OBJECTIVE: In response to limitations in access to subspecialty care, I present personal observations and suggestions related to education of future pediatricians regarding development of critical thinking skills, care of complex and chronically ill patients, development of empathy, and restoration of responsibility that may help ameliorate this serious problem. Toward this end, I also offer 1 approach, a 24/7 telephone consultation network, for enriching interaction of primary care providers (PCPs) and subspecialists who can potentially provide rapid access to needed advice, reduce demand for subspecialty appointments, bolster decision-making and expertise, and realign resources with need.

METHODS: Data were obtained from 579 requests by PCPs for telephone consultation by subspecialists in 8 areas (including child psychiatry).

RESULTS: Of calls, 27% took <5 minutes and 79% took 5 to 15 minutes. Of calls, 28% resulted in a clinic visit; 8% prompted hospital transfer, hospital admission, or referral to an emergency department; and the remaining 64% resulted in continued management by PCP with reinforcement of the plan. Assuming most inquiries would have resulted in referral to a subspecialist were there no telephone consultation, we estimated that 70% (8+64%) of consultations realigned resources with need, resulting in large saving of unnecessary clinic visits, travel, expense to families, lost days at work, or missed school.

CONCLUSIONS: Development of rapid telephone consultation networks could provide increased access to care for those children in greatest need, use limited resources more efficiently, foster collegial and productive relationships between medical providers, and increase expertise of PCPs and subspecialists. Pediatrics 2012;129:961–967
I am incredibly honored by this recognition and particularly cognizant that it must be awarded to someone who is “currently active in pediatrics,” because I intend to continue to address concerns raised in this presentation, while hoping to engage others to do so also. I use this opportunity to share some concerns regarding the state of pediatrics that highlight fundamental problems we must rectify if we are to remain an enticing specialty for future physicians to dedicate their careers and a vibrant profession for our children to entrust their health and welfare.

Because we provide a public service as pediatricians, our problems are public. Accordingly, I call your attention to 3 articles in the public domain that highlight a major issue: the access to our services. These newspaper articles certainly caught my attention and likely reflect the experience of countless families.

An article in the *New York Times*, focused on graduate medical education, describes the growing shortage of pediatric subspecialists in the United States. The author, a pediatric pulmonologist, uses his specialty as the example to show that there are only 751 practicing pediatric pulmonologists in the United States (1/100,000 children), and Alaska, Idaho, Montana, and Wyoming, with an aggregate population of 941,000 children, have no pediatric pulmonologist. He also states that this shortage is applicable to other pediatric subspecialties.1

A particularly poignant story is told in the *Washington Post* by a reporter in search of a physician for his daughter.2 The author describes the difficulty finding a pediatric rheumatologist even in a large metropolitan area and the factors well out of the control of families, eg, limited number of practitioners, that influence availability of physicians in certain specialized fields.

To complete the trio and summarize the problem, an article in the *Wall Street Journal* reveals that 17 states have no subspecialists in at least 1 field.3 A very stark table with 13 pediatric subspecialties in rows and 17 states in columns reveals 57 instances where there are no subspecialty clinicians in a particular state. Eight states lack clinicians in 3 or more subspecialties, and 3 lack clinicians in 7 or more disciplines.

From these commentaries and my observations, here are some serious considerations to ponder: Some subspecialists are overwhelmed by demand for services. Many complain they are seeing patients whose problems do not warrant their services, eg, referral of a child with constipation to a gastroenterologist.4 Others simply erect barriers or filters for triage. The triage has a very clear rationale when the subspecialist needs information about the patient to determine urgency and establish priorities for oversubscribed services. However, depending on how it is enacted, this process can be time consuming to complete documents, viewed as insulting because it is perceived as questioning the judgment of the referring practitioner, and frustrating when a family is anxious to obtain definitive answers. Many primary care providers (PCPs) have no ready access to subspecialty services for their patients; some in urban areas complain they must jump through hoops to justify consultation, and others in rural areas simply have no subspecialists to contact. This limited access is certainly exacerbated when the child is covered by government rather than private insurance. Indeed, a recent article surveying access to subspecialists revealed that 66% of Medicaid-Children’s Health Insurance Plan callers were denied an appointment in contrast to 11% of those with private insurance.5 Furthermore, those clinics that accepted both types of insurance had a wait time that was 22 days longer for the government-insured children.

To summarize without intending to simplify, (1) we have a maldistribution of human resources6,7; (2) there is often antipathy among physicians, perhaps fueled by the shortage of some subspecialty physicians and limited accessibility of others; (3) some general pediatricians are uncomfortable with management of certain common problems; (4) some general pediatricians are uncomfortable with care of patients with complex problems or are unable to dedicate needed time/resources; and (5) subspecialty expertise needs to be more accessible. This maldistribution of subspecialty pediatricians and the collateral consequences has serious repercussions for our discipline. What are the solutions? Not the cloning of more subspecialists! For sure, simply increasing the number of subspecialty physicians alone does not improve the problem as well articulated in a thoughtful article on the distribution of pediatric subspecialty care.7 There are perhaps more nuanced approaches that address contributing factors other than physician supply. Rather than having every child with a “subspecialty” problem sent for an appointment with the subspecialist, perhaps there are means to develop or increase confidence in a management plan while strengthening appropriate clinical practice and reducing demand for some services while providing expertise where and when it is needed. More on this later when I recount how we recently have explored a different approach that has helped cope with the rapidly increasing and expanding population in North Texas with many children who have a limited access to care in both urban and rural settings.

For now, I would like to offer 5 suggestions that could make a substantial improvement in a huge problem over which we have considerable control. These include how we teach students and residents and how we might...
Let's reorganize the manner in which we engage with one another as colleagues. Let's first bolster skills, knowledge, and confidence of those entering general practice and return responsibility of care to them with the appropriate support. Then let's foster, reinforce, and sustain interactions between primary and subspecialty clinicians and continually improve that care. In the process, we can reinforce good judgment and align crucial human resources with need for services.

1. We Should Set an Example by Teaching and Insisting on Critical Thinking.

There are countless opportunities where we, as teachers, can cultivate critical thinking during daily engagement with our professional progeny. With every interaction we should expect students and residents to think and state why, not just what, when they are describing their assessment and proposing a plan. When there has been a change in a patient's course, we should not accept mere reporting of the events without interpretation by the learner, because this will not promote the foundation and skills necessary for functioning as an independent practitioner. We should not accept a litany of potential illnesses that could be obtained from a table of contents of a textbook as the differential diagnosis. Rather, we should insist on a rationale for each potential diagnosis. It is the analysis, not the mere recitation of information, that prepares one for critical thinking and guides subsequent inquiry. We must stop the incessant use of copying and pasting, which has become an unexpected retribution of the electronic medical record. Reasoning, if present in a note, has been buried by the barrage of text and laboratory data that is replicated multiple times and is occasionally erroneous. The mass of text has become the substitute for concise insight. It is time to recall that less is more. Instead of categorizing signs and symptoms, we should teach a resident how to characterize these from observation or response to intervention. This will permit the learner to draw inference about the nature of a problem and features unique to the particular patient. And, finally, with all due respect to evidence-based medicine, which, of course, I endorse, let's not equate knowing or reciting the weight of evidence with comprehending the basis for that evidence. As often presented, the evidence in evidence-based medicine can become a summary of a summary, which does not necessarily explain why the response to a treatment occurs. As each new study is incorporated into the evidence, the balance between opposing findings can become a teetering seesaw and one can get cognitive whiplash from the changing analyses or recommendations.8 Hence, it is essential for us and our students to understand the rationale for an intervention and how analogous the patient is to the subjects who were studied. Indeed, a deviation from an expected outcome or response may teach much about a particular patient and yield valuable insight into the underlying illness or problem. A fundamental component of critical thinking is the understanding of what data should be incorporated into formulation of the analysis. This reflection also prompts thought about subsequent questions to answer or data to glean.

2. We Should Focus Education on Complex and Chronically Ill Children.

These are a disaffected and growing population, and they need our attention. I have been distressed to hear it said by both faculty and residents that the patient is “too complicated” for us to manage. If that is the case, where does that leave the patient when he/she leaves the hospital. We cannot abandon these children who require a huge amount of resources and time; we will convey this message best by demonstrating our investment in them. We cannot expect parents to synthesize the disparate information provided by physicians who view the children through their respective highly focused lenses. It is not uncommon for the consultant to state that the child's problem is not referable to his area of expertise or alternatively, make a recommendation that must be considered with perspective to other problems or interventions. Some practitioner must be at the hub of these suggestions to sort, prioritize, and enact a plan. If we do not provide this type of commitment, many of our patients will bounce from 1 practitioner to another, which consumes medical resources, erodes trust, promotes frustration of families, and perpetuates or exacerbates unresolved problems. This is our responsibility.

3. We Need to Teach How to Engage Productively in Complex Decision-Making and How to Develop Empathy for Patients and Their Families.

To be an effective clinician requires the capacity to hear and understand the concerns voiced by the relevant individuals involved in the care of the child and to communicate clearly with them, to analyze complicating factors and reconcile competing forces, and to understand where the role of the physician starts and ends. I do not think these responsibilities can be triaged to consultants, a college of experts, or an ethics committee.

What do I mean? Let me illustrate with a story that, although fictitious, may sound familiar. Sebastian is an 8-month-old boy who was born at 32 weeks' gestation with gastroschisis and soon developed a grade III intraventricular hemorrhage. He was in the NICU for 6 months and had multiple operations to treat recurrent bowel obstruction. He
was unable to sustain sufficient growth with enteral feeding. He was treated with nearly total parenteral nutrition and subsequently developed hepatic insufficiency. He is now in the emergency department with signs of sepsis. His trachea is intubated, and he is receiving mechanical ventilation and vasoactive medications for support.

His parents are told by the emergency medicine attending physician that it would be futile to treat an infection; it would be difficult to eradicate an infection because he has received so many antibiotics, they are not sure they could find an intravenous route, and it would cause him pain to try many sites for vascular access. The parents are furious and want to be sent to another facility where the doctors will care for him or provide a liver transplant. The attending physician then refers to the “case” to the ethics committee.

Why did this happen? The parents were told at birth that “the child would not survive.” The parents were then told after the first bowel resection that “he could live long time on total parenteral nutrition,” especially “if he has 30 cm of functional bowel.” Now, they are told that “he is not likely to survive and care is futile.” It is not surprising that, as a result of all the contradictions and failed predictions, they have lost confidence in their infant’s physicians and perhaps in the medical profession as a whole. At the root of their perplexity, the infant has consultants from neonatology, neurology, neuro-surgery, gastroenterology, pediatric surgery, transplant surgery, and palliative care. However, there is no consistent care provider. There is no consistent message. The child does not need a committee. He needs a doctor!

4. We Must Find a Means to Restore Responsibility to Our Residents.

The largest risk to education with reorganization of training is not reduced contact time, it is the reduced ownership. There may be some ways to achieve this ingredient that is vital to education. We might create an extended practicum before completion of residency. We could forego last year of categorical training for those not entering fellowship and create a service corps with 24/7 care to a population in need. A resident could take calls at home from his/her colleagues regarding a patient for whom the resident has primary responsibility. If the calls are appropriately selective to provide essential information or a major change in course, a resident can retain a sense of responsibility and concern but still have the needed rest. Moreover, it would rapidly help shape an understanding of what information is important. We might attach this corps to residency program and establish competency, not time based, progress. This would be an opportunity for additional education without penalty. It could provide more sustainable salary. Finally it would permit the residents to develop metrics to follow quality of care, take investment and pride in success of the program, work as a team, and learn strategies for improving a group practice.

5. We Must Create Networks by Which We Readily Share Expertise So That Our Patients, Even Those at a Distance From That Expertise, Have Ready Access.

Let’s circle back to my opening salvo of newspaper articles; we can train pediatricians very well, I hope, but we will still have a huge number of children in need of services where there is not the needed expertise. We cannot simply add more subspecialists overnight, and if we did, they would still be likely to end up being distributed based on the desirability of the positions and not the needs of the population. How then can we improve availability of needed services? One means to ameliorate the impasse may be in front of us and is relatively simple and inexpensive. It is reminiscent of the manner in which we instill our trainees with decision-making responsibilities, progressive expertise, and independence, by reinforcing their judgment in response to their proposed strategies for management of a patient. A key element is the dialogue and personal interaction.

As promised earlier in this discussion, I would like to describe a program we created in my department that was primarily intended to serve Medicaid patients, although applicable to any patients: a rapid telephone consultation for any PCP to speak with a subspecialist within 30 minutes of his/her request. This service is provided 24/7 in most of the pediatric subspecialties, including child psychiatry and will soon include orthopedics. We learned that many clinical problems can be addressed with a relatively brief discussion in which a care plan can be reinforced, modified, or formulated and then enacted.

We do not take credit for being the first nor the only telephone consultation service, although our program has incorporated some unique features. There are certainly successful services focused on child psychiatry, most notably in Massachusetts.

In our first 500 calls, we learned that the mechanics can be quite efficient. Most conversations were < 15 minutes (27% were < 5 minutes; 79% were 5–15 minutes in our program).

We developed this network (Texas PASS) for many of the reasons I mentioned previously, but will recount briefly the elements of the rationale for this simple approach because they are important:

- Access is provided when it is needed. The patient is still at the office of the PCP who can act on the information without the need to search for the patient or family member for follow-up.
• Unnecessary subspecialty clinic visits are reduced, and an avenue for subsequent communication between clinicians is paved if the problem is not resolved.

• Travel time is eliminated for some families, and wait time is reduced for other patients; the risk of missed appointments or follow-up is reduced, which is a particular problem for families traveling a long distance; absence from work or school is reduced; and ultimately, the cost to a family is reduced.

• Cost of care is reduced,9 and there is more efficient use of resources. Unnecessary laboratory tests can be reduced, appropriate tests prompted, emergency department visits or patient transfers reduced, and necessary clinic visits or transfers prompted.

• Clinical expertise is improved. Appropriate decisions are reinforced during the conversation; incorrect decisions can be revised; uncertainty in medical decision-making can be reshaped; and continuing education can be guided toward what is needed.

• A collegial relationship can be fostered through the discussion. This will reduce barriers to interaction in the future and reduce critical errors by opening lines for communication.11

• Resources can be more efficiently aligned with clinical needs, a fundamental element. This has the byproduct of having providers feel they are using their expertise more effectively, which might prompt more personal satisfaction.

• The personal relationships that are prompted and reinforced and the knowledge of the health care needs in areas without sufficient resources might also serve as a basis for a clinical research network in the future.

Here I show some of the data related to performance and decision-making with this network (Fig 1). However, I would be remiss if I did not say from the outset that the success of this program has been because of the complete dedication of Carol Podolsky, the medical director, and Jeanne Nightingale and Nicole Santiago, the program coordinators. They provided the creativity, time and energy to launch the network, and the vigilance to ensure that operations functioned without a glitch.

In the first 23 months, we received 675 telephone inquiries of which 579 resulted in a telephone consultation and 98 were either for information only or services we did not offer. We started in July 2009 with 3 services (cardiology, gastroenterology, and psychiatry) so that we could ensure that operations were smooth before incorporating other specialties. We soon added infectious disease because we wished to be available for concerns over the H1N1 epidemic and then completed the complement of services by December of 2009. As is apparent from the time to ramp up utilization, we learned quickly that having created awareness of a resource, even 1 that is free to the PCP, requires considerable marketing efforts. Accordingly, we spent significant effort identifying and meeting with PCPs, developing a Web site, and distributing materials that described the services.

We were interested in offering a service to providers and their patients who did not have ready access to resources in an urban area. Our service covered a vast and varied geographic area of North Texas, encompassing a population base of >7 million people and an area with a diameter of over 300 miles. Figure 2A displays the services offered by subspecialty and reveals the location of those who used the network. We were particularly pleased that this brought access to rural locales, which suggests that a network might serve children who are quite distant from the academic medical center. Of the providers using the service, slightly more than 26% were family medicine physicians, 20% were nurse practitioners or physicians assistants, and the rest were pediatricians.

One measure of performance was rapidity of consultation (Fig 2B). We set a goal of 30 minutes for the telephone conversation to commence between the PCP and the subspecialty consultant. The average time was 11 minutes, and only 5% of the time did the connection between subspecialist and PCP take >30 minutes.

Another performance measure was satisfaction with the service. After each completed telephone consultation, a letter documenting the consultation was sent to the PCP for the patient

![FIGURE 1](image)

Texas PASS telephone consultations provided for Medicaid-enrolled patients versus other insurance during the period from July 2009 to May 2011. Number of consultations is shown on Y axis, and month of service is shown on the X axis.
record. Included with the letter was a brief satisfaction survey that the PCP was asked to complete and fax back. Of the 391 (68%) of the surveys returned, 386 providers found the service to be helpful, 1 disagreed and 1 strongly disagreed that the service was helpful, and 3 were neutral.

Most importantly for performance, we wanted to understand how this resource altered clinical decision-making and whether there was a realignment of resources with need (Fig 3). There was no means to know for certain what the PCP providers’ intent was with respect to the management of the patient even though we tried to gather such information. However, we know from other experience and data collected on previous telephone calls to our subspecialty services that these are almost always followed by a request to arrange a clinic visit with the subspecialist. With this as a plausible background for the intention and by using the first 579 consultations, the figure reveals that ~8% of the calls prompted a hospital transfer (we occasionally had calls from providers who were managing patients in the hospital), a hospital admission, or a referral to an emergency department. Thus, for this small fraction, the consultation necessitated use of a higher intensity resource. Another 28% resulted in a clinic visit after the telephone discussion; indeed, we presumed that the original intent of most calls was to obtain a clinic appointment. However, 64% of the calls resulted in continued management by the PCP with a reinforcement of the plan. Thus, by using the sum of 8% + 64%, we estimate that ~70% of the consultations realigned resources with need. Accepting the assumptions, this represents a large saving in unnecessary clinic visits, an increase in availability of resources that are crowded, access for those who need services at a distance from the medical center (perhaps hundreds of miles in some areas), and hopefully, the fostering of a collegial and productive relationship between medical providers. If we could develop a network such as this, certainly others can!

Now to end my comments on some of the lessons I have learned in my career, often the hard way.

1. Surround Yourself With People Smarter Than You...Then Look Over Their Shoulder.

I have emphasized this previously in a genetic diagram that reveals my immediate family of teachers.12 In addition
to my wonderful family who has taught me daily, my students, residents, and colleagues, including many of you in the audience, have been my teachers. I often told my fellows that 3 things can happen when I look over their shoulder: (1) they will do something right, and I will reinforce it; (2) they will do something wrong, and I will never let them forget it; or (3) they will teach me something new, and I will never let them know it (but I will embrace the novel idea).

2. Obtain Your Harshest Criticism From Your Family and Friends... Before the Anonymous Reviewers Have a Chance.

I genuinely believe that 1 of the true gifts we receive from our friends is valuable attention to our ideas and the unadorned critical input. The key is to use this critique rather than simply looking for approval.

3. When You Are the Editor of a Journal, Everyone Answers Your Phone Calls... When You Are the Editor of a Book, No One Does.

Having been the Editor of Pediatric Research and for Rudolph’s Pediatrics, I have learned this distinction well.

4. If You Are Viewed as an Authority, Be Very Careful About What You Say... Someone Might Listen to You.

Of course, at my age, fooling some of the people some of the time may be good enough for me.

5. The More You Say the Less People Remember.

This is a variation on an idea I stole from Abba Eban, the eloquent orator who served as Israel’s Ambassador to the United States, among other important roles. In an effort to impress his father when he arrived in this country, Eban, an avid golfer, wrote a note to show how well he had played in the company of a number of famous American Senators. His father, knowing little of golf, sent condolences when reading his son’s score, to which Eban wrote back “Kol hamosif goreia” or “the more you add, the more it takes away.”

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George Lister

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