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Issue Brief

Risk Adjustment Under the Affordable Care Act: A Guide for Federal and State Regulators

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ABSTRACT: To achieve the aims of the Affordable Care Act, state and federal regulators must construct an effective system of risk adjustment, one that protects health insurers that attract a disproportionate share of patients with poor health risks. This brief, which summarizes a Commonwealth Fund–supported conference of leading risk adjustment experts, explores the challenges regulators will face, considers the consequences of the law's risk adjustment provisions, and analyzes the merits of different risk adjustment strategies. Among other recommendations, the brief suggests that regulators use diagnostic rather than only demographic risk measures, that they allow states some but limited flexibility to tailor risk adjustment methods to local circumstances, and that they phase in the use of risk transfer payments to give insurers more time to predict and understand the full effects of risk adjustment.

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WHY RISK ADJUSTMENT IS IMPORTANT

State and federal regulators must accomplish many daunting tasks for implementation of health insurance reform to succeed. Among the most important is constructing an effective system of risk adjustment. Risk adjustment provides a behind-the-scenes mechanism to correct for market imbalances that occur if some insurers attract pools of subscribers whose expected medical costs are substantially greater or less than marketwide averages. It helps to accomplish this by subsidizing insurers that end up with a disproportionate share of high-cost patients and assessing competing insurers that—either through strategy or happenstance—end up with a better selection of health risks.

The need for risk adjustment arises from the skewed nature of health risk. As Exhibit 1 illustrates, if a population is sorted by its treatment costs each year, a remarkable pattern emerges: the top 20 percent of the population accounts for about 80 percent of total spending. The very highest medical costs are concentrated in the top 1 percent. And a full 50 percent of the population, which incurs

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few to no expenses, accounts for only 3 percent of overall spending.

This heavy concentration of medical costs strongly influences market dynamics. Insurers that attract more than their share of the top 20 percent will have trouble staying in business, while those that attract more than their share of the bottom half profit handsomely based on the risk status of the subscribers they attract or avoid. Therefore, insurers adopt various strategies to balance their risk pools or to come out ahead in the luck of the draw.

A central aim of the Affordable Care Act is to create market conditions in which insurers' prices reflect the underlying value and efficiency of their products rather than the composition of their risk pools.[1] To focus competition on value and

On October 1, 2010, The Commonwealth Fund sponsored a conference of experts and government officials to discuss issues and options for risk adjustment of health insurance under the Affordable Care Act. This issue brief provides the author's account of the most important issues discussed at that meeting, presents realistic options for addressing them, and summarizes the degree of consensus, disagreement, or uncertainty surrounding these options among conference participants. In addition to the meeting presentations and discussion, this brief draws from the author's own review of the literature on risk adjustment and from comments exchanged by participants in response to earlier drafts of the brief.

Participants in the meeting included:

Sharon Arnold, Centers for Medicare and Medicare Services and U.S. Department of Health and Human Services (HHS) Office of Consumer Information and Insurance Oversight

Arlene Ash, University of Massachusetts Medical School

John Bertko, LMI Center for Health Reform

Adam Block, HHS Office of Consumer Information and Insurance Oversight

Melinda Beeuwkes Buntin, Office of the National Coordinator for Health Information Technology

Sara R. Collins, The Commonwealth Fund

Donald Cox, HHS Office of the Assistant Secretary for Planning and Evaluation

Robert Damler, Milliman Inc.

Christine Eibner, RAND Corporation

Jeff Grant, HHS Office of Consumer Information and Insurance Oversight

Mark A. Hall, Wake Forest University

Sandra Hunt, PricewaterhouseCoopers LLP

Steve Johnson, The Lewin Group

Timothy Stoltzfus Jost, Washington and Lee University School of Law

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Pete Nakahata, HHS Office of Consumer Information and Insurance Oversight

Rebecca Paul, Centers for Medicare and Medicaid Services

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Murray Ross, Kaiser Foundation Health Plan

Jonathan Weiner, Johns Hopkins University

efficiency—which are defined by the scope of covered benefits, quality of care, and cost efficiency provided—the law prohibits insurers from refusing coverage based on medical condition, excluding coverage of preexisting conditions, or varying prices according to health status of those purchasing insurance in the individual and small-group markets.

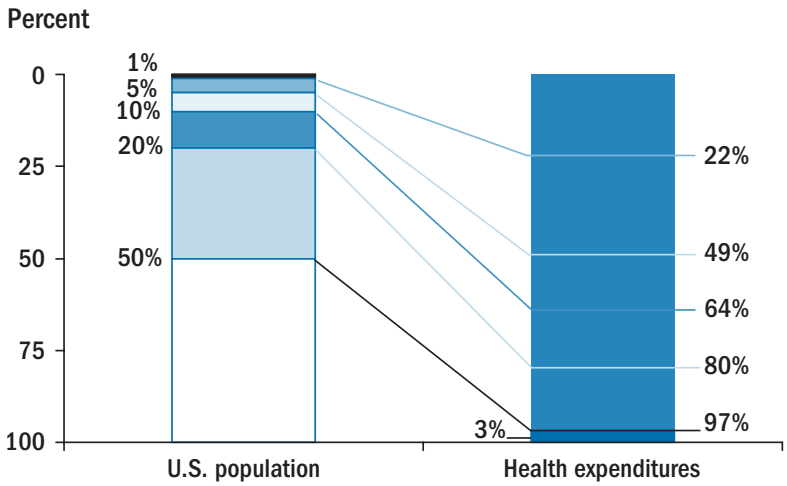
Prohibiting these risk assessment and risk selection techniques leaves insurers vulnerable to attracting a disproportionate share of patients with poor health risks. This vulnerability might cause them to leave the market or encourage them to use more covert or indirect means of risk avoidance, such as selective marketing or structuring their provider networks to exclude the doctors or hospitals preferred by higher risk patients.[2]

Even without such manipulation, people's preferences for insurance coverage, which naturally vary according to their anticipated needs, also create market imbalances.[3] Patients with higher anticipated medical costs tend to prefer products that require less patient cost-sharing, while those with cancer history often seek insurers whose networks offer a wide choice of oncologists. These preferences, and the uneven risk distribution that ensues from them, could make some insurers, providers, or benefit options unaffordable or less available, regardless of their underlying value. Uneven risk distribution could also damage the effectiveness of the new insurance exchanges created by the health reform law.[4] This brief provides guidance to state and federal regulators seeking to avoid these potential problems.

RISK ADJUSTMENT IN STATUTORY AND MARKET CONTEXT

The Affordable Care Act takes several steps to mitigate risk selection.[5] Except for grandfathered plans, it requires insurers in the individual and small-group markets to offer similar sets of essential benefits. The Act also requires insurers to charge their individual or small-group subscribers the same rates regardless of whether the coverage is sold through the new insurance exchanges or regular insurance markets. Finally, subscribers who want to receive premium subsidies or tax credits must purchase through the exchanges. These and other measures (such as limited open enrollment periods) will reduce some risk skewing but will not eliminate all potential risk-selection problems. Realizing this, Congress created three specific mechanisms—risk adjustment, risk corridors, and reinsurance—to mitigate insurer risk and to reduce the

Exhibit 1. Five Percent of the Population Accounts for Nearly Half of U.S. Health Expenditures, 2002



Source: L. J. Conwell and J. W. Cohen, *Characteristics of People with High Medical Expenses in the U.S. Civilian Noninstitutionalized Population, 2002*, Statistical Brief #73 (Washington, D.C.: Agency for Healthcare Research and Quality, March 2005).

incentives for risk selection under the market structures that will form starting in 2014.[6]

These mechanisms also address problems that may arise from the new exchange structure, which enables similar insurance markets to operate side-by-side and inside and outside of the exchange. It is important to assure that these different market segments compete on equal footing. If the market outside of the exchange attracts more favorable risks, the viability of exchanges might be threatened. It is also important to ensure that the prices charged for different policies offered through exchanges—defined as bronze, silver, gold, and platinum—reflect differences in their benefits and efficiency, and not differences in the risk of subscribers within each level.

The first mechanism, risk adjustment, is a permanent feature of the Affordable Care Act. The other two mechanisms—risk corridors and reinsurance—are transitional, meaning they will remain in place for three years to protect insurers in the start-up years when market dynamics and enrollee mix are uncertain, and when a sicker mix of enrollees will first transition from the Temporary Federal High Risk Pools to the individual market. Risk corridors and reinsurance each address a somewhat different aspect of risk, using different means and funding sources, as summarized in Exhibit 2.

WHAT RISK ADJUSTMENT CAN AND CANNOT DO

Under the Affordable Care Act, the insurance market will be divided into various market gradients, each of which has the potential for skewed risk distribution, as follows:

1. *Self-insured vs. insured plans.* Insured plans must charge average "community" rates to each purchaser; self-insured plans are rated according to their particular claims experience. This creates a very strong incentive for lower-risk groups to self-insure to avoid paying more than their actuarial risk. If this happens, then the market's average actuarial risk increases, driving up the premiums of insured plans. This problem is limited as long as exchanges are open only to groups up to 50 employees, which usually are not large enough to consider self-insuring, but the problem might become more serious when the Affordable Care Act's market reforms extend the small-group rules to groups of up to 100, since self-insurance is financially more viable for larger groups.
2. *Plans inside vs. outside the exchanges.* Insurers in the exchanges must offer the richer benefit options, while those outside the exchanges can limit their offerings to a leaner level. Insurers that sell both inside and outside the exchanges are required to price their products consistently, which should mitigate selection effects between their exchange

Exhibit 2. Relationship Among the "Three R's"

	Time span	Market segments (except grandfathered plans)	Type of risk addressed	Funding source
Risk adjustment	Permanent	Individual and small group, inside and outside of insurance exchanges	Attracting more high-risk or fewer low-risk patients than competitors	Transfer payments among insurers so that one's gains equal losses
Risk corridors	Transitional (3 years)	Individual and small group	Incorrect estimation of average (or total) costs in the start-up years	Unspecified
Reinsurance	Transitional (3 years)	Individual only, inside and outside of insurance exchanges	High-cost subscribers brought into the market by guaranteed issue	$20 billion from assessments of insurers and third-party administrators

and nonexchange products, but this rate pooling will not address the situation of insurers that sell only outside the exchanges. If such insurers were to attract better risks than the exchanges, ineffective risk adjustment might handicap the exchanges, keeping their coverage from being competitive with coverage available outside the exchanges.

3. *Insurers inside the exchanges*. Exchanges are meant to increase competition based on consumer value, as measured by covered benefits, quality of care, and cost efficiency. If some insurers end up attracting more high- or low-risk patients than others, these risk differences may dwarf whatever value differences plans might present.[7] Uneven risk distribution can happen randomly, through natural consumer preferences, or via strategic insurer behaviors. Mitigating these risk differences is critical to making the new exchanges function as effectively as possible.

4. *Different benefit tiers offered by the same insurer*. Both bronze and catastrophic plans are expected to attract lower-cost patients because they have higher cost-sharing requirements, while silver plans are expected to attract a disproportionate number of high-cost subscribers whose incomes fall below 250 percent of the federal poverty level. This is because silver-plan enrollment is necessary to receive the government subsidies that limit cost-sharing for lower-income people. To gauge the potential magnitude of this effect, RAND Corporation used its micro-simulation model[8] to project likely premiums assuming maximum participation in the exchanges under different scenarios.[9] It estimated that the silver plan's premium without risk adjustment could be as much as twice its actuarial value for people of average risk. In contrast, the bronze plan's premium (in a somewhat different scenario) could be 20 percent less than its actuarial value for people of average risk.

This risk sorting across benefit plans will create several difficulties. Among the most critical is that the Affordable Care Act uses the silver plan's premium to benchmark the government's premium subsidy for individuals below 400 percent of the federal poverty level. Thus, not risk-adjusting the silver plan's premium could greatly increase government costs.

Risk adjustment addresses possibilities two and four above (risk distribution inside and outside the exchanges). But, for risk adjustment to be effective, insurers will need to reflect the risk payments they make or receive in the premium rates they charge. For that to happen effectively, it is important for the risk adjustment methodology to be transparent and predictable so insurers can anticipate its likely effects in planning their rate structures.[10] It is also important to recognize, however, that the risk adjustment system itself does not determine whether particular premium rates are reasonable or adequate. That job is left to insurers and regulators, subject to minimum medical loss ratios.

Risk adjustment explicitly does not address the self-insured vs. insured selection gradient, as described in the first category. Although *reinsurance* partially reaches this dimension of selection, it does so only for high-cost outlier cases in the individual market, and it is limited to three years.

Risk adjustment will help to counteract or mitigate risk differences between exchange and nonexchange insurers, and among insurers within the exchanges. However, risk adjustment will not necessarily address directly the risk differences, described in category three above, that are likely to occur among the different benefit tiers offered by each insurer within the exchange. The Affordable Care Act's language references risk adjusting between insurers at the *entity* level, based on each insurer's *aggregate* risk profile. It is entirely possible, however, to apply risk adjustment weights to each benefit package within an insurer's overall block of business, before summing up to the entity level. That way, insurers, state regulators, and exchanges will know the relative risk profiles of bronze versus silver subscribers, for instance, and so can determine what adjustments in premium rates might be appropriate to keep premiums in proportion to relative actuarial value of benefits.

DESIGNING RISK ADJUSTMENT

Areas of Consensus and Uncertainty

When first implemented in the mid-1980s, health-based risk adjustment was crude and its potential effectiveness not fully realized,[11] but in the ensuing decades improvements have been made and obstacles overcome.[12] Risk adjustment of payments to both insurers and providers is now operational and widely accepted in many domestic and international settings. Although risk adjustment methods will always be a work in progress and will require refinement or correction over time, there is now an ample base of experience to draw from in a variety of settings.

The key to risk adjustment is how and when risk levels are assessed. Risk is assessed for each person relative to a population average (or "norm").[13] For instance, a score of 1.2 means the person is expected to incur 20 percent more cost per year than an average person, and a score of .8 means someone is expected to incur 20 percent less annual cost. (Costs refer to standardized costs for covered services, regardless of patients' cost-sharing.)

There are two basic measures to assess health risk—demographic and medical—and two basic methods: prospective and concurrent. Demographic assessment measures the expected medical costs according to population averages for age, gender, and location. (It is also possible to use income, race/ethnicity, or nationality/citizenship, but this is seldom or never done in the context of adjusting insurers' premiums.)[14] Medical assessment measures refer to actual diagnostic or treatment information collected from claims (or encounter) data.[15] Importantly, this information is not simply what costs were incurred, since that would be tantamount simply to experience-rating or cost-based reimbursement. Instead, information about the presence of a key diagnosis or use of prescription medication, for instance, is used to infer the possibility of total costs that might arise from a range of possible treatments that are statistically associated with the diagnosis or medication.

Risk can be assessed in one of two time perspectives.[16] Prospective assessment uses risk information from a prior period (usually a year) to predict likely costs in the upcoming year. Concurrent assessment uses information from the current year to measure each person's expected health care costs that year. Each of these measures and methods has multiple fine points of variation and nuance. There is no single accepted best way to do risk adjustment, and various current options present inevitable trade-offs among competing objectives.[17] Nevertheless, there appears to be broad agreement on the following points:

- *Adjustment based on demographic factors alone is insufficient.* Adjustment based on diagnostic information is much more accurate than that based on demographics alone.[18] To demonstrate this, Jonathan Weiner of Johns Hopkins University recently conducted a simulation that randomly assigned 50,000 members to each of 25 hypothetical health plans. Confirming several previous analyses by other researchers, he found that the best diagnosis-based adjuster is about five times more accurate than demographic adjustment, as measured by the percent by which the risk adjuster would overpay the lowest-risk plan or underpay the highest-risk plan.
- *Using diagnostic information is generally feasible for all types of health plans.* This is now done both for Medicare Advantage plans nationwide and for at least some Medicaid enrollees in approximately 20 states.[19] To the extent that some health plans currently lack the necessary systems to supply data, some may decide to exit the individual and/or small-group health insurance market. Those who remain are likely to adopt the necessary data systems in the foreseeable future as part of improving health information systems generally. Requiring health plans to collect systematic diagnostic information for risk adjustment purposes will assist them with other endeavors, such as care management, contracting with accountable care organizations, and adapting to "pay for performance" systems, all of which are also included in the Affordable Care Act.

- *Supplying diagnostic information will be more of a burden on some health plans than on others, depending on their current infrastructure and experience with diagnostic risk adjustment.* The concurrent implementation of a new diagnosis classification system creates additional challenges. However, many of the existing diagnostic risk assessment tools have already been mapped to ICD-10 for use in other countries.
- *Using diagnostic information will likely lead to some degree of upcoding (i.e., increased identification of higher-cost conditions),*[20] *but some degree of increased diagnostic coding is desirable in order to correct for inaccurate or undercoding.* Excessive upcoding can be addressed through auditing, annual corrections to keep the system at a standardized population level of 1.0, and periodic recalibration of relative diagnostic weights to reflect evolving clinical practices.
- *Adjustment based on pharmacy information is also considerably more accurate than rating based on demographics alone, but somewhat less accurate than using encounter-based diagnostic information.*[21] Using combined diagnostic and pharmacy data is only modestly more accurate than using diagnostic information alone.

Conference participants and published literature indicate no clear consensus on the following key design points, and so various options and factors should be weighed and considered. One set of methods might be used in the initial years, with a transition to a more permanent approach, with refinements along the way.

- Pharmacy data are usually easier to obtain than diagnostic data, but using pharmacy data creates worrisome incentives to encourage altering treatment patterns in order to increase risk scores.
- Prospective risk adjustment requires a longer enrollment history to generate an accurate risk score, but it gives insurers advance notice of what their financial obligations will be. It is also tied only to the expected spending of enrollees and thus does not provide incentives to deliver more care within a year. Concurrent risk adjustment can more accurately reflect actual spending, especially when there is greater membership turnover, but concurrent adjustment can delay final reconciliation, possibly substantially, depending on the type of data used. Concurrent risk adjustment would make the insurers' task of pricing products harder, but ultimately would more accurately reflect the variation in spending among plans.
- When individuals first join plans, risk rating is more difficult because new subscribers lack a track record with the plan. There are three basic choices: 1) no risk rating; 2) rating based only on demographics; and 3) rating based on medical information from prior coverage. The third option is much more accurate, but more cumbersome. However, the experience of states that share claims data across plans for purposes of profiling providers can help inform this issue. If risk data cannot be transferred among plans, the percentage of the population lacking medical risk information could be substantial. Turnover rates for small-group enrollees can be in the range of 35 percent to 40 percent per year,[22] which is much more frequent than for Medicare or disabled Medicaid beneficiaries.

Centralized vs. Distributed Data and Rate-Calculation Systems

A major issue for regulators to decide is whether risk scoring should be done centrally, by a government agency or contractor, or through a distributed or decentralized system that relies on insurers to calculate their own scores based on centrally determined algorithms and data elements. Medicare and most or all Medicaid agencies use a centralized system because this improves the integrity and consistency of data and scoring among competing insurers. Also, from a regulatory perspective, a central system could collect data for various monitoring and administrative purposes.

However, public concerns about medical privacy might be considerably greater with a centralized data collection system. Although a centralized system

is accepted for public insurance, privacy advocates may have much greater concern about using this method for private insurance. Privacy objectors might be quite vocal, considering the depth of divided public sentiment about the health reform law in general and the individual mandate in particular. A distributed system could avoid the need to report, collect, and store large amounts of medical data in a centralized location.

There are many challenges, however, with doing risk calculations at the plan level, particularly in the early years of the program. Experience in other programs shows that several years of data reporting requirements are needed before plans consistently are able to provide good quality data for risk adjustment calculations. Insurers are justifiably concerned that they may lose out to their competitors in the risk adjustment process based on inaccurate data or wrongly applied scoring algorithms. Maintaining insurers' trust in a risk transfer system might require having risk scores and their underlying data verified through a third-party audit process.

Nevertheless, a partially decentralized system might be possible if insurers were required to adopt standardized data formats and components, subject to selective auditing. For instance, rather than all claims records, insurers could transfer only a "flagged" file, indicating whether each of a limited number of risk indicators or "grouper" categories is present or absent. Another possibility is for insurers to report medical information in a de-identified but coded form for central computation of individual risk scores, with those scores then reported back to insurers for verification. If risk scores need to be tracked individually, insurers could report summary scores to the central agency that have patient identifiers but not detailed medical information.

In sum, it will be difficult to reach a compromise that satisfies all concerns, but consideration should be given to structuring data and reporting systems so that patient identifiers are separated from potentially sensitive medical information to the extent possible.

IMPLEMENTATION ISSUES

State-Level Variation

Whatever approach ultimately governs risk adjustment under the Affordable Care Act, careful thought should be given to the best implementation strategy. One important issue to consider is how much flexibility states should have to vary risk adjustment methods to meet local factors and preferences. Although the statute requires the U.S. Department of Health and Human Services, in consultation with states, to "establish criteria and methods to be used in carrying out the risk adjustment activities under" the Affordable Care Act, it appears consistent with the statute to allow some variation among states. Federal rules or guidance could sanction a range of possible approaches, or specify a standard approach but allow for states to request modifications. Or, the federal standard could specify common data elements but allow variation in the scoring algorithms or methods, as well as how they are phased in.

Exhibit 3 presents reasons that favor and disfavor standardization in risk adjustment methods. Considering them, there was general agreement among meeting participants that states should be allowed some limited flexibility to choose a scoring system or approach. However, it would be highly desirable to standardize nationally the data elements and structure required for risk adjustment, even if particular scoring systems and methods vary across states.

Implementation Issues

It is always challenging to initiate a new risk adjustment system, but several factors make the process especially challenging here. First, in the initial year insurers will lack the requisite baseline experience to calibrate risk scores to the exact populations covered or to conduct prospective risk adjustment. Second, market conditions for individual and small-group insurance could dramatically differ in 2014; this would create substantial uncertainty about the reliability of prior experience with similar adjustment methods. The many unknowns about the new market conditions are likely to make it difficult for insurers to set their

Exhibit 3. Factors Informing the Degree of Standardization in Risk Adjustment Methods

	Reasons favoring standardization	Reasons favoring state variation
Market structures	More consistency across states for regional or national insurers.	Local market conditions will vary according to many factors, including: whether the individual and small-group markets are merged; the size, structure, and market share of each exchange; the distinctiveness of local provider networks; and the degree of managed care in the local market.
Available knowledge base	National uniformity will generate a deeper and wider knowledge base.	Matching private insurance risk adjustment methodologies to those used for Medicaid or state employee programs would leverage existing local experience, knowledge, and administrative capacity.
Risk score portability	It is simpler to transfer risk scores when subscribers move out of state (although conversion factors can be devised that handle this).	Harmonizing methods with Medicaid could facilitate transfer of risk scores when people move back and forth between public and private coverage.
Stakeholders	Designing risk adjustment systems is complicated and can be contentious. Having more local options may prove cumbersome and divisive.	Local participation in system design might promote buy-in and confidence by various stakeholders, which could aid implementation and enforcement.
Oversight and administration	Centralized administration is simpler to conduct and oversee.	Centralized administration is still possible, for instance by contracting with a third-party intermediary that has capacity to accommodate variation among programs.

initial premiums. Some may hesitate to participate in the individual and/or small-group market until more experience emerges. However, large plans are likely to want to participate early to capture a share of the new enrollees. Finally, issues of trust loom large in the mind of insurers when risk transfer payments are made among competitors.

Based on these considerations, there was general agreement on the following points:

- The risk adjustment methods used the first year or two might differ substantially from than those eventually adopted. For instance, the first year might use concurrent adjustment based only on demographics and pharmacy data, before transitioning to prospective adjustment using diagnostic data.
- To build confidence among insurers and prevent inevitable glitches and problems, regulators should perform simulations of critical data transfers and initial scoring systems.
- Consideration should be given to making only a portion of the risk transfer payments that might be otherwise justified in the early years. This dilution of risk adjustment would give insurers more time to predict and understand the full effects of risk adjustment. The downside of such a phased-in approach is that it would under-compensate some insurers.
- There is a trade-off between structuring data systems to capture all the information that might eventually be needed and keeping data requirements to a minimum during the initial years. One possible resolution is to specify full, anticipated data requirements at the outset, but indicate which elements will be essential or required in the first year or two.

CONCLUSION

The Affordable Care Act presents an opportunity to make the health care system more accessible and affordable, especially for patients with preexisting or chronic health conditions. But accomplishing health reform's goals requires effective risk adjustment to ensure that the highly skewed distribution of medical costs across any population does not destabilize insurance markets by favoring some insurers over others. Although risk adjustment may be the thickest of technocratic regulatory weeds, wading into this thicket is critical if insurance reforms are to succeed.

NOTES

[1] K. Baicker and W. H. Dow, "Risk Selection and Risk Adjustment: Improving Insurance in the Individual and Small Group Markets," *Inquiry,* Summer 2009 46(2):215–28.

[2] American Academy of Actuaries, *Risk Classification in the Voluntary Individual Health Insurance Market* (Washington, D.C.: American Academy of Actuaries, March 2009), http://www.actuary.org/pdf/health/risk_mar09.pdf; M. Merlis, *Fundamentals of Underwriting in the Nongroup Health Insurance Market* (Washington, D.C., National Health Policy Forum, April 2005), http://www.nhpf.org/library/details.cfm/2480.

[3] W. P. Van de Ven and R. P. Ellis, "Risk Adjustment in Competitive Health Plan Markets," in A. J. Culyer and J. P. Newhouse, eds., *Handbook of Health Economics,* 17th ed. (Elsevier, 2000), 755–845; H. S. Luft and R. A. Dudley, "Assessing Risk-Adjustment Approaches Under Non-Random Selection," *Inquiry*, June 2004 41(2):203–17.

[4] M. Lodh, M. L. Raleigh, C. E. Uccello et al., *Risk Assessment and Risk Adjustment* (Washington, D.C.: American Academy of Actuaries, 2010), http://www.actuary.org/pdf/health/Risk_Adjustment_Issue_Brief_Final_5-26-10.pdf.

[5] T. S. Jost, *Health Insurance Exchanges and the Affordable Care Act: Eight Difficult Issues* (New York: The Commonwealth Fund, Sept. 2010).

[6] M. A. Hall, "The Three Types of Reinsurance Created by Federal Health Reform," *Health Affairs,* June 2010 29(6):1168–72.

[7] Jost, *Health Insurance Exchanges*, 2010.

[8] C. Eibner, F. Girosi, C. C. Price et al., *Establishing State Health Insurance Exchanges* (Santa Monica, Calif.: Rand Corporation, 2010), http://www.rand.org/pubs/technical_reports/TR825.html.

[9] Specifically, the simplifying model assumed that *all* non-grandfathered purchasers with 100 or fewer members were inside the exchange.

[10] Responsive rating also favors eventual adoption of a more "prospective" adjustment method. In the first three years, however, the risk corridors help guard against inaccurate projections of risk adjustment and other market conditions.

[11] J. B. Fowles, J. P. Weiner, D. Knutson et al., "Taking Health Status Into Account When Setting Capitation Rates: A Comparison of Risk-Adjustment Methods," *Journal of the American Medical Association,* Oct. 1996 276(16):1316–21; D. L. Rogal and A. K. Gauthier, "Are Health-Based Payments a Feasible Tool for Addressing Risk Segmentation?" *Inquiry*, Summer 1998 35(2):115–21; R. Kuttner, "The Risk-Adjustment Debate," *New England Journal of Medicine*, Dec. 1998 339(26):1952-6; D. L. Dunn, "Applications of Health Risk Adjustment: What Can Be Learned from Experience to Date?" *Inquiry,* Summer 1998 35(2):132–47.

[12] L. M. Greenwald, "Medicare Risk-Adjusted Capitation Payments: From Research to Implementation," *Health Care Financing Review*, Spring 2000 21(3):1–5; D. J. Knutson, "Risk Adjustment of Insurance Premiums in the United States and Implications for People with Disabilities," in M. J. Field and A. M Jette, eds., *The Future of Disability in America* (Washington, D.C.: National Academies Press, 2007), 394–425; K. E. Martin, D. L. Rogal, and S. B. Arnold, *Health-Based Risk Assessment: Risk-Adjusted Payments and Beyond* (Washington D.C.: AcademyHealth, 2004), http://www.academyhealth.org/Publications/BriefDetail.cfm?ItemNumber=1738; W. P. Van de Ven, K. Beck, F. Buchner et al, "Risk Adjustment and Risk Selection on the Sickness Fund Insurance Market in Five European Countries," *Health Policy,* July 2003 65(1):75–98; R. P. Ellis, "Risk Adjustment in Health Care Markets: Concepts and Applications," *International Health Care Financing,* published online March 2008, http://sws.bu.edu/ellisrp/EllisPapers/2007_Ellis_Riskadjustment25.pdf.

[13] R. Winkelman and S. Mehmud, *A Comparative Analysis of Claims-Based Tools For Health Risk Assessment* (Schaumburg, Ill.: Society of Actuaries, 2007), http://www.Soa.Org/Files/pdf/Risk-Assessment.pdf.

[14] Adjusting for race or nationality might inappropriately reinforce disparities in treatment. Adjusting for income is more socially defensible, but insurers typically lack income information. However, because insurance exchanges will be collecting income information to determine eligibility for premium subsidies, it might be feasible to include income as an additional demographic adjustment factor.

[15] Because salaried physicians and capitated providers do not submit actual claims, equivalent information is recorded during medical visits and is referred to as encounter data.

[16] R. A. Dudley, C. A. Medlin, L. B. Hammann et al., "The Best of Both Worlds? Potential of Hybrid Prospective/Concurrent Risk Adjustment," *Medical Care,* Jan. 2003 41(1):56–69.

[17] The Hilltop Institute, *A Guide to Implementing a Health-Based Risk-Adjusted Payment System for Medicaid Managed Care Programs* (Baltimore: The Hilltop Institute, 2003), http://www.Hilltopinstitute.Org/Publications/A%20Guide%20to%20Implementing%20a%20Health-Based%20Risk-Adjusted%20Payment%20System%20for%20Medicaid%20Managed%20Care%20Programs_March%202003.pdf.

[18] A. S. Ash, R. P. Ellis, G. C. Pope et al., "Using Diagnoses to Describe Populations and Predict Costs," *Health Care Financing Review*, Spring 2000 21(3):7-28; J. P. Weiner, A. Dobson, S. L. Maxwell et al., "Risk-Adjusted Medicare Capitation Rates Using Ambulatory and Inpatient Diagnoses," *Health Care Financing Review*, Spring 1996 17(3):77–99.

[19] J. Hsu, J. Huang, V. Fung et al., "Distributing $800 Billion: An Early Assessment of Medicare Part D Risk Adjustment," *Health Affairs*, Jan. 2009 28(1):215–25; G. C. Pope, J. Kautter, R. P. Ellis et al., "Risk Adjustment of Medicare Capitation Payments Using the CMS-HCC Model," *Health Care Financing Review,* Summer 2004 25(4):119–41; J. S. Weissman, M. Wachterman, and D. Blumenthal, "When Methods Meet Politics: How Risk Adjustment Became Part of Medicare Managed Care," *Journal of Health Politics, Policy and Law*, June 2005 30(3):475–504; R. Winkelman and R. Damler, *Risk Adjustment in State Medicaid Programs* (Schaumburg, Ill.: Society of Actuaries, 2008), http://www.soa.org/library/newsletters/health-watch-newsletter/2008/january/hsn-2008-iss57-damler-winkelman.pdf; G. F. Kominski, *Medicare's Use of Risk Adjustment* (Washington, D.C.: National Health Policy Forum, 2007), http://www.nhpf.org/library/background-papers/BP_RiskAdjustMedicare_08-21-07.pdf.

[20] J. Angeles and E. Park, *"Upcoding" Problem Exacerbates Overpayments to Medicare Advantage Plans* (Washington, D.C.: Center on Budget and Policy Priorities, 2009), http://www.Hccblog.Com/Files/Cbpp_Upcoding.pdf.

[21] T. Gilmer, R. Kronick, P. Fishman et al., "The Medicaid Rx Model: Pharmacy-Based Risk Adjustment for Public Programs," *Medical Care,* Nov. 2001 39(11):1188–1202; J. Hsu, V. Fung, J. Huang et al., "Fixing Flaws in Medicare Drug Coverage That Prompt Insurers to Avoid Low-Income Patients," *Health Affairs,* Dec. 2010 29(12):2335–43.

[22] R. Cebul, J. B. Rebitzer, L. J. Taylor et al., *Organizational Fragmentation and Care Quality in the U.S. Health Care System* (New York: National Bureau of Economic Research, 2008), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1230840.

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