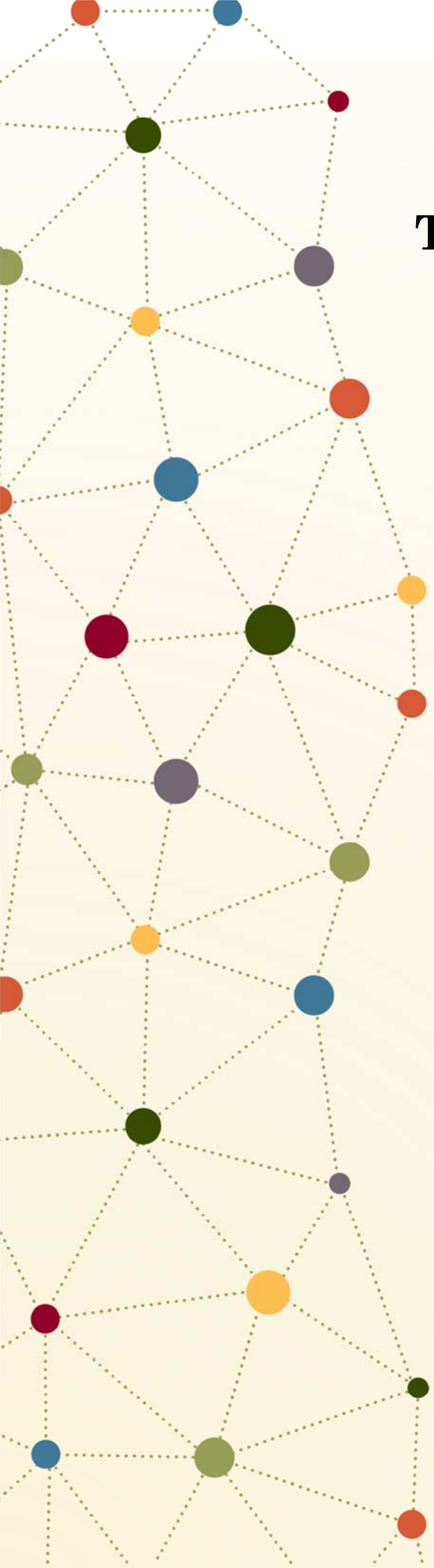

The Psychologist Workforce in North Carolina: Expanding Access for Patients in Rural Areas

A Report from the
Cecil G. Sheps Center for
Health Services Research

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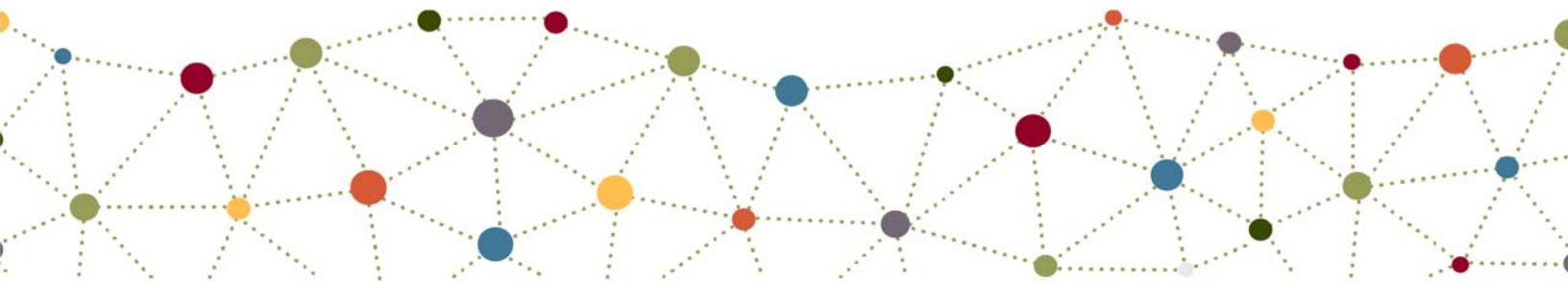


The Psychologist Workforce in North Carolina: Expanding Access for Patients in Rural Areas

Executive Summary

This report examines trends in the North Carolina psychologist workforce, including factors related to the decision of clinical psychologists to practice in rural settings. The report was prepared by staff members of the Program on Mental Health and Substance Abuse Services and Systems and the Program on Health Workforce Research and Policy at the Cecil G. Sheps Center for Health Services Research at the request of the University of North Carolina General Administration. This work was undertaken to provide a context for evaluating the need to expand clinical psychology doctoral program offerings by component units of the consolidated University of North Carolina, especially those campuses located in rural areas, as one method to alleviate the mental health provider shortage experienced in rural areas in North Carolina.

We use a multi-pronged approach to examine a number of important questions related to the size, location, and composition of the psychologist workforce in North Carolina. These methods include a review of the peer reviewed and grey literature; an analysis of the locations of programs awarding doctoral degrees in psychology nationwide and in the state; an analysis of the practice, demographic, and educational characteristics of the psychologist workforce using licensure data from the North Carolina Health Professions Data System; and interviews with both PhD and PsyD training program directors at universities in North Carolina and other states. To the extent possible, we focus our analyses on psychologists engaged in clinical practice and on factors that facilitate clinical practice in rural areas.

A number of key findings emerge from this work. ***First***, very few programs and institutions awarding psychology doctoral degrees in the U.S. are located in rural areas (less than 1% of programs). North Carolina has programs at seven UNC institutions, none of which is located in a rural area, but most of

which are located in proximity to mental health provider shortage areas. ***Second***, a growing number of students awarded psychology doctoral degrees in North Carolina or elsewhere are pursuing postdoctoral training, which may be required for practice specialization or desirable for meeting clinical supervision requirements for licensure or academic employment. For those new graduates who enter the workforce immediately after obtaining their doctoral degree, the modal job was associated with a clinical human service setting, such as a hospital, managed care organization, or private practice. ***Third***, approximately 80% of practicing psychologists have out-of-state degrees and about 80% of in-state graduates are not licensed in NC. This juxtaposition undermines the utility of adding more in-state degrees. An alternative strategy would be more out-of-state recruitment. However, since there are so few national rural-focused training programs, out-of-state recruitment would be unlikely to solve rural health practice needs in NC. ***Fourth***, both PhD and PsyD programs that meet certification by the American Psychological Association are able to produce graduates that can meet clinical needs in rural and other underserved areas. ***Fifth***, while expansion of training programs within rural areas in North Carolina could help alleviate the shortages of mental health providers in rural areas in the state, simply adding a new degree or concentration alone will not be successful. Clinical programs require a training infrastructure involving collaboration with extra-university partners. Access to clinics, hospitals, and practices that offer mental health services is needed so that students can be exposed to clinical work in rural environments. Further, to serve as training sites, these settings must have licensed psychologists and other qualified mental health professionals on staff to provide the necessary supervision for both neophyte and advanced students. Few rural communities have such resources. In addition, a clinical doctoral degree requires a paid, 12-month internship prior to graduation in a treatment setting approved by the American Psychological Association. Currently, there are very few clinical internships nationally and none in North Carolina that specialize in rural mental health. ***Finally***, our report considers complementary strategies to recruit and retain psychologists who treat individuals residing in rural areas, including greater incentives and training to prepare psychologists to use emerging technologies such as telemedicine or web-based approaches.

Scope of this report

This report examines trends in the North Carolina psychologist workforce, including factors related to the decision of clinical psychologists to practice in rural settings. The report was prepared by staff members of the Program on Mental Health and Substance Abuse Services and Systems and the Program on Health Workforce Research and Policy at the Cecil G. Sheps Center for Health Services Research at the request of the University of North Carolina General Administration. This work was undertaken to provide a context for evaluating the need to expand clinical psychology doctoral program offerings by component units of the consolidated University of North Carolina, especially those campuses located in rural areas, as one method of alleviating the shortage of mental health providers in rural areas of North Carolina.

For this report, we collected information from several sources to answer the following questions:

- What are the demographic and practice characteristics of psychologists nationwide?
- Where are psychology doctoral programs located?
- Where are new graduates of psychology programs employed?
- What do we know about licensed psychologists in North Carolina?
- What do we know about psychologists in rural practice?
- Do PhD and PsyD psychologists have unique skills for addressing mental health needs?
- Does rural vs. urban location matter in training clinical psychologists for rural practice?
- Are there options other than new degree programs that might increase the number of practicing clinical psychologists in rural areas?
- What are the perspectives of doctoral program directors on rural recruitment, training, and workforce opportunities?
- What are the implications of our findings for recruitment and training of rural psychologists in North Carolina?

We use a multi-pronged approach to examine the psychologist workforce in North Carolina, including a review of the peer reviewed and grey literature (websites and unpublished reports); an analysis of the location of programs awarding doctoral degrees in psychology nationwide and in NC; an analysis of the practice, demographic, and educational characteristics of the psychologist workforce in NC using licensure data from the North Carolina Health Professions Data System (NC HPDS); and interviews with directors of doctoral programs in clinical psychology (PhD and/or PsyD) both at universities in NC and other states to understand where current graduates are

getting jobs and why they may or may not be choosing to practice in rural communities. To the extent possible, we focus our analyses on psychologists engaged in clinical practice and on issues that facilitate clinical practice in rural areas.

Introduction to the field of psychology

Psychologists are a critical part of the mental health workforce. The term *psychologist* refers to an individual who has completed doctoral-level education, typically receiving either a Doctor of Philosophy (PhD) or a Doctor of Psychology (PsyD) degree. Specialization in certain fields of psychology, such as forensic psychology, requires supervised post-graduate training. Masters or undergraduate training in psychology is available at many institutions in NC and most other states, but these programs are outside the scope of this report.

Psychologists may specialize in clinical care, in research, or in a growing number of other areas, including business and organizational psychology or computational psychology. In 1973, the American Psychological Association's Conference on Levels and Patterns of Training suggested a practitioner-scholar model of training, with the PsyD degree used for graduates who concentrate largely on clinical training and the PhD degree awarded to candidates with both clinical and experimental research training. This training distinction does not restrict the clinical practice of either degree holder. Clinical training for either doctoral degree generally involves advanced course work, clinical practicums, and internships. The vast majority of psychologists, however, receive PhDs, including many who provide clinical services.

What are the demographic and practice characteristics of psychologists nationwide?

Methods: There are no publicly available secondary data on the characteristics of psychologists in the US who engage in clinical practice. The American Psychological Association (APA) collects data from its members on demographics and practice settings but this information is not made available for analysis by outside researchers. Instead, to obtain a demographic profile of the psychology workforce, we examined published reports from the APA that use data collected in the American Community Survey (ACS) and from special surveys of APA members. It is important to note that the ACS allows individuals to self-identify as psychologists and therefore may include individuals without doctoral training.

According to ACS data, there were approximately 153,000 active psychologists in the US in 2013, an increase of 3.2% since 2005 (APA, 2015). This is in contrast to a 7% increase in the overall US population during the same time period, indicating an effective decrease in the ratio of active psychologists per population. APA member surveys indicate that 70% of active psychologists hold a PhD, 16% have a PsyD, and 3% have a Doctorate in Education (EdD). Fifty-five percent of APA members report being in a health service provider subfield (such as health psychology) and 59% report holding a current license (APA, 2015). Two major primary employment settings for APA members are independent practice (33%) and university (21%). Psychologists in the US are heavily clustered along the coasts and one-third of practicing psychologists are located in one of four states: California, New York, Pennsylvania, and Massachusetts. According to ACS data, the APA reported between 2,000-2,999 active psychologists in North Carolina in 2014 (APA, 2015).

The psychologist workforce has become more predominantly female. Between 2005 and 2013, the ACS indicates that the percentage of active psychologists who were female increased by 10 percentage points, from 58.2% to 68.3%. The widening gender gap was the joint result of more female psychologists entering the workforce as well as more male psychologists exiting the workforce (APA, 2015).

The age distribution of the psychologist workforce is bimodal, with two peaks: one at ages 31 to 35 and the other at ages 56 to 65, corresponding to the "baby boomer" and "echo boomer" populations (APA, 2015).

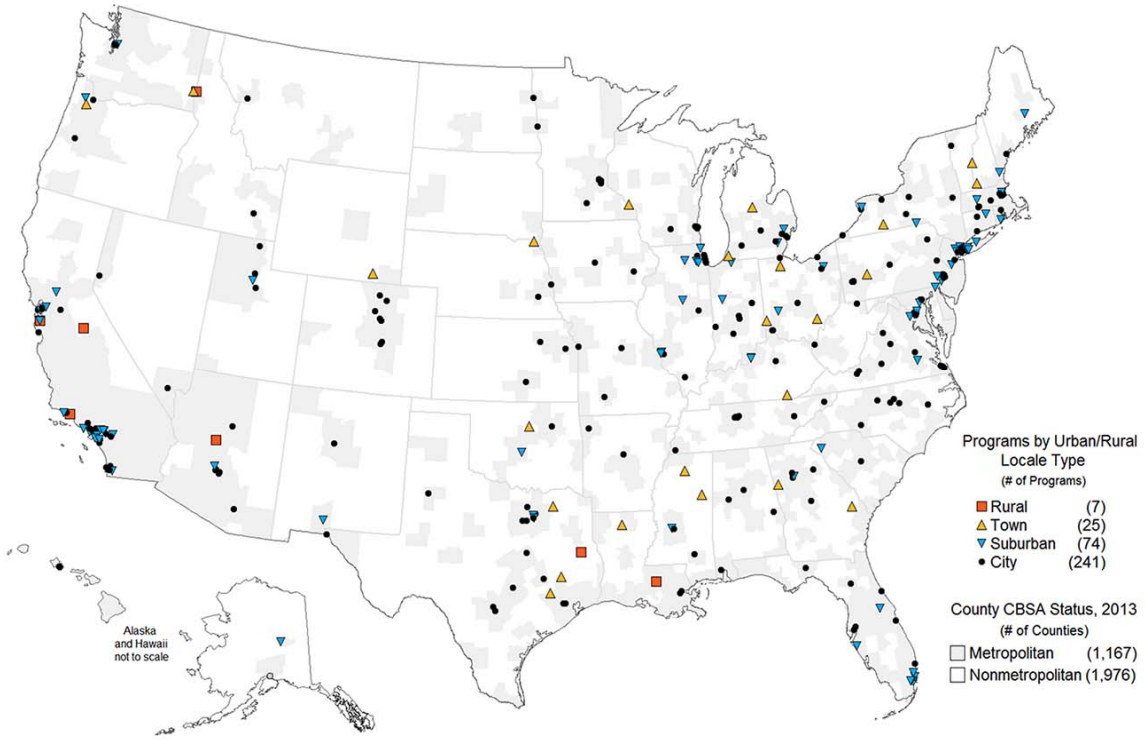
Where are psychology doctoral programs located?

Methods: We generated data on the location and rural status of doctoral programs in psychology from the 2014 Integrated Postsecondary Education Data System (IPEDS). Rural status was based on the county in which each doctoral program was located. For this report, we collapsed 12 New Urban Centric Locale Type categories coded by IPEDS into 4 location categories: *City* (inside an urbanized area[1] and a principal city); *Suburban* (inside an urbanized area but outside a principal city); *Town* (inside an urbanized cluster but outside an urbanized area); or *Rural* (outside both an urbanized area and an urbanized cluster). We also integrated data on licensed psychologists from the North Carolina Health Professions Data System

[1] *Urbanized Areas: 50,000 or more people with a core population density of at least 1,000 people per square and adjoining territory with at least 500 people per square mile. Urban Clusters: places with populations between 2,500 and 50,000 people. (US census Bureau, www.census.gov)*

with data on mental health need and shortage from a previous Sheps Center project (Thomas et al, 2012). We used these data to generate maps depicting the location and rural status of nationwide training programs and the distribution of North Carolina programs in relation to county-level need for mental health professionals. Doctoral degrees are awarded by 707 university programs in 338 institutions, meaning that the average institution offers doctoral level psychology degrees from multiple departments (usually either psychology or education). Only 7 programs in 6 institutions[2] (1% of programs and 1.8% of institutions) are coded as being located in rural areas nationwide (**Figure 1**).

Figure 1: Map of US doctoral psychology programs, with differently colored dots for rural vs urban location

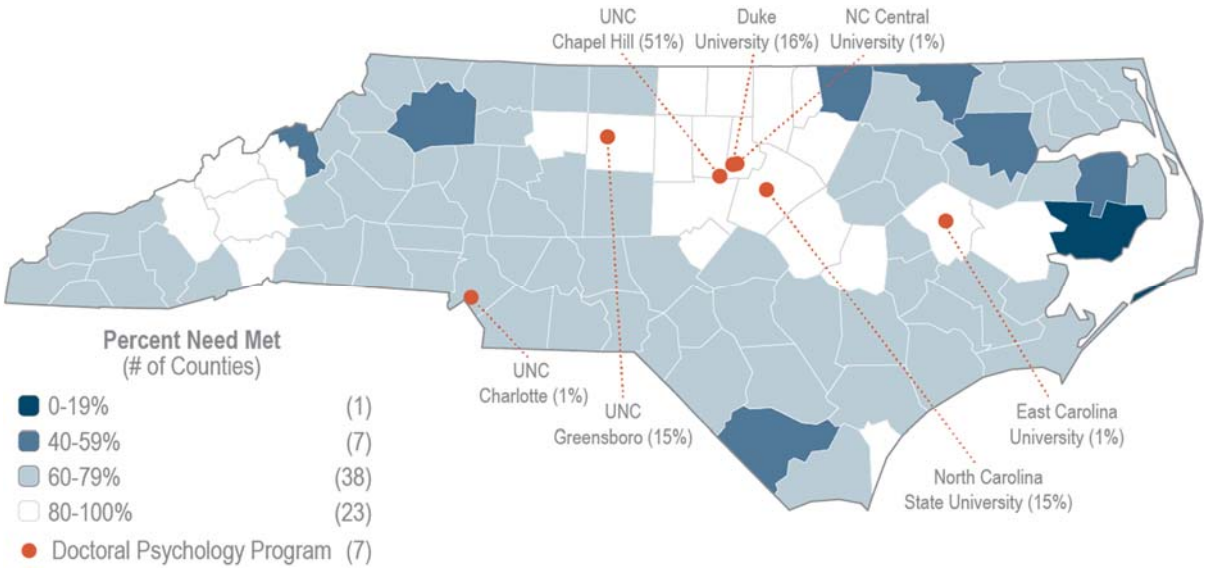


Sources: IPEDS, National Center for Education Statistics, 2015; US Census Bureau and Office of Management and Budget, 2013. Note: New Urban-Centric Locale Types are created by the NCES and based on an address's proximity to an urbanized area. For definitions, see https://nces.ed.gov/ccd/rural_locales.asp. Core Based Statistical Areas are current as of the February 2013 update. Nonmetropolitan counties here include micropolitan and counties outside of CBSAs.

[2] *One of the "rural" programs is Palo Alto University, in Palo Alto, California, a location which is not typically considered rural.*

We also created a state map in order to examine the proximity of North Carolina's current doctoral psychology programs to the state's underserved areas. **Figure 2** overlays three data elements: (1) the geographic distribution of the seven institutions granting doctoral degrees in psychology in North Carolina; (2) of the 385 NC-trained, NC-licensed psychologists who were actively practicing in 2014, the percentage who trained at each institution; and (3) the degree to which need for mental health professionals is currently being met in each of North Carolina's 100 counties (Thomas et al., NCMJ 2012). The map shows that most of North Carolina's psychology trainees are receiving their training in urban areas where most of the need for mental health professionals is already being met. None of the seven institutions granting doctoral degrees in psychology in North Carolina is located in a rural area. However, every training program is within an hour of a county with substantial unmet mental health needs (indicated by darker shading) (Thomas et al., 2012). East Carolina University (ECU) is surrounded by counties with high unmet need but it currently accounts for only 1% of the state's doctoral-level psychologists.

Figure 2: Geographic distribution of doctoral-level psychology training, in relation to the degree to which NC counties' need for mental health professionals is currently being met



Source: Program on Mental Health and Substance Abuse Systems and Services Research, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Where are new graduates of psychology programs employed?

Methods: The APA conducts a Doctorate Employment Survey during the year following graduation and provides information on initial career paths for new psychologists. The latest questionnaire was sent to individuals awarded doctoral degrees between July 1, 2008 and June 30, 2009. A total of 1,280 useable questionnaires were returned, yielding an overall response rate of 34.8% (Michalski et al, 2010). The modest response indicates that the data may not adequately represent the population of new doctoral-level psychologists. Among those who responded, 75% had earned a PhD, and 24% had been awarded a PsyD (Michalski et al, 2010), up substantially from 17% in 1996 and 8% in 1985 (Kohout & Wicherski, 1999) and higher than the 16% figure reported above from the APA member survey. The state in which a degree was awarded was not reported.

Sixty-three percent of the new doctoral participants were employed full time and approximately 8% were employed part time. The percentage in postdoctoral training quadrupled over a 23-year period, from about 6% in 1986 to 20% in 2007 and 24% in 2009. A solid majority (56%) of respondents from programs focusing on the biological basis of behavior (e.g., physiological and neuroscience) were engaged in postdoctoral study in 2009, compared to only 22% in the remaining research fields. Unemployment remains relatively low at 6% among new psychologists.

Thirty-seven percent of new doctoral graduates working in full-time positions were in the human service sector; 32% were in academia; 8% were in other educational settings; and 21% were in business, government, and other settings. Most of those employed in full-time human service positions worked in organized care settings, such as general/ psychiatric hospitals, community care centers, or managed care, rather than individual or group private practices (31% versus 6%), which may reflect the supervision requirement for full licensure, ranging from 1,500 to 6,000 hours depending on the state.

What do we know about licensed psychologists in North Carolina?

Methods: We obtained permission from the North Carolina Psychology Board to use data from the North Carolina Health Professions Data System (NC HPDS), housed at the Cecil G. Sheps Center, on licensed doctoral-level psychologists who actively practice in the state. The use of these data was reviewed and approved by UNC's Institutional Review Board. These data include the training program completed, demographic information, and practice information on individuals currently licensed, regardless of the location of their training. To examine longitudinal trends in these variables, we obtained data from 2004, 2009 and 2014.

We identified 2,138 licensed psychologists with doctoral degrees who were actively practicing in North Carolina in 2014. **Table 1** presents the location of training, if in NC, and the percent of each program's graduates working in rural counties. Licensed psychologists reported receiving training from one of seven NC institutions or an out-of-state program. NC programs include Duke University, East Carolina University (ECU), North Carolina Central University (NCCU), North Carolina State University (NCSU), University of North Carolina at Charlotte (UNC-C), University of North Carolina at Chapel Hill (UNC-CH), and University of North Carolina at Greensboro (UNCG).

Among the 2,138 NC-licensed active psychologists in 2014, 61% were female, slightly lower than the 68% female reported from the national ACS data. The majority of NC-licensed psychologists were white (87.1%), with 6.3% identified as Black and less than 0.1% as Hispanic. The remaining 6.5% identified as Native American, Asian, Other, or Missing race.

Table 1: Training location of NC licensed psychologists and proportion practicing in rural counties, 2014

	Licensed psychologists		Working in rural county	
Doctoral Training Program	n	%	n	%
Out of State	1,753	82.0	191	10.9
UNC-Chapel Hill	197	9.2	10	5.1
Duke	63	3.0	1	1.6
NCSU	57	2.7	6	10.5
UNC-Greensboro	57	2.7	7	12.3
ECU	3	0.1	0	0.0
NCCU	4	0.2	1	25.0
UNC-Charlotte	4	0.2	0	0.0
Total	**2,138**	**100.0**	**216**	**10.1**

Source: Analysis conducted by authors from the NC HPDS, with data from the NC Psychology Board.

Table 1 shows that the vast majority (82%) of the state's licensed doctoral psychologists were trained out of state. There are six programs that have each trained more than one percent of the state's active licensed psychologists, most in the southeast region: University of Georgia (3.0%); Nova Southeastern University (Florida; 1.5%); Georgia State University (1.3%); Florida Institute of Technology (1.2%); California School of Professional Psychology (1.1%); University of Tennessee at Knoxville (1.1%); and University of South Carolina (1.1%). Among the 18% of psychologists who trained in state, about half (197/385, or 51%) attended the doctoral program at UNC-CH. The rest of the in-state trainees (8.9% of licensed psychologists overall) were trained at one of the six other programs.

Just over 10% of licensed psychologists are practicing in rural counties. This percentage varied substantially by training program, but much of the variation is due to the very small number of graduates of these programs who are licensed in NC. Of the programs with at least 10 NC licensed graduates, the proportion practicing in rural locations was higher than average for out-of-state graduates (10.9%), UNC-G (12.3%) graduates, and NCSU (10.5%) graduates, and lower than average for UNC-CH (5.1%) and Duke graduates (1.6%).

Whether or not licensed psychologists provide clinical services is difficult to determine from the licensure data, since licensure no longer requires candidates to report about service provision. **Table 2** provides some detail on the employment settings of NC licensed psychologists. The largest practice setting reported is private or group practice, reported by 56% of active, licensed psychologists. This is followed by educational institutions (14%) and the Federal government (10%), which likely includes Veterans' Affairs. Less than 10% of active licensed psychologists reported working in non-government health care (8%), state or local government (7%), public schools (2%), business or industry (2%) or other settings (2%). Employment in state and local government has decreased markedly over the last 10 years, while employment in the Federal government has more than tripled. The remaining settings have stayed fairly constant.

Table 2: Workplace settings of licensed psychologists in North Carolina, 2004-2014

	2014		2009		2004	
Employment setting	n	%	n	%	n	%
Private or group practice	1190	56	1,044	54	852	54
Educational institution	297	14	323	17	270	17
Federal government	206	10	104	5	65	4
Non-governmental healthcare	173	8	156	8	115	7
State/local government	157	7	191	10	191	12
Public schools	35	2	38	2	42	3
Business/industry	39	2	35	2	33	2
Other	39	2	26	1	16	1
Missing	2	0	0	0	0	0
Total	**2,138**	**100**	**1,917**	**100**	**1,584**	**100**

Source: Analysis conducted by authors from the NC HPDS, with data from the NC Psychology Board.

Table 3 describes the employment settings for the 18% of psychologists (n=385) who were trained in one of the in-state training programs. A higher proportion of NC-trained licensed psychologists work in private or group practice compared to those trained out of state (64% versus 54% respectively). This proportion has grown from 58% in 2004. In contrast, the proportion of NC-trained psychologists working for the Federal government is lower than those trained out of state (4% versus 11% respectively).

Table 4 describes the self-reported doctoral degree specialties of licensed psychologists. The vast majority of licensed psychologists report having specialized in either clinical psychology (67%) or counseling (14%). Clinical specialization has decreased from 74% in 2004, while counseling has largely remained the same (13% vs. 14%).

Table 3: Workplace settings of licensed psychologists who were trained in North Carolina, 2004-2014

	2014		2009		2004	
Employment setting	n	%	n	%	n	%
Private or group practice	245	64	223	59	209	58
Educational institution	45	12	53	14	45	12
State/local government	25	6	36	10	45	12
Non-governmental healthcare	25	6	31	8	26	7
Public schools	15	4	16	4	24	7
Federal government	14	4	8	2	7	2
Other	10	3	3	1	1	0
Business/industry	6	2	6	2	5	1
Total	**385**	**100**	**376**	**100**	**362**	**100**

Source: Analysis conducted by authors from the NC HPDS, with data from the NC Psychology Board.

Table 4: Specialization of licensed, active North Carolina psychologists, 2004-2014

	2014		2009		2004	
Degree Specialty	n	%	n	%	n	%
Clinical	1,437	67	1,254	65	1,165	74
Counseling	308	14	279	15	204	13
Schools	200	9	175	9	123	8
Other	111	5	128	7	76	5
Missing	73	3	72	4	0	0
Industry/organizational	9	0	9	0	16	1
Total	**2,138**	**100**	**1,917**	**100**	**1,584**	**100**

Source: Analysis conducted by authors from the NC HPDS, with data from the NC Psychology Board.

What is the retention rate of NC-trained psychologists?

Methods: To determine where graduates of North Carolina psychology programs practice, we have merged data on psychologists trained in NC programs between 2009-2013 with NC licensure data from 2014 in order to calculate the percentage of NC graduates who have stayed in NC and have become licensed in the state.

Among the 247 graduates of doctoral programs in psychology between 2009 and 2013, 36 individuals (15%) were licensed in NC in 2014 (**Table 5**). There is no significant difference in NC licensure rate by gender. The average age of NC-licensed graduates is 32, similar to the average age (31) of all NC graduates.

Table 5: The Proportion of North Carolina PhD graduates who are licensed in North Carolina in 2014

	Licensed in North Carolina, 2014		Total NC PhD
Graduation Year	Number	Proportion	Graduates
2009	4	15%	27
2010	8	19%	43
2011	7	13%	56
2012	9	16%	57
2013	8	13%	64
Total	**36**	**15%**	**247**

Source: NC HPDS, with data from the NC Psychology Board, and UNC General Administration

Combining results from Tables 1 and 5, we found that about 80% of practicing psychologists have out-of-state degrees and about 80% of in-state graduates are not licensed in NC. This juxtaposition undermines the utility of adding more in-state degrees. However, since there are so few national rural-focused training programs, out-of-state recruitment would be unlikely to solve rural health practice needs in NC. A better strategy to increase the number of psychologists practicing in rural and underserved areas would be a combination of targeted recruitment of students from rural areas and incentivizing placement of both in- and out-of-state mental health professionals to local in rural areas with loan repayment programs. NC's effort to impact rural practice would have considerable spillovers to other states, given these placement rates.

What do we know about psychologists in rural practice?

Methods: Little is known from published reports about rural location decisions of psychologists, but insights can be gained from literature on practitioners in other fields. We examined literature from databases such as *Pubmed* and *Google Scholar* using the following search terms: rural psychologist, rural workforce, mental health, rural physician, provider recruitment, and rural program. Because literature on rural psychologist recruitment is more limited than literature on rural physician recruitment, we also conducted a search on rural provider recruitment.

Research has shown that the rural background of medical school graduates is an important predictor of rural practice upon graduating. "Rural upbringing," defined as spending all of one's childhood in a rural location, living for more than ten years in a rural location, or calling a rural place one's childhood home, is one of the most influential factors in rural practice choice (Hancock, Steinbach, Nesbitt, Adler, & Auerswald, 2009). One notable study found that, among graduates of Jefferson Medical College of Thomas Jefferson University from 1972 to 1991, the odds of practicing in a rural area in Pennsylvania in 1996 were almost four times higher for those who grew up in a rural area than for others (OR 3.9) (Rabinowitz, Diamond, Hojat, & Hazelwood, 1999). In this study, of all graduates practicing in rural areas of Pennsylvania, 69 percent had grown up in a rural area. In the same study, coming from a rural undergraduate college, which may also reflect rural upbringing, was also significantly associated with greater odds of practicing in rural area (OR 2.4). Financial incentives may work against rural practice, however; the same study found that graduates with high debt (>$75,000) were less likely to practice in rural areas (Rabinowitz et al., 1999).

Medical students raised in rural areas not only tend to practice in rural area, but also tend to practice in communities similar to the one where they were raised (Costa, Schrop, McCord, & Gillanders, 1996; Tolhurst, Adams, & Stewart, 2006). A qualitative study suggested that exposure of students to rural experiences in a range of locations may increase the number of students who develop an interest in rural practice (Tolhurst et al., 2006).
Among mental health workers, rural background has also been found to be significantly associated with rural recruitment of social workers. Mackie and Simpson (2007) conducted a study comparing undergraduate social work students originally from rural and urban areas in Minnesota and Michigan (Mackie & Simpson, 2007). Consistent with the previously reported studies, their findings suggest that students who grew up in rural areas were significantly more likely to

seek employment in a rural area, compared to those from urban areas. In related research, Mackie (2007) compared rural and urban social workers from a national sample, and found that those practicing in rural areas were more likely to have grown up in a rural area, completed a field practicum in a rural-based agency, and experienced a rural-specific curriculum. In a later survey of social workers in Michigan's Upper Peninsula, Mackie further found that younger rural social workers live closer to where they grew up, compared to older rural social workers (Mackie, 2012).

Do PhD and PsyD psychologists have unique skills for addressing mental health needs?

Prior work on mental health workforce shortages (Thomas et al., 2009; Thomas et al., 2012; Konrad et al., 2009) suggests that for population planning purposes the mental health workforce can be divided into two categories: prescribers and non-prescribers. This distinction comes from the way many managed care companies go about staffing mental health services in defined geographical areas.

Prescribers include psychiatrists, physicians, physician assistants, and advanced practice nurses who have the legal authority (licensure) to prescribe and monitor psychiatric medications. Non-prescribers are those mental health professions such as clinical psychology[3], social work, and counseling that do not have this authority. Rather, the expertise of non-prescribers rests in psychosocial and interpersonal treatment interventions and diagnosis.

The key workforce planning idea that follows from this distinction is that individual professions are substitutable within, but not between, these categories. This means, for example, that properly trained advanced practice nurses can and do substitute for psychiatrists in many clinical settings, but no amount of psychologists or social workers are able to do so. From a mental health services perspective, both medication management and psychosocial skills are necessary to meet the mental health needs of rural residents. Both competencies should be seen in a complementary fashion acknowledging the distinctive and non-overlapping contributions of the professionals in each category while emphasizing that good treatment often requires their teamwork and collaboration among them.

All things considered, do clinical psychologists make distinctive contributions to

[3] *Currently, psychologists are licensed to prescribe in only three states: Louisiana, New Mexico, and Illinois.*

mental health care? Clinical psychologists with doctoral-level training have more extensive understanding of psychopathology and psychosocial interventions than any of the other behavioral health professions including medicine, social work, nursing, and counseling. This is true for graduates of PhD as well as APA-accredited PsyD training programs. The difference between these degrees, as noted earlier in this report, is that the PhD degree combines clinical as well as research training, whereas the PsyD degree typically focuses primarily on clinical training. The advanced research training of PhD-trained psychologists positions them to be producers as well as users of clinical knowledge, whereas PsyD-trained psychologists are primarily users of clinical knowledge. PhD-trained psychologists may also have special skills in mental health assessment, diagnosis, and treatment plan development. Their skill set also positions PhD clinical psychologists to serve in supervisory and mentoring roles for other mental health professionals and to assume leadership roles in team-based treatment interventions.

These distinctions are not always clear-cut, however. Some PsyD training programs emphasize research as well as clinical practice, allowing graduates to evaluate the effectiveness of interventions, much like PhD psychologists. Many psychosocial mental health interventions still lack precision and demonstrated effectiveness. As a result, clinical practice has to be carefully monitored and adapted to the changing knowledge base in the field. This is a role that PhD-trained and research-trained PsyD clinical psychologists might serve, whereas clinically-trained PsyD psychologists would be prepared to implement current treatments.

Does rural vs. urban location matter in training clinical psychologists for rural practice?

As noted earlier in this report, there are only a handful of universities located in rural settings anywhere in the U.S. that offer clinical psychology doctoral degrees. Further, to our knowledge, none focus primarily on rural mental health practice. This is due, in many respects, to the infrastructure requirements for training clinical psychologists, such as paid internship positions and supervision by licensed psychologists that are usually found only in highly populated urban areas. How can these constraints be overcome? Is a rural-based university the only model for producing clinical psychologists for rural mental health practice? Although there are no comparative rural-urban research studies that can be drawn upon to answer these questions, insights can be distilled from the training experiences of a number of other professions.

Examples of special curricula have been reported at Ohio University (Meyer et al., 2005) and at East Tennessee State University (Florence et al., 2007), both adjacent to rural areas with mental health professional shortages. Students from various disciplines including health administration, nursing, psychology, social work, and special education at Ohio and nursing, public health, and medicine at East Tennessee State participated in innovative coursework designed to expose students to rural culture, mental health needs, and the challenges facing rural service providers. Students reported increased understanding of rural life and interest in seeking employment in rural mental health settings.

There are a number of homegrown examples that speak to alternative models for enhancing health workforce and services in rural areas that are more pertinent to the issues discussed in this report. For more than 50 years, North Carolina has been a leader nationally in developing rural models for health professions education and practice. One of the first of these efforts originated with the Community Psychiatry Division at the UNC School of Medicine in the late 1960s and 1970s. Faculty associated with the Division played a key role in developing the citizen advisory boards of the newly developing community mental health centers (or Area Programs as they came to be known), created residency rotations for psychiatrists to work on site in these centers, and conducted studies of mental health in rural areas of the state (Bentz, Edgerton, and Hollister, 1971; Edgerton, Bentz, and Hollister, 1970; Hollister, 1970). The approach underlying this program can be characterized as an *out-reach model* in that the resources of an urban-based university were brought to rural areas of North Carolina as a way of stimulating the growth of mental health services for rural residents.

The second model started at UNC's School of Nursing in Chapel Hill in 2004. The Psychiatric Mental Health Nurse Practitioner Program (Soltis-Jarrett 2011) focuses on training advanced practice psychiatric nurses to work in rural areas. It is distinctive in that it recruits registered nurses already working in rural areas to upgrade their credentials so that they will remain in their home community or county to provide essential psychiatric and mental health assessment and treatment, including prescription of psychotropic medications. This program is essentially an *in-reach model* whereby rural nurses access resources for a Masters of Nursing or post-Masters certificate through an urban university while continuing to work in their rural communities throughout the two-year training program. It utilizes a hybrid distance-education arrangement that minimizes travel as students attend monthly on-campus classes and regular teleconference classes (and clinical supervision) from home or work. The North Carolina legislature has appropriated

scholarship funds for psychiatric nurse practitioner students who are enrolled and willing to commit to work in state-approved mental health agencies in the underserved targeted areas after graduation. In the past decade, 125 advanced practice psychiatric nurses have graduated from the program and nearly 99% are now practicing in predominantly rural areas of the state.

A third model comes from the largest effort to date to scale-up workforce interventions on a statewide basis, the North Carolina Area Health Education Centers (NC AHEC) Program[4]. Started with a federal grant in 1972 and then expanded with state funding in 1974, NC AHEC is a model that essentially disaggregated the university medical center and moved it out to nine newly created regional education centers, initially for physician recruitment to and retention in rural areas but now encompassing a broad spectrum of on-site primary care and mental health educational activities. AHEC was developed at the UNC School of Medicine but now encompasses all four of the medical schools in NC including those at Duke, Wake Forest, and East Carolina universities. This arrangement is essentially a *hybrid model* that combines aspects of both out-reach and in-reach. A key aspect of this hybrid model was its success in growing educational capacity on a regional basis so that rural areas were no longer dependent entirely upon outreach from Chapel Hill and the other medical schools. In-reach occurs through access by the regional centers to consultations with specialists at the academic medical centers but otherwise the centers are self-sufficient for general primary care. This regional infrastructure is already in place and it is one that remains to be fully utilized in efforts to grow a greater presence of clinical psychologists in rural areas.

As these three models attest, training programs based at urban universities can be adapted to meet the mental health and primary care needs of people living in rural areas of North Carolina. The unanswered question is whether there are any particular advantages to siting degree programs at rural universities. Several potential advantages can be mentioned. For one, rural universities are integrated into the socio-economic fabric of rural communities in multiple ways. They employ scores of local residents in support functions ranging from grounds keeping, facility maintenance, food services, secretarial and managerial positions, among others. Faculty drawn to the university from other locations are a big part of the local housing and property tax base, their children are a big part of local schools, and the purchases of faculty and students are a big part of local retail sales. The university also is a hub of entertainment and cultural events. All of this is to say that there is a closer bond and engagement between town and gown in rural universities than can

[4] *See https://www.med.unc.edu/ahec/about/history.htm.*

be realized with urban universities distant from rural locations. This engagement, in turn, may generate a greater sense of responsibility for meeting local needs especially of vulnerable populations. Perhaps, also, there may be a greater interest and commitment among clinical faculty to develop doctoral training programs targeted to rural mental health needs. Further, collaborative models between rural and urban universities might be optimal in realizing the advantages of both settings.

Are there options other than new degree programs that might increase the number of practicing clinical psychologists in rural areas?

An essential component of the training of psychologists is the internship, which typically takes place in the 5th and final year of study. Internships in psychology have a competitive national market organized by the American Psychological Association and often students participate in an internship in a different state or region from their graduate training program. At a minimum, internships require a clinical setting, with a licensed supervisor; most competitive internships also command an annual wage for a fulltime intern of approximately $30,000. Internships are often used as recruitment and apprenticeship tools that can attract newly trained psychologists to stay at the internship site.

With the right infrastructure supports, the creation of new internship programs in rural areas could be a mechanism to recruit and retain new psychology graduates, regardless of whether or not they trained in a North Carolina university program.

Another alternative comes through greater use of technologies such as telehealth. With the expansion of these approaches, providers no longer have to be physically collocated in areas with the populations they serve, creating greater opportunities to serve rural locations. Existing programs should provide training and interaction opportunities for new clinical mental health providers to become familiar with telehealth approaches and their use among underserved populations.

What do directors of degree programs think about rural recruitment, training, and workforce opportunities?

Methods: We conducted fifteen interviews with doctoral program directors both in and outside of North Carolina to provide greater context for the workforce profiles presented above that were assembled from available data (see **Appendix 1** for Programs and Directors contacted). These directors were associated with PhD training programs in NC and with both PhD and PsyD training programs in other states. The interviews provided further information about the differences between PhD and PsyD trainees and training experiences, recruitment of students from rural areas, training opportunities for clinical practice in rural areas, assessments of the workforce opportunities in rural areas, and the infrastructure required for effective clinical psychology training programs.

Although interviewees offered a variety of opinions and experiences on training in psychology generally and preparing psychologists for rural practice specifically, six main themes emerged from these discussions. First, there was a general recognition that there are extensive unmet needs for mental health services among people living in rural areas of North Carolina and other states that could be addressed by rural-focused clinical psychology training programs. Although training program directors strongly felt that clinical psychologists could play an important role in meeting these needs, the reality is that no doctoral-level degree programs in NC currently train psychologists to practice in rural areas. The director of the PsyD program at Georgia Southern University offered an interesting comparator. GSU's program has a distinctive focus on rural and underserved populations. The majority of their students previously lived or worked in rural areas and an estimated 70% of graduates return to practice in rural catchment areas, although not always within the state of Georgia. Students have a required practicum in a rural setting, a dedicated class on rural mental health, and are encouraged to do their internships in rural areas.

Second, most current clinical psychology programs recruit from a national pool of potential doctoral students and do not focus on recruiting and training those who will stay in-state. Therefore, many graduates leave North Carolina for other regions and, consistent with our analysis of the licensure data, the vast majority of those who are licensed in North Carolina were trained in other states. There are no current incentives for NC programs to recruit and train in-state residents or in-migrants to practice in rural areas of North Carolina. In contrast, the University of California-Merced offers an example of how the training of medical doctors for rural

practice can be enhanced with special incentives. Through the Prime program, they fund and recruit 10 medical students from the UC Davis campus, and give them specialized training and support in their 2nd – 3rd years to practice in rural areas with rural populations. The Prime program works in collaboration with the UC Merced campus, which is located in a rural area. Most of these students do stay and practice in rural areas of California.

Third, several training program directors pointed out the complex infrastructure required to both train and retain doctoral-level clinical practitioners to work in rural areas. They emphasized that it would take much more than simply adding a new rural-focused degree program to increase the number of practicing psychologists in rural areas. Locating a doctoral program in a rural area would facilitate exposure to rural environments and life-styles, but rural location alone would not make for a successful training program. Students need clinical supervision throughout their training so a successful training program must be affiliated with clinics and office practices in rural areas that already have licensed psychologists on staff who can provide the required supervision. These settings are few and far between both in NC and elsewhere. In addition, prior to graduation, psychology doctoral students are required to participate in an internship, which is generally a year-long experience in an APA-approved clinical setting. Internship stipends cost up to $30,000 per year and must be paid directly by the host organization. Further, the market for internship programs is managed through a national matching process, much like what occurs for medical residency. Many students trained at North Carolina universities may have internship offers from out of state; some of these offers may lead to post-graduate job placements in those locations. Nationally, few internships are located in rural areas, due to both the scarcity of licensed supervisors in those areas and the scarcity of funded internship positions. In addition, several directors mentioned that educational loan forgiveness programs can be a big inducement to attract graduates to practice in rural and underserved areas. This is especially so for graduates of PsyD programs which are mostly tuition-based, meaning that trainees graduate with sizeable educational debts amounting to $100,000 or more.

Fourth, the differences between PhD and PsyD graduates vary considerably by the training program. The clinically focused PsyD degree is growing in use, but is not a clear solution to providing more adequately trained psychologists in underserved rural areas. There is a large diversity in training experiences among PsyD programs. While most programs focus on clinical work, some require research training equivalent to those offered in PhD programs in order to ensure that graduates can critically evaluate the literature on treatments and related issues.

PsyD candidates are recruited from national markets, as described above, and may not end up practicing in the state where they were trained. In addition, there remain concerns about the adequacy of evidence-based training in PsyD programs and the lower pass rates on licensing exams among PsyDs as compared with PhDs. For example, among doctoral candidates who took the Examination for Professional Practice in Psychology (EPPP) from April 2008 through July 2010, those who were trained in PhD programs passed at a rate of 82%, while those trained in PsyD programs passed at the rate of 69% (Schaffer et al. 2012).

Fifth, the subspecialization among doctoral-trained psychologists means that not all trained psychologists are available for general clinical work. This is one limitation of the aggregate statistics on the psychology workforce in NC in that the numbers of licensed psychologists each year over-estimate the actual numbers in clinical practice. For example, some of the clinical training programs specialize in health psychology which usually requires a medical facility with a health promotion program, the sort of facility that serves a large population and thus is unlikely to be found in a rural area. Subspecialization further discounts the supply of psychologists available to serve rural and other underserved areas.

Finally, while directors acknowledged a strong need to train psychologists for rural clinical practice, most directors noted a scarcity of jobs in those areas. Community Mental Health Centers and VA clinics may be examples of current workplaces in rural areas, but these settings often have funding shortfalls that don't allow growth through hiring psychologists. Setting up private practice in rural areas is another employment option, but one that is continually fraught with challenges, given the well-known lack of insurance and resources for out-of-pocket payments among rural residents.

Summary and implications for recruitment and training of rural psychologists in North Carolina

We used a mixed methods approach to examining the psychology workforce in North Carolina. While we found that recruiting candidates for doctoral studies from rural areas was widely acknowledged to be an excellent method of increasing the workforce practicing in rural areas, we did not find strong evidence that training programs located in rural areas of North Carolina could actually mitigate the provider shortage experienced by rural areas. This resulted from a number of factors, including the national market for doctoral candidates in psychology, which means that few licensed practitioners in North Carolina were actually trained in

the state and few trained in the state remain in the state. The process of training licensed, practicing clinical psychologists also complicates the pipeline from training program to practicing provider, with post-doctoral training required of some specialties, and internships and supervised hours required of all trainees prior to licensure. These additional training requirements present opportunities to recruit and retain providers in the state, but are difficult to fulfill in rural settings and also offer opportunities for those trained in state to move elsewhere.

Several possible alternatives or complements to additional doctoral programs in the state emerged in our work. First, successful recruitment of psychologists to practice in rural areas could focus on professionals who have trained in or lived in rural communities. For instance, physicians who are prepared to be rural physicians, particularly those who are prepared for small-town living, stay longer in their rural practices, and rural residency rotations not only prepare physicians best for rural practice but also increase the duration of rural practice (Pathman, Steiner, Jones, & Konrad, 1999). The UNC School of Nursing offers a model for educating graduates to meet the needs of underserved, rural and vulnerable populations across NC. The Psychiatric-Mental Health Nurse Practitioner (PMHNP) curriculum is specifically designed to educate and train PMHNPs recruited from rural areas and trained through a combination of on-site and distance learning formats to: (a) meet the needs of the underserved, severe and persistently mentally ill in NC and (b) to provide integrated behavioral healthcare. Historically, over 70% of graduates are employed in rural, underserved or public health settings following graduation (Soltis-Jarrett, 2011). Incentives such as additional funding of training awards for students recruited from rural areas in North Carolina to the existing programs could yield a greater number of clinical psychologists who practice in state after completing licensure requirements.

Second, new PhD/PsyD degrees along with supervised opportunities in rural areas could lead to a larger number of students to seek and stay in such placements. A greater number of internships could be funded and established in rural areas of North Carolina in collaboration with the NC AHEC program, and greater incentives for rural providers to supervise the next generation of practitioners could be provided through state funding. Finally, greater use of technologies such as telehealth approaches may further facilitate the treatment rates of individuals needing mental health services in rural areas. Greater investment and funding of these emerging technologies could lead to greater payoffs in the state's mental health system in the future.

References

American Psychological Association (2015). Demographics of the U.S. psychology workforce: Findings from the American Community Survey. Washington, DC. Retrieved from http://www.apa.org/workforce/publications/13-dem-acs/index.aspx

American Psychological Association (2015). 2014: APA membership profile. Washington, DC. Retrieved from http://www.apa.org/workforce/publications/14-member/index.aspx?tab=2

Bentz WK, Edgerton JW, Hollister WG. (1971). Rural leaders' perceptions of mental illness. *Hosp Community Psychiatry*. 22(5):143-5.

Costa AJ, Schrop SL, McCord G, Gillanders WR. (1996). To stay or not to stay: factors influencing family practice residents' choice of initial practice location. *Family Medicine*. 28(3), 214–9. Retrieved from http://europepmc.org/abstract/med/8900556

Edgerton JW, Bentz WK, Hollister WG. (1970). Epidemiological data for mental health center planning. 3. Demographic factors and responses to stress among rural people. *Am J Public Health Nations Health*. 60(6): 1065-1071

Florence JA, Goodrow B, Wachs J, Grover S, Olive KE. (2007). Rural health professions education at East Tennessee State University: survey of graduates from the first decade of the community partnership program. *The Journal of Rural Health*. 23(1), 77–83. http://doi.org/10.1111/j.1748-0361.2006.00071.x

Hancock C, Steinbach A, Nesbitt TS, Adler SR, Auerswald CL. (2009). Why doctors choose small towns: a developmental model of rural physician recruitment and retention. *Social Science & Medicine*. 69(9), 1368–76. http://doi.org/10.1016/j.socscimed.2009.08.002

Hollister WG. (1970). The service guide. *Am J Public Health Nations Health*. Mar;60(3):428-9.

Kohout J, Wicherski M. (1999). 1997 Doctorate employment survey. Washington, DC: American Psychological Association.

Mackie P. (2007). Understanding the Educational and Demographic Differences Between Rural and Urban Social Workers. *Journal of Baccalaureate Social Work*. Retrieved from http://cornerstone.lib.mnsu.edu/sowk_fac_pubs/13

Mackie PFE. (2012). Social Work in a Very Rural Place: A Study of Practitioners in the Upper Peninsula of Michigan. *Contemporary Rural Social Work*. 4, 63-90.

Mackie P, Simpson C. (2007). Factors Influencing Undergraduate Social Work Students' Perceptions about Rural-Based Practice: A Pilot Study. *Journal of Rural Mental Health*. Retrieved from http://cornerstone.lib.mnsu.edu/sowk_fac_pubs/11

Meyer D, Hamel-Lambert J, Tice C, Safran S, Bolon D, Rose-Grippa K. (2005). Recruiting and retaining mental health professionals to rural communities: an interdisciplinary course in Appalachia. *The Journal of Rural Health*. 21(1), 86–91. http://doi.org/10.1111/j.1748-0361.2005.tb00067.x

Michalski D, Kohout J, Wicherski M, Hart B. (2011). *2009 Doctorate employment survey*. Washington, DC: American Psychological Association. Retrieved from http://www.apa.org/workforce/publications/09-doc-empl/index.aspx

Pathman DE, Steiner BD, Jones BD, Konrad TR. (1999). Preparing and retaining rural physicians through medical education. *Academic Medicine : Journal of the Association of American Medical Colleges*. 74(7), 810–20. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10429591

Rabinowitz HK, Diamond JJ, Hojat M, Hazelwood CE. (1999). Demographic, educational and economic factors related to recruitment and retention of physicians in rural Pennsylvania. *The Journal of Rural Health. 15*(2), 212–218. http://doi.org/10.1111/j.1748-0361.1999.tb00742.x

Soltis-Jarrett V. Psych NP-NC: a benchmark graduate nurse practitioner program for meeting the mental health needs in North Carolina. *North Carolina Medical Journal*. 2011 Jul-Aug;72(4):293-5. PubMed PMID: 22128691.

Thomas KC, Ellis AR, Konrad TR, Holzer CE, Morrissey JP. County-Level Estimates of Mental Health Professional Shortage in the United States. *Psychiatric Services*. 60(10): 1323-1328.

Konrad TR, Ellis AR, Thomas KC, Holzer CE, Morrissey JP. County-Level Estimates of Need for Mental Health Professionals in the United States. *Psychiatric Services*. 60(10): 1307-1314.

Thomas KC, Ellis AR, Konrad TR, Morrissey JP. (2012). North Carolina's mental health workforce: Unmet need, maldistribution, and no quick fixes. *North Carolina Medical Journal*. 73(3), 161-168.

Tolhurst H, Adams J, Stewart S. (2006, January 1). An exploration of when urban background medical students become interested in rural practice. Australian Rural Health Education Network. Retrieved from https://opus-lib-uts-edu-au.libproxy.lib.unc.edu/handle/10453/15689

U.S. Bureau of the Census (2015). Population estimates: Historical data. Available at http://www.census.gov/popest/data/historical

Appendix 1: Institutions and program directors contacted for interviews

We are grateful to the following individuals who provided information on their programs and on the rural placement of psychologists generally:

Institution	Type of program	Director / Respondent	Degree(s) offered
UNC-Chapel Hill	Psychology	Mitch Prinstein, PhD	PhD
UNC-Chapel Hill	School Psychology	Steven Knotek, PhD	PhD
ECU	Psychology	Robert Carels, PhD	PhD
Duke	Psychology	Kathy Sikkema, PhD	PhD
UNC-Greensboro	Psychology	Susan Keane, PhD	PhD
UNC-Charlotte	Health Psychology	Amy Peterman, PhD	PhD
NCSU	School Psychology	Lynne Baker-Ward, PhD	PhD
Pacifica Graduate Institute, Carpinteria, CA	Psychology	Juliet Rohde-Brown, PhD	PhD, PsyD
University of California at Merced	Health Psychology	Anna Song, PhD	PhD
University of Hartford	Clinical Psychology	John Mehm, PhD	PsyD
Azuza Pacific University	Clinical Psychology	Samuel Girguis, PsyD	PsyD
Baylor University	Clinical Psychology	Sara L. Dolan, PhD	PhD, PsyD
Loma Linda	Clinical Psychology	Adam Arechiga, PsyD	PhD, PsyD
Chestnut Hill College	Clinical Psychology	Cheryll Rothery, PsyD, ABPP	PsyD
Georgia Southern University	Clinical Psychology	Thresa Yancey, PhD	PsyD