Thirty years ago, the American Academy of Pediatrics, in partnership with practicing pediatricians and leading academicians, founded Pediatric Research in Office Settings (PROS). In what was at the time a transformative insight, they understood that research in primary care practice settings, developed and conducted in collaboration between pediatricians in community practice and researchers, would lead to relevant and feasible studies that provide an evidence base to improve primary care practice. PROS was groundbreaking in declaring in its rules of governance that practitioners would determine which studies would be launched. Since then, PROS structure has effectively evolved to facilitate the translation of study findings into American Academy of Pediatrics practice guidelines and policies and the fulfillment of the network’s mission “to improve the health of children and enhance primary care practice by conducting and fostering national collaborative practice-based research.”

PROS began with descriptive studies of unanswered questions in pediatrics (the first involving 102 practices) and progressed to randomized clinical trials testing practice-based interventions to improve care. The landmark Girls Puberty Study demonstrated that widely accepted norms for the onset of puberty required revision, prompting policy change. An observational study comparing alternate strategies to treat febrile infants in primary care practice showed that many could be managed conservatively, inspiring development of a new guideline. The first of many PROS randomized clinical trials, involving 124 practices, found that guidance offered by pediatric practitioners at primary care visits resulted in decreased media exposure for children and safer firearm storage. Overall, PROS studies have addressed such varied topics as newborn nursery discharge, child abuse, mental health care, obesity treatment, smoking cessation, and the use and impact of patient portals.

As studies progressed, practitioners joined PROS as the network grew to its current size of >1700 pediatric clinicians (89% pediatricians, 10% nurse practitioners, and 1% physician assistants) at >700 practices caring for >2.7 million children in all 50 states. Diverse practice models

are represented, including solo practitioners, larger groups, and academic and community health center sites, and single specialty and multispecialty practices in varied settings. Interested practitioners join PROS by completing a brief questionnaire; they can participate in the studies that interest them, and not all members of a practice are required to join. PROS staff and study investigators provide training and support to participating practitioners, and studies are designed with extensive input from practitioners to ensure feasibility. PROS practitioners consistently report that the benefits of participating warrant their time and effort. In a 2003 survey, 94% valued contributing to the advancement of knowledge and practice, 72% the intellectual stimulation, and 53% camaraderie with local and national colleagues. An example from one of the authors’ practices (BS) illustrates the practicability of PROS research: for the Secondary Sexual Characteristics in Boys study, 42 pediatricians collected data during the busy summer “check-up season,” easily enrolling the target number of patients in a few weeks. Boys and their parents were overwhelmingly willing to participate. Building on previous successes, PROS now looks forward to maintaining its core strengths, broadening the tools available to researchers to inform and improve practice, and increasingly engaging the pediatric community in this work. The process for investigators and practitioners to initiate and participate in PROS studies is shown in Fig 1. To achieve these goals, PROS’s research strategy centers on the continued conduct of randomized trials, the expanding use of electronic health records (EHRs) in research, and the launch of a panel study of PROS practitioners.

FIGURE 1
From idea to PROS study. Study ideas can originate from researchers or clinicians. In the latter scenario, the clinician is paired with an experienced investigator to move ideas forward. The process from suggestion of an idea for a typical PROS project (eg, intervention study) to grant submission takes ~1 year. *Physicians (MD, DO), nurse practitioners, and physician assistants are eligible to join.

CLINICAL TRIALS
Randomized trials of national scope in pediatric primary care remain central to PROS’s future. PROS offers the ideal venue to demonstrate the broad generalizability of practice-based interventions. Through the PROS review process, investigators bring proposals and pilot results to PROS leaders, practitioners, and a parent representative. They receive feedback and ongoing consultation from PROS members that help to refine protocols to fit practice workflows and the sensibilities of varied practitioners. We have added parents, and we expect to add youth as advisors in coming years. To lead future studies, we encourage inquiries from all interested investigators. Over its 3 decades, in addition to involving hundreds of pediatricians and thousands of children and parents, PROS has been a research venue for >80 published studies by >45 first authors from >20 institutions. These investigators benefit from PROS infrastructure support for core staff and network meetings as projects are planned and then partner with PROS to compete for the study-specific grant funding needed to answer new questions.

STUDIES OF EHRs
As a complement to prospective trials, PROS has assembled over the past 5 years EHR data from partnering sites and health systems to create the Comparative Effectiveness Research through Collaborative Electronic Reporting Consortium.5 This consortium, developed to address questions of medication safety and effectiveness in pediatrics and capable of supporting research on a wide range of topics, has joined EHRs from >1.2 million children from 222 practice sites (including large health systems and independent practices) in 27 states. PROS plans to continue to build the Consortium by partnering...
with additional pediatric practices, health systems, and vendors capable of sharing EHR data. In addition, through an established governance process, investigators are encouraged to propose questions answerable through consortium data, including the use and side effects of pediatric medications, patterns of care delivery, and the impact of policy change (eg, new guidelines) on practice. Investigators may also want to combine secondary data studies with prospective data collection from practices to better contextualize findings.6

A NEW PANEL STUDY OF PROS PRACTITIONERS

Over the next year, PROS will also be launching a PROS Panel designed to obtain survey feedback from PROS practitioners on topics salient to and helpful for their practice. Starting with existing PROS practitioners and expanding to new members, those participating will complete brief surveys regarding timely practice issues and emerging parent concerns (eg, Zika virus) and changes in the practice environment (eg, telemedicine). PROS Panel members will help to identify unanswered questions in pediatric practice, learn how their views compare with others, and shape new large-scale studies PROS might undertake.

In addition to diversifying the types of studies the network can support, PROS is also open to a wider range of research. Studies suggest that children receive <50% of recommended ambulatory care services.7 To improve quality, rigorous research is needed regarding what interventions foster high-quality care and how these interventions should be delivered to maximize impact and limit burden. This vision for PROS emerges amid ongoing challenges to practice-based research. Impactful proposals are needed to compete effectively for tight funding. As the US population becomes increasingly diverse, PROS has prioritized addressing the needs of broad populations of children and welcoming the expertise of practitioners and investigators from varied backgrounds. We will emphasize collaboration across disciplines to ensure that research teams have the right combination of methodological expertise, for example, in cross-cultural communication, to best advance child health and health care. PROS is building a Transdisciplinary Advisory Group to help foster this collaboration. Finally, pediatricians are increasingly part of health systems and large group practices, rather than the small, physician-owned practices that previously predominated. By working with health systems, providing flexible options for participation, and offering continuing education and maintenance of certification credit when possible, we hope to continue to make PROS attractive and rewarding to pediatricians, including those early in their careers.

PROS investigators and practitioners have been rewarded for thirty years through participation in practical, relevant studies that have informed care and bettered child health. PROS now has broadened its scope of research to achieve these goals in the context of growing pressures on children, families, pediatricians, and researchers, adding a wider range of options for involvement while partnering with an expanded group of stakeholders. Whether you are a researcher with innovative study ideas or a pediatric practitioner who wants to help generate new knowledge to guide care, PROS welcomes your participation.

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ABBREVIATIONS

EHR: electronic health records
PROS: Pediatric Research in Office Settings

REFERENCES


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Alexander G. Fiks, Benjamin Scheindlin and Laura Shone

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