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PAPER

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Analytics: The Keys to Achieving Healthcare Value

Rebuilding the delivery system with new infrastructure, processes, and data

By Anna Pater

Transitioning from fee-for-service to fee-for-value: What it means to replace service with value

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About the Author

Anna Pater is a Senior Engagement Manager at Gray Matter Analytics. She is responsible for leading analytics related strategy and consulting engagements for a portfolio of payer and provider clients. With over 20 years of experience, Anna has worked across all facets of healthcare while holding a variety of leadership and consulting positions. Through her passion and focus, Anna transforms healthcare delivery through data, informatics, and analytics. Anna can be contacted at apater@graymatteranalytics.com

About Gray Matter Analytics

Gray Matter Analytics is a healthcare solutions company. Through our CoreTechs™ platform and solution suite, we design advanced analytics for healthcare providers and payers. Our analytics advisory services enable data strategies, enterprise analytics capabilities, and care optimization initiatives.

Leadership includes seasoned technology executives with analytics solutions, services, and healthcare experience from companies including Bearing Point, Blue Shield of California, Booz & Company, Cisco Systems, Deloitte, EDS, Ernst & Young, MD Anderson, PWC, Valance Health, and SPSS.

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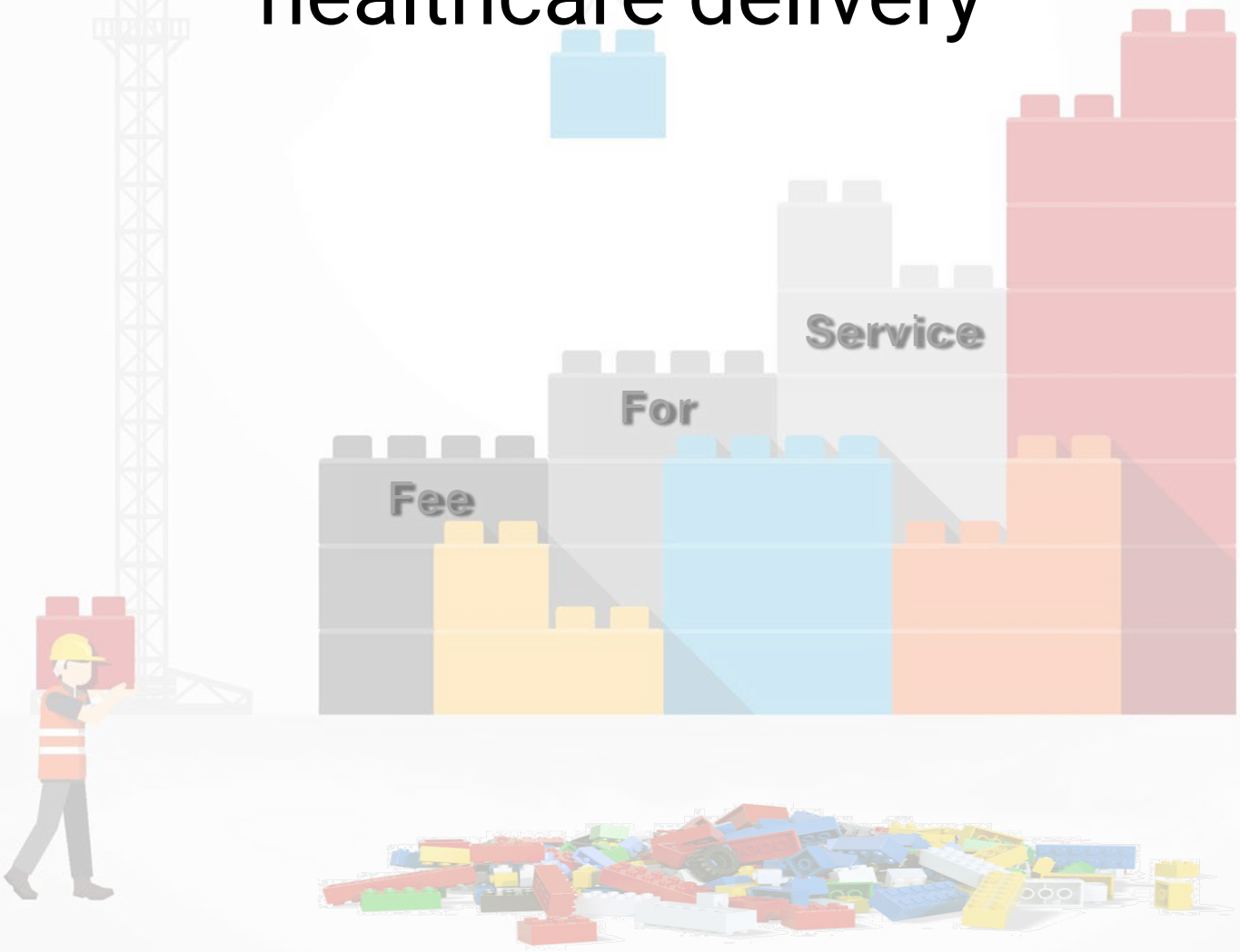
Crumbling models and escalating cost: A brief history of insurance and healthcare delivery



To change healthcare, data analytics is no longer a luxury.

The healthcare delivery system has traditionally operated in a siloed and inefficient model, based on payment for volume. Changes put in motion by the Patient Protection and Affordable Care Act (PPACA) now usher in a new era in healthcare delivery.

The Patient Protection and Affordable Care Act now requires constituents responsible for paying and delivering healthcare for the American population to revisit their approaches, systems, technology platforms, and analytics needs. All of these requirements are designed to align with a new model where healthcare providers and payers are incentivized to deliver on value, rather than volume.

This white paper serves to provide a brief history of the costs and programs which led us to our current healthcare environment; it explains what "value-based care" actually entails and the processes, technologies, and analytics required to enable this new model through various stages of adoption and risk.

Healthcare delivery has come a long way. Big data, digital, and analytics will take it to the next level.

A BRIEF HISTORY: HOW MODERN INSURANCE AND HEALTHCARE DELIVERY CAME TOGETHER

Modern insurance based healthcare models date back to 1789, when rail, mining, and other industries began offering healthcare to workers through in-house, company employed physicians. For nearly 130 years similar arrangements flourished, until a group of school teachers partnered with Baylor Hospital in Dallas, Texas, creating the first hospital sponsored prepaid plan to include room, board, and a specified set of services, all at a predetermined monthly cost. This model is widely considered the precursor to the first Blue Cross health insurance plan, established in 1937.[1,2]

After the initial launch of Blue Cross and Blue Shield in the 1930s, growth came primarily from government policies, which incentivized health insurance as a form of employee compensation. During the Golden Age, privately funded employer sponsored plans grew the number of insured individuals from 21 million in 1940 to nearly 142 million by 1960, nearly a seven-fold increase. By 1960, nearly 75% of Americans received some form of health insurance.[3]

Recognizing health insurance was still inaccessible to the poor, unemployed, and elderly, with the enactment of H.R. 6675 in 1965, President Lyndon B. Johnson brought Medicaid and Medicare into existence. With a budget around $10 billion annually, coverage was extended to approximately 19 million new Americans.[4, 5]

With a majority of Americans covered by some sort of health insurance under traditional fee-for-service (FFS) indemnity models, healthcare costs quickly grew. Throughout the sixties, over-utilization, new technologies, pharmaceutical drug development, and general inflation continued to swell. By the early seventies the government was seeking legislative solutions to contain rising healthcare costs.

The HMO Act of 1973, enacted during the Nixon Administration, tried to curb high levels of medical inflation brought on by unrestricted consumption of services by

Medical Care – A Fringe Benefit's Humble Start

During World War II, the government financed much wartime spending by printing money while, simultaneously imposing wage and price controls. Firms competing to acquire labor at government controlled wages begin to offer medical care as a fringe benefit. Which proved rather attractive to workers.

- Milton Friedman

doctors and patients under fee-for-service models. The act's objective was to leverage Kaiser's managed care model to make healthcare more affordable.

This included a single payer, pre-paid model that limited the need for unnecessary services often performed under a traditional FFS payment model.[6, 7]

The Kaiser managed care model uses a system where physicians are employed directly by Kaiser Health Plan owned hospitals. For each Health Plan member, entities receive a per member per month payment. This seeks to minimize the quantity of services provided to members, so that Kaiser can maximize its profit. This model is based on a strong emphasis in preventative care, employing physicians and removing incentives for unnecessary and costly services while utilizing the most cost effective care settings.

March 24, 2010: President Obama signs the Patient Protection and Affordable Care Act into law. Saying it enshrines "the core principle that everybody should have some basic security when it comes to their health care."

While the managed care era did see an overall decrease in healthcare costs, it was accompanied by a period of backlash, sparked by an overarching perception that care was being denied and rationed by health insurance companies. The backlash gave rise to open panel networks, commonly known to consumers as Preferred Provider Organizations (PPOs). PPOs did eliminate many restrictions, but ultimately failed to slow rising healthcare costs.

Despite continued advances in healthcare technology, pharmaceutical innovation, and most Americans enjoying a respectable baseline of care, the nation's healthcare costs continue to rise, leaving leaders to explore new care delivery models, legislation, and economic policy.

According to National Health Expenditure data, published by the Office of the Actuary at the Center for Medicare and Medicaid Services (CMS), healthcare costs have increased from 5% of GDP in 1960 to 17.5 % in 2014. Healthcare expenditures are expected to be an alarming 20% of U.S. GDP by 2024.[8]

The Path to Quality and Efficiency: Where We Are Today

Since the original payment methods and insurance plans were established, the U.S. healthcare system has gone through several phases of maturity. Including on-going efforts to determine the optimal mix of plan benefits, pricing, and mode of payment (be it employer, government, or consumer based).

With healthcare costs constantly rising and government entities (federal, state, and local) responsible for the largest portion of expenditures (estimated at 45% of all healthcare expenditures), today stretched government entities find themselves looking for solutions to unsustainable rising costs.[9]

Since the PPACA was enacted, as a percentage of GDP, healthcare costs have decreased annually. At 6.5% per annum, they're currently at their lowest growth rates ever. Despite falling costs per capita, aging "baby boomers" are projected to swell Medicare expenditures from 1% from 2010 to 2014, to 4.1% between 2014 and 2024.[11]

With an influx of "baby boomer" seniors enrolling in Medicare, and new, previously uninsured entrants covered under federal and state programs, the government has taken steps to greatly improve healthcare quality and efficiency.

One step from PPACA legislation passed in 2011 requires the **Center for Medicare and Medicaid Innovation** to find new ways of improving quality of care, including slowing healthcare costs for populations covered under Medicare, Medicaid, and the Children's Health Insurance Program (CHIP).

With employers unable to subsidize private insurance annual premium increases of 10% or more, premiums are increasingly being passed to employees and consumers, giving rise to High Deductible Health Plans, shifting a large portion of added cost to consumers. Employees receiving rich benefit plans, including low deductibles and open access benefits, is a bygone era.

Now, a few years into healthcare reform, one clear trend has emerged: Across the board, the primary stakeholders responsible for funding unsustainable healthcare costs have embraced finding value under value-based care payment models, rather than continuing to fund traditional fee-for-service insurance based plans.

Payment Reform Through Value-Based Care: Fee-For-Service Models and Misaligned Incentives Offset by the Triple-Aim

In addition to expanding coverage for uninsured Americans, the PPACA has established specific provisions aimed at improving how healthcare is delivered, organized, and paid for in the United States.

Documented in *Title III: Improving Quality and Efficiency of Health Care*, these provisions focus on current fee-for-service inefficiencies and quality of care inconsistencies found in provider care delivery patterns across different regions.

To achieve healthcare's ***Triple Aim***: reducing cost of care, enhancing patient experience, and improving overall health outcomes. PPACA provisions have identified Value-Based Care as the preferred driver of payment reform. From the 2009 roadmap to value-based reimbursement, published by CMS, underlying goals include[12]:

- Financial Viability—where the financial viability of the traditional Medicare fee-for-service program is protected for beneficiaries and taxpayers.
- Payment Incentives—where Medicare payments are linked to the value (quality and efficiency) of care provided.

- Joint Accountability—where physicians and providers have joint clinical and financial accountability for healthcare in their communities.
- Effectiveness—where care is evidence-based and outcomes-driven to better manage diseases and prevent complications from them.
- Ensuring Access—where a restructured Medicare fee-for-service payment system provides equal access to high quality, affordable care.
- Safety and Transparency—where a value based payment system gives beneficiaries information on the quality, cost, and safety of their healthcare.
- Smooth Transitions—where payment systems support well-coordinated care across different providers and settings.
- Electronic Health Records—where value driven healthcare supports the use of information technology to give providers the ability to deliver high quality, efficient, well-coordinated care.

Five years into the volume to value journey, change has come predictably slow, as health system infrastructure was built around fee-for-service operating models. To date, we've seen only incremental benefits from mandated changes to reimbursement and operating models.

To truly meet the goals of value-based reimbursement, as originally laid out by CMS, new operating models require significant investment in time and resources for the transition of providers and payers experimenting with new clinical models, payment structures, and organizational designs. Similar initiatives are being adopted throughout the healthcare industry, which will include self-insured groups and commercial payers.

There are various stages of engagement, integration, and risk that encompass the adoption of value-based reimbursement models. Two key components include:

1. Developing and implementing performance metrics that can accurately measure value, and
2. Payment reforms that financially incentivize value driven care delivery, based on stage 1 metrics

While there is no "right" way to implement value-based care initiatives, individual healthcare organizations must select how best to improve performance levels. Those adopting value-based care principles early will likely gain valuable operational and marketplace advantages.

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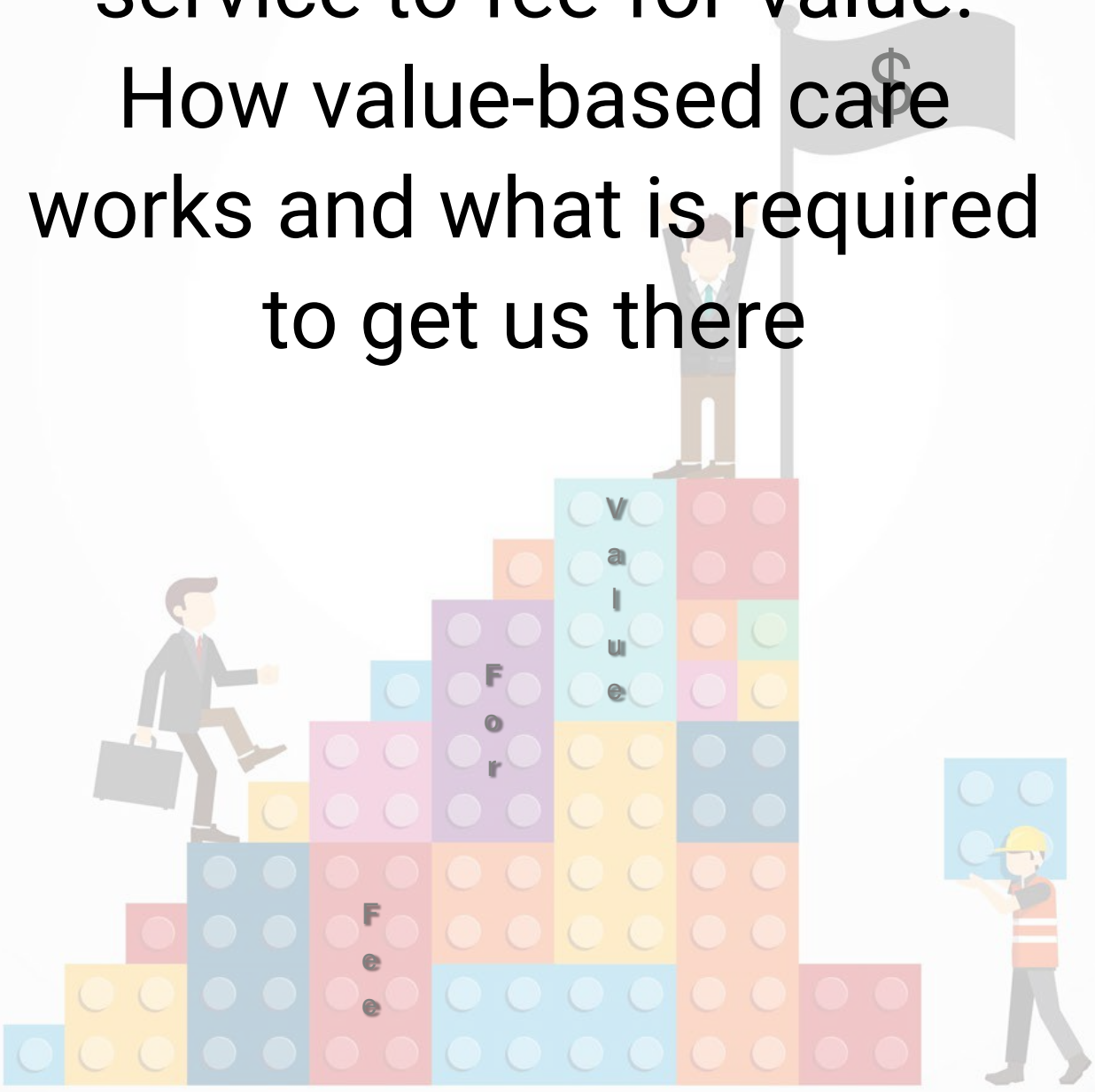
Transitioning from fee-for-service to fee-for-value: How value-based care works and what is required to get us there



BUILDING VALUE-BASED CARE THROUGH ALTERNATIVE PAYMENT MODELS

"Pay for reporting" was an initial step by CMS to incentivize providers. This required data submission on areas such as quality, cost, and outcomes. It incidentally provided foundational insights used in developing new payment methods tied to quality.

"The current system is stuck on fee-for-service, and it's a barrier to a better healthcare model. But I think we're at a historic time, with a growing consensus that it's time to move away from fee-for-service. Once freed from that tyranny, creativity is unlocked."

George Halvorson,
Former Chairman and CEO
Kaiser Permanente

Two base quality reporting programs included: **Inpatient Quality Reporting (IQR)** for inpatient services and **Physician Quality Reporting System (PQRS)** for outpatient services.

With base quality reporting system data available, CMS had the foundation to execute actual payment reform through four initial value-based reimbursement programs.

These programs link a small percentage of traditional Medicare fee-for-service payments by rewarding physicians and hospitals to performance expectations or penalizing for poor performance. Such programs and methodologies are transitionary steps to enable providers to operate under traditional fee-for-service environments, while simultaneously requiring providers to acclimate themselves to the concepts, measures, and capabilities needed when monitoring and optimizing revenues tied to quality and value.

The four original CMS programs include:

1

Hospital Value-Based Purchasing (HVBP) Program rewards acute care hospitals with incentive payments for the quality of care they give to people with Medicare. This program adjusts payments to hospitals under the **Inpatient Prospective Payment System (IPPS),** based on quality of care.

How it works

- Withholds participating hospitals' Medicare payments by 2%.
- Uses the estimated total amount of those reductions to fund value-based incentive payments to hospitals based on their performance in the program.
- Applies the net result of the reduction and the incentive, as a claim-by-claim adjustment factor, to the base operating Diagnosis-Related Group (DRG) payment amount for Medicare fee-for-service claims for the fiscal year associated with the performance period.
- Each hospital may earn 2 scores on each measure—one for achievement and one for improvement. The final score awarded to a hospital for each measure is the higher of these 2 scores. CMS adjusts a hospitals' Medicare payments based on a total performance score that reflects, on a measure-by-measure basis:
  - How well they perform compared to all hospitals, or
  - How much they improve their own performance compared to their performance during a prior baseline period

Domains/Measures:
The HVBP Program has 4 domains with a total of 21 measures for FY 2017. The measures are distributed and weighted within each domain. Domains include:

- **Clinical Outcomes and Processes** [*To ensure patients survive and critical care processes are followed]*
- **Safety** *[To ensure hospital infections are limited]*
- **Efficiency** *[To ensure that unnecessary services are limited]*
- **Experience of Care** *[To ensure caregivers are providing the best care experience through communication and other factors]*

2

Hospital Readmission Reduction (HRR) Program imposes financial penalties on hospitals in an effort to reduce costly and unnecessary hospital readmissions.

How it works

- A hospital readmission happens when a patient is admitted to a hospital within a specified time period after being discharged from an earlier initial hospitalization. For Medicare, this time period is 30 days, and includes readmissions to any hospital, not just where the patient was originally hospitalized. It doesn't include certain planned readmissions.

- Applied to the Base DRG operating amount based on performance periods consisting of 3 years of discharge data.

Measures:
When the program started in 2012, hospitals were measured for the readmission rates of patients with acute myocardial infarction (AMI), heart failure (HF), and pneumonia (PN). As of FY 2017, the readmission measures have been expanded to include chronic obstructive pulmonary disease (COPD), total hip arthroplasty (THA), total knee arthroplasty (TKA), and coronary artery bypass graft (CABG) surgery.

Before the Affordable Care Act, Medicare paid essentially $0 through alternative payment models. By 2014, approximately 20 percent of payments were made through alternative payment models, and today more than 30 percent of payments are made through alternative payment models. CMS is joined by dozens of insurance companies, health systems, employers, and organizations who have set their own goals to move to alternative payment models.

Source: HHS

3

Hospital Acquired Conditions (HAC) Program encourages hospitals to improve patient safety and reduce the number of hospital-acquired conditions, such as pressure sores and hip fractures after surgery.

How it works

- A hospital can be penalized up to 1% of its base operating DRG payments based on the number of safety reported incidents/infections that it had.

Domains/Measures:

- Patient safety events using the Agency for Healthcare Research and Quality (AHRQ) patient safety indicator (PSI) 90 composite measure.

- Performance across these 5 healthcare-acquired infections:

1. The Centers for Disease Control (CDC) National Healthcare Safety Network (NHSN) Central Line-Associated Bloodstream Infection (CLABSI) measure
2. The CDC NHSN Catheter-Associated Urinary Tract Infection (CAUTI) measure
3. The CDC NHSN Surgical Site Infection (Colon Surgery and Abdominal Hysterectomy) (SSI)
4. The CDC NHSN Methicillin-Resistant Staphylococcus Aureus (MRSA)
5. The CDC NHSN Clostridium Difficile (C. diff)

4

Value Modifier (VM) Program (also called the Physician Value-Based Modifier or PVBM) measures the quality and cost of care provided to people with Medicare under the Medicare Physician Fee Schedule (PFS).

How it works

- The Value Modifier is an adjustment made on a per claim basis to Medicare payments for items and services under the Medicare PFS. It's applied at the Taxpayer Identification Number (TIN) level to doctors billing under the TIN. In 2015, payment adjustments applied to physicians in groups of 100 or more eligible professionals (EPs) based on their performance in 2013.

- In 2016, the payment adjustments applied to physicians in groups of 10 or more EPs based on their performance in 2014.
- In 2017, payment adjustments will apply to physician solo practitioners and physicians in groups of 2 or more EPs based on their performance in 2015.
- In 2018, in addition to all physicians, proposed payment adjustments apply to physician assistants, nurse practitioners, clinical nurse specialists, and certified registered nurse anesthetists who are solo practitioners or in groups of 2 or more EPs based on their performance in 2016

Other Value-Based Programs

For providers with deeper infrastructure and the appetite to participate in a more comprehensive value-based model, CMS created the **MSSP Medicare Shared Savings Program**. This model aims to test and demonstrate the efficacy of an Accountable Care Organizations (ACO).

By requiring greater accountability toward both downside and upside risks, attributed patient care and corresponding outcomes are monitored more closely.

As of April 2016, there were 433 Shared Savings Program ACOs covering 7.7 million beneficiaries, in 49 states.[13] These early adopter ACOs are currently opting in to accept varied levels of risk, with the highest level of risk currently representing an upside and downside risk for the tier 3 participant ACOs.

Since the rollout of the initial value-based reimbursement initiatives, for non-ACO providers, CMS has also introduced programs requiring a greater degree of risk. Examples of these programs include: Bundled Payments, Comprehensive Primary Care Initiative, Medical Homes, Comprehensive ESRD, and Financial Alignment Initiative for Medicare-Medicaid Enrollees. CMS wants to have 30% of reimbursements in categories 3 and 4 by 2016 and 50% of all services in some type of Alternative Payment Model by 2018.[14]

VBC Overview

Efforts to increase the value of US health care services have been under way for at least a decade and value-based delivery models have been in use even longer. The most recent push is driven by employer and public purchasers' concerns about rising costs and poor performance on quality indicators. The current US FFS-based system has incentives for providers to increase the volume of services, and while providers have professional goals to improve health outcomes, the system does not reward them for this. In 2006, the Institute of Medicine published two seminal reports, Preventing Medicare errors and Rewarding provider performance: Aligning incentives in Medicare. Both reports argued that the US system would make gains in quality and health outcomes and decrease overall costs if health care provider incentives promoted care coordination and improved performance on quality and measures.

The Affordable Care Act (ACA) included permanent policies and many pilots to test value-based payment models through Medicare. Among these are the Medicare Shared Savings and Pioneer Accountable Care Organizations (ACO) programs. More recently, the US Department of Health and Human Services (HHS) announced value-based payment goals for Medicare. HHS aims to:

1. Have 50 percent of Medicare payments tied to quality and value through alternate payment models (e.g., ACOs, bundled payments) by 2018.
2. Have 90 percent of traditional Medicare payments tied to quality or value through the Hospital-Based Value Purchasing and Hospital Readmissions Reduction programs by 2018.

Some commercial sector and Medicare VBC initiatives started well before the ACA and continue today. They feature payment approaches that share savings (and sometimes risk) for organizations that reduce the rise in health care costs, and that reward investment in care coordination and delivery arrangements among health plans, hospitals, and physician groups. As the health care system continues its shift to VBC, organizations will likely be rewarded for improving cost, quality, and outcomes by reorganizing care, testing new reimbursement models, integrating service delivery, coordinating care processes, and implementing quality improvement initiatives.

SOURCE: Deloitte University Press. *Ready, set, (triple) aim.* View here >

Adjusting to a New Value-Based Reality

In the early stages of value-based care, penalties for not meeting mandatory performance requirements are quickly adding up, highlighting how many providers are struggling with new discounted payment realities. It's a troublesome trend. Nearly 30% of all Medicare fee-for-service payments, totaling nearly $117 billion of a projected $380 billion of all Medicare fee-for-service payments as of January 2016, are tied to value.[15]

As CMS and commercial payers develop new programs rewarding value and penalizing inefficiency, the healthcare delivery community must modify its infrastructure, technology platforms, processes and policies to adjust to value-based and alternative payment models.

A fractured system, where independent care delivery rewards service volume, simply wasn't designed to provide needed visibility into those programs best incentivizing disease prevention and care coordination. A unified view of patients across systems will ultimately benefit everyone by improving care and eliminating waste.

To do more with less, while simultaneously containing overall costs and improving outcomes, providers must acquire greater patient visibility. This includes longitudinal health records and the insights needed to optimize care, costs, and outcomes across the entire patient continuum. Prescribing the right resources, in the right setting, at the right cost, leaves little room for redundant, non-coordinated, and ineffective services.

"You can't just look at the issue as a math equation of supply cost plus quality, this is also about people. Physicians and clinicians must have a voice since they are accountable for the care delivered and because humans respond differently."

Gina Thomas, RN, Vizient Senior Vice President
General Manager of Population Health

Current Payment Models Supporting Emerging Capabilities

To better understand required emerging capabilities, it's important to understand established payment models and processes. Major components and material differences between the four major payment models are highlighted below. Each model includes an operational and analytics capability summary. System and infrastructure requirements on the path to value-based care are identified.

Model 1: Fee-For-Service (FFS) Model

Patient > Illness > Service > Reimbursement Code > Bill/Claim > Payment.

Exactly as the name states, physicians or institutional providers perform a service, and in return, they receive a fee. This is the basis for our healthcare delivery system today, including all accompanying processes and systems built to date. Other than procedural recording and coding to achieve maximum reimbursement, this system is not inherently complex. In some extenuating circumstances, services may not be covered, requiring special approval to meet medical necessity criteria. This model places significant information demands on hospitals, requiring them to understand costs (both indirect and direct) for services rendered, the charges billed for these services, differences in cross payer arrangements, and the inputs into profit margin targets.

Foundational Capabilities To Date:

• Billing systems

• Medical coding

• Basic cost accounting methods (RCC or RVU)

• Revenue cycle and payer contract management analytics

Incentive Alignment:

• Incentives for services performed

Capabilities Missing on the Path to Value:

• Technology supporting the sharing of health information across electronic or paper siloes

Model 2: FFS Model with Quality Measure Performance Adjustments (Pay for Performance P4P)

Patient > Illness > Service> Reimbursement Code > Bill/Claim > Payment > 18 Months Later > Get report on performance and apply the negative or positive adjustment of 1 to 2% to current year revenue.

This model builds on the current fee-for-service model. It does add a stipulation that a minimum level of care quality must be met for patients receiving care (as recorded by the predefined value-based payment programs and measures). If a provider's patient meets the criteria for HVBP, HAC, HRRP or VM, the provider will be assessed and notified of their performance 18 months after the close of the applicable fiscal year. To maximize reimbursement in subsequent years, this model requires providers to understand and monitor their real time operational and clinical performance measures. Providers must continue to operate within the existing fee-for-service model. Concurrent performance monitoring is required to ensure future revenues are maximized.

Analytics Capabilities Required:

• FFS capabilities

+

• Risk adjustment

• Ability to calculate and monitor performance on quality measures

• Ability to predict/project revenue based on quality measures

• Population Health Management to include risk stratification, care coordination, patient engagement, and cost of care

Incentive Alignment:

• Understand, monitor, measure, and predict performance and revenue based on performance measures

• Modify care delivery protocols to adequately meet or exceed value-based purchasing measures are integrated into patient care delivery

Model 3: Alternative Payment Model

Patient > Assess care needs by risk and health > Enroll patient in appropriate care delivery model > Provide patient care > Bill for episode > Receive bundled payment > Reconcile to episode (allocate by performance and cost).

For a given treatment, the goal of Bundled Payment Models and other similar forms of risk based reimbursement is to cover an entire clinical care episode. For instance, payment may include pre-operative, surgical/inpatient services, and any post-acute care.

Bundled payments for clinical episodes include fees for a set of services that occur over time and across settings. This payment model can be applied in various ways, depending on the payer and alternative payment model which they have set:

• At the setting level, whereby the episode is focused on a hospital stay;

• At the procedure level, in which the episode encompasses a defined surgical procedure; or

• At the condition level, whereby the episode is defined around a condition. Conditions for which episode payment can be used range from asthma to diabetes to cancer.[16]

Capabilities Required for Bundled Episodes:

See the analytics capabilities for Capitation and Full Risk, they are similar and still forming.

Model 4: Capitation and Full Risk with Population Based Payments

Assess care needs of population by risk and health > Contract for full risk capitation > Provide patient care > Monitor cost and outcomes > Receive monthly capitation payment > Reconcile to capitation for patient population (allocate by performance and cost).

Under a full risk model, providers receive a monthly rate while providing comprehensive patient healthcare services. Providers assume all financial risk in caring for specific patient populations, as defined by payer contracts.

Since capabilities and care delivery models for bundled payments and full risk are still emerging, there are many standards uncertainties for how episodes will be defined and what is required for providers to operate in a full risk payment environment. Capabilities and definitions of episodes have been loosely identified but final definitions are applicable to both bundled payment and full risk since there are combinations of both that may need implementation.

Capabilities Required for both Bundled Episodes and Full Risk Capitation:

• FFS capabilities

+

• FFS model with quality measure performance adjustments

+

• Ability to assign costs and revenues against specific types of services as dictated by different alternate value based payment models (episode level, clinical service level, encounter level, charge code level, and across a continuum of care)

• Ability to monitor performance and risk real time against different payment models

• Ability to attribute patients to physicians for specific procedures and/or Alternative Payment service bundles

• Ability to assess the true cost of a patients' care episode as defined by different value based payment models

• Ability to reward and distribute payments to physicians and staff based on outcomes of care and performance measures

• Ability to predict population risk and risk adjust populations

• 360^0 view of the patient across the complete continuum of care and across disparate provider systems.

• Clinical decision support based on evidence based pathways for the patient and their unique co-morbidities

Incentive Alignment:

• Do more with less – risk based revenue optimization is based on optimal care outcomes not disparate, uncoordinated, and expensive care transactions

PAYMENT TAXONOMY FRAMEWORK

	Model 1: **Fee-for-Service – No Link to Quality**	Model 2: **Fee-for-Service – Link to Quality**	Model 3: **Alternative Payment Models Built on Fee-for-Service Architecture**	Model 4: **Population-Based Payment**
Description	Payments are based on volume of services and not linked to quality or efficiency	At least a portion of payments vary based on the quality or efficiency of healthcare delivery	Some payment is linked to the effective management of a population or an episode of care. Payments still triggered by delivery of services, but opportunities for shared savings or 2-sided risk	Payment is not directly triggered by service delivery so volume is not linked to payment. Clinicians and organizations are paid and responsible for the care of a beneficiary for a long period (e.g. > 1 year)
Medicare Payment Models	• Limited in Medicare fee-for-service • Majority of Medicare payments are now linked to quality	• Hospital Value-Based Purchasing • Physician Value-Based Modifier • Readmissions Hospital Acquired Condition Reduction Program	• Accountable care organizations • Medical homes • Bundled payments • Comprehensive primary care initiative • Comprehensive ESRD • Medicare-Medicaid Financial Alignment Initiative Fee-For-Service Model	• Eligible Pioneer accountable care organizations in years 3-5

03

How analytics fuels emerging payment model initiatives and unlocks value

USING ANALYTICS TO OVERCOME BARRIERS TO FEE FOR VALUE

As you can see from the above scenarios and varying levels of value-based reimbursement payment model shifts, in order to be successful, healthcare providers need to refocus from revenue optimization, to serving their populations while taking in less revenue. This will require many new processes and capabilities that are heavily focused on integrated clinical, financial, and operational analytics to inform changes to care delivery across the continuum.

As noted above, the existing information infrastructure for the healthcare delivery system has been built using fee-for-service as the basis. To meet the information needs of fee-for-value models, analytics capability areas needing assessment include revenue cycle processes, cost accounting, and patient and clinical analytics tied to value-based care.

"Uncertainty has always accompanied a new administration and political change. Regardless of the impact this has on the specifics of the existing Affordable Care Act, cost reduction and quality improvement will continue to be imperatives for healthcare providers. Everything that doesn't provide good clinical outcomes, improved financial stewardship, or operational efficiency will eventually have to come out of the system. Insights, recommendations, and operational support - rather than data alone - will be increasingly vital."

Dr. Roy Smythe MD,
Senior Medical Advisor
Gray Matter Analytics

	Care Delivery Entity	Patient	Care Delivery Team
New Capabilities Required	• Joint payer contracting • RVU cost allocation for different disease states, procedures, patient populations • Employer health plan population management • Incentive disbursement • Patient/physician partnership assignment	• Patient engagement • Wellness programs • Patient experience • Coordinated and streamlined care	• Optimized clinical protocols • Quality measurement • Aligned incentives • Clinical teams around Centers of Excellence
Analytics Needs	• Value based revenue cycle analytics • Cost based activity analytics • Physician performance measurement • Population specific reporting requirements • Disbursement approaches • Quality/cost and efficiency measures analytics • Provider attribution analytics • Risk modeling	• Patient satisfaction monitoring • Patient outreach • Patient biometrics integrated to a “Quantified Self” • Patient portal enabled longitudinal health record with personalized risk predictors	• Clinical decision support algorithms, Point of Care • Patient 360 across disparate systems and entities • Quality, cost and efficiency measure analytics performance for care team • Care gaps • Patient registries

KEY TO SUCCESS:
Revenue Cycle Analytics and Operational Changes Needed to Transition from Fee-for-Service to Fee-for-Value

Existing Revenue Cycle systems and processes have been setup to optimize revenue and payment cycles on a per patient basis. Revenue Cycle analytics in a fee-for-services world manages payments according to different fee schedules and payment stipulations for each payer contract. To estimate various payments, Revenue Cycle systems require complex codification to align patient, payer, and plan benefits. Accurately capturing all these details at the point-of-service is a recording and cataloging challenge.

Traditionally, financial and operational performance was driven by how well institutions could record patients and their payment responsibilities. This includes billing and tracking services in a “transactional” based, fee-for-service system.

As healthcare moves from a “transactional” revenue cycle emphasis to a “quality” based system, it changes the basic underlying care delivery and payment premise: providers no longer measure revenue by transactions, rather, financial performance is tied to value (cost/quality) relative to a benchmark.

Financial and operational performance will now be directly dependent on clinical activity, which has never been measured before. When moving to the extreme and accepting full financial risk for a population of patients, managing to third party payer contracts and traditional revenue cycle processes is no longer necessary.

Under a value-based system, when practicing medicine, clinicians must now make more financially responsible decisions. Meaning, providers need to better understand their populations and the risks these populations present to their value-based revenue cycle. Just as actuaries understand the experience of populations for a payer, providers now need to better understand the experience of their populations.

This requires the integration of data across clinical, financial, and operational systems. As providers segment populations, assign and manage risk, and better understand quality performance measures for unique populations, they can optimize clinical and financial outcomes for various populations. New requirements in revenue cycle analytics demand the integration of data to include population cost and quality performance to optimize revenue loss, rather than optimizing revenue collections from payers.

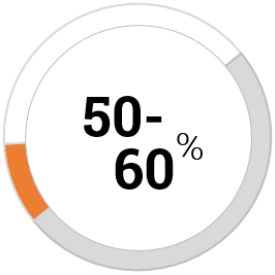
You can’t manage what you can’t measure

Peter Drucker

KEY TO SUCCESS:
Cost Accounting Analytics: The Basics

Cost accounting is a critical component of cost containment for providers as they shift to value-based reimbursement. Existing cost accounting systems were built to operate with a fee-for-service billing and reimbursement approach, with common methods tying costs to “procedure codes” within the hospital charge master by cost center. Traditional costing approaches have been sufficient to apply direct costs for labor and equipment, however, costs for support, administrative services, facility cost, and other indirect costs of healthcare delivery are often allocated to individual services based on two distinct and sometimes combined methods.

Currently, direct costs are calculated by medical treatment or procedure and indirect costs are typically applied using a Ratio of Cost to Charge (RCC) or Relative Value Unit (RVU) approach. When using a Ratio of Costs to Charge approach, costs are assigned to patients based on what a hospital “charges” and not the actual cost of the total resources. This method simply divides costs by billed charges and then allocates a lump sum of indirect costs across departments as a percentage of their total charges.



of hospitals use RCCs, a methodology for allocating costs.

Under a Relative Value Unit scenario, actual departmental costs are allocated across different charges based on their procedural complexity. When comparing an X-ray versus a CT scan, indirect costs are allocated by RVU proportion. Hence, a procedure with 10 RVUs versus 1 RVU will have 10 times more of the overall cost for services allocated to it. These two methods are based on the assumption that costs are a function of revenue or billed charges by department, which does not require granularity when operating in a transaction based, fee-for-service environment since the markup or margin is built into the cost of the service.

Therefore, when hospitals manage their costs, they typically view everything at a cost center or department level. The trouble with this approach is that when looking at the cost of a patient and their physician, in order to manage the true cost of patient care, costs must be defined more precisely at the patient level, then holistically applied to a “product” or “cycle of care” while treating a condition.

Alternatively, in the case of value-based care, it is important to understand costs from a process/activity perspective as opposed to per treatment, since there is very little transparency into the true amount of indirect costs for labor, facility, support, and administrative services needed to complete a “cycle of care” per patient, as opposed to providing a specific service or treatment.

In healthcare, it’s important to think about what the actual “product” will be under a value-based environment, since value driven “products” will include a group of procedures required to complete a cycle of care for a population of patients with specific conditions. For example, if a provider were to receive $10,000 to perform a hip replacement as a bundled service, it would include all pre-operative

as well as post-operative visits, as well as the actual hip and surgery. This would be considered the “product” receiving reimbursement, rather than payment for each individual procedure code. The main issue with RCC and RVU methods includes their inability to account for the true cost of specific episodes of treatment, which are bundles of services, previously billed independently in fee-for-service models

Cost definition is important to the profitability of the overall product. Traditionally, costs have been used to bill for individual units of service, however, under a value-based model, as providers take on more risk, they need a more precise understanding of what it truly costs for a “cycle of care” - which could vary from bundled payments to full risk models, where providers assume all liability for a patient and a monthly capitated payment.

When a provider assumes the role of payer in a full risk model, the true cost and profitability of healthcare services become dependent on the actual time, resources, and processes used in improving patient care delivery and outcomes. These insights can be gained by using Time Based Activity Driven Costing (TBADC). This approach closely maps each component of the care delivery cycle and applies these costs to the defined unit of care and patient, enabling providers to truly understand their cost of care across different delivery cycles and variations in treatment and outcomes across patient populations.

KEY TO SUCCESS:
Core Analytics Capabilities Required to Enable Value-Based Care - Patient and Clinical Analytics

As providers move further along the risk spectrum by taking on complete patient population risk - new systems, processes and analytics capabilities are required to ensure optimal performance and perhaps even survival under fee-for-value reimbursement models. This requires new data and redefining how we record costs and track revenues.

Based on current and projected value-based payment mandates, required core capabilities and systems include:

Data and Interoperability for a True Patient 360^0 view

In a fee-for-service environment, claims data is the primary data asset available for healthcare analytics. Gathered while billing for services, it’s the only codified and electronically stored data set which tracks a patient’s condition or diagnosis and the services performed during treatment. Throughout the 90’s and early first decade of the millennium, it was the only universal standardized data set that existed across the healthcare industry.

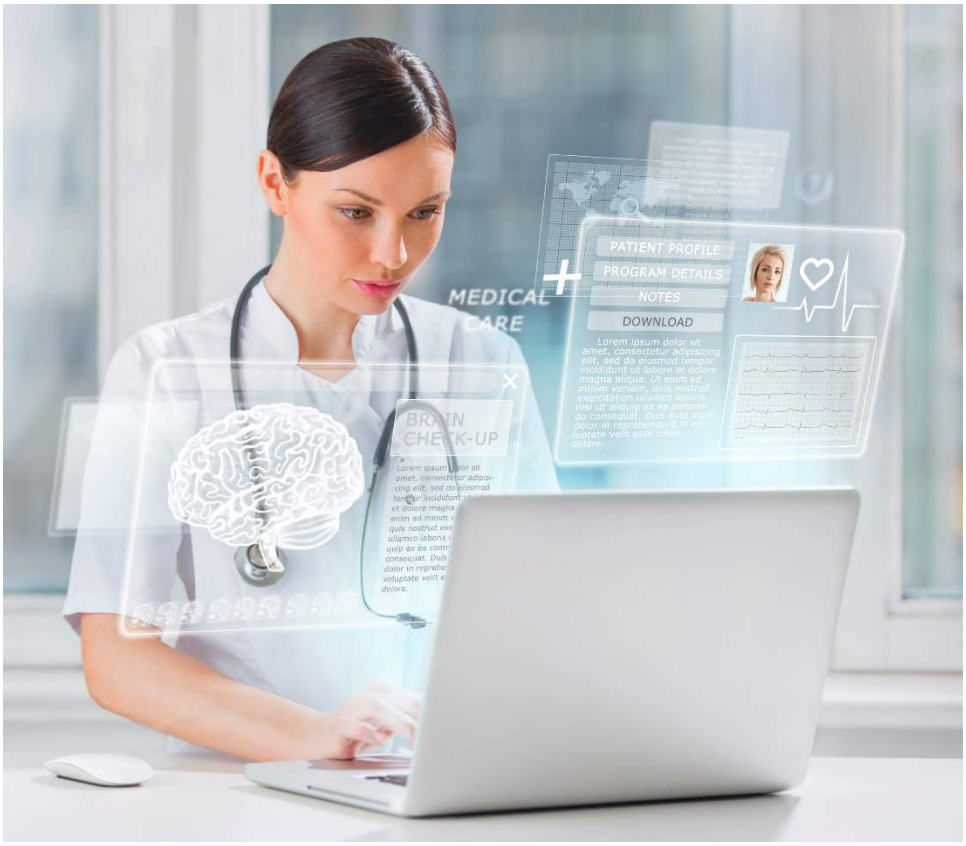
Claims data, from an analytics perspective, suffers from being predominantly used to manage and maximize the reimbursement process. While it does provide industry standard International Classification of Disease (ICD) Coding, its

limitation is that it lacks true clinical data, since it's used primarily to bill for services.

With advances in technology and Meaningful Use, electronic health record data previously stored in paper files is now more readily available, including codified clinical data and patient biometric information. Additionally, the Internet of Things (IoT) allows for real-time patient health status data to be collected. This helps to support care delivery pathways for specific patient conditions, such as remote heart rate monitoring, which can help detect any changes in patients with high risk heart conditions.

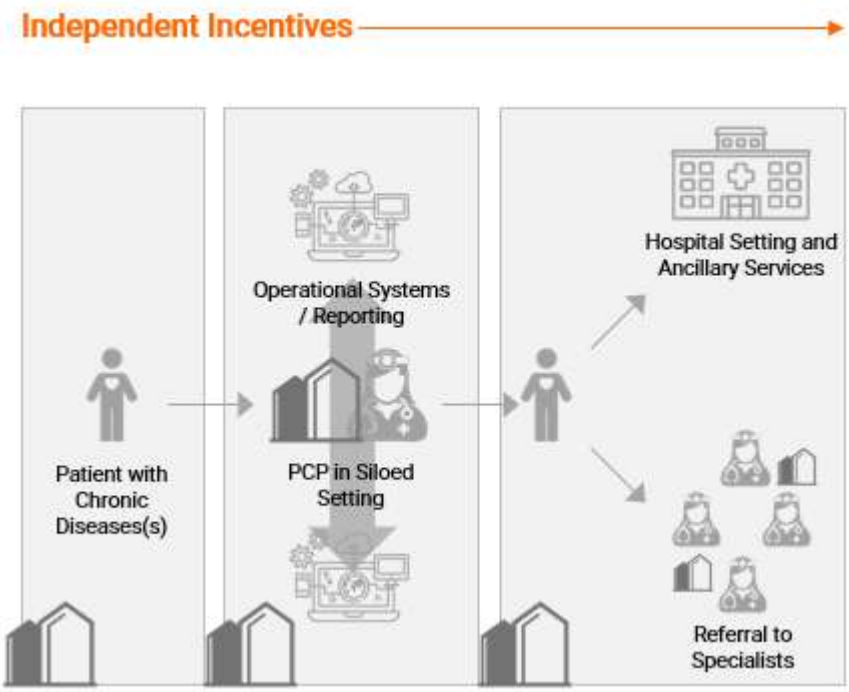
Although new sources of clinical data have materialized in the form of Electronic Medical Records (EMRs) and Electronic Health Records (EHRs), these systems are not interoperable across the healthcare continuum. Even within the same EHR system, systems lack standardization, resulting in disparate data that cannot be easily assimilated and leveraged. This poses challenges for providers, who require a true longitudinal view of a patient's clinical history across different delivery centers and systems, eventually providing the most "value" to the patient and the system as a whole.

On the path to a true patient centered system, interoperability challenges must be resolved and a universal patient ID is required so that patient data can be easily linked and utilized across different unrelated providers and payers throughout the healthcare delivery system.



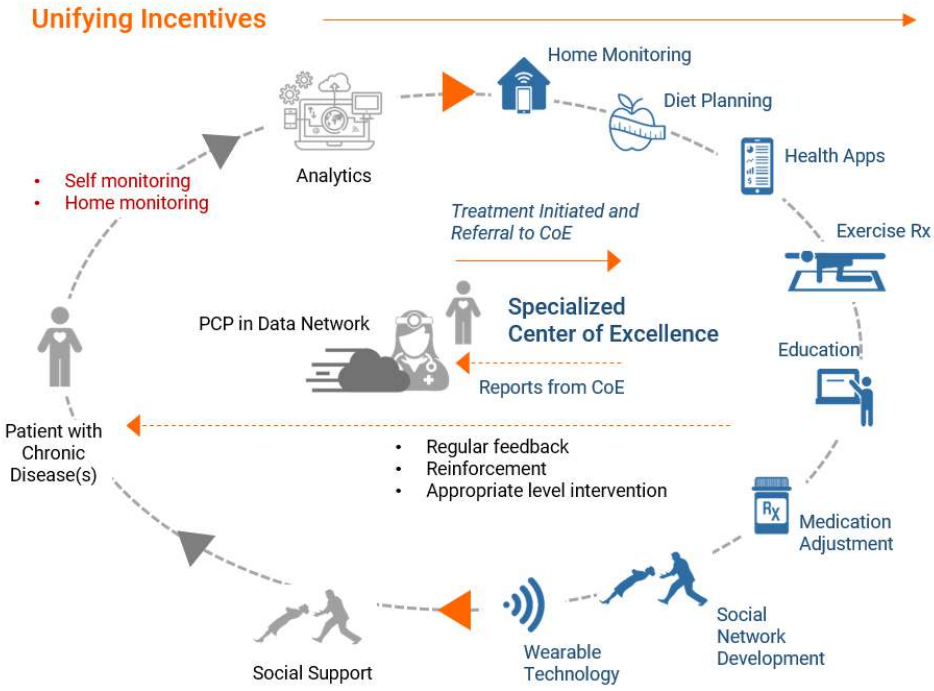
TRADITIONAL HEALTHCARE MODEL

Built to accommodate fragmented patient care and FFS payment across various disconnected health care providers



VALUE-BASED MODEL

Shifting to provide patient centered, coordinated care across accountable entities being reimbursed for quality, outcomes, and efficiency



Clinical Performance and Intelligence

Value-based care seeks to use the least amount of resources to achieve the best clinical quality outcomes possible. To get there, clinical performance data needs to be managed in real-time. Retrospectively measuring performance simply doesn't cut it any longer.

Resources involve time, medications, devices, and laboratory and radiology tests. Clinical quality outcome measures look at the overall cycle and outcome of a clinical episode. Some current measures have been integrated into Value-Based Purchasing programs by CMS and commercial payers, such as including length of stay or time to treat, readmissions, mortality rates, infection rates, and hospital acquired conditions. These measures are just the beginning, as we continuously learn more about optimal care pathways.

The provider community is beginning to acquire and analyze more insights into optimal care pathways. By analyzing practice patterns and costs through "practice based evidence" and "evidence based practice", hospitals are adding needed value-based performance measurement granularity by monitoring detailed process of care measures by clinical specialty areas such as maternity, cardiology, and oncology.

These process of care measures are better tailored to current hospital service lines or Integrated Practice Units (IPUs). These measures will replace the clinical quality outcome measures that are the primary focus of the basic level of value-based payment measurement in use today. Basic outcome measures currently being implemented are a broader one-dimensional measure. They serve as an indicator as to whether best processes of care are being followed. These "evidence-based practices" or "optimal process of care" protocols are documented within journals and provide the "evidence" under evidence-based medicine.

As a general rule of thumb, if best practice evidence-based medicine is practiced, the performance of basic outcome measures and corresponding payment incentives or penalties should be zero at a minimum, ideally yielding payment incentives when possible. Only when a provider is not following best practices in evidence, as integrated into the processes of care, is a provider likely to be penalized on the outcomes of their performance measures.

To arm hospitals with the insights needed to outperform peers, hospitals need the ability to identify critical performance measures, monitor these measures,

and find variations in care delivery and costs for specific clinical pathways. This will help generate more accurate predicted outcomes, costs, and estimated revenues based on mandated measures.

Additionally, with the ability to develop and monitor more detailed processes of care, hospitals gain the necessary insights to excel as high performing providers, delivering exceptional outcomes for both cost, and quality.

In the future, this will develop into personalized care analytics, supporting real-time clinical analytics decisions at the right time, in the right place, by the right constituent.

Population Health Management

Unfortunately, Population Health Management as a term is not well defined. Generally, it identifies various types of reporting and analytics that qualify and monitor a patient population, including recommended preventative pathways to achieve optimal outcomes at the lowest cost.

To efficiently and proactively manage the health of a population there are multiple analytics and workflow capabilities required. At a high level, this includes the identification of unique populations, the risk segmentation of these populations, and the ability to track and predict the true cost of these populations. This also includes the ability to track and integrate evidence-based protocols required for specific patients and patient populations. Additional analytics include internal point of care workflow management and external patient and caregiver engagement.

Complete solutions include dynamic algorithms which can accurately segment a population, rather than ineffective, predefined stratifications. By efficiently identifying populations for specific pathways, the benefits of predictive and prescriptive analytics can really shine. The relative risk of these populations and the ability to stratify and apply evidence-based protocols to each dynamically defined segment provides the clinical insights to ensure appropriate care and quality pathways, leading to improved management, preventative services, and outcomes.

To effectively deliver quality healthcare at the lowest possible cost, measuring the true cost of healthcare requires more rigorous methods of tracking costs. This includes integrated enterprise analytics views, which most hospitals, IDNs, ACOs and providers do not currently have.

Conclusion

As the industry shifts more risk to providers, they're left to build capabilities inherent to both payers and providers. There's much work to be done, including adding new infrastructure to support new payment models directly related to performance measures and outcomes. Many providers are now experiencing payment penalties, with their revenues decreasing between 1 to 3 percent annually.

A fee-for-service system is best designed for repair, but by rebuilding the infrastructure, processes and data analytics capabilities, we're a step closer to a fee-for-value system best suited to promote prevention and wellness – a first step in reversing healthcare's long downward economic spiral.

Globally, the demand for value-based care and alternative payments models is only going to accelerate as healthcare is transformed from a manually-operated sector to a digital cornerstone of society. The merging of digital and physical worlds is producing incredible volumes of patient data; specialized analysis requires unlocking value by breaking down traditional siloes. Deep improvements in financial and clinical decision support management will only be made possible by critical analysis of the growing volume of data generated by healthcare systems.

By refocusing from revenue optimization, industry leading providers are serving their populations better while taking in less revenue. To do this, they're putting in place the necessary resources to enable integrated clinical, operational, and financial analytics.

Finding and leveraging data can be a challenge, but the foundation to execute payment reform has been in place for some time. Advances in technology, platforms, and organizational design can help clinicians across the care spectrum benefit from data-driven decision making.

The path to *Tripe Aim* will not be smooth. Healthcare's transformation includes multiple markets converging, challenges are further exaggerated as value continues to be redefined by intense competition. Erasing decades of misaligned incentives will surely produce many healthcare losers and winners.

Today some of the best performing hospitals and provider systems only have a 2 percent profit margin, hence, a negative penalty adjustment of 2 to 3 percent on approximately 45 percent of total revenue has the ability to severely impact a healthcare provider's sustainability, possibly even the ability to keep their doors open. Advanced analytics capabilities can help offset some of the many challenges faced in healthcare currently.

Endnotes

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Glossary

Fee-For-service (FFS): A payment model where healthcare services are reimbursed individually based on the specific diagnostics, treatments and/ procedures provided to a patient during a healthcare visit by a caregiver. The physician/provider submits a claim which lists the codified procedures and associated charges for a FFS reimbursement to a third party payer. Fees paid to providers are usually based on the cost of providing the service.

Patient Protection and Affordable Care Act (PPACA): The Patient Protection and Affordable Care Act (PPACA), commonly called the Affordable Care Act (ACA) or “Obamacare”, is a United States federal statute enacted by President Barack Obama on March 24, 2010. It represents one of the most significant overhauls of our healthcare system intended to increase health insurance quality and affordability while expanding coverage to the uninsured.

Inpatient Prospective Payment System (IPPS): The specific prospective reimbursement method used by Medicare for short-term, acute-care hospitals. The IPPS uses a process by which each inpatient discharge is assigned to a diagnosis related group or DRG. Each DRG is associated with a payment weight that is multiplied by a standardized dollar amount that has been adjusted for differences in area labor costs.

Diagnosis-Related Group (DRG): A statistical system of classifying any inpatient stay into a “DRG product” by using diagnosis, length of stay, and therapy received for the purposes of payment. It is intended to define homogeneous units of hospital activity to which binding prices could be attached. The DRG classification system divides the possible diagnoses into more than 20 major body systems and 500 groups for the purpose of Medicare payment. DRGs were intended to standardize payment for healthcare “DRG products” regardless of actual costs incurred.

Base Operating DRG Amount: A component of the IPPS which includes a standardized payment amount for operational costs. The total DRG payment is comprised of both operating and capital costs that facilities are expected to incur in providing covered inpatient services. Capital payments cover cost for depreciation, interest, rent, property-related insurance, and taxes.

Hospital Readmission Reduction Program (HRR): In October 2012, CMS began reducing Medicare payments for hospitals reimbursed on the Inpatient Prospective Payment System which have excess readmissions effective for discharges beginning on October 1, 2012. The regulations that define this provision are in subpart I of 42 CFR part 412 (412.150 through 412.154).

Value Modifier (VM) or Physician Value-Based Modifier (PVBM): The Value Modifier Program measures the quality and cost of care provided to people with Medicare under the Medicare Physician Fee Schedule. The Value Modifier is an adjustment made on a per claim basis to Medicare payments for items and services under the Medicare PFS and applied to the Tax Identification Number (TIN) level for doctors billing under the TIN.

Hospital Acquired Conditions (HAC): An unintended condition that arises during an inpatient stay for a condition unrelated to the condition for which a patient was admitted. Hospitals at one point received additional DRG reimbursement for these unintended conditions which are a result of poor care quality. For discharges beginning on October 1, 2014, hospitals which rank in the worst performing quartile are penalized for HACs.

Agency for Healthcare Research and Quality (AHRQ): The agency works within the U.S. Department of Health and Human Services to produce evidence to make healthcare safer, higher quality, more accessible, equitable, and affordable as well as make sure the evidence is used and understood.

Medicare Shared Saving Program (MSSP): The MSSP is the payment program applicable to eligible providers, hospitals and suppliers that create a participating ACO by which to share risk and improve quality of care for Medicare fee-for-service beneficiaries. This is a key component of value-based purchasing payment and delivery reform, which was included in section 3022 of the Affordable Care Act.

Accountable Care Organization (ACO): An ACO is an organization of healthcare practitioners that agrees to be accountable for the quality, cost, and overall care of Medicare beneficiaries who are enrolled in traditional fee-for-service programs. The basic principle is that it is provider led, with payments linked to quality improvements and reduced costs with sophisticated performance measurements, and is able to demonstrate care improvement.

End Stage Renal Disease (ESRD): The End-Stage Renal Disease Prospective Payment System identifies, tests, and evaluates new ways to improve care for Medicare beneficiaries with End-Stage Renal Disease. The model builds on Accountable Care Organization experience for the Pioneer ACO Model, Next Generation AO Model and the Medicare Shared Savings Program to test Accountable Care Organizations for ESRD beneficiaries.

Ratio of Charges to Costs (RCC): A methodology used by hospitals to allocate costs. Hospital costs are allocated to a patient and the patients' overall profitability, based on cost. Each patient's bill contains charges which are then converted to cost using a RCC. The charge represents the amount that hospitals billed for services but does not reflect how much the services actually cost or the specific amounts that a hospital received in payment.

Relative Value Unit (RVU) Cost Accounting: A method of modeling the cost of resources required to carry out various patient care activities in a department. The RVUs then determine how costs are allocated amongst the various services provided to patients. RVUs originated as a measure of value used in the United States Medicare Reimbursement formula for physician services. The proportion of costs which comprise an RVU for Medicare are: 1) Physician Work (52%), 2) Practice Expense (44%), and 3) Malpractice Expense (4%).

Usual and Customary (UCR): The method of healthcare payment prior to RVUs. Medicare and other payers would pay for services using a usual, customary, and reasonable rate.

Activity Based Costing: A method of measuring the cost and performance of activities and cost objects. It assigns costs to activities based on the use of resources and assigns cost to products based on their use of activities, whereby an activity is a unit of work performed within an organization which consumes resources. A cost object is the reason for performing an activity. Cost objects include products, services, projects, contracts, and patients.

Value-Based Care: The methods and care delivery models by which physicians and care delivery institutions will need to operate in order to ensure they meet the criteria for costs, quality, efficiency, and effectiveness. It aims to advance the triple aim of providing better care for individuals, improving population health, and reducing the cost of healthcare.

Value-Based Payment: A form of reimbursement which incentivizes value-based care by tying payments for healthcare services to the overall quality of care provided.

Alternative Payment Models: A form of payment reform that incorporates quality and total cost of care into reimbursement. There appears to be no material difference between value-based payment and an alternative payment model except that they were introduced as new terms for Medicare Part B payment adjustments, based on quality and cost measurement.

Pay for Performance (P4P): Is also known as Value-Based Payment and is a payment model that offers financial incentives to physicians, hospitals, medical groups, and other healthcare providers for meeting certain performance measures. It links a portion of clinical and hospital revenue to certain performance criteria without risk or penalty.

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