

Health and the Economy: A Snapshot of North Carolina

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Health and the Economy: A Snapshot of North Carolina



Medical Care's Double-Edged Sword



Opportunity Costs

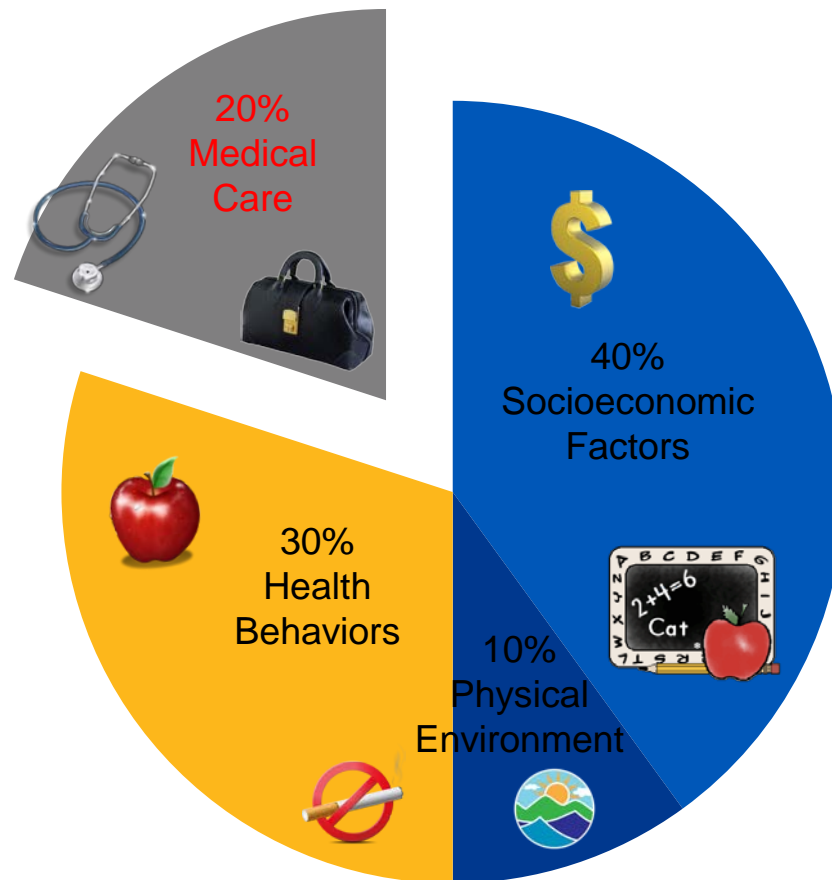
- Other Determinants
- Food, Clothing, Shelter
- Luxury Items
- Infrastructure
- Defense

Positive Factors

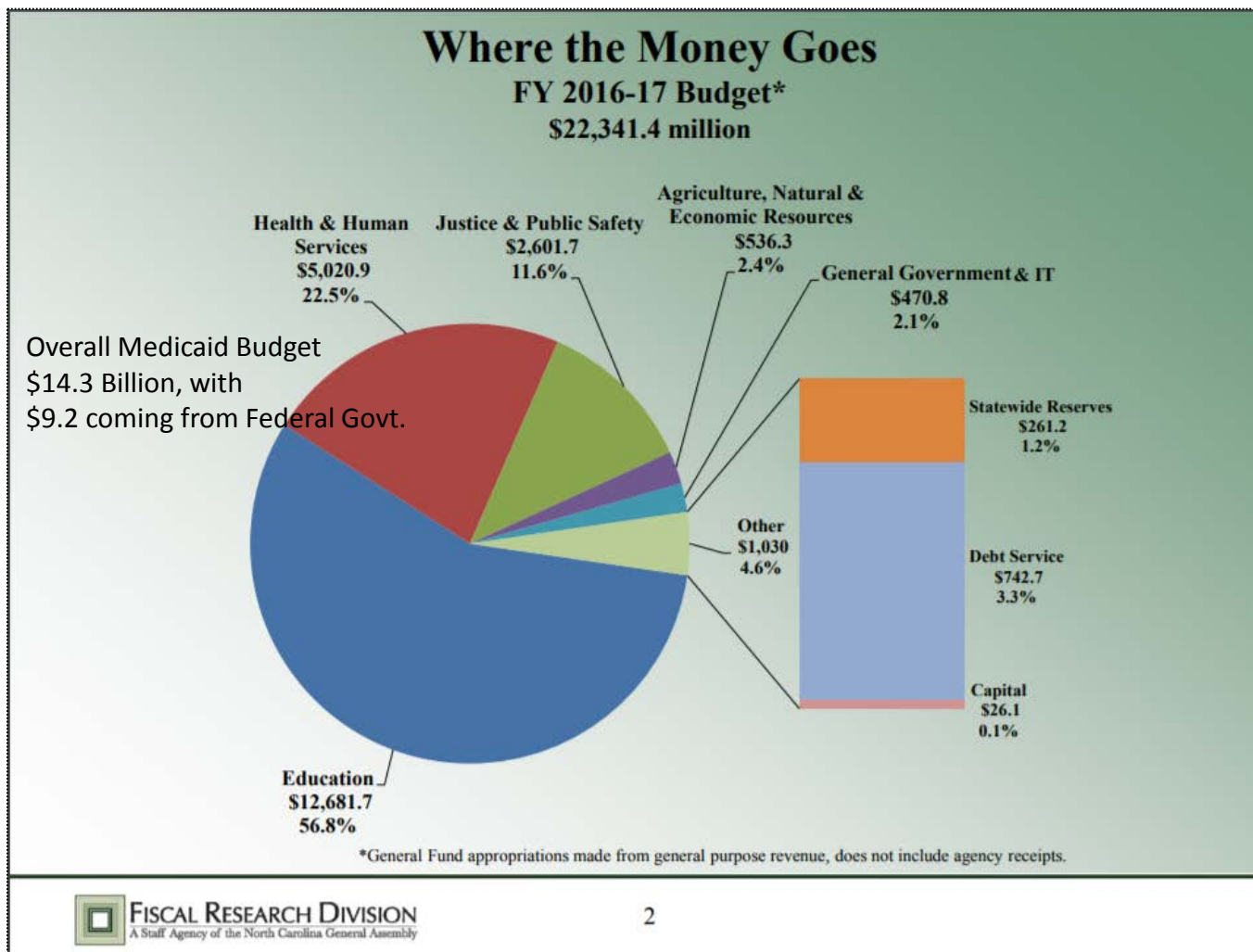
- Health
- Education
- Employment
- Taxes

A recent poll of NC manufacturers found seventy-eight percent agreed or strongly agreed that rising healthcare costs was a significant challenge NCMEP

Determinants of Health



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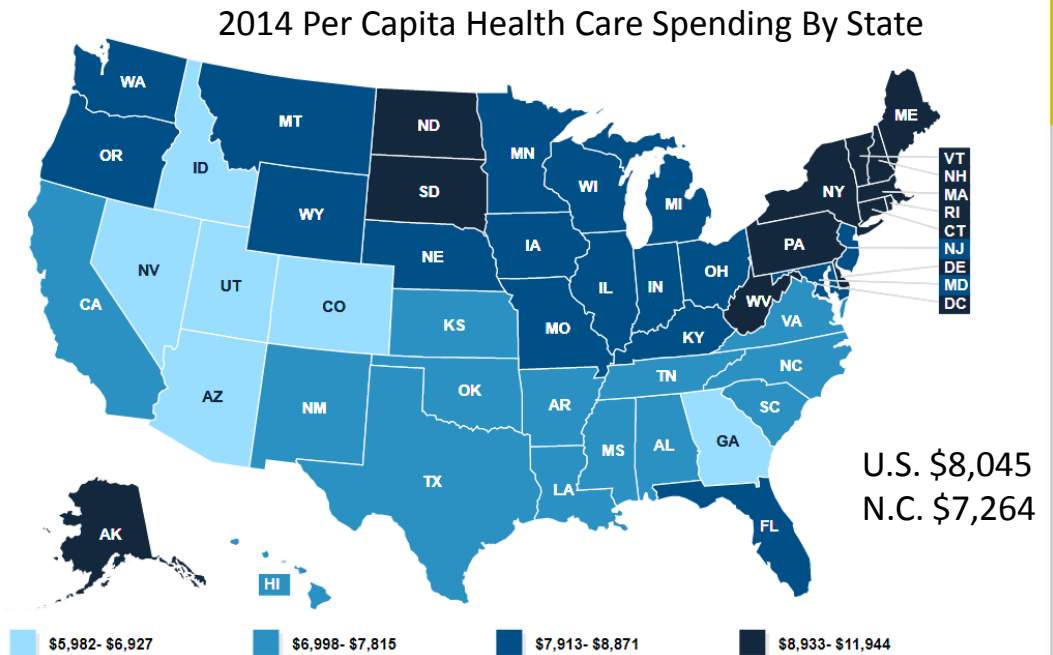


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Agenda

- Medical Model Value Chain
 - R&D
 - Universities
 - Biopharmaceutical Firms
 - Medical Device Makers
 - Providers
 - Physicians
 - Dentists
 - Medical and Diagnostics Labs
 - Hospitals
 - Home Health Care Services
 - Nursing Homes
 - Distribution
 - Insurance
 - Other



Universities – “Eds & Meds”

NIH 2016 Funding

Duke \$13.2 million

ECU \$523,000

NC State \$533,000

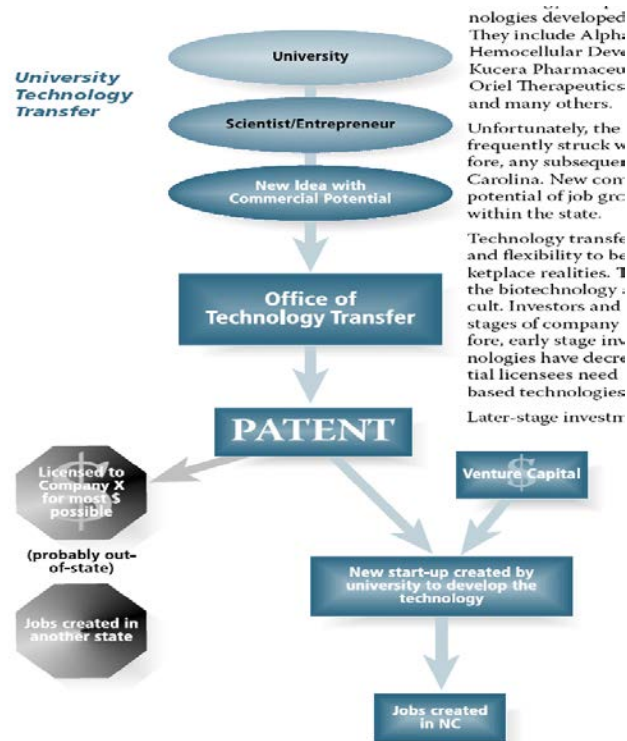
Shaw Univ. \$116,000

UNC-CH \$48.8 million

UNC-C \$29,000

UNC-G \$1.4 million

Wake Forest \$3.4 million



Companies spring from university technologies

More than 50 biotechnology companies throughout the state are based on technologies developed at North Carolina universities, including the following examples.

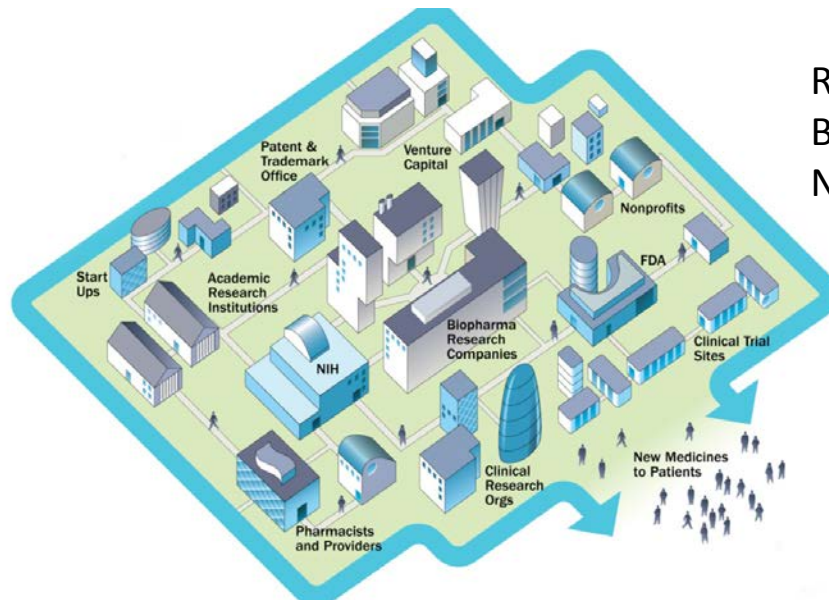
Company	University
AlphaVax	UNC-Chapel Hill / N.C. State
Biolex	N.C. State
BioMarck Pharmaceuticals	N.C. State
BioResource International	N.C. State
DarPharma	UNC-Chapel Hill
EcoGenomix	UNC-Greensboro
Embrex	N.C. State
Hemocellular Development	East Carolina University / UNC-Chapel Hill
Inspire Pharmaceuticals	UNC-Chapel Hill
Kucera Pharmaceutical	Wake Forest University / UNC-Chapel Hill
LipoScience	N.C. State
Merix Bioscience	Duke
Norak Biosciences	Duke
Oriel Therapeutics	UNC-Chapel Hill
Qualyst	UNC-Chapel Hill
Sphinx Pharmaceuticals (acquired by Eli Lilly)	Duke
StemCo	Duke
Trimeris	Duke

Source: NIH & NC Biotech Center

North Carolina's National Biopharmaceutical Employment Rankings

- Drugs and Pharmaceuticals: **3rd** largest employment state;
- Research, Testing, and Medical Labs: **6th** largest employment state;
- Bioscience-related Distribution: **10th** largest employment state; and
- Medical Devices and Equipment: **17th** largest employment state.

Source: NC Biotech Center



Research Triangle **#8** overall in 2017
Biopharmaceutical Cluster based on
NIH (8th), VC (9th), Patents (10th) & Jobs (9th)

Genetic Engineering and Biotechnology News

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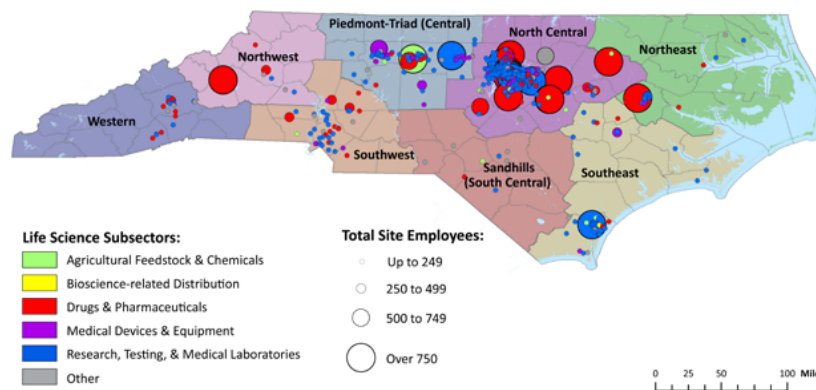
Direct Effects

Item	Revenues (Mil. \$s)	Labor (Mil. \$s)	Employment	State/Local Taxes (Mil. \$s)
Drugs & Pharmaceuticals	\$37,715.9	\$3,188.0	24,833	\$422.0
Research, Testing, & Medical Labs	\$7,126.0	\$2,521.8	29,023	\$142.0
Medical Devices & Equipment	\$2,247.4	\$403.8	4,571	\$32.2
Other	\$2,600.7	\$167.0	1,893	\$43.4

Total Direct Effects \$49,690.0 \$6,280.6 60,320 \$639.6

“High value manufacturing”

North Carolina Life Science Companies



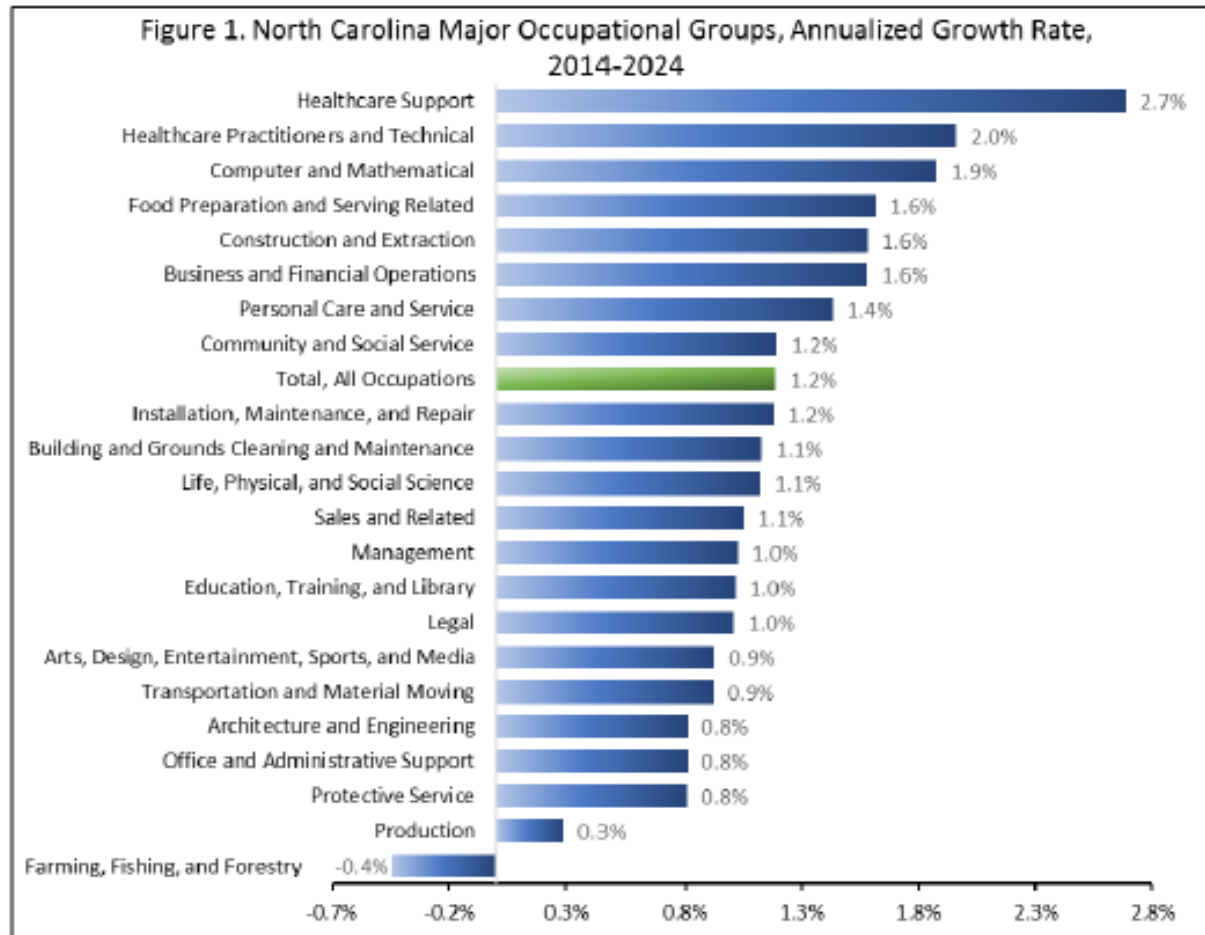
Source: NC Biotech Center

Job Growth and Providers

- In the U.S. employment in the health care and social assistance sector is projected to add nearly 4.0 million jobs by 2026, about **one-third** of all new jobs. The share of health care and social assistance employment is projected to increase from 12.2 percent in 2016 to 13.8 percent in 2026, becoming the **largest major sector in 2026**.
- Healthcare support occupations (23.2 percent) and healthcare practitioners and technical occupations (15.2 percent) are projected to be **among the fastest growing occupational groups** during the 2016–26 projections decade.....Factors such as the aging baby-boom population, longer life expectancies, and growing rates of chronic conditions will drive continued demand for healthcare services.
- In NC, between 2014 and 2024, Health Care and Social Assistance, NC's largest industry by employment, is projected to add 135,000 jobs or **25% of all new jobs**. Healthcare support occupations and healthcare practitioners and technical occupations are projected to be **the 2 fastest growing occupational groups**.

U.S. Bureau of Labor Statistics
NC Department of Commerce

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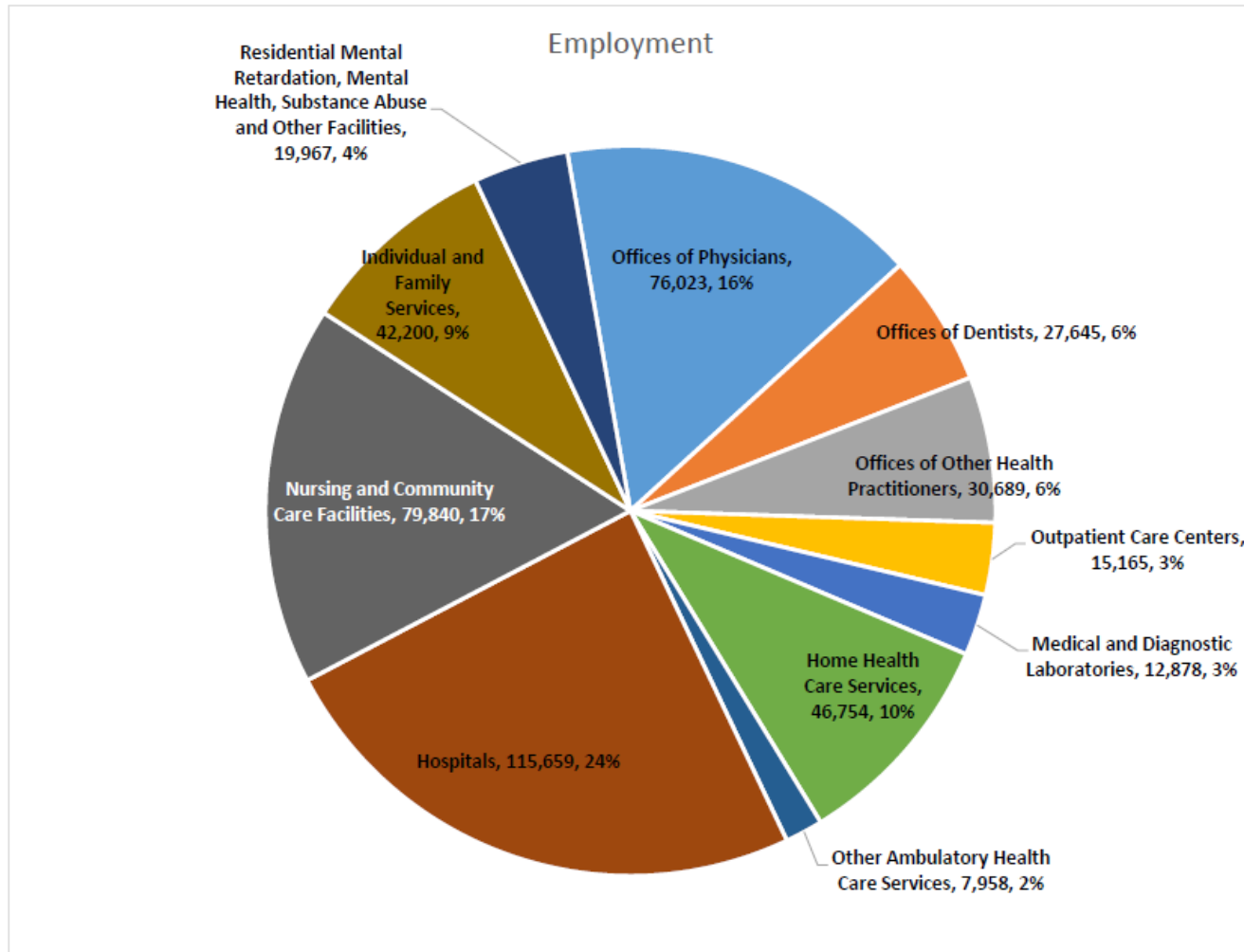


Source: NC Department of Commerce, Labor and Economic Analysis Division

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NC Provider Employment 2015



Source: NCDHHS

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2016 Output of Health Care Providers in North Carolina

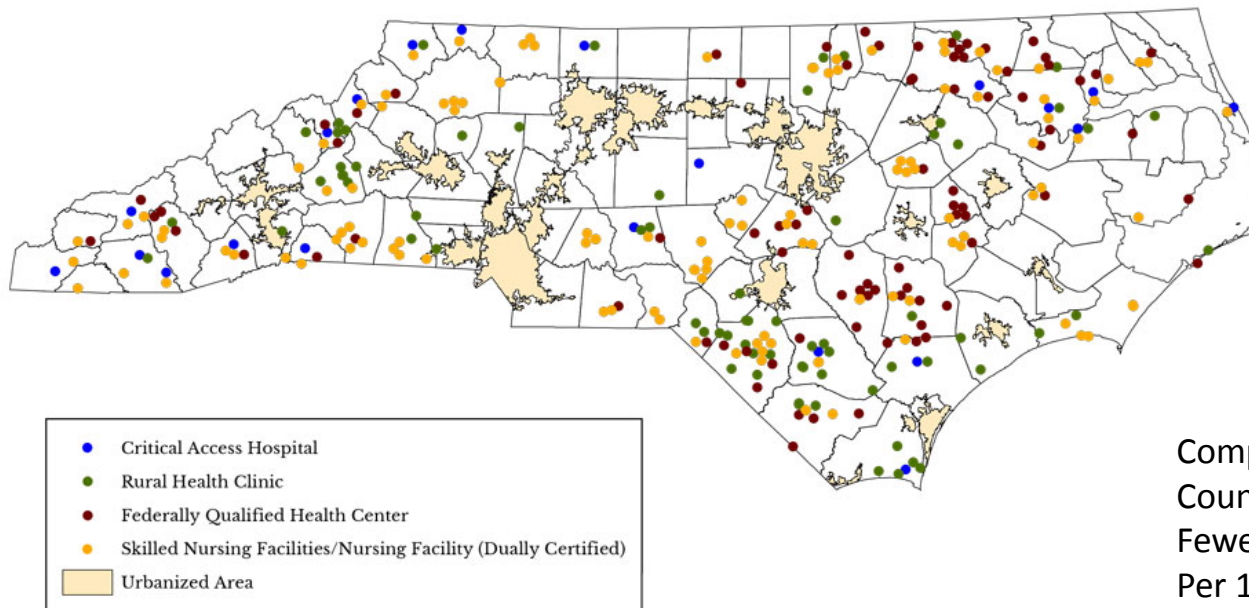
Sector	Industry Output	Employment	Employee Compensation
Offices of Physicians	\$11,871,043,945	80,456	\$7,632,262,588
Offices of Dentists	\$4,328,188,477	29,194	\$1,908,446,978
Offices of Other Health Practitioners	\$3,097,958,008	33,900	\$1,068,603,141
Outpatient Care Centers	\$2,723,269,775	17,470	\$874,734,490
Medical and Diagnostic Laboratories	\$1,649,718,384	13,557	\$1,013,799,429
Home Health Care Services	\$2,494,894,775	53,897	\$1,353,389,587
Other Ambulatory Health Care Services	\$821,463,379	8,691	\$344,441,679
Hospitals	\$18,749,400,391	117,917	\$8,342,912,008
Nursing and Community Care Facilities	\$5,513,801,270	82,755	\$2,740,494,899
Individual and Family Services	\$1,546,696,046	43,478	1,041,816,949
Residential Mental Retardation, M.A., S. A. and Other	\$838,097,595	19,927	\$588,384,308
Totals	\$53,634,532,045	501,424	\$26,909,286,056

In 2016, North Carolina current-dollar GDP was \$521.6 billion and ranked 10th in the United States. Source: U.S. Dept. Commerce

In 2016, NC Providers represent about 12% of 4.2M total workers. Source: BLS

Source: NCDHHS

Selected Rural Healthcare Facilities in North Carolina



Compared to the 35 OECD Countries, US has 9th Fewest Hospital Beds Per 1,000 Population

Role of Hospitals in Rural Communities

- Research indicates that typically **ten to fifteen** percent of the jobs in a rural community are in the health care sector. Overall community income declines by 4% when a rural hospital closes.
- Hospitals are often 2nd to only education in terms of top employers in rural counties.
- Relocation of **new industry** is often based on access and quality of health care and education.
- The 2nd leading cause (behind income) farmers leave farming is to gain access to health insurance.
- The recruitment and retention of **retirement aged residents** are impacted by the quality health care systems.
- Lack of Hospital often results in lack of other providers.

Sources: National Center for Rural Health Works;
U.S. Department of Agriculture, Economic Research Service;
Holmes, et al., 2006

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Health Care Employers 2017 Rankings for Less Populous Counties

	Employer Ranking	Organization		Employer Ranking	Organization
Cabarrus County	2	Charlotte Mecklenburg Hospital	Davidson County	9	Wake Forest University Baptist
	7	Pharmaceutical Research Assoc Inc			
Edgecombe County	6	Vidant Medical Center	Halifax County	1	Halifax Regional Medical Center
				9	Rural Health Group Inc.
Johnston County	2	Johnston Health	Mitchell County	2	Blue Ridge Regional Hospital
	3	Grifols Therapeutics Inc			
	6	Novo Nordisk Pharmaceutical			
Pitt County	1	Vidant Medical Center	Randolph County	5	Randolph Hospital Inc.
Vance County	4	Maria Parham Hospital			

Source: NC Commerce

Health Care Employers 2017 Rankings for Populous Counties

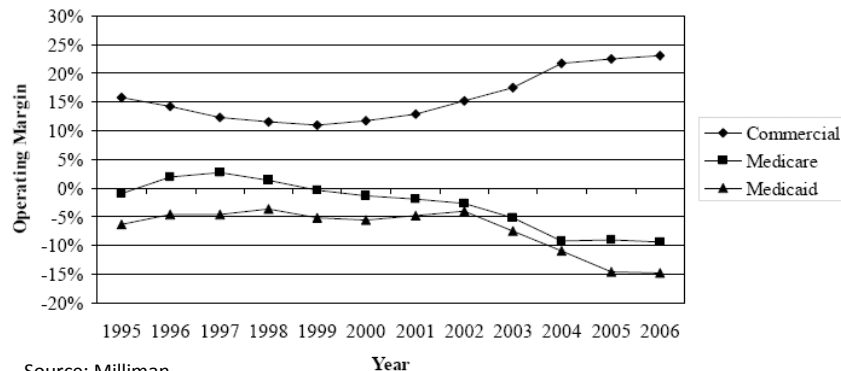
	Employer Ranking	Organization		Employer Ranking	Organization
Buncombe County			Durham County		
	1	Memorial Mission Hospital Inc.		1	Duke University
	4	Veterans Administration		4	Veterans Administration
	9	Community Carepartners Inc		5	Blue Cross Blue Shield Of NC
	11	Mission Medical Associates Inc		10	Quintiles Inc
				11	GlaxoSmithKline
Forsyth County			Guilford County		
	2	Wake Forest University Baptist		2	Cone Health
	3	Forsyth Memorial Hospital Inc.		7	High Point Regional Health System
	4	Wake Forest School Of Medicine			
	5	Novant Health Inc.			
Mecklenburg County			New Hanover County		
	1	Charlotte Mecklenburg Hospital		1	New Hanover Regional Medical Center
	11	Novant Health Corp			
	12	Presbyterian Hospital			
Wake County					
	3	Wake Med			
	4	Rex Hospital Inc.			

Source: NC Commerce

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Chart 6
Hospital Operating Margins by Year



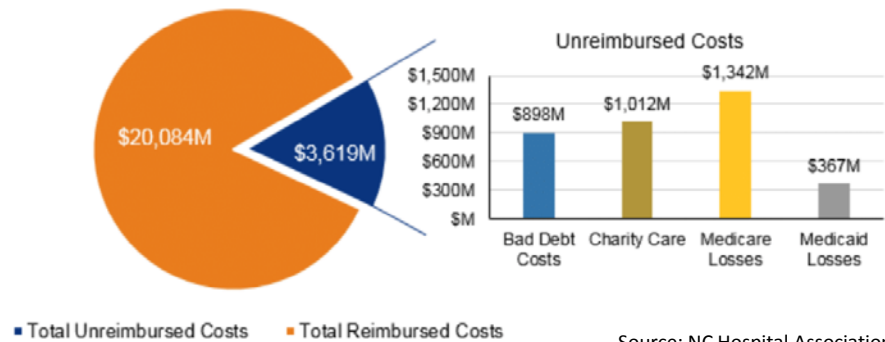
Source: Milliman

In the U.S., Hospitals lost **\$51 billion** in 2014 on Medicare & Medicaid patients; 65% of hospital lost \$ on M'Care and 61% of hospitals lost \$ on M'Caaid. In addition, hospitals lost **\$42.8 billion** on uncompensated care/bad debt (or 5.3% of expenses) in 2014

(Source: AHA)

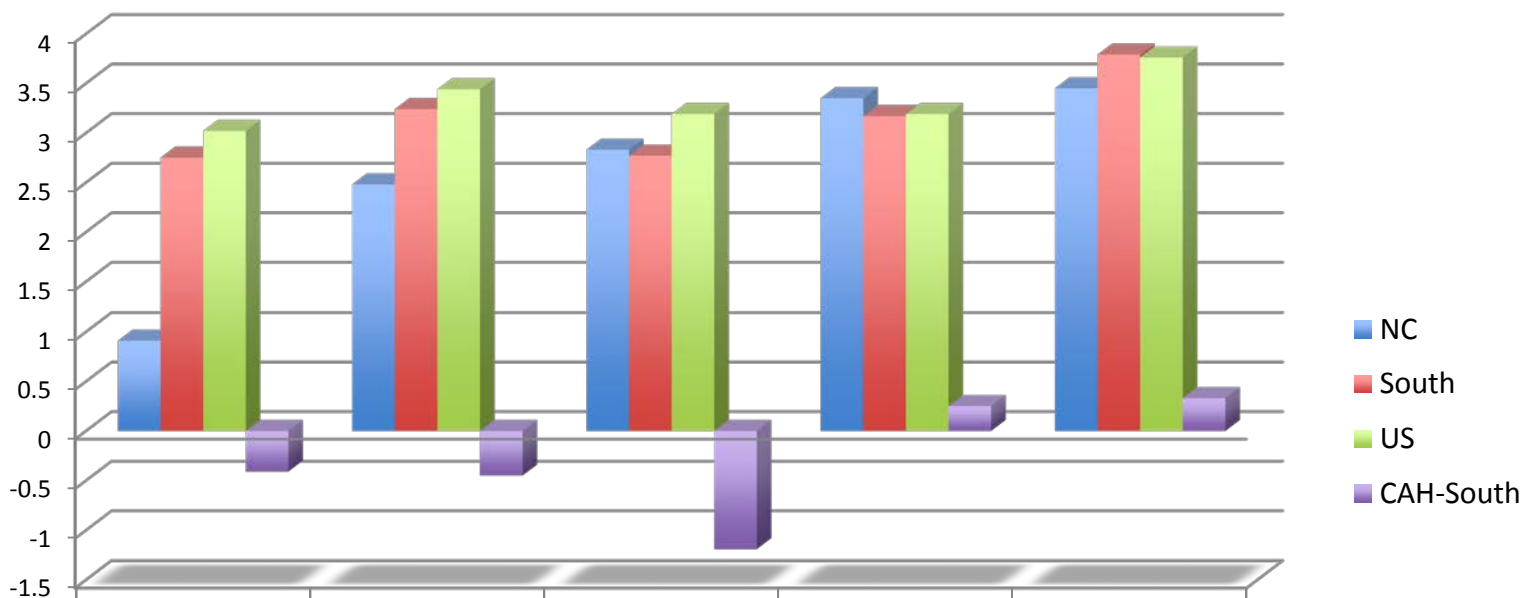
In FY 2015, these four categories totaled **\$3.6 billion** of unreimbursed costs for NCHA hospitals — equivalent to **15%** of total expenditures

Unreimbursed Costs and Reimbursed Costs (\$ 2015)



Source: NC Hospital Association

Median Hospital Operating Margins



	2011	2012	2013	2014	2015
NC	0.91	2.48	2.83	3.35	3.45
South	2.75	3.24	2.77	3.17	3.79
US	3.02	3.44	3.19	3.19	3.76
CAH-South	-0.41	-0.45	-1.19	0.25	0.33

Source: 2017 Almanac of Hospital Financial and Operating Indicators

Cost of Elder Care

- **Adult Day Care Daily Average (2016):** U.S. \$70 NC \$35 3rd least expensive
- **Home Care Hourly Rate (2016):** U.S. \$20 NC \$17.75 Rank 27th
- **Annual Assisted Living Costs (2016):** U.S. \$43,539 NC \$36,000 13th least exp.
- **Convalescent Care (SNF) Cost per Day (2017):** U.S. \$235 (\$85,775) NC \$225 (\$82,125) 22nd least expensive (avg. M'Caid Payment NC = \$163.75)

SNF = 5% Medicare's Budget ; SNF = \$1.2B in NC's Medicaid Budget SYS '17

Source:s American Elder Care Research Organization;
NCDMA; and Medicare.gov

NC is Home to 420 Licensed Skilled Nursing Facilities

Buncombe 12	Cabarrus 7
Davidson 8	
Durham 10	Edgecombe 3
	Forsyth 15
Guilford 21	Halifax 5
Johnston 5	
Mecklenburg 30	Mitchell 1
	New Hanover 11

Source: NC Division of Health Service Regulation

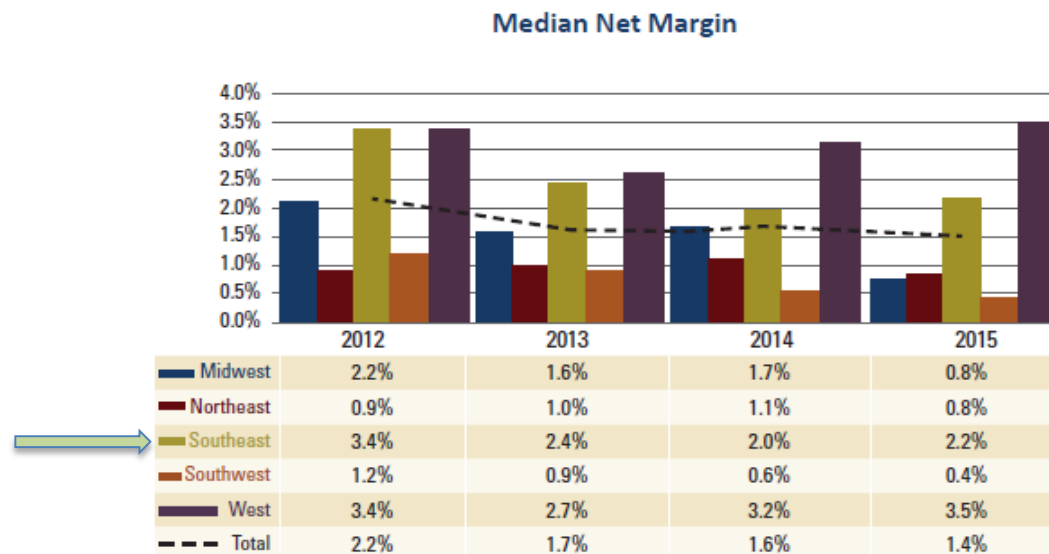
Ditt 6

Randolph 6

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U.S. Skilled Nursing Facilities Profitability



**TABLE
8-12**

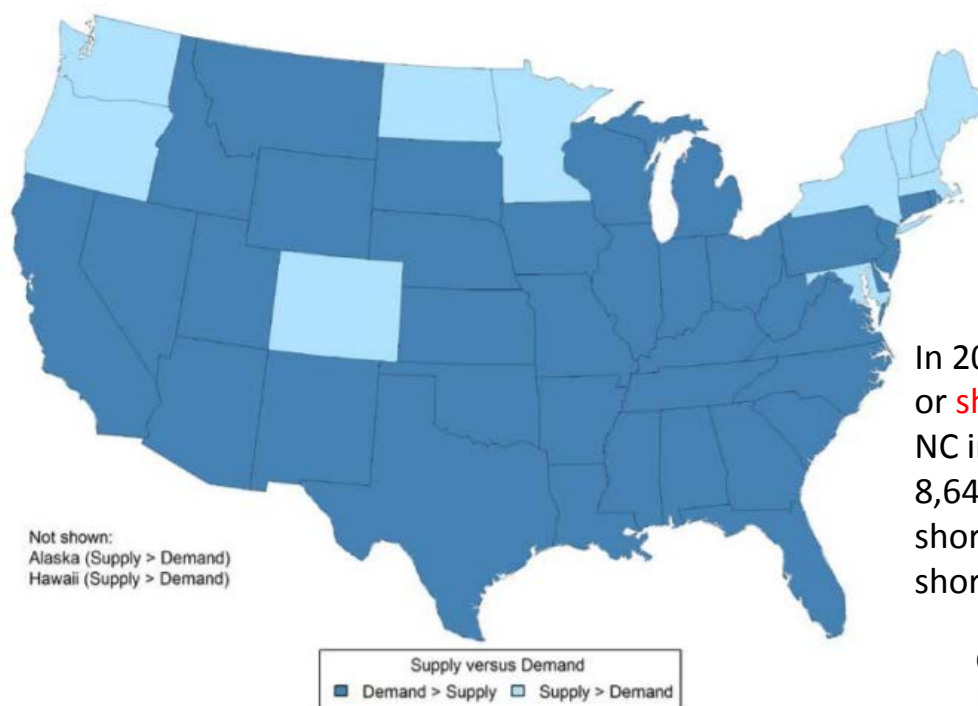
In the past 10 years, non-Medicare margins have been negative, but total margins have been positive in freestanding SNFs

Type of margin	2008	2010	2011	2012	2013	2014	2015
Total margin	2.2%	3.5%	3.8%	1.8%	1.9%	1.9%	1.6%
Non-Medicare margin	-2.4	-1.5	-2.6	-2.0	-1.9	-1.5	-2.0

Note: SNF (skilled nursing facility). "Total margin" includes the revenues and costs associated with all payers and all lines of business. "Non-Medicare margin" includes the revenues and costs associated with Medicaid and private payers for all lines of business.

Source: MedPAC analysis of freestanding 2008-2015 SNF cost reports.

Primary Care Physician Supply versus Demand, by State, 2025



In 2013, NC had 6,480 PCPs and needed 6,960 or **shortage of about 7%**. It is projected that NC in 2025 will have 7,620 PCPs and need 8,640 or **shortage of about 12%**. Overall, U.S. shortage in 2025 = 9%. Greatest regional shortage in South.

Compared with the 35 OECD Countries U.S. has 7th fewest physicians per 1,000 population, regardless of specialty

Source: Health Resources and Services Administration & OECD

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Select Less Populous North Carolina PCP Surplus/Shortage (A very, very, rough and quick look)

	2010 Population	Family Medicine Ratio	Family Medicine Demand	Family Medicine Active Licenses	Family Medicine Shortage		Internal Medicine Ratio	Internal Medicine Demand	Internal Medicine Active Licenses	Internal Medicine Shortage		Peds Ratio	Peds Demand	Peds Active Licenses	Peds Shortage		Total Surplus/ Shortage
Cabarrus	178,011	3,968	44.9	80	35.1		3,461	51.4	85	33.6		7,900	22.5	40	17.5		86.2
Davidson	162,878	3,968	41.0	23	-18.0		3,461	47.1	13	-34.1		7,900	20.6	17	-3.6		-55.7
Edgecombe	56,555	3,968	14.3	10	-4.3		3,461	16.3	10	-6.3		7,900	7.2	7	-0.2		-10.8
Halifax	54,691	3,968	13.8	12	-1.8		3,461	15.8	19	3.2		7,900	6.9	5	-1.9		-0.5
Johnston	168,878	3,968	42.6	36	-6.6		3,461	48.8	35	-13.8		7,900	21.4	13	-8.4		-28.7
Mitchell	15,579	3,968	3.9	12	8.1		3,461	4.5	6	1.5		7,900	2.0	4	2.0		11.6
Pitt	168,148	3,968	42.4	95	52.6		3,461	48.6	201	152.4		7,900	21.3	101	79.7		284.8
Randolph	141,752	3,968	35.7	29	-6.7		3,461	41.0	28	-13.0		7,900	17.9	16	-1.9		-21.6
Vance	45,422	3,968	11.4	12	0.6		3,461	13.1	15	1.9		7,900	5.7	9	3.3		5.7

Sources: US Census Bureau; NC Medical Board; PSR

Health and Productivity

- Lack of Access to Providers
Hinders Productivity

Table A. Number and rate of nonfatal occupational injuries and illnesses in private industry, United States and North Carolina, 2015

Characteristic	United States		North Carolina	
	Number (in thousands)	Rate (per 100 workers)	Number (in thousands)	Rate (per 100 workers)
Total cases	2,905.9	3.0	74.1	2.6
Cases with days away from work, job transfer, or restriction	1,571.9	1.6	38.3	1.4
Cases with days away from work	902.2	0.9	20.3	0.7
Cases with job transfer or restriction	669.8	0.7	18.0	0.6
Other recordable cases	1,333.9	1.4	35.8	1.3

Sources: CDC and U.S. BLS

EACH YEAR IN THE UNITED STATES...



Productivity losses linked to absenteeism cost employers

**\$225.8
BILLION**

(or \$1,685 per employee).

Source: CDC, International Monetary Fund



People going to work when they're sick (**presenteeism**) accounts for nearly

TWO-THIRDS OF THE TOTAL COSTS of worker illness.

Source: Harvard Business Review



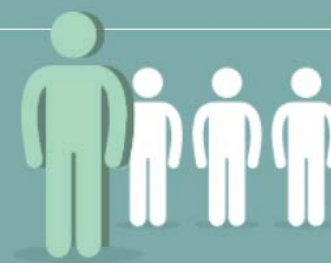
More than 48 million workers—or 38 percent of the U.S. working population—have no paid sick leave.

Source: NHIS, 2008

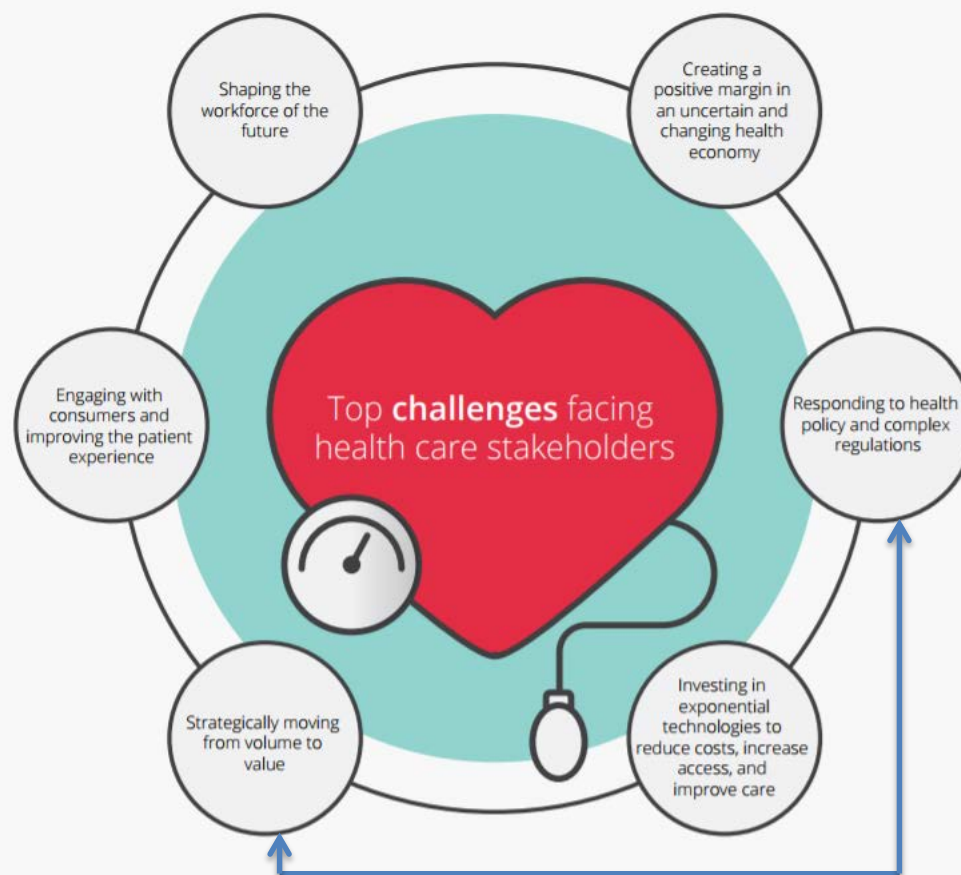
By 2020, one in four American workers will be

OVER 55

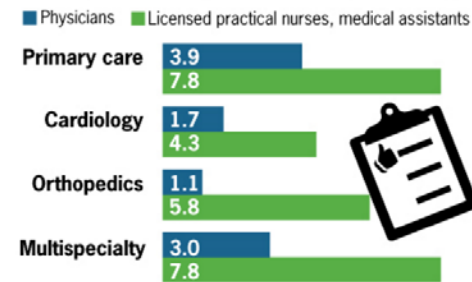
Source: U.S. Bureau of Labor Statistics



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Hours per week spent on quality reporting



"Each year US physician practices in four common specialties spend, on average, 785 hours per physician and more than \$15.4 billion dealing with the reporting of quality measures." Health Affairs March 2016 vol. 35 no. 3401-406

Thank you
and
Questions