AHRQ works.

BUILDING BRIDGES BETWEEN RESEARCH AND PRACTICE

Accelerating learning and innovation in health care delivery is what AHRQ does—every day. AHRQ tools take the "what" and translate it into the "how" by providing research-backed, practical tools that doctors and nurses can use to improve care.

This document provides examples of how AHRQ is building the bridge between research and practice to achieve these goals:

- Keep patients safe
- Help doctors and nurses improve quality
- Develop data to track changes in the health care system
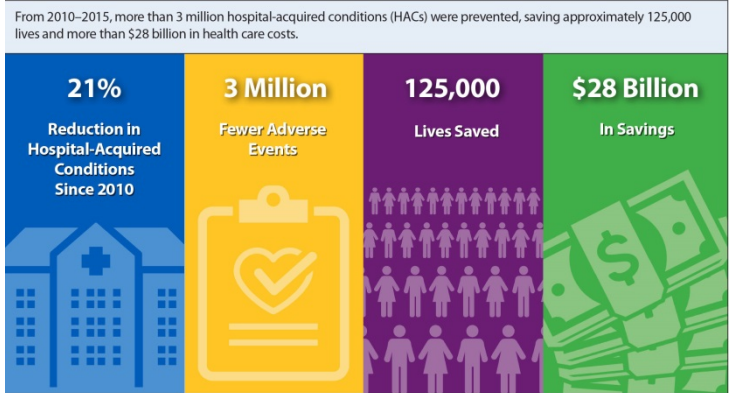
Goal: Keep Patients Safe

Since 2000, with Congressional support, AHRQ has invested heavily in patient safety to assist doctors and nurses in their efforts to keep patients safe when they receive medical care in hospitals, physician offices, nursing homes, ambulatory surgery centers, and other settings.

"If you want a [return] on our basic and clinical investments at NIH, you need AHRQ to improve care delivery so patients can benefit from the therapies that NIH discovered. AHRQ and only AHRQ is responsible for research on how to do it."

Peter Pronovost, M.D., Ph.D.

AHRQ's research and tools have contributed to significant reductions in hospital-acquired conditions, which patients develop while in the hospital being treated for something else. Hospital-acquired conditions have relatively high mortality risk and include central line-associated blood stream infections, ventilator-associated pneumonia, and post-operative venous thromboembolism. AHRQ's efforts contributed to a 21 percent reduction in hospital-acquired conditions, 125,000 lives saved, and $28 billion in savings since 2010. Preventing central line-associated blood stream infections, the top-ranked mortality risk among all hospital-acquired conditions, has been a patient safety focus for AHRQ. After Peter Pronovost, M.D., Ph.D., developed and tested a method called the Comprehensive Unit-based Safety

From 2010–2015, more than 3 million hospital-acquired conditions (HACs) were prevented, saving approximately 125,000 lives and more than $28 billion in health care costs.

| 21% Reduction in Hospital-Acquired Conditions Since 2010 | 3 Million Fewer Adverse Events | 125,000 Lives Saved | $28 Billion In Savings |

Figure 1. Patients Safer as Hospital-Acquired Conditions Decline

Program, or CUSP, at The Johns Hopkins Hospital, he nearly eliminated central line-associated blood stream infections in the hospital's intensive care units over a 4-year period. With funding from AHRQ, he deployed CUSP, which combines clinical best practices with training in safety education, process improvement, and teamwork, to more than 1,100 intensive care units nationwide and reduced central line-associated blood stream infection rates by 41 percent. AHRQ's and other HHS investments have led to central line-associated blood stream infections declining by 91 percent from 2010 to 2015 nationwide. (Figure 2) Today, the aim of hospital-acquired conditions actually becoming "never events" (that is, they should never occur when a patient is receiving medical care) is now within striking distance for central line-associated blood stream infections.
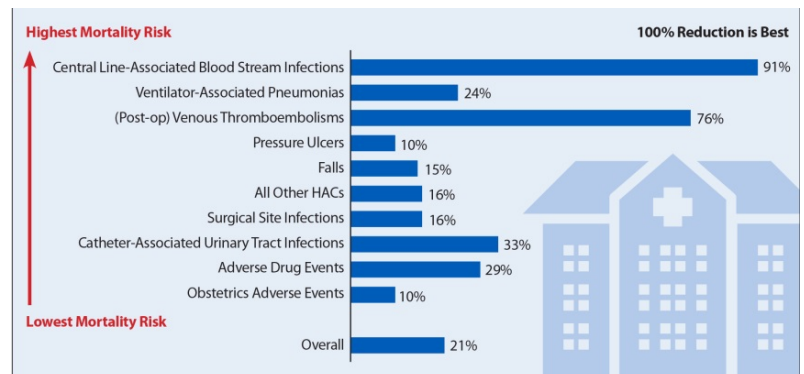

Highest Mortality Risk — **100% Reduction is Best**

Central Line-Associated Blood Stream Infections	91%
Ventilator-Associated Pneumonias	24%
(Post-op) Venous Thromboembolisms	76%
Pressure Ulcers	10%
Falls	15%
All Other HACs	16%
Surgical Site Infections	16%
Catheter-Associated Urinary Tract Infections	33%
Adverse Drug Events	29%
Obstetrics Adverse Events	10%
Overall	21%

Lowest Mortality Risk

Figure 2. Percent Reduction in Hospital-Acquired Conditions, 2010-2015 (Preliminary)

AHRQ Agency for Healthcare Research and Quality

Goal: Help Doctors and Nurses Improve Quality

AHRQ develops tools for doctors and nurses to improve safety, quality, and patient engagement in hospitals, physician offices, and nursing homes. AHRQ funded one of the Nation's leading tools for hospitals to reduce avoidable readmission rates, the RED (Re-Engineered Discharge) toolkit. AHRQ supported clinicians in using data to improve care delivery for nearly 30,000 children who have pediatric inflammatory bowel disease through the ImproveCareNow Enhanced Registries. AHRQ also funded the development of Project ECHO, an innovative model for improving treatment in rural and underserved communities.

The ImproveCareNow Registry includes 95 care centers and 900 physicians caring for 27,400 children with pediatric inflammatory bowel disease (IBD). Registry data led to practice changes so that children with IBD in the ImproveCareNow initiative:

- Saw an increase in remission rate from 58 percent to 81 percent
- Sustained remission for at least 1 year (52 percent)
- Achieved satisfactory growth (93 percent)
- Achieved satisfactory nutrition (91 percent)
- Do not take steriods (95 percent)

Thousands more children are able to attend school regularly, play sports, and enjoy overnights with friends.
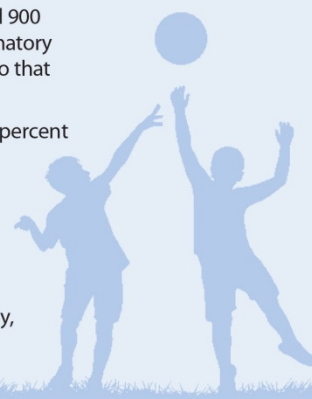
Figure 3. ImproveCareNow Enhanced Registry Project

RED (Re-Engineered Discharge) Toolkit

Initially developed through research conducted by AHRQ grantee Brian Jack, M.D., of the Boston University Medical Center, the RED toolkit is a standardized approach to discharge planning that centers on the patient by making follow-up appointments with patients' primary care physician, identifying medications that patients should take, educating patients about their diagnosis, and assessing patients' understanding of their care. By ensuring hospital staff members take these steps with every patient, the RED toolkit improves patient preparedness for self-care and reduces readmissions. At Boston University Medical Center, patients whose care incorporated the RED protocol had almost one-third fewer return trips to the hospital (both readmissions and emergency department visits) within 30 days and an average of $400 lower costs. AHRQ now offers a toolkit to help health providers apply RED and address language barriers and disparities in health care communication and trust. Scores of hospitals across the United States have received training to implement the RED toolkit. The Wisconsin Hospital Association used the RED toolkit and additional AHRQ tools in an initiative that avoided 30-day readmissions for an estimated 3,556 patients. Their quality and safety efforts reduced readmissions by 22 percent in 18 months, saving approximately $34.1 million.

"By making these tools available, accessible, and easy to use, AHRQ has allowed us to do more and faster than we otherwise could."
Kelly Court
Wisconsin Hospital Association

ImproveCareNow Enhanced Registries Project

AHRQ also supports doctors and nurses in using data to improve care delivery so their organizations can become learning health care systems. AHRQ's support led to doctors developing the ImproveCareNow Enhanced Registries Project, the world's largest registry for pediatric inflammatory bowel disease. The registry includes 45 percent of children in the United States with inflammatory bowel disease who receive care from pediatric gastroenterologists. The registry collects clinical data on medications, interventions, and patient outcomes and patient- and family-reported data on symptoms, medication side effects, outcomes, and the care experience. Using the registry data, physicians developed practice changes that resulted in dramatic improvement in children with the disease, including increased remission rates and improvements in growth and nutrition. (Figure 3)

"The data have helped complete the circle between patients, families, and care teams that were once missing pieces before ImproveCareNow (which) is creating the answer key to the puzzle of how to make sick kids feel better."
Tania Moon, parent volunteer

Project ECHO

AHRQ is committed to harnessing the power and promise of health information technology to improve quality and treatment. One of its now widely adopted projects began in 2004, when AHRQ awarded a grant to Sanjeev Arora, M.D, of the University of New Mexico's School of Medicine to establish the first clinic for the Extension for Community Healthcare Outcomes initiative (Project ECHO). This project opened the lines of communication between disease experts at an urban academic medical center and rural primary care physicians to combat widespread untreated hepatitis C in New Mexico. Today, using a tele-consultation network, Project ECHO helps primary care doctors across the country effectively treat rural and underserved patients in their own communities. A 2011 New England Journal of Medicine article showed that patient care was equally good whether provided by specialists or local primary care doctors.
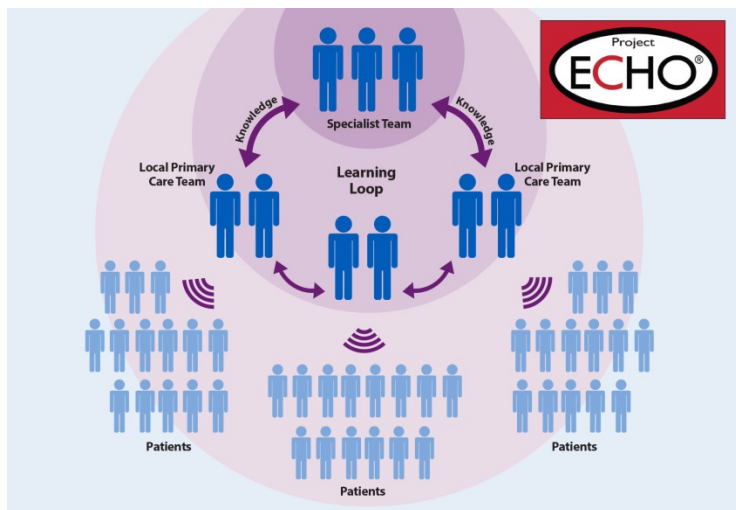
Figure 5. Project ECHO Learning Loop

Following AHRQ's lead, additional payers and funders have adopted Project ECHO, including the Department of Defense for pain and opioid management and the Veterans Health Administration for diabetes, pain management, and hepatitis C. Several HHS agencies and private foundations have also supported the Project ECHO model for providing care in rural areas.

Since the initial program, Project ECHO has spread:

- Geographically—With 77 specialist hubs in 33 States
- Clinically—With 55-plus conditions, including obesity, chronic pain, diabetes, mental health disorders, substance abuse, and rheumatologic diseases

The substantial growth and interest led Congress to enact the "Expanding Capacity for Health Outcomes" or ECHO Act in December 2016.
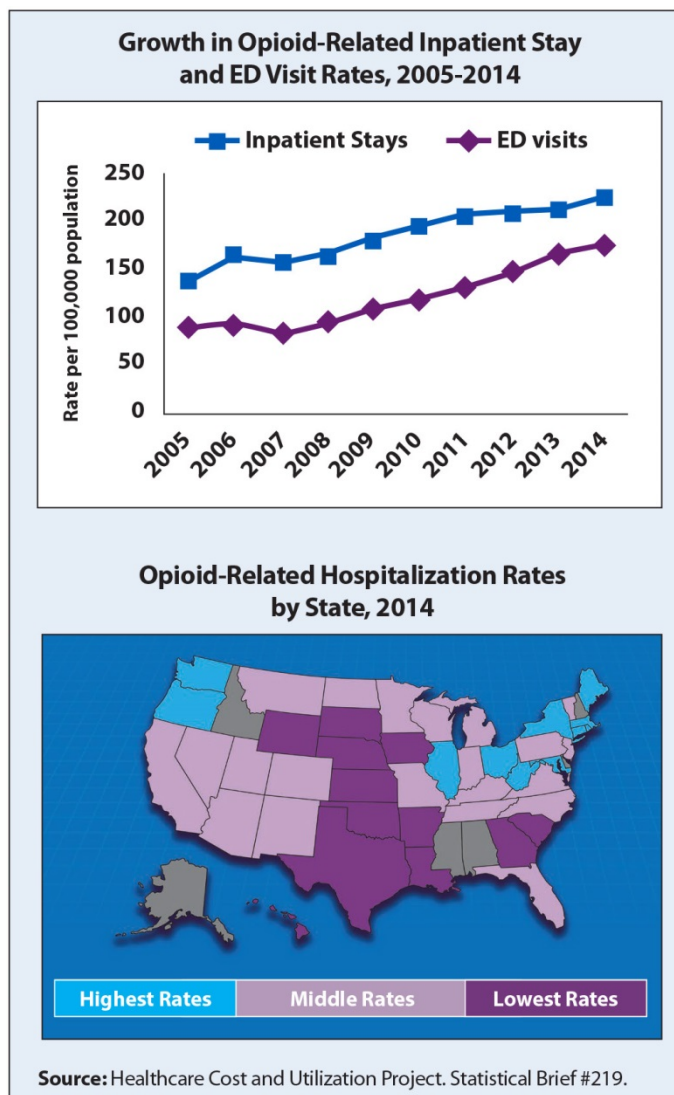
AHRQ currently funds Project ECHO to reduce opioid abuse in rural communities. Primary care doctors and nurses on the frontlines of the opioid epidemic are receiving remote training and expert consultation on delivering medication-assisted treatment from specialists at an academic hub via Project ECHO.

Goal: Develop Data to Track Changes in the Health Care System

As policymakers work toward finding the best solutions for reforming health care, AHRQ data initiatives help identify priorities for health care improvement and monitor trends over time. For example, data AHRQ developed on HACs have been invaluable in tracking progress in the Partnership for Patients, a Centers for Medicare & Medicaid Services-led public-private effort that has a goal to reduce HACs by 20 percent compared to the 2014 interim baseline and reduce 30-day all-cause readmissions by 12 percent. (Figure 1)

Analysis from AHRQ's Healthcare Cost and Utilization Project (HCUP), which includes the largest collection of all-payer, encounter-level hospital care data in the United States, provided an early flag of rising opioid use and helped target local-level solutions by identifying variations in opioid-related hospitalization rates across States. (Figure 5) State-specific opioid data from HCUP help show where the burdens on hospital care have grown the most. They may also suggest which States are making the most headway when it comes to tackling the epidemic.

According to AHRQ's analysis, the rate of opioid-related hospital stays increased 64 percent between 2005 and 2014. Meanwhile, the rate of emergency department visits doubled between 2005 and 2014. The data illustrate the wide divide among States in opioid-related hospitalizations: In 2014, Maryland had the highest rate of opioid-related hospital stays (404 stays per 100,000 population)—5.5 times higher than Iowa, the State with the lowest rate of stays (73 per 100,000).

Figure 4. AHRQ Data on Opioid Hospitalizations and Emergency Department Visits
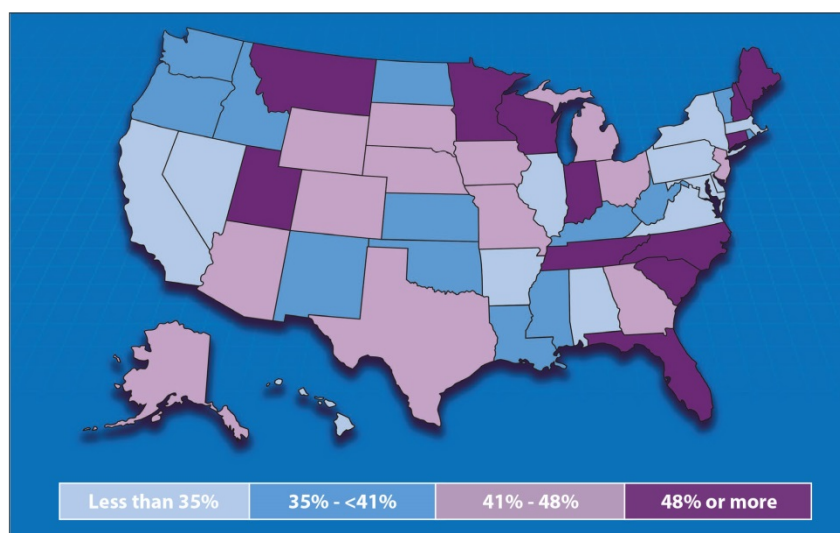
Figure 6. Percent of Private-Sector Employees Enrolled in an Employment-Based High Deductible Health Insurance Plan, by Quartiles

Legend: Less than 35% | 35% - <41% | 41% - 48% | 48% or more

HCUP analyses have also tracked trends in readmission rates by payer type; inpatient versus outpatient surgeries; and specific procedures such as double mastectomy. HCUP is developed through a Federal-State-industry partnership sponsored by AHRQ.

AHRQ's Medical Expenditure Panel Survey (MEPS)—a set of large-scale surveys of families and individuals, their medical providers, and employers across the United States – is used by legislative and executive branch agencies including the Government Accountability Office, the Congressional Research Service, the Congressional Budget Office, the Bureau of Economic Analysis, and the Department of Treasury in their analyses of health expenditures and health insurance. MEPS is the only national data source measuring how Americans use and pay for medical care, health insurance, and out-of-pocket spending.

At the State level, Arkansas used MEPS to identify characteristics of people who would be best served by Medicaid and private insurance when that State implemented its "private option" Medicaid expansion through a Medicaid waiver. The State Health Access Data Assistance Center also recently used MEPS Insurance Component data—the only comprehensive source of State-level employer health insurance data—to develop State by State analyses of employment-based health insurance.

AHRQ's MEPS data show national growth in the share of employees enrolled in employment-based high-deductible plans, yet with variations across states ranging from under 25 percent in the lowest five States to over 52 percent in the five States with the highest share in high-deductible plans. (Figure 6)

"…MEPS remains an important resource to those concerned with program cost and efficiency as well as the effects of changing health insurance coverage on health care use and subsequent health status."
Marc Berk, Contributing Editor, Health Affairs
Gail Wilensky, PhD, Economist and Senior Fellow, Project HOPE

More Information

For more information, visit AHRQ.gov.