

Trends in Predictive Modeling

David Knutson
University of Minnesota



Improving Your Hand in Care Management

May 4-7, 2008 - The Mirage - Las Vegas, Nevada

THE JOHNS HOPKINS UNIVERSITY'S 2008 ACG INTERNATIONAL RISK ADJUSTMENT CONFERENCE

“Challenges of global health care: Risk adjustment / predictive modeling are part of the solution” Jonathan Weiner 2008

Predictive Modeling is part of the solution: Issues and Trends

Insurance - PM is nearly fully implemented by US insurance plans for rate setting and underwriting

Health Care Delivery – PM is:

- nearly fully implemented for health plan DM and CM programs,
- Is being piloted for primary care based care management programs for high-risk cases, and
- Under extensive private and public development for value-based purchasing at both the health plan and provider level



Improving Your Hand in Care Management

May 4-7, 2008 - The Mirage - Las Vegas, Nevada

Insurance: PM has improved equity of access for high-risk populations

- When US health actuaries were surveyed to assess the financial impact of adverse selection bias without and with health-based risk adjustment, the mean value on a scale of 0 (no financial problem) to 10 (extremely serious financial problem) dropped from 6.8 to 3.5.
- The relative risk scores (selection bias) across health plans within four state Medicaid programs ranged from 24% to 46%. The implementation of PM based payment in these programs made it possible for plans that attract an inordinate share of sicker patients to participate in the program.

Risk Adjustment Impact Study, 2007



Insurance: PM has improved risk pool efficiency

- “the improvement in predictive power translates into superior margins for health plans incorporating (PM) into their underwriting models”
SOA Newsletter, 2006
- Pm produces more accurate renewal rates than prior cost information



Health Care Delivery: Value-Based Purchasing

- Purchasers seeking ways to transform from “passive bill payers” to value-based purchasers require new metrics that combine quality and cost of care i.e.. cost-effectiveness / technical efficiency
- Cost measures without quality measures can often be misleading e.g., MedPac study findings



Health Care Delivery: Value-Based Purchasing

- Efficiency measurement requires cutting edge risk adjustment
- Current PM development focuses only on risk adjustment of the cost of care component

“Efficiency of care is a measurement construct of cost of care or resource use associated with a specified level of quality of care”. Resource use comprises the risk-adjusted total cost of care across the entire episode.”

Measurement Framework: Evaluating Efficiency Across Episodes of Care, National Quality Forum, 2007.



Health Care Delivery: Value-Based Purchasing

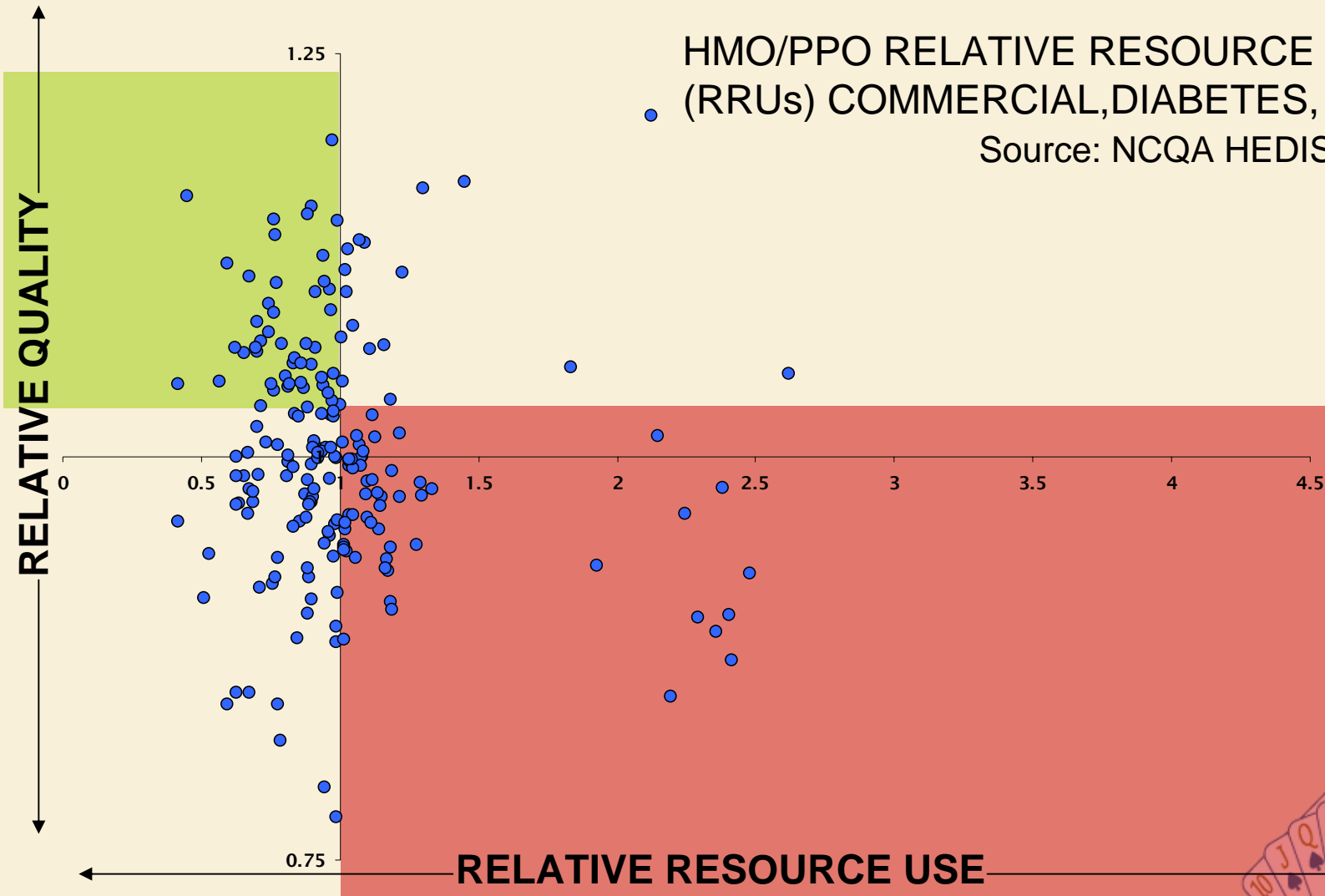
- In addition to risk assessment, provider-level efficiency evaluation requires other metrics, such as patient assignment algorithms and quality measures with adequate sample sizes

NCQA, HEDIS® 2007 Technical Specifications for Physician Measurement

- Future development will focus on improving risk adjustment of quality outcomes



THE JOHNS HOPKINS UNIVERSITY'S 2008 ACG INTERNATIONAL RISK ADJUSTMENT CONFERENCE



HMO/PPO RELATIVE RESOURCE USE
(RRUs) COMMERCIAL, DIABETES, 2006
Source: NCQA HEDIS, 2007

Improving Your Hand in Care Management

May 4-7, 2008 - The Mirage - Las Vegas, Nevada



Health Care Delivery: PM for Physician Practice Based Care Management

- Opportunities to refine and enhanced multi-stage PM models using an active feedback loop and data exchange between practitioners and purchasers
 - Payer data for PM is also useful to the primary care provider for monitoring total patient care for a population of patients
 - Mutual validation re: specificity and sensitivity
- Care gap and ‘impact-ability’ analysis for intervention alerts often based on national standards and metrics, e.g. NCQA, may be adjusted for the local practice setting and program design.



Summary

- Where PM has been implemented, it has proved to contribute materially when the solution is about reducing uncertainty regarding cost risk.
- The next frontier is combining risk, cost and effectiveness measurement for provider-based care management and for value-based purchasing

