

# Patterns of utilization of advanced practice providers in reproductive endocrinology: a 2023 national survey

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**Objective:** To evaluate the current utilization of advanced practice providers (APPs) within the field of reproductive endocrinology and infertility.

**Design:** Cross-sectional.

**Setting:** Web-based.

**Patients:** A total of 201 APPs surveyed through the American Society of Reproductive Medicine APP Professional Group.

**Exposure:** Anonymized online survey.

**Main Outcome Measures:** Demographics, scope of practice and responsibilities, and training and onboarding.

**Results:** Respondents were primarily Family Nurse Practitioners (26.4%), Women's Health Nurse Practitioners (33.3%), or Physician Associates (29.8%). Two-thirds (67.4%) reported that their scope of practice is limited by their employer or practice, 43.5% by state restrictions, and 25.2% by insurance. Survey respondents reported that 44.4% of their time at work is dedicated to performing procedures and scans and 30.6% to conducting consults and follow-ups. The most commonly reported duties were physical examinations (88.6%), intrauterine inseminations (86.6%), saline sonohysterograms (79.6%), endometrial biopsies (76.6%), ultrasounds (74.6%), and problem visits such as for pain, cysts, and bleeding (73.1%). Most survey respondents (61.7%) reported having autonomy in deciding protocols and treatment options for patients in their practice. Respondents described their onboarding training as including observation/on-the-job training (94.0%), independent reading of texts and journals (66.7%), American Society of Reproductive Medicine online courses (45.3%), formal orientation (34.8%), and practice-organized training programs (29.4%).

**Conclusions:** Advanced practice providers are highly trained members of the care team, but continue to be underused within the field of reproductive endocrinology and infertility. Improvements in educational resources and/or use of a formalized program to train APPs to their full scope of practice may help increase clinic efficiency and improve patient access to care. (F S Rep® 2024;5:363–8. ©2024 by American Society for Reproductive Medicine.)

**Key Words:** Scope of practice, training, advanced practice provider, infertility, IVF

The most recent Society for Assisted Reproductive Technology/Centers for Disease Control and Prevention data show that the numbers of in vitro fertilization cycles continue to increase (1, 2); however, the number of new physicians entering the field from reproductive endocrinology and infertility (REI) fellowship programs

has remained constant (3). Strategies to address this mismatch between the demand for and availability of assisted reproduction services include increasing the number of REI fellowship programs, increasing the number of fellows within programs, and reducing the duration of fellowship training to 2 years (4–6). Other

approaches have focused on easing the burden on REI clinicians by training obstetrician/gynecologists to perform some duties, automating certain clinic and laboratory processes, or incorporating artificial intelligence technology (7–10). More effective utilization of advanced practice providers (APPs) may also increase clinic efficiency and improve patient access to timely care.

Advanced practice providers include Nurse Practitioners (NPs), Physician Associates (PAs), Certified Nurse Midwives, and Certified Midwives. Nurse Practitioners are registered nurses who have completed an

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NP-focused graduate master's or doctoral program in a select specialty and have passed a national board certification examination (11). Physician Associates have a master's degree in PA studies from programs modeled on medical school, and have passed national certification (12). Certified Nurse Midwives/Certified Midwives are midwives who have advanced training and education and passed a national midwifery certification examination. In the United States, the APP scope of practice is determined by state regulations (13). States with full practice and licensure laws allow NPs to evaluate and diagnose patients, order and interpret tests, and initiate and manage treatment, including prescription of medications (14). States with reduced and restricted practice and licensure laws limit the ability of NPs to practice in one or more of these categories; reduced practice requires NPs to practice collaborative care with another provider or limits the care setting in which APPs can practice; whereas restricted practice requires supervision, delegation, or team management by another healthcare provider. Physician Associates are required to have a collaborative or supervisory agreement with a physician. Scope of practice may also vary by field, practice environment, and insurance reimbursement policy (15). For example, in some states, only a radiologist is allowed to perform fluoroscopy, thereby preventing APPs from performing hysterosalpingograms.

In recent years, several states have expanded the scope of practice for NPs by easing requirements related to supervised practice (e.g., South Carolina, 2018), expanding scope of practice after a certain duration of supervised practice (e.g., Florida, 2020; California, 2023), and expanding to full practice authority (e.g., Utah, 2023) (14). Momentum for expanding the utilization of APPs has also been building within the field of REI. The first American Society of Reproductive Medicine (ASRM) survey to evaluate the utilization of APPs within REI was conducted in 2018, with only 30 respondents; a second survey in 2022 included 191 respondents. In 2022, the Fast Track to Fertility Study at Penn Medicine demonstrated that using APPs for initial consults helped increase new patient access by 23.8% and decrease the time to initiation of fertility treatment by 50% (16). On a national level, the ASRM APP Professional Group (APPPG) was formed in January 2023 (17) and ASRM sponsored a joint meeting of APPs and physicians in December 2023 to discuss clinical frameworks for incorporating APPs into fertility care and what training resources would be needed. Here, we report the results of the third ASRM APP survey. These data provide a baseline for further discussion of how the field can use APPs to their full potential to meet increasing patient demand for REI services.

## MATERIALS AND METHODS

An anonymous online survey was distributed through the ASRM APPPG via a Survey Monkey weblink. The survey queried APPs regarding demographics, scope of practice and responsibilities, and training and onboarding (Supplemental Table 1, available online). Results were collected from June to October 2023 and analyzed using Microsoft Excel to generate summary statistics. The study proto-

col was deemed exempt by the WCG Institutional Review Board (WCG Clinical Services, Princeton, New Jersey) because all survey data were collected anonymously and reported in aggregate with no identifiers linked to survey respondents.

## RESULTS

A total of 201 survey responses were received from APPs practicing in 40 states and the District of Columbia. The highest numbers of survey respondents were from California (11.0%) and Washington (9.4%), followed by New York (7.0%), Florida (6.5%), and Ohio (6.0%).

### APP demographics

All respondents provided answers to the survey questions on practice demographics. Most respondents were Family NP (26.4%), Women's Health Nurse Practitioners (33.3%), or PAs (29.8%). Only 9 respondents were Certified Nurse Midwives (4.5%). Most respondents worked in a private practice setting (78.1%); 11.0% worked in an academic setting, 7.0% in a hospital setting, and the remainder in outpatient clinics, military hospitals, or other settings. Approximately two-thirds (68.7%) worked in a practice that is part of a larger network. Responses were almost evenly split in terms of the number of physicians working in the practice: 35.3% had  $\leq 3$  physicians, 37.8% had 4–10, and 26.9% and  $>10$ . In contrast, most respondents (56.7%) reported having  $\leq 3$  total APPs working in their practice. More than 60.0% of respondents had been practicing as an APP in any field for  $\geq 5$  years; 36.8% had been practicing for  $>10$  years. Experience as an APP within the field of REI was evenly distributed, with approximately the same percentage of respondents reporting years of experience of  $<1$  year and  $>10$  years. Finally, slightly more respondents reported being with their current practice for 2–5 years (29.8%) compared with other categories ( $<1$  year, 21.9%; 1–2 years, 16.4%; 5–10 years, 14.9%; 10+ years, 16.9%).

### Scope of practice and responsibilities of APPs

The survey respondents were asked to compare their current scope of practice and responsibilities against what would be considered “top of scope” with regard to evaluation and diagnosis of patients, ordering and interpreting tests, initiating and managing treatments, and prescribing medications. Two-thirds of respondents (67.4%) reported that their scope of practice is limited by their employer or practice, vs. by state restrictions (43.5%) or insurance (25.2%). Moreover, 31.1% of respondents reported that they did not believe that their skills were being used appropriately. Cited reasons included not being given autonomy, lack of procedure training, and physician uncertainty on how to use APPs.

With regard to new patient visits, 30.4% of respondents reported seeing new patients as the primary provider, 19.9% providing the initial evaluation and work-up before transferring care to the physician, and 15.4% co-managing new patient consults with the physician. Nearly one-quarter (23.4%) responded that they do not see any new patients. Respondents reported that they conduct patient consultations,

either new patient or follow-up, with most averaging fewer than 3 per week (33.8%); 20.9% completed 6–10 consults per week and 16.4% completed 11–20 per week. Only 10.0% of respondents conducted more than 21 consults per week.

Most survey respondents (81.6%) reported working 30–50 hours a week, and that 44.4% of their time at work is dedicated to performing procedures and scans, and another 30.6% to conducting consults and follow-ups (Fig. 1). Another 14.8% of their time at work is spent on patient administration tasks, such as cycle coordination or third-party coordination, and 7.4% on management. The survey respondents described performing a wide range of job duties (Fig. 2). The most common were physical examinations (88.6%) and intrauterine insemination (86.6%), followed by saline sonohysterograms (79.6%), endometrial biopsies (76.6%), ultrasounds (74.6%), problem visits (e.g., for pain, cysts, and bleeding) (73.1%), and donor examinations (72.1%). Advanced practice providers also provided male infertility services. A total of 89.8% interpret semen analysis, 22.2% perform male examinations, and 29.6% interpret hormonal assays. Two-thirds of survey respondents (61.7%) reported having autonomy in deciding protocol and treatment options for patients in their practice.

### APP training and onboarding

Most survey respondents reported receiving on-the-job training (94.0%) or engaging in independent reading of texts and journals (66.7%) as part of their onboarding training at their current practice (Fig. 3). Others described ASRM online courses (45.3%), formal orientation (34.8%), and practice-organized training programs (29.4%). The most common length of onboarding training was 3–4 months (35.8%) (Fig. 4).

## DISCUSSION

In this third survey of APPs practicing in the REI field, we found that the APP scope of practice remains limited, with some NPs continuing to function as registered nurses in their practice, for example. The underutilization of APPs, despite the growing demand on physicians' time, may be because of a lack of awareness among clinicians regarding the APP scope of practice, particularly given the complexity and change in state-specific licensure regulations (14). Physicians may hesitate to expand the role of APPs; this may be related to the perception that patients prefer to receive care from physicians than from APPs. Research suggests that patient satisfaction is generally similar among physicians, NPs, and PAs, although these studies are limited to the primary care setting (18–21). On the training side, the survey results demonstrate a discrepancy between the job duties reported and the duties APPs would be able to perform with additional training. For example, 26.87% said that they would be able to perform diagnostic office hysteroscopies and 22.39% would perform hysterosalpingograms with additional training. These procedures lie within the APP scope of work and could be performed with or without supervision, depending on state licensure restrictions. These examples underscore how training of APPs would have a direct impact on their utilization within the REI clinic to increase clinical efficiency. Clinics can organize shadowing of APPs with team members to expose them to procedures and duties that lie within their scope of work, with check-ins and feedback to ensure progression and skill development. As APPs gain experience, confidence, and trust as part of the clinical team, less supervision will be needed.

A busy clinic may not have the bandwidth to conduct formal training of APPs, and standardized curricula may relieve some of this burden. For example, ASRM has numerous educational courses and classes to build

**FIGURE 1**

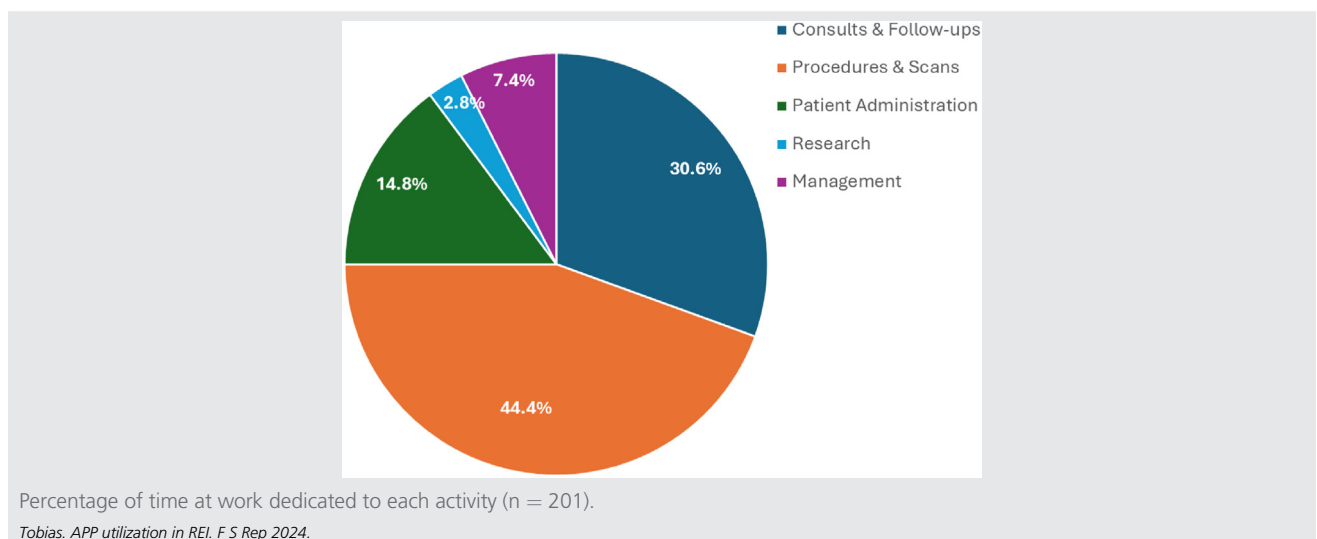
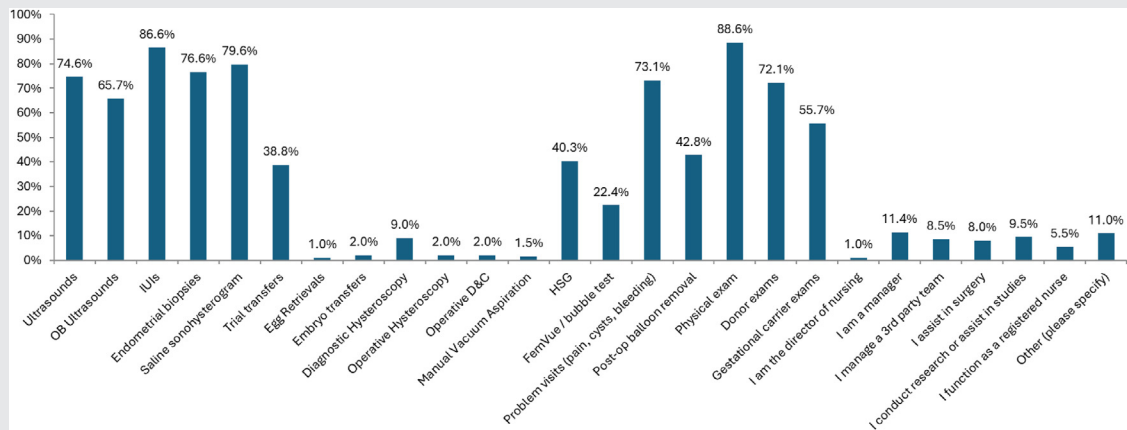


FIGURE 2

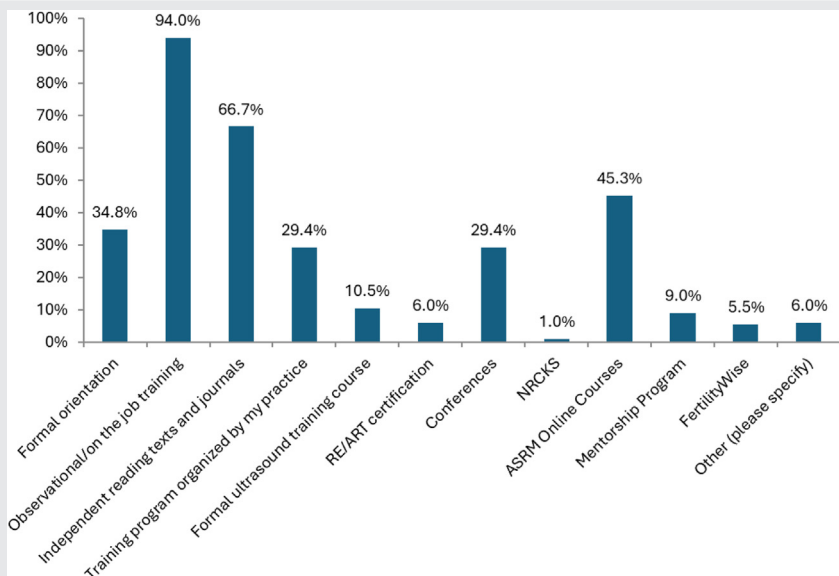


Duties currently performed in practice (n = 201).  
Tobias. APP utilization in REI. F S Rep 2024.

background knowledge in the field of REI and expand on expertise (22–25). The APPPG was formed in 2023 to establish an organized presence of APPs within ASRM and an educational task force was formed in 2024 to create competencies, practice guidelines, and develop APP-targeted online learning modules in REI (17). ASRM now has an APP track at the ASRM annual congress and recently approved a new APP annual conference, with the inaugural event taking place in Nashville, TN, in March 2025. Additionally, ASRM is in the process of drafting a white paper on APP utilization in REI medicine. There are also ongoing efforts to

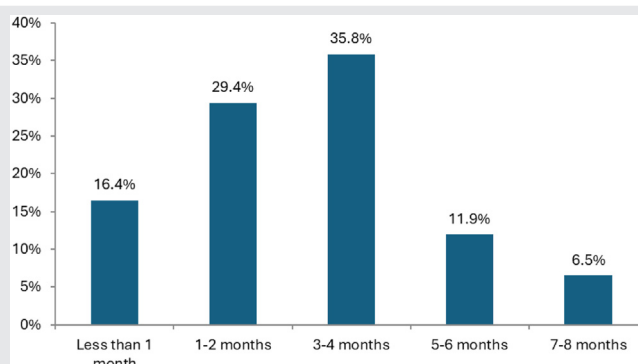
reinstate the National Certification Corporation Certification in Reproductive Health and Infertility, which was initiated in 1989 and discontinued in 1998 because of lack of participants. ASRM membership within the Nurses Professional Group and APPPG have grown significantly and support a national certification demonstrating advanced knowledge in reproductive medicine. Informal training of APPs can be achieved by building a culture of continuous learning within the clinic. Advanced practice providers can be encouraged to join ASRM and the ASRM APPPG, present to colleagues internally, read the medical literature and participate in journal

FIGURE 3



Onboarding training received as an reproductive endocrinology and infertility (REI) advanced practice provider (APP) at current practice (n = 201).  
Tobias. APP utilization in REI. F S Rep 2024.

FIGURE 4



Duration of onboarding training (n = 201).

Tobias. APP utilization in REI. F S Rep 2024.

clubs, attend conferences, and seek opportunities to advance their skills and careers in REI.

Effective utilization of APPs requires a coordinated effort between all practice stakeholders to achieve the most widespread impact on clinic efficiency and patient care. The Fast Track to Fertility Study demonstrated that a new framework for APP utilization benefited the entire practice as well as patients (16). Other models of APP utilization that have been discussed informally include APP management of specified treatment scenarios such as donor sperm recipients, polycystic ovary syndrome, fertility preservation, and basic infertility for those <38 years of age, who are less likely to require direct assisted reproductive technology treatment. Studies of the utilization of APPs in various REI clinical settings are needed to demonstrate the impact on not only clinical efficiency but also patient care and satisfaction.

Limitations of this study are related to the survey design. Because no data are available to quantify the number of APPs working in the field of REI, it is difficult to report the survey response rate. In addition, because the survey was distributed primarily through ASRM channels, respondents were more likely to be ASRM members, which may introduce bias. The small sample size also limits the generalizability of the findings; response rates were not evenly distributed geographically. Future APP surveys should focus on expanding recruitment efforts to increase the sample size and diversity and allow comparative analyses across various practice settings. Additionally, studies are needed to examine APP utilization, cost effectiveness, and patient satisfaction specific to REI practices.

## CONCLUSIONS

Advanced practice providers continue to be underused within the field of REI, yet are critical, highly experienced members of the care team with the potential to increase the efficiency of the REI clinic and improve patient access to care. Advanced practice provider survey respondents indicated that their overall greatest satisfaction is working to their full scope of practice, including conducting patient consults, procedures,

and ultrasounds. The ability to practice with increased autonomy and with the value and respect of colleagues as an integral part of the care team are essential for APP engagement and longevity. Structured and standardized training with a formal curriculum is needed to support APPs in reproductive medicine.

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## CRedit Authorship Contribution Statement

**Tamara Tobias:** Writing – review & editing, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Nicole Callahan:** Writing – review & editing, Investigation, Formal analysis. **Laura Augustine:** Writing – review & editing, Investigation, Formal analysis. **Barbara Tanaka:** Writing – review & editing, Supervision, Project administration, Funding acquisition, Conceptualization.

## Declaration of Interests

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