

Developmental Screening

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Welcome to Quality Matters, a bimonthly roundup of news and opinion on quality and efficiency, information technology, performance improvement initiatives, and policy innovations.

In Focus: Addressing the "New Morbidity" in Pediatrics Through Developmental Screening.....	1
Case Study: Implementing Developmental Screening at Oxford Pediatrics.....	6
News Briefs.....	10
Recent Publications of Note	12
Editorial Advisory Board and Team.....	16

In Focus: Addressing the "New Morbidity" in Pediatrics Through Developmental Screening

Summary: *Pediatric practices—urged on by their professional societies, the public, private initiatives, and, in some cases, new state requirements—are beginning to rethink their approach to identifying developmental and behavioral delays.*

By Vida Foubister

Most parents assume that pediatricians are using standardized guidelines to assess their children's development and behavior during well-child visits—a critical step for the early identification and treatment of any suspected delays. Unfortunately, the research suggests otherwise.

Past physician surveys have found that only about 20 percent of physicians routinely use developmental screening tests. Even this number, says Paul H. Dworkin, M.D., professor and chair of pediatrics at the University of Connecticut School of Medicine and physician-in-chief at Connecticut Children's Medical Center, is an "overestimate," with the true figure closer to "10 percent or less."

These low screening rates mean there are many missed opportunities to intervene early and promote children's health, learning, and school

readiness. The Centers for Disease Control and Prevention (CDC) estimates that about 17 percent of children under age 18 have a developmental or behavioral disability, such as autism or attention-deficit/hyperactivity disorder. However, less than 50 percent of these children are identified as having these problems before they start school.

Numbers such as these highlight the need to expand pediatricians' focus beyond immunization and injury prevention, which have significantly lowered the childhood death rate over the past decade, to the "new morbidity" of social difficulties, behavioral problems, and developmental difficulties. But, while instituting developmental screening might seem simple on its face, there are multiple barriers. Among them is getting pediatricians, family physicians, and other child health care professionals to recognize the need for formal developmental screening.

Many doctors believe that, by pulling several items from screening tools such as the Denver Developmental Screening Test, a widely used test that was originally released in the 1960s and has since been revised, they are sufficiently evaluating their patients. But the Denver test is not well validated and, even if administered in its entirety—a process that takes about 20 minutes—it misses up to 70 percent of children with language impairment and 50 percent with intellectual delays, says Frances Page Glascoe, Ph.D., a professor of pediatrics at Vanderbilt University.

"Traditionally, what pediatricians and practices have done is ask patients questions, review some [developmental] milestones, do a physical exam, and put it all together," says Laura Sices, M.D., M.S., assistant professor of pediatrics at Boston University School of Medicine/Boston Medical Center. It can identify some children "but, on a global level, it's not very effective. We're missing a lot of kids."

Other factors that contribute to the low rates of routine screening include a perceived lack of time, with the average well-child visit lasting less than 20 minutes; limited reimbursement for using validated screening tools, which providers must pay a fee to use; and necessary changes to a practice's workflow to implement standardized screening. There is also a concern that, once identified, children with possible developmental problems may not find intervention services in their communities.

Continued Push

The American Academy of Pediatrics (AAP), in more than one policy statement, has recommended that providers incorporate developmental surveillance and screening into their well-child preventive care visits. Its most recent statement, in 2006, recommends ongoing developmental surveillance of children and the administration of standardized developmental screening tests at nine-, 18-, and 30- or 24-month visits.

The AAP defines developmental surveillance as "a process in which health care professionals aim to identify children who may have developmental problems" and developmental screening as "the administration of a brief standardized tool aiding the identification of children at risk of a developmental disorder." Says Dworkin: "Developmental screening tests should not be used in a single administration, pass/fail manner, but rather as an aide to supplement ongoing surveillance."

There is evidence to back up the AAP policy. "If we identify children early and get them into early intervention programs, their outcomes are so much better," says Glascoe, the creator of the Parents' Evaluation of Developmental Status (PEDS), a parent-completed developmental screening tool. "Some studies have shown that for every

dollar spent on prevention, our society saves \$17." These savings come from reductions in the rates of teen pregnancy, high school drop-out, unemployment, and criminal activity.

The academy launched a nine-month pilot project, called D-PIP or the Developmental Surveillance and Screening Policy Implementation Pilot, to examine the feasibility of implementing the screening tests among 17 pediatric practices. A preliminary qualitative evaluation of the practices' experiences found that most preferred to use parent-completed surveys rather than professionally completed surveys, which demand more of providers' time (see Screening Options, below). "In my experience, most practices will only consider conducting developmental screening if they can envision a way of doing it that won't add to the duration of the visit and won't turn clinic schedules/clinic flow on its head," says Tracy King, M.D., M.P.H., assistant professor of pediatrics at Johns Hopkins School of Medicine, who has been involved in evaluating the project's outcomes. In addition, the ease of implementation was found to vary among the practices due to factors such as the number of physicians, presence of support staff, and types of patients served.

This small feasibility study was not able to document a substantial increase in the rates of identification of children with suspected delays. But King believes this could be due to the small number of charts reviewed or the "self-selected nature of these practices," which might have been doing better than their peers at baseline. "As they say, further research is needed," she says.

Other initiatives to encourage the implementation of developmental screening have resulted in substantial increases in the number of children screened, as well as

increased referrals to early intervention programs. Some state Medicaid agencies, for example those in Hawaii and Massachusetts, have implemented policies requiring the use of validated developmental and behavioral screens at well-child visits in response to lawsuits against the agencies. As a result, Hawaii had 6.71 percent of children ages 0 to 2 enrolled in early intervention programs in 2005, compared with a national average of 2.4 percent. (The Massachusetts policy, which requires every well visit for children 0 to 21 years to include a validated behavioral health screen, went into effect Jan. 1.)

Multiple Initiatives

State efforts to expand developmental screening include ABCD, or Assuring Better Child Health and Development, which The Commonwealth Fund initially launched in four states in 2000. Among them, North Carolina has seen a greater number of referrals to early intervention, leading the legislature to increase its funding for the program by \$7 million.

"We helped practices develop a process to integrate [developmental screening tools] smoothly into well-child care," says Marian Earls, M.D., medical director of Guilford Child Health, Inc., in Greensboro, N.C. As a result, the early intervention penetration rate increased from 2.9 to 4.9 percent among children from birth to three years of age; at the same time, the age of identification decreased, with referrals for children at or below 12 months of age increasing from 40 percent to 53 percent.

ABCD II rolled out in 2004 with five states and focused on children's socioemotional development. It was followed last July by the ABCD Screening Academy. A partnership of the National Academy for State Health Policy (NASHP) and The Commonwealth Fund, the Screening Academy brought

Medicaid and AAP representatives from 21 states together to build on the experience of the first two initiatives. "The purpose of the pilots and demonstrations and the Screening Academy is to develop the core from which to spread the practice, to identify changes needed to develop faculty that can talk to others—all the things you really need when you go to a more reluctant practice to convince them they ought to give it a try," says Neva Kaye, a senior program director at NASHP. As a result of this effort, 79 practices have implemented new workflow processes in their offices to incorporate standardized developmental screening.

In the Greenville, S.C.–area, a local initiative funded by the Duke Endowment, Promoting Resources in Developmental Education (PRIDE), started work in 2004 to make three key groups aware of the need for screening in children from birth to age 5: parents, child care providers, and pediatric offices. To date, 5,400 families have signed up to receive developmental milestone cards every three to six months. These cards highlight skills that children should have mastered at different ages and suggest activities to help children that haven't acquired them to do so. More than 900 child care providers have completed five-hour training sessions explaining early childhood development and signs of delays.

Among pediatricians, 16 of the 17 practices in the county participated in an initial meeting and chose to implement standardized screening using the PEDS. These practices received support through a PRIDE physician office liaison; they also were given PEDS questionnaires and a notebook with background information on developmental screening, guidelines on how to bill for these services, and local resources for referring children for whom developmental concerns were identified.

As a result, about 70 percent of physicians in these practices began routinely using development screens within the first three years of the program. Still, integrating standardized screening into office routines is not easy. "What we learned is that, over time, there is some attrition. There's certainly a need for a booster visit from the liaison to the program to keep it going," says Desmond Kelly, M.D., medical director, division of developmental-behavioral pediatrics at the Gardner Family Center for Developing Minds, Children's Hospital of the Greenville Hospital System.

Kelly says they anticipate receiving continued funding for the program and are currently considering expanding it to providers in surrounding counties who have expressed an interest in participating. Further work might seek to build links between pediatric offices and the services they need to refer to, such as early intervention and other developmental services. This is another area that often needs attention.

"Primary care physicians are not used to making those referrals, and [early intervention] staff are not used to giving information back as a result of those referrals," explains Kaye.

Looking Forward

Beaufort Pediatrics in South Carolina instituted developmental screening for children prior to the release of the 2006 AAP statement; the practice also screens for maternal depression, availability of family and community resources, domestic abuse, substance abuse, and socioeconomic distress, says Francis E. Rushton, M.D., a long-time pediatrician at the practice.

He believes these developmental and behavioral screens enable physicians to focus on the biggest concerns among children and

adolescents today, such as the fact that 30 percent of local children are not ready to learn when they start first grade. "If you look at where we're failing in pediatrics, it makes more sense to focus on the behavioral and developmental issues, and maybe on nutrition," says Rushton. "Formal developmental and behavioral screening forces you to make that a priority in anticipatory guidance with the family, making sure there are not some developmental issues that need to be addressed."

Further, the screening procedures implemented at Beaufort Pediatrics identified concerns that would otherwise have been missed, such as a suicidal mother of a newborn and another new mother whose break up with a boyfriend left her and her baby homeless. Alison Schonwald, M.D., a developmental behavioral pediatrician at Children's Hospital Boston, says these types of experiences also helped to spread the use of PEDS among physicians at Children's. "Many of the providers had an 'Aha!' moment where there was a kid picked up that wouldn't have been picked up if they didn't have the parent survey," she says. "That was hard to deny."

The fact that standardized screening, depending on the tool chosen, typically does not lengthen an average visit also helps garner physician support. For example, the average well-child visit at Martha Eliot Health Center, a community health center in Jamaica Plain affiliated with Children's,

decreased from 18 to 16 minutes after it implemented routine screening using the PEDS. Although this decrease wasn't statistically significant, the screen didn't add time, says Schonwald. "It adds structure to what you were already doing."

Developmental surveys introduce another piece of paper into the office, but once the necessary workflow changes are made to accommodate it, they can help to organize visits around a child's development, thus making routine well-child visits more efficient and effective. Says Kaye: "It eliminates the 'hand on the doorknob' questions."

Other proposed changes to pediatrics and family medicine, including the use of electronic health records (EHRs) and a shift to providing care within a medical home, are likely to help practices implement standardized developmental screening. Once in place, both EHRs and the medical home approach will better enable physicians and their office staff to handle the care coordination and case management required after developmental problems are identified.

"Practices are moving slowly in the direction of team-based care, and I don't think the screening protocol that we have now would work well if we didn't have someone on the team who was going to deal with the positive findings," says Rushton.

[\[back to top\]](#)

Screening Options

Interested in implementing standardized developmental and behavioral screening but not sure where to start? "There is no one test that is most applicable to all practices, but there is a process by which practices can select the tools that best fit their needs," says Paul H. Dworkin, M.D., professor and chair of pediatrics at the University of Connecticut School of Medicine and physician-in-chief at Connecticut Children's Medical Center.

The options include parent- or professionally completed surveys, with some available in multiple languages and/or electronically. The costs of these screening tools vary, as do their validity, appropriate ages for screening, and the

time required for completion.

The Web sites listed below were designed to help guide providers through the selection process. Covered topics range from the rationale for screening to guidelines for billing for reimbursement.

Still, "these instruments do not take the place of the pediatrician's knowledge of the child prior to the exam," adds Dennis Drotar, Ph.D., professor of pediatrics and psychology at Cincinnati Children's Hospital Medical Center. "The pediatrician's own observations and judgment are still very important."

The sites are:

- Developmental-Behavioral Pediatrics Online (dbpeds.org)
- Developmental Screening Tool for Primary Care Providers (developmentalscreening.org)
- Pediatric Developmental Screening: Understanding and Selecting Screening Instruments (http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=614864)

Case Study: Implementing Developmental Screening at Oxford Pediatrics

By Martha Hostetter

***Summary:** A pediatric practice in Oxford, Ohio, adopted a standardized developmental screening tool as part of a demonstration program led by the American Academy of Pediatrics. About 70 to 80 percent of families completed the developmental assessments, which helped pediatricians identify and address concerns without prolonging the length of an average well-child visit.*

The Issue

Research has shown that the sooner developmental problems are identified and addressed, the better the outcomes for children and their families. Yet, current rates of detection are much lower than the actual prevalence of developmental problems among young children, indicating that many potential concerns are not being identified and addressed.

The American Academy of Pediatrics (AAP) has [called for](#) the routine use of validated screening instruments to identify developmental problems during well-child visits. When pediatricians rely on their observations or impressions of a child, rather than completing formal screening tools, their estimates of the child's developmental status are much less accurate.^[1]

Organization and Leadership

Oxford Pediatrics has five physicians and two nurse practitioners in its main office, located in Oxford, Ohio. Providers also work out of two satellite facilities in Ross, Ohio, and Brookville, Ind. All together, the practice has about 22,000 patients in its database.

Amy Driscoll, M.D., one of the practice's three physician owners, has been with Oxford Pediatrics since 2001. She sits on the AAP's Quality Improvement Innovation Network steering committee, whose members take part in discussions and activities focused on improving various areas of pediatric practice.

Target Population

Oxford's initial intervention focused on the use of developmental screening for children

from birth to 18 months. The practice currently performs regular screenings for children up to age five.

Process of Change

From November 2004 to September 2005, Oxford Pediatrics took part in an AAP-led demonstration project to implement [Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents](#). These guidelines were developed by the Maternal and Child Health Bureau to provide pediatricians and family physicians with comprehensive health supervision advice, including recommendations on immunizations, routine health screenings, and anticipatory guidance.

The demonstration project focused on six practice areas: use of a preventive services prompting system, implementation of structured developmental assessments, evaluation of parents' needs and use of strength-based approaches, use of reminder systems for appointments or follow-up care, development of links to community resources, and creation of a registry of patients with special health care needs. Oxford Pediatrics participated in all aspects of the demonstration project; this case study focuses on their implementation of a structured developmental assessment tool.

In January 2005, two Oxford providers began using a standardized developmental screening tool, the [Ages and Stages Questionnaires](#) (ASQ), as a routine part of preventive care visits. There are different versions of the ASQ tailored for children at various ages, from four months to five years. Each has 30 questions, to be answered by parents, which assess five areas of children's development: gross motor skills, fine motor skills, communication, problem solving, and social behaviors.

Oxford chose to use the ASQ screening tool for several reasons. First, it has a one-time purchasing fee, after which practices are free to copy and use the survey as many times as needed. Oxford's providers also appreciated its high level of detail and the fact that it was designed to enable parents to work on at home.

"In completing the survey, parents are supposed to try out different activities with their children," says Driscoll. For example, parents assess young children's motor skills through activities such as stacking blocks. Older kids might be asked to hop on one foot or cut with scissors. "Ideally, kids should be happy and relaxed—which is not always the case at pediatric visits. Also, parents can try the activities more than once."

Oxford's two participating providers incorporated the age-appropriate version of the ASQ into their six-, 12-, and 18-month well-child visits. Using the practice's electronic medical records, office staff identified families with upcoming visits and then mailed them the survey two weeks in advance of their scheduled appointment.

Parents were asked to bring the completed surveys to the visit. If they forgot to do so, they were given an opportunity to complete the ASQ in the waiting room, where a box of toys was provided to help them try the activities with their children. Medical assistants scored the surveys, a process that takes about two minutes, and recorded the results on the child's medical chart for providers to review.

Providers generally took the following steps if a child's survey results pointed to a potential developmental delay:

- ***Verify that a delay exists.*** Providers reviewed the survey results and discussed them with parents. "In some cases, a

child had never tried a particular activity before," says Driscoll. "That may explain why they had problems with it on the survey. That's not as concerning as a child who has been trying to do something for a while—such as a preschooler trying to cut with scissors—and hasn't been able to master a particular skill." Providers then used their judgment to decide whether to immediately refer children for developmental services or to take time for further observation and revisit the issue during the next encounter.

- ***Complete ASQ activity sheets.*** Providers might recommend that parents use the ASQ activity sheets, which are designed to help cultivate particular age-appropriate skills. Suggested activities for infants (four to eight months) include filling an empty tissue box with strips of paper and letting them practice pulling the strips out. For an older child (24 to 30 months), activities include making an obstacle course out of household items such as pillows and boxes and letting them crawl over, through, and around these items. A five-year-old might practice writing skills by drawing letters on a cookie sheet smeared with pudding.
- ***Make referrals as needed to early intervention services or specialty care.*** For example, families might be referred to speech therapists, physical therapists, or occupational therapists; or to audiology exams, preschool-based programs, or Head Start. In some cases, they might be referred to neurology specialists or developmental clinics at a children's hospital.

After the designated well-child visits, office staff scanned the summary of the ASQ results into patients' medical records. Paper copies of the survey were returned to parents, who

could keep them as a reference or use them as a guide to work on activities their child had not yet mastered.

Oxford also created a master "referral book" to track referrals to early intervention and specialty services and ensure appropriate follow-up care. When a provider referred a child, they filled out a page in the book listing the family's contact information, identified developmental concern, and where the child was sent for further evaluation and/or treatment. A staff member then completed the health insurance forms and forwarded the child's medical records to the appropriate location.

At regular intervals, staff members reviewed the referral book to check whether they had a report back from providers to whom children were referred. If a report had not been received, a staff person would reach out to the families to see if they pursued the care, or if they needed help in securing appointments. If a child had received care, they would ask for a report back so that the child's pediatrician was informed of their progress and could follow-up with the family during the next well-child visit.

Key Measures

To monitor the effects of implementing the screening tool, Oxford Pediatrics tracked:

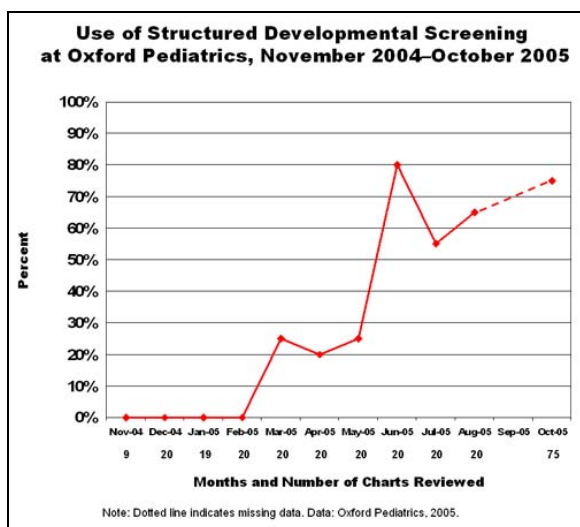
- the number of developmental screenings performed, and
- the length of well-child visits before and after implementation.

Results

The developmental screening tools were adopted in January 2005. Over the next few months, they were used in about 20 to 25 percent of visits, as it took some time for the tools to be incorporated into the office

workflow and mailed to parents at the appropriate times.

By July 2005, ASQs were being used in conjunction with 80 percent of the designated well-child visits. This number fell a bit over the next few months, but it was still 75 percent by the end of the Bright Futures project, in October 2005. In some cases, surveys were not completed because parents declined to participate—either because they said they were certain their child was "doing fine" or did not want to pay for the assessment if their insurance did not cover it. To help address these issues, the practice sent parents a cover letter along with the survey to explain the importance of developmental screening, let them know this service might not be covered by their insurance, and encourage them to check with their insurance provider before the visit. In other cases, medical assistants forgot to have parents who had not brought a completed assessment with them fill out the survey in the waiting room.



To respond to providers' concerns that developmental screening would lengthen their well-child visits, Oxford conducted time trials of 100 visits before and after implementing the ASQ. It found that using

an ASQ did not add to the length of an average well-child visit.

Today, all Oxford providers have incorporated the ASQ screening tool into their office visits for children at age 9 months, 15 months, two years, and four or five years, for a pre-kindergarten screening, following the process described above. According to a chart review in April 2008, the surveys are used in nearly 100 percent of visits.

Oxford's positive experience with the ASQ has led them to adopt or consider adopting other developmental tools. In March 2008, providers began using the Modified Checklist for Autism in Toddlers (M-CHAT) during the 18-month visit, as recommended by the AAP. They are considering adopting the ASQ tool used to detect psychosocial problems in older children, because they are seeing more school-age kids with behavioral problems. In addition, they may begin to screen for maternal depression, another determinant of a child's development, during an infant's one-month visit using the Edinburgh Postnatal Depression Scale.

Implications

Use of a parent-completed screening tool can engage families in their children's developmental issues, providing reassurance or helping to address their concerns. "Most parents like filling out the survey," says Driscoll. "It teaches them a little bit about development. They can say, 'Oh yes, my child is doing these things,' which confirms for them that he or she is progressing. Or they might be surprised to hear about a delay. One of the most common things the screening will pick up is a fine motor skill delay—it's hard for parents to notice this, especially before kids are in school or involved with structured activities."

Using a standardized screening tool did not prolong the length of an average well-child visit. Instead of trying to assess the spectrum of developmental issues, providers were able to focus on areas of concern identified by the screening. Oxford Pediatrics found it helpful to launch the ASQ with two providers; these individuals were then able to share their experiences with other providers and convince them of the benefits of this approach. "It's important to make certain all staff are aware of the changes being implemented, how they are being done, who is responsible for which tasks, and what the benefits are," says Driscoll.

Regular use of developmental screening tools can elicit concerns that might not emerge through clinical observation or unstructured communications with families. Driscoll points in particular to the benefits of giving parents time to reflect on their child's development. "Occasionally, parents will write in something that they might not have brought up during a visit," she says. "I had

one mother who noted on her ASQ that her child's leg was bowed. It turned out that the child had Blount's disease, a progressive growth disorder that needed to be addressed."

Providers use a standard billing code (96110) for developmental screening. While most insurance companies reimburse for this service, the amount varies greatly and can be quite low. Driscoll says payers typically reimburse Oxford providers from \$3 to \$40 for developmental screening. "So there is a little bit of a financial incentive to do it," she says. "But it also makes the pediatricians' job easier—it's thorough and it allows you to focus on areas of concern."

For Further Information

Contact Amy Driscoll, M.D., at adriscoll@woh.rr.com

[\[back to top\]](#)

References

[1] P. H. Dworkin (1992) "Developmental Screening: Still Expecting the Impossible?" *Pediatrics* 89, 1253–1255.

News Briefs

CMS May Add New Measures to Hospital Reporting Requirements

The Centers for Medicare and Medicaid Services (CMS) last month [recommended](#) updates to the hospital payment policies and rates, starting in fiscal year 2009.

Some of the proposed changes are related to the agency's efforts to make hospitals bear increased costs of treatment when patients acquire conditions that are preventable through adherence to evidence-based guidelines. Other changes would increase the

number of quality measures that hospitals are required to report to CMS in order to receive a full payment update the following year. These new measures would include patient safety indicators and inpatient quality indicators developed by the federal Agency for Healthcare Research and Quality (AHRQ).

Some of the quality measures would not involve hospitals reporting data to CMS; instead, CMS would calculate performance based on administrative data. In all, CMS has proposed to add 43 new measures and to

retire an existing measure. If the proposals are adopted, the total number of reporting measures for FY 2010 would reach 72.

Medicare Launches Personal Health Records Pilot

Would elderly and disabled Medicare beneficiaries make use of Web-based personal health records (PHRs) if they had access to them? CMS is seeking to answer this question through a one-year [pilot program](#) launched this month in South Carolina.

Thousands of Medicare beneficiaries have been given access to PHRs, which contain information about their hospital and outpatient care, as well as links to information about their health conditions. Beneficiaries can manually enter information on their prescriptions and over-the-counter medications. They also can choose to share these records with family members or providers by designating them as their authorized representatives.

Through the pilot, CMS hopes to learn more about beneficiaries' use of PHRs and ways to encourage further use. While participation is voluntary, CMS will be promoting the program to beneficiaries and physicians as part of the pilot.

Life Expectancy Declining in Parts of U.S.

Last month, the *New York Times* reported the results of a [study](#) showing that, while overall average life expectancy increased for American men and women between 1960 and 2000, it decreased or held steady for men and women in poor and rural parts of the country.

This study of long-term mortality trends, published in *PLoS Medicine* and based on data from the National Center for Health

Statistics and U.S. Census Bureau, found that the average U.S. life expectancy increased by seven years for men and by six years for women over this time period.

Yet, beginning in the 1980s, 4 percent of males and 19 percent of females experienced a decline or stagnation in life expectancy. The most significant declines were seen in Appalachia, the Southeast, Texas, the southern Midwest, and along the Mississippi River. The study pinpointed disparities in mortality rates by focusing on counties, the smallest unit for which mortality data are available.

Researchers determined that the leveling off or drops in life expectancy were rooted in the rising rates of diabetes, cancer, and chronic obstructive pulmonary disease, as well as a lack of improvement in cardiovascular mortality. They note that these conditions are closely related to smoking, high blood pressure, and obesity, all of which are amenable to changes in personal lifestyle and public health initiatives.

Nine States to Take Part in Quality Improvement Institute

Nine states will work to develop comprehensive quality improvement strategies in a new [State Quality Improvement Institute](#) led by The Commonwealth Fund and AcademyHealth. The states have each identified particular areas of focus, including value-based purchasing, quality reporting, care coordination, disease prevention, and wellness promotion. The Institutes' leaders will help states evaluate their policy options, provide expert and technical advice for planning and implementation, and facilitate networking among the states. The participating states are Colorado, Kansas, Massachusetts, Minnesota, New Mexico, Ohio, Oregon, Vermont, and Washington.

The Institute was created in response to Commonwealth Fund research documenting considerable variations in health care quality by geographic region. The Fund's [State Scorecard](#) suggests that states could save thousands of lives and significantly reduce costs if they raised performance to the levels achieved in top-performing states.

AHRQ Creates Innovation Clearing House

AHRQ recently launched the [Health Care Innovations Exchange](#), a Web site designed to disseminate best practices in health care delivery. Users can search through summaries of health care innovations in various areas of medical practice, take part in learning networks, and access educational resources.

Featured initiatives include: a standardized process to ensure smooth and safe transitions during nursing shift changes; a program to treat children with chronic illness who are

not sick enough to be hospitalized, but whose outpatient treatment has not been effective; and a school-based program that delivers oral health education and treatment to low-income children. The site includes examples of efforts with demonstrated success, as well as some that did not succeed due to problems with implementation, sustainability, or unforeseen negative consequences. In addition to summaries of innovative programs, the site includes quality tools such as worksheets, questionnaires, benchmarks, software, planning resources, calculators, algorithms, checklists, and brochures.

An AHRQ editorial team chooses the innovations and tools to feature on the site, selecting those that they deem to be new, have significant potential to change patient care delivery, and are designed to address health disparities.

[\[back to top\]](#)

Recent Publications of Note

Selected articles on quality improvement from a number of journals, including the *American Journal of Medicine*, *Annals of Internal Medicine*, *Archives of Pediatric and Adolescent Medicine*, *BMJ*, *Health Affairs*, *Health Services Research*, *International Journal for Quality in Health Care*, *Joint Commission Journal on Quality and Safety*, *Journal of the American Medical Association*, *Journal of General Internal Medicine*, *Journal of Patient Safety*, *Journal of Safety and Quality in Health Care*, *Medical Care*, *The Milbank Quarterly*, *The New England Journal of Medicine*, and *Pediatrics*. The articles are nominated by Editorial Advisory Board members from a preselected list.

Health Care Disparities

Patient Reports of Care Quality Vary Among Racial and Ethnic Groups

This Harvard School of Public Health/Robert Wood Johnson Foundation survey, of 4,334 randomly selected U.S.

adults, has sufficient sample size to examine differences in patient-reported quality of care between 14 racial and ethnic groups and whites. The authors found that, for each measure examined, at least five and as many as 11 subgroups "perceived their care to be significantly worse than care for whites"—in many instances by at least 15 percentage points. Many of these differences remained

after controlling for patients' socioeconomic characteristics and language skills. R. J. Blendon et al. (2008). [Disparities in Physician Care: Experiences and Perceptions of a Multi-Ethnic America](#). *Health Affairs* 27, 507–517.

Within-Hospital Disparities in Care Limited

Using three years of inpatient discharge data from 13 states, the study authors examined whether hospitals provide lower-quality care to minority patients than to white patients. Although they found racial disparities in the overall mortality and adverse event rates, there were no major differences in the quality of care across racial categories within hospitals. As these disparities were "isolated to a relatively small number of hospitals and appear to be for certain specific conditions," they recommend that policymakers focus on improving care for all patients at low-performing hospitals. D. J. Gaskin et al. (2008) [Do Hospitals Provide Lower-Quality Care to Minorities than to Whites?](#) *Health Affairs* 27, 518–527.

Asian Americans Often Receive Poorer Quality of Care

Although there is a large Asian population in the United States, few studies have focused on their health care experiences. This study demonstrates that Medicare data can be used to examine disparities between Asians and whites. The authors also found that such disparities are present in many metropolitan statistical areas (MSAs) with large Asian populations, though these disparities differ among MSAs. E. Moy et al. (2008) [Community Variation: Disparities in Health Care Quality between Asian and White Medicare Beneficiaries](#). *Health Affairs* 27, 538–549.

Provider Resources Influence Ability to Provide Quality Care

This study "builds on a new line of research that goes beyond assessing an individual patient's characteristics to also examine the contribution to racial disparities from the aggregate socioeconomic and insurance composition of the provider's entire patient base." Using national physician survey data, the authors found that the constrained resources of practices serving racial and ethnic minority populations help to explain the greater quality-related difficulties delivering care reported by physicians working in these practices. J. D. Reschovsky and A. S. O'Malley (2008) [Do Primary Care Physicians Treating Minority Patients Report Problems Delivering High-Quality Care?](#) *Health Affairs* Web Exclusive April 22, 2008, w222–230.

Quality Tools in Practice

A Blueprint for Putting Disparities Recommendations into Practice

Racial and ethnic minorities receive lower quality and intensity of health care compared with whites, and these disparities in health care contribute to continuing racial and ethnic disparities in the burden of illness and death, the authors write. As physicians often struggle to translate various recommendations for reducing disparities into specific interventions in their practices, this article outlines a series of specific actions for individual clinical practices to implement. D. L. Washington et al. (2008) [Transforming Clinical Practice to Eliminate Racial–Ethnic Disparities in Healthcare](#). *Journal of General Internal Medicine* 23, 685–691.

EHRs Improve Integrated Practice Network's Diabetes Care

Geisinger Health System implemented a multifaceted intervention within its network of 38 practice sites to improve compliance with recommended diabetes performance measures. An electronic registry, derived from a fully integrated electronic health record (EHR), was used to track a "bundle" of diabetes best practice measures created by a multidisciplinary group of physicians, along with audit and feedback, computerized reminders, and financial incentives. All measures of diabetes care improved over the 12-month study period, leading the authors to suggest that further work should focus on the effect of such improvements on patients' health outcomes. V. Weber et al. (2008) [Employing the Electronic Health Record to Improve Diabetes Care: A Multifaceted Intervention in an Integrated Delivery System](#). *Journal of General Internal Medicine* 23, 379–382.

Electronic Lab Viewing Improves Quality

This cross-sectional study of Taconic IPA (New York) primary care physicians examined whether electronic laboratory result viewing is associated with higher ambulatory care quality. Using generalized estimating equations, 15 quality measures were analyzed to determine associations between portal usage and quality; the authors found that electronic laboratory result viewing use was associated with high quality overall. L. M. Kern et al. (2008) [Electronic Result Viewing and Quality of Care in Small Group Practices](#). *Journal of General Internal Medicine* 23, 405–410.

Multidisciplinary Initiative Reduces Pediatric Central Line Infections

A retrospective, interventional study using an interrupted time-series design was conducted

to determine whether staff education, increased awareness, and practice changes would decrease central line-associated bloodstream infection rates in a pediatric cardiac intensive care unit. The researchers found that the estimated mean central line-associated bloodstream infection rate dropped from 7.8 infections per 1,000 catheter-days pre-intervention, to 4.7 infections per 1,000 catheter-days in the partial intervention period, and then to 2.3 infections per 1,000 catheter-days in the full intervention period. J. M. Costello et al. (2008) [Systematic Intervention to Reduce Central Line-Associated Bloodstream Infection Rates in a Pediatric Cardiac Intensive Care Unit](#). *Pediatrics* 121, 915–923.

PRIDIT: Using Process Measures to Rank Hospital Quality

This retrospective analysis of Medicare hospital data assessed whether PRIDIT methodology, an unsupervised, nonparametric aggregation technique, could be used to determine an aggregate relative measure of hospital quality. The analysis relied on data reported by 4,217 hospitals on 20 quality measures (for heart attack care, heart failure care, pneumonia care, and surgical infection prevention) and five structural measures of hospital type. The authors concluded that PRIDIT enables the use of individual process measures and demographic attributes to rank hospitals with respect to quality of care. R. D. Lieberthal (2008) [Hospital Quality: A PRIDIT Approach](#). *Health Services Research* 43, 988–1005.

Do Collaboratives Improve Community Health Centers' Quality?

This observational cohort study was designed to determine whether particular features of quality improvement collaboratives for asthma, cardiovascular disease, or diabetes

undertaken by community health centers were associated with improvements in health care processes or outcomes. Quality improvement activity reports and clinical data from 40 community health centers participating in the Health Disparities Collaboratives from 2000 to 2002 demonstrated that, while interventions based on the Chronic Care Model were fully implemented in the centers, no relationships between these activities and quality improvement were identified. E. Grossman et al. (2008) [Inside the Health Disparities Collaboratives: A Detailed Exploration of Quality Improvement at Community Health Centers](#). *Medical Care* 46, 489–496.

Health Care System Performance

Accelerating the Improvement of Systems of Care and Practice

In this commentary, Don Berwick, M.D., president and CEO of the Institute for Healthcare Improvement, writes that improving clinical evidence and improving the process of care are often in "unhappy tension." The gap between science and experience results from the fact that the introduction of a complex, multi-component intervention in hospitals is "sensitive to an array of influences: leadership, changing environments, details of implementation, organizational history, and much more. In such complex terrain, the [randomized control trial] is an impoverished way to learn." He concludes by recommending four changes in the current approach to evidence in health care: first, embrace a wider range of

scientific methodologies; second, reconsider thresholds for action on evidence; third, rethink views about trust and bias; and fourth, be careful about mood, affect, and civility in evaluations. D. M. Berwick (2008) [The Science of Improvement](#). *Journal of the American Medical Association* 299, 1182–1184.

Care Coordination Central to Quality Improvement

Tom Bodenheimer, M.D., of the Department of Family and Community Medicine at the University of California at San Francisco, writes that research "strongly suggests that failures in the coordination of care are common and can create serious quality concerns." The current barriers to the seamless coordination of care include: the lack of a strong primary care foundation, low implementation rates of electronic health records, dysfunctional financing for care, and the lack of integrated systems of care. Bodenheimer concludes by reviewing several models proposed to improve care coordination: using electronic referral and referral agreements to coordinate between primary and specialty care; hospitalist-initiated projects, advanced-practice nursing, and care transitions programs to coordinate care after hospital discharge; using the "teamlet" model to assist primary care practices; and paying for care coordination. T. Bodenheimer (2008) [Coordinating Care—A Perilous Journey Through the Health Care System](#). *New England Journal of Medicine* 358,106–1071.

[\[back to top\]](#)

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[\[back to top\]](#)

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