



AcademyHealth

2008 HSR Impact Awardee Risk-Based Predictive Modeling

Improving the Financing and Delivery of Health Care with Risk-Based Predictive Modeling

THE ISSUE

In the early 1980s, CMS, then called the Health Care Financing Administration, needed a practical method to calculate medical-risk-based payments for its new Medicare risk contracting (HMO) program. The urgency increased with studies suggesting that Medicare HMOs enrolled healthier-than-average members, while the sickest beneficiaries remained enrolled in Medicare's traditional fee-for-service program. Health-based payments are designed to provide plans with the money needed to care for sick patients while not overpaying for healthy ones. It is now widely recognized that virtually all provider assessments require risk adjustment, because appropriate and expected costs, processes and outcomes of care vary greatly across providers' very different patient panels.

THE IMPACT OF HEALTH SERVICES RESEARCH

This award honors a body of work which brought risk adjustment to many users, especially Medicare, as it adopted health-based payments to health plans. The award recipients have promoted and facilitated risk-adjusted payments for protecting sick people and their providers through numerous peer-reviewed publications, national and international presentations, through consulting and in congressional testimony. They also provided the technical and practical tools that have helped make risk adjustment integral to health care management and financing today.



Risk-based predictive modeling using administrative claims data to predict health care costs and other patient outcomes has revolutionized the

financing, management and delivery of health care.

The Centers for Medicare & Medicaid Services (CMS) was a pioneer in recognizing the need for practical methods to assess medical risk and adjust payments to health plans for the underlying health of their Medicare enrollees. The urgency increased with studies documenting that Medicare was actually losing money in the Medicare risk contracting program because plans attracted "favorable selection." Medicare has used risk adjustment with increasing sophistication and weight since 2000, affecting 100 percent of health plan payments for the first time in 2007.

What made the DCG story unique was its focus on developing a practical tool to facilitate fair and efficient health plan competition.

For two decades, a team of researchers and analysts headed by Arlene S. Ash, Boston University School of Medicine, Randall P. Ellis, Boston University Department of Economics, and Gregory Pope, RTI International has provided the technical and practical

tools for the wide-spread use of risk adjustment in health care management and financing.

The risk adjustment story has many heroes, with CMS administrators and staff being its original and steadfast champions and with early help from the Alpha Center. Research teams at Brandeis and Boston Universities, RTI International, Johns Hopkins, RAND, the University of California, Kaiser, and Harvard have made important, continuing contributions. Additional lead developers and disseminators of risk adjustment include Barbara Starfield and Jonathan Weiner of Johns Hopkins, Richard Kronick of the University of California, San Diego, and Melvin Ingber and John Kautter of RTI International. Several companies have extended the tool set, producing "industrial strength" software that facilitates national and international adoption by governments, as well as mainstream use by health care actuaries, health plan administrators and medical directors. What made the DCG story unique was its focus on developing a practical tool to facilitate fair and efficient health plan competition.

Drs. Lisa I. Iezzoni and John Z. Ayanian of Harvard Medical School provided key clinical support for Medicare's Diagnostic Cost Groups (DCG) modeling framework. CMS now uses such models for paying plans, monitoring quality and assessing programs.

Many constituencies in U.S. health care and internationally now rely on predictive models

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Risk-Based (continued)

for financial and medical management. Applications include assessing the financial risk of populations; determining fair and efficient payments to health care providers and insurers; profiling provider efficiency and quality; calculating savings to share with more efficient providers; evaluating the effectiveness of innovations for improved care delivery; and focusing care management strategies and planning on the patients most likely to experience preventable hospitalizations. Risk

adjustment is part of all current health policy reform discussions.

DxCG now serves over 350 government, commercial and academic clients. Principally through the work of Drs. Ellis and Ash and founding CEO Marilyn Kramer, DxCG has adapted its methods to enable the German government to make risk adjusted payments for health care providers through their “sickness funds.”

RESOURCES

Further Reading

Iezzoni, L.I., J.Z. Ayanian, D.W. Bates, H. Burstin. Paying more fairly for Medicare capitated care. *New England Journal of Medicine* 1998;339:1933-8.

Ash, A, Y. Zhao, R.P. Ellis and M.S. Kramer. “Finding Future High-cost Cases: Comparing Prior Cost Versus Diagnosis-based Methods.” *Health Services Research*. 2001 Dec;36(6 Pt 2):194-206.

Iezzoni, L.I., ed. Risk Adjustment for Measuring Healthcare Outcomes, Third Edition. Ann Arbor, Michigan. *Health Administration Press*. 2003.

Pope, G.C., J. Kautter, R.P. Ellis, A.S. Ash, J.Z. Ayanian, L.I. Iezzoni, M.J. Ingber, J.M. Levy, J. Robst. “Risk Adjustment of Medicare Capitation Payments Using the CMS-HCC model.” *Health Care Financing Review*. Summer 2004;25(4):119-141.

Zhao Y., A.S. Ash, R.P. Ellis, J.Z. Ayanian, G.C. Pope, B. Bowen, L. Weyuker. Predicting Pharmacy Costs and Other Medical Costs Using Diagnoses and Drug Claims. *Medical Care*. 2005;43:34-43.

Robst, J., J.M. Levy, M.J. Ingber. Diagnosis-Based Risk Adjustment for Medicare Prescription Drug Plan Payments. *Health Care Financing Review*. Summer 2007;28(4):15-30.

Society of Actuaries (SOA)

“A Comparative Analysis of Claims-Based Tools for Health Risk Assessment” is the SOA Health Section’s report evaluating the predictive accuracy of commercially available claims-based risk assessment tools. It builds on findings from SOA studies completed in 1996 and 2002. <http://www.soa.org/soaweb/research/health/hlth-risk-assessment.aspx>.

What is health services research?

Health services research is the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately our health and well-being. Its research domains are individuals, families, organizations, institutions, communities, and populations.

— *AcademyHealth*, June 2000

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WEB SITES

The Centers for Medicare and Medicaid Services

http://www.cms.hhs.gov/MedicareAdvvtgSpecRateStats/06_Risk_adjustment.asp

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www.dxcg.com



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