

## Pharmacy Workforce Trends in North Carolina

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FOR HEALTH SERVICES RESEARCH

## Overview

- NC Pharmacist Workforce Trends
  - Supply and Demand
  - Distribution
  - Demographics
  - Education
- New & Emerging Roles
  - Care Coordination and Boundary Spanners in the Health System
  - What's Happening in Pharmacy?



## Who we are and what we do

## North Carolina Health Professions Data System (HPDS)

**Mission:** to provide timely, objective data and analysis to inform health workforce policy in North Carolina and the United States

- Based at Cecil G. Sheps Center for Health Services Research at UNC-CH, but mission is statewide
- A collaboration between the Sheps Center, NC AHEC and the health professions licensing boards
- System is independent of government and health care professionals



## North Carolina's health workforce data are the envy of the other 49 states

- 35 years of continuous, complete licensure (*not survey*) data on 19 health professions from 12 boards
- Data are provided *voluntarily* by the boards—there is no legislation that requires this, there is no appropriation
- Data housed at Sheps but remain property of licensing board, permission sought for each “new” use

**System would not exist without data  
and support of licensure boards**



## Supply & Demand



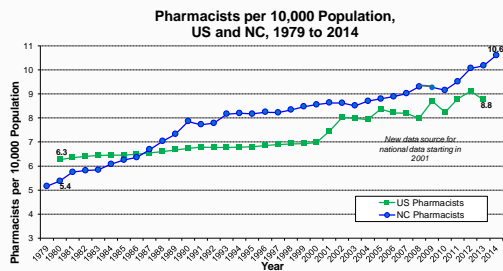
## So, how many pharmacists are there?

Licensed, active, in-state pharmacists in North Carolina:



Sources: North Carolina Health Professions Data System, with data derived from the North Carolina Board of Pharmacy, 2014. Data include all active, in-state pharmacists.

## North Carolina has consistently outpaced the US average in supply of pharmacists



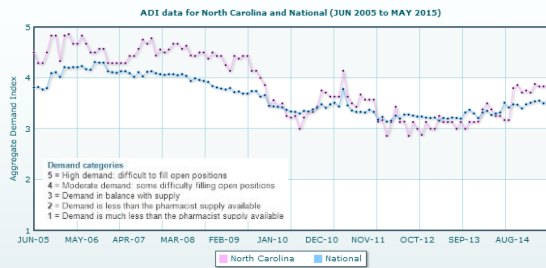
Sources: North Carolina Health Professions Data System, 1979 to 2014; HRSA, Bureau of Health Professions; US Census Bureau; North Carolina Office of State Planning. Figures include all licensed, active, in-state pharmacists. National pharmacist data from the

## High Growth in PharmD Programs in NC & US

- North Carolina
  - All 3 pharmacy schools have expanded enrollment since 2011
  - New pharmacy school at High Point University opens in 2016
- United States
  - Between 2000 and 2014:
    - the annual number of PharmD grads **doubled**<sup>1</sup>
    - the number of accredited pharmacy schools increased by **73%**<sup>2,3</sup>

1. Taylor DA, Taylor L, Nguyen NT. American Association of Colleges of Pharmacy Profile of Pharmacy Students 2014. Alexandria, Virginia: 2015. [http://www.aacp.org/resources/research/institutionalresearch/Documents/2014\\_PPS\\_Degrees%20Conferred%20Tables.pdf](http://www.aacp.org/resources/research/institutionalresearch/Documents/2014_PPS_Degrees%20Conferred%20Tables.pdf). Accessed 15 September 2015.  
 2. Watson SM, Mott GA, Knapp RK, Fisher G. Association between increased number of US pharmacy graduates and pharmacist counts by state from 2000-2009. American Journal of Pharmaceutical Education. May 10 2011;75(4):76.  
 3. American Association of Colleges of Pharmacy Website: AACP Institutional Members. Accessed 16 September 2015 at: <http://www.aacp.org/about/membership/institutionalmembership/Pages/institutionalmember.aspx>

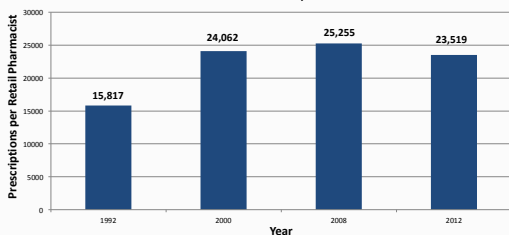
## Demand has been in balance with supply in NC and nationally, with a recent uptick



Source: Time-Based Trends in Aggregate Demand Index, supported by Pharmacy Marpower Project Inc. Accessed 14 Sept 2015 at: <http://www.pharmacympower.com/trends.jsp>

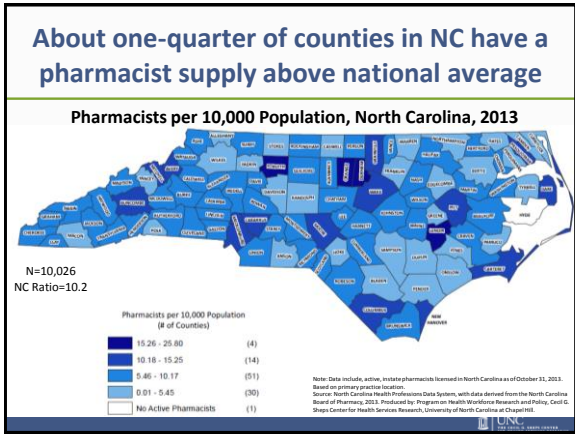
## Are More NC Retail Pharmacists Doing Less?

Annual Retail Prescriptions Dispensed per Active, Instate Retail Pharmacist in North Carolina, 1992 to 2012

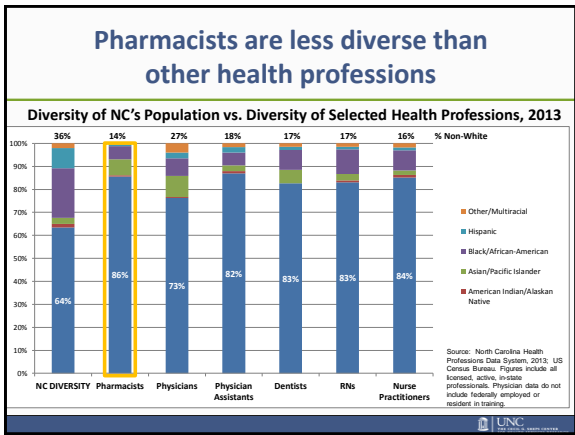
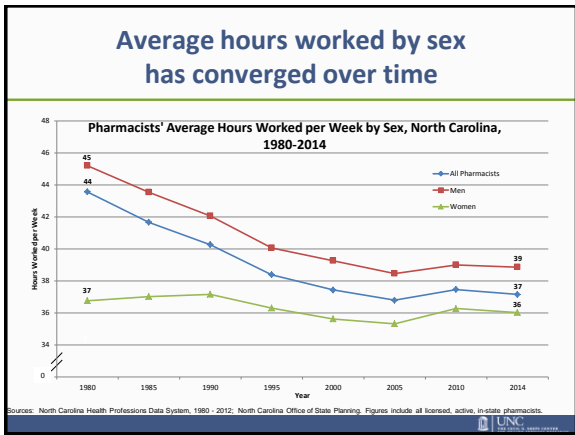
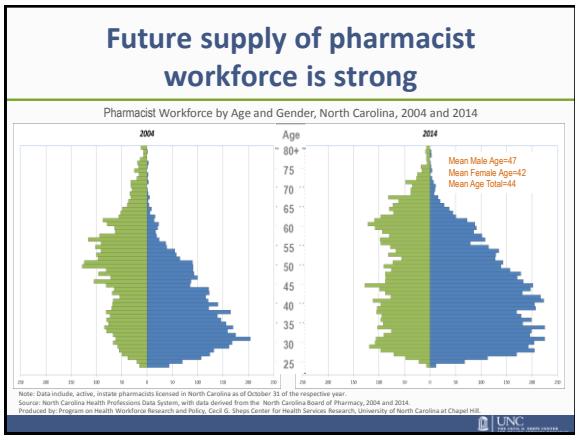


Source: North Carolina Health Professions Data System, with data derived from the North Carolina Board of Pharmacy, 2012. 2012 prescription data (Novem) January 2012-December 2012. MS Health Incorporated. All Rights Reserved. Pharmacist data include active, in-state pharmacists licensed in North Carolina as of October 31, 2012 reporting an employment setting of chain or independent pharmacy. Data do not include prescriptions dispensed at hospitals, clinics, long-term care facilities or mail-order operations. Data include new prescriptions and refills dispensed. 1992-2008 prescription data (March 2010) Figure 19. Annual Retail Prescriptions Dispensed per Active, Instate Retail Pharmacist in North Carolina, 1992 to 2008 (Fig 19). In Trends in the Supply of Pharmacists in North Carolina. Cecil G. Sheps Center for Health Services Research.

## Distribution



# Demographics



### Pharmacist workforce has been slow to diversify

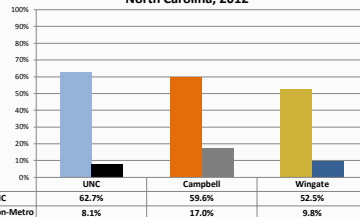
Race/Ethnicity	2000	2014
White	93.6%	84.6%
Black	3.3%	6.0%
American Indian	0.4%	0.7%
Asian	2.6%	7.4%
Hispanic	0.1%	0.6%
Other	0.04%	0.7%
<b>Total Pharmacists</b>	<b>6,917</b>	<b>10,542*</b>

\* 4 pharmacists did not report race data in 2014 and are omitted from the total. Source: North Carolina Health Professions Data System, 2000 and 2014; Figures include all licensed, active, in-state pharmacists. Numbers may not add up to 100% due to rounding.

# Education

## Over half of in-state PharmD grads from 2008–2012 stayed in North Carolina

In-state Retention Rates of PharmD Grads, Class of 2008 – 2012, North Carolina, 2012



Source: Personal communication, Michael Mandelakis, Wingate University School of Pharmacy, 20 October, 2013; Personal communication, Wendie Cox, UNC Eastern School of Pharmacy, 20 October, 2013; Personal communication, Mark Moore, Campbell University College of Pharmacy & Health Sciences, 14 November, 2013; North Carolina Health Professions Data System with data derived from the North Carolina Board of Pharmacy. Note: Data include active, in-state pharmacists licensed in North Carolina as of October 31, 2012 who graduated from an in-state pharmacy school between 2008-2012.

## Over half of pharmacists in NC and 67% of those in rural counties were educated in-state

- **56%** (5,928 of 10,546) of all active, licensed pharmacists in NC in 2014 graduated from an NC school of pharmacy
- **67%** (1,200 of 1,784) of pharmacists in non-metropolitan areas in 2014 graduated from an NC school of pharmacy

## NC training but not retaining a more diverse workforce

Race/Ethnicity of NC Pharmacists Who Graduated from an NC School of Pharmacy, 2009 to 2014

Race/Ethnicity	UNC		Campbell		Wingate		Total NC	
	#	%	#	%	#	%	#	%
White	439	79.0%	347	87.6%	201	90.1%	987	84.0%
Black	37	6.7%	14	3.5%	9	4.0%	60	5.1%
American Indian	2	0.4%	8	2.0%	0	0.0%	10	0.9%
Asian	69	12.4%	22	5.6%	8	3.6%	99	8.4%
Hispanic	4	0.7%	2	0.5%	3	1.3%	9	0.8%
Other	5	0.9%	3	0.8%	2	0.9%	10	0.9%
<b>Total</b>	<b>556</b>		<b>396</b>		<b>223</b>		<b>1,175</b>	

Data include active, in-state pharmacists who graduated from an NC school of pharmacy between 2009 and 2014. Source: Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, with data derived from the NC Pharmacy Board, 2014.

## To sum up thus far...

- Supply is strong & growing
- Pharmacists are mostly female & mostly white
- Urban/rural distribution is relatively good
- Demand for pharmacists has declined over the past decade

## New & Emerging Roles

## Accountable Care Organizations & Patient Centered Medical Homes

### Key characteristics

- Emphasis on primary and preventative care
- Health care is integrated<sup>1</sup>:
  - Across medical sub-specialties, facilities, & systems
  - Over time and between visits
- Technology used to monitor health outcomes
- Designed to lower cost, increase quality, improve patient experience
- Care based on value, not volume

1. Singer SJ, Bugers J, Friedberg M, Rosenthal MB, Leap L, Schneider E. 2011. Defining and measuring integrated patient care. J Gen Intern Med. 2011;26(10):1211-1217.

## Reframing the questions we ask: From provider type to provider role

### Old School

- How many of x, y, z health professional type will we need?

### New School

- What roles are needed and how can different skill mix configurations meet patients' needs in different geographies and practice settings?

## Sheps study synthesized evidence on workforce implications of new models of care

### Study to identify:

1. task shifting occurring in the delivery of *traditional* health care services;
2. new staff roles emerging to provide *enhanced care* services;
3. how employers are "putting it all together"; and
4. implications for health workforce research and policy

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## Significant task shifting to deliver traditional health care services

### Examples

Medical Assistants	Registered Nurses	NPs and PAs	Pharmacists
rapidly morphing, taking patient histories, giving immunizations, providing preventive care services and scribing	refilling prescriptions under protocols, entering and interpreting data from EHRs, creating care plans and providing patient education	managing own patient panels and providing care for bulk of patients with uncomplicated acute, chronic care needs	coordinating drug therapies, developing medication management plans and educating patients. Some states (CA, MT, NM and NC) created advanced practice pharmacists

## New roles emerging to provide enhanced care functions

- May be filled by existing staff or new hires
- It's complicated:
  - Some roles have similar functions but different titles
  - Other roles have different functions but same name
  - Many roles are filled by different types of providers
- Two of most common:
  1. Roles that focus on coordinating care within the health care system
  2. "Boundary spanning" roles that address patient care needs between home and health care settings

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## Care coordination is big

- Increased incentives to keep patients out of hospital
- In January 2015, Medicare began paying \$42/month for managing care for patients with two or more chronic conditions
- Nurses most often taking on roles as care coordinators, case managers and transition specialists

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## Workforce models need to capture plasticity of practice

- Literature demonstrates heterogeneity in who provides what health services
- Need to move away from specialty-specific projections
- Need to acknowledge plasticity—health providers will adjust their scopes of services to meet patients needs
- Patients' health care needs will be met by different workforce configurations in different settings and geographies



## How do we get there from here?



## How do we redesign structures to support these roles? → Education

### Need to redesign education system so workers can flexibly gain new skills and competencies

- Training must be convenient—timing, location, and financial incentives must be taken into consideration
- Need to prepare faculty to teach new roles and functions
- Clinical rotations need to include “purposeful exposure” to high-performing teams

Source: Fisher E, Spiller J, Neuhoff M. Nursing in a Transformed Health Care System: New Roles, New Rules. *DO/WHI Research Brief*. June 2010. Ledford et al. The Emerging Primary Care Workforce: Professional Opportunities and the Primary Care Team. Learning from Medicare Ambulatory Carecare Providers. *Academy of Medicine*. 2013. 48(12): 1338-1342.



## How do we redesign structures to support these roles? → Regulation

### To create a more dynamic regulatory system, we need:

- To develop evidence to support regulatory changes, especially for new roles
- Better evaluation of pilot workforce interventions to understand if interventions improve health, lower costs and enhance satisfaction
- To establish a national clearinghouse to provide up-to-date and reliable information about scope of practice changes in other states

Source: O'Neil C, Moore J, Langstaff M. It's time to restructure health professions, scope-of-practice regulations to remove barriers to care. *Health Aff (Millwood)*. 2012;31(12):2112-2116. Fisher E, Spiller J, Neuhoff M. Nursing in a Transformed Health Care System: New Roles, New Rules. *DO/WHI Research Brief*. June 2010.



## How do we redesign structures to support these roles? → Practice

### Need to minimize role confusion by clearly defining and training for new functions

- Job descriptions have to be rewritten or created
- Work flows have to be redesigned
- Lack of standardized training and funds to support training is big obstacle
- Existing staff won't delegate or share roles if don't trust other staff members are competent
- Time spent training is not spent on billable services



## Who is going to pay for all the retooling we need to do? → \$

- Adequate and sustainable payment models to retool and redeploy the workforce are lacking
- Many workforce innovations are supported by one-time funds. If payment models don't change rapidly enough, will these interventions be sustainable?
- Are adequate dollars available to conduct research and evaluations necessary to develop evidence base needed to support workforce redesign?



## Where do pharmacists fit in?

- Scope of practice regulations limit pharmacist roles in direct patient care<sup>2,3</sup>
- Payment model reimburses for dispensing fees, while “cognitive services” not fully reimbursed<sup>1,2,3,4</sup>

But...

1. Brown D. 2012. The paradox of pharmacy: a profession's house divided. JAPHA 52 (6): e139-e143.  
 2. Smith M, Bates DW, Bodenheimer TS. 2013. Pharmacists belong in accountable care organizations and integrated care teams. Health Affairs 32(11): 1963-1970.  
 3. Maine LL, Knapp KK, Shekellehoff DI. 2013. Pharmacists and Technicians can enhance patient care even more once national policies, practices, and priorities are aligned. Health Affairs 32(11): 1956-1962.  
 4. Scott MA, Hitch WL, Wilson CG, Ligo AM. 2012. J Am Pharm Assoc 52:175-180.



## Pharmacist workforce is primed for new roles in a changing health system

NC Example: MAHEC Pharmacotherapy & Wellness Clinics

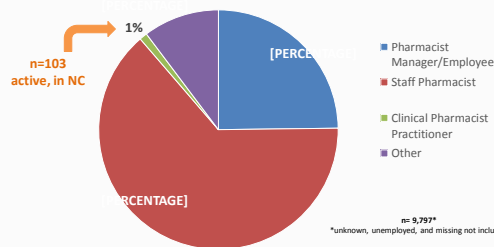
- Ambulatory Care Services
  - Medication Therapy Management (MTM) services
  - Wellness visits
  - Diabetes
  - Pain Management

...but need larger scale payment mechanisms and state-level regulatory changes to broadly expand this model



## In NC, Clinical Pharmacist Practitioners provide direct patient care, but they are few

Form of Employment of Active Pharmacists, North Carolina, 2014



Source: North Carolina Health Professions Data System with data derived from the North Carolina Board of Pharmacy. Figures include all licensed, active, in-state pharmacists as of October 31, 2014.



## Are CPPs most effective for certain types of patients?

TABLE 3. Areas of Therapeutic Practice<sup>a</sup> for Active and Inactive Clinical Pharmacist Practitioners (CPPs) in North Carolina (N = 76)

	Active CPPs (N = 54) n (%)	Inactive CPPs (N = 22) n (%)
Anticoagulation	34 (63.0)	13 (59.1)
Hyperlipidemia	27 (50.0)	14 (63.6)
Diabetes	25 (46.3)	12 (54.5)
Respiratory diseases	19 (35.2)	6 (27.3)
Hypertension	18 (33.3)	10 (45.5)
Medication therapy management	14 (25.9)	5 (22.7)
Smoking cessation	14 (25.9)	3 (13.6)
Hematology/oncology	8 (14.8)	0 (0.0)
Pain management	8 (14.8)	2 (9.1)
Osteoporosis	7 (13.0)	3 (13.6)
Obesity	5 (9.3)	3 (13.6)
Heart failure	4 (7.4)	2 (9.1)
Mental health	4 (7.4)	1 (4.5)

Hale JC, Murawski MM, Ives TJ. 2015 Practice characteristics and clinical distribution of clinical pharmacist practitioners in North Carolina. NCMJ 76(4): 205-210.

<sup>a</sup>Respondents were given the option to list multiple therapeutic practice activities.



## Will retail clinics become the ‘front door’ for primary care?

- Walgreens, CVS, Rite Aid are opening clinics, offering health coaching and MTM services
  - Business case to bundle clinical services, pharmacy services, nutrition, lifestyle, and obesity management<sup>1</sup>
  - Will high foot traffic increase access to care, esp. in underserved areas?<sup>1</sup>
- What will retail clinic roles look like for pharmacists, NPs, PAs, others?
  - Scope of practice regulation varies by state
- How to coordinate care with the larger health system?

1. Barach D, Frohlich J, Garcimonde A, Nevitt K. 2015. Building a Culture of Health: the Value Proposition of Retail Clinics. Robert Wood Johnson Foundation, Manatt. April 2015. Accessed 16 Sept 2015 from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2015/rwjf149415/subassets/rwjf149415\\_1](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2015/rwjf149415/subassets/rwjf149415_1)



## What are new roles for Pharmacy Technicians?

- Roughly 49% of pharmacist’s day spent on work related to dispensing<sup>1</sup>
- If/when pharmacists take on new roles, potential to concurrently expand role of pharmacy technicians<sup>2</sup>
  - Tech-Check-Tech data demonstrate safety<sup>3</sup>
  - New roles as care coordinators?
    - Use knowledge for medication reconciliation?
  - Other expanded roles for pharmacy techs? Career ladders?

1. Gauthier CA, Schommer JC, Douville WF, et al. 2015. Final report of the 2014 National Pharmacist Workforce Survey. Accessed 21 Sept 2015 at <http://www.aap.org/Research/Research%20Reports/Research%20Reports/Profession%20of%20Pharmacy/PharmacyWorkforce2014.pdf>

2. Maine LL, Knapp KK, Shekellehoff DI. 2013. Pharmacists and Technicians can enhance patient care even more once national policies, practices, and priorities are aligned. Health Affairs 32(11): 1956-1962

3. Adams AL, Martin SL, Stigler P. 2011. Tech-check-tech: A review of the evidence on its safety and benefits. Am Health Syst Pharm 63:1824-1831

4. Skane P. 2012. Advancing technician roles: an essential step to pharmacy practice model reform. A J Health Syst Pharm 68: 1849-1855.



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# Thank you

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