PEDIATRICS®
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Peering Into the Future: Pediatrics in a Changing World

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Pediatrics published online Oct 18, 2010;
DOI: 10.1542/peds.2010-1890

Peering Into the Future: Pediatrics in a Changing World

abstract

Over the last decade, health care has experienced continuous, capricious, and ever-accelerating change. In response, the American Academy of Pediatrics convened the Vision of Pediatrics (VOP) 2020 Task Force in 2008. This task force was charged with identifying forces that affect child and adolescent health and the implications for the field of pediatrics. It determined that shifts in demographics, socioeconomics, health status, health care delivery, and scientific advances mandate creative responses to these current trends. Eight megatrends were identified as foci for the profession to address over the coming decade. Given the unpredictable speed and direction of change, the VOP 2020 Task Force concluded that our profession needs to adopt an ongoing process to prepare for and lead change. The task force proposed that pediatric clinicians, practices, organizations, and interest groups embark on a continual process of preparing, envisioning, engaging, and reshaping (PEER) change. This PEER cycle involves (1) preparing our capacity to actively participate in change efforts, (2) envisioning possible futures and potential strategies through ongoing conversations, (3) engaging change strategies to lead any prioritized changes, and (4) reshaping our futures on the basis of results of any change strategies and novel trends in the field. By illustrating this process as a cycle of inquiry and action, we deliberately capture the continuous aspects of successful change processes that attempt to peer into a multiplicity of futures to anticipate and lead change. *Pediatrics* 2010;126:982–988

In January 2008, the American Academy of Pediatrics launched the Vision of Pediatrics (VOP) 2020 project. At the heart of this project was the explicit acknowledgment of the inevitability of change in a world of increasing complexity, unpredictability, and interconnectedness.

The VOP 2020 focus on change and its impact on child and adolescent (hereafter, "child") health and the practice of pediatric health care was built on previous efforts. Shifts in US population demographics, family structure, income, educational levels, and cultural norms[1–3] continue to directly affect the health and well-being of children, adolescents, and young adults (hereafter, "children") as portrayed in the Future of Pediatric Education reports in 1978 and 2000.[4] Modifying pediatric educational programs to adapt to change was the focus of the recent Residency Review and Redesign Project.[5] Medical journals and the media flood practitioners and families with scientific advances, and health organizations, professional societies, federal agencies, health plans, and accrediting bodies have implemented tools

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KEY WORDS

pediatrics, future, leadership, innovation, change management

ABBREVIATIONS

VOP—Vision of Pediatrics
PEER—preparing, envisioning, engaging, reshaping
IT—information technology

The opinions expressed in this article are those of the authors and do not necessarily represent American Academy of Pediatrics policy.

www.pediatrics.org/cgi/doi/10.1542/peds.2010-1890

doi:10.1542/peds.2010-1890

Accepted for publication Aug 16, 2010

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: *The authors have indicated they have no financial relationships relevant to this article to disclose.*

to disseminate and translate new knowledge into pediatric practice.

However, the process of anticipating and leading change has not been a major focus for pediatrics. Koeck noted in a 1998 article in the *British Medical Journal* that a "student of management and organizational theory could only be stunned by how little the efforts to improve quality [in health] have learnt from the current thinking in management and from the experience of other industries."[6] The VOP 2020 Task Force deliberately sought to anticipate upcoming changes that may affect child health care and pediatric practice through a scenario process commonly used by businesses, the military, and policy makers.[7–9] The task force brainstormed a range of possible future scenarios and identified 8 "megatrends" to address in preparing for plausible futures (see Table 1 and the accompanying article in this issue of *Pediatrics*[10]).

Despite its focus on scenario planning, the VOP 2020 Task Force also acknowledged that the timing and scope of change are not predictable. In addition to the 8 megatrends, several "wild-card" trends were identified as possible, but less probable, futures (see Table 2). Before we had finished the project, events relating to both the megatrends and the wild cards occurred on a national and international scale. The passage of health care reform in the United States in Spring 2010 has already affected pediatric health coverage. The unexpected emergence of the H1N1 influenza virus and its propensity to affect children surprised a public health community focused on the risks of avian flu and reminded us of our vulnerabilities to emerging diseases. Environmental disasters (eg, the Icelandic volcano eruption and the Gulf of Mexico oil spill) have had societal as well as health implications. The cataclysmic effects of the economic recession are still affecting families and the public and private systems that care for them. These recent events heightened the task force's awareness of the unpredictability of change.

TABLE 1 Eight Megatrends Identified Through the Scenario Process of the VOP 2020

1. Changing demographic and clinical characteristics of children and families
2. Burgeoning health information technology
3. Ongoing medical advances
4. Alterations in health care–delivery system(s)
5. Growth of consumer-driven health care
6. Dynamics of pediatric workforce
7. Disasters (environmental, infectious, man-made)
8. Globalism

TABLE 2 Wild-Card Trends Identified From the Scenario Process of the VOP Project

Domain	Example
Societal changes	Large pandemic or major disease
	World famine or drought
	A disaster necessitating resettlement
	War on US soil
Health advances	Gene therapy able to provide true and effective cures
	Change in birth rates
	Universal health insurance
	Cure for autism
Economics	US and global economies collapse
	Greater disparities between rich and poor
	Decline or exponential increase in cost of higher education
Work-life balance	Access to high-quality child care with job security
	Implementation of a 56-h week for residents
	Changes in family-planning policies

In response, we modified our goals as a task force. Although a major focus was identifying next steps with respect to the 8 megatrends, we also prioritized promoting an ongoing process of reshaping a multiplicity of possible futures and choosing how we, as a field, want to lead those futures. Drawing on the business, sociology, psychology, organizational, and quality-improvement literature, we sought to delineate a relatively simple framework to visually represent this type of process.

THE PEER CYCLE AND IMPLICATIONS FOR PEDIATRICS

Our framework (see Fig 1), the PEER (preparing, envisioning, engaging, and reshaping) cycle, parallels the plan-do-study-act (PDSA) cycle used in quality-improvement initiatives to implement changes in health settings.[11] The topmost position in the cycle is preparing by building our capacity to actively participate in change efforts. Simultaneously, we move clockwise to envisioning possible futures and potential strategies for leading change. Next is engaging in strategies to initiate, implement, and catalyze change. We then enter into a period of reshaping our vision and strategies on the basis of feedback from previous implemented changes, ongoing monitoring of trends in the field, and the creation of new scenarios that incorporate these data.

Preparing by Building Our Capacity to Lead Change

In the business world, the development and dissemination of innovations are critical for success. Yet, experts have estimated that, despite novel ideas and ample resources, there is a 70% to 75% failure rate for enacting effective change.[12–14] Successful orga-

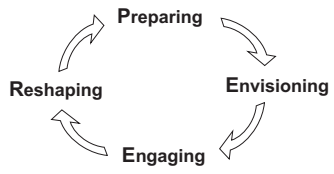

FIGURE 1
The PEER cycle.

nizations, on the other hand, prepare by building their capacity to engage in change. Components of capacity-building described in the literature include (1) training leaders at all levels of an organization, (2) promoting a culture that supports learning and innovation, (3) emphasizing effective team development, (4) using information technology (IT), and (5) investing adequate fiscal and time resources.[15,16]

In pediatrics, many of these components deserve our attention. Although a number of outstanding individuals hold pediatric leadership roles, leadership training and development have only been marginally addressed. The American Academy of Pediatrics Pediatric Leadership Alliance[17] and the Academic Pediatric Association leadership training series[1] are examples of programs that make the requisite commitment of developing leaders. Second, our medical culture is primarily hierarchical and individualistic in nature; in contrast, more integrated, dynamic, and flexible environments foster successful change across other industries.[18–22] Third, our training continues to be physician focused, apprenticeship based, and top-down, rather than modeling and explicitly teaching effective team strategies and "servant leadership" principles for both providing care and implementing change.[23,24] Fourth, the use of IT also mandates attention and, we hope, will be catalyzed by the current federal administration's efforts to promote the use of IT in health care.[25]

Envisioning Possible Futures and Strategies for Leading Change

Many writers on change have commented that the types of problems we are facing as a society are increasingly complex and should be considered "wicked problems."[26] Wicked problems are messy, multifaceted, and multisystem; lack clear-cut solutions; and are insoluble by conventional means. Hence, discussions about these types of problems and possible solutions are often challenging, convoluted, and conflict-ridden. Thus, thought leaders in change theory promote the use of ongoing, in-depth dialogues or "permanent strategic conversations" that delve into the murkiness of these wicked problems, confront status-quo assumptions, acknowledge the inherent tensions of addressing them, and specifically seek to build off of these tensions to envision creative solutions.[7,27–29]

Each of the megatrends and wild cards presented in the accompanying article[10] represents wicked problems that deserve this type of strategic discussion. Although the content of these conversations could and should evolve over time, the VOP 2020 Task Force proposes that we begin by discussing the megatrends and/or wild cards identified through the VOP 2020, using the questions provided in Table 3 as a starting point. These discussions will need to build on systems perspectives that draw attention to the interconnectedness of systems in initially creating problems and in promoting or hindering change.[13] Discussions should include members of a particular system (eg, practice setting, team unit, health plan, subspecialty group) but also stakeholder groups outside the system that may overlap in function or interest area and have the potential to facilitate change.[28,30] Identifying stakeholders with political, social, and monetary capital will also prove essential for having sufficient resources to implement change in pediatric health care. Children's needs have routinely had limited political voice, and this is not

TABLE 3 Sample Questions to Begin and Sustain Ongoing Strategic Conversations

Steps	Sample Questions
Focusing our attention	What megatrend, if addressed, do we think could make the most difference to the future?
	What assumptions are driving how we frame this megatrend? How might we need to reframe it?
	What are the challenges and opportunities related to this megatrend?
	Is there other information we need to acquire to find solutions?
	Who are our potential partners in addressing this megatrend that we have not yet considered?
Diving deeper	What futures are we beginning to envision?
	What gaps exist between our current work and our vision?
	What is surprising and encouraging about this vision?
	What causes conflict among us about this vision? Why?
	What more do we need to know?
	Is there a better vision for addressing this megatrend?
	Who are our potential partners for making this vision happen? Do they need to be included at the table?
	If there was one thing that has not yet been said or examined that would help us to move forward, what would it be?
Moving forward	What would tell us in 3–5 y that we have been successful in making this vision happen?
	What are the specific next steps to take to implement this vision?
	What resources do we need?
	Are there other potential partners we need to engage?
	How committed are we to moving forward?
	What challenges can we anticipate, and how will we be ready to respond?
Reflecting	What is working? Why?
	What is not working? Why?
	What can we learn from this process?
	How do we want to reshape our vision for the future?
	What questions, if we asked them today, would create new possibilities for the future?
	What capacity do we need to build to address these new questions?

TABLE 4 Sample Implementation Strategies Identified by the VOP 2020 Task Force

Domain	Implementation Strategy
Advocacy	Identify potential coalition partners and strategically message why child health is important to them.
	Successfully build powerful coalitions that can advocate for attention to socioeconomic, environmental, and political factors that promote the health of children.
	Successfully advocate for sustainable models for appropriate payment for all components of the medical home while recognizing that simply having insurance in the absence of adequate payment models is a significant barrier to universal access.
	Develop and implement a strategy to be part of an international effort to eliminate poverty, the primary determinant of adverse child outcomes.
	Encourage commitment of resources (eg, time, monies, intellectual think tanks) to working with communities to develop solutions to the socioeconomic, environmental, and political factors that affect child health.
Operations	Develop and implement a strategy for integrating a culture of successfully leading change into the fabric of all pediatric activities.
	Encourage ongoing and permanent strategic conversations about the future of pediatrics at all levels of pediatric care.
	Integrate improvement science into all pediatric operational activities.
	Develop a strategy for including all professional members of the pediatric team as affiliate members of professional societies.
	Develop and implement a strategy for promoting the profession of pediatrics, including surgical and medical subspecialties, and trainees at all levels.
Practice	Explore creative models of care that are culturally sensitive and relevant and community based.
	Establish distributed medical homes in which primary and specialty practices are centers for community/family/patient communication, education, and connectivity.
	Develop a model for spreading implementation of the medical home that includes strategies for communication and sharing management of children with complex conditions with specialists, and support practices in integrating that model.
	Identify and disseminate best practices that support the growing commitment to work-life-family balance among pediatric clinicians while ensuring high-quality, continuous care.
	Promote greater youth engagement in health care, including prevention.
	Fully develop a pediatric network for international health service to respond to the many needs of a partnership relationship that attends to the health care needs of the children of the recipient country, the educational needs of the pediatric clinicians in the host country and visitor country, and the need to build research capacity to effectively improve child health outcomes.
	Distill new information into usable, understandable materials that clinicians and families can readily apply.
Research	Mandate federal funding for creative reimbursement mechanisms for community-based care experiments.
	Conduct a longitudinal study of young pediatricians to afford the opportunity to identify emerging trends in the field that will guide the field's response to those trends.
	Prioritize research that incorporates an understanding of patient, family, community, and cultural preferences, including nontraditional care.
	Encourage the inclusion of pediatricians in industry to catalyze the dissemination of pediatric advances into care.
	Explore the feasibility of co-hosting the International Pediatric Congress with the American Academy of Pediatrics and the Pediatric Academic Societies every 6–9 y to facilitate global collaboration and sharing of pediatric advances.
	Require dissemination plans as part of all grant applications; include dissemination options outside of journal articles.
	Promote research with community groups and practitioners from which input on key questions in the field are obtained, interventions are co-developed and tested, and implementation is specifically addressed.
	Use novel research approaches in the development of policy guidelines and creative methodologies to encourage their dissemination and implementation.
	Encourage research that identifies local solutions and tests their effectiveness as well as research that disseminates evidence-based practices.
Education	Develop, disseminate, and continually update a curriculum on best practices for promoting entrepreneurship among pediatric professionals.
	Develop, disseminate, and continually update a curriculum on best practices in team-based pediatric delivery systems.
	Develop, disseminate, and continually update a curriculum on best practices on how pediatricians can become effective members in their community for advancing child health.
	Develop, disseminate, and continually update a curriculum on best practices for chronic condition management in primary care and specialty practices.
	Develop, disseminate, and continually update a curriculum on best practices for preventive health, emphasizing that adult chronic conditions have their origins in childhood.
	Integrate improvement science into all pediatric educational activities.
	Develop and implement a business plan for spreading a disaster education curriculum worldwide, including in the United States.
Consumer involvement	Institutionalize a family advisory council in major pediatric organizations to offer advice on key initiatives.
	Develop a "family partners only" site within www.healthychildren.org that includes access to unique information such as special newsletters, daily child health news, blogs with pediatric experts, discounts on publications, and the opportunity to be a part of the pediatric advocacy network.
	Institutionalize a youth transitions council in major pediatric and adult medicine organizations to offer advice on transitioning youth, particularly those with special health care needs, from 1 system to another.
Communications and information management	Fully support the integration of pediatric informatics needs into health information systems, including key domains for children and families and health and consumer IT.
	Make the needs of children and families a "household name" through implementation of a comprehensive communication plan that includes the use of all available and emerging communication tools.
	Continue to stay at the forefront of using new advances in social media to ensure connectedness between pediatric professionals and consumers.
	Identify and implement strategies for fostering and facilitating real-time, ongoing, global connections among pediatric professionals to advance child health.

TABLE 5 Hypothetical Vignette for Megatrend 5: Growth of Consumer-Driven Health Care

Steps From the PEER Cycle	Steps Taken by the Hypothetical Team
Preparing	A large, pediatric group practice identified megatrend 5, growth of consumer-driven health care, as the focal point for their conversations. They defined this megatrend as focused on patient and family involvement, and the child and family needs were prioritized in terms of communication and convenience.
Envisioning	The group used the questions in Table 3 to envision potential changes; several assumptions were identified: Rapid technology development will drive new modes of communication. Increased consumer involvement will occur across all of society (eg, business, education). Challenges faced as a practice include expenses of implementing and sustaining new models of care in health care (eg, IT) and perceived tension between family goals and provider goals (eg, antibiotic use). Several opportunities were identified that energized the practice: improving family and provider engagement/satisfaction; improving patient outcomes; promoting more efficient resource usage with new communication modes; and sharing learning across providers and other health personnel. The group posited that an increased consumer orientation would help them to implement a true medical home and that alternative modes of communication (eg, Web-based, telemedicine) would address acute health concerns of patients and families in addition to anticipatory guidance. This might lead to fewer face-to-face encounters while still allowing for optimal care. A major gap could exist between the current and future infrastructure models of care. They decided they needed more information around IT developments, payment models, and mechanisms for providing "right care at the right time" for patients while addressing privacy issues. They also wanted to learn how families in their practice visualized improved communication and convenience. A strategic planning group was organized and included: parents and families; clinic team members; local businesses to brainstorm innovative solutions; and other groups that could provide information for future planning.
Engaging	The group determined "indicators of success" that included: increased provider and family satisfaction; families/parents report receiving the right care at the right time; decreased acute health care utilization (eg, emergency department visits); less worker absenteeism resulting from medical appointments during the day; early indicators of improved health; and adequate ongoing payment to sustain the model. They began by surveying families in their practice about what improved consumer orientation would look like. Families identified missing work for appointments during the day, particularly for school-aged children with asthma. A major focus was developed with 3 of the 4 major employers in the area. Families and employers suggested "e-mail advice clinics" for parents plus group sessions on common parenting issues around asthma care. Employers offered to fund a small pilot to determine if these services decreased absenteeism. The decision was made to identify a small pilot team within the practice to try these changes. The group also contacted other pediatric organizations for support regarding alternative funding and confidentiality issues around the use of e-mail. They spoke with their local legislator, who was also a parent and interested in what types of outcomes they might sustain. Families also made other suggestions for future project consideration regarding the use of space in the office, mechanisms for engaging adolescents, and ease of scheduling.
Reshaping	The group tried the e-mail advice clinics by rotating e-mail "call" within the practice. This process worked relatively well but led to issues around communicating with the child's primary care provider within the clinic. The group tagged this learning as critical to study to understand what steps could be taken to address this problem. In general, brief follow-up family surveys indicated better responsiveness to family needs. The group was unclear how to measure other outcomes and decided that their group needed research or quality-improvement expertise, either through additional group member training or by involvement of an additional community member with such expertise. The group then considered what its next steps would be to improve its capacity to connect in a timelier, more effective manner with families/patients and the greater community to better respond to changes on the horizon.

anticipated to change with the aging of the baby-boom population and the increasing numbers of children who live in poverty.[2,31]

Engaging in Strategies to Initiate and Implement Change

The success of plan-do-study-act cycles in quality-improvement work partially reflects their commitment to small, "safe-fail" experiments with real-time data collected, analyzed, and applied.[18] Similarly, we in pediatrics need to commit to experimentation with new models of care. Our protocol-based, guideline-driven profession may, at times, naturally resist these types of experiments. Comprehensive multilevel approaches also are increasingly lauded in business as more effective than single interventions but have been less likely to be adopted in medicine, perhaps because of our training in single-intervention randomized clinical trials and the silo nature of medical systems.[15]

Writers on change processes acknowledge that change is difficult to initiate,

implement, and sustain whether at the individual, organizational, or systems level.[12,13,18] Pediatric leaders can help by creating a sense of urgency that combats people's inherent resistance to change; establishing a strong, trustworthy, guiding coalition; and clearly stating and restating a vision for the future, including its benefits and potential challenges. Additional steps for promoting change described in the literature include enabling others to act, publicizing successful change efforts, and institutionalizing change.[32,33] Thought leaders in medicine also have suggested several mechanisms for promoting change, including providing time and resources to innovators and designating roles in an organization as "improvement fellows."[34]

Both the megatrends and the wild-card trends demonstrate potential opportunities for experimentation. For example, the passage of health care reform and the extension of health care benefits into early adulthood could stimulate creative solutions regarding the transition of youth with chronic disorders into adult systems of care. These experiments do not have to be large but do need sufficient visibility and support. Table 4 provides some potential innovation strategies that the VOP 2020 Task Force identified. We acknowledge that our strategies may be bounded by our own assumptions as a task force; however, they may provide a starting point for discussions.

Reshaping Change

This fourth step in the PEER cycle moves beyond conventional evaluation purposes and, instead, focuses on lessons from previous actions, novel trends, and implications for future PEER cycles. Pediatrics can support efforts to reshape change by embracing the role of learning organizations, health care breakthrough collaboratives, social networks, and innovation networks in implementing and assessing specific care processes.[34–37] In addition, futurists and business leaders alike have commented on the importance of monitoring trends for radical innovations that may herald the future.[38] Monitoring in a spirit of creative inquiry may provide opportunities for pediatrics to lead change rather than simply respond. For example, consumers increasingly use "minute clinics"[39] and on-line health information tools such as Zipnosis,[40] which assist in identifying disorders and medical treatment. These trends should prompt conversations regarding why consumers are seeking these types of options and how pediatric care can creatively address these unmet needs. Ultimately, this fourth step in the PEER cycle leads to identifying new areas of capacity to develop, unanswered questions for dialogue, and novel innovations to implement.

APPLYING THE PEER CYCLE

We live in an age in which the speed of change, decision-making, and opportunity are palpable. The lessons of the last decade, coupled with significant recent events, point to the need of respecting both the quickness and unpredictability of change. Without embracing possibilities, the potential to become obsolete is high.

On an individual level, each of us can choose to commit to self-development as leaders, team members, and change agents and examine our own resistance to change, our particular passions with respect to future trends, any assumptions that we harbor about the types of problems we face now and potentially in the future, and possible strategies we could use to create innovative solutions. We also can identify current successes on which we can build to support future tasks within our spheres of influence.

Service settings and systems (eg, practices, public health agencies, hospitals, plans, industries, professional organizations, committees and/or task forces within organizations, and advocacy groups) can also embark on PEER cycles by determining what capacity needs to be built, identifying topics and participants for strategic conversations, and recognizing future innovations to implement. The American Academy of Pediatrics has committed to embarking on a PEER cycle across the organization, and several chapters already plan on hosting planning meetings. We also hope to stimulate similar types of activities across the field. An example of the type of activities on which a group practice might embark for 1 of the megatrends is provided in Table 5. We invite you to peer into the future and engage in a process that will help create and reshape the future of pediatrics and the future of the children and families for whom we care.

ACKNOWLEDGMENTS

Dr Leslie's work on this article was provided by the William T. Grant Foundation (9443) and the Tufts Clinical and Translational Science Institute (UL1 RR025752); funding for the VOP 2020 Task Force was provided by the American Academy of Pediatrics.

Members of the VOP 2020 Task Force included John Duby, MD, FAAP (chair), Jeff Kaczorowski, MD, FAAP (vice-chair), Maria Britto, MD, FAAP, Christoph Diasio, MD, FAAP, Anne Edwards, MD, FAAP, Amy J. Starmer, MD, MPH, FAAP, Renee Jenkins, MD, FAAP, Robert Kliegman, MD, FAAP, Danielle Laraque, MD, FAAP, Laurel K. Leslie MD, MPH, FAAP, Martin Michaels, MD, FAAP, and Marleta Reynolds, MD, FAAP. The task force acknowledges the contributions of task force consultants Thomas Boat, MD, FAAP, David Bergman, MD, FAAP, Edward Schor, MD, FAAP, Bonita Stanton, MD, FAAP, Robert Walker, MD,

FAAP, and Paul Wise, MD, FAAP. The task force also acknowledges the outstanding contributions to this work by AAP staff. Kenneth M. Slaw, PhD, designed the process and facilitated the VOP 2020 sessions, and Anne Gramiak, MPH, and Susan Flinn, MA, provided superb facilitation and staff support. Last, we thank Tully Saunders for editorial assistance. To learn more about the Vision of Pediatrics 2020 project, please visit www.aap.org/visionofpeds.

REFERENCES

1. Cheng T. The wisdom, the will, and the wallet: leadership on behalf of kids and families. *Acad Pediatr*. 2010;10(2):81–86
2. Wise P. Children of the recession. *Arch Pediatr Adolesc Med*. 2009;163(11):1063–1064
3. Palfrey JS, Sofis LA, Davidson EJ, Liu J, Freeman L, Ganz ML; Pediatric Alliance for Coordinated Care. The Pediatric Alliance for Coordinated Care: evaluation of a medical home model. *Pediatrics*. 2004;113(5 suppl):1507–1516
4. Leslie L, Rappo P, Abelson H, et al. Final report of the FOPE II Pediatric Generalists of the Future Workgroup. *Pediatrics*. 2000;106(5):1199–1223
5. Jones MD Jr, McGuinness GA, Carraccio CL. The Residency Review and Redesign in Pediatrics (R3P) project: roots and branches. *Pediatrics*. 2009;123(suppl 1):S8–S11
6. Koeck C. Time for organisational development in healthcare organisations: improving quality for patients means changing the organisation *BMJ*. 1998;317(7168):1267–1268
7. Schwartz P. The Art of the Long View: Planning for the Future in an Uncertain World. New York, NY: Currency Doubleday; 1996
8. Bentham J. *Scenarios: An Explorer's Guide*. Shell International; 2007
9. Scearce D, Fulton K. What if? The art of scenario thinking for nonprofits. Available at: www.gbn.com/articles/pdfs/GBN_What_If.pdf. Accessed September 8, 2010
10. Starmer AJ, Duby JC, Slaw KM, Edwards A, Leslie LK; Members of the Vision of Pediatrics 2020 Task Force. Pediatrics in the year 2020 and beyond: preparing for plausible futures. *Pediatrics*. 2010;126(5):971–981
11. Speroff T, O'Connor G. Study designs for PDSA quality improvement research. *Qual Manag Health Care*. 2004;13(1):17–32
12. Kotter J. Leading Change. Boston, MA: Harvard Business School Press; 1996
13. Senge P. The Dance of Change: The Challenges of Sustaining Momentum in Learning Organizations. Toronto, Ontario, Canada: Random House of Canada; 1999
14. Peters T, Waterman R. In Search of Excellence. New York, NY: HarperBusiness; 1982
15. Ferlie E, Shortell S. Improving the quality of health care in the United Kingdom and the United States: a framework for change. *Milbank Q*. 2001;79(2):281–315
16. Solberg L. Improving medical practice: a conceptual framework. *Ann Fam Med*. 2007;5(3):251–256
17. Leslie L, Miotto M, Liu G, et al. Training young pediatricians as leaders for the 21st century. *Pediatrics*. 2005;115(3):765–773
18. Scholtes P, Ackoff R. The Leader's Handbook: Making Things Happen, Getting Things Done. New York, NY: McGraw-Hill; 1998
19. Senge P. The Fifth Discipline: The Art and Practice of the Learning Organization. New York, NY: Doubleday; 1990
20. Kouzes J, Posner B. The student leadership challenge: five practices for exemplary leaders. *J Coll Stud Dev*. 2009;50(March/April 2009):245–247
21. Clemmer T, Spuhler V, Berwick D, Nolan T. Cooperation: the foundation of improvement. *Ann Intern Med*. 1998;128(12 pt 1):1004–1009
22. Brown J. Change Favours the Prepared Mind. London, United Kingdom: Her Majesty's Stationery Office; 1996
23. Greenleaf R, Spears L. Servant Leadership: A Journey Into the Nature of Legitimate Power and Greatness. New York, NY: Paulist Press; 2002
24. Greenleaf R. Servant Leadership. New York, NY: Paulist Press; 1977
25. State Health Information Exchange Cooperative Agreement Program. Health information technology. Available at: http://healthit.hhs.gov/portal/server.pt?open=512&objID=1488&parentname=CommunityPage&parentid=58&mode=2&in_hi_userid=11113&cached=true. Accessed September 14, 2010
26. Conklin J. Wicked problems and social complexity. In: *Dialogue Mapping*: Building Shared Understanding of Wicked Problems. Chichester, United Kingdom: John Wiley & Sons; 2006: 3–40
27. Kahane A. Solving Tough Problems: An Open Way of Talking, Listening, and Creating New Realities. San Francisco, CA: Berrett-Koehler Publishers; 2004
28. Westley F, Zimmerman B, Patton M. Getting to Maybe. Toronto, Ontario, Canada: Vintage Canada; 2007
29. Vogt E, Brown J, Isaacs D. The Art of Powerful Questions: Catalyzing Insight, Innovation, and Action. Mill Valley, CA: Whole Systems Associates; 2003
30. Stelk W, Slaton E. The role of infrastructure in the transformation of child-adolescent mental health systems. *Adm Policy Ment Health*. 2010;37(1–2):100–110
31. Pachter L. Child health care disparities: findings from the annual report on children's health care. *Acad Pediatr*. 2003;10(2):87–88
32. Rogers E. Diffusion of Innovations. 4th ed. New York, NY: Free Press; 1995
33. Van de Ven A. Central problems in the management of innovation. *Manage Sci*. 1986;32(5):590–607
34. Berwick D. Disseminating innovations in health care. *JAMA*. 2003;289(15):1969–1975
35. Noveck B. Wiki Government: How Technology Can Make Government Better, Democracy Stronger, and Citizens More Powerful. Washington, DC: Brookings Institution; 2009
36. Leviton LC, Orleans CT. Promoting the uptake of evidence in clinical practice: a prescription for action. *Clin Perinatol*. 2003;30(2):403–417
37. Margolis P, Halfon N. Innovation networks: a strategy to transform primary health care. *JAMA*. 2009;302(13):1461–1462
38. Heijden K, Schlange L. Scenarios: The Art of Strategic Conversation. West Sussex, United Kingdom: John Wiley & Sons; 1997
39. MinuteClinic at CVS Pharmacy. About MinuteClinic. Available at: http://minuteclinic.com/en/USA/About. Accessed June 9, 2010
40. Zipnosis.com. Home page. Available at: http://zipnosis.com. Accessed June 4, 2010

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and Members of the Vision of Pediatrics 2020 Task Force

Pediatrics published online Oct 18, 2010;
DOI: 10.1542/peds.2010-1890