Patient Attribution
The Basis for All Value-based Care

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Section 1: Overview

Health care payment is shifting from the predominant fee-for-service model to value-based models to better control costs and improve quality. This movement is driving significant changes in how care is valued and how patients are cared for. Population-based payments, such as bundled payments, episode payments or capitated payments made to provider entities like patient-centered medical homes and accountable care organizations (ACOs), are a component of several demonstration projects by the Centers for Medicare and Medicaid Services (CMS) in the Medicare program, and commercial payers have followed suit. A design challenge for these models is how to define and transfer appropriate performance risk to provider groups, and provider groups must decide whether the potential for upside performance payments offered by these new contract vehicles are worth the risk, after accounting for the costs of new infrastructure and practice changes. As providers consider whether to enter into value-based payment models, actuaries are well positioned to advise them on issues such as risk transfer, financial benchmarks and, critically, attribution, which will define which patients the providers will become accountable for.

Attribution methodology is at the core of constructing actuarially sound, provider-accepted and operational Alternative Payment Models (APMs), and attribution is the most critical component of value-based contract design. Issues related to attribution have typically been approached from the payer perspective in markets such as Medicare Advantage and Medicaid managed care, but as provider entities enter into population-based payment arrangements, it is vital that they be able to identify attributed patients to manage their care. The Health Care Payment Learning and Action Network (HCP-LAN) defines attribution as "the method used to determine which provider group is responsible for a patient's care and costs." [1] The choice of attribution methodology impacts financial benchmarking and performance measurement with regard to the provider that is best aligned to deliver the care covered by the payment. The goal of attribution is to have credible, measurable results that are equitable to both payers and providers. The patient, provider and payer/actuary perspectives should converge on the same answer to the question "Whose patient is it?" and have insight into the accountability of costs that are affected over time.

There are trade-offs between attribution methodologies that rely on retrospective reviews of fee-for-service claims history to determine attribution, versus methodologies that prospectively identify and attribute patients to providers in advance of performance periods. The valuation of care has traditionally been quantitative, with rates set for each service, including visits, procedures and drugs, irrespective of quality of care or patient outcomes. However, as the industry increasingly expands care provision within the home and through virtual communication, attribution of appropriate care points will set the stage for how care can shift under the right incentives. The risk being transferred to providers is dependent on their ability to provide the right amount of care to their attributed patient population in line with how contract accountability is arranged and payments flow.

This paper describes the key elements of attribution methodology, identifies the challenges and opportunities associated with each and discusses key considerations related to risk and risk transfer from payers to providers.

1.1 The Importance of Attribution

Attribution is the critical process of assigning patients to the provider entity that will be responsible for delivering their care and that will be held accountable for the cost and quality of that care. In an episode-based or patient-based alternative payment model, attribution is the foundational process that defines a provider entity's patient population and therefore defines the provider entity's risk pool, impacts its medical loss ratio and determines whether the provider entity realizes shared savings or losses and how those gains or losses are distributed. At the level of the plan, the full attribution of the patient population is an actuarially sound product, but as risk is transferred across provider groups, the integrity of the risk profile breaks down in defining accountability across domains of risk.

Understanding who is at risk in value-based contracts is critical to their success. If risk is maintained at the plan level and not transferred to individual providers, then the incentive that was meant to be created through attribution may not be recognized and the individual provider or provider group still will not have any financial incentive to change the way it delivers and manages care for attributed patients within the constructs of the value-based contract.

1.2 Whose Patient Is It?

The answer to the question "Whose patient is it?" is obvious for an accountable plan that knows exactly how many patients are covered for services for a given plan period. Provider groups in an APM take on performance and insurance risk for only their attributed patients within the plan. These groups need explicit terms and conditions in their contracts to define which patients are attributed to their practice and which care needs they will be held accountable for. Once patients are attributed to a provider group, these contracts will also need to specify accountability, performance and quality standards.

1.3 Evaluating Attribution Methods

As the complexity of APMs and Value-Based Purchasing agreements increases, there are questions that actuaries and consultants can help providers answer during contract negotiations, which can assist in the evaluation of the optimal method for attribution. These questions include:
1. What is the best estimate of future performance of an attributed panel of patients in this agreement?
2. What methodologies can be employed to understand and act on patient attribution accountability and churn?
3. What is the likelihood of savings based on the attributed panel?
4. What is the downside risk of loss for the attributed panel and how can that risk be managed?
5. How can the payment model design impact the range of attribution possibilities?

Section 2: The Process of Attribution

The attribution of patients provides the fundamental basis for benchmarking any distribution of gains and losses on a per member per month (PMPM) basis, the bundling of care services, value-based purchasing contracts, quality reporting and overall accountability at the primary payer level. Five general categories of attribution are outlined in the white paper sponsored by the Society of Actuaries (SOA) "Provider Payment Arrangements, Provider Risk, and Their Relationship with the Cost of Health Care."[2] These categories include member choice, geography, clinical prequalification, retrospective visit-based and prospective visit-based. For each of these five categories, practical issues are discussed that can be addressed with actuarial methodology. The impact of population utilization changes is reflected with directional impact on provider profits and areas where technical risk increases with alternative payment models. It is of paramount importance for provider groups to seek guidance on and understand the most appropriate contractual terms so that they can successfully manage practice performance.

2.1 Understanding the Levers

Providers that own a management stake in their practice tend to know how fee-for-service rate structures affect their solvency and their ability to keep the doors open with appropriate staffing models. Understanding the additional risk that must be managed under value-based payment arrangements can help providers define the patient-payer mix of their panel and the revenue needed to cover expenses of the practice for the attributed patients that they serve.

Attribution models are attempts to align incentives to the appropriate stakeholder. Contracting entities must examine the desired provider behaviors and incentives that the attribution model is supposed to be supporting. Dissonant behaviors and incentives need to be identified. Simply shifting risk from the payer to an intermediate managed care entity but not further onto individual practices and providers would fail to alter the volume-driven incentive structure at the individual provider level under current our fee-for-service (FFS) system. Figures 1 and 2 show the impact on provider profits in directional terms by whether utilization increases or decreases based on attribution of members under the risk arrangements.

Figure 1: Impact of Population Utilization Changes to Provider Profits									
Payment Model	**FFS Profit***	**Global Cap Profit**	**Shared Savings Profit**	**DRG/Case Rates Profit**		**Bundled Payments Profit**		**Reference Pricing Profit**	**Outliers and Reinsurance Profit**	**Pay for Performance Profit**
Utilized Items	All	All	All	Inpatient Admits	Inpatient Days	Episodes	Post-acute Services, Readmissions	Selected Episodes	High-Cost Episodes	
If Utilization Increases	↑	↓	↓	↑	↓	↑	↓	↔	Utilization risk is shifted to the reinsurer	↑
If Utilization Decreases	↓	↑	↑	↓	↑	↓	↑	↔	Unaffected	↓

Source: Juliet M. Spector, Brian Studebaker and Ethan J. Menges, Provider Payment Arrangements, Provider Risk, and Their Relationship with the Cost of Health Care, *Society of Actuaries,* October 2015, https://www.soa.org/Files/Research/Projects/research-2015-10-provider-payment-report.pdf. Copyright © 2015 Society of Actuaries. Reproduced with permission.

Figure 2: Level of Technical Risk Attributed to Each Payment Arrangement							
Payment Model	FFS	Global Cap	Shared savings	DRG/Case Rates	Bundled Payments	Reference Pricing	Outliers and Reinsurance	Pay for Performance
Risk Level	Low	High	Medium-High	Low-Medium	High	High	High	High

Source: Juliet M. Spector, Brian Studebaker and Ethan J. Menges, Provider Payment Arrangements, Provider Risk, and Their Relationship with the Cost of Health Care, *Society of Actuaries,* October 2015, *https://www.soa.org/Files/Research/Projects/research-2015-10-provider-payment-report.pdf*. Copyright © 2015 Society of Actuaries. Reproduced with permission.

2.2 Defining Attribution

As noted, the Health Care Payment Learning and Action Network (HCP-LAN) defines attribution as "the method used to determine which provider group is responsible for a patient's care and costs."[3] This definition is payer-centric and might be interpreted as simply shifting responsibility from the payer to the provider.   From the provider's perspective, although the provider may be willing to accept responsibility for *their* patients' care and costs, certain attribution methods will attribute members who the provider group does not see regularly or feel responsible for their care and costs.

Furthermore, if accountability for care and costs is shifted to the provider, then increased administrative expenses, such as care management activities (utilization management, disease management etc.) may become the provider's responsibility, either explicitly or implicitly.

For all participants in value-based contracts, a clear understanding of attribution methods and their implications is essential for a successful program.

2.3 Attribution Methodology

2.3.1   Timing of Attribution—Prospective Versus Retrospective

In a prospective methodology, providers know the population they will be responsible for prior to the start of the performance period. In a prospective visit approach method, the attribution process is run at the beginning of the period and then typically adds no new members. The list of attributed members is provided to the health system or provider group at the beginning of the year (BOY). Some members will drop off during the year, but providers know who they are managing based on this prospective list assignment.

In a retrospective methodology, providers do not know the population they will be responsible for until after the performance period has concluded and claims have run out so that attrition can be determined. This is an issue to address for many of the Evaluation and Management (E&M) practice groups that will need to work on patient panel attribution within their care environment. In the retrospective approach, it is recommended to start with the attribution run at the beginning of the year, similar to the prospective approach, to re-establish a baseline number. Subsequent attributions may be done each quarter to update the assignments. The only attribution that is relevant for the contract measurement period is the one done four to five months after the end of the performance period. That can create challenges for providers as it

is a rear view window approach with a lag time on demonstrating through claims data how well they managed their attributed patient panel in accordance with the risk contract terms.

2.3.2   Basic Methodology

There are three basic methods for attribution: patient choice, geographic-based and visit-based. Patient choice is the oldest, simplest method, in which patients choose and indicate which provider they would like to be responsible for their care. This method is optimal if care patterns are frequent, but it is hard to enforce with low-cost members that skew toward not choosing a provider. The patient choice method can be validated with data and is characterized by high sensitivity but a low capture rate.

The HCP-LAN outlines that patient self-report is the gold standard attribution method, but it is seldom collected, as shown in Figure 3.

Figure 3

Patient Attribution Flow Chart
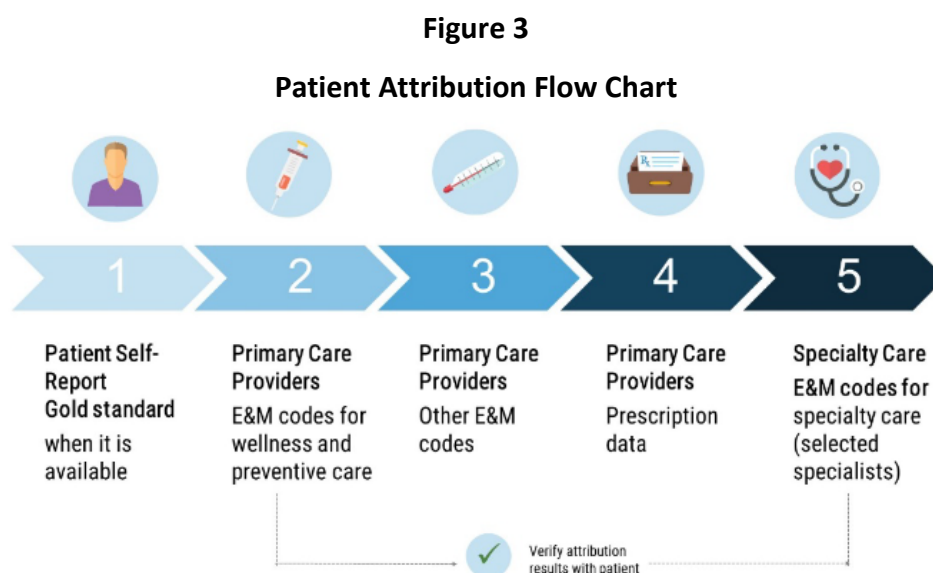
The Patient Attribution Flow Chart shows a process for starting with patient self-report of his/her primary care provider, if available, and where not available, moves to a claims/encounter-based approach. The claims/encounter-based approach requires verification with the patient.

Source: Health Care Payment Learning and Action Network (HCP-LAN), Accelerating and Aligning Population-Based Payment Models: Patient Attribution, *HCP-LAN,* 2016, *http://hcp-lan.org/workproducts/pa-whitepaper-final.pdf*. Copyright © 2016 The MITRE Corporation. All rights reserved. Reproduced by permission.

Geographic-based attribution is done through assignment of a network or use of zip code or county of residence, which has a high capture rate but lacks the sensitivity for reflecting care utilization across the spectrum.

Visit-based attribution is an algorithm-based approach that uses claims experience, which has been the more universally trusted source for the demonstration of performance in quality and efficiency. A variant of visit-based methodology is episode-based attribution or bundling, which has a clearer alignment when a discrete number and level of services are delivered over a defined period of days and in return for a single cost. Such bundled payments attempt to create a key reference price for providers to practice toward.

The challenges associated with visit-based attribution are that it can be administratively complex and highly dependent on the quality of data available at the provider level. Many health systems use a tax identification number to identify providers, but those identification numbers can change if the provider is acquired or merged into another entity, which has occurred at a rapid pace recently in some competitive urban markets.[4] The prospective approach would be preferred if it could more clearly identify which providers will provide and be responsible for a given patient's annual care, but most models today rely on a retrospective method, in which attribution is completed four to five months after the end of the contract period.

The visit-based approach typically has a hierarchy of criteria for assigning members, with algorithms and tie breakers based on claims from the previous year. An example is as follows:

1. Primary care provider (PCP) seen during a recent period for a defined subset of E&M codes

2. If no PCP, go next to medical subspecialists seen (e.g., cardiologist, oncologist, gastroenterologist)

3. If still no assignment, go to surgical specialist seen, which may account for an additional 2% to 3% of the population.

Using such a methodology typically attributes approximately 75% of patients in a given population. The Policy Issuing Carrier (PIC) will hold all risk, as well as premium collection in the commercial sector, for the balances of unattributed patients. If only the PCP criteria are used, it would be possible to have 35% or more of the population remain unattributed, which may be an appropriate benchmark for both the PIC as well as the Risk-Bearing Entity (RBE).

2.3.3   Tie Breakers

Tie breakers are often used in visit-based attribution to identify which provider had the greatest number of visits, RVUs, most recent visit or highest allowed dollars and so should be responsible for a patient. Exclusions are also used to identify those patients that are difficult to attribute and/or that have disproportionately high health care expenditures relative to the general population, such as those with End Stage Renal Disease (ESRD), have had an active transplant or with annual claims over $500,000, which represent an indicated insurance risk to be managed outside of performance metrics.

2.4 Example

The attribution of the Blue Cross Blue Shield of Massachusetts (Figure 4) population demonstrates that many patients can be attributed by evaluating claims for primary care wellness visits during a 12- and 24-month look-back period. Wellness visits claims, combined with E&M codes and prescription data, enable attribution of close to 75% of their patient population. This number may serve as a benchmark for the percentage of covered lives that are interacting with their local health systems. Approximately 24% were left unattributed to a provider group because of inactivity of the covered beneficiary in the claims data.

Figure 4

Blue Cross Blue Shield of Massachusetts Attribution Levels
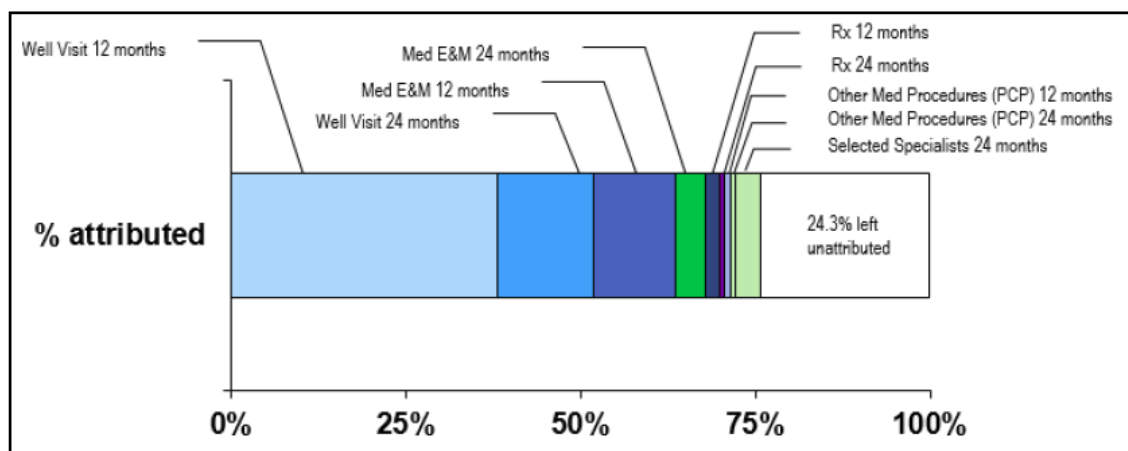
Source: Health Care Payment Learning and Action Network (HCP-LAN), Accelerating and Aligning Population-Based Payment Models: Patient Attribution, *HCP-LAN,* 2016, http://hcp-lan.org/workproducts/pa-whitepaper-final.pdf. Copyright © 2016 The MITRE Corporation. All rights reserved. Reproduced by permission.

The use of Well Visit and E&M codes for attributing members to provider groups has led to a key integration of primary care providers into practice groups that are looking to consolidate the ability to deliver care in a local market under ACO-type value-based contracts. Under this type of organization, primary care as a standalone practice may serve as a loss leader in terms of the costs to staff and other practice expenses, but in terms of a key gateway in attributed population management, primary care is becoming more of an anchor of accountable care coordination.

Section 3: Attribution in Alternate Payment Models

Incentives → Financial risk transfer → Shared Loss/Savings Calculations

There are primarily two kinds of alternative payment models for which attribution is critical for assigning or matching patients to providers. The first is an episode-based payment model; the second is a patient-based or population based-model.

3.1 Episode-based Payment Model

In an episode-based payment model, a single payment is made for a discrete set of services over a defined period. Examples of episode-based payment models that have been implemented by payers include joint replacement surgeries, maternity care and cardiac care. In each case, the provider entity or delivery system is responsible for delivering a suite of care services to patients over a predetermined period. For example, for an elective joint replacement surgery, a provider group, typically led by an orthopedic surgeon, is responsible for performing the surgery as well as for coordinating any related pre- and post-procedure care. Bundles currently constitute less than 3% of payments in the commercial market and 2% of payments in the Medicare and Medicaid markets.[5]

3.2 Patient-based Payment Model

In a patient-based or population-based model, a single payment is made to a provider entity or delivery system that is then responsible for delivering all health services to patients and for covering the total cost of care for those patients over a defined period of time. An example a of patient-based model is an ACO, which receives per member payments over a discrete period and is responsible for coordinating care delivery and paying providers for all care delivered. ACOs can also be bound by a single shared savings contract with benchmarked per member historical averages or regional averages. ACOs currently receive the majority of their Medicare payments by participating in value-based purchasing arrangements through the Medicare Shared Savings Program (MSSP), which is designed to align delivery and provider incentives for total cost of care.

3.3 Use of Attribution in Alternate Payment Methodologies

An attribution methodology should support the distribution of the gains or losses to the provider entity, whether that entity is an ACO, provider group, physician-owned distributor, chapter, practice or individual provider.

An example is the Medicare ACO program, in which the beneficiary is attributed to an ACO instead of an individual provider. This attribution methodology supports assigning responsibility for the care and financial outcomes of a population to the ACO but does not support assigning responsibility to individual providers or practices. Individual ACOs may want to develop a different attribution methodology that assigns beneficiaries to providers at the level in which gains/losses will be distributed/levied. Selecting the level for which shared gains/losses will be distributed/levied entails many considerations, many of which have foundations in actuarial science, including credibility, statistical significance, reserving, risk adjustment and predictive modeling.

The method by which shared savings or losses are assigned to providers will also establish the incentives for engaging providers to actively participate and perform under the terms of the risk contract. The presence of a financial incentive may increase engagement by providers, whereas the absence of any specific financial incentive may reduce engagement by providers.

Section 4: The Role of the Actuary in Implementing Attribution

Current practice is to take a group, pool, or class of a rating cell, for which the rate is actuarially sound, and then split the cell across various provider risk contracts, leading to rates/budgets that may not meet the definition of actuarial soundness.

4.1 Actuarial Soundness

The concept of actuarially sound is addressed in the Actuarial Standards of Practice, ASOP 1 Section 2.3. Specifically, the phrase "actuarial soundness" has different meanings in different contexts and might be dictated or imposed by an outside entity. In rendering actuarial services, if the actuary identifies the process or result as "actuarially sound," the actuary should define the meaning of "actuarially sound" in that context.

One example is the 2017 CMS Medicaid Managed Care Rate Development Guide. In it, actuarially sound rates are defined by 42 CFR 438.4, which requires that capitation rates be actuarially sound meaning that the capitation rates are projected to provide for all reasonable, appropriate, and attainable costs that are required under the terms of the contract and for the operation of the managed care plan for the time period and the population covered under the terms of the contract, and such capitation rates are developed in accordance with the relevant requirements of 42 CFR 438.4(b); for the rating periods beginning before July 1, 2017, the relevant requirements are paragraphs (b)(1), (b)(2), (b)(5) and (b)(6). In applying the regulation standards, CMS will also use these three principles:

- the capitation rates are reasonable and comply with all applicable laws (statutes and regulations) for Medicaid managed care;
- the rate development process complies with all applicable laws (statutes and regulations) for the Medicaid program, including but not limited to eligibility, benefits, financing, any applicable waiver or demonstration requirements, and program integrity; and
- the documentation is sufficient to demonstrate that the rate development process meets the requirements of 42 CFR part 438 and generally accepted actuarial principles and practices.

Another reference document defining actuarially sound Medicaid capitation rates is ASOP 49, specifically,

> Medicaid capitation rates are "actuarially sound" if, for business for which the certification is being prepared and for the period covered by the certification, projected capitation rates and other revenue sources provide for all reasonable, appropriate, and attainable costs. For purposes of this definition, other revenue sources include, but are not limited to, expected reinsurance and governmental stop-loss cash flows, governmental risk adjustment cash flows, and investment income. For purposes of this definition, costs include, but are not limited to, expected health benefits, health benefit settlement expenses, administrative expenses, the cost of capital, and government-mandated assessments, fees, and taxes.

Among other things, rates are required to "provide for all reasonable, appropriate, and attainable costs that are required under the terms of the contract and for the operation of the managed care plan." Through the advent of value-based care contracts, managed care organizations (MCOs) are ceding financial risk associated with capitation rates to providers through shared risk arrangements. The risk being assumed by a provider has no guarantee to be actuarially sound for their specific organization in the context of the definition above. Examples of items that impact rates being actuarially sound for individual providers or provider groups might include:

- **Geographic adjustment factor** (e.g., Area Wage Index, Geographic Practice Cost Index, etc.)—if explicitly adjusted for in rate development, then may be actuarially sound; however, this is not

always the case. A rate might be sound for the MCO and a single adjustment factor applied based on the MCO's experience (frequency and severity), but a given provider may have a frequency/severity that has a disproportionately high adjustment factor (likewise low) based on proximity to a facility or geography, and if not accounted for in the rate given to that provider, the aforementioned rate may not be actuarially sound. This concept applies to several of the items below.

- **Medical education payments**
- **Risk adjustment**—predictive ability for attributed population for provider versus MCO (age, gender, eligibility category, social determinants of health etc.)
- **Medical trend inflation**
- **Provider business mix** (subsidization across mix of payers)
- **Division of financial responsibility**—contracting tool to delineate financial responsibility between contracted RBEs
- **Provider contract changes**, particularly those providers not affiliated with the provider group taking the risk
- **Provider network design and changes**
- **Quality (STARS, HEDIS, etc.)**

Two primary concerns can be identified with a provider receiving rates that cannot be deemed actuarially sound. The first is that the rates may not promote the accountability of the program being administered (e.g., the Medicare Trust Fund) and may actually serve to increase medical expenditures by paying providers a disproportionately high reimbursement relative to the risk they are managing. The second is the solvency of the provider in the case in which reimbursement is not sufficient to cover expenses incurred in providing care for the risk they are managing. Actuarially sound rates at the level in which risk is being assumed ensures that MCOs are paying and providers are receiving fair, equitable and adequate resources to manage the population attributed.

A significant portion of care in most value-based contracts is provided outside the value-based care organization's provider network. Although the incentive for the providers in the network is to perform to the terms of the value-based contract (improve patient experience of care, reduce cost of care, improved health), this may not always be the case for the care being provided outside of the network. For reference, in large, competitive metropolitan areas the hospital leakage is typically 50%–60% of care for attributed lives going outside of the network, whereas in rural areas this might be closer to 40%. With post-acute care (PAC), this number can approach 100% of care if the entity does not own any skilled nursing facilities (SNFs) or home health agencies. This issue is starting to be illuminated in academic research that examines the impact on SNF utilization by hospital- and provider-led ACOs.[6] Care integration needs are most apparent in several areas where significant fragmentation of service delivery exists. These areas include nursing homes, home health, rehabilitation, long-term care and hospice. A recent *Health Affairs* paper outlines some of the changing ownership of the PAC environment, which is trending toward being more integrated, enabling more at-risk contracts and incentives to own more of the value chain of care.[7]

4.2 Managing Risk: Solvency Requirements and Implications

Loss Implications → Overextension of Capital → Enforcement

Insurance products have a considerable amount of risk packaging to deal with insurance risk as opposed to what constitutes performance risk. Providers willingly bear performance risk, but a significant challenge is faced in being able to separate insurance from performance risk, both in practice and in contractual arrangements. As a movement exists to clearly outline the costs of services and set defined levels of pricing bundles or condition-based payments, providers must know what they will do to address excess costs to

deliver services for which they are not reimbursed. A good reference to outline mechanisms for separating insurance and performance risk is shown in Figure 5.

Figure 5

Four Mechanisms for Separating Insurance and Performance Risk

	Performance Risk (Provider's Responsibility)
Many Avoidable Complications	
Failure to Follow Guidelines	
Overutilization of Services	
~~Large Random Variation~~	Risk Corridors
~~New High-Cost Treatment~~	Risk Exclusions
~~Unusually Costly Patient~~	Outlier Pmt/ Stop-Loss
~~Higher-Severity Patients~~	Risk Adjustment
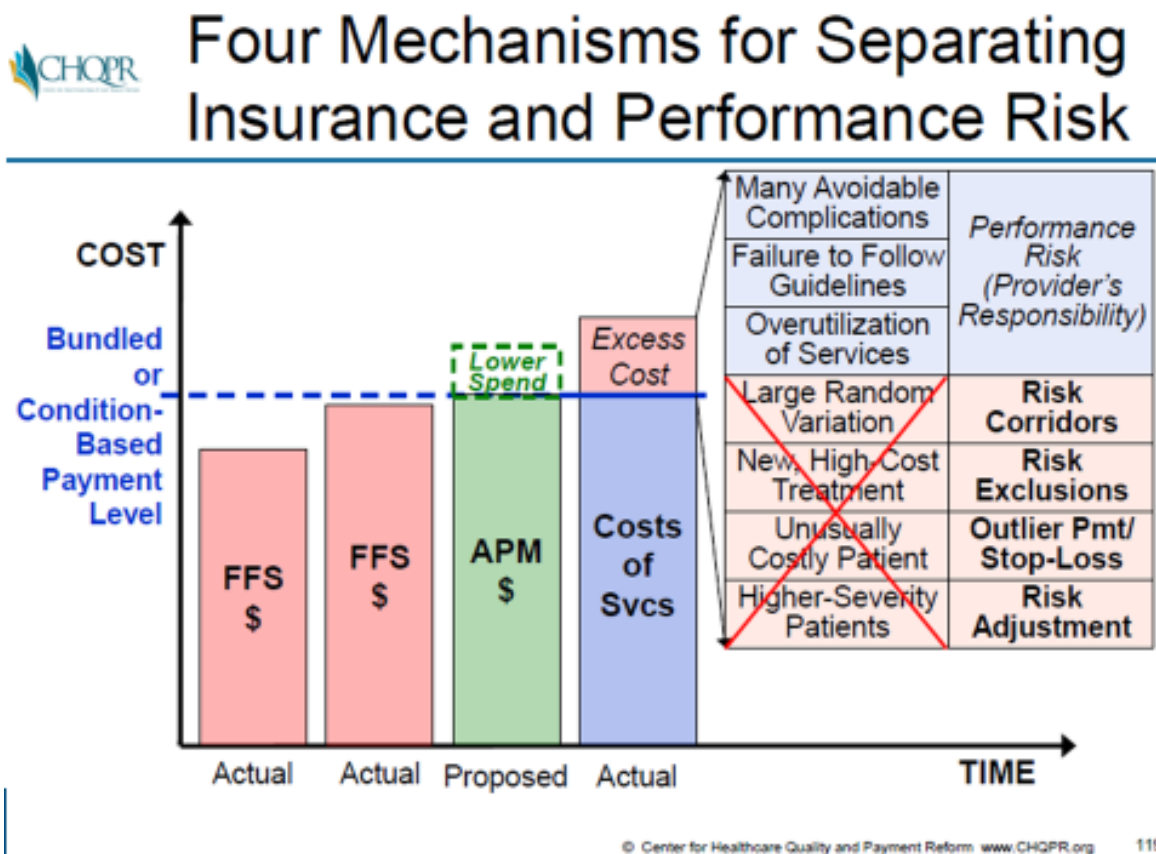
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Source: Harold D. Miller, The Building Blocks of Successful Payment Reform: Designing Payment Systems That Support Higher-Value Health Care, *Center for Healthcare Quality & Payment Reform,* 2009–2015, http://www.chqpr.org/downloads/BuildingBlocksofPaymentReform.pdf. Copyright © 2015 Center for Healthcare Quality and Payment Reform. Reproduced by permission.

Provider groups will want to know how to ensure appropriate utilization of services, apply guideline-based care, avoid complications and manage care within bundled or capitated arrangements that require a certain amount of sophistication for providers reorienting to a population health management perspective. There have been cases where provider groups have gone more at-risk under some APM models that ended up putting practices out of business because of the costs of care exceeding reimbursement rates and a lack of capital reserves. Actuaries can help provider groups estimate the capital and surplus requirements they must have to accept the risk for covered lives that may not be based on performance risk alone but also on insurance risk mechanisms.

Section 5: Populations and Attribution

5.1 Complex Members

In many contracts, complex members are excluded from attribution due to high-cost conditions such as ESRD and transplant and facility-bound patients, because this is a shifting science in how best to attribute accountable providers with proximity and specificity in controlling utilization. Consideration of the services and patient cohorts for which the provider group "should be at risk" is a continuous push with bundles, but the clarity becomes more difficult along capitated agreements, with various provider group depth on delivering the spectrum of care services.

The Centers for Medicare and Medicaid Innovation (CMMI) recently launched a voluntary multipayer demonstration with the Oncology Care Model (OCM), intended to characterize the beneficiaries undergoing chemotherapy in an episode-based payment model triggered by a Part B or Part D chemotherapy claim.[8] The attribution is clean for initiation of chemotherapy regimens in six-month cycles, which will then be compared to benchmark and target bundle pricing along with performance period adjustments. There are then PMPM Monthly Enhanced Oncology Services to help with care coordination for members with more complex condition states, for which organizations are more at-risk for controlling utilization over the performance periods. The early phase-in of the attributed members will have optional one-sided risk arrangements but will transition to two-sided risk arrangements in 2018. The multipayer demonstration will be important for delineating the differences between the commercial and Medicare-based OCM contracts.

Another CMMI demonstration is testing the ability to have an ESRD Seamless Care Organization participating in an at-risk value contract built on ACO methodology, primarily with large dialysis centers and a few integrated care teams focused on kidney dialysis care.[9] This Comprehensive ESRD Care model is built on an attribution model using the dialysis service claims as opposed to the E&M claims, as noted in previous examples. The attribution methodology sets the Qualifying Participant determinations in the Quality Payment Program, which are key for evaluating the threshold calculations for whether patients are represented appropriately in the numerator or denominator and which will be the fundamental indication of program success.[10]

Figure 6 shows a distinct difference in the number of annual office visits and the plurality of providers used between commercial and Medicare beneficiary groups that will continue to be a focal point as more advanced APMs are introduced and tested between the large payer groups in the United States.[11]

Figure 6

Commercial Versus Medicare Utilization

	COMMERCIAL	MEDICARE
AVERAGE NUMBER OF ANNUAL OFFICE VISITS	3.1	7
PERCENTAGE OF MEMBERS WITH 70% OR MORE OF ANNUAL VISITS WITH PLURALITY PROVIDER	77.6%	27.8%
PERCENTAGE OF HIGH-UTILIZING MEMBERS* WITH 70% OR MORE OF ANNUAL VISITS WITH PLURALITY PROVIDER	59.0%	8.2%

* High-utilizing members are defined as members with 11 or more office visits in a year.

Source: Based on an analysis of E&M codes from 2008 MedStat MarketScan database[3] and 2008 Medicare 5% Sample.[4]

Source: Susan E. Pantely, Whose Patient Is It? Patient Attribution in ACOs, *Milliman,* January, 2011, *http://www.milliman.com/uploadedFiles/insight/healthreform/whose-patient-is-it.pdf.* Copyright © 2011 Milliman Inc. Reproduced by permission.

5.2 High-cost Cohorts

Many academics and plans have been outlining the management of high-cost cohorts as a variation of those members that continually have higher risk scores and claims on an annual basis. This is relevant for complex end-of-life care, where care is predominantly paid for by Medicare, but the incentives for proactive management across the post-acute care settings is only starting to become more clearly indicated through CMMI demonstrations and some serious advanced illness level work done by Medicare Advantage plans.

Small populations and high-cost members are important considerations during attribution. Various studies have shown that the most expensive 1%–2% of patients are responsible for around 30% of the costs, and the top 5% account for about half the costs.[12] Although identification and exclusion of complex patients is intended to mitigate their impact on the variability of patient costs in a population, small variations in the prevalence of other high-cost patients, especially if a panel of patients is small, can cause marked changes in total experience. This outsized impact can be seen in the hypothetical, but not unrealistic, example in Table 1.

Table 1
Impact of Adding One Fairly Expensive Patient ($120,000) Depending on Panel Size

Panel 1	Base	Base + 1 Expensive Member
Patients	5,000	5,001
Annual cost per patient	$6,000	$6,023
Increased per patient cost		0%

Panel 2	Base	Base + 1 Expensive Member
Patients	500	501
Annual cost per patient	$6,000	$6,228
Increased per patient cost		4%

5.3 Provider Management of the Attributed Panel Process

The ability of a provider to deselect patients from their patient panel is a relatively new concern as providers are to make key decisions about patient condition management over time, for which their practice cost control is dependent. There can be patients that are not compliant with their medications and will have foreseeable complications and utilization that can be deemed outside of the performance engagement by the attributed provider or group. This can be similar to the issues associated with the previous Physician Quality Reporting System for Medicare performance measures, which included key metrics of quality that physicians were to submit for performance bonuses based on numerator/denominator indicators. Past issues have been related to being dinged on inclusive patients in the denominator that were not adequately in line with physician care or engagement.

5.4 Churn and Turnover Issues—Provider and Patient Consistency

The churn rates and trends of a population can vary widely, with 40%–60% annual reattribution, which represents an annual shift of a focused patient panel that is not consistent for practices to clearly know who is in their attributed panel and who is not. There can be significant variation in risk-adjusted cost trends between attributed and nonattributed members that form the basis of any cost forecasting and staffing models used by physician groups that are entering new at-risk contract models.

If we will be creating more accountability for provider groups to take on more connectivity with members, it seems warranted to reward provider-member relationships that extend for multiple performance periods. The basis of member retention could be an appropriate marker to proxy a fostered relationship in managing disease states or keeping members engaged with a consistent provider group. The greater investment in preventive medicine, with stability in proximity and longer program duration to impact healthy behaviors, should be a continued goal for alignment across payers, purchasers and providers.

5.5 Unattributed Members

Not all members will be able to be attributed to a particular provider. This may be because they have not received services during the attribution period or because the services they received were not used in the attribution process. They may be new enrollees to the health plan. Often these are very low-cost members who do not stay current on preventive measures.

Attribution methods may deal with these members by alternate means, such as by auto-assigning them to providers, or they may be excluded from the value-based contract. It is important to understand the size of this population and whether they are included in development of base measures.

Section 6: Evolution of the Art and Science of Attribution

More attribution methods are not necessarily better, but targeted ways for plans to attribute patients to their most appropriate provider groups for performance measurement and fiscal risk accountability will continue to evolve. Plurality methods are better at capturing high-cost members that may not have modifiable care trajectories but should be peer-compared rather than count to a metric of care that is not attainable. The use of visits and services rendered within the commercial sector is preferred because the costs or allowable amounts can skew results.

Among next generation approaches, APMs are intended to connect patients with the right organizations and providers with the most incentive to create improvement in terms of quality and cost utilization. This is currently an unclear practice area because the quality of care is not well defined outside of the dependency on process measures that do not entail what constitutes quality from the patient and provider perspective, along with an obfuscation of what care costs based on various measures of accounting. Actuaries and academics need to contribute to the areas of best practices to quantify value and risk in a transactional system that relies on data that are available and interpretable to the decision makers promoting organizational structures to deliver population health care.

CMS is moving forward with their next generation ACO model demonstration as the next iteration of a value-based contract mechanism that has the promise to promote better alignment between providers and hospitals, with patients as a more central partner in care decisions. The previous iterations in the Pioneer and MSSP models were limited by historical benchmark contraction, but this APM shows more promise in risk adjustment methods and use of HCC scores similar to Medicare Advantage to keep risk transfer more predictable and the economic opportunity more sustainable. The results of the value-based contracting savings to date have not been large reductions in utilization, but they are trending in the right direction and with the right intent of improving care coordination.

Medicare Advantage plans have been gaining market share above 30% of total beneficiaries and creating additional value-based contracting risk transfer for key attributed patient populations that show further promise in creating products and networks that are bending the cost curve and appropriately shifting risk to provider groups. The commercial contracting experience also shows promise, but there is a lack of generalizable evidence and claims that are shared to create standards for the industry as all stakeholders work to define value. The work of actuaries and academics to share lessons learned in this evolution of attribution methodology in value-based contracting will be important to move the field in more directly aligning care utilization in the coming years.

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