

Behind Schedule: Improving Access to Care for Children One Practice at a Time

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ABSTRACT. Access to health care, the timely use of personal health services to achieve the best possible health outcomes, remains a fundamental problem for children in the United States. To date, research and interventions addressing children's access to care have largely focused on policy-level features of the health care system (such as health insurance and geographic availability of providers) with some, although limited, success. Ultimately, access to health care implies entry into the health care system. Practice scheduling systems are the point of entry to primary care health services for children and thus directly determine access to care in pediatric and family medicine practices. Here we explore the rationale for improving access to care for children from an additional angle: through improving practice scheduling systems. It is our hypothesis that some of the most promising contemporary interventions to improve children's access involve improving primary care scheduling systems. These approaches should complement successful policy-level interventions to improve access to care for children. *Pediatrics* 2004;113:e230–e237. URL: <http://www.pediatrics.org/cgi/content/full/113/3/e230>; *primary care practices, access to care, quality improvement.*

ABBREVIATIONS. IOM, Institute of Medicine; QI, quality improvement; SCHIP, State Children's Health Insurance Program.

Access to health care is "the timely use of personal health services to achieve the best possible health outcomes."¹ This definition, developed by the Institute of Medicine (IOM), underscores the importance of "timeliness" as a feature of good access to care. Unfortunately, access to health care remains a fundamental problem for children in the United States, especially when viewed in terms of timeliness. A recent study by the Centers for Disease Control and Prevention revealed that only 18% of US children receive all recommended immunizations without delay in the first 2 years of life.² It therefore is fitting that, in its report on improving health care quality, the IOM included timeliness as

1 of 6 critical aims to improve the US health care system.³

The IOM definition of access to care also highlights the importance of using outcomes, not solely utilization, in research on access to care. For the pediatric population, preventive services are among the best indicators of good access to care.^{4–8} Immunizations and screening are evidence-based health services for young children, standardized through national recommendations from professional organizations and governmental agencies.^{9–11} Parent and patient satisfaction is another important access-related outcome, because it measures the unique perceptions, experiences, and desires of the recipients of pediatric health services.¹²

Shortcomings in these outcomes indicate that access to care remains a major problem for children in the United States. In 2001, only 77% of 19- to 35-month-old children in the United States were up to date on the Centers for Disease Control and Prevention 4:3:1:3 series (which includes diphtheria-tetanus-pertussis, polio, measles-mumps-rubella, and *Haemophilus influenzae* type B vaccines).¹³ In North Carolina private practices, only 39% of 24- to 30-month-old children were up to date on 3 of 4 recommended preventive services (immunizations and lead, anemia, and tuberculosis screenings), and only 8% were up to date on all 4 of these preventive services.¹⁴ Additionally, in practices participating in national quality improvement (QI) initiatives, we have found that only half of parents rate the overall quality of their child's visit as excellent. These data are consistent with national figures on parent satisfaction with pediatric care.¹⁵

For many segments of the child population, the access problem is complicated by health disparities. Health disparities are defined as between-group differences in the quality of health care that are not due to clinical appropriateness, need, or patient preferences.¹⁶ Access problems for children likely play a key role in health disparities. Studies demonstrate that poverty and minority status are clearly related to poor access to care in the United States. In fact, poor and minority children have substandard access to care even when they have health insurance. For example, poor children are less likely to have a usual source of health care, less likely to have continuity of care with their clinician, and more likely to have unmet health needs than nonpoor children despite being insured.^{17–22} Thus, it is not surprising that poor

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The views presented in this article are solely those of the authors.

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and minority children are less likely to receive all recommended vaccines by 2 years of age, with immunization rates that are 5% to 11% lower than nonpoor or white children.²³

To date, research and interventions addressing children's access to care have focused largely on policy-level features of the health care system such as health insurance and geographic availability of providers. In 1994, the IOM noted that, "As a whole, indicators of access to personal health care services provide little encouraging evidence of progress. . . stagnation is the single best word to characterize our current state."¹ Certainly, the creation of the State Children's Health Insurance Program (SCHIP) is a sign of progress for children's access to care since the IOM report. However, it may not be appropriate to conceptualize the access-to-care problem for children as one solely of deprivation (eg, lack of health insurance and/or lack of physicians). Viewed this way, the solutions tend to be limited to adding resources (eg, more financial resources or more physicians). Although reducing policy-level barriers continues to be an appropriate goal, increasingly there is evidence that the contemporary focus should also include re-designing systems of care to better fit the needs of children and their families.

Here we explore, through published studies as well as our empirical observations, the rationale for addressing the access-to-care problem for children from an additional perspective: primary care scheduling systems. Scheduling systems are often viewed simply as an appointment template or a computerized list of appointment slots. However, these systems are actually a complex set of processes that involve multiple staff and multiple rules and constraints with 1 common aim: to allow a patient and a clinician to interact to address the patient's health needs. It is our hypothesis that some of the most promising contemporary interventions to improve children's access involve individual clinicians and primary care practices improving their scheduling systems. Such approaches should complement successful policy-level interventions to improve access to care for children.

A FRAMEWORK FOR UNDERSTANDING DETERMINANTS OF ACCESS TO CARE FOR CHILDREN

Although there is no universally accepted method to classify the numerous factors that affect access to care, the framework described by Anderson and Aday²⁴ in 1974 has proven to be a useful means to understand this complex concept. In the Anderson and Aday framework, determinants of access are categorized as:

1. Policy-level features (financing of health care [eg, insurance coverage] and workforce issues [eg, physician availability]);
2. Health delivery system features (resources [eg, personnel and capital] and organizational factors [eg, scheduling]); and
3. Population features (predisposing factors [eg, age], enabling factors [eg, income], and need factors [eg, health status]).

Determinants of access to care are divided further into those that are generally considered mutable (eg, workforce policy) or immutable (eg, a patient's age).

We have adapted the Anderson and Aday model to highlight some of the key determinants of access to primary care for children (Table 1). To date, little attention has been directed at the second category in this framework, health delivery system features. Yet, unlike policy-level and population features, health delivery system features, specifically scheduling systems, may be some of the most mutable factors to target, because these factors are directly controlled by physicians and other health care professionals. Research focusing on scheduling systems may identify heretofore unexplored means to improve access to care for children.

RESEARCH AND INTERVENTIONS TO DATE: A FOCUS ON POLICY-LEVEL FEATURES

Health Insurance Coverage

A substantial body of literature demonstrates that health insurance coverage is a major determinant of access to care for children. Uninsured children have fewer medical visits, are less likely to receive preventive services, are less likely to have a usual source of care and continuity of care with a regular physician, have more unmet health care needs, and have lower satisfaction with their health care.^{19,21,25-27} Additionally, recent studies on the impact of SCHIP demonstrate the positive effects of health insurance for children, including increasing the number of medical and preventive care visits, increasing the likelihood of having continuity of care with a regular physician, increasing preventive service rates, and decreasing unmet health care needs.²⁸⁻³¹

The federal government has made insuring US children a major priority in recent years. The expansions of Medicaid coverage and the implementation of SCHIP have been a significant step in pursuing greater health insurance coverage for children. Indeed, the percentage of uninsured children has steadily declined in the United States from 17.8% in 1987 to 10.6% in 1996 and to 7.8% in 1999.^{15,27,32} Implementation of SCHIP may further reduce the number of uninsured children in the coming years.³³

TABLE 1. Key Determinants of Access to Primary Care for Children (Adapted From the Aday and Anderson²⁴ Framework)

Policy Level	Health Delivery System	Population
Health insurance coverage	Primary care practice organization (scheduling systems)	Poverty/minority population membership
Geographic availability of child physicians	Primary care practice resources (personnel, capital)	Parental propensity to seek care/health beliefs Child health status

Geographic Availability of Child Physicians

The geographic availability of physicians is another important policy-level determinant that affects access to care for children. For example, children living in counties with lower primary care physician supply are more likely to use emergency departments as their usual source of acute care.²⁰ After World War II, US policy focused extensively on increasing the health workforce supply, particularly via workforce programs such as the National Health Service Corps.¹ These efforts have resulted in 91% of US children having a usual source of primary care.^{15,27} Additionally, recent trends suggest some improvement in the geographic availability of pediatricians for rural children.³⁴ However, many rural and inner-city urban areas still have fewer primary care physicians, especially pediatricians.³⁴⁻³⁸

In summary, improving policy-level features of our health care system is necessary and extremely important but has not been sufficient to assure good access to care for children. As we continue to support improvement in policy features of our health care system, we believe it is time now to explore the role of health delivery systems, specifically scheduling, in improving children's access to care.

THE RATIONALE FOR SCHEDULING-SYSTEM EFFECTS ON ACCESS TO CARE FOR CHILDREN

According to Donabedian,³⁹ ultimately, access to health care implies entry into the health care system. Practice scheduling systems are the point of entry to primary care health services for children and thus directly determine access to care at the practice level.

Figure 1 is a conceptual model that demonstrates the influence of scheduling systems on utilization and health outcomes in pediatric practices. Although there is no established definition of practice-level access, we will define practice-level access as the ability of children and families to obtain care from their primary care clinician when they need it. Scheduling-system effects on practice-level access can be measured directly by assessing waiting times for an appointment, continuity of care, waiting times during the office visit, and visit lengths. It also can be measured indirectly through inappropriate utilization patterns such as using urgent care centers or emergency departments for nonurgent needs and not keeping appointments (sometimes called "no-shows").

As demonstrated in the model, the patient population's need for care generates practice demand for care. Scheduling systems must attempt to match this

demand with an equal supply of care (appointments). Scheduling systems directly determine access to care at the practice level by determining:

- how soon the interaction occurs relative to recognition of a patient's need for care (time to appointment);
- with whom the patient will interact (continuity of care);
- how long patients have to wait in the office to be seen by a clinician (office waiting time); and
- the length of time available for the clinical interaction (length of visit).

Practice-level access problems (often called access barriers) such as long waiting times for appointments result from flaws in scheduling systems. These problems can be exacerbated by mismatches between the daily demand for care and the daily supply of appointments. When scheduling systems lead to poor practice-level access, they can affect the appropriate utilization of primary care services (eg, excess use of urgent care centers and emergency departments because patients decide they cannot wait any longer for care) or underutilization of services (eg, unmet needs due to no-shows because patients forget appointments scheduled in the past).

Practice-level access problems can also adversely influence the clinical interaction (between patients and clinicians) and thus, ultimately, health outcomes. For example, low continuity of care results in numerous clinical interactions between patients/families and clinicians with whom they are not familiar, which reduces parent satisfaction.⁴⁰ In the following section, we review the literature on practice-level access barriers and their relationship to utilization and outcomes.

RESEARCH RELATED TO PRACTICE-LEVEL ACCESS

Research on practice-level access has primarily involved limited numbers of participants, single practice settings, and practice settings outside the United States. Nevertheless, when viewed in aggregate, research suggests that there are substantial scheduling-related access problems in practices that care for children, including delays in the time to appointment, low continuity of care, long office waiting times, and inadequate visit lengths.^{4,8,18,26,40-46}

Delays in the time to appointment seem to be common and affect access-related utilization and outcomes. There are no published studies describing the actual timeliness of appointments in pediatric or

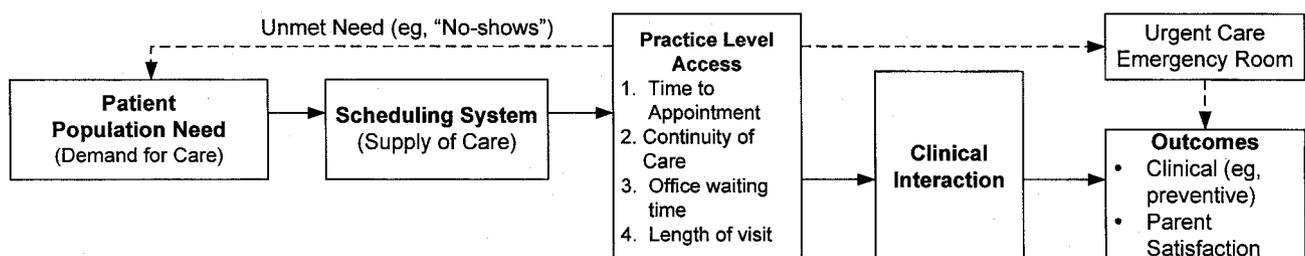


Fig 1. Conceptual model demonstrating the influence of scheduling systems on access to care for children.

primary care practices. In our QI work with private practices in North Carolina, we have found delays for preventive care for children to be 4 to 5 weeks. Studies reflecting the patient experience also suggest that existing scheduling systems cause substantial delays in receiving appointments.^{42,43} For example, a qualitative study of mothers who use health departments for well-child care found that children often had to wait 4 to 6 weeks for their well-child appointments and immunizations.⁴² If they had to reschedule for any reason, they usually faced an additional 4- to 6-week delay. Not surprising, the most-common reason that patients report seeking care in urgent care centers is the failure to obtain a timely appointment with a primary care physician.⁴⁷ Delays in time to appointment also affect utilization and outcomes. For example, no-show rates are associated with longer delays for appointments.⁴⁸ Additionally, a population-based study of parental reports of barriers to immunization services found that difficulty obtaining a timely appointment was associated with lower immunization rates.⁴³ A survey of 21 905 patients in Great Britain showed that patient satisfaction dropped sharply when they had to wait more than the next day to be seen by their provider.⁴⁹

Low continuity of care seems to be prevalent and affects access-related utilization and outcomes. Existing scheduling systems result in low continuity of care for children: 15% of children do not have a primary physician at their usual source of care, and only about half of children see their primary physician at any given visit.^{4,8,26,40} Even in universally insured populations, continuity with one's physician is low for children (60%–74% of visits being with their primary physician), especially among socially disadvantaged children.¹⁸ Numerous cross-sectional studies have documented the association of higher continuity of care with improved utilization in primary care settings, including better treatment compliance, lower emergency department usage, and lower hospitalization rates.^{4–8} A study in an academic family medicine clinic found that improving continuity of care increased patient satisfaction.⁵⁰ In 2 cross-sectional studies in a pediatric clinic, Christakis et al^{40,41} found that higher continuity of care was associated with greater parental satisfaction with care and greater parental perceptions of coordination of care. Similar findings linking continuity of care to patient satisfaction have been demonstrated in Great Britain.⁴⁹

Long office waiting times seem to be prevalent and affect access-related utilization and outcomes. There are no published studies describing actual office waiting times in pediatric practices. However, based on unpublished data from private practices in North Carolina, we have found office waiting times to be ~1 hour. In addition, studies of patients' experiences suggest that existing scheduling systems frequently lead to long office waiting times. The aforementioned qualitative study of mothers in health departments found that mothers reported long waiting times (up to 3 hours) to receive well-child care.⁴² A study of nonurgent visits by children in 2 urban emergency departments found that long office wait-

ing times was a commonly cited reason that parents chose the emergency department for care.⁴⁴ Also, the previously cited survey of 21 905 patients in Great Britain showed that patient satisfaction dropped sharply when patients had to wait >5 minutes to be seen in the office.⁴⁹

Existing scheduling systems may lead to inadequate visit lengths. Clinicians commonly report that visit lengths are inadequate to deliver recommended primary care services. Worse, the percentage of physicians reporting inadequate time for patient care increased from 28% in 1997% to 34% in 2000.⁴⁵ Although the length of primary care visits has remained ~15 minutes, there is evidence that the time needed to provide the growing list of recommended evidence-based services far exceeds 15 minutes.^{51,52} Importantly, physician perception of inadequate visit lengths is associated with lower physician satisfaction.⁴⁶ A study of general practitioner visits in Great Britain found a similar pattern of dissatisfaction with visits influenced by time pressures.⁵³

In summary, nascent research in discrete populations indicates that scheduling systems produce important access barriers for children. Delays in obtaining a timely appointment, long office waiting times, low continuity of care, and inadequate visit lengths all act to disrupt patient-clinician relationships and ultimately impede the timely use of personal health services to achieve the best possible health outcomes.

WHAT IS KNOWN ABOUT PRACTICE SCHEDULING SYSTEMS

Research related to scheduling systems in pediatric practices is in an early stage of development with no common nomenclature for scheduling types used in practices. The ability to classify scheduling systems would increase the breadth and quality of research in this area. For example, researchers could determine whether certain scheduling systems provide better access to care and whether different interventions are needed to improve certain types of scheduling systems. Currently, there are no published descriptions on the most common types of scheduling systems used in primary care practices, including pediatric practices. A search of Medline from 1966 through May 2003 using search terms "appointments and schedules," "personnel staffing and scheduling" and "primary health care," or "physician's practice patterns" yielded 515 English-language articles. However, none of the articles described scheduling systems used in practices or methods to classify those scheduling systems.

Based on the authors' experiences with hundreds of practices involved in practice-based research and QI initiatives, we have identified 2 general types of scheduling systems in pediatric practices.^{54,55} In the most common systems, approximately one fourth to one half of the daily appointments are saved for acute care visits. Holding appointments for acute care results in children having to wait weeks or months for preventive and chronic-disease care with their primary clinician (or waiting somewhat shorter times for an unfamiliar or less-familiar clinician). In the less-common systems, children must see a "doc-

tor on call," usually not their clinician, if they want to be seen the same day for an acute illness or wait several days to see their primary clinician. Patients still often wait weeks for preventive and chronic-disease care. In both systems, patients are frequently confronted with the choice of delaying care or not seeing their primary clinician. Research based on adult health care visits suggests that many patients will forgo seeing their primary clinician if they have to wait for care.⁵⁶ Although helpful, these observations about pediatric practice scheduling types are likely incomplete. Research is greatly needed in this area.

SCHEDULING-SYSTEM INTERVENTIONS ARE FEASIBLE AND EFFECTIVE

The literature and experience from other industries, for which emphasis on scheduling is driven by its impact on quality and cost-effectiveness, offer an important example of the importance of improving scheduling systems. The manufacturing industry has worked with scheduling problems extensively during the past century and has made progress in reducing waiting times, waste, and damaged goods and in optimally using personnel.^{57,58} Health care organizations are now beginning to use operations research and knowledge from other industries to improve scheduling. For example, a large children's hospital recently conducted a demand analysis of their intensive care unit and found that most of the variation in daily admissions was due to scheduled surgical procedures.⁵⁹ They learned that intensive care admission rates thus could be manipulated to optimize resource allocation. A small number of interventional studies in selected settings suggest that changes in scheduling processes may result in improved access to care. A family medicine resident clinic improved continuity of care by changing resident schedules to shorter shifts across 4 to 5 days.⁶⁰ General practitioners in Great Britain improved screening for hypertension and alcohol abuse when compared with control physicians through a simple intervention to increase the time scheduled for preventive visits by 5 minutes.⁶¹ However, patient-reminder systems and open-access scheduling (sometimes called advanced access) are 2 of the most promising scheduling interventions to improve access to care for children.

Patient-Reminder Systems

Patient-reminder systems are rather simple, but effective, scheduling interventions that can improve outcomes for children. Patient-reminder systems include mailed, electronically mailed, or telephoned messages to families sent before prescheduled appointments. The literature on reminder systems shows a consistent effect on reducing patient no-show rates in a variety of settings and reminder types (mailed versus phone).⁶² In addition, a systematic review of reminder/recall systems showed that they are effective in improving immunization rates.²⁸ Additionally, there is evidence that reminder/recall systems can reduce ethnic and geographic disparities

in immunization rates when combined with community outreach.⁶³

Although effective, reminder systems are an incremental improvement. Although reminder systems do help families remember future appointments that are necessary (eg, a 6-month well-child visit, which should not occur until the child is 6 months old), they primarily compensate for flaws in existing scheduling systems that result in unnecessary delays for appointments. A preferable approach would be to eliminate unnecessary delays altogether.

Open-Access Scheduling

Open-access scheduling was developed at Kaiser Permanente in the early 1990s.^{55,64} This scheduling intervention is designed to address several flaws in existing scheduling systems through 3 key changes:

- Practices offer patients same-day access to an appointment regardless of the nature of their problem (routine, preventive, or acute);
- Practices offer this same-day appointment with the patient's primary clinician; and
- Practices attempt to eliminate all waiting time within the office.

A key principle for achieving and sustaining open-access scheduling is the ability to match visit supply and demand on a daily basis. The underlying theory is that demand is predictable. Murray and Tantau^{55,64} have used empirically derived data to document that the demand for pediatric appointments can be approximated: (number of patients in population) \times (0.008) = daily demand for appointments. However, practices must adapt this "generic" estimation to accommodate variation in daily and seasonal demand (eg, Mondays and Fridays and winter months usually have higher volumes).⁶⁵ Open access usually requires substantial redesign of scheduling systems and related operations within a practice.^{54,66} Implementation also requires substantial psychological adjustments for practice staff, because the system conflicts with long-held physician and staff views that waiting is acceptable for patients who do not have urgent problems. Currently, learning and fully implementing open access typically requires 6 to 9 months. Despite these challenges, thousands of practices have implemented open-access scheduling successfully in diverse settings including academic, public, and private practices.^{54,66} Recently, the Veterans Administration successfully used the open-access scheduling approach in ~10 000 outpatient practices to reduce waiting times for appointments in these practices by 41 days (M. Schall, MA, Project Director, Veterans Affairs Advanced Clinic Access Initiative, verbal communication, June 23, 2003).

Open-access scheduling is often implemented by using a continuing education method called a "learning collaborative." Consistent with the literature on physician behavior and practice change, this approach combines didactic teaching with QI methods to address multiple barriers to change.^{67,68} Typically, collaboratives include multidisciplinary practice teams (usually a physician, nurse, and administra-

tive staff member) from 20 to 40 practices working together on open-access scheduling for 6 to 12 months. In open-access scheduling collaboratives, practices progress through a series of steps including:

1. Collecting data to measure supply and demand: Initially, practices collect data to assess patient demand for care as well as their capacity to supply appointments (including tracking calls for appointment requests, appointments available by day of week, and practice patient-population size).
2. Reducing waiting time for appointments: Practices reduce delays for appointments by temporarily increasing their daily appointment capacity and/or improving office efficiency through redesigning office processes.
3. Converting to same-day scheduling and improving continuity of care: After reducing waiting times for all appointments to <1 week, practices can offer same-day appointments to all patients regardless of urgency. Continuity of care is improved by an explicit effort to match patients with their primary clinician by patient panel assignments (eg, by using standardized phone protocols for staff involved in scheduling). Continuity of care is also improved due to reduction in appointment waiting times such that patients no longer have to choose between seeing their own clinician or being seen sooner by another clinician.
4. Matching daily appointment supply to demand: Practices use statistical prediction methods to forecast daily demand for visits to guide the daily supply of appointments.
5. Sustaining open-access scheduling: Practices implement office-efficiency improvements and design contingency plans (eg, a plan to manage the schedule of a clinician before and after vacations or after an unexpected staff member absence) to assure sustainability.

Open-access scheduling seems to be spreading rapidly in US primary care practices.⁶⁶ Unpublished reports from the Institute for Healthcare Improvement and the National Initiative for Children's Healthcare Quality (2 nonprofit organizations that assist practices and health systems with QI) suggest that open-access scheduling can reduce delays for appointments, reduce waiting times within offices, and improve continuity of care. In addition, published case studies suggest that practices implementing open access also improve clinical outcomes and patient satisfaction.^{66,69} However, to date, open-access scheduling has not been evaluated rigorously in health services research.

CONCLUSIONS AND IMPLICATIONS

For many years, child health service researchers have called for a greater focus on health delivery system interventions to improve access to care for children.^{70,71} Indeed, in 1994, the IOM concluded that "insurance and provider availability are necessary, but not sufficient, for obtaining access to care."⁷¹

Yet, nearly a decade later, most access research and interventions for children have focused on these policy-level issues. Certainly it is appropriate for pediatricians to continue to promote the substantial progress to alleviate situations in which children lack health insurance or available providers. However, we believe research and intervention must now be expanded to include health delivery system interventions as well. We should aim to develop systems of care that are timely rather than delayed, with a personal clinician rather than a "doctor on call," and in the medical home rather than in other settings such as urgent care centers or emergency departments. These aims can be fully achieved only if primary care practices redesign their scheduling systems.

It is important to stress the critical role of pediatricians and family physicians to lead improvements in practice scheduling systems. In a landmark report on improving health care quality, the IOM challenged physicians to be creative and innovative by testing changes in existing practice systems. The role of physicians as "champions" of change cannot and should not be underestimated.⁷² We should measure practice accessibility (such as the number of days patients have to wait for an appointment for preventive care) as well as outcomes related to the accessibility of our practices (such as patients' satisfaction with waiting times in the office). Examples of simple measures successfully used in community practices to guide this work are available and published elsewhere.⁵⁴ In addition, practices should elicit input from parents to design better scheduling systems that more closely meet the needs of families.

We have witnessed numerous practices use these approaches to make striking improvements in their scheduling systems, even in some of the most challenging settings. For example, the Lumberton Children's Clinic in Lumberton, North Carolina cares for some of the most vulnerable rural children in North Carolina. This 15-provider private practice used a patient advisory counsel and regular measurements of practice-level access to motivate their entire staff to implement a patient-reminder system and, subsequently, open-access scheduling. After these changes, continuity of care (measured as the proportion of patients seen by their primary care clinician) increased from 45% to 85%, waiting time for preventive care was reduced from 3 weeks to the same day, and no-show rates decreased from 19% to 12%. These changes also improved outcomes that reflect good access to care: parent satisfaction with the overall quality of the visit increased by 25%, and immunization rates improved from 60% to 90% for children 15 to 20 months of age. An urban, private pediatric practice, Pediatric Consultants in Memphis, Tennessee, recently applied open-access scheduling to reduce their delay for preventive care from 80 days to the same day over a 6-month period. Continuity of care increased from 58% to 93% during the same period. In addition, the proportion of parents rating their satisfaction with the visit as excellent increased from 47% to 84%.

Managed care organizations, health systems, and

the federal government can also play an important role in promoting scheduling-system improvements. One way to stimulate improvements is for these stakeholders to support QI initiatives related to scheduling systems in primary care practices. Encouraging and enabling practices to measure indicators of their practice-level access should also stimulate improvement. In our work with practices, we find that clinicians often overestimate their practice's performance. Measurement and accountability can be a powerful stimulus for change among clinician leaders.^{3,73} Finally, the federal government and other funders of health services research should promote research to assess the potential impact of scheduling-system interventions on access to care for children. This investment could lead to additional interventions to improve scheduling systems and, ultimately, access to care for children.

In summary, we have outlined the case for expanding our approach to improve access to care for children to include redesigning systems of care in addition to removing policy-level barriers. The available evidence suggests that practice scheduling systems will be an important new target as pediatricians continue to strive to improve access to care for children in the 21st century.

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