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# TECHNICAL REPORT

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## Nurse Practitioners and Sexual and Reproductive Health Services

An Analysis of Supply and Demand

David I. Auerbach, Marjorie L. Pearson, Diana Taylor,  
Molly Battistelli, Jesse Sussell, Lauren E. Hunter,  
Christopher Schnyer, Eric C. Schneider

Sponsored by an anonymous private foundation

This work was sponsored by an anonymous private foundation. The research was conducted in RAND Health, a unit of the RAND Corporation.

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## Preface

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This work was sponsored by an anonymous private foundation. It is intended to provide estimates of the supply of, and demand for, sexual and reproductive health services, with a particular focus on settings that serve low-income populations. Implications of these findings for future policy, programming, and research are discussed, and alternatives for subsequent activities are presented. This report will be of interest to national and state policy makers, health care organizations and clinical practitioners, patient advocacy organizations, health researchers, and others who are responsible for ensuring that all Americans have access to high-quality, comprehensive sexual and reproductive health care.

The research was conducted in RAND Health, a division of the RAND Corporation. A profile of RAND Health, abstracts of its publications, and ordering information can be found at [www.rand.org/health](http://www.rand.org/health).



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## Summary

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Nurse practitioners (NPs) are the largest subgroup of advanced practice registered nurses (APRNs), which are RNs with additional education, often including a master's degree. APRNs also include nurse midwives, clinical nurse specialists, and nurse anesthetists. NPs, in particular, are essential providers of sexual and reproductive health (SRH) services in the United States, especially for low-income populations. A shortage of NPs has the potential to undermine the delivery of SRH care, potentially leading to worse health outcomes. Paradoxically, the gap between the supply of capable NPs and the demand for SRH services may grow under the Patient Protection and Affordable Care Act (ACA), as Americans gain health insurance coverage and NPs are diverted to the delivery of general primary care, hospital care, and specialty care. NP education has already shifted to the preparation of primary care NPs as well as NPs with gerontology expertise. These shifting priorities combined with reduced federal funding for academic and nondegree women's health nurse practitioner (WHNP) programs have resulted in fewer NPs with entry-level clinical expertise in SRH care. This decline in WHNP graduates is especially problematic for Title X–funded clinics, which deliver a significant proportion of family planning and SRH services to low-income populations in the United States. The supply of NPs providing SRH services to low-income populations may also be threatened by the uncertain future of Title X itself.

Motivated by these challenges, we sought to answer the following questions:

- What is the magnitude of the future gap between the demand for SRH services and the supply of SRH services, particularly services provided by NPs?
- What are the barriers to increasing the supply and use of NPs delivering high-quality SRH services?
- What policy options could enhance the availability of high-quality SRH services?

### What is Sexual and Reproductive Health?

Sexual and reproductive health (SRH) care is sometimes thought of narrowly as maternal and child health care. However, to produce optimal health outcomes, many experts believe SRH care should include the reproductive health of men and women throughout their lifespan and adolescents of both sexes. Under this definition, a minimum package of SRH care accessible to all would include preconception care, contraception, pregnancy and unplanned pregnancy care, women's health/common gynecology care, genitourinary conditions of men, assessment of specialty gynecology problems including infertility, sexual health promotion, and coordination with public health and primary care services.

## Methods

To address these questions, we first quantified likely changes in the demand for services and trends in the supply of services over the next decade. To assess demand for SRH services, we used Center for Disease Control and Prevention's National Survey of Family Growth from 2002 to 2008 to analyze trends in use of SRH services and factors related to that use. We then projected those factors (such as age, race/ethnicity, and health insurance coverage) out to the year 2020 and derived the corresponding changes in demand for services. To assess the future supply of NPs, we analyzed data obtained from multiple sources including the HHS National Sample Survey of Registered Nurses, the American Academy of Nurse Practitioners, the Office of Family Planning's Title X annual reports, and the National Certification Corporation (WHNP certification program). In addition, we conducted our own survey of members of the National Association of Nurse Practitioners in Women's Health.

To obtain additional quantitative and qualitative information not available from the aforementioned data sources, we conducted interviews with more than 20 experts and SRH clinic personnel. We also added questions to surveys of clinic administrators conducted by the National Family Planning and Reproductive Health Association. Based on these findings, we generated a series of policy options that could be pursued to ameliorate the gap and improve the quality of SRH care.

## Demand for SRH Care

Overall, use of most SRH services is projected to grow by 10 percent to 20 percent between 2006 and 2020. This growth is driven largely by changes in the racial/ethnic makeup of the population of women of reproductive age and by an increase in the number of people who acquire insurance coverage because of the ACA. Those increases differ by service, with an increase of roughly 10 percent in demand expected for birth control and preventative services and roughly 15 percent growth for emergency contraception and sexually transmitted disease–related services. If the newly insured are similar to the previously insured in their tendency to seek care from specific settings, then increases in utilization at publicly funded clinics are expected to be considerably smaller than increases in utilization at nonclinic settings. If the newly insured differ in their care-seeking patterns, then increases in utilization at publicly funded clinic settings may be similar to increases in other settings.

## Supply of Providers of SRH Care

NPs with a focus on women's health are key providers of SRH care in Title X clinics. However, NPs specializing in SRH are a small subset of the universe of more than 130,000 NPs. Approximately 10 percent of NPs provide care in SRH settings, and only one-fifth of those (2 percent of NPs) provide care in clinic settings. However, the universe of NPs is growing rapidly and over the next decade will increase on the order of 5,000 NPs per year, or roughly 50 percent growth during that time frame. This supply would be more than adequate to meet growing demands for SRH services if NPs were to choose this area of practice in proportion to their overall numbers.



**Table S.1**  
**NPs by Population Focus and Practice Setting, 2003 and 2008**

| Year             | Total NPs | NPs with an SRH Focus |   | Other NPs |   |
|------------------|-----------|-----------------------|---|-----------|---|
|                  |           | WHNPs                 | WHNPs in Ambulatory/Community/Public Health | FNP/ANP   | FNPs/ANPs in Ambulatory/Community/Public Health |
| 2003             | 100,578   | 10,963                | 3,508                                       | 63,867    | 16,696  |
| 2008             | 128,288   | 11,674                | 3,362                                       | 87,492    | 24,507  |
| Percent increase | 28        | 6                     | -4  | 37        | 47  |

However, in recent years, a combination of factors have limited the growth of supply of NPs competent in SRH care: reduced funding for WHNP training, increased funding for primary care and geriatric NP training, a shrinking proportion of NPs choosing to focus on women's health, and a shrinking proportion of WHNPs choosing to work in public health, clinics, and family planning, as indicated in Table S.1.

On the other hand, numbers of generalist NPs (family, or FNPs, and adult, or ANPs) have grown substantially and are expected to do so in the future. Thus, the shift of NPs away from a women's health focus portends a potentially sizeable gap in the availability of SRH services relative to demand if generalist NPs prove unable to fill the gap. This gap may be particularly apparent in low-income and publicly funded clinic settings that make up a substantial part of the demand but are especially reliant on NPs for care.

### Barriers to Expanding the Supply of SRH Services

Our interviews identified several current barriers to increasing the supply of clinicians capable of providing high-quality SRH services. These barriers include the following:

- Prelicensure RN programs offer limited exposure to the topic of SRH.
- Nursing programs have shifted toward providing generalist education and training.
- A decline in the number of WHNP programs.
- A lack of standards for SRH core competencies and curricula.
- Limited opportunities for clinical training in SRH.
- Patchwork nursing licensure and scope-of-practice regulations.
- Lack of loan repayment opportunities for NPs.
- The fragmented nature of SRH care delivery and its isolation from primary care.
- Inefficiency in production of services given resources in SRH clinics.

### Policy Options

To address the barriers that contribute to an inadequate supply of SRH-trained NPs to meet future demand for SRH services, we identified the following policy options. These options fall in to four categories.

1. Education, clinical training, accreditation, and credentialing

In this area, options include standardizing curricula and training, as has been achieved in other cross-cutting fields of health care such as gerontology, psych-mental health, and genetics. A core set of standards and competencies will enable development of a standard curriculum. This will allow programs to better integrate SRH and primary care training and clarify the opportunity for NPs with a potential interest in SRH. Basing certification requirements on competencies rather than other criteria could replace the restrictive pathways to certification that currently impose a barrier to some NPs seeking to obtain certification in SRH care.

2. Federal regulation and financing

Federal policy influences SRH care primarily through Title X regulation of service standards tied to financing of care provided by Title X clinics. Education and training are also supported through federal programs. Options include supporting Title X clinics to take a more formal role as training and residency sites for postgraduate clinical training. The service standards defining the scope of Title X clinical offerings could be broadened to strengthen integration with primary care delivery, and Title X clinicians could be allowed to participate in federal loan forgiveness programs. SRH care could be included as a key part of the formal definitions of primary care in HRSA and CMS programs and payment policies. These actions would increase the attractiveness of SRH clinical care to NPs with an interest in SRH.

3. State regulation and financing

States have a key role in defining NP employment opportunities through licensure and Medicaid payment policy. In some states, nurse practice laws currently limit the types of providers permitted to perform SRH care or state facility regulations limit SRH care integration with primary care. The Institute of Medicine has recommended reducing the restrictions imposed by some states through law and regulation. State Medicaid policy could explicitly reimburse SRH services at higher rates (within fee-for-service payment schedules) or account for SRH services in setting global payments for primary care, creating incentives or allowing special designations afforded to primary care under ACA and health insurance programs.

4. Responding to emerging models of care delivery

New models of health care delivery create new policy options for increasing NP engagement in SRH service delivery. First, as accountable care organizations and other integrated models develop, several enabling actions could promote greater integration of SRH care into these models. These might include co-location of SRH-competent providers in primary care clinics such as federally qualified health centers or community health centers; expansion of retail clinics and nurse-managed health centers with SRH services; and setting payment rates based on services rather than provider type. Insurer and government payment models could explicitly incorporate SRH care and, correspondingly, SRH training could be oriented to recognize the expanding payment models and settings that can integrate and incorporate SRH care.

The policy options listed above are partially recognized in three innovative models currently under development in the United States. In addition, we describe a model implemented by the U.K. National Health Service, which aligns SRH education and practice standards within a coordinated system of primary care and public health.

In conclusion, current trends in supply and demand for SRH services, particularly for low-income individuals, suggest a growing gap in the next decade, with demand outstripping supply. The reasons for that growing gap are tied less to the production of NPs overall and more to a reduced production of NPs trained to deliver SRH care. The evolving market for health care delivery and the expanding health insurance coverage associated with the health care reform legislation of 2010 present additional challenges for SRH care but offer opportunities as well. A range of policy options have the potential not only to close expected supply–demand gaps but to improve the quality and efficiency of SRH service delivery, expand the provider base delivering SRH services, and better integrate them with other parts of the health care system.



## Acknowledgments

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We thank all of the clinicians, educators, and experts in the field who took the time to provide thoughtful input and valuable data to the research team. A list of these key respondents is included in Appendix A. In addition to those contributors, we thank a number of other individuals and organizations who participated anonymously.

In particular, we thank Susan Wysocki, former president and CEO of the National Association of Nurse Practitioners in Women's Health, and current president of iWomansHealth, who assisted the team with the collection of survey data as well as with identification of interview respondents. We also thank Lily Davidson of the National Family Planning and Reproductive Health Association for conducting a member survey that included questions of interest to this study, and Betty Burns, executive director of the National Certification Corporation, who shared data on women's health nurse practitioners. We also thank Planned Parenthood Foundation of America for providing utilization data for our analysis.

In addition, we are grateful for the important input we received about emerging models of care from Denise Link of the College of Nursing and Health Innovation at Arizona State University and Gail Gall of the MGH Institute for Health Professions. We also thank Jacki Witt of the Clinical Training Center for Family Planning, University of Missouri, Kansas City, for sharing preliminary findings from her current research.

The RAND Health Quality Assurance process employs peer reviewers, including at least one reviewer who is external to the RAND Corporation. This study benefited from the rigorous technical reviews of Christine Eibner at RAND and Jean Moore of the Center for Health Workforce Studies at the SUNY School of Public Health, which served to improve the quality of this report.



## Abbreviations

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| Symbol  | Definition   |
|---------|--|
| AANP    | American Association of Nurse Practitioners                  |
| AASC    | Annual Affiliate Service Census                              |
| ACA     | Patient Protection and Affordable Care Act                   |
| ACO     | accountable care organization                                |
| ANP     | adult nurse practitioner                                     |
| APRN    | advanced practice registered nurse                           |
| CCNE    | Commission on Collegiate Nursing Education                   |
| CDC     | Centers for Disease Control and Prevention                   |
| COMPARE | Comprehensive Estimates of Reform Efforts                    |
| DNP     | doctor of nursing practice                                   |
| EMR     | electronic medical record                                    |
| FNP     | family nurse practitioner                                    |
| FPAR    | Family Planning Annual Report                                |
| FPL     | federal poverty level  |
| FQHC    | federally qualified health center                            |
| FTE     | full-time equivalent   |
| HRSA    | Health Resources and Services Administration                 |
| IOM     | Institute of Medicine  |
| IUD     | intrauterine device  |
| MCH     | maternal and child health                                    |
| NCC     | National Certification Corporation                           |
| NFPRHA  | National Family Planning and Reproductive Health Association |

|       |   |
|-------|---|
| NHSC  | National Health Service Corps                                 |
| NLNAC | National League for Nursing Accrediting Commission            |
| NM    | nurse midwife   |
| NMHC  | nurse managed health centers                                  |
| NP    | nurse practitioner  |
| NPWH  | National Association of Nurse Practitioners in Women's Health |
| NSFG  | National Survey of Family Growth                              |
| NSSRN | National Sample Survey of Registered Nurses                   |
| PA    | physician assistant   |
| PCMH  | patient-centered medical home                                 |
| PHN   | public health nurse   |
| PPFA  | Planned Parenthood Federation of America                      |
| RN    | registered nurse  |
| RTI   | reproductive tract infection                                  |
| SRH   | sexual and reproductive health                                |
| STD   | sexually transmitted disease                                  |
| STI   | sexually transmitted infection                                |
| WHNP  | women's health nurse practitioner                             |
| WHO   | World Health Organization                                     |



## Introduction

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An important component of any health care system is the delivery of high-quality sexual and reproductive health (SRH) care services. The World Health Organization (WHO) defines these services as the sexual and reproductive health care of both men and women throughout the life cycle, beginning in adolescence. In the United States, the provision of SRH care has tended to differ according to income and insurance coverage of the recipient. Roughly two-thirds of SRH services are delivered in private settings that typically serve patients with private health insurance.<sup>1</sup> Providers in those settings include a mix of obstetrician-gynecologists, primary care physicians, nurse practitioners (NPs), and others. Most of the remaining one-third of SRH service provision takes place in clinics such as Planned Parenthood clinics, community health centers, and public health departments, many of which are supported by Title X.<sup>2</sup> Title X–funded clinics provided SRH services to roughly 5 million people in 2006 (roughly 25 million women aged 15–44 used at least one family planning–related service in 2002 [Chandra et al., 2005]) and of those 5 million, roughly two-thirds were below the poverty line and 60 percent were uninsured (IOM, 2009). In these clinics, to a greater extent than in private settings, services tend to be provided by nonphysicians (Grumbach et al., 2003). A 2009 journal article noted that NPs comprise about 75 percent of clinicians employed by Planned Parenthood affiliates (Bednash, Worthington, and Wysocki, 2009). Among all Title X–supported clinics, NPs together with physician assistants (PAs) and nurse midwives (NMs) outnumber physicians as care providers by roughly 5 to 1 (Fowler et al., 2011).

Because NPs are key providers of SRH services, especially in low-income populations, persistent nursing shortages pose a serious threat to the supply of needed SRH services. These shortages are expected to grow as a result of the Patient Protection and Affordable Care Act (ACA), which both increases the number of Americans with health insurance and supports the role of nonphysician providers such as NPs in primary care delivery (Aiken, 2011). Also posing a threat to the supply of SRH services by NPs is the shift in NP education toward preparing primary care and gerontological NPs. This shift, combined with reduced federal funding for academic and nondegree women’s health NP (WHNP) programs,<sup>3</sup> has resulted in fewer NPs

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<sup>1</sup> Based on the authors’ analysis of the National Survey of Family Growth, described in Chapter 2.

<sup>2</sup> The federal Title X Family Planning Program funds clinics that provide basic contraceptive care, related preventative health services (such as patient education and counseling), breast and pelvic examinations, screenings for cervical cancer and sexually transmitted infections, and pregnancy diagnosis and counseling. The majority of the patients at clinics supported by Title X are low income and uninsured (IOM, 2009).

<sup>3</sup> Beginning in the 1970s, the federal Title X Family Planning Program funded one-year programs that enabled registered nurses to obtain, first, family planning nurse practitioner certificates and, later, women’s health nurse practitioner (WHNP) certificates in which they participated in postgraduate clinical residencies in Title X–funded clinics. Although Title X fund-

with entry-level clinical expertise in SRH care. The decline in WHNP graduates may be especially problematic for Title X–funded clinics, which provide SRH services to low-income populations. A final barrier to the supply of NPs providing SRH services is the uncertain future of Title X itself.

This technical report seeks to answer three research questions:

1. What is the magnitude of the future gap between the demand for SRH services and the supply of SRH services, particularly services provided by NPs?
2. What are the barriers to increasing the supply and use of NPs delivering high-quality SRH services?
3. What policy options could enhance the availability of high-quality SRH services?

Although this report focuses on NPs, many of our findings and recommendations are relevant to other providers of SRH services. NPs are one of four types of advanced practice registered nurses (RNs), which also include nurse midwives, clinical nurse specialists, and nurse anesthetists.<sup>4</sup> Drawing from this report, additional research should be conducted on other important providers, including RNs, PAs, nurse midwives, primary care physicians, and obstetrician-gynecologists. Several factors, most prominently the passage of the ACA, are likely to affect not only trends in the supply and demand of SRH services but also the systems through which SRH services are delivered. Relevant service delivery models are evolving. For example, Medicaid is expanding, provider organizations are experimenting with medical homes and accountable care organizations (ACOs), states are developing health insurance exchanges, and the continued existence of Title X is not guaranteed. Accordingly, although this report focuses primarily on NPs, it incorporates a broader discussion of the supply and demand for SRH services and analyzes the impact of possible changes to the delivery system. We recognize that the changing nature of SRH service delivery offers an opportunity to integrate the currently “siloes” system and bring it closer to the comprehensive system of SRH services integrated across public health and primary care that the WHO recommends (see “WHO Guidance for SRH and Its Implementation in the U.K.” on p. 60).

## Literature Review

### Demand for SRH Services

A limited body of directly relevant prior research was available to reference in the preparation of our report. Although a search of the literature did not identify any studies forecasting future levels of demand for SRH services, research on demographic shifts and demographic care preferences was used to forecast future demand. In 2009, the Institute of Medicine (IOM) produced a comprehensive, independent evaluation of the Title X program, including an assessment of the impact of demographic changes on the overall demand for SRH services. The

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ing for these nonacademic WHNP certificate programs was eliminated by 2005, other federal funding continued for academic WHNP programs. Still, funding priorities under the Health Resources and Services Administration (HRSA) have shifted toward preparation of primary care and gerontological NPs.

<sup>4</sup> Though only nurse midwives, among the other three, provide significant amounts of SRH services, we will often use the term APRN where the issue discussed refers to either all groups of APRNs or, in some cases, only NPs and nurse midwives.

evaluation noted that the total number of adults of reproductive age (18–44) in the United States is expected to rise from 112 million to 125 million between 2007 and 2025, suggesting a proportional increase in demand for services. The evaluation also noted that choice of contraceptive method correlates fairly strongly with race and poverty level. For example, African Americans, Latinos, and individuals below 150 percent of the federal poverty level (FPL) are more likely to use female sterilization, while Caucasians and those above 300 percent of the FPL are more likely to use male sterilization and birth control pills. These correlations suggest that future changes in income levels or ethnic/racial demographics may have implications for the levels at which different SRH services are demanded and, as a result, the settings in which SRH services are demanded and the providers from which SRH services are sought (IOM, 2009).

### **Projected Supply of Nurse Practitioners**

A search of the literature did not identify any studies forecasting the future supply of NPs who provide SRH services. However, several studies project the supply of various clinicians, including NPs, in the larger health care market; some of these studies offer qualitative analyses of factors likely to affect future supply. Such analyses are methodologically informative and shed light on factors that may have implications for the supply of SRH services. Cooper and colleagues (1998) employed education pipeline analysis as a framework for projecting the supply of clinicians to the year 2015. The study projected increases in the aggregate numbers of practicing NPs, PAs, and nurse midwives in the United States to 151,000, 79,000, and 12,400, respectively, by 2015 (Cooper, Laud, and Dietrich, 1998). In 2002, Hooker and Berlin evaluated current trends in the education pipeline to forecast the future supply of NPs and PAs in the United States. Although they did not provide explicit quantitative projections, the authors suggested that there would be an increase in the number of PAs and a decrease in the number of NPs. In 2004, Green and colleagues produced a meta-analysis that assessed the future supply of and demand for family physicians in the United States. The authors suggested that the population of NPs would peak in 2007 and begin to decline, falling to 106,000 by 2020.

Unfortunately, much of the literature projecting the supply of NPs and other clinicians in the larger health care system is somewhat unsatisfying methodologically. The forecasts by Cooper et al. (1998), Hooker and Berlin (2002), and Green et al. (2004) employ modeling approaches that are highly dependent on recent enrollment trends (Cooper, Laud, and Dietrich, 1998; Green et al. 2004; Hooker and Berlin, 2002). As the mid-1990s saw rapidly increasing enrollment in NP programs, Cooper and colleagues' 1998 forecast predicted strong workforce growth through 2015 (Cooper, Laud, and Dietrich, 1998), while the 2004 forecast by Green and colleagues occurred in an era of stagnant enrollments in NP programs and so projected a declining workforce after 2003 (Green et al. 2004). In more recent work, Auerbach employs an approach to modeling the future supply of NPs that is robust to recent trends and strong assumptions about enrollment rates (Auerbach, 2012). His modeling effort finds robust growth in NP supply, with a doubling in the next 10 to 15 years, and is discussed in more detail in the Chapter 3.

### **Barriers to Increasing the Supply of Nurse Practitioners**

Research on the barriers to increasing the supply of NPs who deliver high-quality SRH services and policy options for increasing the supply of these providers is largely absent in the peer-reviewed literature. Several studies do mention barriers to increasing the supply in the larger

health care market; these barriers may be relevant to the supply of SRH services. These studies identify macro-level factors that may also be relevant to NPs with SRH training. The gray literature is another important source of information on barriers and the policies that could influence the supply of NPs, especially the comprehensive 2010 IOM report “The Future of Nursing: Leading Change, Advancing Health” (IOM, 2010).

Literature on barriers to increasing the supply of NPs emphasizes state regulations, especially scope-of-practice regulations (which govern the types of services that NPs are permitted to provide and the extent to which they may practice independently from physicians; these regulations vary widely by state). Sekscenski and colleagues (1994) found evidence of a strong relationship between the favorability of state-level practice environment and practitioner supply. The three components of the practice environment were prescriptive authority, legal professional status, and whether or not service reimbursement was required. In a 2009 editorial, Bednash, Worthington, and Wysocki discuss barriers resulting from state-based licensing regulations for NPs (Bednash, Worthington, and Wysocki, 2009). The 2010 IOM report, which identifies barriers to increasing the supply of nurses generally (not just NPs), asserts that regulatory barriers are especially problematic (IOM, 2010). The IOM report also identifies health care system fragmentation, rapid nurse turnover, difficulties in transitioning from school to practice, and the aging workforce as key barriers. Hooker and Berlin cite the aging workforce and a decline in interest in nursing as barriers to the supply of NPs in the larger health care market (Hooker and Berlin, 2002). Green and colleagues identify declining NP graduation rates and high levels of retirement among current clinicians (due to an aging workforce) as contributing factors (Green et al., 2004).

The previously cited 2009 IOM evaluation of the Title X program identified several barriers to the supply of clinicians employed at family planning clinics. These barriers include the increased training required for entry into practice (particularly the requirement that, beginning in 2015, new NPs must have received a doctor of nursing practice, or DNP), the lower salaries offered by public sector clinics relative to private physician offices, and an increase in the number of federally qualified health centers (FQHCs). According to the report, these factors have resulted in fewer clinicians with “a family planning orientation” (IOM, 2009). In a 2011 Guttmacher Policy Review article, Gold argues that the “phasing out” of the Title X training program has led to a smaller percentage of the practitioner workforce trained in family planning, placing family planning centers in “the unenviable position of trying to hire higher-level, and therefore higher-paid, staff who need on-the-job training in providing contraceptive and related services” (Gold, 2011).

### **Policies for Increasing the Supply of Nurse Practitioners**

Much of the literature identifying policy options for increasing the supply of nonphysician clinicians (including NPs) in the general health care market revolves around state regulations. One of the eight broad recommendations in the IOM’s future of nursing report is to “remove scope-of-practice barriers” (IOM, 2010). Fairman and colleagues assert that for all health care providers to practice “to the fullest extent of their knowledge and competencies,” scopes of practice must be broadened and standardized across states (Fairman, 2011). In a 2010 white paper, LeBuhn and Swankin (2010) express support for creating incentives for states to reform scope-of-practice laws in order to optimize the supply of NPs, PAs, and other nonphysician clinicians.

Another relevant broad recommendation issued in the IOM report is to “implement nurse residency programs” (IOM, 2010). Aiken (2011) asserts that because the completion of a bachelor’s degree in nursing requires a comparable amount of time as the completion of an associate’s degree in nursing, and because a larger percentage of individuals initially graduating with a bachelor’s degree in nursing than individuals graduating with an associate’s degree in nursing go on to complete a master’s degree in nursing, the “most promising strategy” for increasing the supply of faculty and NPs is for all nurse education programs to offer bachelor’s degrees. Bednash and colleagues (2009) offer several general recommendations for increasing the supply of NPs in family planning clinics, including supporting online programs and other programs that are “sensitive to the life issues of the students” and supporting scholarships for NPs that will be employed by family planning clinics. Gold (2011) argues that the National Health Service Corps (NHSC) should be available to family planning service providers.

## Study Methods

The methods used to answer the questions posed earlier in this introduction are described in general terms below; technical details on our forecast of demand and supply are discussed in further detail in Chapters 2 and 3. To forecast the future utilization of SRH services, we developed a model that incorporates data from the National Survey of Family Growth (NSFG), the U.S. Census Bureau National Population Projections, and RAND’s Comprehensive Estimates of Reform Efforts (COMPARE; Girosi et al., 2009) microsimulation project.<sup>5</sup> The NSFG data allowed us to develop a dataset containing 19,992 observations made between 2002 and 2010 of women’s actual use of selected SRH services and the settings (public, private, or other) in which they received the services. By linking this dataset to U.S. Census projections of the future size of the population by age, race, sex, income, and insurance status, we estimated future demand for selected SRH services in each setting, given projected changes in the demographics of the U.S. population. Finally, we incorporated the COMPARE model, which produces estimates of future insurance status for different segments of the U.S. population, given the successful implementation of the ACA. We were thus able to account for the potential effects of health care reform on each population segment’s insurance status.

We drew from several sources of data to estimate provider supply. The National Sample Survey of Registered Nurses (NSSRN) is conducted every four years by the Health Resources and Services Administration (HRSA) and elicits information intended to help make plans for and guide the nursing workforce. The National Nurse Practitioner Sample Surveys are conducted periodically by the American Association of Nurse Practitioners (AANP) and ask licensed NPs about practice characteristics, specialty, income, and other practice aspects. The National Certification Corporation (NCC) database contains basic data on providers that the NCC has certified, including WHNPs. Annual compilations of the Family Planning Annual Reports (FPAR) are completed by all Title X family planning services grantees in order to monitor and report program performance. The National Family Planning & Reproductive

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<sup>5</sup> Note that our model projects utilization of SRH services by women aged 15–44 (which is observed in the NSFG dataset), rather than total met and unmet demand for SRH services (which is not observed).

Health Association (NFPRHA) agreed to survey its membership of federally funded family planning organizations for this project. The National Association of Nurse Practitioners in Women's Health (NPWH) conducted an online survey, developed by RAND, that was completed by NPWH members who are NPs providing care to women in the primary care setting and in women's health specialty practices. Data from the Planned Parenthood Federation of America (PPFA) were also used in the analysis.

To identify barriers to increasing the supply of NPs delivering high-quality SRH services, as well as policy and other options for increasing the supply of these providers, we conducted semistructured interviews with 14 experts in a range of relevant areas, including scope-of-practice law and regulation, Title X service delivery, health workforce, nursing education and training, and nurse practitioner certification. In addition, we conducted two virtual and one in-person site visits with geographically and organizationally diverse SRH clinics. We interviewed eight personnel during these visits: four clinicians, three clinic administrators, and one individual serving both clinical and administrative roles. We asked the experts broad questions about matching supply and demand, education and training in SRH services, SRH service delivery settings including Title X programs, and issues related to credentialing and regulation, particularly at the regional or state level, as well as specific questions about each respondent's area of expertise. We asked clinicians about their educational and professional background, training experiences, hiring experiences, and clinical experiences. We asked clinic administrators about their professional experiences, the services provided by their clinics, challenges to meeting patient needs, clinic staffing, staff competencies, and policy recommendations for increasing the supply of SRH providers. The names and affiliations of interviewees are listed in Appendix A. Our analysis of barriers and policy options were also based on the NFPRHA and NPWH surveys described above.

## Demand

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This chapter answers the following question: What is the expected increase in demand for SRH services among women in the United States aged 15–44 in the next decade? An understanding of the answer will help us investigate the potential for a mismatch between supply and demand in the aggregate, as well as in particular care settings.

### Methods

Here we describe a method for forecasting the total future utilization of SRH services by females of reproductive age (15–44) in the United States. Our principal interest is estimating utilization of the following four broad classes of SRH services through the year 2020: birth control, emergency contraception, preventative services, and sexually transmitted disease (STD) services. In addition to modeling aggregate utilization, we also seek to forecast utilization within three categories of settings: public, private, and other. We pay particular attention to demand within the public setting because this is largely the purview of Title X programs. Our model is structurally similar to those used in previous efforts (Boyle et al., 2001; King, Aubert, and Herman, 1998; Wu et al., 2009) to forecast future disease prevalence rates. We took the following steps to complete our analysis:

1. Estimate what factors are associated with use of SRH services in general and in particular settings.
2. Obtain projections of how those factors will change in the future.
3. Forecast future use of services (demand) according to future changes in those factors.

To some extent, the availability of factors that can be reliably projected (step 2, above) drives what factors are employed in the analysis (step 1, above), both of which are described in more detail below. Also note that we are projecting utilization of SRH services (as this is observed in the NSFG dataset) rather than total met and unmet demand for SRH services (which is not observed).

### Data/Model Parameters

Our model incorporates data from three secondary sources: the NSFG, the U.S. Census Bureau National Population Projections, and RAND’s COMPARE microsimulation model.

**National Survey of Family Growth.** To derive estimates of the current demand for SRH services, we utilized the Centers for Disease Control and Prevention’s (CDC’s) NSFG data. The

NSFG is a probability survey of men and women of reproductive age. It contains service- and setting-specific data on respondents' SRH services utilization, as well as background covariates. By consolidating records from NSFG cycle 6 (2002) and the 2006–2010 cycle, we developed a dataset consisting of 19,992 observations of the actual utilization of SRH services by U.S. women.

For the purposes of this analysis, we aggregated NSFG service and setting categories according to the schema displayed in Figure 2.1.

**U.S. Census Bureau Projections.** For estimates of the future population of distinct age–race/ethnicity groups, we utilized the U.S. Census Bureau's 2008 National Population Projections. These are five-year estimates of the population for defined subgroups, produced using a cohort-component method with assumptions about fertility, mortality, and international migration derived from historical time-series data (U.S. Census Bureau, 2008).

**RAND COMPARE.** The RAND COMPARE model is a computer-based microsimulation of the U.S. health insurance market; it includes as agents individuals, families, firms, and various government entities. Agents in the COMPARE model are empowered to make decisions (e.g., individuals may purchase health insurance, and firms may offer health insurance) via a customized rulebook and under a utility maximization framework. In this way, COMPARE is able to simulate equilibrium states of health insurance coverage under various policy scenarios (Giroi et al., 2009). For this analysis, we obtained from the COMPARE model multiperiod estimates of the insurance status distribution of different segments of the U.S. population under the policy scenario of successful implementation of the ACA. Specifically, for each distinct group cross-classified by race/ethnicity (Hispanic, and Non-Hispanic: Black, White, and Other) and age category (15–24, 25–34, 35–44), the COMPARE model produced estimates of the within-group insurance status percentage (public insurance, private insurance, and no insurance) for the years 2006, 2013, 2014, and 2019. Interperiod estimates of within-group insurance status distributions were generated via linear interpolation.

### Projection model

Estimation of the projected total demand for a given SRH service (birth control, emergency contraception, preventative services, or STD services) occurred via the three-step process identified previously and described in more detail here. In the first step, estimates of the probability of obtaining an individual service in a given setting (public, private, or other) were generated using probit regression. Twelve distinct probit regression models were specified (4 services  $\times$  3 settings). For each  $jk$  service-setting combination, a model of the following form was fit:

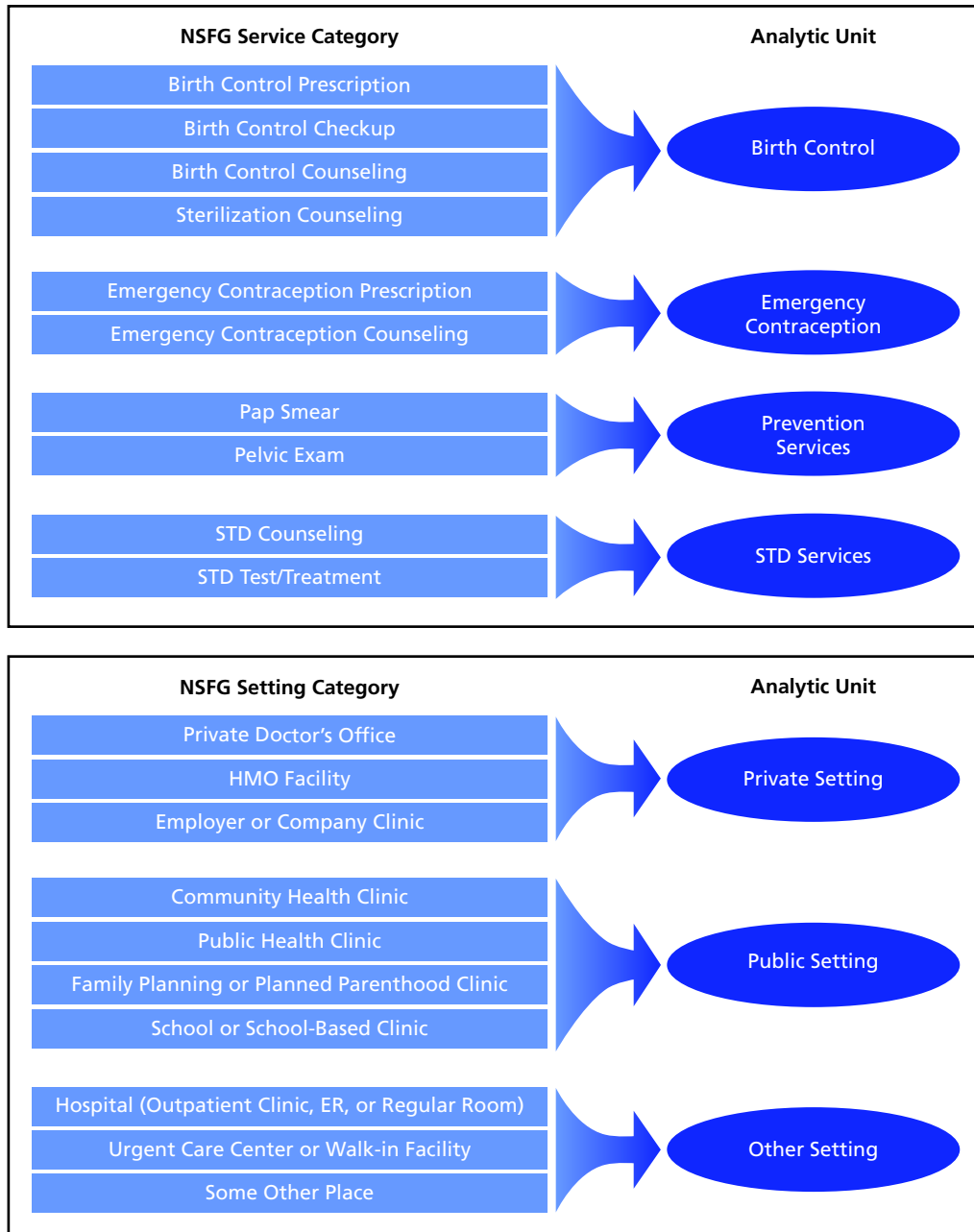
$$(S_{jk} = 1|X) = \phi(X'\beta)$$

where  $S_{jk}$  is an indicator if service  $j$  was obtained in setting  $k$ ,  $\phi(\cdot)$  is the standard normal cumulative distribution function, and  $X$  is a vector comprised of factor variables for educational attainment, marital status, age group, poverty, insurance status (public, private, or none), race/ethnicity classification, and a year variable. Based on evidence from the literature about utilization of health care services and after analysis of cross-tabulations of NSFG data, the following interaction terms were also included:

- Hispanic\*Age Under 25
- Hispanic\*No Insurance
- Hispanic\*Private Insurance



**Figure 2.1**  
**Schema of the NSFG Service and Settings Categories Assigned to Analytical Units**



RAND TR1224-2.1

- No Insurance\*Age Under 25
- Private Insurance \*Age Under 25

From these models, average predicted probabilities for  $S_{jk} = 1$  were calculated for each of 36 distinct subgroups classified by race/ethnicity (4 categories), age (3 categories), and insurance status (3 categories).

In the second step, the actual and interpolated COMPARE insurance status distributions by year, age, and race/ethnicity classification were multiplied by the U.S. Census Bureau population projections in order to obtain point estimates for the frequency distribution of each subgroup by year, for example, to obtain the number of non-Hispanic blacks age 1–24 with no insurance in 2014.

In the third and final step, total demand for each of the four service classes was estimated, both by setting and in the aggregate. We first computed subgroup-specific estimates of service/setting usage by multiplying each subgroup's average predicted probability of obtaining service  $j$  in setting  $k$  (generated from the probit regression models) against the projected cell counts for each of the 36 subgroups in each year (generated by combining the COMPARE microsimulation data with the U.S. Census Bureau projections). Total utilization for a given service/setting combination (e.g., birth control in a clinic setting) was estimated by aggregating projected usage across all 36 subgroups and applying a linear time effect (the estimated marginal effect of the year variable produced by relevant probit regression model).

Regression models were estimated using STATA 11.1; subsequent projection modeling was constructed in Microsoft Excel 2010.

### **Sensitivity Analysis**

We evaluated the sensitivity of the projection by creating several alternative models constructed under various sets of parameter assumptions. Because of political uncertainty around health care reform, we first created a model in which full implementation of ACA by 2014 fails to occur. In this scenario, instead of assuming that a sharp increase occurs in the percentage of the population that is insured in 2014 (with gradually increasing rates post-2014), the model assumes that within-subgroup insurance rates remain constant at current levels. To assess the relative contributions of aggregate population growth and differential growth between subgroups (e.g., faster growth among young Hispanics), we created a second alternative model in which aggregate population growth occurs according to the census projection estimates but with the percentage distribution across subgroups fixed at current levels. We also created a third model that fixed both population size and distribution at current levels but allowed for full implementation of ACA.

Finally, we created a fourth alternative model that assessed the sensitivity of the projection to assumptions about the influence of insurance status on consumers' choice of provider setting. The base model assumes that for a given demographic cell, women who undergo an insurance status change will have, given their new insurance type, a probability of obtaining service  $j$  in setting  $k$  identical to that of consumers in the same demographic cell that have always had that insurance type. In contrast, the alternative model assumes that the newly insured will access services in the same mix of settings as they did while uninsured (estimated via multinomial probit regression) but at an enhanced level of setting-independent overall utilization. This is supported somewhat by reports from Massachusetts that suggest that after the enactment of health reform in Massachusetts in 2006, newly insured individuals continued to access services from their same community-based providers (Tu et al., 2010). However, those findings are qualitative and it is not clear whether they would persist over time.

## Results

Detailed projection results are described below for one of the four service groups: birth control. These results are followed by condensed results for the other three service groups: emergency contraception, preventative services, and STD services. Detailed results for these three service groups are provided in Appendix C. All projection models were constructed using the U.S. Census's 2008 national age/sex population projections and under the baseline assumptions of the COMPARE model, namely, that ACA implementation will be complete and will occur on time (U.S. Census Bureau, 2008).

### Birth Control

The first step of the projection is to estimate the factors that are associated with service use, by setting. Table 2.1 presents data from the survey-weighted regression models, which estimate the probability of having obtained one or more birth control services in the prior 12 months.

A number of demographic factors influence both the likelihood that women will obtain birth control services and their choice of setting. First, after controlling for other variables, education appears to significantly influence the probability of obtaining birth control services in the private setting. Relative to the reference group (less than high school education), each of the remaining groups has a higher probability of obtaining services in the private setting, and this effect is monotonically increasing in education level. Education also appears to positively influence the likelihood of obtaining birth control services in the clinic setting, but to a lesser extent, and does not significantly affect birth control use in the "other" setting, though this is partly a function of the significantly smaller number of positive observations in that setting in the NSFG data.

Further, relative to the marital status reference group (married), we see that never-married women are significantly more likely to obtain birth control services in the clinic setting and significantly less likely to do so in the private setting. We also see that increasing age is associated with a decreased probability of obtaining birth control services; this is evident and statistically significant across clinical settings.

Relative to the insurance status reference group (no insurance), those with private insurance (comprising roughly 65 percent of the sample) are significantly less likely to obtain birth control services in the clinic setting and significantly more likely to obtain services in the private setting. Those with public insurance (roughly 20 percent) are also significantly more likely to obtain services in the private setting. However, after controlling for other factors, public insurance status does not appear to increase the probability of obtaining birth control services in the public setting. Those with public insurance are also more likely to obtain birth control services in the "other" setting than those without insurance. These findings will be important in the demand projections, which involve a large shift in insurance coverage with the ACA.

Race does not appear to affect the likelihood of obtaining services in the clinic setting. However, whites are significantly more likely than blacks to obtain services in the private setting. Relative to blacks, both Hispanics and members of the "other" racial category are less likely to obtain services in the private setting. Blacks are more likely than whites and Hispanics to obtain services in the other setting.

As expected, household income is strongly associated with a decreasing probability of obtaining services in a clinic setting and with an increasing probability of obtaining services in a private setting. Income is also associated with a decreasing probability of obtaining ser-

**Table 2.1**  
**Probit Regression Results for Utilization of Birth Control Services, by Setting**

| Factor Variables  | Clinic Setting |                | Private Setting |                | Other Setting |                |
|---|----------------|----------------|-----------------|----------------|---------------|----------------|
|   | Coefficient    | CI             | Coefficient     | CI             | Coefficient   | CI             |
| Educational Attainment (reference group = "less than high school")                            |                |                |                 |                |               |                |
| High school/<br>GED   | 0.08*          | (-0.01, 0.16)  | 0.41***         | (0.32, 0.50)   | -0.01         | (-0.14, 0.12)  |
| Some college  | 0.17***        | (0.09, 0.26)   | 0.59***         | (0.50, 0.68)   | 0.07          | (-0.08, 0.22)  |
| Bachelor's<br>degree  | 0.19***        | (0.07, 0.31)   | 0.68***         | (0.58, 0.78)   | 0.07          | (-0.14, 0.28)  |
| Advanced<br>degree  | 0.11           | (-0.08, 0.32)  | 0.74***         | (0.61, 0.88)   | -0.07         | (-0.32, 0.17)  |
| Marital Status (reference group = "married")  |                |                |                 |                |               |                |
| Widowed   | -0.01          | (-0.45, 0.42)  | -0.21           | (-0.63, 0.20)  | 0.12          | (-0.63, 0.87)  |
| Divorced  | 0.15**         | (0.02, 0.29)   | 0.05            | (-0.05, 0.16)  | 0.01          | (-0.19, 0.22)  |
| Separated   | 0.12           | (-0.08, 0.32)  | 0.02            | (-0.15, 0.18)  | 0.03          | (-0.21, 0.28)  |
| Never married   | 0.22***        | (0.12, 0.31)   | -0.12***        | (-0.19, -0.05) | -0.15         | (-0.3, 0.00)   |
| Age (reference group = "15-24")   |                |                |                 |                |               |                |
| 25-34   | -0.24***       | (-0.39, -0.09) | -0.19***        | (-0.33, -0.05) | -0.17*        | (-0.34, 0.00)  |
| 35-44   | -0.83***       | (-0.99, -0.66) | -0.76***        | (-0.92, -0.60) | -0.39***      | (-0.57, -0.20) |
| Insurance Status (reference group = "no insurance")   |                |                |                 |                |               |                |
| Private<br>Insurance  | -0.63***       | (-0.76, -0.49) | 0.56***         | (0.43, 0.69)   | -0.08         | (-0.26, 0.10)  |
| Public<br>Insurance   | -0.09          | (-0.23, 0.05)  | 0.40***         | (0.26, 0.54)   | 0.38***       | (0.17, 0.59)   |
| Race/Ethnicity (reference group = "white")  |                |                |                 |                |               |                |
| Black   | 0.03           | (-0.07, 0.13)  | -0.14***        | (-0.21, -0.07) | 0.20***       | (0.07, 0.33)   |
| Hispanic  | 0.58***        | (0.39, 0.77)   | -0.31***        | (-0.47, -0.16) | -0.11         | (-0.34, 0.13)  |
| Other   | 0.10           | (-0.05, 0.26)  | -0.49***        | (-0.62, -0.36) | 0.32***       | (0.10, 0.53)   |
| Household Income as a Percent of the Federal Poverty Level (reference group = "<100 percent") |                |                |                 |                |               |                |
| 100-200   | -0.11**        | (-0.20, -0.03) | 0.01            | (-0.07, 0.10)  | 0.03          | (-0.10, 0.17)  |
| 200-300   | -0.13**        | (-0.23, -0.02) | 0.04            | (-0.06, 0.13)  | -0.07         | (-0.22, 0.08)  |
| 300-400   | -0.29***       | (-0.42, -0.17) | 0.14***         | (0.04, 0.24)   | -0.19**       | (-0.36, -0.02) |
| 400-500   | -0.36***       | (-0.50, -0.23) | 0.24***         | (0.12, 0.35)   | -0.10         | (-0.32, 0.12)  |
| >500  | -0.21**        | (-0.38, -0.04) | 0.25***         | (0.14, 0.36)   | -0.19         | (-0.43, 0.05)  |

continued

**Table 2.1**  
**Continued**

| Factor Variables                  | Clinic Setting |                | Private Setting |                 | Other Setting |                 |
|-----------------------------------|----------------|----------------|-----------------|-----------------|---------------|-----------------|
|                                   | Coefficient    | CI             | Coefficient     | CI              | Coefficient   | CI              |
| <b>Other Variables</b>            |                |                |                 |                 |               |                 |
| Year Effect                       | -0.01*         | (-0.03, 0.00)  | 0.00            | (-0.01, 0.01)   | -0.01         | (-0.03, 0.01)   |
| <b>Interactions</b>               |                |                |                 |                 |               |                 |
| Hispanic*<br>Under 25             | -0.42***       | (-0.59, -0.26) | -0.09           | (-0.22, 0.04)   | -0.05         | (-0.29, 0.19)   |
| Hispanic*<br>No insurance         | -0.24**        | (-0.43, -0.05) | 0.07            | (-0.13, 0.27)   | 0.23          | (-0.09, 0.55)   |
| Hispanic*<br>Private<br>insurance | -0.24**        | (-0.45, -0.03) | 0.26***         | (0.09, 0.44)    | 0.28*         | (-0.01, 0.57)   |
| No insurance*<br>Under 25         | -0.01          | (-0.21, 0.2)   | -0.01           | (-0.20, 0.18)   | -0.15         | (-0.38, 0.07)   |
| Private<br>insurance*<br>Under 25 | 0.18**         | (0.01, 0.35)   | -0.10           | (-0.26, 0.05)   | -0.22**       | (-0.43, 0.00)   |
| Constant                          | 24.74*         | (-2.56, 52.04) | -2.63           | (-21.79, 16.54) | 16.25         | (-18.49, 50.99) |

NOTE: CI, confidence interval; \* p<0.10; \*\* p<0.05; \*\*\* p<0.01.

vices in the other setting. The interaction terms are mainly significant in the clinic setting (and not in the other settings) and also are important in the demand projections, though are less straightforward to interpret in the probit regression. Generally, although Hispanics are more likely to use birth control services in clinic settings, this is less the case for young, uninsured, and privately insured Hispanics.

The second step of the projection is to project the key components of population and insurance changes that affect utilization of services. The highlights of those changes are as follows:

- Between 2010 and 2020, the total population of women aged 15–44 is projected to increase by roughly 3.7 million women, or 6 percent. That change varies greatly by race/ethnicity.
  - The population of Hispanic women of reproductive age is projected to increase by about 29 percent.
  - The population of black women of reproductive age is projected to increase by about 5 percent.
  - The population of white women of reproductive age is projected to *decrease* by about 3 percent.
- The percentage of women of reproductive age who are insured is projected to increase by roughly 15 percentage points between 2013 and 2015 and by an additional several percentage points in the years thereafter.
  - That increase is split roughly evenly between Medicaid and private insurance.

The third and final step of the projection is to forecast future use of services (demand) according to future changes in the factors described above. The projected changes in demand are detailed in Table 2.2 for the birth control service group.

The model projects growth in overall birth control utilization from 24.5 million women in 2006 to 26.9 million women in 2020, an increase of 9.9 percent. This elevated level of utilization can be attributed to the factors detailed above: changes in population by race/ethnicity and insurance coverage. Because our regression analysis indicates, as much previous research has shown, that the insured utilize SRH services at higher rates than the uninsured (even after controlling for race, income, and other variables), our model projects a discontinuous increase in birth control utilization in 2014. This discontinuity is evident in Figure 2.2.

We were also interested in assessing the *relative* contributions of the different elements of the model—implementation of ACA, net population growth, and cross-group shifting within the population (i.e., the increasing average age of the population over time, or the rising percentage of the population that is Hispanic)—to the overall projected growth in service utilization. To do this, we examined models constructed under a variety of alternative assumptions:

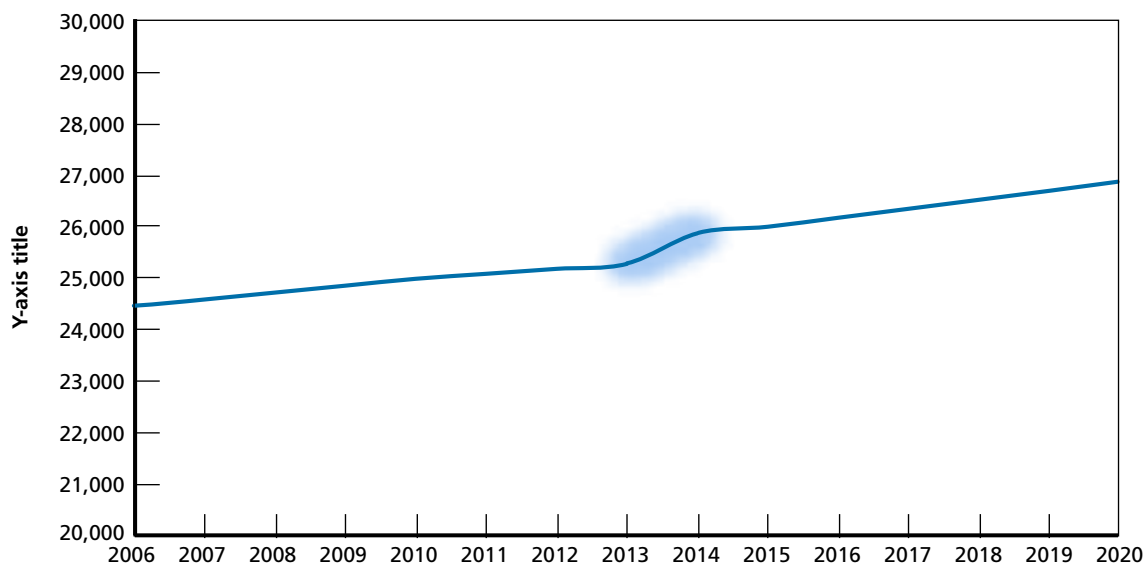
**Table 2.2**  
**Projected Utilization of Birth Control Services, by Year and Setting**

| Year | Setting |         |       | Total  |
|------|---------|---------|-------|--------|
|      | Clinic  | Private | Other |        |
| 2006 | 6,103   | 17,055  | 1,292 | 24,449 |
| 2007 | 6,162   | 17,122  | 1,300 | 24,584 |
| 2008 | 6,221   | 17,190  | 1,308 | 24,719 |
| 2009 | 6,280   | 17,257  | 1,316 | 24,853 |
| 2010 | 6,338   | 17,324  | 1,325 | 24,987 |
| 2011 | 6,385   | 17,368  | 1,331 | 25,084 |
| 2012 | 6,432   | 17,411  | 1,337 | 25,181 |
| 2013 | 6,479   | 17,455  | 1,344 | 25,277 |
| 2014 | 6,127   | 18,317  | 1,427 | 25,871 |
| 2015 | 6,140   | 18,423  | 1,436 | 25,999 |
| 2016 | 6,164   | 18,561  | 1,449 | 26,174 |
| 2017 | 6,188   | 18,700  | 1,461 | 26,349 |
| 2018 | 6,211   | 18,840  | 1,473 | 26,523 |
| 2019 | 6,234   | 18,980  | 1,485 | 26,698 |
| 2020 | 6,256   | 19,120  | 1,497 | 26,873 |

SOURCE: RAND projections based on NSFG.

NOTE: Data are in thousands and are estimates of the number of women aged 15–44 utilizing one or more birth control services in a 12-month period.

**Figure 2.2**  
**2014 Discontinuity in Projected Aggregate National Utilization of Birth Control Services**



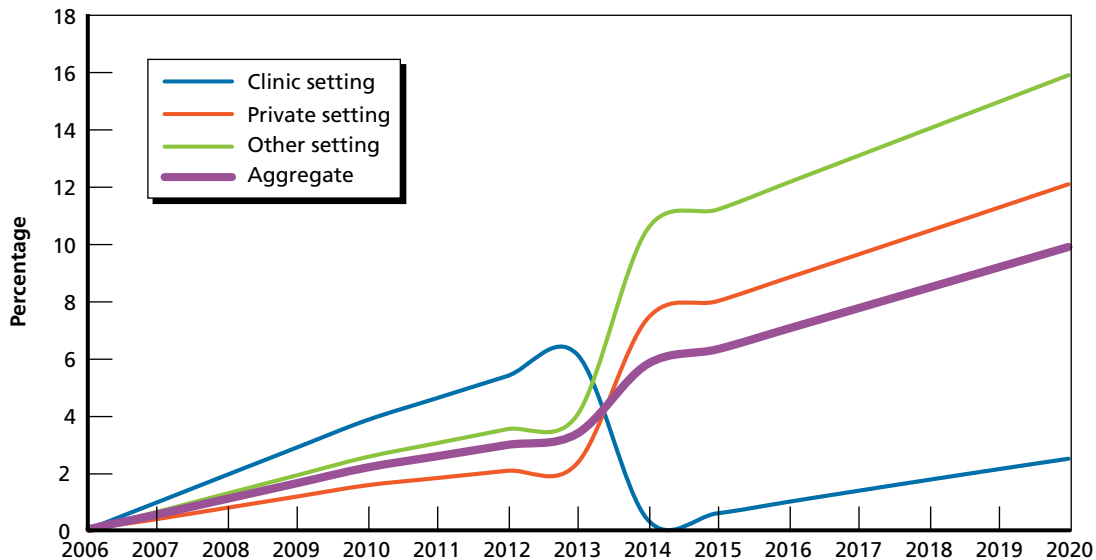
SOURCE: RAND projections based on NSFG.

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specifically a model in which ACA implementation does not occur, but population growth conforms to census projections; a model in which ACA implementation does occur, but the population is forced to remain static at current levels; and a model in which ACA is implemented, population growth is allowed to occur, but relative demographic proportions are fixed at present levels. Using this approach, we found that approximately one-third of projected growth in contraceptive service utilization was due to ACA implementation, while two-thirds was attributable to population changes.

Finally, we note that growth in birth control utilization is not projected to be constant across settings. The model projects that between 2006 and 2020, utilization in the private setting will grow by about 12.1 percent, but utilization in the clinic setting will rise only 2.5 percent, to 6.3 million. Overall population growth and demographic shifts contribute to higher levels of utilization in both settings; however, the higher *relative* growth in the private setting is explained by the underlying assumptions of the model. Because the model probabilistically estimates not only individuals' utilization of services but also their choice of setting based on demographic attributes, a movement of a block of the population from uninsured status to insured status will produce not only an increase in service utilization but also a shift in setting. Put another way, because the uninsured are more likely to obtain services in a clinic setting and the insured more likely to obtain services in a private setting, a decrease in the size of the uninsured population results in a utilization shift away from the clinic setting toward the private setting. This effect is displayed graphically in Figure 2.3, which shows the percentage change in birth control utilization in each of the three settings and in the aggregate. On a percentage basis, the largest overall growth is seen in the "other" setting; the model projects a 15.9 percent increase in utilization at that setting. However, only about 5 percent of the overall market uti-

**Figure 2.3**  
**Relative Growth in Birth Control Utilization, Aggregate and by Setting**



SOURCE: RAND projections based on NSFG.

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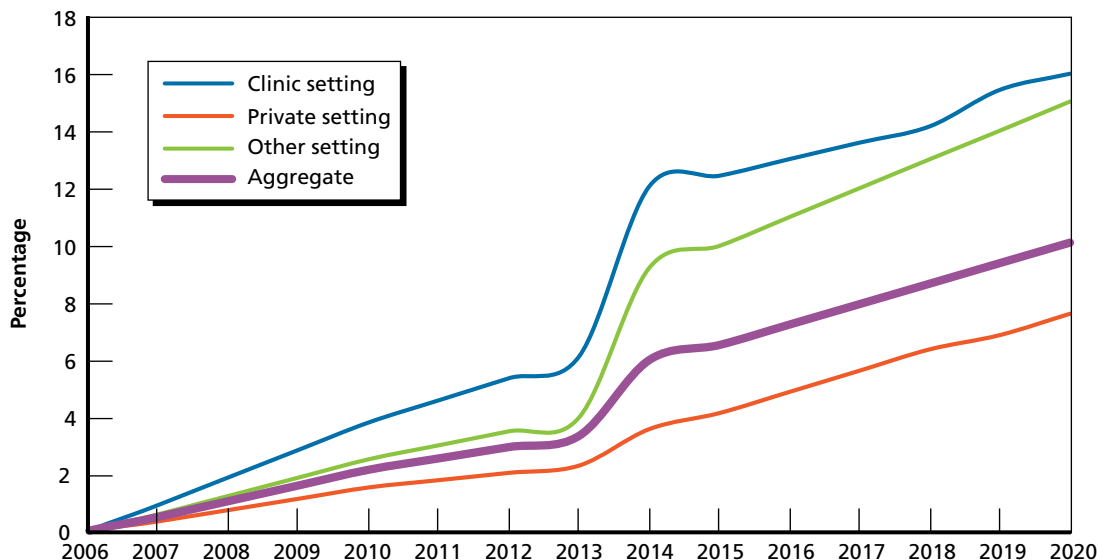
lization of birth control services occurs in the “other” setting, so the effective impact of strong growth there on the aggregate projections is quite marginal.

As was mentioned previously, there is reason to believe that some, perhaps many, of these newly insured women may prefer to remain with their original providers despite their change in insurance status. In 2010, the Center for Studying Health System Change produced an expert interview-based report on the state of Boston-area health care market dynamics. The authors state that in the wake of Massachusetts health reform, most of those newly covered by MassHealth or Commonwealth Care “continued to use the same safety net providers they had used when uninsured, though perhaps at a higher utilization rate” (Tu et al., 2010). Because of the extremity of the shift across settings and because of these concerns, we also fit an alternative set of models in which newly insured consumers were assumed to utilize reproductive health care services in the same mix of settings they selected prior to ACA implementation, but at an enhanced overall rate of utilization. The estimated growth rates in utilization under the assumptions of this model are presented in Figure 2.4.

The model’s aggregate projection is robust to this change: a 10.1 percent increase in aggregate birth control utilization by 2020 (to 26.9 million) is now forecasted, compared with 9.9 percent growth in the base model. However, there is a dramatic shift in each of the within-setting projections. Instead of a shift in 2014 away from the clinic setting toward the private and other settings, we now see that the projection for each of these settings experiences a discontinuous jump in 2014, with the largest increase occurring at the clinic setting (16.0 percent growth). This occurs because, under this alternative assumption, when the uninsured do utilize services, they tend to use the clinic setting at much higher rates than the private or other settings. Many of the types of facilities within the “clinic” setting category are in fact specifically designed to serve the uninsured.



**Figure 2.4**  
**Relative Growth in Birth Control Utilization Under Alternative Model Assumption**



SOURCE: RAND projections based on NSFG.

RAND TR1224-2.4

Growth in private setting utilization of birth control services is weaker under the assumptions of the alternative model but still positive: an overall increase of 7.7 percent is projected, compared with 12.1 percent in the base model. Model projections of the utilization of birth control services in the other setting are robust to the change in assumptions: growth is projected at 15.9 percent in the base model and 15.1 percent in the alternative model. It appears to be the case that in the aggregate, the propensity of different demographic subunits to utilize this setting is largely independent of insurance status. However, as previously mentioned, only a small percentage of total birth control services are provided in this setting, and thus its overall contribution to estimates of aggregate utilization are minimal.

In summary, the model projects roughly a 10 percent increase in overall birth control utilization by 2020, with the major drivers of that increase being population growth and higher rates of insurance resulting from health care reform. Aggregate projection estimates are robust to assumptions about the degree to which introduction of insurance will affect the choice of setting made by the previously uninsured, but setting-specific projection estimates are highly sensitive to those assumptions.

Finally, we note that our model does not directly incorporate ACA's classification of contraception as a preventative service. This classification is important because ACA requires no cost sharing for these services and because there is some evidence to suggest that cost sharing reduces utilization of preventative services. Solanki, Schauffler, and Miller (2000) found that cost-sharing measures had a negative impact on the utilization of other reproductive health preventative services, specifically Pap tests and mammographies. In addition, we fit a model where the regressor was overall utilization (i.e., independent of setting) and found that after controlling for other factors, those with public insurance were marginally more likely to utilize contraceptive services. One possible explanation for this would be the depressive effect of

copays and deductibles on utilization by those with private insurance. If true, our projections could be biased to the conservative, with an underestimate of about 3 percent. This estimate is the product of a loose approximation of the effect sizes found by Solanki and colleagues (5 percent) and the percentage of our NSFG sample with private insurance (65 percent).

### Emergency Contraception, Preventative Services, and STD Services

Condensed projection results for the total utilization of emergency contraception, preventative services, and STD services in the United States are presented in Table 2.3.

Projection results for these other categories of SRH services are qualitatively similar to results for birth control utilization. The model predicts overall growth in emergency contraception of 15.8 percent, preventative services of 9.0 percent, and STD services of 14.1 percent. As was the case with birth control, this growth in utilization is broadly attributable to population growth, demographic changes, and higher rates of insurance resulting from implementation of the ACA in 2014. The point estimates for aggregate growth in emergency contraception utilization (15.8 percent) and STD services (14.1 percent) are somewhat larger than those for birth control (9.9 percent) and preventative services (9.0 percent), and these differences occur for different reasons. High growth in emergency contraception utilization appears to be caused

**Table 2.3**  
Projected Utilization of Emergency Contraception, Preventative Services,  
and STD Services, by Year and Setting

| Service                 | 2006   | 2011   | 2016   | 2020   | Change<br>2006–2020 (%) |
|-------------------------|--------|--------|--------|--------|-------------------------|
| Emergency Contraception |        |        |        |        |                         |
| Clinic setting          | 1,156  | 1,229  | 1,206  | 1,248  | 7.9                     |
| Private setting         | 595    | 627    | 737    | 784    | 31.7                    |
| Other setting           | 181    | 185    | 200    | 205    | 13.3                    |
| Total                   | 1,933  | 2,042  | 2,142  | 2,237  | 15.8                    |
| Preventative Services   |        |        |        |        |                         |
| Clinic setting          | 7,253  | 7,580  | 7,377  | 7,550  | 4.1                     |
| Private setting         | 30,305 | 30,149 | 32,282 | 33,229 | 9.6                     |
| Other setting           | 2,078  | 2,130  | 2,344  | 2,432  | 17.0                    |
| Total                   | 39,637 | 39,859 | 42,003 | 43,211 | 9.0                     |
| STD Services            |        |        |        |        |                         |
| Clinic setting          | 2,450  | 2,580  | 2,439  | 2,473  | 0.9                     |
| Private setting         | 5,112  | 5,343  | 5,908  | 6,175  | 20.8                    |
| Other setting           | 678    | 699    | 741    | 758    | 11.8                    |
| Total                   | 8,240  | 8,622  | 9,089  | 9,406  | 14.1                    |

SOURCE: RAND projections based on NSFG.

NOTE: Data are in thousands and are estimates of the number of women aged 15–44 utilizing one or more of the listed services in a 12-month period.

by the previously discussed high relative growth in the number of Hispanic women of reproductive age.

An analysis of the NSFG data reveals that Hispanic utilization of emergency contraception appears to be significantly higher than that of all other race/ethnicity groups. This result is displayed in Table 2.4. A test of the hypothesis that the emergency contraception utilization rate of Hispanics is equal to that of non-Hispanics in the aggregate is strongly rejected ( $F = 29.93$ ). Finally, this differential rate of utilization appears to hold across all population subgroups defined by age (15–24, 25–34, 35–44) and insurance (no insurance, public insurance, private insurance).

The combination of this apparent higher utilization of emergency contraception by Hispanics with U.S. Census Bureau estimates of strong growth in the population of Hispanics of reproductive age is the primary contributing factor to the relatively higher estimates of growth in overall utilization of emergency contraception.

By contrast, model estimates of higher growth rates in aggregate STD service utilization appear to be unrelated to growth in the Hispanic population. Instead, higher growth in STD service utilization is projected because of the magnitude of the linear time effect estimated from the regression models, which analyze survey data from the period 2002–2010. As Table 2.5 demonstrates, estimates of a time effect for utilization of STD services in the NSFG data are statistically significant for both the private setting and in the aggregate, although estimates for the clinic and other setting are not significant.

Because the majority of STD services are delivered in the private setting, growth in utilization in that setting is a significant driver of overall utilization. Under an alternate model

**Table 2.4**  
Percentage of Respondents Utilizing Emergency Contraception Within Previous 12 Months, by Race/Ethnicity

| Race/Ethnicity Group | Sample Utilizing Emergency Contraception (%) | Standard Error |
|----------------------|--|----------------|
| Black                | 3.9  | 0.004          |
| White                | 2.9  | 0.002          |
| Hispanic             | 6.7  | 0.006          |
| Other                | 4.8  | 0.008          |

SOURCE: RAND estimates based on NSFG

**Table 2.5**  
Probit Regression Results for Estimated Time Effect as a Predictor of STD Service Utilization, by Setting

| Setting      | Point Estimate of Linear Time Effect | Standard Error | Z    | p> z  |
|--------------|--------------------------------------|----------------|------|-------|
| Private      | 0.0034                               | 0.0009         | 3.94 | 0     |
| Clinic       | 0.0006                               | 0.0005         | 1.14 | 0.253 |
| Other        | 0.0002                               | 0.0002         | 0.89 | 0.374 |
| All settings | 0.0046                               | 0.0011         | 4.27 | 0     |

SOURCE: RAND estimates based on NSFG.

construction with all linear time effect estimates set to zero, estimates of the projected total growth in STD service utilization fall from 14.1 percent to 10.4 percent.

Model findings for each of these service groups—emergency contraception, preventative services, and STD services—are broadly similar in a qualitative sense to results for birth control utilization. For each service, model estimates of aggregate utilization reveal a discontinuity in 2014 as previously uninsured individuals begin to consume services at higher rates. Setting-specific base model projection results for each service exhibit the same “shift” away from the clinic setting and toward the private setting in 2014. When the models are run under the previously described alternative assumptions about the preferences of newly insured consumers to remain with current providers, these shifts are eliminated, with minimal effect on aggregate

**Table 2.6**  
**Model Projection Estimates for All Service Categories Under Base and Alternative Model Assumptions**

| Service Category        | Base Model                      |                                   | Alternative Model               |                                   |
|-------------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------------------|
|                         | Estimated Growth, 2006–2020 (%) | Estimated Total Utilization, 2020 | Estimated Growth, 2006–2020 (%) | Estimated Total Utilization, 2020 |
| Birth Control           |                                 |                                   |                                 |                                   |
| Clinic                  | 2.5                             | 6,256                             | 16.0                            | 7,082                             |
| Private                 | 12.1                            | 19,120                            | 7.7                             | 18,359                            |
| Other                   | 15.9                            | 1,497                             | 15.1                            | 1,486                             |
| Total                   | 9.9                             | 26,873                            | 10.1                            | 26,927                            |
| Emergency Contraception |                                 |                                   |                                 |                                   |
| Clinic                  | 7.9                             | 1,248                             | 8.9                             | 1,258                             |
| Private                 | 31.7                            | 784                               | 30.6                            | 777                               |
| Other                   | 13.3                            | 205                               | 18.8                            | 215                               |
| Total                   | 15.8                            | 2,237                             | 16.5                            | 2,251                             |
| Preventative Services   |                                 |                                   |                                 |                                   |
| Clinic                  | 4.1                             | 7,550                             | 22.3                            | 8,869                             |
| Private                 | 9.6                             | 33,229                            | 5.7                             | 32,030                            |
| Other                   | 17.0                            | 2,432                             | 17.5                            | 2,443                             |
| Total                   | 9.0                             | 43,211                            | 9.3                             | 43,342                            |
| STD Services            |                                 |                                   |                                 |                                   |
| Clinic                  | 0.9                             | 2,473                             | 13.9                            | 2,791                             |
| Private                 | 20.8                            | 6,175                             | 15.5                            | 5,902                             |
| Other                   | 11.8                            | 758                               | 13.5                            | 769                               |
| Total                   | 14.1                            | 9,406                             | 14.8                            | 9,462                             |

SOURCE: RAND projections based on NSFG.

NOTE: Total utilization is in the thousands.

(i.e., setting-agnostic) utilization. Growth projections under the base and alternative model assumptions are replicated for all service categories in Table 2.6.

A similar pattern is revealed for the three additional service categories. In each category, estimates of aggregate utilization by 2020 are robust to the change in assumptions. For example, the base model estimates 9.0 percent growth in preventative services utilization by 2020, while the alternative model estimates 9.3 percent growth. However, as was the case for birth control, setting-specific estimates for the three additional categories are highly sensitive to initial assumptions about if and how consumers' choice of setting is affected by a change in insurance status. For example, under the assumption that consumers exhibit no preference for initial provider following acquisition of insurance, the base model suggests that preventive services utilization at the clinic setting in 2020 will rise only marginally—by 4.1 percent. In addition, the base model projects a significant decline in 2014, as newly insured consumers leave the clinic setting for the private setting. On the other hand, under the alternative model (in which consumer preference for setting/provider is assumed to be unaffected by insurance status change), a dramatic (22.3 percent) increase in clinic setting utilization of preventative services is projected.

On the whole, increases in use of most services are projected to grow from roughly 10 percent to 20 percent between 2006 and 2020, driven largely by changes in the racial/ethnic makeup of the population of women of reproductive age and by changes in insurance coverage due to the ACA. Increases in utilization in clinic settings are expected to be smaller than increases in utilization in nonclinic settings if the newly insured use services that follow the same patterns (i.e., if they use services in the same settings) as for the currently insured. If not, then increases in utilization in clinic settings will be consistent with the increases in other settings. Regardless of where services are provided, these increases portend a need for more clinicians competent to provide a range of SRH services. The next chapter discusses what is known and what can be expected about changes in the supply of NPs, particularly those relevant to the production of SRH services.



## Supply

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As noted in the introduction, the provision of SRH services is the domain of several groups of professionals with fairly specialized training. The number of obstetrician-gynecologists has grown roughly 14 percent from 1996 to 2006, about half the rate of all specialist physicians (Salsberg and Rivers, 2008). Because nearly 40 percent are over age 55, some experts have suggested the possibility of a future shortage (Smith, 2012). Nevertheless, the focus of this study is on provision of services in public settings to lower-income women and men, where NPs, and particularly NPs with a women's health focus, have tended to be the main providers of SRH services. (NMs also provide SRH services, but they account for a smaller portion of the provision of direct clinical care and will be a secondary focus of this and remaining chapters of the report.)

Analysis of whether there will be enough providers of SRH services in relevant settings requires an understanding of the training pipeline that ultimately “produces” such providers. By examining each step in the training pipeline, we can gain insight into the key steps that may appear as bottlenecks or barriers to ultimate supply. Whether supply appears to be adequate and growing rapidly enough at each level helps provide insight to key leverage points and, ultimately, the necessary policy solutions.

### Data and Methods

The analysis in this chapter, as well as some of the analysis in the following chapter on barriers to provider supply, draws from the data sources described in detail below.

#### Data

**National Sample Survey of Registered Nurses.** The NSSRN is a survey that has been undertaken by the Health Resources and Services Administration within the U.S. Department of Health and Human Services every four years since 1980, as well as in 1977. The survey randomly chooses licensed RNs from within state RN licensing data in an attempt to obtain representative samples of RNs from each state; it has obtained completed responses from more than 30,000 RNs every year since 1980. The primary purpose is to help inform state and federal policymakers of trends and other information necessary to help plan and guide the nursing workforce. NPs were first uniquely identified in 1992, and thus the analysis used in this report begins with data in that year. The survey generally obtains a response rate of approximately 60 percent to 70 percent and identified roughly 1,700 NPs in 2008.

**National Nurse Practitioner Sample Surveys.** The American Association of Nurse Practitioners maintains a database, the AANP National NP Database, which is the listing of all licensed NPs in the United States, obtained from state licensing boards. Periodically, the AANP surveys NPs from within the NP Database about practice characteristics, specialty, income, and other aspects of practice, and the AANP often publishes summarized results on its website (Goolsby, 2011). The 2009–2010 survey obtained a response from just over 13,500 NPs of the 25,000 NPs who received the survey.

**National Certification Corporation Database.** The National Certification Corporation maintains basic data on providers that it has certified, including roughly 13,000 WHNPs. Data include information on basic demographics, salary, years in practice, job title, and current practice setting. NCC shared these data with RAND.

**Family Planning Annual Reports.** Annual submission of the FPAR is required of all Title X family planning services grantees for purposes of monitoring and reporting program performance. Those reports are compiled and analyzed on behalf of the Office of Family Planning within the Office of Population Affairs. Data are summarized and produced in annual compilations. We used data from several years of those compilations in this report.

**National Family Planning and Reproductive Health Association Survey.** NFPRHA represents family planning administrators and clinicians serving low-income and uninsured women and men. NFPRHA's core members are federally funded family planning organizations, including service and training grantees of Title X, administrators of Medicaid family planning expansions, and administrators of family planning programs housed in state, county, and local health departments and in family planning councils, Planned Parenthood affiliates, and other family planning organizations in integrated and freestanding sites across the country. NFPRHA, which routinely conducts online surveys of its members, agreed to conduct a survey for this project. In that survey, NFPRHA obtained a roughly 20 percent response rate among the 425 organizations it surveyed.

**National Association of Nurse Practitioners in Women's Health Online Survey.** NPWH represents NPs who provide care to women in the primary care setting as well as in women's health specialty practices. NPWH routinely conducts online surveys of its members (which number roughly 9,000) and contracted with RAND to conduct a survey for our study. Results from the survey are available in Appendix B. The survey obtained a response rate of roughly 900 individuals, representing about 10 percent of the surveyed members.

**Planned Parenthood Federation of America Data.** PPEFA is the largest provider of SRH services in the United States. Its 88 affiliates operated 840 health centers nationally and served 3 million clients in 2009–2010 (PPEFA, 2011), which is about 2.4 percent of the country's total reproductive-age population. PPEFA maintains the Annual Affiliate Service Census (AASC), a detailed database of aggregate client information. RAND was granted access to this dataset, allowing examination of historical trends in the type of services demanded by Planned Parenthood's clients and temporal changes in the demographic characteristics of Planned Parenthood's client base. This client base skews heavily female and, relative to the aggregate U.S. population, African-Americans, Hispanics, the poor, and individuals in their teens and twenties are also overrepresented.

## Methods

Data from the AANP, NPWH, and NFPRHA surveys are not necessarily representative of the populations that were sampled. However, the AANP surveys obtain a much higher response



rate, and breakdowns of the data presented in Goolsby (2011) suggest that the AANP survey data are roughly representative. Nevertheless, results presented from these surveys should be interpreted with some degree of caution. In this report, we took care to focus more on internal relationships between questions asked of the same individual than on averages for responses across the entire sample.

Data from the NSSRN are carefully sampled to be representative of the population of licensed RNs and are provided with sampling weights based on data from the state nursing licensing boards. When applied to the NP population, the total number of NPs is similar to numbers obtained from the AANP data and other assessments based on Medicare or other provider databases. Those sampling weights are used in all analyses. For the purpose of analyzing data of NPs in particular, NPs are defined as individuals who have completed formal training to be an NP. Data are analyzed using sampling weights and further weighting by hours worked so that part-time workers are defined as those working fewer than 30 hours in a given week and are weighted as one-half of a full-time equivalent (FTE).

Data from the FPAR and PPFA represent the full reported dataset for the programs and sites under their jurisdictions and are reported without adjustment.

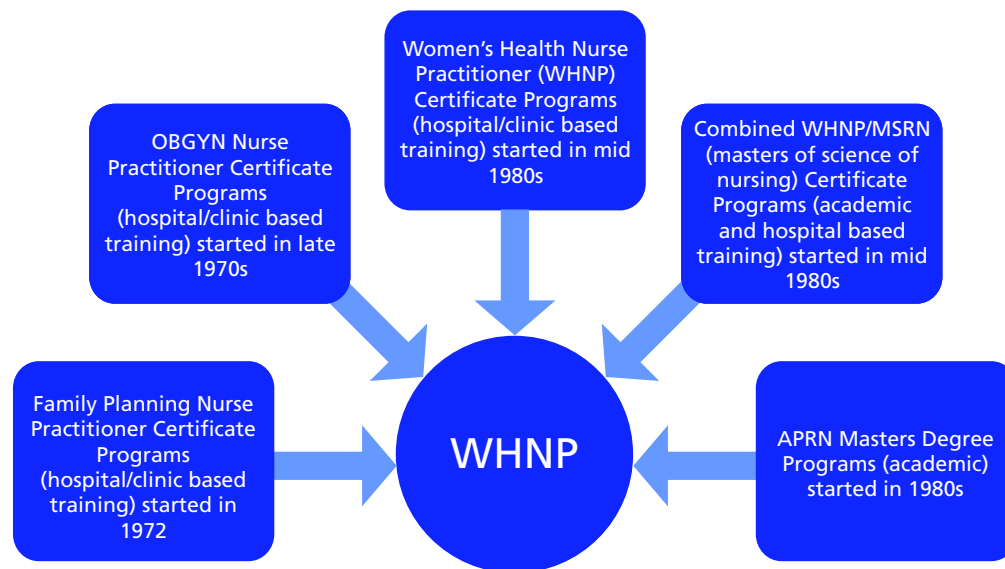
## The Educational Pipeline

Figure 3.1 displays several pathways whereby public health nurses (PHNs) historically became WHNPs, the most prominent provider type of family planning and SRH services. Historically, the federal Title X program provided funding for training programs established at several sites throughout the United States that enabled RNs to obtain a WHNP certificate in dedicated one-year programs. These programs focused first on family planning skills and were originally developed in order to increase the number of clinical providers in public health and Planned Parenthood clinics that provided the bulk of family planning and maternal and child health (MCH) services for underserved populations.<sup>1</sup> By 2005, however, WHNP certificate programs had either closed or transitioned into master's-level WHNP programs through HRSA training grants and partnerships with schools. In 2007, the NCC established the master's degree as the entry-level educational requirement for WHNP certification (Kass-Wolff and Lowe, 2009).

Figure 3.2 places the pathway by which someone obtains training and licensing as a WHNP in the larger context of advanced practice registered nurses (APRNs) in general (while this report focuses on NPs, many of the educational issues are common to all APRNs, NPs, NMs, nurse anesthetists, and clinical nurse specialists and are therefore discussed in common in this section). In an attempt to impose some uniformity on credentialing and licensure, professional nursing organizations and the National Councils of State Boards of Nursing have achieved consensus on standardizing education, certification, accreditation, and licensure for the four groups of APRNs. Figure 3.2 emphasizes the APRN roles that provide the most SRH

<sup>1</sup> Planned Parenthood Federation of America, Inc. (PPFA) started the first Family Planning NP (FPNP) Program in 1972 with co-sponsorship by the Department of Obstetrics and Gynecology of the College of Medicine and Dentistry of New Jersey and Planned Parenthood of Essex County (Newark, NJ). The program consisted of a three-month residential course followed by a six-month preceptorship at the trainee's home location. In 1979 Title X mandated that the five programs they funded expand to a woman's health nurse practitioner (WHNP) program with a four month residential phase followed by a six month preceptorship. Title X stopped funding WHNP programs in 2005, however it should be noted that from the mid 1970s to the early 2000s there were many FPNP and WHNP programs that were not funded by Title X.

**Figure 3.1**  
**Evolution of WHNP Education**



SOURCE: IOM Title X report, 2009 1; personal communication with Sandy Worthington WHNP, NM, MS, director of PPFA WHNP Program until 2006 and other experts.

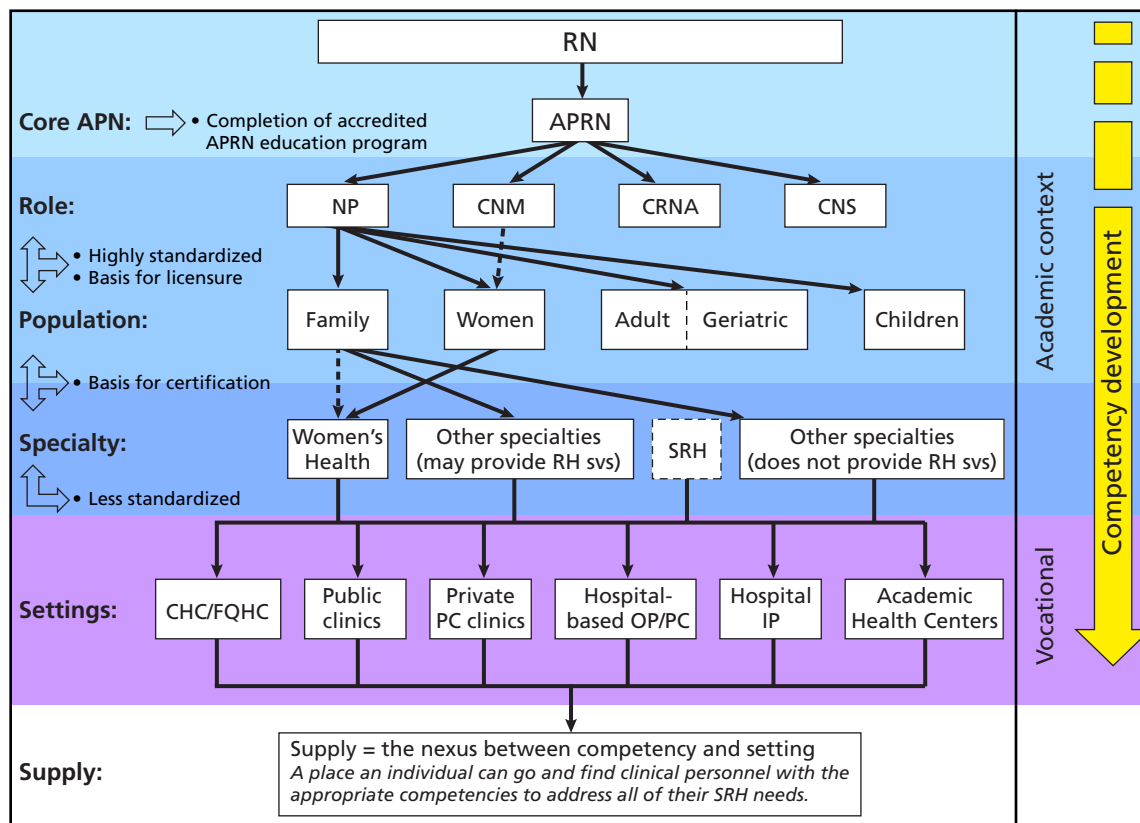
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services—NPs, in particular, and NMs. “Population” in Figure 3.2 represents the population subgroup that an APRN is oriented toward in his or her education and clinical training. “Specialties” allow APRNs to obtain further recognition in a segment of health care provision; specialties have not been formalized by the National Councils of State Boards of Nursing and rely on professional organizations or specialty practice societies (e.g., oncology, palliative care, obstetrics-gynecology) to determine educational standards or core competencies. SRH care as defined by WHO crosses populations (men, women across lifespan) and is delivered within a primary care and public health system (WHO, 2009, 2011a).

As noted earlier, the bulk of services that are the focus of this study are provided by NPs specializing in women’s health. WHNP education includes a focus on women’s primary care, including care of adolescent and older women and most of the SRH competencies as recommended by the WHO (2011a), except for intrapartum pregnancy care, men’s SRH care, and generalist primary care. The predominant pathway to SRH core competencies, as shown in Figure 3.2, is via an NP with women as their population focus. However, primary care NP education (prepared as family and adult NPs or pediatric NPs with an adolescent focus) does include some components of SRH care, as well as such care for common gynecological and genitourinary problems of adults and adolescents and contraception (procedural skills, pregnancy or unplanned pregnancy care, and SRH prevention is lacking). Similarly, NMs are competent to provide most SRH services (except male SRH care and generalist primary care) but are not a main focus in this paper because of their smaller numbers.

There is no standard system for the provision of SRH services by type or setting. WHNPs and NMs provide women’s primary care and SRH services in multiple settings including public health and community clinics, hospital-based clinics, integrated health systems, private medical clinics, academic health centers, and nurse managed clinics. Title X–funded clinics

**Figure 3.2**  
**Present and Future Pathway Diagram Involving APRNs**



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are required to provide selected SRH services such as contraception, treatment for sexually transmitted infections, pregnancy testing, selected disease detection, and prevention services. In addition, these Title X–funded clinics may also provide additional services such as prenatal care and primary care. Primary care NPs (e.g., family NP [FNP] or adult NP [ANP]) provide limited SRH services to men, women, and adolescents in the context of primary care clinics, integrated health systems, and private or specialty clinics.

The pipeline is formalized through a credentialing system that involves national *accreditation* of degree programs, formal recognition of competency (role and specialty) through *certification*, and APRN *licensure*<sup>2</sup> in accordance with a state's specific criteria. The following discussion focuses on the regulatory system for NPs. Although there is some state-level variation, in order to practice, an NP must graduate from an accredited graduate-level education program and obtain a license to practice from the state in which she or he intends to practice (Hanson, 2009).

<sup>2</sup> At the state level, APRNs are either dual licensed as an RN and APRN or licensed first as a RN and certified in one of the APRN roles (NP, NM, CRNA, or CNS). This type of mandatory certification by a state regulatory board is not the same as voluntary professional certification.

**Academic Accreditation**

Accreditation is the credential of the degree-granting institution and program assuring APRN programs are educationally sound, with appropriate content and core competencies for the role, population, or specialty program, and with adequate clinical hours of supervised experience. The National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE) accredit graduate programs in the nursing major. After graduating from an accredited education program, NPs must be credentialed through a professional certification process and/or state regulatory process.

**APRN Recognition or Licensure**

Designating minimal level practice competency within professions is a function of the state, implemented through a process of professional licensure. First licensed to practice as an RN, APRNs must meet certain criteria established by a state board of nursing in order to receive an additional license or recognition to be authorized to practice at an advanced level of nursing practice. Although not uniform, a number of state boards of nursing are considering “second licensure” in order to provide some standardization of education given the various routes of entry into the nursing profession, and to ensure a minimum set of competencies or requirements. Most state nursing boards will recognize a clinician’s population focus; however, specialty recognition is far less formalized and criteria for such recognition vary widely. Although the lack of standardization represents a problem for meeting demands for SRH care, as discussed in Chapter 4, the most straightforward path to becoming an NP who is competent in SRH care is to pursue the women’s health population focus—that is, the WHNP.

**APRN Certification**

National certification is the other primary vehicle used by state boards of nursing to ensure that an APRN has the requisite knowledge, skills, and clinical abilities in his or her specified role and population(s). To become certified, an APRN must meet certification requirements and pass the certification examination. More and more state regulatory groups are requiring national certification examinations as a component of their advanced practice nursing credentialing mechanism. A perceived weakness of APRN certification (as well as medical specialty certification) is the multiplicity of certification organizations for advanced practice nursing, particularly for NP certification. Alternately, there is only one certification program for WHNPs. For a new certification program such as SRH to develop, a delineation study is needed to define the competencies that provide the framework for appropriate testing.

**APRN Core Competencies**

Competencies, that is, the combination of skills, abilities, and knowledge needed to perform a specific task, are the domain or body of knowledge and skills that essentially define a profession or discipline. Competencies guide training programs, provide employer expectations, and drive performance standards for credentialing institutions, certifying agencies, and accrediting organizations. Each health profession discipline (e.g., nursing, medicine, midwifery, pharmacy) has independently developed core competencies for their discipline-specific professional role as well as population-based competencies (e.g., pediatrics, geriatrics, and women’s health/gender-based care). In the United States, competencies for specialty care, such as SRH, are nonexistent or have lagged behind role- (NP, NM) and population-focused (women’s health) competencies. Because SRH care is most commonly provided within the context of primary

care, it is prudent to detail competencies related to SRH for all primary care providers (physicians, nurse practitioners, PAs, and NMs) rather than for specific disciplines.

### **Current Supply of NPs in SRH Care and in SRH-Focused Clinics**

The most recent FPAR data suggest that there are about 2,000 to 2,500 NPs, NMs, and PAs in Title X–supported clinics. Although those providers are not identified separately in the data, staffing data from the PPFA, which make up a substantial subset of Title X care and provide a similar range of services with similar models, suggest that NPs outnumber both NMs and PAs by roughly 8 to 1. Thus, 1,500 to 2,000 is probably a reasonable estimate of the number of NPs working in SRH care in Title X–supported settings.

Data from the NPWH survey undertaken for this project suggest that roughly 11 percent of WHNP respondents worked in family planning clinics and roughly 14 percent worked in “community health clinic[s], community clinic[s], public health clinics[s].” The total WHNP population is roughly 10,000 to 15,000 individuals, consequently, this NPWH data indicate that up to 1,500 WHNPs (11 percent of the total WHNP population) work in family planning settings (a larger population than Title X–supported clinics), with the remainder consisting most likely of family or adult-focused NPs. Data from the AANP (discussed more fully below) suggest that roughly 3,300 NPs with a women’s health focus were working in ambulatory care, community settings, and public health settings in 2008.

As for the number of NPs working in SRH care, these figures are likely also in the 10,000–15,000 range. That estimate is based on two estimation pathways: (1) most of the 10,000 to 15,000 WHNPs appear to work in SRH care and most NPs in SRH care are WHNPs and (2) the number of NPs in Title X clinics is roughly 2,000, and Title X clinics appear to represent roughly 10 percent to 15 percent of overall provision of SRH services (Mosher, 2004).

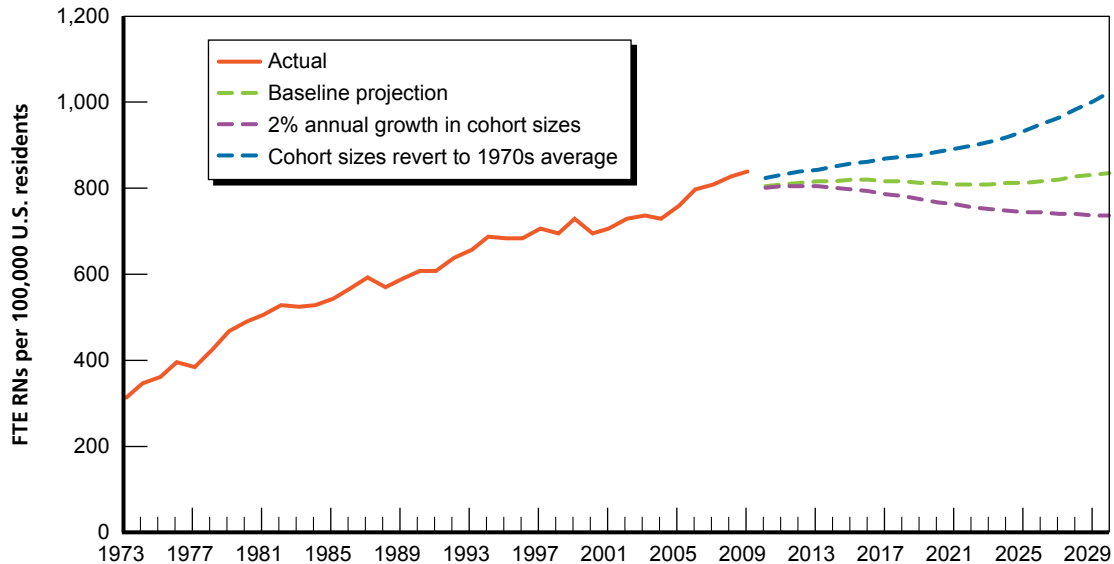
### **Trends in the Supply of NPS in SRH Care**

Because NPs make up the majority of providers in SRH care, the following focus is on NPs. We describe the sizes and trends in provider numbers at the multiple levels of the educational pipeline, as shown in Figure 3.1. We narrow our focus from broadest to most specific, that is, RNs, NPs, NPs by population focus, and NPs who provide SRH care and are employed in clinics and Title X settings oriented toward care for lower-income and uninsured women and men.

#### **Registered Nurses**

The total supply of RNs has grown steadily since 1973 and is forecast to continue to do so. Figure 3.3, which shows the most recent forecast of RNs adapted from Auerbach, Buerhaus, and Staiger (2011), is based on data from the U.S. Current Population Survey and the American Community Survey. These surveys provide three forecast scenarios because of uncertainty surrounding whether a recent surge in the number of new RNs into the workforce will continue. In their scenarios (pessimistic, base, optimistic), total RN supply is projected to grow between 2010 and 2020 by 4 percent, 10 percent, and 17 percent, respectively, and between 2010 and 2030 by 7 percent, 21 percent, and 46 percent. All but the pessimistic of those would

**Figure 3.3**  
**Actual (Red Line) and Forecast of Future Supply of (Full-Time Equivalent) RNs Under Three Scenarios**



SOURCE: Auerbach, Buerhaus and Staiger (2011).

RAND TR1224-3.3

have total RN supply growing similarly to, or outpacing, projected demand growth for most SRH services, as estimated in the previous chapter.

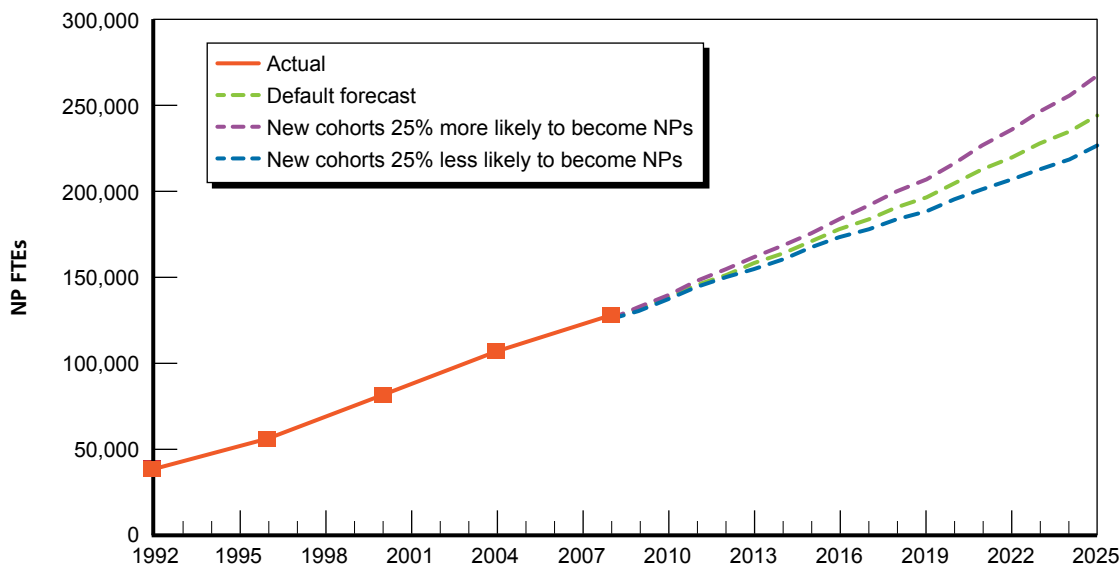
Few RNs are employed in ambulatory care settings (roughly 13 percent were employed in offices of physicians or other health care practitioners, outpatient care centers, or other ambulatory care centers according to the U.S. Bureau of Labor Statistics in 2008 [Sochalski and Weiner, 2010]), a share that does not appear to be growing. This may not be a relevant statistic when considering the potential supply of NPs who work in ambulatory care settings; the greater training of NPs and selection of RNs into the profession makes NPs more naturally suited to ambulatory care settings.

### Nurse Practitioners

**Overall Supply.** The overall supply of NPs has been growing faster than that of RNs. In 1992, according to data from the NSSRN, 2.4 percent of RNs completed training as an NP; by 2008, that percentage had grown to 5.5 percent. Figure 3.4 shows a recent forecast of total NP supply (Auerbach, 2012). The supply of NPs in the United States is forecast to grow between 2010 and 2020 by 42 percent, 48 percent, and 55 percent in the three scenarios, each well exceeding forecasts of demand growth for any services. Driving those growth rates is the fact that there are more NPs with each succeeding cohort who are observed to be actively working at any given age. For example, there were more NPs aged 30–39 observed in 2008 than there were NPs of the same ages 10 years earlier. That trend is likely driven by strong and growing demand for NPs among employers.

In the same study, Auerbach further forecast growth among a subset of NPs—those who identified their position title in the NSSRN to be “Nurse Practitioner” (others identified their

**Figure 3.4**  
**Full-Time Equivalent Supply of NPs in the United States**



SOURCE: Auerbach (2012).

RAND TR1224-3.4

title as “staff nurse,” for example). These NPs had an even higher projected growth rate: 54 percent (from roughly 90,000 NPs in 2010 to 135,000 in 2020). NPs who work in SRH clinics are expected to be more likely represented among this subset of NPs who identify their title as Nurse Practitioner. Thus, the expected growth rate of NPs from whom reproductive health NPs are ultimately drawn is considerable and not expected to represent a barrier, per se, to meeting workforce demands.

**Population Focus.** The next level toward identifying trends in NPs working in SRH care, as reflected in Figure 3.2, is the NP population expertise. Much of the discussion in subsequent sections will delve more deeply into the issue of population and specialty competencies relevant for NPs seeking to provide SRH care. Under the current model of NP education, most providers with an interest in, and who will eventually provide, SRH care are prepared or credentialed as WHNPs and, to a lesser extent, are prepared as generalist NPs with a family or adult population focus.

Table 3.1 reports data from the AANP on the population focus of NPs in 2004 and in a later survey undertaken throughout 2009–2010.

The proportion of WHNPs declined significantly ( $p < .01$ ) between 2004 and 2009/2010, while the proportion of NPs prepared with a family population focus grew substantially (Goolsby, 2005, 2011). As will be discussed later, that trend is consistent with qualitative interviews and other data that suggest an increased preference among NPs for a more generalist focus.

**Supply of NPs by Population Focus, by Setting.** Combining data from the NSSRN and additional detailed data from the AANP that crossed AANP population focus with their practice settings (data were obtained for 2003 and 2008) suggests a net increase of roughly 25,000

**Table 3.1**  
**Percent of NPs, by Population Focus**

| Population Focus          | Nurse<br>2004 | Practitioners (%)<br>2009/2010 |
|---------------------------|---------------|--------------------------------|
| Acute care                | 4.6           | 5.3                            |
| Adult                     | 19.8          | 17.9                           |
| Family                    | 42.9          | 49.2                           |
| Gerontology               | 4.2           | 3.0                            |
| Neonatal                  | 2.4           | 2.3                            |
| Oncology                  | 1.0           | 0.8                            |
| Pediatric                 | 11.2          | 9.4                            |
| Psychiatric/Mental health | 2.9           | 2.9                            |
| Women's health            | 11.0          | 9.1                            |

SOURCE: Goolsby, 2005, 2011.

NPs prepared in family or adult primary care between 2003 and 2008 and a very small (on the order of 500) net increase in NPs prepared in women's health, as is shown in Table 3.2. Cross-tabulations of NPs by population/specialty focus and work setting are provided in Appendix D.

In 2003, roughly 32 percent of WHNPs worked in ambulatory, community, and public health settings. That percentage declined to 29 percent by 2008, leaving a net loss in the pool of WHNPs practicing in these settings. On the other hand, FNPs and ANPs increased their representation in ambulatory, community, and public health settings from 26 percent to 28 percent and had an absolute increase of roughly 8,000 providers in these settings.

**Relationship Between Overall NP Supply and Supply of NPs Working in SRH.** Thus, although NP workforce growth is expected to be quite strong (a net increase of roughly 5,000 NPs per year), this growth does not necessarily translate to ample supply of SRH services. NPs are increasingly valued and employed in hospital-based and specialty care and continue to find growing opportunities in primary care, particularly while the supply of primary care physicians is relatively flat and not expected to grow markedly in coming decades. The increase in insurance coverage expected with the ACA is mostly concentrated on lower-income popula-

**Table 3.2**  
**NPs by Population Focus and Practice Setting, 2003 and 2008**

| Year           | Total<br>NPs | NPs with an SRH focus |   | Other NPs     |   |
|----------------|--------------|-----------------------|---|---------------|---|
|                |              | WHNPs                 | WHNPs in Ambulatory/<br>Community Public Health | FNPs/<br>ANPs | FNPs/ANPs in Ambulatory/<br>Community Public Health |
| 2003           | 100,578      | 10,963                | 3,508   | 63,867        | 16,696  |
| 2008           | 128,288      | 11,674                | 3,362   | 87,492        | 24,507  |
| Percent change | 28           | 6                     | -4  | 37            | 47  |

SOURCE: AANP and NSSRN.



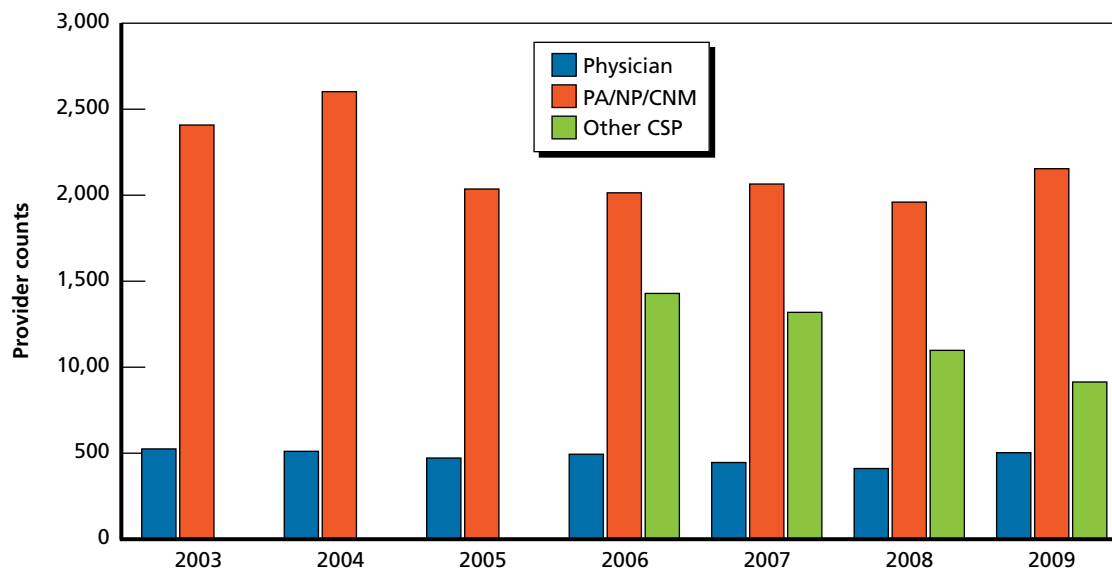
tions, whose needs for primary care are likely to pressure community health centers, clinics, and other safety-net providers that tend to serve these populations to increase their production of primary care. Because these health care systems are more financially constrained, they tend to employ NPs (and PAs) to a greater extent than systems serving higher-income populations.

Therefore, even with overall growth in the NP workforce, if a greater proportion of NPs is pulled into areas other than SRH services, demands for these services may be no more likely to be met, perhaps even less so. Table 3.2 shows that despite strong increases in NP supply overall, the number of NPs with a women's health focus is not increasing and the subset of WHNPs that are in community and public health settings may, in fact, be falling. Figures 3.5 and 3.6 present additional evidence of the lack of a relationship between overall clinician supply and supply of clinicians providing SRH services at Title X–supported clinics.

Despite an approximate 33 percent increase in PAs and NPs over this time period, there is no apparent trend in numbers of these clinicians at Title X clinics, as Figure 3.5 shows. Again, the vast majority of clinical providers in Title X–supported clinics are NPs.

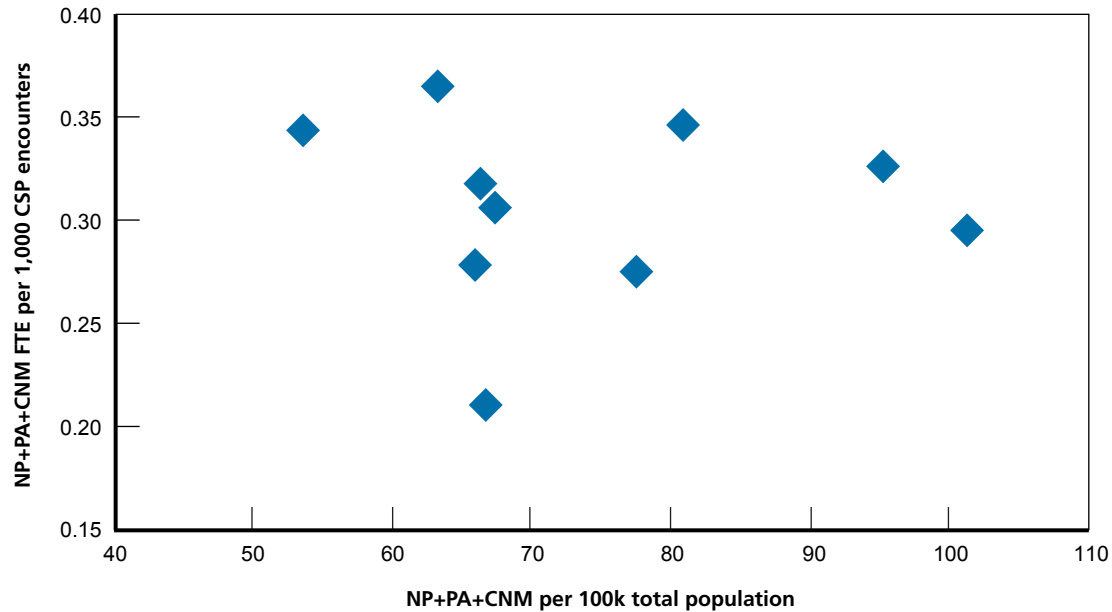
Figure 3.6 shows a scatterplot, at the level of the 10 Title X–defined regions in the United States, of the total regional supply of NPs, PAs, and NMs and the intensity of use of these providers at Title X–supported clinics. Intensity is defined as NP, PA, and NM FTEs per 1,000 patient encounters with a clinical services provider (CSP), which can include staff such as RNs. The plot does not appear to indicate a relationship between regional supply of NPs, PAs, and NMs (which varies roughly two-fold from region 6, with the smallest supply, to region 1, with the largest supply) and the intensity of staffing of such providers at Title X clinics. (The correlation in Figure 3.6 between total supply of NPs, PAs, and NMs in an area and their intensity of use in SRH clinics is actually slightly negative;  $r = -.04$ .)

**Figure 3.5**  
**Provider Counts by Type and Year at Title X–Supported Clinics, 2003–2009**



SOURCE: FPAR.  
 RAND TR1224-3.5

**Figure 3.6**  
**NP, NM, and PA Supply by Region of the United States and at Title X Clinics**



SOURCE: FPAR data combined with data from the National Sample Survey of Registered Nurses and data from the American Association of Physician's Assistants.

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Both Figure 3.5 and Figure 3.6 represent only suggestive evidence of the lack of a strong relationship between overall provider supply and supply of key providers of SRH services for lower-income populations. Yet data in these figures support the contention that the solution to gaps in the supply and demand of SRH care is not necessarily in increasing overall NP supply, but rather, found further down in the supply chain where NPs choose their populations and specialties of focus.

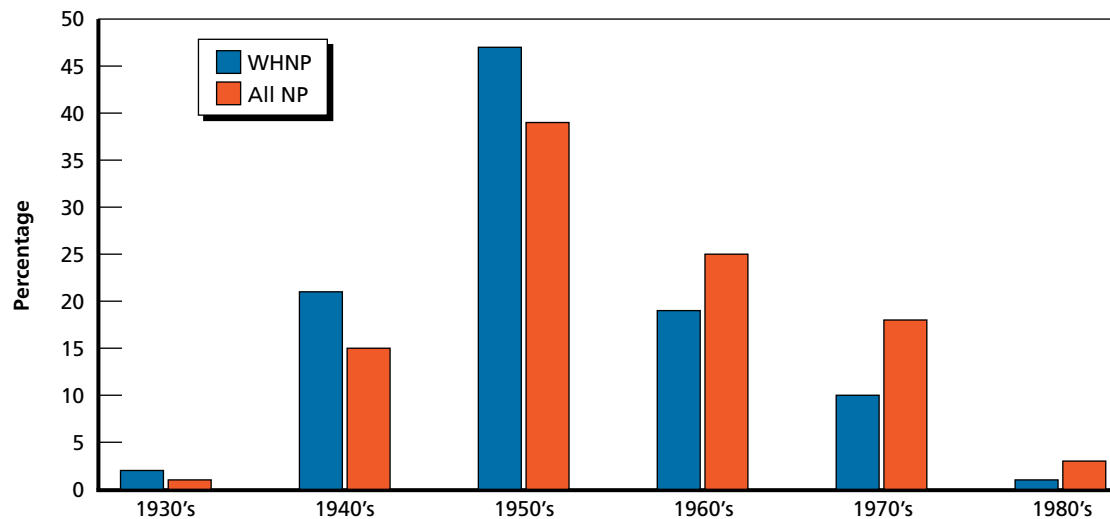
Some trends that provide further insight into the disconnect between robust overall growth in NP supply and stagnant supply of NPs in SRH services, in general, and Title X clinics, in particular, are discussed in the following section.

**Choice of Population Focus Among NPs.** The reduction in the percentage of NPs electing to focus on women's health is further shown by comparing the ages of WHNPs with the ages of all NPs. Figure 3.7 combines NCC data on WHNPs with AANP data on all NPs. WHNPs are considerably older, only about 10 percent of all WHNPs were born in the 1970s and 1980s compared with 20 percent of all NPs. These data suggest a much slower inflow into the women's health focus, compared with other foci, corroborating the data in Table 3.2.

**Trends in Work Setting Among All NPs and WHNPs.** Data from the NSSRN do not contain comparable population foci for NPs, unlike the AANP data. However, they do contain useful information on practice setting. As is the case with RNs in general, there is no discernible increase in the proportion of NPs electing ambulatory care settings (see Figure 3.8, noting that the hospital setting includes outpatient and hospital-based primary care).

We analyzed these same data for NPs in a multiple regression that analyzed NP wages as a function of their age, initial degree program, setting, year of observation, and scope-of-

**Figure 3.7**  
Decade of Birth for WHNPs and All NPs (as of 2008)

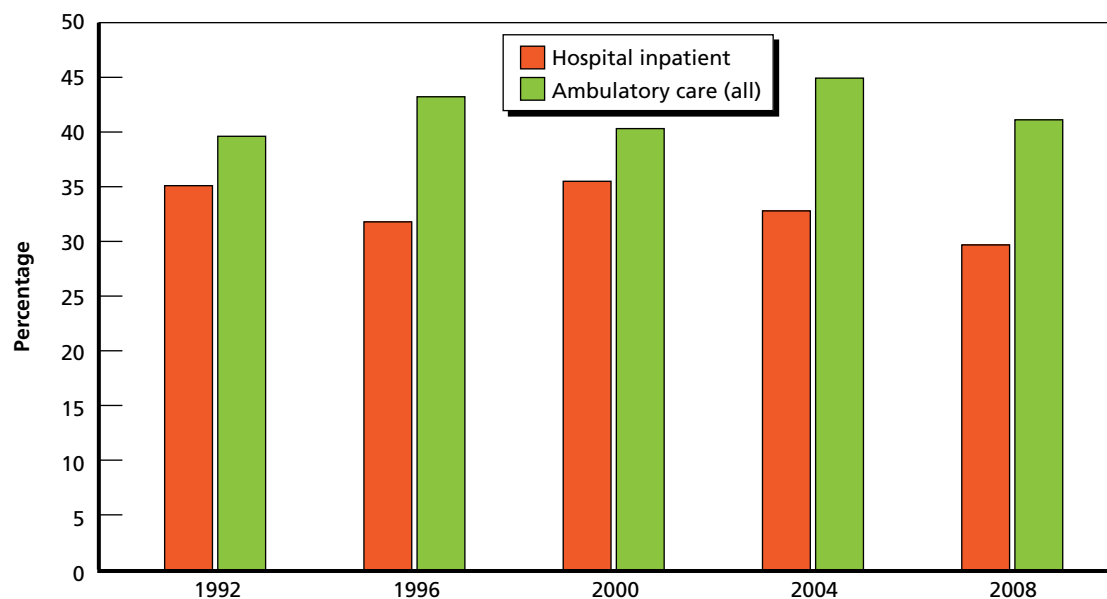


SOURCE: NCC data.

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practice environment in their state. The coefficients from this regression were analyzed in each year from 1996 to 2008. The wage gap between NPs working in hospital inpatient settings and NPs working in ambulatory settings grew steadily between 1996 and 2008 (from about 6 percent to 10 percent), controlling for other factors. This possible barrier is explored further in the next chapter of this report.

**Figure 3.8**  
NPs by Work Setting, 1992–2008



SOURCE: National Sample Survey of Registered Nurses.

RAND TR1224-3.8

The NPWH survey allows us to delve further into the choices of WHNPs most relevant to SRH services. Table 3.3 reports the distribution of settings by WHNP age group. Because the data are gathered at a single point in time, however, they could signify either (1) cohort-based trends, that is, an increase in choice of family planning settings among new generations of NPs (14 percent for those younger than 40) relative to those between 40 and 54 (7 percent;  $p = .01$ ) or (2) age-based trends, that is, a steady-state level of choice of family planning settings among young NPs, followed by a departure from these settings as the NPs move toward middle age, and a resurgence in older ages (12 percent for those 55 and older).

In subsequent questions, respondents were asked about their current *and* previous work settings, allowing for a rough sense of net movements across settings. Key findings from this data include the following:

- Of WHNPs, 18 percent reported family planning settings as a previous setting and 11 percent reported family planning settings as the current setting.
- In contrast, 26 percent reported private doctors' offices as a previous setting and 33 percent reported private doctors' offices as the current setting.

These findings suggest a net movement away from family planning settings and toward private doctors' offices. The findings further support the second interpretation presented in Table 3.3, that is, a steady-state level of choice of family planning settings among young NPs, followed by a departure from these settings as NPs move into middle age.

**Table 3.3**  
**WHNP Work Setting, by Age**

| Setting                               | Age (%) |       |     |
|---------------------------------------|---------|-------|-----|
|                                       | <40     | 40-54 | 55+ |
| Private doctor's office               | 31      | 36    | 28  |
| Private NP practice                   | 2       | 2     | 4   |
| Health maintenance organization       | 2       | 2     | 3   |
| Employer company clinic               | 3       | 3     | 1   |
| Community health clinic               | 12      | 13    | 15  |
| Family planning or Planned Parenthood | 14      | 7     | 12  |
| School-based clinic                   | 2       | 5     | 5   |
| Academia (teaching)                   | 1       | 3     | 4   |
| Academic other                        | 0       | 1     | 0   |
| Hospital outpatient                   | 11      | 9     | 7   |
| Hospital emergency room               | 1       | 0     | 0   |
| Urgent care                           | 1       | 1     | 1   |
| None specified                        | 8       | 2     | 7   |
| Other                                 | 12      | 16    | 13  |

SOURCE: NPWH survey.

## Conclusions

Roughly 10 percent of NPs provide care in SRH settings and on the order of 20 percent of those provide care in clinic settings, making specialized NPs, which are the focus of this study, a fairly small subset of the universe of NPs. That universe is growing rapidly and is expected to continue to grow in the next decade on the order of 5,000 NPs per year, or roughly 50 percent growth. This supply would be more than adequate to meet growing demands for SRH services (which are projected to be on the order of 10 percent over the next decade) if NPs were to choose this area of practice in proportion to their overall numbers. However, NPs have not done so in recent years. A shrinking proportion of NPs are prepared to provide women's health care, and a shrinking proportion of WHNPs choose to practice in public health, community clinics, and family planning. Even if the population of WHNPs in SRH care were in a steady state today (neither shrinking nor growing), to achieve 10 percent growth in their numbers over the course of a decade, newly graduating cohorts of WHNPs would have to be roughly 30 percent larger than they are today, a very unlikely scenario.<sup>3</sup>

The next chapter draws from the NFPRHA and NPWH surveys, as well as interviews with experts in the field and clinic personnel, to identify key barriers to the production and use of clinicians capable of providing high-quality SRH services.

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<sup>3</sup> This calculation is based on a simplified model assuming a 30-year career of service.



## Barriers

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### Introduction

The results presented in Chapters 2 and 3 suggest a growing demand in the next decade for SRH services coupled with a potentially stagnant supply; this decline is not in the numbers of NPs in the United States but in the number of NPs providing SRH services. In this chapter, we explore possible reasons why the supply appears to be stagnant, leading to a possible coming shortage of NPs and NMs who can provide SRH services. Although we focus on NPs, we also discuss implications for NMs when relevant (and sometimes use the term, APRN, mainly referring in this case to both NPs and NMs). Two questions guided our research:

1. What are the barriers to the optimal production of competent clinicians who can provide high-quality SRH services?
2. What are the barriers to effective utilization of competent clinicians in the settings that can best serve the needs of populations and communities in need of SRH services?

### Data and Methods

The discussion of barriers to increasing the supply of clinicians who provide SRH services relies primarily on data gathered through interviews with experts in a range of relevant fields, including health profession law and regulation, Title X service delivery, health workforce, nursing education and training, and nurse practitioner certification, as well as clinicians and administrators in geographically and organizationally diverse SRH clinics. We used the research team's extensive contacts in these fields to begin identifying expert respondents. Our list of experts was expanded through a "snowball" sampling process that was based on recommendations of the initial experts we interviewed. In total, we talked with 31 experts; 16 of these were on one call with members of NPWH. We interviewed 15 additional experts, individually or in small groups, in 12 one-hour telephone interviews. Many respondents had expertise across multiple fields of interest. The expert interviews followed a semistructured format and were conducted by two or more team members, including a lead interviewer and a note taker. Interview guides were structured to include both general questions to be asked of all interviewees and more specific questions tailored to their expertise. General interview topics focused on the interviewees' perspectives on the project's preliminary findings on supply and demand for SRH services (described on a summary sheet sent to all interviewees in advance of the interview), existing barriers to matching supply to demand, and the advantages and disadvantages of different approaches to ensuring adequate supply and utilization of clinicians skilled in providing SRH

services. More specific questions were tailored to expertise on educational barriers and solutions, Title X programs and workforce, and/or legislative and regulatory considerations. See Appendix E for the basic interview guide.

We used similar interviews to gather information about the “on-the-ground” experiences and perspectives of SRH clinic personnel. We again used our own contacts in the SRH field to identify and request interviews from staff in geographically and organizationally diverse SRH clinics. We interviewed ten personnel during one in-person and two virtual site visits. These interviewees included four clinicians, three clinic administrators, and three individuals serving both clinical and administrative roles. These interviews also were semistructured, conducted by two or more members of the research team, and focused on the clinic’s experience with respect to demand for reproductive health services, clinic staffing, the relative match of staff capacity to demand, challenges and barriers to optimal staffing, as well as their perspective on potential options for achieving optimal staffing. The basic interview guide for clinic personnel is provided in Appendix E.

The notes from both the expert and the clinic interviews were typed and categorized by topic area in preparation for analysis and writing. We used research team expertise to synthesize and interpret the interview findings. These data were supplemented, when appropriate, by findings from the NFPRHA and NPWH surveys.

We do not attribute comments directly to individual interview respondents in our findings. However, we have included the names and affiliations of the experts we interviewed who agreed to be acknowledged in Appendix A.

## Findings

The results of our interviews with experts and with SRH clinic personnel suggest that a variety of structural factors in the NP supply pipeline and work environments may be working to constrict the supply and use of NPs in SRH care. We heard reference to the following: (1) multiple features of the education system that work to minimize the number of NPs who are provided with adequate education in SRH, (2) limited options for clinic-based training in SRH care both before and after licensure or certification, (3) professional certification barriers that further restrict who is certified in SRH, (4) structural features of the health care delivery system that discourage optimal utilization of NPs in SRH care, and (5) federal and state policies on regulation and financing that make it difficult to optimally utilize and retain NPs in SRH care. These barriers will be described in greater detail in the sections that follow.

### Barriers Related to Education

**By defining SRH in relation to a specific patient population, APRN education segregates SRH care from other types of primary care for women and adolescents and excludes training in health care for men (both for SRH and other primary care services).** APRN education is currently organized around clinical roles and patient populations. Students are accepted into a program that prepares them for one of four roles: primary care NP,<sup>1</sup> clinical nurse specialist, certified registered nurse anesthetist, or nurse-midwife. Primary care NP students, in

<sup>1</sup> In addition to the Primary Care NP core competencies (2002), the Acute Care NP Competencies were established in 2004. Available at <http://www.nonpf.org/associations/10789/files/ACNPcompsFINAL1104printb.pdf>.



turn, enter a primary care program focused specifically on one of the following population foci: family, adult, pediatrics/adolescent, gerontology, or women's health. Within this structure, education on SRH for women is defined as the domain of women's health programs and thus separated from education on other aspects of family, adult, or adolescent health care. The credentialing system follows this same structure. To be accredited as an NP education program, an institution's or program's NP curriculum must be based on national, professionally recognized standards for NP competency in performing a specific role and serving a specific population or populations. The certification process uses this same framework by granting certificates for NPs only in their specified role and population.

Although this framework may ensure a focus on women's SRH in APRN education through WHNP programs, it also limits SRH education to women's health and separates it from education on other aspects of health care. According to one expert, APRN education programs focused on other populations, such as FNP or ANP, have little SRH content. Another expert said that FNP students receive only two or three hours of contraception content and spend only one or two days in family planning clinics; another described the women's health content in FNP programs as "an inch deep and a mile wide" and said that she has found that FNP graduates often are lacking in women's health skills. According to another expert, the lack of SRH content in pediatric, family, and adult programs acts as a barrier to the optimal production of competent clinicians who can provide high-quality SRH services. This is due to the fact that FNPs and ANPs are regularly hired at SRH clinics and SRH is largely excluded from other primary care for adults and adolescents, thus creating an irrational disconnect between provider competencies and patient needs. Furthermore, because APRN core competencies are defined by role (e.g., NPs) and by population focus (e.g., family, women), men's SRH care is largely absent from APRN curricula and clinical training plans. SRH, moreover, is not recognized as an essential core competency within primary care training programs in nursing or medical education.

**Standards for SRH curriculum and core competencies have not been defined for primary care practice.** Core competencies establish the foundation of knowledge and skills necessary for a nurse to be recognized as a provider of care for a specific population or role. For example, geriatric NPs must demonstrate their knowledge and skills in chronic, transitional, and hospice care to receive certification as primary care clinicians with expertise in the care of the elderly. In addition to delineating the skills and knowledge required of individual clinicians, core competencies are used to develop standard curriculums for APRN education and to define criteria for certification exams.

State regulation of health professionals is informed by national standards for education, training, and practice. The nursing profession has nearly achieved consensus on APRN regulatory standards related to state licensure, accreditation of education programs, certification of competency across APRN roles, patient populations, and clinical specialties. Developed through a national consensus process, the APRN Consensus Model provides a national baseline for licensure, accreditation, certification, and education that has been endorsed by more than 40 nursing organizations (APRN Consensus Work Group, 2008). The process of developing national standards for primary care NP core competencies and population (family, pediatrics, geriatrics, and women's health) core competencies took place in 2000; the process was convened by the National Organization of NP Faculties and funded by HRSA. These have been updated in 2005 and 2011 (National Organization of Nurse Practitioner Faculties, 2012).

In the United States, SRH care standards have not been explicitly incorporated into health professional practice in the manner that they have been in countries with stronger national oversight of health care, such as the United Kingdom. Women's health core competencies developed by medical, NP, and NM organizations incorporate most of the core SRH competencies as recommended by the WHO (2011a, 2011b) and implemented in the United Kingdom (Royal College of Nursing, 2009) (see also summary of these models in Chapter 5). Other national and federal programs have established clinical practice guidelines, if not professional competencies, for some components of SRH care beyond women's health. For example, Title X Family Planning Guidelines include contraception and STI treatment requirements for men and adolescents; maternal and child health programs provide comprehensive pregnancy care guidelines for women/adolescents and families; and the CDC has developed essential elements of preconception care for women and girls that includes evidence-based prevention guidelines for general health protection and promotion. SRH has been "orphaned," claimed neither as an essential component of the primary care area nor as a specialty. One part of SRH—women's SRH—is relegated to a population focus and thus distinguished from primary care, as discussed earlier. As a result, standards for SRH curriculum and core competencies do not exist and a minority of NPs (and for most primary care clinicians) graduate with appropriate clinical competencies in SRH. Furthermore, without identified core SRH competencies for all health professionals, both basic and postgraduate education and training are fragmented and not linked with health outcomes or service needs.

**Nursing students receive limited SRH exposure in prelicensure RN programs.** Several experts suggested that fewer applicants to NP programs, even those interested in providing SRH services, are choosing WHNP programs. This is supported by our analysis of AANP data on the population focus of NPs, discussed in Chapter 3. One reason offered independently by three experts is that undergraduate nursing students are getting less exposure to SRH content and practice (beyond hospital-based maternity nursing) and therefore have less opportunity to develop an interest in this area. One expert said that prelicensure baccalaureate RN programs offer less instruction on women's health and obstetrics than in the past, and national licensing exams put less emphasis on women's health issues and on public health approaches to addressing SRH indicators. One expert mentioned research showing that with the explosion of knowledge needed to deliver care, undergraduate programs are concentrating on medical/surgical nursing and "the real basics" (Distlehorst, Dunnington, and Folse, 2000; National Advisory Council on Nurse Education and Practice, 2010). One nursing professor noted that because primary care has become more complex, primary care educators are not able to teach about SRH at the appropriate level.

**The field of nursing has shifted toward generalist education and training.** The national need for more primary care providers has led to the proliferation of FNP and ANP programs at the master's and doctoral levels. Applicants to advanced nursing programs, including those interested in women's health, are encouraged by practicing clinicians, employers, and/or nursing faculty to pursue generalist training in order to secure competency in a broader spectrum of care across population and lifespan. According to several experts and clinic personnel, students are advised that training in the adult or family population focus will give them more flexibility and opportunities in the current and future health care delivery system. The majority of clinicians interviewed, while acknowledging that "something will be lost" with the decline of WHNPs, said that they would recommend FNP or ANP programs over the WHNP track to those currently considering NP degrees.

**The number of WHNP programs has declined.** Fewer WHNPs are graduating from master's of science in nursing and DNP programs. Many experts and clinic personnel attributed this decline to the decreasing number of WHNP programs as well as a declining applicant pool. Whether increased interest in primary care NP programs or fewer "spots" for applicants in WHNP programs is responsible, this decrease in the number of WHNP graduates is another barrier to increasing the supply of competent NPs in SRH clinics. WHNP programs, focused specifically on educating and training NPs to provide health care to women, have historically been the main pipeline for ensuring an adequate supply of new NPs competent in reproductive health care. Because of the identified need for more primary care clinicians, especially those with geriatric expertise, many nursing schools have shifted resources toward these education programs. In addition, experts identified the decrease in faculty prepared in women's health and SRH expertise. As the support for WHNP training has declined within nursing master's programs, funding for all NP programs also has declined, the WHNP-prepared faculty has aged, and WHNP program development has not kept pace with other population-based primary care programs, such as family and adult-gerontology programs.

### **Barriers Related to Clinical Training**

**APRN students have limited opportunities for clinical training in SRH.** As noted earlier, Title X has in the past funded programs at several sites throughout the United States to train public health RNs and NPs, first in family planning and later in SRH care primarily for women. These dedicated one-year programs enabled RNs to obtain NP certificates focused on family planning and SRH services. WHNP programs used an apprenticeship model that included intensive clinical training consisting of three to four days per week over the four months prior to a postgraduate residency or preceptorship at a clinician's employment site (approximately 300 pregraduate clinical hours and 500 postgraduate precepted clinical hours). For example, one expert described a Title X certificate program in which students were engaged in three to four clinical days a week with "a very high volume experience" a mere two months into the program.

By 2005, the WHNP certificate programs had either closed or partnered with nursing schools to form master's degree programs. Although the "on-the-job" certificate training model changed under the master's program system, the WHNP master's-level programs distributed supervised clinical training over a one- to two-year curriculum (approximately 550 to 650 hours). Once Title X funding was eliminated, clinical training was not prioritized to WHNP students; achievement of basic core competencies in women's health care was affected. As a consequence of these funding and training program changes, the entry-level clinical competency of new NPs is less than that of those graduating from Title X WHNP certificate programs, according to an expert and clinical personnel. Lack of preceptorships for generalist NPs during training was noted as a critical roadblock to clinical training in women's health and SRH. Clinical training opportunities are scarce because of limited availability of preceptors, lack of Title X funding to support trainees, and competition among professional schools seeking clinical training slots for their students. Several clinic personnel suggested that the availability of preceptors does not match the demand for them, though demand varies regionally, with rural family planning clinics reporting fewer requests for SRH training opportunities than urban clinics. Staff we interviewed at one clinic organization in particular noted that they seemed to be experiencing clinical training bottlenecks. They described the difficulty of keeping preceptors engaged, explaining that the diversion of effort to precepting can be difficult

to absorb. A clinician noted, “Precepting is hard because patient load is not decreased when you have a student, and a student slows the schedule down, at least in the beginning of their training.” This difficulty is accentuated, according to one expert, because Title X prohibits the use of Title X funds to support clinical education, requiring that another revenue stream be used to support student training. NP students must compete with physicians and other NPs for SRH exposure at a limited number of family planning clinics. According to several clinic staff, as medical schools have succeeded in increasing physician exposure to SRH, NP faculty are finding it increasingly difficult to secure training slots for their students. The resources that a medical school can marshal relative to nursing schools may sway directors of clinical training sites, placing NPs at a further disadvantage.

**Newly graduated APRNs lack opportunities for clinical residency training that can facilitate transition to practice in SRH care.** The lack of clinical training sites for NP students who will practice in SRH (combined with the lack of a standard for SRH competencies as described earlier) produces an NP workforce that varies widely in SRH exposure, knowledge, and clinical skill. Newly graduated NPs are at a particular disadvantage because they lack the intensive clinical residency training experience that physicians must complete prior to licensure and board certification. In accord with the recent IOM report recommendation for NP residencies (IOM, 2010), we found general consensus among the SRH clinic staff we interviewed that newly graduated NPs need competency-based SRH clinical training as part of their transition to practice. In line with the shortage of clinical training opportunities for NP students, clinical residency and other training opportunities for NPs after graduation are limited.

Without residencies, the burden of providing postgraduate training in SRH falls primarily on the employing health care centers and facilities. SRH clinic administrators told us that they now provide more training to new clinicians than in the past, perhaps because clinics now hire more FNPs and ANPs than WHNPs. A new WHNP may require only a few weeks of training, as an interviewed clinician asserted, but most new NPs require three to six months of training. The need for competency-based clinical training for newly graduated NPs seems acute among new FNP and ANP graduates. Nearly 60 percent of administrators who responded to a recent NPFERHA survey lamented that NPs without WHNP certification “require substantially more training.” With proportionately more FNP and ANP graduates, the training burden for clinical sites is likely to grow.

Unfortunately, some SRH clinics report that newly trained clinicians leave shortly after completing their training. The clinical training is perceived by a clinic administrator as a key explanation for why new NPs seek out some SRH clinics in the first place; once trained, according to another clinic employee, the clinicians often take jobs elsewhere (for reasons described below in the subsection “Barriers to effective utilization”). A clinic administrator said that her clinic was increasingly “filling the gap between school and work.”

Although cognizant of the need for NP residencies, multiple experts raised the issue of funding. The lack of a funding mechanism to support NP residencies (in contrast to medical residencies) is viewed as limiting the supply of NPs trained and working in SRH. Through the Title X Clinical Training Center for Family Planning, Title X funds support training of current Title X clinic staff to precept new and less experienced staff in SRH, according to one expert. Another expert explained that the program grants clinicians with SRH skills the teaching skills needed to precept other clinicians. It also provides funds to the clinic (\$250 a day), which are used to lighten the preceptor’s practice schedule and allow time for teaching.

Although about 300 clinicians across the country have been trained as preceptors to date, one expert told us that the impact on new graduates is muted because clinics are not hiring and the trained preceptors are often still too overworked to precept large numbers of NPs.

### **Barriers Related to Certification**

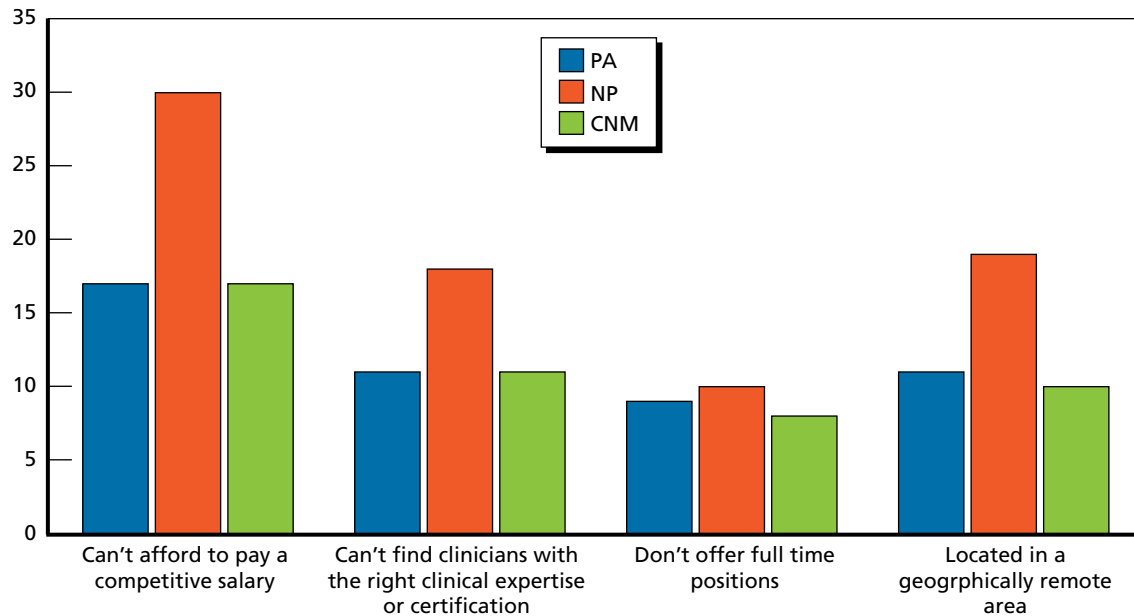
**NPs educated in the care of adult, family, or adolescent populations cannot be certified in SRH without additional training.** For NPs, certification is becoming a de-facto entry-level requirement for authorization to practice. Professional certification requirements restrict the supply of NPs who are capable of providing high-quality SRH services. One expert identified certification itself as a key barrier to the supply and use of NPs in SRH, calling it one of several “unnecessary filters that are impeding the authorization to practice and the utilization of precious skills for the public.” She concluded that competent NPs are “caught in the cracks of certification.” As noted in Chapter 3, formal certification validates that an NP has knowledge, skills, and clinical abilities in his or her specified role and population(s). To become certified, the NP must meet certification requirements and pass a certification examination. SRH care crosses traditional nursing roles and populations and does not have a specialty certification program in the United States other than WHNP certificate programs. NPs whose education focused on other population competencies, such as family or pediatrics, are not eligible to take the women’s health certification exam, unless or until they also graduate from a WHNP program. This requirement prevents the attainment of women’s health certification for NPs who choose an FNP or ANP program for its breadth but develop SRH competencies through course selection, a women’s health minor, internships or other clinical training, residencies, or on-the-job training. Although students may enter NP programs with the intention to provide SRH services as part of primary care, many are ultimately forced to choose between the two.

**NPs with skills and experience in SRH may not be eligible for certification.** Moreover, the standards and curriculum of accredited programs change over time. Clinicians who graduated from earlier programs, such as the Title X certificate training programs, often find that they are not eligible to take the women’s health certification exam, even if they have extensive experience and competency providing these services, according to an expert. Another expert said, “There is a cadre of people who have the skill set and competencies, but cannot sit for the certification exam. So they cannot work.” However, a number of experts did note that the vast scope of primary care makes it difficult for primary care NP programs to provide much depth in clinical areas such as SRH, either through course education or clinical training.

### **Barriers Related to Organization of the Delivery System**

**Lower compensation in family planning clinics affects both NP recruitment and retention.** In general, experts and SRH clinic staff asserted that the relatively low salaries of NPs working in SRH clinics, compared with those working in other settings, is limiting the supply of NPs in SRH. NPWH and NFPRHA data corroborate this finding. In the NPWH survey, WHNPs most often cited low pay as the reason for not working in family planning settings; 38 percent of WHNPs said that the low pay was somewhat or very important to this decision. An even greater percentage of WHNPs who had previously worked in family planning settings (44 percent) saw pay as an important reason for not working in these settings. Figure 4.1 illustrates NFPRHA data, which indicates that 30 percent of family planning clinic administrators and clinicians who had difficulty hiring NPs cited their inability to offer a competitive salary

**Figure 4.1**  
**NFPRHA Survey Findings (factors contributing to difficulty in hiring APCs)**



NOTE: The above question asks respondents to check all that apply. The chart represents how many times each answer was checked.

RAND TR1224-4.1

as contributing to this difficulty. Jackie Witt, who surveyed NPs in Title X clinics, found that salary is secondary only to work environment issues (particularly, the “routinization” of tasks) in deterring NP employment in Title X clinics (Cheng et al., 2012).

The salary differential appears to be greatest between family planning clinics, on the one hand, and other primary care settings and, especially, more integrated systems, on the other. The 2009 IOM report on Title X cites the lower salaries offered by public sector clinics compared to those offered by private physicians’ offices as a key barrier to the supply of NPs at family planning clinics. The same report explains that budget cuts have forced many states to eliminate maternity care from their public health departments, asserting “this has affected the Title X program, as many of those patients would have come back to the health department for postpartum care and family planning services” (IOM, 2009). A salary differential is also perceived as existing between women’s health positions and primary care positions, according to one interviewee. A related issue identified by an expert is that salaries for women’s health positions are flat; NPs in family planning clinics often have little opportunity to increase their salaries over time. Salary differentials may increase the difficulty of retaining NPs, in addition to recruiting them, according to an expert and a clinic administrator. Again, the NPWH survey found that a greater proportion of WHNPs who had previously worked in a family planning setting (44 percent) gave low pay as the reason for not working in these settings than did all respondents (35 percent).

Experts and clinic personnel did not identify a salary differential among types of APRNs (e.g., NPs and NMs) or NPs (e.g., WHNPs and FNPs) within family planning clinic settings

or in women's health positions. FNPs, for example, are viewed as having more opportunities for higher pay because their broader primary care training offers them more job opportunities in settings that pay more, not because they demand higher pay than WHNPs or other NPs within family planning settings.

The size of the salary differential can be substantial. One expert cited data showing a \$30,000 salary differential between NPs working in Title X clinics and those working in other settings, such as outpatient obstetric-gynecology clinics or private physicians' offices. This expert described the differential as being less (about 10 percent) between NPs working in Title X clinics and those working in FQHCs and community clinics, which receive enhanced reimbursements as allowed under federal rules for FQHCs. Another expert described this differential as growing and suggested that ownership or affiliations of clinics or facilities may be part of the explanation.

Two experts viewed the growing movement toward consolidation and integration of health care organizations as likely to increase the pay gap, with integrated systems offering better compensation packages. However, these experts recognized the uncertainty of this prediction because some reproductive health clinics are considering integration as well.

A compensation package, of course, does not solely consist of the salary, as one expert reminded us. Several aspects of the total package, such as the benefits and the standard hours (mostly during the day), make family planning clinics more attractive than other settings to many providers, according to two experts. The NPWH survey found that WHNPs in family planning clinics are more likely than WHNPs in other settings to work part-time (40 percent versus 23 percent). Despite these attractive aspects of employment at family planning clinics, the salary differential appears to deter NPs from seeking jobs at these clinics.

**Fragmentation of health care delivery makes the SRH work environment less satisfying for many APRNs compared with other work settings.** Women's sexual and reproductive health care is segregated from primary care, men's sexual and reproductive health care, and adolescents' sexual and reproductive health care. This "segmentation" has produced some benefits. SRH care and the clinic model, in particular, arose to some extent in response to the problems of large numbers of women with no, or inadequate, insurance coverage to pay for SRH services, as well as from a desire among some women for privacy and anonymity. Many women and men who seek SRH services may specifically not want records of receipt of those services to be recorded anywhere in the health care system; they may want to prevent family members, employers, or others from becoming aware of the receipt of the services.

Nevertheless, the 2010 IOM report on nursing cites "fragmentation of the health care system" as a key barrier to the supply of nurses (IOM, 2010). In particular, family planning and a limited set of SRH services for lower-income women has tended to keep this care distinct from other aspects of health care for these populations. Services that have been siloed in a public health/prevention context (and have been funded as such) also led to their provision in free clinics. Because of generally limited funding, such clinics have operated within limited budgets, using lower-paid NPs rather than physicians where possible. The combination of these factors has supported the clinic model, which optimizes the use of NPs in performing the portion of health care that does not require an on-site supervising physician and which maintains a business model that focuses on a narrow set of tasks and care that clinics have routinized and optimized for efficiency. This type of model often cobbles together various funding sources and cross-subsidizes poorly reimbursed services (such as patient counseling) with better-reimbursed services (certain procedures and medical screenings).

Although this model has allowed millions of women and men to obtain much-needed services over the years, it has many drawbacks for providers and patients and for their quality and quantity of care. One drawback is that clinics operating under this model lack the ability to accept insurance funding because they have not needed the infrastructure to do so in the past. One expert noted that with the increase in coverage resulting from the expansions under the ACA, many clinics could go out of business because they are not able to transition to an insurance and billing environment. Another drawback is that meeting patient needs can be dependent on arbitrary and uncoordinated funding sources. An SRH clinic employee noted that her clinic had recently received a large grant that enabled them to provide several new and effective long-acting reversible contraceptive products that were highly valued by their patients. However, the grant was soon to end, leaving clinic personnel concerned that they would have to cease providing these contraceptives.

A more significant drawback is the routinization of care. Providing only a limited range of services that are not integrated with the rest of a woman's or man's health care needs is often limiting and frustrating to clinicians, particularly because they are unable to meet obvious patient needs or perform the full range of services that they were trained to provide, in keeping with the holistic nursing (and primary care) model of care delivery. This fact was noted as a major factor depressing job satisfaction in Witt's study and echoed in some of our interviews with clinicians. For example, an SRH clinic employee noted that it was frustrating to have to turn someone away or refer a person elsewhere when she or he presented with an obvious primary care need that they could not meet. One expert noted a poignant contrast between two sites where she worked as a clinician: an SRH clinic and a private care system that performed SRH services in an integrated fashion. It was much more satisfying to work in the private system where the full range of services could be met; the SRH clinic struggled with routine limited-service care that failed both patients and providers at times when patients' other needs could not be met. Another expert mentioned that FNPs hired in family planning clinics often cannot do everything they are trained to do (e.g., family primary care, behavioral health, or chronic disease prevention and management) and become dissatisfied because they cannot practice to the full scope of their graduate-level nurse preparation.

Thus, in addition to creating a less attractive work environment for potential NPs specializing in women's health, the narrow job description of clinic-based SRH care presents a less optimal fit for generalist NPs who would like to specialize in women's health services. These NPs could be especially discouraged by the service restriction (and limited ability to provide full primary care) and would appear unattractive to the clinics because an investment in additional training would be needed.

As an example of an innovative model that attempts to preserve the benefits of the clinic model without many of the drawbacks, one urban clinic (see Model 3, on p. 60) implemented an electronic linkage of medical records and team-based care with an integrated health care system, so as to preserve anonymity when needed.

**Many SRH clinics may not be organized to make efficient use of available NPs.** Experts also cited general inefficiency at SRH clinics as a barrier to the optimal utilization of existing advanced practice clinicians educated and trained to provide high-quality SRH services. One clinic employee that we interviewed perceived efficiency as more important than NP supply for meeting demand for SRH services. In keeping with this concern, a number of efforts are underway to improve the efficiency of SRH service delivery in some clinics. Examples include



new team models, time studies, scheduling system changes, appointment reminder systems, express basic clinics, fast lanes for nontable visits, and physical redesign to maximize clinic space. New approaches to distributing responsibilities and tasks among staff and task-sharing are being explored, according to one expert. A clinic employee asserted that electronic medical record (EMR) advances and other new technologies are part of this effort.

### **Barriers Related to Regulation and Policy**

**Licensure and scope-of-practice regulations can limit clinics' ability to make optimal use of APRNs.** Each state's nurse practice act and regulations establish that state's NP scope of practice and related criteria for licensure. Such criteria usually consist of "attaining the essential education and degree of competency necessary to perform a unique scope of practice; and passing a national examination" (Hanson, 2009). The degree of practice autonomy granted to NPs varies significantly from state to state. A few experts suggested that states in which NPs have relatively limited practice autonomy may not optimally utilize the workforce of educated and trained NPs capable of providing high-quality SRH care. In addition, the web of inconsistent licensure and scope-of-practice regulations pose another barrier, restricting certified WHNPs' employment opportunities in states other than those in which they were first licensed.

Several experts identified restrictive scope-of-practice regulation as a barrier to effective utilization of the existing APRN workforce. One expert explained that in her state, "a midwife is required to be supervised by a physician, whereas an NP can have a collaborative practice," concluding that "regulations aren't aligned with where the true knowledge and human capital is." Another expert discussed how restrictive scope-of-practice regulations silo SRH from other services, notably primary care services. This expert said that although she was competent and credentialed to deliver high-quality primary care, the Title X–funded family planning clinic where she worked could not receive reimbursement for providing primary care services. In this particular state, delivering primary care services would require an additional and more restrictive collaborative practice agreement (the agreement between physicians and NPs delineating physician supervision and collaboration rules).

Few experts cited licensure and scope-of-practice regulations as *key* barriers to the optimal utilization of NPs in providing SRH services, however. One expert acknowledged the frequency with which scope of practice is cited as a barrier but said that she did not agree. By contrast, a sizable portion of the peer-reviewed and grey literature points to state-based regulations as important barriers to optimizing the use of the NP workforce.

**Federal policy prevents many APRNs in family planning clinics from qualifying for federal loan repayment programs.** Many newly graduated NPs enter the workforce with large loans to repay; this debt increases the importance of both salary and loan forgiveness during job selection, according to an expert and a clinic employee. One expert noted that "salary being equal, they want their loans paid off." According to this expert, clinicians in a number of federally funded health programs, such as FQHCs and rural health centers, are eligible for federal loan repayment programs in which a new clinician commits to a number of years and, at the end of each year worked, has a prespecified amount of his or her loan repaid. If the clinician stays long enough, all of the loan is repaid. Federal restrictions, however, do not qualify Title X clinics for this program, according to an expert and a clinic employee. NFPRHA survey data show and one expert confirmed that the lack of access to the federal loan repayment programs thus acts as another barrier to the supply of APRNs working in SRH.

## Conclusions

Barriers to the optimal production and effective utilization of competent clinicians in SRH were identified throughout the health care system. Workforce obstacles to the provision of SRH by APRNs are encountered in the basic prelicensure education of RNs and can be tracked all the way through the training and care delivery system to the patchwork nature of state-based scope-of-practice regulation. These barriers include:

- General education barriers
  - SRH education and training primarily occurs in WHNP and CNM programs, although SRH care crosses populations (men, women, and adolescents).
  - Standards for SRH curriculum and core competencies do not exist for primary care practice.
  - Nursing students receive very limited exposure to women’s primary care or SRH in prelicensure RN programs.
  - The field of nursing has shifted toward generalist education and training.
  - WHNP programs have decreased in number.
- Clinical training barriers
  - APRN students have limited clinical training experiences in SRH.
  - Newly graduated APRNs lack opportunities for residencies and other clinical training that facilitate transition to practice in SRH care.
- Certification barriers
  - NPs trained in adult, family, or adolescent populations are not eligible to be certified as a WHNP (unless they also complete a WHNP program in addition to their ANP or FNP program).
  - There is no independent SRH certification available for primary care clinicians.
- Health system barriers to effective utilization
  - Lower compensation in family planning clinics affects both APRN recruitment and retention.
  - The siloed/fragmented nature of health care delivery with limited and routinized women’s SRH services is segmented from primary care services for women, men, and adolescents and thereby makes the work environment less satisfying and well suited for many APRNs.
  - Many SRH clinics may not be organized to efficiently utilize available APRNs.
- Regulatory and policy barriers
  - Licensure and scope-of-practice regulations can limit clinics’ ability to optimally utilize APRNs.
  - Federal policy prevents many APRNs in family planning clinics from qualifying for federal loan repayment programs.

The next chapter draws upon these identified barriers to describe a set of policy options available to enhance the supply and effective use of APRNs in the delivery of high-quality SRH services.

## Policy Options

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This chapter summarizes policy options available to address the projected gap between the growing demand for high-quality SRH services and the professionals with skills and competencies (particularly APRNs) to deliver those services. SRH services are delivered in a variety of settings and are intertwined with primary care and public health. The experts and clinic personnel we interviewed identified a broad range of policy options that could address the barriers discussed in Chapter 4. Based on their suggestions, the research team examined policy options in related fields that emphasize alignment of education and practice experience. The summary provided in this chapter is not exhaustive but describes options with the greatest potential leverage in the near term.

The changing delivery environment, especially for primary care services, informed our analysis of barriers and options. Health care delivery organizations are facing significant pressure to change because of attention to the quality and costs of care and the ripple effects of federal health insurance reform under the ACA. Novel payment models are aligning financial incentives to increase the quality of care, enhance coordination of care, and slow the increase in costs of care. These dynamic changes may alter the settings in which SRH services are delivered as well as the availability and skills of professionals capable of delivering SRH services. For example, the patient-centered medical home (PCMH) model may take on an increasingly important role in the delivery of SRH services. However, this activity may compete with traditional family planning clinics, squeezing the revenue and workforce available to clinics that specialize in SRH services. Likewise, the demand for APRNs to deliver chronic disease management for geriatric populations and to assist specialty practices will increase as the Medicare program experiments with new payment models, such as ACOs. Primary care practices and family planning clinics may have difficulty competing for APRNs trained to deliver SRH services.

In this context, policy interventions should support two goals, which echo the two categories of barriers described in the previous section:

- To optimize the production of competent providers capable of delivering high-quality SRH services.
- To make effective use of these providers in the settings that will serve the needs of populations and communities needing SRH services.

The policy options below address specific barriers identified earlier and are tailored to achieve one or more of the following specific outcomes:

- To increase the number of professionals with basic competence in providing SRH services to men and women across their lifespan regardless of service setting.
- To increase employment opportunities for APRNs with knowledge and skills in delivering SRH services.
- To improve the quality of SRH services by enhancing SRH knowledge and skills of current practitioners.
- To align the provision of SRH services with current and future health care system reforms, particularly as they affect primary care.

Based on our interviews with a wide range of experts and clinic personnel and on our knowledge of the uncertainties surrounding the future of payment and organizational changes, the pertinent areas for policy intervention specific to SRH services fall into the following categories:

- Education, training, accreditation, and credentialing.
- Federal regulation and financing.
- State regulation and financing.
- Responding to emerging models of care delivery.

Below, we discuss each category of potential policy intervention and offer specific options. These options focus on enhancing the role of APRNs, particularly NPs, in meeting the demand for SRH services. We conclude by discussing how engagement of a broader array of stakeholders may be important to leverage policy interventions.

## **Education, Clinical Training, Accreditation, and Credentialing**

In the United States, SRH education and certification standards are fragmented across the health professions. As noted in Chapter 4, this leads to variable quality of services across settings. Education, training, and credentialing programs that focus on a standardized, competency-based curriculum and defined care standards could reduce this variation in SRH service delivery. The barriers analyzed in the previous chapter suggest that competency-based reforms could be especially useful in increasing the supply of professionals who have the skills and experience to meet the demand for providing SRH services. The WHO recommended a standard set of competencies in 2011. At present, none of the existing APRN education and training programs include the full scope of WHO SRH competencies. The following options could foster this sort of alignment.

### **Option 1: Develop a Standardized, Interprofessional Curriculum for Teaching Core Competencies in SRH**

The use of nonstandard curricula in the United States produces professionals with gaps in SRH knowledge and practice in areas such as preconception care, sexual health promotion, unintended pregnancy prevention, interpersonal violence, reproductive genetics, assisted reproductive technologies, the effects of environmental exposures on reproductive health, and professional/ethical responsibilities for reproductive health practice for both men and women across their lifespan. Evidence from national and international efforts show that knowledge gaps can

be alleviated by consistency in a conceptual framework, language, and specificity of SRH core competencies for effective practice, prevention interventions, curricular development, and credentialing criteria across disciplines.

A standardized curriculum for teaching core competencies in SRH could have many benefits, but such a curriculum will require an agreed upon set of standard core SRH competencies. Fortunately, the WHO has created a standard set of domains and core competencies for SRH (see see “WHO Guidance for SRH and Its Implementation in the U.K.”). The United Kingdom National Health Service has adapted these competencies to fit the needs of integrated primary care models developed and implemented by an interdisciplinary group. These competencies define the essential SRH knowledge and skills for all primary care providers. Knowledge and skills include basic clinical skills, contraceptive practice, unplanned pregnancy management, pregnancy termination care, basic gynecology, male genitourinary problems, sexual health/problems, sexual assault, public health, ethics and legal–regulatory issues, information technology, as well as leadership, quality monitoring, and governance. All primary care clinicians, including RNs, NPs, NMs, and generalist physicians, are eligible to complete all or part of the U.K. competency-based SRH education, training, and certification programs, which are standardized and offered throughout the U.K. National Health Service system (Royal College of Nursing, 2009; Faculty of Sexual & Reproductive Healthcare, 2010).

In the short term, APRN education programs could modify the WHNP and NM curricula and clinical training to include SRH competencies missing from these programs. Specifically, DNP programs that provide advanced clinical training in primary care, population-based care, and/or specialty care could consider including a competency-based Gender-Sensitive Primary Care training program that addresses SRH needs within the provision of primary care.

### **Option 2: Develop and Expand the Number of Clinical Practice Training Programs and Slots Available to APRN Students and Graduates**

The supply of SRH providers skilled in delivery of SRH services could be expanded by enhancing clinical practice training opportunities for APRN students and graduates. Aligning residency program offerings with APRN education could relatively quickly build and consolidate the skills of students and graduates. However, the creation of such programs would require attentive recruitment of faculty and preceptors, redesign of curricula, and resource support by both medical and nursing schools.

Education program accreditation standards based on the standard competencies described above could drive demand for clinical residency training slots. Achieving such standards in nursing may be complicated by a disparate set of accrediting organizations (NLNAC, CCNE, and the American College of Nurse-Midwives Division of Accreditation) that define their own standards. None of these organizations has addressed SRH standards or competencies as being essential for all primary care clinicians.

Because accreditation standards alone will not be sufficient to generate new training programs, financial support will also be necessary. Such financing will most likely be available through the federal and state programs that currently support service delivery and the training of health professionals. Given current federal and state fiscal realities and the need to increase primary care training in general, this will not be a trivial undertaking. However, new interest in enhancing primary care training could offer an important opportunity. Health professions training within the Bureau of Health Professions, traditionally segregated across disciplines, could instead drive change through collaborative training grants that support interprofessional

education and training. The Bureau of Health Professions Divisions could partner to fund interprofessional SRH training for primary care physicians and nursing professionals.

### **Option 3: Certification and Licensure Should Recognize SRH Competencies Without Imposing Restrictive Eligibility Requirements**

This policy option addresses the restrictive eligibility requirements that can prevent adequately trained individuals with demonstrated competency in delivering SRH services in one setting from obtaining certification or licensure to deliver those services in other settings. During our expert interviews, general agreement surfaced that certification and credentialing should focus on competencies rather than clinicians. Written certification examinations are generally accepted as ensuring knowledge attainment and application of core knowledge to selected clinical problems; however, the evaluation of core clinical competency requires a different type of assessment. Experts pointed to the nurse–midwifery credentialing system, which includes evaluation of core clinical competencies as well as preceptor evaluation of competency in the workplace. To ensure that practitioners are competent while modifying eligibility requirements, certification boards could recognize national SRH standards and core competencies delivered through SRH training programs. In addition, state boards of nursing could use portfolio reviews to evaluate clinicians who might otherwise be considered ineligible to take the professional certification exam.

## **Federal Regulation and Financing**

Federal regulation and financing has a direct effect on both the supply and the demand for SRH services. The federal programs that most influence the financing and workforce for SRH services are Title X and HRSA. Title X service standards (which define the services that Title X clinics provide) and financing (which defines the business model for Title X clinics) strongly influence the demand for APRNs with SRH competencies and the breadth of their practice. HRSA has played a significant role in expanding the health care workforce over the past 40 years, but programs are segregated by professions and across education and service delivery. The influence of these federal programs is tempered by state regulation. For example, federal preemption of state scope-of-practice laws for nurses could significantly change the availability of NPs and NMs; however, this is very difficult to achieve politically. Federal financing can influence the financial incentives for nurses to deliver SRH services, but it too is tempered by state and private financing restrictions of SRH services. Nevertheless, modifications of federal regulation and financing could address workforce capacity to deliver SRH services.

### **Option 4: Enable Title X Clinics to Act as Sites for APRN Internships and Residency Training Programs and Finance the Participation of Clinical Residents at These Sites**

Title X clinics deliver a substantial amount of SRH services and offer a natural location for clinical training. The 2010 IOM report on nursing recommended the creation of clinical residency training programs, asserting that, “state boards of nursing, accrediting bodies, the federal government, and health care organizations should take actions to support nurses’ completion of a transition-to-practice program (nurse residency) after they have completed a prelicensure or advanced practice degree program or when they are transitioning into new clinical practice areas.” The report further suggested that the Secretary of the Department of Health and

Human Services “redirect all graduate medical education funding from diploma nursing programs to support the implementation of nurse residency programs in rural and critical access areas” (IOM, 2010).

Currently, Title X–funded family planning clinics, including Planned Parenthood clinics, are often used for de facto postgraduate clinical training of new APRN graduates. The policy option we propose would give formal recognition to this arrangement. For example, these clinics could offer a one-year clinical residency with a one-year employment agreement that results in an SRH competency certificate. Recognition of this type of certificate by even a single large health system could be sufficient to legitimize such a program. Such a program has precedent in existing clinical residency models used in primary care nurse practitioner programs and nurse–midwife education. Since 2007, some community health centers and federally qualified health centers have offered postgraduate SRH residencies.<sup>1</sup> All nurse–midwifery programs include a clinical integration residency prior to graduation and certification in which student nurse-midwives refine skills with expert mentors and clinical supervisors.

**Option 5: Expand the List of Services Included Under Title X Service Standards and Co-Locate SRH with Other Publicly Funded Health Services Delivery Organizations**

Title X guidelines are being revised to conform to ACA and other federal requirements. To support more effective provision of SRH services, these revisions could expand the list of services covered under Title X. At present, Title X program guidelines define a narrow list of reimbursable health services (related primarily to family planning needs and treatment of STDs). This restrictive list of services may discourage APRNs with broader competency in comprehensive women’s health or primary care from seeking employment in Title X–funded clinics. The restricted list of services may also reduce the appeal of Title X clinics as clinical training sites. Consolidating other publicly funded programs such as maternal–child health and adolescent services that overlap with Title X–funded services could also mitigate the overly specialized nature of practice in Title X clinics. Co-locating these services within community health centers to make comprehensive SRH available within a public health or primary care system would integrate SRH and primary care services in the manner recommended by the WHO and implemented in the United Kingdom (see “WHO Guidance for SRH and Its Implementation in the U.K.”).

**Option 6: Enable Title X Clinicians to Participate in Existing Student Loan Forgiveness Programs**

Attracting APRNs to practice in SRH specialty clinics may become increasingly difficult. Demand for APRNs will increase as private hospitals, specialist physician practices, medical homes, and ACOs begin to offer higher APRN salaries than can be made available by publicly funded SRH clinics. Student loan forgiveness is a well-established mechanism for enhancing the recruitment of clinicians to practice settings that may be unable to compete based on salary or other perquisites. For example, FQHCs use student loan forgiveness programs to attract professionals. However, Title X clinics do not have this option currently. Expanding the eligibility of student loan forgiveness programs (including the National Health Service Corps (NHSC) loan forgiveness option) to include clinicians working for Title X clinics would

<sup>1</sup> For example, Community Health Center, Inc. (<http://www.chc1.com/>) and Santa Community Health Centers (<http://srhealthcenters.org/residency-programs/our-program-design/>).

remove a sizeable financial barrier between clinicians interested in providing SRH services and family planning practices. Consortia of policymakers and stakeholders working in collaboration will be necessary to enact this strategy.

### **Option 7: Integrate SRH Services into Primary Care Clinics**

Few federal policy incentives exist to integrate SRH services into primary care services. NHSC, which was created by Congress in 1970 to expand primary care services to underserved communities, has rarely been available to family planning service providers. However, Gold suggests that “recent funding increases for and policy changes related to the NHSC may finally open this effort to family planning centers struggling to have the trained and credentialed workforce necessary to meet the needs of the communities they serve” (Gold, 2011). In addition, ACA policies to expand primary care workforce capacity also include adding to the skills of practitioners already working in primary care. The 2009 stimulus package included \$300 million for the NHSC and the ACA added an additional \$1.5 billion. HRSA is considering offering the NHSC to a broader set of providers (Gold, 2011). Two divisions of HRSA—the Area Health Education Centers and the Primary Care Division—could partner to develop demonstration projects that integrate SRH services into primary care, thereby expanding the skills of primary care providers and the number of clinicians trained in SRH. This integration of SRH services into primary care clinics would strengthen the SRH training opportunities in primary care clinics and enhance attractiveness of SRH service provision to new APRN graduates and established practitioners.

## **State Regulation and Financing**

State regulation of nursing practice through licensure and certification can influence the career choices of APRNs. State financing for SRH services, provided primarily through Medicaid, could also influence the earning opportunity for APRNs in various practice settings. Policy options that modify outdated state regulations and reimbursement barriers could enable APRNs to practice to the fullest extent of their education, training, and competence.

### **Option 8: Modify State Regulations to Reflect Evolving Practice Capabilities and Competencies of Licensed Advanced Practice Nurses**

Primary care demonstration projects and payment model innovations envision an expanded role for APRNs. However, engaging APRNs in the delivery of some SRH services may conflict with scope-of-practice restrictions in some states.<sup>2</sup> Experts we interviewed suggested that these local scope-of-practice restrictions be relaxed and, if possible, aligned across states. This recommendation is in agreement with prior reports suggesting an expanded role for APRNs in the delivery of all types of care (Pearson, 2010; Safriet, 2010; Sochalski and Weiner, 2010). Although experts we interviewed emphasized scope-of-practice reform to a lesser extent than

<sup>2</sup> Currently, 22 states and the District of Columbia permit APRNs to practice independently, while others require some level of physician oversight (Pearson Report, 2010). Two-thirds of states with a shortage of primary care physicians also have restrictive scope of practice laws, which could be a barrier to increasing access to primary care services, including SRH services, through APRNs.



much of the literature does, one change may be especially relevant. The requirement in some states that NMs and WHNPs complete specified formal academic programs in order to be recognized as primary care clinicians could be modified to allow alternative methods of credentialing based on evaluation of competencies gained through clinical training experience.

Although such policy changes are typically controversial, this option is consistent with the intent of the 2010 IOM nursing report that suggests that Congress “expand the Medicare program to include coverage of advanced practice registered nurses that are within the scope of practice under applicable state law,” “extend the increase in Medicaid reimbursement rates for primary care physicians included in the ACA to advanced practice registered nurses providing similar primary care services,” and “limit federal funding for nursing education programs to only those programs in states that have adopted the National Council of State Boards of Nursing Model Nursing Practice Act and Model Nursing Administrative Rules (Article XVIII, Chapter 18)” (IOM, 2010). Furthermore, this option is consistent with the IOM report’s suggestion that state legislatures “reform scope-of-practice regulations to conform to the National Council of State Boards of Nursing Model Nursing Practice Act and Model Nursing Administrative Rules,” and “require third-party payers that participate in fee-for-service payment arrangements to provide direct reimbursement to advanced practice registered nurses who are practicing within their scope of practice under state law” (IOM, 2010). As our expert interviews noted, these strategies will not necessarily increase the number of APRN providers but could increase the capacity of current providers to deliver SRH services.

#### **Option 9: Increase State Medicaid Program Payment Rates for SRH Services**

Increasing state Medicaid program payment rates for SRH services would have a number of beneficial effects. First, higher payment rates could increase the incentive to all types of clinics to offer SRH services. Second, the increased revenue could enhance salaries offered to APRNs (and other professionals), increasing the number of professionals delivering SRH services. Third, payments could incorporate the broader range of SRH services envisioned by SRH standards described above (e.g., the WHO standards). Such financing changes would promote integration with primary care while promoting a focus on delivering high-quality SRH services. Medicaid programs currently use a variety of payment models, including fee-for-service, capitation, and global payments, and blends of these payment models. Under fee-for-service payment models, payments could be increased for specific SRH services including those provided specifically by APRNs. As Medicaid transitions to global or capitation payment models, the capitation (or global payment) amount could explicitly include and account for needed SRH services.

### **Responding to Emerging Models of Care Delivery**

Health care delivery organizations are evolving in response to the ACA and other payment reforms. The policy options listed below respond to these emerging trends, especially as they are oriented toward greater integration of services than exists today (addressing the care fragmentation issue noted in Chapter 4). Some of these changes may reduce barriers to the generation of APRNs qualified to provide SRH services, as noted in the previous chapter, but others may increase barriers to recruitment and retention of APRNs working in the SRH field.

### **Option 10: Develop a Model of SRH Service Delivery That Can Be Integrated with Emerging Models of Care Delivery such as the Patient-Centered Medical Home and the Accountable Care Organization**

In the context of health reform, an important portal of entry to many SRH services, that is, primary care, will undergo the type of major transformation reflected in current PCMH demonstration projects. ACOs have the potential to further integrate and coordinate a wide range of services, including SRH services. Although these SRH services may be enhanced, they are also potentially vulnerable to these transformative changes if they are “carved out” from these new organizational models. Carve-outs could reinforce the differential practice standards and guidelines for SRH care in private and public settings and reinforce the vertical segregation of existing publicly funded programs of family planning, maternal and child health, and related prevention services. These carved out delivery models may have difficulty maintaining financial stability and attracting and retaining staff.

Development of an effective model for integration of SRH services within the PCMH and ACO context may be difficult and would be premature without more precise knowledge of the scope and operation of new PCMH and ACO models. Nevertheless, as these models become more established through demonstration projects, SRH leaders and service providers should be deeply engaged in the design of these models.

In the short-term, SRH service delivery guidelines could integrate and extend existing systems such as Title X, maternal and child health programs, CDC preconception care clinical guidelines, and integrated service delivery models. Examples of innovative service delivery designs include the ASU College of Nursing model (see Model 1), which aligns clinical practice and education; a Public Health RN–APRN team model (see Model 2); and two adolescent service delivery models (see Model 3), which links SRH services with adolescent primary care.

In addition, interim steps for sustaining the integration of SRH services within primary care include:

- Co-locate SRH-competent clinicians (e.g., WHNPs, NMs) in primary care clinics (FQHCs or community health centers) similar to the model of co-locating psych-mental health NPs in primary care clinics.<sup>3</sup>
- Remove barriers to financial stability of nurse-managed centers and retail clinics to allow integration of SRH services into these primary care clinics.
- Expand CDC preconception care guidelines to incorporate additional SRH services into primary care practice guidelines.
- Implement the U.K. SRH service–education model as a Medicaid program innovation.
- Set reimbursement policies based on service provision standards and competencies required to provide the service rather than the type of provider.<sup>4,5</sup>

<sup>3</sup> See Model 1 for ASU College of Nursing and Health Innovation’s model of providing mental health services within a primary care clinic (cite). See also the Agency for Health Research & Quality for recommendations on integrating primary care and mental health care ([www.abrq.gov/research/collaborativecare/collab1.htm](http://www.abrq.gov/research/collaborativecare/collab1.htm)) and the AHRQ Academy for Integrating Mental Health and Primary Care at <http://prezi.com/pdwleuslce0/the-abrq-academy-for-integrating-mental-health-and-primary-care>.

<sup>4</sup> This model is standard in countries with national health systems for primary care and public health systems; see the U.K. model for SRH education and service delivery.

<sup>5</sup> Apply ACA provisions for increased payment to primary care physicians to APRNs and PAs, which designate a temporary 10 percent Medicare bonus payment (2011–2015); in 2013–2014, Medicaid payment rates will increase to primary care physicians equal to Medicare levels.

**Option 11: SRH Competencies Should Be Established in a Manner That Is Neutral with Respect to the Settings and Organizations Where SRH Services Are Delivered**

In the United States, the organizations and settings that deliver SRH services are highly diverse, ranging from traditional primary care or specialty practices to public health clinics and pharmacy-based retail clinics. The evolution of these delivery organizations under health reform is somewhat difficult to predict. As noted earlier, the education, training, and service standards that guide SRH service provision should be specified in a manner that is relevant to the broadly defined range of primary care organizations and settings. In line with the World Health Organization recommendations described earlier (see options 1 and 7 above), these SRH standards should be applicable to primary care and public health services, reflect national health goals, and align provider competencies with service delivery metrics related to patient needs and desirable health outcomes.

**Option 12: Account Explicitly for SRH Services in the Development of New Payment Models (such as Global Payments) to Ensure That Organizations Can Recruit SRH-Competent Clinicians**

The supply of competent professionals to serve within these new organizational models will be limited if financing to support these services is not explicitly accounted for in their payment models. In particular, the movement of public and private health insurers to global payment, bundled payment, and other forms of payment that may put delivery organizations or professionals at financial risk may create incentives that would increase reliance on nonphysicians. Yet this may not increase the incentive to hire APRNs with competency in the delivery of SRH services. Ensuring that payment rate negotiations include explicit accounting for the range of SRH services may counteract financial disincentives to ensure organizations have the competency to deliver SRH services and reduce their incentive to carve out these services.

**Conclusion**

Our research points to modest but real growth in demand for SRH services, particularly as the ACA increases the number of Americans with health insurance. Unfortunately, the increase in demand appears to be coupled with a stagnant supply of NPs capable of providing high-quality SRH services. Many factors contribute to the insufficient production and incomplete utilization of such NPs. Among the most important factors are the limited exposure of nursing students to sexual and reproductive health care in prelicensure RN programs, shifts toward generalist education and training in nursing programs, a lack of standards for SRH core competencies and curricula, limited opportunities for clinical training in SRH, a lack of loan repayment options, and the fragmented nature of SRH care delivery and its isolation from primary care. Several policies may increase the supply of NPs capable of providing high-quality SRH services; key policy options include standardizing core competencies and curricula, basing certification requirements on competencies, supporting Title X clinics to take a more formal role as sites for postgraduate clinical training, allowing Title X clinicians to participate in federal loan forgiveness programs, accounting for SRH services in setting global payments for primary care, and co-locating SRH-competent providers in primary care clinics such as FQHCs or CHCs.

It will be important to align essential SRH services and professional competencies within the broader context of health profession education and evolving models of care delivery. To maximize the potential of implementing the policy options described above, a multistakeholder engagement and effort across educators, academic institutions, professional disciplines, accrediting organizations, and health systems may be useful (Frenk et al., 2010).<sup>45</sup> Fortunately, some current initiatives have focused on aligning health professional education, clinical practice standards, workforce policy, and credentialing across population needs. For example, private–public partnerships with national agenda-setting and strategic initiatives have been successful in building the capacity and competency of the geriatric workforce and the care of the aging and elderly within primary care and public health.

As relevant service delivery models evolve under both government and private sector health reforms (e.g., Medicaid coverage expands, providers experiment with medical homes and ACOs, states develop insurance exchanges, health insurers develop new payment models), the implications for SRH services must be analyzed and strategic thinking about the suggested policy options revised. In that way, the evolution of the delivery system may serve as an opportunity to optimize the delivery of SRH services in the United States.

## WHO Guidance for SRH and Its Implementation in the United Kingdom

### Guide for Primary Care and Public Health Education Standards and Curriculum, as Well as Clinical Practice and Health Care Delivery

In 2011, the WHO published *Sexual and Reproductive Health Core Competencies in Primary Care* (WHO, 2011). In this report WHO specified core SRH competencies to be included in the curriculum of primary care providers in order to address sexual health inequalities and increase the delivery of SRH by a workforce that has adequate knowledge and skill and appropriate attitudes to provide competent SRH care for men and women across their lifespan. This report was an outgrowth of a 2005 WHO-sponsored resolution of the General Assembly of the United Nations that all countries of the world should strive to achieve universal access to reproductive health by 2015 (WHO, 2009).

WHO recommended the following:

**SRH Definition:** SRH care goes beyond maternal child health care to include the reproductive health of men and women throughout their lifespan and adolescents of both sexes. SRH extends before and beyond the years of reproduction and is closely associated with socio-cultural factors, gender roles, and the respect and protection of human rights.

**SRH Services:** SRH is coordinated with public health and primary care, reflects human rights, and is delivered as a collection of integrated services that address the full range of SRH needs including prevention services.

**SRH Care Standards:** The components of SRH service standards include the following:

- Improving antenatal, perinatal, postpartum, and neonatal care.
- Providing high-quality services for family planning, including infertility services.
- Eliminating unsafe abortion.
- Combating sexually transmitted infection (STI), including HIV, reproductive tract infections (RTIs), cervical cancer, and other SRH morbidities.

- Promoting sexual health.
- Increasing capacity for strengthening research and program development.

SRH Competencies: Thirteen core SRH competencies are grouped into four domains: (1) “Attitudes for providing high-quality sexual and reproductive health care,” (2) “Leadership and management,” (3) “General sexual and reproductive health competencies for health providers,” (4) “Specific clinical competencies.” These core competencies are linked to a minimum package of SRH care that all clients should be able to access, regardless of their social, physical, and mental status; sex; age (with a strong emphasis on the proper provision of SRH for adolescents); religion; and country of residence.

A supplemental document provides the technical and research evidence to support these standards and competencies by physicians, nurses, midwives, and community health workers across types of health systems (WHO, 2011).

### **Applying Competency-Based SRH Curriculum for Public Health and Primary Care Professionals in the United Kingdom**

In the United Kingdom, reproductive health care is provided to men, women, and adolescents within a coordinated system of primary care and public health services. In addition, SRH education, training, and certification have been established for RNs, nurses with advanced training, midwives, and nonspecialist physicians working in the National Health Service and builds on general prevention, public health, and primary care competencies.

Competency-based education, training, and certification in the specialty of SRH care includes competencies in 10 areas (Royal College of Obstetricians and Gynaecologists, 2009; Royal College of Nursing, 2009; Faculty of Sexual & Reproductive Healthcare, 2010):

1. Basic SRH services/skills
2. Contraception
3. Unplanned pregnancy care
4. Women’s health/common gynecology
5. Assessment of specialty gynecology problems
6. Pregnancy care
7. Genitourinary conditions of men
8. Sexual health promotion
9. Public health, ethical, legal issues
10. Leadership, management, health technology, quality assurance.

Nurses (RNs and PHNs) complete training in basic knowledge and skills, whereas midwives and generalist physicians are required to complete training in all SRH specialty competencies. Nurse practitioners also complete all competency training in SRH other than comprehensive pregnancy care.

The SRH competencies in each area include the following:

1. Basic SRH services/skills:
  - a. Assessment by history/physical exam
  - b. Problem assessment, risk assessment, triage
  - c. Effective communication across cultures, gender, lifespan, sexual health

- d. Knowledge of basic counseling techniques, including establishing rapport, active listening, demonstrating empathy, questioning and probing, summarizing and reflecting
  - e. Empower individuals/groups to make informed decisions and promote self-care
  - f. Appropriate coordination/follow-up/referral
  - g. Effective time management
  - h. Urogynecologic lab/specimen preparation
  - i. Pregnancy testing/counseling
  - j. Sexual/physical violence prevention
2. Contraception:
    - a. Knowledge of all methods of fertility control and family planning for males/females across lifespan, disabilities, hard-to-reach groups, post abortion
    - b. Provide all methods of reversible contraception including emergency contraception
    - c. Insertion/removal of long-acting reversible contraception (including intrauterine contraception, subdermal implants)
    - d. Competency in communicating, patient decision-making, providing, and managing fertility control and contraceptive choices
    - e. Counseling/management complex medical/social needs related to contraception
    - f. Counseling/management complex contraceptive requirements and complications secondary to contraception failure
  3. Unplanned pregnancy care/abortion:
    - a. Pregnancy diagnostics: urine, blood, ultrasound, physical exam
    - b. Pregnancy options counseling and coordination: continued pregnancy, abortion, adoption
    - c. Pre/post abortion care: early and later term abortion care
    - d. Medication abortion provision
    - e. Aspiration abortion provision (early abortion by uterine aspiration procedures [manual/electric suction])
  4. Women's health/gynecology:
    - a. Diagnose/manage common gynecologic problems
    - b. Diagnose/management of menstrual function/disorders across lifespan (menarche through postmenopause)
    - c. Basic gynecologic ultrasound exam
    - d. Manage simple pediatric/adolescent gynecologic disorders (e.g., menstrual disorders, fibroids, nonmenstrual bleeding, amenorrhea/endocrine disorders, congenital abnormalities of the genital tract, puberty)
    - e. Knowledge/management of gynecologic procedures (e.g., cancer screening and treatment, STI testing and treatment)
  5. Assessment of specialty gynecologic problems
    - a. Assessment/co-management of subfertility problems, infertility diagnostics
    - b. Assessment/co-management of gynecologic–oncologic problems
    - c. Assessment/co-management of urogynecologic and pelvic floor problems
  6. Pregnancy
    - a. Diagnose/manage early pregnancy care and referral
    - b. Provide comprehensive antenatal care

- c. Provide labor and delivery/intrapartum care
- d. Diagnose/manage postpartum care and problems for women and/or neonates
- 7. Genitourinary conditions in men (GUM)
  - a. Assess, counsel, refer, coordinate care
  - b. Perform/collect/interpret lab tests, microscopy
  - c. Diagnose/manage genitourinary conditions: noncomplicated STI/RTI, balanitis/urethritis, infertility, lifespan issues
- 8. Sexual health promotion
  - a. Sexual and self-health promotion for males/females
  - b. Assess sexual problems: sexual history taking/diagnostics
  - c. Assess, manage, or refer for sexual assault testing and treatment
- 9. Public health, ethics, legal competencies
  - a. Know laws regarding family planning, abortion, human immunodeficiency virus (HIV), violence against women and sexual violence, sex work, sexuality (including sexual orientation and gender identity)
  - b. Know health care providers' legal/ethical obligations
  - c. Know key elements of SRH prevention/treatment services and national guidelines (goals/outcome metrics)
  - d. Know economic impact and cost of various health care options/treatments/prevention interventions
- 10. Leadership, management, information technology and quality assurance competencies
  - a. Enabling others or effectively managing team to provide quality SRH services
  - b. Know national and local SRH policies, standards, and protocols
  - c. Improve SRH program implementation through evidence and use of technology

## Models for Delivery of Sexual and Reproductive Health Services

### Model 1: Aligning Clinical Practice and Education (ASU College of Nursing and Health Innovation Model)

Arizona State University College of Nursing and Health Innovation (ASU-Nursing) champions a time-tested model of care delivery in its operation of clinics in greater Phoenix, Arizona. Through its clinics, ASU-Nursing provides accessible quality health care to insured, uninsured, low-income, vulnerable populations by integrating community-based health education for its nursing students. This hands-on practicum under the supervision of credentialed faculty and staff gives ASU nursing students experience in the provision of clinical care in a community clinic setting at all levels of education (prelicensure to DNP). By combining the educational needs of the students with the health service needs of the community, ASU-Nursing's clinical programs provide essential health care services and essential education in best clinical practices as well as best practices in health services administration (ASU 2012a, 2012b).

### NP Health Care at ASU-Nursing: Aligning primary care delivery and family planning services with education

By partnering with Phoenix-area businesses, policymakers, and religious and community leaders, ASU is able to operate nurse managed health centers (NMHCs) in the community:

- *NP Healthcare–Downtown Phoenix* is located within the College of Nursing building and provides interdisciplinary integrated mental health care and primary care.
- *NP Healthcare–Grace* is a Title X–funded NMHC located a few blocks from ASU’s central Phoenix campus that provides family planning services to the low-income and uninsured community.

The primary care clinic offers the NP Care Program (ASU, 2012a), which is a fixed-fee discount program for services provided in the clinic and diagnostic lab tests only. Individuals join the plan for an annual membership fee; that membership entitles them to a discount on the cost of an office visit and lab tests at a commercial lab. Fees for visits and lab tests must be paid at the time of service in order to obtain the discount. It is a popular plan for patients who are uninsured or enrolled in high-deductible insurance plans.

NP Healthcare–Grace is a partnership with the Grace Lutheran Church, which provides the space for the clinic, and the Arizona Family Health Partnership, a Title X state council. The Grace NMHC is funded through a combination of U.S. Department of Health and Human Services Title X program, contributions from the patients served by the clinic, private donations, and local community and religious organizations. The program provides a unique opportunity to undergraduate and graduate nursing students for clinical education in sexual and reproductive health care. Mentored by Grace Clinic nursing staff (educator–practitioners), nursing students (RNs and APRNs) obtain guidance on how to apply evidence-based guidelines to provide healthy lifestyles education, STI/HIV counseling, testing and treatment, well woman and well man care, cancer screening, pregnancy testing, and contraceptive methods, as well as coordinated care and referral to primary and specialty care safety net providers, such as FQHCs, in the community.

The primary limitation of ASU-Nursing’s integrated model of community health care and student education is the inability to obtain revenue to sustain a practice, not a unique concern among community clinics. In Arizona, as in most other states, advanced practice nurses are reimbursed at a lower rate than other providers in the insurance network for the same level of service based on the criteria developed for determining payment in the Medicare program in 1995 and revised in 1997. Even though NPs meet the criteria for a given level of service and Common Procedural Terminology code, the payment for services ranges from 60 percent to 90 percent of the usual and customary fee offered by a given health insurance vendor.

### **Nurse Practitioner Programs at ASU: A model for SRH specialization within DNP education**

The nurse practitioner programs via the DNP at ASU are taught in a hybrid on-line/on-campus model. Students come to campus one to two times per semester for face-to-face time with expert faculty and colleagues (ASU, 2012b). The evidence-based practice curriculum is learner centered rather than content centered, with instruction on how to use the most up-to-date technologies (e.g., PDAs, podcasts). Competency-based clinical education occurs within the student’s home community and meets national standards. The ASU DNP programs provide preparation in adult, family, geriatric, pediatric (neonatal or adolescent), and women’s health. Also offered is DNP preparation in adult/child/family psychiatric mental health.

### **Model 2: RN–APRN Team Model of Family Planning and Public Health Services (Southeastern Department of Public Health)**

In 1996, the Public Health Department of a southeastern state (the Title X provider in that state) initiated a new service delivery model. The Preventive Health Integrated Services model



reengineered previously segregated programs (family planning, STD/HIV, immunizations, as well as adult and adolescent services) into an integrated clinical program for men, women, and adolescents utilizing a team-based workforce of public health nurses (RNs) and APRNs. The public health nurses (RNs) and the APRNs work in a collaborative role to meet the needs of reproductive aged individual with a primary focus on family planning services.

This model includes the following components:

- Integrated preventive health services goal: seamless provision of STD assessment and treatment, HIV counseling and testing, family planning, immunizations, and family assessment and support
- Modified infrastructure (program guidelines, standing orders, billing procedures, data systems) to support integrated services at the local public health centers
- A preventive health services training center coordinated from the State Department of Public Health for public health nurses (RNs) and APRNs (for APRNs without public health experience or competencies, a 6 month precepted orientation is required)

Of the 64 family planning clinics in the area, 95 percent currently use this model of an expanded public health nursing role in collaboration with an APRN.

Overview of the training program:

- Didactic education (4 weeks) followed by 12- to 16-week competency-based clinical training and preceptorship by an APRN at the local public health clinic.
- Curriculum combines public health prevention services with family planning and common reproductive health problems in women, men, and adolescents:
  - Male/female/adolescent assessment (SRH status, immunization) and physical examination
  - Risk assessment: infectious disease (tuberculosis, hepatitis), STI/HIV, nutrition, violence, family, home, and preconception health risks including unintended pregnancy
  - Collecting needed lab specimens
  - Provide Category 1 contraceptive methods under standing orders and in collaboration with APRN
  - Referral with APRN for LARC and complex SRH problems, as well as care coordination with other public health services (tuberculosis, MCH, psych-mental health)
- Trainer: APRNs in public health and SRH
- Awards a certificate, approved for continuing education credits through American Nurses Credentialing Center state provider

Strengths/successes:

- Can reach more underserved and geographically remote men, women, and adolescents needing SRH services
- Coordination of public health and SRH services with 15 years of evaluation data
- Competency-based training model that could be expanded to integrate other SRH and public health services (MCH, psych-mental health services)
- Collaborative team-based care model integrating public health and SRH services along with workforce integration
- State Nurse Practice Act allows for expanded role for RNs; PHN training is a prerequisite

#### Challenges/barriers:

- Clinics have sustained 50 percent cuts in Title X family planning funding but only 16 percent cut in caseload
- Continue to have difficulty retaining NPs due to salary differential and freeze on hiring (approximately \$15,000 to \$20,000 differential between public and private sector NP positions)
- State/federal pharmacy regulations and increased costs for contraceptives
- Unintended consequences (e.g., fewer long-acting contraceptives such as IUDs and implant inserts are being used, especially in remote areas)

### **Model 3: Adolescent Reproductive Health Service Delivery: Two Approaches in a Single Urban Northeastern Area**

Two approaches to adolescent reproductive health service delivery have been implemented in a single urban setting:

1. A health system-affiliated health center partners with a local community school-based health center
2. Family planning services within a community nonprofit youth organization with health system-affiliated health centers and academic partners

This urban setting is home to an integrated health care system that includes primary and specialty care, community hospitals, academic medical centers, specialty facilities, community health centers, and other health-related entities (e.g., community health improvement programs and health professional training). Located in historically crowded, poor, and immigrant communities, the affiliated health centers provide comprehensive primary and preventive services including disease management, wellness, and health promotion services to low-income and underserved populations living and working in these communities. The health system maintains a community health improvement division to support these community health centers by providing program development, clinical supervision, fiscal and grant management, as well as coordination with local and state agencies.

#### **Health system-affiliated health center partners with a local community school-based health center**

The school-based health center (SBHC), a satellite of the health system-affiliated health centers, was established 15 years ago. In general, SBHCs are primarily nurse managed with services provided by NPs (pediatric NPs, FNPs, pediatric mental health NPs) and school nurses. Although some SBHCs refer students to local family planning clinics for contraceptive services, at one SBHC, nurses lead an extensive political process that, after two years, resulted in the clinic's ability to offer expanded reproductive health and contraceptive services (Title X family planning federal/state match funds). Following are features of the program:

- **Staffing:** The school nurse combines public health and primary care and coordinates the goals of education and health care delivery. She works with the NPs and an administrative assistant and is the patient care coordinator linking school services (tutors, guidance counselors, health teachers). The SBHC connected to the health system and the

school nurse and NPs can connect the patients with primary care providers and specialty providers.

- **Clinician expertise:** Although not required, all of the PNPs and some of the FNPs have received training in adolescent health care. Postgraduate PNP certification eligibility requires curriculum content in adolescent care. The State Department of Public Health provides training grants for the approximately 40 SBHCs. Adolescent reproductive health care training is provided by state Title X agencies (three-day intensive family planning training, quarterly meetings with clinical training). Because these SBHCs are in complex, high-need communities, most new NP graduates are not considered for employment. However, the electronic health records and clinical communication systems allow for a high degree of patient, provider, and resource coordination.
- **Clinical services:** A health system PMHNP is on site four days a week (part of the health system's social services department). Within the health center, services include primary care and physical therapy; the community health improvement team provides follow-up for Pap smears, outreach for food and nutritional needs, and chronic disease management (e.g., asthma). These programs include coordination of programs for immigrants and refugees (e.g., SRH service referral and sensitive service needs).
- **Service, education, and training aligned:** In addition to the links with health system-affiliated health centers, the school nurse and NPs are part of the health system's pediatric/adolescent clinical team and is linked with NP educators at the health system's nursing school. Patient care coordination is highly transparent through the EMR; clinical messages are sent through the EMR to anyone who is related to a specific patient (student) encounter.
- **Care coordination through EMR technology:** An NP seeing a patient at a satellite clinic can use the EMR to determine whether the patient has been seen or is scheduled to be seen. The NP has access to the notes of the previous encounters with clinicians. The NP can also use the EMR to communicate questions, concerns, and patient information to any professional in the larger health care center.

#### **Family planning services within a community nonprofit youth organization with health system-affiliated health centers and academic partners**

A community nonprofit program for at-risk youth and young adults, operates this nurse-managed family planning clinic that is part of a local health system-affiliated health center. The program conducted focus groups and concluded that there was a need in the community to support another satellite clinic. With inspired leadership, strong community partners (the health system, academic medicine and nursing), and experienced staff with ties to funding and local/state agencies, this clinic provides specialized adolescent and reproductive health services. The clinic has the following features:

- **Staffing:** A pediatrician with adolescent subspecialty who supervises generalist physicians and pediatric residents (one 2-hour session/week), PNP/ANP clinician manager (one 5-hour session/week), and an administrative assistant. A full-time native Spanish-speaking family planning counselor who does combination family planning counseling, some medical assisting, and some case management. Both physician and NP are bilingual but

not native speakers. The clinic is now open almost 40 hours a week, with 8–12 hours of clinic time (physician or NP).

- Services: Title X service funding supports family planning services. Simple case management (appointments, referrals) is provided by the family planning counselor. More complex issues are handled by the NP who coordinates with the primary care provider and clinic staff using the EMR system or online case conference with or without the patient. Additional grant funding provides for intensive case management of 60 high-risk young moms to reduce repeat unintended pregnancy and improve mother–infant outcomes. The health system also has a built-in system for follow-up and coordination, which is backed up by the state Department of Public Health.
- Supplemental/supportive services: Public health experts and community health workers work with master’s degree–trained staff. Staff for these services include a social worker team leader, an RN diabetic educator, and an African master’s of public health–trained RN who works with the immigrant and refugee program. Although this clinic sees mostly Hispanics (85 percent), there is an increasing African population (Somalis).

Factors associated with success:

- Clinic staff and systems have experience working with people who are uninsured (Medicaid population)
- Integrated primary care with specialty services (family planning and mental health)
- Resources from the health system partner augment clinical services so that the clinic operates as a public health entity within the larger integrated clinical system
- Integration of prevention, health education, and care coordination services
- Fewer specialty referrals with better communication across specialties and primary care

Challenges:

- SRH is just one of many special needs of adolescents.
- There is a shortage of culturally specific mental health services and dedicated PMHNP with experience working with at-risk youths.
- Clinician training in SRH is incomplete, especially for interpersonal processes of care and contraceptive methods. Most providers need to improve at taking sexual and reproductive health histories and increase their knowledge of reproductive contraceptive choices and reproductive behaviors.

## Interviewees and Affiliations

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We acknowledge the contributions of the following experts who participated in interviews with the research team as part of the data collection process. In addition to those listed here, a number of other organizations and individuals participated and wished to remain anonymous.

LaVerne “Cookie” Bible, APN  
Advanced Practice Nurse  
Center For Women’s Health, Reno, Nevada

Mary Brucker, CNM, PhD, FACNM  
Secretary-Treasurer, National Certification Corporation  
Professor, Baylor University

Carola Bruflat, MSN, WHNP-BC/FNP-BC  
Women’s Health Nurse Practitioner  
Andersen and Maanavi MD, Ltd.

George “Gerry” Christie, MA  
Former Director of Health Services and  
Project Director of Family Planning Services of the Onondaga County Health Department,  
a Division of the Syracuse Model Neighborhood Facility, Inc.

Janie Daddario, MSN, APRN, BC  
Women’s Health Nurse Practitioner Program Director  
Vanderbilt University School of Nursing

Beth De Santis, APRN, MSN, WHNP  
Director of Family Planning  
South Carolina Department of Health and Environmental Control

Catherine Dower, JD  
Associate Director of Research, Center for the Health Professions  
University of California, San Francisco

Julie Fairman, PhD, RN, FAAN  
Nightingale Professor in Nursing  
Director of the Barbara Bates Center for the Study of the History of Nursing  
University of Pennsylvania School of Nursing

Gail Gall, APRN, BC  
Clinical Assistant Professor, Nursing  
MGH Institute of Health Professions

Susan Hoffstetter, PhD, WHNP-BC, FAANP  
Associate Professor  
Saint Louis University School of Medicine  
Department of Obstetrics, Gynecology & Women's Health  
Division of Uro-Gynecology  
Vulvar & Vaginal Disorders Specialty Center

Beth Kelsey, EdD, WHNP-BC  
Assistant Professor, School of Nursing  
Ball State University

Susan Kendig, JD, MSN, WHNP-BC, FAANP  
Associate Teaching Professor  
Coordinator, Women's Health Emphasis Area  
University of Missouri–St. Louis

Cheryl Kovar, PhD, RN, CNS  
Family Planning/Reproductive Health Nurse Consultant  
North Carolina Department of Health and Human Services/Women's Health Branch

Diane Lauver, PhD, RN, FNP-BC, FAAN  
Professor  
School of Nursing  
University of Wisconsin–Madison

Amy Levi, CNM, PhD  
Clinical Professor  
Chair, Midwifery Leadership Council  
Director of the Interdepartmental Nurse-Midwifery Education Program  
University of California, San Francisco

Denise Link, PhD, WHNP-BC, FAAN  
Clinical Associate Professor  
College of Nursing and Health Innovation  
Arizona State University

Anne Moore, DNP, APN, FAANP  
Professor of Nursing  
Vanderbilt University

Susan Moskosky, MS, RNC  
Deputy Director, Office of Population Affairs  
U.S. Department of Health and Human Services

Angie Olawsky, RN, MPH, CPM  
State Director of Nursing  
South Carolina Department of Health and Environmental Control

Barbara Safriet, JD  
Visiting Professor of Law  
Lewis & Clark Law School

Karen Shea, MSN, WHNP-BC  
Director, Medical Standards  
Planned Parenthood Federation of America

Kathy Simmonds, MSN, MPH, WHNP-BC  
Clinical Assistant Professor  
MGH Institute of Health Professions

Joanne Spetz, PhD  
Professor, Institute for Health Policy Studies  
University of California, San Francisco

Katie Ward, DNP, WHNP, ANP  
Executive Director, MS and DNP Programs  
University of Utah College of Nursing

Jacki Witt, JD, MSN, WHNP-BC, CNM  
Project Director, Clinical Training Center for Family Planning  
University of Missouri, Kansas City

Sandy Worthington, MSN, WHNP-BC, CNM  
Director of Medical Education  
Planned Parenthood Federation of America

Susan Wysocki, RNC, NP  
Former President and CEO, National Association of Nurse Practitioners in Women's Health  
President, iWomansHealth

Anonymous clinical and management staff  
Planned Parenthood Los Angeles

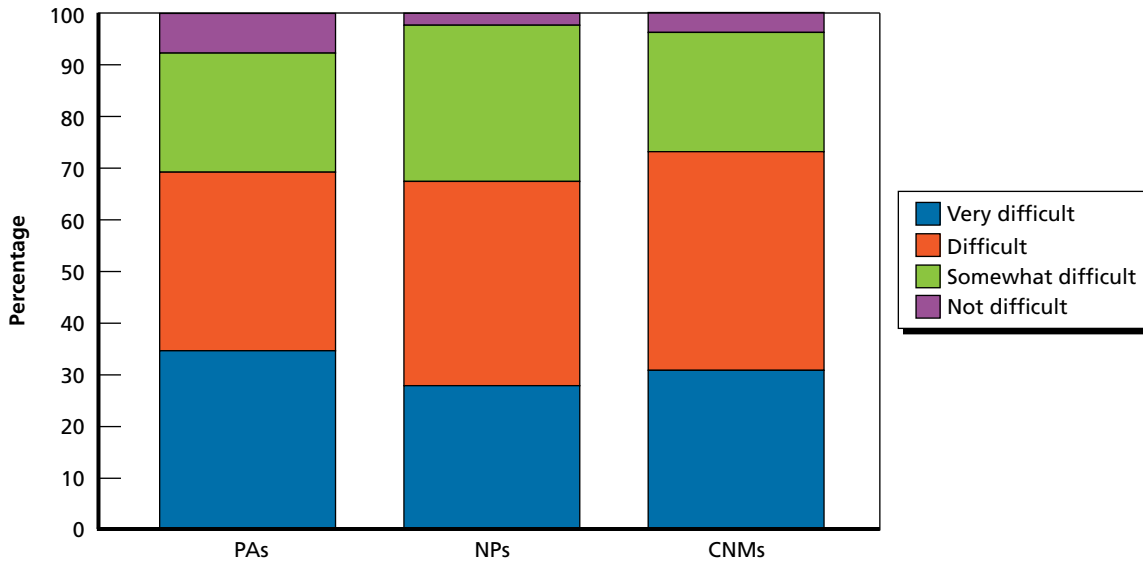




## Questions from the National Family Planning & Reproductive Health Association 2011 Membership Survey

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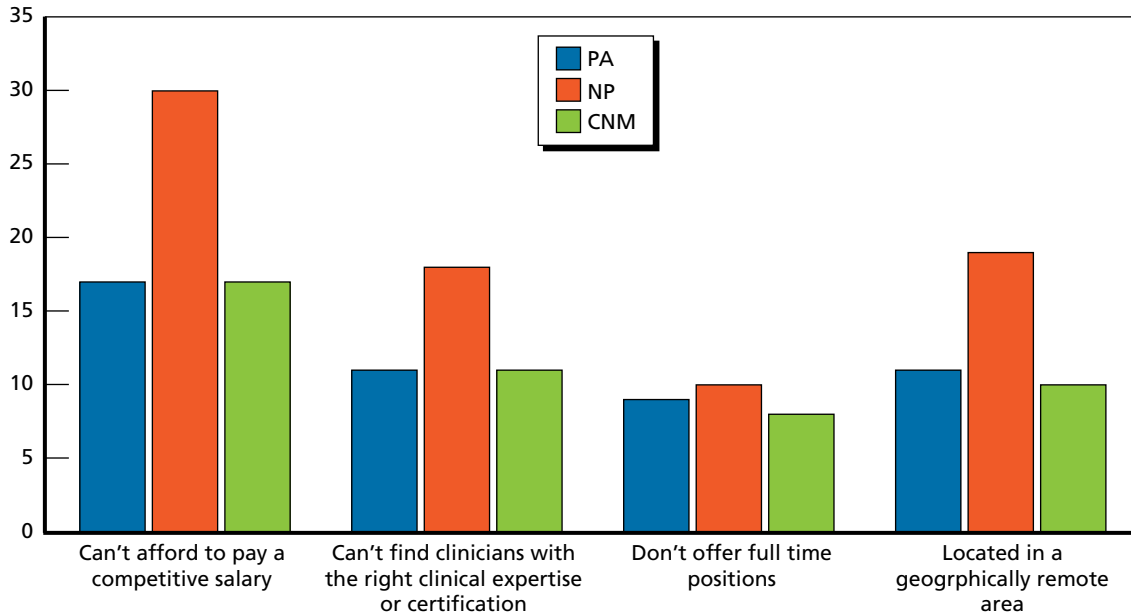
**How difficult is it to hire each of the following types of clinicians with the required training?**



NOTE: The above question asks respondents to check all that apply. The chart represents how many times each answer was checked.

RAND TR1224-B.1

**If you find it difficult to hire PAs, NPs and/or NMs please indicate which of the following contribute to this difficulty. For each type of clinician please check all that apply.**



NOTE: The above question asks respondents to check all that apply. The chart represents how many times each answer was checked.

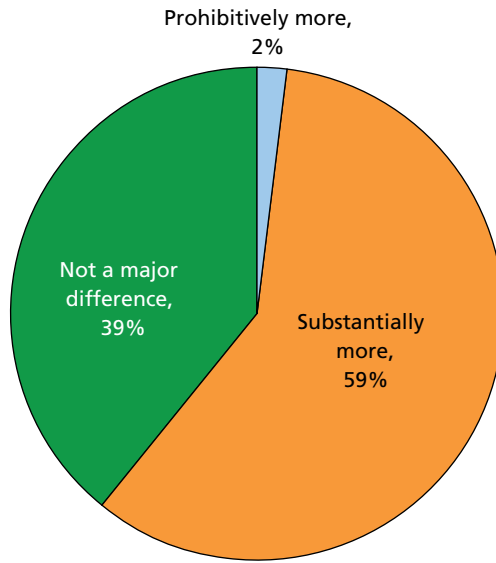
RAND TR1224-B.2

**Are there any other reasons you think you might be having trouble?**

**Open ended responses:**

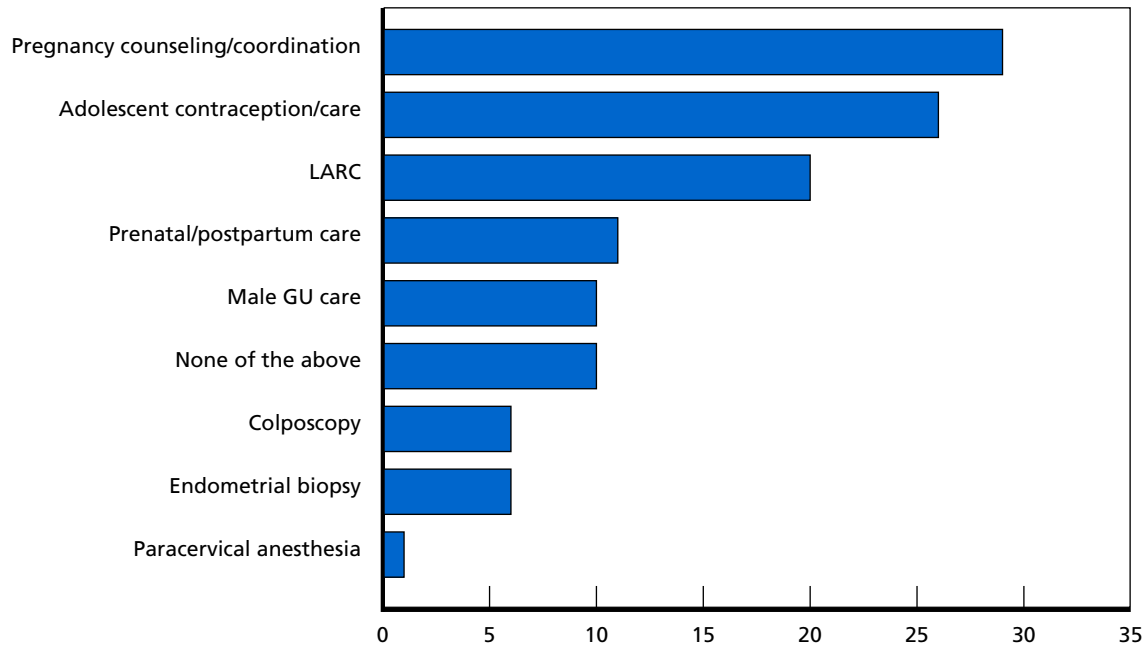
- Not able to forgive loans (2)
- Remote location/clinic locations (2)
- We contract with hospitals for midwives
- NPs with Masters want to do more administrative work than direct patient care
- Our Civil Service Department currently does not hire PAs or NMs
- State hiring slow to approve positions
- Phase out of family planning NP program
- I believe there's a shortage of NPs, at least in our area
- We need someone who can do program management as well as being a clinician
- Much travel involved
- Much competition for hiring NPs
- We don't have a high turnover rate for NPs
- NPs are very costly to the budget and not all have Women's Health Specialty
- PAs are not covered by the EMR reimbursement program, and that's a concern for us
- Significant competition from university hospital system

**Do NPs who are not women’s health NPs require more training?**



RAND TR1224-B.3

**Do you provide any of the following training for clinicians on-site? Check all that apply.**



NOTE: The above question asks respondents to check all that apply. The chart represents how many times each answer was checked.

RAND TR1224-B.4



## Detailed Projection Results for Emergency Contraception, Preventative Services, and STD Services

**Table C.1**  
**Probit Regression Results for Utilization of Emergency Contraception Services, by Setting**

| Factor Variables   | Clinic Setting |                | Private Setting |                | Other Setting |                |
|--|----------------|----------------|-----------------|----------------|---------------|----------------|
|  | Coefficient    | CI             | Coefficient     | CI             | Coefficient   | CI             |
| Educational Attainment (reference group = "less than high school") |                |                |                 |                |               |                |
| High school/<br>GED  | 0.07           | (-0.07, 0.20)  | 0.33***         | (0.16, 0.50)   | 0.15          | (-0.12, 0.42)  |
| Some college   | 0.23***        | (0.10, 0.36)   | 0.48***         | (0.30, 0.65)   | 0.48***       | (0.24, 0.72)   |
| Bachelor's<br>degree   | 0.14           | (-0.06, 0.34)  | 0.28**          | (0.06, 0.51)   | 0.39**        | (0.05, 0.72)   |
| Advanced<br>degree   | -0.48**        | (-0.95, -0.01) | 0.46**          | (0.11, 0.81)   | 0.42*         | (-0.01, 0.84)  |
| Marital Status (reference group = "married")                       |                |                |                 |                |               |                |
| Widowed  | (empty)        | (empty)        | (empty)         | (empty)        | (empty)       | (empty)        |
| Divorced   | 0.36***        | (0.10, 0.62)   | 0.10            | (-0.16, 0.36)  | 0.00          | (-0.42, 0.43)  |
| Separated  | 0.03           | (-0.26, 0.31)  | -0.04           | (-0.37, 0.29)  | 0.22          | (-0.17, 0.61)  |
| Never<br>married   | 0.44***        | (0.30, 0.59)   | 0.23**          | (0.05, 0.41)   | 0.46***       | (0.19, 0.73)   |
| Age (reference group = "15-24")                                    |                |                |                 |                |               |                |
| 25-34  | 0.02           | (-0.21, 0.25)  | -0.06           | (-0.31, 0.19)  | -0.25*        | (-0.50, 0.01)  |
| 35-44  | -0.40***       | (-0.70, -0.11) | -0.32**         | (-0.60, -0.04) | -0.45***      | (-0.77, -0.13) |
| Insurance Status (reference group = "no insurance")                |                |                |                 |                |               |                |
| Private<br>insurance   | -0.53***       | (-0.76, -0.29) | 0.27            | (-0.08, 0.63)  | 0.13          | (-0.29, 0.54)  |
| Public<br>insurance  | -0.01          | (-0.25, 0.22)  | 0.48**          | (0.07, 0.89)   | 0.27          | (-0.13, 0.67)  |
| Race/Ethnicity (reference group = "white")                         |                |                |                 |                |               |                |
| Black  | -0.11          | (-0.26, 0.04)  | 0.31***         | (0.14, 0.47)   | -0.01         | (-0.26, 0.23)  |
| Hispanic   | 0.64***        | (0.37, 0.91)   | 0.38**          | (0.06, 0.71)   | -0.24         | (-0.80, 0.33)  |

**Table C.1**  
**Continued**

| Factor Variables  | Clinic Setting |                 | Private Setting |                | Other Setting |                   |
|---|----------------|-----------------|-----------------|----------------|---------------|-------------------|
|   | Coefficient    | CI              | Coefficient     | CI             | Coefficient   | CI                |
| Other   | 0.09           | (-0.14, 0.33)   | 0.35***         | (0.15, 0.56)   | 0.04          | (-0.31, 0.40)     |
| Household Income as a Percent of the Federal Poverty Level (reference group = "<100 percent") |                |                 |                 |                |               |                   |
| 100–200   | 0.06           | (-0.09, 0.20)   | 0.02            | (-0.18, 0.21)  | -0.13         | (-0.38, 0.12)     |
| 200–300   | -0.05          | (-0.22, 0.11)   | -0.04           | (-0.25, 0.17)  | -0.11         | (-0.38, 0.16)     |
| 300–400   | 0.04           | (-0.16, 0.25)   | 0.13            | (-0.09, 0.35)  | -0.26         | (-0.66, 0.14)     |
| 400–500   | 0.03           | (-0.18, 0.24)   | 0.14            | (-0.13, 0.42)  | -0.23         | (-0.60, 0.14)     |
| >500  | 0.13           | (-0.17, 0.42)   | 0.16            | (-0.15, 0.46)  | -0.18         | (-0.71, 0.35)     |
| Other Variables   |                |                 |                 |                |               |                   |
| Year Effect   | -0.01          | (-0.03, 0.02)   | 0.01            | (-0.01, 0.03)  | 0.06***       | (0.02, 0.09)      |
| Interactions  |                |                 |                 |                |               |                   |
| Hispanic*<br>Under 25   | -0.21*         | (-0.44, 0.01)   | 0.03            | (-0.24, 0.30)  | -0.20         | (-0.64, 0.25)     |
| Hispanic*<br>No insurance   | -0.31*         | (-0.61, 0.00)   | 0.24            | (-0.23, 0.72)  | 0.68**        | (0.12, 1.25)      |
| Hispanic*<br>Private<br>insurance   | -0.12          | (-0.38, 0.14)   | 0.08            | (-0.24, 0.40)  | 0.37          | (-0.17, 0.91)     |
| No<br>insurance*<br>Under 25  | 0.1            | (-0.18, 0.37)   | 0.14            | (-0.31, 0.59)  | -0.23         | (-0.68, 0.23)     |
| Private<br>insurance *<br>Under 25  | 0.5***         | (0.24, 0.76)    | 0.33**          | (0.04, 0.61)   | -0.21         | (-0.58, 0.16)     |
| Constant  | 8.22           | (-33.82, 50.27) | -23.76          | (-64.83, 17.3) | -116.53***    | (-185.26, -47.81) |

SOURCE: Authors' analysis of NSFG data.

NOTE: CI, confidence interval; \* p&lt;0.10; \*\* p&lt;0.05; \*\*\* p&lt;0.01.

**Table C.2**  
**Projected Utilization of Emergency**  
**Contraception Services, by Year and Setting**

| Year | Setting |         |       | Total |
|------|---------|---------|-------|-------|
|      | Clinic  | Private | Other |       |
| 2006 | 1,156   | 595     | 181   | 1,933 |
| 2007 | 1,171   | 602     | 182   | 1,955 |
| 2008 | 1,185   | 608     | 183   | 1,976 |
| 2009 | 1,199   | 615     | 184   | 1,998 |
| 2010 | 1,214   | 621     | 185   | 2,020 |
| 2011 | 1,229   | 627     | 185   | 2,042 |
| 2012 | 1,245   | 633     | 186   | 2,064 |
| 2013 | 1,260   | 639     | 186   | 2,086 |
| 2014 | 1,187   | 715     | 197   | 2,100 |
| 2015 | 1,195   | 725     | 198   | 2,119 |
| 2016 | 1,206   | 737     | 200   | 2,142 |
| 2017 | 1,217   | 748     | 201   | 2,166 |
| 2018 | 1,227   | 760     | 203   | 2,190 |
| 2019 | 1,237   | 772     | 204   | 2,213 |
| 2020 | 1,248   | 784     | 205   | 2,237 |

SOURCE: RAND projections based on NSFG.

NOTE: Total utilization is in the thousands.

**Table C.3**  
**Probit Regression Results for Utilization of Preventative Services, by Setting**

| Factor Variables  | Clinic Setting |                | Private Setting |                | Other Setting |               |
|---|----------------|----------------|-----------------|----------------|---------------|---------------|
|   | Coefficient    | CI             | Coefficient     | CI             | Coefficient   | CI            |
| Educational Attainment (reference group = "less than high school")                            |                |                |                 |                |               |               |
| High school/<br>GED   | 0.07           | (-0.03, 0.17)  | 0.51***         | (0.43, 0.59)   | -0.04         | (-0.18, 0.10) |
| Some college  | 0.05           | (-0.05, 0.15)  | 0.66***         | (0.58, 0.75)   | -0.04         | (-0.20, 0.11) |
| Bachelor's<br>degree  | 0.07           | (-0.05, 0.19)  | 0.69***         | (0.58, 0.79)   | -0.09         | (-0.25, 0.08) |
| Advanced<br>degree  | 0.04           | (-0.16, 0.24)  | 0.75***         | (0.61, 0.88)   | -0.22         | (-0.49, 0.05) |
| Marital Status (reference group = "married")  |                |                |                 |                |               |               |
| Widowed   | 0.02           | (-0.34, 0.39)  | -0.08           | (-0.49, 0.33)  | 0.42**        | (0.02, 0.81)  |
| Divorced  | 0.12*          | (-0.02, 0.25)  | -0.09           | (-0.20, 0.03)  | 0.08          | (-0.11, 0.27) |
| Separated   | 0.10           | (-0.07, 0.27)  | -0.11           | (-0.26, 0.03)  | 0.19          | (-0.05, 0.43) |
| Never married   | 0.14***        | (0.04, 0.23)   | -0.35***        | (-0.42, -0.28) | -0.13*        | (-0.26, 0.01) |
| Age (reference group = "15-24")   |                |                |                 |                |               |               |
| 25-34   | 0.09           | (-0.04, 0.21)  | 0.15**          | (0.03, 0.27)   | 0.09          | (-0.06, 0.25) |
| 35-44   | -0.16**        | (-0.29, -0.03) | 0.04            | (-0.09, 0.17)  | 0.06          | (-0.12, 0.24) |
| Insurance Status (reference group = "no insurance")   |                |                |                 |                |               |               |
| Private<br>Insurance  | -0.66***       | (-0.79, -0.54) | 0.89***         | (0.78, 1.00)   | -0.17*        | (-0.35, 0.02) |
| Public<br>Insurance   | -0.06          | (-0.20, 0.08)  | 0.62***         | (0.48, 0.76)   | 0.45***       | (0.26, 0.64)  |
| Race/Ethnicity (reference group = "white")  |                |                |                 |                |               |               |
| Black   | 0.23***        | (0.14, 0.32)   | 0.07**          | (0.00, 0.13)   | 0.33***       | (0.21, 0.44)  |
| Hispanic  | 0.73***        | (0.55, 0.91)   | -0.31***        | (-0.46, -0.16) | 0.02          | (-0.22, 0.27) |
| Other   | 0.27***        | (0.10, 0.44)   | -0.48***        | (-0.62, -0.35) | 0.26***       | (0.08, 0.45)  |
| Household Income as a Percent of the Federal Poverty Level (reference group = "<100 percent") |                |                |                 |                |               |               |
| 100-200   | -0.06          | (-0.15, 0.04)  | -0.01           | (-0.10, 0.08)  | 0.07          | (-0.05, 0.20) |
| 200-300   | -0.15***       | (-0.25, -0.04) | 0.08            | (-0.02, 0.17)  | 0.03          | (-0.11, 0.17) |
| 300-400   | -0.31***       | (-0.44, -0.19) | 0.18***         | (0.07, 0.28)   | 0.00          | (-0.17, 0.17) |
| 400-500   | -0.46***       | (-0.59, -0.33) | 0.35***         | (0.24, 0.47)   | 0.04          | (-0.16, 0.24) |
| >500  | -0.28***       | (-0.43, -0.13) | 0.35***         | (0.25, 0.45)   | 0.03          | (-0.23, 0.29) |



**Table C.3  
Continued**

| Factor Variables                  | Clinic Setting |                 | Private Setting |                 | Other Setting |                 |
|-----------------------------------|----------------|-----------------|-----------------|-----------------|---------------|-----------------|
|                                   | Coefficient    | CI              | Coefficient     | CI              | Coefficient   | CI              |
| <b>Other Variables</b>            |                |                 |                 |                 |               |                 |
| Year Effect                       | -0.01          | (-0.02, 0.01)   | 0.00            | (-0.02, 0.01)   | 0.00          | (-0.02, 0.01)   |
| <b>Interactions</b>               |                |                 |                 |                 |               |                 |
| Hispanic*<br>Under 25             | -0.39***       | (-0.56, -0.22)  | -0.09           | (-0.23, 0.05)   | -0.18         | (-0.41, 0.05)   |
| Hispanic*<br>No insurance         | -0.25***       | (-0.43, -0.07)  | 0.12            | (-0.06, 0.31)   | -0.01         | (-0.31, 0.29)   |
| Hispanic*<br>Private<br>insurance | -0.48***       | (-0.69, -0.26)  | 0.23***         | (0.07, 0.39)    | 0.29**        | (0.01, 0.57)    |
| No insurance*<br>Under 25         | 0.17*          | (-0.01, 0.35)   | 0.15            | (-0.04, 0.34)   | 0.29**        | (0.06, 0.53)    |
| Private<br>insurance*<br>Under 25 | 0.36***        | (0.21, 0.50)    | -0.27***        | (-0.40, -0.13)  | 0.12          | (-0.10, 0.34)   |
| Constant                          | 10.42          | (-15.59, 36.42) | 8.59            | (-12.69, 29.86) | 3.39          | (-29.83, 36.62) |

SOURCE: Authors' analysis of NSFG data.

NOTE: CI, confidence interval; \* p&lt;0.10; \*\* p&lt;0.05; \*\*\* p&lt;0.01.

**Table C.4**  
**Projected Utilization of Preventative Services,**  
**by Year and Setting**

| Year | Setting |         |       | Total  |
|------|---------|---------|-------|--------|
|      | Clinic  | Private | Other |        |
| 2006 | 7,253   | 30,305  | 2,078 | 39,637 |
| 2007 | 7,317   | 30,262  | 2,088 | 39,668 |
| 2008 | 7,381   | 30,219  | 2,098 | 39,698 |
| 2009 | 7,444   | 30,176  | 2,108 | 39,728 |
| 2010 | 7,508   | 30,133  | 2,118 | 39,758 |
| 2011 | 7,580   | 30,149  | 2,130 | 39,859 |
| 2012 | 7,651   | 30,165  | 2,142 | 39,959 |
| 2013 | 7,723   | 30,181  | 2,155 | 40,058 |
| 2014 | 7,302   | 31,909  | 2,307 | 41,518 |
| 2015 | 7,332   | 32,046  | 2,323 | 41,700 |
| 2016 | 7,377   | 32,282  | 2,344 | 42,003 |
| 2017 | 7,421   | 32,519  | 2,366 | 42,306 |
| 2018 | 7,465   | 32,756  | 2,388 | 42,608 |
| 2019 | 7,508   | 32,992  | 2,410 | 42,910 |
| 2020 | 7,550   | 33,229  | 2,432 | 43,211 |

SOURCE: RAND projections based on NSFG.

NOTE: Total utilization is in the thousands.

**Table C.5**  
**Probit Regression Results for Utilization of STD Services, by Setting**

| Factor Variables  | Clinic Setting |                | Private Setting |                | Other Setting |                |
|---|----------------|----------------|-----------------|----------------|---------------|----------------|
|   | Coefficient    | CI             | Coefficient     | CI             | Coefficient   | CI             |
| Educational Attainment (reference group = "less than high school")                            |                |                |                 |                |               |                |
| High school/<br>GED   | 0.00           | (-0.12, 0.12)  | 0.31***         | (0.21, 0.42)   | -0.14*        | (-0.29, 0.02)  |
| Some college  | 0.05           | (-0.07, 0.17)  | 0.42***         | (0.30, 0.53)   | 0.07          | (-0.11, 0.26)  |
| Bachelor's<br>degree  | -0.05          | (-0.22, 0.12)  | 0.39***         | (0.26, 0.52)   | -0.02         | (-0.24, 0.20)  |
| Advanced<br>degree  | -0.22          | (-0.54, 0.10)  | 0.45***         | (0.27, 0.63)   | 0.02          | (-0.29, 0.33)  |
| Marital Status (reference group = "married")  |                |                |                 |                |               |                |
| Widowed   | 0.37*          | (-0.06, 0.81)  | 0.44*           | (-0.05, 0.92)  | 0.59**        | (0.07, 1.10)   |
| Divorced  | 0.38***        | (0.21, 0.55)   | 0.26***         | (0.13, 0.39)   | 0.23          | (-0.09, 0.54)  |
| Separated   | 0.18           | (-0.06, 0.43)  | 0.46***         | (0.29, 0.63)   | 0.48***       | (0.15, 0.80)   |
| Never married   | 0.41***        | (0.28, 0.53)   | 0.12**          | (0.01, 0.22)   | 0.05          | (-0.12, 0.23)  |
| Age (reference group = "15-24")   |                |                |                 |                |               |                |
| 25-34   | -0.14          | (-0.32, 0.03)  | -0.20**         | (-0.35, -0.04) | -0.07         | (-0.30, 0.16)  |
| 35-44   | -0.50***       | (-0.70, -0.30) | -0.73***        | (-0.89, -0.57) | -0.30**       | (-0.58, -0.03) |
| Insurance Status (reference group = "no insurance")   |                |                |                 |                |               |                |
| Private<br>Insurance  | -0.57***       | (-0.73, -0.42) | 0.38***         | (0.22, 0.53)   | -0.17         | (-0.40, 0.07)  |
| Public<br>Insurance   | -0.11          | (-0.28, 0.05)  | 0.46***         | (0.28, 0.64)   | 0.25*         | (-0.02, 0.53)  |
| Race/Ethnicity (reference group = "White")  |                |                |                 |                |               |                |
| Black   | 0.12*          | (-0.01, 0.24)  | 0.13**          | (0.02, 0.23)   | 0.23***       | (0.07, 0.38)   |
| Hispanic  | 0.35***        | (0.18, 0.53)   | -0.15           | (-0.34, 0.04)  | -0.08         | (-0.34, 0.17)  |
| Other   | -0.04          | (-0.22, 0.14)  | -0.21**         | (-0.39, -0.03) | -0.06         | (-0.32, 0.20)  |
| Household Income as a Percent of the Federal Poverty Level (reference group = "<100 percent") |                |                |                 |                |               |                |
| 100-200   | -0.02          | (-0.13, 0.09)  | 0.06            | (-0.05, 0.17)  | -0.03         | (-0.20, 0.14)  |
| 200-300   | 0.02           | (-0.12, 0.15)  | 0.02            | (-0.09, 0.13)  | -0.17*        | (-0.37, 0.02)  |
| 300-400   | -0.11          | (-0.27, 0.05)  | 0.10            | (-0.05, 0.24)  | 0.03          | (-0.21, 0.27)  |
| 400-500   | -0.20**        | (-0.36, -0.03) | 0.06            | (-0.08, 0.19)  | -0.10         | (-0.32, 0.13)  |
| >500  | -0.07          | (-0.25, 0.10)  | 0.21***         | (0.07, 0.35)   | -0.09         | (-0.34, 0.17)  |

**Table C.5  
Continued**

| Factor Variables                   | Clinic Setting |                 | Private Setting |                 | Other Setting |                 |
|------------------------------------|----------------|-----------------|-----------------|-----------------|---------------|-----------------|
|                                    | Coefficient    | CI              | Coefficient     | CI              | Coefficient   | CI              |
| <b>Other Variables</b>             |                |                 |                 |                 |               |                 |
| Year Effect                        | 0.01           | (-0.01, 0.02)   | 0.02***         | (0.01, 0.04)    | 0.01          | (-0.01, 0.03)   |
| <b>Interactions</b>                |                |                 |                 |                 |               |                 |
| Hispanic*<br>Under 25              | -0.39***       | (-0.59, -0.18)  | -0.07           | (-0.24, 0.10)   | 0.06          | (-0.24, 0.37)   |
| Hispanic* No<br>insurance          | -0.17          | (-0.40, 0.06)   | 0.21            | (-0.11, 0.52)   | -0.17         | (-0.52, 0.18)   |
| Hispanic*<br>Private<br>insurance  | -0.12          | (-0.37, 0.12)   | 0.21**          | (0.02, 0.39)    | -0.03         | (-0.33, 0.27)   |
| No insurance*<br>Under 25          | 0.02           | (-0.2, 0.25)    | -0.01           | (-0.24, 0.21)   | 0.28*         | (-0.04, 0.60)   |
| Private<br>insurance *<br>Under 25 | 0.14           | (-0.06, 0.34)   | -0.16*          | (-0.33, 0.01)   | -0.06         | (-0.34, 0.22)   |
| Constant                           | -19.46         | (-49.49, 10.58) | -51.82***       | (-76.44, -27.2) | -18.85        | (-57.93, 20.23) |

SOURCE: Authors' analysis of NSFG data.

NOTE: CI, confidence interval; \* p&lt;0.10; \*\* p&lt;0.05; \*\*\* p&lt;0.01.

**Table C.6**  
**Projected Utilization of STD Services, by Year**  
**and Setting**

| Year | Setting |         |       | Total |
|------|---------|---------|-------|-------|
|      | Clinic  | Private | Other |       |
| 2006 | 2,450   | 5,112   | 678   | 8,240 |
| 2007 | 2,477   | 5,161   | 683   | 8,321 |
| 2008 | 2,504   | 5,211   | 687   | 8,402 |
| 2009 | 2,530   | 5,260   | 692   | 8,483 |
| 2010 | 2,557   | 5,310   | 697   | 8,564 |
| 2011 | 2,580   | 5,343   | 699   | 8,622 |
| 2012 | 2,602   | 5,376   | 702   | 8,680 |
| 2013 | 2,624   | 5,409   | 705   | 8,738 |
| 2014 | 2,427   | 5,786   | 733   | 8,946 |
| 2015 | 2,431   | 5,843   | 736   | 9,010 |
| 2016 | 2,439   | 5,908   | 741   | 9,089 |
| 2017 | 2,448   | 5,974   | 745   | 9,167 |
| 2018 | 2,456   | 6,041   | 749   | 9,246 |
| 2019 | 2,465   | 6,108   | 754   | 9,326 |
| 2020 | 2,473   | 6,175   | 758   | 9,405 |

SOURCE: RAND projections based on NSFG.

NOTE: Total utilization is in the thousands.



## Cross-Tabulations of NPs by Population/Specialty Focus and Work Setting

**Table D.1**  
**Cross-Tabulation of NPs by Population/Specialty Focus and Work Setting, 2003**

| 2003   | Acute Care | Adult | Family | Gerontological | Neonatal | Women's Health | Pediatric | Psychiatric/<br>Mental Health |
|--|------------|-------|--------|----------------|----------|----------------|-----------|-------------------------------|
| NP type, as percent of all NPs   | 6.0        | 20.4  | 43.1   | 3.9            | 2.4      | 11.0           | 10.5      | 2.8                           |
| Of that NP Type, percent in each setting   |            |       |        |                |          |                |           |                               |
| Private physician or NP practice/health maintenance organization/employer/military | 22.3       | 52.8  | 47.6   | 26.6           | 3.0      | 53.8           | 47.0      | 41.2                          |
| Community/public health ambulatory care  | 4.6        | 14.4  | 31.7   | 13.2           | 4.3      | 32.0           | 18.8      | 7.8                           |
| Outpatient hospital/other facility   | 8.5        | 20.4  | 10.4   | 54.5           | 2.5      | 11.2           | 23.7      | 40.5                          |
| Inpatient hospital   | 63.6       | 10.3  | 8.1    | 5.2            | 90.1     | 1.8            | 9.8       | 8.0                           |
| Other  | 1.1        | 2.1   | 2.1    | 0.5            | 0.2      | 1.2            | 0.7       | 2.4                           |

SOURCE: AANP.

**Table D.2**  
**Cross-Tabulation of NPs by Population/Specialty Focus and Work Setting, 2008**

| 2008   | Acute<br>Care | Adult | Family | Gerontological | Neonatal | Women's<br>Health | Pediatric | Psych/<br>Mental<br>Health |
|--|---------------|-------|--------|----------------|----------|-------------------|-----------|----------------------------|
| NP Type, as percent of<br>all NPs  | 5.8           | 19.5  | 48.7   | 3.2            | 2.0      | 9.1               | 8.6       | 3.1                        |
| Of that NP type, percent in each setting   |               |       |        |                |          |                   |           |                            |
| Private<br>physician or NP<br>practice/health<br>maintenance<br>organization/<br>employer/military | 24.0          | 43.3  | 40.6   | 27.7           | 2.4      | 50.5              | 37.9      | 37.4                       |
| Community/public<br>health ambulatory<br>care  | 5.8           | 16.3  | 32.7   | 11.2           | 2.7      | 28.8              | 22.8      | 11.0                       |
| Outpatient<br>hospital/other<br>facility   | 11.7          | 21.9  | 11.7   | 49.8           | 2.0      | 11.8              | 23.9      | 42.1                       |
| Inpatient hospital   | 55.7          | 14.4  | 11.1   | 5.9            | 90.3     | 2.5               | 12.6      | 7.2                        |
| Other  | 2.7           | 4.0   | 3.9    | 5.3            | 2.5      | 6.4               | 2.8       | 2.3                        |

SOURCE: AANP.



## Discussion Guides for Expert Interviews

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### Examining the Future Supply of and Demand for Advanced Practice Clinicians in Reproductive Health Clinics

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#### Interview Guide: Subject Matter Experts

##### Preamble:

Data suggest that demand for sexual and reproductive health services will continue to grow steadily, (though with some variation by service), and may be boosted by better insurance coverage and reduced copayments for such services.

On the other hand, fewer NPs are specializing in women's health and Title-X-supported clinics report difficulty attracting nurse practitioners in some cases, partly due to lower compensation. While there is a growing supply of family and adult-prepared NPs, some don't have the necessary skills to work in sexual and reproductive health and clinics are often limited in the training they can provide.

##### General Questions:

Do these tentative findings match your perceptions?

If not, what do you see as problems, if any, in matching supply of practitioners and services to population demands not just for family planning, but for sexual and reproductive health services more broadly?

If yes, what, if any, do you see as the way to bridge the potentially growing gap between supply and demand for these services?

##### Specific questions:

###### I. Education

Do you perceive barriers to education and training of primary care clinicians in sexual and reproductive health (SRH) care? How should current training models and/or education programs be modified (if at all) to broaden the output of clinicians with required skills in SRH?

Would you favor solutions that require a broader segment of the APRN, and possibly the PA workforce to receive training in sexual and reproductive health, such as has occurred in the UK?, or,

Should we attempt to expand on-the-job training or opportunities for APRNs or RNs with more general backgrounds to obtain the necessary skills to work in SRH?

Do you perceive institutional barriers such as WHNP certification, or limited preceptorship opportunities as limiting the entry of NPs into the field?

How do you view the growing interest in primary care NPs and PAs (both through legislation and health care systems and organizations)? Does this compete with and detract from opportunities for NPs educated and working in women's health, or could it boost opportunities, or neither?

## II. Title X programs, workforce

What stands in the way of APRNs gaining employment in reproductive health clinics, particularly Title X (Family Planning) programs?

What stands in the way of APRNs staying in APRN jobs, particularly those providing SRH services?

To what extent are APRNs performing job tasks that employees with other competencies/training could perform?

Are programs available to help new NP, WHNP, CNM grads reinforce and advance SRH competencies?

## III. Legislative considerations

Does state legislation such as Medicaid reimbursement rules or scope of practice laws present a barrier to NPs working in SRH?

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# Examining the Future Supply of and Demand for Advanced Practice Clinicians in Reproductive Health Clinics

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## Interview Guide: Family Planning Clinic Administrators

### Respondent Background

1. We understand that you are the \_\_\_\_\_ [*position*] at \_\_\_\_\_ [*org*]. Is this right?
2. How long have you been working here at \_\_\_\_\_?
3. Are you primarily responsible for SRH services or for other kinds of services as well?
4. [If other:] What other kinds of services?
5. What is your professional background?
6. [If clinical background:] Do you provide clinical as well as administrative services?
7. If so, what percentage of your time is devoted to clinical care? Administrative work?

## Overview of Demand Situation

1. What patient populations in the \_\_\_\_\_ area does \_\_\_\_\_ [org] currently serve?
2. Are you the only provider of SRH services within 50 miles?
3. Are you the only provider of SRH services who accepts Medicaid or provides Title X funded services?
4. What healthcare services does \_\_\_\_\_ [org] provide?
5. Are there SRH services that your patients request or need that \_\_\_\_\_ [org] does not provide?
  - a. If so, which services?
  - b. Why do you not offer those services?
  - c. What would impact \_\_\_\_\_'s [org's] decision to expand the services offered?
6. Are there services that \_\_\_\_\_ [org] provides that have notably decreased in patient demand in recent years?
  - a. Why do you continue to offer those services?
7. Are there SRH services that \_\_\_\_\_ [org] provides that have notably increased in patient demand in recent years?
8. What has been \_\_\_\_\_ [org's] response to these changes?
9. What are the main challenges and barriers that \_\_\_\_\_ [org] has faced in meeting the needs [SRH NEEDS?] of your patients? (Prompt, if not addressed: Financial barriers, staff mix, facility restrictions?)
10. How do you see the demand for SRH services in the next \_\_ years? Will it change? If so, how?

## Overview of Supply Situation

We've already talked about the SRH services that \_\_\_\_\_ [org] provides. We'd now like to ask you about your current staffing for delivering SRH services:

Let's start with Advanced Practice Nurses:

1. How many Advanced Practice Nurses (NPs, CNMs) and/or PAs do you have on staff?
2. Of the APRNs, how many are NPs and how many CNMs?
3. What services do these clinicians provide?
4. Is there a difference across NPs, CNMs, and PAs in the services they provide?
5. Do the SRH services they provide differ from those provided by your physicians?
6. What are the administrative responsibilities of your NPs, CNMs, and PAs?
7. How many clinic hours per week/month are the NPs, CNMs, and PAs scheduled for? [FTEs]
8. Is there a difference among NPs, CNMs, and PAs in salaries or reimbursement levels?

Turning now to Nurses:

1. How many nurses do you have on staff? On contract?
2. What services do your RNs provide?

3. What are the administrative responsibilities of your RNs?
4. How many clinic hours per week/month are the RNs scheduled for? [FTEs]

#### Physicians:

1. How many physicians do you have on staff? On contract?
2. How many are in Primary Care or Family Medicine? How many are specialists in OBGYN or Adolescent?
3. What services do your MDs provide?
4. What are the administrative responsibilities of your MDs?
5. How many clinic hours per week/month are the MDs scheduled for? [FTEs]

### Match of Staffing to Current Demand

1. To what extent does the staff have the skills you would want to meet the needs of the patients you serve?
2. What additional skill sets would help most in meeting the needs of the patients? Does the staff – especially the APRNs – have skills that they are not able to use in this clinic?
3. Ideally thinking, how would you like to see your clinic staffed? What are the key differences between your current staffing and this ideal staffing?
4. What gets in the way of \_\_\_\_\_ [org] having the staffing you'd like?

### Nurse Staffing

1. How difficult is it to recruit APRNs in your area to provide SRH services? Please describe.
2. Do you expect this will change over the next \_\_\_ years?
3. How much clinical training was required to get your NPs, CNMs, and PAs up to speed in service delivery at your organization?
4. How does this differ from new clinicians \_\_\_ years ago?
5. How do you expect this to change over the next \_\_\_ years?
6. How does this impact patient care?
7. When you are hiring new APRN staff, do you focus your recruitment efforts towards NPs with specific backgrounds, such as Women's Health versus Family or Adult NP?
8. Do you find that one type of NP works better at \_\_\_\_\_ [org]? Why do you think this is?
9. How difficult is it to recruit RNs in your area to provide SRH services? Please describe.
10. Do you expect this will change over the next \_\_\_ years?
11. How difficult is it to recruit MDs in your area to provide SRH services? Please describe.
12. Do you expect this will change over the next \_\_\_ years?
13. Do you provide any preceptorships for APRNs or RNs here at \_\_\_\_\_ [org]?
14. If yes, is this done at the initiative of the your APRNs or RNs or is it a program administered by \_\_\_\_\_ [org]?
15. Is there any opportunity for your preceptors to received training in preceptoring?

16. Retention of APRNs and RNs sometimes is a challenge for clinics such as yours. Would you say it is an issue here at \_\_\_\_\_ [org]?
  - a. If yes, what are the turnover rates like?
  - b. Why do they leave?
17. Would you say that SRH tasks are distributed to optimally match the competencies of the staff, particularly the APRNs, RNs, and MDs? How is this done?
18. Has your delivery system or care model recently been changed in any way to increase the efficiency or value of SRH services?
  - a. Can prompt or if not addressed: Have changes been made to improve teamwork in providing SRH services – or to increase the coordination of care? If so, please describe.
19. What do you see as the biggest needs at this clinic with respect to efficient utilization of nurses?
20. What gets in the way, if anything, of optimally utilizing APRNs in the provision of services?

### Policy Recommendations

1. Do you have any recommendations or strategies to suggest that would help increase the supply of SRH staff?
2. Similarly, do you have any recommendations or strategies to help to optimally utilize available staff?

## Examining the Future Supply of and Demand for Advanced Practice Clinicians in Reproductive Health Clinics

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### Interview Guide: Family Planning Clinicians

#### Respondent Background & Staffing

1. What is your professional education and certification?
2. What was your population focus?
3. Your specialty training? (Can prompt: Colposcopy, abortion care, specialty gynecology, adolescent gynecology, chronic disease management, ALSC, menopause management, sexual health/dysfunction, perinatal, pregnancy care)
4. How long have you been providing reproductive health care?
5. How long have you been working for [ORG]?
6. How far do you live from the clinic?
7. How long have you been a resident of your community?
8. Would you describe your community as rural? Urban? Suburban?
9. Are you working full time?
10. What percentage of your time is devoted to clinical care? Administrative work?
  - a. Is this your ideal work mix? If not, what would be?
  - b. What services demand the bulk of your clinical time? Has this changed over time?

## Overview of Demand Situation

1. What services does [ORG] provide? (Prompt, if needed:)
  - primary care
  - prenatal care
  - IUD/IUD placement
  - abortion services
  - services for men
2. What services do you provide?
  - basic SRH services (eg, pregnancy testing and counseling)
  - contraception
  - including IUD/IUD placement
  - unplanned pregnancy care/abortion services
  - women's health/gynecology
  - assessment of specialty gynecological problems (eg, diagnosis of infertility)
  - comprehensive pregnancy care
  - services for men (eg, genitourinary conditions in men (GUM))
  - sexual health promotion
3. Are there services that your patients request or need that you or [ORG] does not provide?
  - a. If so, which services?
  - b. Are/were you trained to provide that/those services?
  - c. Why do you not offer those services?
4. Are there services that [ORG] provides that have notably decreased in patient demand in recent years?
5. Are there services that you or your organization plan to add in the near future?

## Overview of Supply Situation

Your situation:

1. Have you ever served as a preceptor for advanced practice nursing students?
2. How difficult was it for you to find your current position?
3. Did your advanced practice nursing education prepare you for the SRH services that you currently provide?
  - a. What services do you currently provide that were not included on your APRN preparation?
  - b. What services do you NOT currently provide that were included in your APRN preparation? Why?
4. What advice do you have for current APRN students interested in providing SRH?

Your organization's situation:

1. What is [ORG] commitment to training health care providers?
2. Does your organization currently have openings for APRNs? RNs? PAs? MDs?

3. From your perspective, how easy/difficult is it for [ORG] to hire competent APRNs? RNs? PAs? MDs?
  - a. Why do you think this is?
4. How difficult is it for [ORG] to retain competent APRNs? RNs? PAs? MDs?
  - a. Why do you think this is?
5. Do you have any recommendations or strategies for clinic administrators in general on how to make the best use of people's competencies and roles?
6. What kinds of support and resources do you think would be needed to put these recommendations into effect? (Can prompt: teamwork development)
7. Do you believe the clinicians and staff at your organization are working at the top of their licensing and training?





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