeons	
Psychiatric technicians	
Radiation therapists	
Radiologic technologists and technicians	
Recreational therapists	
Registered nurses	
Respiratory therapists	
Respiratory therapy technicians	
Speech-language pathologists	
Surgical technologists	

[13] Bureau of Labor Statistics

The following two charts list the two largest locations employing healthcare workers in the St. Louis area.

Chart VII: Hospitals
St. Louis MSA

Alton Memorial Hospital	Missouri Baptist Medical Center
Alexian Brothers Hospital	Normandy Community Hospital
Barnes Jewish Hospital	Saint Louis University Hospital
Barnes Jewish St. Peter's Hospital	Shriners Hospital
Barnes Jewish West County Hospital	Southpointe Hospital
Bethesda Hospital	St. Alexius Hospital
Cardinal Glennon Children's Hospital	St. Anthony's Hospital
Centreville Township Hospital	St. Elizabeth Medical Center
Christian Hospital	St. Elizabeth's Hospital of Belleville
Christian Hospital Northwest/Northeast	St. John's Mercy Medical Center
Compton Heights Hospital	St. Joseph Hospital of Kirkwood
Connectcare	St. Joseph Health Center - St. Charles
Concentra Medical Center	St. Louis Children's Hospital
DePaul Health Center	St. Luke's Hospital
Des Peres Hospital	St. Mary's Health Center
Forest Park Hospital	St. Mary's Hospital of East St. Louis
Gateway Regional Medical Center	Tenet Hospital
Health Surgery Center of Kirkwood	Touchette Regional Hospital
Jefferson Memorial Hospital	VA Medical Center
Jewish Hospital	Washington University Medical Center
Kindred Hospital - St. Louis	
Midtown Medical Center	

Chart VIII: Home Healthcare Providers
St. Louis MSA

A-Plus Home Healthcare, Inc.	GCS Home Health Care	Olsten Health Services
Able In-Home Care Service, Inc	Gateway Health Services	Omega Home Care Services
Accu-Care Home Nurses, Inc.	Gateway Home Health Inc	On Call Inc
Addus Healthcare	Gateway Private Care & Staffing Services	Oxford House Niedring
Advanced Home Health Services	Gentle Care Home Health	PMCC
Agape In-Home Healthcare Service	Geriatric Health Care	Partnership Healthcare Services
Alexian Brothers Home Care	Golden Years Center	Peace of Mind Home Care Service, Inc.
Algonquin Nurses Home Care	Grace Home Healthcare Services	Pearson's Caring Arm
Algonquin Nurses PRN	Great Rivers Home Health Care Inc	Personal Care Home Health Service
All About Home Healthcare	Guardian health Care	Personal Touch Home Care
All Metro Healthcare	Hands Across Missouri	Phillip's Professional Home Health
Allegiant Home Care, Inc.	Help at Home Inc	Preferred Health Care
All-Glory Professional Home Care	Home Care Services Inc	Private Nursing Service, Inc.
Alternative Home health	Home Health Care	Prof. Home Health Staffing, Inc
Always Care of MO, Inc.	Home Health Care of America	Quality Care Health Services
AM Healthcare Enterprises Ltd.	Home Health Plus	Qualls Home Health Care
American Heartland Hospice	Home Health Services	Regency Home Care
American Home Healthcare	Home Instead Senior Care	Reliable Home Health Service
American Homecare Management	Home Not Alone Inc	Reliable Home Service, Inc.
American Home Patient	Home Therapy Inc	Renex Dialysis Clinic of St. Louis
Angels Care Home Health Services	Hometeam Transition Mgmt Group	RIMS Healthcare Inc.
Apex Homecare Services	House Calls	Rosewood Home Health Services
Apria Healthcare	Housing and Managed Care Plus	Royal Healthcare
Arcadia Health Care	I Care CAN Services Inc	Royal Professional Health Care
Around the Clock Home Care	IVTX	St. Andrews at Home Services
Artistic Home Health Care Services	JC's Home Health Services	St. Joseph's Home Care
At Home Health Services	J.I.L. Home Health Care Inc	St. Mary's Health Center Home Care Services
BJC Home Care Services	JWH Healthcare Services	Senior Services Unlimited
BBS Care USA Inc.	Karen's Care	Sisterly Care In-Home Services
Beacon of Hope Hospice	Kelly Assisted Living	Southside Wellness Center
Bettercare Home Health Care	Lab Home Health	Special Needs Health Service
CDE Health Care Services Inc.	Lacy Elder Care Center	Special Touch Home Health Agency
Call A Nurse	Lakeside Home Health Agency Inc	Stafflink
Cardinal Ritter Institute	Lawings	Supplemental Home Care Services Inc.
Care In Home Services	Lifelines	Sykes and Shelton Home Care
Care IV Infusion Therapy & Home Healthcare	Lifestyle Options	Telassure Telephone Reassurance
Caring Hearts Agency	Living Well Nursing Care Service	Tenet Home Care
Caring Hearts Plus	Lutheran Senior Services Home Health	3 in 1 Home Care
Caring Nurses Home Health	Lynn In Home Health Services	TIP Home Health

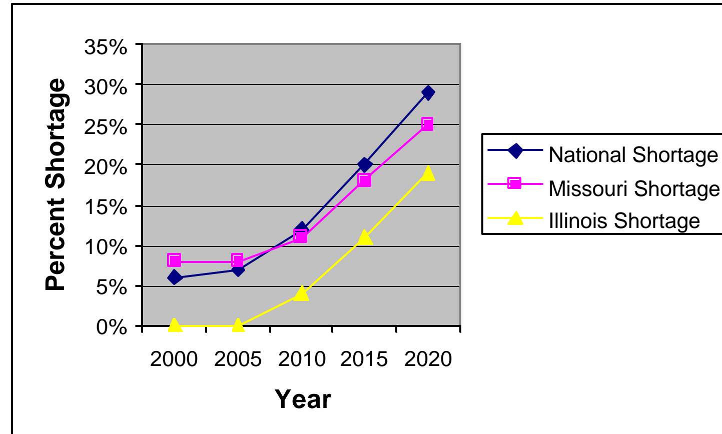
Christian Comm Homecare of No. City	M and P Home Health Services	Triple A Home Care, Inc
Community Empowerment Assoc Home Healthcare	MVP Home Health Services	TIP Home Health Centers
Community In Home Services	Martha's Hands L.C.	Town & Country Home Healthcare
Compassionate	Mason TLC Home Health Care Service	Triple A Home Care, Inc
Comprehensive Medical Services	Medical Network Services	Unique Care
Consolidated Health Services	Minnie June's Companion Sol	Unique Healthcare Services
Consolidated Home Health	Miracles Home Health Care	United Home Health Services
Cooperative Attendant Service	Mobile Home Phlebotomy	Unity Health
Coram Healthcare	Moore's Home Health Care	Unity Homecare
Delmar Gardens Home Care	Mount Zion In-Home Services	Unlimited Home Health Care Service
DePaul Home Care and Hospice	New Beginnings Home Health Care	VIP Home Health Care
Devoted Home Health Agency	New Horizons Home Care and Nursing Services	Visiting Nurses Associated
Doc's Preferred Home Health Care	Next Step/Elderassist	VNA Private Care
Extended Care Home Health	Nothing Like Home	We Always Care Home Health, Inc.
Extra Care Home Health Agency	Nursefinders	Wilkerson Health Care
Favorite Nurses Home Health	Nurses and Co. Home Health Care	Windy's Professional Home Care

Worker Shortage

Despite the vast amount of resources dedicated to the healthcare industry, healthcare providers are facing a current and projected worker shortage. In 1998, the healthcare industry employed 123,936 people in the metropolitan St. Louis area. By 2008, this need is expected to increase to 145,770. This will mean 21,834 additional jobs in the region, making healthcare the second largest growth industry in the area[14]. Specifically, Registered Nurses are projected to be the occupational category with the largest growth by adding 4,160 jobs. Additionally, nursing aides/orderlies/attendants follow in 7th place by adding 3,030 jobs to the region.[15]

More than 50 hospitals exist in the St. Louis region, with 24 institutions providing healthcare education. In many cases, healthcare careers offer competitive wages and benefits to entry-level employees while giving them encouragement and opportunity for advancement. Yet, the Missouri Hospital Association has found that Missouri is a part of the national trend of declining healthcare graduates and students. With the projected demand for healthcare jobs in the region, will there be enough workers? According to current projections, the answer is "no."

Chart IX: Supply v. Demand Projections for FTE Registered Nurses[16]



[14] Business Services is projected to be the largest growth industry in Missouri by 2008. Missouri Works! projects that 22,901 jobs will be added to the Missouri economy.
[15] Missouri Works! St. Louis MSA Industry and Occupation Projections: 1998-2008.
[16] "Projected Supply, Demand, and Shortages of Registered Nurses: 2000 – 2020" U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, National Center for Health Workforce Analysis, July 2002.

Chart X: Supply v. Demand Projections for FTE Registered Nurses, National[17]

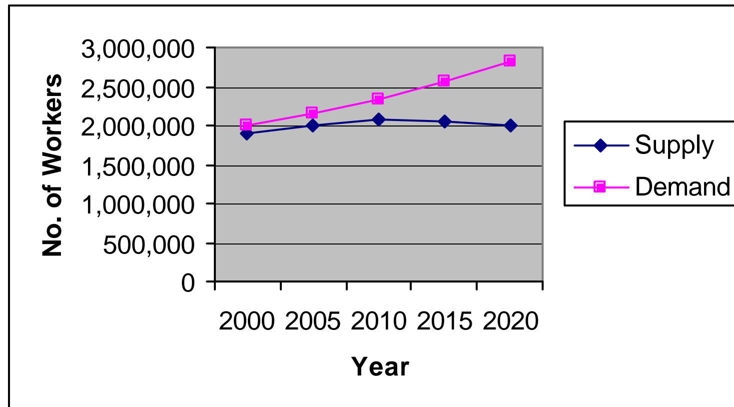
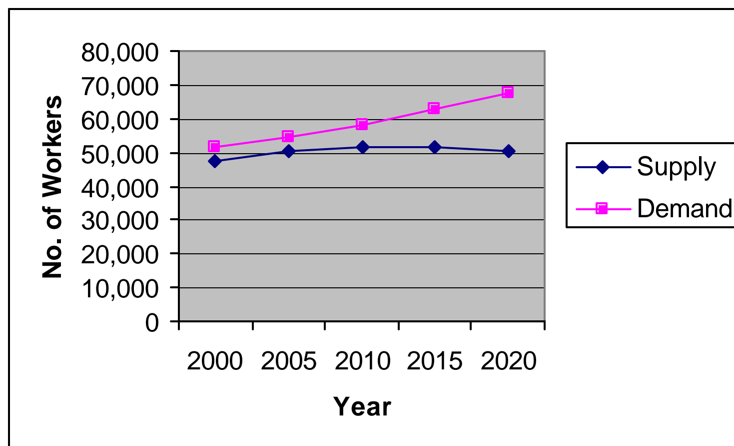
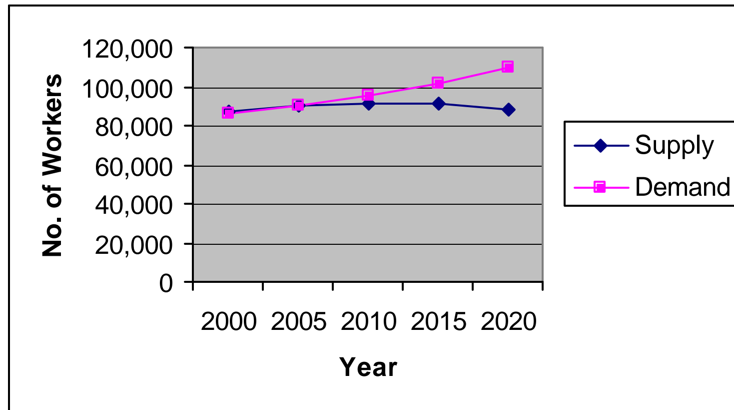


Chart XI: Supply v. Demand Projections for FTE Registered Nurses, Missouri[18]



[17] *Ibid*
[18] *Ibid*

Chart XII: Supply v. Demand Projections for FTE Registered Nurses, Illinois [19]



[19] *Ibid*

Barriers to Success Workforce

Both the supply and demand sides of the healthcare labor market face barriers toward a successful workforce development system. The barriers facing the supply side include the aging of the healthcare workforce, employee burnout, declining enrollments and completion of healthcare education and training programs, as well as a breakdown in work-supporting systems.

Aging Workforce

As the population ages, so does the workforce. The situation currently facing employers is that demand for healthcare services is increasing, so is the number of healthcare workers retiring – without an adequate staff to take their place. The median age of a registered nurse has increased from 25-29 years in 1980 to 45-49 years in 2000.[20] The ratio of nurses age 50 and older to nurses in their twenties is expected to reach 4-to-1 in the next few years and only 9 percent of nurses are under age 30. By 2015, half of all current registered nurses will reach retirement age.[21]

Burnout

Healthcare workers who leave the healthcare field cite poor working conditions, and low pay and unaffordable benefits for a mentally, emotionally, and physically demanding job.

Healthcare workers cite two main factors that contribute to the poor working conditions: forced overtime and the high patient-to-nurse ratio. Increasingly, long hours of overtime undermine the ability of healthcare workers – specifically direct care workers – to provide safe and persistent bedside care. While it's not uncommon for the federal or state governments to regulate the amount of hours logged by workers whose activities directly relate to public safety, hospital administrators and nurse managers often demand extra hours from their most qualified healthcare givers. For obvious reasons, airline pilots and long-haul truckers are required to log hours and respect strict guidelines for time on the job. For nurses, it's not uncommon to work a 16-hour shift and then leave the floor for four or five hours before returning for another long stint.

[20] U.S. Department of Health and Human Services "The Registered Nurse Population: Finding from the National Sample Survey of Registered Nurses." March 2000
[21] *2002 Workforce Status in Missouri Hospitals: An Overview*. Missouri Hospital Association, June 2002.

In 2002, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) reported that the shortage of healthcare workers might be linked to unrealistic workloads.[22] A previous study by Linda Aiken, PhD, RN and others found that 40 percent of hospital nurses have job burnout levels that exceed the norm for healthcare workers and that job dissatisfaction among hospital workers is five times the average for all U.S. workers.[23] This study found that there is a clear link between staffing levels and burnout, job dissatisfaction and nurse retention. Higher patient-to-nurse ratios were strongly associated with higher emotional exhaustion and greater job dissatisfaction. The study found that each additional patient per nurse corresponds to a 23 percent increased risk of burnout, as well as a 15 percent increase in the risk of job dissatisfaction.

Alarmingly, there is also a clear link between staffing levels and patient success. The study found that for each additional patient over four in a nurse's workload, the risk of death increases seven percent for surgical patients. Patients in hospitals with the highest patient-to-nurse ratio (eight patients per nurse) have a 31 percent greater risk of dying than those in hospitals with four patients per nurse. Dr. Aiken concludes that there is a direct relationship between nurse staffing and patient health.

The results suggest that nurse-staffing legislation (e.g. the California Safe Staffing and Quality Care Act which mandates fixed minimum nurse-to-patient ratios in hospitals) represents a credible approach to reducing mortality and increasing nurse retention in hospital practice. Finally, Dr. Aiken found that satisfactory nurse-to-patient ratios can save money as well as saving lives and decreasing RN turnover. Estimates indicate that the cost of replacing a hospital medical and surgical general unit nurse and a specialty nurse as $42,000 and $64,000 respectively.

Healthcare workers also cite low wages and unaffordable benefits as contributing factors of burnout. Although the problem goes deeper than wages, healthcare wages in St. Louis are low compared to the nation and compared to other occupations. When low wages are combined with poor working conditions, an unsatisfied workforce develops. Nationally, the mean hourly wage for registered nurses is $22.68, compared to the St. Louis MSA's wages at $21.62 per hour.[24]

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[22] Linda H. Aiken, PhD, RN, et al. "The Aiken Study: Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction" Journal of the American medical Association, Vol. 288, No. 16, October 23-30, 2002.

[23] Joint Commission on Accreditation of Healthcare Organizations, *Health Care at the Crossroads: Strategies for Addressing the Nursing Crisis*, August 2002.

[24] U.S Bureau of Labor Statistics. 2002 National Compensation Survey.

Chart XIII: Hourly Wages for Registered Nurses[25]

	Average Hourly Rate				
	1998	1999	2000	2001	2002
St. Louis	$18.21	$18.84	$19.93	$20.11	$21.62
All United States	$20.11	$20.86	$21.14	$21.93	$22.68

The following is a look at the 3 largest healthcare occupations in the region.

Chart XIV: Occupational Outlook
St. Louis, 1998-2008[26]

Occupation	Employment		Projected	Percent	Average Wage	
	1998	2008	Growth	Change	Hourly	Annual
Registered Nurse	23,320	27,480	4,160	17.8	$18.60	$38,688
Nursing Aide/Orderlies	17,040	20,070	3,030	17.8	$7.56	$15,725
Licensed Practical Nurse	7,460	8,230	770	10.3	$13.21	$27,477

In addition to low wages, some healthcare professionals surprisingly cannot afford to take part in their employer's health benefit package. When joining a spouse's plan is not an option, many workers (and their families, when applicable) are left uninsured. Missouri offers a health insurance program for children (MC+) of low-income families who do not have access to affordable health insurance. Employees sometimes request to not receive a raise for fear of not qualifying for the State's MC+ program and losing their children's health insurance.

Finally, many healthcare workers are leaving traditional healthcare settings to work jobs related to healthcare. Selling pharmaceuticals is one profession employing former healthcare workers. Workers are also leaving the field to pursue unrelated occupations or to raise their family.

[25] Bureau of Labor Statistics, 1999
[26] Bureau of Labor Statistics. 1999 Occupational Employment Statistics (OES) survey.

Chart XV: Distribution of Nurses Not Working in the Nursing Profession[27]

I. Unemployed RNs seeking nursing employment:
   a. 47.5% have been working in nursing less than 1 year
   b. 30.5% have been working in nursing 1-4 years
   c. 10.6% have been working in nursing 5-9 years
   d. 7.0% have been working in nursing 10 years

II. Unemployed RNs that have another occupation:
   a. 15.5% have been working in nursing less than 1 year
   b. 28.4% have been working in nursing 1-4 years
   c. 19.6% have been working in nursing 5-9 years
   d. 22.9% have been working in nursing 10 years

III. Type of employment of RNs in non-nursing occupations:
   a. Health related: 43.5%
   b. Non-health related: 53.5%

IV. Reason for RNs to have occupation other than nursing:
   a. Hours are more convenient in other position: 45.7%
   b. Find current position more rewarding professionally: 44.9%
   c. Better salaries available in other type of position: 35.4%
   d. Taking care of home and family: 24.9%
   e. Concern for safety in health care environment: 19.7%
   f. Nursing skills are out of date: 17.4%
   g. Other: 12.8%
   h. Inability to practice nursing on a professional level: 8.4%
   i. Disability/Illness: 7.0%
   j. Difficult of find a position: 5.0%

Effects of Managed Care on the Workforce

The effects of managed care are an integral part of any study on healthcare administration and workforce. Managed care underlies different aspects of healthcare such as hiring, nurse/patient ratio, quality of care, and treatment administration.

The goal of managed care is to provide the highest quality of care to individual patients and populations, efficiently and affordably. In the practice setting, managed care places special emphasis on coordinated and comprehensive services, evidence-based

[27] U.S. Department of Health and Human Services. "The Registered Nurse Population: Findings from the National Sample Survey of Registered Nurses." March, 2000

decision making, cost effective diagnosis and treatment, and health promotion and disease prevention.[28] Managed care also addresses issues of cost containment, coverage for the uninsured, access to services for the poor and minorities, consumer rights, efficient delivery systems.

The cost cutting measures heralded by hospital administration and supporters of the managed care program have been linked to unsatisfactory working conditions. The complaint most often cited is unsatisfactory working conditions due to understaffing and high nurse/patient ratios as a part of managed care. A New England Journal of Medicine article in May 2002 found claims that a higher proportion of hours of nursing care provided by registered nurses and a greater number of hours of care by registered nurses per day are associated with better care for hospitalized patients.[29]

> "Nurses seem to feel that managed care bears considerable responsibility for staffing problems and greater acuity. It is widely recognized that managed care plans have developed methods and procedures to minimize the amount of time that their members spend in the hospital . . . it is logical that hospitals throughout the county have more patients who spend fewer days in the hospital, but are in need of more acute care and attention when they are there."[30]

From an employee's point of view, another cost of managed care is high stress due to working with patients that have been admitted when they are most ill, and staying in the hospital for the longest period of time allowed by their insurance company, which is often the shortest period of time recommended by their physician. Healthcare workers, therefore, work with the sickest patients and often do not to have the opportunity to nurture them to health.

Health Insurance Portability and Accountability Act of 1996 (HIPPA)

HIPAA's "Administrative Simplification" provisions direct the United States Department of Health and Human Services (DHHS) to develop standards for the maintenance and transmission of health information that identifies individual patients. The purpose is twofold: to streamline data transmissions between and among our healthcare system's providers and payers and to assure the confidentiality of patient information (the "efficiency and privacy" goals). Pursuant to statute, the DHHS published final regulations on December 28, 2000. The regulations are effective as of April 14, 2001, with a compliance deadline of April 14, 2003.

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[28] Tufts Healthcare Institute homepage. www.tmci.org.
[29] The New England Journal of Medicine. "Nurse-Staffing Levels and the Quality of Care in Hospitals" Needleman, Jack, et al. Volume 346: 1715-1722, May 2002.
[30] Peter D. Hart Research Associates. *The Nurse Shortage: Perspectives from current direct care nurses and former direct care nurses* (prepared for The Federation of Nurses and Health Professionals). April 2001, p. 20.

HIPAA's coverage is extensive and extends to all healthcare organizations that maintain or transmit electronic health information (e.g., health plans, healthcare clearing houses, and healthcare providers from hospitals to individual doctors' offices). $3.8 billion is the "conservative" estimate for total cost of compliance with respect to the privacy regulations alone. As a result, covered persons must adopt new electronic transactions code sets, screen all internal and external communications networks for possible confidentiality leaks, adopt unique and secure identifiers for providers, payers, employers, and patients, and implement the DHHS mandated security standards for the protection of patient information.

With substantial civil and criminal fines and penalties, the cost of non-compliance can be great. The cost of compliance includes the hiring and training of new employees to meet the law's requirements.

Education Shortage

Understaffing due to lack of qualified applicants is another source of poor working conditions. For nurses, understaffing is caused in part by low capacity in schools, a low number of graduates, and a lack of guidance towards the profession in primary and secondary schools. The important question here is this: is low capacity in healthcare education programs due to too few applicants, too few graduates, or too few educators there to teach them? Interviews conducted with local professionals from several area programs determined that the answer is all of the above.

Lack of Faculty, Budget Problems, and Lack of Clinical Space

The Missouri Hospital Association (MHA) published the report “2002 Workforce Status in Missouri Hospitals: An Overview.” In this report, the MHA found that “although Missouri has capacity for students in its numerous health care education programs (with the exception for pharmacy), programs often have difficulty accepting students because of a lack of clinical training sites, faculty and qualified student applicants.”[31] These are problems cited by all of the schools surveyed. Michelle Soest of Jefferson College explains that out of 120 applications for 60 available seats, only 42 students passed the intensive application process. Also, once students enter the program, many have to leave for various external factors leading to a problem with retention.

At clinical sites, high competition between nursing programs in the region also keeps enrollment below capacity. Russlyn St. John of St. Charles Community College states that if more clinical spaces open, the college would need to hire additional clinical nursing educators, which are in short supply also. The Missouri State Board of Nursing requires that clinical nursing educators have a minimum master’s level education including a clinical component. This requirement deters many nurses who see little pay increase or other bonus for taking on clinical students.

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[31] *2002 Workforce Status in Missouri Hospitals: An Overview*. Missouri Hospital Association, June 2002

Of the six healthcare education programs interviewed for this report, only two claimed student vacancies. Of those programs filled to capacity, most gave 3 reasons against increasing enrollment. First, the State Board of Nursing dictates how many students can be admitted, so schools must petition the Board to make regulatory changes so that they can carry additional students. Next, budgetary constraints faced by some programs prevent faculty from being hired. Finally, clinical facilities for increased enrollment don't exist.

Chart XVI: Student Enrollment[32]

Institution	# Students Enrolled	At Capacity?
Jefferson College	42	N
Jewish College of Nursing	160	Y
St. Charles Community College	134	Y
St. Louis Community College – Florissant Valley	80	Y
St. Louis Community College – Forest Park	72	N
St. Louis Community College – Meramec	139	Y

The two programs not at capacity, Jefferson College and St. Louis Community College – Forest Park, state that they have open seats for two reasons. First, applicants do not meet the admission requirements. Lauren Roberds, Senior Research Associate at St. Louis Community College at Forest Park, says that "the low reading, math and writing skills from poor preparation at the secondary and primary education level make it difficult and frustrating for them to master the work necessary to succeed in the program." To address this problem, St. Louis Community College has formed a committee to develop strategies to help these students have better success.

Secondly, many of the current healthcare students have more external demands than students in the past. For example, Michelle Soest, Jefferson College, attributes the openings in nursing schools to financial concerns. Ms. Soest indicated that half of the students in the Jefferson County area live at or near the poverty level, and many face other barriers such as lack of childcare and transportation. These students generally are admitted with good math, science, and writing skills, but leave the program due to external factors.

Many schools cite retention as a greater problem than the number of admissions or applications received. At St. Louis Community College -Florissant Valley, Karen Mayes describes how the type of student that nursing programs are drawing makes nursing schools particularly vulnerable to retention problems. "It is my opinion that our students are trying to manage very complex lives and often do not have the time necessary to devote to studying in order for them to succeed in schools." To complement employee's

[32] Academic Year 2002-2003

health care education employers are beginning to offer training to entry-level healthcare employees to insure a level of knowledge critical to their jobs.

Poor Perception of Occupation

Healthcare professions, especially nursing, have suffered in recent years from poor public perception. A poll conducted in 2001 revealed that Americans strongly associated nursing with caring professionals, most people still held outdated ideas about a nurse's role in the healthcare system.[33] Specifically, the poll demonstrated a serious lack of understanding of the education and responsibilities of the different practice levels of nursing. On way to combat this perception is to inform the public, including school counselors and students of the positive aspects of nursing.

School Counselors and Gender

The third factor leading to hospital understaffing stems from a surprising source: primary and secondary school counseling and gender. Gender has become an important factor in who is entering the healthcare industry. Greater opportunities for women in the workforce are adversely affecting industries that, in the past, have traditionally employed women, such as healthcare. One theory states that guidance counselors are now encouraging young women to enter fields that they had been excluded from in the past, such as banking, law and finance. The top women in the graduating high school classes are going to such positions and not into healthcare, nursing specifically, anymore. Another product of this problem is that the best students now are not being encouraged to pursue nursing, but to pursue their medical degree. This decreases the quality of student entering nursing school and the nursing workforce. Another contributing factor to this problem is that guidance counselors are not encouraging more men into the field. The perception of nursing as primarily a "woman's job" has not left the field. Without more images of male nurses, encouragement from counselors, and cultural acceptance, this field will remain dominated by women.

Work-Supporting Systems Breakdown

In addition to workplace issues, many healthcare workers are stopped from pursuing careers by a breakdown of "work supporting" systems. These systemic barriers can be characterized as outside problems that make education and work difficult for those that

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[33] The poll, conducted by Penn, Schoen & Berland Associates of Washington, D.C., and commissioned by Johnson and Johnson, was conducted with telephone interviews of 1,005 adults aged 18 years and older, living in the continental United States. Conducted in December 2001, the poll has a margin of error of plus or minus three percent.

need it most. These issues are also a matter for public policy debate and action. The four most prevalent "work-supporting" system difficulties are childcare, transportation, guiding and training standardization and certification, and appropriate immigrant or refugee training.

The employment opportunities of parents with young children are compromised by the lack of access to affordable and quality childcare. The 2000 Kids Count Data Book reports that 76 percent of Missouri's children under the age of six and 66 percent between the ages of six and 12 live with a working parent or parents. In Illinois, 68 percent of children under the age of six, and 54 percent between the ages of six and 12 were living with a parent or parents in the labor force. When a parent must take time off of work to attend to the needs of a sick child, 83 percent of employed mothers say that they are more likely than their partner to take time off, compared with only 22 percent of fathers who made this claim.

In general, working parents with children in day care make more complex commutes to work everyday due to multiple stops while making their way to work. Workers who rely on public transit are confined to finding childcare in those areas services by public transit and at centers operated during the hours public transit operates. Another barrier related to public transit is the shortage of care during non-traditional hours. Parents who work shifts other than the typical "9-to-5" have a difficult time finding care because childcare services are usually not available during nontraditional hours (evenings, overnight, weekends and shifts that are longer than eight hours). Finally, the cost of childcare limits employment options. National studies city high childcare costs as one of the major barriers to accessing quality childcare. For example, in the St. Louis region, the cost of care for a three-year-old can be as much as $799 a month at a childcare center and $500 at the non-relative residential location. The costs of care for younger children would be higher and slightly lower for older kids. [34]

A lack of personal transportation, inadequate public transit services, and complex commutes are just a few of the transportation related issues that make it difficult for those seeking to secure and retain employment. People in the St. Louis region make approximately 8.2 million trips per day (trips made for any purpose) and travel 68 million miles per day.[35] Almost 98 percent of these trips are made in private automobiles, with only 1.6 percent of trips made on public transit.[36] The private automobile is the most popular mode of travel to work in the region. According to the 2000 Census, 83 percent of all workers in the region drive to work alone, while 10 percent carpool. Three percent ride transit, and the remainder either works at home or travels some other way. This pattern varies from that of only 20 years ago, when 68 percent of commuters drove to work alone, while 21 percent carpooled, and six percent rode transit.

Despite the dominance of the automobile, the St. Louis region has aggressively pursued the expansion of its transit system over the past decade, opening two light rail routes

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[34] Regional Workforce Development Policy Book. East-West Gateway Coordinating Council, July 2000.
[35] *A Regional Strategy for Access to Jobs*, East-West Gateway Coordinating Council, 2002.
[36] East-West Gateway Coordinating Council travel-demand outputs, 2000.

since 1993, with two more being designed. Until recently, transit ridership was on an upswing, growing from about 38 million passengers a year prior to MetroLink's opening to more than 55 million passengers in 1998. In contrast to national trends of increasing transit ridership, however, the number of riders using transit in the St. Louis region has declined since the late 1990s. Because of financial problems, Metro (formerly Bi-State Development Agency) restructured its bus system in October 2001, cutting back on routes and the frequency of some services. These measures are expected to decrease ridership.[37]

Eight million American households have no car and in the St. Louis region, nine percent of households have no car. Of racial groups, African-American households had the highest relative incidence of zero vehicles. While African-Americans comprised only 11.8 percent of all households, they accounted for 35.1 percent of households without vehicles. Single parent households are also disproportionately represented among those with disproportionately represented among those with no vehicles (12 percent, compared to their incidence in the population of five percent.)

Workers and job seekers face other formidable challenges in finding and retaining employment. Childcare issues and transportation barriers are only two of the major challenges they face. The responsibility of taking care of older parents, and the need to juggle work and family commitments, further complicates the situation. Unless interventions are put in place to address these issues, the needs of workers and regional employers will continue to go unmet.

Standardization and Certification of Training

Another workplace issue facing workers is the lack of standardization and certification in training. Training standardization and portability benefit both employee and employer. In healthcare, especially with direct care workers, when new employees are hired, they are trained in their new workplace's procedures. Some of this training is redundant to what they have learned through other employers or in their professional training. There is no way for the current employer to measure what the new employee knows, especially for employer-specific procedures. This additional training can cost the direct care facility weeks of wasted time. By creating industry training standards, the employee will be able to move around within the profession without have time wasted on additional training. In this situation, their training or certification therefore becomes portable.

Opportunities for New Americans

One possible untapped labor pool in the St. Louis area is the immigration and refugee population who have recently arrived in the region. Ariel Burgess, VP and Director of

[37] Portions of this section have been adapted from *A Regional Strategy for Access to Jobs,* East-West Gateway Coordinating Council, 2002; and, *Legacy 2025: The Transportation Plan for the Gateway Region.* East-West Gateway Coordinating Council, 2002.

Social Services, of the International Institute of St. Louis, explained the barriers to New Americans of finding employment and how this labor pool could be utilized to fill the current workforce shortages. Many of the refugees that have come to the St. Louis area in the past 10 years have been from Bosnia. Ms. Burgess confirmed that many of the Bosnian people who arrive bring skills with them, in areas such as in healthcare, that they would like to utilize in order to gain employment in their new city. There are two problems with this situation: the training that they received in their home country cannot be verified and is much different that medical training in the United States, and translating this training is such a burden that many New Americans often give up and take other, lower paying, more menial jobs just to make ends meet.

Using the Bosnia population as an example, Ms. Burgess confirmed that there is a large problem with translating their healthcare skills to the American healthcare industry's certification system. The root of this problem starts in how the two populations define, for example, a "nurse". In actuality, there are very few true registered nurses (or equivalents) that are looking for certification in this country. Most New Americans are actually licensed practical nurses. The Bosnian education system is divided into tracts: vocational, academic, and technical. Many of these refugees actually followed the vocational tract, which translates into an LPN certification. The academic tract would be similar to a R.N. certification.

The systematic barriers that force immigrants and New Americans to give up pursuing a future career in the area where they have background or training are preventable and unnecessary. The two biggest barriers to full, professional employment of New Americans with healthcare training are lack of English language skills, and poverty. When New Americans come to the United States there is a period of time where they must learning to speak English to get a job. Unfortunately, many of these people come to this country without a lot of money and they must begin working as soon as they get here to support themselves (and to feed a hungry family). With these two stupendous tasks to perform, there is not a whole lot of time or money to proceed with the arduous task of getting certified here.

Healthcare educators, and potential educators, also find themselves working against barriers that prevent them from fulfilling their tasks. Much like healthcare workers that they have taught, the educators must deal with decreasing numbers due to retirement, career change, high requirements/little incentive for recruitment, and lack of clinical space. One action or two cannot solve these problems; instead careful policy analysis and industry action will be needed.

Seven Recommendations for Action

Seven recommendations for action have emerged from the research reviewed in Sections I and II. Each recommendation addresses a specific barrier now standing in the way of St. Louis having the workforce necessary to meet the increasing demand for healthcare services.

Address Workplace Conditions

First, address workplace conditions. One way of doing this is to raise the nurse to patient ratio, which will lead to less overtime and less stress. In this strategy, there is a role for legislators and public policy analysts. In 2001, the State of California enacted legislation mandating staff-to-patient ratios higher than the current minimum standard. These ratios are to be set by the Department of Health and Safety Code, in conjunction with other involved entities, and are to be reviewed every five years for ratio adjustment. This law is scheduled to take effect August 1, 2003, and is being carefully observed by the national healthcare community. The result of these strict standards will be used to determine if the law will be copied nationally, or if the system will become too overburdened.[38]

Improve Image

Second, combat poor perception by informing the public, including school counselors and students, of the positive aspects of nursing. One example of this is the effort being made by Johnson & Johnson to celebrate nurses and advance the career choice.

Johnson & Johnson, a manufacturer of health care products, as well as a provider of related services, for the consumer, pharmaceutical and professional markets, has committed to raising the public's perception of nursing. Johnson & Johnson launched *The Campaign for Nursings Future* in February 2002. Working with an advisory group of nursing leaders to develop the campaign, Johnson & Johnson is investing more than $20 million over the next two years to attract more people to nursing through such efforts as:

- Television advertising to celebrate nurses and their contributions;
- Scholarship funds for students and nursing faculty, including a multi-city scholarship fundraising campaign with hospitals, nursing organizations and hospital associations;

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[38] *Skilled Nursing Facilities: Staffing Ratios,* introduced by Assembly Member Shelley. State of California, Chapter 694, Statutes of 2001.

- A Web site, www.discovernursing.com, with information about careers in nursing, profiles of nurses and a searchable database for nursing schools and more than 300 nursing scholarship programs; and

- New recruitment brochures, posters and videos for more than 20,000 high schools, 1,500 nursing schools, hospitals and nursing organizations.

One year after this campaign began, a follow-up study conducted by Johnson and Johnson revealed that more young adults would consider a career in nursing or would view positively the news that a family member was pursuing a nursing degree. In one year, efforts have shown returns in encouraging young people and second-degree seekers to pursue nursing as a career. Continued and further efforts to educate young people and school counselors to the benefits of a degree in nursing will help to increase the visibility and enrollments of nurses and other healthcare workers (by association).

Market the Profession to Non-Traditional Students

Third, recruit "non-traditional" students such as dislocated workers, new Americans, older workers, and men. These workers may be looking for a new career and healthcare provides a variety of opportunities for them.

Men are beginning to enter the profession in greater numbers. Traditionally, women have dominated the nursing and healthcare workforce (excluding physicians). Most people still have the image of a nurse in a white skirt and white cap. Today, healthcare workers have lost the cap and have become a more diverse group. Customarily, the profession is still dominated by women, but men are beginning to make strides into filling these slots in education centers and in the workplace. The Bureau of Labor Statistics cites the most recent percentage of male nursing students as five percent.[39] In the St. Louis region, the St. Louis University School of Nursing enrolls 12 men out of 74 nursing students total (or 16 percent).

A meaningful job, mobility and ample employment opportunities are leading all sorts of professionals to switch to nursing. St. Louis University School of Nursing (accelerated program) sees a variety of backgrounds in its student body, including education, law and even physicians from other countries. Dislocated workers, including former airline workers (pilots and ground crew) in the St. Louis region, are looking to nursing for greater employment flexibility and opportunity.

The Missouri and Illinois Career Centers are available to refer interested individuals to educational and training in nursing for career opportunities. Another agency that can funnel workers towards jobs in healthcare is the International Institute. The International Institute runs programs to provide healthcare training to immigrants and refugees. In Minneapolis, the International Institute operates Certified Nursing Assistant (CNA)

[39] Bureau of Labor Statistics

training combined with English as a Second Language courses. By combining the two, the students get a better understanding of language, customs, and healthcare in America. For example, the phrase "make the bed" could be interpreted to mean a variety of things such as make a bed on the floor to lie in. In the Minneapolis International Institute program, students learn the hospital meaning, and the colloquial meaning of words associated with healthcare.

Older workers can begin new careers in healthcare. Workforce Investment Boards (WIBs) are available to provide guidance and training to potential workers. Also a variety of training providers, community colleges, universities and hospitals are available to train and educate potential workers. One issues students often have is from place-to-place and credits or classes not transferring. This situation can be solved via an articulation program/agreement between several education providers.

Encourage Career Ladder Programs

Fourth, encourage career paths and career ladder programs. In the past, workforce development organizations have mainly focused on pre-employment services; some post-employment supports; job and basic skills training; and welfare-to-work programs. Until the last 10 years or so, little attention was typically paid to long-term career counseling, planning, or to attaining positions beyond the entry level, for individuals entering or re-entering the workforce. In addition, little or no attention was paid to the demand side, either to individual employers, industries or sectors, or its development of career ladders, pathways, tracks, or ongoing opportunities for advancement. Particularly as the impact of welfare reform takes shape, training organizations, its funders, and policymakers are seeing the shortcomings of viewing placement into entry-level work as a "final outcome."

In the late nineties, some employers, researchers and policymakers began to look at the possibilities for career pathways or career ladders for entry- and mid-level workers as one strategy to improve recruitment. They also saw the opportunity to "grow their own workforce" from within the institution or sector. This would provide a relatively stable workforce, with a lower turnover rate and a continuous cycle whereby there is always someone in line for a position when it becomes vacant. At the same time, a career ladders strategy could help meet the needs of the "working poor" for pathways to advancement and higher pay.

Investment in career ladders by private and public funding sources and cost-effective, and cost-benefit analysis over time needs to be expanded and publicized. Local efforts universally demonstrate that inveting in careers ladders for incumbent workers are effective investments, both for the employers, the workforce and the communities that include them. However, such conclusions take some time to draw, and cost savings are not realized overnight, or even in a year, as funders typically desire. Career ladder projects take a long time to develop and implement, and several years for significant outcomes to be observed, at both the individual and the firm level. Individuals must

under extensive training, counseling, and progress over the years before real progress can be seen and measured. Turnover does not automatically change overnight, and career ladders cannot be built in a day.

The Department of Labor Bureau of Apprenticeship and Training is working with the Council for Adult and Experiential Learning (CAEL) on a new model of apprenticeship. CAEL has been awarded a grant from the Department of Labor to develop a career ladder focused on increasing the number of Certified Nurses Aides (CNAs), Licensed Practical Nurses (LPNs), and Registered Nurses (RNs) throughout the nation. The initial stages are in place to develop partnerships with key professionals from healthcare institutions, Workforce Development Centers, Workforce Investment Boards, and Educators from across the St. Louis metropolitan region in order to:

- Address the national nursing shortage with the development of a career lattice program model focused on increasing the number of Certified Nurses Aides (CNAs), Licensed Practical Nurses (LPNs) and Registered (RNs);
- Recruit incumbent health care workers as an available and valuable source of experienced personnel;
- Respond to the critical need to increase the flow of candidates into nursing and to attract candidates who better mirror the patient population; and
- Create a structure that enhances the likelihood that new entrants will remain in the field, and that increases their chances for success.

The St. Louis Regional Jobs Initiative is developing a sector-driven career pathway in conjunction with several local partners, including the Community Colleges and Workforce Investment Boards. This pathway will focus on the need for continuing skill development among employees, customized entry-level, on-the-job and upgrade training.

Standardize Training and Certification

Fifth, standardize training, regulations and certification in the healthcare field. Currently, most employers require that newly hired entry-level workers go through training at that particular institution even if the employee comes to the institution with experience. This retraining is not only redundant, but it is costly and time consuming. Neither Missouri nor Illinois currently has a licensure or certification for Certified Nursing Assistants (CNAs). If CNAs were certified their training could become portable opening greater job opportunities for them. Also, money and time spent retraining the entry-level employees could be spent elsewhere to benefit the new hire.

This certification would also help employees develop specializations (such as gerontology) that would make them more marketable and allow them to develop special skill sets in areas of their interest. The CAEL program addresses the idea that experience should count as education. The program will give credit to the employees

that have met certain skill sets acquired at another on-the-job training site or through a training institution.

Strengthen Work-Supporting Systems

Sixth, ensure a strong workforce through work-supporting systems. Many healthcare employees or potential employees have barriers to overcome just to get training and education. Michelle Soest, Jefferson College, MO, attributes the openings in nursing schools to the fact that half of the students in the district served by Jefferson College are living at the poverty level, and many face barriers such as childcare and transportation. These students generally are admitted to Jefferson College with good math, science, and writing skills, but will leave the program due to outside factors. Many schools cite retention as a greater problem than number of admissions or applications received.

One example of a “work-supporting” system that the East-West Gateway Coordinating Council is involved with is the Cooperative Healthcare Employee Transportation (“CHET”) system. CHET is sponsored by the partnership of East-West Gateway Coordinating Council, St. John’s Mercy Medical Center, and the U.S. Department of Transportation’s Federal Transit Administration. CHET provides free transportation to St. John’s Medical Center for the first 90 days of employment, at all times of day to accommodate those who work day or evening shifts.

This program is an example of the kinds of initiatives that should be encouraged to help employees be able to travel to jobs. In the larger picture, they may only be substitutes for an adequate public transportation system. But for people who need work immediately, these systems provide a much-needed way to access employment.

Build St. Louis Regional Healthcare System

Seventh, build a regional healthcare intelligence system. In order to position the region to continuously and accurately respond to the need for skilled healthcare workers in such a fluid environment, the University of Missouri’s Labor and Education and Market Analysis project, the East-West Gateway Coordinating Council, and the Regional Chamber and Growth Association (all partners in the St. Louis Regional Workforce Development Policy Group) propose to build and maintain this system. This system will be used:

- To forecast the demand for skilled healthcare professionals, based on regional factors and historical trends

- To inform policy- and other decision-makers regarding the likely impact of legislative, regulatory, economic, and demographic changes on the demand for healthcare and healthcare workers

- To help employers in the healthcare sector anticipate changes in regional and local conditions that will impact the supply of workers

- To position other work-related systems (such as transportation and dependent care) to respond to the needs of healthcare workers

- To guide educational and training providers who are designing and delivering curricula to prepare professionals and paraprofessionals for work in the healthcare field.

- To foster communication and collaboration among public and private sector interests to ensure that a skilled healthcare workforce can be available, commensurate with the needs of industry and community values.

The healthcare workforce intelligence system will link, integrate, and disseminate information about three specific components of the labor market equation: economic factors (the demand side), labor force factors (the supply side), attractors and connectors (the institutions that link supply and demand). The tools and techniques used to accomplish these functions will include policy research and analysis; econometric modeling and policy simulations; statistical analysis of regional data from existing local, state, and federal sources; geographic information systems to illustrate spatial characteristics; primary market research; as well as interviews and dialogue groups with employers, employees, and intermediary groups. Following is a brief description of each component.

Healthcare Labor Supply Factors

These are a few examples of the research questions to be answered:

- What is the composition of the current healthcare workforce in the region? How has the workforce changed during the past decade in terms of race, ethnicity, gender, educational attainment, disability, and other factors? Might continuing changes be expected? What implications do they have for future workforce supply? For education? For the work environment?

- What healthcare labor shortages, if any, now exist? Which occupational areas have the most openings? What reasons do healthcare providers feel are most significant in causing these shortages? What strategies are currently being used to try to address them? What form might a coordinated regional approach take?

- How can the supply of healthcare workers be increased from within the existing regional labor pool? What needs to happen to attract, prepare, and retain the following: former healthcare workers who have "burned out" and left the field, immigrants with previous healthcare experience (but foreign credentials) who now live in the St. Louis area, underemployed persons in the human services field, unskilled and semi-skilled workers from other sectors of the economy, high school and post-secondary students, and others?

Attractors and Connectors

- What is the capacity of the region's educational system to prepare healthcare workers? What deficits (teacher shortage, low enrollment, lack of course offerings, poor communication with employers, others), if any, impact the ability of this system to prepare and retrain workers? How can these deficits be addressed?

- What are the sources and levels of funding for healthcare education in the region? What public and private policies govern the use of healthcare educational funds, and the development and delivery of curricula? What changes, if any, need to be made in order to better align supply and demand?

- To what extent are local professionals leaving the healthcare field prior to retirement? What are the reasons for this? What workplace and / or employment issues and conditions need to be addressed in order to arrest or slow burn out and dissatisfaction?

- How does the capacity and performance of other work-related systems (such as transportation, childcare, employee assistance) affect the ability of interested and skilled workers to access healthcare employment? How can connections between these systems be improved?

The second and equally important component of a complete workforce intelligence system for healthcare is the demand for labor in this industry. The demand for skills as a prerequisite for employment is directly tied to the need for employment. Henceforth, understanding the drivers of employment for the region's healthcare delivery system is important to providing a complete picture of the dynamics of supply and demand.

Healthcare Labor Demand: Issues Both Present and Future

Modeling the present and future demand for healthcare workers presents numerous challenges, not least, of which is the identification and measurement of the relevant "policy" and "regulatory" variables that impact workforce demand. In addition, the modeler must accurately capture and incorporate the remaining non-policy factors driving employment demand. Taken as a whole, healthcare labor demand arises from a

complex web of factors, ranging from demographic trends to insurance practices to regulatory initiatives and more. Each factor must be carefully considered for inclusion in any healthcare employment model. Below we briefly outline a sample of such factors, with an eye towards discussing, in part, their probable impact on healthcare labor demand in the St. Louis region.

Demographic Trends

Demographic factors are key determinants of healthcare demand and employment levels in the industry. Especially important are future population levels in the older age cohorts. Immigration and migration trends into and out of the St. Louis region are also important factors to consider. The healthcare industry's future demand for employees will be determined in large part by demographic facts. Therefore, the employment demand models will incorporate demographic data and projections for both employment forecast and policy simulation capabilities.

Methodology and Process

The healthcare workforce intelligence system's analytical methodology is based on FAPRI's internationally recognized baseline process. FAPRI is a recognized as a world leader in agricultural economic modeling. The US Congress, the US Department of Agriculture, and major professional and agricultural organizations have relied on FAPRI's models and baseline process for more than twenty years in developing and assessing national and international agricultural policy.

This baseline process creates reliable economic models by subjecting them to practical criticism from experienced executives in their fields of aptitude and command. The feedback obtained from these experts is essential in developing more realistic forecasts and models. The marriage of economic theory with practical knowledge is key to having estimations and policy simulations more closely reflect the real world's environment.