PEDIATRICS® PERSPECTIVES

The Need to Build Capability and Capacity in Quality Improvement and Patient Safety

Carole M. Lannon, MD, MPH[a,b,c], Fiona H. Levy, MD, MBA[d], Virginia A. Moyer, MD, MPH[c]

The use of quality improvement (QI) methods and safety principles can improve child health outcomes and reduce harm. Multi-institution collaboratives have achieved improved results by identifying and implementing best practices and by using rigorous improvement methodology.[1] Children's hospitals and their partner academic institutions have redesigned not only specific aspects of patient treatment but also the fundamental processes that determine how care is given and how the work within hospitals is carried out and communicated. Although this progress is to be commended, more needs to be done. Significant variations in care and outcomes, and gaps in the capability of physicians to engage in and lead QI, continue to exist. These deficiencies could be remedied by increasing the availability of improvement curricula, training opportunities, and skilled faculty. An integrated approach to building capacity for quality and safety would connect children's hospitals and their academic partners, addressing alignment of quality priorities and resources across organizations, education and training for physicians in the science of improvement, and recognition of the legitimacy of QI activities for professional development and career progression.[2]

Multiple national organizations have developed programs intended to support and catalyze these goals. The Accreditation Council for Graduate Medical Education and the American Board of Pediatrics have recognized the need both to educate those who care for children on the front lines and to develop improvement leaders who can build effective teams, manage quality projects, and apply improvement knowledge and skills. By setting requirements for education and certification, these organizations have helped the professional mandate to ensure that physicians are prepared to engage in QI and safety work. The Accreditation Council for Graduate Medical Education's Next Accreditation System will focus on an outcomes-based program evaluation, built on the expectation that a resident will become progressively more competent throughout training.[3] The Pediatrics Milestone Project is testing strategies to assess learners from undergraduate medical education through graduate medical education and practice. The Association of American Medical Colleges' Integrating Quality Initiative challenges partner academic institutions to integrate quality and continuing education activities.[4] The goal of their Teaching for Quality (Te4Q) initiative is to ensure that every US academic health center

[a]James M. Anderson Center for Health Systems Excellence, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; [b]Department of Pediatrics, University of Cincinnati College of Medicine, Cincinnati, Ohio; [c]American Board of Pediatrics, Chapel Hill, North Carolina; and [d]Sala Institute for Child and Family Centered Care at New York University, Langone Medical Center, New York, New York

Dr Lannon conceptualized and led the invitational meeting and discussions that served as the impetus for this manuscript and subsequent discussions about building capability and capacity for improvement and wrote and edited the manuscript in its final form as submitted; Dr Levy conceptualized and led the invitational meeting and discussions that served as the impetus for this manuscript and wrote and edited the manuscript in its final form as submitted; Dr Moyer participated in discussions and activities about building capability and capacity for improvement and the development and refinement of the manuscript and wrote and edited the manuscript in its final form as submitted; and all authors approved the final manuscript as submitted.

www.pediatrics.org/cgi/doi/10.1542/peds.2014-3876

DOI: 10.1542/peds.2014-3876

Accepted for publication Mar 4, 2015

Address correspondence to Carole M. Lannon, MD, MPH, Anderson Center for Health Systems Excellence, Cincinnati Children's Hospital Medical Center, 3333 Burnet Ave, Cincinnati, OH 45229. E-mail: carole.lannon@cchmc.org

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

has a critical mass of faculty to engage in, model, and lead education in health care improvement, patient safety, and reduction in excess health care costs.[5]

Adapted from the Dreyfus model and aligned with the Te4Q constructs and the Pediatric Milestone Project, we propose 4 levels of physician competency, along a continuum, required to improve quality in practice.

- The clinician familiar with QI has a basic awareness of the need for quality and may have learned some quality principles.
- The proficient clinician has participated in a QI effort and demonstrates the ability to analyze one's practice and to use data and tests of change to make improvements.
- The expert clinician has achieved the performance level of the proficient clinician and is able to lead a project team in a successful QI effort.
- The master clinician is a quality and safety scholar who is often an organizational or system leader.

To build sufficient capability (competence) and capacity (sufficient numbers) in QI across pediatrics, all pediatricians must be proficient in QI and a critical mass of experts will need to be trained. Many institutions have developed excellent educational and training opportunities to enable their physicians to develop expertise in leading QI and safety initiatives (eg, Carolinas Medical Center's Levine Children's Hospital, Cincinnati Children's Hospital Medical Center, Intermountain Healthcare, and Texas Children's Hospital). The program developed by the Cincinnati Children's Hospital Medical Center[6] is based on the underlying tenets of learning through action and demonstrating results. To graduate from their intermediate program, participants must develop and lead a successful QI project. Participating board-certified pediatricians are eligible for Maintenance of Certification credit. Graduates are able to provide quality leadership, accelerate their organization's ability to improve, and contribute to national improvement collaboratives.

It is unlikely that individual institutions alone will be able to meet this ambitious goal of increasing the national capacity and capability for leaders in QI. To reach a critical mass of physicians with QI leadership capability, other regional/national resources will need to be enhanced and/or created. Although currently available Web-based clearinghouses of QI tools and training opportunities seem best suited to standardization and training at the "familiar" or "proficient" levels, as we move toward advanced competency at the expert and masters levels, opportunities are more limited and often institution specific. One potential to accelerate the development of capacity is to build on existing advanced-training initiatives that provide opportunities for scale. For example, the Children's Hospital Association, the Society for Hospital Medicine, and collaborative improvement networks all provide training to develop clinicians who are proficient and, in some cases, expert in QI. These programs could provide educational templates, share lessons learned, and work across institutions to build capability.

Regional centers could be created to build on existing infrastructures. For example, the American Academy of Pediatrics chapter and district system could support dissemination. Regional training nodes, supported in collaboration with organizations with a track record for training in advanced QI methods, would not only allow for the application of a standardized curriculum and approach but would also capitalize on existing expertise. In addition, these training centers could, in turn, serve as the basis for regional improvement collaboratives as they bring together practitioners with an interest in QI. We have already seen the success of such regional initiatives in Ohio and California.[1]

To support the development of QI capability and capacity at academic centers, it will be important to ensure that there is academic recognition and promotion for successful QI activities. Most academic health centers' strategies for building improvement capability focus on engaging and developing faculty as improvement leaders, educating trainees, and advancing the scholarship of health care improvement through rigorous methods and QI. If academic health centers genuinely regard clinical systems excellence as a fundamental component of their mission, on par with research and education, they must reward individuals who help achieve these goals with the principal currency of academic health centers, namely academic promotion.[7] Furthermore, academic promotion contributes to faculty retention and the development of exceptional role models for trainees.

A communication strategy that highlights key incentives (eg, American Board of Pediatrics' maintenance of certification program, academic recognition and promotion) and opportunities (eg, participation in collaborative improvement networks) for improving quality may be an important adjunct to engage individuals and institutions to accept the challenge of training more leaders in QI. Equally important may be our ability to provide examples of the expected return on investment that has been achieved when well-trained leaders in QI are in place in hospitals, medical schools, and primary care settings.

Aggressive goals and actions are required if we are to close the gaps in quality of pediatric care and meet the external mandates for pediatricians to not only engage in QI activities but to teach/mentor pre- and

postgraduate trainees in improvement science and to build the foundation for ongoing quality and best outcomes for children.

A significant increase in the number of leaders with QI expertise is required to accelerate the pace of improvement, sustain the gains, and provide the required mentorship to trainees and clinical teams. We encourage partnerships among institutions and organizations that can help us go further and get there faster.

ACKNOWLEDGMENTS

We acknowledge the significant contributions of Dr Evaline Alessandrini, MD, MSc, and Dr Uma Kotagal, MBBS, MSc, of Cincinnati Children's Hospital Medical Center; Dr Richard J. Brilli, MD, FAAP, FCCM, of Nationwide Children's Hospital; Dr Daniel Hyman, MD, MMM, of Children's Hospital Colorado; Dr Alan E. Kohrt, MD, FAAP, of Erlanger TC Thompson Children's Hospital; Dr Paul Miles, MD, Former Senior Vice President for Maintenance of Certification and Quality, American Board of Pediatrics; Dr Ramesh Sachdeva, MD, JD, PhD, MBA, FAAP, Associate Executive Director, American Academy of Pediatrics; and Ms Mimi Saffer of the Children's Hospital Association. We thank Ms Pamela Schoettker of the Anderson Center at Cincinnati Children's Hospital Medical Center for her support and expertise.

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

FUNDING: The conference "Building Competencies for Leadership in Pediatric Quality and Safety" in November 2011 began discussions that led to this commentary. The conference was sponsored by the American Board of Pediatrics Foundation, The James M. Anderson Center for Health Systems Excellence at Cincinnati Children's Hospital Medical Center, and the Pediatric Center for Education and Research on Therapeutics, supported by cooperative agreement U19HS021114 from the Agency for Healthcare Research and Quality.

POTENTIAL CONFLICT OF INTEREST: Dr Lannon, employed full time by the Cincinnati Children's Hospital Medical Center (CCHMC), has a contract through CCHMC to serve as Senior Quality Advisor for the American Board of Pediatrics; Dr Moyer is employed full time by the American Board of Pediatrics; and Dr Levy has indicated she has no potential conflicts of interest to disclose.

REFERENCES

1. Billett AL, Colletti RB, Mandel KE, et al. Exemplar pediatric collaborative improvement networks: achieving results. *Pediatrics*. 2013;131(suppl 4):S196–S203
2. Levy FH, Brilli RJ, First LR, et al. A new framework for quality partnerships in Children's Hospitals. *Pediatrics*. 2011; 127(6):1147–1156
3. Nasca TJ, Philibert I, Brigham T, Flynn TC. The next GME accreditation system—rationale and benefits. *N Engl J Med*. 2012;366(11):1051–1056
4. Association of American Medical Colleges. Integrating quality initiatives. Available at: https://www.aamc.org/initiatives/quality/. Accessed February 19, 2015
5. Association of American Medical Colleges. More about Te4Q. Available at: https://www.aamc.org/initiatives/cei/te4q/267454/moreaboutte4q.html. Accessed November 3, 2014
6. Kaminski GM, Britto MT, Schoettker PJ, Farber SL, Muething S, Kotagal UR. Developing capable quality improvement leaders. *BMJ Qual Saf*. 2012;21(11):903–911
7. Shojania KG, Levinson W. Clinicians in quality improvement: a new career pathway in academic medicine. *JAMA*. 2009;301(7):766–768

The Need to Build Capability and Capacity in Quality Improvement and Patient Safety

Carole M. Lannon, Fiona H. Levy and Virginia A. Moyer

Pediatrics 2015;135;e1371
DOI: 10.1542/peds.2014-3876 originally published online May 25, 2015;

PEDIATRICS®
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

The Need to Build Capability and Capacity in Quality Improvement and Patient Safety

Carole M. Lannon, Fiona H. Levy and Virginia A. Moyer

Pediatrics 2015;135;e1371
DOI: 10.1542/peds.2014-3876 originally published online May 25, 2015;