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The 8 Basic Payment Methods in Health Care

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Eight basic payment methods are applicable across all types of health care. Each method is defined by the unit of payment (per time period, beneficiary, recipient, episode, day, service, dollar of cost, or dollar of charges). These methods are more specific than common terms, such as capitation, fee for service, global payment, and cost reimbursement. They also correspond to the division of financial risk between payer and provider, with each method reflecting a risk factor within the health care spending identity. Financial risk gradually shifts from being primarily on providers when payment is per time period to being primarily on payers when payment is per dollar of charges. Method 4 (per episode) marks the line between epidemiologic and treatment risk. The 8 methods are typically combined to balance risk and thus balance incentives between payers and providers. This taxonomy makes it easier to understand trends in payment reform—especially the shifting division of financial risk and the movement toward value-based purchasing—and types of payment reform, such as bundling, accountable care organizations, medical homes, and cost sharing. The taxonomy also enables prediction of conflicts between payers and providers. For each unit of payment, providers are rewarded for increasing units while decreasing their own cost per unit. No payment method is neutral on quality because each encourages and discourages the provision of care overall and in particular situations. Many professional norms and business practices have been established to mitigate undesirable incentives. Health care differs from many other industries in that the unit of payment remains variable and unsettled.

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I propose that 8 basic payment methods apply to all types of health care and all payers. I describe their development, implications for provider and payer behavior, and mathematical relationship within the health care spending identity. The goal is to help clarify debates on payment reform and value purchasing. Although the examples reflect U.S. experience, the principles are relevant to payment reforms elsewhere (1).

To be sure, money does not drive many decisions of physicians and other health care providers. For centuries, medicine has espoused the value that "The physician's first and primary duty is to the patient" (2). Every health care professional has witnessed patients receiving excellent care regardless of financial incentives.

Yet payment methods clearly affect whether, how, and how much care is provided. Examples include hospital length of stay (3), diagnostic imaging in physician offices (4), home health care visits (5), coordination among physicians and hospitals (6), the volume and mix of services under fee-for-service medicine (7), and much more. Financial incentives seem particularly potent in situations of clinical ambiguity, such as diagnostic tests, follow-up visits, and some procedures (8). Effects of financial incentives often become more evident over time, such as decisions to open and close business lines (9) and medical students' choice of specialty (7).

Health care—rarely pleasurable, often uncomfortable, and occasionally dangerous—is not purchased for its own sake but rather as a path toward health. As an economic good, however, health is ephemeral (10). Moreover, most purchasing decisions are made not by consumers, but by payers acting on their behalf. Practically speaking, we cannot buy health but we can buy health care. Many recent initiatives aim to close this gap and achieve more health for the health care dollar (1, 11).

The 8 Basic Payment Methods

Payment methods are distinct from payment levels. Although payment methods certainly affect growth in spending over time, there are many alternatives for paying providers for any given level of spending. (Methods and levels are typically negotiated between providers and commercial payers and are set unilaterally by government payers.) These alternatives can be understood as combinations of the 8 basic methods described in Table 1. The essential difference among methods is the unit of payment, which divides financial risk between payer and provider. The methods are presented in order from top to bottom, with financial risk increasing for payers and decreasing for providers. Although the 8 methods form a continuum, method 4 (per episode) marks the line between epidemiologic risk (prevalence of medical conditions) and performance risk (treatment of medical conditions).

This taxonomy may increase clarity in clinical and policy discussions in which participants often use similar terms to mean different things. Here, for example, "fee for service" means method 6 (per service). The common use of "fee for service" as the counterpoint to capitation is imprecise because it comprises methods 4 through 8. The taxonomy also avoids confusing terms, such as "global" and "bundled" (Table 2).

The U.S. Secretary of Health and Human Services, Sylvia Burwell, recently crystallized Medicare payment reform efforts by stating that within 3 years, 90% of Medicare payments will be tied to quality or value, with 50% of those total payments tied to quality or value through alternative payment models (11). (The percentages exclude managed care, which accounted for about one quarter of the $583 billion in Medicare payments in 2013 [23].) Alternative payment models include accountable care organizations, medical homes, bundled payment arrangements, payment per episode

Table 1. The 8 Basic Payment Methods in Health Care*

Unit of Payment	Common Term	Examples (Common Classification Systems)	Comment
1. Per time period	Budget and salary	Salaried physicians and government hospitals	Typically but not necessarily per year
2. Per beneficiary	Capitation	Managed care organizations (ACG, CDPS, CMS-HCC, CRG, and DxCG)	More commonly used to pay health plans than to pay individual providers
3. Per recipient†	Contact capitation	Physician specialist services	Not common; an example is a cardiologist accepting financial risk for treatment of cardiac patients
4. Per episode	Case rates, payment per stay, and bundled payments	Hospital inpatient (DRG), physician surgeries (RBRVS), home health care (HHRG), and multiple providers (ECR, ETG, MEG, and PFE)	Defined here as related clinical services across multiple days
5. Per day	Per diem and per visit	Nursing facilities (RUG), hospital outpatient (EAPG), and ambulatory surgical centers (APC)‡	An outpatient visit may be defined as all services on 1 day
6. Per service	Fee-for-service	Physician services (RBRVS), hospital outpatient (APC)‡, dentists, medical equipment and supplies, and drugs	Separate payments are often made for multiple services per day
7. Per dollar of cost	Cost reimbursement	Critical access hospitals, government-owned providers, and nursing facilities	Payers typically pay a percentage of cost as allowed by the payer
8. Per dollar of charges	Percentage of charges	Any provider type	Based on charges as billed by the provider

ACG = adjusted clinical group; APC = ambulatory payment classification; CDPS = chronic illness and disability payment system; CMS-HCC = Centers for Medicare & Medicaid Services–hierarchical condition category; CRG = clinical risk group; DRG = diagnosis-related group; EAPG = enhanced ambulatory patient group; ECR = evidence-informed case rate; ETG = episode treatment group; HHRG = home health resource group; MEG = medical episode group; PFE = patient-focused episode; RBRVS = resource-based relative value scale; RUG = resource utilization group.
* Shown in decreasing order of financial risk borne by the provider or, alternatively, in increasing order of financial risk borne by the payer. The units of payment correspond to financial risk factors within the health care spending identity, as shown in Table 3.
† A beneficiary is eligible for care, whereas a recipient has received ≥1 service.
‡ In practice, the incentives of the Medicare APC-based method align most closely with payment per day for ambulatory surgical centers and with payment per service for hospital outpatient care.

(method 4), and capitation (method 2). The descriptions found in Table 2 place examples of current payment reforms within the framework of the 8 basic methods.

The 8 basic methods are comprehensive and mutually exclusive because each method uniquely corresponds to a risk factor within the health care spending identity (Table 3). Like other accounting identities, this identity illuminates the relationship between the whole and its parts. Using inpatient care as an example, total hospital charges depend on several factors, including the number of inpatient episodes, average length of stay, and hospitals' markup of charges over cost. In parallel, the 8 basic payment methods include method 4 (per episode), method 5 (per day), and method 8 (per dollar of charges).

Dividing Financial Risk

Table 3 shows why payers seek payment reform. For example, when payment is calculated as a percentage of charges—even a low percentage—the payer absorbs the effect of any increase in any of the risk factors in Table 3. Payers try to buffer themselves from provider decisions about charges and cost, but payers also mistrust many provider decisions about the volume of care. They point to an Institute of Medicine panel that estimated that 14% of U.S. health care spending (or $340 billion in 2009) reflected unnecessary or inefficiently delivered services (28). In recent years, payers also have asserted a role in improving the quality and value of care and cite evidence of systemic deficiencies and unflattering comparisons with other nations (29–31).

Because very few services are wasteful always and everywhere, providers presumably are the best judges of "right care, right time, right way," so long as they have the appropriate incentives (32). Thus, Medicare shifted risk toward providers in 11 of 13 payment reforms since 1983 (Table 4). These reforms have had broad influence because many payers emulate Medicare (33, 34).

Changes in basic payment methods can have sweeping effects—both good and bad. In 1983, Medicare inpatient payment jumped 3 steps from paying according to hospital costs (method 7 [per dollar of cost]) to paying for diagnosis-related groups (DRGs) (method 4 [per episode]). Payment by DRG led to decreased hospital costs, shorter lengths of stay, reduced growth in Medicare payment, and even increases in hospital margins (the surplus of revenue over costs) as hospitals became more efficient. This payment change also accelerated the growth in outpatient and post-acute care services, possibly increasing fragmentation of care (34). In 1992, Medicare moved physician payment from method 8 (per dollar of charges) to method 6 (per service). The change insulated Medicare from charge inflation but did not protect it from growth in service volume—both actual and as reported on claim forms (35). In an 8-year period, Medicare spending per beneficiary for physician services grew more than twice as fast as spending for other services and was driven entirely by growth in volume (36). And in 2000, Medi-

Table 2. Current Examples of Major Payment Reforms in the United States

ACOs
Although models differ, ACOs generally comprise physicians and hospitals that continue to be paid fee-for-service (method 6) for physician care and by episode (method 4) for inpatient stays. What is new is that ACOs and payers share savings when total spending falls below benchmarks (12). The effect is similar to capitation (method 2) in damping incentives for providers to generate more volume. Further, ACOs often must adhere to specific quality and performance standards.

Medical homes
Medical homes also take many forms, but they, too, are typically paid using previous payment methods. On the basis of performance, they become eligible for payment adjustments (13). As with ACOs, some medical homes may be paid using capitation or episode payment.

Payment adjustments
These increasingly common initiatives also do not change the basic payment method. Current examples include penalties or bonuses for readmission rates, adoption of electronic health records, and reporting quality measures (14). Further, MACRA, a new law signed in April 2015, consolidates physician payment adjustments within a new Merit-Based Incentive Payment System, with details to be specified later (15).*

Bundling
In practice, "bundling" means broadening the unit of payment in 1 of 3 senses: including different provider types (e.g., by requiring ACOs to include hospitals and physicians); lengthening the time period (e.g., by redefining an inpatient episode to include postacute care and readmissions) (16); or aggregating services, such as Medicare's efforts to move its outpatient hospital payment method from a fee schedule (method 6) toward a visit-based approach (method 5) (17).

"Global" payment
Can be a synonym for a fixed budget (method 1) (18), capitation (method 2) (19), or payment per episode (method 4) (20). Because of ambiguity, the term is best avoided.

Patient cost sharing
Payment methods are used to set the amount "allowed" as total payment to a provider. Payers and patients typically pay a portion of the allowed amount. Without changing the basic payment method, some payers have restructured patient cost-sharing to incentivize cost-conscious choices (21).

Increased transparency
Leading examples include Medicare's publication of provider-specific charges and payments for hospital and physician care (22). Although these initiatives do not involve payment methods per se, the data are published using the units of payment described in **Table 1**.

ACO = accountable care organization; MACRA = Medicare Access and Children's Health Insurance Program Reauthorization Act.
* MACRA also encourages movement to alternative payment models.

care's shift of home health care payment from method 7 (per dollar of cost) to method 4 (per episode) led to 17% fewer visits per episode but similar patient outcomes, which suggests improved efficiency (5).

If the payer can shift risk to the provider, why stop? Why pay nursing facilities per day when hospitals are paid per episode? Or why is capitation rarely used to pay individual physicians? The single biggest reason—indeed, arguably the single most important statistic in health policy—is that 5% of persons account for 50% of spending (37). If the provider bears too much financial risk, the provider has an overwhelming incentive to avoid costly patients. This essential tension between efficiency and access is mitigated by classification sys-

Table 3. The Health Care Spending Identity*, Using U.S. Hospital Inpatient Charges as an Example

Risk Factor	2002	2012	Factor Decomposition	Change, %
1. Time period	1	1	1.00	0
2. Beneficiaries per time period†	287 625 193	313 914 040	1.09	9
3. Proportion of eligible population that receives care‡	7.5%	7.2%	0.96	−4
4. Episodes per recipient§	1.69	1.61	0.95	−5
5. Days of care per episode	4.6 d	4.5 d	0.98	−2
6. Services per day of care‖	NA	NA	NA	NA
7. Cost per service‖	$1491	$2299	1.54	54
8. Markup of charges over cost	2.50	3.54	1.42	42
Total charges	$626 926 866 973	$1 337 939 745 325	2.13	113

NA = not available.
* An analytic approach developed by the author to enable time-series and cross-section comparisons of financial totals (e.g., charges and payment) and utilization (e.g., total services). Each risk factor in the identity corresponds to 1 of the 8 basic payment methods. This table uses the growth in U.S. hospital charges as an example. For 2002, for example, 1 × 287 625 193 × 0.075 × 1.69 × 4.6 × $1491 × 2.50 = $626 926 866 973 (discrepancy due to rounding). The algebra of decomposing a percentage change can be used to illuminate the reasons behind the growth in charges from 2002 to 2012. In the factor decomposition, 1.00 × 1.09 × 0.96 × 0.95 × 0.98 × 1.54 × 1.42 = 2.13. The author infers that the main reasons for the 113% growth in hospital charges were the 54% growth in cost per day from $1491 to $2299 and the 42% increase in hospitals' average markup of charges over cost from 2.50 to 3.54. Other changes had much less effect.
† The U.S. resident population (24), consistent with the National Inpatient Sample (25).
‡ The U.S. civilian noninstitutionalized population, which equaled 98.4% of the resident population; 7.5% (26) and 7.2% (27) from the Medical Expenditure Panel Survey were used as proxies for the resident population.
§ Lines 4 to 8 were calculated using data from the National Inpatient Sample. Total discharges from community hospitals were 36 523 831 in 2002 and 36 484 846 in 2012.
‖ Data were NA for the average number of services per day. Line 7 therefore refers to average hospital cost per day, which comprises the average number of services per day × the average cost per service.

Table 4. Medicare Initiatives to Change Basic Payment Methods

Year	Provider Type	Prior Method	New Method	Classification System for the New Method
1983	Hospital inpatient	7. Per dollar of cost	4. Per episode	DRG
1984	Clinical laboratory	8. Per dollar of charges	6. Per service	CLFS
1992	Physician	8. Per dollar of charges	6. Per service*	RBRVS
1997	Critical access hospital	4. Per episode	7. Per dollar of cost	–
1998	Nursing facility	7. Per dollar of cost	5. Per day	RUG
2000	Hospital outpatient	7. Per dollar of cost	6. Per service†	APC
2000	Home health care	7. Per dollar of cost	4. Per episode	HHRG
2002	Long-term care hospital	7. Per dollar of cost	4. Per episode	LTC-DRG
2002	Rehabilitation facility	7. Per dollar of cost	4. Per episode	CMG
2002	Ambulance	8. Per dollar of charges‡	6. Per service	–
2005	Psychiatric hospital	7. Per dollar of cost	5. Per day	–
2008	Ambulatory surgical center	5. Per day	5. Per day†	APC
2012	ACO	4. Per episode§ 6. Per service‖	Same as prior method except with savings incentives most similar to method 2	–

ACO = accountable care organization; APC = ambulatory payment classification; CLFS = Clinical Laboratory Fee Schedule; CMG = case-mix group; DRG = diagnosis-related group; HHRG = home health resource group; LTC-DRG = long-term care DRG; RBRVS = resource-based relative value scale; RUG = resource utilization group.
* Physician surgical services are commonly paid per episode.
† In practice, the incentives of the Medicare APC-based method align more closely with payment per day for ambulatory surgical centers and with payment per service for hospital outpatient care.
‡ Before 2002, ambulance services were typically but not always paid at a percentage of charges.
§ Hospital inpatient.
‖ Physician and hospital outpatient.

tems that adjust payments for case mix, so payment is higher for patients who are likely to be more costly. Table 1 shows common examples, such as DRGs, resource utilization groups for nursing facility days, and various systems used in capitation payment.

Risk shifting is limited by the state of the science in risk adjustment. Classification systems commonly used in capitation models, for example, still explain less than 20% of cost variation across beneficiaries (38). That is not enough to prevent cherry-picking and lemon-dropping. Such risk selection is a particular problem when health plans or providers possess predictive information, such as occupation, race, and prior utilization, which are typically excluded from classification systems for various good reasons (38). Classification systems for episodes can do better and explain as much as half of cost variation (39–41). The Figure shows payment methods commonly used in the United States for 15 provider types.

Payment Methods in Practice

In real life, the 8 basic methods often are combined, sometimes to protect providers against extraordinary expenses not predicted by a classification system. Medicare, for example, pays hospitals per stay (method 4) but reserves 5% of payment for outlier payments that depend on cost (method 7). Carve-out and stop-loss provisions similarly protect physician groups paid by capitation. The art in designing payment policy is to strike the right balance without creating a muddle of conflicting incentives.

When an employer pays a managed care plan by capitation but the plan pays physicians per service, the incentive at the bedside is for more services. The incentives that matter most are those closest to the clinical decision maker.

In the marketplace, payers and providers inevitably face off against each other. The arena depends on the unit of payment. The consequences of changing payment methods may be unintended, but they can be predicted through analysis of incentives. Whatever the unit of payment, providers are rewarded for increasing units while decreasing their own cost per unit. For example, when DRG payment (method 4) was introduced in 1983 for hospital care, payers welcomed the resulting reductions in length of stay but worried about patients being discharged sicker and quicker. Likewise, implementation of the 9000-item Medicare fee schedule rewarded physicians who "unbundled" services to bill more codes. Medicare responded with the 1.3 million edits of the National Correct Coding Initiative (NCCI) (42). If, instead, physicians were paid per episode, the NCCI would be irrelevant and the concern would become stinting on care. In practice, concerns about "too little care" predominate when providers bear considerable risk (methods 1 to 4), whereas concerns about "too many units" predominate when the risk is more on payers (methods 5 to 8). From the providers' perspective, methods 1 to 4 usually lead to concern over inordinate financial risk, whereas methods 5 to 8 lead to concerns about micromanagement (for example, the NCCI, prior authorization, and cost auditing).

Payment methods cannot be neutral on quality. Each method encourages and discourages provision of care overall and in particular situations. Payers therefore establish mechanisms outside each payment method to monitor efforts by providers to maximize units and minimize cost per unit. Many professional norms also have arisen to mitigate financial incentives in the market for health care, which is often characterized by asymmetrical information, considerable uncer-

Figure. Payment methods commonly used in the United States, by provider type.

Provider Type	Basic Payment Method							
	1. Per Time Period	2. Per Beneficiary	3. Per Recipient	4. Per Episode	5. Per Day	6. Per Service	7. Per Dollar of Cost	8. Per Dollar of Charges
Managed care organization		*	†					
Hospital inpatient	†			*	†		†	†
Hospital outpatient	†				†	*	†	†
Ambulatory surgical center					*			†
Physician	†	†	†	†		*		†
Dentist						*		†
Therapy (outpatient)						*		†
Clinical laboratory						*		†
Ambulance						*		†
Drugs (pharmacy)						*		†
Nursing facility					*		†	†
Home health care				*		†		†
Hospice					*			†
HCBS*						†		†
ICF/DD†					†		†	†

* Predominant method used by Medicare

† Other methods commonly used in the United States

HBCS = home- and community-based services; ICF/DD = intermediate care facilities for the developmentally disabled.
* Typically provided to persons requiring personal assistance and funded by Medicaid programs per 15-min service unit.
† Typically funded by Medicaid programs per day or at a percentage of cost.

tainty, and life-and-death consequences (43). These mechanisms and norms include utilization review, provider profiling and credentialing, public reporting, appeals to professional ethics, licensure and certification, peer review, litigation and other disciplinary action, and prohibitions against self-referral (44).

CURRENT INITIATIVES

Payment reforms of the past 30 years largely have been initiatives of dissemination: Medicare's extension of the DRG model to other provider types, the adoption of Medicare methods by other payers, and the drive by commercial payers toward capitation in the 1990s. By contrast, payment policy today is a bubbling cauldron of experimentation. Accountable care organizations, medical homes, pay for quality, "value not volume," and other concepts can take very different forms even within the same insurer (Table 2). The 8 basic payment methods remain applicable, but they are being combined in new ways (with increased emphasis on payment adjustments) and reveal unprecedented determination by payers to influence clinical practice.

The success of these reforms probably will depend on 4 questions. First, as more payments are based on capitation and episodes, will providers avoid costly patients? The answer depends on the accuracy of case-mix adjustment and the effectiveness of nonpayment mechanisms to minimize risk selection. Second, will an overabundance of uncoordinated reforms create a muddle of incentives? Some accountable care organizations have raised this concern already (45). Third, will providers rebel against the administrative burden and clinical oversight inherent in many initiatives? For example, the American Medical Association describes the current scene as a "regulatory nightmare" (46). Fourth, will provider mergers subvert efforts to control health care spending? Accountable care organizations and other reforms encourage providers to band together, but consolidation helps providers negotiate higher prices from commercial payers (47).

In contrast to most other industries, the basis of payment in health care–the "product" being purchased and delivered–remains variable and unsettled (48). Seven of the 8 basic methods are widely used within the U.S. health care system, often in combination. (The exception is method 3 [per recipient].) Amid enormous complexity, with the health of hundreds of millions of persons affected by current payment reforms, clarity

and precision in policy discussion are ever more essential.

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References

1. **Charlesworth A, Davies A, Dixon J.** Reforming payment for health care in Europe to achieve better value. London: Nuffield Trust; 2012. Accessed at www.nuffieldtrust.org.uk/sites/files/nuffield/publication/120823_reforming-payment-for-health-care-in-europev2.pdf on 9 June 2015.
2. **Snyder L; American College of Physicians Ethics, Professionalism, and Human Rights Committee.** American College of Physicians Ethics Manual: sixth edition. Ann Intern Med. 2012;156:73-104. [PMID: 22213573] doi:10.7326/0003-4819-156-1-201201031-00001
3. **Coulam RF, Gaumer GL.** Medicare's prospective payment system: a critical appraisal. Health Care Financ Rev. Annu Suppl 1991:45-77. [PMID: 10128704]
4. **U.S. Government Accountability Office.** Medicare: higher use of advanced imaging services by providers who self-refer costing Medicare millions. GAO-12-966. Washington, DC: U.S. Government Accountability Office; 2012. Accessed at www.gao.gov/products/GAO-12-966 on 9 June 2015.
5. **Schlenker RE, Powell MC, Goodrich GK.** Initial home health outcomes under prospective payment. Health Serv Res. 2005;40:177-93. [PMID: 15663708]
6. **Bodenheimer T.** Coordinating care–a perilous journey through the health care system. N Engl J Med. 2008;358:1064-71. [PMID: 18322289] doi:10.1056/NEJMhpr0706165
7. **Schroeder SA, Frist W; National Commission on Physician Payment Reform.** Phasing out fee-for-service payment. N Engl J Med. 2013;368:2029-32. [PMID: 23534546] doi:10.1056/NEJMsb1302322
8. **Brownlee S.** Overtreated: Why Too Much Medicine Is Making Us Sicker and Poorer. New York: Bloomsbury; 2007.
9. **Ginsburg PB, Grossman JM.** When the price isn't right: how inadvertent payment incentives drive medical care. Health Aff (Millwood). 2005;Suppl Web Exclusives:W5-376-84. [PMID: 16091408]
10. **Huber M, Knottnerus JA, Green L, van der Horst H, Jadad AR, Kromhout D, et al.** How should we define health? BMJ. 2011;343:d4163. [PMID: 21791490] doi:10.1136/bmj.d4163
11. **Burwell SM.** Setting value-based payment goals–HHS efforts to improve U.S. health care. N Engl J Med. 2015;372:897-9. [PMID: 25622024] doi:10.1056/NEJMp1500445
12. **McClellan M.** Accountable care organizations and evidence-based payment reform. JAMA. 2015;313:2128-30. [PMID: 25938803] doi:10.1001/jama.2015.5087.
13. **Jackson GL, Powers BJ, Chatterjee R, Bettger JP, Kemper AR, Hasselblad V, et al.** Improving patient care. The patient centered medical home. A systematic review. Ann Intern Med. 2013;158:169-78. [PMID: 24779044]
14. **VanLare JM, Conway PH.** Value-based purchasing–national programs to move from volume to value. N Engl J Med. 2012;367:292-5. [PMID: 22830460] doi:10.1056/NEJMp1204939
15. **Doherty RB.** Goodbye, sustainable growth rate–hello, merit-based incentive payment system. Ann Intern Med. 2015;163:138-9. [PMID: 25961185] doi:10.7326/M15-0992
16. **Tsai TC, Joynt KE, Wild RC, Orav EJ, Jha AK.** Medicare's bundled payment initiative: most hospitals are focused on a few high-volume conditions. Health Aff (Millwood). 2015:34;371-380.
17. **Andrews S.** CMS finalizes comprehensive APCs for 2015 in OPPS final rule. Accessed at www.hcpro.com/HOM-309973-6962/CMS-finalizes-comprehensive-APCs-for-2015-in-OPPS-final-rule.html on 24 February 2015.
18. **Emanuel E, Tanden N, Altman S, Armstrong S, Berwick D, de Brantes F, et al.** A systemic approach to containing health care spending. N Engl J Med. 2012;367:949-54. [PMID: 22852883] doi:10.1056/NEJMsb1205901
19. **Catalyst for Payment Reform.** Implementing global payment. Accessed at www.catalyzepaymentreform.org/images/documents/CPR_Action_Brief_Global_Payment.pdf 21 February 2015.
20. **Centers for Medicare & Medicaid Services.** Medicare acute care episode (ACE) demonstration. Accessed at innovation.cms.gov/initiatives/ACE on 21 November 2014.
21. **Thomson S, Schang L, Chernew ME.** Value-based cost sharing in the United States and elsewhere can increase patients' use of high-value goods and services. Health Aff (Millwood). 2013;32:704-12. [PMID: 23569050] doi:10.1377/hlthaff.2012.0964
22. **Centers for Medicare & Medicaid Services.** Medicare provider utilization and payment data. Accessed at www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/index.html on 24 February 2015.
23. **Kaiser Family Foundation.** Medicare spending. JAMA. 2015;313:19. doi:10.1001/jama.2014.17249
24. **U.S. Census Bureau.** Population. Accessed at www.census.gov/topics/population.html on 25 November 2014.
25. **U.S. Agency for Healthcare Research and Quality.** Overview of the national (nationwide) inpatient sample (NIS). Accessed at www.hcup-us.ahrq.gov/nisoverview.jsp on 28 March 2015.
26. **Machlin SR, Sommers JP.** Estimates of health care expenditures for the 10 largest states, 2002. Statistical brief no. 69. Rockville, MD: Agency for Healthcare Research and Quality; 2005. Accessed at meps.ahrq.gov/mepsweb/data_files/publications/st69/stat69.shtml on 9 June 2015.
27. **Carper K, Stagnitti MN.** National health care expenses per person in the U.S. civilian noninstitutionalized population, 2012. Statistical brief no. 457. Rockville, MD: Agency for Healthcare Research and Quality; 2014. Accessed at meps.ahrq.gov/mepsweb/data_files/publications/st457/stat457.shtml on 9 June 2015.
28. **Institute of Medicine.** The Healthcare Imperative: Lowering Costs and Improving Outcomes. Washington, DC: National Academies Pr; 2010.
29. **McGlynn EA, Asch SM, Adams J, Keesey J, Hicks J, DeCristofaro A, et al.** The quality of health care delivered to adults in the United States. N Engl J Med. 2003;348:2635-45. [PMID: 12826639]
30. **Institute of Medicine.** Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Pr; 2001.
31. **Davis K, Stremikis K, Squires D, Schoen C.** Mirror, mirror on the wall: how the performance of the U.S. health care system compares internationally. New York: The Commonwealth Fund; 2014. Accessed at www.commonwealthfund.org/~/media/files/publications/fund-report/2014/jun/1755_davis_mirror_mirror_2014.pdf on 9 June 2015.
32. **Quinn K.** Achieving cost control, care coordination, and quality improvement in the Medicaid program. J Ambul Care Manage. 2010;33:38-49. [PMID: 20026997] doi:10.1097/JAC.0b013e3181cfc12a
33. **Smith SL, Clark S, Hochstetler Z, Karbowiak R.** Medicare RBRVS 2014: The Physician's Guide. Chicago: American Med Assoc; 2014.

34. **Quinn K.** After the revolution: DRGs at age 30. Ann Intern Med. 2014;160:426-9. [PMID: 24723081] doi:10.7326/M13-2115
35. **Mayes R, Berenson RA.** Medicare Prospective Payment and the Shaping of U.S. Health Care. Baltimore: Johns Hopkins Univ Pr; 2006.
36. **Duchovny N.** Factors underlying the growth in Medicare's spending for physicians' services. Background paper. Washington, DC: Congressional Budget Office; 2007. Accessed at www.cbo.gov/sites/default/files/06-06-medicarespending.pdf 9 June 2015.
37. **Cohen SB, Uberoi N.** Differentials in the concentration in the level of health expenditures across population subgroups in the U.S., 2010. Statistical brief no. 421. Rockville, MD: Agency for Healthcare Research and Quality; 2013. Accessed at meps.ahrq.gov/mepsweb/data_files/publications/st421/stat421.shtml on 9 June 2015.
38. **Schone E, Brown RS.** Risk adjustment: what is the current state of the art, and how can it be improved? Princeton, NJ: Robert Wood Johnson Foundation; 2013. Accessed at www.rwjf.org/en/library/research/2013/07/risk-adjustment–what-is-the-current-state-of-the-art-and-how-c.html on 9 June 2015.
39. **Wynn BO, Scott M.** Evaluation of severity-adjusted DRG systems: addendum to the interim report [working paper]. Santa Monica, CA: RAND; 2007. Accessed at www.rand.org/pubs/working_papers/WR434z1.html on 9 June 2015.
40. **Vertrees J, Averill R, Eisenhandler J, Quain A, Switalski J, Gannon D.** The ability of event-based episodes to explain variation in charges and Medicare payments for various post acute service bundles. Contractor report. Washington, DC: Medicare Payment Advisory Commission; 2013.
41. **Coleman KA, Wu N, Goldberg HB, Deitz D, White A.** Refinement of Medicare's home health prospective payment system: final report. Cambridge, MA: Abt Associates; 2008. Accessed at www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/Downloads/Coleman_Final_April_2008.pdf on 9 June 2015.
42. **Centers for Medicare & Medicaid Services.** National correct coding initiative edits. Accessed at www.cms.gov/Medicare/Coding/NationalCorrectCodInitEd/index.html on 24 November 2014.
43. **Arrow KJ.** Uncertainty and the welfare economics of medical care. Am Econ Rev. 1963;53:941-73. Accessed at www.aeaweb.org/aer/top20/53.5.941-973.pdf on 22 June 2015.
44. **Robinson JC.** Theory and practice in the design of physician payment incentives. Milbank Q. 2001;79:149-77, III. [PMID: 11439463]
45. **Toussaint J, Milstein A, Shortell S.** How the Pioneer ACO Model needs to change: lessons from its best-performing ACO. JAMA. 2013;310:1341-2. [PMID: 24084915] doi:10.1001/jama.2013.279149
46. **American Medical Association.** Regulatory nightmare threatens care for America's seniors. Accessed at www.ama-assn.org/ama/pub/news/news/2014/2014-10-21-regulatory-nightmare-threatens-seniors.page on 1 December 2014.
47. **Ginsburg PB, Pawlson LG.** Seeking lower prices where providers are consolidated: an examination of market and policy strategies. Health Aff (Millwood). 2014;33:1067-75. [PMID: 24841883] doi:10.1377/hlthaff.2013.0810
48. **Newhouse JP.** Pricing the Priceless: A Health Care Conundrum. Cambridge, MA: MIT Pr; 2002.

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